Proeti

MATERIAL TESTING EQUIPMENT

CATALOGUE

7th EDITION

Where to find us?

We are 25 km from Madrid on the Algete M-106 Km 4 road.

Our headquarters have an area of 3,000 m², encompassing 5 buildings for different areas of the company, including: manufacturing, storage, packaging, offices, calibration laboratory, technical service, conference room and exhibition

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Proeti

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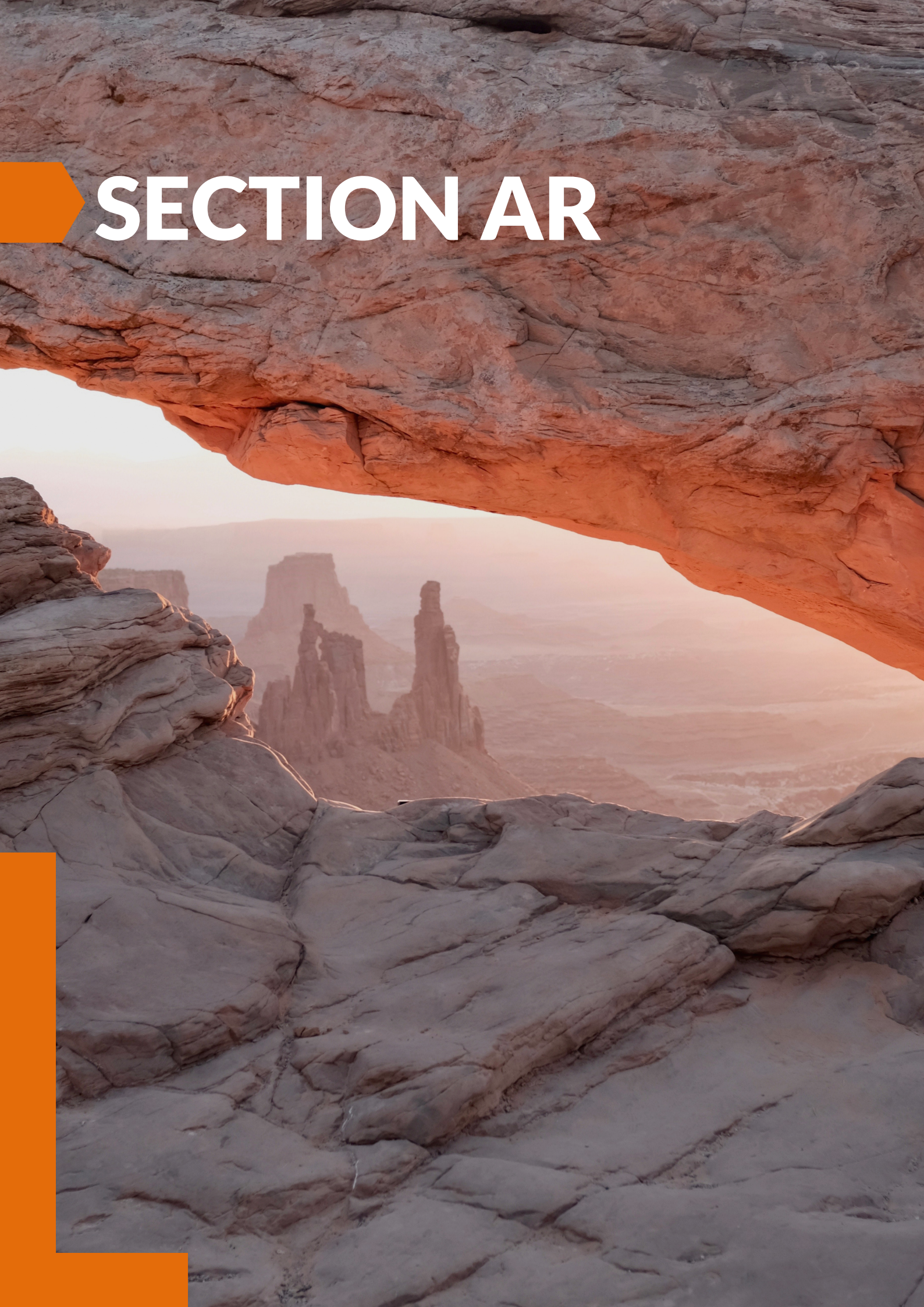

SECTION AR

AGGREGATES AND ROCKS

Mineral aggregates are used in all fields of the construction industry to produce bituminous mixtures, concrete, mortars to be used in structures, fill materials, railway ballast, etc.
For this reason we have given particular attention to all testing methods in accordance with international standards EN, ASTM, AASTHO, BS, NF, etc…

Proeti equipment can be used both in the construction industry and in the production of concrete, mortar, bituminous mixtures, bases for roads, airports, hydraulics in civil engineering works... and they will also allow you to measure the quality of the materials to determine its properties: mechanical, geometric, physical, chemical, thermal, corrosion, resistance and degradation.

LABORATORY OVENS

EN 932-5, 1097-5 | BS 1924:1
ASTM C127, C136, D558, D559, D560, D698, D1557, D1559

Designed for drying, baking, conditioning and moisture determination. Especially suitable when high temperature uniformity and precision inside the chamber are required.

The interior chamber, the grid shelves and the exterior front part are stainless steel made, while external walls are made of zinc coated steel.

Sturdy manufacture, double walled with 60 mm thick glass fibre for thermal insulation. Temperature from ambient to 200°C is controlled by a digital precision thermostat.

The oven is supplied with two grid shelves easily removable which can be positioned at various heights with pilot light and exhaust holes for fast cooling.

Power supply: 230 V | 50-60 Hz

AR003

CODE	CAPACIDAD	INSIDE DIMENSIONS	OUTSIDE DIMENSIONS	WATTAGE	WEIGHT	GRID SHELF
AR001	100 L	400x420x600 mm	700x515x910 mm	1250 W	45 Kg	AR001-01
AR003	220 L	600x610x600 mm	900x725x910 mm	2050 W	70 Kg	AR003-01
AR005	440 L	900x700x700 mm	1250x760x1000 mm	3700 W	95 Kg	AR005-01
AR007	750 L	900x640x1300 mm	1250x700x1600 mm	4950 W	140 Kg	AR007-01

STAINLESS STEEL PANS

Pans stainless steel made

MG551-05
MG551-02
MG551-01

CODE	DIMENSIONS
MG551-01	200x200 mm
MG551-02	200x400 mm
MG551-03	300x300 mm
MG551-04	400x400 mm
MG551-05	400x600 mm
MG551-06	600x600 mm
MG551-07	1000x1000 mm

MUFFLE FURNACES

Designed for high temperature heatings. Structure composed of in sheet-steel, frontal furnace in diecasted steel to avoid the aggretion of the acid smokes. The thermic insulation in ceramic fibre avoids the smallest heating leakage saving energy accordingly. Electronic regulation of the temperature is obtained through a digital thermostat.

MG702

CODE	VOLUME	DIMENSIONS	CONSUMPTION
MG702	7,6 L	540x510x490 mm	3,8 kW

TESTING SIEVES

EN 933-1, 933-2 | ISO 3310-1, 3310-2, 565
ASTM E 11 | BS410 | NF X11-504 | DIN 4187-1

We propose a complete range of full depth testing sieves with 200 mm, 8", 250 mm, 300 mm, 12", 315 mm and 450 mm dia., with woven wire cloth and perforated plate conforming to the different Standards.

All frames except the 450 mm dia., and wire cloth sieves are manufactured from stainless steel. Perforated plates are made from tinned steel. Sieves having the same nominal diameter are designed to nest one in each other.

Each sieve is supplied complete with certificate of conformity.

T1210

TABLE OF THE WOVEN WIRE MESH SIEVES

APERTURE mm	ASTM NUMBER	FRAME Ø 200 mm	FRAME Ø 8"	FRAME Ø 250 mm	FRAME Ø 300 mm	FRAME Ø 12"	FRAME Ø 315 mm	FRAME Ø 400 mm	FRAME Ø 450 mm
0,020		T1101	T1201	T1301	T1401	T1501	T1601	T1701	T1801
0,025		T1102	T1202	T1302	T1402	T1502	T1602	T1702	T1802
0,032		T1103	T1203	T1303	T1403	T1503	T1603	T1703	T1803
0,038	N° 400	T1104	T1204	T1304	T1404	T1504	T1604	T1704	T1804
0,040		T1105	T1205	T1305	T1405	T1505	T1605	T1705	T1805
0,045	N° 325	T1106	T1206	T1306	T1406	T1506	T1606	T1706	T1806
0,050		T1107	T1207	T1307	T1407	T1507	T1607	T1707	T1807
0,053	N° 270	T1108	T1208	T1308	T1408	T1508	T1608	T1708	T1808
0,056		T1109	T1209	T1309	T1409	T1509	T1609	T1709	T1809
0,063	N° 230	T1110	T1210	T1310	T1410	T1510	T1610	T1710	T1810
0,071		T1111	T1211	T1311	T1411	T1511	T1611	T1711	T1811
0,075	N° 200	T1112	T1212	T1312	T1412	T1512	T1612	T1712	T1812
0,080		T1113	T1213	T1313	T1413	T1513	T1613	T1713	T1813
0,090	N° 170	T1114	T1214	T1314	T1414	T1514	T1614	T1714	T1814
0,100		T1115	T1215	T1315	T1415	T1515	T1615	T1715	T1815
0,106	N° 140	T1116	T1216	T1316	T1416	T1516	T1616	T1716	T1816
0,112		T1117	T1217	T1317	T1417	T1517	T1617	T1717	T1817
0,125	N° 120	T1118	T1218	T1318	T1418	T1518	T1618	T1718	T1818
0,140		T1119	T1219	T1319	T1419	T1519	T1619	T1719	T1819
0,150	N° 100	T1120	T1220	T1320	T1420	T1520	T1620	T1720	T1820
0,160		T1121	T1221	T1321	T1421	T1521	T1621	T1721	T1821
0,180	N° 90	T1122	T1222	T1322	T1422	T1522	T1622	T1722	T1822
0,200		T1123	T1223	T1323	T1423	T1523	T1623	T1723	T1823
0,212	N° 70	T1124	T1224	T1324	T1424	T1524	T1624	T1724	T1824
0,224		T1125	T1225	T1325	T1425	T1525	T1625	T1725	T1825
0,250	N° 60	T1126	T1226	T1326	T1426	T1526	T1626	T1726	T1826
0,280		T1127	T1227	T1327	T1427	T1527	T1627	T1727	T1827
0,300	N° 50	T1128	T1228	T1328	T1428	T1528	T1628	T1728	T1828

APERTURE mm	ASTM NUMBER	FRAME Ø 200 mm	FRAME Ø 8"	FRAME Ø 250 mm	FRAME Ø 300 mm	FRAME Ø 12"	FRAME Ø 315 mm	FRAME Ø 400 mm	FRAME Ø 450 mm
0,315		T1129	T1229	T1329	T1429	T1529	T1629	T1729	T1829
0,355	N° 45	T1130	T1230	T1330	T1430	T1530	T1630	T1730	T1830
0,400		T1131	T1231	T1331	T1431	T1531	T1631	T1731	T1831
0,425	N° 40	T1132	T1232	T1332	T1432	T1532	T1632	T1732	T1832
0,450		T1133	T1233	T1333	T1433	T1533	T1633	T1733	T1833
0,500	N° 35	T1134	T1234	T1334	T1434	T1534	T1634	T1734	T1834
0,560		T1135	T1235	T1335	T1435	T1535	T1635	T1735	T1835
0,600	N° 30	T1136	T1236	T1336	T1436	T1536	T1636	T1736	T1836
0,630		T1137	T1237	T1337	T1437	T1537	T1637	T1737	T1837
0,710	N° 25	T1138	T1238	T1338	T1438	T1538	T1638	T1738	T1838
0,800		T1139	T1239	T1339	T1439	T1539	T1639	T1739	T1839
0,850	N° 20	T1140	T1240	T1340	T1440	T1540	T1640	T1740	T1840
0,900		T1141	T1241	T1341	T1441	T1541	T1641	T1741	T1841
1,000	N° 18	T1142	T1242	T1342	T1442	T1542	T1642	T1742	T1842
1,120		T1143	T1243	T1343	T1443	T1543	T1643	T1743	T1843
1,180	N° 16	T1144	T1244	T1344	T1444	T1544	T1644	T1744	T1844
1,250		T1145	T1245	T1345	T1445	T1545	T1645	T1745	T1845
1,400	N° 14	T1146	T1246	T1346	T1446	T1546	T1646	T1746	T1846
1,600		T1147	T1247	T1347	T1447	T1547	T1647	T1747	T1847
1,700	N° 12	T1148	T1248	T1348	T1448	T1548	T1648	T1748	T1848
1,800		T1149	T1249	T1349	T1449	T1549	T1649	T1749	T1849
2,000	N° 10	T1150	T1250	T1350	T1450	T1550	T1650	T1750	T1850
2,240		T1151	T1251	T1351	T1451	T1551	T1651	T1751	T1851
2,360	N° 8	T1152	T1252	T1352	T1452	T1552	T1652	T1752	T1852
2,500		T1153	T1253	T1353	T1453	T1553	T1653	T1753	T1853
2,800	N° 7	T1154	T1254	T1354	T1454	T1554	T1654	T1754	T1854
3,150		T1155	T1255	T1355	T1455	T1555	T1655	T1755	T1855
3,350	N° 6	T1156	T1256	T1356	T1456	T1556	T1656	T1756	T1856
3,550		T1157	T1257	T1357	T1457	T1557	T1657	T1757	T1857
4,000	N° 5	T1158	T1258	T1358	T1458	T1558	T1658	T1758	T1858
4,750	N° 4	T1159	T1259	T1359	T1459	T1559	T1659	T1759	T1859
5,000		T1160	T1260	T1360	T1460	T1560	T1660	T1760	T1860
5,600	N° 3,5	T1161	T1261	T1361	T1461	T1561	T1661	T1761	T1861
6,300	1/4"	T1162	T1262	T1362	T1462	T1562	T1662	T1762	T1862
6,700	0,265"	T1163	T1263	T1363	T1463	T1563	T1663	T1763	T1863
7,100		T1164	T1264	T1364	T1464	T1564	T1664	T1764	T1864
8,000	5/16"	T1165	T1265	T1365	T1465	T1565	T1665	T1765	T1865
9,500	3/8"	T1166	T1266	T1366	T1466	T1566	T1666	T1766	T1866
10,000		T1167	T1267	T1367	T1467	T1567	T1667	T1767	T1867
11,200	7/16"	T1168	T1268	T1368	T1468	T1568	T1668	T1768	T1868
12,500	1/2"	T1169	T1269	T1369	T1469	T1569	T1669	T1769	T1869
13,200	0,530"	T1170	T1270	T1370	T1470	T1570	T1670	T1770	T1870

APERTURE mm	ASTM NUMBER	FRAME Ø 200 mm	FRAME Ø 8"	FRAME Ø 250 mm	FRAME Ø 300 mm	FRAME Ø 12"	FRAME Ø 315 mm	FRAME Ø 400 mm	FRAME Ø 450 mm
14,000		T1171	T1271	T1371	T1471	T1571	T1671	T1771	T1871
16,000	5/8"	T1172	T1272	T1372	T1472	T1572	T1672	T1772	T1872
18,000		T1173	T1273	T1373	T1473	T1573	T1673	T1773	T1873
19,000	3/4"	T1174	T1274	T1374	T1474	T1574	T1674	T1774	T1874
20,000	7/8"	T1175	T1275	T1375	T1475	T1575	T1675	T1775	T1875
22,400		T1176	T1276	T1376	T1476	T1576	T1676	T1776	T1876
25,000	1"	T1177	T1277	T1377	T1477	T1577	T1677	T1777	T1877
25,400		T1178	T1278	T1378	T1478	T1578	T1678	T1778	T1878
26,500	1,06"	T1179	T1279	T1379	T1479	T1579	T1679	T1779	T1879
28,000		T1180	T1280	T1380	T1480	T1580	T1680	T1780	T1880
31,500	1 ¼"	T1181	T1281	T1381	T1481	T1581	T1681	T1781	T1881
37,500	1 ½"	T1182	T1282	T1382	T1482	T1582	T1682	T1782	T1882
40,000		T1183	T1283	T1383	T1483	T1583	T1683	T1783	T1883
45,000	1 ¾"	T1184	T1284	T1384	T1484	T1584	T1684	T1784	T1884
50,000	2"	T1185	T1285	T1385	T1485	T1585	T1685	T1785	T1885
53,000	2,12"	T1186	T1286	T1386	T1486	T1586	T1686	T1786	T1886
56,000		T1187	T1287	T1387	T1487	T1587	T1687	T1787	T1887
63,000	2½"	T1188	T1288	T1388	T1488	T1588	T1688	T1788	T1888
71,000		T1189	T1289	T1389	T1489	T1589	T1689	T1789	T1889
75,000	3"	T1190	T1290	T1390	T1490	T1590	T1690	T1790	T1890
80,000		T1191	T1291	T1391	T1491	T1591	T1691	T1791	T1891
90,000	3½"	T1192	T1292	T1392	T1492	T1592	T1692	T1792	T1892
100,00	4"	T1193	T1293	T1393	T1493	T1593	T1693	T1793	T1893
106,00	4,24"	T1194	T1294	T1394	T1494	T1594	T1694	T1794	T1894
112,00		T1195	T1295	T1395	T1495	T1595	T1695	T1795	T1895
125,00	5"	T1196	T1296	T1396	T1496	T1596	T1696	T1796	T1896
Receiver		T1198	T1298	T1398	T1498	T1598	T1698	T1798	T1898
Cover		T1199	T1299	T1399	T1499	T1599	T1699	T1799	T1899

T1210+T1254+T1242

T2201+T2215+T2226

TABLE OF PERFORATED SHEET METAL SIEVES

APERTURE mm	FRAME Ø 200 mm	FRAME Ø 8"	FRAME Ø 250 mm	FRAME Ø 300 mm	FRAME Ø 12"	FRAME Ø 315 mm	FRAME Ø 400 mm	FRAME Ø 450 mm
4,00	T2101	T2201	T2301	T2401	T2501	T2601	T2701	T2801
4,75	T2102	T2202	T2302	T2402	T2502	T2602	T2702	T2802
5,00	T2103	T2203	T2303	T2403	T2503	T2603	T2703	T2803
5,60	T2104	T2204	T2304	T2404	T2504	T2604	T2704	T2804
6,30	T2105	T2205	T2305	T2405	T2505	T2605	T2705	T2805
6,70	T2106	T2206	T2306	T2406	T2506	T2606	T2706	T2806
7,10	T2107	T2207	T2307	T2407	T2507	T2607	T2707	T2807
8,00	T2108	T2208	T2308	T2408	T2508	T2608	T2708	T2808
9,50	T2109	T2209	T2309	T2409	T2509	T2609	T2709	T2809
10,00	T2110	T2210	T2310	T2410	T2510	T2610	T2710	T2810
11,20	T2111	T2211	T2311	T2411	T2511	T2611	T2711	T2811
12,50	T2112	T2212	T2312	T2412	T2512	T2612	T2712	T2812
13,20	T2113	T2213	T2313	T2413	T2513	T2613	T2713	T2813
14,00	T2114	T2214	T2314	T2414	T2514	T2614	T2714	T2814
16,00	T2115	T2215	T2315	T2415	T2515	T2615	T2715	T2815
18,00	T2116	T2216	T2316	T2416	T2516	T2616	T2716	T2816
19,00	T2117	T2217	T2317	T2417	T2517	T2617	T2717	T2817
20,00	T2118	T2218	T2318	T2418	T2518	T2618	T2718	T2818
22,40	T2119	T2219	T2319	T2419	T2519	T2619	T2719	T2819
25,00	T2120	T2220	T2320	T2420	T2520	T2620	T2720	T2820
26,50	T2122	T2222	T2322	T2422	T2522	T2622	T2722	T2822
28,00	T2123	T2223	T2323	T2423	T2523	T2623	T2723	T2823
31,50	T2124	T2224	T2324	T2424	T2524	T2624	T2724	T2824
37,50	T2125	T2225	T2325	T2425	T2525	T2625	T2725	T2825
40,00	T2126	T2226	T2326	T2426	T2526	T2626	T2726	T2826
45,00	T2127	T2227	T2327	T2427	T2527	T2627	T2727	T2827
50,00	T2128	T2228	T2328	T2428	T2528	T2628	T2728	T2828
53,00	T2129	T2229	T2329	T2429	T2529	T2629	T2729	T2829
56,00	T2130	T2230	T2330	T2430	T2530	T2630	T2730	T2830
63,00	T2131	T2231	T2331	T2431	T2531	T2631	T2731	T2831
71,00	T2132	T2232	T2332	T2432	T2532	T2632	T2732	T2832
75,00	T2133	T2233	T2333	T2433	T2533	T2633	T2733	T2833
80,00	T2134	T2234	T2334	T2434	T2534	T2634	T2734	T2834
90,00	T2135	T2235	T2335	T2435	T2535	T2635	T2735	T2835
100,00	T2136	T2236	T2336	T2436	T2536	T2636	T2736	T2836
106,00	T2137	T2237	T2337	T2437	T2537	T2637	T2737	T2837
112,00	T2138	T2238	T2338	T2438	T2538	T2638	T2738	T2838
125,00	T2139	T2239	T2339	T2439	T2539	T2639	T2739	T2839
Receiver	T1198	T1298	T1398	T1498	T1598	T1698	T1798	T1898
Cover	T1199	T1299	T1399	T1499	T1599	T1699	T1799	T1899

WET SIEVING PAN+LID STAINLESS STEEL

The water enters through the spray nozzle mounted on top of the lid and spill out of the pan with the finest granulated material.

Supplied complete with two watertight seals.

AR023

CODE	DESCRIPTION
AR021	Pan + Lid Ø200 mm
AR023	Pan + Lid Ø8"
AR025	Pan + Lid Ø300 mm
AR027	Pan + Lid Ø400 mm

WET WASHING SIEVES

ASTM E 11

Used for wet testing of fine granuled materials.
Frame and woven wire cloth are stainless steel made.
Frame dimensions: Ø200 mm by 100 or 200 mm height.

They are available in two heights 100 or 200 mm, with two mesh sizes 0.074 or 0.063 mm.

AR033

AR037

CODE	CLOTH OPENING	HEIGHT
AR031	0,075 mm	200 mm
AR033	0,063 mm	200 mm
AR035	0,075 mm	100 mm
AR037	0,063 mm	100 mm

ULTRASONIC CLEANSING APPARATUS

Double bodied tank, made entirely of stainless steel. Emptying drain, anti-parasite filter, adjustable timer and heating.

The principal of ultrasonic cleaning consists of the use of high frequency sound waves (40kHz), produced by a generator through a transducer, which propagates them mechanically inside the tank, this produces a cavitation effect which leads to the formation of millions of low pressure microscopical bubbles which carry out molecular cleaning, eliminating impurities, polluting agents and dirt from the parts or material which must be cleaned.

CODE	DIMENSIONS	VOLUME	WEIGTH
AR041	Ø280x300 mm	6,5 L	8 Kg
AR043	300x360x300 mm	9 L	13 Kg

ACCESSORIES

AR040-01
Detergent 1 L Bio-degradable, phosphate free
AR040-02
Detergent 4 L Bio-degradable, phosphate free

AR043

AR041

SIEVE BRUSHES

AR010-01
Soft hair Brush, Ø3 mm BS 812
AR010-02
Bristle Brush, soft hair, Ø35 mm
AR010-03
Double ended, brass and nylon bristle
AR010-04
Hard nylon sieve Brush, flat 60 mm
AR010-05
Soft hair brush
AR010-06
Hard sieve Brush

AR010-03
AR010-04
AR010-02
AR010-05
AR010-01
AR010-06

AR050
DIGITAL AIR JET SIEVE
EN 933-10

The air sweep sieve specially designed for dry grain testing, for a fine particle size, from 5 µm (0,005 to 4 mm).

It offers a great speed and sieving efficiency thanks to the fluidization of the product, obtained by means of a current of air that drags the particles making them pass through the sieve.

This effect is achieved with an industrial vacuum cleaner that keeps the depression constant. It has a digital cover with control of sieving time and vacuum meter, which incorporates a depression regulation system.

The sieving machine includes a methacrylate lid that allows to see the behavior of the product and a nylon mace to remove any product remains that may have remained in the lid due to static electricity.

Includes air Jet sieve shaker, connecting cable, methacrylate lid, nylon hammer and CE declaration of conformity.

AR050

Power supply: 220-240 V | 50-60 Hz | 19 W
Maximum Depression : 20 kPa
Timer: de 1 a 99 min
Number of Sieves: 1 tamiz
Diameter of Sieve: 200 mm
Weight: 20 Kg

ACCESSORIES

AR050-01
Aspirator device
Power supply: 1200 W

AR050-01

AR050-02
Recovery cyclone
It is a system that is used for the recovery of fines.

AR050-02

SIEVES FOR DIGITAL AIR JET SIEVE

CODE	APERTURE(µ)	CODE	APERTURE(µ)	CODE	APERTURE(µ)	CODE	APERTURE(µ)
AR050-11	5	AR050-28	65	AR050-45	250	AR050-62	1120
AR050-12	10	AR050-29	70	AR050-46	280	AR050-63	1180
AR050-13	15	AR050-30	71	AR050-47	300	AR050-64	1250
AR050-14	20	AR050-31	75	AR050-48	315	AR050-65	1400
AR050-15	25	AR050-32	80	AR050-49	355	AR050-66	1600
AR050-16	28	AR050-33	90	AR050-50	400	AR050-67	1700
AR050-17	30	AR050-34	100	AR050-51	425	AR050-68	1800
AR050-18	37	AR050-35	106	AR050-52	450	AR050-69	2000
AR050-19	41	AR050-36	112	AR050-53	500	AR050-70	2240
AR050-20	45	AR050-37	125	AR050-54	460	AR050-71	2360
AR050-21	48	AR050-38	140	AR050-55	600	AR050-72	2500
AR050-22	50	AR050-39	150	AR050-56	630	AR050-73	2800
AR050-23	53	AR050-40	160	AR050-57	710	AR050-74	3150
AR050-24	55	AR050-41	180	AR050-58	800	AR050-75	3350
AR050-25	58	AR050-42	200	AR050-59	850	AR050-76	3550
AR050-26	60	AR050-43	212	AR050-60	900	AR050-77	4000
AR050-27	63	AR050-44	224	AR050-61	1000		

1 µ = 0,001 mm

ELECTROMAGNETIC SIEVE SHAKERS

EN 932-5 | ISO 3310-1

These sieve shakers are activated by electromagnetic impulses and thanks to the triple vibrating action (vertical, lateral and rotational) they are recommended to perform sieving tests where high precision and performance are important, and where continual and intense uses are required.

Therefore they are suggested for accurate sieving tests, on fine materials too.

These electromagnetic shakers are of simple and sturdy construction, they can hold up to 10 sieves and are also suitable for wet sieving tests.

Power supply:
230 V | 50 Hz | 450-750 W

ACCESSORY

AR051-01
Noise reduction cabinet
Lined internally with sound-proofing material for noise reduction in compliance with CE Directive.

AR051

AR057

CODE	DIMENSIONS SIEVES (mm y ")	DIMENSIONS	WEIGHT
AR051	200 y 8"	320x380x850 mm	40 Kg
AR053	200 - 8" - 250 - 300 - 12" - 315	380x440x1080 mm	65 Kg
AR055	200 - 8" - 250 - 300 - 12" - 315 - 350 - 400	430x460x1150 mm	80 Kg
AR057	200 - 8" - 250 - 300 - 12" - 315 - 400 - 450 - 18"	480x500x1150 mm	85 Kg

AR051+AR051-01

AR059
SIEVE SHAKER
MOTOR OPERATED

EN 932-5 | ISO 3310-1

This simple and low cost sieve shaker is activated by an electric motor and can hold up to 8 Sieves Ø200 mm or 7 Sieves Ø300 mm plus pan and lid.

It accepts sieves having diameter Ø200-250-300-315 mm and 8"...12".

It is also possible to perform wet sieving tests.

Supplied with timer 0 - 60 minutes.

Power supply:
230 V | 50 Hz | 110 W
Dimensions:
350x400x950 mm
Weigth:
24 Kg

AR059

AR060
HIGH CAPACITY SCREEN SHAKER
EN 932-5 | ISO 3310-1

The screen shaker has a capacity of about 30 litres of sample and is ideal for sizing large quantities of crushed stones, sand, gravel, slag, coal, coke, ores, pellets and similar materials.

Able to perform between two and six separations simultaneously, the vibrating unit consists of interlocking sections, which support and separate the screen trays. An equal clearance between trays allows each tray to be removed independently.

The unit includes one dustpan. It can hold six screen trays, which are ordered separately, and one dustpan.

Power supply: 230 V | 50 Hz | 750 W
Dimensions: 585x790x850 mm
Screen trays dimensions: 457x660x75 mm
Weight: 180 Kg

AR060

ACCESSORIES

AR060-01
Upper and frontal safety doors in compliance with CE Directive. If the door is opened while the shaker is working, it automatically stops. The doors also protect from dust.


AR060+AR060-01

AR060-02
Soundproofed safety cabinet in compliance with CE Directive Steel made with microswitch, lined with sound-proofing material for noise reduction. If the door is opened while the shaker is working, it automatically stops.
The cabinet also protects from dust.

Dimensions:
920x1000x1400 mm

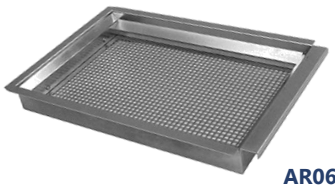

AR060+AR060-02

SCREEN TRAYS WITH PERFORATED GALVANIZED PLATE
EN 933-2 | ISO 3310-2

APERTURE	CODE	APERTURE	CODE
4,00 mm	AR061-11	22,40 mm	AR061-30
4,75 mm	AR061-12	25,00 mm	AR061-31
5,00 mm	AR061-13	26,50 mm	AR061-32
5,60 mm	AR061-14	28,00 mm	AR061-33
6,30 mm	AR061-15	31,50 mm	AR061-34
6,70 mm	AR061-16	37,50 mm	AR061-35
7,10 mm	AR061-17	40,00 mm	AR061-36
8,00 mm	AR061-18	45,00 mm	AR061-37
9,00 mm	AR061-19	50,00 mm	AR061-38
9,50 mm	AR061-20	53,00 mm	AR061-39
10,00 mm	AR061-21	56,00 mm	AR061-40
11,20 mm	AR061-22	63,00 mm	AR061-41
12,50 mm	AR061-23	75,00 mm	AR061-42
13,20 mm	AR061-24	80,00 mm	AR061-43
14,00 mm	AR061-25	90,00 mm	AR061-44
16,00 mm	AR061-26	100,00 mm	AR061-45
18,00 mm	AR061-27	106,00 mm	AR061-46
19,00 mm	AR061-28	125,00 mm	AR061-47
20,00 mm	AR061-29		

SCREEN TRAYS FOR SIEVE SHAKER
STAINLESS STEEL WOVEN WIRE MESH

EN 933-2 | ASTM E11 | ISO 3310-1



AR060-45

AR061-39

APERTURE	Nº ASTM	CODE	APERTURE	Nº ASTM	CODE	APERTURE	Nº ASTM	CODE
0,038 mm	400	AR060-11	0,710 mm	25	AR060-36	11,20 mm	7/16”	AR060-60
0,045 mm	325	AR060-12	0,800 mm	-	AR060-37	12,50 mm	1/2”	AR060-61
0,053 mm	270	AR060-13	0,850 mm	20	AR060-38	13,20 mm	0,530”	AR060-62
0,063 mm	230	AR060-14	1,00 mm	18	AR060-39	14,00 mm	-	AR060-63
0,075 mm	200	AR060-15	1,18 mm	16	AR060-40	19,00 mm	3/4”	AR060-64
0,080 mm	-	AR060-16	1,25 mm	-	AR060-41	20,00 mm	-	AR060-65
0,090 mm	170	AR060-17	1,40 mm	14	AR060-42	22,40 mm	7/8”	AR060-66
0,100 mm	-	AR060-18	1,60 mm	-	AR060-43	25,00 mm	-	AR060-67
0,106 mm	140	AR060-19	1,70 mm	12	AR060-44	25,40 mm	1”	AR060-68
0,125 mm	120	AR060-20	2,00 mm	10	AR060-45	26,50 mm	1,06”	AR060-69
0,150 mm	100	AR060-21	2,36 mm	8	AR060-46	28,00 mm	-	AR060-70
0,160 mm	-	AR060-22	2,50 mm	-	AR060-47	31,50 mm	1¼”	AR060-71
0,180 mm	80	AR060-23	2,80 mm	7	AR060-48	37,50 mm	1½”	AR060-72
0,200 mm	-	AR060-24	3,15 mm	-	AR060-49	40,00 mm	-	AR060-73
0,212 mm	70	AR060-25	3,35 mm	6	AR060-50	45,00 mm	1¾”	AR060-74
0,250 mm	60	AR060-26	4,00 mm	5	AR060-51	50,00 mm	2”	AR060-75
0,300 mm	50	AR060-27	4,75 mm	4	AR060-52	53,00 mm	2,12”	AR060-76
0,315 mm	-	AR060-28	5,00 mm	-	AR060-53	56,00 mm	-	AR060-77
0,320 mm	-	AR060-29	5,60 mm	3,5	AR060-54	63,00 mm	2½”	AR060-78
0,355 mm	45	AR060-30	6,30 mm	1/4”	AR060-55	75,00 mm	3”	AR060-79
0,400 mm	-	AR060-31	6,70 mm	0,265”	AR060-56	80,00 mm	-	AR060-80
0,425 mm	40	AR060-32	7,10 mm	-	AR060-57	90,00 mm	3½”	AR060-81
0,500 mm	35	AR060-33	8,00 mm	5/16”	AR060-58	100,00 mm	4”	AR060-82
0,600 mm	30	AR060-34	9,50 mm	3/8”	AR060-59	106,00 mm	4,24”	AR060-83
0,630 mm	-	AR060-35	10,00 mm	-	AR060-60	125,00 mm	5”	AR060-84

AR065
BAR GRID SIEVES

EN 933-3 | NF P18-561 | NLT 354

Complete set of 14 bar sieves from 2,5 to 50 mm slot width. The frame is anodized aluminium made and the grids are stainless steel rod bars having diameter from 5 to 15 mm according to the slot widths.

Sieve sizes, slot width tolerances and rod bars diameter are checked one by one, and meet EN 933-3 Standard.

Each sieve can be ordered separately and is supplied with an identification label indicating the serial number.

Sieve dimensions: 275x275x475 mm
Sieve Weight: 2 Kg

ACCESSORY

AR065-40
Kit to fix bar sieves on top of each other

CODE	APERTURE	CODE	APERTURE
AR065-01	2,50 mm	AR065-09	16,00 mm
AR065-02	3,15 mm	AR065-10	20,00 mm
AR065-03	4,00 mm	AR065-11	25,00 mm
AR065-04	5,00 mm	AR065-12	31,50 mm
AR065-05	6,30 mm	AR065-13	40,00 mm
AR065-06	8,00 mm	AR065-14	50,00 mm
AR065-07	10,00 mm	AR065-20	Cover
AR065-08	12,50 mm	AR065-30	Receiver

AR065-11 AR065-05 AR065-02 AR065-13

AR070
LARGE CAPACITY SAMPLE SPLITTER

EN 933-3 | ASTM C136 | NF P18-553
AASHTO T27,T87 | BS 812:1,1377:2,1924:1

This large sample splitter is designed for reducing large quantities of sample to a manageable size.

Suitable for any material from sand sizes up to Ø108 mm. Each chute bar is 12 mm wide to get openings of 12 - 24 - 36 - 48 - 60 - 72 - 84 - 96 - 108 mm.

Very sturdily constructed, it is totally galvanized for rust protection.

Complete with two collecting pans.

Clam shell hopper: 30 litres
Weight: 55 Kg

AR070

ACCESSORY

AR070-01
Kit of 4 wheels with brake

SAMPLE SPLITTERS

EN 932-1, 932-2 | ASTM C136, C702 | AASHTO T27

Used for splitting materials such as aggregates, sand, gravel and similar into two representative portions.

Painted steel made, they are supplied with two collecting pans and scoop.

AR075

AR081
GAUGE

EN 933-4

To determine the shape coeffi cient of the aggregate. Made of galvanised sheet metal with modifi ed notches.

Weight: 500g

AR081

AR083
FLAKINESS | THICKNESS GAUGE

BS 812:105.1

Suitable to verify if aggregate is flaky; if its thickness is less than 0,6 of its nominal size.
Constructed of heavy gauge stainless steel sheet.

Weight: 600g

AR083

AR085
LENGTH GAUGE

BS 812:105.1

Ideal to determine if aggregate is elongated; if length is more than 1.8 of nominal size. Mounted on a hardwood base.

Weight: 1 Kg

AR085

AR087
SHAPE GAUGE - SHAPE INDEX

EN 933-4, 933-5, 933-7 | DIN 4226 | CNR N° 95 | NLT 354

For measuring the length/thickness ratio of individual particles.

Weight: 500g

AR087

Table of sample splitters:

CODE	SLOTS	WIDTH		WEIGHT
AR071	8	3 "	76,20 mm	16 Kg
AR072	8	2½ "	63,50 mm	15 Kg
AR073	10	2 "	50,80 mm	13 Kg
AR074	12	1½ "	38,10 mm	10 Kg
AR075	14	1 "	25,40 mm	6 Kg
AR076	14	3/4 "	19,05 mm	5 Kg
AR077	14	1/2 "	12,70 mm	3,5 Kg
AR078	14	1/4 "	9,39 mm	3 Kg
AR079	12	3/8 "	6,35 mm	1,5 Kg

AR089
PROPORTIONAL CALIPER
ASTM D4791

Used either for rapid determination of percentages of flat and elongated particles in coarse aggregate fractions of 3/8" (9.5 mm) or larger.

Consisting of 8"x16" (203,2x406,4 mm) base plate with rubber feets, two fixed posts and a 12" (305 mm) pivoting arm, allowing ratios of 1:2, 1:3, 1:4, 1:5 to be obtained.

Weight:
3 Kg

AR089

AR091
EFFLUX INDEX APPARATUS
EN 933-6 | ASTM C1252 | AASHTO T 304 | CNR 113

Used to obtain information about the shape and angularity of grains in the 0,063-4 mm fraction of aggregates. The efflux index of an aggregate is the required time in seconds of a known volume of aggregates to flow from a known opening.

The unit is basically formed by:
-Aluminium body, Ø90 mm by 125 mm height
-Aluminium feed hopper Ø100 mm by 170 mm height
-Control shutter
-Polycarbonate funnel having 85 mm height
-60° conical part, which end has Ø12 mm
-Base support
-Valve
-Decanter

Dimensions:
200x240x600 mm
Weight:
8 Kg

AR091

AR093
VOID CONTENT OF FINE AGGREGATE
ASTM C1252 | AASHTO TP33

Used to determine the uncompacted void content of a fine aggregate sample.

Indicates the angularity, spherically, and workability of fine aggregate in a mixture.

Dimensions:
205x205x690 mm
Weight:
2 Kg

AR093

BA027
BOTTLE ROLLING MACHINE
BS 812

To rotate one up to three bottles or jars simultaneously about their longitudinal axis with rotation speed, adjustable from 0 up to 85 r.p.m. Supplied complete with timer 0-99 hours.

Power supply:
230 V | 50-60 Hz
Dimensions:
385x295x160 mm
Weight:
10 kg

BA027

AR095
ANDREASEN PIPETTE WITH STAND

25 ml capacity, glass made, used for an accurate and precise extraction of suspension material for analysis.

The pipette stand is used to precisely raise or lower the Andreasen pipette to its required level without disturbing the suspension.

Weight:
6 Kg

AR095

SU151
SAND EQUIVALENT TEST SET
EN 933-8 | NF XP18-598

SU150-01
Measuring cylinder engraved at 100 - 380 mm (4 pieces)
SU150-03
Rubber stopper for cylinder (2 pieces)
SU150-04
Graduated rule 500 mm, stainless steel
SU150-05
Metallis funnel, conforming to EN and NF Specifications
SU150-07
Measuring can 200 ml capacity
MG525-01
Plastic bottle 5 litres capacity
SU150-09
Irrigator tube with stopcock and syphon assembly EN
SU150-11
Weighted foot assembly for sand level EN
SU150-15
Concentrated stock solution, 1000 ml

Weight: 5 Kg

SU151

SU155
SAND EQUIVALENT TEST SET
ASTM D2419 | AASHTO T176

The set is identical to model SU151 except for:
SU150-02
Measuring cylinder (4 pieces), engraved at 100 and 380 mm, with transparent adhesive label, graduated in mm and inch.
SU150-06
Funnel, wide mouth
SU150-08
Mesuring can 85 ml capacity
SU150-10
Irrigator tube with stopcock and syphon assembly ASTM
SU150-12
Weighted foot assembly for sand level ASTM

Weight: 5 Kg

ACCESSORY
SU150-18
Carrying case except for the bottle

SU155

AR097
BLUE METHYLENE TEST SET
EN 933-9 | NF P94-068

Utilized to determine the clay content in the fine portions of the aggregates. The set comprises:

AR097-01
Electric stirrer from 400 to 700 rpm with Ø70 mm propeller
AR097-02
Support base for stirrer
AR097-03
Burette 50 x 0,1 ml with stopcock
AR097-04
Support base for burette
AR097-05
Pan 200x150x80 mm
AR097-06
Filter paper Ø90 mm (pack of 100)
AR097-07
Glass rod Ø8x300 mm
AR097-08
2000 ml capacity plastic beaker
AR097-09
Methylene blue 100 g
AR097-10
Kaolinite 500 g

Weight: 10 Kg

AR097

AR097-20

ACCESSORY
AR097-20
Automatic dispenser 0-10x0,1 ml

MG380
SPECIFIC GRAVITY FRAME
EN 1097-6 | EN 12390-7 | BS 812 | BS 1881:14

This apparatus is used, together with a suitable electronic balance, for determining the specific gravity of aggregates.

A purpose built robust frame supports the electronic balance, while the lower part of the frame incorporates a moving platform which holds the water container, allowing test specimens to be weighed in both air and water.

The balance is not included and should be selected according to the weighing range required. Any type of electronic balance fitted with an under-bench weighing facility can be used.

Dimensions: 510x510x1150 mm
Weight: 50 Kg

ACCESSORIES
MG381-04
Density basket Ø200x200 mm with mesh 3,35 mm
MG220-09
Electronic top loading balance 16 Kg x 0,1 g

MG380-04

MG380

SPECIFIC GRAVITY BOTTLE
EN 1097-7 | NF P18-558 | BS 812

MG375-03
Gay Lussac Pyknometer 50 ml
MG375-04
Gay Lussac Pyknometer 100 ml
MG375-05
Gay Lussac Pyknometer 250 ml

MG375-02 MG375-03

FILLER RELATIVE DENSITY TEST
MG371-02
Pycnometer 500 ml with stopper, capillary tube and funnel
MG371-03
Pycnometer 1000 ml with stopper, capillary tube and funnel

VOLUME DENSITY AND VOIDS OF AGGREGATES
MG373-01
Pycnometer 500 ml with capillary tube stopper
MG373-02
Pycnometer 1000 ml with capillary tube stopper
MG373-03
Pycnometer 2000 ml with capillary tube stopper

MG373-02

RELATIVE DENSITY AND WATER ABSORPTION OF AGGREGATES MAX.10 MM SIZE

AR101
Pyknometer with cone
BS 812:2, 1377:2 | ASTM D 854 | AASHTO T100 | EN 1097-6
Glass made with aluminium cone and rubber seal

AR103
Sand absorption cone and tamper
Used in determining the specific gravity and absorption of fine aggregates.

AR103 AR101

AR105
PLUNGER FOR THE GRADUATED CYLINDER
EN 933-11

Classification test for the constituents of coarse recycled aggregate.

The apparatus is composed by:
-Graduated glass cylinder 2000 ml
-Steel plunger 500 g

AR105

AR107
VOLUMETER FOR AGGREGATES
BS 812

Used to measure coarse aggregate density through water displacement method. Formed by a cylindric metal container Ø150x350 mm fitted with a siphon tube at 250 mm from bottom.

Weight: 3 Kg

AR107

ACCESSORY
MG411-05
Graduated glass cylinder 250 ml

DETERMINATION OF LOOSE BULK DENSITY AND VOIDS
EN 1097-3 | ASTM C29 | ISO 6872 | BS 812
CNR N° 62,63,64

Used to determine the loose bulk density and voids of aggregates. Painted steel construction with handles. The top rim is smooth and plane and parallel to the bottom in accordance with the standards.

CODE	MEASURE
HR250	1 L
HR253	5 L
HR254	10 L
HR257	20 L

HR257 HR253

AR111
SCRATCH HARDNESS APPARATUS
ASTM C235

This apparatus is used in the field to determine the quantity of soft particles in coarse aggregate.

The apparatus consists of a metal sliding rod ended with a round point of 1,6 mm diameter, mounted in a suitable frame.
A load of 8,9 ± 0,4 N is applied to the test simple.

Weight: 8 Kg

AR111

AR113
AGGREGATE IMPACT VALUE APPARATUS
BS 812 | NF P18-574

This machine is used to determine the aggregate impact value which provides a relative measure of the resistance of an aggregate to sudden shock or impact.

The machine is robustly designed and made from corrosionresistant steel. It is fitted with a counter to check the number of blows delivered to the simple.

Dimensions:
440x320x930 mm
Weight:
55 Kg

AR113+AR113-01

ACCESSORIES
AR113-01
Cylindrical measure Ø76x52 mm and a tamping rod (BS 812)
AR113-02
Cylindrical measure Ø102x52 mm (NF P18-574)

AR115
DETERMINATION OF THE LIGHTWEIGHT AGGREGATES CRUSHING RESISTANCE PART 1
EN 13055-1

Apparatus for the determination of the crushing resistance of lightweight aggregates having diameter from 4 to 22 mm, and a volumic mass over 150 kg/m^3.

Composed of: upper and lower cylinder inside diameter 113 mm, ring with adjustable height, piston, base.

Made of steel, plated against corrosion.

Dimensions: Ø180 x 260 mm
Weight: 15 Kg

AR117
DETERMINATION OF THE LIGHTWEIGHT AGGREGATES CRUSHING RESISTANCE PART 2
EN 13055-1

A081-02 METHOD 2
Apparatus for the determination of the crushing resistance of lightweight aggregates having volumic mass lower than 150 kg/m^3.

Composed of: upper and lower cylinder inside diameter 76 mm, piston, base.

Made of steel, plated against corrosion

Dimensions: Ø100 x 200 mm
Weight: 6 Kg

AR117 **AR115**

AR121
AGGREGATE CRUSHING VALUE Ø150 MM
BS 812:110

Comprising 150 mm nominal diameter steel cylinder, plunger, base plate, tamping rod and measure 115 mm diameter x 180 mm deep.
Used for aggregate passing 12,7 mm and retained by 9,52 mm sieve. The complete assembly is cadmium plated for corrosion protection.

Weight: 20 Kg

AR123
AGGREGATE CRUSHING VALUE Ø75 MM
BS 812:110

Same as the AR121 model, made up of a 75 mm nominal diameter steel cylinder, a piston, a base plate, a compaction rod and a Ø57x90 mm cylinder. It is used for aggregates that pass through the 9,52 mm opening.

Weight: 8 Kg

AR121 **AR123**

AR119
DETERMINATION OF THE VOIDS OF DRY COMPACTED FILLER
EN 1097-4 | BS 812 | NLT 177 | CNR N°23

This apparatus is used for the determination of the voids content of dry compacted filler.
It consists essentially of these components:
-A metal base sized 100x150 mm
-A cylinder 25 mm inner diameter
-A plunger of a diameter that allows it to slide freely in the cylinder without lateral play

Weight: 4 Kg

ACCESSORIES
AR119-01
Filter paper Ø25 mm (100 pieces)

AR119

AR130
MICRO-DEVAL

EN1097-1 | EN 13450
NF P18-572, P18-576 | CNR N°109

Used to determine the resistance of aggregates to abrasion. The machine essentially comprises a heavy steel frame on which the following stainless steel cylinders can be mounted:
-4 cylinders Ø200x154 mm or
-2 cylinders Ø200x400 mm or
-2 cylinders Ø200x154 mm and 1 Ø 200x400 mm

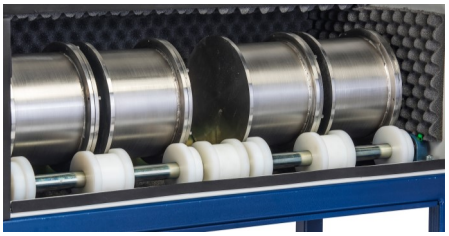
The Micro-Deval is supplied with a separate control panel fitted with a digital automatic revolutions counter. The control panel can be wall fixed or placed on a bench.

Equipped with a safety cabinet, manufactured in sheet steel, lined with sound-proofing material for noise reduction, conforming to CE Safety Directive. If the cabinet is opened while the machine is in operation a microswitch automatically stops the rotation of the cylinders.

Supplied without stainless steel cylinders and without stainless steel spheres which have to be ordered separately.

Power supply: 230 V | 50 Hz | 1100 W
Dimensions: 1150x600x1150 mm
Weight: 190 Kg

AR130

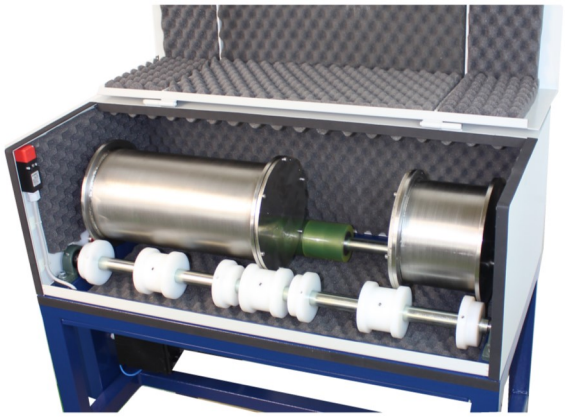


AR130-01

ACCESSORIES

AR130-01
Cylinder Ø200x154 mm EN 1097-1
AR130-02
Cylinder Ø200x400 mm EN13450, NF P18-576

AR130-03
Stainles steel spheres Ø10 mm EN 1097-1 (Pack of 20 pieces)
AR130-04
Stainles steel spheres Ø18 mm NF P18-576 (Pack of 52 pcs)
AR130-05
Stainles steel spheres Ø30 mm NF P18-576 (Pack of 12 pcs)



AR130-02 + AR130-01

AR130-03 **AR065-15**

AR065-15
Bar grid sieve with slot width 9,5 mm
Used to check the wear of the spheres of the Micro-Deval having nominal size of 10 mm.

AR150
LOS ANGELES MACHINE

EN1097-2 | ASTM C131 | AASHTO T96
NF P18-573 | CNR N° 34

This test procedure is for determining the resistance of coarse aggregates to abrasion.

The machine consists of a rolled steel drum with an inner diameter of 711 mm and inner length of 508 mm. The drum is rotated by a speed reducer driven by an electric motor at a speed of between 31 and 33 r.p.m.

A push button positions the opening of the cylinder for easy loading and unloading operations. The control panel can be wall fixed or placed on a bench.

Supplied without abrasive charges which have to be ordered separately according to the requested Standards. It cannot be sold on the CE markets without its protections.

Power supply:
230 V | 50 Hz | 750 W
Dimensions:
1000x800x1000 mm
Weight:
370 Kg

AR150

ACCESSORIES

AR150-01
Soundproofed safety cabinet
Manufactured from sheet steel, internally lined with sound-proofing material for noise reduction, conforming to CE Safety Directive.
When opening the cabinet's door during Los Angeles working, a microswitch automatically stops the rotation of the drum.

Dimensions: 980x1070x1190 mm
Weight: 160 Kg

AR150+AR150-01

AR150-02
Device for an easy and fast clamping of the table to the drum

AR150-02

AR150-03
Set of 12 abrasive charges
EN1097-2 | NF P18-573

AR150-04
Set of 12 abrasive charges
ASTM C131 | AASHTO T96 | NLT 325-2 | CNR

AR150-04

AR161
MACHINE TO DETERMINE THE WEAR RESISTANCE ON PAVING TILES
EN 13748

Designed to determine the abrasion wear resistance on paving, according to the three established use types (normal, intensive and industrial). The test consists in measuring the track produced by a rotating disc in presence of an abrasive substance, for a certain time.

Electromechanically actuated machine with disk dia. 200 x 70 ±0,1mm. thickness. The pressure of the disk on the sample is applied by a 14 kg counterweight. A 10 litre capacity hopper is mounted on a directional support to store the abrasive material.

The control module incorporates an automatic counter to select the number of revolutions, luminous indicator and emergency button. As safety elements the machine incorporates an independent push button located in the control module that, when is activated, it stops all movement immediately inside of the test area.
Also, incorporates an opening detector that forces to work always with the doors that isolate the test area closed.

The whole test is carried out in a completely closed desk to avoid the diffusion of the powder and noise in the laboratory.

Discharge flow: 2,5 l/min
Speed test: 75 r.p.m.
Abrasive flow: 3 l/min
Power supply: 220-380 V | 50 Hz
Dimensions: 660x1200x1800 mm
Max. specimens dimensions: 250x240x90mm
Weight: 300 Kg

AR161

ACCESSORIES

AR161-01
Corundum abrasive grain 80 (25 kg bag)
AR161-02
Reference marble sample

AR163
DORRY ABRASION MACHINE
EN 1097-8 | BS 812

This test provides a measure of the resistance of an aggregate to surface wear by abrasion. The Dorry machine consists of a 615 mm diameter cast iron grinding disc which rotates on a horizontal plane at a speed of 28-31 r.p.m.

Abrasive sand is fed across the surface of the specimen through a special funnel. The control panel can be wall fixed or placed on a bench.

Supplied with two specimen moulds, two trays, weights and fixing device.

Power supply: 230 V | 50-60 Hz
Dimensions: 1130x710x1100 mm
Weight: 200 Kg


AR163

ACCESSORY

AR163-01
Graded Silica sand (Pack of 25 kg)

AR165
BÖHME ABRASION TESTER
EN 1338 | EN 1339 | EN 1340 | EN 13748 | EN 13892-3
EN 14157 | DIN 52108

This machine is used to determine the abrasion resistance of natural stones and concrete products used for internal and external paving.

The apparatus is composed of a cast iron horizontal disc with a speed of 30 r.p.m. and a diameter of 750 mm furnished with a 200 mm test track to position a specimen, separate control panel with digital revolutions counter with automatic stop after preset revolutions, specimen holder and adjustable charger used to produce a force of 294 N ± 3 N on a specimen.

Power supply: 230 V | 50Hz | 800 W
Disc speed: 30 r.p.m.
Dimensions: 1500x1000x850 mm
Weight: 320 Kg

AR165

AR167
ABRASIMETER
EN 154 | EN ISO 10545-7

Suitable for determining the abrasion resistance of glazed tiles and other materials. The instrument has three stations, and it can work either with wet (PEI) or dry (MCC) abrasive charges.
Supplied with cabinet conforming to CE Safety Directive.

Power supply: 230 V | 50-60 Hz | 300 W
Speed: 300 r.p.m
Eccentricy: 22,5 mm
Dimensions: 400x700x500 mm
Weight: 38 Kg

AR167

AR169
ACCELERATED POLISHING MACHINE
EN 1097-8, 1341, 1342, 1343 | BS 812:114
NF P18-575 | CNR N.105

This machine is used to measure the resistance of road stone to the polishing action of vehicle tyres on a road surface, simulating actual road conditions.

The specimens are manufactured with suitable moulds and mounted on the road wheel. The wheel then spins in contect with a spring-loaded solid rubber tyre. Abrasive charges are continuously introduced by two automatic mechanical feeders (hoppers).

The feeders are held by a suitable support disjoined from the machine body; this solution saveguards feeding calibration and realiability/life of the hoppers from the influence of test execution vibrations. The water is supplied at a controlled rate through a water container equipped with flow regulator.

During the test execution the display shows the remaining time and the speed rotation of the wheel holding the specimens.

Supplied with 2 rubber wheels (one for corn and one for flour emery), set of 4 specimen moulds and 2 mould covers, while control stone, corn and flour emery have to be ordered separately.

Power supply: 230 V | 50 Hz | 750 W
Samples: 14
Road wheel speed: 310-330 r.p.m.
Dimensions: 1800x820x600 mm
Weight: 175 Kg

AR169

ACCESSORIES

AR169-01
Corn Emery (25 Kg pack)
AR169-02
Flour Emery (5 Kg pack)
AR169-03
Flour Emery “Original” (5 Kg pack)
AR169-04
Friction Criggion Stone ungraded (25 Kg bag)
AR169-05
Control stones ungraded (20 Kg bag)

AR171
SKID RESISTANCE TESTER
EN 1097-8 | EN 1338 | EN 1341 | EN 1342 | EN 13036-4
EN 1436 | BS 7976

Used for the measurement of surface friction properties, this apparatus is suitable for both site and laboratory applications. It can be used for determining the Polished Stone Value (PSV) using curved specimens obtained from accelerated polishing tests performed by the Accelerated polishing machine (conforming to EN 1097-8), and also for testing Paving Stones (EN 1341, EN 1342) and Paving Blocks (EN 1338).

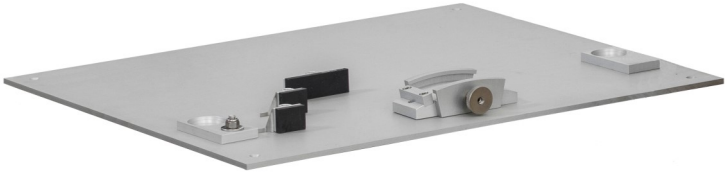
During operation the pendulum is raised and then released to swing freely, allowing the edge of the rubber slider to skid across the surface of the road or sample.

The skid tester is supplied with:
-Additional incorporated scale for tests on PSV specimens
-Rule made of plexiglass, for sliding length verification
-Thermometer –10 to +110°C for surface temperature
-Stool wash bottle, bristle and tool set for machine use
-Carrying case

The tester is supplied without rubber sliders that have to be ordered separately

Case dimensions: 730x730x330 mm
Weight: 32 Kg

AR171



AR170-01+AR170-02+AR170-04

AR173
SKID RESISTANCE AND FRICTION TESTER
ASTM E303

As AR171, but calibrated to meet ASTM E303 specifications.

AR173+AR170-04

ACCESSORIES

AR170-01
Mounted rubber slider 32 mm width
AR170-02
Mounted rubber slider 76 mm width
AR170-03
Mounted rubber slider, 4S rubber, 76 mm width
EN 13036-4 | BS 7976
Recommended for ceramics, marbles, paving tiles,...
AR170-04
Metal base plate for PSV tests in laboratory
AR170-05
Clamping device for Polished Stone Value tests in laboratory
AR170-06
Clamping device for tests on natural stones (EN 1341, 1342); for concrete block pavers (EN 1338) and skidding tests on wooden floor (EN 1339)
AR170-07
Pink lapping film (10 sheets) for Skid Calibration

AR201
CONTAINER OF RESISTANCE TO FREEZING AND THAWING
EN 1367-1 | EN 932-5

It provides the needed informations on aggregates subject to freeze and thaw test cycles. The cold stress on aggregates depends on the water saturation degree and the freeze percentage. The test can be performed on aggregates having dimensions from 4 to 63 mm.

Supplied with 2000 ml container, stainless steel made, with cover and ballast for the test container, plated steel made, used for tests on lightweight aggregates.

Weight: 2,6 Kg

AR201

AR203
REACTIVITY OF AGGREGATES
ASTM C289 | NF P94-048

This test method covers chemical determination of the potential reactivity of an aggregate with alkalis in Portland-cement concrete.

Capacity: 60 ml
Weight: 2 Kg

AR203

AR205
SET OF MAGNESIUM SULPHATE TEST
EN 1367-2 | ASTM C88

Tests for thermal and weathering properties of aggregates. Only the apparatus produced specifically for this test are described here. Many other items of laboratory equipment such as balances, ovens and sieves are also required. Composed by:

AR205-01
Container Ø200x200 mm tinned steel with airtight lid
AR205-02
Basket, stainless steel mesh Ø120x160 mm, opening 3,35 mm
AR205-03
Basket, stainless steel mesh Ø95x120 mm, opening 1,18 mm
AR205-04
Basket, stainless steel mesh Ø95x120 mm, opening 0,60 mm
AR205-05
Basket, stainless steel mesh Ø65x80 mm, opening 1,18 mm
AR205-06
Hydrometer 20°C scale 1200-1300 g/ml

AR205

HR415
CLIMATIC CHAMBER 530 L WITH TEMPERATURE CONTROLLED FROM –25 TO +70 °C
EN 1367-1

Only temperature controlled from –25 to +70 °C for the determinations of the behavior and resultance to freezing and thawing of aggregates (EN 1367-1) and different other applications on concrete and building materials.

Internal and external frame is made of stainless steel Polyurethane insulation: 60 mm thick. Internal ventilation. Door with 180° opening angle, equipped magnetic gasket and integrated heater against freezing. Shelves can be taken off and adjustable in height; adjustable feet.

It works with demineralized, softened waters, or tap water with hardness rate up to 300 ppm assuring an excellent functioning along the time.

Equipped with microprocessor temperature controller with integrated cycles multiple segments programmer. Visual alarm for minimum and maximum temperatura.

Supplied with 3 adjustable shelves suitable to withstand weights up to 40 kg.

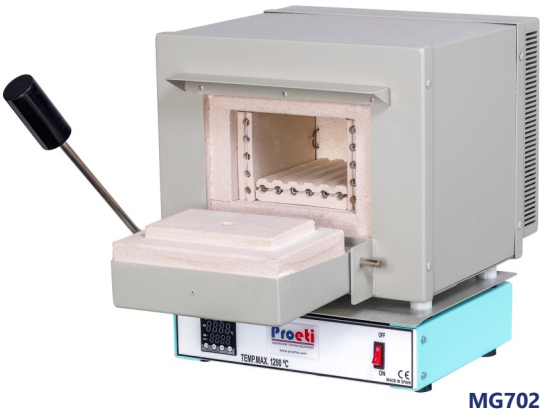
Inside dimensions: 590x670x1360 mm
Overall dimensions: 710x820x2080 mm
Power supply: 230 V | 50-60 Hz | 2570 W
Weight: 170 Kg

HR415

MG702
DIGITAL MUFFLE FURNACE 1100°C
EN 1367-5

This test involves heating soaked aggregates to 700°C for 3 minutes and comparing the loss in fines and the strength loss, determined in accordance with EN 1097-2, before and after the heat, using the appropriate accessories.

Power supply: 220 V
Capacity: 7,6 litros
Inside dimensions: 200x240x160 mm
Overall dimensions: 540x520x490 mm
Weight: 45 Kg



MG702

AR207
MICROLANCE MEASURING DEPTH 1000 MM

AR209
MICROLANCE MEASURING DEPTH 2000 MM

This electronic tester directly measures and visualizes on the display the moisture percentage and temperature of sand and fine aggregates up to Ø10 mm max by inserting the tip.

Suitable for both site and laboratory tests.

Moisture range: 0-35% accuracy 0,5%
Temperature range: -20°C to +60°C
Dimensions: 120x120x1200 mm
Weight: 2 Kg


AR207

AR221
CHAPMAN FLASK
ASTM C70 | AASHTO T142

Used for determining the amount of surface moisture in fine aggregates. The flask is graduated to 200 ml between the two bulbs and from 375 to 450 ml above the second bulb.

Weight: 500 g


AR221

SU093
COLOR STANDARD GLASS SCALE
ASTM C40

Used for determining the organic impurities in fine aggregates by the colorimetric method together with the organic impurities test bottles.
5 colored glass mounted in plastic holder.

Weight: 150 g


SU093

ACCESSORIES
MG401-04
Graduated impurities test bottles, 500 ml (ASTM C40)
MG401-05
Graduated impurities test bottles, 1000 ml

CHLORIDE CONTENT
BS 812:117 | BS 1377:3

Used to estimate the chloride content of aqueous solutions in sand and fine aggregates.

SU121
Chloride Titrator Strips (40 pieces), range 0,005% to 0,1%
SU123
Chloride Titrator Strips (40 pieces), range 0,05% to 1%

SULPHATE CONTENT
BS 1377:3

Used to determine the sulphate ions in aqueous solutions of sand and fine aggregates.

SU125
Sulphate Test Strips (100 pieces) range 200 to 1600 mg/l


SU121

SU125

AR211
SPEEDY MOISTURE TESTER
ASTM D4944 | AASHTO T217

For accurate moisture reading on field of soil, sand, aggregates.

The sample is introduced into the bottle with the reagent and the water in the sample reacts with calcium carbide and produces a gas, the pressure of which is indicated on the manometer and easily converted into the percentage of moisture.

Supplied in a carrying case with an electronic balance and accessories.

Capacity: 6 g
Moisture range: 0 - 20%
Weight: 6 Kg

AR213
SPEEDY MOISTURE TESTER
Same as model AR211 but 20 g capacity.

Weight: 6 Kg

AR213

ACCESSORY

AR211-01
Speedy Calibration kit

AR219
END-OVER-END SHAKER
EN 1997-2 | BS 1377:2

This method applies to soils containing up to 10% of particles retained on a 37,5 mm sieve, it rotates two gas jars at 50 r.p.m.

The shaker is equipped with an original friction device conforming the unit to CE Safety Directive. Supplied without gas jars to be ordered separately.

Power supply: 230 V | 50 Hz | 150 W
Dimensions: 550x430x500 mm
Weight: 20 Kg

ACCESSORIES

AR219-01
Gas jar to determine the specific gravity of soils
AR219-02
Rubber bung for the gas jar
MG043
Separate control panel with ON/OFF switch and timer

AR215
UNIVERSAL CARBIDE METER
BS 6576 | AASHTO T217 | ASTM D4944

For a rapid and accurate determination of moisture content in sand, gravel, aggregates, soil etc, based on the calcium carbide method.

The bottle is calibrated and equipped with a surface thermometer. The glass ampoule containing the calcium carbide is broken when the bottle is closed and shaken, granting better accuracy to the test.

The instrument comprises the testing bottle with manometer, small balance, 25 ampoules of reagent, accessories and carrying case.

Measurement system: Analogic manometer 2,5 bar
Samples: 20g - 50g - 100 g

AR217
DIGITAL UNIVERSAL CARBIDE METER
BS 6576 | AASHTO T217 | ASTM D4944

Same as mod. AR215, but with digital manometer for more accurate readings with pressure and temperature display.

Samples: 10g - 20g - 50g - 100 g

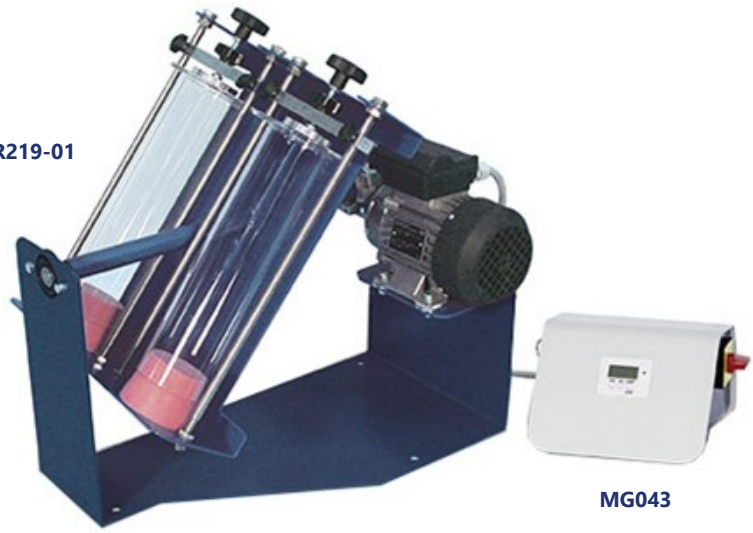
ACCESSORY

AR215-01
Carbide Ampoules (pack of 100)

AR215

AR219-01

AR219-02



MG043

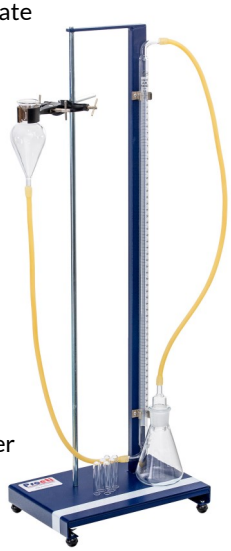
AR219

AR223
BERNARD CALCIMETER
UNE 103.200: NLT 116

Made of metal and used to determine the carbonate content of aggregates and soils.

When hydrochloric acid is added to the sample, the carbonate in the sample is released in the form of CO_2. Consequently, the released CO_2 increases the pressure, which in turn increases the water level in the deaeration burette. The difference in the measured levels indicates the amount of CO_2 that has been released, thus allowing the carbonate content to be calculated.

The unit consists of a support stand, a burette with capacity for 100 cm^3, a level tube with a tank measuring Ø40x140 mm long, an Erlenmeyer flask of 250 cm^3 with a rubber stop pierced by a glass tube, a glass tube with 3 cm^3 capacity and a flexible rubber tube.



AR223

AR225
DIETRICH-FRÜHLING CALCIMETER

Used for the determination of calcium carbonate ($CaCO_3$) in certain products such as limestone and lime marl.

It mainly consists of a glass container in which the reaction between the calcium carbonate present in the product and a solution of hydrocloridric acid takes place.

The resulting gas is collected and measured by a device connected to the container. As the volume of the released gas (CO_2) is in relation to the $CaCO_3$ content of the material, it is possible to calculate the percentage of $CaCO_3$.

Dimensions: 400x200x1100 mm
Weight: 13 Kg

AR225

AR227
TILT TEST

This instrument measures the roughness coefficient of a rock specimen or of a joint.

It consists of an inclined adjustable plane on which the sample is placed. The plane is slowly tilted until the upper surface of the specimen slides on the lower one. The roughness index can be evaluated from the measured inclination angle.

Inclination angle: 0 - 75°
Max. sample diameter: 100 mm
Dimensions: 270x175x265 mm
Weight: 5 Kg

AR227

AR231
MOHS HARDNESS SCALE SET
BS 812:117 | BS 1377:3

The set consists of 10 reference minerals:
Talcum, Gypsum, Calcite, Fluorite, Apatite, Feldspar, Quartz, Topaz, Corundum and Diamond.

Weight: 500 g

ROCK PICKS

AR233
Rock pick with pointed tip
AR235
Rock pick with chisel edge

BARTON PROFILOMETERS

Used for measuring the roughness profile of rock samples

AR237
Barton Profilometer 150 mm
AR239
Barton Profilometer 300 mm

AR233

AR237

AR235

AR231

AR229
POLISHER - GRINDER

Used for the preparation of rock and metallurgical specimens from lapping to final polishing. The disc is 200 mm diameter and the rotation speed is 300 r.p.m.

The machine is supplied with bakelite working disc and set of 25 abrasive silicon carbide discs.

Power supply:
230 V | 50 Hz | 200 W
Dimensions:
370x500x300 mm
Weight:
31 Kg

AR229

AR241
JAW CRUSHER
ASTM C289

A machine used in laboratories to crush samples of aggregate, minerals and similar materials in order to reduce their size.

The crusher has an input opening measuring 80 x 50 mm, and the size of the crushed material can be set to as little as 1 mm. Production capacity, depending on the material to crush, is 5 dm3/h.

Container capacity:
2,5 dm^3
Power supply:
220 V | 50 Hz
Dimensions:
800x300x600 mm
Weight:
106 Kg

AR241

AR243
BOWL CHOPPER 15 L
NF P 94-093

Designed for the preparation of homogeneous samples of different types of materials such as aggregates, fines, soils,...

7" touch screen with speed, temperature, time,...
Programmable automatic stop
Container made of stainless steel

Power supply: 220-230 V | 3 pH | 2300 W
Bowl capacity: 6-7 kg
Variable speed: 1500-3000 r.p.m.
Dimensions: 640x550x920 mm
Weight: 165 Kg


AR243

AR245
JAR MILLS
ASTM C289

Designed for milling aggregate samples to reduce particle sizes down from 1-5 mm (depending on hardness) to pass through a 300 µm sieve. The machine is fitted within a noise reduction cabinet with a safety switch for safe operation conforming to CE directives. Fitted with a 0-99 minute electronic timer, the mill can drive jars of 300 cm^3 for 150 g of dry product and 1000 cm^3 for 500 g of dry product.
The jar has be ordered separately

Power supply: 230 V | 50 Hz | 370 W
Dimensions: 730x350x445 mm
Weight: 55 Kg

ACCESSORIES
AR245-01
Alumina jar 300 cm^3
AR245-02
Alumina jar 1000 cm^3

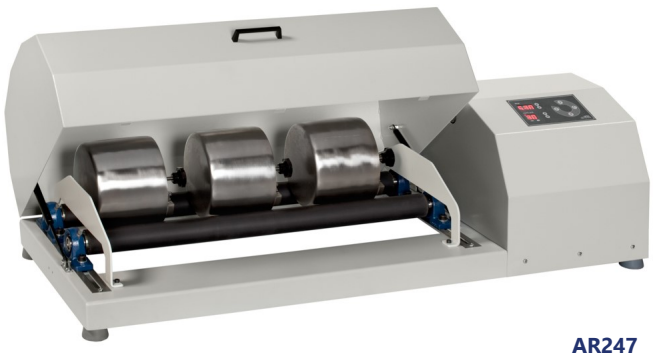
AR245

AR247
BALL MILL
EN 61010-1, 61010-2-051, 61010-2-101, 61326-1

The ball mill splits the sample because of the hits against the balls. It moves along an arc of a semi-circle due to the dragging of the pitcher in the cylinder motor. Isolated jars prevent the contamination of samples.

Its function and design makes it suitable for mill works in laboratories of public works, manufacture of paints, ceramic, milling of raw materials,...

Power supply: 220-230 V | 50-60 Hz
Dimensions: 1230x490x350 mm
Weight: 72 Kg


AR247

ACCESSORIES
AR247-02
Stainless steel jug 3 L
AR247-03
Stainless steel jug 5 L
AR247-13
Stainless steel balls Ø20 mm (1 Kg)
AR247-14
Stainless steel balls Ø30 mm (1 Kg)

AR251
DIGITAL POINT LOAD TESTER
ASTM D5731 | ISRM

Used to determine the strength values of a rock specimen both in the field and in the laboratory.

It consists of a load frame for applying loads, on which a manual hydraulic jack is mounted. The applied load is measured by a high precision electric load cell with a digital display unit range 0-56 kN.

A ruler mounted on the frame allows for direct measurement of the distance D between the conical platens before and after the test.

The compression load is measured by a pressure transducer with an advanced digital display unit, assuring the best accuracy and resistance to failure shocks.

Supplied complete with wooden carrying case, goggles and accessories.

Capacity: 56 kN
Linearity: 0,05%
Repeatability: 0,02%
Resolution: 0,001 kN
Dimensions: 400x530x720 mm
Weight: 25 Kg

ACCESSORY

AR251-01
Lower and upper plate with seat ball
To modify the Point Load Tester into a portable compression tester.

AR251

AR253
DIGITAL POINT LOAD TESTER 100 KN

Same as model AR251 but having load capacity up to 100 kN.

AR255
ROCK CLASSIFICATION HAMMER
ASTM D5873 | ISRM

Used to measure the rebound index on rock cores and samples. It is similar to the one used for testing concrete, but has a different level of impact energy: 0.74 Nm.

Rock cores are positioned horizontally and the rebound index is obtained from the average of several measurements performed perpendicularly to the longitudinal axis.

Impact energy: 0,74 Nm
Measuring range: 10...60 N/mm2
Weight: 2 Kg

ACCESSORY

AR255-01
Rock cradle
To locate core rock specimens.
ASTM D5873

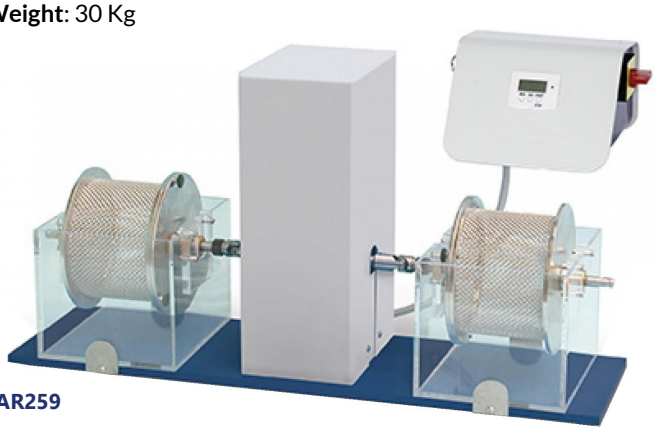
Weight: 20 Kg

AR255+AR255-01

AR259
SLAKE DURABILITY APPARATUS
ASTM D4644

This equipment has been developed to assess the durability of rock to weakening and disintegration when subjected to the simulated effects of climatic slaking. The rock samples are dried and then submitted to wear stress inside a drum which is rotated into water. The test is performed different times and the wear is given by the loss in weight of the sample. The system incorporates a motor drive unit mounted on a baseplate which revolves two (or up to four) stainless steel drums manufactured from 2 mm mesh, Ø140x100 mm long. The tanks are filled with water to a level 20 mm below the drum axis. A digital timer automatically stops the motor after the preset time. The equipment is supplied with two drums with tanks, and it can accept two additional drums.

Power supply: 230 V | 50 Hz | 250 W
Dimensions: 350x740x300 mm
Weight: 30 Kg



AR259

AR261
ANALOGIC ROCK SHEAR BOX APPARATUS
ASTM D5607 | ISRM

The test method offers a simple and practical way of determining the strength and slope stability of rock, both in the field and in the laboratory.

The apparatus is composed of:
-2 rams for reversible shearing action
-1 ram for vertical load application
-2 load gauges 50 kN
-2 hand operated pressure maintainer
-Dial gauge 25x0,01 mm

Dimensions: 600x250x460 mm
Weight: 46 Kg


AR261

AR263
DIGITAL ROCK SHEAR BOX APPARATUS
ASTM D5607 | ISRM

Similar to AR261 model but with digital measuring system.

The apparatus is composed of:
-2 rams for reversible shearing action
-1 ram for vertical load application
-2 pressure transducers
-2 hand operated pressure maintainer
-Lineal displacement transducer 25 mm
-Digital display for data acquisition and storing
-Software for test data processing


AR263


AR260-03


AR260-01

ACCESORIES FOR ROCKS DIRECT SHEAR TESTS

AR260-01
Mould former to prepare the specimen
AR260-02
British Gypsum Crystacal plaste (25 kg bag)
AR260-03
Vertical constant pressure maintainer
AR261-01
4 Dial gauges 10x0,002 mm with supports for AR261
To measure vertical displacement according to ASTM D5607
AR263-01
4 Lineal transducer 10 mm with supports for AR263
To measure vertical displacement according to ASTM D5607

AR271
EXTRUDER

Used to eject the rock sample from the rubber jacket, avoiding to empty the confining fluid. Supplied without adaptors to be ordered separately.

Weight: 12 Kg


AR271

ADAPTOR	SPECIMEN
AR271-01	Ø30,10x60 mm
AR271-02	Ø38,10x75 mm
AR271-03	Ø42,04x85 mm
AR271-04	Ø54,74x100 mm

AR275
CORING MACHINE

Used in the laboratory to obtain cores from irregular rock samples.

2 speed electric motor 1140-2040 r.p.m. unloaded and 730-1340 r.p.m. at max load, doubly insulated and equipped with a friction device in compliance with CE Directive.

Supplied with specimen clamp, water cooling system and water tank.

Power supply:
230 V | 50-60 Hz | 1800W
Weight:
60 Kg

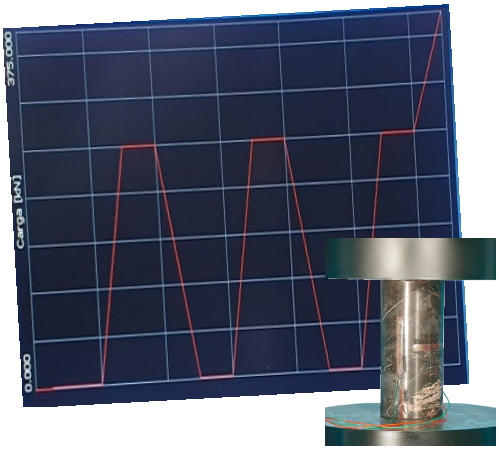

AR275

CORE DRILL BIT	SPECIMEN
AR275-01	Ø30,10x60 mm
AR275-02	Ø38,10x75 mm
AR275-03	Ø42,04x85 mm
AR275-04	Ø54,74x100 mm

AR300
ELASTIC MODULUS OF ROCK SPECIMENS

EN 14580 | EN 1926 | ISRM
ASTM D7012 | ASTM D2664 | ASTM D3148 | ASTM D5407

System designed to calculate the elastic modulus composed of a hydraulic system, an electronic measurement system and data acquisition software. This system has to be used with a high stability frame with capacity of 2000 or 3000 kN. The frame is not included.



AR300+HR017

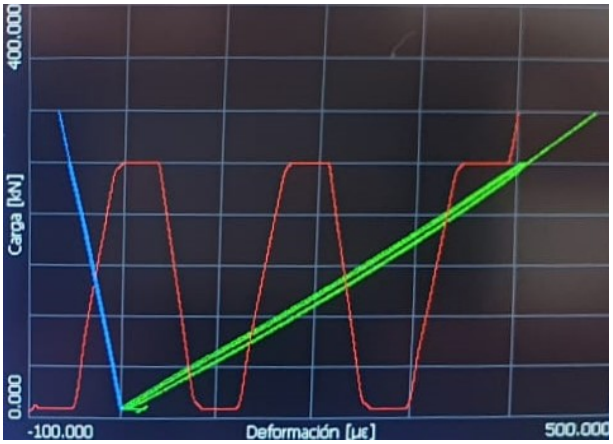
Its hydraulic installation has a high performance valve directly controlled by the digital unit that grants the automatic control of the pace rate increasing the load, keeps a certain load and than controls the pace rate decreasing the load. A laser position detector allows a rapid positioning of the piston and a very accurate touch point. This grants a touching sensitivity of test starting of about 0,1 per thousand of the maximum capacity.

The high performance control and data processing unit controlled by a 32 bit microprocessor can manage up to 8 high resolution channels for the control of load cells or transducers with strain gages bridge.

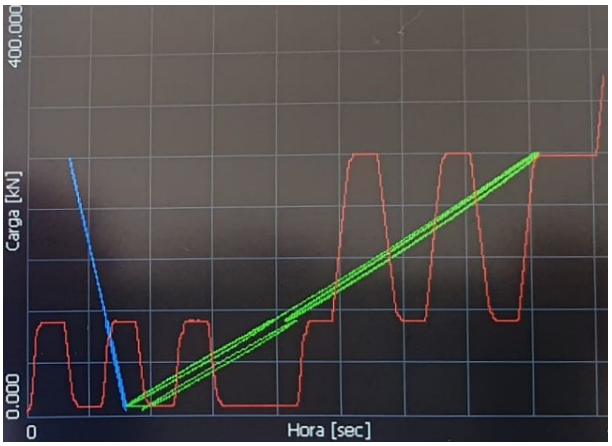
The unit contains two last generation converters with 24 bits resolution. The system processes the signals coming from the load cells and from the extensometers giving all the results required for a further processing following the most updated standards for this application.

The software has been developed on the working line of windows menu. It contains the profiles of the main Standards used, but the user can modify and personalise the test profile, which will be effected in a completely automatic way by the testing machine.

The appliance allows verifying the proper reading of the extensometers and, if everything is within the expected tolerances, it manages the average deformation value read by the transducers and processed by the digital unit, than it transmits all tests data throught a serial communication port RJ45 (Network Connection) to a PC, that can already belong to the end user or be supplied separately. This data will be processed by the software and transformed in a graph load/deformation and load/time, following the specific Standards.



MG030-65 *Software for elastic modulus*



MG030-65 *Software for elastic modulus*

ACCESSORIES

The strain gauges must be previously installed on the specimen to be tested. The orientation and position of the bands is very important because they will condition the results of the test. The strain gauges must be chosen according to the grain size of the rock to be tested.

AR300-11
Strain gauge 10 mm (10 pieces)
AR300-12
Strain gauge 20 mm (10 pieces)
AR300-13
Strain gauge 30 mm (10 pieces)
AR300-14
Strain gauge 60 mm (10 pieces)
AR300-15
Strain gauge 120 mm (10 pieces)

AR300-10
Interface module to connect up to 4 strain gauges
This module allows also the automatic calibration of the zero and of the measuring range after a special termal compensation. This grants a five times better accuracy than the one requested by the Standards.

