



National Institute of Metrology (Thailand)

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

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Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
Calibration Fee						
Mechanical Metrology						
1	Mass Standard	1 kg	class E0	18,750/piece	Trace to BIPM (through mass standard 1 kg ;Stainless Steel 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		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
	Mass Standard or Mass Standard set	1 mg to 1 kg	Class E2	2,050/piece	Conventional mass	10011 - 10201
		2 kg		2,750/piece		10011 - 10202
		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		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



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		500 kg	Class F2 and lower	15,000/piece		10011 - 10401
		1000 kg		16,250/piece		10011 - 10402
		2000 kg	Class M1 and lower	20,000/piece		10011 - 10501
4	Volume magnetic susceptibility of weight	1 g to 20 kg	In the range of 10% to 20%	2,820/piece	By the susceptometer method	10012 - 10101
5	Surface roughness (Ra,Rz) of weight	Up to 50 μm	$Ra = \sqrt{(7.490)^2 + (1.021 \cdot Z_m)^2}$ where Z_m (unit nm) being measured value of weight	7,500/piece	Nominal weight range 1 g to 1 kg	10013 - 10101
6	Inter-laboratory comparison on mass - Non Automatic Weighing Instruments	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
7	Inter-laboratory comparison on mass	1000 kg	NIMT.M.M-12	20,250	Conventional mass	10014-10102
	- Mass Standard	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
	- Mass Standard	100 mg, 100 g, and 1 kg	NIMT.M.M-F1.01/2020	5000	Conventional mass (100 mg, 100 g, and 1 kg- F1 Class)	10014-10104
8	Density and volume of weight (1 g to 1 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			
		20 kg	2 kg/m ³ , 0.7 cm ³			
9	Density and volume of solid artifact	2700 kg/m ³ to 9000 kg/m ³ 1.25 cm ³ to 110 cm ³	$6/V^{0.8}$ kg/m ³ (0.04123V+0.4592) mm ³ V = volume cm ³	8,750/piece	Hydrostatic weighing method (Traceable to a solid density standard)	10021 - 10102



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10	Hydrometer	600 to 2000 kg/m ³	3.22x10 ⁻⁵ d + 0.0207 kg/m ³ หรือเทียบเท่าในหน่วยอื่น d = density kg/m ³	7,040/3 points + 1250 next point	Hydrostatic weighing method (Cuckow method)	10021 - 10301
	- Density - Specific Gravity - API - Brix - Brumé - Alcoholometer		0.25 kg/m ³ 0.00010 sp/gr 0.030 °API 0.30 °Brix 0.030 Bé 0.10 %vol	4,230/3 points + 1250 next point		10021 - 10302
11	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
12	Density Meter, Benchtop & Portable Oscillation Type	700 to 1600 kg/m ³	0.030 kg/m ³	22,000/piece	By direct comparison with reference fluids	10021 - 10501
13	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
14	Force-proving instrument	1 kN to 110* kN	Accroding to ISO 376:2011 Class 00 to 2	14,540/direction	Calibrated by deadweight force standard machine. Digital indicator shall be provided by customer.	10030 - 10101
		0.1 kN to 1.5 kN		12,670/direction		10030 - 10102
		0.2 kN to 5 kN		12,670/direction		10030 - 10103
		16 kN to 500 kN		21,100/direction		10030 - 10104
		50 N to 500 N		7,500/direction		10030 - 10105
		20 kN to 100 kN	Accroding to ISO 376:2011 Class 0.5 to 2	10,000/direction	Calibrated by force-comparator machine.	10030 - 10201
		> 100 kN to 500 kN		13,290/direction	Digital indicator shall be provided by customer.	10030 - 10202
15	Strain Amplifier (Digital Measurement Amplifier)	± 5.0 mV/V	2.0 x 10 ⁻⁵ mV/V	3,750/range	Calibrated by Bridge Calibration Unit	10030 - 10401
16	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	DIN 51309, 0.015% DIN 51309, 0.01%, 0.03% DIN 51309, 0.01%	10,500/range		10040 - 10101
17	Static Torque Transfer Wrenches	1 N·m to 10 N·m	DAkks-DKD-R 3-7, 0.04%	10,500/range		10040 - 10202



