



FT Laboratories Limited
科達測檢試驗所有限公司

ADDRESS : Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che,
地址 New Territories, Hong Kong
香港新界坪輦五洲南路丈量約份第77約地段1552號A分段第一小分段

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CLIENTELE : Public
服務對象 公眾



Scope of Accreditation
Registration No. HOKLAS 071
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Issue Date: 4 March 2025
Ref: HOKLAS071-269

FT Laboratories Limited
科達測檢試驗所有限公司

ADDRESS
地址

Main laboratory : Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che,
New Territories, Hong Kong
香港新界坪輦五洲南路丈量約份第 77 約地段 1552 號 A 分段第一小分段

ACCREDITED TEST : Calibration Services 校正服務
CATEGORIES Construction Materials 建築材料
認可測試類別 Environmental Testing 環境測試

FT Laboratories Limited

科達測檢試驗所有限公司

Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, New Territories, Hong Kong

香港新界坪輦五洲南路丈量約份第 77 約地段 1552 号 A 分段第一小分段

Calibration Services 校正服務		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED@ 特定測試或量度的特性@	CALIBRATION AND MEASUREMENT CAPABILITY (CMC)* 校準和測量能力*
Acoustic and vibration measurements - Vibration measurements - Accelerometer (frequency: 20 Hz to 100 Hz dynamic acceleration: 0.98 m/s² to 11.77 m/s²) - Vibration monitoring device (frequency: 20 Hz to 100 Hz)	Calibration for sensitivity in accordance with ISO 16063-21: 2003 + Cor 1: 2009 Cl. 5.3 over the following range : 5 mV / (m/s²) to 62 mV / (m/s²) Calibration for following parameters in accordance with in-house method CAL 091 over the following ranges : Acceleration: 0.98 m/s² to 11.77 m/s² Velocity: 2 mm/s to 30 mm/s Displacement: 0.01 mm to 0.10 mm	9.9 % of reading 10.7 % of reading 10.7 % of reading 10.7 % of reading

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Construction materials testing equipment		
- Block	Calibration for dimensions in accordance with in-house method CAL 136 using height gauge over the following range : 1 mm to 300 mm Calibration for dimensions in accordance with in-house method CAL 142 using projector over the following range : 1 mm to 100 mm Calibration for dimensions in accordance with in-house method CAL 143 using callipers over the following range : 1 mm to 300 mm Calibration for dimensions in accordance with in-house method CAL 144 using steel ruler over the following range : 1 mm to 2 m	25 µm to 55 µm 19 µm 25 µm to 58 µm 1.3 mm
- Cement grout flow cone	Verification in accordance with in-house method CAL 040 for the performance as specified in ASTM C939-97 Cl. 8 Time of efflux of water from cone: 8.0 s	0.08 s
- Compacting bar	Verification in accordance with in-house method CAL 044 for the dimensional and mass requirements as specified in CS1: 2010: Vol. 1 App. A10 Dimensions of ramming face: 25 mm x 25 mm Length: 380 mm Mass: 1.8 kg	0.05 mm 1.5 mm 1 g

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Construction materials testing equipment (cont'd)		
- Concrete test cube mould	Verification in accordance with in-house method CAL 029 for the dimensional requirements as specified in CS1: 2010: Vol. 1 App. A25 Dimensions: 100 mm or 150 mm Flatness: not more than 0.03 mm or 0.06 mm Perpendicularity: 0.5 mm Parallelism: 1 mm On-site verification in accordance with in-house method CAL 029 for the dimensional requirements as specified in CS1: 2010: Vol. 1 App. A25 Dimensions: 100 mm or 150 mm Flatness: not more than 0.03 mm or 0.06 mm Perpendicularity: 0.5 mm Parallelism: 1 mm	0.06 mm 0.01 mm 0.01 mm 0.13 mm
- Curing tank	On-site calibration for the following parameters in accordance with in-house method CAL 026 for the requirements as specified in CS1: 1990: Vol. 1 App. A24, or CS1: 2010: Vol. 1 App. A28 - temperature distribution at range of (27 ± 3) °C - Efficiency of circulation	0.7 K 1 min
- Drying oven	On-site calibration for temperature in accordance with in-house method CAL 038 over the following ranges : 27 °C to 110 °C above 110 °C to 180 °C 27 °C to 110 °C for centre point check above 110 °C to 180 °C for centre point check	1.2 K 1.7 K 0.9 K 0.9 K