AR300-20
Strain gauge application kit
Composed of: glue, soldering iron, solder, cleaning liquid, accessories and carrying case.

AR300-10

AR300-20

HR101
ELECTRONIC COMPRESSOMETER-EXTENSOMETER

This equipment is an alternative to strain gauges. Made of two anodized aluminium pieces, one fixed and the other sliding and housing a displacement transducer that measures with high accuracy the movement of two conical points made of hardened steel and attached at the two ends of the electronic sensor.

The two conical points are coupled to the surface of the simple with a rapid and simple attachment system by means of two adjustable elastic straps.

The instrument is equipped with a mechanical knob to lock and unlock the displacement transducer, allowing to safeguard the selected base length while attaching of the device to the sample.

Normally the test is performed on cylinders by using 3 extensometers/compressometers, and on cubes or beams by using 2 or 4 instruments.

The extensometer is suitable to test cubes, cylinders and beam specimens, having minimum height of 130 mm
It is also possible to test mortar prisms 40x40x160 mm by using a block for reducing length.

Supplied with reducing block for mortarprisms, elastic Straps and carrying case.

Gauge length: adjustable from 50 to 160 mm
Travel: ±1,5 mm
Sensitivity: less than 0,01 micrón
Weight: 1000 g

HR101(x3)+HR101-02

ACCESSORIES

HR101-01
Aluminium template to regulate and to calibrate the base length
MG020-50
Calibration process for one compressometer

AR310
TRIAXIAL TESTS ON ROCK SPECIMENS

EN 1926, 14580 | ASTM D7012, D2664, D3148, 407

This system is used to apply lateral pressure to rock samples with a maximum capacity of 70 Mpa.

The servo-controlled hydraulic group of the system allows to maintain a constant axial load and isotropic pressure from 5 to 6 Mp.

The system control unit offers a real time reading of the pressure, fatigue and rupture values.

The system automatically applies a constant pressure increase ranging between 0,5 and 10 MPa/sec, as established by international standards. In this way, it is capable of reaching breakage between 5 and 10 minutes of testing.

Combined with a set of strain gauges applied on the surface of the rock specimen, it is used for the automatic reading in real time of different parameters such as:

-Poisson's ratio
-Stress value between axial and radial strain
-Maximum break value
-Young's modulus tangent and secant
-Maximum stress value in triaxial conditions

AR300+HR017+AR310

It is recommended the use of a compression load frame with capacity of 2000 or 3000 kN combined with the automatic servo-controlled system and with the automatic system for the Elastic Modulus on rocks AR300, that includes the data acquisition and processing software

HOEK CELLS FOR ROCK TRIAXIAL TESTS

Hoek cells are used to measure the strength of cylindrical rock specimens which are subjected to triaxial compression.

The basic Hoek cell consists of the following parts:
Cell body with two screwed end caps and two self-sealing couplings, two spherical seats and pistons, hardened and ground, one specimen jacket

AR320-01

AR325

ACCESSORIES

AR320-01
Load spreader
Used to prevent the cell piston from marring the platens of the compression machine.

AR271
Extruder
Used to eject the rock sample from the rubber jacket, avoiding to empty the confining fluid.
Supplied without adaptors to be ordered separately.

Weight: 12 Kg

AR271

CODE	SPECIMEN DIMENSIONS		SPARE PISTON	SPARE JACKET	CORE DRILLING	ADAPTORS
AR321	Ø30,10x60 mm	AX	AR321-01	AR321-02	AR275-01	AR271-01
AR323	Ø38,10x75 mm	1,5”	AR323-01	AR323-02	AR275-02	AR271-02
AR325	Ø42,04x85 mm	BX	AR325-01	AR325-02	AR275-03	AR271-03
AR327	Ø54,74x100 mm	NX	AR327-01	AR327-02	AR275-04	AR271-04

ROCK PERMEABILITY

This test is performed to measure the water flow through a rock specimen contained in a Hoek cell and subjected to a high confining pressure. The hydraulic gradient within the rock sample is supplied by a constant pressure apparatus and the water permeating the sample is collected in a burette.
A couple of end caps are also necessary to fit the Hoek cell.

PERMEABILITY END CAP
The set consists of the upper and lower End Cap, with distance block

AR321-05
Permeability end cap for Hoek specimen Ø30,10 mm
AR323-05
Permeability end cap for Hoek specimen Ø38,10 mm
AR325-05
Permeability end cap for Hoek specimen Ø42,04 mm
AR327-05
Permeability end cap for Hoek specimen Ø54,74 mm
AR329-05
Permeability end cap for Hoek specimen Ø63,50 mm

SU491
PERMEABILITY CONSTANT OIL/WATER PRESSURE SYSTEM

Providing an infinitely variable constant pressure from 0 to 3500 kPa. To be used with the Hoek Cell equipped with Permeability End Caps and Permeability Attachment.
The system consists of a motor hydraulic pump, oil/water vessel, piston/spring device, 10 litres of viscosity oil.
The unit is supplied complete with precisión pressure gauge 0 - 3500 kPa range.

Power supply: 230 V | 50 Hz
Weight: 20 Kg


SU450-30

SU450-30
PERMEABILITY ATTACHMENT

Mounted on tripod, to be connected to the End Cap of the Hoek Cell. Burette 50 ml capacity and 0,1 ml div

AR311
MANUAL LATERAL PRESSURE SYSTEM

The unit consists of a hand operated pump with precision pressure gauge supplying pressures up to 35 MPa, a reservoir and connections, providing the Hoek cell with a lateral pressure source.

Weight: 18 Kg


AR311

AR313
COMPRESSION DEVICE FOR ROCK CORES

ASTM D2938

Used to perform compression tests on rock core specimens having max. diameter 55 mm and height between 95 and 110 mm.

Maximum load capacity: 100 kN
Piston's stroke: 20 mm
Platens diameter: 55 mm
Vertical daylight: 112 mm
Platens hardness: 60 HRC
Overall dimensions: Ø151x 249 mm
Weight: 10 Kg


AR313


SU491


AR325+AR325-05

HR471
CUTTING SAW

This universal saw with suitable accessories, can be used to cut concrete and rock cores and irregular rock samples in order to obtain geometrically defined samples.

Supplied with Ø300 mm diamond blade.

Power supply: 230 V | 50 Hz | 3000 W
Dimensions: 1220x780x12200 mm
Weight: 65 Kg


HR471

SECTION BA

BITUMEN-ASPHALTS

This section includes a wide range of test equipment for asphalt materials that are intended to be road pavement for long periods, therefore, it is necessary to analyze their resistance to bending and compression forces caused by the traffic that they must withstand in the future.

Among the products that Proeti develops in this section you will find equipment for the preparation, mixing and compaction of samples; asphalt mixture analysis equipment, cold and hot extraction and ignition and calcination systems; and machines for testing and analyzing the rheological properties of bitumen.

BA001
IGNITION OVEN NCAT
EN 12697-39 | ASTM 6307 | AASHTO TP53

This ignition oven is an analyzer that determines the asphalt content in a sample by igniting the sample. The asphalt sample is bathed in oxygenated air and weighed continuously during the ignition process. The software identifies the end point of the ignition and indicates the end of the test. A printer outputs the results.

The hot asphalt mix sample is weighed, divided into equal parts and placed in two reinforced baskets mounted on a tray assembly. The complete assembly is placed on the tray on the oven fl oor. The tray is mounted on four ceramic supporting tubes that, in turn, are placed on the platform of a digital scale.

A fan pushes ambient air through the holes in the four ceramic support tubes located at the base of the chamber. This oxygenated air saturates the asphalt sample laid out to facilitate its ignition and incineration.

The volatile elements that are released are later oxidised when they pass through a ceramic fi lter heated to 750°C in a chamber over the main chamber.

After between 20 and 40 minutes, depending on the weight of the sample, the oven detects the end of the test when all the bitumen has been incinerated and stops emitting a whistle. A report is printed showing the percentage of bitumen per aggregate and mixture.

It is supplied with two sample basket assemblies, printer, four rolls of printer paper, heat-resistant gloves, head gear with face shield, aluminium cool down plate, cool down safety cage and basket brush.

BA001

Power supply: 240 V | 50-60 Hz | 8500 W
Máx weight of sample: 5000 g
Internal dimensions: 305 x457x305 mm
Overal dimensions: 610x810 x950 mm
Temperature range: 200° to 750 °C
Weight: 94 Kg

MG702
MUFFLE FURNACE 1200ºC
EN 12697-1 Clause C | EN 13108

This furnace is used for the determination of residual mineral matter by incineration of the bituminous mixtures.

Power supply: 220 V
Volume: 7,6 litres
Internal dimensions: 200x240x160 mm
Overal dimensions: 540x520x490 mm
Weight: 45 Kg

MG702

BA005
ASPHALT MIX ANALYZER
ASTM D2172 | EN 12697-1

The unit has been designed for the purpose of determining the bitumen content in asphalt mixture and it is the best solution to analyse and characterize the properties of the reclaimed asphalt pavement.

Through the use of solvent selectable from perchloroethylene, trichloroethylene or chloroethylene, the final result of the process is the separation of aggregates and filler from bitumen in order to verify the quality of the recovered granular materials and determine the mineral skeleton of the mixture.

The representative bitumen sample can be used to perform other test such as penetration, softening point, etc… Aggregates, including filler, are also separated and remain available for sample grading.

The asphalt sample (maximum 3,5 kg) is placed in a washing drum lined with woven mesh cloth with openings 0,063, 0,075 or 0,090 mm wide and it is fitted into the washing chamber. Bitumen and filler are separated from the sample by washing with solvent and ultrasonic motion.

The aggregates and filler are dried by forced air circulation and the residue of solvent recovered by condensation. The remaining bitumen/solvent solution is distilled and separated in two different tanks

Part of the bitumen/solvent solution can be drained off before distillation and connected to a flask for use with a rotary evaporator to recover a bitumen sample for other tests. The clean distilled solvent is recycled for other extractions.

The door is locked during all test phases to provide a safe environment. Furthermore, the test stops automatically in case of anomalies or malfunctions.

BA005

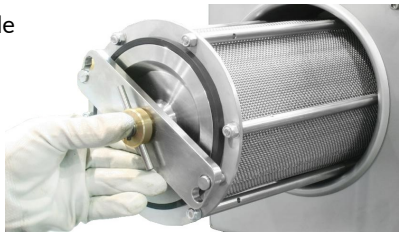
The solvent mode extraction has to be selected before supplying the unit, and the machine will be calibrated accordingly.

The unit is supplied without the solvent that has to be purchased independently.

Power supply: 230 V | 50 Hz
Dimensions: 1400x750x1500 mm
Weight: 240 Kg

ACCESSORIES

OPERATION MODE
BA005-01
Perchlorethylene operation mode
BA005-02
Trichloroethylene operation mode
BA005-03
Chloroethylene operation mode
BA005-10
Centrifuge cup Ø120 mm
BA005-11
Closing lid for washing drums



BA005-12

WASHING DRUMS
BA005-12
Washing drum, mesh with opening 0,063 mm
BA005-13
Washing drum, mesh with opening 0,075 mm
BA005-14
Washing drum, mesh with opening 0,090 mm

BA005-20
Device for the extraction of the centrifuge cup
BA005-21
Lining paper for centrifuge cup (Pack of 100)
BA005-22
Solvent pumping device for safe solvent filling
BA005-23
Water cooling system providing water 5° - 10°C
BA005-24
Fast connection for rotary evaporator flask for bitumen solution sampling (to be ordered at time of order)
BA005-25
Worktop balance for an easy and automatic determination of the bitumen content
BA005-31
Testing device for the verification of the recycled perchlorethylene status
BA005-32
Solvent stabilizator for recycled perchlorethylene

BA007
AUTOMATIC BINDER EXTRACTION UNIT

EN 12697-1 | ASTM D2172

Used to perform reliable analysis on bituminous mixtures utilizing the perchloroethylene (PCE) or tetrachloroethylene solvent which is classified: R40 (not cancer producing*), for quantitative determination of binder or bitumen contained in pavement samples and hot mixed mixtures.

The system performs in only one complete automatic cycle:
-The washing, disaggregation and separation of the bituminous mixture
-The separation of the filler from the solution formed by solvent, bitumen and filler
-The recovery and distillation of solvent material allowing a further utilization

The unit comprises:
-An electromagnetic sieving unit, insuring high quality double vibrating action (vertical/rotational), with solvent spraying cover for washing and disaggregation of the sample.
-A continuous flow filterless centrifuge having rotation speed of 11000 rpm equipped with a stainless steel beaker Ø120 mm, filler capacity approx. 400 g.
-A solvent recovery unit having reclaiming capacity of 50 l/h, equipped with cooling system switching ON and OFF the unit to automatically perform the test.
-A separate control panel allows to program all these functions in a fully automatic system. It is also possible to select the manual control.

This unit is supplied with:
-Two stainless steel beakers Ø120 mm
-Four stainless steel sieves Ø200 mm openings: 0,063 - 0,250 - 0,800 - 2 mm
-Sieve Frame only Ø200 mm to improve the capacity of the first sieve
-Set of O-ring gaskets for sieves

BA007

Power supply: 400 V | Three phase | 50 Hz | 5,5 kW
Overall dimensions: 1400x680x1820 mm
Weight: 185 Kg

ACCESSORIES

B007-01
Lining paper 370x200 mm for centrifuge cup (100 pieces)

B007-10
Cabinet with aspirator
It allows housing the automatic bitumen extraction unit, to minimize the diffusion of vapours and toxic solvents in the laboratory. The structure is anodized aluminium made and safety glass walls. The unit is supplied with 4 front doors, aspirator centrifugal electric vapour and appropriate filter group to activated charcoal.
A room with internal height at least 3 m is required.

Power supply: 380 V | 3 ph | 1100 W
Dimensions: 1950x980x2630 mm
Weight: 140 Kg

BA007-10

BA011
CENTRIFUGE EXTRACTOR 1500/3000 G
EN 12697-1, 13108 | ASTM D2172 | AASHTO T164A

Used for the determination of bitumen percentage in bituminous mixtures. It consists of a removable, precision machined aluminium rotor bowl, placed into a cylindrical aluminium box. The separate control panel incorporates an electronic card fitted with AC drive which automatically drives the bowl speed rotation ramp from 0 to 3600 rpm as requested by Standards, with fast stop bowl rotation at the end of the test.

Supplied with speed regulator and digital display monitoring the frequency. The centrifuge is supplied without aluminium bowl+cover and without filter discs to be ordered separately.

Power supply: 220-240 V | 50-60 Hz | 550 W
Dimensions: 550x380x500 mm
Weight: 50 Kg

BA013
CENTRIFUGE EXTRACTOR 1500/3000 G
EXPLOSION-PROOF MODEL
EN 12697-1, 13108 | ASTM D2172 | AASHTO T164A

Same as model BA011, but equipped with a special explosion proof electric motor. The control panel has to be installed in a non explosive área.

BA011

ACCESSORIES
BA010-11
Bowl and cover 1500 g
BA010-12
Filter disc 1500 g (Pack of 100 pieces)
BA010-21
Bowl and cover 3000 g
BA010-22
Filter disc 3000 g (Pack of 100 pieces)

BA010-21

BA010-22

BA015
FILTERLESS CENTRIFUGE EXTRACTORS
EN 12697-1 | ASTM D1856

Designed for quick filterless separation of filler from binder solution or other mixtures containing sediments (cement, soil, clay), in suspension. The solution is poured into the top funnel and falls into the rotating test container with Ø70x200 mm. Because of the centrifugal effect, the liquid rises vertically leaving the filler and mineral particles inside the beaker. The centrifuge is supplied with aluminium beaker, two sieves 2 mm and 0,063 mm mesh respectively.

The rotation speed is 11500 r.p.m. with automatic ramp and preset speed control.
Extraction capacity is up to 100 g of filler per test.

Rotation speed:
11500 r.p.m.
Capacity:
To 100 g
Power supply:
230 V | 50 Hz | 600 W
Dimensions:
350x600x720 mm
Weight:
60 Kg

BA015

BA017
SOLVENT RECOVERY UNIT

This unit, is provided with two tanks: one for the clean solvent and one for the dirty solvent and of a water coolant system which only needs to be connected to a tap. A safety cut out is also supplied, being activated when the solvent level becomes too low or once the process is completed. Fully stainless steel very high quality made.

Supplied with funnel/tank with sieve insert and 10 m plastic tube.

Capacity:
10 L/h
Power supply:
230 V | 50-60 Hz | 1300 W
Dimensions:
320x400x650 mm
Weight:
17 Kg

BA017

BA021
VACUUM PYKNOMETER 10 LITRES (RICE TEST)
EN 12697-5 | ASTM D2041

This pyknometer is for determining the theoretical maximum specific gravity of uncompacted bituminous paving mixtures. They can also be used for the calculation of the percentage of air voids in compacted bituminous mixtures and the amount of bitumen absorbed by the aggregates.

To perform the test a minimum ultimate vacuum of 30mm/Hg is requested.

Dimensions: Ø300x450 mm
Weight: 8 Kg

ACCESORIES
AR053
Electromagnetic shaker
MG743
Vacuum pump 75 L/min
MG740-01
Vacuum regulator
MG740-02
Condensed water trap
MG740-03
Tubing 3 m

BA021

AR053

MG743+MG740-01+MG740-02

BA025
ROTARY EVAPORATOR
EN 12607 | ASTM D5404 | ASTM D7906

Rotary evaporation apparatus for determining the resistance to hardening under the influence of heat and air. 100 g of bituminous binder is introduced into the 1000 ml rotating flask of the rotary evaporator. When the test temperature reaches 165°C a flow of air at ambient temperature is introduced into the rotating flask. The air flow hardens the sample and the hardening effect is evaluated by measuring penetration, softening point and dynamic viscosity of the treated bituminous binder sample.

Temperature range: 20-210°C
Power supply: 230 V | 50-60 Hz | 14400 W
Dimensions: 845x477x740 mm
Weight (without glass): 16 Kg

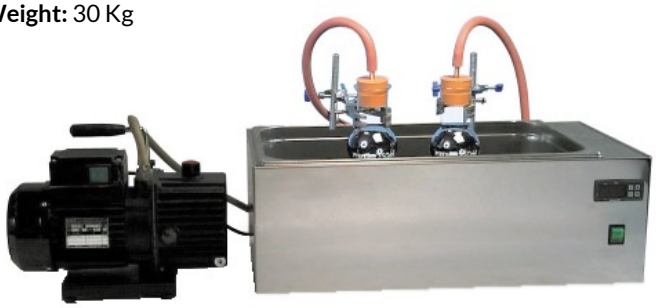
BA025

BA023
BINDER RECOVERY APPARATUS
EN 12697-1 CLAUSE B.3.1 | BS 598:102

This apparatus is used to remove the solvent from binder/solvent solutions in order to directly determine the total binder content of aggregate/binder mixtures.

The apparatus consists of a vacuum pump fitted with a regulator producing a vacuum down to 200 mbar, a thermostatically- controlled water bath, and two flat-bottomed 250 ml flasks with rubber bungs, plus all other necessary fittings and connections.

Power supply: 230 V | 50 Hz | 1000 W
Weight: 30 Kg



BA023

BA027
BOTTLE ROLLING MACHINE
EN 12697-11

This machine is used for determining the affinity between aggregate and bitumen. The result is expressed by visual registration of the degree of coverage on uncompacted bitumen-coated mineral aggregate particles after the influence of mechanical stirring action in the presence of water.

The machine is designed to accommodate three test bottles. A glass rod is also required to complete the system. These items are not included and have to be ordered separately

Power supply: 230 V | 50-60 Hz
Dimensions: 385x295x160 mm
Weight: 10 Kg

ACCESORIES
BA027-01
Test bottle 500 ml
BA027-02
Glass rod Ø6x35 mm

BA027

BA031
HOT EXTRACTOR WIRE MESH FILTER METHOD
EN 12697-1 CLAUSE B.1.2

This apparatus consists of a cylindrical glass jar containing a stainless steel wire basket cloth opening 0,063 mm. The asphalt sample (500 to 2000 g) is placed inside the wire basket, the solvent is poured inside the jar. Now the wire basket is inserted into the jar which is covered by a stainless steel condenser connected to a water supply. The apparatus is placed on a hot plate and the boiling solvent drips into the basket dissolving out the bitumen. The filler passing through the mesh basket must be separated using the centrifuge extractor.

Dimensions: Ø160x335 mm
Weight: 4 Kg

BA031

ACCESORIES
BA031-01
Wire basket cloth 0,4 mm
BA031-02
Wire basket double cloth 0,063 and 0,4 mm
BA030-01
Wire mesh with ceramic centre150x150 mm
MG681-03
Hot plate Ø180 mm

MG275
DIGITAL THERMOMETER

This thermometer is particularly practical because it enables virtually any kind of temperature measurement. Whether for surface, air or immersion/penetration measurement.
The thermometer requires to be connected with a probe.

Temperature measuring range: from -50 to +1000 °C
Dimensions: 182x65x40 mm
Weight: 171 g

MG275-01

MG275

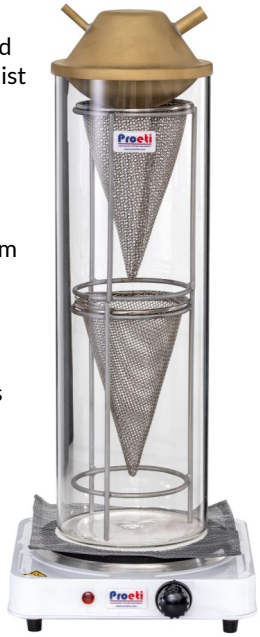
ACCESORIES
MG275-01
Waterproof immersion/penetration probe -60 a +400°C
MG275-02
Waterproof surface probe -60 a +400°C for flat surfaces
MG275-03
Service case for thermometer and probes
MG275-04
Safe case to protect from impact and dirt

BA033
REFLUX EXTRACTOR 1000g
ASTM D2172

Used for the quantitative determination of bitumen in hot-mix paving mixtures and pavement samples, these extractors consist of two wire mesh cones with interlocking frames, a cylindrical glass jar and a water condenser with inlet/outlet tubes.
The bitumen content is calculated by difference from the weight of extracted aggregates, moisture content and ash from an aliquot part of the extract.

It is composed by
-Cylindrical glass jar
-Metal frame supporting two metal cones
-Metal condenser on top of the jar
-100 filter papers
-Wire gauze

Dimensions: Ø160x510 mm
Weight: 5 Kg



BA033

BA035
REFLUX EXTRACTOR 4000g

Similar to BA033 but having 4000 g capacity.

Dimensions: Ø280 x510 mm
Weight: 9 Kg

ACCESORIES
BA030-01
Wire mesh with ceramic centre150x150 mm
BA030-02
Wire mesh with ceramic centre200x200 mm
BA030-03
Wire mesh with ceramic centre300x300 mm
MG681-03
Hot plate Ø180 mm
MG681-04
Hot plate Ø220 mm

MG273
DIGITAL THERMOMETER FROM -50 TO 250°C
MG285
DIAL THERMOMETER FROM 0 TO 200°C

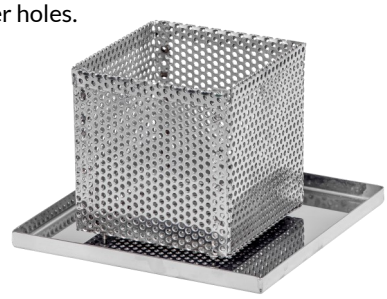
For temperature measurement of freshly mixed concrete, bituminous mixtures and general purpose use.

MG285 MG273

BA039
DRAINAGE BASKET
EN 12697-18

The drainage basket and metal tray are used for determining binder drainage of bituminous mixtures, estimating the binder drainage for different binder contents, and evaluating the effect of varying the fine aggregate quantity or anti-draining additive content. The basket is made of stainless steel perforated plate with 3,15 mm diameter holes.

Basket dimensions:
100x100x100 mm
Tray dimensions:
160x160x10 mm
Weight:
1000 g



BA039

BA041
HOT EXTRACTOR PAPER FILTER METHOD
EN 12697-1 CLAUSE B.1.1

This apparatus is used for the extraction of binder from hot-mix paving mixtures and can also be used for determining the moisture content.

Consisting of:
-A metallic pot with gauze basket and filter
-Dean Stark collector
-Liebig condenser
-25 filter papers Ø 400 mm

Dimensions: 480x480x900 mm
Weight: 22 Kg

ACCESSORY
MG681-04
Hot plate Ø220 mm

BA041

MG681-04

BA043
SOXHELET METHOD
EN 12697-1 CLÁUSULA B.1.3

Consisting of:
-Flask 5000 ml
-Extractor 2000 ml
-Vapour tube
-Condenser
-25 filtering cartridges of Ø80x240 mm
-Isomantle electric heater
-Stand and clamps

Power supply:
230 V | 50-60 Hz | 900 W
Dimensions:
400x400x1000 ml
Weight:
20 Kg

BA043

BA045
KUMAGAWA EXTRACTOR 1L
EN 12697-1 CLAUSE B.1.3 | LCPC

BA047
KUMAGAWA EXTRACTOR 2L

Used for the quantitative determination of bitumen in hot-mix paving mixtures and pavement samples.

This extractor consists of:
-Round glass flask
-Cooling unit
-Dean-Stark receiver
-Eelectric heating mantle with regulator
-Fittings

Two models are available: 1 or 2 litres.

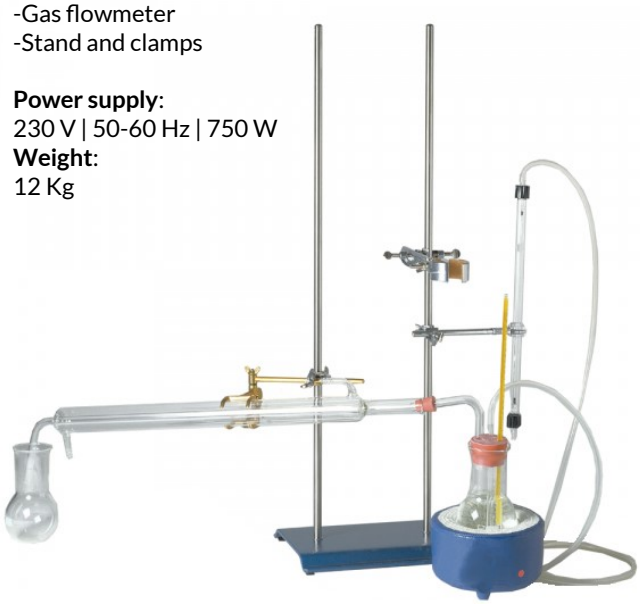
Power supply:
230 V | 50-60 Hz | 750 W
Dimensions:
400x500x1000 mm
Weight:
20 Kg

BA045

BA049
ABSON METHOD
ASTM D1856 | CNR N°133

Used for recovering the asphalt (bitumen) from a solution generated by a previous extraction.
The apparatus is a distillation assembly that consists of:
-Extraction flasks
-Glass tubing
-Inlet aeration tuve
-Electric heating mantle
-Water-jacketed condenser
-Thermometer
-Gas flowmeter
-Stand and clamps

Power supply:
230 V | 50-60 Hz | 750 W
Weight:
12 Kg



BA049

BA051
AUTOMATIC LABORATORY MIXER

EN 12697-35 | ASTM D6307 | AASHT0 TP53

The design and testing of bituminous mixtures includes various laboratory tests such as:
-Marshall stability (EN 12697-34)
-Gyratory compaction (EN 12697-31)
-Slabs laboratory compaction (EN 12697-33)
-Prepare specimens for Wheel tracking (EN 12697-22)
-Determination of stiffness (EN 12697-26)
-Beam fatigue testing (EN 13108)

To produce samples for performing the above tests, it is essential that the preparation of a bituminous mixture is carried out at a reference temperature and within a limited time period in order to reduce mechanical degradation of the aggregates.

The mixer consists essentially of a horizontal stainless steel mixing container with a helical mixing shaft.

The container is thermally insulated and comes with a heating element and probe sensor which provide uniform temperature control. The container can be easily tilted by the electric motor for the unloading operation.

Automatic mixer consists of:

-Main frame holding a horizontal stainless steel bowl with a helical mixing shaft.

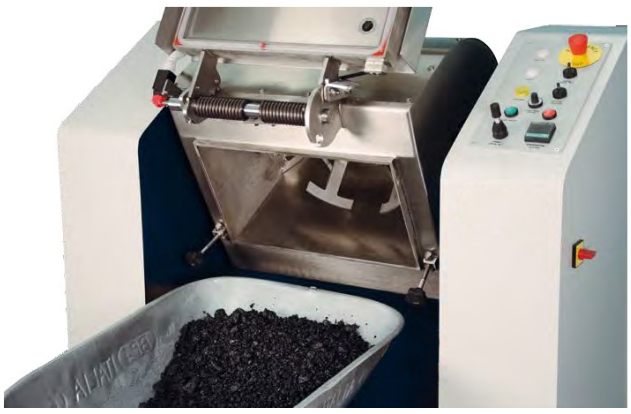
-The bowl, double wall insulation made of stainless contains an electric heater with probe sensor granting constant and uniform temperature control.
-An electromechanical motion allows to tilt the bowl facilitates the unloading operation, with total rotation up to 130°.

BA051

The control panel foresees:
-Digital thermo regulator to set temperature and to control the mixing temperature
-Mixing speed regulator
-Main and start/stop switches
-Command to tilt the bowl

Mixing capacity: 32 litres max.
Power supply: 230 V | 50-60 Hz | 4500 W
Mixing temperature: From ambient up to 260 ° C
Mixing speed: adjustable from 4 to 40 rpm
Heating power: 3000 W
Dimensions: 1280x700x1210 mm
Weight: 350 Kg

Detail of the detachable mixing shaft with blades



Easy tilting with rotation angle up to 130°

BA055
PLANETARY MIXER 10 L
EN 12697-5 | ASTM D2041

This large capacity mixers have been designed to mix bituminous samples for compaction tests, Marshall and tensile splitting test and for other tests where uniformity is required.

A robust device for the efficient mixing of asphalt mixes, this model is a table mounted unit with planetary mixing action and a bowl and whisk that are easily fitted and removed.

The mixer is supplied with spiral, blade and whisk beaters and a stainless steel bowl.

Power supply: 750 W
Timer: 0-30 min
Dimensions: 410x523x688 mm
Weight: 44 Kg

BA055

ACCESORY

BA055-01
Isomantle heater for BA055
Used to heat the bituminous mixtures contained in the mixing bowl up to a maximum temperature of 180°C.

LABORATORY PLANETARY MIXERS

A robust device for the efficient mixing of asphalt mixes, these models are table mounted units with planetary mixing action and a bowl and whisk that are easily fitted and removed.

These machines operate with a dedicated and easy to use display and keyboard interface. Either Standard speeds or user defined speeds can be easily selected (also adjustable during mixing).

The front grill, when opened, automatically stops the machine for operator protection conforming to CE requirements.
All machines are supplied with bowl and whisk.

Dimensions: 605x735x1180 mm


BA063

CODE	CAPACITY	POWER SUPPLY	WEIGHT
BA063	20 L	220 V | 50 Hz | 1 Ph | 750 W	95 Kg
BA065	20 L	400 V | 50 Hz | 3 Ph | 900 W	100 Kg
BA067	30 L	220 V | 50 Hz | 1 Ph | 1100 W	100 Kg
BA069	30 L	400 V | 50 Hz | 3 Ph | 1100 W	104 Kg

ACCESORY

BA060-01
Isomantle heater for 20 L bowls
Used to heat the bituminous mixtures contained in the mixing bowl up to a maximum temperature of 180°C.

BA060-02
Isomantle heater for 30 L bowls


BA060-01

BA071
ASPHALT ROLLER COMPACTOR
EN 12697-33 method 5.2 and annex A | ASTM D8079

This apparatus can compact asphalt slabs to a target density applying specific loads corresponding to those of pavements rollers used in the highway construction.

The machine works with an electromechanical system, and therefore it does not require any external air source or hydraulic pressure. It is used to simulate representative sample slabs of several dimensions of bituminous mixtures laid and compacted on site. The compaction is performed through a segmented roller with alternated operated rotation which simulates the on-site action of a street roller.

The slabs produced can be used for:
-Wheel tracker tests
-Perform specimens for indirect tensile
-Cut into beams for bending fatigue tests

Three transducers are installed to manage the roller and table displacements and vertical load pressure.
The compaction cycle can be programmed up to a certain load or deformation value. When deformation value is programmed, the system automatically programs the suitable loads to obtain the selected final thickness.

The flexibility of the program grants the production of samples with uniform density and dimensions, fully meeting Standards specifications and Research requirements.

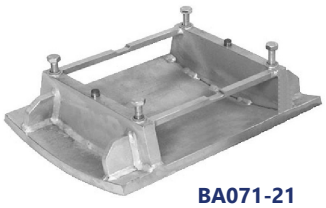
BA071

The Roller Compactor is supplied without roller segment, slab mould, centering plate, that must be ordered separately.

Power supply: 230 V | 50-60 Hz | 2100 W
Sliding carriage speed: adjustable 3 and 12 m/min
Vertical force selectable up to max: 40 kN
Dimensions: 2200x1030x2410 mm
Weight: 1300 Kg

ACCESORIES
BA071-01
Rolling vibrating device
Reproducing street-roller vibrations during asphalt laying off.

BA071-11
Roller for 305x305 mm mould
BA071-21
Roller for 320x260 mm mould
BA071-31
Roller for 400x305 mm mould
BA071-41
Roller for 500x400 mm mould


BA071-21

BA071-02
Heating of segment roller and sliding cart
Providing the possibility to heat and control temperature of the segment roller mounted on the compactor and sliding carriage to keep the mould warm and avoid thermal shocks the might affect specimen's workability.
The equipment is composed of:
-Control unit mounted in the roller compactor with probe to measure and to adjust the temperature from ambient up to 180 °C.
-Sliding cart heating system consisting of thermoregulated circuit with temperature probe to set and control cart temperature and keep mould hot. The temperature is adjustable from ambient up to 140 °C.

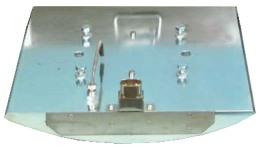

BA071-02

BA070-13
Mould to prepare asphalt slabs 305x305x50 mm
BA070-14
Mould to prepare asphalt slabs 305x305x100 mm
BA070-23
Mould to prepare asphalt slabs 320x260x50 mm
BA070-24
Mould to prepare asphalt slabs 320x260x180 mm
BA070-33
Mould to prepare asphalt slabs 400x305x50 mm
BA070-34
Mould to prepare asphalt slabs 400x305x100 mm
BA070-35
Mould to prepare asphalt slabs 400x305x120 mm
BA070-43
Mould to prepare asphalt slabs 500x400x180 mm


BA070-24

BA071-12
Heated segment roller for 305x305 mm mould
BA071-22
Heated segment roller for 320x260 mm mould
BA071-32
Heated segment roller for 400x305 mm mould
BA071-42
Heated segment roller for 500x400 mm mould

BA070-10
Centering plate for 305x305 mm mould
BA070-20
Centering plate for 320x260 mm mould
BA070-30
Centering plate for 400x305 mm mould


BA071-42

BA073
SINGLE WHEEL TRACKER

EN 12697-22 | BS 598: 110 | NF P98-251-1 | NF P98-251-4

This machine is used in laboratory, for evaluating the deformation (rut) depth of a bituminous mixture subjected to cycles of passes of a loaded rubber wheel under constant and controlled temperature conditions.

To perform the test, a loaded wheel, which bears on a sample held on a moving table is used to simulate the effect of traffic and to measure the deformation susceptibility of the bituminous sample.
The table reciprocates with simple harmonic motion over a distance of 230 ± 5 mm.

The test frame is made of robust aluminium alloy and it is contained in a climatic cabinet with adjustable temperature from 30 to 65°C ± 1°C. The cabinet is equipped with two doors with insulated glass for inspection.

The wheel tracker is equipped with 3 temperature probes:
-1 probe for the control of the cabinet temperature
-2 probes for temperature measurement inside the specimen

The sample table has 400x390 mm dimensions and can accept rectangular slabs of several sizes:

-Slabs of 305x305 mm, 50 mm height
-Slabs of 305x305 mm, 100 mm height
-Slabs of 400x305 mm, 50 mm height
-Slabs of 400x305 mm, 100 mm height
-Core samples Ø400x305 mm, 50 mm height
-Slabs of 500x400 mm, 180 mm height

Continuous real time rut depth measurement (penetration of the wheel into the sample) through a linear transducer 40 mm travel by 0,01 mm accuracy.

BA073

The machine is supplied complete with adaptors for a correct mould positioning and locking and hard rubber tyred wheel having outside diameter 200 mm. The confinement moulds are not included and have to be ordered separately.

Travel of the table: 230 ± 5 mm
Table cycle frequency: from 15 to 40 cycles per minute
Wheel load: 700N ± 10N (EN) || 520N (BS)
Power supply: 230 V | 50-60 Hz | 2200 W
Dimensions: 1580x650x1790 mm
Weight: 400 Kg

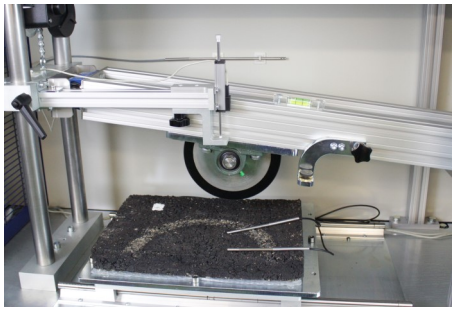
ACCESORIES

BA070-13
Mould to prepare asphalt slabs 305x305x50 mm
BA070-14
Mould to prepare asphalt slabs 305x305x100 mm

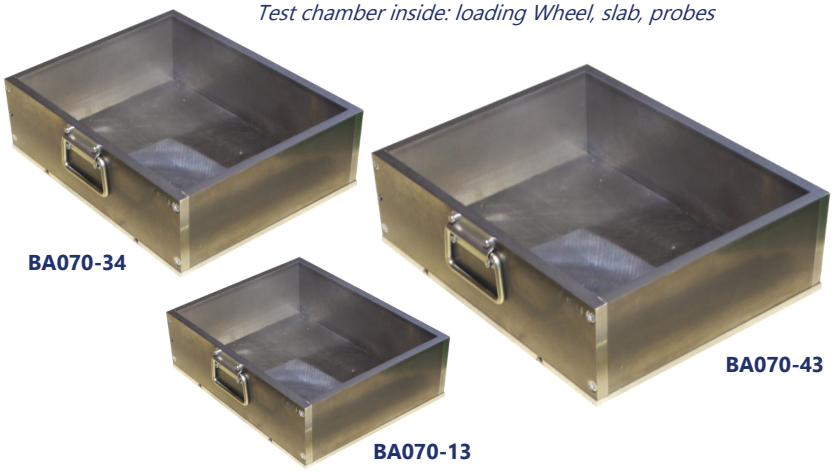
BA070-23
Mould to prepare asphalt slabs 320x260x50 mm
BA070-24
Mould to prepare asphalt slabs 320x260x180 mm

BA070-33
Mould to prepare asphalt slabs 400x305x50 mm
BA070-34
Mould to prepare asphalt slabs 400x305x100 mm
BA070-35
Mould to prepare asphalt slabs 400x305x120 mm

BA070-43
Mould to prepare asphalt slabs 500x400x180 mm
BA070-53
Mould to prepare asphalt slabs Ø200x50 mm



Test chamber inside: loading Wheel, slab, probes



BA070-34

BA070-43

BA070-13

BA075
MULTI WHEELS HAMBURG TRACKER
EN 12697-22 | AASHTO T-324

The Hamburg wheel tracking tester is used for determining the susceptibility of Hot Mix Asphalt to deformation under load by measuring the rut depth formed by repeated passes of a loaded wheel at a fixed temperature.

The AASHTO Hamburg type Standard states that the test must be performed in a water bath with a temperature range of 25 to 70° C±1°C, whilst the EN requires either an air or water environment. In both systems a water level of about 20 mm above the sample has to be maintained.

The machine has independent motors for each wheel which assure separate rutting analysis of each specimen. The user can perform wet or dry test with both wheels or run one wheel under dry and one wheel under wet condition simultaneously during a single test.

The wheel is moved 230 mm backwards and forwards on the top of the slab, which is fixed. The speed is adjustable via the PC from 20 to 30 cycles per minute (40 to 60 passes). The longest slab dimension is oriented to the wheel's direction of travel.

The user-friendly software is integrated into the on-board digital control unit based on Windows operating system. The software is fully customizable by the operator according to EN and AASHTO Standards, and the personal needs. Automatic calculation of stripping inflection point (AASHTO). Test execution and parameters such as water/air temperature, specimen temperature, ruth depth can be monitored in real time.

BA075

Wheel load on the sample: 705 N
Temperature range: from ambient up to 75°C
Slab thickness: from 38 to 120 mm
Power supply: 220 V | 50-60 Hz
Dimensions: 1400x1300x1300 mm
Weight: 450 Kg

BA077
MULTI WHEELS HAMBURG TRACKER WATER TEST
AASHTO T-324

Same as model BA075, but without cover.
It allows water test only.
The AASHTO standard for the Hamburg-type test establishes that the test must be carried out in water with a controlled temperature between 25 and 70 °C.

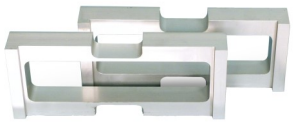
ACCESSORIES

BA075-11

EN 12697-22 AIR:
BA075-11
EN Rubber wheel 203x50 mm
BA075-12
EN mold 400x305x120 mm
BA075-13
Set of vertical adaptors for EN mold
BA075-14
Set of horizontal adaptors for EN mold
BA075-15
Air heating system EN

BA075-12

EN 12697-22 WATER:
BA075-11
EN Rubber wheel 203x50 mm
BA075-12
EN mold 400x305x120 mm
BA075-13
Set of vertical adaptors for EN mold
BA075-14
Set of horizontal adaptors for EN mold



BA075-13 + BA075-14

AASHTO T324 WATER:
BA077-11
AASHTO steel wheel 203x50 mm
BA077-12
AASHTO mold Ø150x60 mm
BA077-13
Adaptors for AASTHO mold
BA077-14
Stainless steel adaptors for AASHTO mold
BA077-15
Vertical adaptors for AASHTO mold

BA077-11

BA077-12

OPTIONAL ACCESORIES

BA075-31
Electrovalve group for hot water
BA075-32
Probe for specimens temperature determination
BA075-33
HPDE mould specimen holder
BA075-34
Kit for the calibration of the wheel load
Composed of a support block with a calibrated 1000 N load cell with a digital readout.

BA081
GYRATORY COMPACTOR
EN 12697-10, EN 12697-31

This Gyratory Compactor is used to simulate and reproduce the real compaction conditions under actual road paving operations, hence determining the compaction properties of the asphalt. It is based on the motion of the bituminous sample which generates a conical surface of revolution, characterized by the gyratory angle. This motion produces shearing forces and, consequently, the sample compaction.

The Compactor comprises a highly rigid steel frame ensuring excellent angle control. Load is applied by a pneumatic cylinder, servo-controlled by a precision pressure regulator; the height is measured by a linear transducer. Gyratory motion is generated by an eccentric high precision system allowing an easy set up with precision and constant angle of gyration.

The machine is calibrated at factory with the internal angle set to 0,82° as requested by EN Specifications. The size of samples that the compactor accepts is a diameter of 100 or 150 mm and a height of up to 200 mm. Requires pressurized air of at least 7 bar.

The different operation modes that can be configured are:
-Compaction according to number of rotations;
-Compaction to selected sample height;
-Compaction to selected sample density;
-Final cycle of 0° angle to obtain a perpendicular face

Smart design for ease of use and operator safety with minimal manual exertion whilst handling hot and heavy asphalt-filled moulds. The touch-screen icon interface allows an easy set up of the parameters and an immediate automatic execution of the test, data acquisition and processing, graphics and file.

BA081

Gyratory angle: adjustable from 0 to 3°
Number of cycles: adjustable from 1 to 5000
Gyration rate: adjustable from 5 to 60 cicles/min
Vertical load:
-Sample Ø150 mm:
from 10 to 1000 kPa (10 bar)
from 10 to 800 kPa (8 bar)
from 10 to 700 kPa (7 bar)
-Sample Ø100 mm:
from 23 to 1500 kPa (7 bar)
Power supply: 230V 50-60Hz 1000W
Dimensions: 640x500x1050 mm
Weight: 240 Kg

BA083
GYRATORY COMPACTOR
ASTM D6925 | AASHTO T312 | SHRP M-002

Factory calibrated gyratory compactor with the internal angle at 1,16° as established by ASTM and AASTHO

BA080-21

BA080-12 BA080-22

BA080-23 BA080-13

BA080-11

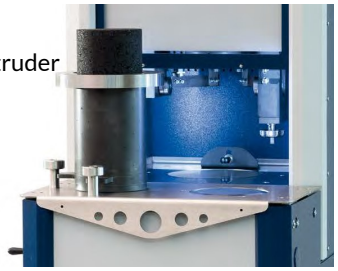
ACCESSORIES	Ø100 mm	Ø150 mm
Hardened specimen cylinder with bottom plate	BA080-11	BA080-21
Hardened specimen cylinder with holes for cold mix compaction	BA080-12	BA080-22
Hollow mold to stabilize and to mature the simple	BA080-13	BA080-23
Top penetration piston	BA080-14	BA080-24
Discs to make easier the handling of specimens	BA080-15	BA080-25
Filter paper for moulds (Pack of 100 pieces)	BA080-16	BA080-26

ACCESORIES FOR GYRATORY COMPACTOR

BA080-01
Work top
Allows to attach the pneumatic sample extruder and a scale.

BA080-02
Pneumatic automatic specimen extruder

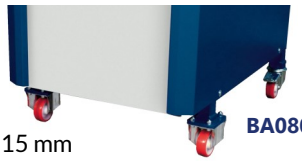
MG753
Air compressor, pressure 10 bar



BA080-01

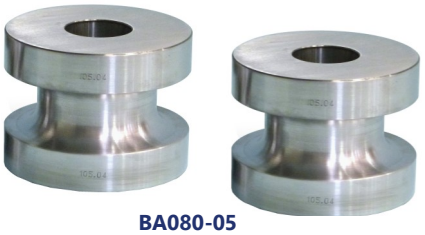
BA080-03
Filter group for condensed water removal from the compressed air (needed accessory)

BA080-04
Wheels (kit of 4) with brake for the compactor



BA080-04

BA080-05
Kit of 2 distance pieces of 105 and 115 mm high for the control of the height values measured by the linear transducer



BA080-05

BA080-06
Vertical force testing device with digital dynamometer

BA080-06

BA080-07
Vertical force testing device with load ring

BA080-07

BA080-08
Balance integrated 30 kg x 6 g to facilitate the sample and the mould weightings, by avoiding the stress of lifting them.

BA080-09
Bench for lateral bearing of a weighting balance.

BA080-10
Official vertical load calibration certificate

MG213-28
Electronic balance 30 Kg x 0,01 g as requires EN standard

BA080-03

BA089
INTERNAL ANGLE MEASUREMENT APPARATUS

EN 12697-31 | ASTM D7115 | AASHTO T344

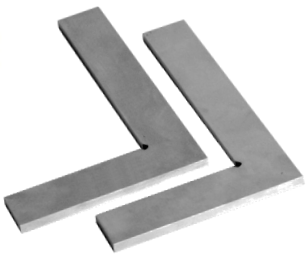
The device allows to perform top and bottom angle measurements as specified by the Standards; the average of the obtained values is then considered as the internal angle of the machine. In less than 30 minutes the operator may perform the calibration of the Gyratory Compactor.

Data are read by GAM and then downloaded (via RS232 cable) all together at the end of the measurements, with no need to connect the device to the PC after each measurement Possibility to repeat even just one of the measurement, and lately include it in the calculation spreadsheet.

The device is supplied complete with:
-Ring to perform tests with M=240Nm
-Ring to perform tests with M=425Nm
-Upper and lower base plate
-RS232 cable
-Strong practical suitcase
-Calibration certificate

Dimensions: Ø150x115 mm
Accuracy: > 0,01 °
Weight: 5,6 Kg

BA089



BA089-01

ACCESSORIES

BA089-01
Calibration squares according to EN angle of 0,82°
BA089-02
Calibration squares according to ASTM angle of 1,16°
BA089-03
Angle calibration certificate for both squares

BA091
AUTOMATED SAW
ASTM D7870

This apparatus is the next generation fully automated asphalt sawing system with integrated specimen clamping. The Automated Saw offers fast and accurate cutting of rectangular beams, trapezoidal prisms, overlay test specimens, semi-circular specimens, and trimming of cylindrical specimens.

It can be configured using one or two blades with a large range of jigs and fixtures. Capable of cutting prismatic specimens up to 240 mm high and a cutting length up to 700 mm and cylindrical specimens up to 200 mm diameter.

Various alignment blocks, guides and reference spacers allow operators to easily achieve the most commonly used dimensions specified in a range of international standards with little or no measurement. Any other dimensions can be accommodated with the aid of an integrated ruler.

The protective enclosure provides a high level of operator safety and protection from water spray. Safety interlocks prevent the operator from opening the enclosure and accessing hazardous areas while the blade is rotating. Once the cutting sequence has finished and the blade has stopped rotating, the enclosure is unlocked automatically

Electronic control unit with touch screen colour display, that runs like a standard PC based on Windows operating system

BA091

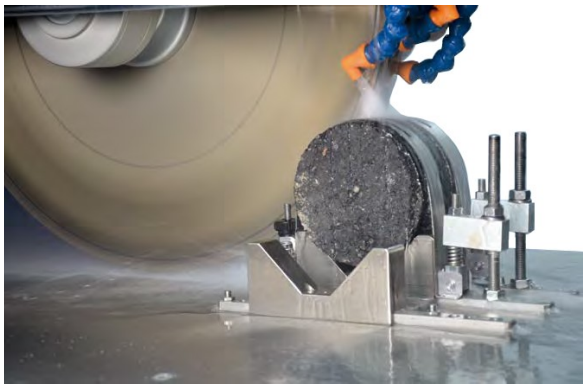
The controller allows the operator to easily control the cutting speed and sequence and a series of adjustable limit switches minimizes the saw carriage travel during repetitive cutting.

It includes cooling water recirculation pump and tank.

Power supply: 400 V | 3 phase | 50-60 Hz
Dimensions: 2370x1340x1670 mm
Blade Diameter: 650 mm or 700 mm
Max Cutting Depth: 200 mm or 240 mm
Weight: 500 Kg

ACCESSORIES

BA091-01
Diamond blade Ø650 mm
BA091-02
Diamond blade Ø700 mm
BA091-05
Set of spacers for mounting diamond blade Ø650 mm
BA091-06
Set of spacers for two blades configuration
BA091-07
Spacer for one blades configuration
BA091-09
Displacement transducer for the control of the blade position



BA091-01

BA091-10
Pneumatic circuit
If equipped with pneumatic cutting jigs, the unit requires compressed air, minimum 8 bar
BA091-11
Manual jig for slabs and prims 40 - 240 depth x700 mm length
BA091-12
Automatic jig for slabs and prims 40 - 240x700 mm
BA091-13
Manual trapezoidal specimen jig for two point bend
It requires BA091-11 or BA091-12 jigs
BA091-16
Manual core docking jig for Ø150-100-60-50-40-38 mm
BA091-17
Automatic core docking jig for Ø150-100-60-50-40-38 mm
BA091-20
Instrumentation for overlay test specimens
It requires BA091-11 or BA091-12 jigs

BA101
AUTOMATIC IMPACT MARSHALL COMPACTOR
ASTM D6926 | EN 12697-10 | EN 12697-30

This ruggedly constructed apparatus automatically compacts the sample and stops after a pre-set number of blows.

The mould is held in position by a quick and practical clamping device. The trip mechanism is arranged so that the sliding hammer falls at the same distance for every blow.

The compactor includes a vibrated concrete base where a laminate hardwood block is mounted, a the compaction hammer of 7850 ± 50 g and a sliding mass weight of 4535 ± 15 g.

The free fall height is 457 mm and the striking frequency is approximately 50 blows per 60 seconds, as required by international standards.

The machine is equipped with safety door, conforming to CE Safety Directive. When opened it stops automatically and cannot operate.The control panel can be wall fixed or placed on a bench.

Power supply: 230 V | 50 Hz | 300 W
Dimensions: 500x500x1890 mm
Weight: 220 Kg

BA101

ACCESSORY

BA101-01
Cabinet lined with sound-proofing
It is covered with a soundproof material for maximum noise reduction.

Dimensions: 800x800x2000 mm
Weight:100 Kg


BA101-01

BA103
MANUAL MARSHALL COMPACTOR
ASTM D6926

This version of Marshall compactor is for compacting specimens by hand and consists of a wooden compaction pedestal, a support rod to hold the hammer in a perpendicular position, a compaction hammer and mould holder.

Dimensions:
1580x300x300 mm
Weight:
45 Kg

BA103


BA105

BA105
MARSHALL MOULD Ø4”
EN 12697-10 | EN 12697-30 | NF P98-251-2

Steel manufactured, plated against corrosion.
Consisting of:
-Mould Ø4” 1300 g
-Collar Ø4” 850 g
-Base Ø4” 1000 g

BA107
MARSHALL MOULD Ø6”
ASTM D5581-96

Consisting of:
-Mould Ø6”
-Collar Ø6”
-Base Ø6”


BA105

ACCESSORIES
BA105-01
Marshall filter paper (100 pieces)
BA105-02
Sample extractor piston

SU085
UNIVERSAL EXTRUDER

Hand operated, actuated by a hydraulic jack, it is designed to extrude samples having Ø4” and 6”. It can therefore extrude Marshall, CBR, Standard and Modified Proctor specimens.

Dimensions: Ø300x500 mm
Weight: 32 Kg


SU085

SU255
VIBRATING HAMMER

EN 12697-9 | EN 12697-10 | EN 12697- 32 | EN 13266-4
BS 1377:4 | BS 1924:2

The hammer is used for compacting asphalt in the percentage refusal density test and for the compaction of Proctor and CBR soil specimens.

Power supply: 230 V | 50-60 Hz | 720 W
Dimensions: 105x430x270 mm
Weight: 6 Kg

SU255

ACCESSORIES

SU255-01
Supporting frame for vibrating hammer

Dimensions: 500x320x1100 mm
Weight: 75 Kg

SU255-02
Small head tamping foot Ø102 mm
SU255-03
Large head tamping foot Ø146 mm

SU255-01

SU255-03 SU255-02

BA109
PRD MOULD

EN 12697-9 | EN 12697-10 | EN 12697- 32 | EN 13266-4
BS 1377:4 | BS 1924:2

Used to determine the degree of compaction of asphalt for road pavement quality control testing, this device consists of a mould, split vertically on one side, together with a clamp-attached baseplate.
Both parts are plated for protection against corrosion.

Weight:
12 Kg

BA109

BA111
ASPHALT CORE DRILLING MACHINE

EN 12697-20, EN 13108-6

Designed for fast, accurate cutting of cores from cylinders, prisms and slabs prepared using asphalt compaction machines.

The machine includes:
-Three selectable drill speeds
-Clear protective/splash screen conforming to CE standards
-Adjustable specimen clamp eliminates specimen movement
-Water container

Drill Bit Diamond/tungsten alloy, laser welded.
Core diameter 100 mm or 150 mm.
Core height up to 40 cm.
Specimen sizes:
-Cylindrical: Ø160 x 70...400 mm
-Prismatic: 200...450 x 150...185 x 120...420 mm
-Prismatic: 315...340 x 220...260 x 120...420 mm

Power supply: 230 V | 50-60 Hz
Dimensions: 600x800x1400 mm
Weight: 85 Kg

BA111-21

BA111

ACCESSORIES	Ø25 mm	Ø38 mm	Ø42 mm	Ø50 mm	Ø55 mm	Ø75 mm	Ø100 mm	Ø150 mm
Core Drilling	BA111-01	BA111-02	BA111-03	BA111-04	BA111-05	BA111-06	BA111-07	BA111-08
Core extractor	-	-	-	BA111-14	-	BA111-16	BA111-17	BA111-18
Clamping for cylindrical	BA111-21							
DCT jig	BA111-23							
Transversal jig	BA111-25							

BA115
INDENTATION PENETROMETER
EN 12697-20 | EN 13108-6

The Asphalt indentation penetrometer is one of the most important machines for testing mastic and rolled asphalt and isincluded in the test methods described by EN 13108-6 for CE marking of mastic asphalt. The test is used for determining the depth of indentation of mastic and rolled asphalt and can be performed both on 70 mm cubes and Marshall samples.

Comprising:
-Rugged frame where a screw penetration load device is fixed
-Two interchangeable pistons having 1 and 5 cm² surface
-Two metallic discs 51 kg on the load device
-Stainless steel water bath with water discharge cock.

Dimensions: 530x600x820 mm
Weight: 160 Kg

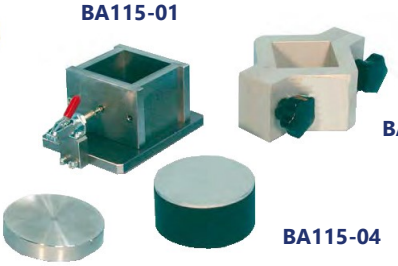
ACCESSORIES

BA115-01
Cube mould 70,7 mm
BA115-02
Penetration test mould 69 mm
BA115-03
Base to fix the Marshall specimen into the Penetrometer
BA115-04
Calibration device for the Indentation Penetrometer
BA115-05
Digital heating thermostat
To heat water to 22° or 40° as required by standards
Power supply: 230V | 50Hz | 1500W
Weight: 3 Kg

MG041
Separate control panel in according to CE safety directive

BA115

BA115-03


BA115-01

BA115-02

BA115-04

BA117
DIGITAL MARSHALL WATER BATH
EN 12697-34 | ASTM D6927 | AASHTO T245

Used to maintain in water Marshall specimens at constant temperature of 60°C ± 1°C and asphalt specimens at 37,8 °C ± 1°C. The internal tank and cover are stainless steel made, outside box is of painted steel sheet with wool insulation.
The bath can hold up to 20 Marshall specimens.
It is supplied with digital heating thermostat.

Capacity: 46 litres
Temperature range: from ambient to 95°C
Inside dimensions: 615x505x150 mm
Dimensions: 660x540x230 mm
Weight: 18 Kg

BA117

BA119
ANALOGIC MARSHALL WATER BATH
EN 12697-34 | ASTM D6927 | AASHTO T245

Same as the Marshall BA117 but supplied with analogic heating thermostat

ACCESSORY

MG041
Separate control panel in according to CE safety directive


MG041

BA121
DIGITAL MARSHALL LOAD FRAME

EN 12697-34, 12697-23, 12697-12 | BS 598:107 |
ASTM D6927, D5581, D1559 | AASHTO T245 | NF P98-251-2

The Marshall frame are bench-mounted, with a motor and worm gear housed within the base unit. Easy to use, it is designed to operate with the minimum of maintenance.

Platen rate is 50,8 mm/min also maintained under load through to an overpowered electric motor.

The load is measured by an 50 kN cell with high precision strain transducers; the flow is measured by an electronic displacement transducer 50 mm stroke ± 0,1% linearity.

A digital display unit with microprocessor measures and displays at the same time the stability in kN and the flow in mm with peak hold features, with the possibility to transfer them to a PC and a printer through a RS232 port.

Supplied with a stability mould.

Power supply: 230 V | 50 Hz | 900 W
Dimensions: 650x400x1100 mm
Weight: 120 Kg

BA121

BA123
ANALOGIC MARSHALL LOAD FRAME

ASTM D6927 | ASTM D5581 | ASTM D1559
AASHTO T245 | BS 598:107 | NF P98-251-2

The testing frame is the same as for model BA121, but the load is measured by a 30 kN proving ring incorporating a stem brake holding the maximum reading and it is supplied with relevant calibration certificate.

The machine includes an electric device for automatic stop when reaching the max capacity load of the proving ring, in order to prevent any overload damage, limit switches stop the platen at max and min excursions.

The unit is supplied with a 30 kN load ring, stability mould, flow meter with dial gauge.

Power supply: 230 V | 50 Hz | 900 W
Dimensions: 650x400x1100 mm
Weight: 120 Kg

BA123

ACCESSORIES

MARSHALL TEST
BA120-02
Marshall mould Ø 4" steel made
ASTM D6927

BA120-02

BA120-03
Marshall mould Ø 6" steel made
ASTM D5581

MG030-31
Software for Marshall tests
EN 12697-34 | BS 598:107 | NF P98-251-2
ASTM D6927, D5581, D1559

INDIRECT TENSILE TEST
BA120-11
Splitting tensile device
EN 12697-23 | ASTM D6931 | AASHTO T283
Steel manufactured and
plated against corrosion.
Dimensions: Ø248x270 mm
Weight: 14 Kg

BA120-11

For digital frame BA121:
BA120-12
Two 10 mm transducers
Complete with supports and
accessories for strain measurements
CNR N.134
BA120-13
Additional 50 mm transducer
for a double measurement of the vertical
displacement of the specimen during the
tensile splitting test.
MG030-33
Software for indirect tensile strength

BA120-14

BA120-11

For analogic frame BA123:
BA120-14
Set of two dial gauges 10x0,01 mm
with adjustable supports for strain
measurements CNR N.134

BA120-15

BA120-15
Lottman Tensile Splitting device
AASHTO T283
For Ø4" y 6".
Alternative to BA120-11.

LEUTNER TEST
BA120-21
Leutner direct shear head
ALP A StB T.80
Direct shear test Leutner on the
connection between bituminous
strata in Ø150 mm samples
BA120-22
Spacers for Ø100 mm specimens
with Leutner head
MG030-36
Software for Leutner tests

BA120-21+BA120-22

SU325
DIGITAL CBR-MARSHALL FRAME

The frame is provided of three fixed speed ranges, easily selectable with a frequency changer (inverter) activated by an electric switch:
-CBR 1,00 mm/min
-CBR 1,27 mm/min
-Marshall 50,8 mm/min

The load is measured by an electric load cell 50 kN with high precisión strain Transducers, holder for transducer; the flow is measured by an electronic displacement transducer 50 mm stroke and ± 0,1% linearity.

Supplied with a digital display unit with microprocessor, load cell and displacement transducer, but without accessories to be ordered separately.

Power supply:
230 V | 50-60 Hz | 750 W
Dimensions:
450x400x1200 mm
Weight:
130 Kg

SU327
ANALOGIC CBR-MARSHALL FRAME

The testing frame is the same as for mod SU325, but the load is measured by a precision proving ring.

Supplied without load ring and accessories which have to be ordered separately.

Power supply:
230 V | 50-60 Hz | 750 W
Dimensions:
450x400x1200 mm
Weight:
130 Kg

ACCESSORIES

MARSHALL TEST
SU350-01
Load piston
BA120-01
Marshall mould Ø 4", aluminium made
BA120-02
Marshall mould Ø 4", steel made
BA120-03
Marshall mould Ø 6", steel made


BA120-01

For digital frame SU325:
MG030-31
Software for Marshall tests

For analogic frame SU327:
MG061-10S
30 kN Load ring
BA120-04
Flowmeter
BA120-05
Dila gauge for Flowmeter
MG060-10
Brake device to hold max. load
MG010-82
Device to fix the displacement dial


BA120-03

INDIRECT TENSILE TEST
SU350-01
Load piston
BA120-11
Splitting tensile device

BA120-13
BA120-12

For digital frame SU325:
BA120-12
Two 10 mm transducers
BA120-13
Additional 50 mm transducer
MG030-33
Software for indirect tensile strength


BA120-11

For analogic frame SU327:
MG061-10S
30 kN Load ring
BA120-14
Set of two dial gauges 10x0,01 mm


BA120-11 + BA120-14

LEUTNER TEST
SU350-01
Load piston
BA120-21
Leutner direct shear head
BA120-22
Spacers for Ø100 mm specimens
MG030-36
Software for Leutner test

BA120-21 + BA120-22

SU351
DIGITAL MULTIPURPOSE TESTER 50 KN

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
CLAY BLOCKS:
Punching
ROCKS AND STONES:
Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separetely.

SU351

Power supply: 230 V | 50-60 Hz |150 W
Adjustable testing speed: from 0,01 to 51 mm/min
Load gradient: from 1 to 15000 N/seg
Max. ram travel: 100 mm
Daylight between columns: 380 mm
Max. vertical daylight: 850 mm
Dimensions: 500x450x1450 mm
Weight: 130 Kg

ACCESSORIES MULTIPURPOSE 50 KN FOR ASPHALTS:

MARSHALL TEST
EN 12697-34 | ASTM D1559, D5581, D6927
AASHTO T245 | BS 598 :107 | NF P98-251-2

MG020-06
Load cell 50 kN
SU350-01
Loading piston
BA120-01
Marshall mould Ø 4" aluminium made
MG030-31
Software for Marshall test


BA120-01

LEUTNER TEST
ALP A StB T4

MG020-06
Load cell 50 kN
SU350-01
Loading piston
BA120-21
Leutner direct shear head
BA120-22
Spacers for Ø100 mm specimens
MG030-36
Software for Leutner test


BA120-21+BA120-22

INDIRECT TENSILE TEST
EN 12697-12 | EN 12697-23 | ASTM D6931
AASHTO T283 | CNR 134

MG020-06
Load cell 50 kN
SU350-01
Loading piston
BA120-11
Splitting tensile device
BA120-12
Two 10mm transducers
BA120-13
Additional transducer 50 mm
MG030-33
Software for indirect tensile strength

BA120-13

BA120-12


BA120-11

SU355
DIGITAL MULTIPURPOSE TESTER 200 KN

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile tests.

The versatility of the machine allows to carry out the tests:
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
Duriez
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
Tensile on mortar briquettes
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
ROCKS AND STONES:
Uniaxial splitting tensile
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The load is applied by a mechanical jack that is driven by a brushless motor with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

SU355

Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

Power supply: 230 V | 50-60 Hz | 850 W
Maximum vertical distance: 900 mm
Daylight between columns: 650 mm
Adjustable testing speed: from 0,01 to 100 mm/min
Load gradient: from 1 N/s to 5 kN/s
Dimensions: 950x560x2400 mm
Weight: 820 Kg

ACCESORIES MULTIPURPOSE 200 KN FOR ASPHALTS:

DURIEZ TEST
NF P98 - 251-1 | NF P98 - 251-4

ACCESORIES	Ø80 mm	Ø120 mm
Duriez testing mould	BA120-41	BA120-51
Penetration piston	BA120-42	BA120-52
Upper/Lower piston	BA120-43	BA120-53
Two temporary supports	BA120-44	BA120-54
Demoulding cylindrical container	BA120-45	BA120-55
For cold mixtures with bituminous emulsions:		
Penetration piston grooved	BA120-46	BA120-56
Upper/Lower piston grooved	BA120-47	BA120-57
Software for Duriez test	MG030-37	

MARSHALL TEST
EN 12697-34 | ASTM D1559, D5581, D6927
AASHTO T245 | BS 598 :107 | NF P98-251-2

MG020-06
Load cell 50 kN
MG020-16
Connector for 50 kN load cell
SU350-01
Loading piston
BA120-01
Marshall mould Ø 4"
MG030-31
Software for Marshall test


BA120-01


BA120-41...BA120-44

AR169
ACCELERATED POLISHING MACHINE

EN 1097-8, 1341, 1342, 1343 | BS 812:114
NF P18-575 | CNR N.105

This machine is used to measure the resistance of road stone to the polishing action of vehicle tyres on a road surface, simulating actual road conditions.

The specimens are manufactured with suitable moulds and located on the Road Wheel. The wheel is now rotated and enters in contact with solid rubber tyre, spring loaded.

Abrasive charges are continuously introduced by two automatic mechanical feeders (hoppers).The feeders are held by a suitable support disjoined from the machine body; this solution saveguards feeding calibration and realiability/life of the hoppers from the influence of test execution vibrations. The water is supplied at a controlled rate through a water container equipped with flow regulator.

During the test execution the display shows the remaining time and the speed rotation of the wheel holding the specimens.

Supplied with 2 rubber wheels (one for corn and one for flour emery), set of 4 specimen moulds and 2 mould covers, while control stone, corn and flour emery have to be ordered separately.

Power supply: 230 V | 50 Hz | 750 W
Samples: 14
Wheel speed rotation:310-330 r.p.m.
Dimensions: 1800x820x600 mm
Weight: 175 Kg

AR169

ACCESSORIES

AR169-01
Corn Emery (25 Kg pack)
AR169-02
Flour Emery (5 Kg pack)
AR169-03
Flour Emery “Original” (5 Kg pack)
AR169-04
Friction Criggion Stone ungraded (25 Kg bag)
AR169-05
Control stones ungraded (20 Kg bag)

AR171
SKID RESISTANCE TESTER

EN 1097-8, 1338, 1341, 1342, 13036-4, 1436 | BS 7976

Used for the measurement of surface friction properties, this apparatus is suitable for both site and laboratory applications. It can be used for determining the Polished Stone Value (PSV) using curved specimens obtained from accelerated polishing tests performed by the Accelerated polishing machine (conforming to EN 1097-8), and also for testing Paving Stones (EN 1341, EN 1342) and Paving Blocks (EN 1338).

During operation the pendulum is raised and then released to swing freely, allowing the edge of the rubber slider to skid across the surface of the road or sample.

The skid tester is supplied with:
-Additional incorporated scale for tests on PSV specimens
-Rule made of plexiglass, for sliding length verification
-Thermometer −10 to +110°C for surface temperature
-Stool wash bottle, bristle and tool set for machine use
-Carrying case

The tester is supplied without rubber sliders that have to be ordered separately.

Case dimensions: 730x730x330 mm
Weight: 32 Kg

AR171

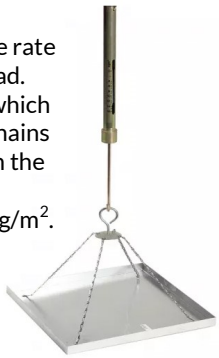
ACCESSORIES

AR170-01
Mounted rubber slider 32 mm width
AR170-02
Mounted rubber slider 76 mm width
AR170-03
Mounted rubber slider, 4S rubber, 76 mm width
EN 13036-4 | BS 7976
Recommended for ceramics, marbles, paving tiles,...
AR170-04
Metal base plate for PSV tests in laboratory
AR170-05
Clamping device for Polished Stone Value tests in laboratory
AR170-06
Clamping device for tests on natural stones (EN 1341, 1342); for concrete block pavers (EN 1338) and skidding tests on wooden floor (EN 1339)
AR170-07
Pink lapping film (10 sheets) for Skid Calibration

BA151
RATE OF SPREAD APPARATUS
EN 12272-1 | BS 598:108

This simple apparatus is for determining the rate of spread of binder on the surface of the road.
It consists of a 300 mm square metal tray, which can be lifted by means of four chains. The chains are attached to a digital balance from which the rate of spread can be assessed.
The rate of spread is directly measured in kg/m^2.

Weight: 1500 g



BA151

BA153
RADIAL FLOW FALLING HEAD PERMEAMETER
EN 12697-40

Used to determine the time taken for 4 liters of water to dissipate through an annular area of the surfacing of a pavement under known conditions.

Consisting of an acrylic tube Ø125x560 mm marked at 1 liter and at 5 liters, an internal rod with rubber ball valve mounted on a wooden base with sealing gasket.

Dimensions:
800x450x680 mm
Weight:
8 Kg

BA153

BA155
PERMEAMETER LCS
NLT 327

This apparatus is for measuring the time water takes to percolate through draining pavements and comprises a graduated transparent cylinder, a metal support, a rubber gasket and a 20 kg counterweight with handles.

Dimensions: 200x200x700 mm
Weight: 25 Kg

BA155

BA159
VIALIT PLATE
EN 12272-3

Used to assess the adhesion property of aggregates to bitumen. The test is performed to check how well aggregates applied to the surface of wearing course rolled asphalt will adhere.

The apparatus consists of a metal base with three vertical pointed rods to hold the test plate, a 50 cm high vertical rod with a chute at the upper end for the steel ball to drop from, a 512 g steel ball, a supply of 6 metal test plates, and a hand-operated rubber-lined roller with lead shot ballast.

Weight: 40 Kg

BA159

BA161
TRAVELLING BEAM WITH RECORDING UNIT
EN 12846 | EN 13357 | NF T66-005 | IP 484

This apparatus is used for detecting road surface irregularities. It can be used for either concrete or asphalt pavements. The apparatus consists essentially of a beam with rigid wheels at the extremities, with a wheel in the middle that can detect any vertical deviation of the surface from the straight-line between the two wheels at the ends of the apparatus. It is supplied with a recording unit to obtain a graph of vertical deviations.

Dimensions: 790x3200x1080 mm
Weight: 55 Kg

BA161

BA163
MOT STRAIGHTEGE
EN 13036-7

Manufactured from anodized aluminium alloy, it is utilized to measure irregularities of road pavement, floors, concrete pavement.
Supplied with two graduated wedges.

Lenth: 3000 mm
Width: 26 mm
Height: adjustable from 0 to 30 mm
Dimensions: 150x3050x130 mm
Weight: 9 Kg

BA163

BA165
BENKELMAN BEAM APPARATUS
ASTM D4965-03 | CNR N° 141

This apparatus is used to measure the deflection of flexible pavements under the action of moving wheel loads. Alluminium alloy made, complete with dial indicator and accessories.

During operation the beam is placed between the tyres of the test vehicle and in contact with the pavement. The deflection is measured as the vehicle passes over the test area.

Beam fulcrum ratio 4:1
Supplied with wooden carrying case.

Lenght of the beam: 2500 mm
Dimensions: 430x1800x350 mm
Weight: 16 Kg

BA167
BENKELMAN BEAM APPARATUS
NF P98-200-2

Same as the BA165 beam but the measurement ratio is 2:1, according to the NF standard.

ACCESSORY

BA165-01
Calibration device for Benkelman beam

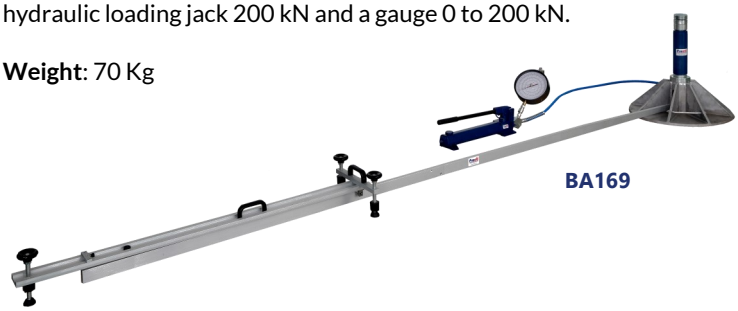
BA165

BA167

BA169
PLATE BEARING TEST 200 KN
NF P94-117-1

To determine the static deformation of flexible road pavement in the centre of the loading plate. It consists of a Benkelman NF beam, a Ø600 mm bearing plate cast aluminium with reinforcing ribs, upper spherical seat, hydraulic loading jack 200 kN and a gauge 0 to 200 kN.

Weight: 70 Kg



BA169

BA157
SAND PATCH
EN 13036-1 | ASTM E965 | NFP98 216-1

The sand patch test is performed by spreading a measured volume of fine sand (ASTM) or glass spheres (EN) into a circular patch on the road surface and filling the surface depressions to the level of the peaks.

The equipment comprises:
-Spreader disc with handle and rubber coated surface
-Wind shield
-Screw-adjusted compass 500 mm graduated rule.
-Three graduated cylinders 10, 25 and 50 ml cap
-Soft brush
-Two glass pyknometers with metallic screw top and hole
-Metallic cylinder for spheres volumen measurement
-Knee-guard
-Carrying case

Weight: 4 Kg

BA157

ACCESSORIES

BA157-01
Glass spheres, size 180/212 microns EN (5 Kg)
BA157-02
Natural sand 300/150 microns ASTM (25 Kg)
BA157-03
Natural sand 150/75 microns ASTM (25 Kg)

BA171
WET TRACK ABRASION TESTER
ISSA TB 100 | ASTM D3910

Designed to determine the abrasion resistance of bituminous slurries, simulating abrasion conditions on wet pavements.
It consists of a 4,7 L mixing bucket, mixing paddle, anchoring devices, quick-change abrasion head, mold (1/4"), asphalt cloth, accessories and connections.

Power supply:
230 V | 50 Hz
Dimensions:
600x600x600 mm
Weight:
65 Kg

BA171

BA173
LOADED WHEEL TESTER
ISSA TB 109 y 147

It is used for the establishment of upper limits of asphalt content and multilayer rutting potential in muds and microsurfaces. Rutting is a permanent deformation of the asphalt mixture in the traffic footprint of vehicles.
The accumulation of deformations causes a lack of safety and comfort for users who travel on the pavement and is one of the types of failure that occur in asphalt pavements when they are exposed to high temperatures, heavy traffic and low load speeds.

The equipment consists of a simple reciprocating wheel designed for traffic counting, excess bitumen measurement and groove power, , sand holder, 20 mounting plates, lid, 24 gauge and 3,2-4,8-6,4-8,0-9,5-12,7 mm moulds

Dimensions:
406x432x1423 mm
Weight:
110 Kg

BA173

BA181
GRIPTESTER

The GripTester is highly reliable instrument for investigating accident sites, problem areas, and for predicting the safety of pavement surfaces.

Measurement of surface friction and contaminated runways is at the forefront of airport safety. The flexible, accurate and economical way to measure your whole road network for skid resistance.

Its light weight, robust construction and reliable performance make it the most deployable runway friction tester in the world. It is designed to be used in all seasons and has the ability to function in extreme weather conditions.
The GripTester's light tow bar pull and low center of gravity ensure safe, stable operation on winter and summer surfaces.

The GripTester is easy to use. An onboard computer handles daily calibrations internally and the unit can be towed by almost any vehicle and can use almost any laptop as a data collection computer. These features allow one person to quickly and comfortably prepare the GripTester, carry out a survey and create a runway/pavement friction report.

Dimensions: 1010x1090x510 mm
Weight: 85 Kg

BA181

BA175
COHESION TESTER
EN 12274-4 | ASTM D3910

This pneumatically operated tester is for determining the proper consistency (mix design) for a slurry seal mixture. It consists of a double-acting, double-ended pneumatic cylinder fitted in a frame which houses a pressure gauge and valves. A hand torque wrench is also supplied.

Dimensions:
400x250x300 mm
Weight:
20 Kg

BA175

ACCESSORIES

BA175-01
Mould with 4 truncated conical holes 140x140x6,3 mm
BA175-02
Mould with 4 truncated conical holes 140x140x10 mm
BA175-03
Mould with 4 truncated conical holes 140x140x13 mm
BA175-04
Mould with 4 truncated conical holes 140x140x19 mm

BA185
GRIPTESTER MICRO

The Micro GripTester's compact, lightweight design allows it to be used as a one man operation. It can measure the skid resistance of any paved area or paint markings at a walking pace. No user calibration is required and it is not affected by bends, cambers or inclines and any horizontal slope is measured and reported so as not to skew the results. These features allow for ease of use and ensure accurate and consistence measurements regardless of user or condition.

The Micro GripTester's touch screen display guides the user through the friction test procedures and allows operators to save their results directly onto the inbuilt hard drive or onto a removable hard drive. The Micro GripTester utilizes integrated GPS to allow all surveys to be overlaid on a map providing a graphical Grip Number display.

Dimensions:
510x960x1020 mm
Weight:
23 Kg

BA185

BA201
BACON SAMPLER
EN 58 | ASTM D140 | AASHTO T40 | CRR 81 | CNR 98

Used to obtain bitumen or oil samples from various depths within storage containers.
Made from brass .

Dimensions:
Ø80x250 mm
Weight:
2 Kg

BA201

BA205
BREAKING POINT-FRAAS
EN 12593

The apparatus is for determining the Fraas breaking point of solid and semi-solid bitumen.

Including:
-Flexure device
-Two concentric sliding resin tubes
-Jaws for the test specimen
-Flexure system with handle
-Cooling device with three containers
-Plate in special harmonic steel
-Thermometer IP 42C

Weight: 4 Kg

BA205

BA209
AIR BATH

Used for softening bitumen before performing a range of tests including ductility, flash point, penetration, loss on heating.
Inner vessel, stainless steel made.
Supplied with thermoregulator and pilot lamp.

Capacity: 600 g
Power supply: 230 V | 50-60 Hz | 500 W
Dimensions: 140x140x350 mm
Weight: 5 Kg

BA209

BA211
STANDARD DIAL PENETROMETER
EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004 | AASHTO T49

Used to determine the consistency of a bituminous sample under fixed conditions of load, time and temperature.
The penetration is expressed in distance of tenths of millimeters vertically penetrated by a standard needle.

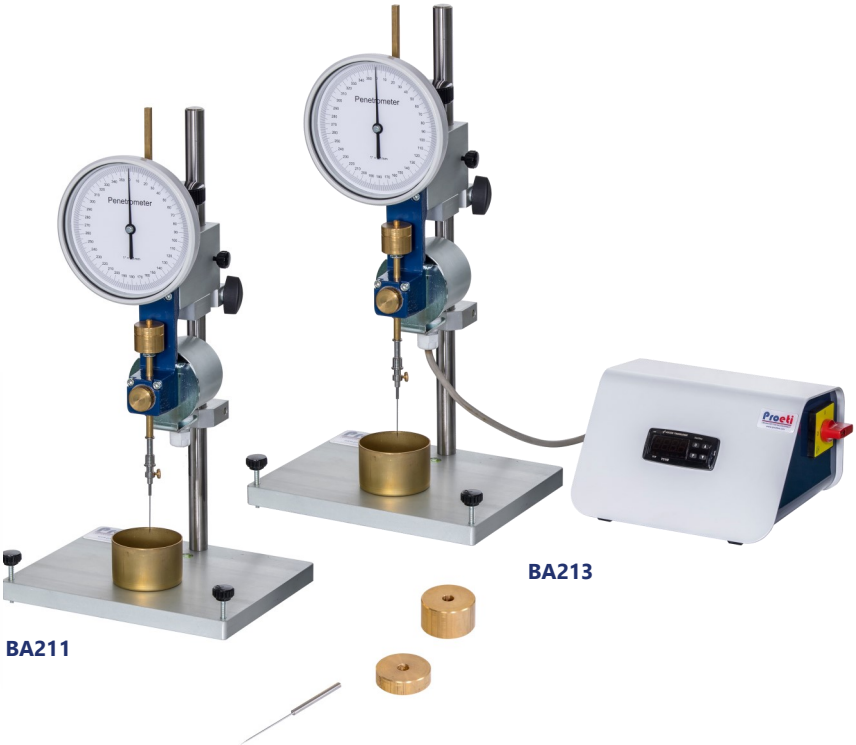
Consisting of:
-Aluminium base with levelling screws and spirit level
-Chromed vertical rod with micrometric displacement device
-Dial gauge Ø150 mm , graduated in 360°, division 0,1 mm
-Slider, brass made, with free fall
-Stop and release push button
-Automatic zero set
-Penetration needle
-Set of weights 50 and 100 g
-Brass cup Ø55x35 mm
-Brass cup Ø70x45 mm

Dimensions: 220x170x410 mm
Weight: 11 Kg

BA213
SEMI-AUTOMATIC DIAL PENETROMETER
EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004 | AASHTO T49

Same as BA211 but equipped with a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the needle during the 5-seconds test.

Power supply: 230 V | 50-60 Hz | 200 W
Dimensions: 220x280x410 mm
Weight: 15 Kg



BA213

BA211

BA215
STANDARD DIGITAL PENETROMETER
EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004 | AASHTO T49

Same as BA211 but with digital readout of the penetration values which has readings in mm and inch, with 0,01 mm resolution, LCD 5 digits display, with zero set in any position.

BA217
SEMI-AUTOMATIC DIGITAL PENETROMETER
EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004 | AASHTO T49

Same as BA215 but equipped with a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the needle during the 5-seconds test.

BA217

BA215

ACCESORIES FOR PENETROMETERS BA211...BA217:

BA210-02
Hardened steel needle 42,5 mm with UKAS verification

BA210-03
Hardened steel needle 42,5 mm with EN1426 verification

BA210-04
Long penetration needle not hardened 52,5 mm
For penetrations to exceed 35 mm

BA210-05
Long penetration needle hardened 52,5 mm EN1426
For penetrations to exceed 35 mm

BA210-06
Standard penetration cone Ø65 mm
EN 13880-2 | ASTM D217 | IP 179 | ISO 2137 | DIN 51804
Brass body and steel point made for measuring the consistency of lubricating grease
Weight: 102,5 g

BA210-06

BA210-07
Penetration ball
EN13880-3
Test method for the determination of penetration and recovery (resilience).

