



LABORATORY'S MAIN EQUIPMENT LIST

CTS ID	Equipment name/ADescription	Serial number	Measuring range
A1	Universal machine for tensile, compression and flexural tests type EDZ 40 – HECKERT of 400 kN with five full scale adjustment, dloading speed monitoring, electronic extensometer and stress deformation diagram tracing system.	990022/20	0-400 kN
A2	RMU universal machine for tensile, compression and flexural tests type A35 RMU of 600 kN with system for constant load mantaining, electronic extensometer and stress deformation diagram tracing system.	340188	0-600 kN
A2/1	Extensometer for deflection measurements INSTRON DYNAMIC	2742	0,20÷2,00 mm
A4	Hardness meter WOLPERT DIA TESTOR 2 RCN.	7112/1970	HBW 2,5/187,5; HBW 2,5/62,5
A5	Hardness meter HECKERT for Vickers and Brinell hardness up to 250 Kg	308/177	HV HBW
A6	Hardness meter Brinell 3000 WOLPERT DIA TESTOR 3 – A	3074	HBW 10/3000
A7	Hardness meter GALILEO Mod. A 200 for Rockwell hardness	110258	HRBW: 20-100 HRC: 20-70
A8	Portable hardness meter EQUOTIP Mod. DM PA	920-0008	-
A9	Impact test machine WOLPERT type PW 30/15 K planned for electronic instrumentation.	1935	0÷300 J
A10	Impact test machine WOLPERT type PW 5 with 15 J and 50 J clubs	1548/613/1975	0÷15 J; 0÷50 J
A11	Broaches for impact test sample notching	55481	-
A12	Equipment for impact test samples cooling.	-	-
A28	Cryostat type JULABO mod. FP50-MC (-50 ÷ +200 °C)	10060475	-
A29	Hardness meter SHORE D ISO/R 868 DTS	S 5220	0÷100 Shore D
A30	Hardness meter BARCOL GYZJ 934-1	934-1	0÷80
A31	Portable hardness meter HB GNEHM	-	-
A33	Portable hardness meter type EUMETRON Brev. ERNST	2469	-
A34	Thermostatic dry chamber T max - 40 °C RE.CO. T	-	-
A35	Impact test machine ZWICK/ROELL type BRA342038300 up to 450J with electronic interface for digital reading (ASTM, ISO KV _g)	180315	0÷450 J
A38	Digital sliding caliper MITUTOYO, 0÷150 mm	08231676	0÷150 mm
A40	Environmental analogical thermometer Oterman TBMR150X range -10 ÷ +50°C	0509079	-10 ÷ +50°C
A41	Environmental analogical thermometer Oterman TBMR150X range -10 ÷ +50°C	0509080	-10 ÷ +50°C
A42	Universal machine for tensile and compression test ZWICK 10 T type 147800/1 equipped with load cell of 100 kN	106879	0-100 kN
A45	Universal machine for tensile and compression test CERMAC Mod. TM100 equipped with load cell of 100 kN equipped with furnace for hot tensile test up to + 1100°C & nr. 3 thermocouples serial n. TC K1, TC K2, TC K3	471112	0-100 kN
A46	Extensometer for high temepature strain CERMAC EPC equipped with nr. 2 parallel transducer SOLARTRON	EPC471812	0,10÷1,00 mm
A47	Hardness meter SHORE A DIN 53505 Gnehm Horgen	191896	0÷100 Shore A
A48	Hardness meter WOLPERT DIA TESTOR 2 RC equipped with camera and monitor for the digital reading of the indentations.	9004	HBW
A49	Cryostat JULABO mod. FP89-ME (-90 ÷ +100 °C)	10202915	-
A50	Optical profile projector/comparator Microconsult JT12A-Z	1058	-
A51	Steel gauge blocks set	120036	-