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Construction materials testing equipment (cont'd)		
- Echo sounder signal recording apparatus	Calibration for transmission frequency in accordance with in-house method CAL 126 at the following nominal values :	
	90 kHz	1.4 % of reading
	100 kHz	1.4 % of reading
- Furnace	On-site calibration for temperature in accordance with in-house method CAL 027 over the following range :	
	200 °C to 1200 °C	9.9 K
- Incubator	On-site calibration for temperature in accordance with in-house method CAL 177 over the following ranges :	
	0 °C to 60 °C	1.2 K
	0 °C to 60 °C for center point check	1.2 K
- Measuring staff	Calibration for dimensions in accordance with in-house method CAL 109 over the following range :	
	0 m to 5 m	1.8 mm
- Rebound hammer	Calibration for rebound value in accordance with in-house method CAL 138 using an anvil which complies with BS EN 12504-2: 2001 Cl. 4.2, or GB 9138: 1988 A2	1.5 rebound count
- Reflex Ezshot	Calibration for angle in accordance with in-house method CAL 114 over the following ranges :	
	Horizontal : 0° to 20°	0.1°
	Vertical : 70° to 90°	0.1°

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Construction materials testing equipment (cont'd)		
- Ultrasonic crosshole testing equipment	Calibration for time base in accordance with in-house method CAL 215 using water as sound carrier medium over the following range : 50 μ s to 1000 μ s	8.2 μ s to 17.6 μ s
	Calibration for time base in accordance with in-house method CAL 215 using air as sound carrier medium over the following range : 200 μ s to 1500 μ s	8.2 μ s to 17.6 μ s
- Vibrating wire strain gauge	Calibration for strain in accordance with in-house method CAL 072 over the following range : 67 microstrain (μ ϵ) to 4000 microstrain (μ ϵ)	38 microstrain (μ ϵ)
- Water bath	On-site calibration for temperature in accordance with in-house method CAL 037 over the following range : 25 $^{\circ}$ C to 85 $^{\circ}$ C	0.67 K to 1.0 K
- Welding gauges used for measuring the dimension of joint before and after welding	Calibration for following parameters in accordance with in-house method CAL 058 Scale measuring bevel angle: 0 $^{\circ}$ to 90 $^{\circ}$ Scale measuring fixed bevel angle: 0 $^{\circ}$ to 90 $^{\circ}$ Ruler: 0 mm to 100 mm Scale measuring gap width: 0 mm to 5 mm Scale measuring weld width: 0 mm to 50 mm Scale measuring, high low, weld cap, weld throat and leg length: 0 mm to 30 mm Scale measuring undercut depth: 0 mm to 30 mm	0.50 $^{\circ}$ 0.50 $^{\circ}$ 0.1 mm 0.1 mm 0.1 mm 0.3 mm 0.3 mm

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Electrical measurements - Time and frequency measuring instruments - Time interval measuring device	Calibration for time interval in accordance with in-house method CAL100 over the following range : 1 second to 30 minutes	50 ms

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Length and related measurements - Angle measurements instruments - Angle measuring device - Inclinator for angle monitoring - Spirit level - Tilt meter	Calibration for angle in accordance with in-house method CAL 066 over the following ranges : -60° to 60° (digital type) -60° to 60° (bubble type) Calibration for angle in accordance with in-house method CAL 113 over the following ranges : Horizontal : 0° to 20° Vertical : 70° to 90° Calibration for sensitivity in accordance with BS 3509: 1962 App. A2.C and A3 over the following range : 8 seconds to 60 minutes Calibration for angle in accordance with in-house method CAL 112 over the following range : - 20° to 20°	0.013° 2° 0.05° 0.05° 0.039 arc degree 0.014°

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Length and related measurements		
- Length measuring instruments		
- Calliper (vernier type)	Calibration for length in accordance with BS 887: 1982 App. B1 over the following range :	
	0 mm to 300 mm	$(10 + 30l) \mu\text{m}$, length l in m
- Calliper (digital type)	Calibration for length in accordance with in-house method CAL 007 over the following range :	
	0 mm to 300 mm	$(10 + 30l) \mu\text{m}$, length l in m
- Coating thickness gauge	Calibration for thickness in accordance with in-house method CAL 130 using plastic foils over the following range :	
	10 μm to 2000 μm	10.0 μm
- Depth gauge (vernier type)	Calibration for depth in accordance with BS 6365: 1983 App. B2 over the following range :	
	0 mm to 300 mm	$(10 + 30d) \mu\text{m}$, depth d in m
- Depth gauge (digital type)	Calibration for depth in accordance with in-house method CAL 005 over the following range :	
	0 mm to 300 mm	$(10 + 30d) \mu\text{m}$, depth d in m