BA210-07

BA210-10
Mirror for an easier setting of the needle.

BA210-11
Transfer dish, made of glass with support

BA210-08
Sample cup aluminiun made Ø55x40 mm
BS 1377-2

BA210-08

MG260-09
Termometer ASTM 17C Range: 19° a + 27°C

MG260-27
Termometer IP 38C, Range: 23°C to +26°C

BA210-20
Thermostatically water bath for penetrometer
It is used to maintain water at the required temperature of 25 ± 0,1°C. The bituminous sample is immersed in the water bath and placed on the penetrometer only at the time of testing, by eventually using the transfer dish.

Capacity: 10 L
Power supply: 230 V | 50-60 Hz | 350 W
Dimensions: 375x335x420 mm
Weight: 12 Kg

BA210-21
Water bath dish with thermostatic coil
It is connected to the BA210-21 bath to maintain the temperature of the sample in the penetrometer.

Dimensions: Ø151x90 mm

BA210-20

BA210-21

BA213

BA221
AUTOMATIC SOFTENING POINT APPARATUS

EN 1427 | ASTM D36 | AASHTO T53 | NF T66-008
BS 2000 | DIN 52011 | UNE 7111 | CNR N.35

This microprocessor controlled automatic tester is used to determine the softening point of bitumen using water or glycerol as heating fluid.

The softening point is taken by two suitably positioned light barriers and the temperature is measured by a probe sensor placed in a central position.

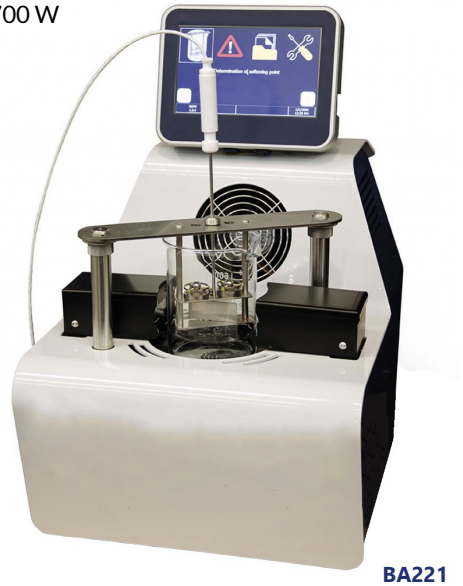
The temperature gradient is strictly maintained throughout the test by the electronic system which conforms with the Standards.

Two operation modes can be selected:
-On boiled distilled water for softening point from 30 to 80°C
-On glycerol for softening point from 80 up to 150°C

Real time display of the Temperature (°C)-Time(sec) graph along the entire test.

Top quality components: laser sensors, electronic magnetic stirrer, ceramic-glass heating plate.

Power supply:
230 V | 50-60 Hz | 700 W
Weight:
20 Kg



BA221

ACCESORY

BA221-01
Spherical rods for calibration (two pieces)

BA223
RING AND BALL APPARATUS

EN 1427 | ASTM D36 | AASHTO T53 | NF T66-008
BS 2000 | DIN 52011 | UNE 7111

This set of equipment is used for determining the softening point of bituminous materials.
The unit consists of:
-Pyrex beaker
-Brass frame
-Two balls
-Two tapered rings
-Two ball centering guides

Weight: 1000 g

BA223

BA223-01

ACCESSORIES

MG260-07
Thermometer ASTM 15 C -2 a +80°C , div 0,2°C
MG260-08
Thermometer ASTM 16 C +30 a +200°C, div 0,5°C

MG260-08

BA223-01
Pouring plate 50x75 mm
Used to pour the bituminous mixture into the brass tapered ring, as required by EN 1427
Dimensions: 75x50x10 mm

BA223-05
Hot plate with magnetic stirrer

Power supply: 220 V | 50-60 Hz | 500 W
Dimensions: 180x220x125 mm
Weight: 3 Kg

BA223

BA223-05

BA225
CLEVELAND FLASH TESTER

EN 2592 | ISO 2592 | ASTM D92 | AASHTO T48 | IP36

Used to measure the flash and fire points of lubrificated oils and petroleum products.
Supplied with brass cup, electric heater with thermoregulator, flame gas device, double line fuse and IP 28C thermometer -6 +400°C (ASTM 11C).

Power supply: 230 V | 50-60 Hz | 600 W
Dimensions: 220x285x265 mm
Weight: 10 Kg

BA225

BA227
TAG OPEN CUP FLASH
ASTM D1310 | ASTM D3143

For the determination of open cup flash points
of volatile flammable materials having flash points
between 0 and 175°F
Supplied with cup, water bath, thermoregulated electronic
heating device, thermometers ASTM 9C -5 to +110°C
and ASTM 57C -20 to +50°C.
The tester is equipped of a gas flame feeder.

Power supply:
230 V | 50-60 Hz | 700 W
Dimensions:
200x300x400 mm
Weight:
10 Kg

BA227

BA229
TAG CLOSED CUP FLASH
ASTM D56 | API 509

Used for testing volatile flammable flashing
between 0 and 175°F (except fuel oils).
Supplied with cup, water bath, lid, slide,
thermometer ASTM 9C range -5 to +110°C,
thermometer ASTM 57 C range -20 to +50°C
and thermoregulated electronic heating device.
The tester is equipped of a gas flame feeder

Power supply:
230 V | 50 Hz | 700 W
Dimensions:
200x300x400 mm
Weight:
10 Kg

BA229

BA241
DEGREE OF SOLUBILITY OF BITUMINOUS BINDERS
EN 12592 | ASTM D2042

The set comprises :
-Gooch crucible with funnel and rubber ring
-Filter flask 500 ml with rubber stopper
-Whatman filter discs, Ø25 mm (pack of 100)

Weight: 1000 g

BA241

BA243
SETTLING TENDENCY OF BITUMEN EMULSIONS STOPPERED GLASS GRADUATED CYLINDER
EN 12847 | IP 485

The cylinder has 600 ml, it is marked at 500 ml
and two side tubes are foreseen.

Weight: 800 g

BA245
PENETRATION POWER OF BITUMEN EMULSIONS GLASS TUBE WITH FUSED-ON GLASS FILTER
EN 12849 | IP 487

The glass tube has Ø41.5 mm by 115 mm height,
a fused-on glass filter with holes size
between 0,160 and 0,250 mm is fitted.

Weight: 300 g

BA245 BA243

BA251
WATER IN BITUMINOUS MATERIALS TEST SET 10 ML
ASTM D95, D244 | AASHTO T55 | NLT 123 | CNR 101

Used for determining the water content of bituminous and
petroleum materials by distillation with a water immiscible,
volatile solvent.

The equipment comprises:
-Glass balloon 500 ml
-Glass receiver 10 ml with 0,1 ml grad
-Glass reflux condenser
-Electric heater with thermoregulator
-Clamps

Power supply:
230 V | 50 Hz | 500 W
Weight:
8 Kg

BA253
WATER IN BITUMINOUS MATERIALS TEST SET 25 ML
EN 1428, 12847 | ASTM D244 | NF T66-023

Identical to BA251 except for the
receiver having 25 ml capacity.

BA251

BA255
BREAKING VALUE OF CATIONIC BITUMEN EMULSIONS
EN 13075-1 | IP 494

The breaking value is a dimensionless number corresponding to the amount of reference filler, in grams, needed to coagulate 100 g of bitumen emulsions.

The equipment comprises a filler feeding pan with support base and clamp, nickel spatula, two round porcelain dishes.

Weight: 2 Kg

BA255

BA257
AUTOMATIC BREAKING VALUE OF CATIONIC BITUMEN EMULSIONS
EN 1430 | ASTM D244 | CNR 99

Basically similar to mod BA255 but equipment is composed by an electric stirrer with a base and a propellant and a 500 ml container.

BA257

ACCESORIES BA255 AND BA257
BA255-01
Forshammar Reference Filler
Bag 10 Kg

BA255-02
Forshammar Reference Filler
Bag 25 Kg

BA259
EMULSIFIED ASPHALT DISTILLATION
EN 1431 | ASTM D 244 | AASHTO T 59 | CNR N° 100

This apparatus is used to examine asphalt emulsions composed principally of a semi-solid or liquid asphaltic base, water and an emulsified agent.

The set is formed by:

-Aluminium still container
-Glass connectors including condenser
-Stands
-Graduated cylinder
-Two thermometers ASTM 7C range -2 to +300°C
-Gas ring burner with gas stop valve controlled by a sensor

It can be sold on CE markets, but not usable in closed spaces.

Weight:
12 Kg

BA259

BA261
PARTICLE CHARGE OF EMULSIFIED ASPHALT
EN 13075-1 | IP 494

It is used to identify the particle charge of bitumen emulsions.

The equipment include a milliammeter scale up to 10 mA on support base, a variable resistor, two stainless steel electrodes, a insulating device, a beaker 250 ml capacity to EN spec and a glass rod.

Power supply: 250 V | 50-60 Hz
Dimensions: 200x200x600 mm
Weight: 3 Kg

BA261

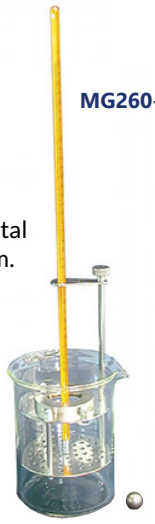
ACCESSORY
BA261-01
Beaker ASTM 500 ml

BA263
WILHELMI SOFTENING POINT
EN 1871 | DIN 1996-15

Used for determining the softening point of bituminous materials for road construction, according to Wilhelmi method. The apparatus comprises a ring divided in two halves on a metal support frame, glass beaker, steel ball Ø15 mm.

Weight: 2 Kg

ACCESSORIES
MG260-08
Thermometer +30 a +200°C (ASTM 16C)
BA223-05
Hot plate with magnetic stirrer



MG260-08

BA263

BA265
DISTILLATION OF CUT-BACK ASPHALTS
ASTM D402 | AASHTO T78 | NF T66-003 | UNE 7072, 7112

This apparatus is used for the examination of cut-back asphaltic materials by the distillation test.

The apparatus consists of:
-Electric heater with thermoregolator
-Distillation flask
-Condenser tuve
-Adapter
-Shield
-Receiver
-Supports
-Graduated cylinder
-Thermometer ASTM 8C

Power supply:
230 V | 50-60 Hz | 750 W
Weight:
12 Kg

BA265

BA267
STORAGE STABILITY OF ASPHALT EMULSIONS
NF T66-022

This apparatus is used for the determination of the storage stability of emulsions by decantation. It consists of a 12 V current stabilized source, cylindrical electrode, base with holder, stainless steel vessel 500 ml capacity and watch glass.

Power supply:
230 V | 50-60 Hz
Dimensions:
200x200x500mm
Weight:
5 Kg

BA267

BA271
PLANETARY ABRASION TESTER
EN 12274-5 | ASTM D3910 | NLT 320

This machine is used for determining the resistance of slurry mixtures to abrasion. It consists of a mechanical planetary stirrer equipped with a rubber hose abrasion head.

Dimensions: 530x550x800 mm
Weight: 70 Kg

BA271

BA271-01

ACCESSORIES

BA271-01
Metallic molds (4) EN
Diameter: 279 - 295 mm
Heights: 6,3 - 10 - 13 - 19 mm

BA271-02
Metallic molds (3) ASTM
Diameter: 279 - 295 mm
Heights: 6,3 - 8,2 - 10,5 mm

BA281
SAYBOLT DIGITAL VISCOMETER
ASTM D88 | AASHTO T72

This test is for taking an empirical measurement of the Saybolt viscosity of petroleum products at specified temperatures between 21,1 to 98,9°C (70 to 210°F).

Stainless steel made is equipped of a dual safety thermostat to prevent accidental over-heatings.

Supplied with two interchangeable orifices Furol and Universal, oil bath, electric heater with digital thermoregulator, stirrer, cooling coil, viscosity flask. Thermometers, filter funnel, withdrawal tube are not included and must be ordered separately.

Power supply: 230 V | 50-60 Hz | 500 W
Dimensions: 280x260x510 mm
Weight: 12 Kg

BA283
SAYBOLT DIGITAL VISCOMETER TWO PLACES
ASTM D88 | AASHTO T72

Similar to the BA281 model but with two elements.

Dimensions: 270x270x550 mm
Weight: 14 Kg

BA283

BA281-01

BA281-02

ACCESSORIES

BA281-01
Filter funnel with filter ring mesh
BA281-02
Withdrawal tube
MG260-09
Thermometer +19 to +27°C (ASTM 17C)
MG260-10
Thermometer +34 to +42°C (ASTM 18C)
MG260-11
Thermometer +49 to +57°C (ASTM 19C)
MG260-12
Thermometer +57 to +65°C (ASTM 20C)
MG260-13
Thermometer +79 to +87°C (ASTM 21C)
MG260-14
Thermometer +93 to +103°C (ASTM 22C)

BA285
ENGLER DIGITAL VISCOMETER

ASTM D940, D1665 | AASHTO T54
BS 2000 | NF T66-020 | CNR 102

Used to determine the specific viscosity of tars and their products. The viscometer is equipped of a dual safety thermostat to prevent accidental over-temperatures.

It consists of a water bath with digital precision thermoregulator, electric stirrer, cooling device and Engler flask.

Power supply:
230 V | 50 Hz | 300 W
Dimensions:
265x270x550 mm
Weight:
12 Kg

BA285

BA287
ENGLER DIGITAL VISCOMETER TWO PLACES

ASTM D940, ASTM D1665 | AASHTO T54
BS 2000 | NF T66-020 | CNR 102

Similar to the BA285 model but with two elements.

Weight: 20 Kg

ACCESSORIES

BA285-01
Kohlraush calibration flask 200 ml
BA285-02
Filter screen ASTM N°50
MG260-15
Thermometer +18 to +28°C (ASTM 23 C)
MG260-16
Thermometer +39 to +54°C (ASTM 24 C)
MG260-17
Thermometer +95 to +105°C (ASTM 25 C)
BA285-03
Thermometer +0 to +55°C (NF T66-020)

BA291
TAR-ESTÁNDAR DIGITAL VISCOMETER

EN 12846 | EN 13357 | NF T66-005 | IP 484

Used for determining the viscosity of cut-back bitumen and road oil. The instrument consists of a stainless steel bath (tank), agitator, rheostat, immersion electric heater with digital thermostat to take the water to the desired temperature, cooling coil for water supply connection and control glass thermometer IP 8C, range 0 - 45°C. The viscometer is equipped of a dual safety thermostat to prevent accidental over-temperatures.

Power supply:
230 V | 50-60 Hz | 300 W
Dimensions:
265x270x550 mm
Weight:
12 Kg

BA291

ACCESSORIES

EN 12846-02
BA291-01
Go/not go gauge for Ø2 mm orifice
BA291-02
Cup with orifice Ø2 mm
BA291-03
Ball valve Ø2 mm

EN, NF, IP
BA291-11
Go/not go gauge for Ø4 mm orifice
BA291-12
Cup with orifice Ø4 mm
BA291-13
Ball valve Ø4 mm

EN, NF, IP
BA291-21
Go/not go gauge for Ø10 mm orifice
BA291-22
Cup with orifice Ø10 mm
BA291-23
Ball valve Ø10 mm

BA293
TAR-STANDARD DIGITAL VISCOMETER TWO PLACES

EN 12846 | EN 13357 | NF T66-005 | IP 484

Similar to the BA291 model but with two elements.

Weight: 20 Kg

ROTATIONAL VISCOMETERS HIGH RANGE

ASTM D2196, D4402 | AASHTO T316 | EN 13302

The apparent viscosity of unfilled asphalt is evaluated with a rotational viscometer that measures the torque generated by a needle rotating at a selected speed on an asphalt sample at specified temperatures on a scale from room temperature to 260°C. The measured relative resistance to rotation is converted, with a factor, into viscosity units, cP or mPA-s.

The equipment consists of a control unit mounted on a foot-know stand, a spindle protector, the spindle support, the spindle set and a carrying case.

The unit emits an audible and visual alarm in case of malfunction, the reading of the parameters can be observed in real time and when the test is stopped, the system causes a progressive decrease in speed to avoid vibrations in the spindle.

Power supply: 240 V | 50-60 Hz | 25 W
Temperature range: from -40°C to +300°C
Weight: 5 Kg

BA305

MODELS

BA301
Rotational viscosimeter range 20 to 2.000.000 cP
BA303
Rotational viscosimeter range 100 to 13.000.000 cP
BA305
Rotational viscosimeter range 200 to 106.000.000 cP

ROTATIONAL VISCOMETERS HIGH PERFORMANCE

ASTM D2196, D4402 | AASHTO T316 | EN 13302

Determines the dynamic viscosity of a substance by the rotation of a specified spindle within the sample at the speed giving the maximum torque reading on the viscometer. The resulting torque reading is used to calculate the viscosity of the substance.

The exclusive software allows you to create repeatable custom tests on your PC. Once the program (up to 25 steps) is created, it can be downloaded to a supplied USB.

Includes 6 spindles (RV/HA/HB) or 4 spindles (LV), Temperature Probe, Lab Stand and carrying case.

BA313

MODELS

BA311
Rotational viscosimeter range 1 to 6.000.000 cP
BA313
Rotational viscosimeter range 100 to 40.000.000 cP
BA315
Rotational viscosimeter range 200 to 80.000.000 cP
BA317
Rotational viscosimeter range 800 to 320.000.000 cP

ACCESSORIES

BA310-01
Software RheocalcT
Automatically control the instrument and collect data with RheocalcT running on a dedicated PC with USB interface. RheocalcT can analyze data, generate multiple plot overlays, print tabular data, run math models and perform other time-saving routines.

BA310-05
Temperature control unit
Consists of a heating chamber that works in conjunction with rotational viscometers at high temperatures. A digital microprocessor control unit assures that the required test temperature is maintained

BA310-05 BA311

BA321
DUCTILOMETER

EN 13589,13398 | ASTM D113 | AASHTO T51
NF T66-006 | UNE 7093 | CNR N° 44

Made in stainless Steel with glass fiber insulation, it is used to determine the ductility of bituminous materials by measuring the elongation of a briquette before breaking when it is strecthed at a set velocity and temperature.

It consists of a moving carriage moving along a set of guide rails. The carriage moves powered by an electric motor inside a large tank equipped with an immersion heater, digital thermostat, cooling coil for cold water circulation and pump.

It has enough capacity to test up to three briquettes simultaneously, and a double safety thermostat to avoid accidental overheating.

Maximum traction force: 300 N
Maximum travel: 1500 mm
Velocity: 50 mm/min
Power supply: 220 V | 50 Hz | 1000 W
Dimensions: 1880x360x680 mm
Weight: 95 Kg

BA321

BA323
DUCTILOMETER WITH COOLING SYSTEM

EN 13589,13398 | ASTM D113 | AASHTO T51
NF T66-006 | UNE 7093 | CNR N° 44

Same as the BA321 ductilometer, but equipped with a cooling unit for performing tests with a water temperature between +5° and +25°C.

Weight: 130 Kg

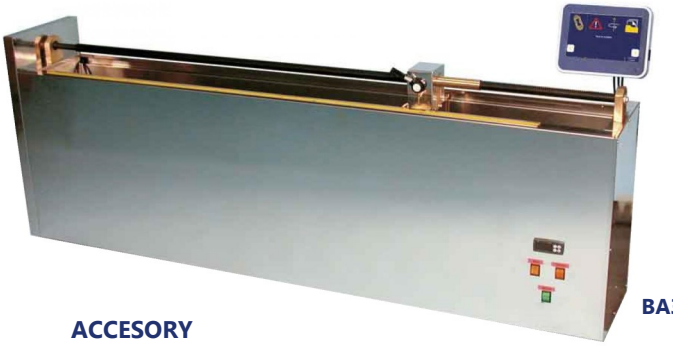
ACCESORIES

BA320-01
Briquette mould EN 13398, brass
BA320-02
Briquette mould EN 13589, brass
BA320-03
Briquette mould ASTM, AASHTO, brass
BA320-04
Base plate for ductility briquette moulds
BA320-05
Load cell 50 N
A ductilometer can be fitted with up to three cells

BA325
DUCTILOMETER WITH DATA ACQUISITION

EN 13589, 13398, 13703 | ASTM D113, D6804 |
AASHTO T51 | GOST 11505-75, 33138-2014

Same as the BA321 ductilometer, but fitted with a digital control unit for data acquisition and test control. The control module is equipped with USB ports and SD card slot to transfer data to a PC.



BA325

ACCESORY

BA320-10
Cooling unit to maintain the water between +5° and +25°C
It cannot be fitted to an existing machine. It must be specifically requested when the ductilometer is ordered.

BA327
DUCTILOMETER FOR RESEARCH

EN 13589, 13398, 13703 | ASTM D113, D6804 |
AASHTO T51 | GOST 11505-75, 33138-2014

Developed to perform ductility tests for research purposes. It is equipped with a stepper motor with a variable velocity from 1 to 400 mm/min and a digital displacement measurement system.

It has a 500 N load cell, and it can be fitted with up to 3 cells to test three specimens simultaneously.

The digital control unit allows:
-Visualization of the elongation in mm during the test
-Plotting load vs elongation
-Constant temperature adjustment
-Continuous data acquisition during the test
-Printing or exporting (USB) tests

Power supply: 230 V | 50-60 Hz | 1000 W
Dimensions: 2140x400x450 mm
Weight: 110 Kg

BA327

ACCESORIES

BA327-01
Load cell 500 N
A ductilometer can be fitted with up to three cells
BA327-02
Cooling unit to maintain the water between +5° and +25°C
It cannot be fitted to an existing machine. It must be specifically requested when the ductilometer is ordered.

BA351
PAV4
AASHTO R28 | ASTM D6521 | EN 14769

This apparatus is designed to simulate in service oxidative aging of asphalt binder by exposure to elevated temperatures in a pressurized environment. This improved PAV model simplifies the running and documenting of asphalt binder aging operations.

The apparatus includes a touch screen controller with front panel user interface with easy to use step-thru operation. Bench top unit with integral vessel/oven design with top opening door. Network ready with remote capabilities: view and control the PAV with an APP designed for smart phones, tablets, iPads, iPhones, or other PCs.

Temperature is 80 to 115°C (176 to 239°F) and programmable from 50 to 150°C (122 to 302°F). Pressurization is programmable from 1 hour to 99 h. This enables AASHTO R28, ASTM D5621 and EN 14769 specifications to be met without any special programming and also enables greater freedom for research and development projects.

Data acquisition of temperature, pressure, and time is collected throughout the aging process. Once the aging process is complete, a .csv file can be created and saved via the USB port on the front of the PAV4.

The apparatus includes a precision anodized aluminium sample rack, a specimen loading/ unloading tool, a hex socket wrench and 10 AASHTO T179 specimen pans. Compressed air requirement: 2,24 MPa.

Power supply:
230 V | 50-60 Hz
Dimensions:
700x460x760 mm
Weight:
130 Kg

BA351

BA353
VACUUM DEGASSING OVEN (VDO)
AASHTO R28 | ASTM D6521

The ASTM D6521 and AASHTO R28 make degassing of the PAV-aged asphalt samples mandatory.
This vacuum degassing oven conforms fully with these Standards.

Stainless steel construction, holds up to 4 specimen containers, self contained automatic vacuum system, high precision controller featuring a digital display indicating time, temperature and the current stage of each process, maintains temperature up to 170°C with an accuracy of ±5°C.

Power supply: 230 V | 50-60 Hz
Temperature range: ambient to 210°C
Dimensions: 610 x304x406 mm
Weight: 35 Kg

BA353

BA361
BENDING BEAM RHEOMETER (BBR)
ASTM D6648 | AASHTO T313 | EN14771

The BBR System consists of a fluid bath base unit, a three-point bending test apparatus which is easily removed from the base unit for specimen loading and unloading, an external cooling unit with temperature controller and a calibration hardware kit with carrying case.

Integral stainless steel frictionless construction, two independent platinum RTDs for precise temperature control, 500 g load cell, PID temperature controller with digital display, and ASTM/AASHTO compliant specimen moulds.

Its software provides ease of setup and operation. Real-time displacement, loading, and temperature graphs are displayed during the test cycle and can be rescaled as needed for easy viewing.

Temperature range:
ambient to -40 °C
Test load range:
from 0 to 200 g
Weight:
100 Kg

BA361

BA371
ROLLING THIN-FILM OVEN HIGH PERFORMANCE
EN 12607-1 | ASTM D2872 | AASHTO T240

Designed to study the aging phenomena in bituminous binders. Made of stainless steel with a large door to detect the test room.

Test parameters are controlled from a touch screen and when the test begins, temperature, airflow and platen speed are displayed in real time. It has a double safety thermostat to prevent overheating.

The oven must be connected to an air compressor 2 bar max. pressure, or to a diaphragm pump.

Supplied with digital flow meter, precision digital thermostat to maintain a temperature of 163 °C, ventilation device, control thermometer ASTM 13C and 8 glasses Ø64x140.

Power supply:
230 V | 50 Hz | 1700 W
Dimensions:
620x620x910 mm
Weight:
55 Kg

BA371

BA373
ROLLING THIN-FILM OVEN RTFO
EN 12607-1 | ASTM D2872 | AASHTO T240

Same as the BA371 but it is the most basic model since it does not include a touch screen

BA373

ACCESSORY

BA373-01
Diaphragm pump 2,4 bar

BA381
CORELOK
ASTM D6752-02, D6857-03 | AASHTO T-331

The Corelok is a system for sealing asphalt samples so that the sample densities may be measured by water displacement methods. Samples are automatically sealed in specially designed puncture-resistant polymer bags. Densities measured with the Coreloke system are highly reproducible and accurate.
The equipment performs 5 standard tests:
-Bulk Specific Gravity
-Maximum Specific Gravity
-Bulk Specific Gravity of Aggregates
-The porosity of Compacted Asphalt
-Percent Asphalt Calculation

Power supply: 220 V | 50 Hz | 1430 W
Dimensions: 490x640x500 mm
Weight: 55 Kg

BA381

BA375
ROTATING SHELF THIN FILM OVEN TFO
EN 12607-2,13303 | ASTM D6, D1754 | AASHTO T47, T179
BS 2000 | NF T66-011 | UNE 7110 | CNR 50

This oven is used to determine the mass loss (excluding water) of oil and asphalt compounds and the effect of heat and air on sheets of semi-solid bituminous material.

Internal chamber and external frame all made of stainless steel, double wall insulation with fiberglass, double door. Temperature control by digital thermoregulator. The oven is equipped of a dual safety thermostat to prevent accidental over-heatings. The plate rotates at 5-6 r.p.m.
Supplied with thermometer ASTM 13C, +155 to +170°C. but without rotating shelf and accessories, that must be ordered separately.

Power supply: 230 V | 50 Hz | 1500 W
Internal dimensions: 330x330x330 mm
Overall dimensions: 460x450x700 mm
Weight: 40 Kg

BA375

BA375-02

BA375-01

ACCESSORIES

BA375-01
Rotating shelf for the determination of loss on heating
EN 13303 | ASTM D 6 | BS 2000 | NF T066-011
AASHTO T47 | CNR N° 50
Includes 9 containers Ø55x35 mm.
BA375-02
Rotating shelf for the determination of thin film
EN 12607-2 | ASTM D1754 | AASHTO T149 | UNE 7110
Includes 2 containers Ø140x9,5 mm.
BA375-03
Rotating shelf for the determination of thin film
Same as BA375-02 but including 4 containers Ø140x9,5 mm.

BA383
COREDRY
ASTM D7227 | AASHTO R79

CoreDry is an automatic system for rapid drying of material samples and objects. Use this device to remove moisture from your sample in minutes. It includes a high-performance vacuum pump and an extremely efficient moisture trap that ensures long-term pump performance and maintenance-free operations. It allows to take a core sample from the field and measure its density in less than 20 minutes, saving you time and providing the confidence you need to continue producing quality pavements. Enables crews to construct quality pavements. Quick determination of density results allows the paving crews to make adjustments during paving, not after the job is complete. Allows offset adjustments for your nuclear and non-nuclear gauges. Unlike using ovens, there is no loss of volatiles or damage to the sample integrity. Samples stay close to room temperature through the drying process.

Power supply:
220 V | 50 Hz | 1650 W
Dimensions:
480x660x430 mm
Weight:
43 Kg

BA383

BA385
MIST
ASTM D7870

Mist is designed as a quick method for testing moisture damage susceptibility of asphalt mixtures. It is a stand-alone unit that consists of a pressurized chamber that pushes and pulls water through a compacted asphalt sample, simulating the action of an automobile tire on the road.

The tests can be performed at different pressures and temperatures to replicate different traffic and environmental conditions.

The unit is completely automatic and results are ready in as little as 24 hours. Simply place your asphalt core sample in the Mist testing chamber, select your test parameters, press start and the unit does the rest. Data can be stored and transferred to a PC for evaluation and archiving.

Power supply: 230 V | 50 Hz | 1650 W
Dimensions: 530x530x1350 mm
Weight: 159 Kg

BA385

BA391
NON NUCLEAR DENSITY GAUGE PQI380

It is used to take quick and accurate readings of the asphalt during the compaction process. Fast, reliable, accurate and repeatable readings in real time, user friendly, in-process, cost effective tool for any crew member.

Full color graphics driven user interface with led backlight for easy visibility in daylight or dark situations. When activated GPS will display latitude and longitude positions, number of satellites the gauge is connected to as well as the UTC date and time.

Sensing area (Ø279 mm) allows optimum measurement on fine and coarse material types. Measurement depth can be selected by the user from 25 mm to 100 mm.

Most important, non-nuclear means no badges, licenses or storage and transport concerns.The equipment is supplied with interhangeable batteries easily to change in field, a battery charger and carrying case.

Dimensions: 279x279x304 mm
Handle length: 736 mm
Recharge time: 4 h
Weight: 6 Kg


BA391

SU211
NUCLEAR DENSITY-MOISTURE GAUGE
ASTM D6938, D2950, D7013, D7759, C1040 | AASHTO T310

This device is an advanced, yet easy to operate moisture density gauge. A Cesium 137 source measures density while an Americium 241:Beryllium source measures humidity.

Density, moisture and other required field parameters are automatically calculated and displayed and can be stored under specific userdesigned projects.

The battery pack is designed to provide weeks of operation and is integrated with a 9V battery for backup. The data can be easily downloaded to a computer, printer or written to a USB flash drive.

Density range:
70 to 170 pcf (1,120 to 2,73 gcc)
Moisture range:
0 to 40 pcf (0 to 0,64 gcc)
Memory Storage:
10 Projects with 40 readings each
Dimensions:
678x358x248 mm
Weight:
13 Kg

SU211

ACCESSORIES
SU210-01
Drill pin
SU210-02
Rod guide - Scraper plate

SECTION CE

CEMENT-MORTAR

This unit offers a wide range of equipment for testing cement, lime and plaster. These materials obtained after various transformations have come to play a very important role in the construction sector today.

The testing machines and equipment for these materials that are described and illustrated in this section are for analysis of physical and chemical properties; to build grout, muds and silts; and finally to carry out strength tests, all of which meet the requirements of the most well-known international standards.

CE001
PACKAGED CEMENT TUBE SAMPLER
EN 196-7 | ASTM C183 | AASHTO T127

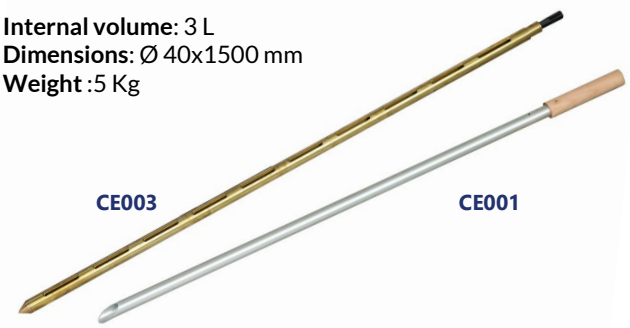
Used to sample cement from packages.
Made of brass.

Dimensions: Ø32x1050 mm
Weight: 3 Kg

CE003
BULK CEMENT SAMPLER
EN 196-7 | ASTM C183 | AASHTO T127

Used to sample cement in bulk storage or bulk shipments. It consists of two concentric brass tubes with slots. The inner tube rotates to close the slots and take the sample.

Internal volume: 3 L
Dimensions: Ø 40x1500 mm
Weight :5 Kg



CE003 CE001

CE007
WATER FLOWING SIEVES DEVICE
D.M. 3/6/68

Used to determine the fineness of cement. It consists of a spraying unit with feed valve and gauge; brass sieve body Ø85 mm and 95 mm high with two stainless steel mesh disks having opening 0,18 and 0,09 mm.

Dimensions: Ø85x130 mm
Weight: 2,5 Kg

CE009
FINENESS OF FLY ASH BY WET SIEVING
EN 451-2 | ASTM D430

The set, made of brass, consists of: Ø50 mm sieve with 0.045 mm stainless steel mesh Ø17,5 mm spray nozzle with 17 Ø 0,5 mm holes, Ø80 mm pressure gauge (range of 0-160 kPa, div. 5 kPa), fittings and connectors.

Weight: 3 Kg

CE007

CE009

CE011
AIR CONTENT OF MORTAR
ASTM C185 | AASHTO T137

The density method is used to determine the air content of freshly mixed mortars.

Consisting of:
-400 ml steel container Ø76,2x88,1 mm
-Wooden piston
-Ø120 mm glass plate
-Chattaway spatula

CE011

CE013-01

CE013
LE CHATELIER FLASK
EN 196-6 | ASTM C188 | AASHTO T133

Used to determine the specific gravity of hydraulic cement and lime, this 250 ml capacity flask is made of glass and has a neck with graduated markings from 0 to 1 ml and from 18 to 24 ml in 0,1 ml intervals with an accuracy of 0,05 ml

Weight: 500 g

ACCESSORY

CE013-01
Chattaway spatula 120 mm

CE013

CE017
CEMENT WATER RETENTION APPARATUS
ASTM C91 | ASTM C110 I ASTM C207 I ASTM C1506

This apparatus is used to determine the water retention value of cement and lime.

Including:
-Water aspirator
-Vacuum gauge
-Three way stopcock
-Perforated brass dish
-Glass funnel
-Filter paper
-Vacuum pump
-Accessories

Dimensions:
400x300x600 mm
Weight:
8 Kg

CE017

CE019
BULK DENSITY OF CEMENT

This apparatus is used for the measurement of the apparent density (bulk density) of powders and non-cohesive materials. It consists of sieve funnel with tripod, 1 litre unit weight measure, spatula, straight edge and aluminium scoop. The discharge hole of the funnel has 8 mm diameter.

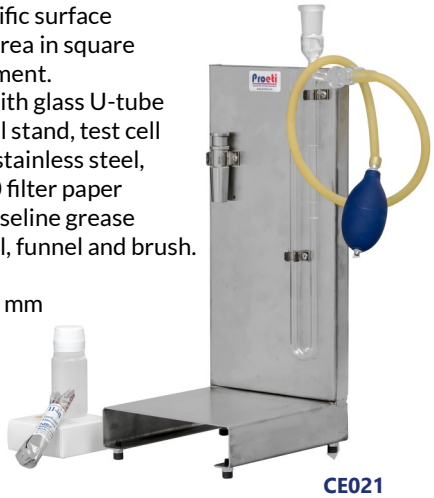
Dimensions : Ø350x520 mm
Weight : 6 Kg

CE019

CE021
BLAINE AIR PERMEABILITY APPARATUS

Used to determine the fineness of Portland cement in terms of the specific surface expressed as total surface area in square centimeters per gram of cement.
The apparatus is supplied with glass U-tube manometer with valve, steel stand, test cell with disk and plunger all in stainless steel, rubber aspirator bulb, 1000 filter paper disks, manometric liquid, vaseline grease for better coupling tube/cell, funnel and brush.

Dimensions: 160x180x400 mm
Weight: 2 Kg



CE021

ACCESSORIES

CE021-01
Standard reference cement 114 q to calibrate the Blaine
CE021-02
Glass thermometer -10 +50°C

CE023
DIGITAL BLAINE AIR PERMEABILITY APPARATUS

Digital Blaine air permeability apparatus with automated test cycle, electric suction pump, photoelectric cells for detection of levels, start and stop chronometer. Time is automatically shown after the test.

Supplied with stainless steel cell with grid and plunger, bottle of manometric liquid, bag of 1000 filter papers and funnel.

Power supply:
230 V | 50-60 Hz | 20 W
Dimensions:
300x250x510 mm
Weight:
8 Kg


CE023

CE031
LE CHATELIER MOULD

EN 196-3 | EN 459-2 | ISO 9597 | BS 6463 | NF P15-432

Used for determining the expansion of cement, Le Chatelier mould consists of a spring-tensioned split cylinder 30 mm inside diameter and 30 mm high, with two indicator stems attached either side of the split which measure 165 mm from their tips to the centre of the cylinder, and an O-ring.


CE033 CE031

CE033
LE CHATELIER MOULD INDIVIDUALLY TESTED

EN 196-3 | EN 459-2 | ISO 9597 | BS 6463 | NF P15-432

Similar to standard Le Chatelier mould, but this variant is fitted with larger indicator arms for a longer service life (about 10 times more than a standard Le Chatelier) within the tolerances requested by EN Specifications. The moulds are checked one by one and engraved with a serial number for an easier identification.

ACCESSORIES

CE030-01
Two glass plates 50x50 mm to cover the mould
CE030-02
Weight 100 g to be placed over the glass plate
CE030-03
Extensibility device to check the elasticity of the mould

CE035
LE CHATELIER BATH

Constructed with stainless steel inside chamber and exterior case in painted steel sheet, it can hold up to 12 Le Chatelier moulds (to be ordered separately) in the removable rack, supplied with the bath.

The bath reaches the boiling point in approx. 30 minutes.

Power supply: 230 V | 50-60 Hz | 1800 W
Dimensions: 405x265x205 mm
Weight: 7 Kg

CE035

SHRINKAGE AND EXPANSION MOULDS

CE041
Three gang prism mould to produce 40x40x160 mm samples
EN 12617-4 | ASTM C438 | NF P15-433
Weight: 8,5 Kg
CE042
Three gang prism mould to produce 40x40x160 mm samples
NF P15-434 | DIN 1164
Weight: 8 Kg
CE043
Three gang prism mould to produce 50x50x200 mm samples
EN 1367-4 | BS 812:102
Weight: 8 Kg
CE045
Two gang prism mould to produce 25x25x250 mm samples
ASTM C490
Weight: 6 Kg
CE047
Two gang prism mould to produce 75x75x254 mm samples
BS 1881, 6073
Weight: 9 Kg
CE049
Three gang prism mould to produce 70x70x280 mm samples
NF P18-427
Weight: 17 Kg

CE051

CE051
HIGH PRESSURE CEMENT AUTOCLAVE

ASTM C151 | AASHTO T107

It consists of a high pressure boiler made from special alloy steel with interior dimensions Ø154x430 mm receiving a holding rack for 10 cement specimens. The autoclave uses resistive heating elements. A separate control panel encloses a digital thermometer to visualize the boiler temperature, pressure gauge with scale 0 - 600 psi with built in pressure regulator and power switches. Supplied with specimen rack and safety valve with calibration certificate.

Power supply: 230 V | 50 Hz | 3500 W
Dimensions: 490x490x980 mm
Weight: 150 Kg

CE055
DIGITAL LENGTH COMPARATOR

EN 12617-4, 1367-4, 12808-4 | ASTM C151, C490
NF P15-433, P18-427 | BS 1881:5, 6073 | DIN 1164

Designed to measure the length variations of mortar specimens after autoclave soundness tests.
The top beam is adjustable to suit the specimen's length.

Digital indicator: 12,7x0,001 mm
Dimensions: Ø180x450 mm
Weight: 10 Kg

CE057
DIAL LENGTH COMPARATOR

Same as CE111 but with 5x0,001 mm dial gauge.

CE055+CE050-03

CE057

CE045

CE041

CE049

ACCESSORIES

MG010-60
Cable to connect comparator to PC
CE050-01
Reference rod for 160 mm samples
CE050-03
Reference rod for 200 mm samples
CE050-05
Reference rod for 250 and 254 mm samples
CE050-07
Reference rod for 280 mm samples

CE061
CALORIMETER
EN 196-8 | ASTM C186

Used to determine the heat of hydration of low heat Portland and hydraulic cement. The apparatus consists of a Dewar flask contained in an insulated material and housed in a wooden box which is hinged so that the flask can be easily removed or replaced. A second hinged wooden box contains the first one for better insulation.

Supplied with a constant speed electric stirrer and glass filling funnel. Other accessories must be requested by the user.

Power supply:
230 V | 50 Hz | 150 W
Dimensions:
350x250x680 mm
Weight:
12 Kg

CE061

ACCESSORIES

CE061-01
Propeller according to EN 196-8
CE061-02
Propeller according to ASTM C186
CE061-11
Digital thermometer 0,01°C with probe
CE061-12
Digital thermometer 0,001°C with probe
CE061-15
Paraffin wax with melting point 55°C (5000 g)

CE063
LANGAVANT CALORIMETER
EN 196-9

Designed to measure the heat of hydration of cements using a semi-adiabatic method.
To perform the test a PC is required.

The equipment consists of:
-Testing calorimeter Ø160x350 mm
-Reference calorimeter without certificate
-50 mortar box
-20 sand bags
-2 temperature probes
-Measuring system
-Software to analyze and display data


CE063

MG702
DIGITAL MUFFLE FURNACE 1200°C
EN 196-2

Used for determining the loss on ignition of cement and building lime.

Power supply: 220 V
Volume: 7,6 L
Internal dimensions: 200x240x160 mm
External dimensions: 540x520x490 mm
Weight: 45 Kg

MG702

CE037
STEAM BATH BUILDING LIME DETERMINATION
EN 459-2

This bath is used for the determination of the soundness of building limes subjected to steam action at atmospheric pressure for 180 minutes time.

The steam bath, made of stainless steel, holds up to 12 Le Chatelier moulds, approx. 50 mm over the water level. Two heating elements of 1200W and 200W heat the water to boiling point in 30 minutes, then a timer disconnects the 1200W element and the water temperature is maintained by the second element, as specified by the standard.

The cover has a device to prevent condensed water from dropping on the specimens.

External dimensions: 455x215x350 mm
Inner dimensions: 300x150x260 mm
Weight: 9 Kg


CE037

CE091
AUTOMATIC VICAT APPARATUS

EN 196-3, 480-2, 13279-2 | ASTM C187, C191
AASHTO T131 | NF P15-414, P15-431 | DIN 1168, 1196

The automatic Vicat is used for the initial and final setting time determination of cements or mortar pastes. The unit is manufactured with anticorrosion and tropicalised components to be used in places with humidity not below 90% and 20°C controlled temperature as required by EN specifications.

The apparatus is supplied with the standard programs to make automatically, all the tests according to the international Standards. The use of the appliance is extremely simplified by the guiding menu that is available in several languages.

The mobile probe weighs 300 g (1000 g following the EN, NF) the penetration needle has Ø1,13 mm (1mm following ASTM) and its fall can be programmed in free fall or in guided fall.

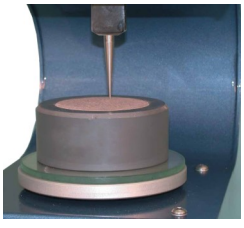
The apparatus calculates, visualises and prints:
-The time elapsed from the moment of sample preparation
-The time the tests start
-The time remaining for the next penetration
-The time remaining until the end of the test
-The number of penetrations made
-The pending penetrations number

Designed to be connected to a PC through an RS232 port with the possibility to download the test data using a common program that is normally incorporated with the Windows package of the PC. In this case the data processing will have to be made by the operator.

The software allows receiving, managing, processing and completing the test dates; it will trace automatically the graph, personalise and print the test report.

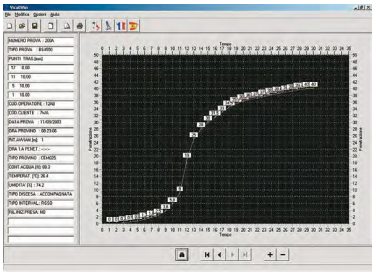
ACCESSORIES

CE090-02
Needle for final setting Ø1,13 mm (BS-EN 196-3)
CE090-12
Needle for final setting Ø1,00 mm (ASTM)
CE090-07
Consistency plunger Ø10x50 mm
CE090-04
Additional weight 700 g (EN-NF)
CE090-23
Brass mould Ø 80-90x40 mm BS
CE090-33
Plastic mould Ø 65-75x40 mm DIN



CE091-21

CE091-21
Conical penetration needle to make gypsum tests (EN, DIN)
CE091-22
Probe 100 g to make test on gypsum (EN, DIN)
CE091-91
Software for automatic Vicat
With connection cable that allows processing, printing and managing all the data directly from the PC.

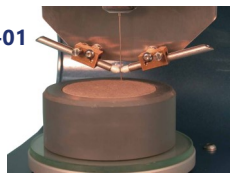


CE091

It is supplied with a built-in thermal printer, two hardened needles (one Ø1 mm and one Ø1,13 mm), two conical moulds for EN and ASTM and a glass plate to hold the conical mould.

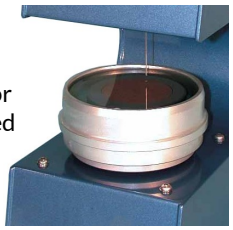
Power supply: 230 V | 50-60 Hz | 50 W
Dimensions: 400x200x470 mm
Weight: 13 Kg

CE091-01
Needle cleaning device
It removes residual cement particles from needles keeping them constantly lubricated.



CE091-01

CE091-02
Mould tank
To test samples immersed in water for EN 196-3. The test must be performed in a room with a controlled temperature of 20°C ± 1°C.



CE091-02

CE091-03
Thermostatic system for automatic Vicat
To control a temperature of 20°C as required by EN196-3.
The sytems accepts one or two automatic Vicats

Water capacity: 7,5L
Temperature range: 15 to 25°C
Power supply: 230 V | 50-60 Hz | 350 W
Dimensions: 415x300x420mm
Weight: 20 Kg

CE091

CE091-02

CE091-03

CE093
STANDARD VICAT APPARATUS
EN 196-3, 480-2,13279-2 | ASTM C191
AASHTO T131 | NF P15-414, P15-431

This method is used for determining the standard consistency and setting time of common cements, mortars and gypsum, and represents one of the most important parameters for quality inspection and verification.

The instrument consists of a metallic frame, graduated scale, sliding probe of 300 g, consistency plunger Ø10 mm, and glass base plate.


CE093

Dimensions:
160x200x300 mm
Weight:
5 Kg


CE090-01...CE090-33

ACCESSORIES
CE090-01
Ø1,13 mm hardened needle (EN 196-3)
CE090-02
Needle for final setting Ø1,13 mm (BS-EN 196-3)
CE090-03
Plastic mould Ø70-80x40 mm (EN-NF)
CE090-04
Additional weight 700 g (EN-NF)
CE090-11
Ø1,00 mm hardened needle (ASTM-AASHTO)
CE090-12
Needle for final setting Ø1,00 mm (ASTM)
CE090-13
Plastic mould Ø60-70x40 mm (ASTM-AASHTO)
CE091-21
Conical penetration needle for gypsum tests (EN, DIN)
CE090-22
100 g probe for gypsum tests (EN, DIN)
CE090-23
Plastic mould Ø 65-75x40 mm DIN
CE090-33
Brass mould Ø 80-90x40 mm BS

CE099
GILLMORE APPARATUS
ASTM C91, C141, C266, C1398 | AASHTO T154

Used to determine the setting time of cement, this apparatus consists of two horizontal arms which carry two weighted steel needles precisely machined to meet the requirements of the standards. The initial needle is Ø2,12 mm and weighs 113 g and the final needle is Ø1,06 mm and weighs 453,6 g.

Weight: 2,5 Kg


CE099

CE101
AIR CONTENT METER 1 L
EN 413-2 | EN 459-2 | EN 105-7

These meters have been designed to determine the air content of cement mortar, cement paste and lime mortar. The testers are made of cast aluminium, with the test pot and the upper part held together with an air-tight seal by means of two quick-action spring clamps.
The air is compressed with a built-in hand pump.
This air pump and the Test and Correction push buttons are arranged in a simple-to-use configuration on the front plate. The pressure gauge is built into the head of the meter and has a scale with an indication range of 0-50 percent volumetric air content.

Dimensions: Ø200x320 mm
Weight: 3,5 Kg

CE103
AIR CONTENT METER 0,75 L
EN 413-2

Identical to model CE101, but with vessel having 0,75 litre capacity, conforming to EN 413-2 Specification.

CE105
ELECTRIC AIR CONTENT METER 1 L
EN 459-2

Same as the CE101 model, but with incorporated an electric mini-compressor giving air pressure and keeping it constant all along the test.

Power supply: 230V | 50-60Hz

CE107
ELECTRIC AIR CONTENT METER 0,75 L
EN 413-2

Identical to model CE105, but with vessel having 0,75 litre capacity, conforming to EN 413-2 Specification.

ACCESSORY
CE100-01
Filling hopper (ring) for models C101, C103, C105 and C107


CE101

CE121
HAND-OPERATED FLOW TABLE
EN459-2 | EN1015-3 | EN13279-2

Designed to determine the consistency of mortars and building lime. A specimen contained in a cone mould is placed on a metal surface which is then raised and dropped from a known height, after releasing the specimen from the mould.

Supplied with bronze flow mould, tamper and filling hopper.

Table dimensions: Ø300 mm
Drop height: 10 mm
Weight: 25 Kg

CE0121

CE123
HAND-OPERATED FLOW TABLE
ASTM C230 | BS 4551-1

Same as the CE121 model but with dimensions table are Ø254 mm and without including the filling hopper

CE125
MOTORIZED FLOW TABLE
EN459-2 | EN1015-3 | EN13279-2

Same as the CE121 model but the operation is motorized and it is supplied with an automatic digital drop counter.

Power supply: 230 V | 50 Hz | 150 W
Weight: 60 Kg

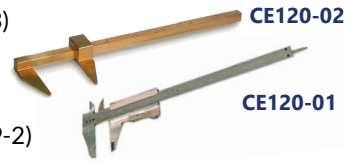
CE127
MOTORIZED FLOW TABLE
ASTM C230 | BS 4551-1

Same as the CE125 model but with dimensions table are Ø254 mm and without including the filling hopper

CE125

ACCESSORIES

CE120-01
Flow Calliper (EN 459-2, EN 1015-3)
CE120-02
Brass Flow Calliper (ASTM, BS)
CE120-03
Filling Hopper to the mould (EN 459-2)


CE120-02
CE120-01

CE131
PLUNGER PENETRATION APPARATUS
EN 413-2, 459-2, 1015-4

Used to determine the consistency of fresh mortar, lime and masonry cement. The base is fitted with a device to locate the test cup. The height of the drop can be accurately adjusted to 100 mm.

Supplied with test cup and tamper, both made of anodized aluminium.

Dimensions: 200x200x700 mm
Weight: 8 Kg

CE131

CE133
WORKABLE LIFE AND CORRECTION TIME OF FRESH MORTAR
EN 1015-9 (method A) | EN 13294

Used for the workable life and correction time of fresh mortar and for the determination of stiffening time on products and systems for the protection and repair of concrete structures.
Supplied with container.

Dimensions:
380x300x500 mm
Weight:
12 Kg


CE133

ACCESORY

MG220-09
Digital balance 16 Kg x 0,1 g
With tare buttom.

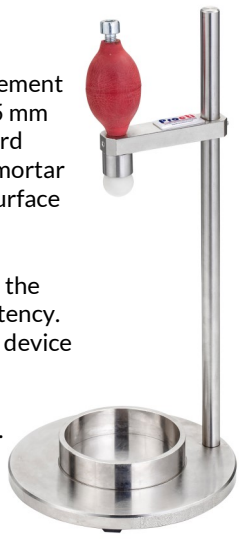
MG220-09

CE135
DROPPING BALL APPARATUS
BS 4551-1, 6463-4

Used to measure the consistency of cement mortars, this instrument allows a Ø25 mm acrylic ball to fall freely from a standard height of 250 mm into a specimen of mortar contained in a brass ring mould, the surface of which has been carefully prepared.

The depth of the ball penetration into the mortar indicates the specimen consistency. The instrument comprises a dropping device mounted on a stand, acrylic ball and mould Ø100x25 mm. The base of the stand is machined. Chromed finishing.

Weight: 9 Kg


CE135

CE137
MORTAR WORKABILITY APPARATUS
EN 413-2 | NF P18-452

Designed to test concrete mortar for dynamic workability and also to ensure optimum proportioning of mortar constituents (sand, water, cement, as well as cement/sand and water/cement ratios) compatible with given application. Suitable also for checking possible improvement when admixing a plastifier, or for comparing two mortar types. The unit consists of a prismatic receiver divided into two unequal volumes by a removable partition, and an electric vibrator.

The fresh mortar is poured in the large volume place, the separating partition is removed and the vibrator stats automatically. As a result of vibrations, mortar flows from the large volume to the small one, in a time which is a function of the workability of the mortar.

Power supply:
230 V | 50 Hz | 110 W
Dimensions:
400x200x200 mm
Weight:

CE137

CE139
CRACKING TEST MOULD
NF P15-434

Used to produce ring-shaped specimens designed for cracking tests on hydraulic binders. This test consists of measuring the formation time of a crack on the test specimen.

Weight: 8 Kg


CE139

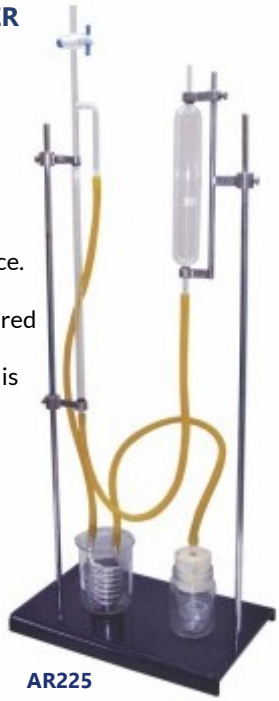
AR225
DIETRICH-FRÜHLING CALCIMETER

Used for the determination of calcium carbonate ($CaCO_3$) in certain products such as limestone and lime marl.

It mainly consists of a glass container in which the reaction between the calcium carbonate present in the product and a solution of hydrocloridric acid takes place.

The resulting gas is collected and measured by a device connected to the container. As the volume of the released gas (CO_2) is in relation to the $CaCO_3$ content of the material, it is possible to calculate the percentage of $CaCO_3$.

Dimensions: 400x200x1100 mm
Weight: 13 Kg


AR225

CE141
LIME REACTIVITY TESTING APPARATUS
EN 459-2 | NF P98-102

This apparatus is used for determining the reactivity on slaking of ground quicklime.

The equipment consists of.
-Dewar vessel 1000 ml with cover
-Electric stirrer 300 r.p.m.
-Stirring paddle (propeller)
-Base with stand
-Digital thermometer range -50 +200°C

Power Supply:230 V | 50-60 Hz
Dimensions:400x250x750 mm
Weight:10 Kg

ACCESSORY

CE141-01
Weighting and filling container


CE141-01 CE141

CE143
BULK DENSITY OF LIME
EN 459-2

The apparatus allows a sample to fall froma known height into a volumetric container. Consisting of a hopper, one litre cylindrical container and spring loaded trap.

Weight: 5 Kg


CE143

CE145
SLAKING VESSEL
EN 459-2

This insulated vessel is used to determine the yield of lime by leaving the lime sample to slake. Made of stainless steel, double wall with glass fibre insulation, the cylinder has inner dimensions Ø 113 by 140 mm deep. Supplied with cover.

Internal dimensions: Ø113x120 mm
Weight: 4 Kg


CE145

CE151
WATER RETENTION
EN 413-2

Used for determining the water retention of masonry cements. Made of rigid plastic inside Ø100 ± 1 mm, inside height 25 ± 1 mm.

Dimensions: Ø100x25 mm
Weight: 300 g

CE151

CE147
WATER PERMEABILITY DETERMINATION APPARATUS
EN 1015-21

This apparatus is used to determine the water permeability in onecoat rendering mortars with substrates.

It is composed of:
-Metallic cone Ø200 mm
-Reference mark at 100 mm
-Glass burette1000 ml div 1 ml
-Base on the top of the cone
-Rod
-Clamps

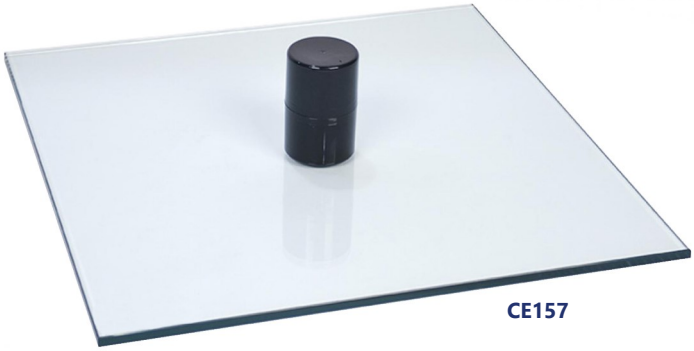
Dimensions: 1400x300x300 mm
Weight: 10 Kg

CE147

CE157
FLUIDITY TEST OF GROUTS FOR PRE-STRESSING TENDONS
EN 445 (2007)

The grout spread test measures the fluidity of thixotropic grouts. The fluidity is measured by the diameter of the circle of grout spread on a smooth plate after a fixed period.

It consists of:
-Glass plate 305x305 mm
-Stiff plastic mould Ø39x60 mm and 70 g



CE157

CE155
FUNNEL GROOVE
EN 13395-2

Used to determine the consistency of premixed expansive cement mortars. The device consists of a funnel fixed on one end of a metal groove.

Supplied with a graduated ruel and spirit level.

Dimensions: 960x210x400 mm
Weight: 10 Kg

CE155

CE153
WATER VAPOUR PERMEABILITY TEST CELL
EN 1015-19

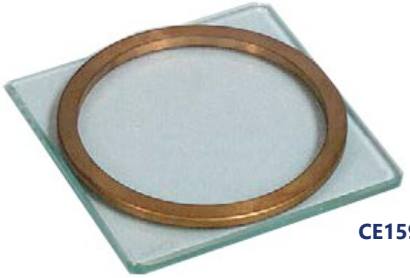
Used to determine the water vapour permeability of hardened rendering and plastering mortars. Manufactured in PVC, resistant to corrosion, it has an opening of approx. 0,02 m², in which the test sample is sealed.

Dimensions: Ø150x55 mm
Weight: 600 g

CE153

CE159
PAT TEST
EN 459-1 | BS 890 | BS 1191

Utilized for the determination of the soundness of hydrated lime, gypsum and building plasters. Consists of a brass ring mould, 100 mm diameter by 5 mm deep. The mould has an inside taper of 5°. Supplied with glass base plate. To perform one test, three moulds are required.



CE159

SU411
MARSH FUNNEL
ISO 2431

The Marsh funnel is used for routine viscosity determinations on almost every drilling rig.
It is made of rugged, shatterproof plastic that is resistant to temperature change deformation, assuring volumetric accuracy.

Supplied with a 1 liter plastic measuring cup.

Dimensions:
Ø160x370 mm
Weight:
500 g

SU411

SU413
FLOW CONE APPARATUS
EN 445 | NF P18-358, P18-507

Used for determining the flow properties of mortars, grouts, muds and many other type of fluid materials.

Mortar fluidity is considered suitable when the flow time of 1000 cc of mortar is comprised between 17 to 25 seconds.

Entirely brass made, cone top dia is 155 mm, total length 290 mm, capacity 1700 cc.

Supplied with:
-4 interchangeable nozzles Ø8-9-10-11 mm
-Stand adjustable in heigh
-Plastic graduated cup

Weight:
10 Kg

ACCESSORIES

SU413-01
Interchangeable nozzle Ø13 mm
SU413-02
Sieve Ø150 mm mesh size 1,5 mm

SU413

SU415
SAND CONTENT OF DRILLING MUDS KIT
API 13 B-1 | API 13 B-2

A simple kit, accurate and inexpensive sieve analysis apparatus for determining the sand content of drilling muds. The kit consists of a special 200-mesh sieve 2,5" in diameter, fastened inside a collar upon which a small funnel is fitted on either end.
This is used with a 10 ml glass measuring tube, graduated to read from 0 to 20% the percentage sand by volume.
The collar and funnel are made of polyethylene and the screen is made of brass. A 500 ml wash bottle and carrying case are included.

Weight:
1500 g

SU415

SU417
BAROID MUD BALANCE
API 13 B-1 | API 13 B-2

The mud balance provides a simple method for the accurate determination of mud density, with a durable construction that makes it ideal for field use.
Principally the balance consists of a base with a fulcrum, and a graduated beam with cup, lid, weighted slider, built-in spirit level and counter-weight. The constant volume cup is affixed to one end of the graduated beam and the counter weight on the opposite end. A plastic carrying case is provided that holds the balance in its working position.

Weight:
3 Kg

SU417

SU419
FILTER PRESS FOR MUDS
API 13 B-1 | API 13 B-2

Measuring filtration behaviour and wall-coke building characteristics of fluids is essential to drilling fluid control and treatment.

This apparatus is the most effec-tive means of determining the filtration properties of drilling muds and cement slurries. It consists essentially of a mud reservoir mounted in a frame, a pressure source, a filtering medium and a graduated cylinder for receiving and measuring filtrate.

Supplied with filter paper and CO_2 cartridges.

Dimensions: 200x230x480 mm
Weight: 10 Kg

SU419

CE181
PULL-OFF APPARATUS

EN 1542, 1348, 1015-12, 13687-2, 13963, 14496
NF P18-858 | BS 1881:207

This apparatus is mainly used to evaluate the bond strength of two layers of concrete or the adhesive strength of a surface coating (cement plaster, lime, wall plaster) to its base.

Compact, light, for use in any location, this Pull-Off tester is fitted with a load cell and high resolution large digital display unit; it is therefore suitable for measurements from low loads up to 16 kN, granting a wide working range and ideal for a large number of applications and materials. The direct tensile force is applied by rotating the hand wheel.

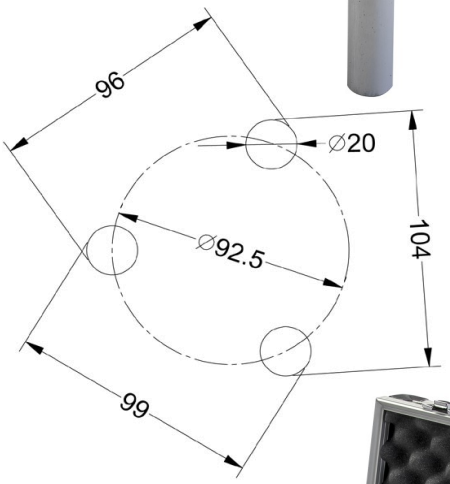
The three feet of the unit can be fixed in the extended position, overall dimensions Ø176 mm with high stability, or in the compact position Ø92,5 mm, to perform tests in narrow spaces, or for specimens close one to the other.

It is supplied with traceable calibration certificate, battery, serial port for PC connection, graphic indication of the applied load rate and seat ball assuring axial/central load application and transport case.

A conventional electric drill is required to use this test.

Load capacity: 16 kN
Resolution: 10 N
Working range: 0,25 to 16 kN
Accuracy and repeatability: better than ± 1%
Hand wheel rounds: 60 with mechanical round/counter
Dimensions: 410x210x270 mm
Weight: 6 Kg

CE181



ACCESSORIES

CE180-01
Adhesion test aluminium disc Ø20 mm (10 units)
Thick: 21 mm
CE180-02
Adhesion test aluminium disc Ø50 mm (10 units)
Thick: 21 mm
Standard: EN 1015-12
CE180-03
Adhesion test aluminium disc Ø50 mm (10 units)
Thick: 31 mm
CE180-04
Adhesion test aluminium square 50x50 mm (10 units)
Thickness: 21 mm
Standard: EN 1348
CE180-05
Cylindrical ring Ø50 mm
With truncated cone shape
Standard: EN 1015-12
CE180-91
Software to download test results to PC
Includes connection cable
CE180-07
Drill bit with centering bit Ø20 mm for surface preparation
CE180-08
Drill bit with centering bit Ø50 mm for surface preparation
CE180-09
Acrylic adhesive glue

CE180-08

CE180-07

CE180-09

CE191
AUTOMATIC MORTAR MIXER
EN 196-1, EN 196-3, EN 480-1, ASTM C305M

Designed for efficient mixing of cement and mortar pastes. The mixing system has up to four automatic mixing cycle sequences and allows you to select two speeds:

-140 or 285 rpm for rotary action
-62 or 125 rpm for planetary action

The automatic operation changes the mixing speeds and sequences, indicating by means of an acoustic signal the different phases of the mixing cycle.

The safety door stops the machine automatically in case of opening, complying with CE safety regulations.

Supplied with an automatic sand dispenser, which pours sand into the bowl for a period of 30 seconds (EN 196-1 program).

Power supply: 230 V | 50 Hz
Capacity: 4,7 L
Dimensions: 340x460x700 mm
Weight: 45 Kg

CE191

CE193
MORTAR MIXER
EN 196-3, EN 480-1, ASTM C305M

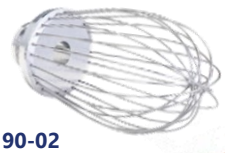
Basically the same as the CE183 model, but it is not equipped with the automatic program, it only has two speeds to choose from. Supplied with a plastic sand dispenser and safety doors in accordance with CE Safety regulations.

Dimensions:
340x460x500 mm
Weight:
44 Kg

CE193

ACCESSORIES FOR CE191 AND CE193

CE190-01
Flat stainless steel kneading paddle.
CE190-02
Stainless steel rod whisk.
CE190-10
Dispenser for water or additives
CE190-05
Reference sand EN 196-1. 21.6 Kg bag
CE190-06
Ottawa Type Sand ASTM C109, C778. 25 Kg bag



CE190-02

CE190-01

CE190-06

CE199
COMPUTERIZED MORTAR MIXER

EN 196-1, 196-3, 413-2, 459-2, 480-1 | DIN 1164-5, 1164-7
ASTM C305M | AASHTO T162

This equipment is designed for intensive laboratory use, with different mixing program cycles conforming to international norms. Its electronic control unit can store up to 30 custom mixing cycles.

Electronic control unit with touch screen colour display, that runs like a standard PC based on Windows operating system for the management and analysis of the data, test results, graphs. The touch-screen icon interface allows an easy set up of the parameters and immediate execution of the test.

Rotational motor feeded through inverter to grant the max. precision of the rotational speed, adjustable by the operator on the display.

It includes a safety system that ensures a correct positioning of the mixing bowl to prevent accidents, and is fitted with a transparent guard to allow visual inspection during tests. Unlimited memory storage with: 2 USB ports, 1 SD card slot, RS232/485 serial port.

Supplied with stainless steel polished beater, mixing bowl and automatic sand dispensers having dimensions and geometry to grant the correct sand insertion, without residual and disaggregation between fine and coarse portions.

CE199

Power supply: 230 V | 50-60 Hz
Dimensions: 530x620x780 mm
Weight: 85 Kg

ACCESSORIES

CE199-01
Dispenser with hopper
To ease the manual introduction of additives into the bowl, also during the mixing phase.

CE199-02
Additional automatic dispenser
For the automatic introduction of water managed by the software.

CE190-05
Reference sand size from 0,08 to 2 mm (EN 196-1)

CE190-06
Graded natural silica sand Ottawa 25 Kg (ASTM C109, C778).

CE199-01

CE199-02

CE190-05

CE190-06

Display of kneading cycles

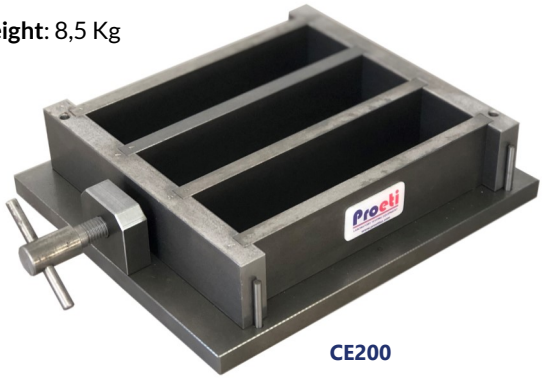
CE200
THREE GANG VERIFIED MOULD 40X40X160 MM
EN 196-1 | EN ISO 679

Manufactured from heavy duty steel with hardness of inside walls over HV 500. This high hardness value keeps the mould within the tolerances requested by specifications for many tests, granting very long service life.

Each mould is individually verified in the dimensional tolerances, hardness, squareness, flatness and roughness with instruments periodically certified. A part-number is engraved on each mould, and a certificate of conformity is supplied along with it.

All parts are marked with an identification number for a correct assemby.

Weight: 8,5 Kg



CE200

CE201
THREE GANG MOULD 40X40X160 MM
EN 196-1 | EN ISO 679

Same as the CE200 but with hardness of inside walls over HV 200. All surfaces are grinded and all parts are marked with an identification number for a correct assembling.

Weight: 8,5 Kg

CE201+CE201-01

ACCESSORIES

CE201-01
Hopper for 40x40x160 mm moulds
CE201-02
Large and small scrapers (EN 196-1)
SU300-10
Straight edge 300 mm
CE201-03
Glass plate 220x190mm to cover the mould

SU300-10

CE203
THREE GANG MOULD 40X40X160 MM
NF P15-413 | ASTM C348 | DIN 1164, 1060

Same as the CE200 mold but with a hardness of the inner walls of 55 HRB.
Weight: 8,5 Kg

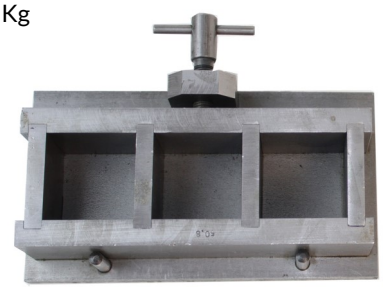
CE205
THREE GANG MOULD 70,7X70,7X282,8 MM
NF P18-401

Made of steel.
Weight: 17 Kg

CE203 CE205

CE207
THREE GANG MOULD 50X50X50

Made of 55 HRB hardened steel.
Weight: 6 Kg



CE207

CE209
CUBIC MOULD DE 70,7 MM
BS 4550

Made of steel with dimensions in accordance with BS 4550. Three molds are required for each test.

Weight: 3 Kg

CE209

CE208
BRIQUETTE MOULD
ASTM C190, C307 | AASHTO T132

Machined conforming to the associated norms and easy to demould. Supplied with base.

Weight: 3 Kg

CE208

CE211
JOLTING APPARATUS
EN 196-1 | EN ISO 679

This machine, used to compact the 40x40x160 mm cement prisms in the mould, has been developed to precisely satisfy the EN and ISO standards.

The apparatus, consists of a table holding the mould, seated on a rotating cam driven at 60 r.p.m. The jolting group is connected to the table by bayonet joints for quick checking of the weights. The drop height (15 mm) is adjustable to keep it correct also after intensive uses.

The apparatus is supplied with separate control panel including main switch, automatic digital drop counter, start/stop push button.

Power supply:
230V | 50Hz | 500W
Dimensions:
1000x380x420 mm
Weight:
65 Kg

CE211

ACCESORY
CE210-01
Soundproofed cabinet
Manufactured from sheet steel, internally lined with sound-proofing material for noise reduction, to be used with the Jolting apparatus.

Dimensions: 1300x510x700 mm
Weight: 25 Kg

CE210-01

CE215
VIBRATING MACHINE FOR MOULDS 70,7 MM
BS 4550

This apparatus is for the preparation and compaction of 70,7 mm mortar cube specimens. The mould table is mounted on four springs attached to an eccentric shaft which allows each sample to be vibrated at 12,000 cycles per minute in accordance with the specifications. The cube mould is not included and has to be ordered separately.

Power supply:
230 V | 50 Hz | 250W
Weight:
100 Kg

CE215

CE221
DIGITAL WATER BATH 40 L
EN 196-1, 196-8 | ISO 679 | ASTM C109, C511

Double walled and made of stainless steel, with glass wool insulation and an electric stirrer for water circulation. The bath ensures an uniform and constant temperature. It is equipped with a digital thermostat and a dual safety thermostat with higher thermal threshold ensuring safe working conditions.

It can contain up to 60 40x40x160 mm specimens, held separated from the bottom by a rack.

Power supply: 230 V | 50-60 Hz | 1200W
Temperature range: from ambient to 60°C
Internal dimensions: 510x350x230 mm
Overall dimensions: 680x420x420 mm
Weight: 28 Kg

CE221

CE223
DIGITAL WATER BATH 200 L
EN 196-1, 196-8 | ISO 679 | ASTM C109, C511

Same as model CE221 but with 200 L capacity.

Power supply: 230 V | 50-60 Hz | 4000 W
Internal dimensions: 900x600x360 mm
Overall dimensions: 1050x680x430 mm
Weight: 55 Kg

CE231
CURING CABINET
EN 196-1 | ASTM C109, C190, C191

Both exernal and internal walls are stainless steel made, and insulated by a 50 mm thick glass wool.
The cabinet has an inner inspection glass door.
A dual safety/thermostat with higher thermic threshold ensures safe working conditions.

Power supply: 230 V | 50-60 Hz | 1000 W
Temperature range: from ambient to 70°C
Humidity range: 90% to saturation
Internal dimensions: 620x440x400 mm
Overall dimensions: 900x700x800 mm
Weight: 60 Kg

CE231

CE233
LARGE CAPACITY CURING CABINET
EN 196-1, 196-08 | ISO 679 | ASTM C109, C511

For curing large quantities of mortar, cement and concrete specimens, at controlled humidity and temperature. Aluminium and policarbonate made, it includes precision digital thermostat and four robust shelves.

The humidity from 90% to saturation is maintained through water nebulizers activated by compressed air, and the temperature by an immersion heater and refrigerator unit. The cabinet requires a compressed air source.

Power supply: 230 V | 50-60 Hz | 2000 W
Temperature range: from ambient to 30°C
Internal dimensions: 1090x470x1200 mm
Overall dimensions: 1350x570x1600 mm
Weight: 100 Kg

CE233

CE233-03

CE233-01
WATER REFRIGERATOR SYSTEM

It cools the water from room temperature down to +10°C with supply capacity of 2 litre/minute. Made of stainless steel, with motor pump, digital thermostat.

It is connected to water baths and tanks where a lower than room temperature is required. Supplied with tubing and accessories for bath connection.

Power supply:
230 V | 50 Hz | 750 W
Dimensions:
550x500x880 mm
Weight:
55 Kg

CE233-01

CE235
CURING BENCH WITH COOLING HEATING SYSTEM

Suitable for curing large quantities of cement, mortar and concrete specimens at controlled temperature and humidity.

Fully made of stainless steel with insulation panels. 4 doors with 530x310 mm racks, adjustable in height. Thermostatic group including refrigerating unit, compressor, condenser, evaporator, control and safety devices are installed laterally for easy inspections.

The top can be used as working bench.

Power supply: 230 V | 50-60 Hz
Capacity: 540 litres
Temperature range: +18°C a +30°C
Humidity range: 95% to saturation
Dimensions: 2250x1010x850 mm
Weight: 200 Kg

CE235

ACCESSORIES

MG755
Air compressor 90 litres
Air displacement 255 litres/min.
Recommended for standard use.
MG759
Air compressor 270 litres
Air displacement 486 litres/min.
Recommended for intensive or continuous use.
CE233-02
Tubing and accessories to connect the air compressor
CE233-03
Polythene pan 240x300x70 mm
It accepts up to 6 prisms 40x40x160 mm.

COMPRESSION TESTING MACHINES FOR MORTARS

EN 196-1, 1015-11 | ISO 679 | ASTM C109, C349, C1194
DIN 1164 | BS 4550 | GOST 26798-1

Designed to perform compression tests on specimens of cement, mortar, bricks, rocks and refractory materials by using the suitable compression devices and accessories.

Equipped with an electrical microswitch to stop the piston after specimen breakage, in order to avoid damages to the compression device.

Our range of compression testing machines offers different configurations, from semi-automatic to automatic and computerized, depending on the control and measurement systems that adapt best to the user's requirements.

CE251

CE257

These machines are formed by a two-column frame with a single measurement range, for compression tests with loads up to 250 or 500 kN.

Two options for the digital control unit:
-2 channels and interface with 5 multi-function pushbuttons
-8 channels and touch-screen user-friendly interface

They are supplied with the lower compression platen and coupling to easily attach the compression device.

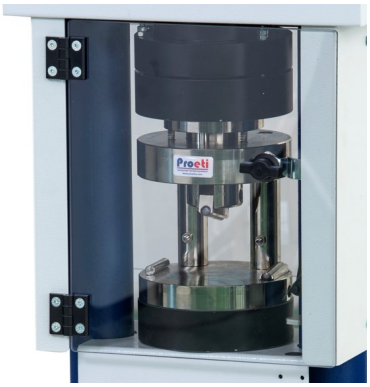
Power supply: 230 V | 50 Hz | 750 W
Vertical distance between platens: 185 mm
Horizontal distance between columns: 175 mm
Platens diameter: Ø153 mm
Ram travel: 45 mm
Weight: 300 - 330 Kg

CODE	CAPACITY	CONTROL SYSTEM	HIDRAULIC PUMP
CE251	250 kN	2 channels	Motorized
CE253	250 kN	8 channels	Motorized
CE255	250 kN	2 channels	Servo controlled
CE257	250 kN	8 channels	Servo controlled
CE261	500 kN	2 channels	Motorized
CE263	500 kN	8 channels	Motorized
CE265	500 kN	2 channels	Servo controlled
CE267	500 kN	8 channels	Servo controlled

ACCESSORIES FOR COMPRESSION FRAMES ON CEMENT AND MORTAR:

CE250-01
Safety guards in compliance with CE Directive
Polycarbonate made with hinges and lock.

MG010-03
Safety stop door switch



CE250-01

CE250-02
Bench to hold the compression frame

CE250-02

CE300-01
Distance piece 25 mm
CE300-02
Distance piece 50 mm
CE301
Compression device for 40x40x160 mm prisms
EN 196 | ISO 679 | ASTM C349

CE303
Compression device for 40x40x160 mm prisms
DIN 1164

CE305
Compression device for 50 mm cubes
ASTM C109, C1194

CE301

MG010-02
Two way hydraulic valve
To activate a second frame.

MG010-01
Console for housing the pump unit
It is lined with sound-proofing material for noise reduction.

MG010-02

MG031
Custom computer
The supply of the PC includes monitor 22", keyboard, mouse, connection cables and the installation of the purchased software.

MG035
Integrated thermal printer

MG035-01
Thermo paper roll for printer

MG030-01
Software for remote control from PC

MG010-01

MG031

MG035

Compression test on mortars

COMPRESSION/FLEXURAL TESTING MACHINES WITH DUAL MEASURING RANGE ON MORTARS

EN 196-1, 13286-41, 933-5, 1015-11 | ISO 679 | BS 4550
ASTM C109, C348, C349, C1194 | DIN 1164 | GOST 26798-1

Designed to perform compression and flexural tests on specimens of cement, mortar, bricks, rocks and refractory materials by using the suitable compression devices and accessories.

Equipped with an electrical microswitch to stop the piston after specimen breakage, in order to avoid damages to the compression device.

Our range of compression testing machines offers different configurations, from semi-automatic to automatic and computerized, depending on the control and measurement systems that adapt best to the user's requirements.

CE281

CE287

These machines are formed by a two-column frame with two measuring ranges in the same testing chamber.
For compression tests 250kN or 500kN capacity load.
For flexural tests 15kN capacity load.

Two options for the digital control unit:
-2 channels and interface with 5 multi-function pushbuttons
-8 channels and touch-screen user-friendly interface

They are supplied with the lower compression platen and coupling to easily attach the compression and flexural devices.

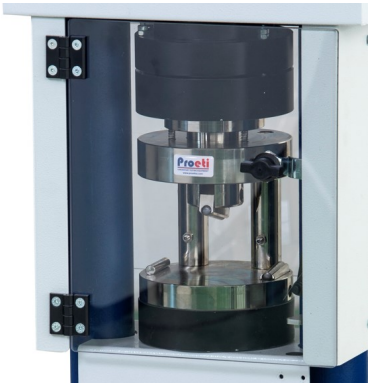
Power supply: 230 V | 50 Hz | 750 W
Vertical distance between platens: 185 mm
Horizontal distance between columns: 175 mm
Platens diameter: Ø153 mm
Ram travel: 45 mm
Weight: 300 - 340 Kg

CODE	CAPACITY	CONTROL SYSTEM	HIDRAULIC PUMP
CE271	250-15 kN	2 channels	Motorized
CE273	250-15 kN	8 channels	Motorized
CE275	250-15 kN	2 channels	Servo controlled
CE277	250-15 kN	8 channels	Servo controlled
CE281	500-15 kN	2 channels	Motorized
CE283	500-15 kN	8 channels	Motorized
CE285	500-15 kN	2 channels	Servo controlled
CE287	500-15 kN	8 channels	Servo controlled

ACCESSORIES FOR COMPRESSION/FLEXURAL FRAMES ON CEMENT AND MORTAR:

CE250-01
Safety guards
Safety guards in compliance with CE Directive
Polycarbonate made with hinges and lock.

MG010-03
Door stop safety switch



CE250-01

CE250-02
Bench to hold the compression/flexural frame

CE250-02

CE300-01
Distance piece 25 mm
CE300-02
Distance piece 50 mm

CE301
Compression device for 40x40x160 mm mortar prisms
EN 196 | ISO 679 | ASTM C349

CE311
Flexure device for 40x40x160 mm mortar prisms
EN 196-1,1015-11 | DIN 1164 | ISO 679

CE311

CE301

MG010-02
Two way hydraulic valve
To activate a second frame.

MG010-02

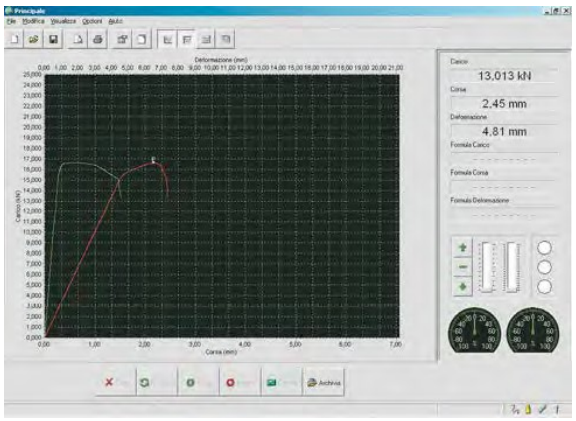
MG010-01
Console for housing the pump unit
It is lined with sound-proofing material for noise reduction.

MG031
Custom computer
The supply of the PC includes monitor 22", keyboard, mouse, connection cables and the installation of the purchased software.

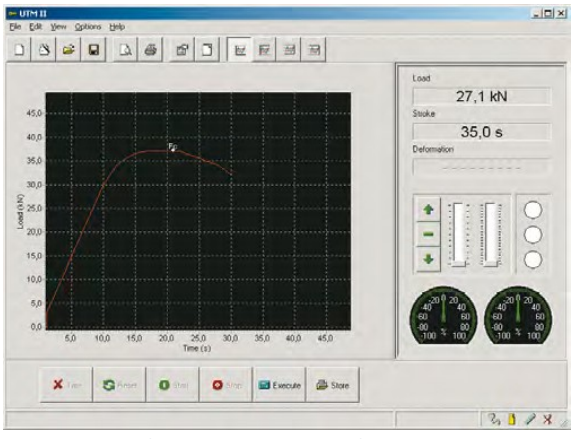
MG035
Integrated thermal printer

MG035-01
Thermo paper roll for printer

MG035



Compression tests on mortars



MG030-01 *Software remote control from PC*

COMPRESSION AND FLEXURAL TESTING MACHINE WITH DUAL CHAMBER AND TWO RANGES

EN 196-1, 13286-41, 933-5, 1015-11 | ISO 679 | BS 4550
ASTM C109, C348, C349, C1194 | DIN 1164 | GOST 26798-1

These high performance testing machines, with advanced features and high quailty components, are equipped with two testing chambers with two independent measuring ranges.

These machines are suitable for:
-Flexural tests on 40x40x160 mm prisms with range 0-15 kN
-Compresison tests on 40x40x160 prisms
-Compression tests on 40, 50, 70 and 100 mm cubes
-Cores wuth a maximum height of 180 mm

The applied load is measured by two strain gage load cells (15kN and 300 kN) at high accuracy. This solution eliminates the weights of the piston and lower compression platen, packing set frictions etc., granting very high accuracy (max. error within ± 0,5%).