LABORATORY'S MAIN EQUIPMENT LIST

CTS ID	Equipment name/ADescription	Serial number	Measuring range
A52	Angular steel gauge blocks set Matr. 6099-6166-6095-6074-6087-6164-6174	see on the left	-
A53	Universal machine for tensile and compression INSTRON/CERMAC Mod. 5581 equipped with 5kN and 50 kN load cells	H1001	0-50 kN
A54	Machine for creep test CERMAC Mod. CRS-30 equipped with a furnace for elevated temperature tests up to 1100°C	CRS8001	3÷50 Kn
A55	Digital sliding caliper MITUTOYO 0÷200 mm	12381862	0÷200 mm
A56	Digital thermometer XS Instrument T range -80°C ÷ +20 °C equipped by PT56TFE (PT100) probe	Thermometer: 2149124 Probe: 230-010	-200°C ÷ +999 °C
A57	Lateral expansion meter for impact test with digital dial indicator Filetta	040073	0÷12,5 mm
A58	Digital sliding caliper MITUTOYO , 0÷150 mm	15046836	0÷150 mm
A59	Digital sliding caliper MITUTOYO , 0÷200 mm	15112435	0÷200 mm
A60	Digital thermometer XS Instrument T range -80°C ÷ +20 °C equipped with probe PT56TFE (PT100)	Thermometer: 15156228 Probe: 51000252	-200°C ÷ +999 °C
A61	Minidatalogger HD207 for environmental temperature measurement Delta Ohm with S/W and serial cable/USB	14032325	-30°C ÷ +80°C
A62	Minidatalogger HD207 for environmental temperature measurement Delta Ohm with S/W and serial cable/USB	13038264	-30°C ÷ +80°C
A63	Digital sliding caliper MITUTOYO, 0÷150 mm	15379688	0÷150 mm
A64	Digital sliding caliper MITUTOYO, 0÷150 mm	15379457	0÷150 mm
A65	Universal machine for tensile and compression test CERMAC Mod. TM200-E equipped with load cell of 200 kN	610	0-200 kN
A66	Impact test machine CERMAC type JB-500 Bup to 500J with electronic interface for digital reading (ISO KV ₂)	048	0÷500 J
C1	Furnace for metallic materials heat treatment type MAB	-	-
C2	Furnace for heat treatment type PROTHERM HLF200	0611278	-
C2/1	PicoLog recorder – PLC (furnace C2)	HAT 33/222	-270 ÷ +1820 °C
C3	Furnace for heat treatment type PROTHERM HLF200	0810248	-
C3/1	PicoLog recorder – PLC (furnace C3)	OOR64/363	-270 ÷ +1820 °C
C4	Temperature recorder LINSEIS tipo L 2001 0 ÷1000 °C	J-1002/80	-
C5	N. 03 thermocouples type K 300÷800 (furnace C3) S.N. 08/35445, 08/35447, 0/35449	see on the left	300÷800°C
C6	N. 03 thermocouples type K 300÷800 (furnace C2) S.N. 06/32910, 06/32911, 06/32912	see on the left	300÷800°C
C7	Furnace for heat treatment type PROTHERM HLF50	1607322	-
C7/1	PicoLog recorder – PLC (furnace C7)	AO026/268*	-270 ÷ +1820 °C
C8	N. 03 thermocouples type N 300÷800 (furnace C7) S.N. TC N1, TC N2, TC N3	see on the left	0°C÷800°C
F1	Load cell CONTROLS type E100/C300 3000 kN	90051763	-
F2	Load cell CONTROLS type E100/CS 600 kN	00600516	-
L1	Testing machines, press, various equipment for tests on concrete & beton type CONTROLS Mod. 303/C93 3000 kN, vertical light max. 400 mm with motorized pump and electronic control equipment DIGIMAX for applied load and loading - speed monitoring	85020193	-
L2	Apparatus CONTROLS Mod.70 – CO977 for the tests of bending and straightening of reinforced concrete bars equipped with series of spindle	90040772	-