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Length and related measurements(cont'd)		
- Length measuring instruments (cont'd)		
- Dial gauge	Calibration for length in accordance with in-house method CAL 004 using gauge blocks over the following ranges :	
- Digital type (resolution: 0.001 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	1.4 µm 1.9 µm 3.3 µm
- Digital type (resolution: 0.01 mm)	0 mm to 25 mm above 25 mm to 50 mm	6.9 µm 10 µm
- Dial gauge (cont'd)	Calibration for length in accordance with in-house method CAL 004 using a micrometer head over the following ranges :	
- Digital type (resolution: 0.001 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	4.7 µm 4.9 µm 5.6 µm
- Digital type (resolution: 0.01 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	7.8 µm 7.9 µm 10 µm
- Dial gauge (cont'd)	Calibration for length in accordance with in-house method CAL 004 using a micrometer head and gauge blocks (combination method) over the following ranges :	
- Analogue type (resolution: 0.01 mm)	0 mm to 80 mm above 80 mm to 100 mm	7.4 µm 10 µm

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Length and related measurements(cont'd)		
- Length measuring instruments (cont'd)		
- Dial gauge (cont'd)	Calibration for length in accordance with AS 2103: 1978 App. A5 using gauge blocks over the following ranges :	
- Analogue type (scale division: 0.001 mm)	0 mm to 5 mm	1.0 μm
- Analogue type (scale division: 0.002 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	1.4 μm 1.9 μm 3.3 μm
- Analogue type (scale division: 0.01 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm above 50 mm to 80 mm above 80 mm to 100 mm	3.5 μm 3.7 μm 4.5 μm 5.9 μm 7.0 μm
- Dial gauge (cont'd)	Calibration for length in accordance with AS 2103: 1978 App. A5 using a micrometer head over the following ranges :	
- Analogue type (scale division: 0.001 mm)	0 mm to 5 mm	4.6 μm
- Analogue type (scale division: 0.002 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	4.7 μm 4.9 μm 5.6 μm
- Analogue type (scale division: 0.01 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	5.5 μm 5.7 μm 6.3 μm

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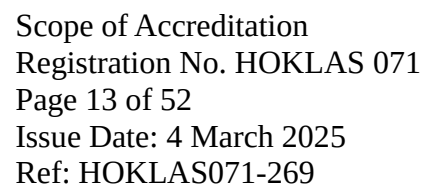
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Length and related measurements (cont'd)		
- Length measuring instruments (cont'd)		
- Dial gauge (cont'd)	Calibration for length in accordance with BS 907: 1965 App. B3 using gauge blocks over the following ranges :	
- Analogue type (scale division: 0.001 mm)	0 mm to 5 mm	1.0 μ m
- Analogue type (scale division: 0.002 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	1.4 μ m 1.9 μ m 3.3 μ m
- Analogue type (scale division: 0.01 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm above 50 mm to 80 mm above 80 mm to 100 mm	3.5 μ m 3.7 μ m 4.5 μ m 5.9 μ m 7.0 μ m
- Dial gauge (cont'd)	Calibration for length in accordance with BS 907: 1965 App. B3 using a micrometer head over the following ranges :	
- Analogue type (scale division: 0.001 mm)	0 mm to 5 mm	4.6 μ m
- Analogue type (scale division: 0.002 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	4.7 μ m 4.9 μ m 5.6 μ m
- Analogue type (scale division: 0.01 mm)	0 mm to 13 mm above 13 mm to 25 mm above 25 mm to 50 mm	5.5 μ m 5.7 μ m 6.3 μ m

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Length and related measurements (cont'd)		
- Length measuring instruments (cont'd)		
- Dipmeter	Calibration for length in accordance with in-house method CAL 110 over the following range :	
	0 mm to 200 m	2.1 mm to 42 mm
- Engineer's steel measuring rule	Calibration for length in accordance with in-house method CAL 006 over the following ranges :	
	0 mm to 150 mm	101 µm
	above 150 mm to 300 mm	111 µm
	above 300 mm to 450 mm	126 µm
	above 450 mm to 600 mm	143 µm
	above 600 mm to 1000 mm	201 µm
	above 1000 mm to 1200 mm	232 µm
	above 1200 mm to 1500 mm	280 µm
	above 1500 mm to 2000 mm	364 µm
- External micrometer	Calibration for travel length in accordance with BS 870: 1950 App. A over the following ranges:	
	0 mm to 25 mm	1.9 µm
	above 25 mm to 50 mm	1.9 µm
	above 50 mm to 75 mm	1.9 µm
	above 75 mm to 100 mm	1.9 µm