The load chamber 0-15 kN performs very accurate tests on specimens having low strength (both in compression and in flexure).

Equipped with an electric microswitch to stop the piston after the specimen breakage, in order to avoid damages to the compression or flexure device.

They are supplied with the lower platen and coupling to easily attach the compression and flexural devices.

Power supply: 230 V | 50 Hz | 750 W
Daylight between platens: 189 mm
Daylight between columns: 210 mm
Platens diameter: Ø165 mm
Piston stroke: 35 mm
Dimensions: 1300x400x1500 mm
Weight: 400 Kg

CE293

CODE	CAPACITY	CONTROL SYSTEM	HIDRAULIC PUMP
CE291	300/15 kN	8 channels	Motorized
CE293	300/15 kN	8 channels	Servocontrolled

ACCESSORIES

MG010-03
Door stop safety switch

MG035
Integrated thermal printer

MG035-01
Thermo paper roll for printer


MG035

MG031
Custom computer
The supply of the PC includes monitor 22", keyboard, mouse, connection cables and the installation of the purchased software.


MG031

MG030-01
Software for remote control from PC

COMPRESSION AND FLEXURAL DEVICES FOR TESTS ON CEMENT AND MORTAR:

CE301
COMPRESSION DEVICE FOR PORTIONS OF 40X40X160 MM PRISM BROKEN IN FLEXURE
EN 196-1 | ASTM C349 | ISO 679

The compression platens have hardness 60 HRC and upper platen is seat ball assembled.
The centering plug is distant 10 mm from the compression platen, as requested by the EN 196-1 Specification.
Cadmium plated for rust protection.

Dimensions:
153x153x185 mm
Weight:
12 Kg

CE301

CE303
COMPRESSION DEVICE FOR PORTIONS OF 40X40X160 MM PRISM BROKEN IN FLEXURE
DIN 1164

Identical to the CE301 device, but with 40x62,5 mm size compression plates, as required by DIN Standards.

CE303

CE305
COMPRESSION DEVICE FOR 50 MM CUBIC SAMPLES
ASTM C109, C1194

Platens diameter: 72 mm and upper platen is seat ball assembled.
This device can be used also to test cores max. 50 mm height.

Dimensions:
153x153x185 mm
Weight:
12 Kg

CE305

CE307
COMPRESSION DEVICE FOR 70 MM CUBES
BS 4550

It can be used with witnesses of height up to 70 mm.

Dimensions:
150x130x185 mm
Weight:
9 Kg

CE307

CE311
FLEXURE DEVICE FOR 40X40X160 MM PRISMS
EN 196-1 | EN 1015-11 | DIN 1164 | ISO 679

Upper bearer is seat ball assembled. The distance between lower bearers is 100 mm and one of them has a spherical seat. Cadmium plated for rust protection.

Dimensions:
160x153x185 mm
Weight:
11 Kg

CE311

CE315
FLEXURE DEVICE FOR 40X40X160 MM PRISMS
ASTM C348

Identical to model CE311 but with a distance of 119 mm between the lower rollers in accordance with the ASTM Standard.

Weight:
11 Kg

SU351
DIGITAL MULTIPURPOSE TESTER 50 KN

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
ROCKS AND STONES:
Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separetely.

SU351

Power supply: 230 V | 50-60 Hz |150 W
Adjustable testing speed: from 0,01 to 51 mm/min
Load gradient: from 1 to 15000 N/seg
Maximum ram travel: 100 mm
Daylight between columns: 380 mm
Maximum vertical daylight: 850 mm
Dimensions: 500x450x1450 mm
Weight: 130 Kg

ACCESORIES MULTIPURPOSE 50 KN FOR CEMENTS:

COMPRESSION TEST
EN 196-1 | ISO 679 | ASTM C109 | ASTM C349
NF P15-451 | BS 3892 | DIN 1164
MG020-06
Load cell 50 kN
SU350-01
Loading piston
CE301
Compression device
MG030-21
Software for compresion tests on mortars

CE301

FLEXURAL TEST
EN 196-1 | ISO 679 | ASTM C348
NF P15-451 | DIN 1164
MG020-03
Load cell 10 kN
SU350-01
Loading piston
CE311
Flexural device
MG030-21
Software for flexural test on mortars

CE311

SU353
MULTIPURPOSE 50 KN - TENSILE 25 KN TESTER

Same as the 50 kN SU351 but modified and upgraded to perform also tensile tests with 25 kN of maximun capacity.

CEMENT:
Tensile in mortar briquettes
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS
Tensile test 50 kN max capacity load

ACCESORIES MULTIPURPOSE 50-25 KN FOR CEMENTS:

TENSILE TEST ON MORTAR
ASTM C190 | ASTM C307 | AASHTO T132
MG020-03
Load cell 10 kN
SU350-04
Tensile jaws “8” shaped for mortar briquette
MG030-24
Software for tensile test
CE208
Briquette mould


SU350-04


CE208

SU355
DIGITAL MULTIPURPOSE TESTER 200 KN

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile tests.

The versatility of the machine allows to carry out the tests:
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
Tensile on mortar briquettes
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
Duriez
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
ROCKS AND STONES:
Uniaxial splitting tensile
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The load is applied by a mechanical jack that is driven by a brushless motor with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

SU355

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

Power supply: 230 V | 50-60 Hz | 850 W
Maximum vertical distance: 900 mm
Daylight between columns: 650 mm
Adjustable testing speed: from 0,01 to 100 mm/min
Load gradient: from 1 N/s to 5 kN/s
Dimensions: 950x560x2400 mm
Weight: 820 Kg

ACCESORIES MULTIPURPOSE 200 KN ON MORTARS:

COMPRESSION TEST
EN 196-1 | ISO 679 | ASTM C109
ASTM C349 | NF P15-451 | BS 3892 | DIN 1164

CE301
Compression device
MG030-21
Software for compresion tests on mortars

FLEXURAL TEST
EN 196-1 | ASTM C348 | NF P15-451
DIN 1164 | EN ISO 679

MG020-03
Load cell 10kN
MG020-13
Load cell connector
CE311
Flexural device
MG030-21
Software for flexural test on mortars


CE311

TENSILE TEST ON MORTAR
ASTM C190 | ASTM C307 | AASHTO T132

MG020-03
Load cell 10kN
MG020-13
Load cell connector
Su350-04
Tensile jaws “8” shaped for mortar briquette
MG030-24
Software for tensile test
CE208
Briquette mold



SU350-04


CE208

SECTION HR

CONCRETE

The analysis and study of the properties of concrete is a fundamental part of our sector.
The final quality of the concrete depends on many variables such as: workability, consistency, determination of setting time, bulk density, air content, temperature, compressive strength, etc...

Proeti offers a wide line of equipment to carry out the necessary tests for the aforementioned variables with strict compliance with all the requirements of the EN, ASTM and other international standards.

COMPRESSION TESTING MACHINES TESTED FOR HIGH STABILITY TO TEST CUBES UP TO 200 MM AND CYLINDERS UP TO Ø160X320 MM

EN 12390-4 | UNE 83304 | ASTM C39 | AASHTO T22 | NF P18-411 | BS 1881:115 | DIN 51220

Manufactured with four columns frame is prestressed on 8 ring nuts and the clamping is obtained and checked by a dynamometric spanner, the compression platens are hardened over 55 HRC and rectified. The spherical seat, in oil bath with null end float, is manufactured to grant an accurate self-alignment without frictions of the upper compression platen to the specimen.

The most important feature of the high stability frames is their uniform distribution of the applied load on all the specimen surface under test. The sample breakage is satisfactory and the strength results are correct, high and true.

Our complete range of compression testing machines available are employed to control and manage all sorts of automatic and semi-automatic testing machines in order to satisfy and to personalize any specific requirement by the enduser.

Two options for the digital control unit:
-2 channels and interface with 5 multi-functions pushbuttons
-8 channels and touch-screen user-friendly interface

All the compression machines are supplied with a traceable ENAC calibration certificate (Class I).

COMPRESSION TESTING MACHINES 2000 KN

HR013

Maximum vertical daylight: 336 mm
Horizontal daylight between columns: 260 mm
Compression platens: Ø287X60 mm
Calibration accuracy: Class 1
Maximum ram travel: 60 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 690x400x1400 mm
Weight: 850...920 Kg

COMPRESSION TESTING MACHINES 3000 KN

HR027

Maximum vertical daylight: 336 mm
Horizontal daylight between columns: 272 mm
Compression platens: Ø287x60 mm
Calibration accuracy: Class 1
Maximum ram travel: 60 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 750x450x1500 mm
Weight: 1200...1250 Kg

CODE	CAPACITY	CONTROL SYSTEM	HYDRAULIC PUMP
HR011	2000 KN	2 channels	Motorized
HR013	2000 KN	8 channels	Motorized
HR015	2000 KN	2 channels	Servo controlled
HR017	2000 KN	8 channels	Servo controlled
HR021	3000 KN	2 channels	Motorized
HR023	3000 KN	8 channels	Motorized
HR025	3000 KN	2 channels	Servo controlled
HR027	3000 KN	8 channels	Servo controlled

COMPRESSION TESTING MACHINES TESTED FOR HIGH STABILITY FOR RESEARCH LABORATORIES 5000 KN HIGH STRENGTH SPECIMENS, EXPLOSIVE SAMPLES, ROCK AND CERAMIC

EN 12390-4 | BS 1881:115 | DIN 51220 | NF P18-411 | GOST 10180-2012

Specifically designed to cope with the explosive energy release resulting from high strength concrete specimen failure. These high stiffness frames are particularly suitable for research purposes.

The structure is four pre-tensioned columns with only 0,3 mm strain at maximum load. EN heavy duty spherical seat allows free alignment at the initial contact with the specimen. The compression platens are hardened over 55 HRC and rectified. Includes a front rigid door and rear fragment guard.

All the compression machines are supplied with a traceable ENAC calibration certificate (Class I).

Maximum vertical daylight: 411 mm
Horizontal daylight between columns: 345 mm
Compression platens: Ø316X60 mm
Calibration accuracy: Class 1
Maximum ram travel: 100 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 750x750x1700 mm
Weight: 4000 Kg

HR033

CODE	CONTROL SYSTEM	HYDRAULIC PUMP
HR031	8 channels	Motorized
HR033	8 channels	Servo controlled

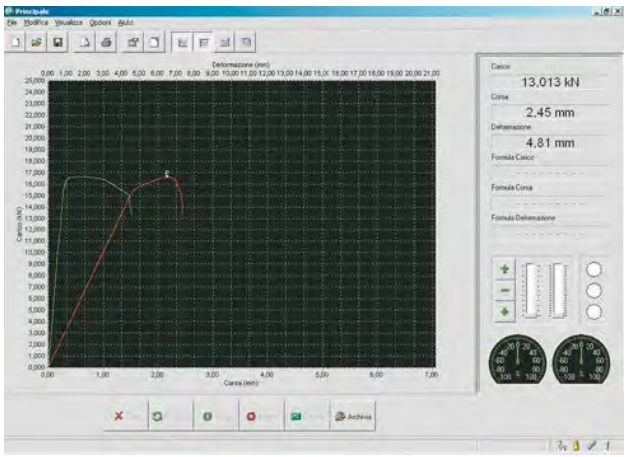
ACCESSORIES

DISTANCE PIECES
Used to reduce the vertical clearance between the compression platens, according to the height of the specimen to be tested, so to avoid the ram to make its max. excursion without having compressed the specimen. The distance pieces are placed between the ram and the lower compression platen.

CODE	HIGH
HR030-01	25 mm
HR030-02	50 mm
HR030-03	100 mm

MG035
Thermal paper graphic printer
MG035-01
Thermal paper (10 rolls)
MG031
Custom computer
MG010-01
Software for remote control through PC

MG031



COMPRESSION TESTING MACHINE FOR PRODUCTION ROUTINE TESTS TO TEST CUBES UP TO 150 MM AND CYLINDERS UP TO Ø160X320 MM

ASTM C39 | AASHTO T22 | NF P18-411 | BS 1610 | GOST 10180-2012

These machines have a four column rigid frame steel construction. Spherical seat allows free alignment at the initial contact with the specimen.

The columns are prestressed to provide a very high rigidity and compression platens are surface hardened over 55 HRC and rectified.

Two options for the digital control unit:
-2 channels and interface with 5 multi-functions pushbuttons
-8 channels and touch-screen user-friendly interface
For more details see page 132

All the compression machines are supplied with a traceable ENAC calibration certificate (Class I).

COMPRESSION TESTING MACHINES 1500 KN

HR053

Maximum vertical daylight: 336 mm
Horizontal daylight between columns: 270 mm
Compression platens: Ø216 mm
Calibration accuracy: Class 1
Maximum ram travel: 55 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 730x280x900 mm
Weight: 580...620 Kg

COMPRESSION TESTING MACHINES 2000 KN

HR061

Maximum vertical daylight: 336 mm
Horizontal daylight between columns: 270 mm
Compression platens: Ø216 mm
Calibration accuracy: Class 1
Maximum ram travel: 55 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 780x300x1000 mm
Weight: 670...720 Kg

CODE	CAPACITY	CONTROL SYSTEM	HYDRAULIC PUMP
HR051	1500 KN	2 channels	Motorized
HR053	1500 KN	8 channels	Motorized
HR055	1500 KN	2 channels	Servo controlled
HR057	1500 KN	8 channels	Servo controlled
HR061	2000 KN	2 channels	Motorized
HR063	2000 KN	8 channels	Motorized
HR065	2000 KN	2 channels	Servo controlled
HR067	2000 KN	8 channels	Servo controlled

COMPRESSION TESTING MACHINE FOR TESTING CONCRETE SPECIMENS

ASTM C39 | AASHTO T22 | NF P18-411 | BS 1610 | GOST 10180-2012

These machines have a four column rigid frame steel construction. Spherical seat allows free alignment at the initial contact with the specimen.

The columns are prestressed to provide a very high rigidity and compression platens are surface hardened over 55 HRC and rectified.

The ball seating and the cylinder are coupled with high quality packing set.
Two options for the digital control unit:
-2 channels and interface with 5 multi-functions pushbuttons
-8 channels and touch-screen user-friendly interface
All the compression machines are supplied with a traceable ENAC calibration certificate (Class I).

COMPRESSION TESTING MACHINES 2000 KN CUBES SIZE 200MM - CYLINDERS HIGH 280MM

HR075

Maximum vertical daylight: 282 mm
Horizontal daylight between columns: 270 mm
Compression platens: Ø287 mm
Calibration accuracy: Class 1
Maximum ram travel: 55 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 690x400x1320 mm
Weight: 670...720 Kg

COMPRESSION TESTING MACHINES 3000 KN CUBES SIZE 200 MM - CYLINDERS Ø160X320 MM

HR085

Maximum vertical daylight: 336 mm
Horizontal daylight between columns: 272 mm
Compression platens: Ø287 mm
Calibration accuracy: Class 1
Maximum ram travel: 55 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 860x470x1450 mm
Weight: 1050...1120 Kg

CODE	CAPACITY	CONTROL SYSTEM	HYDRAULIC PUMP
HR071	2000 KN	2 channels	Motorized
HR073	2000 KN	8 channels	Motorized
HR075	2000 KN	2 channels	Servo controlled
HR077	2000 KN	8 channels	Servo controlled
HR081	3000 KN	2 channels	Motorized
HR083	3000 KN	8 channels	Motorized
HR085	3000 KN	2 channels	Servo controlled
HR087	3000 KN	8 channels	Servo controlled

ACCESSORIES TO COMPRESSION TESTING MACHINES

SAFETY GUARDS
Compliant with CE Safety Directive, manufactured of highly resistant transparent polycarbonate material and complete with hinges and lock. The guards are both on front and back sides.

CAPACITY	FRAME MACHINE	CODE
1500 kN (ASTM)	HR051....HR057	HR100-01
2000 kN (ASTM)	HR061....HR067	HR100-02
2000 kN de cubos	HR071....HR077	HR100-02
3000 kN (ASTM)	HR081....HR087	HR100-04
2000 kN (EN)	HR011....HR017	HR100-03
3000 kN (EN)	HR021....HR027	HR100-04

MG010-03
Stop switch on safety guard

HR100-01

HR100-02

DISTANCE PIECES
Used to reduce the vertical clearance between the compression platens, according to the height of the specimen to be tested, so to avoid the ram to make its max. excursion without having compressed the specimen. The distance pieces are placed between the ram and the lower compression platen.

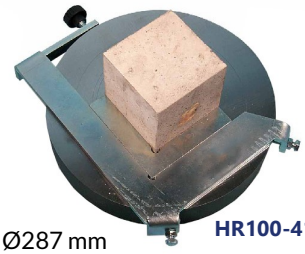
FRAME	20 mm	50 mm	100 mm
HR011....HR017 HR021....HR027	HR100-11	HR100-21	HR100-31
HR051....HR057 HR061....HR067	HR100-12	HR100-22	HR100-32
HR071....HR077 HR081....HR087	HR100-13	HR100-23	HR100-33


HR100-33


HR100-11


HR100-21

AUTO-CENTERING DEVICES
To grant a rapid and accurate centering for cubes 100 and 150 mm side and cylinders Ø100 and 150 mm.


HR100-41

HR100-41
Auto-centering device on platens Ø287 mm
-For machines HR011...HR033
-For machines HR071...HR087

HR100-42
Auto-centering device on platens Ø216 mm
-For machines HR051...HR067

CAPPING PADS AND RETAINERS
Used for compression tests on cylinder specimens, as an alternative method to the sulphur capping and grinding machine.

Two steel capping retainers are applied on the two flat surfaces of the cylinder and two neoprene pads are put between them, for a better load distribution.

HR459-02


HR459-12

SAMPLES	RETAINERS	SHORE 60	SHORE 70
Ø100x200 mm y 4”x8”	HR459-01	HR459-11	HR459-21
Ø150x300 mm y 6”x12”	HR459-02	HR459-12	HR459-22
Ø160x320 mm	HR459-03	HR459-13	HR459-33

60 shore hardness for strength from 10 to 48 MPa
70 shore hardness for strength over 48 MPa


HR459-13
HR459-12
HR459-11

The system is not applicable to 2000 kN machines for cubes (HR071....HR077).
For ASTM 1500 kN machines (HR051....HR057) and ASTM 2000 kN machines (HR061....HR067) is required to increase vertical clearance of the testing chamber.

HR050-01
Extension of testing chamber for 1500 KN machines HR051, HR053, HR055 and HR057
Vertical clearance of 376 mm.

HR060-01
Extension of testing chamber for 2000 KN machines HR061, HR063, HR065 and HR067
Vertical clearance of 376 mm.

HR100-40
Bench for concrete testing machines
Used to hold the compression or flexural testing frame, to set the machine at a proper height for its utilization.
Made from heavy welded steel, it can be moved in the laboratory both from front or lateral side by a forklift.

Weight:
55 Kg

HR100-40

MG010-01
Console Housing pump unit
Lined with sound-proofing material for noise reduction.

MG010-01

MG010-02
Two way hydraulic valve
Installed on the pumping unit to activate a second testing frame.

MG010-02

MG035
Thermal paper graphic printer
MG035-01
Thermal paper (10 rolls)

MG035

MG031
Custom computer
Includes keyboard, mouse and connection cables.

MG031

MG010-01
Software for remote control through PC

MG010-02

ACCESORIES FOR LOW CAPACITY MEASURING RANGE
A concrete compression machine equipped with a low capacity measuring range allows measurements of low strength for compression tests on mortar specimens, flexural tests on concrete beams, split cylinder test on cylinder and cube specimens, tests on kerbs, slabs etc...

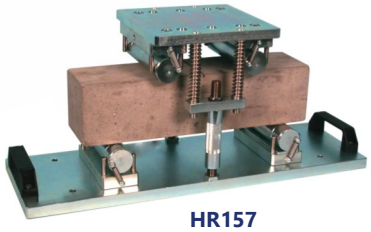
MG010-10
Dual low capacity digital range
Supplied with appropriate pressure transducer, hydraulic installation and cock, fitted on testing machines equipped with digital display measuring unit.

MG010-10

HR157
Flexural device for two points and centre point tests on concrete beams

Dimensions:
610x200x320 mm

HR161



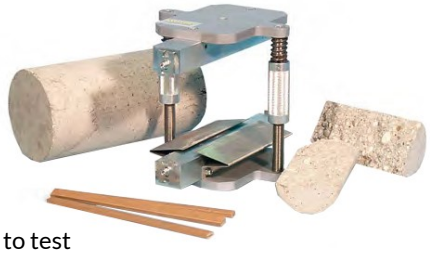
HR157

HR161
Splitting tensile test device (brazilian method) for cylinders Ø150x300 and Ø160x320 mm

Height: 280 mm

HR167
Splitting tensile test device for cylinders Ø150x300 and Ø160x320 mm

Dimensions:
350x250x264 mm



HR167

CE301
Compression device to test mortar prisms 40x40x160 mm
EN 196-1 | ASTM C349 | ISO 679

Dimensions:
153x153x185 mm

CE301

HR100
ADVANCED TESTING SYSTEM TO PERFORM COMPRESSION ELASTIC MODULUS ON CONCRETE

EN 12390-13, 13412, 13286-43 | ASTM C469 | ISO 6784 | DIN 1048 | BS 1888:121

This advanced control system is concerned essentially with the automatic compression, flexural and splitting tests on concrete and determinations of Elastic Modulus and Poisson's ratio.

Essentially the system consists of an ergonomic console which houses the power unit and the digital control unit. The system must be connected to suitable testing frames (2000 or 3000 kN).

For the determination of the Modulus of Elasticity the specimen has to be submitted to a sequence of loading and unloading cycles under controlled load rate.

A high performance valve included in the hydraulic system shall control the oil flow with precise increments and decrements and measure longitudinal and transverse deformation. A laser position detector allows a rapid positioning of the piston and a very accurate touch point. This grants a touching sensitivity of test starting of about 0,1 per thousand of the maximum capacity.

The high performance control and data processing unit controlled by a 32 bit microprocessor can manage up to 8 high resolution channels for the control of load cells or transducers with strain gages bridge.

The software has been developed on the working line of the Windows menú. This software provides a complete control of the system for automatic test execution: rapid platen approach, zeroing, application of user-defined cycles of load/unload ramps, identification of the failure load, verification of conformity to the selected Standard, calculation of results, graphical and numerical management of results.

HR100 HR027

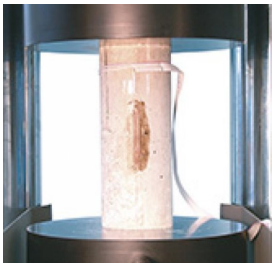
For determination of young Modulus and Poisson's ratio the software allows user-defined test cycles and step-programmable sequences. Also software gives the possibility to print on a standard printer a test certificate reporting all the data concerning the test and the specimen and the graph of the test.

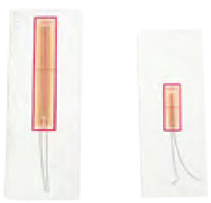
Compression machine, strain gauges or compressometer are not included and must be ordered separately.

ACCESORIES FOR ELASTIC MODULUS:

<u>STRAIN GAUGES</u>
Strain gauges provide a very accurate electrical signal, directly proportional to the strain of a loaded specimen. Supplied in packs of 10 pieces.

AR300-11
Strain gauge, 10 mm
AR300-12
Strain gauge, 20 mm
AR300-13
Strain gauge, 30 mm
AR300-14
Strain gauge, 60 mm
AR300-15
Strain gauge, 120 mm





AR300-14 AR300-11

AR300-10
Interface module to connect up to 4 strain gauges
This module allows also the automatic calibration of the zero and of the measuring range after a special thermal compensation.

AR300-10

AR300-20
Strain gauge application kit
Composed of: glue, soldering iron, solder, cleaning liquid, accessories and carrying case.

AR300-20

ACCESORIES FOR ELASTIC MODULUS:

COMPRESSOMETERS

HR101
Electronic universal compressometer
EN 12390-14, 13412, 13286-43 | ASTM C469
ISO 6784 | BS 1881:121 | DIN 1048

Made of two anodized aluminium pieces, one fixed and the other sliding and housing a displacement transducer that measures with high accuracy the movement of two conical points made of hardened steel and attached at the two ends of the electronic sensor.

The test is usually performed by using 3 compressometers on cylinders and 2 or 4 instruments.on cubes or beams.
The extensometer is suitable to test cubes, cylinders and beam having minimum height 130 mm.

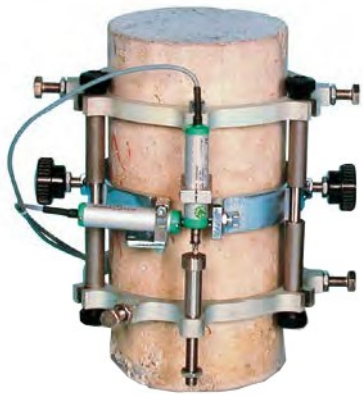
Supplied with reducing block for mortar prisms, elastic straps and carrying case.

HR103
Axial-Circumferential Compressometer for Ø100x200 and Ø110x220 mm cylinders
ASTM C469
Used for determining the axial deformation and diametrical extension of concrete cylinder specimens. It comprises two steel rings for clamping to the specimen, two gauge length bars, spherically-seated lever unit and a central ring for the diametrical extension measure.

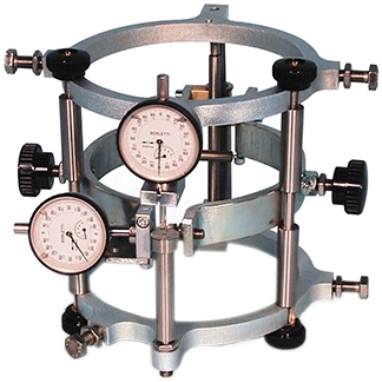
HR105
Axial-Circumferential Compressometer for Ø150x300 and Ø160x320 mm cylinders
Same as HR103 compressometer but for Ø150x300 and Ø160x320 mm cylinders.

Compressometers HR103 and HR105 require two dial gauges or two linear strain transducers that must be ordered separately.

HR101 + HR101-01



HR105 + MG010-30



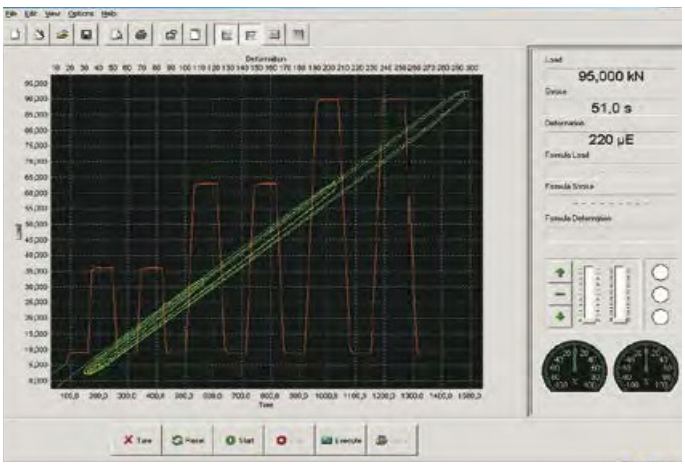
HR105 + MG010-51

ACCESSORIES

HR101-01
Aluminium template to regulate and to calibrate the base length
MG020-50
Calibration process for one compressometer
MG030-75
Software for Elastic Modulus test on concrete, mortar and rock specimens

ACCESSORIES

MG010-51
Dial gauge 5x0,001 mm
MG010-30
Linear strain transducers 10 mm
MG020-50
Calibration process for linear transducer



MG030-75

FLEXURAL FRAMES 150 KN CAPACITY

EN 12390-5 | ASTM C78, C293
AASHTO T97 | BS 1881:118

These frames have been designed to testing standard concrete beams in flexure. All our frames are fitted or can be fitted with accessories to perform either the two-point or the centre-point loading by simply removing one upper roller and placing the other in the centre.

Supplied with four rollers hardened and rectified. Also the rollers are adjustable and articulated to satisfy the requirements for either the two-point or the centre-point methods on concrete beams up to 150x150x600 and up to 150x150x750 mm.

Our range of compression testing machines available are employed to control and manage all sorts of automatic and semi-automatic testing machines in order to satisfy any specific requirement by the enduser. Supplied with a traceable ENAC calibration certificate (Class I).

Maximum vertical daylight between rollers: 160 mm
Adjustable top rollers: from 40 to 155 mm
Adjustable bottom rollers: from 100 to 455 mm
Roller dimensions: Ø40x160 mm
Calibration accuracy: Class 1
Maximum ram travel: 50 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 540x460x960 mm
Weight: 180...240 Kg

ACCESSORY

HR110-50
Distance piece 50 mm for frames HR111...HR117
To test 100x100x400 mm and 100x100x500 mm beams

HR117 + MG010-01

FLEXURAL OPEN STRUCTURE FRAMES 150 KN

EN 12390-5 | EN 1340:4 | ASTM C78 | ASTM C293
AASHTO T97 | BS1881:118 | BS 6073-1 | BS 7263

These frames features a “C”-shaped open structure which facilitates the positioning of large and bulky specimens.

Includes four adjustable and articulated rollers to perform flexural tests on concrete beam specimens with máximum dimensions 200x200x800 mm, flat blocks, flagstones, kerbs, tiles, slabs, masonry piecesand any type of material having máximum size 600x250 mm.

Our range of compression testing machines available are employed to control and manage all sorts of automatic and semi-automatic testing machines in order to satisfy any specific requirement by the enduser. Supplied with a traceable ENAC calibration certificate (Class I).

Maximum vertical daylight between rollers: 260 mm
Roller dimensions: Ø40x613 mm
Calibration accuracy: Class 1
Maximum piston stroke: 110 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 1400x1200x1430 mm
Weight: 350 Kg

HR127

CODE	CONTROL SYSTEM	HYDRAULIC PUMP
HR111	2 channels	Motorized
HR113	8 channels	Motorized
HR115	2 channels	Servo controlled
HR117	8 channels	Servo controlled

CODE	CONTROL SYSTEM	HYDRAULIC PUMP
HR121	2 channels	Motorized
HR123	8 channels	Motorized
HR125	2 channels	Servo controlled
HR127	8 channels	Servo controlled

FLEXURAL FRAMES 200 KN CAPACITY

EN 12390-5 | ASTM C78 | ASTM C293
AASHTO T97 | BS 1881:118

These frames have been designed to perform different kind of tests, from the simple third/centre point flexural test on beams to the advanced FRC displacement controlled tests and energy absorption tests on sprayed concrete.

High stiffness frame with minimum deflection at maximum load (0.9 mm). Simple action piston with counterweights to maximize frictions.

These machines allow to perform flexural test on concrete beams maximum dimensions 150x150x600 mm and 150x150x750 mm, flat blocks, flagstones, kerbs, tiles, slabs, masonry units and any type of material having máximum width 600 mm and máximum height 150 mm.

Our range of compression testing machines available are employed to control and manage all sorts of automatic and semi-automatic testing machines in order to satisfy any specific requirement by the enduser.

Supplied with ENAC calibration certificate (Class I) but without upper and lower rollers group, tamper, base support, etc to be ordered by separately.

Max. vertical daylight between upper/lower rollers: 160 mm
Horizontal daylight of the testing chamber: 720 mm
Calibration accuracy: Class 1
Ram travel: 110 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 990x970x1105 mm
Weight: 190...250 Kg

HR137

CODE	CONTROL SYSTEM	HYDRAULIC PUMP
HR131	2 channels	Motorized
HR133	8 channels	Motorized
HR135	2 channels	Servo controlled
HR137	8 channels	Servo controlled

ROLLERS GROUPS FOR 150 kN OPEN SIDED FRAMES:

HR120-01
Rollers group: lower adjustable from 75 to 525 mm,
and only one upper central roller for single point method

HR120-02
Rollers group: lower adjustable from 75 to 1325 mm,
and only one upper central roller for single point method

HR120-03
Rollers group: lower adjustable from 75 to 525 mm,and
upper adjustable from 75 to 180 mm for two points method

HR120-04
Rollers group: lower adjustable from 75 to 1325 mm, and
upper adjustable from 75 to 575 mm for two points method

HR120-02

ROLLERS GROUPS FOR 200 kN FLEXURAL FRAMES:

HR130-01
Rollers group upper and lower Ø40x160 mm
Lower rollers have adjustable distance from 75 to 900 mm
Upper rollers have adjustable distance from 75 to 180 mm

HR130-02
Rollers group upper and lower Ø40x613 mm
Lower rollers have adjustable distance from 75 to 900 mm
Upper rollers have adjustable distance from 75 to 180 mm

HR130-03
Rollers-holders (lowers only) 613 mm long
To be installed on the HR130-02 group in order
to modify the maximum vertical daylight at 60 mm
and minimum at -50 mm to test tiles, slabs etc. with
maximum thickness of 50 mm and flexibility up to -45 mm.

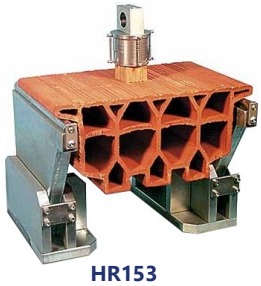
HR130-03

ACCESSORIES FOR FLEXURE FRAMES 150 AND 200 KN

HR151
Upper tamper for flexural strength measurements EN1340
The equipment consists of a steel tamper mounted on a rotating coupling which is fixed to the upper part of the flexural testing machine to apply a flexural strength on three points on the concrete kerb, without any torsional stress.

HR151

HR153
Upper tamper device for flexural tests on clay blocks for flooring
EN 15037-2 | EN 15037-3



HR153

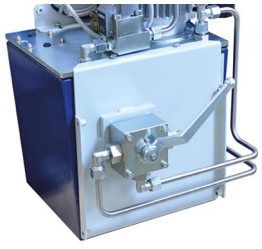
HR155
Deflection measurement device on the fiber reinforced concrete beam 100x100x400 (500) mm and 150x150x500 (600) mm
EN 14488-3 | ASTM C1609 | ASTM C1018

HR155

HR100-26
Distance piece 40 mm for frames HR131...HR137
Needed to perform the deflection test to EN 14488-3

MG010-01
Console Housing pump unit
Lined with sound-proofing material for noise reduction.

MG010-02
Two way hydraulic valve
Installed on the pumping unit to activate a second testing frame.



MG010-02

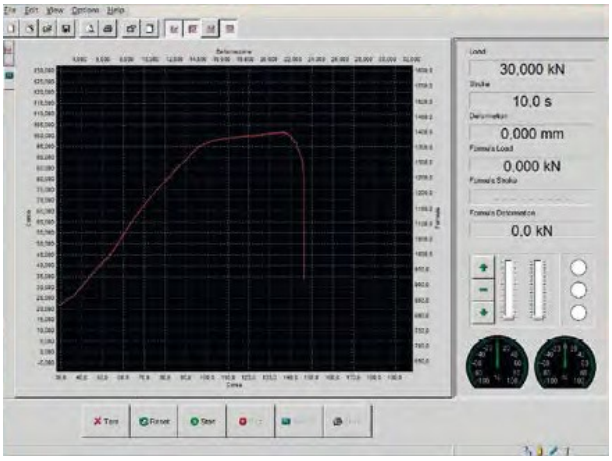
MG010-01

MG031
Custom computer
Includes keyboard, mouse and connection cables.

MG030-01
Software for remote control through PC

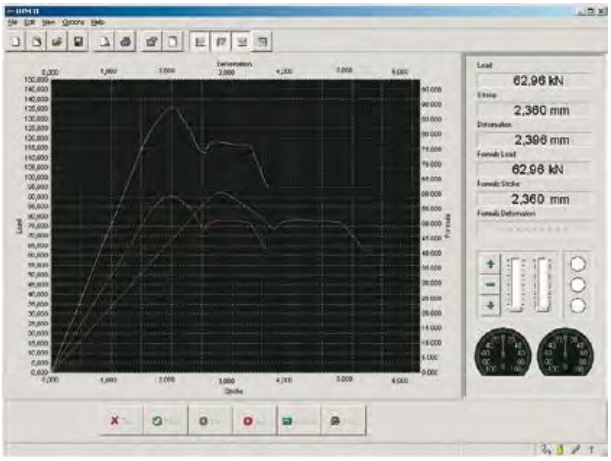
MG031

MG030-16
Software for punching test on clay blocks



MG030-16

MG030-14
Software for measurement of deflection test on fibre reinforced concrete beams



MG030-14

MG035
Thermal paper graphic printer

MG035-01
Thermal paper (10 rolls)

MG035

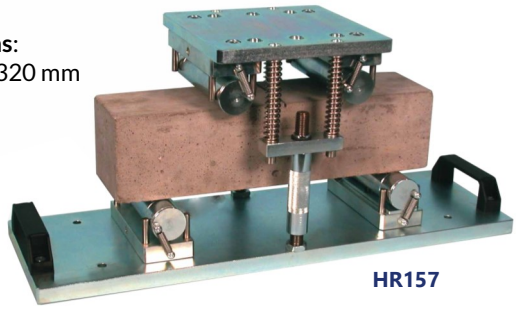
LOW CAPACITY DEVICES FOR COMPRESSION AND FLEXURAL TESTING MACHINES:

HR157
Flexural device for two points and centre point test on concrete beams 100x100x400-500 mm and 150x150x600-750 mm
EN 12390-5 | ASTM C78, C293 | AASHTO T97| BS 1881:118

Equipped with two lower rollers, one of them articulated, and two upper rollers for third point tests.
-Two fix distances between lower rollers: 300 and 450 mm
-Two fix distances between upper rollers: 100 and 150 mm

It is possible to place in the centre only one upper roller for centre point tests. To perform the flexural test, this device has to be used with a concrete compression machine foreseen of low capacity measuring range.

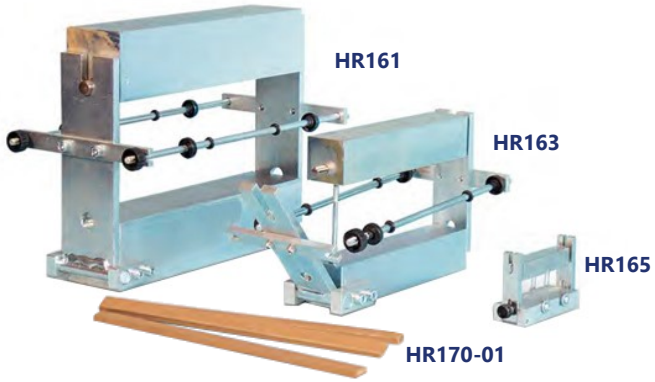
Dimensions:
610x200x320 mm
Weight:
27 Kg


HR157

SPLITTING TENSILE DEVICES ON CYLINDERS SPECIMENS
EN 12390-6 | ASTM C496 | NF P18-408

Splitting tensile device (Brazilian method)

CODE	SPECIMENS(mm)	HEIGHT (mm)
HR161	Ø150x300 y Ø160x320	280
HR163	Ø100x200 y Ø110x220	220
HR165	Ø40x80	90


HR161
HR163
HR165
HR170-01

HR167
Splitting tensile test device for cylindrical specimens from Ø100x200 mm to Ø160x320 mm
The base is equipped with flat springs centering and keeping in position the specimen.
Two columns with adjustable height sustain the upper plate by two springs.

Dimensions:
350x250x264 mm
Weight:
17 Kg


HR167
HR170-01

DEVICES FOR TESTING ON MORTARS SAMPLES

CE301
Compression device to test mortar prims 40x40x160 mm
EN196-1 | ASTM C349 | ISO679

Dimensions: 153x153x185mm
Weight: 12 Kg


CE301

CE307
Compression device to test mortar cubes specimens 70,7 mm
BS4550

Dimensions: 150x130x185
Weight: 9 Kg


CE307

CE311
Flexure device to test mortar prims 40x40x160 mm
EN196-1 | EN1015-11
DIN 1164 | ISO679


CE311

MG030-21
Software for cement compression test

MG030-22
Software for cement flexural test

SPLITTING TENSILE DEVICES
EN 12390-6 | EN1338

HR171
Splitting tensile test devices for cube specimens 100 and 150 mm and on concrete block pavers

Dimensions:
350x250x264mm
Weight:
17 Kg


HR171
HR170-02

HR 173
Splitting tensile test devices to be fixed to the flexural frames
To perform tests on cube specimens 100,150 and 200 mm and block pavers block pavers having max. dimensions 300x500 mm.


HR173

HR170-01
Packing strips 4x10x350 mm (EN 12390-6)
To be used with devices HR161, HR163, HR167 y HR171.
Pack of 100 units.

HR170-02
Packing strips 4x15x350 mm (EN 12390-6 | EN1338)
To be used with device HR171.

HR129
FLEXURAL OPEN-STRUCTURE FRAME 320 KN

EN 12390-5, 12390-6, 14488-5, 1338, 1339, 1340, 196
ASTM C78, C293, C1550, C496, C349

This universal flexural frame has been designed to satisfy the stringent requirements prescribed by the standards relating to determination of deformability and ductility index of sprayed concrete and fibrereinforced concrete.

The 'C-shaped' open structure of the frame allows easy and practical front-loading but, once the specimen is in position, the structure is closed with hydraulically-clamped rod assuring high rigidity.

Load is measured by a high accuracy electric strain cell, eliminating the piston's weight and friction. The control system is an 8 channel servo controlled system for a fully automatic execution of the test.

Rollers are optional and must be ordered separately according to user needs.

Max. vertical daylight between upper/lower rollers: 263 mm
Horizontal clearance (between uprights): 1040 mm
Calibration accuracy: Class 1
Ram travel: 110 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 1700x1470x1560 mm
Weight: 800 Kg

HR139
FLEXURAL HIGH STIFFNESS FRAME 360 KN

EN 12390-5, 1339, 1340, 14488-5 | ASTM C78, C293, C1550

The frame has been designed to perform the advanced FRC displacement controlled tests and energy absorption tests on sprayed concrete.

Accurate results are granted by the high stiffness of the frame according to the international Standards requirement (more than 200 kN/mm) and by a high precision load cell measurement system fitted into the frame.

The high horizontal daylight of the testing chamber allows to test big dimension specimens.

Rollers are optional and must be ordered separately according to user needs.

Horizontal distance test area: 980 mm
Upper rollers adjustable distance: from 75 to 210 mm
Lower rollers adjustable distance: from 75 to 850 mm
Ram travel: 140 mm
Power supply: 230 V | 50 Hz | 750 W
Dimensions: 600x1240x1400 mm
Weight: 900 Kg

HR129

HR139

OPTIONAL ROLLERS FOR HR129 AND HR139 FRAMES:

HR181-01
Upper and lower assembly for centre and two-point loading tests on concrete beams up to 200x200x800 mm
EN 12390-5 | ASTM C78, C293

Rollers size: Ø30x312 mm
Weight: 65 Kg

HR181-03
Set of one upper and two lower roller assembly for testing paving flags having maximum width 600 mm
EN 1339

Rollers size: Ø40x620 mm
Weight: 76 Kg

HR181-05
Upper roller for centre and two-point loading tests on concrete beams up to 200x200x800 mm
EN 12390-5
To be used with the rollers assembly HR181-03.

Rollers size: Ø40x320 mm
Weight: 65 Kg

HR181-07
Upper tamper for testing kerbs
EN 1340
To be used with the rollers assembly HR181-03.

Weight: 6 Kg

HR181-11
Set of spherically seated upper platen and lower platen to perform compression tests on small/ low strength specimens

Platens dimensions: Ø165x30 mm
Weight: 20 Kg

HR181-15
Lower support frame and upper loading element for slabs of FRC concrete having 800 mm diameter by 75 mm thick
ASTM C1550
Weight: 60 Kg

MG010-33
Linear transducer 100 mm travel
For measuring the piston displacement.

MG010-32
Displacement transducer 50 mm travel
For measuring the deformation of the slab centre under concentrated load.

MG030-14
Software for
-Measurement of deflection on fibre reinforced concrete
-Determination of toughness and first crack strength
-Energy absorption test on sprayed concrete specimens

HR180-10
Set of four distance pieces for adjusting the vertical clearance
Needed accesories to be used with previous devices:
HR181-01, HR181-03, HR181-05, HR181-07,
HR181-11 and HR181-15.

TESTING ON FIBER-REINFORCED CONCRETE (FRC)

For many years, one of the materials that has revolutionized the market has been fiber-reinforced concrete, since in addition to reducing operating costs they act as structural reinforcement. FRC is utilized both in construction and experimental work to study the mechanical resistance and ductility of concrete.

Using systems with displacement and deformation control, the principal tests associated with fiber-reinforced concrete can be performed.

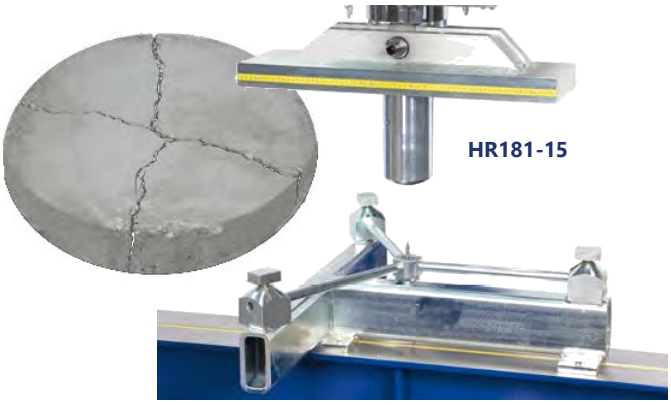
It is advisable to contact the Proeti technical department for advice regarding the selection of an adequate system for the desired FRC application.

FLEXURAL TOUGHNESS FOR ROUND SLABS

ASTM C1550

One of the most valued parameters in fiber-reinforced concrete is its tenacity. The tenacity test is used to determine the fracture properties of fragile materials.

The equipment required for this test is:
HR129
Flexural open-structure frame 320 kN
HR181-15
Lower support frame and upper loading element
Accepts slabs up to Ø800 mm and 75 mm in thickness.
HR190-05
50 mm displacement transducer with flat probe tip
MG020-50
Displacement transducer calibration
MG030-14
Software for energy absorption test



HR181-15

Note:
Tests on fiber-reinforced concrete can be performed on machines different from this recommendation. For further information please contact a sales agent.

ENERGY ABSORPTION IN SQUARE SLABS

EN 14488-5

One of the main properties that must be analyzed in reinforced concrete is impact resistance through energy absorption. In this case, a very fine control has to be applied after breaking the concrete matrix to detect resistance while avoiding fiber beakage.

The equipment required for this test is:
HR137
Flexure frame 200 kN servocontrolled
HR190-01
Base support for energy absorption in FRC 600x600
HR190-02
Upper piston for energy absorption tests
HR190-03
Displacement transducer support
HR190-05
50 mm displacement transducer with flat probe tip
MG020-50
Displacement transducer calibration
MG030-14
Software for energy absorption test

HR137+HR109-01+HR190-02+HR190-03+HR190-05

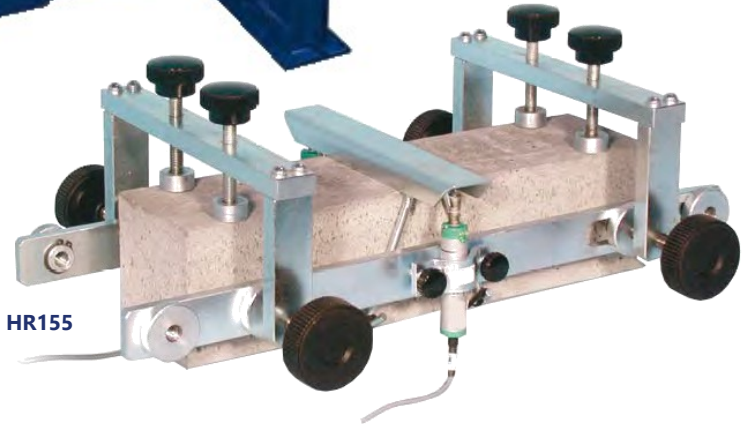
BEAM DEFLECTION

EN 14488-3 | ASTM C1609 | ASTM C1018

The increase in flexotraction resistance when fibers are added to the concrete is considerably larger than the increase in compression and traction resistance. This is due to the ductile behaviour of FRC.

The equipment required for this test is:
HR137
Flexure frame 200 kN servocontrolled
HR159
Set of rollers Ø30x160 mm
HR130-40
Distance piece 40 mm
HR155
Deflection device
Made in chrome steel, to be attached directly to the beam. Includes two supports for the transducers. Accepts beams with máx dim 100x100x400-500 and 150x150x500-600 mm.
MG010-30
10 mm displacement transducer
Two displacement transducers are required to measure deflection.
MG020-50
Displacement transducer calibration
Two calibrations are required.
MG030-14
Software for deflection test

HR137+HR159



HR155

FIRST FRACTURE-CRACK IN BEAMS

EN 14651

The most important effect in the mechanical behaviour of concrete due to the addition of fibers, is shown by the traction resistance after the first fracture or crack.
This post-cracking resistance affects other mechanical properties like rebar adhesion, shear resistance, fatigue, etc. which provide information on concrete ductility.

This test determines the resistance to first fracture and residual resistance (fibers) once the concrete matrix has been fractured.

The equipment required for this test is:
HR130
Frame200 kN with load cell
HR159
Set of rollers Ø30x160 mm
HR130-40
Distance piece 40 mm
HR195-01
High precision 5 mm transducer with forked probe tip
HR195-02
CTOD reference blocks (set of 24)
For the crack tip opening displacement
HR195-03
CMOD reference blocks (set of 24)
For the crack mouth opening displacement
MG015
Advanced research system for FRC tests

HR195-01

MG015

SU351
DIGITAL MULTIPURPOSE TESTER 50 KN

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
ROCKS AND STONES:
Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separetely.

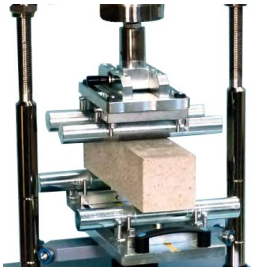
SU351

Power supply: 230 V | 50-60 Hz |150 W
Adjustable testing speed: from 0,01 to 51 mm/min
Load gradient: from 1 to 15000 N/seg
Maximum ram travel: 100 mm
Daylight between columns: 380 mm
Maximum vertical daylight: 850 mm
Dimensions: 500x450x1450 mm
Weight: 130 Kg

ACCESORIES MULTIPURPOSE 50 KN FOR CONCRETE:

FLEXURAL ON GLASS-FIBRE REINFORCED CONCRETE
EN 12390-5 | EN 1170-4 | ASTM C78 | ASTM C293

MG020-06
Load cell 50 kN
SU350-07
Two-point bending device
Rollers dimensions:Ø40x310 mm
Lower rollers adjustable from 110 to 310 mm
Upper rollers adjustable from 45 to 120 mm
MG030-12
Software for flexural tests on concrete beams


SU350-07

PUNCHING TEST ON CLAY BLOCKS
EN 15037-2 | EN 15037-3

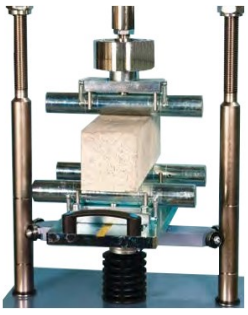
MG020-03
Load cell 10 kN
HR153
Device for flexural tests on clay blocks
SU350-08
Holding beam for punching test
MG030-16
Software for punching test on clay blocks

HR153


SU350-08

FLEXURAL TEST ON CONCRETE BEAMS AND CLAY TILES
EN 12390-5, 491, 538 | ASTM C78, C293 | BS 1881:118

MG020-06
Load cell 50 kN
SU350-09
Flexure device with centre point loading
To test clay tiles and concrete beams with dimensions 100x100x400/500 mm.
Consisting of lower beam with two bearers (one articulated) adjustable from 100 to 315 mm and upper central articulated bearer fixed to the load cell.
Weight: 20 Kg
MG030-12
Software for flexural tests on concrete beams


SU350-09

SU355
DIGITAL MULTIPURPOSE TESTER 200 KN

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile tests.

The versatility of the machine allows to carry out the tests:
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
Tensile on mortar briquettes
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
Duriez
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
ROCKS AND STONES:
Uniaxial splitting tensile
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

SU355

Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

Power supply: 230 V | 50-60 Hz | 850 W
Maximum vertical distance: 900 mm
Daylight between columns: 650 mm
Adjustable testing speed: from 0,01 to 100 mm/min
Load gradient: from 1 N/s to 5 kN/s
Dimensions: 950x560x2400 mm
Weight: 820 Kg

ACCESORIES MULTIPURPOSE 200 KN FOR CONCRETE:

FLEXURAL ON GLASS-FIBRE REINFORCED
EN 12390-5 | EN 1170-4 | ASTM C78, C293
MG020-06
Load cell 50 kN
MG020-16
Connector for 50 kN load cell
SU350-07
Two-point bending device
MG030-12
Software for flexural tests on concrete beams

SU350-07

PUNCHING TEST ON CLAY BLOCKS
EN 15037-2 | EN 15037-3
MG020-03
Load cell 10 kN
MG020-13
Connector for 10 kN load cell
HR153
Device for flexural tests on clay blocks
SU350-08
Holding beam for punching test
MG030-16
Software for punching test on clay blocks

HR153

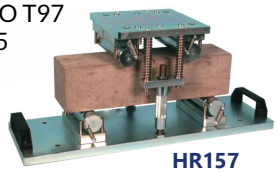
SU350-08

HR167

FLEXURAL TEST ON CONCRETE BEAMS AND CLAY TILES
EN 12390-5, 491, 538 | ASTM C78, C293
MG020-06
Load cell 50 kN
MG020-16
Connector for 50 kN load cell
SU350-09
Flexure device with centre point loading
MG030-12
Software for flexural tests on concrete beams

SU350-09

FLEXURAL TEST ON CONCRETE BEAMS
EN 12390-5|ASTM C78, C293 | AASHTO T97
NF P18-407 | BS 1881:118 | UNE 83305
HR157
Flexure device
MG030-12
Software for flexure tests on concrete


HR157

SPLITTING TENSILE TEST ON CONCRETE CYLINDERS
EN 12390-6 | ASTM C496 | NF P18-408 | BS 1881:117
Splitting tensile test device
HR170-01
Packing strips 4x10x350 mm (100 pcs)
MG030-13
Software for splitting tensile

CONTROL SYSTEMS

MG001
DIGITAL CONTROL UNIT 2 CHANNELS

System designed for the management and control of testing machines. This equipment is a two-channels computerised graphic display system to control and manage all sorts of automatic and semiautomatic compression and flexure testing machines.

The control unit has been designed for acquisition, display, processing, printing and saving test data and certificates. There is a software available for remote control from PC.

This display has 2 analogue-digital channels accepting sensors, transducers or load cells at 2 mV/V.

In conjunction with a pumping unit this unit allows an automatic control of the pace rate, rapid approaching, touching on and breaking of the specimen. Automatic breaking load detection and elaboration of the specific resistance value.

Permanent file up to 1000 tests and file of 100 different types of specimens. Selectable measuring force: kN, lb Different Languages: English, French, German, Spanish... RS232 interface: it allows the data transfer during the test or the test results directly to PC.

Operator interface composed by 5 multi-functions pushbuttons and a graphic screen where function icons are shown.

Different programmable safety devices for the machine or the specimen as the possibility to introduce a percentage of the máximum value reached during the text execution, thermal protection of the motor and different other settable alarms.

The firmware contains a memory of the most used specimens: area, weight, specific weight. Also the possibility of personalization for special sized samples.

MG001

MG005
TOUCH DIGITAL CONTROL UNIT 8 CHANNELS

System designed for the management and control of testing machines. This unit is designed with the latest technology, an innovative PC-like Touch Screen system, employed to control and manage all sorts of automatic and semiautomatic compression and flexure testing machines.

This system with 8 analog inputs is a PC-based and touch screen system which is modular, flexible and multifunctions. The touch-screen graphical user-friendly interface allows an easy set up of the parameters and an immediate execution of the test. Large directional arrow-keys for gloved use.

Greater calculation ability and data display (on board charts and graphic print-outs). Due to its multilingual framework and international settings the display has a high management capacity of parameters as date and time, decimal units, unit of measure,...

The equipment includes licenses for the execution of compression, flexural and splitting test on concrete and compression and flexural on mortar in accordance to the following standards: EN, ASTM, BS, NF, DIN, etc...
Also it has functions for the software updates and licenses.

The device has unlimited memory storage with 2 USB ports and 1 SD card slot. Different Languages: English, French, German, Spanish... RS232 interface: it allows the data transfer during the test or the test results directly to PC.

MG005

POWER SYSTEMS

MG011
MOTORIZED PUMPIMG UNIT

The power system consists of a dual-stage pump: low pressure/high delivery for fast piston approach and high pressure/low volume for loading.

The pump is fitted with a special manually-controlled proportional valve to maintain the preset load rate during the test, requiring only occasional adjustments by the operator.

The power pump with proportional valve can be used to fit existing frames, including other brands.

Includes tank, speed selector, hydraulic cock, accessories and connectors.

Hydraulic pressure:
0...700 bar
Oil supply:
from 0,05 to 0,7 liters/min

MG011

MG013
SERVO-CONTROLLED PUMPIMG UNIT

Same technical features in common with MG011 pump except for the enhanced hydraulic control and precise oil flow control automatically operated.

Dual stage pump: centrifugal low pressure for fast approach and automatic switching to radial multi-piston high pressure for loading.

Hydraulic pressure:
0...700 bar
Oil supply:
0,05 to 0,7 liters/min

MG013

MG010-01
Console Housing pump unit
Lined with sound-proofing material for noise reduction.

MG010-02
Two way hydraulic valve
Installed on the pumping unit
to activate a second testing frame.

MG010-02

MG010-01

MG010-03
Stop switch on safety guard

PRESSURE TRANSDUCERS
These transducers provide a very accurate electrical signal that is strictly proportional to the pressure of the hydraulic circuit of the testing machine or apparatus. Supplied with cable and calibration certificate.

Input voltage: 10 V DC
Sensitivity range: 2 - 4 mV/V
Accuracy: 0.15 fs.
Pressure connection: 0,25 BSP

MG010-23

CODE	PRESSURE
MG010-11	0 – 10 bar
MG010-12	0 – 20 bar
MG010-13	0 – 35 bar
MG010-14	0 – 50 bar
MG010-15	0 – 60 bar
MG010-16	0 – 100 bar
MG010-17	0 – 160 bar
MG010-18	0 – 200 bar
MG010-19	0 – 350 bar
MG010-20	0 – 400 bar
MG010-21	0 – 500 bar
MG010-22	0 – 600 bar
MG010-23	0 – 700 bar

SOFTWARE

Software developed for allowing operators the management and an user friendly control of digital testing machines.

The ideal Software for the management of an extensive production.The optimal solution of laboratories for its characteristics of versatility with a wide range of customizations, for testing and research.

Flexibility, operating speed, precision and automatic storage are the fundamental characteristics of the Software conceived to facilitate the operator with few computer skills, for the management of the tests and the testing machines too.

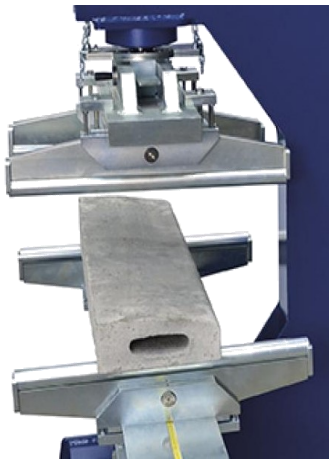
The software is developed on Windows platform and can be installed on old operative systems. Software available in different languages: Spanish, English, French, Italian, German, Polish, Turkish,...

It facilitates the printing of certificates suggesting a preset layout but changeable and customizable by the user with its own logo or others.

MG030-01
Software for remote control through PC

MG030-02
Software to download to PC the results with possibility of certificate printout

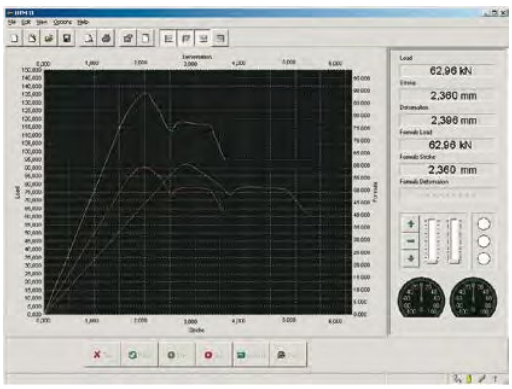
MG030-03
Software for test data processing



<u>CONCRETE TESTS</u>
MG030-11
Software for compression test on concrete
EN 12390-3 | ASTM C39 | UNE 83304 |
NF P18-411 | BS 1881 | DIN 51220

MG030-12
Software for flexural test on concrete
EN 12390-5 | ASTM C78, C293
NF P18-407 | BS 1881:118

MG030-13
Software for splitting tensile test on cylinders, cubes and concrete blocks
EN 12390-6 | ASTM C496



MG030-14

MG030-14
Software for
-Measurement of deflection on fibre reinforced concrete
-Determination of toughness and first crack strength
-Energy absorption test on sprayed concrete specimens

MG030-15
Software for secant compression elastic modulus tests on concrete
ASTM C469 | ISO 6784 | DIN 1048

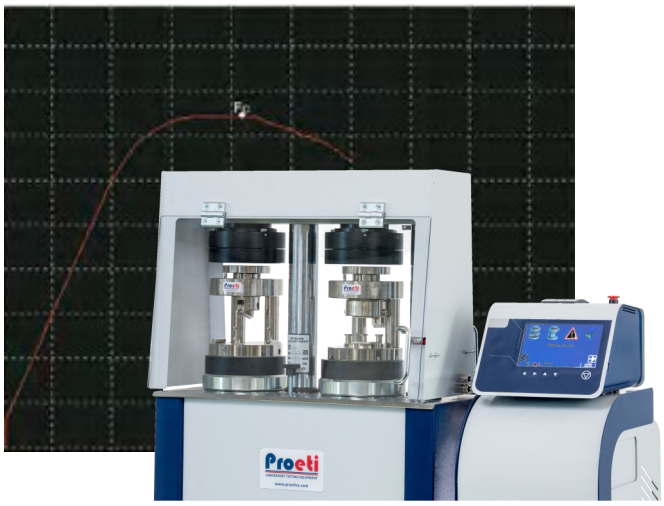
MG030-16
Software for punching test on clay blocks
EN 15037-2 | EN 15037-3

MG030-17
Software for flexural strengths
First cracking, ultimate and residual
EN 14488-3

CEMENT AND MORTAR TESTS
MG030-21
Software for compression test on mortars
EN 196-1 | ASTM C109

MG030-22
Software for flexural test on mortars
EN 196-1 | ASTM C348

MG030-24
Software for tensile test on mortar briquettes
ASTM C190, C307 | AASHTO T132

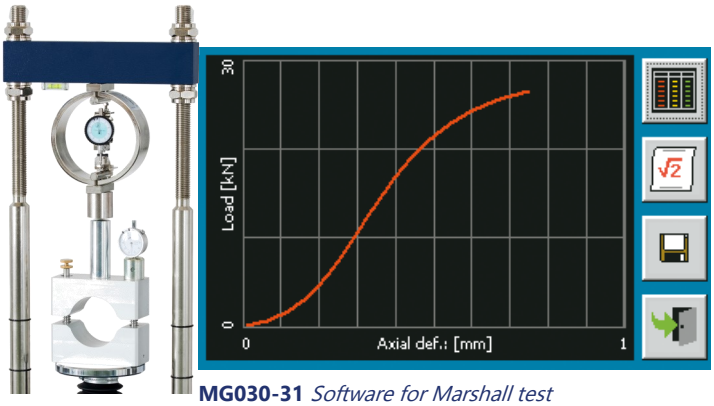


BITUMEN AND ASPHALT TESTS
MG030-31
Software for Marshall compression test
EN 12697-34 | ASTM D1559 | CNR N. 30
NF P98-251-2 | BS 598 :107

MG030-33
Software for splitting tensile test
EN 12697-23 | ASTM D4123 | CNR N. 134

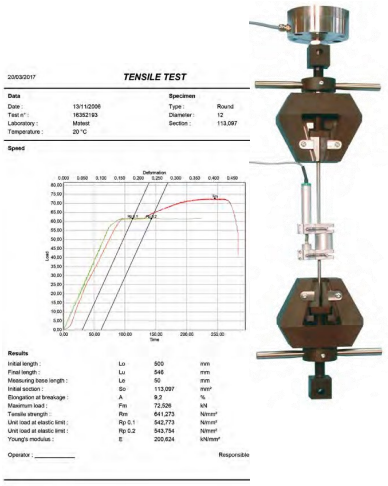
MG030-36
Software for Leutner and Marshall tests
EN 12697-34 | ASTM D1559 | CNR N. 30
NF P98-251-2 | BS 598 :107 | ALP A StB T.4

MG030-37
Software for Duriez test
NF P98-251/1 | NF P98-251/4



MG030-31 *Software for Marshall test*

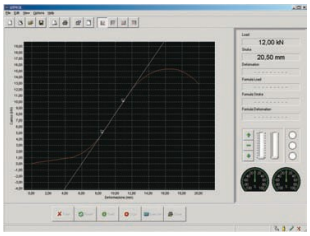
STEEL TESTS
MG030-54
Software for tensile tests on steel
EN 10002 | ASTM A370
ISO 527, 178, 604, 10113, 12275
Allows to see graphs created in real time during the test, and to elaborate a test report.



SOIL TESTS
MG030-41
Software for CBR test
EN 13286-47 | ASTM D1883
NF P94-078 | BS 1377:4

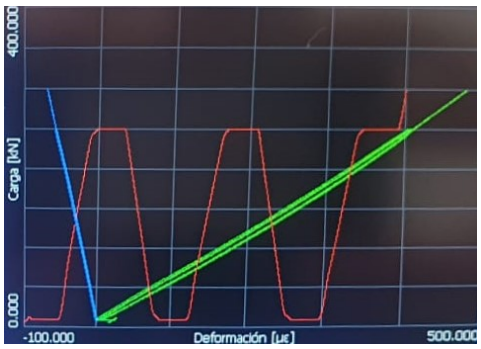
MG030-42
Software for unconfined compression test
ASTM D2166

MG030-47
Software for quick triaxial test
ASTM D2850 | BS 1377



MG030-41 *Software para CBR*

ROCKS TEST
MG030-65
Software for elastic modulus tests on rocks
EN 9724-8 | ASTM D3148, D2938, D5407, D2664 | ISRM



MG030-65 *Software for Elastic Modulus tests on rocks*

COMBINED SOFTWARES
MG030-74
Software for tensile test on steel and compression tests on concrete

MG030-75
Software for elastic modulus test on concrete, mortar and rock specimens

MG023
DIGITAL TESTER FOR FORCE TRANSFER VERIFICATION

EN 12390-4 | BS 1881:115 | DIN 51302

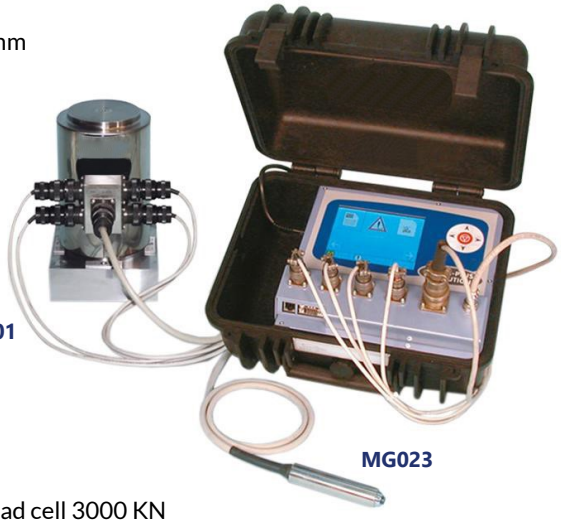
The specifications for compression testing machines, describes procedures for verification of force transfer, including:

-Accuracy of force indication
-Self-alignment of upper machine plate
-Restraint of movement of the upper plate

This digital measuring tester reads simultaneously the four values supplied by the electric strain load cell. The digital readout unit is also foreseen of a fifth digital reading channel allowing to perform load calibration tests on compression machines up to 3000 kN capacity.

Supplied with kit of 5 cables and connectors for load cell coupling, accessories and carrying case.

Power supply:
230 V | 50 Hz
Dimensions:
450x350x160 mm
Weight:
8 Kg



MG023-01

MG023

ACCESSORIES

MG023-01
Electric strain load cell 3000 KN
Consisting of a strain steel cylinder where four balanced strain gauge bridges are centered to measure the deformation on 4 generatrix in relation with two diameters, orthogonal between them, so that both axial and circumferential deformations can be measured. The cell incorporates a fifth strain gauge utilized for load measurement calibration tests. Supplied with connectors, cables and calibration certificate.

Dimensions: Ø130x200 mm
Weight: 18 Kg

MG020-50
Calibration process of the load cell to the digital tester

MG023-02
Positioning device
Manufactured with special steel, hardened and rectified, it allows to correclty position the load cell on the lower platen of the compression frame, to carry out the footemeter test as described by the Standards.
Dimensions: 150x150x50mm

MG030-02
Software to download the results to PC

MG021
FORCE VERIFICATION AND CALIBRATION APPARATUS

EN 12390-4 | EN ISO 376 | ASTM C39 | ASTM E4

This user friendly digital display, connected to any load cells allows to perform an accurate verification of the loads measured from machines under control and it allows to produce the corresponding certificate. The instrument foresees three memorized cycle verification program composed of ten measurements each. At the end of the test the unit automatically elaborates the stored value and displays:

-Effective applied load
-Measured load (over three verification cycles)
-Average measured load
-Accuracy in %
-Repeatability
-Relative readability
-Max error

The tester's accuracy is ± 0.5% of the indicated load.

Power supply:
230 V | 50-60 Hz
Dimensions:
360x300x200 mm
Weight:
5 Kg

MG021-09

MG021

ACCESSORIES

MG030-02
Software to download the results to PC

LOAD CELLS

These high performance cells have been specially designed to meet the stringent requirements of EN, ISO and ASTM standards for calibration of compression testing machines.

Accuracy:
Class 1 EN ISO 376
Linearity:
≤ ± 0,05 %
Hysteresis:
≤ ± 0,05 %
Repeatability:
0°,120°,240°:≤±0,145%

MG021-04

CODE	CAPACITY kN
MG021-01	5
MG021-02	25
MG021-03	30
MG021-04	50
MG021-05	100
MG021-06	300
MG021-07	500
MG021-08	1000
MG021-09	2000
MG021-10	3000
MG021-11	5000

LABORATORY MIXERS

These mixers have been designed and built for specific use in official laboratories, institutions and universities. They are indispensable for obtaining a perfect mix of concrete and guaranteeing a high degree of homogeneity. Due to the considerable size of the vessel, models with capacity over 50 L are supplied with a cart for transportation and safety protection.

Power supply: 220-380 V | 50-60 Hz

CODE	CAPACITY	DIMENSIONS	WEIGHT
MG801	14 L	700x600x650 mm	80 Kg
MG803	50 L	780x700x800 mm	160 Kg
MG805	100 L	830x800x900 mm	200 Kg
MG807	150 L	1700x950x1180 mm	290 Kg

MG801

MG810
HIGH PERFORMANCE MIXER 50 L

Planetary gearing converts power into high torque and high speed, ensuring optimum mixing in the shortest time possible. Built-in timer lets you control mixing cycles. The rim scraper and height adjustable mixing tools remove all material deposits on the bottom and sides of bucket, enabling less clean-up which means more productivity. Bucket dolly allows for quick transport and easy pouring.

Forced-action mixing tackles the most challenging materials. Interchangeable tools and speeds enable you to mix a variety of material from liquid to plastic media and multi-component systems like quartz sand mortar all in one machine.

Power supply:
230 V | 1100 W
Dimensions:
1075x758x845 mm
Weight:
112 Kg

MG810

PAN TYPE MIXERS

Mixers with solid and robust construction designeed for preparing concrete specimens and samples in the laboratory and on site. This high quality mixer guarantees excellent mixing results particularly using the smallest quantities of material.

Discharge is manually controlled for easy unloading of the mixer into a suitable container or wheelbarrow.

Power supply: 230-400 V | 50 Hz

CODE	CAPACITY	POWER	WEIGHT
MG821	60 L	2 kW	170 Kg
MG822	100 L	2 kW	200 Kg
MG823	120 L	4 kW	280 Kg
MG824	180 L	7,5 kW	390 Kg
MG825	300 L	9 kW	580 Kg
MG826	500 L	18,5 kW	1000 Kg
MG827	750 L	30 kW	1200 Kg

MG824

MG821

SLUMP CONE TEST APPARATUS

EN 12350-2 | ASTM C143 | AASHTO T119
BS 1881:102 | NF P18-305

Particularly suitable for site inspection, being handy and easily transportable.

We produce various cone sets. All cones are seamless and robust. Cones and components can also be purchased separately.

HR201
SLUMP CONE SET

Galvanized steel made.
It comprises:
HR201-01
Slump cone with handles and legs
HR201-02
Tamping rod, galvanized steel Ø16x600 mm
HR201-03
Hopper for cone filling
HR201-04
Base plate, galvanized steel 600x400 mm

HR201 + HR201-05

HR203
PORTABLE SLUMP CONE SET

Galvanized steel made.
It comprises:
HR201-01
Slump cone with handles and legs
HR201-02
Tamping rod, galvanized steel Ø16x600 mm
HR203-01
Base with clamps and measuring bridge

HR203

ACCESSORIES

HR201-05
Stainless steel engraved scale 300 mm

HR205
SLUMP CONE SET, STAINLESS STEEL

Same as HR201 model but made of stainless steel.

HR207
PORTABLE SLUMP CONE SET, STAINLESS STEEL

Same as HR203 model but made of stainless steel.

HR211
SCOOP SAMPLER

EN 12350-1
Made of stainless steel.

Capacity: 5 Kg

HR211

HR213
FLOW TABLE FOR CONCRETE

EN 12350-5

The apparatus consists of a galvanized steel cone with a lower diameter of 200 mm and an upper diameter of 130 mm with a height of 200 mm, a double steel table with a galvanized upper face, a guide device and a wooden rammer. It is used to determine the workability of concrete. The upper table has a square surface of 700x700 mm, hinged on one side.

Weight: 30 Kg

HR213

HR215
CONCRETE WORKABILITY METER

NF P18-452

This test method has particular application for concretes containing chemical admixtures and is used to verify the homogeneity of concrete in relation to its workability or plasticity.

The unit consists of a prismatic receiver divided into two unequal volumes by a removable partition, and an electric vibrator. The fresh concrete is poured into the large volume space, the separating partition is removed, and the vibrator starts automatically.

The test consists in measuring the time required for the concrete to reach an uniform distribution in the receivers.

Power supply: 230 V | 50 Hz | 300 W
Dimensions: 820x420x410 mm
Weight: 80 Kg

HR215

HR217
VEBE CONSISTOMETER
EN 12350-3

The Vebe test is used to measure the consistency of stiff to extremely dry concrete. Consistency is determined by measuring the time required for a given mass of concrete to consolidate when subjected to vibration in a ylindrical mould. The small vibrating table of the test apparatus operates at a fixed amplitude and frequency.

Power supply: 230 V | 50 Hz | 250 W
Dimensions: 260x380x700 mm
Weight: 90 Kg

HR217

HR219
VEBE CONSISTOMETER
ASTM C1170-14

Similar to mod. HR217, but conforming to ASTM C1170-14 with sliding weight of 50 lbs.

Power supply: 230 V | 50 Hz | 180 W
Dimensions: 280x400x900 mm
Weight: 110 Kg

HR221
COMPACTING FACTOR APPARATUS
BS 1881:103

Designed to undertake a more precise and sensitive test procedure than the simple slump test.
The apparatus consists of two conical hoppers mounted on a cylinder. Each hopper has a hinged flange with quick release mechanism and everything is mounted on a rigid steel stand.

The compacting factor is the ratio between the weight of the partially compacted concrete and the weight of the fully compacted concrete.
Supplied with tamping rod Ø16x600 mm.

Dimensions: 500x400x1510 mm
Weight: 55 Kg


HR221

HR223
WALZ CONSISTOMETER
EN 12350-4 | DIN 1048

To measure the consistency of fresh concrete. It consists of a metal box with handles 200x200 mm by height 400 mm, painted for rust protection.

Weight: 6 Kg

HR223

HR225
K-SLUMP
ASTM C1362

To determine the degree of compaction and the workability of fresh concrete. Used for in-situ measurements or inside test moulds. Test results can be correlated against the slump values.

Weight: 500 g


HR225

HR227
KELLY BALL APPARATUS
ASTM C360

Consisting of a hemispherically ended cylinder with guiding frame and a handle graduated in inch, it is used to determine the workability of fresh concrete.
The ball is lowered into the concrete and the penetration measured.
It can be used on site or in laboratory.
Cadmium plated for rust protection.

Weight: 15 Kg


HR227

HR229
SETTLEMENT EQUIPMENT FOR SELF-COMPACTING CONCRETE
EN 12350-8

To evaluate the deformability of fresh concrete through free flow, and the time needed to spread a 500 mm diameter. Applicable to concrete with aggregates of 25 mm max size.

It consists of a sheet metal slump cone and a 900x900 mm plate with two engraved circles with dia.210 and 500 mm.

HR229

HR231
V-FUNNEL EQUIPMENT
EN 12350-9

To evaluate the segregation resistance of self-compacting freshly mixed concrete using the flowing speed through a funnel. It is not suitable for aggregates with particle sizes exceeding 20 mm.

The apparatus consists of a stainless steel V-shaped funnel fitted with a watertight sliding gate and supported by a frame to ensure that the top funnel is kept horizontal.

Dimensions: 640x340x1050 mm
Weight: 20 Kg


HR231

HR233
L-SHAPED BOX
EN 12350-10

The test is for determining the passing ratio of self-compacting concrete.

The set includes a stainless steel L-shaped structure with a slide gate, an obstacle with three Ø12 mm vertical bars separated 41 mm and an obstacle with two Ø12 mm vertical bars separated 59 mm.

Dimensions: 712x280x682 mm
Weight: 40 Kg


HR233

HR235
U-SHAPED BOX

To determine the self-compactability of concrete by evaluating the filling speed and height of the concrete sample under its own weight in a U-shape filling box. Made of stainless steel with smooth inner walls, equipped with a flow obstacle formed by four Ø10 mm vertical bars separated 35 mm and a slide gate dividing the box vertically.

Dimensions: 480x250x680 mm
Weight: 20 Kg


HR235

HR245
WATER TEST SET FOR CONCRETE MIXING WATER
EN 1008 | EN 206 | DIN 4030

A carrying case containing a reagent kit for performing:

-Carbonate hardness determination
-Ammonium determination
-Total hardness determination
-Colorimetric pH determination
-Sulphate test
-Magnesium test
-Chloride test
-Carbon dioxide test

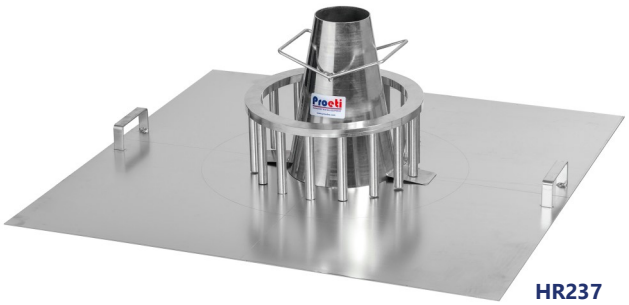

HR248

HR237
J-RING APPARATUS
EN 12350-12

To determine the flow time and the capability of the self compacting concrete to pass through obstacles. Galvanized steel made, having rectangular section 30x15 mm and median Ø300 mm. The median circumference of the ring is drilled, and 16 cylindrical bars Ø18x140 mm are fixed into the holes. The bars have a close distance of 41 mm between them, to simulate a condition of higher density of the reinforced bars.

HR239
J-RING APPARATUS
EN 12350-12

Similar to HR237 but having 12 cylindrical bars and 59 mm distance between them.


HR237

HR241
CONCRETE PENETROMETER
ASTM C403 | AASHTO T197

Used to determine the setting time of the mortar fraction in concrete mixes with slump greater than zero, by testing mortar sieved from mix.

The apparatus consists of a spring penetrometer (capacity 100 Kgf, precision 1 Kgf) and six interchangeable stainless steel needle pointers of 16-32-65-160-325-650 mm^2 area. A sliding ring indicates the load on the handle of the penetrometer. Supplied with carrying case.

Dimensions: 450x160x70 mm
Weight: 5 Kg


HR241

HR243
POCKET CONCRETE PENETROMETER
ASTM C403 | AASHTO T197

Used for the evaluation of the initial set of the concrete mortar. The penetration plunger has a tip area of 32 sq/mm. It is plunged into the mortar to a depth of 25,4 mm. indicated on the plunger.
The resistance expressed in Kpa and Lbf/sq.in. is shown on the marked direct-reading scale.


HR243

HR247
JOISEL APPARATUS
French Method LCPC

This apparatus basically consists of three sieves which are placed one inside the other and it is designed for separating concrete into its various components of cement, sand and aggregates.
The test procedure simply involves the weighing of the sample before and after washing.

HR247

UNIT WEIGHT MEASURES
EN 1097-6 | ASTM C29, C138 | AASHTO T19

Made of painted steel sheet they are used to determine the weight per cubic metre of freshly mixed and compacted concrete.

HR250
Unit weight measures 1 L
HR251
Unit weight measures 2 L
HR252
Unit weight measures 3 L
HR253
Unit weight measures 5 L
HR254
Unit weight measures 10 L
HR255
Unit weight measures 14 L
HR257
Unit weight measures 20 L
HR258
Unit weight measures 28 L

HR258

HR255 HR253 HR251

HR271
CONCRETE FLOW TABLE
ASTM C124

Used to determine the flow of concrete. The apparatus consists of a Ø762 mm flow table, stainless steel flow mould and tamping bar.
Hand-operated by crack handle.

Weight: 100 Kg

HR271

HR273
MOTORIZED CONCRETE FLOW TABLE
ASTM C124

Same as the HR271 but with a motorization kit connected to the flow table. Supplied with separate control panel and automatic digital drops counter.

Power supply: 230 V | 50 Hz 750 W
Weight: 115 Kg

CONCRETE AIR ENTRAINMENT METER

The EN and ASTM standards describe two different devices: the water column type and the manometer type.

HR261
AIR ENTRAINMENT METER 5L
EN 12350-7 | ASTM C231 Tipo A

Made from cast aluminium alloy. It records directly the percentage of air enclosed in freshly mixed concrete by operating according to the air pressure principle.
The instrument is supplied with pressure gauge tamping rod and hand pump.

Air content range: 0-8%
Dimensions: Ø250x700 mm
Weight: 13 Kg

ACCESSORIES
HR261-01
Calibration cylinder

HR261

HR263
AIR ENTRAINMENT METER 7L
EN 12350-7 | ASTM C231 Tipo B | AASHTO T152

Consists of an aluminium cylindrical vessel with airtight cover assembly incorporating an air pump, a precision pressure gauge Ø90 mm and valves. Supplied with calibration kit, accessories, robust plastic carrying case.

Air content range: 0 - 100%
Dimensions: Ø250x500 mm
Weight: 10 Kg

HR263

HR265
AIR ENTRAINMENT METER 8L
EN 12350-7 | DIN 1048 | ASTM C231 tipo B

It consists of an aluminium vessel with built in hand operated pressure pump, connected to the measuring gauge showing directly the air content in percentage.

Air content range: 0...10%
Dimensions: Ø250x450 mm
Weight: 12 Kg

HR267
AIR ENTRAINMENT METER 5L ELECTRIC
EN 12350-7 | DIN 1048 | ASTM C231 tipo B

Identical to model HR265, but with built in automatic electric air compressor giving air pressure, and keeping it constant all along the test.

HR265

Power supply: 230 V | 50-60 Hz
Dimensions: Ø250x450 mm
Weight: 14 Kg

ACCESSORY
HR265-01
Filling hopper for models HR265 and HR267

CUBIC MOULDS FOR CONCRETE

We supply a range of cube moulds, from traditional cast iron versions conforming to EN 12390-1 standards that are ideal for laboratory use, to plastic models that are very practical for field use and ideal for production control.

STEEL CUBIC MOULDS

These models of steel cube and beams moulds are extremely sturdy and the inside surfaces are accurately machined.