LABORATORY'S MAIN EQUIPMENT LIST

CTS ID	Equipment name/ADescription	Serial number	Measuring range
L3	Leveler for abrasive wheels mechanical grinding of concrete specimens type MS 100	35626	-
L4	Thermostatic curing tank for concrete specimens with control panel and eight trays CONTROLS ART. CO191	85000072	-
L5	Thermostatic bath for the accelerated maturation of the specimens with control framework CONTROLS ART. CO190	84090711	-
L6	100 L stoven natural convection up to 230 ° C for drying the aggregates CONTROLS Mod . 10 - D1390	90030691	-
L7	Motorized sieve shaker with sieving time setting and complete automatic shutdown CONTROLS ART. D0411	85000078	-
L8	Laboratory concrete mixer 115 l. CONTROLS ART. C 0196/1	85000097	-
L10	Stainless steel equipment for concrete slump test CONTROLS ART. CO150.	-	-
L11	Formwork for cubes 150 and 200 mm side CONTROLS ART. CO105 and CO107.	-	-
L12	Vibrating table for formwork L11 CONTROLS ART. CO159	85000011	-
L13	20 Kg scale sensitivity 1 g CONTROLS ART. 11-D0610.	-	-
L14	Other scales and dynamometers	-	-
L15	Calibration cell 300.000 Kg CONTROLS Mod. E 0100/C300.	-	-
B3	Ultrasonic test equipment GILARDONI RDG 400	400-230036C	-
B6	Ultrasonic analogical/digital thickness gauge GILARDONI DG 40	95115	2,5÷20 mm
B7	Ultrasonic analogical/digital thickness gauge GILARDONI DG 41	017744002	2,5÷20 mm
B9	N.1 portable electromagnetic yokes for magnetic particle examinations NDT SILVER YOKE	5880	-
B10	N.2 magnetic field meter CGM	5227 & 3247	-
B11	Equipment for liquid penetrant controls.	-	-
B12	Equipment for WOOD light examination (black light).	-	-
B13	Equipment for on-site RX controls: <u>B13/1</u> Radiographic bunker with lead shielded walls with the following dimensions(mm): Internal dimensions: Width 2100; Length 3600, Height 2750; Dimensions at entrance: Width 1200, Height 2050.	-	-
	<u>B13/2</u> Radiographic equipment: GILARDONI MONOGIL 350/6-12 Serial N.: 05015036 Tube Serial N.: 15/531 with the following technical properties: - Max voltage: 350 kV - Max amperage: 6 mA - Dark room and film processing equipment	05015036	-
	<u>B13/4</u> Negative scope.	130901	-
	<u>B13/5</u> Digital densimeter type RITE 301 Serial n. 002458	002458	0÷5.0 density unit
	Instantaneous X and Gamma radiation meter type GILARDONI Ratogil	-	-
	Acoustic monitor for X and Gamma radiations	-	-
B14	Equipment for in field RX controls: GILARDONI Type GMF 208D tube N. 59/122 with the following technical properties: - Max voltage: 200 kV - Max amperage: 8 mA - Equipment for in field film processing	006599001	-
B15	Bunker with lead shielded walls	-	-
B17	Magnetometer Rif. 96.10	13443	-



