



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code			
Calibration Fee									
Mechanical Metrology									
1	Mass Standard	1 kg	0.038 mg (Class E0)	18,750/piece	Comparison in air	10011 - 10001			
2	Mass Standard	1 mg to 1 kg	Class E1	4,500/piece	Mass and Conventional mass	10011 - 10101			
		2 kg		5,070/piece		10011 - 10102			
		5 kg		5,630/piece		10011 - 10103			
		10 kg		5,940/piece		10011 - 10104			
		20 kg		6,250/piece		10011 - 10105			
	Mass Standard set	1 mg to 10 mg	Class E1	22,500/set	10011 - 10101				
		20 mg to 100 mg		18,000/set					
		200 mg to 1 g		18,000/set					
		2 g to 10 g		18,000/set					
		20 g to 100 g		18,000/set					
		200 g to 1 kg		18,000/set					
		2 kg to 10 kg		21,710/set		10011 - 10104			
		3		Mass Standard or Mass Standard set		1 mg to 1 kg	Class E2	2,050/piece	10011 - 10201
						2 kg		2,750/piece	
5 kg	2,750/piece		10011 - 10203						
10 kg	3,130/piece		10011 - 10204						
20 kg	3,940/piece		10011 - 10205						
50 kg	8,000/piece		10011 - 10206						
1 mg to 1 kg	Class F1 and lower		1,690/piece		Conventional mass	10011 - 10301			
2 kg			2,250/piece			10011 - 10302			
5 kg			2,750/piece			10011 - 10303			
10 kg			2,750/piece			10011 - 10304			
20 kg			3,130/piece			10011 - 10305			
50 kg			6,250/piece			10011 - 10306			
100 kg			10,170/piece			10011 - 10307			
200 kg			15,000/piece			10011 - 10308			
500 kg			15,000/piece			10011 - 10401			
1000 kg	16,250/piece		10011 - 10402						
2000 kg	20,000/piece		Class F2 and lower		10011 - 10501				
4	Volume magnetic susceptibility of weight		1 g to 20 kg		In the range of 10% to 20% of magnetic polarization	2,820/piece	By the susceptometer method	10012 - 10101	
			0.005 μ T - 2.5 μ T		0.5 μ T	5,000/piece	By the susceptometer method (Nominal weight range 1 g to 20 kg)	10012 - 10102	
5	Permanent magnetization of weight (including magnetic susceptibility)	2.5 μ T - 120 μ T	In the range of 10% to 20% of magnetic polarization						
		0 μ T - 250 μ T	10 μ T + 0.03 μ _p M μ _p M = Permanent magnetization μ T	1,250/piece	By gaussmeter (Nominal weight range 1 g to 20 kg)	10012 - 10103			



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7	Surface roughness (Ra,Rz) of weight	Up to 50 μm	$Ra = \sqrt{(7.490)^2 + (1.021 \cdot Z_n)^2}$ $Rz = \sqrt{(110.116)^2 + (1.422 \cdot Z_n)^2}$ <p>where Z_n (unit nm) being measured value of weight</p>	7,500/piece	Nominal weight range 1 g to 1 kg	10013 - 10101
8	Inter-laboratory comparison on mass measurement; - Non Automatic Weighing Instruments (NAWI), Electronic balance*	Single range, Resolution 0.001 mg, Maximum capacity 21 g, Number of scale interval 21,000,000	NIMT.M.M-09	5,000	-	10014-10101
9	Inter-laboratory comparison on mass measurement; - Mass Standard	1000 kg	NIMT.M.M-12	20,250	Conventional mass	10014-10102
		200 g, 1 kg and 20 kg	NIMT.M.M-13	9,830	Conventional mass (200 g, 1 kg- F2 Class and 20 kg-M1 Class)	10014-10103
		100 mg, 100 g, and 1 kg	NIMT.M.M-F-1.01/2020	5,000	Conventional mass (100 mg, 100 g, and 1 kg- F1 Class)	10014-10104
10	Density and volume of weight (1 g to 20 kg)	1 g	120 kg m ⁻³ , 0.002 cm ³	3,920/piece	Any class which no cavity by hydrostatic weighing method	10021 - 10101
		2 g	60 kg m ⁻³ , 0.002 cm ³			
		5 g	20 kg m ⁻³ , 0.002 cm ³			
		10 g	15 kg m ⁻³ , 0.002 cm ³			
		20 g	10 kg m ⁻³ , 0.004 cm ³			
		50 g	5.6 kg m ⁻³ , 0.004 cm ³			
		100 g	4.4 kg m ⁻³ , 0.004 cm ³			
		200 g	3.8 kg m ⁻³ , 0.007 cm ³			
		500 g	2.7 kg m ⁻³ , 0.018 cm ³			
		1 kg	2.6 kg m ⁻³ , 0.036 cm ³			
		2 kg	6.8 kg m ⁻³ , 0.21 cm ³			
		5 kg	3.3 kg m ⁻³ , 0.25 cm ³			
		10 kg	2.4 kg m ⁻³ , 0.4 cm ³			
11	Density and volume of solid artifact	2700 kg m ⁻³ to 9000 kg m ⁻³ 1.25 cm ³ to 110 cm ³	$6/V^{0.8} \text{ kg m}^{-3}$ $(0.04123V+0.4592) \text{ mm}^3$ $V = \text{volume cm}^3$	8,750/piece	Hydrostatic weighing method (Traceable to a solid density standard)	10021 - 10102
		12	Hydrometer - Density - Specific Gravity - API - Brix - Brumé	600 to 2000 kg m ⁻³	$3.22 \times 10^{-5} d + 0.0207 \text{ kg m}^{-3}$ <p>หรือเทียบเท่าในหน่วยอื่น $d = \text{density kg m}^{-3}$</p>	7,040/3 points + 1250 next point
	0.25 kg m^{-3} 0.00010 sp/gr $0.030 \text{ } ^\circ\text{API}$ $0.30 \text{ } ^\circ\text{Brix}$ 0.030 Bé			4,230/3 points + 1250 next point		10021 - 10302