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Length and related measurements (cont'd)		
- Length measuring instruments (cont'd)		
- Extensometer	On-site calibration for displacement using micrometer head and verification of grade in accordance with BS 3846: 1970 (excluding determination of calibration factor) over the following range:	
- Grade A with gauge length from 200 mm to 500 mm	0 mm to 5 mm	1.91 μ m
- Grade B with gauge length from 100 mm to 500 mm		
- Grade C with gauge length from 50 mm to 500 mm		
- Grade D with gauge length from 20 mm to 500 mm		
- Grade E with gauge length from 10 mm to 500 mm		
- Grade F with gauge length from 5 mm to 500 mm		
- Extensometer (cont'd)	On-site calibration for displacement using micrometer head and verification of class in accordance with BS EN 10002-4: 1995, or BS EN ISO 9513: 2002 over the following range:	
- Class 1 or Class 2 with gauge length from 50 mm to 500 mm	0 mm to 5 mm	1.91 μ m
- Feeler gauge	Verification of thickness of blade in accordance with in-house method CAL 042 for the dimensional requirements as specified in BS 957: Part 2: 1969 over the following range :	
	0.01 mm to 1 mm	3.2 μ m

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Length and related measurements (cont'd)		
- Length measuring instruments (cont'd)	Calibration for length in accordance with BS 1643: 1983 App. A.2 over the following range :	
- Height gauge (vernier type)	0 mm to 300 mm	(10 + 30 <i>h</i>) μm, height <i>h</i> in m
- Height gauge (digital type)	Calibration for length in accordance with in-house method CAL 008 over the following range :	
	0 mm to 300 mm	(10 + 30 <i>h</i>) μm, height <i>h</i> in m
- Linear variable differential transformer (LVDT)	Calibration for length in accordance with in-house method CAL 031 over the following ranges :	
	0 mm to 100 mm	10 μm
	100 mm to 200 mm	10 μm
	200 mm to 300 mm	10 μm
- Magnetic extensometer	Calibration for length in accordance with in-house method CAL 135 over the following ranges :	
	0 mm to 200 m	6 mm to 120 mm
- Measuring tape	Calibration for length in accordance with in-house method CAL 056 over the following range :	
	0 mm to 200 m	1.2 mm to 24 mm
- Micrometer head	Calibration for travel length in accordance with in-house method CAL 076 over the following range :	
	0 mm to 100 mm	(1 + 30 <i>l</i>) μm, total length <i>l</i> in m

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Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, New Territories, Hong Kong
香港新界坪輦五洲南路丈量約份第 77 約地段 1552 号 A 分段第一小分段

Calibration Services 校正服務		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED@ 特定測試或量度的特性@	CALIBRATION AND MEASUREMENT CAPABILITY (CMC)* 校準和測量能力*
Length and related measurements (cont'd) - Length measuring instruments (cont'd) - Plastic foil - Projector	Calibration for thickness in accordance with in-house method CAL 130 over the following range : 10 µm to 2000 µm On-site calibration for length in accordance with in-house method CAL 035 over the following range : x-y measuring stage 50mm x 50 mm (10 and 100 magnification) On-site calibration for angle in accordance with in-house method CAL 079 over the following range : 0° to 360°	9.6 µm 4.1 µm 0.25°

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Length and related measurements (cont'd)		
- Survey and GPS instruments - Digital level instrument	Calibration for height difference between points with 10 m apart in accordance with in-house method CAL 120 over the following range : 0 mm to 50 mm	0.04 mm
- Optical level instrument	Calibration for height difference between points with 10 m apart in accordance with in-house method CAL 119 over the following range : 0 mm to 10 mm	0.08 mm
- Theodolite	Calibration for angle in accordance with in-house method CAL 189 over the following ranges : Horizontal angle : 0° to 360° Vertical angle : -75° to 75°	67 sec of arc 67 sec of arc
- Total station	Calibration for angle in accordance with in-house method CAL 189 over the following ranges : Horizontal angle : 0° to 360° Vertical angle : -75° to 75° Calibration for length in accordance with in-house method CAL 188 over the following range : 0 m to 10 m	67 sec of arc 67 sec of arc 2.4 mm

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Mass and related measurements - Density measurements - Nuclear densometer / nuclear density gauge - Nuclear surface moisture-density gauge	Calibration for density in accordance with in-house method CAL 169 over the following range : 1200 kg/m³ to 2700 kg/m³ Calibration for the following parameters in accordance with in-house method CAL 225 using direct transmission method over the following ranges : Density: 1200 kg/m³ to 2700 kg/m³ Water content: 571 kg/m³	35 kg/m³ to 49 kg/m³ 16.7 kg/m³ to 50 kg/m³ 6.7 kg/m³