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		10 N·m to 2,000 N·m	DAkks-DKD-R 3-7, 0.03%			
18	Static Torque Calibration Devices					
	- Torque Wrench Calibration Devices	1 N·m to 2,000 N·m	DAkks-DKD-R 3-8 0.2%	5,250/range		10040 - 10303
			range. 1 - 2560 0.2%	4,200/range		10040 - 10304
	- Torque Screwdriver Calibration Devices	1 N·m to 10 N·m	Based on DAkks-DKD-R 3-8 0.2%	5,250/range		10040 - 10302
19	Hand Torque Tools (Type I and Type II)					
	- Wrench	1 N·m to 1,000 N·m	ISO 6789, 1%	3,500/range		10040 - 10401
	- Screwdriver	0.1 N·m to 1 N·m 1 N·m to 10 N·m	ISO 6789, 1.5% ISO 6789, 1%	3,500/range 3,500/range		10040 - 10402
20	Adjustment charge of torque device for permanent laboratory calibration			100% of the calibration cost of each item and each range		10040 - 10601
21	Recalibration of Reference Block	20 HRA to 88 HRA	0.40 HRA	5,250/piece	Reference Block shall be provided by client.	10050 - 10101
	Rockwell Scale : HRA, HRB, HRC	20 HRB to 100 HRB	0.40 HRB			
		20 HRC to 70 HRC	0.40 HRC			
	Vickers : HV	HV5, HV10, HV20, HV30, HV50, HV100	$\pm \left(2 + \frac{1400}{d^2} \right) \% \text{ of } HV$	5,820/piece		10050 - 10201
	Vickers : HV	HV0.1	$\pm \sqrt{4 + \frac{19300}{d^2}} \% \text{ of } HV$	5,820/piece		10050 - 10501
	Brinell Scale: HB	HB10/3000	0.6 % of HB	6,250/piece		10050 - 10401
22	Elastomer Hardness Testing Machine	IRHD-N IRHD Pocket IRHD-M Durometer Type A Durometer Type D Durometer Type AO Durometer Type C	According ISO 18898 According ASTM D2240	6,850/machine		10050 - 10302
23	Gas Pressure Balances	Up to 7 MPa	$> 5 \times 10^{-4} \times P_e$ to $1 \times 10^{-4} \times P_e$ $< 1 \times 10^{-4} \times P_e$	33,750 50,000	1. Price per 1 piston & cylinder assembly	10060 - 10101 10060 - 10102



