

شهادة اعتماد Accreditation Certificate



المركز السعودي للاعتماد
Saudi Accreditation Center

يشهد المركز السعودي للاعتماد (SAAC) بأن
Saudi Accreditation Center (SAAC) Declare that

Al Hoty Calibration Services- A branch of Al Hoty Co. Ltd

مختبر الحوطي لخدمات المعايرة - فرع شركة الحوطي المحدودة

Lab

العنوان: الخبر

Address: khobar

المجال : القياس والمعايرة

Scope : Measurement and Calibration

قد حقق متطلبات المركز السعودي للاعتماد (SAAC) وتم اعتماده وفقاً لمتطلبات المواصفة القياسية

آيزو/ آي إي سي (2017) : 17025 (المتطلبات العامة لكفاءة مختبرات الفحص والمعايرة) وذلك في المجال الملحق بهذه الشهادة

Has met the Requirements of Saudi Accreditation Center (SAAC) and has been accredited in compliance

with ISO/IEC 17025:(2017) (General requirements for the competence of testing and calibration laboratories) for the scope attached

with this Certificate

هذه الوثيقة مرسله من النظام الآلي ولا تحتاج إلى توقيع

للتحقق من صلاحيتها يرجى مسح رمز الاستجابة اسفل الصفحة



16/09/1445 : تاريخ الانتهاء / Expire Date

14/08/1439: تاريخ الاصدار / Issue Date

N-C-00070

الاسم : مختبر الحوطي لخدمات المعايرة - فرع شركة الحوطي المحدودة
تاريخ الانتهاء: 1445-09-16

رقم الشهادة : N-C-00070
تاريخ الاصدار : 1439-08-14

م	الكمية المقيسة	افضل امكانية للقياس	الوصف المختصر للمعدات	المدى
1	DC Voltage – Generate	25 $\mu\text{V}/\text{V} + 1.3\mu\text{V}$ 14 $\mu\text{V}/\text{V} + 2 \mu\text{V}$ 14 $\mu\text{V}/\text{V} + 30 \mu\text{V}$ 21 $\mu\text{V}/\text{V} + 300 \mu\text{V}$ 22 $\mu\text{V}/\text{V} + 2\text{mV}$	Fluke 5520A / Fluke 5522A	(0 to 329.9999) mV (0.33 to 3.299999) V (3.3 to 32.99999) V (33 to 329.9999) V (330 to 1000.000) V
		$\pm 0.015 \text{ V} + 0.1\%$ $\pm 0.020 \text{ V} + 0.1\%$	TTI QL 564 Power Supply	0 to 25 V 0 to 56 V
2	DC Voltage - Measure	50 $\mu\text{V}/\text{V} + 5.4 \mu\text{V}$ 40 $\mu\text{V}/\text{V} + 16 \mu\text{V}$ 45 $\mu\text{V}/\text{V} + 55 \mu\text{V}$ 50 $\mu\text{V}/\text{V} + 1.3 \text{ mV}$ 55 $\mu\text{V}/\text{V} + 13 \text{ mV}$	Fluke 8845A /8846A	0 to100 mV 0 to 1 V 0 to 10 V 0 to 100 V 0 to 1000 V
		10 $\mu\text{V}/\text{V} + 0.07 \mu\text{V}$ 5 $\mu\text{V}/\text{V} + 1.4 \mu\text{V}$ 5 $\mu\text{V}/\text{V} + 14 \mu\text{V}$ 8 $\mu\text{V}/\text{V} + 36 \mu\text{V}$ 10 $\mu\text{V}/\text{V} + 0.4 \mu\text{V}$	Fluke 8508A	0 to 200 mV 0 to 2 V 0 to 20 V 0 to 200 V 0 to 1000 V