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Mass and related measurements (cont'd) - Flow measurements - Water meter (size of meter: 25 mm to 210 mm)	Calibration for volume in accordance with in-house method CAL 048 (The volume of water collected is normally from 100 litre to 3000 litre)	1.5 % of reading

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Mass and related measurements (cont'd) - Force measurements - Compression testing machine	On-site calibration for compressive force using Grade 1.0 load cells and verification for grade in accordance with BS 1610: Part 1: 1985, BS 1610: Part 1: 1992, or CS1: 1990 Vol.2 App. D (constant true force method or indicated force method for above three standards) over the following range: 10 kN to 3000 kN On-site calibration for compressive force using Class 1.0 load cells and verification for grade in accordance with BS EN 12390-4: 2000, CS1: 2010 Vol. 2 App. D, BS EN ISO 7500-1: 1999, or BS EN ISO 7500-1: 2004, (constant true force method or indicated force method for above four standards) over the following range: 1 kN to 3000 kN	0.3 % of reading 0.3 % of reading

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Mass and related measurements (cont'd) - Force measurements (cont'd) - Force measuring device for foundation test - load cell - load cell with hydraulic jack - Force measuring device for pile test - load cell - load cell with hydraulic jack	Calibration for compressive force in accordance with in-house method CAL 080 over the following ranges : Using 500 kN reference load cell: 10 kN to 50 kN above 50 kN to 500 kN Using 3000 kN reference load cell: 100 kN to 200 kN above 200 kN to 3000 kN Calibration for compressive force in accordance with in-house method CAL 053 over the following ranges : 500 kN to 13000 kN above 13000 kN to 15000 kN above 15000 kN to 16000 kN	2.8 % of reading 1.2 % of reading 1.9 % of reading 1.3 % of reading 0.9 % of reading 1.1 % of reading 1.2 % of reading

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Mass and related measurements (cont'd) - Force measurements (cont'd) - Load cell	Calibration of compressive force in accordance with in-house method CAL 108 over the following ranges : 1 kN to 2 kN above 2 kN to 5 kN above 5 kN to 10 kN above 10 kN to 15 kN above 15 kN to 35 kN above 35 kN to 50 kN Calibration of compressive force in accordance with GEOSPEC 3: 2001 Cl. A.3.1, or GEOSPEC 3: 2017 Cl. A.3.1 over the following ranges : 0.2 kN to 1 kN above 1 kN to 20 kN	0.48 % of reading 0.41 % of reading 0.39 % of reading 0.40 % of reading 0.39 % of reading 0.38 % of reading 1.65 % of reading 0.3 % of reading

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Mass and related measurements (cont'd) - Force measurements (cont'd) - Universal testing machine in compression mode	On-site calibration for compressive force using Grade 1.0 load cells and verification for grade in accordance with BS 1610: Part 1: 1985, BS 1610: Part 1: 1992, or CS1: 1990 Vol.2 App. D (constant true force method or indicated force method for above three standards) over the following range: 10 kN to 3000 kN On-site calibration for compressive force using Class 1.0 load cells and verification for grade in accordance with BS EN 12390-4: 2000, BS EN ISO 7500-1: 1999, BS EN ISO 7500-1: 2004, or BS EN ISO 7500-1: 2018 (constant true force method or indicated force method for above four standards) over the following range: 1 kN to 3000 kN	0.3 % of reading 0.3 % of reading

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Mass and related measurements (cont'd) - Hardness measurements - Hardness testing machine	On-site indirect verification for Rockwell hardness HRB and HRC scales in accordance with BS EN ISO 6508-2: 1999 Cl. 5, BS EN ISO 6508-2: 2005 Cl. 5, BS EN ISO 6508-2: 2015 Cl. 5, BS EN ISO 10109-2: 1996 Cl. 5, or BS 891: 1989 Section 4 over the following ranges : 20 HRB to 100 HRB 20 HRC to 70 HRC On-site indirect verification for Vickers hardness scale in accordance with BS EN ISO 6507-2: 1998 Cl. 5, BS EN ISO 6507-2: 2005 Cl. 5, BS EN ISO 6507-2: 2018 Cl. 6, BS 427: 1990 Section 4, or ASTM E92-82 (Re-approved 97) Section B over the following ranges : 151 HV 5 to 721 HV 5 151 HV 10 to 696 HV 10 210 HV 30 to 709 HV 30 On-site indirect verification for Brinell hardness scale in accordance with BS EN ISO 6506-2: 1999 Cl. 5, BS EN ISO 6506-2: 2005 Cl. 5, BS EN ISO 6506-2: 2018 Cl. 6, BS 240: 1986, Section 4, or ASTM E10-01 Cl. 15.2 over the following range : 202 HBW 2.5 / 187.5 to 608 HBW 2.5 / 187.5	0.7 HRB 0.4 HRC 1.6 % HV 5 2.6 % HV 10 2.6 % HV 30 1.5 % HBW 2.5 / 187.5