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		>7 MPa to 40 MPa	> 5×10^{-4} x Pe	33,750	2. Calibration of weight set is included.	10060 - 10103
			5×10^{-4} x Pe to 1×10^{-4} x Pe	45,000		10060 - 10104
			< 1×10^{-4} x Pe	55,000		10060 - 10105
24	Hydraulic Pressure Balances	Up to 200 MPa	> 5×10^{-4} x Pe to 1×10^{-4} x Pe	33,750	1. Price per 1 piston & cylinder assembly	10060 - 10201
			< 1×10^{-4} x Pe	50,000		10060 - 10202
		> 200 MPa to 500 MPa	> 5×10^{-4} x Pe to 2×10^{-4} x Pe	52,500	2. Calibration of weight set is included.	10060 - 10203
			< 2×10^{-4} x Pe	60,000		10060 - 10204
25	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	> 1×10^{-3} x Pe	8,750/range		10060 - 10315
			$\leq 1 \times 10^{-3}$ x Pe	11,250/range		10060 - 10316
		- 1 kPa to 0 kPa	> 6×10^{-3} x Pe	3,750/range		10060 - 10301
			6×10^{-3} x Pe to 1×10^{-3} x Pe	5,000/range		10060 - 10302
			< 1×10^{-3} x Pe, but not smaller than 0.003 mbar	6,250/range		10060 - 10303
		0 kPa to 3 kPa	> 6×10^{-3} x Pe	3,750/range		10060 - 10304
			6×10^{-3} x Pe to 1×10^{-3} x Pe	5,000/range		10060 - 10305
			< 1×10^{-3} x Pe, but not smaller than 0.003 mbar	6,300/range		10060 - 10306
		0 kPa to 15 kPa	> 1×10^{-3} x Pe	8,750/range		10060 - 10317
			$\leq 1 \times 10^{-3}$ x Pe	11,250/range		10060 - 10318
		10 kPa to 7 MPa	> 6×10^{-3} x Pe	4,070/range		10060 - 10307
		1,5 kPa to 7 MPa	6×10^{-3} x Pe to 1×10^{-3} x Pe	6,250/range		10060 - 10308
			< 1×10^{-3} x Pe	7,500/range		10060 - 10309
		> 7 MPa to 100 MPa	> 6×10^{-3} x Pe	7,040/range		10060 - 10310
			6×10^{-3} x Pe to 1×10^{-3} x Pe	9,850/range		10060 - 10311
			< 1×10^{-3} x Pe	12,670/range		10060 - 10312
26	Gas Pressure Measuring Instruments (absolute pressure, Pabs)	80 kPa to 115 kPa	< 1×10^{-3} x Pabs	8,750/range		10060 - 10401
			Not smaller than 0.35 mbar	4,230/range		10060 - 10402
		0 kPa to 15 kPa	> 1×10^{-3} x Pabs	10,000/range		10060 - 10405
			$\leq 1 \times 10^{-3}$ x Pabs	12,500/range		10060 - 10406



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		2 kPa to 7 MPa	Not smaller than 0.35 mbar	4,230/range		10060 - 10403
		1,5 kPa to 40 MPa	$\geq 1 \times 10^{-4} \times \text{Pabs}$	8,750/range		10060 - 10404
27	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
28	Hydraulic Pressure Measuring Instruments (gauge pressure, Pe)	up to 200 MPa	$> 6 \times 10^{-3} \times \text{Pe}$	5,000/range		10060 - 10601
			$6 \times 10^{-3} \times \text{Pe}$ to $1 \times 10^{-3} \times \text{Pe}$	7,500/range		10060 - 10602
			$< 1 \times 10^{-3} \times \text{Pe}$	10,000/range		10060 - 10603
		> 200 MPa to 500 MPa	$\geq 1 \times 10^{-3} \times \text{Pe}$	8,750/range		10060 - 10604
			$< 1 \times 10^{-3} \times \text{Pe}$	11,250/range		10060 - 10605
29	Hydraulic Pressure Measuring Instruments (absolute pressure, Pabs)	0,1 MPa to 200 MPa	$> 6 \times 10^{-3} \times \text{Pabs}$	6,250/range		10060 - 10801
			$6 \times 10^{-3} \times \text{Pabs}$ to $1 \times 10^{-3} \times \text{Pabs}$	8,750/range		10060 - 10802
			$< 1 \times 10^{-3} \times \text{Pabs}$	11,250/range		10060 - 10803
		> 200 MPa to 500 MPa	$\geq 1 \times 10^{-3} \times \text{Pabs}$	10,000/range		10060 - 10804
			$< 1 \times 10^{-3} \times \text{Pabs}$	12,500/range		10060 - 10805
30	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
31	Inter-laboratory comparison on gas gauge pressure	-10 mbar to 0 mbar 0 mbar to 10 mbar	$6 \times 10^{-3} \times \text{Pe}$ to $1 \times 10^{-3} \times \text{Pe}$	11,000/range		10060 - 10320
32	Inter-laboratory comparison on gas gauge	0 bar to 70 bar	$< 1 \times 10^{-3} \times \text{Pe}$	9,500/range		10060 - 10321
33	Inter-laboratory comparison on gas gauge	0 bar to 120 bar	$< 1 \times 10^{-3} \times \text{Pe}$	14,670/range		10060 - 10322
34	Pressure Measuring Device	0 to 3500 kPa	0.01%rdg but not less than 0.1 kPa	6,500/range	Media: Water	10060-10901
35	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
36	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
37	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