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(0 to 329.999) μ A	Fluke 5520A/ Fluke 5522A	180 μ A/A + 0.023 μ A	DC Current - Generate	3
(0.33 to 3.29999) mA		140 μ A/A + 0.02 μ A		
(3.3 to 32.9999) mA		120 μ A/A + 0.3 μ A		
(33 to 329.999) mA		130 μ A/A + 3 μ A		
(0.33 to 2.99999) A		0.45 mA/A + 58 μ A		
(3 to 10.000) A	TTI QL564 Power Supply	0.6 mA/A + 0.5 mA		
(10 to 20.5000) A		mA/A + 0.2 mA1.2		
0 to 500mA		\pm 0.5 mA + 0.30%		
0 to 2A		\pm 0.006 A+ 0.23%		
0 to 4A		\pm 0.005 A+ 0.30%		
0 to 100 μ A	Fluke 8845A /8846A	0.65 mA/ A + 0.03 μ A	DC Current - Measure	4
0 to 1 mA		0.61 mA/A + 0.07 μ A		
0 to 10 mA		0.61 mA/A + 2.3 μ A		
0 to100 mA		0.61 mA/A + 6.3 μ A		
0 to 400 mA		0.6 mA/A + 0.11 mA		
0 to 1 A		0.8 mA/A + 0.2 mA		
0 to 3 A		1.2 mA/A + 0.8 mA		
0 to 10 A		2.1 mA/A + 1 mA		
0 to 200 μ A	Fluke 8508A	42 μ A/ A + 0.0023 μ A		
0 to 2 mA		26 μ A/A + 0.003 μ A		
0 to 20 mA		28 μ A/A + 0.03 μ A		
0 to 200 mA		65 μ A/A + 0.82 μ A		
0 to 2 A		220 μ A/A + 0.02 μ A		
0 to 20 A		0.48 mA/A + 0.40 mA		



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	Fluke 5520A/ Fluke 5522A	450 $\mu\text{V/V}$ + 1.5 μV	AC Voltage – Generate	5
(1 to 32.999) mV 45 Hz to 10 kHz (33 to 329.999) mV 45 Hz to 10 kHz (0.33 to 3.29999) V 45 Hz to 10 kHz (3.3 to 32.9999) V 45 Hz to 10 kHz (33 to 329.999) V 45 Hz to 10 kHz (330 to 1020) V 45 Hz to 10 kHz		250 $\mu\text{V/V}$ + 15 μV 200 $\mu\text{V/V}$ + 40 μV 200 $\mu\text{V/V}$ + 600 μV 240 $\mu\text{V/V}$ + 2.5 mV 330 $\mu\text{V/V}$ + 10 mV		
(0 to 100) mV 10 Hz to 20 kHz (0 to 1) V 10 Hz to 20 kHz (0 to 10) V 10 Hz to 20 kHz (0 to 100) V 10 Hz to 20 kHz (0 to 1000) V 10 Hz to 20 kHz (0 to 200) mV 10 Hz to 20 kHz (0 to 2) V 10 Hz to 20 kHz (0 to 20) V 10 Hz to 20 kHz (0 to 200) V 10 Hz to 20 kHz (0 to 1000) V 10 Hz to 20 kHz	Fluke 8845A /8846A Fluke 8508A	0.75 mV/V + 0.048 Mv 0.75 mV/V + 0.35 mV 0.75 mV/V + 3.4 mV 0.75 mV/V + 34 mV 0.75 mV/V + 260 mV 0.22 mV/V + 0.004 mV 0.11 mV/V + 0.03 mV 0.12 mV/V + 0.28 mV 0.12 mV/V + 3.5 mV 0.18 mV/V + 23 mV	AC Voltage – Measure	6



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	Fluke 5520A/ Fluke 5522A	1.8 mA/A + 0.01 μ A	AC Current – Generate	7
(29.00 to 329.99) μ A 45 Hz to 1 kHz (0.33 to 3.2999) mA 45 Hz to 1 kHz (3.3 to 32.999) mA 45 Hz to 1 kHz (33 to 329.99) mA 45 Hz to 1 kHz (0.33 to 1.09999) A 45 Hz to 1 kHz (1.1 to 10.9999) A (45 to 100) Hz (11 to 20.5) A (45 to 100) Hz		1.2 mA/A + 0.1 μ A 0.52 mA/A + 2 μ A 0.52 mA/A + 20 μ A 0.63 mA/A + 0.02 mA 0.8 mA/A + 2.3 mA 1.7 mA/A + 2 mA		



