

CERTIFICATE OF ACCREDITATION

Han Sung Instrument Co.,Ltd

Accreditation No. : KC08-225

Corporation Registration No. : 110111-1228512

Address of Laboratory : 60, Haan-ro, Gwangmyeong-si, Gyeonggi-do, Republic of Korea

Date of Initial Accreditation : July 21, 2008.

Validity of Accreditation : August 23, 2024. ~ August 22, 2028.

Scope of Accreditation : Attached Annex

Date of issue : April 30, 2024.

This calibration laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to Joint ISO-ILAC-IAF Communiqué).



CHIN CHONGWOOK

Head

Korea Laboratory Accreditation Scheme

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017 & KS Q ISO/IEC 17025:2017

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CALIBRATION

Valid To : August. 22, 2028.

Accreditation No. : KC08-225

In recognition of the successful completion of the KOLAS evaluation process,
accreditation is granted to this laboratory to perform the following calibrations

Field Code	Item of Calibration	on-site	Field Code	Item of Calibration	on-site	Field Code	Item of Calibration	on-site
201. Mass			50102	Temperature indicators / recorders / controllers, temperature calibrators	Y			
20102	Auto-hopper scale balances	Y						
20105	Counter beam balances	Y						
20106	Dial platform scale balances	Y	50103	Glass thermometers; liquid-in-glass, Beckmann	N			
20107	Dial swing scale balances	Y						
20109	Eletric balances	Y						
20112	Platform scale balances	Y	50104	Resistance thermometers; SPRT, IPRT, thermistors, etc	Y			
20113	Spring scale balances	Y						
20114	Trip balances	Y	50105	Thermal expansion thermo-meters; bimetal, gas or liquid type	Y			
20116	Weights	Y						
204. Pressure								
20406	Absolute pressure gauges; dial, digital, barometer, recorder, etc	N	50106	Thermomecouples: noble metal, base metal, pure metal, special type, etc.	Y			
			50107	Temperature transducers	Y			
20409			503. Humidity					
			50302	Relative humidity hygrometers; polymer thin film, hair, etc.	N			
20411								
20412			50304	Temperature humidity recorders; hygrothermograph, etc.	N			
20413								
			50305	Transducers; dew-point/relative humidity	N			
206. Volume								
20601			50306	Humidity generators; two-pressure, two-temperature, flow mixing humidity generator, constant temperature and humidity chamber, etc.	Y			
20606								
501. Contact thermometry								
50101	Temperature generators: ovens, furnaces, isothermal liquid baths, ice-point baths, dry-block calibrators	Y						

Note

1. This laboratory provides calibration services in permanent standard laboratory and at on-site.
2. Laboratory conducts on-site calibration should meet requirements of KOLAS-SR-007.
3. On-site calibration is allowed to items with marking 'Y', not allowed to items with marking 'N'.
4. Measurement uncertainty normally is quoted as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k=2$. It expresses the lowest uncertainty of measurement that can be provided by accredited calibration laboratories in normal conditions.
5. Due to the calibration environment such as reference standards or customers' facilities, it is note that uncertainty of measurement on a calibration certificate may be expressed larger than measurement uncertainty on scope of accreditation in general.