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38	Vacuum Gauges (absolute pressure : hot cathode ion gauge, cold cathode ion gauge)	10^{-1} Pa to 10^{-5} Pa	0.5% rdg to 6% rdg	11,090/for first decade +2,250 for next decade		10070 - 10301
39	Vacuum Gauge (absolute pressure :	10 Pa to 10^{-3} Pa	0.6% rdg to 4.5% rdg	to be determined		10070 - 10401
40	Additional cost for electrical calibration (which the accuracy is not better than +/-0.01% rdg)			2,250/item		10070 - 10501
41	Adjustment charge of pressure and vacuum devices for permanent laboratory calibration			50% of the calibration cost of each range		10070 - 10502



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42	Measurement audit report			1,000 Baht/report + 1,000 Bath/only for artifact provided + Calibration fee		10070 - 10503
43	Vacuum Gauges by Static Expansion	0.13 Pa to 1.3 kPa	0.50% rdg to 0.25% rdg	26,400/sensor head		10070 - 10601
44	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 (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
45	Small Water Flow Meter (Mass 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
46	Small Water Flow Meter (Volume 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
47	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
48	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
49	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
50	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
51	Orifice flow device (Volumetric method)	(1 to 100) m ³ /h	1.00%	7,500/piece (5-7 points)	Comparison Method	10080 - 10208
52	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
53	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



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54	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
55	Gas Flowmeter (Mass gas flow rate)	0.043 (mg/s) to 500 (mg/s)	0.23%	17,250/range	Calibration Fluid : Nitrogen	10080 - 10201
56		0.043 (mg/s) to 21545 (mg/s)	0.23%	17,250/range	Calibration Fluid : Dry Air	10080 - 10202
57	Flow speed device	(0.1-40) m/s	0.50%	12,500/5 points+2,500/next point	Wind tunnel	10080 - 10701
58	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
		25 L/min to 120 L/min	NIMT.MW-L1/2019	15,750/range (N = 2)	Calibration Fluid : Water	10080 - 10106
59	Inter-laboratory comparison on water flow meter and pressure of infusion pump	(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						
60	Standard Torque Transducer	≤ 2,000 N·m	DIN 51309 Class 0.2, 0.1, 0.05	117,190/piece		10040 - 20501
		≤ 1,000 N·m		103,130/piece		10040 - 20502
		≤ 500 N·m		88,750/piece		
		≤ 200 N·m		75,790/piece		
		≤ 50 N·m		45,320/piece		



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		$\leq 20 \text{ N}\cdot\text{m}$		39,070/piece		10040 - 20503
61	Standard Torque Transfer Wrench	$\leq 2,000 \text{ N}\cdot\text{m}$	DAkks-DKD-R 3-7 Class 0.2	125,000/piece		10040 - 20601
		$\leq 1,000 \text{ N}\cdot\text{m}$		115,000/piece		10040 - 20602
		$\leq 500 \text{ N}\cdot\text{m}$		87,500/piece		
		$\leq 200 \text{ N}\cdot\text{m}$		78,500/piece		
		$\leq 50 \text{ N}\cdot\text{m}$		56,250/piece		
		$\leq 20 \text{ N}\cdot\text{m}$		50,000/piece		10040 - 20603
62	Standard Torque Transfer Wrench Model: TW-MCS01	$\leq 2,000 \text{ N}\cdot\text{m}$	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
		$\leq 1,000 \text{ N}\cdot\text{m}$		161,450/piece		
		$\leq 500 \text{ N}\cdot\text{m}$		128,750/piece		
		$\leq 200 \text{ N}\cdot\text{m}$		111,430/piece		
		$\leq 50 \text{ N}\cdot\text{m}$		85,930/piece		
		$\leq 20 \text{ N}\cdot\text{m}$		79,740/piece		
63	V-notch Charpy Impact CRM	$30 \text{ J} \pm 10 \text{ J}$	According to ISO148-3	18,530/set		10050 - 20301
		$100 \text{ J} \pm 10 \text{ J}$		18,530/set		10050 - 20302
	Calibration of metallic -charpy pendulum Testing Machine	Low(<40J) and high ($\geq 40\text{J}$)energy	According to ISO148-2	81,250		10050 - 20303
64	Certified Reference Block	20 HRA to 88 HRA	0.40 HRA	10,940/piece		10050 - 20101
	Rockwell Scale : HRA, HRB, HRC	20 HRB to 100 HRB	0.40 HRB			
		20 HRC to 65 HRC	0.40 HRC			
	Vickers : HV	HV5, HV10, HV20, HV30, HV50, HV100	$\pm \left(2 + \frac{1400}{HV} \right) \% \text{ of } HV$	20,320/piece		10050 - 20201