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100 μ A 10 Hz to 5 kHz 1 mA 10 Hz to 5 kHz	Fluke 8846A	2.5 mA/A + 0.07 μ A	AC Current - Measure	8
(0 to 10) mA 10 Hz to 5 kHz (0 to 100) mA 10 Hz to 5 kHz (0 to 400) mA 10 Hz to 1 kHz (0 to 1) A 10 Hz to 5 kHz (0 to 3) A 10 Hz to 5 kHz (0 to 10) A 10 Hz to 5 kHz	Fluke 8845A /8846A	1.6 mA/A + 0.47 μ A 2 mA/A + 6.75 μ A 1.25 mA/A + 52 μ A 1.25 mA/A + 0.46 mA 1.25 mA/A + 0.5 mA 2.5 mA/A + 2 mA 2 mA/A + 7 mA		
(0 to 200) μ A 10 Hz to 5 kHz (0 to 2) mA 10 Hz to 5 kHz (0 to 20) mA 10 Hz to 1 kHz (0 to 200) mA 10 Hz to 5 kHz (0 to 2) A 10 Hz to 5 kHz (0 to 20) A 10 Hz to 5 kHz	Fluke 8508A	380 μ A/A + 0.022 μ A 0.35 mA/A + 0.26 μ A 0.38 mA/A + 0.002 μ A 0.38 mA/A + 0.02 μ A 0.70 mA/A + 0.30 mA 2.9 mA/A + 0.0023 A		
(0 to 32.9999) Ω (33 to 329.9999) Ω (0.33 Ω to 3.29999 k Ω) (3.3 to 32.9999) k Ω (33 to 329.9999) k Ω (0.33 to 3.299999 M Ω) (3.3 to 32.99999) M Ω (33 to 100.0000) M Ω	Fluke 5520A/ Fluke 5522A	290 $\mu\Omega/\Omega$ 67 $\mu\Omega/\Omega$ 64 $\mu\Omega/\Omega$ 64 $\mu\Omega/\Omega$ 67 $\mu\Omega/\Omega$ 100 $\mu\Omega/\Omega$ 700 $\mu\Omega/\Omega$ 680 $\mu\Omega/\Omega$	Resistance - Generate	9



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10 Hz to 10 kHz	Fluke 5820A	0.38 ppm	Frequency Generate & Time Voltage	10
1 kHz to 100 kHz >100 kHz to 10 MHz 2 nsec to 10 msec >10 nsec to 500 msec >0.52 sec to 1 sec >1 sec to 5 sec		0.39 ppm	Edge	
		0.39 ppm 2.9 ppm 8 ppm + 0.66 μ sec 8 ppm + 0.13 msec	Marker	
1 k Ω 10 k Ω 100 k Ω 1 M Ω 10 M Ω 100 M Ω 1 G Ω 10 G Ω 100 G Ω	Tinsley 4721 High Resistance Decade Box	0.00008 k Ω 0.0008 k Ω 0.008 k Ω 0.008 k Ω 0.002 M Ω 0.05 M Ω 0.0005 G Ω 0.01 G Ω 0.2 G Ω	Resistance – Fixed Point	11
0.1 Ω to 1 Ω 1 Ω to 10 Ω 10 Ω to 100k Ω 100k Ω to 1M Ω 1M Ω to 10M Ω 10M Ω to 100M Ω	IET HARS SERIES – High accuracy decade resistance substituter	200 $\mu\Omega/\Omega$ 30 $\mu\Omega/\Omega$ 20 $\mu\Omega/\Omega$ 25 $\mu\Omega/\Omega$ 100 $\mu\Omega/\Omega$ 20 $\mu\Omega/\Omega$	Resistance – Fixed Points	12



