



# CERTIFICATE OF ACCREDITATION

*This is to attest that*

## **YSF CORPORATION LTD**

5A, BLOCK 1, KIN HO INDUSTRIAL BUILDING  
20-24 AU PUI WAN STREET, FO TAN  
SHATIN, HONG KONG

### **Calibration Laboratory CL-209**

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date April 14, 2020

Expiration Date January 1, 2021



A handwritten signature in black ink, reading 'Raj Nathan'.

**President**

Visit [www.iasonline.org](http://www.iasonline.org) for current accreditation information.

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

## YSF CORPORATION LTD

[www.ysf.com.hk](http://www.ysf.com.hk)

**Contact Name** Mr So Chi Kuen

**Contact Phone** + 852-8109-8368

*Accredited to ISO/IEC 17025:2017*

*Effective Date April 14, 2020*

### CALIBRATION AND MEASUREMENT CAPABILITY (CMC)\*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
<i>Dimensional</i>			
Angle meter (protractor, tiltmeter, inclinometer)	0.11° to 90°	0.1°	Master angle meter
	0.04° to 45°	0.03°	Sine bar or sine plate and master gage blocks
Caliper	1 mm to 300 mm	0.02 mm	Master gage blocks
Coating thickness gage	0.05 mm to 2 mm	3 µm	Master plastic foil
Concrete cube mould (100 mm and 150 mm)	Dimension	0.02 mm	CS1: 2010 Vol 1 App. A25
	Flatness	0.01 mm	
	Squareness	0.02 mm	
	Parallelism	0.05 mm	
Concrete cylindrical mould (150mm diameter)	Dimension	0.02 mm	CS1: 2010 Vol 1 App. A27
	Flatness	0.01 mm	
	Straightness	0.01 mm	
	Squareness	0.02 mm	
Parallelism	0.05 mm		
Cover meter	Up to 200 mm	1 mm	BS1881 Pt204: 1988 Cl.6.4 (Method C)
Depth gage	1 mm to 300 mm	0.02 mm	Master gage blocks
Dial gage	1 mm to 50 mm	4 µm	BS907:2008 Cl.9 and Annex B/ Micrometer head
	50 mm to 100 mm	6 µm	
Digimatic indicator / LVDT	1 mm to 10 mm	0.4 µm	Master gage blocks
	10 mm to 100 mm	3 µm	
External micrometer	0.01 mm to 25 mm	1.6 µm	Master gage blocks
	25 mm to 100 mm	3 µm	
Extensometer	25 mm to 200 mm gage length	0.9 µm	BS3846: 1970 Grade D and BSEN ISO 9513:2012 Class 1
Feeler gage	0.01 mm to 2 mm	2 µm	External micrometer
Height gage	1 mm to 500 mm	0.03 mm	Master gage blocks

\* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

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Measuring ruler	1 mm to 1 m	0.6 mm	Master steel ruler
Measuring tape Without sensor head With sensor head	1 mm to 200 m 1 mm to 200 m	0.8 mm per 5 m 1 mm per 5 m	Master measuring tape
Micrometer head	0.1 mm to 5 mm 5 mm to 50mm	1 µm 2 µm	Master gage blocks
Plastic foil	50 µm to 2 mm	2 µm	External micrometer
Spirit level	20 mm to 1.5 m long	0.015 mm per m	Electronic level
Square	50 mm to 300 mm	10 µm	Square & feeler gage
Straight edge	50 mm to 1 m	10 µm	Surface plate & feeler gage
Survey equipment: Theodolite	Horizontal angle: 0° to 360° Vertical angle: -75° to 75°	10" 10"	Master total station
Total station	Horizontal angle: 0° to 360° Vertical angle: -75° to 75° Distance: 1 m to 300 m	10" 10" 5 mm	Master total station
Autolevel	Level precision: 40 m apart	2 mm	Master autolevel
GNSS	Distance: up to 1 km apart	15 mm	Master GNSS
Thickness gage	1 mm to 50 mm	2 µm	Master gage blocks
Welding gage	Length measurement: up to 100 mm Angle measurement: up to 180°	0.1mm 1°	Master caliper, master gage block, master angle meter
<b>Mechanical</b>			
Anemometer	0.5 m/s to 1 m/s 1 m/s to 20 m/s	8 % 4 %	Master anemometer & various wind tunnels at different wind speed
Balance	0.05 g to 5 g 5 g to 250 g 250 g to 10 kg 10 kg to 200 kg	0.005 mg 0.04 mg 8 mg 0.01 kg	OIML Class E1 mass OIML Class E2 mass OIML Class F1 mass OIML Class M mass
Charpy V-notch impact tester	Up to 40 J Above 40 J to 230 J	1.6 J 10 J	BS EN ISO 148-2:2016 BS EN 10045-2: 1993
Compression machine (Force)	1kN to 3000 kN (class 1)	1 %	BS 1610: Part 1: 85 & 92/ BS EN 12390-4: 2000/ CS1: 1990 & 2010
Compression machine (Stability)	At 200 kN & 2000 kN	0.05 strain ratio	BS 1881: Part 115: 86 & BS EN 12390-4: 2000/ CS1: 1990 & 2010

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Hardness testing machine	(100-800) HV5 (100-800) HV10 (100-800) HV30	2 % 2 % 2 %	BS EN ISO 6507-2: 2018
Hydraulic cylinder	1 kN to 3000 kN	1 %	Master load cells
Load cell	1 kN to 3000 kN	1 %	Master load cells
Flowmeter (air)	5 L/min to 200 L/min	1 %	Master air flowmeters
Flowmeter (water)	0.5 m <sup>3</sup> /h to 6 m <sup>3</sup> /h	1 %	Master water flowmeter
Pressure measuring device	5 Pa to 250 Pa 250 Pa to 2500 Pa 0.3 psi to 30 psi 14 psi to 3000 psi 140 psi to 10000 psi	5 Pa 15 Pa 0.5 % 0.5 % 0.5 %	Master pressure gauges
Rebound hammer	At 80 rebound count	1 rebound count	BS EN 12504-2: 2012 Cl. 4.2
Rebound hammer's anvil	Mass: 16 kg Hardness: 52 HRC	2 g 5 %	BS EN 12504-2: 2012 Cl. 4.2
Timer	Up to 10 min Up to 2 h	0.1 s 0.2 s	Master timer
Torque wrench	0.1 N·m to 1000 N·m	2 %	Master torque meters
UTM in compression mode (Force)	1 kN to 3000 kN (class 1)	1 %	BS EN ISO 7500-1: 2018
Vacuum gauge	0.1 bar to -1 bar	0.5 %	Master vacuum gage
Vibration meter	0.2 ms <sup>-2</sup> to 20 ms <sup>-2</sup>	3 %	Master accelerometer & shaker
Water meter	100 L to 500 L	2 %	Master water flowmeter
<b>Thermal</b>			
Curing tank (Temperature distribution & water circulation)	27 °C +/- 3 °C	0.4 °C	CS 1: 2010 Vol 1 App. A28
Humidity meter	11 %RH to 95 %RH (at 25 °C)	3 %RH	Master humidity meter in environmental chamber
Infrared thermometer	-10 °C to 100 °C 100 °C to 250 °C	2 °C 4 °C	Blackbody temperature source & Master infrared thermometer
Temperature – Measure	-190 °C to 420 °C	0.01 °C	SPRT
Thermometer	-20 °C to 80 °C 80 °C to 250 °C 250 °C to 600 °C 600 °C to 1100 °C	0.1 °C 0.2 °C 1.5 °C 3 °C	Liquid baths, dry block calibrators, SPRT & platinum thermocouple

<sup>1</sup>The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The

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measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

<sup>2</sup>When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.