201. Mass and related quantities

Measured Quantity Instrument or Gauge	Field Code	Range	Measurement uncertainty (The Confidence Level is about 95 %)	Standard/Method of Measurement etc.
Auto-hopper scale balances	20102	(0 ~ 10) kg (10 ~ 50) kg (50 ~ 200) kg (200 ~ 1 000) kg	1.4 g 7.1 g 28 g 0.14 kg	Standard Weight /HS-I-201-02
Counter beam balances	20105	(0 ~ 311) g (311 ~ 2 610) g (2 610 ~ 20 000) g	7.6 mg 81 mg 0.76 mg	Standard Weight /HS-I-201-05
Dial platform scale balances	20106	(0 ~ 1) kg (1 ~ 10) kg (10 ~ 50) kg (50 ~ 200) kg	0.87 g 8.7 g 87 g 0.87 kg	Standard Weight /HS-I-201-06
Dial swing scale balances	20107	(0 ~ 10) kg (10 ~ 50) kg (50 ~ 200) kg (200 ~ 1 000) kg	9.7 g 52 g 0.21 kg 1.0 kg	Standard Weight /HS-I-201-06
Electric balances	20109	(0 ~ 2) g (2 ~ 5) g (5 ~ 20) g (20 ~ 200) g (200 ~ 1 000) g (1 ~ 3) kg (3 ~ 5) kg (5 ~ 10) kg (10 ~ 30) kg (30 ~ 60) kg (60 ~ 300) kg (300 ~ 500) kg (500 ~ 1 000) kg (1 000 ~ 5 000) kg (5 000 ~ 10 000) kg (10 000 ~ 20 000) kg (20 000 ~ 50 000) kg	10 µg 14 µg 20 µg 0.09 mg 0.2 mg 0.4 mg 0.9 mg 2 mg 5 mg 0.3 g 2 g 0.10 kg 0.2 kg 1.0 kg 2 kg 10 kg 20 kg	Standard Weight /HS-I-201-09
Platform scale balances	20112	(0 ~ 50) kg (50 ~ 200) kg (200 ~ 500) kg (500 ~ 1 000) kg (1 000 ~ 3 000) kg (3 000 ~ 5 000) kg	9.3 g 91 g 0.18 kg 0.91 kg 1.8 kg 5.0 kg	Standard Weight /HS-I-201-12
Spring scale balances	20113	(0 ~ 1) kg (1 ~ 10) kg (10 ~ 50) kg (50 ~ 200) kg	0.83 g 8.3 g 90 g 0.83 kg	Standard Weight /HS-I-201-13
Trip balances	20114	(0 ~ 5) g (5 ~ 200) g (200 ~ 1 000) g (1 000 ~ 5 000) g	89 mg 0.18 g 0.89 g 4.4 g	Standard Weight /HS-I-201-14

Measured Quantity Instrument or Gauge	Field code	Range	Measurement uncertainty (The Confidence Level is about 95 %)	Standard/Method of Measurement etc.
Weights	20116	(1 mg ~ 20 kg) 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 (500 kg ~ 1 000 kg) 500 kg 1 000 kg	(Class E ₂) 2.0 μg 2.0 μg 2.0 μg 2.0 μg 3.0 μg 4.0 μg 5.0 μg 6.0 μg 8.0 μg 10 μg 13 μg 16 μg 0.02 mg 0.02 mg 0.03 mg 0.05 mg 0.10 mg 0.2 mg 0.5 mg 1.0 mg 2.6 mg 5 mg 10 mg (Class F ₂) 2 g 5 g	Standard Weight and mass comparator /HS-I-201-16

204. Pressure

Measured Quantity Instrument or Gauge	Field code	Range	Measurement uncertainty (The Confidence Level is about 95 %)	Standard/Method of Measurement etc.
Absolute pressure gauges; dial, digital, barometer, recorder, etc	20406	(5 ~ 200) kPa abs (200 ~ 1 000) kPa abs (1 000 ~ 7 000) kPa abs	4.8×10^{-3} 1.2×10^{-3} 1.7×10^{-3}	Digital pressure gauges /HS-I-204-06
Compound pressure gauges; dial, digital, etc	20408	(-100 ~ 100) kPa (100 ~ 1 000) kPa (1 000 ~ 7 000) kPa	1.5×10^{-3} 2.4×10^{-3} 1.7×10^{-3}	Digital pressure gauges /HS-I-204-08
Differential pressure gauges; dial, digital, etc	20409	(0 ~ 14) kPa (14 ~ 700) kPa (700 ~ 2 000) kPa	1.6×10^{-3} 7.3×10^{-4} 1.6×10^{-4}	Digital pressure gauges Pneumatic pressure ballances /HS-I-204-09
Gauge pressure gauges; dial, digital, recorder, etc	20411	Pneumatic pressure (0 ~ 14) kPa (14 ~ 700) kPa (700 ~ 7 000) kPa Hydraulic pressure (7 ~ 100) MPa	1.6×10^{-3} 7.3×10^{-4} 1.3×10^{-4} 1.8×10^{-4}	Digital pressure gauges Pneumatic pressure ballances Hydraulic pressure ballances /HS-I-204-11
Pressure transducers/ transmitters Absolute pressure Vacuum pressure Gauge pressure Differential pressure	20412	 (5 ~ 200) kPa abs (200 ~ 1 000) kPa abs (1 000 ~ 7 000) kPa abs (-100 ~ 0) kPa Pneumatic pressure (0 ~ 14) kPa (14 ~ 700) kPa (700 ~ 7 000) kPa Hydraulic pressure (7 ~ 100) MPa (0 ~ 14) kPa (14 ~ 700) kPa (700 ~ 2 000) kPa	 4.8×10^{-3} 1.2×10^{-3} 1.7×10^{-3} 2.4×10^{-3} 1.3×10^{-3} 4.4×10^{-4} 1.7×10^{-4} 2.0×10^{-4} 1.3×10^{-3} 4.4×10^{-4} 1.2×10^{-4}	 Digital pressure gauges Pneumatic pressure ballances Hydraulic pressure ballances Digital multimeters /HS-I-204-12
Dial type vacuum gauges; dial, digital, etc	20413	(-100 ~ 0) kPa	2.6×10^{-3}	Digital pressure gauges /HS-I-204-13