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	Fluke 8845A /8846A	0.11mΩ/Ω + 4.2 mΩ 0.11mΩ/Ω + 6.3 mΩ	Resistance - Measure	13
0 to 10 Ω 0 to 100 Ω 0 to 1 kΩ 0 to 10 kΩ 0 to 100 kΩ 0 to 1 MΩ 0 to 10 MΩ 0 to 100 MΩ 0 to 2 Ω 0 to 20 Ω 0 to 200 Ω 0 to 2 kΩ 0 to 20 kΩ 0 to 200 kΩ 0 to 2 MΩ 0 to 20 MΩ 0 to 200 MΩ 0 to 2 GΩ	Fluke 8508A	0.13 mΩ/Ω + 0.012 Ω 0.13 mΩ/Ω + 0.12 Ω 0.13 mΩ/Ω + 1.32 Ω 0.16 mΩ/Ω + 9 Ω 0.55 mΩ/Ω + 3 kΩ 9.0 mΩ/Ω + 0.04 MΩ 55 μΩ/Ω + 3 μΩ 23 μΩ/Ω + 8 μΩ 13 μΩ/Ω + 0.1 mΩ 11 μΩ/Ω + 0.5 mΩ 10 μΩ/Ω + 0.01Ω 13 μΩ/Ω + 0.1Ω 19 μΩ/Ω + 1.6 Ω 30 μΩ/Ω + 0.16 kΩ 240 μΩ/Ω + 0.008 MΩ 2.0 mΩ/Ω + 1.0 MΩ		
(600 to 800) °C (>800 to 1000) °C (>1000 to 1550) °C (>1550 to 1820) °C (-250 to -100) °C (>-100 to -25) °C (>-25 to 350) °C (>350 to 650) °C (>650 to 1000) °C (-210 to -100) °C (>-100 to -30) °C (>-30 to 150) °C (>150 to 760) °C (760 to 1200) °C (-200 to -100) °C (>-100 to -25) °C (>-25 to 120) °C (>120 to 1000) °C (>1000 to 1372) °C	Fluke 5520A/ Fluke 5522A	0.55 °C 0.45 °C 0.41 °C 0.44 °C 0.59 °C 0.22 °C 0.20 °C 0.22 °C 0.27 °C 0.33 °C 0.22 °C 0.20 °C 0.23 °C 0.29 °C 0.40 °C 0.24 °C 0.22 °C 0.32 °C 0.48 °C	Electrical Calibration of Thermocouple Generate / Measure Type B Type E Type J Type K	14



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(-200 to -100) °C	0.48 °C	Type N
(-100 to -25) °C	0.28 °C	
(>-25 to 120) °C	0.25 °C	
(>120 to 410) °C	0.24 °C	
(>410 to 1300) °C	0.33 °C	
(0 to 250) °C	0.69 °C	Type R
(>250 to 400) °C	0.46 °C	
(>400 to 1000) °C	0.44 °C	
(>1000 to 1767) °C	0.51 °C	
(0 to 250) °C	0.58 °C	Type S
(>250 to 1000) °C	0.47 °C	
(>1000 to 1400) °C	0.48 °C	
(>1400 to 1767) °C	0.58 °C	
(-250 to -150) °C	0.74 °C	Type T
(>-150 to 0) °C	0.30 °C	
(0 to 120) °C	0.22 °C	
(>120 to 400) °C	0.20 °C	



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	Fluke 5520A/ Fluke 5522A	0.061 °C 0.061 °C	Electrical Calibration of RTD – Generate	15
(-200 to -80) °C (-80 to 0) °C (>0 to 100) °C (>100 to 300) °C (>300 to 400) °C (>400 to 630) °C (>630 to 800) °C		0.083 °C 0.11 °C 0.12 °C 0.14 °C 0.27 °C	Pt 385, 100 Ω	
(-200 to -80) °C (>-80 to 0) °C (>0 to 100) °C (>100 to 260) °C (>260 to 300) °C (>300 to 400) °C (>400 to 600) °C (>600 to 630) °C		0.050 °C 0.050 °C 0.050 °C 0.061 °C 0.14 °C 0.16 °C 0.17 °C 0.19 °C	Pt 385, 200 Ω	
(-200 to -80) °C (>-80 to 0) °C (>0 to 100) °C (>100 to 260) °C (>260 to 300) °C (>300 to 400) °C (>400 to 600) °C (>600 to 630) °C		0.050 °C 0.061 °C 0.061 °C 0.072 °C 0.094 °C 0.094 °C 0.11 °C 0.13 °C	Pt 385, 500 Ω	
(-200 to -80) °C (>-80 to 0) °C (>0 to 100) °C (>100 to 260) °C		0.040 °C 0.040 °C 0.050 °C 0.061 °C	Pt 385, 1000Ω	
(-180 to 0) °C (>0 to 550) °C (-180 to 100) °C (>100 to 500) °C < 0 °C (0 to 550) °C (-180 to 0) °C (>100 to 550) °C	Fluke 8846A	800 ppm + 0.1 °C 380 ppm + 0.1 °C 1000 ppm + 0.08 °C 380 ppm + 0.1 °C 1100 ppm + 0.083 °C 380 ppm + 0.1 °C 1000 ppm + 0.072 °C 350 ppm + 0.1 °C	Electrical Calibration of RTD – Measure Pt 385, 100 Ω Pt 385, 200 Ω Pt 385, 500 Ω Pt 385, 1000Ω	16