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	- Alcoholometer		0.10 %vol			
13	Density of liquid	600 to 1500 kg m ⁻³	0.1 to 2.0 kg m ⁻³	6,750/piece	By hydrostatic weighing method	10021 - 10401
14	Density of liquid	700 to 1600 kg m ⁻³	0.10 kg m ⁻³	1,250/piece	By oscillation-type density meter	10021 - 10402
15	Density Meter, Benchtop & Portable Oscillation Type	650 to 1000 kg m ⁻³ 1000 to 1600 kg m ⁻³	0.020 kg m ⁻³ 0.030 kg m ⁻³	22,000/piece	By direct comparison with reference fluids in accordance with ISO 15212	10021 - 10501
16	Inter-laboratory comparison on density measurement - Artifact: Hydrometer	9 - 81 °API 640 – 1320 kg m ⁻³	NIMT.M.D-01/2018	5,000		10021 - 10601
17	CRM - Density of Water : 20 Litres @ 20°C	998.20 kg m ⁻³	1.00 kg m ⁻³	500/piece		10021 - 10701
18	CRM - Density of Water : 20 ml @ 20°C	998.20 kg m ⁻³	1.00 kg m ⁻³	300/piece		10021 - 10702
19	Force-proving instrument	1 kN to 110* kN 0.1 kN to 1.5 kN 0.2 kN to 5 kN 16 kN to 500 kN 50 N to 500 N 10 N to 200 N 20 kN to 100 kN > 100 kN to 500 kN	ISO 376:2011, 0.0020 % ISO 376:2011, 0.0050 % ISO 376:2011, 0.0050 % ISO 376:2011, 0.0080 % ISO 376:2011, 0.0040 % ISO 376:2011, 0.0040% According to ISO 376:2011 Class 0.5 to 2	14,540/direction 12,670/direction 12,670/direction 21,100/direction 7,500/direction 7,500/direction 10,000/direction 13,290/direction	Calibrated by deadweight force standard machine. Digital indicator shall be provided by customer.	10030 - 10101 10030 - 10102 10030 - 10103 10030 - 10104 10030 - 10105 10030 - 10106 10030 - 10201 10030 - 10202
20	Strain Amplifier (Digital Measurement Amplifier)	± 2.0 mV/V ± 5.0 mV/V	2.5 x 10 ⁻⁵ mV/V 3.0 x 10 ⁻⁴ mV/V	3,750/range 3,750/range	Calibrated by Bridge Calibration Unit	10030 - 10401
21	Static Torque Measuring Devices (Torque Transducer)	0.1 N·m to 1 N·m 1 N·m to 10 N·m 10 N·m to 1,000 N·m 100 N·m to 5,000 N·m	DIN 51309, 0.015% DIN 51309, 0.01%, 0.03% DIN 51309, 0.01% DIN 51309, 0.01%	10,500/range 21,000/range		10040 - 10101 10040 - 10102
22	Static Torque Transfer Wrenches	1 N·m to 10 N·m 10 N·m to 2,000 N·m	DAkks-DKD-R 3-7, 0.04% DAkks-DKD-R 3-7, 0.03%	10,500/range		10040 - 10202
23	Static Torque Calibration Devices - Torque Wrench Calibration Devices	1 N·m to 2,000 N·m	DAkks-DKD-R 3-8 0.2% nvlr. 1 - 2560 0.2%	5,250/range 4,200/range		10040 - 10303 10040 - 10304
	- Torque Screwdriver Calibration Devices	0.1 N·m to 1 N·m 1 N·m to 10 N·m	Based on DAkks-DKD-R 3-8, 0.3% Based on DAkks-DKD-R 3-8, 0.2%	5,250/range 5,250/range		10040 - 10305 10040 - 10302