CODE	MOULD (mm)
HR301-01	100x100
HR301-03	150x150
HR301-05	200x200
HR301-07	300x300
HR301-09	500x500

HR301-01

CUBIC MOULDS STEEL 2 COMPARTMENTS

CODE	MOULD (mm)
HR311-01	100x100
HR311-03	150x150

CUBIC MOULDS STEEL 3 COMPARTMENTS

CODE	MOULD (mm)
HR311-07	100x100
HR311-09	150x150

PLASTIC CUBIC MOULDS

These one-piece moulds, much appreciated by the user, are made of hard, strong, light, non-deformable plastic; resistant to shock, vibration and wear. They only need a simple cleaning and lubrication on release before they are ready to be reused numerous times. The sample is pushed out of the mould with compressed air or water.

CODE	MOULD (mm)
HR331-01	150x150
HR331-03	200x200

PLASTIC CUBIC MOULD 2 COMPARTMENTS

CODE	MOULD (mm)
HR331-05	100x100

HR331-05

HR331-01


HR300-01

PRISMATIC STEEL MOULDS

Made of undeformable steel and easy to disassemble.

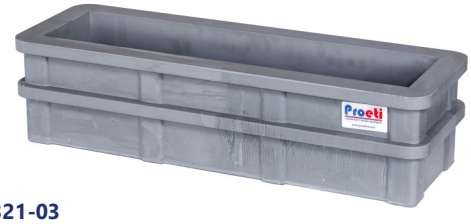
CODE	MOULD (mm)
HR321-01	100x100x400
HR321-03	100x100x500
HR321-05	150x150x600
HR321-07	150x150x750
HR321-09	200x200x800

HR321-03

PLASTIC PRISMATIC MOULDS

Made of a single piece of hard plastic resistant to vibrations shocks and wear.

CODE	MOULD (mm)
HR331-07	100x100x500
HR333-09	150x150x600



HR331-07

ACCESSORIES:

HR201-02
Tamping rod Ø16x600 mm

MG581-08
Stainless steal scoop 860 ml

HR201-03
Hopper for cone filling

MG603
Rubber mallet

HR300-09
Demoulding oil

HR300-01
Gun to connect to a water or air pressure, to eject the specimen from the mould

HR300-03
Stopper plastic made to plug the hole of the moulds HR331-01, HR331-05, HR351-03 y HR351-05 (10 pieces)

HR300-05
Stopper plastic made to plug the hole of the moulds HR331-02, HR331-07, HR331-09 y HR351-01 (10 pieces)

HR300-07
Identification label (Pack of 250 pieces)

CYLINDRICAL STEEL MOULDS

Made of steel with handles and opening hinges, being practical and easier for the user to transport.

CODE	MOULD (MM)
HR341-01	Ø100x200
HR341-03	Ø112,8x220
HR341-05	Ø150x150
HR341-07	Ø150x300
HR341-09	Ø160x320

HR341-09 HR341-07

PLASTIC CYLINDRICAL MOULDS

Made from a single piece of shock-resistant hard plastic.

CODE	MOULD (MM)
HR351-01	Ø100x200
HR351-03	Ø150x300
HR351-05	Ø160x320

HR351-01 HR351-03

VERIFICATION OF SPECIMENS

EN 12390-1

These instruments are used for the assessment of flatness, perpendicularity and straightness of test specimen and moulds as specified by EN 12390-1.

HR361-01
Go-no go gauge for 100 mm cubic moulds
HR361-03
Go-no go gauge for 150 mm cubic moulds
HR361-05
Rule rigth angle, steel made 150x100 mm
HR361-07
Straightedge 300mm
HR361-09
Gauge set 0,05 to 0,50 mm with 100 mm blades
MG620-11
Digital vernier caliper 153x0,01 mm certified
MG620-12
Digital vernier caliper 200x0,01 mm certified
MG620-10
Certificate for calipers

HR361-01...MG620-12

VIBRATING TABLES

EN 12390-2

Used for the compaction of concrete specimens in laboratory, they are manufactured from rugged steel sheet. Equipped with motor-vibrator having 3000 vibrations-minute.

Power supply:
230 V | 50 Hz | 180 W
Height of the table:
410 mm

HR381-01

HR381

CODE	DIMENSIONS	WEIGHT	CLAMPING
HR381	600x400 mm	60 Kg	HR381-01
HR383	800x400 mm	85 Kg	HR383-01
HR385	800x800 mm	115 Kg	HR385-01
HR387	1100x550 mm	145 Kg	HR387-01

HR388
PORTABLE VIBRATING TABLES

Similar to the above vibrating tables, but suitable for site use, where no electric supply is available.
Lightweight and small sized, it can be handled by one person and easily stored in the car trunk.

Supplied with On/Off switch and connector for the vehicle cigar lighter, and elastic bands to fix the mould to the table.

Power supply: 12 V CD
Dimensions: 400x300x200 mm
Weight: 16 Kg

HR388

HR389
PORTABLE LABORATORY VIBRATORY TABLE

Similar to the HR388 table but for laboratory use.

Power supply: 230 V | 50 Hz | 110 W

HR380-01

HR389

ACCESSORIES

MG043
Control panel with timer according to CE
HR380-01
Pedal switch as an alternative to MG043
HR380-02
Clamping device for HR388 and HR389

MG043

HR391
POKER VIBRATOR

EN 12390-2 | ASTM C31, C192 | AASHTO T23, T126

This apparatus is ideal for the internal compaction of concrete specimens both in the laboratory and on site. It makes a good alternative to the traditional tamping bar, especially when there are a large number of specimens to be compacted.

Portable concrete vibrator with reinforced cable against bending. Shock-resistant housing with double insulation and splash-proof protection.

Power supply: 230 V | 50-60 Hz | 2300 W
Dimensions: 354x150x205 mm
Weight: 5 Kg

ACCESSORIES

HR391-01
Vibrating eccentric head Ø25x285 mm. Capacity: 10 m^3/h
HR391-11
Flexible shaft 2 m Weight: 4 Kg
HR391-12
Flexible shaft 4 m Weight: 6 Kg
HR391-13
Flexible shaft 6 m Weight: 8 Kg

HR405
CURING TANK 1000 L

Made of zinc plated steel to prevent corrosion. Includes base rack and stopper for easy draining. The tank can accommodate up to 64 cubes 150mm side, or up to 48 cubes 200mm side.

Inside dimensions: 1500x750x750 mm
Weight: 120 Kg


HR400-01


HR400-02

HR400-05

HR401
CURING TANK 550 L

EN 12390-2 | ASTM C31 | ASTM C192 | AASHTO T23

Made from extremely robust and stable polyethylene, supplied with base rack and draining valve incorporated into the tank.

Inside dimensions: 1110x710x690 mm
Weight: 55 Kg

HR403
CURING TANK 650 L

Similar to model HR401 but without drain valve.

Inside dimensions: 1040x1040x605 mm
Weight: 60 Kg


HR403 + HR400-02


HR401 + HR400-03

ACCESSORIES FOR TANKS

HR400-01
Thermostat analogic system for HR403
Power supply: 230 V | 50-60 Hz | 2 000W
HR400-02
Thermostat analogic system for HR401 and HR405
Power supply: 230 V | 50-60 Hz | 2000 W
HR400-03
Thermostat digital system for HR401, HR403 y HR405
Power supply: 230 V | 50-60 Hz | 2000 W

MG041
Separate control panel with switch according to CE directive
HR401-01
Plastic cover for tank HR401
HR403-01
Plastic cover for tank HR403
HR405-01
Plastic cover for tank HR405


MG041

HR405-02
Additional upper rack for HR405 tank
Maximum of 8 racks per tank.

HR400-05
Sumersible water circulating pump
Power supply: 230 V | 50-60 Hz

CE233-01
Cooling system
It cools the water from room temperature up to +10°C. It is connected to the tank where a lower temperature than the room one is required.


CE233-01

HR407
ACCELERATED CURING TANK
ASTM C684 | BS 1881:112

This tank has been designed for accelerated concrete strength curing. It comprises a fully insulated double wall tank with cover, inside all from stainless steel, outside from steel painted sheet with an intermediate layer of insulating mineral wool.
The tank admits 16 cubic 150 mm side; or 16 Ø150 mm; or 8 cubic 200 mm side. The test consists essentially in curing the concrete specimens with water heated by 3 electric elements of 1500W each.

HR407

Power supply:
230 V | 50-60 Hz | 4500 W
Temperature range:
ambiente a 100°C
Inside dimensions:
910x660x680 mm
Overall dimensions:
970x720x900 mm
Weight:
130 Kg

HR419
MOIST CURING ROOM KIT
A room can be easily converted for curing samples by installing:

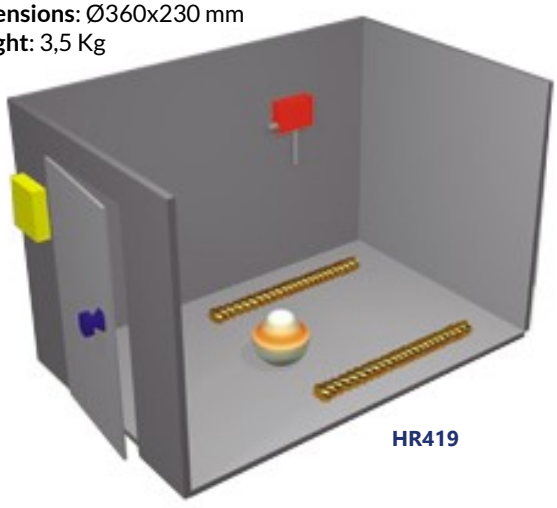
HR419-01
Digital control panel with humidity and temperature display

HR419-02
Humidity and temperature sensor
Temperature range: from -10 to +90°C
Humidity range: up to 100%

HR419-03
Electric resistance heating 750 W
2 heaters are required for a 150 m^3 room.

HR419-04
Curing room humidifier
Capable of humidifying curing rooms up to 150 m^3.
Supplied with automatic level control for mains water connection.

Humidifying capacity: 0 5 L/h
Power supply: 230 V | 50 Hz
Dimensions: Ø360x230 mm
Weight: 3,5 Kg



HR419

A typical layout of a moist curing room

HR411
CLIMATIC CHAMBER TEMPERATURE/HUMIDITY
EN 196-1 | EN 1367-1 | EN 12390-2 | EN 12390-9

This steel made chamber has 530 litres capacity, includes an advanced controller for temperatura from -25 to +70°C and humidity from 10 to 95%.

The cabinet has four shelves supported on stainless steel guides capable of holding heavy specimens, a CFC free cooling system and a door equipped with magnetic gasket and integrated heater against freezing.

Used to cure specimens in according to the Standards:
-Concrete specimens curing (EN 12390-2)
-Cement specimens curing (EN 196-1)
-Analyze the freezing and thawing of aggregates (EN 1367-1)
-Analyze the freezing and thawing on concrete (EN 12390-9)

A multifunction control unit simultaneously displays the set points and absolute output values.

Capacity: 530 L
Temperature range: from -25 to +70°C
Humidity range: from 10 to 95 %
Internal dimensions: 600x670x1340 mm
External dimensions: 750x980x2100 mm
Power supply: 230 V | 50-60 Hz | 2300 W
Weight: 165 Kg

HR411

HR413
CLIMATIC CHAMBER TEMPERATURE/HUMIDITY
Similar to model HR411 but with 1200 litres capacity.

HR451
SPECIMEN GRINDING MACHINE

EN 12390-2 | ASTM D4543

Used to grind and polish concrete specimens, natural stones, ceramic materials, etc...

Both cube and cylinder specimens can be easily locked onto the table and the 330 mm diameter grinding head can be radially moved either manually or automatically in both directions. The only manual operation required is the lowering of the grinding head using the top hand wheel.

Specimens are easily fixed to the table by proper locking stirrups allowing to grind at a time:
-3 cube specimens 100 mm or 150 mm;
-2 cube specimens 200 mm;
-2 cylinder specimens up to Ø160x320 mm;
-1 block with max. dimensions 390x250 mm

Supplied with control panel, coolant/decantation tank, motor pump, set of abrasive sectors, safety chip guard that when removed, stops automatically the machine.

Table dimensions: 775x280 mm
Grinding head stroke: 215 mm
Grinding wheel speed: 1400 r.p.m.
Grinding height range: min. 175 mm - max. 380 mm
Power supply: 400 V | 50 Hz | 2700 W | 3ph
Dimensions: 1220x1080x1730 mm
Weight: 410 Kg

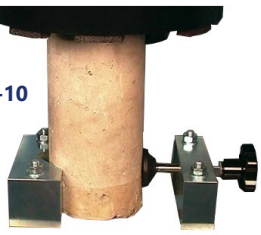
HR451

ACCESSORIES

HR451-01
Locking stirrups for cube specimens side 100, 150, 200 mm
Supplied with distance piece 85 mm.
HR451-02
Locking stirrups for cube specimens side 50 to 70 mm
They must be used only in conjunction with HR451-01.
HR451-03
Locking stirrups to grind blocks with max. dimensions of 390x250 mm
HR451-04
Locking stirrups for cylinder Ø100, 110, 150, 160mm
They must be used only in conjunction with HR451-01.
HR451-05
Locking stirrups for cylinder Ø50 to 100 mm
They must be used only in conjunction with HR451-01.
Minimum height 95 mm

HR451-02 + HR451-01 + HR451-02

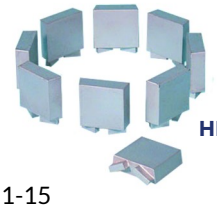
HR451-10



HR451-10
Fast locking device
-Cubes 150 and 200 mm
-Cylinders Ø100 to 160 mm

HR451-11
Standard abrasive grinding sector (set of 8 pieces)

HR451-12
Diamond abrasive grinding sector (set of 8 pieces)
Particularly recommended because of their long duration and good grinding action.



HR451-11

HR451-15

HR451-15
Device to to collect the produced powder
The device must be connected to an aspirator (notincluded). The four collecting pipes have a max. extension of 3 meters (different extensions on request).
The terminal diameter of the device is: 160 mm

Weight: 15Kg

SULPHUR CAPPING SAMPLES

EN 12390-3 | ASTM C31 | ASTM C192 | ASTM C617
AASHTO T23 | AASHTO T126

When testing concrete cylinder specimens it is essential that the two ends are perfectly flat. This range of equipment allows the ends of various sizes of concrete cylinders or cores to be capped using a sulphur capping compound.

HR455
MELTING POT

Used to melt the capping compound, the pot has a pilot lamp and an adjustable electronic thermo-regulator to set and maintain the temperature at the desired value. The unit is fully insulated in compliance with CE requirements.

Dimensions:
400x260x280 mm
Weight:
11 Kg

HR455

ACCESSORIES

HR455-01
Heating oil 10 L
HR455-02
Stainless steel ladle
HR455-03
Capping Compound (22,5 Kg)
ASTM C617
This compound is a mixture of sulphur and mineral filler

CYLINDER CAPPERS

Cappers are used to ensure that the end surfaces of the cylinder are perfectly flat and perpendicular to the axis of the cylinder. The base and capping plates are machined steel, and the guide is made of cast aluminium or steel.

CODE	SPECIMENS DIA.
HR457-11	Ø75 mm
HR457-13	Ø100 mm
HR457-15	Ø150 mm
HR457-17	Ø160 mm

ACCESSORIES

HR457-10
Cylinder carrier for Ø150 - Ø160 mm specimens
Facilitates the handling of the specimens.


HR455-03


HR457-15

CAPPING PADS

ASTM C31 | ASTM C192 | ASTM C617
AASHTO T23 | AASHTO T126

This method is used as an alternative to the hot sulphur capping of concrete cylinder specimens. The system consists of two alloy steel cap retainers and two thick neoprene pads which are in contact with the upper and lower concrete surfaces. The pads even out irregularities, distributing the test load uniformly to ensure reliable strength results. Pads can be re-used for many tests.

SPECIMENS	RETAINERS	SHORE 60	SHORE 70
Ø100x200 mm y 4"x8"	HR459-01	HR459-11	HR459-21
Ø150x300 mm y 6"x12"	HR459-02	HR459-12	HR459-22
Ø160x320 mm	HR459-03	HR459-13	HR459-23


HR459-01...HR459-13

AR165
BÖHME ABRASIMETER

EN 1338, 1339, 1340, 13748, 13892-3, 14157 | DIN 52108

Designed to determine the abrasion resistance of natural stone and concrete products used in internal and external paving.

The machine is fitted with a rotating grinding wheel Ø750 mm and the sample is placed on a suitable support and subjected to a force of 294 ±3 N.
An abrasive material is constantly poured onto the disc and the effect of the abrasion is measured after a series of rotation cycles.

The abrasion tester is made up of a Ø750mm cast iron rotating grinding wheel with a 200mm test track to place the samples, a control panel with a digital revolution counter, a sample holder and an adjustable loader used to produce a clamping force. 294N ± 3N.

Power supply: 230 V | 50 Hz | 800 W
Disc speed: 30 r.p.m.
Dimensions: 1500x1000x850 mm
Weight: 320 Kg


AR165

HR461
CORE DRILLING MACHINE

The guide rail is rectified to assure a very soft and accurate drilling movement. The drilling excursion is 550 mm.
Electric motor at three speeds: 670, 1140, 1580 r.p.m. with gearbox.

Equipped with friction device and switch in compliance with CE Safety Directive.

Power supply:
230 V | 50-60 Hz | 2200 W
Max vertical Height:
1000 mm
Coring angle:
from 0 to 360°
Dimensions:
440x750x1300 mm
Weight:
85 Kg

HR461+ HR460-01

ACCESSORIES

HR461-01
Extension column 1 m long,
HR461-20
Strap wrench useful for unblocking any type of bit.
HR461-21
Strap wrench useful only for the bits with backend connector
HR461-22
Extension rod 300 mm long.

DIAMOND CORE DRILL BITS
Designed for making holes and getting cores from hard materials, like concrete, reinforced concrete, rocks, stones, bituminous materials .

CODE	SAMPLE	EXTRACTOR
HR460-01	Ø50x450 mm	HR460-11
HR460-02	Ø75x450 mm	HR460-12
HR460-03	Ø100x450 mm	HR460-13
HR460-04	Ø152x450 mm	HR460-14
HR460-05	Ø200x500 mm	HR460-15

HR461-20...HR460-16

HR465
PETROL CORE DRILLING MACHINE 5HP

These drilling machines are robust, compact and suitable for heavy work. They feature a mobile system to ensure smooth and precise drilling movements, a robust steel base equipped with wheels for easy transport, along with four legs for levelling and stabilization and heat exchanger coil to cool the diamond bit.

Drilling stroke:
550 mm
Max sample diameter:
200 mm
Dimensions:
850x580x1230 mm
Weight:
125 Kg

HR465

HR467
PETROL CORE DRILLING MACHINE 12,5HP

Same as HR465 but with 12,5 HP engine.

Weight: 150 Kg

HR471
SPECIMEN CUTTING SAW

This universal saw is used to cut concrete, asphalt, rock cores and irregular rock samples in order to obtain geometrically defined specimens.

The motor head is adjustable in height and can also be tilted, permitting cuts at angles up to 45° and 90°. Foldaway legs, for better assembly and transport.

Supplied with Ø300 mm diamond blade.

Power supply: 230 V | 50 Hz | 3000 W
Disc speed: 2800 r.p.m.
Dimensions: 1220x780x12200 mm
Weight: 65 Kg

HR471

HR481
WATER PENETRATION APPARATUS 3 PLACES
EN 12390-8

This apparatus is used to determine the depth that water under pressure penetrates into concrete specimens.
The test is performed by clamping the specimen between two flanges with special circular gaskets. The water, under controlled pressure, is then applied to the surface of the concrete specimen.

The penetration of water is measured, after the testing period, by breaking the specimen. The quantity of penetrated water can also be measured using the graduated burettes of the apparatus.
The apparatus have to be fitted with a suitable air compressor with a maximum working pressure of 10 bar.

Dimensions:
1500x530x1600 mm
Weight:
150 Kg

HR481

HR483
WATER PENETRATION APPARATUS 6 PLACES
EN 12390-8

Same as model HR481 but with 6 test places.

ACCESORY
MG753
Laboratory air compressor 10 bar, capacity 50 L

MG380
SPECIFIC GRAVITY FRAME
EN 12390-7 | EN 1097-6 | BS 812 | BS 1881:14

This apparatus is used, together with a suitable electronic balance, for determining the specific gravity of laboratory fresh and hardened concrete and aggregates.
A purpose built robust frame supports the electronic balance, while the lower part of the frame incorporates a moving platform which holds the water container, allowing test specimens to be weighed in both air and water.
The balance is not included and should be selected according to the weighing range required. Any type of electronic balance fitted with an under-bench weighing facility can be used.

Dimensions: 510x510x1150 mm
Weight: 50 Kg

ACCESORIES
MG380-01
Cradle for holding specimens
MG381-04
Density basket Ø200x200 mm, mesh 3,35 mm
MG220-10
Electronic top loading balance 36 Kg x 0,1 g

MG220-10

MG380

HYDRAULIC SHRINKAGE DETERMINATION
ASTM C426

Determine the hydraulic axial shrinkage of concrete beams during hardening. According to this method, steel pins are glued onto the end surfaces of the specimen in order to measure the dimensional changes of the specimen, which is properly stored underspecified temperature and humidity condition.

HR491
BEAM MOULD 100X100X500 MM
Steel made.
Weight: 23 Kg

HR493
MEASURING APPARATUS
For 100x100x500 specimens, with reference bar.

Weight: 23 Kg

MG010-51
HR491
HR493

ACCESSORIES
HR491-01

HR491-01
Inserts to measure shrinkage in mould HR491
MG010-51
Dial gauge 5x0,001 mm
MG010-52
Dial gauge 10x0,01 mm
MG010-61
Digital gauge indicator 12,7x0,001 mm

CE055
DIGITAL LENGTH COMPARATOR

Length comparator with digital dial to measure linear variations.

CE045
CE055

HR501
COR MAP-HALF CELL METHOD
ASTM C876 | BS 1881:201

Problems related to the durability of concrete are considered increasingly important as they are closely related to the quality of the structure as a whole.

Corrosion is an electrochemical process, which takes place in concrete in the presence of oxygen. The measurements made by the Cor Map device allow the mapping of equipotential contour lines on a grid and the drawing of lines, highlighting areas of possible corrosive activity.

The Cor Map apparatus is a simple and inexpensive method of identifying areas of probable corrosion in reinforcing bars such as bridge decks, covered establishments, concrete piers and decks, substructure, tunnel lining and foundations.

The equipment consists of the following elements:
-High impedance voltmeter
-Electrode extension
-Reference electrode with copper sulfate deposit
-Copper sulfate container (250 ml capacity)
-Wetting agent reservoir (125 ml capacity)
-Dispensing sponge
-Reel with 80 m of cable
-Carrying case

Case dimensions:
50x420x190 mm
Weight:
7,5 Kg

HR501

HR503
DIGITAL RESISTIVITY 2-PROBE ARRAY METER

As carbonation seriously affects surface strength, measurement on the concrete surface should be avoided. The resistivity meter has two probes, which are placed in two holes drilled to a depth of 8mm and filled with conductive gel. The resistivity of the concrete is displayed on an LCD screen by activating the control switch.

It is used in combination with CorMap equipment to produce resistivity plots. The kit is supplied with a drill, gel, template and carrying case.

Dimensions: 400x270x130 mm
Weight: 4 Kg

HR503

HR505
CHLORIDE FIELD TEST SYSTEM
ASTM C114 | AASHTO T260

Determines the chloride ion concentration in concrete to allow identification of the corrosion risk of a reinforcing bar. The method requires an acid extraction of a representative drilled sample of concrete, which is analyzed with an ion-selective electrode, comparing the potential with a calibration obtained using a series of five standard solutions.

The team equipment consists of:
-Electronic meter for direct conversion in % chloride
-Chloride Combination Electrode
-12 bottles of 20 ml of extraction liquid
-5 bottles of colored calibration fluid
-Scale for 3 g samples
-Carrying case

HR505

HR507
CARBONATION TEST
EN 13295

The test allows the measurement of the depth of carbonation through the surface of concrete.

The set consists of :
-Phenolphthalein solution (1000 ml)
-Demineralized water (5000 ml)
-Depth measuring gauge
-Two washing bottles 250 ml capacity

The surface of the concrete sample to be tested is sprayed with a phenolphthalein solution to detect the loss of alkalinity associated with carbonation. The risk of corrosion induced by carbonation can be measured, if it is correlated with the concrete to be reinforced.

HR507

HR511
AIR AND WATER PERMEABILITY OF CONCRETE
FIGG TECHNIQUE

The ingress of air and moisture into the concrete can cause corrosion of the steel reinforcement and lead to a deterioration in concrete strength. The apparatus can be used in the following tests:

-Internal test (deep permeability)
A hole Ø10 mm and 40 mm deep is drilled and connected leaving a cylindrical test hole Ø10 mm, 20 mm high, located 20 mm below the surface of the concrete. The time required for air and water to pass through the test material to the hole is used as an index to determine the quality of the concrete.

-Air permeability tests
Performed before moisture has a significant effect on permeability, based on the vacuum technique, the timer and gauge automatically display the time in seconds it takes for the vacuum to rise from -55 kPa to 5 kPa.

-Water permeability tests
After filling and forcing the water into the test cavity, the air moves out through the overflow tube.
The instrument's flow sensor and timer, after the test procedure, measure the time required in seconds for the water meniscus to travel a distance of 50 mm.

-Surface permeability test
The test is carried out by anchoring a stainless steel chamber in a smooth area of the concrete surface.
A measurement of the time required for corresponding amounts of air and water to pass through the concrete is used as an index of surface conditions.

The device consists of the following elements:
-Digital manometer
-Hand vacuum pump
-Water syringe
-Pack of 25 test caps
-Cup grinding wheel
-Stainless steel surface chamber
-Holding pliers, bits and anchors
-Carrying case

Case dimensions: 430x300x150 mm
Weight: 5,4 Kg

HR511

HR515
SURVEYMASTER MOISTURE METER

Used to measure the damp conditions in concrete structures, masonry, gypsum, both on surface and at depth with non-destructive method.

The equipment consists of probes for isolated deep walls,humidity probe and carrying case.

Humidity scale in wood: from 7 % to 99 %
Moisture depth: from 12,7 to 19 mm
Dimensions: 175x30x48 mm
Weight: 100 g

HR515

HR519
CHLORIDE ION PENETRATION METER
ASTM C1202 | ASTM C1760 | AASHTO T277

The durability of concrete is negatively affected by the penetration of chloride ions. This test method makes it possible to evaluate the chloride permeability characteristics of concrete. In the test, the amount of electrical current that passes through cylinders or concrete cores is monitored. A potential difference is maintained between the ends of the specimen; one of them is the negative pole and is immersed in a sodium chloride solution; the other end (positive pole) is introduced into a solution of sodium hydroxide. The total electrical charge is measured and the value obtained is related to the resistance of the test piece to the penetration of chloride ions.

The device can be used for testing the durability of concrete exposed to chloride-contaminated environment including:
-Concrete ability to resist chloride ion penetration (ASTM C1202, AASHTO T277).
-Bulk electrical conductivity of concrete (ASTM C1760)
-Performance-based quality control of concrete
-Estimation of chloride diffusion coefficient of concrete
-Estimation of chloride migration coefficient of concrete
-Service life design of concrete structures
-Estimation of the remaining life of concrete structures

Supplied with a set of cells, temperature sensors, test leads, power cord, USB cable, communication software, a vacuum pump, a desiccator, accessories to saturate the sample with water per ASTM C1202, and an instruction manual.

HR519

HR521
REBAR DETECTOR
BS 1881:204

This apparatus is used to measure the thickness of concrete cover over steel reinforcement bars and metal pipes and can also identify the location, orientation and diameter of reinforcement bars (rebars). The basic unit can be completed with a number of optional probes for the various different determinations.

The device, which uses the Pulse induction technique, features a rugged waterproof case with probe storage for easy portability.

The gauge is supplied with:
-Control unit
-Standard search head for Ø40 mm bars up to 95 mm depth
-PC cable
-Battery pack and charger
-Shoulder strap and earphone
-Carrying case

Dimensions: 230x130x125 mm
Weight: 1,5 Kg

HR521

ACCESSORIES

HR520-01
Narrow pitch search head
-Bars from Ø40 mm and depth to 80 mm
-Bars from Ø8 mm and depth to 60 mm
Sensing area: 120x60 mm
Dimensions: 155x88x42 mm

HR520-02
Deep cover search head
-Bars from Ø40 mm and depth to 180 mm
-Bars from Ø8 mm and depth to 160 mm
Sensing area: 160x80 mm
Dimensions: 170x94x54 mm

HR520-03
Short borehole probe
Measurement depth: 0-40 cm
Detection ranges tendon ducts: 70 up to 90 mm
Detection ranges reinforcement bars : 60 mm

HR520-04
Long borehole probe
Measurement depth: 0-100 cm
Detection ranges tendon ducts : 70 up to 90 mm
Detection ranges reinforcement bars : 60 mm

HR531
DEEP SCANNING METAL DETECTOR 150 MM

This locator finds and scans, through solid concrete, steel rebars and metallic materials like pipes, electric cables, junction boxes, metal studs and frames up to 150mm deep. It scans and differentiates steel rebars from other metallic materials like copper pipes.
It differentiates magnetic metals from non magnetic ones.

Dimensions: 251x109x63 mm
Weight: 320 g

HR531

HR533
RESONANCE FREQUENCY METER
ASTM C666 | BS 1881:209 | NF P18-414

The team measures the resonance frequencies of three different vibration modes: longitudinal, transverse (bending) and torsion. From these and the characteristics of the material, it can be calculated by non-destructive testing:
Modulus of elasticity or Young's
Modulus of rigidity
Poisson's ratio.

The principle used in this meter is based on the determination of the fundamental resonance frequency of the vibrations of a sample generated by an impact and detected through an accelerometer. The frequency spectrum is computerized and subsequently displayed by the team.

Available for specimen sizes up to 150 mm cross section dimension, and from 45 mm to 700 mm in length.
Automatic identification of the resonance frequency.
Large easy to view display for data analysis of time domain and frequency spectrum signals.

The equipment is supplied with electronic main unit, cable accelerometer, set of 6 hardened steel balls and standard base with accessories.

Power supply: 12 V
Storage: 200 plus readings
Frequency range: from 10 Hz to 20 kHz
Sampling rate: 20 kHz - 40 kHz
Weight: 30 Kg

HR533

HR535
BULK ELECTRICAL RESISTIVITY TESTING

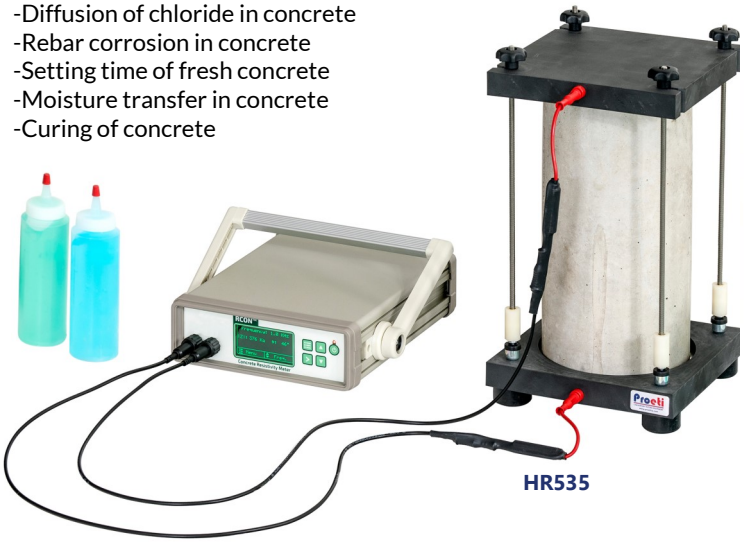
ASTM C1876 | AASHTO TP 119

This device is an advanced non-destructive laboratory tool for measuring the bulk electrical resistivity of concrete at various ages.

The device is fast (measurement time is less than 5 seconds), accurate (utilizing a variable frequency method), and flexible (measurements can be taken with different settings for verification). No additional sample preparations are required before testing.

This equipment allows for continuous measurement of electrical resistivity over time, which can be used to monitor important durability parameters of concrete, such as; cracking, moisture transfer, and setting time in concrete specimens.

The concrete laboratories use this device to perform:
-Diffusion of chloride in concrete
-Rebar corrosion in concrete
-Setting time of fresh concrete
-Moisture transfer in concrete
-Curing of concrete



HR535

HR543
ULTRASONIC TESTER WITH MICROPROCESSOR

EN 12504-4 | BS 1881:203 | ASTM C597 | NF P18-418

Used for measuring the velocity of ultrasonic pulses through a concrete section, providing information on cracks, voids and strength, and giving quick estimates of Dynamic Modulus of Elasticity on site or in the laboratory.It can also be used to estimate times for formwork striking.

The pulse velocity can be combined with the rebound hammer value for the strength evaluation of concrete.

This is an instrument using the most modern technologies; it has a colour touch screen, store by SD card, USB, working system Windows CE with Excel, Word, PPT, etc..

Dimensions: 400x300x180 mm
Weight: 3 Kg

HR543

HR541
ULTRASONIC PULSE VELOCITY TESTER

EN 12504-4 | ASTM C597 | BS 1881:203 | NF P18-418

This handheld battery-powered instrument measures the transit time of sonic/ultrasonic pulses through concrete to estimate homgeneity and structural integrity.

The pulse velocity is dependent upon the density and the elastic properties of the material. By comparing pulse velocities it is possible to evaluate homogeneity and identify the presence of cracks, voids, honeycombing, anomalies and non-homogeneity of elastic properties.

The standard kit includes two 55 kHz probes with connection cables, a rechargeable battery, a battery charger and a carrying case.

Measurement range: 0 to 3000 µs
Ultrasonic pulse width: from 250 to 1000 V
Storage: up to 30,000 samples
Suitcase dimensions: 400x340x110 mm
Weight: 2 Kg

HR541

HR551
CONCRETE TEST HAMMERS

EN 12504-2 | ASTM C805 | BS 1881-202 | NF P18-417

Concrete hammers are used to evaluate the surface hardness of concrete in order to estimate the strength in various parts of the structure.

Spring impact energy 0,225 mKg (2,207 Joule or Nm). Suitable for finished concrete structures and buildings with strength from 10 to 70 N/mm^2.

This concrete test hammer has an aluminium frame and, thanks to its very accurate manufacture and selected components, ensures high precision test results.

Supplied with calibration curve chart in N/mm^2 (MPa) values, abrasive stone and carrying case.

Dimensions with the case:
330x100x100 mm
Weight:
2 Kg

HR550-01

HR553

HR551

HR559
SPRING PENETROMETER

ASTM C803

It consists of a spring inserting a steel plug through the surface of the material. As the depth of penetration is inversely proportional to the compressive strength, the device offers a quick and safe way to determine the strength of the material on site.

The spring is loaded by tightening the retraction nut ntil the trigger mechanism closes to hold the spring in place. With the spring loaded, it is kept at a distance of 20 mm from the test surface. When the trigger is pulled, there is enough force to test the compressive strength of concrete or mortar up to a maximum of 37 MPa.

Weight: 8 Kg

HR559

HR553
DIGITAL CONCRETE TEST HAMMER

EN 12504-2 | ASTM C805 | BS 1881-202 | NF P18-417

This microprocessor-controlled hammer has been designed with advanced technology to perform basic concrete testing with continuous automatic recording of all parameters according to EN 12504-2 .

This unit is equipped with an electronic transducer that measures the rebound values and supplies automatically the results on a graphic display.

During testing the screen shows:
-Index value
-Average index value
-Number of rebounds
-Tested element
-Rebound angle

Supplied with data transfer software, USB cable, battery charger, abrasive stone and carrying case.

Power supply: 6 AA rechargeable batteries
Impact energy: 2,207 Joule (Nm)
Measuring range: 10-120 N/mm2
Battery life: 60 h
Weight: 3 Kg

ACCESSORIES

HR550-01
Calibration anvil
Used for the periodical calibration of the test hammer.
Made from special alloy steel.
Dimensions: Ø150x320 mm
Weight: 16 Kg

HR543
Ultrasonic pulse analyzer
To be connected to the digital test hammer to perform combined ultrasonic and rebound tests with automatic data acquisition, processing and store of the results.

The combined test allow to rectify different inaccuracies that are typical of the simple rebound hammer test, and obtaining estimates on the compressive strength of the concrete, that cannot be obtained with the ultrasonic test, granting high accuracy and reliability of the results.

HR543

HR553

CE181
DIGITAL PULL-OFF TESTER

EN 1015-12 | EN 1348 | EN 1542 | EN 13963 | EN 14496

This apparatus is mainly used to evaluate the adhesion of two layers of concrete or the bond strength on the basis of surface coatings on cements, limes, plasters and other materials.

It is a portable and light equipment, equipped with a load cell, a digital screen and a crank to manually apply the direct tension force.

The three feet of the unit can be fixed in the large position overall dimensions 176 mm diameter with very stable bearing, or in the compact position overall dimensions 92.5 mm diameter, to perform tests in narrow spaces, or for specimens close one to the other.

It is battery operated, has a PC connection port, a ball joint to ensure the application of axial-central load and a carrying case. To use this equipment a common electric drill is required.

Dimensions:
410x210x270 mm
Load capacity:
16 kN
Working range:
from 0,25 to 16 kN
Resolution:
10 N
Weight:
6 Kg

CE181

ACCESSORIES

CE180-01
Aluminum disc Ø20 mm (10 pieces)
Thickness: 21mm
CE180-02
Aluminum disc Ø50 mm (10 pieces)
Thickness: 21mm
Standard EN 1015-12
CE180-03
Aluminum disc Ø50 mm (10 pieces)
Thickness: 31mm
CE180-04
Aluminum square 50x50 mm (10 pieces)
Thickness: 21mm
Standard: EN 1348
CE180-05
Cylindrical ring Ø50 mm in the shape of a truncated cone
Standard: EN 1015-12
CE180-91
Software to download results to PC
Includes connection cable
CE180-07
Center drill Ø20 mm for surface preparation
CE180-08
Center drill Ø50 mm for surface preparation
CE180-09
Acrylic adhesive glue with application gun and nozzles of different sizes

HR561
PULL-OUT TESTER

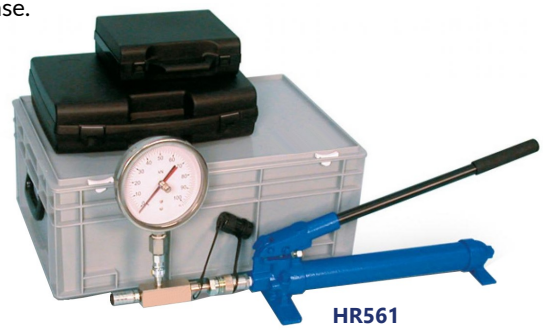
EN 12504-3 | ASTM C900

This apparatus is used to determine the pull-out force of hardened concrete in test specimens or in-situ by measuring the force required for pull-out of a metal insert or disc.

The equipment consists of a 100kN hydraulic extraction unit with a pump, a 0-100kN precision gauge and a support ring.

Supplied with 10 steel discs 25 mm according to EN and carrying case.

Weight:
18 Kg



HR561

HR565
DETECTION MICROSCOPE

Used to measure crack width in concrete structures, by operating via an adjustable light source. High definition unit, provided by power batteries, carrying case.
The eyepiece scale can be turned through 360° to align with the direction of the crack under detection.

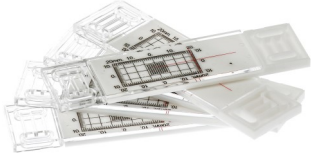
Dimensions:
150x80x45 mm
Weight:
550 g

HR565

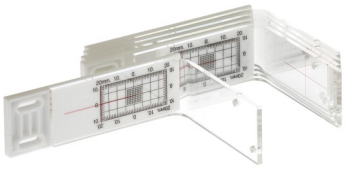
CRACK WIDTH GAUGES

Manufactured with two partially overlapping plates one on top of the other. The upper plate is engraved with a grid, while the lower one is calibrated in millimeters. We offer four different versions to measure the width of cracks in walls, corners, floors and the difference in level between two surfaces. Supplied in sets of 5 units.

HR567-01
Crack width gauges for walls
HR567-02
Crack width gauges for corners
HR567-03
Crack width gauges for floors
HR567-04
Crack width gauges for difference of level



HR567-01



HR567-02

FLAT JACKS

To determine the in-situ stress, deformability and resistance characteristics of masonry.
The flat jacks are rectangular or oval.

STRESS TEST (1 FLAT JACK)
Two datum points are fixed across a mortar joint and the distance between the points is measured.
After that, a horizontal cut is carried out level with the mortar layer, and it is measured the variation of the two datum points.
The flat jack must be introduced, it is pressurized in different growing phases and the variation between the datum points is measured, by determining the static load.

DEFORMABILITY AND RESISTANCE TEST (2 FLAT JACKS)
It must be done a second cut, parallel to the first one, level with the mortar layer, having a distance of 50 cm from the first cut approximately.
When two flat jacks are introduced, it starts to pressurize the two flat jacks at growing phases and measures the variation of distances of the datum points at different pressure steps allows to delineate a strength-deformation curve, obtaining elastic modulus, Poisson and breaking point values.

HR571-01

HR571-03

HR571-05

HR571-01
Rectangular flat jack 400x200x4 mm
Pressure max. 50 bar
HR571-02
Rectangular steel sheets to fill the testing cut (6 pieces)
HR571-03
Semi-oval flat jack 350x260x4 mm
Pressure max. 50 bar
HR571-04
Semi-oval steel sheets to fill the testing cut (6 pieces)
HR571-05
Stopcock high pressure
HR571-06
Hydraulic hand pump
HR571-07
Flexible rubber tuve 3 m
HR571-08
Flexible rubber double tube 2 and 3 m to connect two jacks
HR571-09
Manometer 0-60 bar fixed to the pump

STRAIN MEASUREMENT

ASTM C426 | BS 1881:206

This apparatus used to determine changes in length was originally designed for use with concrete structures, but can also be used with any other type of structure, including steel.

The equipment consists of an analog or digital comparator with a resolution of 0,001, a calibration bar where the reference disc is fixed, adhesive for the discs, 50 reference discs and a case.

HR573-13

LENGTH	ANALOG	DIGITAL
100 mm	HR573-01	HR573-11
200 mm	HR573-02	HR573-12
300 mm	HR573-03	HR573-13
600 mm	HR573-04	HR573-14

HR575
SWING ARM DEFLECTOMETER

Used for determining the deflection of bridges, ceilings or any suspended structure.

Carrying case comprising:
-3 Swing arms with clamps
-3 Wire coil 20 m
-3 Dial gauges 30x0,01 mm
-3 Plumb weights

HR575

CISTERNS FOR LOAD TESTS

Made of flexible polystyrene covered in PVC, they are used to load the structure and measure its deflection.
Includes connector, flexible tube and ball valve.

CODE	CAPACITY	DIMENSIONS	WEIGHT
HR579-01	1000 L	240x145 cm	10 Kg
HR579-02	2500 L	240x280 cm	16 Kg
HR579-03	5000 L	240x400 cm	25 Kg
HR579-04	10000 L	340x490 cm	40 Kg

HR579-05
ELECTRONIC LITRE-COUNTER FOR CISTERNS

It measures and displays the quantity of water.

HR579-05

HR579-02

MG003
DIGITAL SYSTEM FOR TESTING STRUSTURES

The determination of deflection of ceilings, bridges or any suspended structure can be easily performed using this modern digital system.

This independent data acquisition unit, equipped with graphic display, high sensitivity keyboard and removable SD memory, is also ideal for acquisition from different types of sensors. The unit automatically performs test and data processing.

Contained in a practical and sturdy watertight carrying case, can be powered from an electrical network 90-270V or use the internal battery and charger granting one full day on-site use.

Three deflectometers are recomended to correctly perform a test.

HR577
DEFLECTOMETER WITH TELESCOPIC TRANSDUCER

Used to determine the deflection under known loads of bridges, ceilings or any suspended structure.This instrument grants very accurate and reliable test results with data acquisition through digital unit MG003.

One telescopic deflectometer consists of an aluminium telescopic tubular anodized frame having 1700 mm mimimum height and 6000 mm maximum extensión; a linear potentiometric displacement transducer with spring system,fixed on the base of the telescopic tubular frame, with measurements in compression 50 mm stroke and 0,01 mm resolution; a tripod supporting the telescopic tubular displacement transducer and 10 m extension cable.

Weight: 6 Kg

ACCESSORY

MG020-50
Calibration process of one deflectometer

HR591
CROSS HOLE EQUIPMENT

The equipment is aimed to investigate the foundation piles of buildings, which, with the use of cross- hole ultrasonic pulses, allows accurate, high-resolution tests to be carried out. An ultrasonic wave is sent from a transmitter to a receiver and is conveyed automatically by the device along the entire length of the pile via the pipes embedded into it during casting. The speed of the sonic wave and its energy are strongly influenced by the quality of the concrete and it is therefore possible to assess the characteristics and give a tomographic representation in 2D and 3D.

The test can be carried out for any kind of foundation or concrete structure that has two or more access pipes that can hold water. The CSL can also be applied to submerged piles and structures that do not have internal pipes but can be fi tted with external pipes. The computer tomographic imaging tests are carried out when the defects detected are critical and require an in-depth study.

The Crosshole system compounds:
-Portable computerized unit
-Acquisition card high-speed data
-Crosshole software for data acquisition and analysis
-Tripod for hanging the lifting mechanism
-2 interchangeable probes (transmitter and receiver)
-An ultrasound pulse generator to excite the transmitter
-Amplifying systems and cabling for the CSL test
-Two cable coils for 80 metres of usable cable

These components are inter-connected by cables to form a complete system.

SECTION SU

SOILS

Proeti offers a very wide variety of equipment necessary to prepare bases and sub-bases of the land to carry out the different civil engineering works. You will find different equipment for sampling, extraction and classification.

The different machines related to soil mechanics are also offered, thanks to which engineers are able to reproduce models that are very similar to the real situation on the ground. These machines and equipment perform geotechnical tests such as consolidation, resistance to direct shear and triaxial, complying with all the requirements of international standards.

On the other hand, you will also find the Proeti Soilmatic line. It combines quality, precision, reliability and intelligence. These equipments have been developed by our engineers in close collaboration with research centers and universities. They incorporate those details and features that only the end user knows. They are made-to-measure equipment that allows you to multiply the productivity of your laboratory or develop and implement your research projects at the highest level. All of this with the EDS software.

HAND AUGERS

ASTM D420, D1452 | AASHTO T86, T202

Augers are used for general exploration in soil investigation to obtain samples that are representative of each layer of material. Made of special plated steel, they have a 'T' handle with a 1 m shaft.

CODE	DIAMETER
SU011	Ø 80 mm
SU013	Ø 100 mm
SU015	Ø 150 mm

ACCESSORIES

SU010-01
Extension rod for above 1 m long

SU015 SU013 SU011

SU033
MACKINTOSH PROSPECTING EQUIPMENT

It is particularly useful for initial site investigation work in remote areas. The equipment is capable boring to a 10 - 12 m depth depending on ground conditions.
Equipment consists of:
-12 Boring rods 1 m long
-2 Pipe wrench and 1 tap wrench
-Core tube adaptor
-Clay core tube
-Driving head
-Clearing rod
-2 Long and short driving point
-Auger tool
-Standard core tube
-Lifting/driving tool
-Hammer, die nut and hand tap
-Carrying case

Dimensions: 1050x260x120 mm
Weight: 35 Kg

SU033

SU031
SOIL PROSPECTING EQUIPMENT

ASTM D420 | ASTM D1452 | AASHTO T86

This kit comprises different augers, sampler and tools for soil investigations. The kit consists of:
-3 auger head Ø80, Ø100 and Ø150 mm
-Edelman type head Ø150 mm
-Gravel auger head Ø50mm
-Extension rod 1 m long with "T" handle
-Soil sampler Ø38 mm
-5 extension rods 1 m long
-5 stainless steel sample tubes Ø38x230 mm
-12 cap ends for sample tubes Ø38x230 mm
-Hand extruder for sample tubes Ø38x230 mm
-2 wrenches
-Wooden carrying case

Dimensions: 1140x490x360 mm
Weight: 50 Kg

SU031

SU021
AUGER POWER HEAD

Motor capacity 3 HP, two strokes, without speed inverter. Fitted with two handwheels, to be used just by one operator. Drilling holes up to Ø 200 and maximun depth of 1000 mm.

Motor: 2 CV
Weight: 10 Kg

ACCESSORIES

SU021-01
Auger Ø100x1000 mm
SU021-02
Auger Ø150x1000 mm
SU021-03
Auger Ø200x1000 mm

SU021

SU021-01 SU021-02 SU021-03

SU035
DYNAMIC CONE PENETROMETER
ASTM D 6951-03

This apparatus has been designed for the rapid in-situ measurement of the structural properties of existing road pavements constructed with unbound materials. Correlations have been established in earlier work between the TRL penetrometer and so that results can be interpreted and compared with CBR specifications. The test is performed with continuous penetrations at 800 mm depth with max. depth of 2 m by using extension rods.

The penetrometer set, housed in carrying case, consists of:
-Drop sliding hammer 8 kg, falling height of 575 mm
-Impact anvil with driving rod
-Penetration rod with conical 60° point and Ø20 mm
-Bar wrench, spanners, accessories.

Dimensions: 1210x340x190 mm
Weight: 29 Kg

SU035

SU037
LIGHTWEIGHT DYNAMIC PENETROMETER
DIN 4094

Used to establish the thickness of different strata, when testing compaction works and to determine the relative density of fills and naturally deposited non-cohesive soils. In general if the ground is not too compact, penetration tests can be carried of about 8 to 12 metres.

The penetrometer set, housed in carrying case, consists of:
-Drop rammer 10 Kg, 500 mm fall and anvil
-11 sounding rod Ø22x1000 mm with threaded
-Collar and guiding rod
-Grooved rod to extract samples
-2 drive point 90°, 5 cm^2 and 10 cm^2 surface
-Lifting device for sounding rod

Dimensions: 1080x360x220 mm
Weight: 72 Kg

SU037

SU041
SOIL SAMPLER Ø38 MM

This apparatus is designed for taking undisturbed Ø38 mm samples in soft and fine soils. Comprises a 'T' handle with shaft extension rod 900 mm.

Weight: 7 Kg

ACCESSORY
SU041-01
Hand extruder for Ø38 mm sample tubes

SURFACE SOIL SAMPLER

The sampling tube is driven into the soil by using the rammer dropping on the driving dolly. The sampled specimen is trimmed weighed and dried; the density and the moisture content % is calculated.

CODE	DIMENSIONS	STANDARD
SU043	Ø73x66 mm	ASTM D2937 | CNR 22
SU045	Ø100x130 mm	BS 1377:9
SU047	Ø150x130 mm	BS 1377:9


SU041

SU043

SU045

SU051
EQUIPMENT FOR INSPECTION ON SITE
ASTM D2573

Used to determine the shear strength of soils on-site, from undrained cohesive soft soils, to firm non-fissured soils.

The instrument consists of a T-handle cylindrical body where a torsional spring is housed, and three interchangeable vanes of 16x32, 20x40, 25,4x50,8 mm.

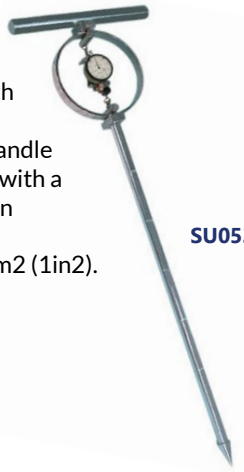
The vane is inserted into the soil for 60 mm approx., and the max. torque value is measured on a collar attached to the shaft. It is supplied calibrated with calibration certificate and carrying case.

Measuring range:
0 - 240 kPa
Dimensions:
500x300x100 mm
Weight:
4 Kg

SU051

SU053
LOAD RING PENETROMETER

Used for measuring the bearing strength and degree of compaction of soils.
The apparatus consists of a T-shaped handle connected to a 1 kN (100 kgf) load ring with a maximum load pointer, and an extension rod with five 100 mm graduations.
The 30° end cone has an area of 645 mm2 (1in2).



SU053

Weight:
5 Kg

SU055
PROCTOR PENETROMETER
ASTM D1558

Used to determine in field the moisture-penetration resistance relationship of fine grained soils.
Spring load scale 0-40 kg, subdivisions of 1 kg, with direct maximun value reading in Kg on the sliding rod.

Supplied with 9 interchangeable stainless steel needles with diameters:
4,52|5,23|6,40|9,07|12,83|16,54|20,22|24,79|28,55 mm
accessories and carrying case.

Weight:
5 Kg

SU055

POCKET PENETROMETERS
ASTM D 2573-94 | AASHTO T202

SU061
STANDARD POCKET PENETROMETER
Penetrometers are used to quickly and easily obtain an approximate measurement of shear strength for cohesive and semi-cohesive soils.

Measuring range:
0-4,5 kgf/cm2
Plunger:
Ø6,35 mm
Weight:
300 g

SU063

SU061

SU063
POCKET PENETROMETER
Identical to model SU061 but:

Measuring range:
0-16 kgf/cm2
Weight:
800 g

SU065
DIAL POCKET PENETROMETER
For the classification of cohesive soft soils in terms of consistency, shear strength and approximate unconfined compression strength.

Range:
0 a 6 kgf/cm2
Plunger:
Ø6,35 mm
Weight:
300 g

SU065

SU067
PENETROMETER WITH GRADUATED SPHERE
Identical to model SU065 but:

Range: 1-14 kg f/cm²

SU069
GEOPOCKET DIAL PENETROMETER
Designed for a quick determination of the foundation soils, from clay to sandy soils.
It indicates:
-The angle of internal friction (sandy soils)
-The cohesion “c” and the unconfined compressive strength.

Dual scale:
0-6 | 0-11 kgf/cm2
Plungers:
Ø6,4|10|15|20|25 mm
Weight:
400 g

SU069

WATER LEVEL INDICATORS

Utilized to measure the water level in boreholes, wells and any open underground structures.

Battery operated, the cable is marked at cm. intervals, drum mounted and the stainless steel tip has diameter of 10 mm.

CODE	LENGTH
SU071	50 m
SU073	100 m
SU075	200 m

SU073

SU081
MOTORISED HYDRAULIC EXTRUDER

EN 13286-2, 13286-47 | ASTM D698, D1587, D1883
BS 598, 1377:4, 1924:2

Used for a smooth and rapid extrusion of soil samples from tubes also of thin walls with minimum disturbance. The hydraulic piston is equipped of speed adjuster and can be stopped in any position.

Supplied with rings and tampers to extrude samples of Ø38,1 (11/2"), 83, 100 mm.

Power supply: 230 V | 50 Hz | 1300 W
Maximum load: 70 kN
Sample diameter: from Ø35 up to 150 mm
Maximum stroke: 900 mm
Dimensions: 2741x635x1200 mm
Weight: 160 Kg

ACCESSORIES

Adaptors (ring and tamper) for SU081 and SU083.

CODE	LENGTH
SU080-01	35 mm
SU080-02	50,8 mm - 2"
SU080-03	76,2 mm - 3"
SU080-04	101,6 mm - 4"
SU080-05	150 mm

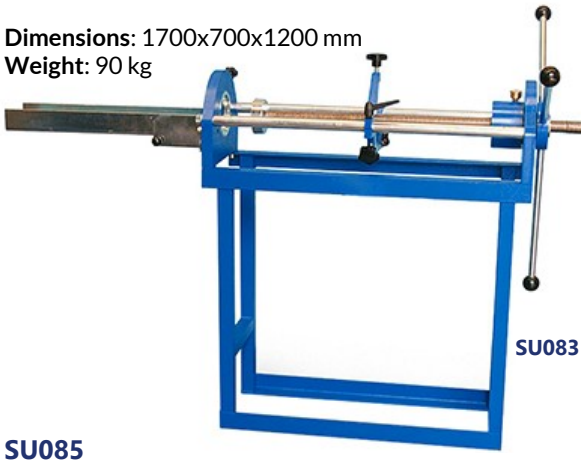
SU081

SU083
SCREW EXTRUDER

EN 13286-2, 13286-47 | ASTM D698, D1587, D1883
BS 598, 1377:4, 1924:2

Extrudes samples from Ø 35 to 101,6 mm with maximum stroke of 650 mm.
Supplied with adaptors to extrude samples having diameter 38,1 (11/2"), 83, 100 mm, supporting bench, sample receiving table both adjustable in height and lowerable.

Dimensions: 1700x700x1200 mm
Weight: 90 kg



SU083

SU085
UNIVERSAL EXTRUDER

Hand operated, actuated by a hydraulic jack, it is designed to extrude samples having Ø4" and 6".
It can therefore extrude Marshall, CBR, Standard and Modified Proctor specimens.

Dimensions: Ø300x500 mm
Weight: 32 Kg

SU085

SU091
SAMPLES REDUCTION EQUIPMENT

ASTM D421 | BS 1924:1 | BS 1337:2

The pestle and mortar are used to gently break down soil samples into individual particles for chemical tests.

SU091

HR455
MELTING POT

Used to melt wax to seal the ends of soil samples and other materials, the melting pot can also be used to melt the capping compound for concrete cylinders.

HR455

SU087
SOIL DIE CUTTER | SAMPLER

Used to prepare soil samples and to fit them into the relevant cells to perform triaxial,consolidation, shear, unconfined tests.

Upper plate: Ø120 mm
Vertical daylight: 470 mm
Dimensions: 500x300x900 mm
Weight: 30 Kg

SU087

ACCESSORIES

Table of hollow punches and tampers.

CELL	DIMENSIONS	HEIGHT	HOLLOW PUNCH	TAMPER
Consolidation	Ø 50,47 mm	20 mm	SU101-01	SU101-11
Consolidation	Ø 63,50 mm	20 mm	SU101-02	SU101-12
Consolidation	Ø 71,40 mm	20 mm	SU101-03	SU101-13
Consolidation	Ø 75,00 mm	20 mm	SU101-04	SU101-14
Consolidation	Ø 79,80mm	20 mm	SU101-05	SU101-15
Consolidation	Ø 112,80 mm	25 mm	SU101-06	SU101-16
Permeable Consolidation	Ø 50,47 mm	20 mm	SU103-01	SU103-11
Permeable Consolidation	Ø 63,50 mm	20 mm	SU103-02	SU103-12
Permeable Consolidation	Ø 71,40 mm	20 mm	SU103-03	SU103-13
Permeable Consolidation	Ø 75,00 mm	20 mm	SU103-04	SU103-14
Permeable Consolidation	Ø 79,80mm	20 mm	SU103-05	SU103-15
Permeable Consolidation	Ø 112,80 mm	25 mm	SU103-06	SU103-16
Direct Shear	Ø 50 mm	23 mm	SU105-01	SU105-11
Direct Shear	Ø 60 mm	23 mm	SU105-02	SU105-12
Direct Shear	Ø 63,5 mm	23 mm	SU105-03	SU105-13
Direct Shear	Ø 100 mm	23 mm	SU105-04	SU105-14
Direct Shear	60x60 mm	23 mm	SU105-05	SU105-15
Direct Shear	100x100 mm	23 mm	SU105-06	SU105-16
Triaxial	Ø 38 mm	76 mm	SU107-01	SU107-11
Triaxial	Ø 50 mm	100 mm	SU107-02	SU107-12
Triaxial	Ø 70 mm	140 mm	SU107-03	SU107-13
Triaxial	Ø 100 mm	200 mm	SU107-04	SU107-14

SU089
SOIL LATHE

Designed to reduce by trimming the diameter of a soil sample unitil reaching the desired diameter size by using a wire saw.
The lathe is hand-operated, the height is adjustable up to 230 mm, and it accepts samples from Ø 38 to 110 mm.

Supplied with three sets of platens for samples and wire saw.

Dimensions:
Ø460x720 mm
Weight:
20 Kg

SU089

SU093
COLOR STANDARD GLASS SCALE

ASTM C40

Used for determining the organic impurities in fine aggregates by the colorimetric method together with the organic impurities test bottles.
5 colored glass mounted in plastic holder.

Weight: 150 g

ACCESORIES

MG401-04
Graduated impurities test bottles, 500 ml (ASTM C40)
MG401-05
Graduated impurities test bottles, 1000 ml

SU093

MG401-05

SU095
SOIL COLOUR CHARTS

The book of charts is laid out in a way that makes soil colour evaluations quick and easy, and using it enables practitioners from a wide range of professions to share reliable and consistent information about the colour of soils at a particular site.

SU095

BA055
PLANETARY MIXER 10 L

This large capacity mixer have been designed to mix samples for tests where uniformity is required. A robust device for the efficient mixing of asphalt mixes, this model is a table mounted unit with planetary mixing action and a bowl and whisk that are easily fitted and removed.

The mixer is supplied with spiral, blade and whisk beaters and a stainless steel bowl.

Power supply:
750 W
Timer:
0-30 min
Dimensions:
410x523x688 mm
Weight:
44 Kg

BA055

BA063
LABORATORY PLANETARY MIXER 20 L

A robust device for the efficient mixing of asphalt mixes, this model is table mounted units with planetary mixing action and a bowl and whisk that are easily fitted and removed.

The machine operates with a dedicated and easy to use display and keyboard interface. Either Standard speeds or user defined speeds can be easily selected (also adjustable during mixing).

The front grill, when opened, automatically stops the machine for operator protection conforming to CE requirements. Supplied with bowl and whisk.

Power supply: 220 V | 50 Hz | 1 Ph | 750 W
Dimensions: 605x735x1180 mm
Weight: 95 Kg

BA067
LABORATORY PLANETARY MIXER 30 L

Same as model BA063 but 30 L capacity.

Power supply:
220 V | 50 Hz | 1 Ph | 1100 W
Dimensions:
605x735x1180 mm
Weight:
100 Kg

BA063

AR217
DIGITAL UNIVERSAL CARBIDE METER

BS 6576 | AASHTO T217 | ASTM D4944

For a rapid and accurate determination of moisture content in sand, gravel, aggregates, soil etc, based on the calcium carbide method.

The bottle is calibrated and equipped with a surface thermometer. The glass ampoule containing the calcium carbide is broken when the bottle is closed and shaken, granting better accuracy to the test.

The instrument comprises the testing bottle with manometer, small balance, 25 ampoules of reagent, accessories and carrying case.

Measurement system: Digital manometer 3 bar
Supported samples: 10g - 20g - 50g - 100 g

AR217

AR211
SPEEDY MOISTURE TESTER

ASTM D4944 | AASHTO T217

For accurate moisture reading on field of soil, sand, aggregates.

The sample is introduced into the bottle with the reagent and the water in the sample reacts with calcium carbide and produces a gas, the pressure of which is indicated on the manometer and easily converted into the percentage of moisture.

Supplied with an electronic balance, other accessories and carrying case.

Capacity: 6 g
Moisture range: 0 - 20%
Weight: 6 Kg

AR211

AR213
SPEEDY MOISTURE TESTER

Same as model AR211 but 20 g capacity.

Weight: 6 Kg

SU111
ACIDITY TEST KIT

For determining, by titration, the total acidity of water caused by mineral and organic acids.

SU111

SU113
CHLORIDE TEST KIT

For determining, by titration, the chloride content in water and waste water.

SU113

SU115
HARDNESS TEST KIT

For determining the water total hardness.

SU115

SU117
ALKALINITY TEST KIT

For determining the total alkalinity of water.

SU117

CHLORIDE CONTENT
BS 812:117 | BS 1377:3

Used to estimate the chloride content in aqueous solutions, sand and fine aggregates.

SU121
Chloride strips range 0,005% to 0,1% (30 to 600 ppm)(40 pcs)
SU123
Chloride strips range 0,05% to 1% (300 to 6000 ppm)(40 pcs)

SULFATE CONTENT
BS 1377:3

Used to determine the sulphate ions in aqueous solutions of sand and fine aggregates.

SU125
Sulfate strips range 200 to 1600 mg/l (100 pieces)

SU119
ION EXCHANGE DEVICE
BS 1377:3

Used for determining the sulphate content of ground water and aqueous soil extracts, the apparatus consists of an ion exchange column 400 mm long and 10 mm diameter, a swan-neck outlet and a 1500 ml round-bottomed flask to give a constant head. Supplied assembled on a stand.

Dimensions: 190x110x600 mm
Weight: 5 Kg

SU119

ACCESSORY

SU119-01
Ion exchange resin 500 g

SU119-01

AR219
END-OVER-END SHAKER
BS 1377:2

This method applies to soils containing up to 10% of particles retained on a 37.5 mm sieve, it rotates two gas jars at 50 r.p.m.

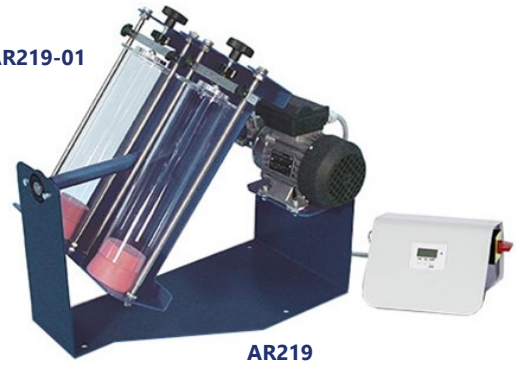
The shaker is equipped with an original friction device conforming the unit to CE Safety Directive. Supplied without gas jars to be ordered separately.

Power supply: 230 V | 50 Hz | 150 W
Dimensions: 550x430x500 mm
Weight: 20 Kg

ACCESSORIES

AR219-01
Gas jar to determine the specific gravity of soils
AR219-02
Rubber bung for the gas jar
MG043
Separate control panel with on/off switch and timer

AR219-01
AR219-02



AR219

SU121

SU125

MG309
POCKET PH METER 0-14 pH

A simple pH tester for routine measurements.

Supplied with:
-2 pH 4,01 calibration solutions
-2 pH 7,01 calibration solutions
-pH electrodes
-2 cleaner solutions
-Batteries

MG309

MG311
DIGITAL PH-TEMPERATURE METER

A pH tester for quick and accuracy pH and temperature measurements with non-replaceable electrode.

Supplied with:
-pH 4,01 calibration solution
-pH 7,01 calibration solution
-Cleaner solution
-Batteries

Range pH: 0-14 pH
Temperature range: 0,0-50,0°C

MG311

MG313
PORTABLE PH-ORP-TEMPERATURE METER

This professional, waterproof meter accurately measures pH, ORP and temperature. Built-in diagnostic features for the most precise measurements and logging so you never miss a measurement is the perfect tool for environmental and industrial testing.

Supplied in a rugged carrying case with:
-pH Electrode
-pH 4,01 calibration solution
-pH 7,01 calibration solution
-Cleaner solution
-Beaker
-Software
-Micro USB
-Battery

Dimensions:
185x93x35 mm
Weight:
400 g

MG313

MG315
MULTIPARAMETRIC METER PH-CE-OD

Advanced pH-meter with high accuracy and versatility which can measure pH, conductivity and dissolved oxygen through its digital electrodes.

Supplied with:
-Benchtop docking station with electrode holder
-Wall mount cradle
-USB cable
-Adaptador alimentación 5 VDC
-2 pH 4,01 calibration solutions
-2 pH 7,01 calibration solutions
-2 pH 10,01 calibration solutions
-2 cleaner solutions
-pH electrode

Dimensions:
202x140x13 mm
Weight:
250 g

MG315

MG307
EC-TDS CONDUCTIVITY METER

A waterproof meter for measuring Conductivity, Total Dissolved Solids (TDS) and Temperature easy to use with replaceable electrodes.

Supplied with
-EC/TDS probe
-Electrode replacement tool
-Batteries

EC range: 0 - 3999 uS/cm
Resolution: 1 uS/cm

TDS range: 0 a 2000ppm (mg/L)
Resolution: 1 ppm (mg/L)

Temperature range: 0 - 60°C
Resolution: 0,1°C

Weight: 100 g

MG307

SPECIFIC GRAVITY BOTTLE

BS 1377:2 | ASTM D854 | AASHTO T100 | NF P94 054

This method involves determining the particle density of soils consisting of clay, silt and sandsized particles (BS 1377:2) and the specific gravity of soils that pass the 4.75 mm sieve (ASTM D854), using small pyknometers.

MG375-02
Gay Lussac Pyknometer 50 ml
MG375-03
Gay Lussac Pyknometer 100 ml
MG375-04
Gay Lussac Pyknometer 250 ml

MG375-03 MG375-04

AR101
PYKNOMETER WITH CONE

BS 177:3 | BS 812

This method applies to soils containing particles up to medium gravel size and uses a large pyknometer.
Glass pyknometer 1 L with non corrodible metal cone and rubber seal.

Weight: 500 g

AR101

DESICCATORS

Supplied with perforated porcelain plate.

MG421-02 MG423-03

Desiccators without vacuum

CODE	CAPACITY	DIMENSIONS
MG421-01	4 L	Ø210x300 mm
MG421-02	6 L	Ø240x350 mm
MG421-03	10 L	Ø300x400 mm

Desiccators with vacuum

CODE	CAPACITY	DIMENSIONS
MG423-01	4 L	Ø210x308 mm
MG423-02	6 L	Ø240x358 mm
MG423-03	10 L	Ø300x408 mm

CE221
DIGITAL WATER BATH 40 L

BS 1377:2

The water bath is used to maintain particle density test specimens at a consistent temperature.

Power supply: 230 V | 50-60 Hz | 1200 W
Temperature range: from ambient to 60°C
Internal dimensions: 510x350x230 mm
Overall dimensions: 680x420x420 mm
Weight: 28 Kg

CE221

AR097
BLUE METHYLENE TEST SET

EN 933-9 | NF P94-068

Utilized to determine the clay content in the fine portions of the aggregates. The set comprises:

AR097-01
Electric stirrer from 400 to 700 rpm with Ø70 mm propeller
AR097-02
Support base for stirrer
AR097-03
Burette 50 x 0,1 ml with stopcock
AR097-04
Support base for burette
AR097-05
Pan 200x150x80 mm
AR097-06
Filter paper Ø90 mm (pack of 100)
AR097-07
Glass rod Ø8x300 mm
AR097-08
2000 ml beaker
AR097-09
Methylene blue 100 g
AR097-10
Kaolinite 500 g

Weight: 10 Kg

AR097-20 AR097

ACCESSORY

AR097-20
Automatic dispenser 0-10 ml x 0,1 ml grad

SU131
PARTICLE SIZE DISTRIBUTION (HYDROMETER)
ASTM D422 | AASHTO T88

Hydrometers are used for determining the particle size distribution of very fine materials such as silt and clay.

The set comprises:
-6 Hydrometer jar 1000 ml
-Glass tank 600x300x380 mm
-Thermostat with cooling coil 230 V | 50-60 Hz
-Soil hydrometer 151 H, range 0,995 to 1,038 g/ml
-Soil hydrometer 152 H, range –5 a 60 g/l
-Thermometer range 0 - 50°C
-Beaker pyrex 250 ml
-Sodium Hexametaphosphate 1000 g
-High speed stirrer 10.000 r.p.m.

Weight: 60 Kg

SU131

ACCESSORIES

SU130-01
Nomographic chart for Stoke law determination
MG041
Separate control panel with switch according to CE

SU133
PARTICLE SIZE DISTRIBUTION HYDROMETER METHOD
NF P94-057 | BS 1377:2

Similar to SU131 equipment except for:

-6 Hydrometer jar 2500 ml, div 500-1500-2000 ml
-Hydrometer range 0,995 to 1,030 g/ml
-Manual stirrer 600 mm in compliance with NF

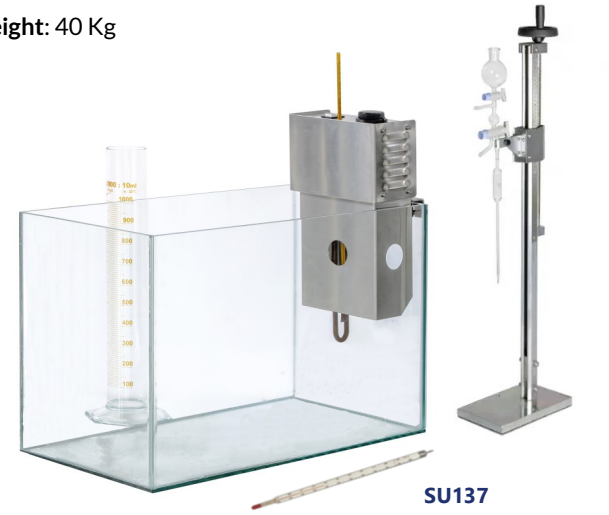
SU133

SU137
PIPETTE METHOD
BS 1377:2

Pipettes are used for determining the particle size distribution of very fine soils.

The set comprises:
-Andreasen pipette 10 ml
-Pipette stand
-Sedimentation cylinder 500 ml
-Evaporating dish Ø90x50 mm
-Glass tank 600x300x380 mm
-Thermostat with cooling coil 230 V | 50-60 Hz
-Thermometer range 0 - 50°C

Weight: 40 Kg



SU137

ACCESSORY

MG041
Separate control panel with switch in compliance with CE

AR103
SAND ABSORPTION CONE AND TAMPER
EN 1097-6 | BS 812

Used to determine the specific gravity and water absorption of fine aggregates.

Weight: 500 g

AR103

SU151
SAND EQUIVALENT TEST (BASIC SET)
EN 933-8 | NF XP18-598

SU150-01
Measuring cylinder engraved at 100 - 380 mm (4 pieces)
SU150-03
Rubber stopper for cylinder (2 pieces)
SU150-04
Graduated rule 500 mm, stainless steel
SU150-05
Metallic funnel, conforming to EN and NF Specifications
SU150-07
Measuring can 200 ml capacity
MG525-01
Plastic bottle 5 litres capacity
SU150-09
Irrigator tube with stopcock and syphon assembly EN
SU150-11
Weighted foot assembly for sand level EN
SU150-15
Concentrated stock solution 1000 ml

Weight: 5 Kg

ACCESSORY
SU150-18
Carrying case

SU151

SU153
SAND EQUIVALENT TEST
EN 933-8 | NF XP18-598

SU150-01
Graduated cylinder 100 y 380 mm (5 pieces)
SU150-03
Rubber stopper for cylinder (2 pieces)
SU150-04
Graduated rule 500 mm stainless steel
SU150-05
Metallic funnel, conforming to EN and NF Specifications
SU150-07
Measuring can 200 ml capacity
MG525-01
Plastic bottle 5 litre capacity
SU150-09
Irrigator tube with stopcock and syphon assembly EN
SU150-11
Weighted foot assembly for sand level EN
SU150-15
Concentrated stock solution, 1000 ml
T1150
Sieve Ø200 mm opening 2 mm
MG901
Stop watch
SU150-17
Clamp stand set to hold the syphon assembly with bottle
SU150-19
Plastic case 550x250x400 mm

Weight: 18 Kg

SU153

SU150-20
MOTORIZED SAND EQUIVALENT SHAKER WITH SECURITY CABINET
EN 933-8 | ASTM D2419 | AASHTO T176
NF XP18-598 | CNR N.27

The unit provides a constant uniform shaking with automatic cycle test. Equipped with steel safety cabinet, in compliance with CE Directive. When opening cabinet door while shaker is working a microswitch automatically stops the machine.

Power supply: 230 V | 50 Hz | 250 W
Dimensions: 700 x 360 x 350 mm
Weight: 30 Kg

SU150-20

SU155
SAND EQUIVALENT TEST (BASIC SET)
ASTM D2419 | AASHTO T176

SU150-02
Graduated cylinder 100 and 380 mm (4 pieces)
SU150-03
Rubber stopper for cylinder (2 pieces)
SU150-04
Graduated rule 500 mm stainless steel
SU150-06
Funnel, wide mouth
SU150-08
Measuring can 85 ml
MG525-01
Plastic bottle 5 litre capacity
SU150-10
Irrigator tube with stopcock and syphon assembly ASTM
SU150-12
Weighted foot assembly for sand level ASTM
SU150-15
Concentrated stock solution 1000 ml

Weight: 5 Kg

ACCESSORY
SU150-18
Carrying case

SU155

SU157
SAND EQUIVALENT TEST
ASTM D2419 | AASHTO T176

SU150-02
Graduated cylinder 100 and 380 mm (5 pieces)
SU150-03
Rubber stopper for cylinder (2 pieces)
SU150-04
Graduated rule 500 mm stainless steel
SU150-06
Funnel, wide mouth
SU150-08
Measuring can 85 ml
MG525-01
Plastic bottle 5 litre capacity
SU150-10
Irrigator tube with stopcock and syphon assembly ASTM
SU150-12
Weighted foot assembly for sand level ASTM
SU150-15
Concentrated stock solution 1000 ml
T1159
Sieve Ø200 mm opening 4,75 mm
MG901
Stop watch
SU150-17
Clamp stand set to hold the syphon assembly with bottle
SU150-19
Plastic case 550x250x400 mm

Weight: 18 Kg

SU157

SU150-21
MOTORIZED SAND EQUIVALENT SHAKER
ASTM D2419 | AASHTO T176 | NF XP18-598 | CNR N.27

Identical to model SU150-20 but without safety cabinet.
It cannot be sold in CE markets.

SU150-21

SU161
CONE DIAL PENETROMETER

BS 1377:2 | NF P94-052-1 | CEN ISO/TS 17892-06, 17892-12

Used to determine the moisture content at which clay soils pass from a plastic to a liquid state (liquid limit). The result can also be used to evaluate the undrained shear strength.

The cone penetrometer consists of:
-Aluminium base with levelling screws and spirit level
-Chromed vertical rod with micrometric displacement device
-Dial gauge Ø150 mm , graduated in 360°, division 0,1 mm
-Free fall slider, made of brass
-Stop and release push button
-Automatic zero set
-Stainless steel penetration test cone 35 mm long, 30° angle
-Weight 20 g
-Two brass cups Ø55x35 mm and 70x45 mm

Dimensions: 220x170x410 mm
Weight: 13 Kg

SU163
SEMIAUTOMATIC CONE DIAL PENETROMETER

BS 1377:2 | NF P94-052-1 | CEN ISO/TS 17892-06, 17892-12

Same as SU161 but equipped with a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the cone during the 5 seconds test.

Power supply: 230 V | 50-60 Hz | 200 W
Dimensions: 220x280x410 mm
Weight: 15 Kg

SU165
CONE DIGITAL PENETROMETER

BS 1377:2 | NF P94-052-1 | CEN ISO/TS 17892-06, 17892-12

Same as SU161 but with digital readout of the penetration values which has readings in mm and inch, with 0,01 mm resolution, LCD 5 digits display, with zero set in any position.

SU167
SEMIAUTOMATIC CONE DIGITAL PENETROMETER

BS 1377:2 | NF P94-052-1 | CEN ISO/TS 17892-06, 17892-12

Same as SU165 but equipped with a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the cone during the 5 seconds test.

ACCESORIES FOR PENETROMETERS SU161...SU167:

SU160-01
Test gauge to check the condition of the cone point 30° angle
SU160-02
Mirror to facilitate the height adjustment of the cone
SU160-03
Test cone 60° angle and 60 g weight
SU160-04
Test gauge to check the condition of the cone point 60° angle
SU160-05
Weight 320 g to be added to the 30° cone (shear strength)
SU160-06
Sample cup Ø55x40 mm aluminum made (BS 1377:2)

SU171
CASAGRANDE APPARATUS
ASTM D4318 | AASHTO T89 | BS 1377:2 | UNE 7377

Casagrande apparatus are used as an alternative to the cone penetrometer, to determine the moisture content at which clay soils pass from a plastic to a liquid state (the liquid limit).

This method evaluates the relationship between the moisture percentage of a soil sample and the number of blows required to close a groove made into the soil, and therefore to determine when a clay soil changes from a plastic to a liquid state.

The unit comprises a removable brass cup, a bakelite base, a cam device which drops the cup on the base, and a drop counter.

Weight: 3 Kg

SU173
CASAGRANDE APPARATUS MOTORIZED
ASTM D4318 | AASHTO T89 | BS 1377:2 | UNE 7377

Similar to SU171 but motor operated.

Power supply: 230 V | 50 Hz
Weight: 4,5 Kg

SU171

SU173

SU170-01...SU170-04

SU175
CASAGRANDE APPARATUS
NF P94-051-1

Similar to SU171 but bakelite base and chromed cup in compliance with French standard.

SU177
CASAGRANDE APPARATUS MOTORIZED
NF P94-051-1

Similar to SU175 but motor operated.

Power supply: 230 V | 50 Hz
Weight: 4,5 Kg

SU175

SU170-03

SU177

ACCESSORIES FOR CASAGRANDE:

SU170-01
Grooving tool ASTM D4318
SU170-02
Grooving tool AASHTO T79
SU170-03
Grooving tool NF P94-051
SU170-04
Grooving tool BS 1377:2
SU170-10
Rough brass cup with central smooth band 10 mm wide (NF)

SU170-10

SU181
LINEAR SHRINKAGE
BS 1377:2

The purpose of this test is to determine the linear shrinkage of the fraction of a soil sample passing a 425 µm test sieve by measuring the change in length of the bar of soil as it dries out.

Mould to produce a specimen of Ø12,5x140 mm

Weight: 500 g

SU181

SU183
SHRINKAGE LIMIT

ASTM D427 | AASHTO T92 | BS 1377:2
NF XP94-060-1 | UNE 103-108

This test is performed to determine the maximum moisture content at which the soil stops shrinking when dried.

Supplied in a plastic case containing:
-Shrinking plates Ø45x12,7 mm (2 pieces)
-Crystallizing dish Ø57x32 mm
-Shrinkage plexiglass prong plate with three metal prongs
-Glass evaporating dish Ø120 mm
-Graduated cylinder 25 ml
-Flexible spatula 100 mm

Dimensions:
390x300x100 mm
Weight:
2 Kg

SU183

SU185
PLASTIC LIMIT

ASTM D4318 | AASHTO T90 | BS 1377:2
NF P94-051 | UNE 103-104

This test is for determining the moisture content of a soil at the boundary between the plastic and semi-solid states.

The set is supplied in a carrying case containing:
-Glass plate 300x250x10 mm
-Rod caliper Ø3 mm
-Mixing porcelain dish Ø120 mm
-Flexible spatula 100 mm
-Aluminium moisture tins Ø55x35 mm (6 pieces)

Dimensions:
400x340x100 mm
Weight:
5 kg

SU185

ACCESSORIES

SU185-01
Glass plate 105x50 mm according to NF P94-051
SU185-02
Glass plate 500x500x10 mm

SU201
DIGITAL RESISTIVITY METER 0,01Ω TO 10 MΩ

ASTM G57 | ASTM G187 | AASHTO T-288

When combined with appropriate electrodes and test leads, the Resistivity meter can be used to measure earth resistance with the push of a button.
Depending on the number of electrodes, the equipment can be used to determine the following:

-The average earth resistivity to a specific depth
4 electrodes required
-The resistivity of a soil sample or of a liquid
4 electrodes required
-The resistance-to-earth of a buried electrode
3 electrodes required
-The resistance between two buried electrodes
2 electrodes required

SU201

ACCESORIES

SU201-01
Resistivity meter test Kit
Including:
-Soil Box 280 ml
-Soil container test leads set
-Set of 4-Pin Test Reel leads
-Set of 4-Pin soil resistivity test reel
-4 Heavy-duty, stainless steel T-handle
-Soil pins
-Rugged plastic carrying case


SU201-01

SU205
SEISMOGRAPH 24 CHANNELS

This apparatus is a compact-sized 24 channel seismograph with a 24 bit data acquisition board. It is a reliable, affordable solution for all professional uses.
Connected to your PC laptop or tablet, it becomes a seismic tool that is simple to use with top-level performance.
This device consumes very little and is powered directly from the PC, guaranteeing a long day of work on-site.
This seismograph can acquire using geophones with any resonance frequency (even 1Hz).
To get 48 simultaneous channels, just connect two seismographs to the same PC using the correct accessories.

Number of channels: 24 canales
Input impedance: 2 MOhm | 22 nF
Dynamic range: 144 dB
Distortion: 0,007%

SU205

SU205-01

SU205-02

ACCESSORIES

SU205-01
Seismic cables for refraction/surface reflection

SU205-02
Shielded cable on reel 130m for starter geophone

HR591
CROSS HOLE EQUIPMENT

The equipment is aimed to investigate the foundation piles of buildings, which, with the use of cross- hole ultrasonic pulses, allows accurate, high-resolution tests to be carried out. An ultrasonic wave is sent from a transmitter to a receiver and is conveyed automatically by the device along the entire length of the pile via the pipes embedded into it during casting. The speed of the sonic wave and its energy are strongly influenced by the quality of the concrete and it is therefore possible to assess the characteristics and give a tomographic representation in 2D and 3D.