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	Welding Machine Calibrator/Validator, DMM, Tachometer, Clamp Meter		Field Calibration Welding Machine	17
Up to 400 A Up to 100 V Up to 9000 rpm			1.29 A 0.092 V 1 rpm	Current Measurement Voltage Measurement rpm Measurement
(0 to 200) mm (>200 to 300) mm (>300 to 450) mm (>450 to 600) mm	Gauge Blocks (Mitutoyo) Setting Rod Caliper checker		3.4 µm 3.8 µm 4.5 µm 5.2 µm	Micrometer (Outside)
(0 to 4) in (>4 to 8) in (>8 to 16) in			122 µin 134 µin 169 µin	
(25 to 150) mm (>150 to 300) mm (>300 to 450) mm (>450 to 600) mm	Vertical Instrument		2.5 µm 3.8 µm 5.2 µm 6.7 µm	Micrometer (Inside)
(1 to 6) in (7 to 12) in (13 to 16) in			100 µin 148 µin 186 µin	
(0 to 600) mm (0 to 8) in (>8 to 16) in	Gauge Blocks (Mitutoyo) Setting Rod Caliper Checker		16 µm 630 µin 650 µin	Calipers (All Types)
0 to 25 µm Up to 100 mm Up to 4 in.	Dial calibrator Gauge Block (Mitutoyo), Dial Calibrator		4 µm 6.1 µm 240 µin	Dial / Digital Indicators
				20



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(25 to 125)mm (150 to 200)mm (225 to 275)mm (300 to 425)mm	UMM Instrument (Trimos)	2.5 µm 2.6 µm 3.5 µm 5.0 µm	Setting Rods	21
(2 to 5) in (6 to 8) in. (9 to 11) in (12 to 16) in		100 µin 102 µin 138 µin 197 µin		
(0 to 100) mm up to 4 in	UMM Instrument (Trimos)	2.2 µm 88 µin	Gages Ring	22
(0 to 600) mm (0.5 to 16) in	Gauge Blocks (Mitutoyo) / Setting Rods (Mitutoyo)	16 µm 630 µin	Height Gauges / Vertical Instrument	23
(0 to 600) mm	Vertical Instrument (Trimos)	2.5 µm	Caliper Checker/ Dimensional Measurements	24
-15 to 200 °C	Internal procedure ICP-I-018 #Using High Accuracy Precision Bath#	0.26 °C	Glass Thermometer	25
-15 to 200 °C 50 to 500 °C	Internal procedure ICP-I-025 #Using High Accuracy Precision Bath# Internal procedure ICP-I-025 #Using Dry well calibrator#	0.14 °C 0.5 °C	Temperature Sensors RTD with Indicator	26
-15 to 200 °C 50 to 200 °C 200 to 500 °C	Internal procedure ICP-I-028 #Using High Accuracy Precision Bath# Internal procedure ICP-I-028 #Using High Accuracy Precision Bath# Internal procedure ICP-I-0289 #Using Dry well calibrator#	0.26 °C 0.34 °C 0.6 °C	Temperature Sensors thermocouple with Indicator	27
-15 to 200 °C 200 to 500 °C	Internal procedure ICP-I-019 #Using High Accuracy Precision Bath# Internal procedure ICP-I-019 #Using Dry well calibrator#	0.15 °C 0.5 °C	Dial temperature gauges	28