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24	Hand Torque Tools (Type I and Type II) - Wrench - Screwdriver	1 N·m to 1,000 N·m	ISO 6789, 1%	3,500/range		10040 - 10401
		0.1 N·m to 1 N·m	ISO 6789, 1.5%	3,500/range		10040 - 10402
		1 N·m to 10 N·m	ISO 6789, 1%	3,500/range		
25	Torque multiplier	340 N·m to 2,700 N·m	Based on ISO 6789 : 2003(E), 1.5%	7,500/range		10040 - 10501
26	Adjustment charge of torque device for permanent laboratory calibration			100% of the calibration cost of each item and each range		10040 - 10601
27	Recalibration of Reference Block	20 HRA to 95 HRA	0.40 HRA	5,250/piece	Reference Block shall be provided by client.	10050 - 10101
	Rockwell Scale : HRA, HRB, HRC	10 HRBW to 100 HRBW	0.40 HRBW			
		20 HRC to 70 HRC	0.40 HRC			
	Rockwell Scale : HR30TW	29 HR30TW to 82 HR30TW	0.35 HR30TW	7,500/piece		
	Vickers : HV according to ISO 6508-3	HV 5, HV 10, HV 20, HV 30, HV 50, HV 100	$(2.1 + \frac{2600}{d^2})$ % of HV	5,820/piece		10050 - 10201
	Vickers : HV according to ISO 6508-3	HV 0.1	$\sqrt{6.5 + \frac{16500}{d^2}}$ % of HV	5,820/piece		10050 - 10501
	Vickers : HV **According to ASTM E92	HV 20	$\sqrt{7.9 + \frac{70000}{d^2}}$ % of HV for $d > 180 \mu\text{m}$ $\sqrt{6.5 + \frac{16500}{d^2}}$ % of HV for $d \leq 180 \mu\text{m}$	14,000/piece		10050-10206
Brinell Scale: HB	HBW 5/750	1.2% of HBW for Force 7.355 kN (750 kgf)	5,000/piece		10050 - 10401	
	HBW 10/500	1.2% of HBW for Force 4.903 kN (500 kgf)				
	HBW 10/3000	0.6% of HBW for Force 29.42 kN (3,000 kgf)	6,250/piece			
28	Elastomer Hardness Testing Machine	IRHD-N IRHD Pocket IRHD-M Durometer Type A Durometer Type D Durometer Type AO Durometer Type C	According to ISO48-9, ASTM D2240, JIS K6253, JIS K7215, JIS K6301, DIN 53505	6,850/machine		10050 - 10302
			ASTM D2240			
29	Gas Pressure Balances	Up to 7 MPa	$> 5 \times 10^{-4} \times P_e$ to $1 \times 10^{-4} \times P_e$ $< 1 \times 10^{-4} \times P_e$	50,000 50,000	1. Price per 1 piston & cylinder assembly 2. Calibration of weight set is included.	10060 - 10101 10060 - 10102
		>7 MPa to 40 MPa	$> 5 \times 10^{-4} \times P_e$ $5 \times 10^{-4} \times P_e$ to $1 \times 10^{-4} \times P_e$ $< 1 \times 10^{-4} \times P_e$	55,000 55,000 55,000		10060 - 10103 10060 - 10104 10060 - 10105



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30	Hydraulic Pressure Balances	Up to 200 MPa	$> 5 \times 10^{-4} \times Pe$ to $1 \times 10^{-4} \times Pe$	50,000	1. Price per 1 piston & cylinder assembly 2. Calibration of weight set is included.	10060 - 10201
			$< 1 \times 10^{-4} \times Pe$	50,000		10060 - 10202
		> 200 MPa to 500 MPa	$> 5 \times 10^{-4} \times Pe$ to $2 \times 10^{-4} \times Pe$	60,000		10060 - 10203
			$< 2 \times 10^{-4} \times Pe$	60,000		10060 - 10204
31	Gas Pressure Measuring Instruments (gauge pressure, Pe)	0 kPa to -100 kPa	Not smaller than 0.2 mbar	8,750/range		10060 - 10313
			Not smaller than 1 mbar	4,070/range		10060 - 10314
			Smaller than 0.2 mbar	11,250/range		10061 - 10319
		0 kPa to -15 kPa	$> 1 \times 10^{-3} \times Pe$	8,750/range		10060 - 10315
			$\leq 1 \times 10^{-3} \times Pe$	11,250/range		10060 - 10316
		- 1 kPa to 0 kPa	$> 6 \times 10^{-3} \times Pe$	3,750/range		10060 - 10301
			$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	5,000/range		10060 - 10302
			$< 1 \times 10^{-3} \times Pe$, but not smaller than 0.003 mbar	6,250/range		10060 - 10303
		0 kPa to 3 kPa	$> 6 \times 10^{-3} \times Pe$	3,750/range		10060 - 10304
			$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	5,000/range		10060 - 10305
			$< 1 \times 10^{-3} \times Pe$, but not smaller than 0.003 mbar	6,300/range		10060 - 10306
		- 4 kPa to 4 kPa	$> 6 \times 10^{-3} \times Pe$	3,750/range		10060 - 10323
			$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	5,000/range		10060 - 10324
			$< 1 \times 10^{-3} \times Pe$, but not smaller than 0.003 mbar	6,300/range		10060 - 10325
		0 kPa to 15 kPa	$> 1 \times 10^{-3} \times Pe$	8,750/range		10060 - 10317
			$\leq 1 \times 10^{-3} \times Pe$	11,250/range		10060 - 10318
10 kPa to 7 MPa	$> 6 \times 10^{-3} \times Pe$	4,070/range		10060 - 10307		
1,5 kPa to 7 MPa	$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	6,250/range		10060 - 10308		
	$< 1 \times 10^{-3} \times Pe$	7,500/range		10060 - 10309		
> 7 MPa to 100 MPa	$> 6 \times 10^{-3} \times Pe$	7,040/range		10060 - 10310		
	$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	9,850/range		10060 - 10311		
	$< 1 \times 10^{-3} \times Pe$	12,670/range		10060 - 10312		
32	Gas Pressure Measuring Instruments (absolute pressure, Pabs)	80 kPa to 115 kPa	$< 1 \times 10^{-3} \times Pabs$	8,750/range		10060 - 10401
			Not smaller than 0.35 mbar	4,230/range		10060 - 10402
		0 kPa to 15 kPa	$> 1 \times 10^{-3} \times Pabs$	10,000/range		10060 - 10405
			$\leq 1 \times 10^{-3} \times Pabs$	12,500/range		10060 - 10406
		2 kPa to 7 MPa	Not smaller than 0.35 mbar	4,230/range		10060 - 10403
1,5 kPa to 40 MPa	$\geq 1 \times 10^{-3} \times Pabs$	8,750/range		10060 - 10404		
33	Mercury Barometers	85 kPa to 105 kPa	Not smaller than 0.35 mbar	6,250/range	Cistern type	10060 - 10501
				7,500/range	Fortin type	10060 - 10502
34	Hydraulic Pressure Measuring Instruments (gauge pressure, Pe)	up to 200 MPa	$> 6 \times 10^{-3} \times Pe$	5,000/range		10060 - 10601
			$6 \times 10^{-3} \times Pe$ to $1 \times 10^{-3} \times Pe$	7,500/range		10060 - 10602
			$< 1 \times 10^{-3} \times Pe$	10,000/range		10060 - 10603
		> 200 MPa to 500 MPa	$\geq 1 \times 10^{-3} \times Pe$	8,750/range		10060 - 10604
			$< 1 \times 10^{-3} \times Pe$	11,250/range		10060 - 10605
35	Hydraulic Pressure Measuring Instruments (absolute pressure, Pabs)	0,1 MPa to 200 MPa	$> 6 \times 10^{-3} \times Pabs$	6,250/range		10060 - 10801
			$6 \times 10^{-3} \times Pabs$ to $1 \times 10^{-3} \times Pabs$	8,750/range		10060 - 10802
			$< 1 \times 10^{-3} \times Pabs$	11,250/range		10060 - 10803