The test can be carried out for any kind of foundation or concrete structure that has two or more access pipes that can hold water. The CSL can also be applied to submerged piles and structures that do not have internal pipes but can be fi tted with external pipes. The computer tomographic imaging tests are carried out when the defects detected are critical and require an in-depth study.

The Crosshole system compounds:
-Portable computerized unit
-Acquisition card high-speed data
-Crosshole software for data acquisition and analysis
-Tripod for hanging the lifting mechanism
-2 interchangeable probes (transmitter and receiver)
-An ultrasound pulse generator to excite the transmitter
-Amplifying systems and cabling for the CSL test
-Two cable coils for 80 metres of usable cable

These components are inter-connected by cables to form a complete system.

HR591

SU211
NUCLEAR DENSITY-MOISTURE GAUGE

ASTM D6938, D2950, D7013, D7759, C1040 | AASHTO T310

This device is an advanced, yet easy to operate moisture density gauge designed for all operators ranging from new technicians to those with advanced density testing experience.

The mechanical design includes a machined, aluminum base and a rugged, polycarbonate topshell designed to withstand the demands of the toughest construction and environments. A Cesium 137 source measures density while an Americium 241: Beryllium source measures humidity.

The apparatus is loaded with simple, user friendly functions. Density, moisture and other required field parameters are automatically calculated and displayed and can be stored under specific user designed projects.

Nuclear gauge features a simple operator interface, a large backlit LCD display, illuminated keypad, precision machined base and is designed with reliable, surface-mount electronics.

The battery pack is designed to provide weeks of operation and is integrated with a 9V battery for backup. The data can be easily downloaded to a computer, printer or written to a USB flash drive.

SU211

Density range: 70 to 170 pcf (1,120 to 2,73 gcc)
Moisture range: 0 to 40 pcf (0 to 0,64 gcc)
Memory Storage: 10 Projects with 40 readings each
Dimensions: 678x358x248 mm
Weight: 13 Kg

ACCESSORIES

SU210-01
Drill pin
SU210-02
Rod guide - Scraper plate

SU210-02

SU210-01

SU221
NON-NUCLEAR DENSITY GAUGE SDG 200
ASTM D7830

Designed to operate with standard soils used in civil construction projects.

This device requires inputs from standard:
-Liquid Limit, Plastic Limit, Plasticity Index (ASTM D4318)
-Particle Size Distribution (ASTM D422)
-Proctor Test (ASTM D698 and D1557)

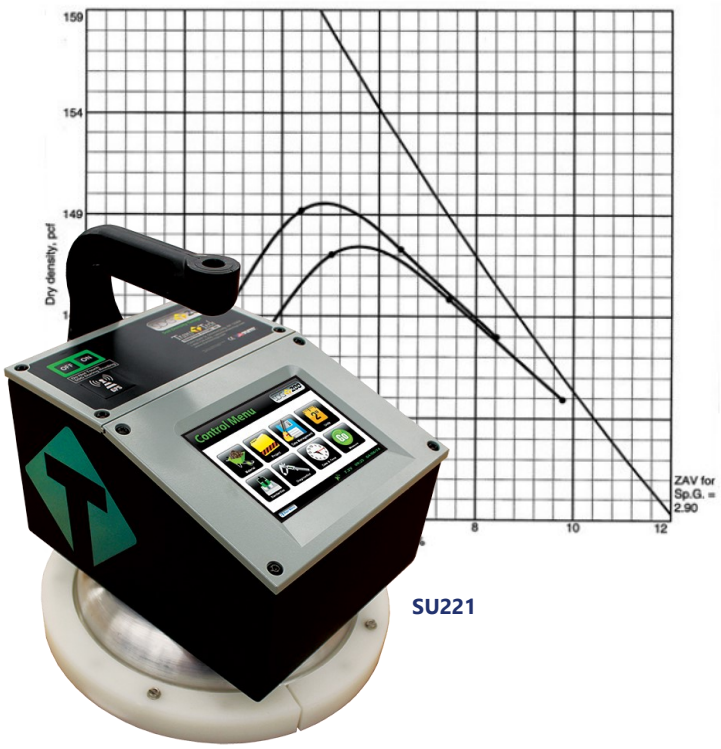
The operating system offers fast, accurate and repeatable readings in real time. Full color graphics driven user interface, 480x640 touch screen display with LED backlight for easy visibility in daylight or dark situations. Interchangeable units settings for density (kg/m3, lb/ft3) and temperature (°C,°F).

Ability to upload and download files via USB drive.
Stores up to 20 materials, details include:

-Material Name	-% Gravel
-Description	-% Sand
-Maximum Dry Density	-% Fines
-Optimal Moisture	-Plastic Limit
-Dry Density Offset	-Liquid Limit
-% Moisture Offset	-Cu
-% Greater than 3”	-Cc
-% Greater than 3/4”	

The sensing area (Ø279 mm) allows optimum measurement on fine and coarse material types and its measurement depth of 300 mm has been designed for use on a standard uncompacted layer of soil during or after compaction.

When activated GPS will display latitude and longitude positions, number of satellites the gauge is connected to as well as the UTC date and time. GPS information will store with each measurement when Data save feature is enabled.

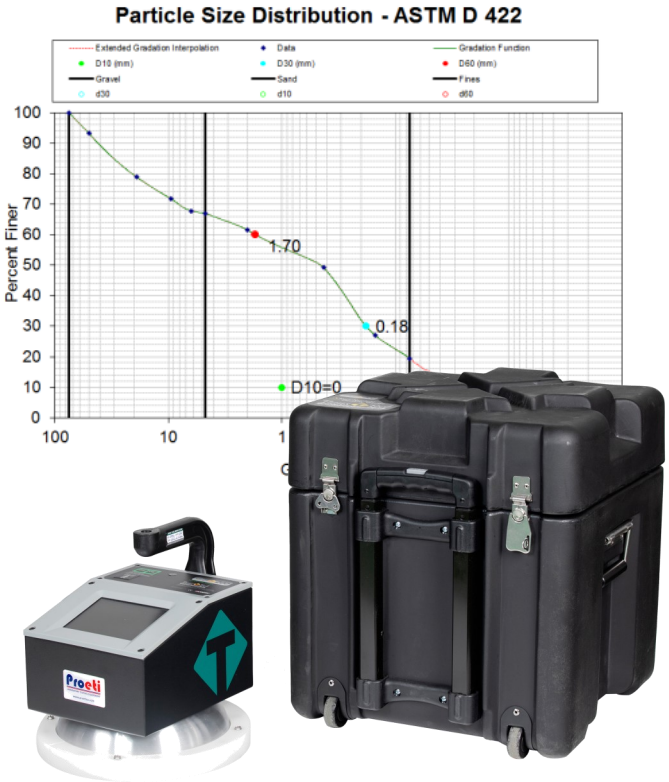


SU221

Most important, Non-Nuclear means no badges, licenses or storage and transport concerns.

The equipment is supplied with interhangeable batteries easily to change in field, a battery charger and carrying case.

Dimensions: 279x279x304 mm
Handle length: 736 mm
Recharge time: 4 h
Weight: 6 Kg



SU221

Used for determining the relationship between the moisture content and density of compacted soils. Steel made with mould body, collar and base; plated against corrosion.

CODE	PROCTOR	STANDARDS	DIMENSIONS	WEIGHT
SU250-11	Standard	EN13286:2 | DIN	Ø100x120 mm	9 Kg
SU250-12	Split Standard	EN13286:2 | DIN	Ø100x120 mm	7,5 Kg
SU250-21	Modified	EN13286:2 | DIN	Ø150x120 mm	13 Kg
SU250-22	Split modified	EN13286:2 | DIN	Ø150x120 mm	12,5 Kg
SU250-13	Standard	ASTM|AASHTO|CNR|NF	Ø101,6x116,4 mm	4,5 Kg
SU250-14	Split Standard	ASTM|AASHTO|CNR|NF	Ø101,6x116,4 mm	5 Kg
SU250-23	Modified	ASTM|AASHTO|CNR	Ø152,4x116,4 mm	10 Kg
SU250-24	Split modified	ASTM|AASHTO|CNR	Ø152,4x116,4 mm	10 Kg
SU250-15	Standard	BS	Ø105x115,5 mm	5 Kg
SU250-25	Modified	NF	Ø152x152 mm	10 Kg
SU250-30	Large size	EN13286:2 | DIN	Ø250x200 mm	32 Kg

PROCTOR RAMMERS

Used to compact the soil sample into the mould.
The rammers are steel made, plated against corrosión.

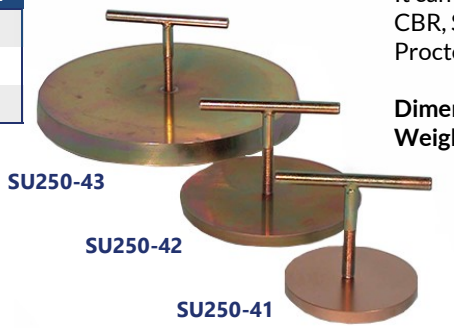
CODE	PROCTOR	STANDARDS	FALL HEIGHT	DIAMETER	RAMMER	WEIGHT
SU250-17	Standard	EN13286:2|BS	305 mm	Ø50 mm	2,5 Kg	5 Kg
SU250-27	Modified	EN13286:2|BS	457 mm	Ø50 mm	4,5 Kg	8 Kg
SU250-18	Standard	ASTM|AASHTO|CNR|NF	304,8 mm	Ø50,8 mm	2,495 Kg	5 Kg
SU250-28	Modified	ASTM|AASHTO|CNR|NF	457,2 mm	Ø50,8 mm	4,536 Kg	8 Kg
SU250-31	Large size	EN13286:2	600 mm	Ø125 mm	15 Kg	23 Kg

COMPACTION DISK

EN 13286:2 | DIN 18127

Used to compact the EN moulds, it is supplied with T handle, plated against corrosion.

CODE	DIAMETER	WIDTH
SU250-41	Ø99,5 mm	10 mm
SU250-42	Ø149,5 mm	10 mm
SU250-43	Ø249,5 mm	20 mm



SU085
UNIVERSAL EXTRUDER

Hand operated, actuated by a hydraulic jack, it is designed to extrude samples having Ø4" and 6".

It can therefore extrude Marshall, CBR, Standard and Modified Proctor specimens.

Dimensions: Ø300x500 mm
Weight: 32 Kg

SU251
AUTOMATIC PROCTOR - CBR COMPACTOR

EN 13286-47 | ASTM D698, D1557, D1883 | DIN 18127
AASHTO T99, T180, T193 | BS 1377:4, 1990, 1994
NF P94-093, P94-066 | UNE 7365, 7255, 103-501-94

This microprocessor-controlled soil compaction tester is designed for Proctor and CBR moulds.

This programmable,microprocessor-controlled model is particularly suitable for laboratories purposes as it is possible to program a user-defined compaction sequence and a sequence conforming to standards.

The software gives the possibility to program customized sequences allowing the user to select and perform different compaction cycles with turntable rotation granting a precise and uniform blows distribution.

The digital control panel is separate from the machine and it can be fixed to the wall or mounted on a bench. The digital unit is easy to use, friendly menu driven, versatile, of simple and practical maintenance. The high resolution graphic display visualizes selected Standard, total number of blows, effected and remaining ones to end the test, and execution of each layer.

The lift system of the rammer can be selected at 12" or 18", and at 300 or 450 mm, granting a correct and constant fall height. Rammer drop speed is 1 blow each 2 seconds.

The compactor accepts moulds having Ø4" and 6", 100 and 150 mm. The machine includes an universal mould fixing system and safety guards in compliance with CE Directive, if the door is opened when the device is working, it stops automatically.

The machine is supplied without rammers to be ordered separately and selected according to the desired Standard.

ACCESORIES

RAMMERS (EN | BS | DIN)
SU251-01
Standard rammer Ø50 mm and 2,5 Kg
SU251-02
Modified rammer Ø50 mm and 4,53 Kg

RAMMERS (ASTM | NF | CNR | AASHTO)
SU251-11
Standard rammer Ø50,8 mm and 2,49 Kg
SU251-12
Modified rammer Ø50,8 mm and 4,53 Kg

RAMMERS (AS 1289)
SU251-21
Standard rammer Ø50 mm and 2,7 Kg
SU251-22
Modified rammer Ø50 mm and 4,9 Kg

SU251-11 SU251-12

SU251-05
Safety guards to CE Directive
If the door is opened when the compactor is working, it stops automatically.

SU251-05

SU251

Power supply: 230 V | 50 Hz | 500 W
Dimensions: 610x470x1710 mm
Weight: 200 Kg

SU251-07
Noise reduction cabinet
The cabinet is manufactured from sheet steel and lined internally with soundproofing material to considerably reduce the noise. If the door is opened when the compactor is working, it stops automatically.

Dimensions:
740x730x1900 mm
Weight:
80 Kg

SU251-07

SU251

SU255
VIBRATING COMPACTION HAMMER
EN 12697-9 | EN 12697-10 | EN 12697- 32 | EN 13266-4
BS 1377:4 | BS 1924:2

Double insulated motor, trigger handle, for asphalt compaction in the percentage refusal density test. It can be used also for the compaction of Proctor and CBR specimens.

Power supply: 230 V | 50-60 Hz | 720 W
Dimensions: 105x430x270 mm
Weight: 6 Kg

ACCESSORIES

SU255-01
Support frame for vibrating hammer
Made of steel and protected against corrosion.

Dimensions: 500x320x1100 mm
Weight: 75 Kg

SU255-03
Ø146 mm head

SU255

SU255-01 SU255-03

SU261
MOISTURE CONDITION APPARATUS
EN 13286-46 | BS 1377:4

Used in the assessment of earthworks for construction by comparing compaction characteristics at various moisture contents in order to determine the moisture condition value.

This robust apparatus is designed for use in the construction laboratory and incorporates a rammer, scale, counter and mould.

Weight: 60 Kg

SU261

SU271
RELATIVE DENSITY OF COHESIONLESS SOILS
EN 13286-5

This method, in the EN standard, covers the determination of the maximum dry density and water content of cohesionless materials when compacted using a vibrating table. Materials for which this method is applicable may contain up to 12% fines (<0.063 mm) by mass. The maximum particle size of the material to be tested is 80 mm. This method applies to mixtures to be used in road construction.

The set is composed of:
-Relative density mould 14 L with accessories
-Surcharge weight and base with handle for the 14 L mould
-Vibrating electromagnetic table with separate control panel
Dimensions: 762x762 mm
Vibration frequency: 3600 r.p.m.
Amplitude range: 0,05 to 0,64 mm
Load capacity: up to 250 Kg
Power supply: 230 V | 50-60 Hz

Total weight: 290 Kg

SU271

SU273
RELATIVE DENSITY OF COHESIONLESS SOILS
ASTM D4253, D4254

The ASTM also specifies that the method is used for the determination of the relative density of cohesionless soil for which impact compaction will not produce a well-defined moisture/ density relationship curve and where the maximum density of the impact method will generally be less than by the vibratory method.

The set is composed of:
-Relative density mould 0,5 ft^3 with accessories
-Surcharge weight and base with handle for 0,5 ft^3 mould
-Relative density mould 0,1 ft^3 with accessories
-Surcharge weight and base with handle for 0,1 ft^3 mould
-Relative density gauge measuring set
-Vibrating electromagnetic table with separate control panel
Dimensions: 762x762 mm
Vibration frequency: 3600 r.p.m.
Amplitude range: 0,05 to 0,64 mm
Load capacity: up to 250 Kg
Power supply: 230 V | 50-60 Hz

Total weight: 310 Kg

SU273

FIELD DENSITY SAND REPLACEMENT METHOD

ASTM D1556 | AASHTO T191 | NF P94-061-3
UNE 7371 | CNR N° 22

The verification of the degree of compaction can be determined on site with a simple procedure that essentially involves removing and weighing a section of compacted soil and then refilling the hole with sand.

A simple apparatus is used to record the volume of sand, and then the density of the removed soil can be calculated.

SU275-02

CODE	DESCRIPTION	CONTAINER
SU275-01	Tray and funnel Ø4” - 102 mm	SU275-11
SU275-02	Tray and funnel Ø6” - 152 mm	SU275-12
SU275-03	Tray and funnel Ø12” - 305 mm	SU275-13

ACCESSORIES

SU270-01
Standard sand 25 Kg

SAND REPLACEMENT METHOD

BS 1377:9 | BS 1924:2

Identical to the method according to ASTM and AASHTO but designed according to the BS.

The equipment consists of a plugged sand pouring cylinder made of cast and machined aluminium, upper cylinder, metal tray with central hole for housing the cone.

Calibration container is an optional accessory.

SU277-02

CODE	DESCRIPTION	CONTAINER
SU277-01	Cylinder and tray Ø100 mm	SU277-11
SU277-02	Cylinder and tray Ø150 mm	SU277-12
SU277-03	Cylinder and tray Ø200 mm	SU277-13

STRENGTH OF STABILIZED SOIL DETERMINATION

EN 13286-53 | BS 1924:2 | NF P 94-100

These tests are performed to determine the unconfined compressive strength of fine and medium grained soils. Made of plated steel.

SU281
Strength of stabilized soil set for samples Ø50x50 mm
EN 13286-53 | BS 1924:2 | NF P 94-100
-Mould Ø50x122 mm of fine and medium grained soil
-Base and upper piston Ø50x36 mm
-Set of 2 displacing collars Ø50x5 mm
-Set of 2 displacing collars Ø50x6 mm
-Set of 2 displacing collars Ø50x8,33 mm
-Penetration and demoulding piston Ø50x125 mm
-Collecting cylinder Ø56x60 mm

SU283
Strength of stabilized soil set for samples Ø50x100 mm
EN 13286-53 | BS 1924:2
-Mould Ø50x172 mm of fine and medium grained soil
-Base and upper piston Ø50x36 mm
-Set of 2 displacing collars Ø50x10 mm
-Set of 2 displacing collars Ø50x12,5 mm
-Set of 2 displacing collars Ø50x16,66 mm
-Penetration and demoulding piston Ø50x175 mm
-Collecting cylinder Ø56x110 mm

SU285
Strength of stabilized soil set for samples Ø100x100 mm
EN 13286-53 | BS 1924:2
-Mould Ø100x242 mm of coarse grained soil
-Base and upper piston Ø100x71 mm
-Set of 2 displacing collars Ø100x10 mm
-Set of 2 displacing collars Ø100x16,66 mm
-Set of 2 displacing collars Ø100x20 mm
-Penetration and demoulding piston Ø100x20 mm
-Collecting cylinder Ø106x110 mm

SU287
Strength of stabilized soil set for samples Ø100x200 mm
EN 13286-53 | BS 1924:2
-Mould Ø100x342 mm of coarse grained soil
-Base and upper piston Ø100x71 mm
-Set of 2 displacing collars Ø100x25 mm
-Set of 2 displacing collars Ø100x33,33 mm
-Set of 2 displacing collars Ø100x50 mm
-Penetration and demoulding piston Ø100x345 mm
-Collecting cylinder Ø106x210 mm

SU285

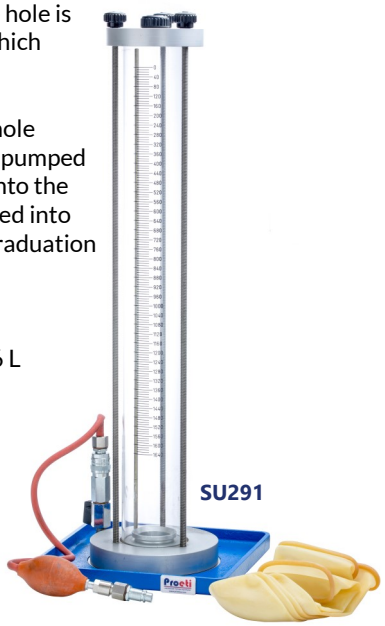
SU291
BALLOON DENSITY APPARATUS 1600 ML
ASTM D2167 | AASHTO T205 | CNR N° 22

The principle of operation is similar to the sand replacement method but the hole is filled with a rubber balloon into which water is pumped.

The apparatus is placed over the hole excavated in the soil, and water is pumped into a rubber balloon and forced into the hole. The amount of water displaced into the ballon is measured from the graduation of the scale.

The instrument consists of:
-Graduated plexiglass cylinder 1,6 L
-Rubber pump with stop valve
-Density plate
-Rubber balloons (12 pieces)

Dimensions: 340x340x700 mm
Weight: 6 Kg


SU291

SU293
BALLOON DENSITY APPARATUS 3000 ML
NF P94-061-2 L

This apparatus is used for determining the in-situ density of well-bonded soil according to NF specifications. A metal cylinder is filled with water which is then pumped into a rubber membrane mounted on the base of the cylinder, which fills a hole previously made in the soil. The water pressure is controlled by a pressure gauge and the volume of the balloon is measured on the graduated piston stem.

The unit is supplied with 6 reinforced rubber membranes, 4 locking clamps, base plate, accessories.

Dimensions: 360x360x700 mm
Weight: 10 Kg

SU295
BALLOON DENSITY APPARATUS 6000 ML
NF P94-061-2 L

Identical to S293, but with 6 litres capacity.

Weight: 15 Kg


SU293

SU269
CLEGG HAMMER
ASTM D5874-02

Used to obtain an indication of the degree of compaction of soil in road construction. Results can be directly correlated to the CBR test.

Lightweight and sturdy aluminum framed transit and storage case is provided.

Dimensions:
710x130x130 mm
Weight:
6,2 Kg


SU269

SU299
PINHOLE EQUIPMENT
ASTM D4647 | BS 1377:5

Certain fine-grained soils with a high sodium content are highly susceptible to erosion by the water flowing through them. During the dispersibility test the flow of water through a cavity in the soil under a high hydraulic gradient is reproduced.

The apparatus consists of a cylindrical container equipped at its ends with water inlet/outlet connectors, tube with graduated scale, base support with rod.

Weight: 4 Kg

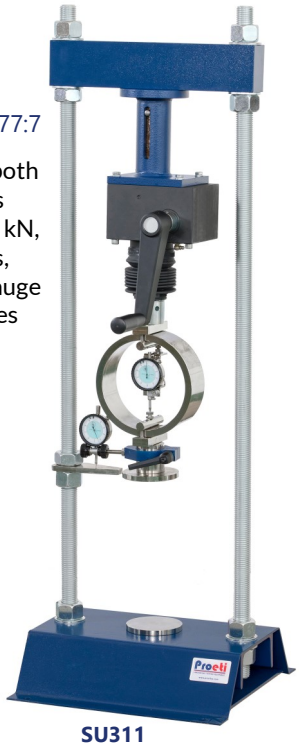
ACCESSORIES
SU401-04
Constant level tank
SU401-05
5 m tubing Ø8 mm


SU299

SU311
UNCONFINED COMPRESSION
ASTM D2166 | AASHTO T208 | BS 1377:7

It is a hand-operated tester, utilized both on site and in laboratory. It comprises a mechanical jack 50 kN, a load ring 2 kN, upper and lower compression platens, a dial gauge 10x0,01 mm and a dial gauge holder. The apparatus can test samples up to Ø80x 200 mm.

Dimensions: 380x460x1380 mm
Weight: 68 Kg


SU311

CBR (CALIFORNIA BEARING RATIO)

EN 13286-47, 13286-4 | ASTM D1883 | AASHTO T193
UNE 103-502 | NF P94-078, P94-093, P98-231-1
BS 1377:4, 1924:2

This method is used for the laboratory evaluation of subgrade and subbase coarse materials in road construction. Different models are available that conform to the various relevant specifications. The compaction test can be performed both with the manual rammers and the automatic compactors.

SU301-01...SU300-15

DESCRIPTION	EN 13286-47	ASTM D1883 AASHTO T193 UNE 103-502	NF P94-078 NF P94-093 NFP98-231-1	BS 1377:4 BS 1924:2
	Ø150x120 mm	Ø152,4x177,8 mm	Ø152x152 mm	Ø152x127 mm
CBR mould	SU301-01	SU303-01	SU305-01	SU307-01
CBR Hinged mould	SU301-02	SU303-02	SU305-02	SU307-02
Collar	SU301-03	SU303-03	SU305-03	SU307-03
Perforated base plate	SU301-04	SU303-04	SU305-04	SU307-04
Spacer disc	SU301-05	SU303-05	SU305-05	SU307-05
Perforated plate with adjustable stem	SU301-06	SU303-06	SU305-06	SU307-06
Annular surcharge	SU301-07	SU303-07	SU305-07	SU307-07
Slotted surcharge	SU301-08	SU303-08	SU305-08	SU307-08
Tripod to measure swelling	SU301-09	SU303-09	SU305-09	SU307-09
Straight edge	SU300-10			
Cutting edge	SU300-11			
Filter paper	SU300-12			
Soaking tank	SU300-15			

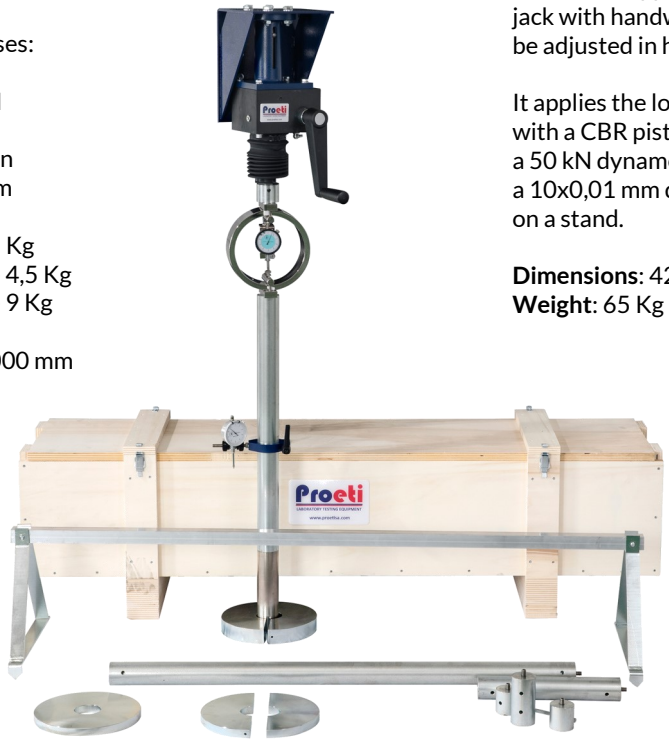
SU315
FIELD CBR TEST SET

BS 1377:9 , 1924:2 | ASTM D4429

Used for the in-situ determination of the bearing capacity of soils used in road construction.

The equipment comprises:
-Datum bar1400 mm
-Mechanical jack 50 kN
-Load ring 40 kN
-CBR penetration piston
-Dial gauge 25x0,01 mm
-Dial gauge holder
-Annular surchagge 4,5 Kg
-Two slotted surcharge 4,5 Kg
-Two slotted surcharge 9 Kg
-Extension rods:
2x100, 1x300, 600, 1000 mm
-Wooden carrying case

Weight: 70 Kg



SU315

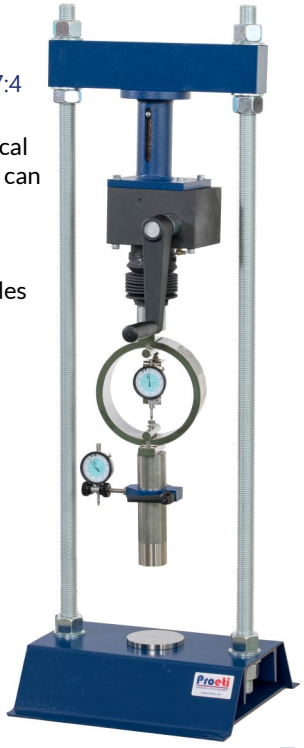
SU313
CBR LOADING MACHINE

EN 13286-47 | ASTM D1883 | BS 1377:4
AASHTO T193 | NF P94-078

The load is applied through a mechanical jack with handwheel. The upper beam can be adjusted in height.

It applies the load by a handwheel with a CBR piston. The machine includes a 50 kN dynamometric ring and a 10x0,01 mm dial indicator mounted on a stand.

Dimensions: 420x370x1180 mm
Weight: 65 Kg



SU313

SU321
DIGITAL CBR TESTING MACHINE

EN 13286-47 | ASTM D1883 | AASHTO T193 | NF P94-078

Designed to load the penetration piston into the soil sample at a constant rate of 1,27 mm/min, and to measure the applied loads and piston's penetrations at determined intervals.

This machine features a rigid two-column frame with an upper crossbeam which can be adjusted in height and locked in position with locknuts.The drive force is provided by a mechanical jack housed in the base cabinet which also houses the motor and the electric panel.

The load is measured by an electric 50kN cell with high precision strain transducers. The deformation is measured by a displacement transducer 50 mm stroke.

The digital display system measures and displays at the same time the load (stability) in kN and the deformation (flow) in mm with pick hold features and possibility to print certificates and graphics directly on a laser printer via USB or to transfer them to PC via Ethernet.

Power supply:
230 V | 50 Hz | 750 W
Dimensions:
430x380x1180 mm
Weight:
98 Kg

SU301-02

SU321

SU323
ANALOGIC CBR TESTING MACHINE

EN 13286-47 | ASTM D1883 | AASHTO T193 | NF P94-078

Designed to load the penetration piston into the soil sample at a constant rate of 1,27 mm/min, and to measure the applied loads and piston's penetrations at determined intervals.

This machine features a rigid two-column frame with an upper crossbeam which can be adjusted in height and locked in position with locknuts.The drive force is provided by a mechanical jack housed in the base cabinet which also houses the motor and the electric panel.

The load is measured by a load ring 50 kN and the deformation is measured by a dial gauge 10x0,01 mm with holder.

Power supply:
230 V | 50 Hz | 750 W
Dimensions:
430x380x1180 mm
Weight:
98 Kg

SU305-02

SU323

SU325
CBR/MARSHALL DIGITAL MACHINE

The frame is provided of three fixed speed ranges, easily selectable with a frequency changer (inverter) activated by an electric switch:
-CBR 1,00 mm/min
-CBR 1,27 mm/min
-Marshall 50,8 mm/min

The load is measured by an electric load cell 50 kN with high precision strain transducers; the flow is measured by an electronic displacement transducer 50 mm stroke and ± 0.1% linearity.

Supplied with a digital display unit load cell, displacement transducer, and holder for transducer but without accessories to be ordered separately.

Power supply:
230 V | 50-60 Hz | 750 W
Dimensions:
450x400x1200 mm
Weight:
130 Kg

ACCESSORIES

CBR TEST
SU320-01
CBR Piston
MG010-04
Bench for lateral bearing of digital display
MG030-41
Software for CBR test

UNCONFINED COMPRESSION TEST
SU310-01
Upper and lower compression platens Ø100 mm
or
SU310-02
Upper and lower compression platens Ø165 mm
MG020-01
Load cell 2,5 kN
MG010-04
Bench for lateral bearing of digital display
MG030-42
Software for Unconfined Compression test

SU327
CBR/MARSHALL ANALOGIC MACHINE

The testing frame is the same as for mod SU325, but the load is measured by a loading ring.

Supplied without load ring and accessories which have to be ordered separately.

Power supply:
230 V | 50-60 Hz | 750 W
Dimensions:
450x400x1200 mm
Weight:
130 Kg

ACCESSORIES

CBR TEST
SU320-01
CBR Piston
MG061-12S
Load ring 50 kN with electric stop safety device
MG060-01
Brake device to hold max. load
MG010-52
Dial gauge 10x0,01 mm
MG010-82
Device to fix the displacement transducer/dial

UNCONFINED COMPRESSION TEST
SU310-01
Upper and lower compression platens Ø100 mm
or
SU310-02
Upper and lower compression platens Ø165 mm
MG061-03S
Load ring 2kN with electric stop safety device
MG060-01
Brake device to hold max. load
MG010-52
Dial gauge 10x0,01 mm with holder
MG010-82
Device to fix the displacement transducer/dial

SU351
DIGITAL MULTIPURPOSE TESTER 50 KN

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
ROCKS AND STONES:
Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separetely.

SU351

Power supply: 230 V | 50-60 Hz |150 W
Adjustable testing speed: from 0,01 to 51 mm/min
Load gradient: from 1 to 15000 N/seg
Maximum ram travel: 100 mm
Daylight between columns: 380 mm
Maximum vertical daylight: 850 mm
Dimensions: 500x450x1450 mm
Weight: 130 Kg

ACCESORIES MULTIPURPOSE 50 KN FOR SOILS:

CBR TEST
EN 13286 -47 | ASTM D1883 | BS 1377:4
AASHTO T193 | NF P94-078

MG020-06
Load cell 50 kN
SU320-01
CBR piston
MG030-41
Software for CBR test


SU320-01

SU301-02

UNCONFINED COMPRESSION TEST
ASTM D2166 | BS 1377:7 |AASHTO T208

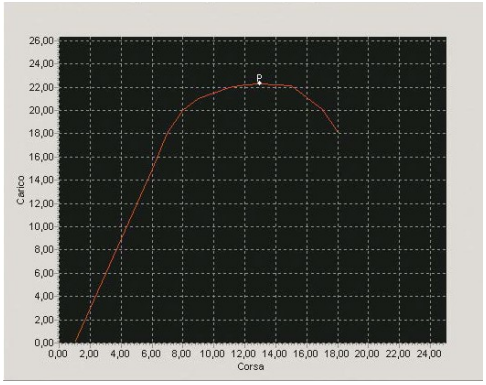
MG020-01
Load cell 2,5 kN
SU310-01
Upper and lower compression platens Ø100 mm
SU310-02
Upper and lower compression platens Ø165 mm
MG030-42
Software for unconfined compression test


SU310-01

QUICK TRIAXIAL TEST
ASTM D2850 | BS 1377

MG020-04
Load cell 20 kN
SU350-02
Loading piston with ball
SU483
Triaxial cell
MG030-47
Software for quick triaxial test


SU483



SU355
DIGITAL MULTIPURPOSE TESTER 200 KN

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile.

The versatility of the machine allows to carry out the tests:
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
Tensile on mortar briquettes
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
Duriez
ROCKS AND STONES:
Uniaxial splitting tensile
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The load is applied by a mechanical jack that is driven by a brushless motor with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

SU355

Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

Power supply: 230 V | 50-60 Hz | 850 W
Maximum vertical distance: 900 mm
Daylight between columns: 650 mm
Adjustable testing speed: from 0,01 to 100 mm/min
Load gradient: from 1 N/s to 5 kN/s
Dimensions: 950x560x2400 mm
Weight: 820 Kg

ACCESORIES MULTIPURPOSE 200 KN ON SOILS:

CBR TEST
MG020-06
Load cell 50 kN
MG020-16
Connector for 50 kN load cell
SU320-01
CBR piston
MG030-41
Software for CBR test


SU320-01


SU301-02

UNCONFINED COMPRESSION TEST
MG020-03
Load cell 10 kN
MG020-13
Connector for 10 kN load cell
SU310-01
Upper and lower compression platens Ø100 mm
SU310-02
Upper and lower compression platens Ø165 mm
MG030-42
Software for unconfined compression test


SU310-01

QUICK TRIAXIAL TEST
MG020-04
Load cell 20 kN
MG020-14
Connector for 20 kN load cell
SU350-02
Loading piston with ball
SU483
Triaxial cell
MG030-47
Software for quick triaxial test


SU483

PLATE BEARING TEST EQUIPMENT

ASTM D1194, D1195, D1196 | UNE 739, 7391
CNR N° 92, N° 146 | BS 1377:9 | DIN 18134

These test methods are used for estimating the bearing capacity of a soil under field loading conditions for a specific loading plate and depth of embedment. They also cover load tests on soil and flexible pavement components, for use in evaluation and design of airport and highway pavements.

The equipments comprises:
-Hydraulic jack with hand pump and rubber pipe
-Set of extension rods of different lengths
-Digital pressure manometer
-Upper spherical seat
-Load plate Ø300 mm
-Intermediate plate Ø160 mm
-Datum bar assembly 2,5 m, telescopic with base
-3 dial gauge 25x0,01 mm with articulated supports
-Carrying case

CODE	CAPACITY	WEIGHT
SU371	100 kN	60 Kg
SU373	200 kN	70 Kg
SU375	500 kN	110 Kg

SU373

DIGITAL PLATE BEARING TEST EQUIPMENT

ASTM D1194, D1195, D1196 | UNE 739, 7391
CNR N° 92, N° 146 | BS 1377:9 | DIN 18134

The equipments comprises:
-Hydraulic jack with hand pump and rubber pipe
-Set of extension rods of different lengths
-Pressure transducer, connected to the pump
-Data acquisition and processing system
-Software for test data processing
-Upper spherical seat
-Load plate Ø300 mm
-Intermediate plate Ø160 mm
-Datum bar assembly 2,5 m, telescopic with base
-3 Linear displacement transducers 50 mm
-3 Articulated transducer supports
-3 Extension cables 5 m for transducer
-3 Universal coupling pliers for transducers
-Carrying case

CODE	CAPACITY	WEIGHT
SU381	100 kN	60 Kg
SU383	200 kN	70 Kg
SU385	500 kN	110 Kg

SU383

ACCESSORIES

SU370-01
Load plate Ø450 mm
SU370-02
Load plate Ø600 mm
SU370-04
Load plate Ø760 mm
SU370-05
Set of telescopic estension rods
To be connected to the datum bar to obtain a max. adjustable lenght of 5.5 m as requested by ASTM, CNR

SU370-01
SU370-02
SU370-04

SU370-03
Load plate Ø600 mm in aluminum with reinforced bars
NF P94-117-1
This bearing plate is normally used, together with a hydraulic jackand the Benkelman beam apparatus, for determining the bearing capacity and deflection of road pavements.

SU370-03

PLATE BEARING TEST HIGH ACCURACY

UNE 103808:2006

These test methods are used for estimating the bearing capacity of a soil under field loading conditions on flexible pavement components. The relatively low weight and small dimensions of this apparatus make it very easy to use and to move from one place to another. The measuring bridge, made from aluminium alloy, is very light and has telescopic extensions so it can be positioned in a few minutes with minimum effort.

The equipment consists of:

-Extendable tripod and 250 and 500 mm extensions
-Load plate Ø300 mm
-Intermediate plate Ø160 mm
-Lower seat
-Attachements and extensions 250 and 500 mm
-Loading piston
-Upper spherical seat
-Hydraulic jack with hand pump
-Pressure transducers 700 bar
-3 displacement transducers de 25x0,01 mm
-3 Magnetic transducers holder
-Rubber pipe 3 m
-Digital unit for data acquisition
-Software for test data processing
-Wooden carrying case

CODE	CAPACITY
SU391	100 kN
SU393	200 kN

SU393

ACCESSORIES

SU370-01
Load plate Ø450 mm
SU370-02
Load plate Ø600 mm
SU370-03
Load plate Ø600 mm with reinforced bars according to NF
SU370-04
Load plate Ø760 mm

SU389
DYNAMIC PLATE LOAD TEST

ASTM E 2835-11 | TP BF-STB PARTE B 8.3
ZTV E-STB 2017 | RIL 836 | RVS 08.03.04

The dynamic plate load test performed with the Lightweight deflectometer is used to determine the soil bearing capacity and compaction quality of soils and non-cohesive subbases, as well as for soil improvement applications. Built-in soil layers can easily be tested without load abutment, facilitating quick assessments of test lots even under limited space conditions. The test method is suited to coarse-grain and mixed grain soils with a maximum grain size of 63mm and can be used to determine the dynamic modulus of deformation of soil in the range Evd = 15 to 70 MN/m².

Being easy to handle and providing immediate measuring results. The documentation can be printed directly at the site via the thermal printer or as a protocol printout after transferring and processing the data on a PC.

Supplied in a wooden carrying case.

Power supply:
4 x R6 Bateries
Measure range:
Evd<225 MN/m^2
Maximum impact force:
7,07 kN
Load plate diameter:
Ø300 mm
Dimensions:
210x100x45 mm
Drop weight:
10 Kg
Weight:
15 Kg

SU389

ACCESSORIES

SU389-01
Transport cart for easier on-site transport
SU389-02
Magnetic base plate
For proper positioning of loading unit.
SU389-03
Thermal printer
For documenting the test results within seconds at any time and any place.
SU389-04
Software for evaluation and processing of measurement series

SU389-01

SU401
CONSTANT HEAD APPARATUS
ASTM D2434 | AASHTO T215 | BS 1377:5

The permeability of soil is a very important factor in the study of the natural behaviour of soil with respect to water flow.
This apparatus is particularly suitable for relatively coarse-grained soil such as sands and gravel.

The equipment consists of:
-Manometer stand with 3 manometer tubes
Includes a metre scale and connecting tubing.
-Constant level tank
Made from acrylic plexiglass.


SU401

ACCESSORIES

SU401-01
Constant permeability cell Ø75 mm
With 3 pressure take-off points.

SU401-02
Constant permeability cell Ø116 mm
With 6 pressure take-off points and 6 blanked.
When using this cell, two manometer stands are required.

SU403
FALLING HEAD PERMEAMETER
CEN ISO/TS 17892-11

This apparatus is particularly suit-able for fine-grained soils such as clay-like or silty soils with a per-meability in the range of 1x10-2 to 1x10-6 cm/s.

The equipment consists of:
-Stand with three manometer tubes
Diameters of Ø3, 4 and 6 mm for the different degrees of permeability.
-Soaking reservoir with cock
-Tubing and connectors


SU490-01


SU405-01


SU403

ACCESSORIES

SU405-01
Compaction permeameter Ø4”
SU405-02
Plein base and collar Ø4” for compaction tests
SU405-11
Compaction permeameter Ø6”
SU405-12
Plein base and collar Ø6” for compaction tests
SU490-01
De-airing tank 20 litre
SU493-01
Water trap
MG747
Portable vacuum pump
MG740-02
Rubber tubing for vacuum 3 m

SU405
PERMEAMETER STAND 4 CELL CAPACITY
ASTM D2434 | AASHTO T215 | BS 1377:5

This 4 cells capacity stand is designed to perform both constant head and falling head permeability tests on compacted granular soil samples. The stand consists of a metal frame with water tank adjustable in height between 1350 and 3450 mm for constant head tests. Supplied with tubes, graduated rules, piping, connectors and cocks; but without permeameters to be ordered separately. The stand can hold up to 4 permeameters having Ø4” or 6” to perform different types of tests at the same time.

Dimensions:
1050x900x2000 mm
Weight:
75 Kg


SU405


SU405-11

SU405-01

ACCESSORIES

SU405-01
Compaction permeameter Ø4”
SU405-02
Plein base and collar Ø4” for compaction tests
SU405-03
Mould with Ø4” lateral water inlet/outlet for permeability
SU405-04
Cutting edge Ø4”
SU405-11
Compaction permeameter Ø6”
SU405-12
Plein base and collar Ø6” for compaction tests
SU405-13
Mould with Ø6” lateral water inlet/outlet for permeability
SU405-14
Cutting edge Ø6”

SU411
MARSH FUNNEL
ISO 2431

The Marsh funnel is used for routine viscosity determinations on almost every drilling rig.
It is made of rugged, shatterproof plastic that is resistant to temperature change deformation, assuring volumetric accuracy.

Supplied with a 1 liter plastic measuring cup.

Dimensions:
Ø160x370 mm
Weight:
500 g

SU411

SU413
FLOW CONE APPARATUS
EN 445 | NF P18-358, P18-507

Used for determining the flow properties of mortars, grouts, muds and many other type of fluid materials.

Mortar fluidity is considered suitable when the flow time of 1000 cc of mortar is comprised between 17 to 25 seconds.

Entirely made of brass, cone top dia is 155 mm, total length 290 mm, capacity 1700 cc.

Supplied with:
-4 interchangeable nozzles Ø8-9-10-11 mm
-Stand adjustable in heigh
-Plastic graduated cup

Weight: 10 Kg

SU413

ACCESSORIES
SU413-01
Interchangeable nozzle Ø13 mm
SU413-02
Sieve Ø150 mm mesh size 1,5 mm

SU415
SAND CONTENT OF DRILLING MUDS KIT
API, 13 B-1 and 13 B-2

A simple kit for accurate and inexpensive sieve analysis apparatus for determining the sand content of drilling muds. The kit consists of a special 200-mesh sieve 2,5" in diameter, fastened inside a collar upon which a small funnel is fitted on either end.
This is used with a 10 ml glass measuring tube, graduated to read from 0 to 20% the percentage sand by volume.
The collar and funnel are made of polyethylene and the screen is made of brass. A 500 ml wash bottle and carrying case are included.

Weight: 1500 g

SU415

SU417
MUD BALANCE
API 13 B-1 | API 13 B-2

The mud balance provides a simple method for the accurate determination of mud density, with a durable construction that makes it ideal for field use.
Principally the balance consists of a base with a fulcrum, and a graduated beam with cup, lid, weighted slider, built-in spirit level and counter-weight. The constant volume cup is affixed to one end of the graduated beam and the counter weight on the opposite end. A plastic carrying case is provided that holds the balance in its working position.

Weight: 3 Kg

SU417

SU419
FILTER PRESS FOR MUDS
API, 13 B-1 and 13 B-2

Measuring filtration behaviour and wall-coke building character-istics of fluids is essential to drilling fluid control and treatment.

This apparatus is the most effec-tive means of determining the filtration properties of drilling muds and cement slurries. It consists essentially of a mud reservoir mounted in a frame, a pressure source, a filtering medium and a graduated cylinder for receiving and measuring filtrate.

Supplied with filter paper and CO2 cartridges.

Dimensions: 200x230x480 mm
Weight: 10 Kg

SU419

SU451
FRONT LOADING OEDOMETER

ASTM D2434 | AASHTO T215 | BS 1377:5

The oedometer has been designed for consolidation tests, it determines the rate and magnitude of consolidation of a soil specimen restrained laterally and subjected to a number of successive vertical load increment.

The oedometer apparatus has a rigid aluminium alloy frame which avoids distortion under load. The lever arm assembly is supported by precision self-aligning bearings.

Maximum axial load: 17500 N
Dimensions: 480x200x820 mm
Weight: 32 Kg

SU451

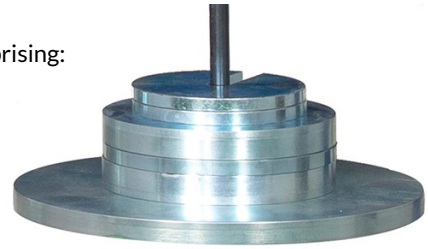
SU450-01

ACCESSORIES

SU450-01
Bench for up to 1 oedometer

SU450-03
Bench for up to 3 oedometers

SU450-05
Weight set 50 Kg comprising:
-1x0,1 kg
- 2x0,2 kg
-3x0,5 kg
-2x1 kg
-3x2 kg
-2x5 kg
-3x10 kg

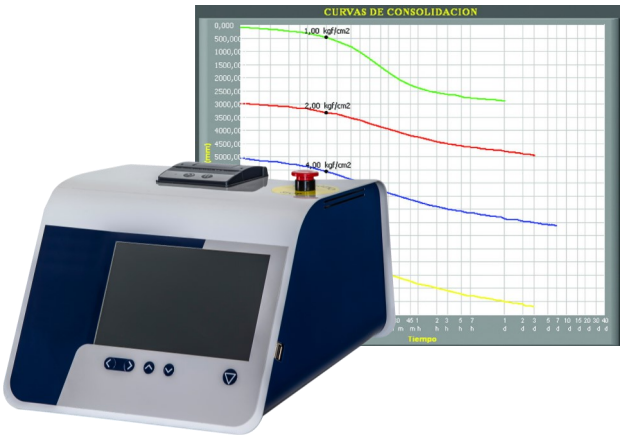


SU450-05

ANALOGIC MEASUREMENT SYSTEM
MG010-52
Dial gauge 10x0,01 mm
or
MG010-61
Digital gauge 12,7x0,001 mm

MG010-52

DIGITAL MEASUREMENT SYSTEM
MG005
Digital control unit
8 channels acquisition and processing data system (expandable to 16 channels) it automatically performs test and data processing.
MG010-30
Displacement transducer 10 mm travel
MG030-45
Software for consolidation tests



MG005 + MG005-01

MG005-01
8 cannel internal module for MG005 digital control unit
To expand the number of channels up to 16.

MG010-41
Extension cable 2 m long
MG010-42
Extension cable 5 m long
MG010-43
Extension cable 10 m long

MG005-01

CONSOLIDATION CELLS
The cells are supplied with base, methacrylate wall,
2 porous dics, load pad and cutting ring

CODE	SPECIMEN DIAMETER	SPECIMEN AREA	SPECIMEN THICKNESS
SU450-11	Ø50,47 mm	20,00 cm^2	20,00 mm
SU450-12	Ø63,50 mm	31,67 cm^2	20,00 mm
SU450-13	Ø71,40 mm	40,00 cm^2	20,00 mm
SU450-14	Ø75,00 mm	44,16 cm^2	20,00 mm
SU450-15	Ø79,80 mm	50,00 cm^2	20,00 mm
SU450-16	Ø112,80 mm	100,00 cm^2	25,00 mm

SU450-11

MG010-30

SU451

SU450-03

CONSOLIDATION CELLS - PERMEABILITY ATTACHMENT
Similar in manufacture to consolidation cells, they are also provided of a pipe connector with cock and graduated glass burette 10 ml capacity allowing to perform permeability tests.

CODE	SPECIMEN DIAMETER	SPECIMEN AREA	SPECIMEN THICKNESS
SU450-21	Ø50,47 mm	20,00 cm^2	20,00 mm
SU450-22	Ø63,50 mm	31,67 cm^2	20,00 mm
SU450-23	Ø71,40 mm	40,00 cm^2	20,00 mm
SU450-24	Ø75,00 mm	44,16 cm^2	20,00 mm
SU450-25	Ø79,80 mm	50,00 cm^2	20,00 mm
SU450-26	Ø112,80 mm	100,00 cm^2	25,00 mm

SU450-30
Stand and burette for permability tests
Recommended for soil samples having great value of permeability.
Consists of:
-Burette 50 ml subdiv. 0,1 ml
-Stand
-Clamps
-Tube to be connected to the cells SU450-21...SU450-26

SU450-21 SU450-30

SU453
SOILMATIC OEDOMETER

BS 1377:5 | ASTM D2435, D3877, D4546 | AASHTO T216
NF P94-090-1, P94-091 | UNE 103-405 | UNE 103-602

Our Proeti technical department has developed Soilmatic brand such as comprehensive range of testing machines for performing fully automatic tests on soil.

The innovative Soilmatic philosophy provides an unique equipment which allow geotechnical laboratories the complete automation of all test stages.

Here we present our Soilmatic Oedometer to automatically perform the consolidation test, which determines the rate and magnitude of consolidation of a soil specimen restrained laterally and subjected to a number of successive increments of vertical loads.

Soilmatic Oedometer consists of a small and compact load frame housing a twin chromed-column structure, a lower platen and an upper mobile crosshead moved by an electromechanical system with a single recirculating ball screw which assures smooth application of load at constant speed.

The superior quality of its components makes this device one of the top of the range currently available for consolidation testing on soils. A high precision load cell assures smooth application of load and a high performance LVDT transducer for measuring displacement. Fully PC controlled to eliminate or reduce to the absolute mínimum any forms of manual intervention, which the oedometer test requires.

In addition, the versatility of the Soilmatic Oedometer enables the user to perfom additional tests, such as:
-Lambe test UNE-103600
-Unconfined compression
-Direct shear specimens consolidation

Lambe test

Direct shear specimen consolidation

SU453

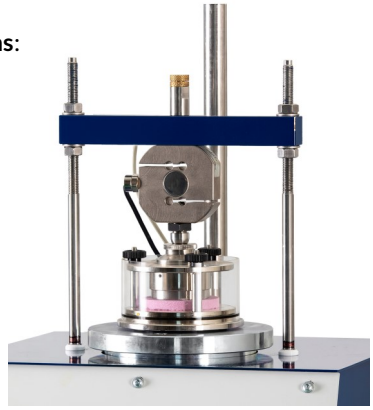
Automated loading eliminates negative factors such as operator error and manual handling of dead weights. Testing can continue 24 hours a day, 7 days a week without interruption giving greater throughput of tests with a considerable cost decrease.

PID controller allowing accurate load application ranging from 1 N to 10 kN improving pneumatic systems that are typically inaccurate at low load values. Also the PID controller provides an incremental loading which applies the consolidation loads without any human intervention. It does not require any air source.

Smaller than traditional edometers the laboratory need less space to accomodate this device. Furthermore, one single machine can reliably accomplish the task performed by various traditional oedometers. For these reasons Soilmatic Oedometer improves considerably the productivity and cost effectiveness of the laboratories.

It is supplied with 10 kN load cell, LVDT transducer 10 mm, but without edometric cells, PC, software that must be ordered separetely.

Load cell capacity:
10 kN (20 kN available on request)
Maximum vertical clearance:
100 mm
Distance between columns:
190 mm
Specimen size:
from 38 to 100 mm
Maximum ram travel:
35 mm
Power supply:
230 V | 50-60 Hz
Dimensions:
405x400x650 mm
Weight:
38 Kg



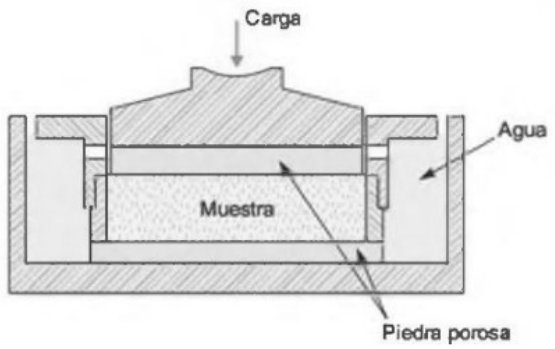
Oedometric consolidation test

SU450-95
OEDOMETRIC SOILMATIC SOFTWARE

Soilmatic software is purpose built and draws upon over 30 years of advanced materials testing experience. Using a comprehensive and user-friendly interface with easy to navigate menus to allow you to set up your test parameters with minimal hassle.

Dedicated software developed by the geotechnical experts to perform consolidation, free swelling, swelling pressure and colapse tests meeting all the requirements of the most important international standards. Aslo with the automatic oedometer the user can perform customized tests.

Fully automated system reduces time tests because enables to program many incremental loading steps.If the specimen under test tends to expand, a swelling limit can be preset: in case the pre set limit is exceeded, the system will automatically skip to the next loading step.

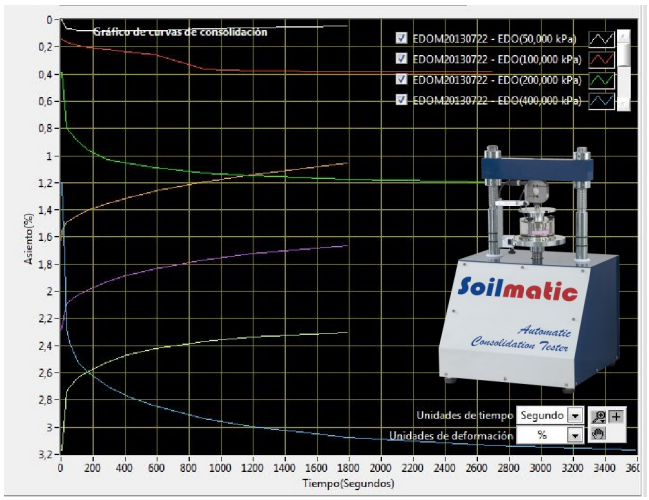


CONSOLIDATION TEST
This advanced software enables to calculate fully automated t100 value in real time during the test. The parameters can be defined by the operator with the choice of setting single or multiple steps. The user can program the test for skipping to the next loading step when the primary consolidation has been completed.

COLAPSE TEST
Automatic determination of soil volumen change when it is subjected to increases of stresses or when it is satured.

FREE SWELLING TEST
The software calculates a percentage of initial value of height increment which a confined specimen has when is subjected to a vertical load.

SWELLING PRESSURE TEST
By setting previously the parameter, the software applies different load/unload sequences to avoid the volume change of a flooded specimen. Perfoming fully automated swelling pressure test.

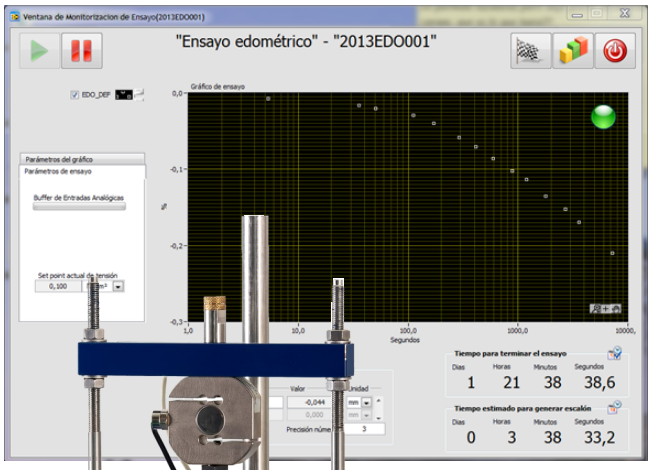


Real-time data and graph display. The software allows to Visualizes the remaining time to finish the test. Each sensor will be shown by the graphics one by one or all together. Also the user could select linear or logarithmic time ranges.

The software can control many units from a single PC, giving the operator the choice of controlling single or multiple units.

Once the software is installed with the first Soilmatic Oedometer unit, it is possible to extend the control of further units. System modularity is ensured for subsequent integrations.

Test results are recorded and displayed in real time and calculations are performed automatically. Printing and backing-up the test data in Excel and Word files to be processed using the proper Geo-Analysis.



SU450-95

SU450-11

SU453

SU457
HIGH CAPACITY SOILMATIC OEDOMETER

BS 1377:5 | ASTM D2435, D3877, D4546 | AASHTO T216
NF P94-090-1, P94-091 | UNE 103-405 | UNE 103-602

This automatic oedometer version has been designed to perform tests up to 50 kN capacity.

Accepts specimens maximum diameter up to 200 mm. By using a large sample it is possible to gain a more representative indication of the soils subjected to geotechinal analysis. Therefore is the ideal machine for laboratories and universities with research purposes.

Fully PC controlled to eliminate or reduce to the absolute mínimum any forms of manual intervention, which the oedometer test requires. Also the machine provides an incremental loading which applies the consolidation loads without any human intervention. Great advantage for academic centres and universities to avoid all load and unload operations by the students improving their security. It does not require any air source.

PID controller allowing accurate load application ranging from 1 N to 50 kN improving pneumatic systems that are typically inaccurate at low load values.

Soilmatic Oedometer consist essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw which assures smooth application of load.

Real-time data and graph display. The software allows to Visualizes the remaining time to finish the test. Each sensor will be shown by the graphics one by one or all together. Also the user could select linear or logarithmic time ranges.

Fully automated system reduces time tests because enables to program many incremental loading steps.If the specimen under test tends to expand, a swelling limit can be preset: in case the pre set limit is exceeded, the system will automatically skip to the next loading step.

SU457

Test results are recorded and displayed in real time and calculations are performed automatically. Printing and backing-up the test data in Excel and Word files to be processed using the proper Geo-Analysis.

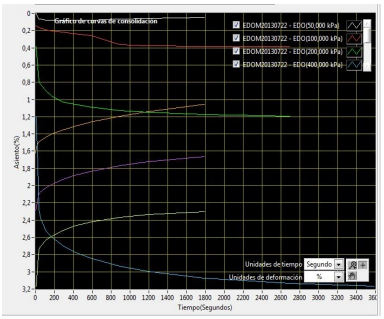
It is supplied with 50 kN load cell, LVDT transducer 10 mm, but without edometric cells, PC, software that must be ordered separetely.

Load cell capacity: 50 kN
Maximum vertical clearance: 145 mm
Distance between columns: 290 mm
Specimen size: from 38 to 200 mm
Maximum ram travel: 30 mm
Power supply: 230 V | 50-60 Hz
Dimensions: 480x550x760 mm
Weight: 82 Kg

ACCESORIES

MG031
Custom computer
Including keyboard, mouse, connection cables, installation and setting up of the purchased software.

SU450-95
Soilmatic software for edometric tests:
-Consolidation
-Colapse
-Free swelling
-Swelling pressure



SU450-06
Attachment for measuring on the top of consolidation cell
Used to measure cell deformation with higher accuracy avoiding any deviations due to platen movement.

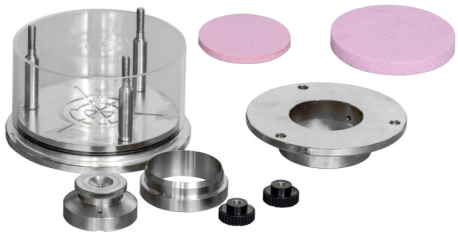
SU450-07
Attachment for measuring swelling pressure
Replacing top CAP of the consolidtion cell to calculate the swelling of the specimen. Including adjustable supports.


SU450-06


SU450-07

CONSOLIDATION CELLS

The cells are supplied with base, methacrylate wall, 2 porous dics, load pad and cutting ring.



Disassembled consolidation celldesmontada

Assembled consolidation cell

CODE	SPECIMEN DIAMETER	SPECIMEN AREA	SPECIMEN THICKNESS
SU450-11	Ø50,47 mm	20,00 cm^2	20,00 mm
SU450-12	Ø63,50 mm	31,67 cm^2	20,00 mm
SU450-13	Ø71,40 mm	40,00 cm^2	20,00 mm
SU450-14	Ø75,00 mm	44,16 cm^2	20,00 mm
SU450-15	Ø79,80 mm	50,00 cm^2	20,00 mm
SU450-16	Ø112,80 mm	100,00 cm^2	30,00 mm
SU450-17	Ø200,00 mm	315,00 cm^2	40,00 mm

SU550+SU555+SU555+SU555
SOILMATIC THREE-HIGH CAPACITY OEDOMETER

BS 1377:5 | ASTM D2435, D3877, D4546 | AASHTO T216
NF P94-090-1, P94-091 | UNE 103-405 | UNE 103-602

With this Soilmatic three-frame, your laboratory will obtain an unique fully automatic tester. Adopting this multi-frame concept maximizes laboratory productivity.

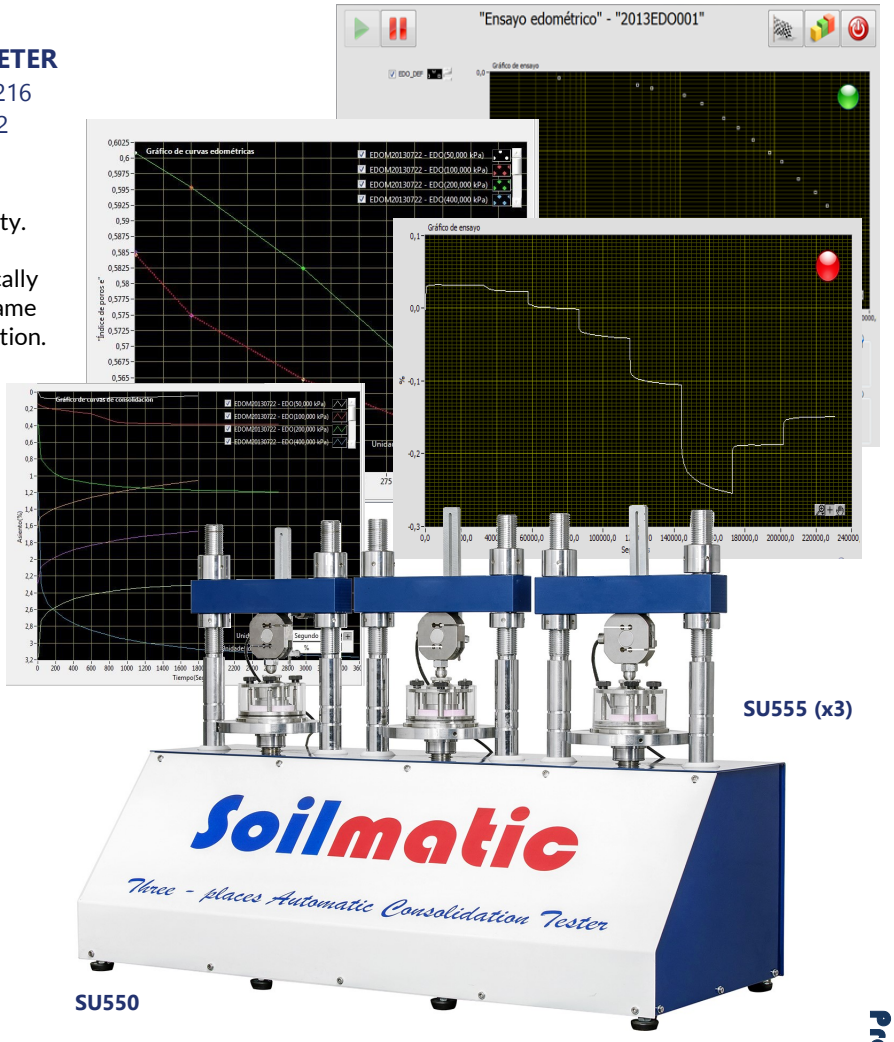
Controlled by only one PC the machine can automatically perform up to 3 entire and independent tests at the same time, from start to finish, without any human intervention.

Ideal solution for advanced and research laboratories that require high productivity.

We give here, a 3-frame Soilmatic testing machine consists of a chassis housing three high capacity oedometer frames which allows high levels of productivity in any geotechnical laboratory.

For detailed information see page 216.

Power supply: 230 V | 50-60 Hz
Dimensions: 480x550x760 mm
Weight: 82 Kg



SU555 (x3)

SU550

SU471
DIRECT/RESIDUAL SHEAR MACHINE

ASTM D3080 | AASHTO T236 | BS 1377:7
NF P94 071-1/2 | CEN-ISO/TS 7982-10

This apparatus is used to determine the resistance to shearing of all types of soil specimens including both consolidated and drained, undisturbed or remolded.

In the traditional direct shear test the soil specimen (either undisturbed, remoulded or compacted) is placed in a rigid metal box and subjected to a normal constant stress.

The metal box consists of two halves that can slide horizontally each other and will apply an increasing horizontal force to the lower part of the specimen while the upper part is reacting against the shearing action.

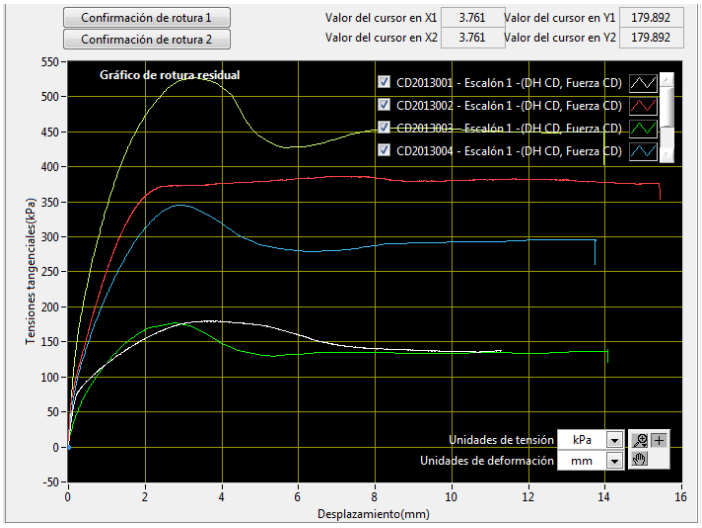
From the measurement of this shearing action the shear strength of the soil is calculated.

After a first immediate general failure, the soil will stabilize, since the soil can still offer a residual strength.

At the beginning of each test the machine performs an automatic and complete internal check including a position reset resulting in the elimination of all position errors.

The machine has an integral closed loop control motor with epicycloid reducers. A user-friendly microprocessor controlled touch screen is used to input all test patterns providing an efficient and flexible interface.

All data are input and stored when the machine is in stand-by, without affecting the specimen under test with quick machine setting.



Graphic direct-residual sheat test

Only with digital system the effects of the primary consolidation can be identified directly on the consolidation curve. Perfoms an automatic calculation of the appropriate shear velocity with selection of optimal consolidation parameters for t50, t90 and t100.

Facility for shear box maximum extension detection, to automatically stop the test.

Facility to input a different return speed (residual shear) in relation to the one used for the shear test, thus allowing a quick playback of the residual shear test, saving a lot of time.

The machine can accommodate round specimens Ø50-60-63,5-100 mm and square 60x60 and 10x100 mm. Supplied with set of 50 kg of slotted weights.

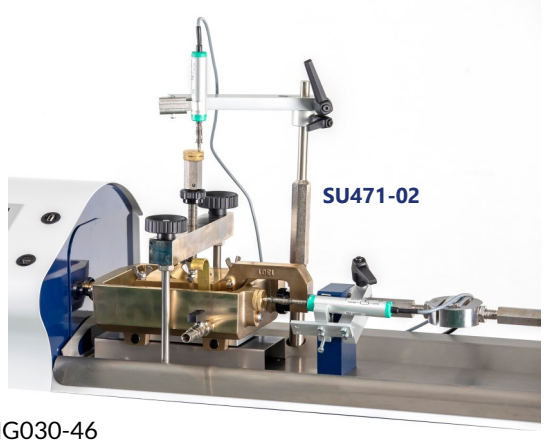
Power supply: 230 V | 50-60 Hz | 200 W
Maximum shear load: 5000 N
Max vertical direct load: 500 N
Max lever arm load: 5500 N
Shear speed: 0,00001 to 15,0000 mm/min
Dimensions:1040x420x1350 mm
Weight: 120 Kg

ACCESORIES

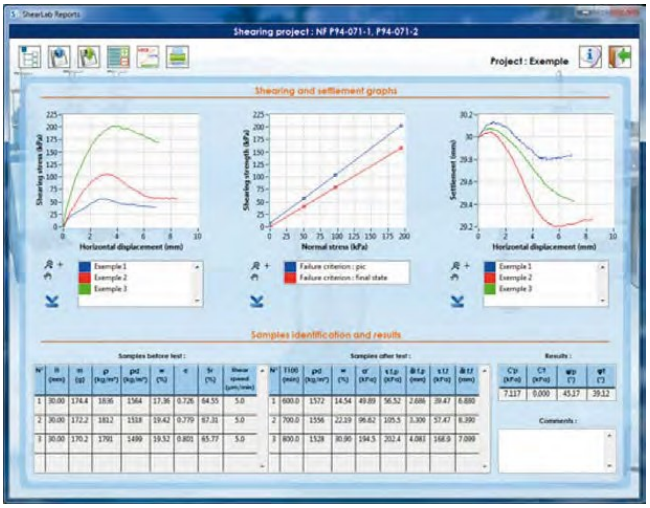
SU471-01
Dial System
Comprising:
-Load ring 5 kN with electric safety stop device
-Dial gauge 25x0,01 mm for horizontal displacement
-Dial gauge 10x0,01 mm for vertical displacement


SU471-01

SU471-02
Digital System
Comprising:
-Electric load cell 5 kN
-Linear transducer 25 mm travel for horizontal displacement
-Linear transducer 10 mm travel for vertical displacement
-Firmware activating 3 connectors for basic data acquisition


SU471-02

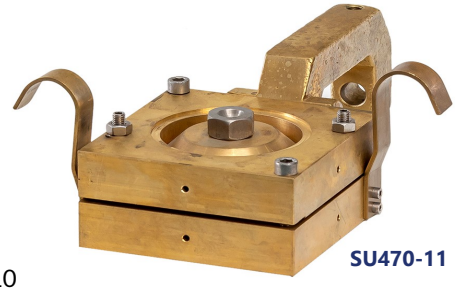
MG030-46
Software for direct/residual shear tests
To be used with digital system SU471-02 as a tool which allows geotechnical laboratories to process data and to view the results obtained from direct and residual shear tests.
Simple and flexible graphical interface giving the possibility to view, edit and print all the parameters involved in shear tests.



MG030-46 *Software for direct/residual shear tests*

SHEAR BOXES, HOLLOW PUNCH AND TAMPERS
Shear box assemblies, made from brass, accurately machined. Supplied with carriage, walled round or square hole, base plate, two grids, two perforated grids, two porous discs and adapters to fit the box holder.
Hollow punch is used to prepare the soil sample.
Tamper ejects the specimen filling into the shear box without disturbing it.

SPECIMEN	SHEAR BOX	HOLLOW PUNCH	TAMPER
Ø50 mm	SU470-11	SU105-01	SU105-11
Ø60 mm	SU470-12	SU105-02	SU105-12
Ø100 mm	SU470-14	SU105-04	SU105-14
60x60 mm	SU470-15	SU105-05	SU105-15
100x100 mm	SU470-16	SU105-06	SU105-16


SU470-11

SU470-10
Consolidation frame
It is used to applly a constant load on the specimen in the shear box, so as to shorten the test duration when just few shear machines are available.The frame can also be used to consolidate oedometric cells. It is supplied with three lever arms ratio 10:1 having each max. load up to 550 kg, centering devices and dial gauge holders.

Dimensions: 2300x450x900 mm
Weight: 150 Kg

SU470-21
Water container up to max size 60 mm
By keeping the specimen deep into the water.
SU470-22
Water container up to 100 mm
By keeping the specimen deep into the water.
SU450-05
Set of 50 Kg of slotted weights
MG010-52
Dial gauge 10x0,01 mm


SU470-10

SU475
SOILMATIC DIRECT / RESIDUAL SHEAR

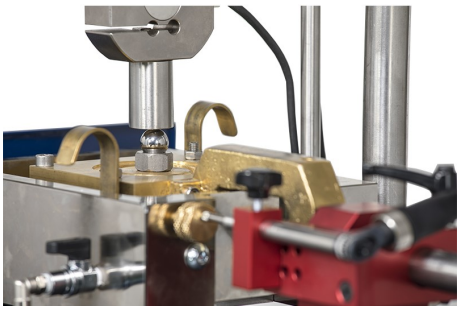
ASTM D3080 | AASHTO T236 | BS 1377:7
NF P094 071-1/2 | CEN-ISO/TS 7982-10

The innovative Soilmatic philosophy provides a fully computerized system which allow geotechnical laboratories the complete automation of all test stages.

This apparatus have been designed to determine the resistance to shearing of all types of soil specimens including both consolidated and drained, undisturbed or remolded.

Soilmatic Direct Shear apparatus is an advanced system specifically designed to perform in a fully automated way the following stages:
-Consolidation
-Drained Direct Shear
-Undrained Direct Shear
-Residual Direct Shear

In the direct shear test an increasing horizontal force is applied to the lower part of the soil specimen while the upper part is reacting against the shearing action.
From the measurement of this shearing action the shear strength of the soil is calculated.
After a first immediate general failure, the soil will stabilize, since the soil can still offer a residual strength.



Soilmatic direct shear apparatus is an electromechanical system powered by PID servomotors which apply high accuracy vertical and horizontal loads to a tested specimen without any human intervention for placing weights.

SU475

The Soilmatic system reads and processes vertical and horizontal force and displacement readings. Also manages the motors, the safety system and the test steps.

Accepts shear boxes of round Ø50, Ø60 and Ø100 mm and square 60x60 and 100x100 mm specimens.

Supplied with horizontal displacement transducer 20 mm, vertical displacement transducer 10 mm and 5 kN load cell.

Load capacity: 5 kN (10 kN available on request)
Maximum horizontal travel: 28 mm (50 mm on request)
Maximum vertical travel: 20 mm
Shear speed: from 0,000001 to 10 mm/min
Power supply: 230 V | 50-60 Hz | 200 W
Dimensions: 1000x450x800 mm
Weight: 120 Kg

ACCESORIES

SHEAR BOX ASSEMBLIES
Made from brass, accurately machined, complete with carriage, walled round or square hole, base plate, two grids, two perforated grids, two porous stones, adapters to fit the box holder.

HOLLOW PUNCH AND TAMPER
The hollow punch with cutting rim is used to prepare the soil sample, and the tamper ejects the specimen filling it directly into the shear box without disturbing it.

SU470-95
Soilmatic Software for direct/residual shear tests

MG031
Custom computer

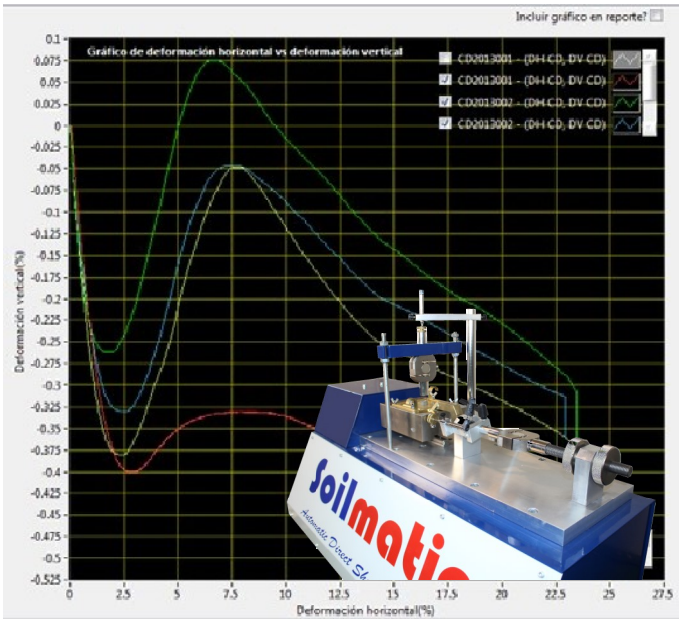
SPECIMEN	SHEAR BOX	HOLLOW PUNCH	TAMPER
Ø50 mm	SU470-11	SU105-01	SU105-11
Ø60 mm	SU470-12	SU105-02	SU105-12
Ø100 mm	SU470-14	SU105-04	SU105-14
60x60 mm	SU470-15	SU105-05	SU105-15
100x100 mm	SU470-16	SU105-06	SU105-16

SU470-95
SOILMATIC DIRECT/RESIDUAL SHEAR SOFTWARE

Soilmatic software has been designed as an informatic tool which allows geotechnical laboratories to process data and to view the results obtained from direct and residual shear tests.

The software interface that can be used in a very simple and intuitive way. A dedicated window allows to select the machine the user wants to work with while a test-specific setup guides the acquisition process, including data collection parameters that best fit the specific test.

All test-specific parameters are calculated based on input of specimen information, such as:
-Sample type: round or square
-Sample size: diameter or width mm
-Sample initial height mm
-Initial wet masses g
-Final wet masses g
-Dried mass after oven g
-Applied load Kg
-Grain density Kg/m^3
-Consolidation time min

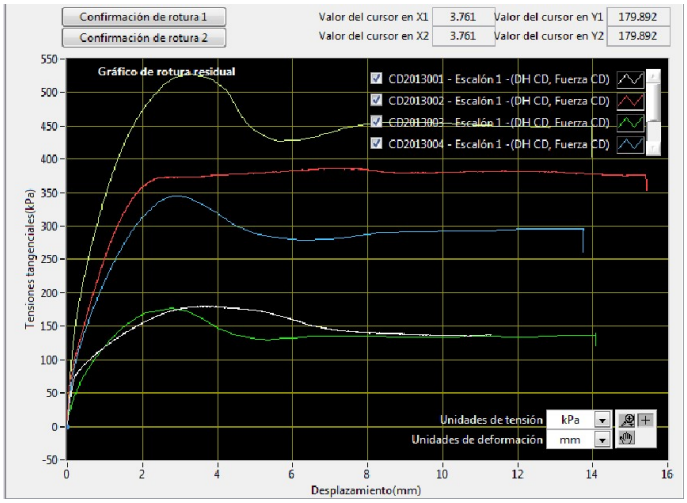


The main features of this software allow the users to create:
-Test files from data entered manually or imported
-Projects to perform calculations as selected standard require
-Customized test reports and print them

Allows to generate the following graphics that can be imported into Excel files for data processing and analysis:

-Tension versus deformation (residual)
-Index “e” versus deformation
-Vertical tension versus horizontal tensión

Soilmatic Direct Shear Software can be connected to one or more direct shear machines, thus allowing automatic data control and acquisition during the test.

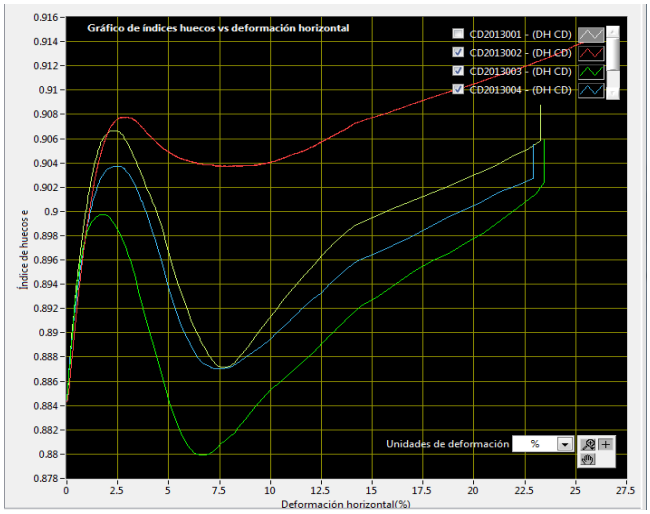


Graphic Tension versus deformation (residual)

Soilmatic Software displays real-time values of:

-Test information
-Test status
-Horizontal force
-Vertical pressute (maintained constant)
-Horizontal displacement
-Vertical displacement

Software enables to calculate the appropriate shear velocity for the material to be tested after the consolidation stage is completed.

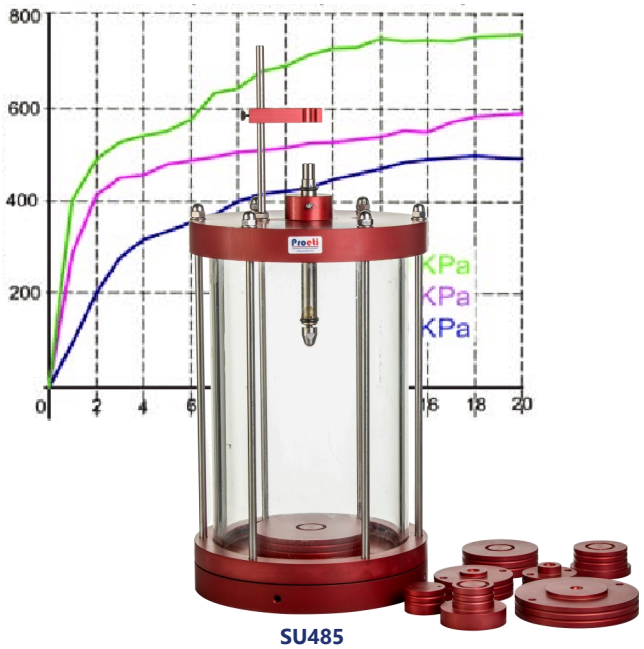


Graphic Index “e” versus deformation

TRIAXIAL TEST

Investigation of stress-strain relationships in soil is usually carried out with triaxial tests where undisturbed, remoulded or compacted specimens are subjected to different stress level sand drainage conditions to simulate as closely as possible the different situations that can occur in the subsoil on site and the possible effects of construction, excavations, embankments, landslides, etc.

This section contains descriptions of different testing solutions and details of the equipment required to carry out the various types of triaxial test in manual, semi-automatic or automatic mode. .



SU485

UNCONSOLIDATED UNDRAINED TEST (UU)
ASTM D2850 | CEN-1SO/TS17892-8
NF P94 070, P94 074 | BS 1377:7

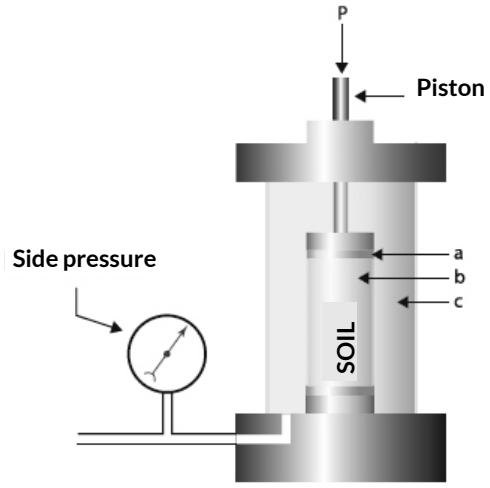
With this method the shear strength is measured in terms of total stress. The soil specimen is not allowed to consolidate and maintains its original structure and water content, so that its compressive strength depends only on the level of geostatic stress in the field. Tests are often carried out on three specimens from the same sample, each subjected to a different confining pressure.