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Mass and related measurements (cont'd) - Pressure measurements - Pressure gauge	Calibration for pressure in accordance with in-house method CAL 019 using air as pressure medium over the following range : 0.15 bar to 25 bar On-site calibration for pressure in accordance with in-house method CAL 019 using air as pressure medium over the following range : 0.15 bar to 25 bar Calibration for pressure in accordance with in-house method CAL 019 using water as pressure medium over the following range : 0.15 bar to 700 bar On-site calibration for pressure in accordance with in-house method CAL 019 using water as pressure medium over the following range : 0.15 bar to 700 bar Calibration for pressure in accordance with GEOSPEC 3: 2001 App. 3.2, or GEOSPEC 3: 2017 App. 3.2 using water as pressure medium over the following range : 0.15 bar to 25 bar On-site calibration for pressure in accordance with GEOSPEC 3: 2001 App. 3.2, or GEOSPEC 3: 2017 App. 3.2 using water as pressure medium over the following range : 0.15 bar to 25 bar	0.15 % of reading 0.15 % of reading 0.8 % of reading 0.8 % of reading 0.55 % of reading 0.55 % of reading

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Mass and related measurements (cont'd)		
- Pressure measurements (cont'd)		
- Pressure gauge / transducer	Calibration for pressure in accordance with in-house method CAL 071 using dead-weight tester over the following ranges :	0.21 bar 3.13 bar
	1 bar to 60 bar above 60 bar to 1200 bar	
- Pressure transducer	Calibration for pressure in accordance with in-house method CAL 019 using air as pressure medium over the following range :	0.10 % of reading
	0.15 bar to 25 bar	
	On-site calibration for pressure in accordance with in-house method CAL 019 using air as pressure medium over the following range :	0.10 % of reading
	0.15 bar to 25 bar	
	Calibration for pressure in accordance with in-house method CAL 019 using water as pressure medium over the following range :	0.8 % of reading
	0.15 bar to 700 bar	
	On-site calibration for pressure in accordance with in-house method CAL 019 using water as pressure medium over the following range :	0.8 % of reading
	0.15 bar to 700 bar	

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Mass and related measurements (cont'd) - Pressure measurements (cont'd) - Pressure transducer (cont'd)	Calibration for pressure in accordance with GEOSPEC 3: 2001 App. 3.2, or GEOSPEC 3: 2017 App. 3.2 using water as pressure medium over the following range : 0.15 bar to 25 bar On-site calibration for pressure in accordance with GEOSPEC 3: 2001 App. 3.2, or GEOSPEC 3: 2017 App. 3.2 using water as pressure medium over the following range : 0.15 bar to 25 bar	0.55 % of reading 0.55 % of reading

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Mass and related measurements (cont'd) - Torque measurements - Torque multiplier - Torque wrench, torque screwdriver and torque measuring device	Calibration for torque in accordance with in-house method CAL 179 over the following range : 30 N·m to 1000 N·m Calibration for torque in accordance with in-house method CAL 152 over the following ranges : 34 N·m to 339 N·m above 339 N·m to 1000 N·m	0.01 N·m to 23 N·m 1.1 N·m to 3.4 N·m 12 N·m to 23 N·m

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Mass and related measurements (cont'd) - Balances and weights - Balance	Calibration for mass in accordance with in-house method CAL 003 using following OIML Class standard weights (1) E2 weights from 1 mg to 200 g (2) F1 weights from 1 mg to 50 kg (3) M1 weights of 20 kg over the following ranges : 1 mg to 300 g above 300 g to 500 g above 500 g to 1 kg above 1 kg to 10 kg above 10 kg to 50 kg above 50 kg to 300 kg On-site calibration for mass in accordance with in-house method CAL 003 using following OIML Class standard weights (1) E2 weights from 1 mg to 200 g (2) F1 weights from 1 mg to 50 kg (3) M1 weights of 20 kg over the following ranges : 1 mg to 300 g above 300 g to 500 g above 500 g to 1 kg above 1 kg to 10 kg above 10 kg to 50 kg above 50 kg to 300 kg	0.4 mg 0.4 mg to 8 mg 8 mg 8 mg to 20 mg 20 mg to 300 mg 300 mg to 10 g 0.4 mg 0.4 mg to 8 mg 8 mg 8 mg to 20 mg 20 mg to 300 mg 300 mg to 10 g