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		> 200 MPa to 500 MPa	$\geq 1 \times 10^{-3} \times P_{abs}$	10,000/range		10060 - 10804
			$< 1 \times 10^{-3} \times P_{abs}$	12,500/range		10060 - 10805
36	Gas Differential Pressure at High Static Line pressure (not higher than 40 MPa), ΔP	350 kPa maximum differential pressure	$3.5 \times 10^{-5} \times \Delta P$, but not less than 2.9 Pa	16,250/sensor head	Price per 1 range of differential pressure and 1 range of high static line pressure	10060 - 10701
37	Pressure Measuring Device	0 to 3500 kPa	0.01%rdg but not less than 0.1 kPa	6,500/range	Media: Water	10060-10901
38	Blood Pressure (Static Mode) (gauge pressure, Pe)	(0 kPa to 40 kPa) (0 mm Hg to 300 mm Hg)	Not smaller than 0.13 kPa (1 mm Hg)	1,875/range	To include leak check	10060 - 10902
39	Vacuum Gauges (absolute pressure : pirani gauge, thermal conductivity gauge)	10^5 Pa to 10^1 Pa	0.3% rdg to 1% rdg	7,040/sensor head	Calibration 10 points minimum	10070 - 10101
40	Vacuum Gauges (absolute pressure : capacitance diaphragm gauge)	10^5 Pa to 10^1 Pa	0.2% rdg to 0.45% rdg	12,670/sensor head	Calibration 3 decades for the head range (1000, 100, 10, 1) torr Calibration 2 decades for the head range 0.1 torr	10070 - 10201
41	Vacuum Gauges (absolute pressure : hot cathode ion gauge, cold cathode ion gauge)	10^1 Pa to 10^{-2} Pa	0.5% rdg to 6% rdg	11,090/for first decade +2,250 for next decade		10070 - 10301
42	Vacuum Gauge (absolute pressure : spinning rotor gauge)	10 Pa to 10^{-3} Pa	0.6% rdg to 4.5% rdg	to be determined		10070 - 10401
43	Additional cost for electrical calibration (which the accuracy is not better than +/-0.01% rdg)			2,250/item		10070 - 10501
44	Adjustment charge of pressure and vacuum devices for permanent laboratory calibration			50% of the calibration cost of each range		10070 - 10502
45	Measurement audit report			1,000 Baht/report + 1,000 Baht/only for artifact provided + Calibration fee		10070 - 10503
46	Vacuum Gauges by Static Expansion Method (absolute pressure : capacitance diaphragm gauge,	0.13 Pa to 1.3 kPa	0.50% rdg to 0.25% rdg	26,400/sensor head		10070 - 10601
47	Liquid Flowmeter (Turbine Flowmeter)	0.19 L/min to 150* L/min	0.075%**	13,750/ 5 points	Calibration Fluid : Water	10080 - 10101
	Liquid Flowmeter (Turbine Flowmeter)	20 L/min to 1300 L/min	0.075%	13,750		10080 - 10108
	Liquid Flowmeter (with indicator)	0.19 L/min to 150* L/min	2%	7,880/ 5 points		10080 - 10102
	Coriolis Flowmeter (Volumetric method)	0.2 L/min to 150 L/min	0.075%	13,750/5 points		10080 - 10103
	Ultrasonic flow meter (Clamp-on)	20 L/min to 1300 L/min	1.0%	8,750		10080 - 10109
48	Small Water Flow Meter (Volumetric Mode)	10 mL/h to 50 mL/h 50 mL/h to 1000 mL/h	0.35% 0.24%	16,875/range	Calibration Fluid : Water Gravimetric Method	10080-10104
49	Small Water Flow Meter (Mass Mode)	10 g/h to 50 g/h 50 g/h to 1000 g/h	0.35% 0.24%	16,875/range	Calibration Fluid : Water Gravimetric Method	10080 - 10301