206. Volume

Measured Quantity Instrument or Gauge	Field code	Range	Measurement uncertainty (The Confidence Level is about 95 %)	Standard/Method of Measurement etc.
Volumetric glasswares	20601	(0 ~ 0.5) mL (0.5 ~ 1) mL (1 ~ 2) mL (2 ~ 5) mL (5 ~ 10) mL (10 ~ 25) mL (25 ~ 50) mL (50 ~ 100) mL (100 ~ 200) mL (200 ~ 250) mL (250 ~ 500) mL (500 ~ 1 000) mL (1 000 ~ 2 000) mL	1.8 μ L 2.8 μ L 3.7 μ L 5.2 μ L 6.9 μ L 11 μ L 17 μ L 29 μ L 42 μ L 58 μ L 93 μ L 0.18 mL 0.31 mL	Electric balances /HS-I-206-01
Piston type volume	20606	(0 ~ 0.001) mL (0.001 ~ 0.01) mL (0.01 ~ 0.02) mL (0.02 ~ 0.1) mL (0.1 ~ 0.2) mL (0.2 ~ 1) mL (1 ~ 5) mL (5 ~ 10) mL (10 ~ 20) mL (20 ~ 50) mL	6 nL 20 nL 34 nL 0.10 μ L 0.29 μ L 0.92 μ L 3.7 μ L 8.1 μ L 19 μ L 45 μ L	Electric balances /HS-I-206-06

Range	Measurement uncertainty (The Confidence Level is about 95%)
(-80 ~ 200) °C	1.0 °C
(200 ~ 300) °C	1.8 °C
(-80 ~ 250) °C	0.10 °C
(250 ~ 1 100) °C	1.3 °C
(-80 ~ 250) °C	0.06 °C
(250 ~ 1 100) °C	1.4 °C
(-80 ~ 1 100) °C	0.25 °C
(-80 ~ 250) °C	0.08 °C
(-80 ~ 250) °C	0.07 °C
(-50 ~ 250) °C	1 °C
(-80 ~ 250) °C	0.25 °C
(250 ~ 1 100) °C	1.9 °C
(-80 ~ 250) °C	0.50 °C

503. Humidity

Measured Quantity Instrument or Gauge	Field code	Range	Measurement uncertainty (The Confidence Level is about 95 %)	Standard/Method of Measurement etc.
Relative humidity hygrometers; polimer thin film, hair, etc. polymer thin film hair	50302	(-40 ~ 100) °C (10 ~ 30) % R.H. (30 ~ 50) % R.H. (50 ~ 80) % R.H. (80 ~ 95) % R.H. (10 ~ 95) % R.H.	0.6 °C 3.0 % R.H. 2.2 % R.H. 3.3 % R.H. 3.7 % R.H. 4 % R.H.	Dewpoint Meter /HS-I-503-02-1,-2
Temperature humidity recorders; hygrothermograph, etc. hygrothermograph	50304	(-20 ~ 50) °C (10 ~ 95) % R.H.	1 °C 4 % R.H.	Dewpoint Meter /HS-I-503-04
Transducers; dew-point/ relative humidity relative humidity	50305	(10 ~ 95) % R.H.	3.4 % R.H.	Dewpoint Meter, MULTI CALIBRATOR /HS-I-503-05
Humidity generators; two-pressure, two- flow mixing humidity generator, constant temperature and humidity chamber, etc. constant temperature and humidity chamber	50306	(-40 ~ 150) °C (10 ~ 95) % R.H.	1.0 °C 5.9 % R.H.	Dewpoint Meter, Recorders /HS-I-503-06