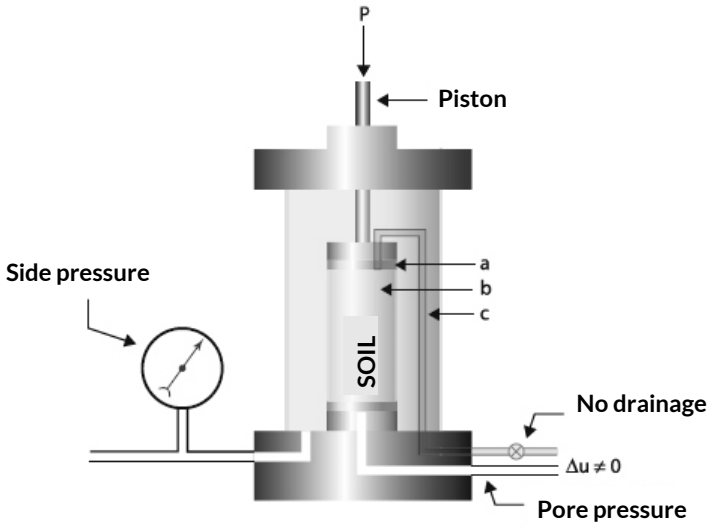
Provided that the soil is fully saturated, the shear strength will be the same for each test and is known as "undrained shear strength".

CONSOLIDATED UNDRAINED TEST (CU)
ASTM D4767 | CEN-1SO/TS17892-9
NF P94 070, P94 074 | BS 1377:8

With this test method the shear strength is measured in terms of effective stress. The specimen is saturated and allowed to consolidate (i.e. to change its structure and water content) at the required confining pressure. At the end of consolidation, the specimen is subjected to a controlled application of load, during which no drainage is allowed and pore pressure is measured.

The effective stresses are calculated as the difference between the total stress and the pore pressure. Since the shear strength is affected by the effective stresses, by testing a set of three specimens at different confining pressures, it is possible to define the failure envelope according to Coulomb's model and define the parameters c' and ϕ'.

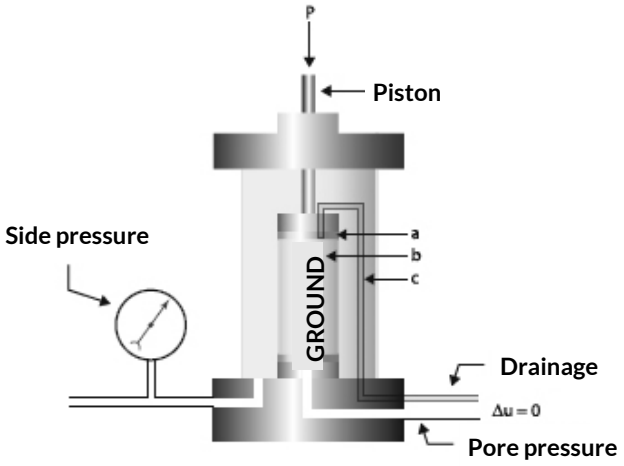




CONSOLIDATED DRAINED TEST (CD)

ASTM D7181 | CEN-1SO/TS17892-9
NF P94 070, P94 074 | BS 1377:8

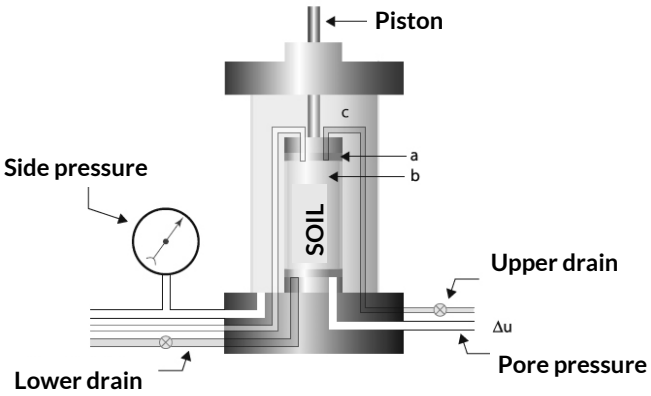
This test method is the same as the CU test except that the failure stage is carried out very slowly to prevent any change in the pore pressure inside the specimen, which is allowed to drain. Calculation of the total and effective stresses and failure envelope are also the same as for the CU.



PERMEABILITY TEST IN TRIAXIAL CELL

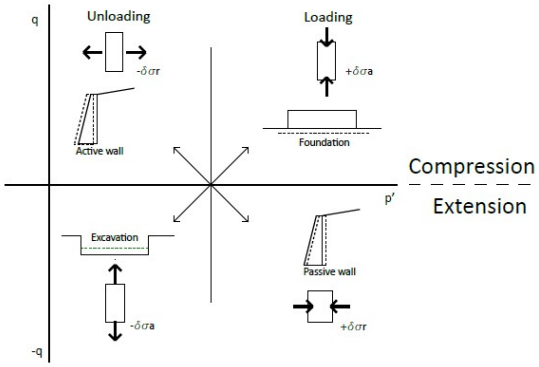
ASTM D5084 | CEN-ISO/TS17892-11 | BS 1377:6

The triaxial permeability test involves saturating and consolidating the specimen to the required effective stress in the same way as for a CD or CU test, but instead of a failure stage, water is allowed to flow through the specimen under a pre-defined difference of pressure and the rate of flow is measured. From this measurement the soil permeability is calculated. Three independent pressure systems are used for the test; for the confining pressure, the drainage line to the top of the specimen and the drainage line to the base of the specimen.



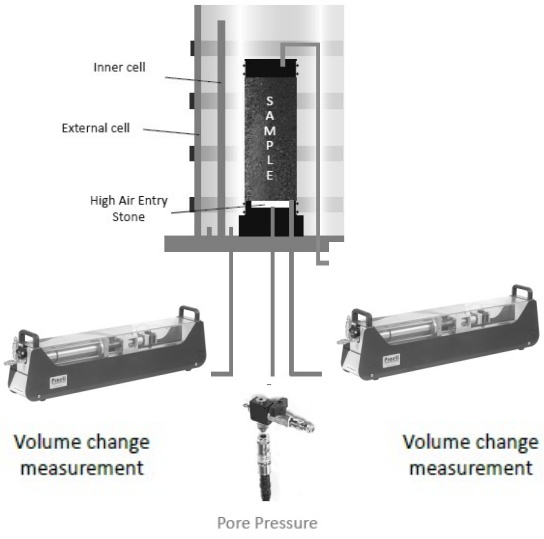
STRESS PATH TEST

vents on site such as excavation, construction or natural occurrences can produce changes in the magnitude and ratio of the principal stresses (major and minor). In a stress path test the horizontal and vertical pressures applied to the specimen are managed independently, which allows the behaviour of a soil subjected to anisotropic loading and unloading to be replicated and measured in the laboratory.



UNSATURATED SOIL TEST

An unsaturated testing system is used when effective stress testing is required that recreates in-situ conditions of specimens that exist in a naturally unsaturated state (for example soil that is higher than the water table).
In an unsaturated soil, the voids between soil particles are filled with both air and water, and surface tension forces create a negative pore water pressure (or suction) which pulls the soil particles together and increases the strength of the soil. Saturating the soil (replacing the air in the voids with water) results in a positive pore water pressure which pushes the soil particles apart and reduces the overall strength.
The solution to this problem is to use what is known as the axis translation method, which involves applying an air pressure via the top cap in the same way as a water back pressure in a saturated test.



SU481
SOILMATIC TRIAXIAL FRAME

EN 12697-34, 13286-47 | BS 598, 1377: 4, 1377:7, 1377:8
ASTM D1559, D1883, D2166, D2850, D4767, D5581, D6927,
NF P94 070, P94 074, P94-078, P98-251
CEN- ISO/TS 17892-9, 17892-8

Our Soilmatic Triaxial is an outstanding system specifically designed for advanced soil testing. This system can be used from educational to construction engineering laboratories to reduce to the absolute minimum any form of manual intervention.

This advanced Triaxial frame can automatically perform tests, from start to finish, without any human intervention, such as:

-UU (Unconsolidated Undrained)
-CU (Consolidated Undrained)
-CD (Consolidated Drained)
-Permeability tests in triaxial cells

Ideal solution for advanced and research laboratories that require high productivity and high quality testing. Connectable to PC via software including a remote control function for full computerization of the system.

Based on heavy duty triaxial load frames, with advanced electronics and high quality components, these frames are the top of the range currently available for triaxial testing on soils. The load frame is manufactured with a robust twin chromed-column structure, ensuring extremely high rigidity.

Fully computerized system including a remote control function for full computerization of the system. This automatic triaxial system is operated with a extremely low displacement velocity.

The loading application is measured by a high accuracy load cell and platen displacement and the displacement by an encoder fitted in the servomotor which provides to the machine a high reliability.

ACCESORIES

MG031
Customized computer, includes installation of user-purchased software, keyboard, mouse, and connection cables

SU480-95
Software to perform triaxial tests
This software allows the user to:
-Configure the necessary acquisition parameters
-All phases: Saturation, Consolidation and Shear
-Calculate the t100 value used for shear rate
-Record data for each calculation step
-Save test data and test parameters

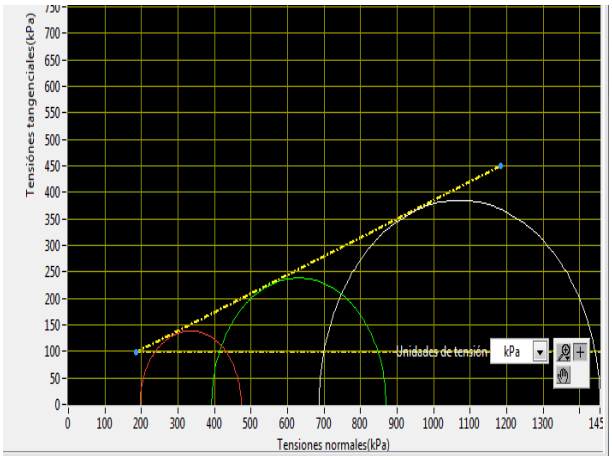
SU481-01
Bench for Soilmatic triaxial frame
Used to hold the testing machine at a proper height for its utilization.

MG020-04

SU481

The machine is supplied without triaxial cell, PC, software and accesories that must be ordered separately.

Load capacity: 50 kN
Speed range: from 0,00001 to 10 mm/min
Maximum vertical daylight: 790 mm
Daylight between columns: 340 mm
Platen diameter: Ø177 mm
Platen travel: 100 mm
Power supply: 220-240 V | 50 Hz
Dimensions: 420x580x1410 mm
Weight: 105 Kg



SU480-95 *Software for triaxial test*

TRIAXIAL FRAME ACCESSORIES

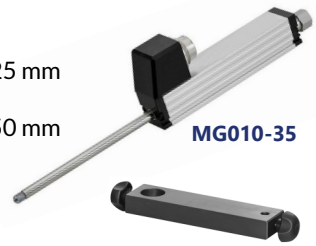
LOAD CELLS
Used to measure the axial force applied to a specimen in a triaxial cell. Supplied complete with a connector for attaching to the crosshead of our triaxial load frames.

MG020-01
Load cell 2,5 kN
MG020-02
Load cell 5 kN
MG020-03
Load cell 10 kN
MG020-04
Load cell 20 kN
MG020-05
Load cell 50 kN


MG020-01

DISPLACEMENT TRANSDUCERS "TYPE TR"
Linear potentiometric transducers are used with various types of testing equipment, such as consolidation apparatus, shear testing machines and conventional triaxial testing systems, to measure sample deformation.

MG010-34
Displacement transducer "TR type" 25 mm
MG010-35
Displacement transducer "TR type" 50 mm
MG010-84
Small horizontal coupling device for TR transducers


MG010-35

MG010-84

PRESSURE TRANSDUCERS
Used for the measurement of pore pressure in conventional testing systems and also cell and back pressure in the automatic and dynamic testing systems.

MG010-11
Pressure transducer 1000 kPa
MG010-12
Pressure transducer 2000 kPa
MG010-28
De-airing block
MG010-29
De-airing block with fast coupling


MG010-11 MG010-12


MG010-28


MG010-29

EXTENSION CABLE
Used with displacement and pressure transducers

MG010-41
Extension cable 2 metres long
MG010-42
Extension cable 5 metres long
MG010-43
Extension cable 10 metres long


MG010-42

SU485
TRIAXIAL CELL 1700 kPa

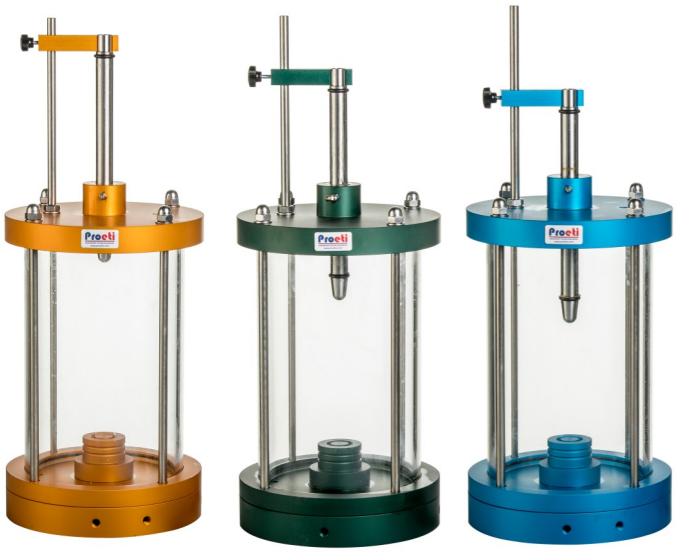
Aluminium made, maximum working pressure of 1700 kPa. The high quality finish between the piston and the head, the use of a circular sealing ring and a special lubricant reduce friction levels and prevent water leaks.

Proeti Triaxial cell is composed by a transparent chamber of a high resistance material which allows to see the specimen during the test. Four quick-release attachment rods are used to hold the cylinder and head unit to the base.

The triaxial cell includes 5 inlet/outlet tubes.

-2 for top rear drainage/pressure
-2 for bottom drainage/pore pressure
-1 for confinement pressure

Different colours available on request.


SU485+SU485-07

TRIAXIAL CELL ACCESSORIES

SU485-01
Flaring tool
SU485-02
Terminal for connection tube (10 pcs)
SU485-03
Nylon tube Ø4 mm (20 m)
SU485-04
Vaseline oil (1000 ml)
SU485-05
Silicon grease (1 kg)
SU485-06
Grease pump
SU485-07
Customized colour for triaxial cell

SU485-03 SU485-05 SU485-04


SU485-06


SU485-01

TRIAXIAL CELL ACCESSORIES

PEDESTAL
Used to adapt the triaxial cell base for different sample sizes. Supplied complete with a solid disc for tests without drainage.

TOP CAP
Used to spread the load evenly over the whole cross-sectional area of the sample when drainage to the top of the sample is required. Includes a nylon tube and connector for the drainage line.

POROUS DISC
Acts as a filter ensuring that the passage of water into and out of the sample is evenly spread over the whole cross-sectional área. Two are required - one for the top of the sample and one for the base.

PERSPEX PLAIN DISCS
To replace porous discs in undrained tests. Two pieces are required.They are made of 10 mm thick Perspex.

RUBBER MEMBRANE
Provides a protective waterproof barrier around the simple. Made of rubber latex and supplied in packs of 10.

"O" RINGS
They are used to seal the membrane with the pedestal and with the top plug at each end of the sample. Supplied in packs of 10 units.

MEMBRANE STRETCHER
Used to the membrane open so it can be easily placed over the specimen without any disturbance.

"O" RINGS PLACING TOOL
Used for applying the O-rings with the minimum disturbance to the sample.

SPLIT SAND FORMER
A specially designed piece of equipment for use when preparing non-cohesive soils which otherwise could not be mounted in a triaxial cell.

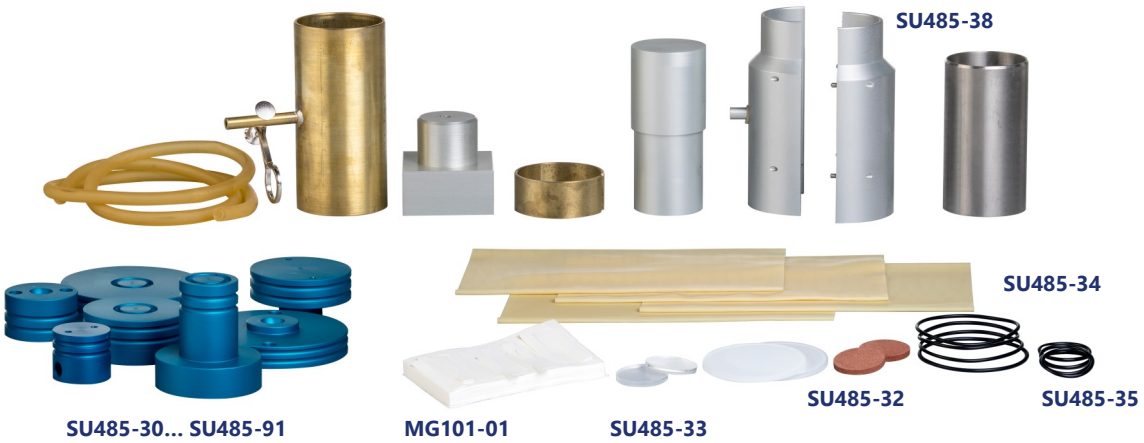
SPLIT MOULD
Used for trimming the ends of undisturbed soil specimens.

LATERAL FILTER DRAINS
Used as side drains when specimens have low permeability. They are particularly useful when saturating clays before consolidation and shearing. Pack of 50.

FILTER PAPER FOR BASE
to avoid passages of soil particles into the porous stones.

CORE CUTTER
To cut soil cohesive specimens in correct diameters from bigger samples. It is made of stainless steel with a cutting edge.

DOLLY FOR EXTRACTION
To extrude the specimen from the core cutter.



ACCESSORIES	Ø38X76 MM	Ø50X100 MM	Ø70X140 MM	Ø100X200 MM	Ø150X300 MM
Pedestal	SU485-30	SU485-50	SU485-70	SU485-80	SU485-90
Top cap	SU485-31	SU485-51	SU485-71	SU485-81	SU485-91
Porous Disc (2 pieces)	SU485-32	SU485-52	SU485-72	SU485-82	SU485-92
Persplex Plain Disc (2 pieces)	SU485-33	SU485-53	SU485-73	SU485-83	SU485-93
Rubber membrane (10 pieces)	SU485-34	SU485-54	SU485-74	SU485-84	SU485-94
"O" rings (10 pieces)	SU485-35	SU485-55	SU485-75	SU485-85	SU485-95
Membrane tensioner	SU485-36	SU485-56	SU485-76	SU485-86	SU485-96
"O" rings placing tool	SU485-37	SU485-57	SU485-77	SU485-87	SU485-97
Split Sand Former	SU485-38	SU485-58	SU485-78	SU485-88	SU485-98
Split mould	SU485-39	SU485-59	SU485-79	SU485-89	SU485-99
Lateral Filter Drains (50 pieces)	MG101-01	MG101-02	MG101-03	MG101-04	MG101-05
Filter paper for base (100 pieces)	MG103-01	MG103-02	MG103-03	MG103-04	MG103-05
Core cutter	SU107-01	SU107-02	SU107-03	SU107-04	SU107-05
Dolly for extraction	SU107-11	SU107-12	SU107-13	SU107-14	SU107-15

SU480-10
THREE-CELLS CONSOLIDATION FRAME

ASTM D4767 | D7181 | BS 1377:8 | CEN-ISO/TS 17892-9

This apparatus has been designed to reduce the testing time for triaxial tests when only one compression machine is available. With this equipment it is possible to perform the consolidation stage of three triaxial specimens at the same time for CU and CD tests under anisotropic conditions.

The apparatus consists of a steel bench complete with three load frames and centering platens, which fit any of our triaxial cells for specimens from 38 to 100 mm diameter. Each consolidation frame can be equipped with a beam loading device to reduce the number of dead weights required for anisotropic consolidation.

Weights can be placed on both the centre hanger and on the lever hanger. The apparatus has to be completed with vertical displacement gauges or transducers (which connect to data acquisition and processing systems for soil mechanics), and slotted weights and pressure system for cell and back pressure.

Dimensions: 2300x400x1800 mm
Weight: 150 Kg

SU480-10

ACCESSORIES

SU450-05
Set of slotted weights 50 kg
MG010-53
Dial gauge 25x0,01 mm for specimens of max. 50x100 mm
MG010-55
Dial gauge 50x0,01 mm for specimens of max. 70x140 mm
MG010-31
Displacement transducer 25 mm travel
MG010-32
Displacement transducer 50 mm travel

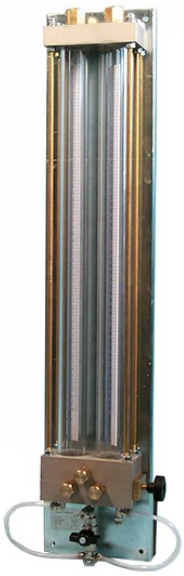
VOLUME CHANGE SYSTEMS

To measure volume changes during testing, we offer two systems.

SU487
DOUBLE BURETTE VOLUME CHANGE APPARATUS

This apparatus has two measurement tubes consisting of a burette mounted internally and an acrylic tube externally. The burette tubes are connected directly to a reversing valve system, which is used to reverse the direction of travel of the interface in the measurement tubes without affecting the direction of flow of water to or from the triaxial cell. The unit also includes aby-pass valve system when volume change measurement is not required.

Dimensions: 230x270x860 mm
Weight: 5 Kg



SU487

SU489
AUTOMATIC VOLUME GAUGE

This apparatus measures change in sample volume by providing an electrical signal directly proportional to the volume of water flowing through the unit.
The apparatus comprises a piston connected to a 25 mm linear potentiometric transducer, sealed against a precision-machined calibration chamber so that the linear movement of the piston is exactly proportional to the volume of water in the calibration chamber.
The apparatus has a front control panel with a reversing valve system to measure the water flow in both directions.

Dimensions: 360x270x210 mm
Weight: 7,6 Kg

SU489

PRESSURE SYSTEMS

At Proeti we offer several different systems to supply controlled pressures to triaxial systems

SU491
OIL/WATER PRESSURE APPARATUS

This apparatus provides an infinitely variable constant pressure using an adjustable spring type dead weight pressure feedback system connected in-line with a pump and an oil/water interchange vessel.

This unit provides a hydraulic pump, honed piston/spring assembly, cylindrical oil/water interchange vessel, pressure gauge, valves and high viscosity oil.

To be noted that the maximum tolerable pressure in the cell is 1700 kPa.

Power supply: 230 V | 50 Hz
Dimensions: 320x320x410 mm
Weight: 20 Kg

SU491

SU493
AIR/WATER BLADDER PRESSURE SYSTEM

Used to deliver pressurized water up to 1700 kPa to triaxial cells via the pressure distribution panels.
The main advantages of using this apparatus are:
-High degree of accuracy
-Extremely simple to operate
-Future expansion of system very easy and low cost
-Large reservoir for long term tests and large samples

The device requires to be connected to an air compressor.

Dimensions: Ø160x380 mm
Weight: 3 Kg

SU493

ACCESSORIES

SU490-01
De-airing tank 20 L
It produces de-aired water when connected to the vacuum pump. It is a perspex tank with an inlet water valve and an outlet air valve.

Dimensions:
320x320x520 mm
Weight:
15 Kg

SU490-01

MG741
Vacuum pump 0,1 mbar

MG740-01
Vacuum regulator with with vacuum gauge, control valve, suction filter and moisture trap

MG740-02
Rubber tube 3 m for vacuum

MG753
Laboratory air compressor 10 bar

MG741

SU490-02
DIAL GAUGE UNITS 4 VALVES 1700 KPA

44 inlet/outlet null displacement valves are supplied with the dial gauge.
Used to measure water pressure as cell pressure or pore pressures.

Pressure range: 0-1700 kPa
Dimensions: 410x350x110 mm
Weight: 6 Kg

SU490-02

SU490-03
SCREW PUMP

It has to be connected to the pressure dial gauge unit and it is used to control water pressures by means of small screw rotations. It can decrease or decrease pressures as required.

Weight: 3 Kg

SU490-03

SU490-04
DISTRIBUTION UNIT

The device consist of 5 inlet/outlet valves with null variation of volume connected to an aluminium support. It is used to deliver pressurized water to different lines.

Dimensions:
200x200x55 mm
Weight:
3 Kg

SU490-04

SU490-05

SU490-05
Bi-directional distribution valve for air or water

SU495
2 WAYS PRESSURE PANEL

This pressure panel is designed to distribute the water pressure used in laboratory applications.

The panel is constituted by two pressure lines fitted with high accurate regulators and pressure valves.

SU495

SU497
3 WAYS PRESSURE PANEL

Identical to the SU495 but fitted with three pressure lines.

SU499
4 WAYS PRESSURE PANEL

Identical to the SU495 but fitted with four pressure lines.

ACCESORY

SU495-01
Digital manometer 1 kPa to be connected on pressure panels

CONFIGURATION OF THE TRIAXIAL: PRESSURE PANEL AND AIR/WATER BLADDERS

Beside is shown typical configurations of systems to perform triaxial tests:

TRIAXIAL FRAME
SU481
Soilmatic triaxial machine 50 KN
MG020-04
Load cell 20 kN
MG010-35
Displacement transducer "TR type" 50 mm travel
MG010-84
Small horizontal coupling device for TR transducers
MG010-11
Pressure transducer 1000 kPa
MG010-29
De-airing block

VOLUME CHANGE AND PRESSURE SYSTEMS
SU489
Automatic volume change apparatus
SU497
3-ways pressure panel
SU490-02
Dial gauge units 4 valves 1700 kPa
SU493
Air-water bladders cylinders (3 pieces required)
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum
MG753
Laboratory air compressor 10 bar

TRIAXIAL CELL AND ACCESORIES FOR Ø50 MM SAMPLES
SU485
Triaxial cell 1700 kPa
SU485-50
Pedestal for samples Ø50 mm
SU485-51
Top cap for samples Ø50 mm
SU485-52
Porous disc (2 pieces) for samples Ø50 mm
SU485-54
Rubber membranes (10 pieces) for samples Ø50 mm
SU485-55
"O" Rings (10 pieces) for samples Ø50 mm
SU485-56
Membrane tensioner for samples Ø50 mm
SU485-57
"O" Rings placing tool for samples Ø50 mm
SU485-58
Split sand former for sample Ø50x100 mm
SU485-59
Split mould for sample Ø50x100 mm
MG101-02
Lateral filter drains (50 pieces) for samples Ø50 mm
MG103-02
Filter paper for base (100 pieces) for samples Ø50 mm
SU107-02
Die ring for samples Ø50 mm
SU107-12
Extractor tamper for samples Ø50 mm

CONTROL, SOFTWARE AND ADQUISITION DATA
MG031
Custom computer
SU480-95
Software for triaxial tests

SU501
AUTOMATIC PRESSURE/VOLUME CONTROLLER

R&D Proeti department is constantly investing and developing for maximizing laboratories productivity. For this reason, we developed an advanced solution for geotechnical laboratorios demanding automatic pressure and volume control.

The pressure/volume controllers are used to:
-Confining pressure
-Back pressure
-Pore pressure
-Volume change

The device consist of a stainless steel volumen/pressure controller contained in a painted metal sheet structure with a perpex protective enclosure.

Providing very high versatility and flexibility by allowing to upgrade the older systems or by adding additional units to the current systems through an economical investment.

Standard effective stress tests require 2 controllers: one for cell pressure and the other for back pressure which can be also used to measure the volume change.

PC controlled eliminate or reduce to the absolute minimum any forms of manual intervention.

SU501

Supplied with 1000 kPa pressure transducer.
No air compressor is required.

Output pressure: 3500 kPa (5000 kPa available on request)
Volume capacity: 300 cc (1000 cc available on request)
Pressure resolution: 0,1 kPa
Power supply: 240 V | 50 - 60 Hz
Dimensions: 900x110x230 mm
Weight: 7 Kg

SU503
2 WAYS COMPUTERIZED
PRESSURE/VOLUME CONTROLLER

By purchasing this 2 ways computerized controller your laboratory obtain a complete triaxial system to perform:

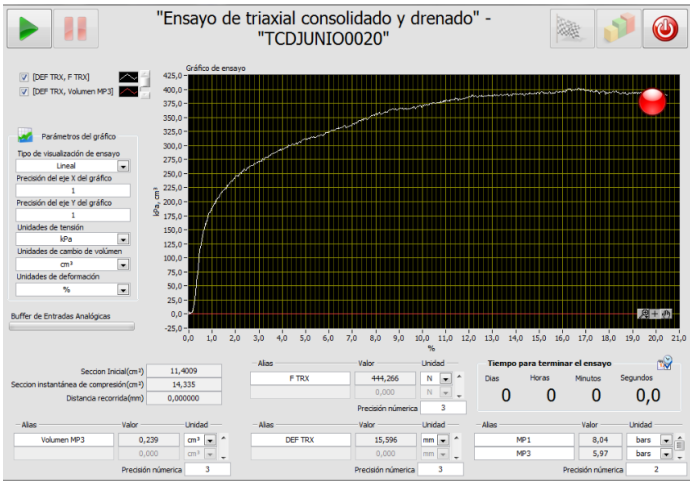
-UU
-CU
-CD
-Saturation
-Consolidation

Composed by 2 stainless steel volumen/pressure controller contained in a painted metal sheet structure with a perpex protective enclosure.

The controller allows to perfom fully automated all the test above mentioned by a PC control avoiding any user interventions to increase the laboratory productivity.

Supplied with two 1000 kPa pressure transducers.

Output pressure: 3500 kPa (5000 kPa available on request)
Volume capacity: 300 cc (1000 cc available on request)
Pressure resolution: 0,1 kPa
Power supply: 240 V | 50 - 60 Hz
Dimensions: 1030x460x500 mm
Weight: 86 Kg



SU503

SU505
3 WAYS COMPUTERIZED PRESSURE/VOLUME CONTROLLER

3 ways computerized pressure/volume controller has been dedicated developed by the geotechnical experts to perform fully automated pressure and volume change control.

The equipment consist of 3 stainless steel volumen/pressure controllers enclosed in the top of a robust painted metal sheet cabinet with a 10 liters water tank inside.

Perpex protective cover which also can be used as a desk to ensure a full traceability of the test. Include an articulated holding device for computer screen to make an easier visualization and controlling of the program.

There is a wheel kit at the bottom of the cabinet for an easy displacement of the 3 computerized controller device in the laboratory.

By purchasing this 3 ways computerized controller your laboratory will increases the versatility and productivity. Allows to saturate a post tested specimen and perform a triaxial test at the same time reducing costs and time. The 3 ways controller also can perform permeability tests.

Supplied with three 1000 kPa pressure transducers.

Output pressure: 3500 kPa (5000 kPa available on request)
Volume capacity: 300 cc (1000 cc available on request)
Pressure resolution: 0,1 kPa
Power supply: 240 V | 50 - 60 Hz
Dimensions: 850x600x950 mm
Weight: 135 Kg

SU505

SU507
4 WAYS COMPUTERIZED PRESSURE/VOLUME CONTROLLER

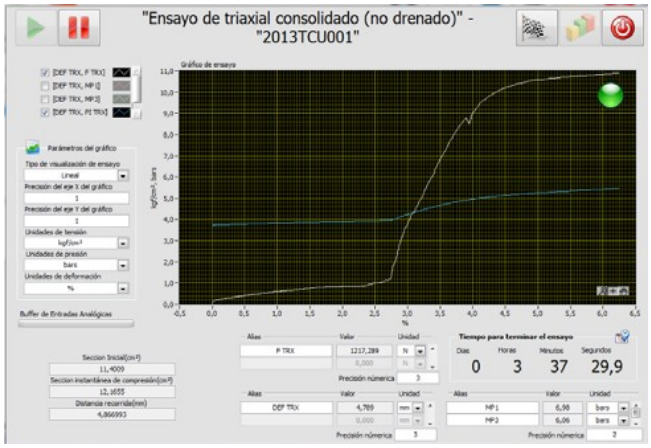
This equipment is practically identical to 3 ways model but with 4 stainless steel volumen/pressure controllers enclosed increasing further the versatility and productivity. aumentando aún más la versatilidad y productividad del equipo y el laboratorio.

Weight: 155 Kg

SOFTWARE

Advanced software developed by Soilmatic brand for continuously controlling and monitoring execution of tests. PID controller allows to the software reaching a high accury pre-set pressure parameters.

Soilmatic software provides the user with a simple and flexible graphical interface. It can be connected to one or more pressure controlers and testing machines allowing automatic data acquistion and control during the test.



A menú composed by differents specific windows allows the user to introduce the test parameters in a easy and clear way:
-Main window: to create define and edit tests
-Data window: to register and unsuscribe specimens
-Support window: to register and calibrate measuring sensors
-Test window: to perform, visualize and graphic tests

Soilmatic soil software allows up to 24 units (machines or pressure controllers) can be connected to the same PC providing geotechnical laboratories with a powerful tool to control single or multiple units at choice.

All readings are graphed in real time during the test by a PC database system for further processing.

In any moment all the tests made are available to make an analysis of the results or to print their certificate.

ACCESORY

MG031
Custom computer
Including keyboard, mouse, connection cables, installation and setting up of the purchased software.

MG031

TRIAXIAL SYSTEM WITH A PRESSURE/VOLUME CONTROLLER (QUICK TRIAXIAL - UU)

TRIAXIAL FRAME
SU481
Soilmatic triaxial machine 50 KN
MG020-04
Load cell 20 kN
MG010-35
Displacement transducer “TR type” 50 mm travel
MG010-84
Small horizontal coupling device for TR transducers

PRESSURE SYSTEM
SU501
Automatic pressure/volume controller
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum

CONTROL, SOFTWARE AND ADQUISITION DATA
MG031
Custom computer
SU480-95
Software for triaxial tests

TRIAXIAL CELL AND ACCESORIES FOR Ø38 MM SAMPLES
SU485
Triaxial cell 1700 kPa
SU485-30
Pedestal for samples Ø38 mm
SU485-31
Top cap for samples Ø38 mm
SU485-32
Porous disc (2 pieces) for samples Ø38 mm
SU485-34
Rubber membranes (10 pieces) for samples Ø38 mm
SU485-35
“O” Rings (10 pieces) for samples Ø38 mm
SU485-36
Membrane tensioner for samples Ø38 mm
SU485-37
“O” Rings placing tool for samples Ø38 mm
SU485-38
Split sand former for sample Ø38x100 mm
SU485-39
Split mould for sample Ø38x100 mm
MG101-01
Lateral filter drains (50 pieces) for samples Ø38 mm
MG103-01
Filter paper for base (100 pieces) for samples Ø38 mm
SU107-01
Die ring for samples Ø38 mm

MG020-04

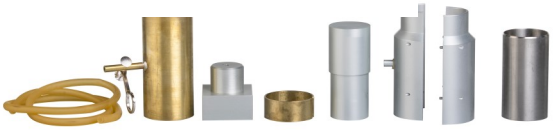
SU485

SU490-01

MG031

SU501

SU481



SU485-30...SU107-11

TRIAXIAL SYSTEM WITH TWO PRESSURE/VOLUME CONTROLLERS (UU-CD-CU)

TRIAXIAL FRAME
SU481
Soilmatic triaxial machine 50 KN
MG020-04
Load cell 20 kN
MG010-35
Displacement transducer “TR type” 50 mm travel
MG010-84
Small horizontal coupling device for TR transducers
MG010-11
Pressure transducer 1000 kPa
MG010-29
De-airing block

VOLUME CHANGE AND PRESSURE SYSTEMS
SU501
Automatic pressure/volume controller
SU501
Automatic pressure/volume controller
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum

TRIAXIAL CELL AND ACCESORIES FOR Ø50 MM SAMPLES
SU485
Triaxial cell 1700 kPa
SU485-50
Pedestal for samples Ø50 mm
SU485-51
Top cap for samples Ø50 mm
SU485-52
Porous disc (2 pieces) for samples Ø50 mm
SU485-54
Rubber membranes (10 pieces) for samples Ø50 mm
SU485-55
“O” Rings (10 pieces) for samples Ø50 mm
SU485-56
Membrane tensioner for samples Ø50 mm
SU485-57
“O” Rings placing tool for samples Ø50 mm
SU485-58
Split sand former for sample Ø50x100 mm
SU485-59
Split mould for sample Ø50x100 mm
MG101-02
Lateral filter drains (50 pieces) for samples Ø50 mm
MG103-02
Filter paper for base (100 pieces) for samples Ø50 mm
SU107-02
Die ring for samples Ø50 mm
SU107-12
Extractor tamper for samples Ø50 mm

CONTROL, SOFTWARE AND ADQUISITION DATA
MG031
Custom Computer
SU480-95
Software to perform triaxial tests


MG031

MG020-04
SU485
SU481


SU490-01


SU501
SU501
SU485-50...SU107-12

TRIAXIAL SYSTEMS WITH 2 WAYS COMPUTERIZED PRESSURE/VOLUME CONTROLLER

TRIAXIAL FRAME
SU481
Soilmatic triaxial machine 50 KN
MG020-04
Load cell 20 kN
MG010-35
Displacement transducer “TR type” 50 mm travel
MG010-84
Small horizontal coupling device for TR transducers
MG010-11
Pressure transducer 1000 kPa
MG010-29
De-airing block

VOLUME CHANGE AND PRESSURE SYSTEMS
SU503
2 ways computerized pressure/volume controller
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum

CONTROL, SOFTWARE AND ADQUISITION DATA
MG031
Custom Computer
SU480-95
Software for triaxial tests

TRIAXIAL CELL AND ACCESORIES FOR Ø50 MM SAMPLES
SU485
Triaxial cell 1700 kPa
SU485-50
Pedestal for samples Ø50 mm
SU485-51
Top cap for samples Ø50 mm
SU485-52
Porous disc (2 pieces) for samples Ø50 mm
SU485-54
Rubber membranes (10 pieces) for samples Ø50 mm
SU485-55
“O” Rings (10 pieces) for samples Ø50 mm
SU485-56
Membrane tensioner for samples Ø50 mm
SU485-57
“O” Rings placing tool for samples Ø50 mm
SU485-58
Split sand former for sample Ø50x100 mm
SU485-59
Split mould for sample Ø50x100 mm
MG101-02
Lateral filter drains (50 pieces) for samples Ø50 mm
MG103-02
Filter paper for base (100 pieces) for samples Ø50 mm
SU107-02
Die ring for samples Ø50 mm
SU107-12
Extractor tamper for samples Ø50 mm


SU490-01

SU503


SU485-50...SU107-12

MG020-04
SU481


MG031


SU485

TRIAXIAL SYSTEMS WITH 4 WAYS COMPUTERIZED PRESSURE/VOLUME CONTROLLER

TRIAXIAL PRESS
SU481
Soilmatic triaxial machine 50 KN
MG020-04
Load cell 20 kN
MG010-35
Displacement transducer “TR type” 50 mm travel
MG010-84
Small horizontal coupling device for TR transducers
MG010-11
Pressure transducer 1000 kPa
MG010-29
De-airing block

VOLUME CHANGE AND PRESSURE SYSTEMS
SU507
4 ways computerized pressure/volume controller
SU493
Air-water bladders cylinders (3 pieces)
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum

TRIAXIAL CELL AND Ø50 MM ACCESORIES
SU485
Triaxial cell 1700 kPa
SU485-50
Pedestal for samples Ø50 mm
SU485-51
Top cap for samples Ø50 mm
SU485-52
Porous disc (2 pieces) for samples Ø50 mm
SU485-54
Rubber membranes (10 pieces) for samples Ø50 mm
SU485-55
“O” Rings (10 pieces) for samples Ø50 mm
SU485-56
Membrane tensioner for samples Ø50 mm
SU485-57
“O” Rings placing tool for samples Ø50 mm
SU485-58
Split sand former for sample Ø50x100 mm
SU485-59
Split mould for sample Ø50x100 mm
MG101-02
Lateral filter drains (50 pieces) for samples Ø50 mm
MG103-02
Filter paper for base (100 pieces) for samples Ø50 mm
SU107-02
Die ring for samples Ø50 mm
SU107-12
Extractor tamper for samples Ø50 mm

CONTROL, SOFTWARE AND ADQUISITION DATA
MG031
Custom Computer
SU480-95
Software for triaxial tests

SU550
SOILMATIC 3-FRAMES TESTING MACHINE

R&D Proeti department is constantly investing and developing proprietary technologies and innovative products.

We give here some example of machine based on the innovative philosophy Soilmatic developed by Proeti over recent years, our Soilmatic Three-Frames. Adopting this multi-frame concept maximizes laboratory productivity.

With this advanced apparatus, your laboratory will obtain an unique fully automatic tester to perform with high accuracy, all the most important loading and unloading tests.

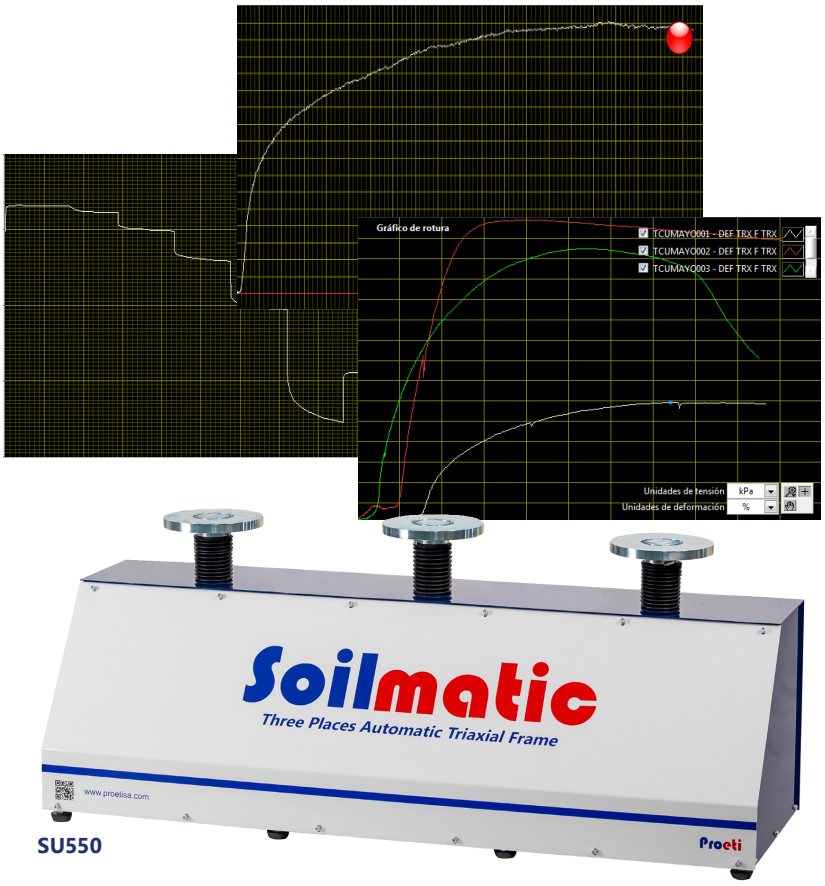
Soilmatic technology has been created to eliminate or reduce to the absolute mínimum any forms of manual intervention, which any test requires. This therefore results in greater efficiency and cost effectiveness.

It consists of a chassis housing three high precision independent electromechanical systems which assure smooth application of load at constant speed. Ideal solution for laboratories that need to perform a wide range of tests.

This testing machine of high performance and advanced solutions is equipped with top quality components. Automatic measurement of the displacement by an encoder fitted in the servomotor and its advanced technology provides large flexibility in conducting tests.

Soilmatic three-places multiframe is equipped with three fully customizable test areas to suit a large range of testing applications. The possibility to customize the frames gives to the operator ultimate flexibility and versatility.

Ideal solution for advanced and research laboratories that require high productivity and high quality testing and for small laboratories that need a very versatile machine suitable to perform a wide range of tests.



SU550

Fully computerized system controlled by only one PC which its software enables to the machine automatically perform up to 3 entire and independent tests at the same time, from start to finish, without any human intervention.

The wide range of configurations, may cause, sometimes, doubts in the selection of the appropriate model. For this reason, in order to steer our client into the best solution for the requested application, we summarize, hereunder, the main frames for configurating the Soilmatic 3-frames:

-TRIAXIAL
-OEDOMETER
-MINI OEDOMETER
-CBR

Accessories and software for specific tests are not included that must be ordered separately.

SU550-01

ACCESORIES

SU550-01
Bench to hold Soilmatic multiframe

SU550-02
Kit of wheels with brake for bench

MG031
Custom computer
Includes installation of user-purchased software, keyboard, mouse, and connecting cables.

SOILMATIC 3-FRAMES MACHINE CONFIGURATIONS:

SU551
TRIAXIAL FRAME CONFIGURATION

Triaxial configuration includes:

SU551-01
Triaxial frame
MG020-04
Electric load cell 20 kN
SU480-02
Loading piston with ball joint
MG010-35
Displacement transducer “TR type” 50 mm travel
MG010-83
Mounting bracket to fit transducers
MG010-11
Pressure transducer 1000 kPa
MG010-29
De-airing block
SU480-95
Software for triaxial tests

SU553
OEDOMETER FRAME CONFIGURATION

Oedometric frame configuration includes:

SU553-01
Oedometer frame
MG020-03
Load cell 10 kN
MG010-38
Displacement transducer “LVDT type” 10 mm travel
MG010-84
Horizontal mount for LVDT transducer
SU450-95
Software for consolidation tests

SU555
HIGH CAPACITY OEDOMETER CONFIGURATION

High capacity Oedometer configuration includes:

SU555-01
High capacity Oedometer frame
MG020-06
Load cell 50 kN
SU450-06
Attachment for measuring on the top of consolidation cell
MG010-38
Displacement transducer “LVDT type” 10 mm travel
MG010-86
Vertical mount for LVDT transducer
SU450-95
Software for consolidation tests

SU557
CBR FRAME CONFIGURATION

CBR configuration includes:

SU557-01
CBR test frame
MG020-06
Load cell 50 kN
SU320-01
CBR loading piston
MG010-32
Displacement transducer 50 mm travel
MG010-82
Device to fix the displacement transducer
MG030-41
Software for CBR test

SU551 (x3)

SU553 (x3)

SOIL PERMEABILITY TEST

ASTM D5084 | BS 1377:6 | CEN-ISO/TS 17892:11

The permeability test is designed for measuring the hydraulic conductivity (coefficient of permeability) of water saturated porous materials.

The following configurations are intended as a practical guide for the most typical and common configurations, limited to the part required for the main components, to cover different type of permeability tests.

SU490-02

SU485

SU497

SU493

SU493

SU493

SYSTEM FOR PERMEABILITY TESTS

The system consists of a number of parts and accessories required for a system performing triaxial permeability tests on 70 mm diameter samples.

However, the test can be performed with other sample diameters by substituting the items that are sample size dependent with those of the required size.

SU485
Triaxial cell 1700 kPa
SU485-70
Pedestal for samples Ø70 mm
SU485-71
Top cap for samples Ø70 mm
SU485-72
Porous disc (2 pieces) for samples Ø70 mm
SU485-74
Rubber membranes (10 pieces) for samples Ø70 mm
SU485-75
“O” Rings (10 pieces) for samples Ø70 mm
SU485-76
Membrane tensioner for samples Ø70 mm
SU485-77
“O” Rings placing tool for samples Ø70 mm
SU485-78
Split sand former for sample Ø70x100 mm
SU485-79
Split mould for sample Ø70x100 mm
MG101-03
Lateral filter drains (50 pieces) for samples Ø70 mm
MG103-03
Filter paper for base (100 pieces) for samples Ø70 mm
SU107-03
Die ring for samples Ø70 mm
SU107-13
Extractor tamper for samples Ø70 mm
MG010-29
De-airing block (2 pieces required)
SU487
Double burette volume change apparatus
SU497
3-ways pressure panel
SU490-02
Dial gauge units 4 valves 1700 kPa
SU493
Air-water bladders cylinders (3 pieces required)
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum (2 pieces required)
SU485-05
Silica gel 1 Kg
MG753
Laboratory air compressor 10 bar

AUTOMATED SYSTEM FOR PERMEABILITY TESTS

BS1377: PART 6 | ASTM DS5084-10 METHODS A & D

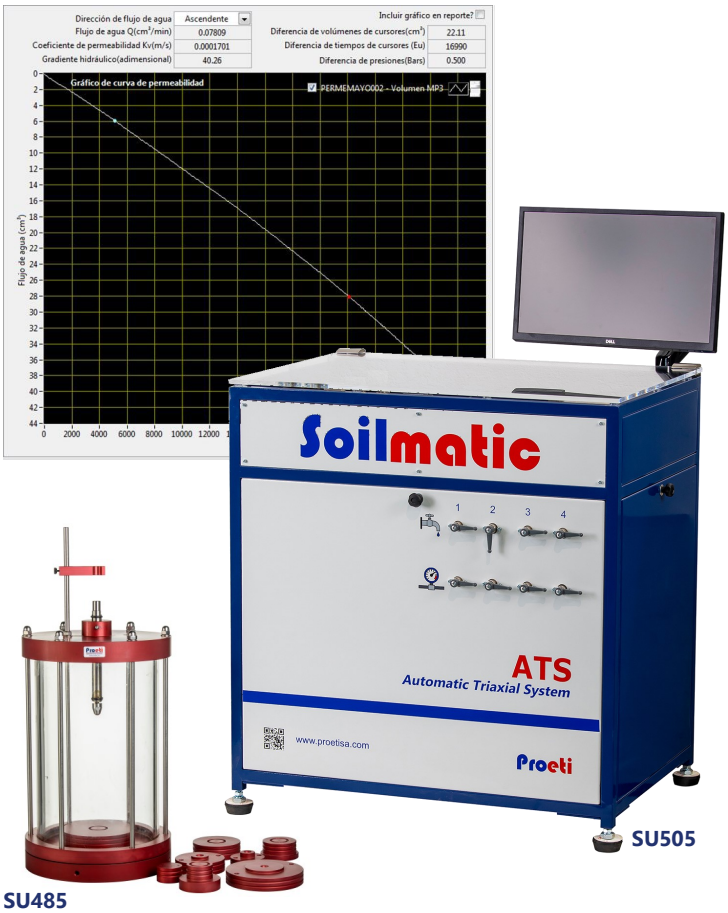
This configuration is for the automatic control of permeability stages. This system basically is a 3 ways pressure/volume Soilmatic controller in place of automatic volume change apparatus and 3-ways pressure panel.

Soilmatic pressure/volumen controllers allow to perform permeability test on geosynthetic walls and soils with high reliability and accuracy. The system measures permeabilities of cohesive soils varying from 10^{-4} cc/sec to 10^{-9} cc/sec.

On soils the measurements include:
-Basic pressure
-Permeability under a constant hydraulic gradient

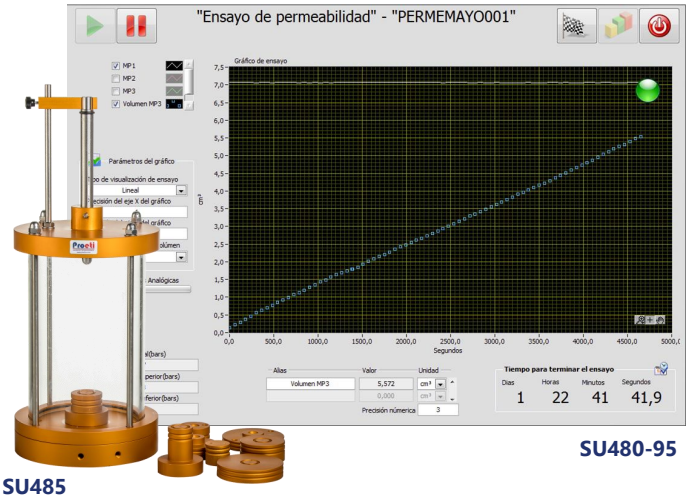
On flexible geosynthetic walls test the Soilmatic 3 ways automatically controls the pressure at cell, the bottom and the top of the sample. Also indicating the temperature.

The software gives the possibility to program automatically customized sequences to saturate the sample. Graphical test data can be displayed on separate graphs in real time.
Data processing and reporting by quickly and easily importing test data.



SU505

SU485



SU480-95

SU485

The system consists of a number of parts and accessories required for a system performing triaxial permeability tests on 100 mm diameter samples.

SU485
Triaxial cell 1700 kPa
SU485-80
Pedestal for samples Ø100 mm
SU485-81
Top cap for samples Ø100 mm
SU485-82
Porous disc (2 pieces) for samples Ø100 mm
SU485-84
Rubber membranes (10 pieces) for samples Ø100 mm
SU485-85
“O” Rings (10 pieces) for samples Ø100 mm
SU485-86
Membrane tensioner for samples Ø100 mm
SU485-87
“O” Rings placing tool for samples Ø100 mm
SU485-88
Split sand former for sample Ø100x100mm
SU485-89
Split mould for sample Ø100x100 mm
MG101-04
Lateral filter drains (50 pieces) for samples Ø100 mm
MG103-04
Filter paper for base (100 pieces) for samples Ø100 mm
SU107-04
Die ring for samples Ø100 mm
SU107-14
Extractor tamper for samples Ø100 mm
MG010-29
De-airing block (2 pieces required)
SU505
3 ways computerized pressure/volume controller
SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube 3 m for vacuum (2 pieces required)
SU485-05
Silica gel 1 Kg
MG031
Custom computer
SU480-95
Software for permeability tests

CYCLIC TRIAXIAL AUTOMATED SYSTEM

ASTM D7181, D2850, D3999, D4767, D5311
BS 1377:7, 1377:8 | AASHTO T307-9

Dynamic properties of soils such as stress-strain characteristics have been recognized a very important part of many aspects of construction design as maritime, seismic engineering, placement of foundations of machines or structures subjected to different dynamic interactions.

The correct description of the soil behavior within the range of small deformations is also an extremely important element in the prediction of the movement of structures cooperating with subsoil, and thus has a great impact on the quality of the actual mapping of the internal forces in the structural system of the whole building, including foundations.

Stiffness modules for very small deformations are now recognized as fundamental properties of the soil. For this reason, in geotechnical engineering we commonly use information obtained from laboratory and field dynamic and seismic tests to solve also conventional problems of interaction between the building and the subsoil.

The Automated Cyclic Triaxial with its innovative features represents the most ideal solution for modern laboratories that need to investigate the effects of vibration and dynamic loading for soil and unbound granular materials.

Based on the 4 axis control and 16 channels control and data acquisition. Fully configurable to suit a large range of testing applications including maximum shear modulus calculation through bender elements option.

Typical applications include:
-Civil engineering including seismic and blasting analysis
-Environmental engineering
-Construction and architectural design
-Advanced research on soils

Vertical/compression load tension: up to 9 kN
Maximum vertical daylight: 50 mm
Maximum cell pressure: 2000 KPa
Maximum back pressure: 2000 KPa

SU521

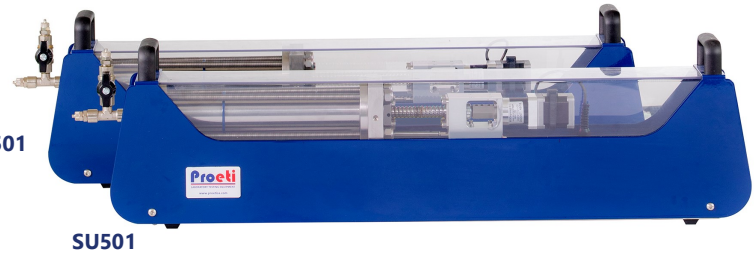
SU525

SU490-01

SU497

MG031

SU521-90



SU501

SU501

CYCLIC TRIAXIAL SYSTEM CONFIGURATION

FRAME AND TRIAXIAL CELL
SU521
Load frame 20 kN
With a manual crosshead 9 kN servo-pneumatic actuator with its LVDT 50 mm stroke.

Power supply: 90-264 V | 50-60 Hz | 240 W
Dimensions: 400x470x1262 mm
Weight: 80 Kg


SU521

SU525
Triaxial cell Ø150x300 mm
Max pressure: 2200 kPa
Dimensions: Ø338x648 mm
Weight: 40 Kg

SU525-01
Submersible load cell 10 kN
SU525-02
Loading ram for submersible cell
SU525-03
Transducers holder ring
SU525-04
Vacuum generator
SU525-05
Vacuum adaptor
SU525-06
Alignment coupler assembly
SU525-07
Spherical exclusion
SU525-08
Base Pedestal spacer

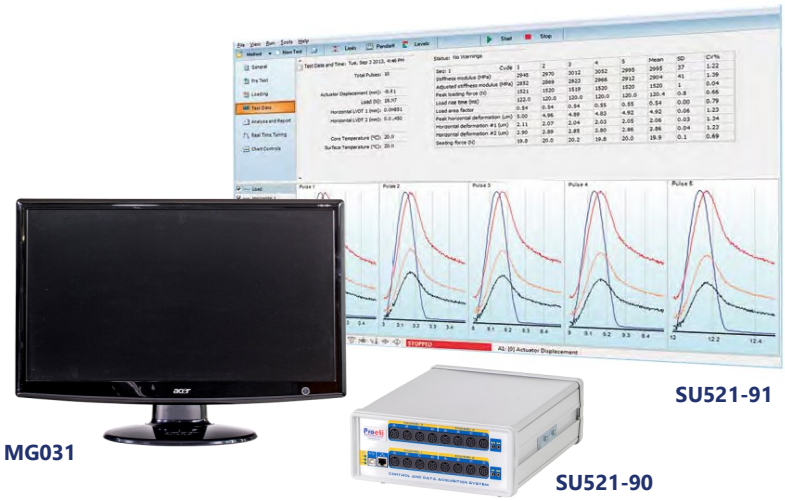
PRESSURE SYSTEMS
SU501
Pressure/volume controller 1 way (2 pieces required)
Output pressure: 3500kPa
Volume capacity: 250cc

MG010-12
Pressure transducer 2000 kPa (2 pieces required)
MG010-28
De-airing block for pressure transducer (2 pieces required)
SU521-02
Solenoid valve (2 pieces required)
SU497
3 way distribution panel
SU495-01
Digital manometer 1 kPa


SU521-03

SU490-01
De-airing tank 20 L
MG741
Vacuum pump 0,1 mbar
MG740-01
Vacuum regulator
MG740-02
Rubber tube for vacuum 3 m
SU521-03
Air reservoir assembly with membrane dryer
MG753
Laboratory air compressor 10 bar

CONTROL, SOFTWARE AND DATA MANAGEMENT
MG031
Custom computer
SU521-90
16 channels control system and data acquisition
SU521-91
Software for cyclic triaxial tests


MG031

SU521-91

SU521-90

BENDER ELEMENTS KIT FOR MEASUREMENT OF THE MAXIMUM SHEAR MODULUS

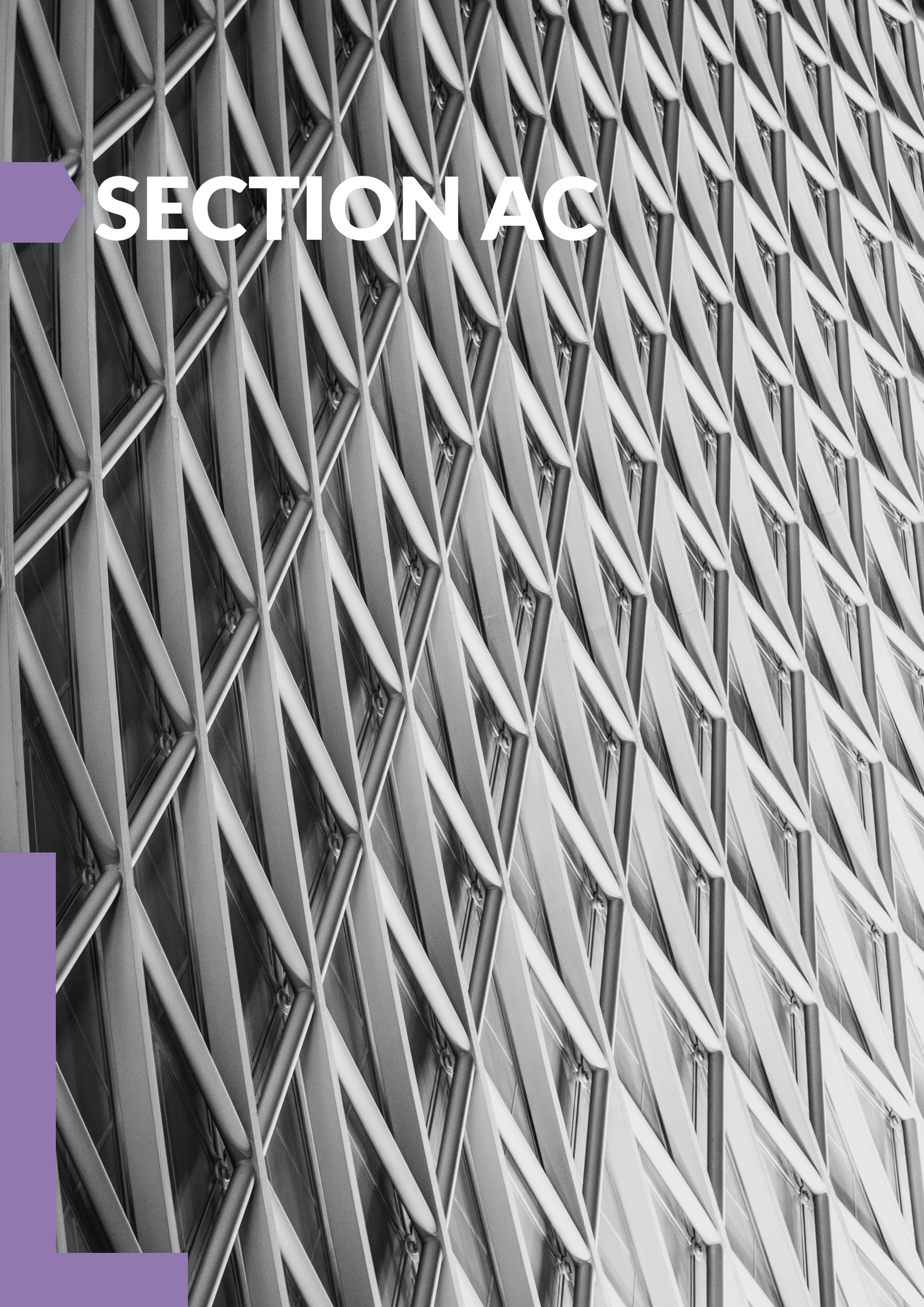
SU525-11
Picoscope
SU525-12
T-4001 waveforms transformer
SU525-13
Universal puck for Bender elements top
SU525-14
Universal puck for Bender elements bottom

SU525-31
Base pedestal for Bender element Ø38 mm
SU525-32
Top platen for Bender element Ø38 mm
SU485-32
Pair of porous disc Ø38 mm

SU525-51
Base pedestal for Bender element Ø50 mm
SU525-52
Top platen for Bender element Ø50 mm
SU485-52
Pair of porous disc Ø50 mm

SU525-71
Base pedestal for Bender element Ø70 mm
SU525-72
Top platen for Bender element Ø70 mm
SU485-72
Pair of porous disc Ø70 mm

SU525-81
Base pedestal for Bender element Ø100 mm
SU525-82
Top platen for Bender element Ø100 mm
SU485-82
Pair of porous disc Ø100 mm



SECTION AC

STEELS

This section is dedicated to machinery that performs quality tests for the metallurgical industry. These universal machines, equipped with mechanisms and accessories to carry out tensile, bending, bending and unbending tests on samples such as steel bars, rods, plastics, rubber and several metals.

They are mostly controlled by a PC, guaranteeing control, acquisition and more precise and technological data analysis.

UNIVERSAL HYDRAULIC MACHINES

EN 15630-1 | EN 15630-3 | EN 10080

These machines have been specifically designed to suit the requirements of central and commercial laboratories of the construction industry and civil engineering in general.

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests.
Special accessories are also available for testing steel strands and electro-welded steel screen.

Tension is always tested using the hydraulic grips, located in lower area, and compression in the upper test area. Includes a high precision load cell, which grants accurate force measurement.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accesories that must be ordered separately.

Power supply: 380 V | 3 ph

AC013+AC050-20+AC050-30

		AC011	AC013	AC015
CAPACITY	kN	400-600	1000	1500-2000
MAXIMUM PISTON SPEED	mm/min	200	250	150
MAXIMUM PISTON STROKE	mm	500	500	500
DISTANCE BETWEEN GRIPS	mm	100-600	100-600	100-600
TENSILE HORIZONTAL DISTANCE	mm	620	750	810
COMPRESSION HORIZONTAL SPACE	mm	340	440	500
DIMENSIONS	mm	1050x900x2900	1250x1000x3400	1250x1000x3500
MAXIMUM HEIGHT (PISTON FULLY OUT)	mm	3400	3900	4000
WEIGHT	Kg	3600	5000	6000

ACCESORIES FOR UNIVERSAL TESTING MACHINES:

UNIVERSAL GRIPS
Our grips are notable for their quality and design, and offer a choice between hydraulic or manual operation. The range of capacities and wedges are the perfect accessory to universal testing machines.

AC050-10
Manual grips

AC050-11
Flat wedges 0-8 mm for 5-10-20 kN
AC050-12
Flat wedges 0-12 mm for 25-50-100 kN
AC050-13
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-16
Round wedges 4-10 mm for 5-10-20 kN
AC050-17
Round wedges 6-16 mm for 25-50-100 kN
AC050-18
Round wedges 8-20 mm for 150-200-250-300 kN


AC050-11


AC050-17


AC050-10


AC050-20

AC050-20
Hydraulic grips

AC050-21
Flat wedges 0-12 mm for 25-50-100 kN
AC050-22
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-23
Flat wedges 0-24 mm for 400-500-600 kN
AC050-24
Flat wedges 0-25 mm for 1000 kN
AC050-25
Flat wedges 25-50 mm for 1000 kN
AC050-26
Round wedges 6-16 mm for 25-50-100 kN
AC050-27
Round wedges 8-20 mm for 150-200-250-300 kN
AC050-28
Round wedges 10-30 mm for 400-500-600 kN
AC050-29
Round wedges 10-30 mm for 1000 kN
AC050-30
Round wedges 30-50 mm for 1000 kN

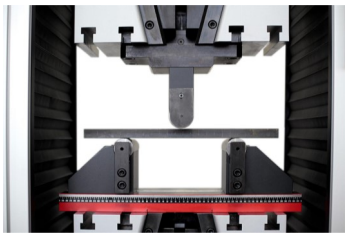
AC010-01
Safety guards
The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.


AC010-01

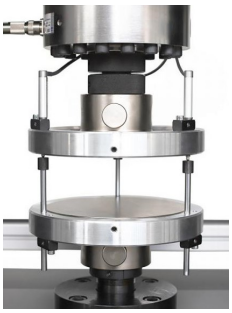
AC050-02
Compression platens
UNE-EN 384
These platens are easy to install and adapt to any type of test. With self aligning ball joint to compensate for a potential lack of specimen parallelism.


AC050-02

AC050-03
Device for flexural testing
UNE-EN 384
Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.


AC050-03

AC061
Compressometer-extensimeter
EN 13286-43
It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy.
The system provides accuracy levels of 0.5 µm throughout the sensor range (12 mm).


AC061

EXTENSOMETERS
EN ISO 10275, EN ISO 10113
High precision and reliability.
Our models depends on in the abilities to calculate:

AC063
Extensometer for elastic limit
AC065
Extensometer for elastic limit and elongation
AC067
Transverse extensometer for n and R index


AC065

ELECTROMECHANICAL TESTING MACHINES

EN 12390-4 | EN ISO 6892, 7500-1 | ASTM E4

These machines have been specifically designed to suit the requirements of central and commercial laboratories of the construction industry and civil engineering in general.

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests.

Typical test applications performed by these machines are:
-High strength steel tests
-Automotive structures tests
-Aerospace industry tests
-Tests on screws, nuts,...

Its high capacity load cell provides maximum accuracy across the entire measurement range. It can also be equipped with a large range of fixtures, such as tensile grips, T-Slotted plates, compression plates, bending tools, extensometers, etc.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accesories that must be ordered separately.

Power supply: 380-400 V | 3 ph

AC025+AC050-20+AC050-30

		AC021	AC023	AC025	AC027
CAPACITY	kN	100	200-300	400-600	1000
MAXIMUM PISTON SPEED	mm/min	600	600	350	200
MAXIMUM PISTON STROKE	mm	1100	1100	1450	1550
MAXIMUM VERTICAL DISTANCE	mm	1275	1275	1650	1700
DISTANCE BETWEEN GRIPS	mm	725	680	710	750
DISTANCE BETWEEN COLUMNS	mm	565	565	635	635
DIMENSIONS	mm	1100x600x2100	1100x600x2100	1160x900x2300	1110x950x2750
WEIGHT	Kg	850	900	2000	3000

ACCESORIES FOR UNIVERSAL TESTING MACHINES:

UNIVERSAL GRIPS
Our grips are notable for their quality and design, and offer a choice between hydraulic or manual operation. The range of capacities and wedges are the perfect accessory to universal testing machines.

AC050-10
Manual grips

AC050-11
Flat wedges 0-8 mm for 5-10-20 kN
AC050-12
Flat wedges 0-12 mm for 25-50-100 kN
AC050-13
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-16
Round wedges 4-10 mm for 5-10-20 kN
AC050-17
Round wedges 6-16 mm for 25-50-100 kN
AC050-18
Round wedges 8-20 mm for 150-200-250-300 kN

AC050-13

AC050-10

AC050-20

AC050-20
Hydraulic grips

AC050-21
Flat wedges 0-12 mm for 25-50-100 kN
AC050-22
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-23
Flat wedges 0-24 mm for 400-500-600 kN
AC050-24
Flat wedges 0-25 mm for 1000 kN
AC050-25
Flat wedges 25-50 mm for 1000 kN
AC050-26
Round wedges 6-16 mm for 25-50-100 kN
AC050-27
Round wedges 8-20 mm for 150-200-250-300 kN
AC050-28
Round wedges 10-30 mm for 400-500-600 kN
AC050-29
Round wedges 10-30 mm for 1000 kN
AC050-30
Round wedges 30-50 mm for 1000 kN

AC050-27

AC061
Compressometer-extensimeter
EN 13286-43
It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy.
The system provides accuracy levels of 0.5 µm throughout the sensor range (12 mm).

AC061

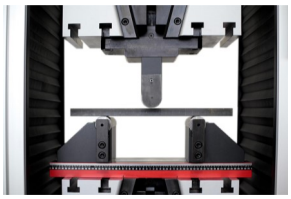
AC050-01
Double test chamber
Option for enabling the upper area for testing, thereby using both areas for tensile, bending or compression tests. A second load cell can also be attached, and each area used for different load capacities.

AC050-01

AC050-02
Compression platens
UNE-EN 384
These platens are easy to install and adapt to any type of test. With self aligning ball joint to compensate for a potential lack of specimen parallelism.

AC050-02

AC050-03
Device for flexural testing
UNE-EN 384
Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.



AC050-03

AC050-04
Slotted base plate
This accessory enables T-slot nuts to be used to adapt to, and attach any type of special fixture. Thereby enabling required tensile, bending or compression tests to be performed.

AC020-01
Safety guards
The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.

EXTENSOMETERS
EN ISO 10275, EN ISO 10113
High precision and reliability.
Our models depends on in the abilities to calculate:

AC063
Extensometer for elastic limit
AC065
Extensometer for elastic limit and elongation
AC067
Transverse extensometer for n and R index

AC065

UNIVERSAL TABLETOP TENSILE MACHINES

EN ISO 6892, ASTM E8, ASTM E4

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests.

Typical test applications performed by these machines are:
-High strength steel tests
-Automotive structures tests
-Aerospace industry tests
-Tests on screws, nuts,...

Its high capacity load cell provides maximum accuracy across the entire measurement range. It can also be equipped with a large range of fixtures, such as tensile grips, T-Slotted plates, compression plates, bending tools, extensometers, etc.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accesories that must be ordered separately.

Power supply: 220 V | 1 Ph

AC031

		AC031	AC033	AC035
CAPACITY	kN	5-20	25-50	100
MAXIMUM PISTON SPEED	mm/min	1000	750	500
MAXIMUM PISTON STROKE	mm	800	1000	1000
MAXIMUM VERTICAL DISTANCE	mm	1000	1230	1230
DISTANCE BETWEEN GRIPS	mm	650	680	650
DISTANCE BETWEEN COLUMNS	mm	450	450	450
DIMENSIONS	mm	900x650x1450	900x650x1650	900x650x1650
WEIGHT	Kg	200	380	380

AC041
TENSILE MACHINE 1-5 KN

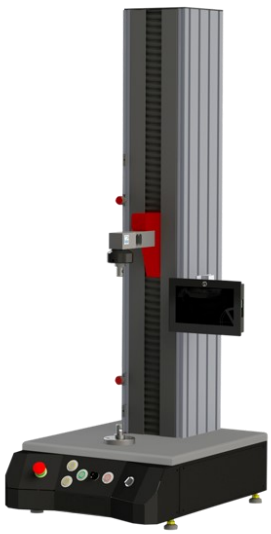
ISO 7500 | ASTM E4

This machine is manufactured for nominal capacities up to 5 kN. It can also be equipped with an extensive range of fixtures, such as tensile grips, T-slotted plates, compression plates, bending fixtures, extensometers, etc.

Custom designed electronics which enables users to get maximum performance and precision, through a simple and intuitive interface.

This machine allows the testing of metals, plastics, polymers, composites, wood, textiles, vidrio and ceramics, in addition to many others.

Power supply: 220 V | 1 ph
Maximum distance between grips: 580 mm
Dimensions: 400x530x1160 mm
Weight: 80 Kg



AC041

ACCESORIES FOR UNIVERSAL TESTING MACHINES:

UNIVERSAL GRIPS
Our grips are notable for their quality and design, and offer a choice between hydraulic or manual operation. The range of capacities and wedges are the perfect accessory to universal testing machines.

AC050-10
Manual grips

AC050-11
Flat wedges 0-8 mm for 5-10-20 kN
AC050-12
Flat wedges 0-12 mm for 25-50-100 kN
AC050-13
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-16
Round wedges 4-10 mm for 5-10-20 kN
AC050-17
Round wedges 6-16 mm for 25-50-100 kN
AC050-18
Round wedges 8-20 mm for 150-200-250-300 kN

AC050-20
Hydraulic grips

AC050-21
Flat wedges 0-12 mm for 25-50-100 kN
AC050-22
Flat wedges 0-16 mm for 150-200-250-300 kN
AC050-23
Flat wedges 0-24 mm for 400-500-600 kN
AC050-24
Flat wedges 0-25 mm for 1000 kN
AC050-25
Flat wedges 25-50 mm for 1000 kN
AC050-26
Round wedges 6-16 mm for 25-50-100 kN
AC050-27
Round wedges 8-20 mm for 150-200-250-300 kN
AC050-28
Round wedges 10-30 mm for 400-500-600 kN
AC050-29
Round wedges 10-30 mm for 1000 kN
AC050-30
Round wedges 30-50 mm for 1000 kN

AC030-02
Base for universal testing machines
This base raises the machine to a more comfortable working height. Specially recommended for tabletop machines.

AC030-02

AC050-01
Double test chamber
Option for enabling the upper area for testing, thereby using both areas for tensile, bending or compression tests. A second load cell can also be attached, and each area used for different load capacities.

AC050-01+AC050-02

AC050-02
Compression platens
UNE-EN 384
These platens are easy to install and adapt to any type of test. With self aligning ball joint to compensate for a potential lack of specimen parallelism.

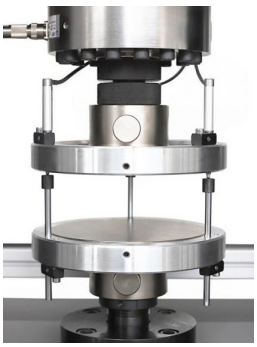
AC050-03
Device for flexural testing
UNE-EN 384
Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.

AC050-04
Slotted base plate
This accessory enables T-slot nuts to be used to adapt to, and attach any type of special fixture. Thereby enabling required tensile, bending or compression tests to be performed.

AC050-04

AC030-01
Safety guards
The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.

AC061
Compressometer-extensimeter
EN 13286-43
It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy.
The system provides accuracy levels of 0.5 µm throughout the sensor range (12 mm).



AC061

EXTENSOMETERS
EN ISO 10275, EN ISO 10113
High precision and reliability.
Our models depends on in the abilities to calculate:

AC063
Extensometer for elastic limit
AC065
Extensometer for elastic limit and elongation
AC067
Transverse extensometer for n and R index

UNIVERSAL MACHINES FOR TENSILE-COMPRESSION TESTS

EN 10002 | EN ISO 6892-1, 7500-1, 15630-1
ASTM C39, E4 | BS 1610 | NF P18-411
DIN 51220 | AASHTO T22

These machines designed with The four columns loading frame is overdimensioned to assure high rigidity and stability. The loading piston, double action, is rectified and lapped. The piston is foreseen of an hydraulic maximum and minimum piston stroke's security device, by avoiding any damage risk due to wrong manipulations of the unit. An hydraulic selector allows to select the tensile or the compression test.

The heads holding the jaws are obtained from only one block of high tungsten steel, while the jaws are hardened over 65 HRC. The "V" autoclamping form allows a quick and practical churking of the specimen.

These machines are utilized to carry out tensile tests on steel reinforced bars from diameter 6 to 25 mm and flat maximun 25x15 mm. These sample measurements are suitable only for traditional reinforcement bars with maximum resistance around 540 Mpa. In case of testing high resistance rebars with maximum resistance of 800/850 Mpa, the maximum diameter is 20 mm and flat is 25x12 mm.

It can also carry out compression tests on concrete cube specimens maximum side 150 mm. and cylinders maximum diameter 160x320 mm.

The machine is supplied with pair of jaw-holders, but without accessoires for the tensile and compression tests, which must be ordered separately .

Maximum tensile load: 500 kN
Maximum compression load: 1500 kN
Power supply: 230 V | 50 Hz | 750 W
Piston's stroke: 100 mm
Distance between columns: 270 mm
Distance between the jaws: from 300 to 400 mm
Distance between the compression platens: 340 mm
Dimensions: 780x420x1700 mm
Weight: 900 Kg

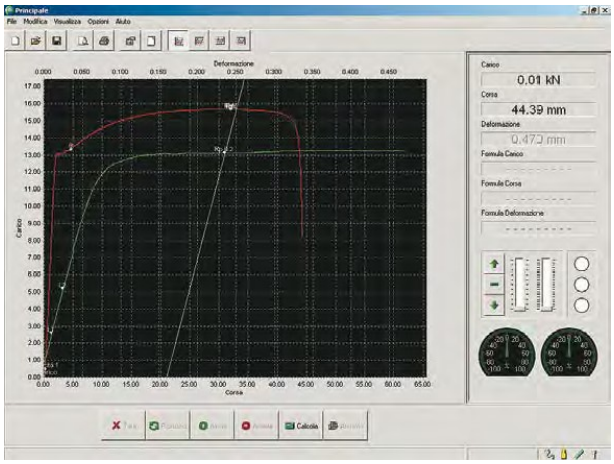
AC131

CODE	CONTROL SYSTEM	HYDRAULIC PUMP
AC131	8 channels	Semiautomatic
AC133	8 channels	Automatic

ACCESSORY

MG030-54
Software for tensile tests on Steel
This Software has been developed on the base of Microsoft Windows operating system. It is composed by many test procedures in conformity with the International Standards for metal, plastic, cement, wood and composed materials.

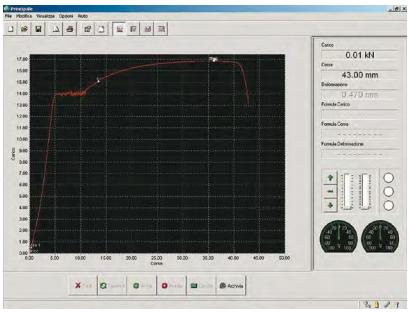
The software allows a speedy and easy management of all the machine parameters such as the management of the load acquisition by means of a load cell, the specimen deformations by means of an extensometer and the crossbar displacement.



MG030-54 *Software for tensile tests on steels*

ACCESSORIES

MG030-11
Software for compression tests on concrete
MG030-74
Software for tensile steel and compression concrete tests



MG030-54 *Tensile test graphic*

MG031
Custom computer
Supplied with keyboard, mouse and connection cable.

AC130-01
Safety guards to CE Directive
Polycarbonate made with hinges and lock.

AC130-02
Upper platen for compression tests on concrete
The platens have Ø 216 mm and are hardened and rectified as requested by Standards. Foreseen of seat ball, fixing device, lower compression platen and distance pieces test cylinders maximum diameter 160x320 mm and cubes 150 mm maximum side.

AC130-02

MG021-07
Load cell 500kN for tensile calibration test
AC130-07
Device for tensile calibration test
MG021
Digital tester for loads cells

MG021-07+AC130-07

MG035
Graphic printer on thermal paper
MG035-01
Thermal paper (10 rolls)

MG035

AC130-11
Set of 4 jaws, upper and lower, for round steel specimens from Ø 6 to 15 mm, and flat specimens from 6 to 15 mm. thickness (max. width 25 mm).

AC130-12
Set of 4 jaws, upper and lower for round specimens from Ø15 to 25 mm.

AC130-11 **AC130-12**

AC150
Electronic extensometer
It gives the possibility to take the longitudinal deformations of the specimen during the tensile test. A graph load/deformation is obtained and from this graph the coefficient of elasticity together with the loads RP0.1 - RP0.2 - Rt1 can be identified even on materials that are not presenting a yield point that can be clearly identified.

AC150

Measuring base: 50 mm
Deformation range: +1 mm / -0,2 mm
Max. % measurable deformation: + 2%

<u>EXTENSOMETER FOR TENSILE DEFORMATION STRENGTH TESTS UNTIL BREAKAGE</u>
This electronic coaxial extensometer is used to measure the deformation of a specimen under tensile test until breakage. The extensometer is directly fixed to the test specimen and it remains connected until breakage, by measuring the deformation both in the elastic and in the plastic phases. Supplied with 4 spacers for the intermediate sample diameters of the specific measuring range, connection cable, accessories, carrying case.

AC151
Extensometer for round specimens from 4,5 to 11 mm diameter.
Transducer stroke: 25 mm

AC153
Extensometer for round specimens from Ø10 a 19 mm
Transducer stroke: 50 mm

AC155
Extensometer for round specimens from Ø18 a 25 mm
Transducer stroke: 50 mm

AC157
Extensometer for flat specimens, width max. 25 mm;
thickness max. 10 mm.
Transducer stroke: 50 mm
Measuring base: 25 - 50 - 60 - 70 mm

AC153

SU353
MULTIPURPOSE 50 KN - TENSILE 25 KN TESTER

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 25 kN max capacity load
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Tensile in mortar briquettes
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
ROCKS AND STONES:
Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separetely.

SU353

Power supply: 230 V | 50-60 Hz |150 W
Adjustable testing speed: from 0,01 to 51 mm/min
Load gradient: from 1 to 15000 N/seg
Maximum ram travel: 100 mm
Daylight between columns: 380 mm
Maximum vertical daylight: 850 mm
Dimensions: 500x450x1450 mm
Weight: 130 Kg

ACCESORIES MULTIPURPOSE 25 KN FOR STEELS:

TENSILE TEST ON METALS, PLASTICS,...
ASTM D2166 | BS 1377:7 | AASHTO T208

MG020-05
Load cell 25 kN
AC120-16
Coupling for tensile heads installation
AC120-01
Tensile heads (upper and lower)
AC120-11
Grips for round specimens
from Ø3 to 5 mm and flat specimens
with maximum thickness from 1 to 10 mm
and maximum width 25 mm
AC120-12
"V" grips for round specimens from Ø5 to 12 mm
MG030-54
Software for tensile tests on steel

AC151
Extensometer for round bars
from Ø4,5 to 11 mm
Transducer stroke: 25 mm
AC153
Extensometer for round specimens
from Ø10 to 19 mm
Transducer stroke: 50 mm
AC155
Extensometer for round specimens
from Ø18 a 25 mm
Transducer stroke: 50 mm
AC157
Extensometer for flat specimens till
width 25 mm; thickness 10 mm

Transducer stroke: 50 mm
Measuring base: 25 - 50 - 60 - 70 mm

SU355
DIGITAL MULTIPURPOSE TESTER 200 KN

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile tests.