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50	Medium Liquid Flow Meter (Gravimetric Method)	0.036 kg/min to 0.32 kg/min	0.30%	12,500/5 points	Calibration Fluid : Water Gravimetric Method	10080 - 10302
51	Gas Flowmeter with display in standard flow (molbloc-L)	100 cm ³ /min to 24000 cm ³ /min	0.25%	30,000/range	Calibration Gas: Dry Air Reference Conditions @ 0°C, 101.325 kPa	10080 - 10202
52	Gas Flowmeter with display in standard flow (molbloc-S)	1 m ³ /h to 65 m ³ /h	0.23%	30,000/range	Calibration Gas: Dry Air Reference Conditions @ 0°C, 101.325 kPa	10080 - 10204
53	Sonic Nozzle at ambient pressure	1 m ³ /h to 100 m ³ /h	0.22%	25,000/range	Calibration Gas: Ambient Air	10080 - 10205
54	Gas Flow rate (Gas meter with impulse output)	1 m ³ /h to 100 m ³ /h	0.20%	30,000/piece (5 points)	Comparison Method	10080 - 10203
55	Orifice flow device (Volumetric method)	(1 to 100) m ³ /h	1.00%	7,500/piece (5-7 points)	Comparison Method	10080 - 10208
56	Gas Flow rate (Gas meter with flow rate output)	1.2 kg/h to 117 kg/h	0.20%	30,000/piece (5 points)	Comparison Method	10080 - 10403
57	Liquid Volume (Proving tank: Neck scale type, Weir neck type)	1 L to 10 L	0.02% to 0.03%	6,250/piece	Gravimetric Method	10080 - 10501
		<10 L to 20 L	0.02% to 0.03%	10,000/piece	Gravimetric Method	10080 - 10502
		> 2 L to 50 L	0.09%	8,750 / piece	Gravimetric Method	10080 - 10503
		> 50 L to 200 L	0.09%	13,750/piece	Gravimetric Method	10080 - 10504
58	Gas Flowmeter (Volume gas flow rate)	2 (cm ³ /min) to 24000 (cm ³ /min)	0.23%	17,250/range	Calibration Fluid : Nitrogen Reference Conditions @ 0 degree C, 101.325 kPa	10081 - 10101
		2 (cm ³ /min) to 1 (m ³ /min)	0.23%	17,250/range	Calibration Fluid : Dry Air Reference Conditions @ 0 degree C, 101.325 kPa	10081 - 10102
59	Gas Flowmeter	0.043 (mg/s) to 500 (mg/s)	0.23%	17,250/range	Calibration Fluid : Nitrogen	10080 - 10201
60	(Mass gas flow rate)	0.043 (mg/s) to 21545 (mg/s)	0.23%	17,250/range	Calibration Fluid : Dry Air	10080 - 10202
61	Flow speed device	(0.1-40) m/s	0.50%	12,500/5 points+2,500/next point	Wind tunnel Calibration Fluid : Air	10080 - 10701
62	Laser Doppler Anemometer	2 m/s to 20 m/s	0.40%	30,000/piece	Wind tunnel Calibration Fluid : Air	10080-10702
63	Wind direction	0° to 360°	0.9°	12,500/5 points +2,500/next point	Wind tunnel Calibration Fluid : Air	10080-10703
64	Inter-laboratory comparison on liquid volume flow rate measurement; Artifact : Coriolis flow meter	25 L/min to 120 L/min	NIMT.MW-L1/2017	20,333/range (N = 3)	Calibration Fluid : Water	10080 - 10105
65		25 L/min to 120 L/min	NIMT.MW-L1/2019	15,750/range (N = 2)	Calibration Fluid : Water	10080 - 10106



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66	Inter-laboratory comparison on water flow meter and pressure of infusion pump analyzer	(20 - 200) mL/h ((0 - 1200) mmHg)	0.35% 0.35 mbar	12,552.50/range	Infusion device analyzer	10080 - 10107
Reference Materials For Sale						
67	Standard Torque Transducer	≤ 2,000 N·m	DIN 51309 Class 0.2, 0.1, 0.05	186,800/piece		10040 - 20501
		≤ 1,000 N·m		156,940/piece		10040 - 20502
		≤ 500 N·m		149,130/piece		
		≤ 200 N·m		139,430/piece		
		≤ 50 N·m		130,400/piece		
		≤ 20 N·m		126,930/piece		10040 - 20503
68	Standard Torque Transfer Wrench	≤ 2,000 N·m	DAkkS-DKD-R 3-7 Class 0.2	199,560/piece		10040 - 20601
		≤ 1,000 N·m		165,430/piece		10040 - 20602
		≤ 500 N·m		156,500/piece		
		≤ 200 N·m		145,420/piece		
		≤ 50 N·m		135,090/piece		
		≤ 20 N·m		131,140/piece		10040 - 20603
69	Standard Torque Transfer Wrench Model: TW-MCS01	≤ 2,000 N·m	DAkkS-DKD-R 3-7 Class 0.2	225,080/piece	<u>Standard Option</u> 1. Temperature compensation on zero signal 2. Temperature compensation on span signal 3. Zero balance 4. Measurement and check signals	10040-20604
		≤ 1,000 N·m		182,410/piece		
		≤ 500 N·m		171,250/piece		
		≤ 200 N·m		157,400/piece		
		≤ 50 N·m		144,490/piece		
		≤ 20 N·m		139,540/piece		
70	V-notch Charpy Impact CRM	30 J ± 10 J	According to ISO148-3	18,530/set		10050 - 20301
		100 J ± 10 J		18,530/set		10050 - 20302
	Calibration of metallic -charpy pendulum Testing Machine	Low(<40J) and high (≥40J) energy	According to ISO148-2	81,250		10050 - 20303
71	Certified Reference Block Rockwell Scale : HRA, HRB, HRC	20 HRA to 95 HRA	0.40 HRA	10,940/piece		10050 - 20101
		10 HRBW to 100 HRBW	0.40 HRBW			
		20 HRC to 65 HRC	0.40 HRC			