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(10 to 90) % RH	Internal procedure #Comparison to a platinum resistance thermometer and a standard hygrometer in a humid air generator#	1.6 % to 2.3 % RH	Impedance variation hygrometer Impedance variation thermo- hygrometers Psychrometer Mechanical hygrometer	29
Up to 6000 m3/hr	Internal procedure # Portable Ultrasonic Flowmeter#	0.06%	Flow Meter (water as a medium)	30
(150 to 1000) mmH2O (>1000 to 10000) mmH2O (1 to 100) psi (10 to 10,000) psi (1 to 700) bar (10 to 10,000) psi (>10,000 to 20,000) psi (>20,000 to 36,000) psi	Deadweight Tester, Budenberg 551 Medium-Mineral Oil BS EN 837-1 Deadweight Tester, Budenberg 350 BS EN 837-1 Deadweight Tester, Budenberg 580DX BS EN 837-1 Dead-weight tester, Budenberg 580EHX BS EN 837-1	0.046 % of rdg 0.023 % of rdg 0.046 % of rdg 0.032 % of rdg 0.026 % of rdg 0.037 % of rdg 0.048 % of rdg	Pressure Gauges, Pressure Indicator, Pressure Transducers	31
(0 to 5000) psi	Pressure Calibrator / Digital Gauges (Crystal XP2i) BS EN 837-1	0.12% of rdg(psi)	Pressure Measurement Field Calibration	32
(0 to 6,000) psi	API Standard 527	0.08% of F.S(psi)	Pressure Valves	33
Up to 20.0 N.m (>20 to 50) N.m (>50 to 200) N.m (>200 to 400) N.m (>400 to 1000) N.m (>1000 to 1200) N.m (>1200 to 1800) N.m (>1800 to 2400) N.m (>2400 to 3000) N.m	Torque transducers BS EN ISO 6789	0.85% 0.37% 0.24% 0.21% 0.18% 0.13% 0.12% 0.12% 0.13%	Torque Wrenches , Hand Torque tools	34



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(100 to 600) kN	Load cell (Matest C140-05) BS EN ISO 7500-1/ ASTM E4	0.011%	Compression Machine	35
(50to 300) kN (300 to 600) kN (600 to 900) kN (900 to 3000) kN	Load cell (Matest C140-08) BS EN ISO 7500-1 / ASTM E4	0.12% 0.09% 0.08% 0.07%	Universal Tensile / Compression Machine	36
0 to 50kN (100 to 1500) kN	Load Cell Morehouse PSD Universal Strain Gauge Load cell BS EN ISO 7500-1/ ASTM E4	0.2% + 0.01 kN 0.05%	Universal Tensile / Compression Machine	37
0 to 1000kgf	S-Load Cell	(0.00013% + 0.05 +0.6)kg	Tensile Loadcell	38
0 to 2500 lbf 0 to 10000 lbf 0 to 50000 kgf	Dillon Dynamometer BS EN ISO 376	0.05% + 0.28 + 0.6R) lbf (0.05%+1.1+0.6R)lbf (0.05% of FS + 0.6R) kgf	Tensile Loadcell/ Transducers Dyanamometer	39
1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg 20 kg	Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111(2004) Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111 Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111 Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111 Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111 Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111	6.0µg 6.1µg 6.2µg 6.2µg 6.8µg 5.7µg 5.7 µg 6.2µg 9.5µg 41.0µg 44.0µg 46.0µg 45.0µg 51.0µg 64.0µg 0.089mg 0.16mg 0.40mg	Set of Weights Class E2	40



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Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 20 g min capacity 1 µg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 200 g min capacity 0.01mg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 200 g min capacity 0.01mg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA determinations with max capacity 200 g min capacity 0.01mg mass comparator, given in OIML R111