LABORATORY'S MAIN EQUIPMENT LIST

REV. 5
20/01/2017

CTS ID	Equipment name/ADescription	Serial number	Measuring range
B19	Ultrasonic test equipment type PANAMETRIC NDT EPOCH 4	051389512	-
B20	Ultrasonic analogical/digital thickness gauge type STRESS TEL T-Scope III	0123cw	2,5÷20 mm
B22	Magnaflux magnetic particle bench GIRAUDI RTF-85/4000A	05898	-
B23	Equipment for static extensometer test LUCHSINGER P3	182125	-
B24	Digital densitometer type RITE 301 Serial n. 004039.	004039	0÷5.0 density unit
B25	Equipment for static and dynamic extensometer test type VISHAY Micromasurement Mod. 7000-16-SM with UPS feeder Model MScanwell	Equipment: 192500 Power supply: 195387	-
B26	Digital Luxmeter type LX421	010905145	14÷12000 lux
B27	UVA/UVB digital measure equipment type UV340A	AE72547	290÷390 nm
B28	Endoscope IMG	F8 02509	-
B29	Ultrasonic digital thickness gauge Panametric NDT37DL Plus	061387207	2,5÷20 mm
B30	Micro-endoscope SEESNAKE	-	-
B31	Pressurized ion chamber Ludlum 9DP	48-3742	-
B32	Permanent magnetic yoke CIGIEMME	6579	-
B33	Permanent magnetic yoke MAGNAFLUX	YM51050	-
B34	Permanent magnetic yoke MAGNAFLUX	4449	-
B35	Portable electromagnetic yoke in direct and alternating current CGM YOKE	7159	-
B36	Ultrasonic test equipment GE KRAUTKRAMER USM 36 DAC/AWS	15057631	-
B37	Infrader thermal camera Testo 885 Microgeo	3014648	Up to1200 °C
B38	Ultrasonic digital thickness gauge NDT Union Test ST-4D	5001043	2,5÷20 mm
E1	Equipment for static extensometer test BLH	2203/415630	-
G1	Optical emission spectrometer SPECTROLAB (120–800) equipped with standards of the main types of steel and non ferrous alloys.	14477	Al, Cu, Fe, Ni alloys different compositions
G4	Spectrophotometer CINTRA 202 – GBC	V3748	metallic cations in different concentrations
G5	Atomic absorption spectrophotometer GBC 905 AA	2140	metallic cations in different concentrations
G6	Equipment for determination of nitrogen in steel BICASA Mod. B.E.9.	-	nitrogen in acid solution
G7	Equipment for electrolysis CARLO ERBA	85094	Cu and Pb
G7/1	Capillary tubes type PSL ASTM-IP: 200 – 300 – 350 - 400	-	oils and diesel
G9	Digital technical scale SARTORIUS 200 g	118341	0,0001÷200g
G10	Digital technical scale Kern EMB 2200-0 da 2000 g	WD100062343	0÷2000g
G11	pHmeter HANNA HI8417	40772	0÷14
G12	Centrifuge ALC 4233 ECT.	-	-
G13	Thermostat HAAKE DC 30	198002341/005.	-
G14	Equipment for oil analysis CLEVELAND ASTM D 92.	-	-
G15	Equipment for oil analysis PENSKY MARTENS Mod. 6000-6002.	-	-
G16	Equipment for oil analysis CONRADSON.	-	-



LABORATORY'S MAIN EQUIPMENT LIST

REV. 5
20/01/2017

CTS ID	Equipment name/ADescription	Serial number	Measuring range
G17	Electric furnace type MAB FM 74/S MAB FM 74/S	-	-
G19	Pressure gauge Mod. MC 24 0÷50 bar classe 0,25%	0598052	0÷50 bar
G20	IR Spectrometer PERKIN ELMER Mod. SPECTRUM ONE equipped with ATR Universal too	57918	-
G21	Conductimeter Mod. XS Cond. 6 84 µS ÷111 mS a 25 °C	1279339	84 µS ÷111 mS
G22	Digital technical scale ADVENTURER PRO OHAUS AV 2101	8728141626	0÷2000g
G24	Sound level meter LARSON DAVIS L&D 831 equipped with calibrator L&D CA 250	Sound level meter: 1680 Calibrator: 1800	-
G25/1÷6	Set of standard weights of 5, 10, 50, 100, 500 and 1000 g s.n. . 4627÷4631, 4651	see on the left	-
G25/7	Standard weight of 0.001 g	5436	-
G26	Technical digital scale OHAUS mod. Discovery 215CD	1123260462	0,00001÷200g
G27	Differential scanning calorimeter DSC1 – Mettler-Toledo for scanning from -85°C to 700 °C	S131056095	-85°C ÷ 700 °C
G28	Thermostatic stove temperature up to +300 °C BINDER type ED 53	11-06826	-
G29	Equipment for carbon and sulphur determination in steel and cast iron LECO CS-200	4925	C% e S% in different matrixes
G30	Vacuum pressure gauge Mod. MV100BMX -1÷5 bar classe 1%	1110237	-1÷5 bar
G31	Manometro Mod. Oterman 0÷1.6 bar class 1%	1011256	0÷1,6 bar
G32	pHmeter EUTECH pH6+	791829	0 ÷ 14
G33	Vacuum stove BICASA Vuotomatic 50	BE 00273	-
G34	XRF portable analyzer for PMI check of metallic alloys, soils and oils Mod. NITON XL3t 980 Gold+	83128	metallic cations in different concentrations
G35	Digital stopwatch Oxylane J5203	1291970	0,01s +
G36	Digital stopwatch Bino	-	0,01s +
G37	Titratore Karl Fischer Mitsubishi Chemical Analytech CA-31	H3M11185	10 µg ÷ 999.9999 mg H2O
G38	Digital refractometer DBR salt DBS1 cod. 44000053	DBR 049	Brix: 0÷32% Salinity: 0÷28% R.I: 1,3330÷1,3900
G39	Digital thermometer + probe BORLETTI	0404966346	-60÷1200 °C
D1	Salt spray chamber WEISS TECHNIK S400	5998/80	-
I1	Sound level meter LARSON DAVIS LABS 710C	2137	-
I1/1	Calibrator LARSON DAVIS CA 250	1800	-
I2	Automatic pump DRAGER ACCURO 2000 for emission control.	6400200	-
H4	Metallographic microscopy NIKON type EPIHOT equipped with clens for examination magnification up to a 1000x; double control photographic system, camera & monitor HITACHI	260421	-
H5	Stereoscopic macrographic scope WILD M420	196601	-
H6	Micro-hardness meter type M – SHIMADZU	77906	HV
H7/1÷H7/4	Equipment for sampling and macro/micrographic specimen preparation.	-	-
H7/1	Metallographic cut-off machine Struers – Labotom Tp. 05326146	5321284	-
H7/2	Polishing machine Hitech Europe Part. N° 02-03-030V-C Tecmet 2000	1100047	-