The versatility of the machine allows to carry out the tests:
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load
SOIL:
CBR (California Bearing Ratio)
Unconfined compression
Quick triaxial
CONCRETE:
Flexural on beams and tiles
CLAY BLOCKS:
Punching
CEMENT:
Flexural test on mortar prisms 40x40x160 mm
Compression test on mortar prisms 40x40x160 mm
Tensile on mortar briquettes
ASPHALT:
Marshall
Splitting tensile
Direct shear Leutner
Duriez
ROCKS AND STONES:
Uniaxial splitting tensile
METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...
Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The load is applied by a mechanical jack that is driven by a brushless motor with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

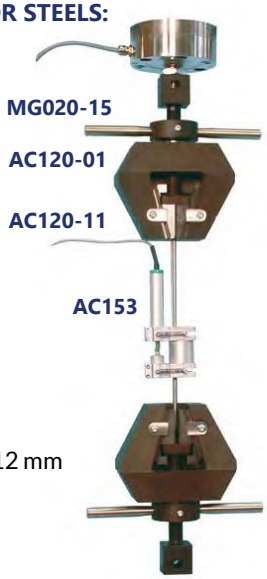
SU355

Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

Power supply: 230 V | 50-60 Hz | 850 W
Maximum vertical distance: 900 mm
Daylight between columns: 650 mm
Adjustable testing speed: from 0,01 to 100 mm/min
Load gradient: from 1 N/s to 5 kN/s
Dimensions: 950x560x2400 mm
Weight: 820 Kg

ACCESORIES MULTIPURPOSE 200 KN FOR STEELS:

MG020-06
Load cell 50 kN
MG020-16
Connector for 50 kN load cell
AC120-01
Jaws for tensile tests
MG020-15
Coupling for tensile heads installation
AC120-11
Grips for round specimens
from Ø3 to 5 mm and flat specimens
with maximum thickness from 1 to 10 mm
and maximum width 25 mm
AC120-12
"V" grips for round specimens from Ø5 to 12 mm
MG030-54
Software for tensile tests on steel



AC151
Extensometer for round bars
from Ø4,5 to 11 mm
Transducer stroke: 25 mm
AC153
Extensometer for round specimens
from Ø10 to 19 mm
Transducer stroke: 50 mm
AC155
Extensometer for round specimens
from Ø18 a 25 mm
Transducer stroke: 50 mm
AC157
Extensometer for flat specimens till
width 25 mm; thickness 10 mm

Transducer stroke: 50 mm
Measuring base: 25 - 50 - 60 - 70 mm


AC153

AC161
EDUCATIONAL UNIVERSAL TESTING MACHINE 20 KN

The machine has been designed to measure strength of metallic materials and study the various reactions they undergo when subject to different stresses, verifying the same with the tensile test, shear test, compression test, flexural test, brinell hardness.

This machine is primarily for educational purposes and intended for use in higher educational institutes or universities and allows students of material science to have a hands-on approach to applications so far studied at a theoretic level only.

The machine is manually controlled, while readings are both analog, through the manometer and the dial indicator, and digital, through the pressure transducer and the displacement transducer connected to the digital indicator.

It consists of a 30 kN (160 bar) manometer, an analog indicator with a full scale of 50 mm, a 250 bar pressure transducer, a 50 mm travel displacement transducer and a digital indicator.

ACCESSORIES

AC161-01
Educational device for tensile test
AC161-02
Educational device for compression test
AC161-03
Educational device for shear test


AC161-01


AC161-02


AC161-03

AC161-04
Educational device for Brinell hardness test
AC161-05
Educational device for flexure test


AC161-04


AC161-05


AC161

Power supply: 230 V | 50-60 Hz | 70 W
Dimensions: 600x600x850 mm
Weight: 60 Kg

MG030-54
Software for tensile tests on steel

SAMPLES FOR TENSILE TEST
AC161-11
Round bar test specimens Ø6 mm, stainless steel made (14 pcs)
AC161-12
Round bar test specimens Ø6 mm, brass made (14 pcs)
AC161-13
Round bar test specimens Ø6 mm, bronze made (14 pcs)
AC161-14
Round bar test specimens Ø6 mm, copper made (14 pcs)
AC161-15
Round bar test specimens Ø6 mm, aluminium made (14 pcs)
AC161-16
Flat bar test specimens, different materials (14 pcs)

SAMPLES FOR SHEAR TEST
AC161-21
Round copper bar specimens Ø6 mm (14 pcs)

SAMPLES FOR FLEXURE TEST
AC161-31
Flat bar specimen (14 pcs)


AC161-11... AC161-31

AC181
BEND-TESTING MACHINE

Manufactured with a strong self-supporting structure.
The bi-directional working plate allows any type of bending without any bar displacement. The type of bending can be modified by moving the bolt into the different plate holes.

This bending machine complies with EC safety requirements.
Supplied with bolts, bushings, tilt square and pedal.

Power supply: 400-230 V | 3 ph | 50 Hz
Dimensions: 1050x890x950 mm
Weight: 490 Kg

AC181

ACCESORIOS

AC181-01
Stirrup measuring bender for bars up to Ø12 mm

AC181-02
Circular stirrup bender for bars from Ø6 up to Ø25 mm

AC181-03
Large radius wheels for arm

AC181-04
Large radius arm

AC183
AUTOMATIC MARKING-OFF MACHINE

Used to mark off specimens with round, square shape and with improved bond for the measurement of the percentage elongation after their breaking.

The machine can mark specimens as follows:
-Round from 4 mm up to 50 mm diameter
-Flat from 4 mm up to 50 mm thickness
-Square from 4 mm to 45 mm side

Useful length: 300 mm
Marking steps: 5 or 10 mm selectable with lateral graduation
Marking speed: 60 marks per minute
Power supply: 400 V | 3 ph | 50 Hz
Dimensions: 530x480x445 mm
Weight: 58 Kg

AC183

HR473
SPECIMEN CUTTING MACHINE

Supplied with abrasive blades up to Ø 350 mm.

Power supply: 230 V | 50 Hz | 2000 W
Maximum disc diameter: up to 350 mm
Useful cutting height: 120 mm
Blade rotation speed: 3900 r.p.m.
Dimensions: 560x460x390 mm
Weight: 20 Kg

HR473

ACCESSORY

HR473-01
Diamond blade Ø450 mm
It has a long life for a faster and more precise cutting operation.

CHARPY PENDULUM IMPACT TESTER

EN 10045 | ASTM E23 | ISO 148-1, 148-2

This apparatus is used for determining the steel tension and bending strength by impact. It is equipped with a falling pendulum hammer which breaks in a single blow a sample notched in the middle and positioned on two supports.

The test is carried out on a Charpy sample in order to check the energy absorbed during the impact, which is measured in Joules. The value indicates the impact strenght of the material (resilience).

This machine perfoms tests automatically, and is operated via a simple and intuitive touch screen. Its guards include a polycarbonate sliding door with an electrical interlock, which meets the requirements for CE marking.

The pendulum is supplied with:
-Charpy impact blades according to ASTM and ISO
-Foundation base
-Self-centring specimen placement grips
-Verification template for pendulum geometric characteristics
-Data acquisition software for connecting machine to a PC

Power supply: 220 V | 750 W
Pendulum length: 800 mm
Angle of strike: 150°
Velocity of strike: 5,42 m/s
Dimensions: 2110x700x2110 mm
Weight: 1300 Kg

AC205

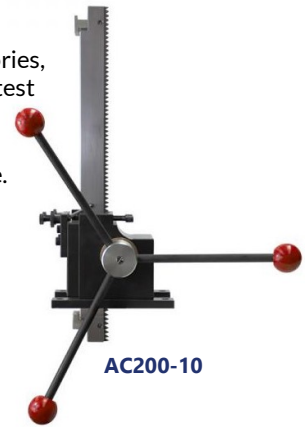
CODE	AC201	AC203	AC205
CAPACITY	300 J	450 J	750 J

ACCESSORIES

AC200-01
Automatic specimen centering device
Facilitates fast and precise specimen positioning, thus shortening the time between tests.

AC200-01

AC200-10
Manual notching device
ISO 148-1
Designed for test houses and laboratories, which are producing small batches of test pieces. This machine cut Charpy and Izod 'V' and 'U' notches in pre-machined standard 10 mm square.



AC200-10

AC200-11

AC200-11
Broaches for creating notches on "V" with depth 2 mm
AC200-12
Broaches for creating notches on “U” with depth 5 mm

AC200-20
Motorized notching machine
ISO 148-1
This notching uses a fast and precise machining process to create notches for Charpy and Izod testing.

The speed controller enables the machining of the hardest materials, and increased broach durability.

The standard broach is used for carbon and low alloy steels. Broaches with a special coating must be used for more resistant, harder or stainless steels.

Cutting speed: from 6 to 30 mm/s
Specimen size : 10x10 mm
Dimensions: 400x400x1250 mm
Weight: 125 Kg

AC200-20

TABLETOP PENDULUM IMPACT TESTER

EN ISO 13802

This apparatus is used for determining the tension and bending strength of plastics and composites by impact.

These machines perfom tests automatically, and is operated via a simple and intuitive touch screen. Its guard includes a polycarbonate sliding door with an electrical interlock, which meets the requirements for CE marking.

The pendulum is supplied with:
-Charpy impact blades according to ASTM and ISO
-Automatic brake
-Data acquisition software for connecting machine to a PC

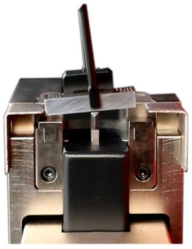
Power supply:
110-240 V | 750 W
Pendulum length:
340 mm
Velocity of strike:
3,46 m/s

AC213

CODE	AC213	AC215	AC221	AC227	AC229
CAPACITY	2,75 J	7,5 J	15 J	25 J	50 J
DIMENSIONS MM	1000x600x1000	1000x600x1000	1000x600x1000	1000x600x1000	1250x800x1040
WEIGHT KG	200-300	200-300	200-300	200-300	500

ACCESORIES

AC200-01
Automatic specimen centering device
Facilitates fast and precise specimen positioning, thus shortening the time between tests.



AC200-01

AC200-10

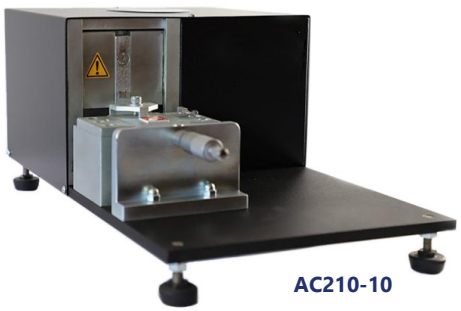
AC200-10
Manual notching device
Designed for test houses and laboratories, which are producing small batches of test pieces. This machine cut Charpy and Izod 'V' and 'U' notches in pre-machined standard 10mm square.

AC200-11
Broaches for creating notches on "V" with depth 2 mm
AC200-12
Broaches for creating notches on “U” with depth 5 mm

AC200-30
Motorized notching machine for plastics
EN 180 | EN ISO 179 B
This notching employs a fast and precise machining process to create notches for Charpy and Izod testing.

The micrometre enables notches to be set with a precision of 0,01 mm.
The machine includes a notching blade for standard EN ISO 179-1.

Dimensions: 440x240x200 mm
Weight: 22 Kg



AC210-10

AC251
ROCKWELL & BRINELL HARDNESS TESTER
EN 10045 | ASTM E23 | ISO 148-1, 148-2

In the Rockwell test, hardness is determined by comparison, by measuring the depth of two carefully controlled indentations, one superimposed on the other.

This hardness tester is capable of applying loads of:
-Rockwell 60-100-150 Kg
-Brinell 31,25-62,5-187,5 Kg

First, a small load is applied (the weaker load) with a steel ball or a round-conical diamond indenter. Then, while the smaller load continued to be applied, a larger load is applied (the stronger load) with controlled precision. The larger load is removed, revealing the specific hardness. The hardness evaluation is obtained from the additional depth marked on the sample by the larger load, over and above the initial indentation made by the smaller load.

Loads are applied via a motor. Loads are easy to select using a rotary controller, and application speed is motorised.

Included accessories:

-Rockwell indenter - Ball 1/16”
-Rockwell indenter - Diamond cone
-Brinell indenter - Ball Ø2.5 mm
-Spare balls
-Rockwell template (HRC, HRB)
-V-shaped support table Ø40 mm
-Horizontal support table Ø72 mm
-Flat support table Ø150 mm (Optional)
-Brinell conversion tables
-Case with accessories

AC253
DIGITAL ROCKWELL & BRINELL HARDNESS TESTER
EN 10045 | ASTM E23 | ISO 148-1, 148-2

Same as model AC251 but data display via touch screen and USB data output for integration into customer’s test programme.


AC251


AC253

Power supply: 220 V
Preload: 10 Kg
Rockwell scale loads: 60 - 100 - 150 Kg
Brinell scale loads: 31,25 - 62,5 - 187,5 Kg
Vertical capacity: 170 mm
Dimensions: 215x520x700 mm
Weight: 100 Kg

ACCESORIES:

AC250-01
Reference blocks with UKAS certification
Available with different hardnesses and ranges


AC250-01

AC250-11
Magnifier for reading Brinell indentations 20x
Measurement range: 7mm
Resolution: 0,05 mm

AC250-12
Magnifier for reading Brinell indentations 30x
Measurement range: 5mm
Resolution: 0,025 mm

AC250-13
Magnifier for reading Brinell indentations 40x
Measurement range: 4 mm
Resolution: 0,02 mm


AC250-12

AC250-20
Portable Brinell indentation digital measuring device
System that enables Brinell indentations to be quickly, simply and precisely measured. Additionally, all captures are saved in an internal database, together with the results. Equipped with USB camera, tablet and data read and write software.


AC250-20

AC250-30
Indenters for hardness tester
Available for different hardness methods with official UKAS certification.
Rockwell B, C and Vickers indenters.


AC250-30

PENETRATING LIQUIDS
UNE EN 1289 | 1M:2002

Penetrating liquid inspection is a universal method used to detect and view open defects in the surface of non-porous materials.

The basic principle of the method is very simple. First, clean all grease and dirt from the surface to be inspected. Afterwards, apply a coloured product known as a penetrant. If there are any cracks or defects, the penetrant will enter them due to capillarity, regardless of the size of the crack.

Remove excess penetrating liquid from the part so the surface is completely clean except for the penetrating liquid in the cracks. Then apply a coat of highly absorbent product, known as a developer, that acts like desiccant paper forcing the penetrant to come out of the crack, so its location and approximate dimensions are visible.

The main advantages of using penetrating liquids for inspection over other crack detection methods are that it can be used on both ferrous and non-ferrous materials.

The size and shape of the specimen to be inspected are not important.

The procedure is simple and application is not difficult.

AC301
PENETRATING LIQUID

AC303
DEVELOPER LIQUID

AC305
REMOVER LIQUID

AC303 AC301 AC305

AC311
ULTRASONIC DEFECT DETECTOR
EN 12668-1

A lightweight, portable flaw detector built to be rugged and flexible for nearly any inspection. The rugged, ergonomic design allows use in nearly any inspection environment from bench top testing in a laboratory to extreme outdoor and hazardous conditions.

Its robust structure allows it to be used in almost any inspection environment: as a bench-top instrument in laboratories or as a portable outdoor instrument under field conditions.

The user interface combines a simple menu structure for instrument settings, calibration and software feature adjustment.

The software includes powerful flaw detection capabilities:
-Dynamic curves DAC/TCG
Calculates signal amplitude as a percentage or decibel level compared to a DAC curve or a reference echo amplitude fixed at a time-varied gain.

-DGS/AVG Diagram
Illustrates the relationships between echo height, flaw size, and distance from the transducer.

-AWS D1.1 y D1.5 Rating
Provides a dynamic reflector indication rating for various AWS weld inspection applications. This allows more efficient inspections by eliminating manual calculations.

The equipment is supplied with:
-Rechargeable lithium-ion battery
-Battery charger
-USB cable
-Quick reference card
-Comprehensive operation manual
-Transport case

Power supply: 240 V | 50-60 Hz
Battery life: 15 h
Dimensions: 236x70x167 mm
Weight: 1,6 Kg

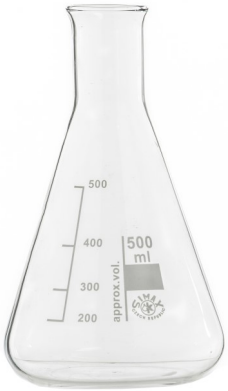
AC311

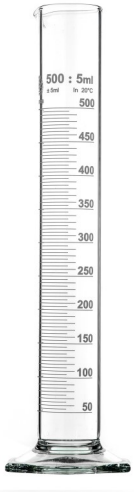
SECTION MG

GENERAL EQUIPMENT

Here you will find all the equipment that is necessary to carry out quality tests on construction materials, but that cannot be included in a specific section.

For example: weighing systems, temperature, measurement and all glassware such as test tubes, pipettes, beakers and other items whose applications are necessary in all previous sections.





CONTROL SYSTEMS

MG001
DIGITAL CONTROL UNIT 2 CHANNELS

System designed for the management and control of testing machines. This equipment is a two-channels computerised graphic display system to control and manage all sorts of automatic and semiautomatic compression and flexure testing machines.

The control unit has been designed for acquisition, display, processing, printing and saving test data and certificates. There is a software available for remote control from PC.

This display has 2 analogue-digital channels accepting sensors, transducers or load cells at 2 mV/V.

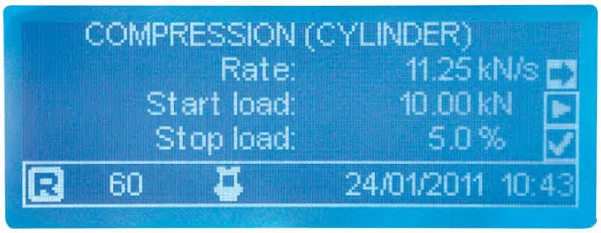
In conjunction with a pumping unit this unit allows an automatic control of the pace rate, rapid approaching, touching on and breaking of the specimen. Automatic breaking load detection and elaboration of the specific resistance value.

Permanent file up to 1000 tests and file of 100 different types of specimens. Selectable measuring force: kN, lb Different Languages: English, French, German, Spanish... RS232 interface: it allows the data transfer during the test or the test results directly to PC.

Operator interface composed by 5 multi-functions pushbuttons and a graphic screen where function icons are shown.

Different programmable safety devices for the machine or the specimen as the possibility to introduce a percentage of the máximum value reached during the text execution, thermal protection of the motor and different other settable alarms.

The firmware contains a memory of the most used specimens: area, weight, specific weight. Also the possibility of personalization for special sized samples.



MG001

MG005
DIGITAL CONTROL UNIT 8 CHANNELS

System designed for the management and control of testing machines. This unit is designed with the latest technology, an innovative PC-like Touch Screen system, employed to control and manage all sorts of automatic and semiautomatic compression and flexure testing machines.

This system with 8 analog inputs is a PC-based and touch screen system which is modular, flexible and multifunctions. The touch-screen graphical user-friendly interface allows an easy set up of the parameters and an immediate execution of the test. Large directional arrow-keys for gloved use.

Greater calculation ability and data display (on board charts and graphic print-outs). Due to its multilingual framework and international settings the display has a high management capacity of parameters as date and time, decimal units, unit of measure,...

The equipment includes licenses for the execution of compression, flexural and splitting test on concrete and compression and flexural on mortar in accordance to the following standards: EN, ASTM, BS, NF, DIN, etc...
Also it has functions for the software updates and licenses.

The device has unlimited memory storage with 2 USB ports and 1 SD card slot. Different Languages: English, French, German, Spanish... RS232 interface: it allows the data transfer during the test or the test results directly to PC.

MG005

POWER SYSTEMS

MG011
MOTORIZED PUMPIMG UNIT

The power system consists of a dual-stage pump: low pressure/high delivery for fast piston approach and high pressure/low volume for loading.

The pump is fitted with a special manually-controlled proportional valve to maintain the preset load rate during the test, requiring only occasional adjustments by the operator.

The power pump with proportional valve can be used to fit existing frames, including other brands.

Includes tank, speed selector, hydraulic cock, accessories and connectors.

Hydraulic pressure:
0...700 bar
Oil supply:
from 0,05 to 0,7 litres/min

MG011

MG013
SERVO-CONTROLLED PUMPIMG UNIT

Same technical features in common with MG011 pump except for the enhanced hydraulic control and precise oil flow control automatically operated.

Dual stage pump: centrifugal low pressure for fast approach and automatic switching to radial multi-piston high pressure for loading.

Hydraulic pressure:
0...700 bar
Oil supply:
0,05 to 0,7 liters/min

MG013

MG010-01
Console Housing pump unit
Lined with sound-proofing material for noise reduction.

MG010-01

MG010-02
Two way hydraulic valve
Installed on the pumping unit to activate a second testing frame.

MG010-02

MG010-03
Stop switch on safety guard

PRESSURE TRANSDUCERS
These transducers provide a very accurate electrical signal that is strictly proportional to the pressure of the hydraulic circuit of the testing machine or apparatus. Supplied with cable and calibration certificate.

Input voltage: 10 V DC
Sensitivity range: 2 - 4 mV/V
Accuracy: 0.15 fs
Pressure connection: 0,25 BSP

MG010-23

CODE	PRESSURE
MG010-11	0 – 10 bar
MG010-12	0 – 20 bar
MG010-13	0 – 35 bar
MG010-14	0 – 50 bar
MG010-15	0 – 60 bar
MG010-16	0 – 100 bar
MG010-17	0 – 160 bar
MG010-18	0 – 200 bar
MG010-19	0 – 350 bar
MG010-20	0 – 400 bar
MG010-21	0 – 500 bar
MG010-22	0 – 600 bar
MG010-23	0 – 700 bar

DISPLACEMENT TRANSDUCERS

These provide an electrical signal that is proportional to the displacement of the linear shaft. The extremely low spring force on the shaft and the excellent linearity make these transducers ideal for laboratory use.

STANDARD DISPLACEMENT TRANSDUCERS
Independent Linearity: <0,3% (0,3 x10 mm)
Max. travel speed: up to 10 m/s

MG010-30
Displacement transducer 10 mm travel
MG010-31
Displacement transducer 25 mm travel
MG010-32
Displacement transducer 50 mm travel
MG010-33
Displacement transducer 100 mm travel


MG010-32

DISPLACEMENT TRANSDUCERS "TYPE TR"
Independent Linearity: 0,05%
Standard sensitivity: 0,002 mm

MG010-34
Displacement transducer "TR type" 25 mm travel
MG010-35
Displacement transducer "TR type" 50 mm travel
MG010-36
Displacement transducer "TR type" 100 mm travel


MG010-35

DISPLACEMENT TRANSDUCERS "TYPE LVDT"
These high-precision displacement transducers are controlled by the position of a magnetic core which provides an output of voltage that is proportional to the position of the transducer stem.

Independent Linearity: 0,30 %
Resolution: infinite


MG010-39
MG010-38

MG010-37
Displacement transducer "LVDT type" 2 mm travel
MG010-38
Displacement transducer "LVDT type" 10 mm travel
MG010-39
Displacement transducer "LVDT type" 20 mm travel

DIAL GAUGES

Foreseen on different machines and equipments.

CODE	SYSTEM	TRAVEL	ACCURACY
MG010-51	ANALOGIC	5 mm	0,001 mm
MG010-52	ANALOGIC	10 mm	0,01 mm
MG010-53	ANALOGIC	25 mm	0,01 mm
MG010-54	ANALOGIC	30 mm	0,01 mm
MG010-55	ANALOGIC	50 mm	0,01 mm
MG010-56	ANALOGIC	100 mm	0,01 mm
MG010-61	DIGITAL	12,7 mm	0,001 mm
MG010-62	DIGITAL	25,4 mm	0,001 mm


MG010-56
MG010-54
MG010-52
MG010-62

MG010-41
Extension cable 2 metres long

MG010-42
Extension cable 5 metres long

MG010-43
Extension cable 10 metres long


MG010-43

MOUNTING BRACKETS
Designed for coupling and fixing the displacement transducers and dial gauges to testing machines.

MG010-81
Magnetic holder for dial gauges/indicators
MG010-82
Device to fix the displacement transducer/dial
MG010-83
Spacer for MG010-82 to be fixed to frame columns
MG010-84
Small horizontal coupling device for TR transducers
MG010-85
Large horizontal coupling device for LVDT transducers
MG010-86
Vertical coupling device for LVDT transducers


MG010-85
MG010-84


MG010-82

STRAIN GAUGE LOAD CELLS

These load cells provide a very accurate electrical signal that is strictly proportional to the applied load. They can be used for various test applications with low capacity universal testers.

CODE	CAPACITY kN
MG020-01	2,5
MG020-02	5
MG020-03	10
MG020-04	20
MG020-05	25
MG020-06	50
MG020-07	100
MG020-08	200

MG020-01

MG020-04

HIGH PERFORMANCE LOAD CELLS

These high performance cells have been specially designed to meet the stringent requirements of EN, ISO and ASTM standards for calibration of compression testing machines.

Accuracy: Class 1 EN ISO 376
Linearity: ≤ ± 0,05 %
Hysteresis: ≤ ± 0,05 %
Repeatability: 0°, 120°, 240°: ≤ ± 0,145 %

CODE	CAPACITY kN
MG021-01	5
MG021-02	25
MG021-03	30
MG021-04	50
MG021-05	100
MG021-06	300
MG021-07	500
MG021-08	1000
MG021-09	2000
MG021-10	3000
MG021-11	5000

MG021-11

MG021-04

MG021
FORCE VERIFICATION AND CALIBRATION APPARATUS

EN 12390-4 | EN ISO 376 | ASTM C39 | ASTM E4

This user friendly digital display, connected to any load cells allows to perform an accurate verification of the loads measured from machines under control and it allows to produce the corresponding certificate. The instrument foresees three memorized cycle verification program composed of ten measurements each. At the end of the test the unit automatically elaborates the stored value and displays:

-Effective applied load
-Measured load (over three verification cycles)
-Average measured load
-Accuracy in %
-Repeatability
-Relative readability
-Max error

The tester's accuracy is ± 0,5% of the indicated load.

Power supply: 230 V | 50-60 Hz
Dimensions: 360x300x200 mm
Weight: 5 Kg

ACCESSORIES

MG030-02
Software to download the results to PC

MG021-09

MG021

SOFTWARE

Software developed for allowing operators the management and an user friendly control of digital testing machines.

The ideal Software for the management of an extensive production.The optimal solution of laboratories for its characteristics of versatility with a wide range of customizations, for testing and research.

Flexibility, operating speed, precision and automatic storage are the fundamental characteristics of the Software conceived to facilitate the operator with few computer skills, for the management of the tests and the testing machines too.

The software is developed on Windows platform and can be installed on old operative systems. Software available in different languages: Spanish, English, French, Italian, German, Polish, Turkish,...

It facilitates the printing of certificates suggesting a preset layout but changeable and customizable by the user with its own logo or others.

MG030-01
Software for remote control through PC

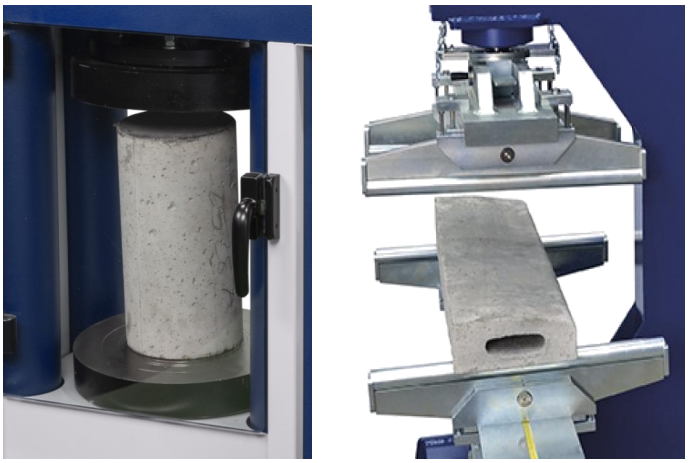
MG030-02
Software to download to PC the results with possibility of certificate printout

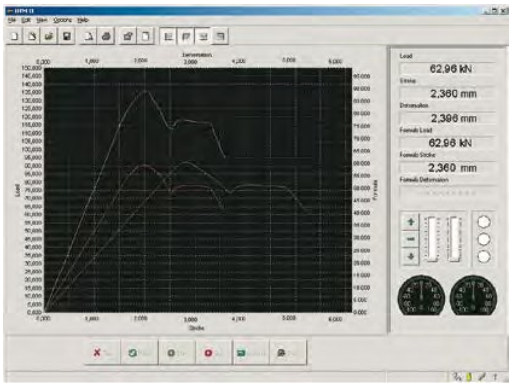
MG030-03
Software for test data processing

CONCRETE TESTS
MG030-11
Software for compression test on concrete
EN 12390-3 | ASTM C39 | UNE 83304 | NF P18-411 | BS 1881 | DIN 51220

MG030-12
Software for flexural test on concrete
EN 12390-5 | ASTM C78, C293
NF P18-407 | BS 1881:118

MG030-13
Software for splitting tensile test on cylinders, cubes and concrete blocks.
EN 12390-6 | ASTM C496





MG030-14

MG030-14
Software for
-Measurement of deflection on fibre reinforced concrete
-Determination of toughness and first crack strength
-Energy absorption test on sprayed concrete specimens

MG030-15
Software for secant compression elastic modulus tests on concrete
ASTM C469 | ISO 6784 | DIN 1048

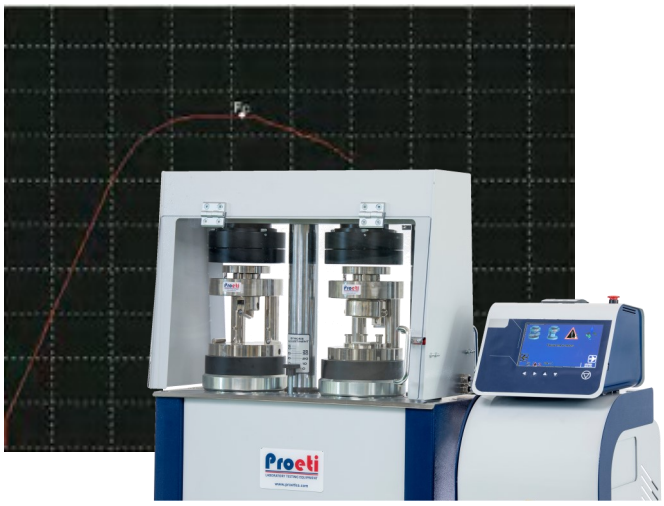
MG030-16
Software for punching test on clay blocks
EN 15037-2 | EN 15037-3

MG030-17
Software for flexural strengths
First cracking, ultimate and residual
EN 14488-3

CEMENT AND MORTAR TESTS
MG030-21
Software for compression test on mortars
EN 196-1 | ASTM C109

MG030-22
Software for flexural test on mortars
EN 196-1 | ASTM C348

MG030-24
Tensile test on mortar briquettes
ASTM C190, C307 | AASHTO T132

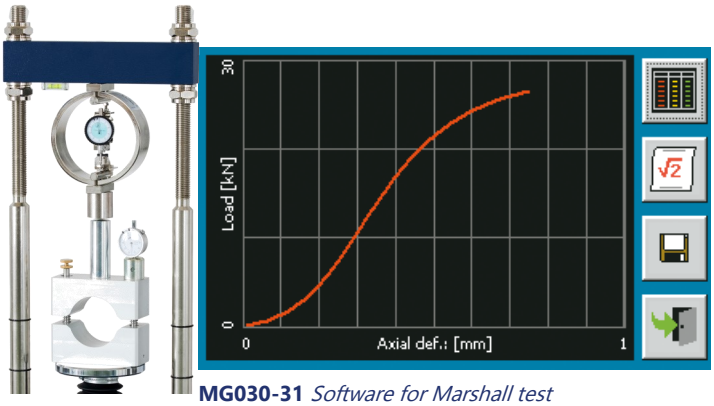


BITUMEN AND ASPHALT TESTS
MG030-31
Software for Marshall compression test
EN 12697-34 | ASTM D1559 | CNR N. 30
NF P98-251-2 | BS 598 :107

MG030-33
Software for Splitting Tensile test
EN 12697-23 | ASTM D4123 | CNR N. 134

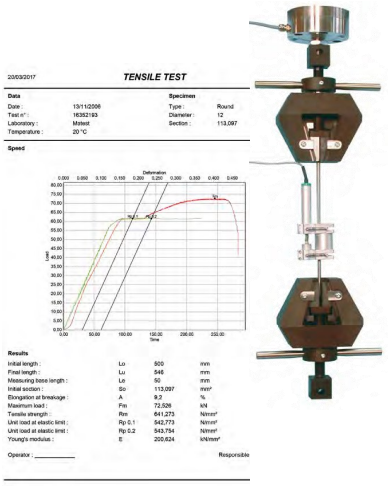
MG030-36
Software for Leutner and Marshall tests
EN 12697-34 | ASTM D1559 | CNR N. 30
NF P98-251-2 | BS 598 :107 | ALP A StB T.4

MG030-37
Software for Duriez test
NF P98-251/1 | NF P98-251/4



MG030-31 *Software for Marshall test*

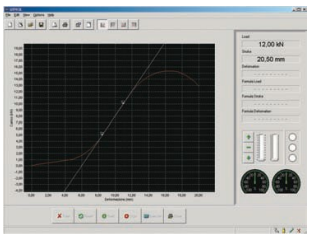
STEEL TESTS
MG030-54
Software for tensile tests on steel
EN 10002 | ASTM A370
ISO 527, 178, 604, 10113, 12275
Allows to see graphs created in real time during the test, and to elaborate a test report.



SOIL TESTS
MG030-41
Software for CBR test
EN 13286-47 | ASTM D1883
NF P94-078 | BS 1377:4

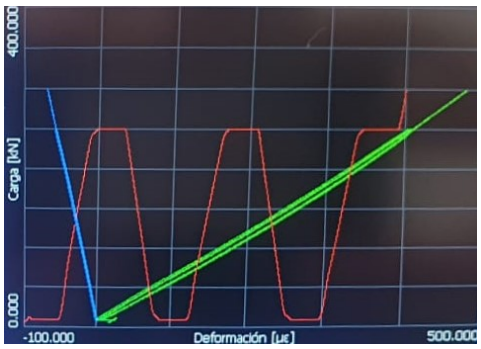
MG030-42
Software for unconfined compression test
ASTM D2166

MG030-47
Software for quick triaxial test
ASTM D2850 | BS 1377



MG030-41 *CBR Software*

ROCKS TEST
MG030-65
Software for elastic modulus tests on rocks
EN 9724-8 | ASTM D3148, D2938, D5407, D2664 | ISRM



MG030-65 *Software for Elastic Modulus*

COMBINED SOFTWARES
MG030-74
Software for tensile test on steel and compression tests on concrete

MG030-75
Software for Elastic Modulus test on Concrete, Mortar and Rock specimens

MG031
CUSTOM COMPUTER

It is applicable with all the testing machines equipped with digital display measuring system.

Supplied with LCD monitor, keyboard, mouse and connection cables.

MG031

MG035
ON-BOARD GRAPHIC PRINTER

On board graphic printer on thermo-paper for digital control units to print certificates and graphics.

MG035-01
Thermo-paper roll for printer (10 pieces)

MG035

MG037
USB LASER PRINTER

For the graphic and test certificate printing, applicable on all testing machines with digital display measuring system. The connection is direct by parallel interface also without PC.

MG037

MG041
SEPARATE CONTROL PANEL

Supplied with on/off switch and electric protections, to get the equipments to CE Safety Directive.

MG043
SEPARATE CONTROL PANEL WITH TIMER

Supplied with timer, on/off switch and electric protections, to get the equipments to CE Safety Directive.

MG041

MG043

ACQUISITION DATA DEVICES

These devices are multipurpose data loggers which work directly connected to a PC. Data are automatically transferred to PC in real time for live monitoring of the tests. Supplied with software for acquisition and proccessing data.

Compatible gauge load cells, pressure transducers, linear LDT transducers, LVDT conditioned transducers, with strain, potentiometric displacement transducers.

Available models:

MG051
4 Channels acquisition and processing data system

MG053
8 Channels acquisition and processing data system

MG055
12 Channels acquisition and processing data system

MG057
16 Channels acquisition and processing data system

MG051

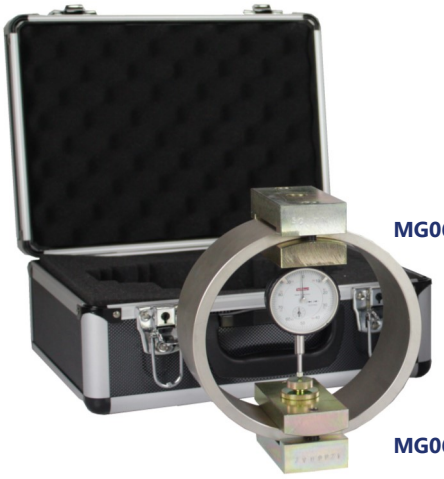
MG057

LOAD MEASURING RINGS

Load rings can be used for load measurement and for calibration of testing machines. All models are made from special alloy steel and are supplied with a dial gauge.

Repeatability is within 0.2% and accuracy is held within ±1%. Load rings are supplied with a calibration chart.

The load rings can be supplied in different versions depending upon the application and the machine to be used, as shown in he table below.



MG061-11

MG060-03

MG061-14 + MG060-03

CAPACITY kN	DIAL GAUGE 0,01	DIAL GAUGE 0,001	DIGITAL GAUGE 0,001
0,5	MG061-01	MG063-01	MG065-01
1	MG061-02	MG063-02	MG065-02
2	MG061-03	MG063-03	MG065-03
3	MG061-04	MG063-04	MG065-04
4	MG061-05	MG063-05	MG065-05
5	MG061-06	MG063-06	MG065-06
10	MG061-07	MG063-07	MG065-07
15	MG061-08	MG063-08	MG065-08
20	MG061-09	MG063-09	MG065-09
30	MG061-10	MG063-10	MG065-10
40	MG061-11	MG063-11	MG065-11
50	MG061-12	MG063-12	MG065-12
60	MG061-13	MG063-13	MG065-13
100	MG061-14	MG063-14	MG065-14

BALANCES AND WEIGHING SYSTEMS

WEIGHT SETS CLASS M1

Weights are used almost exclusively for adjusting and testing = calibration of electronic balances.
Made of finely turned stainless steel and supplied in a wooden case.

SET OF WEIGHTS	STAINLESS STEEL
1 mg - 500 mg	MG151-01
1 mg - 50 g	MG151-02
1 mg - 100 g	MG151-03
1 mg - 200 g	MG151-04
1 mg - 500 g	MG151-05
1 mg - 1 Kg	MG151-06
1 mg - 2 Kg	MG151-07
1 mg - 5 Kg	MG151-08
1 mg - 10 Kg	MG151-09
1 g - 50 g	MG151-10
1 g - 100 g	MG151-11
1 g - 200 g	MG151-12
1 g - 500 g	MG151-13
1 g - 1 Kg	MG151-14
1 g - 2 Kg	MG151-15
1 g - 5 Kg	MG151-16
1 g - 10 Kg	MG151-17

MG151-08

STACKABLE TEST WEIGHTS CLASS M1

Made of stainless steel.
Wooden case as optional accesory.

WEIGHT	CODE	CASE
10 Kg	MG171	MG171-01
20 Kg	MG172	MG172-01
50 Kg	MG173	MG173-01

MG153

MG171

BLOCK WEIGHTS CLASS M1

Made of lacquered cast iron or stainless steel.
Carrying case as optional accesory.

WEIGHT	IRON	STAINLESS STEEL	CASE
5 Kg	MG181-01	MG181-02	MG181-03
10 Kg	MG182-01	MG182-02	MG182-03
20 Kg	MG183-01	MG183-02	MG183-03
50 Kg	MG184-01	MG184-02	MG184-03

MG181-03

MG181-01

MG182-02

BALANCES AND WEIGHING SYSTEMS

ANALYTICAL BALANCES

These balances are used in laboratory applications mostly as single-user balances for sample preparation.

The numerous equipment features of the analitycal balances are complemented by high-quality materials with robust, sturdy construction, high-quality and high-performance weighing systems.

For different models please get in touch with our commercial/ technical department.

CODE	CAPACITY	RESOLUTION
MG200-12	120 g	0,1 mg
MG200-24	210 g	0,1 mg
MG200-26	220 g	0,1 mg
MG200-37	320 g	0,1 mg
MG200-42	510 g	0,1 mg

MG200-12

MG200-42

PRECISION BALANCES

Precision balances offer you all the tools you would need for effective and accurate work in your laboratory environment.

All important laboratory functions such as a recipe weighing function or data interfaces are on board at all times.

For different models please get in touch with our commercial/ technical department.

MG211-38

MG213-27

CODE	CAPACITY	RESOLUTION
MG210-01	60 g	0,001 g
MG210-02	100 g	0,001 g
MG210-05	200 g	0,001 g
MG210-13	300 g	0,001 g
MG210-19	420 g	0,001 g
MG210-42	720 g	0,001 g
MG210-46	1200 g	0,001 g
MG210-47	2100 g	0,001 g
MG211-01	200 g	0,01 g
MG211-03	400 g	0,01 g
MG211-05	600 g	0,01 g
MG211-12	1200 g	0,01 g
MG211-28	3200 g	0,01 g
MG211-32	3600 g	0,01 g
MG211-38	4200 g	0,01 g
MG211-45	6200 g	0,01 g
MG211-49	8200 g	0,01 g
MG213-01	400 g	0,1 g
MG213-02	1000 g	0,1 g
MG213-04	2000 g	0,1 g
MG213-06	4000 g	0,1 g
MG213-08	6000 g	0,1 g
MG213-17	10000 g	0,1 g
MG213-21	12000 g	0,1 g
MG213-24	16000 g	0,1 g
MG213-25	20000 g	0,1 g
MG213-26	24000 g	0,1 g
MG213-27	31000 g	0,1 g

BALANCES AND WEIGHING SYSTEMS

BENCH SCALES

Thanks to their compact dimensions, low weight, robust internal mechanism and the fact that they can be operated independent of mains power, bench scales can be used not only in a stationary situation, but also as mobile scales.

With weighing ranges between 3 kg and 65 kg, bench scales can cover a wide range of applications.

For different models please get in touch with our commercial/ technical department.

MG220-19

CODE	CAPACITY	RESOLUTION
MG220-05	3 Kg	0,1 g
MG220-06	8 Kg	0,1 g
MG220-08	12 Kg	0,1 g
MG220-09	16 Kg	0,1 g
MG220-10	36 Kg	0,1 g
MG220-16	3 Kg	1 g
MG220-17	12 Kg	1 g
MG220-18	15 Kg	1 g
MG220-19	30 Kg	1 g
MG220-21	65 Kg	1 g

FLOOR BALANCES

In our floor scales product category, we offer our customers a carefully coordinated product range in the weighing range from 300 to 6,000 kg.

Our floor scales are perfectly suited for weighing large containers and heavy goods through generously sized struts and material thicknesses, mobile stored adjustable feet for the protection of the load cells, protection against dust and water splashes or a convenient disconnect device bet ween the display device and platform.

CODE	CAPACITY	RESOLUTION
MG240-01	300 Kg	100 g
MG240-08	600 Kg	200 g
MG240-32	1500 Kg	500 g
MG241-08	3000 Kg	1000 g
MG241-27	6000 Kg	2000 g

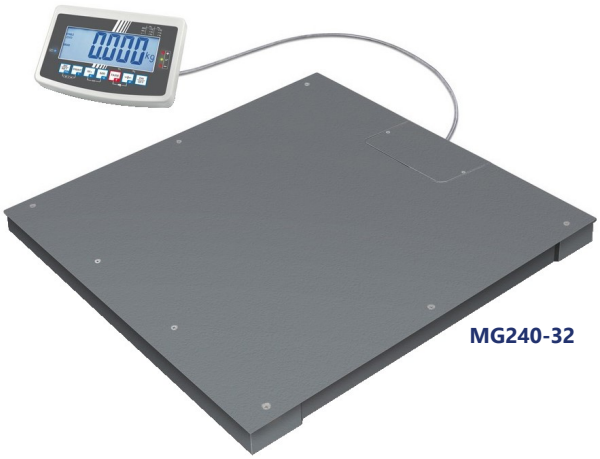
PLATFORM SCALES

These scales allow to weigh high capacities. Their high quality components provide high stability and precision.

For different models please get in touch with our commercial/ technical department.

MG234-03

CODE	CAPACITY	RESOLUTION
MG231-04	16 Kg	0,1 g
MG231-07	30 Kg	0,1 g
MG232-08	65 Kg	0,5 g
MG232-10	100 Kg	0,5 g
MG232-17	30 Kg	1 g
MG232-20	60 Kg	1 g
MG232-21	150 Kg	1 g
MG233-27	150 Kg	5 g
MG233-41	300 Kg	5 g
MG234-03	35 Kg	10 g
MG234-05	120 Kg	10 g
MG234-07	300 Kg	10 g
MG234-22	60 Kg	20 g
MG234-24	600 Kg	20 g
MG235-02	150 Kg	50 g
MG236-02	300 Kg	100 g



MG240-32

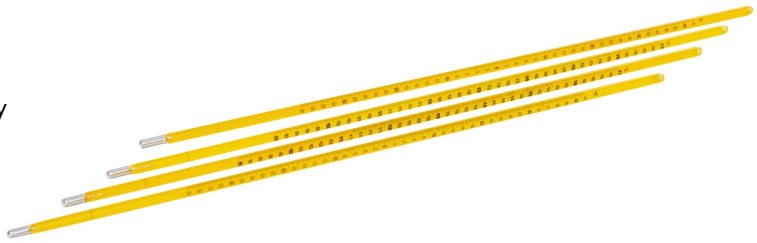
TEMPERATURE MEASUREMENT SYSTEMS

GLASS THERMOMETERS BLUE LIQUID

These thermometers satisfies practically all requirements prescribed by the testing Standards ASTM.

The blue liquid thermometers are an alternative to mercury models due to is not allow to manufacture thermometers with mercury in European Union.

For different models please get in touch with our commercial/ technical department.



CODE	ASTM	RANGE °C	GRADUATION °C	LENGHT mm	APPLICATION
MG260-01	1C	-20 +150°C	1°C	317 mm	
MG260-03	9C	-5 +110°C	0,5°C	285 mm	Pensky Martens
MG260-05	13C	+155 +170°C	0,5°C	150 mm	
MG260-07	15C	-2 +80°C	0,2°C	390 mm	
MG260-08	16C	+30 +200°C	0,5°C	390 mm	
MG260-09	17C	+19 +27°C	0,1°C	270 mm	Saybolt viscosity
MG260-10	18C	+34 +42°C	0,1°C	270 mm	
MG260-11	19C	+49 +57°C	0,1°C	270 mm	Saybolt viscosity
MG260-12	20C	+57 +65°C	0,1°C	270 mm	Saybolt viscosity
MG260-13	21C	+79 +87°C	0,1°C	270 mm	Saybolt viscosity
MG260-14	22C	+95 +103°C	0,1°C	270 mm	
MG260-15	23C	+18 +28°C	0,2°C	207 mm	Engler viscosity
MG260-16	24C	+39 +54°C	0,2°C	232 mm	Engler viscosity
MG260-17	25C	+95 +105°C	0,2°C	207 mm	Engler viscosity
MG260-22	33C	-38 +42°C	0,2°C	415 mm	
MG260-24	35C	+90 +170°C	0,2°C	415 mm	
MG260-32	44C	+18,6 +21,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-33	45C	+23,6 +26,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-34	46C	+48,6 +51,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-35	47C	+58,6 +61,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-36	48C	+80,6 +83,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-39	54C	+20 +100,6°C	0,2°C	305 mm	Freezing point
MG260-46	63C	-8 +32°C	0,1°C	374 mm	
MG260-52	72C	-19,4 -16,6°C	0,05°C	300 mm	Kinematic viscosity
MG260-53	73C	-41,4 -38,6°C	0,05°C	300 mm	Kinematic viscosity
MG260-60	89C	-20 +10°C	0,1°C	365 mm	Solidification point
MG260-61	90C	0 +30°C	0,1°C	365 mm	Solidification point
MG260-62	91C	+20 +50°C	0,1°C	365 mm	Solidification point
MG260-63	92C	+40 +70°C	0,1°C	365 mm	Solidification point
MG260-64	93C	+60 +90°C	0,1°C	365 mm	Solidification point
MG260-65	94C	+80 +110°C	0,1°C	365 mm	Solidification point
MG260-66	95C	+100 +130°C	0,1°C	365 mm	Solidification point
MG260-67	96C	+120 +150°C	0,1°C	365 mm	Solidification point
MG260-73	110C	+133,6 +136,4°C	0,05°C	300 mm	Kinematic viscosity
MG260-82	122C	-45 -35°C	0,1°C	295 mm	Brookfield viscosity
MG260-83	123C	-35 -25°C	0,1°C	295 mm	Brookfield viscosity
MG260-84	124C	-25 -15°C	0,1°C	295 mm	Brookfield viscosity
MG260-85	125C	-15 -5°C	0,1°C	295 mm	Brookfield viscosity

TEMPERATURE MEASUREMENT SYSTEMS

DIGITAL THERMOMETERS

For temperature measurement of freshly mixed concrete, bituminous mixtures and general purpose use.

CODE	RANGE	PROBE
MG271	-50 a +150°C	133 mm
MG273	-50 a +250°C	213 mm

MG273

MG275-01

MG275
DIGITAL THERMOMETER

This thermometer is particularly practical because it enables virtually any kind of temperature measurement. Whether for surface, air or immersion/penetration measurement.
The thermometer requires to be connected with a probe.

Temperature measuring range: from -50 to +1000°C
Dimensions: 182x65x40 mm
Weight: 171 g

ACCESSORIES

MG275-01
Waterproof immersion/penetration probe -60 a +400°C
MG275-02
Waterproof surface probe -60 a +400°C for flat surfaces
MG275-03
Service case for thermometer and probes
MG275-04
Safe case to protect from impact and dirt

MG291
POCKET INFRARED THERMOMETER

Measures temperature on two channels. On the one hand, being an infrared thermometer it can take non-contact surface temperature measurements of the object being measured, on the other hand, it can measure the air temperature using its additionally integrated NTC sensor.

Supplied with protective cap, belt pouch, and batteries.

MG291

Infrared range: -30 to +300°C | Resolution 0,1°C
NTC range: -10 to +50°C | Resolution 0,1°C
Dimensions: 119x46x25 mm
Weight: 90 g

DIAL THERMOMETERS

For temperature measurement of freshly mixed concrete, bituminous mixtures and general purpose use.

Dial: Ø50 mm
Probe: 200 mm

MG286

CODE	RANGE
MG281	0 a +60°C
MG283	0 a +100°C
MG285	0 a +200°C
MG287	0 a +300°C

INFRARED THERMOMETERS

These infrared thermometer allows efficient, non-contact surface temperature measurements to be carried out. Particularly useful for control readings in trade and industry.

Pointer temperature range 1: -30 to + 400°C
Pointer temperature range 2: -50 to + 500°C

CODE	LASER POINTERS	OPTIC
MG293	1	10:1
MG295	2	12:1
MG297	2	30:1

MG293

MG297

TEMPERATURE MEASUREMENT SYSTEMS

MG301
DIGITAL THERMOPAR 2 CHANNELS

The thermopar microprocessor-controlled model is for professional use and, fitted with the suitable probe (not included), can be used for monitoring the temperature of asphalt, concrete mortar etc. This high resolution model is dual range and is housed in a rugged ABS case.

Temperature range 1: -50 a +200°C resol. 0,1°C
Temperature range 2: +200 a +1350°C resol. 1°C
Dimensions: 150x80x36mm
Weight: 235 g

ACCESSORIES

MG301-01
Penetration probe Ø3x120 mm up to 900°C
MG301-02
Surface probe Ø16x260 mm up to 650°C
MG301-03
Air probe Ø3x245 mm up to 300°C
MG301-04
Protective cover for thermopar

MG301

MG301-01

MG303
PORTABLE THERMOHYGROMETER

Designed to provide quick and high accuracy temperature and relative humidity readings.

Supplied with probe, batteries and carrying case.

Dimensions: 154x63x30 mm
Weight: 196 g

MG303

MG305
CONDUCTIVITY METER UP TO 400 S

A rugged, portable meter with the performance and features of a benchtop for measuring:
-Conductivity
-Total Dissolved Solids (TDS)
-Resistivity
-Salinity

Supplied with:
-Conductivity probe
-1413 µS/cm calibration solution
-1118 µS/cm calibration solution
-Software
-Micro USB
-Battery
-Rugged carrying case

Dimensions: 185x93x35 mm
Weight: 400 g

MG305

MG307
EC-TDS CONDUCTIVITY METER

A waterproof meter for measuring Conductivity, Total Dissolved Solids (TDS) and Temperature easy to use with replaceable electrodes.

Supplied with
-EC/TDS probe
-Electrode replacement tool
-Batteries

EC range: 0 - 3999 uS/cm
Resolution: 1 uS/cm

TDS range: 0 a 2000 ppm (mg/L)
Resolution: 1 ppm (mg/L)

Temperature range: 0 - 60°C
Resolution: 0,1°C

Weight: 100 g

MG307

MG309
POCKET PH METER 0-14 pH

A simple pH tester for routine measurements.

Supplied with:
-2 pH 4,01 calibration solutions
-2 pH 7,01 calibration solutions
-pH electrodes
-2 cleaner solutions
-Batteries

MG309

MG311
DIGITAL PH-TEMPERATURE METER

A pH tester for quick and accuracy pH and temperature measurements with non-replaceable electrode.

Supplied with:
-pH 4,01 calibration solution
-pH 7,01 calibration solution
-Cleaner solution
-Batteries

Range ph: 0-14 pH
Temperature range: 0,0-50,0°C

MG311

MG313
PORTABLE PH-ORP-TEMPERATURE METER

This professional, waterproof meter accurately measures pH, ORP and temperature. Built-in diagnostic features for the most precise measurements and logging so you never miss a measurement is the perfect tool for environmental and industrial testing.

Supplied in a rugged carrying case with:
-pH Electrode
-pH 4,01 calibration solution
-pH 7,01 calibration solution
-Cleaner solution
-Beaker
-Software
-Micro USB
-Battery

Dimensions:
185x93x35 mm
Weight:
400 g

MG313

MG315
MULTIPARAMETRIC METER PH-CE-OD

Advanced pH-meter with high accuracy and versatility which can measure pH, conductivity and dissolved oxygen through its digital electrodes.

Supplied with:
-Benchtop docking station with electrode holder
-Wall mount cradle
-USB cable
-Adaptador alimentación 5 VDC
-2 pH 4,01 calibration solutions
-2 pH 7,01 calibration solutions
-2 pH 10,01 calibration solutions
-2 cleaner solutions
-pH Electrode

Dimensions:
202x140x13 mm
Weight:
250 g

MG315

WATER STILLS

Used to prepare distilled water for laboratory use.
An automatic device keeps the water at a constant level.

If there isa shortage of water an automatic switch cuts off the current and switches it on again when the level returns to normal.

Power supply:
230 V | 50-60 Hz


MG333

CODE	CAPACITY	POWER	DIMENSIONS	WEIGHT
MG331	4 L/h	3000 W	250x220x540 mm	12 Kg
MG333	8 L/h	6000 W	260x260x610 mm	14 Kg

HYDROMETERS

Hydrometers are used for determining the particle size distribution of very fine materials such as silt and clay.

MODELS
MG321
Hydrometer 151 H
Range: 0.995 - 1,038 g/ml, div. 0,001

MG323
Hydrometer 152 H
Range: -5 + 60 g/litre

MG325
Hydrometer BS1377
Range: 0,995 - 1,030 g/ml

MG327
Hydrometer for additives
Range: 1,000 a 1,200 g/ml

MG329
Hydrometer for aggregates EN 1367-2
Range: 1200 a 1300 g/ml

GLASS MEASURING PIPETTES

With coding band and designed according to ISO 835. Class A.

CODE	CAPACITY	GRADUATION
MG351-01	0,1 ml	0,001
MG351-02	0,2 ml	0,002
MG351-03	0,5 ml	0,005
MG351-04	1 ml	0,01
MG351-05	2 ml	0,02
MG351-06	5 ml	0,05
MG351-07	10 ml	0,1
MG351-08	15 ml	0,1
MG351-09	20 ml	0,1
MG351-10	25 ml	0,1
MG351-11	50 ml	0,2

VOLUMETRIC PIPETTES WITH ONE MARK

With coding band and designed according to ISO 648. Class A.

CODE	CAPACITY
MG353-01	1 ml
MG353-02	2 ml
MG353-03	3 ml
MG353-04	5 ml
MG353-05	10 ml
MG353-06	15 ml
MG353-07	20 ml
MG353-08	25 ml
MG353-09	50 ml
MG353-10	100 ml

MG353-08

VOLUMETRIC PIPETTES WITH TWO MARKS

With coding band and designed according to ISO 648. Class A.

CODE	CAPACITY
MG355-01	1 ml
MG355-02	2 ml
MG355-03	5 ml
MG355-04	10 ml
MG355-05	15 ml
MG355-06	20 ml
MG355-07	25 ml
MG355-08	50 ml
MG355-09	100 ml

MG355-09

PIPETTE PUMP FILLER

With wheel and piston, for easy or plastic pipettes.

CODE	PIPETTES
MG350-01	up to 2 ml
MG350-02	up to 10 ml
MG350-03	up to 25 ml

MG350-03
MG350-02
MG350-01

BURETTES WITH PTFE STRAIGHT STOPCOCK

Designed according to ISO 385.
Class A.

CODE	CAPACITY	GRADUATION
MG361-01	10 ml	0,05
MG361-02	25 ml	0,1
MG361-03	50 ml	0,1
MG361-04	100 ml	0,2

MG361-02

BURETTE WITH PTFE STRAIGHT STOPCOCK AND FUNNEL TOP

Designed according to ISO 385.
With funnel top to make filling easier and safer.
Schellbach Type.
Class A.

CODE	CAPACITY	GRADUATION
MG363-01	10 ml	0,05
MG363-02	25 ml	0,1
MG363-03	50 ml	0,1

MG363-02

PYCNOMETER FOR SOLIDS

CODE	CAPACITY
MG371-01	25 ml
MG371-02	50 ml
MG371-03	100 ml

MG371-03

GAY-LUSSAC PYCNOMETERS

CODE	CAPACITY
MG375-01	10 ml
MG375-02	25 ml
MG375-03	50 ml
MG375-04	100 ml

MG375-02 MG375-03 MG375-04

DENSITY BASKETS STAINLESS STEEL MADE

CODE	DIMENSIONS
MG381-01	Ø120x120
MG381-02	Ø160x160
MG381-03	Ø180x180
MG381-04	Ø200x200
MG381-05	Ø250x250
MG381-06	Ø300x300

MG380
SPECIFIC GRAVITY FRAME

EN 12390-7 | EN 1097-6 | BS 812 | BS 1881:14

This apparatus is used, together with a suitable electronic balance, for determining the specific gravity of laboratory fresh and hardened concrete and aggregates.

A purpose built robust frame supports the electronic balance, while the lower part of the frame incorporates a moving platform which holds the water container, allowing test specimens to be weighed in both air and water.

The balance is not included and should be selected according to the weighing range required. Any type of electronic balance fitted with an under-bench weighing facility can be used.

Dimensions: 510x510x1150 mm
Weight: 50 Kg

MG213-10

MG380 + MG380-03

MG385
SPECIFIC GRAVITY KIT

This apparatus is used, together with a suitable electronic balance, for determining the specific gravity of laboratory fresh and hardened concrete and aggregates.

The kit is composed of a support bridge frame with hook rod and a plastic tank 370x370x330 mm.

MG213-09

MG385

ACCESORIES FOR SPECIFIC GRAVITY:

MG380-01
Cradle for holding specimens
MG381-04
Density basket Ø200x200 mm, mesh 3,35 mm
MG220-09
Electronic top loading balance 16 Kg x 0,1 g

VOLUMETRIC FLASK WITH PLASTIC STOPPER

Made of borosilicate glass.
Designed according to ISO 1042.
Class A.

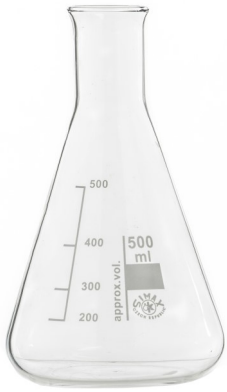
CODE	CAPACITY
MG390-01	5 ml
MG390-02	10 ml
MG390-03	20 ml
MG390-04	25 ml
MG390-05	50 ml
MG390-06	100 ml
MG390-07	200 ml
MG390-08	250 ml
MG390-09	500 ml
MG390-10	1000 ml
MG390-11	2000 ml

MG390-07

ERLENMEYER FLASK NARROW NECK

Graduated. Made of borosilicate glass.
According to DIN 12380, ISO 1773.

CODE	CAPACITY
MG391-01	25 ml
MG391-02	50 ml
MG391-03	100 ml
MG391-04	250 ml
MG391-05	500 ml
MG391-06	1000 ml
MG391-07	2000 ml
MG391-08	3000 ml
MG391-09	5000 ml

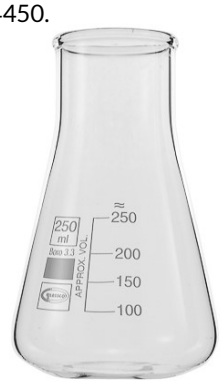


MG391-05

ERLENMEYER FLASK WIDE NECK

Graduated. Made of borosilicate glass.
According to DIN 12385, EN ISO 24450.

CODE	CAPACITY
MG393-01	100 ml
MG393-02	250 ml
MG393-03	500 ml
MG393-04	1000 ml

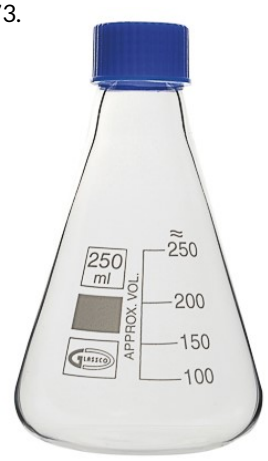


MG393-02

ERLENMEYER FLASKS WITH SCREW CAP

Made of borosilicate glass.
With GL thread and screw cap with a PTFE joint.
According to DIN 12380, ISO 1773.

CODE	CAPACITY
MG395-01	100 ml
MG395-02	250 ml
MG395-03	500 ml
MG395-04	1000 ml



MG395

FILTERING FLASKS (KITASATO)

MG397-02

CODE	CAPACITY
MG397-01	250 ml
MG397-02	500 ml
MG397-03	1000 ml

GRADUATED BOTTLES WITH THREAD

Made of borosilicate glass.
With screw cap and pouring ring in polypropylene.
According to ISO 4796.

CODE	CAPACITY
MG401-01	50 ml
MG401-02	100 ml
MG401-03	250 ml
MG401-04	500 ml
MG401-05	1000 ml
MG401-06	2000 ml

MG401-04

BEAKERS LOW FORM

Graduated, with spout. According to DIN 12331, ISO 3819.
Made of borosilicate glass.

CODE	CAPACITY	DIMENSIONS
MG403-01	25 ml	Ø35x50 mm
MG403-02	50 ml	Ø45x60 mm
MG403-03	100 ml	Ø53x70 mm
MG403-04	150 ml	Ø60x80 mm
MG403-05	250 ml	Ø70x97 mm
MG403-06	400 ml	Ø80x112 mm
MG403-07	500 ml	Ø87x118 mm
MG403-08	600 ml	Ø90x130 mm
MG403-09	800 ml	Ø100x135 mm
MG403-10	1000 ml	Ø105x150 mm
MG403-11	2000 ml	Ø133x185 mm
MG403-12	3000 ml	Ø150x215 mm
MG403-13	5000 ml	Ø170x270 mm

BEAKERS TALL FORM

Graduated, with spout. According to DIN 12331, ISO 3819.
Made of borosilicate glass.

CODE	CAPACITY	DIMENSIONS
MG405-01	50 ml	Ø45x60 mm
MG405-02	100 ml	Ø53x70 mm
MG405-03	150 ml	Ø60x80 mm
MG405-04	250 ml	Ø70x97 mm
MG405-05	400 ml	Ø80x112 mm
MG405-06	500 ml	Ø87x118 mm
MG405-07	600 ml	Ø90x130 mm
MG405-08	800 ml	Ø100x135 mm
MG405-09	1000 ml	Ø105x150 mm
MG405-10	2000 ml	Ø133x185 mm

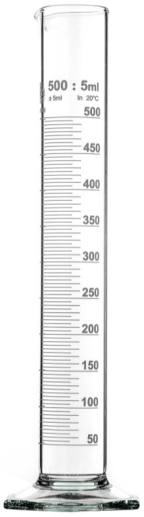
MG403-09

MG405-04

MEASURING CYLINDER HEXAGONAL BASE

Made of borosilicate glass in compliance with ISO 4788.
Class A.

CODE	CAPACITY	GRADUATION
MG411-01	10 ml	0,2
MG411-02	25 ml	0,5
MG411-03	50 ml	1
MG411-04	100 ml	1
MG411-05	250 ml	2
MG411-06	500 ml	5
MG411-07	1000 ml	10
MG411-08	2000 ml	20

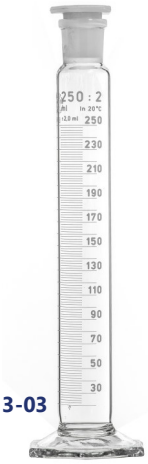


MG411-06

MEASURING CYLINDER HEXAGONAL BASE WITH PLASTIC STOPPER

Made of borosilicate glass in compliance with ISO 4788.
Class B.

CODE	CAPACITY	GRADUATION
MG413-01	50 ml	1
MG413-02	100 ml	1
MG413-03	250 ml	2
MG413-04	500 ml	5
MG413-05	1000 ml	10



MG413-03

MEASURING CYLINDER HEXAGONAL BASE

Made of Polymethylpentene (PMP) according to ISO 6706.
Class B.

CODE	CAPACITY	GRADUATION
MG415-01	10 ml	0,2
MG415-02	25 ml	0,5
MG415-03	50 ml	1
MG415-04	100 ml	1
MG415-05	250 ml	2
MG415-06	500 ml	5
MG415-07	1000 ml	10
MG415-08	2000 ml	20

MG415-04

DESICCATORS WITH GLASS COVER

CODE	CAPACITY	DIMENSIONS
MG421-01	4 L	Ø210x300 mm
MG421-02	6 L	Ø240x350 mm
MG421-03	10 L	Ø300x400 mm

VACUUM TYPE DESICCATORS GLASS COVER AND LID

CODE	CAPACITY	DIMENSIONS
MG423-01	4 L	Ø210x308 mm
MG423-02	6 L	Ø240x358 mm
MG423-03	10 L	Ø300x408 mm

MG421-02

MG423-02

WEIGHING BOTTLE WITH LID LOW FORM

CODE	DIMENSIONS
MG431-01	Ø30x20 mm
MG431-02	Ø35x25 mm
MG431-03	Ø40x30 mm
MG431-04	Ø50x30 mm
MG431-05	Ø60x30 mm
MG431-06	Ø70x40 mm

MG431-03

WEIGHING BOTTLE WITH LID TALL FORM

CODE	DIMENSIONS
MG433-01	Ø25x25 mm
MG433-02	Ø25x40 mm
MG433-03	Ø30x50 mm
MG433-04	Ø40x50 mm
MG433-05	Ø45x70 mm

MG433-05

BOTTLE AMBER NARROW MOUTH WITH STOPPER

CODE	CAPACITY
MG441-01	50 ml
MG441-02	100 ml
MG441-03	250 ml
MG441-04	500 ml
MG441-05	1000 ml
MG441-06	2000 ml

MG441-05

BOTTLE AMBER WIDE MOUTH WITH STOPPER

CODE	CAPACITY
MG443-01	100 ml
MG443-02	250 ml
MG443-03	500 ml
MG443-04	1000 ml
MG443-05	2000 ml

MG443-04

PORCELAIN MORTAR WITH PESTLE

Made of upper grade porcelain.
Unglazed inside but fine polished.
Includes mortar and pestle.

CODE	CAPACITY
MG451-01	60 ml
MG451-02	100 ml
MG451-03	150 ml
MG451-04	275 ml
MG451-05	550 ml
MG451-06	900 ml
MG451-07	1500 ml
MG451-08	2000 ml
MG451-09	4200 ml

MG451-05

EVAPORATING DISH PORCELAIN FLAT BOTTOM

Made of top quality porcelain. Withstands temperatures up to 1150°C. Glazed inside.

CODE	CAPACITY
MG453-01	35 ml
MG453-02	50 ml
MG453-03	80 ml
MG453-04	100 ml
MG453-05	200 ml
MG453-06	300 ml
MG453-07	500 ml
MG453-08	1000 ml

MG453-05

MG453-03

EVAPORATING DISH PORCELAIN ROUND BOTTOM

Made of top quality porcelain. Withstands temperatures up to 1150°C. Glazed inside.

CODE	CAPACITY
MG455-01	35 ml
MG455-02	70 ml
MG455-03	120 ml
MG455-04	250 ml
MG455-05	385 ml
MG455-06	525 ml
MG455-07	765 ml
MG455-08	1285 ml

MG455-05

MG455-02

CASSEROLE PORCELAIN WITH HANDLE

Made of top quality porcelain. Withstands temperatures up to 1150°C. Glazed inside.

CODE	CAPACITY
MG457-01	65 ml
MG457-02	200 ml
MG457-03	500 ml
MG457-04	1250 ml

MG457-02

STAINLESS STEEL BOWLS

CODE	CAPACITY	DIMENSIONS
MG461-01	200 ml	Ø85x45 mm
MG461-02	300 ml	Ø105x45 mm
MG461-03	400 ml	Ø130x50 mm
MG461-04	550 ml	Ø155x60 mm

MG461-04

STAINLESS STEEL BOWLS COVER

CODE	CAPACITY	DIMENSIONS
MG463-01	200 ml	Ø85x45 mm
MG463-02	300 ml	Ø105x45 mm
MG463-03	400 ml	Ø130x50 mm
MG463-04	550 ml	Ø155x60 mm

MG463-01

STAINLESS STEEL BOWLS WITH SPOUT

CODE	CAPACITY	DIMENSIONS
MG465-01	100 ml	Ø80x40 mm
MG465-02	200 ml	Ø100x50 mm
MG465-03	300 ml	Ø120x50 mm
MG465-04	425 ml	Ø140x50 mm
MG465-05	550 ml	Ø160x50 mm
MG465-06	700 ml	Ø180x50 mm

MG465-05

GLASS PETRI DISHES

CODE	DIMENSIONS
MG481-01	Ø60x15 mm
MG481-02	Ø80x15 mm
MG481-03	Ø100x20 mm
MG481-04	Ø150x25 mm

MG481-04

MG481-01

FUNNEL WITH SINTERED DISC

CODE	PLATE	CAPACITY
MG501-01	Ø30 mm	30 ml
MG501-02	Ø40 mm	60 ml
MG501-03	Ø65 mm	140 ml
MG501-04	Ø90 mm	450 ml

MG501-03

POLYSTYRENE PETRI DISHES Ø90X14 MM

CODE	TYPE	COMPARTMENTS
MG483-01	Aseptic	1
MG483-02	Aseptic	2
MG483-03	Aseptic	3
MG483-04	Aseptic	4

MG483-01

MG483-04

MG483-05

POLYPROPYLEN FUNNEL NARROW MOUTH

CODE	DIAMETER
MG503-01	Ø80 mm
MG503-02	Ø100 mm
MG503-03	Ø120 mm
MG503-04	Ø180 mm
MG503-05	Ø220 mm
MG503-06	Ø260 mm
MG503-07	Ø310 mm

MG480
PETRI DISH CARRIER RACK

Stainless steel rack for Petri dishes of ≤ 100 mm diameter. The handle facilitates the transport of up to three parallel columns of stacked plates.

MG480

POLYPROPYLEN FUNNEL WIDE MOUTH

CODE	DIAMETERS	
MG505-01	max. Ø65	min. Ø12 mm
MG505-02	max. Ø80	min. Ø12 mm
MG505-03	max. Ø100	min. Ø18 mm
MG505-04	max. Ø150	min. Ø24mm

MG505-02

MG505-01

WIDE MOUTH BOTTLE

With black lid and insert plug.

CODE	CAPACITY	DIMENSIONS
MG511-01	60 ml	Ø57x45 mm
MG511-02	125 ml	Ø59x70 mm
MG511-03	250 ml	Ø67x98 mm
MG511-04	500 ml	Ø80x132 mm
MG511-05	750 ml	Ø99x127 mm
MG511-06	1000 ml	Ø102x151 mm
MG511-07	2000 ml	Ø118x227 mm

WASH BOTTLES

Made of polyethylene with screw cap with outlet tube. Very resistant to any liquid, acid and base. 30mm wide neck for easy and safe filling.

CODE	CAPACITY
MG513-01	250 ml
MG513-02	500 ml
MG513-03	1000 ml

MG513-03 MG513-02

PLASTIC BOTTLES

Made of polyethylene for the storage of acids and bases with screw cap.

CODE	CAPACITY
MG515-01	125 ml
MG515-02	250 ml
MG515-03	500 ml
MG515-04	1000 ml

MG515-03 MG515-04

PLASTIC MEASURING CUPS

CODE	CAPACITY	GRADUATION
MG521-01	250 ml	10
MG521-02	500 ml	25
MG521-03	1000 ml	50
MG521-04	2000 ml	50
MG521-05	3000 ml	100
MG521-06	5000 ml	250

MG521-03

PLASTIC DRUMS

CODE	CAPACITY
MG523-01	1 L
MG523-02	2 L
MG523-03	5 L
MG523-04	10 L

MG523-03

PLASTIC CANS

CODE	CAPACITY
MG525-01	5 L
MG525-02	10 L
MG525-03	20 L
MG525-04	30 L

MG525-02

PLASTIC CONTAINERS WITH HERMETIC LID

Made of polypropylene with lid and handle.

MG527-04

CODE	CAPACITY
MG527-01	1 L
MG527-02	1,5 L
MG527-03	4,4 L
MG527-04	5,6 L
MG527-05	10,7 L

PLASTIC BOXES

Rectangular stackable polyethylene trays.

CODE	CAPACITY	DIMENSIONS
MG531-01	15 L	395x295x215 mm
MG531-02	20 L	440x314x200 mm
MG531-03	35 L	595x395x215 mm
MG531-04	55 L	595x395x320 mm
MG531-05	80 L	800x600x230 mm
MG531-06	120 L	800x600x330 mm

ISOTHERMAL BOXES

Made of 100% recyclable polystyrene,
they allow products to be optimally isolated.

CODE	CAPACITY	DIMENSIONS
MG533-01	3,5 L	225x225x195 mm
MG533-02	4,7 L	330x200x185 mm
MG533-03	7,3 L	330x225x225 mm

MG531-02

MG533-03

STAINLESS STEEL TRAY

CODE	DIMENSIONS
MG551-01	200x200x45 mm
MG551-02	200x400x45 mm
MG551-03	300x300x45 mm
MG551-04	400x400x45 mm
MG551-05	400x600x45 mm
MG551-06	600x600x45 mm
MG551-07	1000x1000x45 mm

MG551-05

MG551-02

MG551-01

STAINLESS STEEL TRAY WITH RIM

CODE	DIMENSIONS
MG553-01	140x160x45 mm
MG553-02	140x200x45 mm
MG553-03	180x240x45 mm
MG553-04	200x300x45 mm
MG553-05	240x300x45 mm
MG553-06	290x390x45 mm

MG553-01

MG553-04

STAINLESS STEEL TRAY WITH HANDLES

CODE	DIMENSIONS
MG555-01	220x300x75 mm
MG555-02	260x350x78 mm
MG555-03	280x400x85 mm
MG555-04	320x450x90 mm

MG555-02

LABORATORY SPATULAS DOUBLED CURVED-END

Made of stainless steel.

CODE	LENGTH
MG571-01	130 mm
MG571-02	150 mm
MG571-03	180 mm
MG571-04	210 mm

MG571-02

CHATTAWAY SPATULAS

Made of stainless steel.

CODE	LENGTH	TIPS WIDTH
MG573-01	100 mm	3,5 mm
MG573-02	150 mm	4 mm
MG573-03	150 mm	6 mm
MG573-04	200 mm	7 mm

MG573-02

SPATULAS WITH WOODEN HANDLE

With blade made of stainless steel and 100 mm handle.

CODE	LENGTH
MG575-01	100 mm
MG575-02	150 mm
MG575-03	200 mm
MG575-04	250 mm
MG575-05	300 mm

MG575-05

MG575-01

SPATULAS WITH PLASTIC HANDLE

CODE	LENGTH
MG577-01	150 mm
MG577-02	200 mm
MG577-03	250 mm
MG577-04	300 mm
MG577-05	350 mm

MG577-02

STAINLESS STEEL SCOOPS

CODE	CAPACITY
MG581-01	60 ml
MG581-02	110 ml
MG581-03	200 ml
MG581-04	250 ml
MG581-05	360 ml
MG581-06	470 ml
MG581-07	640 ml
MG581-08	860 ml
MG581-09	1000 ml
MG581-10	2000 ml

MG581-09

MG581-06

PLASTIC SCOOPS

CODE	CAPACITY
MG583-01	120 ml
MG583-02	300 ml
MG583-03	550 ml
MG583-04	950 ml
MG583-05	1600 ml

MG583-02

MG583-04

MG583-01

MASONRY TOOLS

MG600 Steel Hammer
MG601 Pick mattock
MG602 Steel Mallet
MG603 Rubber Mallet
MG604 Rigid Spatula
MG605 Trowel
MG606 Rectangular Trowel
MG607 Shovel
MG608 Tyre rubber basket
MG609 Gloves

MG609

MG607

MG601

MG603

MG600

MG602

MG606

MG608

MG604

MG605

HOT PLATES

Designed to meet routine heating requirements of laboratories, for a wide variety of applications.

CODE	Ø PLATE
MG681-01	Ø 150 mm
MG681-02	Ø 180 mm
MG681-03	Ø200 mm
MG681-04	Ø 220 mm

MG681-04

BA223-05

MG681-01

CODE	PLATE	THERMOSTAT	MAX TEMP
MG683-01	220x400 mm	Digital	200°C
MG683-02	250x500 mm	Digital	200°C
MG683-03	220x400 mm	Analogic	400°C
MG683-04	250x500 mm	Analogic	400°C
MG683-05	220x400 mm	Digital	400°C
MG683-06	250x500 mm	Digital	400°C

MG683-06

MG683-01

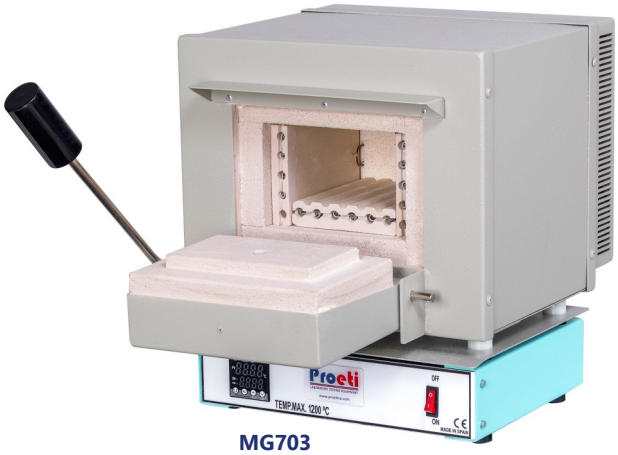
MUFFLE FURNACES 1200°C

This range of muffle furnaces covers practically all requirements of the construction material laboratory, from aggregates to concrete, cement and asphalt testing.

Power supply: 220 V

CODE	CAPACITY	DIMENSIONS	CONSUMPTION
MG701	1,6 L	300x330x430 mm	1,7 kW
MG702	7,6 L	540x510x490 mm	3,8 kW
MG703	12 L	540x510x490 mm	3,8 kW
MG704	18 L	600x600x600 mm	4,5 kW
MG705	24 L	650x600x650 mm	4,5 kW
MG706	30 L	750x600x700 mm	4,5 kW
MG707	32 L	650x780x650 mm	4,5 kW
MG708	42 L	750x800x700 mm	4,5 kW

MG707



MG703

VACUUM PUMP

For filter units, filtering flasks, desiccators and other laboratory applications. Compact and light weight. Piston powered vacuum pump, 100% oil-free transfer, clean and maintenance free. Adjustable vacuum. Vacuum gauge included. Silent running (50 dB).
It is recommended to combine vacuum pumps with a vacuum trap.


MG731

Power supply: 220V - 50Hz

CODE	FLOW RATE	MAX VACUUM	CONSUMPTION	VACUUM TRAP
MG731	20 L/min	105 mbar	60 W	MG731-01
MG733	20 L/min	30 mbar	80 W	MG733-01
MG735	68 L/min	120 mbar	200 W	MG735-02

ROTARY VANE VACUUM PUMPS

Rotary vane mechanism that allows to generate a higher vacuum. Requires lubrication by recirculating oil.Recommended for vacuum drying ovens of up to 60 L and other high vacuum needs. Silent running (52 dB).


MG740-01

MG743

CODE	FLOW RATE	MAX VACUUM	CONSUMPTION
MG741	75 L/min	0,1 mbar	180 W
MG743	75 L/min	0,01 mbar	240 W
MG745	150 L/min	0,01 mbar	370 W

ACCESORIES

MG740-01
Vacuum regulator with vacuum gauge, control valve, suction filter and moisture trap
MG740-02
Rubber tube 3 m long
MG740-03
Condensed water trap

MG780
PORTABLE GENERATOR FOR LABORATORY

Portable petrol engine driven single-phase generator. Ideal for site use with electrically operated machines and other apparatus when mains current is not available.

Power supply:
3000 W
Dimensions:
670x550x490 mm


MG780

AIR COMPRESSORS

We offer several different models which should satisfy all requirements relating to the different applications in soil, concrete and asphalt fields.

CODE	CAPACITY	AIR DELIVERY	CONSUMPTION
MG751	27 L	255 L/min	1,5 kW
MG753	50 L	255 L/min	1,5 kW
MG755	90 L	255 L/min	1,5 kW
MG757	200 L	320 L/min	2,2 kW
MG759	270 L	486 L/min	3 kW


MG757

MG810
HIGH PERFORMANCE MIXER 50 L

Planetary gearing converts power into high torque and high speed, ensuring optimum mixing in the shortest time possible. Built-in timer lets you control mixing cycles.
The rim scraper and height adjustable mixing tools remove all material deposits on the bottom and sides of bucket, enabling less clean-up which means more productivity.
Bucket dolly allows for quick transport and easy pouring.

Forced-action mixing tackles the most challenging materials. Interchangeable tools and speeds enable you to mix a variety of material from liquid to plastic media and multi-component systems like quartz sand mortar all in one machine.

Power supply:
230 V | 1100 W
Dimensions:
1075x758x845 mm
Weight:
112 Kg


MG810

LABORATORY MIXERS

These mixers have been designed and built for specific use in official laboratories, institutions and universities. They are indispensable for obtaining a perfect mix of concrete and guaranteeing a high degree of homogeneity. Due to the considerable size of the vessel, models with capacity over 50 L are supplied with a cart for transportation and safety protection.

Power supply: 220-380 V | 50-60 Hz

CODE	CAPACITY	DIMENSIONS	WEIGHT
MG801	14 L	700x600x650 mm	80 Kg
MG803	50 L	780x700x800 mm	160 Kg
MG805	100 L	830x800x900 mm	200 Kg
MG807	150 L	1700x950x1180 mm	290 Kg

MG801

MG823

PAN TYPE MIXERS

Mixers with solid and robust construction designeed for preparing concrete specimens and samples in the laboratory and on site. This high quality mixer guarantees excellent mixing results particularly using the smallest quantities of material.

Discharge is manually controlled for easy unloading of the mixer into a suitable container or wheelbarrow.

Power supply: 230-400 V | 50 Hz

CODE	CAPACITY	POWER	WEIGHT
MG821	60 L	2 kW	170 Kg
MG822	100 L	2 kW	200 Kg
MG823	120 L	4 kW	280 Kg
MG824	180 L	7,5 kW	390 Kg
MG825	300 L	9 kW	580 Kg
MG826	500 L	18,5 kW	1000 Kg
MG827	750 L	30 kW	1200 Kg

DRUM-TYPE MIXER

This model is a light weight but sturdy concrete mixer with different drum capacities. Particularly suitable for field use, to prepare low to medium strength concrete.

MG831
Drum-type mixer 150 L
MG833
Drum-type mixer 250 L
MG835
Drum-type mixer 300 L

MG831

MG850
WHEEL BARROW

Open cart with one wheel and handles that is used for carrying heavy materials.

MG850

MG861
TROLLEY

Useful for handling concrete samples or moulds in the laboratory.

MG863
TROLLEY 2 SHELVES

MG863

MG861

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