Class E2 standard masses with 10 ABBA

0.82mg
1.6mg
6.5mg
10.0mg
18.0mg



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	<p>determinations with max capacity 500 g min capacity 0.01mg mass comparator, given in OIML R111</p> <p>Class E2 standard masses with 10 ABBA determinations with max capacity 2kg g min capacity 0.1 mg mass comparator, given in OIML R111</p> <p>Class E2 standard masses with 10 ABBA determinations with max capacity 2kg g min capacity 0.1 mg mass comparator, given in OIML R111</p> <p>Class E2 standard masses with 10 ABBA determinations with max capacity 26k g min capacity 1 mg mass comparator, given in OIML R111</p> <p>Class E2 standard masses with 10 ABBA determinations with max capacity 26kg min capacity 1 mg mass comparator, given in OIML R111</p> <p>Class E2 standard masses with 10 ABBA determinations with max capacity 26kg min capacity 1 mg mass comparator, given in OIML R111</p>				
<p>(1 to 10) mg (10 to 100)mg (100 to 500) mg 500 mg to 5 g (5 to 50) g (50 to 200) g (200 to 500) g 500 g 1kg</p>	<p>Set of Weights Class E2 , F1 OIML R76</p>	<p>0.0042mg 0.0038mg 0.0083mg 0.0083mg 0.0083mg 0.042mg 0.042mg 0.042mg 0.28mg</p>	<p>Laboratory Scales and Balances Accuracy Class I</p>	41	
<p>(20 to 100) mg (100 to 500)mg 500 mg to 5g (5 to 50) g (50 to 300) g 300 g to 2 kg (2 to 5) kg (5 to 10) kg (10 - 30) kg</p>	<p>Set of Weights Class F1 , F2 OIML R76</p>	<p>0.0042mg 0.0083mg 0.0083mg 0.23g 0.23g 0.23g 0.23g 0.47g 0.47g</p>	<p>Laboratory Scales and Balances Accuracy Class II</p>	42	



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500 g to 2 kg (2 to 20) kg 20 to 500 kg (500 to 2000) kg	Test Weights Class M1 & M2 Standard weights OIML R76	0.51g 2.2g 0.12kg 0.12kg	Laboratory Scales and Balances Accuracy Class III and Class IIII	43
<p>(1 to 10) µl (>10 to 100) µl (>100 to 500) µl (>0.5 to 5) ml (>5 to 20) ml</p> <p>100 µl (>100 to 1000) µl (>1 to 5) ml (>5 to 50) ml (>50 to 200) ml</p> <p>(2 to 50) ml (>50 to 100) ml (>100 to 500) ml (>500 to 1000) ml (1000 to 4000) ml</p> <p>50 ml (>50 to 100) ml (>100 to 500) ml (>500 to 1000) ml (>1000 to 2000) ml (>2 to 10) L (>10 to 30) L</p> <p>(4 to 20) L (>20 to 100) L (>100 to 200) L (>200 to 300) L (>300 to 400) L (>400 to 500) L</p>	<p>Mettler Toledo, XP26 ASTM E542-01</p> <p>Mettler Toledo, AG285 ASTM E542-01</p> <p>Mettler Toledo, GG4002-S ASTM E542-01</p> <p>Mettler Toledo, XPE32001L ASTM E542-01</p> <p>Mettler Toledo, IND 221 ASTM E542-01</p>	<p>0.0045 µl (0.0022% + 0.0045) µl (0.0008% + 0.0055) µl (0.2% + 0.009) µl (0.1% + 0.01) µl</p> <p>0.05 µl (0.002% + 0.02) µl (0.6% + 0.02) µl (0.1% + 0.035) µl (0.1% + 0.1) µl</p> <p>(0.01% + 0.008) ml (0.0002% + 0.008) ml (0.0001% + 0.008) ml (0.0006% + 0.008) ml (0.00001% + 0.008) ml</p> <p>(0.1% + 0.03) ml (0.05% + 0.03) ml (0.01% + 0.05) ml (0.004% + 0.04) ml (0.002% + 0.04) ml (1.0% + 0.04) ml (0.3% + 0.04) ml</p> <p>(0.04% + 0.01) L (0.05% + 0.01) L (0.004% + 0.1) L (0.009% + 0.1) L (0.001% + 0.1) L (0.007% + 0.1) L</p>	<p>Volume Measurements (Gravimetric Method)</p>	<p>44</p>
<p>Up to 2000 ml Up to 200 liters</p>	<p>Graduated Volumetric Cylinder/ Container / Tank Prover/Slip-On/ Test Measure</p>	<p>0.30 % of reading 0.25% of reading</p>	<p>Field Calibration Volume (liquid as a medium)</p>	<p>45</p>



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	In Comparison with Standard Hydrometers	0.00046 SP.G 0.00020 SP.G 0.00036 SP.G 0.00046 SP.G	Hydrometers	46
(0.700 to 0.950) SP.G (>0.950 to 1.070) SP.G (>1.070 to 1.370) SP.G (1.480 to 1.550) SP.G				
HV (102.8, 104.7, 289.8,) HRB (92.1, 43.3) (63.9, 62.4, 44.1, 23.9) HRC Various HR	Hardness Test Block	1% HV 1 HRB 1 HRC 1 HR	Hardness	47



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