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	Rockwell Scale : HR30TW	29 HR30TW to 82 HR30TW	0.35 HR30TW	14,000/piece		
	Vickers : HV	HV 5, HV 10, HV 20, HV 30, HV 50, HV 100	$(2.1 + \frac{2600}{d^2})$ % of HV	20,320/piece		10050 - 20201
	Vickers : HV	HV 0.1	$\sqrt{6.5 + \frac{16500}{d^2}}$ % of HV	26,250/piece		10050 - 20501
	Vickers : HV According to ASTM E92	HV 20	$\sqrt{7.9 + \frac{70000}{d^2}}$ % of HV for d > 180 μm $\sqrt{6.5 + \frac{16500}{d^2}}$ % of HV for d ≤ 180 μm	21,000/piece		10050-20206
	Brinell Scale: HB	HBW 5/750	1.2% of HBW for Force 7.355 kN (750 kgf)	15,000/piece		10050 - 20401
		HBW 10/500	1.2% of HBW for Force 4.903 kN (500 kgf)	16,880/piece		
		HBW 10/3000	0.6% of HBW for Force 29.42 kN (3,000 kgf)			

On-site Calibration

72	Non Automatic Weighing Instruments (NAWI), Electronic balance	Up to 65 kg		5,200	Based on the EURAMET calibration guide No.18 version 4.0 (11/2015)	10015-30101
	Up to 5 g		$0.03 \text{ mg} + (7.22 \times 10^{-10}) \times W$			
	> 5g to 100 g		$0.04 \text{ mg} + (4.62 \times 10^{-7}) \times W$			
	> 100 g to 500 g		$0.04 \text{ mg} + (4.87 \times 10^{-7}) \times W$			
	> 500 g to 10 kg		$0.45 \text{ mg} + (2.49 \times 10^{-7}) \times W$			
	> 10 kg to 20 kg		$0.64 \text{ mg} + (1.59 \times 10^{-7}) \times W$			
	> 20 kg to 65 kg		$0.86 \text{ mg} + (1.32 \times 10^{-7}) \times W$			
			Note : W is any test load (g)			
73	Automatic Catchweighing Instruments (ACI)	(0.2 to 100.0) g	0.78 g	5,200/3 test loads + 1,250 next test load	1. Test loads shall be provided by client 2. In-house method based on the EURAMET - Publishable Summary for 14RPT02 AWICal	10015-30102
	> 100.0 g to 1000.0 g		1.05 g			
	> 1000.0 g to 1500.0 g		1.12 g			



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code	
			Note : CMC is for the belt speed between 15-60 m/min				
74	Universal Testing Machine	5 N to 500 kN (Tension with increasing force only) 5 N to 500 kN (Tension with increasing and decreasing force) 5 N to 2 MN (Compression with increasing force only) 5 N to 2 MN (Compression with increasing and decreasing force)	ISO 7500-1 : 2018, 0.17 % ISO 7500-1 : 2018, 0.24% ISO 7500-1 : 2018, 0.047 % ISO 7500-1 : 2018, 0.35 %	10,000/force scale /mode	Calibrated by force-measuring device and accessories shall be provided by customer	10030 - 30201	
75	Static Torque Calibration devices						
	- Torque Wrench Calibration Devices	1 N·m to 2,000 N·m	DAkks-DKD-R 3-8 0.2% range: 1 - 2560 0.2%	5,250/range 4,200/range		10040 - 30303 10040 - 30304	
	- Torque Screwdriver Calibration Devices	0.1 N·m to 1 N·m 1 N·m to 10 N·m	Based on DAkks-DKD-R 3-8, 0.3% Based on DAkks-DKD-R 3-8, 0.2%	5,250/range 5,250/range		10040 - 30305 10040 - 30302	
	- Torque Testing Machine	1 N·m to 10 N·m 10 N·m to 100 N·m 0 degree to 360 degree	Based on DAkks-DKD-R 3-8, 1.1% Based on DAkks-DKD-R 3-8, 0.75% 0.55 degree	5,250/range 5,250/range 5,250/range		10040 - 30306 10040 - 30307 10040 - 30308	
	76	Adjustment charge of torque device for on-site calibration			100% of the calibration cost of each item and each range		10040 - 30601
	77	Inter-laboratory comparison on torque measurement					
		- Artifact: Torque wrench	40 N·m to 400 N·m	MT 01/2550	9,750		10040 - 30501
- Artifact: Torque wrench		8 N·m to 40 N·m	MT 01.1/2551	9,750		10040 - 30502	
- Artifact: Torque wrench calibrator		10 N·m to 200 N·m	MT 02/2551	9,750		10040 - 30503	
- Artifact: Setting torque wrench		20 N·m to 330 N·m	MT 03/2553	7,800		10040 - 30504	
- Artifact: Torque wrench		400 N·m to 1000 N·m	MT 01.2/2563	7,800		10040 - 30505	
- Artifact: Torque wrench calibrator		200 N·m to 1000 N·m	MT 02.1/2564	9,750		10040 - 30506	
- Artifact: Indicating torque screwdriver		0.1 N·m to 1 N·m 1 N·m to 10 N·m	MT 04/2565 MT 04.1/2565	7,800 7,800		10040 - 30507 10040 - 30508	