LABORATORY'S MAIN EQUIPMENT LIST

CTS ID	Equipment name/ADescription	Serial number	Measuring range
H7/3	Mounting Buehler/Metaserv Pneumet II mod. 20-1395-220	462-PNN2974	-
H7/4	Mounting Hitech Europe Part. N° 02-22-0A12-C - Tecmet 2000	1100016	-
H8	Furnace for austenitic grain evaluation MAC-QUAID	2474	-
H9	Portable polishing machine for metallographic field replicas	2283	-
H10	Universal system for electrolytic etching	0310RM17	-
H11	Equipment for paint thickness measurement ARROWELD ARW-8826	N480031	-
H12	Automatic metallographic polishing machine STRUERS TEGRAPOL 11	5510296	-
H13	Images recording, elaboration and analysis system NIKON "NIS Elements."	-	-
H14	Digital colour camera Nikon Digital Sight Mod. DSFi1 equipped with USB interface Nikon Digital Sight Mod. DSU2	Cam.: 122598 Dig. Interface: 223329	-
H15	Optical microscope Olympus BH2-UMA	4F06732	-
H16	Hardness meter FUTURE-TECH Mod. FV-300 for Vickers hardness with double reading (optical and video)	FV3377	HV0,3; HV0,5; HV1; HV5; HV10; HV30
H16/1	Penetrator Europroducts for Vickers Future-Tech Hardness meter	93154	N.A.
H16/2	Penetrator Europroducts for Vickers Future-Tech Hardness meter	134858	N.A.
H17	Stage micrometer Nikon MBM 13100 Type C Metric – 1 mm, steps 0.01 mm	-	1 mm
H18	Minidatalogger HD207 pe for environmental temperature measurement Delta Ohm with S/W and serial cable/USB	14032328	-30°C ÷ +80°C
H19	Digital sliding caliper MITUTOYO 0÷150 mm	15379465	0÷150 mm
A16	Semiautomatic band saw FMB Mod. GALACTIC	51123	-
A17	Semiautomatic band saw FMB Mod. HERCULES	A00331	-
A36	CNC lathe EMCO VMC 200	F5A D1-D2 003	-
M1	Electro-hydraulic press O.M.C.N. art. 164 capacity 100 tons	-	-
M2	Semiautomatic band saw FMB Mod. OLIMPUS1	L02781	-
M4	Lathe GRAZIOLI type Dania 180	-	-
M5	Semiautomatic band saw a FMB Mod. HERCULES	P00052	-
M6	Miter saw Thomas Swing 201	010122	-
M7	Miter saw FEMI 780	8480122	-
M8	Milling machine TIGER FV 130	-	-
M9	Milling machine DETA	-	-
M10	CNC lathe EMCO VMC 200 s.n. F5A D4 D6 013	-	-
M11	Milling machine INDUMA	-	-
M12	Milling machine SUPERVETTA	-	-
M13	Sandblaster Lampugnani Lampoblast LC/2TR SAB with filter SE1	Sandblaster: 10096/14 Filter: 05057/14	-
M14	Vertical saw Makita LB1200F	2013-10808	-