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Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	Vickers : HV	HV0.1	$\pm \sqrt{4 + \frac{19300}{d^2}} \% \text{ of HV}$	26,250/piece		10050 - 20501
	Brinell Scale: HB	HB10/3000	0.6 % of HB	16,880/piece		10050 - 20401
On-site Calibration						
65	Universal Testing Machine	50 N to 500 kN (for Tension and Compression mode) 50 N to 2,000 kN (for Compression mode)	According to ISO 7500-1 : 2018	10,000/force scale /mode	Calibrated by force-measuring device and ascessories shall be provided by customer	10030 - 30201
66	Static Torque Calibration devices	1 N·m to 2,000 N·m	DAkKS-DKD-R 3-8	5,250/range		10040 - 30303
	- Torque Wrench Calibration Devices		0.2%			
			ตาม 1 - 2560	4,200/range		10040 - 30304
			0.2%			
	- Torque Screwdriver Calibration Devices	1 N·m to 10 N·m	Based on DAkKS-DKD-R 3-8	5,250/range		10040 - 30302
			0.2%			
67	Adjustment charge of torque device for on-site calibration			100% of the calibration cost of each item and each range		10040 - 30601



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68	Inter-laboratory comparison on torque with cross force					
	- 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
69	Extensometer	Gauge length up to 200 mm	According to ISO 9513	3,910	/scale	10050 - 30001
70	Calibration of Testing Machine Rockwell Hardness Testing Machine	20 HRA to 88 HRA	According to ISO 6508-2			10050 - 30102
	- direct and indirect verification	20 HRB to 100 HRB		8,440	/machine/scale	
	- indirect verification	20 HRC to 65 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 HR15T to 93 HR15T				
		29 HR30T to 82 HR30T				
		70 HRE to 100 HRE				



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71	Calibration of Testing Machine Vickers Hardness Testing Machine	HV0.2, HV0.3, HV0.5, HV5, HV10, HV20, HV30, HV50	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		
72	Calibration of Testing Machine Brinell Hardness testing machine	HB10/3000, HB10/500, HB10/100	According to ISO 6506-2			10050 - 30402
	- direct and indirect verification	HB5/750, HB5/125, HB5/62.5		8,440	/machine/scale	
	- indirect verification	HB2.5/62.5, HB2.5/31.25, HB2.5/15.625		3,500	/scale	
	- ball indenter verification	HB1/30		1,000		
73	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
	- Artifact hardness specimen	HV5	MH02.1	8,250		10050 - 30403
	- Artifact hardness specimen	HV10	MH02.2	8,250		10050 - 31403
	- Artifact hardness specimen	HV30	MH02.3	8,250		10050 - 31503
	- Artifact hardness testing machine	Rockwell Scale A, B and C	MH03	9,750		10050 - 30303



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Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
	- 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	Vickers HV0.3	MH04.1	5,500		10050 - 31203
	- Artifact hardness testing machine	Vickers HV1	MH04.2	5,500		10050 - 31603
	- Artifact hardness testing machine	Vickers HV5	MH04.3	5,500		10050 - 31703
	- Artifact hardness testing machine	Vickers HV10	MH04.4	5,500		10050 - 31103
	- Artifact hardness testing machine	Brinell HB10/3000	MH05.1	5,500		10050 - 30903
74	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	
75	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
76	Mooney Viscometer	All range	According to	20,000	/machine	10050 - 30602
			ISO 289			