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	- Artifact: Indicating Torque Wrench	1 N·m to 50 N·m	MT 05/2566	9,750		10040 - 30509
	- Artifact: Indicating Torque Wrench	50 N·m to 200 N·m	MT 05.1/2566	9,750		10040 - 30510
	- Artifact: Indicating Torque Wrench	200 N·m to 1000 N·m	MT 05.2/2566	9,750		10040 - 30511
	- Artifact: Torque Transducer	10 N·m to 200 N·m	MT 06/2566	9,750		10040 - 30512
	- Artifact: Torque Transducer	200 N·m to 1000 N·m	MT 06.1/2566	9,750		10040 - 30513
	- Artifact: Setting Torque Wrench	20 N·m to 330 N·m	MT 07/2566	7,800		10040 - 30514
78	Extensometer	Gauge length up to 200 mm	According to ISO 9513	3,910	/scale	10050 - 30001
79	Calibration of Testing Machine Rockwell Hardness Testing Machine	20 HRA to 95 HRA	According to ISO 6508-2			10050 - 30102
	- direct and indirect verification	10 HRBW to 100 HRBW		8,440	/machine/scale	
	- indirect verification	20 HRC to 70 HRC		3,500	/scale	
	- diamond indenter verification	70 HR15N to 94 HR15N		4,880		
	- ball indenter verification	42 HR30N to 86 HR30N		1,000		
		67 HR15TW to 93 HR15TW				
		29 HR30TW to 82 HR30TW				
		70 HREW to 100 HREW				
80	Calibration of Testing Machine Vickers Hardness Testing Machine	HV 0.2, HV 0.3, HV 0.5, HV 1, HV 5, HV 10, HV 20, HV 30, HV 50	According to ISO 6507-2			10050 - 30202
	- direct and indirect verification			8,440	/machine/scale	
	- indirect verification			3,500	/scale	
	- Vickers Indenter	Tip angle 0°, 90°, 136° Line of conjunction 0 to 5 µm	± 0.15° ± 0.2 µm	10,000		
81	Calibration of Testing Machine Brinell Hardness testing machine	HBW 10/3000, HBW 10/500, HBW 10/100	According to ISO 6506-2			10050 - 30402
	- direct and indirect verification	HBW 5/750, HBW 5/125, HBW 5/62.5		8,440	/machine/scale	
	- indirect verification	HBW 2.5/62.5, HBW 2.5/31.25, HBW 2.5/15.625		3,500	/scale	
	- ball indenter verification	HBW 1/30		1,000		
82	Inter-laboratory comparison on hardness measurement					
	- Artifact hardness specimen	Scale B	MH01.1	9,750		10050 - 30103
	- Artifact hardness specimen	Scale C	MH01.2	9,750		10050 - 30203
	- Artifact hardness specimen	Scale R	MH01.3	9,820	Plastic artifacts shall be provided by client	10050 - 30803



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	- Artifact hardness specimen	Scale A	MH01.4	27,250		10050 - 31803
	- Artifact hardness specimen	Scale 30N	MH01.5	27,250		10050 - 31903
	- Artifact hardness specimen	Scale 30TW	MH01.6	27,250		10050 - 32003
	- Artifact hardness specimen	HV 5	MH02.1	8,250		10050 - 30403
	- Artifact hardness specimen	HV 10	MH02.2	8,250		10050 - 31403
	- Artifact hardness specimen	HV 30	MH02.3	8,250		10050 - 31503
	- Artifact hardness testing machine	Rockwell Scale A, B and C	MH03	9,750		10050 - 30303
	- Artifact hardness testing machine	Rockwell Scale A	MH03.1	5,500		10050 - 32303
	- Artifact hardness testing machine	Rockwell Scale B	MH03.2	5,500		10050 - 32403
	- Artifact hardness testing machine	Rockwell Scale C	MH03.3	5,500		10050 - 32503
	- Artifact hardness testing machine	Rockwell Scale 15N	MH03.4	8,782		10050 - 32103
	- Artifact hardness testing machine	Rockwell Scale 30N	MH03.5	8,782		10050 - 32203
	- Artifact hardness testing machine	Rockwell Scale 15TW	MH03.6	8,782		10050 - 32603
	- Artifact hardness testing machine	Rockwell Scale 30TW	MH03.7	8,782		10050 - 32703
	- Artifact hardness testing machine	Vickers HV 0.3	MH04.1	5,500		10050 - 31203
	- Artifact hardness testing machine	Vickers HV 1	MH04.2	5,500		10050 - 31603
	- Artifact hardness testing machine	Vickers HV 5	MH04.3	5,500		10050 - 31703
	- Artifact hardness testing machine	Vickers HV 10	MH04.4	5,500		10050 - 31103
	- Artifact hardness testing machine	Vickers HV 0.1	MH04.5	13,375		10050 - 32803
	- Artifact hardness testing machine	Vickers HV 0.2	MH04.6	13,375		10050 - 32903
	- Artifact hardness testing machine	Vickers HV 0.5	MH04.7	13,375		10050 - 33003
	- Artifact hardness testing machine	Brinell HBW 10/3000	MH05.1	5,500		10050 - 30903
83	Absolute Gravity	9.75 m/s ² to 9.85 m/s ²	Not smaller than 10 μGal (0.01 ppm)	240,000	for the first measurement location	10060 - 30101
				120,000	for each additional location	
84	Local Gravity	9.75 m/s ² to 9.85 m/s ²	Not smaller than 180 μGal (0.18 ppm)	40,000	Using relative method	10060 - 30102
85	Mooney Viscometer	All range	According to ISO 289	20,000	/machine	10050 - 30602
86	Melt flow index tester (Extrusion plastometer)	All range	According to ASTM D 1238	15,000	/machine	10050-30702
87	Gas Pressure Measuring Instruments (on-site) - (differential gauge pressure,Pe)	0.1 kPa to 130 kPa	2.6E-4P _e but not less than 0.03 kPa	6,250 baht/range	Differential against ambient pressure	10060 - 30103