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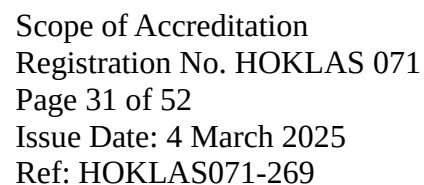
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Mass and related measurements (cont'd)		
- Balances and weights (cont'd)		
- Weight (Standard values)	Calibration for mass in accordance with in-house method CAL 034 at the following specific nominal values :	
	500 mg	0.14 mg
	1 g	0.14 mg
	2 g	0.14 mg
	5 g	0.14 mg
	10 g	0.15 mg
	20 g	0.20 mg
	50 g	0.28 mg
	100 g	0.52 mg
	200 g	0.82 mg
	500 g	15 mg
	1 kg	13 mg
	2 kg	16 mg
	5 kg	0.16 g
	10 kg	0.17 g
	20 kg	0.60 g
- Weight (Non-standard values)	Calibration for mass in accordance with in-house method CAL 034 using comparison method over the following ranges :	
	0.5 g to 200 g	0.14 mg
	above 200 g to 3 kg	8 mg
	above 3 kg to 15 kg	0.16 g
	above 15 kg to 30 kg	0.6 g
	Calibration for mass in accordance with in-house method CAL 034 using direct weighing method over the following ranges :	
	0.5 g to 200 g	0.26 mg
	above 200 g to 3 kg	36 mg
	above 3 kg to 15 kg	0.21 g
	above 15 kg to 30 kg	2.4 g

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Adhesive	Pull-off test of adhesive	In-house method SIU 010
	Pull-off test of coating	In-house method SIU 011
	Pull-off test of mortar	In-house method SIU 012
	Pull-off test of plaster	In-house method SIU 013
	Pull-off test of render	In-house method SIU 014
	Pull-off test of tiles	In-house method SIU 015 (coring method) In-house method SIU 016 (saw-cut method)
Aggregates	Sampling	BS 812: Part 102: 1984 CS3: 2013 Section 8
	Particle size distribution	BS 812: Section 103.1: 1985 + Amd. 6003 (by sieve analysis) CS3: 2013 Section 10 + Amd. 1/2013 (by Sieve analysis)
	Flakiness index	BS 812: Section 105.1: 1989 CS3: 2013 Section 11
	Elongation index	CS3: 2013 Section 12
	Aggregate impact value	BS 812: Part 112: 1990 CS3: 2013 Section 15
	Ten per cent fines value	BS 812: Part 111: 1990 CS3: 2013 Section 16
	Particle densities and water absorption	CS3: 2013 Section 17
	Moisture content	BS 812: Part 109: 1990 (by oven drying method) CS3: 2013 Section 18
	Clay, silt and dust content	BS 812: Part 1: 1975 + Amd. 4875 (by decantation method)
	Relative densities and water absorption	BS 812: Part 2: 1975 + Amd. 4615 (by Gas jar and Pycnometer method) BS 812: Part 2: 1995 (by Gas jar and Pycnometer method)

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Aggregates (cont'd)	Shell content in coarse aggregates	BS 812: Part 106: 1985
Bridge bearings	Compression stiffness test of elastomeric bearings	BS 5400: 1983 Section 9.2 Cl. 7 & Guidance Cl. 7.2(b)(2) BS EN 1337-3: 2005 Cl. 4.3.3, 4.3.3.1 & Annex H
	Compression stiffness test of pot bearings	BS EN 1337-5: 2005 Annexes B & F
	Friction test on sliding structural bearings	General Specification for Civil Engineering Works (2006) Vol. 2 App. 20.1
	Horizontal test on bearing under a vertical load for serviceability limit state	BS 5400: 1983 Section 9.2 Cl. 7 & Guidance Cl. 7.2(b)(1)
	Quick compressive test of elastomeric bearings	BS EN 1337-3: 2005 Cl. 4.3.3, 4.3.3.2 & Annex H
	Quick production test of elastomeric bearings	BS 5400: 1983 Section 9.2 Cl. 7 & Guidance Cl. 7.2(b)(2)
	Shear modulus of elastomeric bearings	BS EN 1337-3: 2005 Cl. 4.3.1, 4.3.1.1 & Annex F
	Shear stiffness test of elastomeric bearings	BS 5400: 1983 Section 9.2 App. A & Guidance Cl. 7.2(c)(2)
	Uplift load test for serviceability limit state	In-house method FOR006
	Vertical compression test for serviceability limit state	BS 5400: 1983 Section 9.2 Cl. 7 & Guidance Cl. 7.2(b)(1)