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	- (absolute pressure, Pabs)	10 kPa to 700 kPa	2.0E-4P _{abs} but not less than 0.03 kPa			
88	Displacement Measuring Systems and Devices Used in Material Testing Machines	Displacement length up to 2,000 mm.	According to ASTM E2309/E2309M-16	5,000	/machine	10050-30802
89	Speed for material testing machines	Speed 0.05 mm/Min to 2,500 mm/Min.	According to ASTM E2658-15	5,000	/speed	10050 - 30902
90	Rolling resistance testing machine (Force method)					
	- Run-out (Radial run-out and Lateral run-out)	Nominal section width, RN from 95 mm to 315 mm	Radial run-out = 0.02 mm Lateral run-out = 0.02 mm	5,000.00 5,000.00		10040 - 30701 10040 - 30702
	- Load application (Deviation angular from wheel center)		0.002°	7,500.00		10040 - 30703
	- Tyre alignment (Camber angle and Slip angle)		Camber angle = 0.035° Slip angle = 0.030°	7,500.00 7,500.00		10040 - 30704 10040 - 30705
	- Tyre load	At Load index, LI = 0 to 121 (TLCC = 46 kgf to 1,450 kgf) and At Load index, LI = 122 to 279 (TLCC = 1,500 kgf to 136,000 kgf)	0.037% for increasing only 0.11% for increasing and decreasing	10,000.00	UN Regulation No. 117 and man. 2721-2560	10040 - 30706
	- Spindle force		0.037% for increasing only 0.11% for increasing and decreasing	10,000.00 / Direction		10040 - 30707
	- Surface speed	0 km/h to 300 km/h	0.20 km/h	5,000.00 / Direction		10040 - 30708
	- Drum diameter	1,700 mm and 2,000 mm	0.15 mm	7,500.00		10040 - 30709
91	Rolling resistance testing machine (Torque method)					
	- Run-out (Radial run-out and Lateral run-out)	Nominal section width, RN from 95 mm to 315 mm	Radial run-out = 0.02 mm Lateral run-out = 0.02 mm	5,000.00 5,000.00		10040 - 30801 10040 - 30802
	- Load application (Deviation angular from wheel center)		0.001°	7,500.00		10040 - 30803
	- Tyre alignment (Camber angle and Slip angle)	At Load index, LI = 0 to 121 (TLCC = 46 kgf to 1,450 kgf) and At Load index, LI = 122 to 279 (TLCC = 1,500 kgf to 136,000 kgf)	Camber angle = 0.035° Slip angle = 0.030°	7,500.00 7,500.00	UN Regulation No. 117 and man. 2721-2560	10040 - 30804 10040 - 30805
	- Tyre load		0.037% for increasing only 0.11% for increasing and decreasing	10,000.00		10040 - 30806
	- Torque input	0.1 N·m to 5 kN·m	0.015% (0.1 N·m to 1 N·m) 0.010% (1 N·m to 5 kN·m)	20,000.00 / Range		10040 - 30807
	- Surface speed	0 km/h to 300 km/h	0.20 km/h	5,000.00 / Direction		10040 - 30808
	- Drum diameter	1,700 mm and 2,000 mm	0.15 mm	7,500.00		10040 - 30809
92	Calibration of Rockwell standard machine.	Scale A, B, C, E, 30N, 30T, 15N, 15T	According to ISO6508-3	32,000 4,500	/machine/scale /additional scale	10050-30105



Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code	
93	Calibration of Vickers standard machine.	scale HV 0.2, HV 0.3, HV 0.5 and HV 1	According to ISO6507-3 0.08 % for test force 0.1 s for testing cycle 0.4 µm for measuring system	32,000	/machine/scale	10050-30505	
				5,700	/additional scale		
		scale HV 5, HV 10, HV 20, HV 30 and HV 50	According to ISO6507-3 0.08 % for test force 0.1 s for testing cycle 0.4 µm for measuring system	32,000	/machine/scale	10050-30205	
				5,000	/additional scale		
94	Calibration of Brinell standard machine.	HBW 10/3000, HBW 10/1500, HBW 10/1000, HBW 10/500, HBW 10/250, HBW 10/100, HBW 5/750, HBW 5/250, HBW 5/125, HBW 5/62.5, HBW 5/25, HBW 2.5/187.5, HBW 2.5/62.5, HBW 2.5/31.25, HBW 2.5/15.625, HBW 2.5/6.25, HBW 1/30, HBW 1/10, HBW 1/5, HBW 1/2.5, HBW 1/1	According to ISO6506-3	33,000	/machine/scale	10050-30305	
				4,600	/additional scale		
95	Dynamic growth of tyre testing machine	- Run-out (Radial run-out and Lateral run-out)	Nominal rim diameter, d from 102 mm to 584 mm	Radial run-out = 0.02 mm	5,000.00	UN Regulation No. 117 and 118n. 2721-2560	10040 - 30901
				Lateral run-out = 0.02 mm	5,000.00		10040 - 30902
		- Tyre speed	0 km/h to 300 km/h	0.20 km/h	5,000.00 / Direction		10040 - 30903
		- Centrifugal radius	127 mm to 434 mm (254 mm to 868 mm diameter)	0.11 mm	7,500.00		10040 - 30904
96	Volume of Liquid	(1 to 20) L	0.15%	6,250	/ piece / range	10080-10505	
		(>20 to 50) L	0.15%	10,000	/ piece / range	10080-10506	
		(>50 to 100) L	0.15%	5,000	/ piece / range	10080-10507	
		(>100 to 500) L	0.15%	6,875	/ piece / range	10080-10508	
		(>500 to 1000) L	0.15%	10,000	/ piece / range	10080-10509	
		(>1000 to 2000) L	0.15%	13,750	/ piece / range	10080-10510	
		(>2000 to 3000) L	0.15%	16,250	/ piece / range	10080-10511	
		(>3000 to 4000) L	0.15%	21,250	/ piece / range	10080-10512	