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Cement stabilised soil	Unconfined compressive strength of cement stabilised soil cores (with or without capping)	GEO Report No. 365 (Feb 2023) App. A Interim Guidelines on Testing of Unconfined Compressive Strength of Cement Stabilised Soil Cores in Hong Kong (Oct 2017) App. B published by Geotechnical Division of The Hong Kong Institution of Engineers
Coating	Coating thickness by gravimetric method	BS 729: 1971 App. A BS EN ISO 1460: 1995 BS EN ISO 1460: 2020
	Coating thickness by magnetic method	BS EN ISO 2178: 1995 + Amd. 8482 (Magnetic method) BS EN ISO 2178: 2016 (Magnetic method) BS EN ISO 2808: 2007 (Method 7C only) BS EN ISO 2808: 2019 (Method 7C only)
Concrete	Sampling fresh concrete on site	CS1: 2010 Section 1
	Slump of fresh concrete	CS1: 2010 Section 2 Part I
	Flow table test	BS 1881: Part 105: 1984 + Amd. 6087 & 6724 CS1: 2010 Section 2 Part IV
	Slump flow test	CS1: 2010 Section 2 Part V
	Stiffening time of fresh concrete	CS1: 2010 Section 3
	Density of compacted fresh concrete	CS1: 2010: Section 5
	Making test cubes from fresh concrete	CS1: 2010 Section 7
	Curing test specimens	CS1: 2010 Section 10
	Mixing and sampling of fresh concrete in the laboratory	CS1: 2010 Section 11
	Compressive strength of concrete cubes in force range 50kN - 3000kN	CS1: 2010 Section 12
	Obtaining core samples	CS1: 2010 Section 15
	Compressive strength of concrete cores in the force range 50kN - 3000kN	BS 1881: Part 120: 1983 + Amd. 6109 CS1: 2010 Section 15

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Concrete (cont'd)	Density of hardened concrete	CS1: 2010 Section 16
	Depth of penetration of water under pressure	CS1: 2010 Section 18
	Crack width monitoring	In-house method SVY007 (by telfale device) In-house method SVY008 (by digital device)
	Removal of concrete cover to expose reinforcement	Hong Kong Housing Authority Material Testing Services (2020/2022) for Maintenance & Building Materials Specification Part D Cl. 4.2.1
	Temperature monitoring of concrete structure	In-house method FOR005
	Temperature measurement of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4
	Water absorption	BS 1881: Part 122: 1983
Concrete (diagnostic)	Carbonation test	BS EN 14630: 2006 Hong Kong Housing Authority Materials Testing Services (2022/2024) for Maintenance & Building Materials Specification Part D Cl. 4.3.1 (Method 1 & Method 2)
	Covermeter survey	BS 1881: Part 204: 1988
	Surface hardness measurement	BS 1881: Part 202: 1986 BS EN 12504-2: 2001 BS EN 12504-2: 2012 BS EN 12504-2: 2021
	Ultrasonic pulse velocity measurement	BS 1881: Part 203: 1986 (direct transmission)
	Half-cell potential measurement	ASTM C876-91 (Reapproved 1999) ASTM C876-15
	Resistivity measurement	BS 1881: Part 201: 1986 Cl. 2.3

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Fibre reinforced polymers (FRP)	Apparent horizontal shear strength of pultruded reinforced plastic rods	ASTM D4475-02 (2008)
	Bond strength of FRP bars by pull-out testing for reinforcing or strengthening concrete structures	ACI 440.3R-04 Cl. B3 ACI 440.3R-12 Cl. B3
	Cross sectional properties of FRP bars for reinforcing or strengthening concrete structures	ACI 440.3R-04 Cl. B1 ACI 440.3R-12 Cl. B1 ASTM D7205/D7205M-06 (Reapproved 2016)
	Flexural properties	BS EN ISO 11296-4: 2018 + A1: 2021 Annex B BS EN ISO 178: 2010 + A1: 2013 BS EN ISO 178: 2019
	Initial ring stiffness	ISO 7685: 1998 ISO 7685: 2019 in conjunction with the following specification(s): BS EN ISO 11296-4: 2018 + A1: 2021
	Longitudinal tensile strength of FRP bars for reinforcing or strengthening concrete structures	ACI 440.3R-04 Cl. B2 ACI 440.3R-12 Cl. B2 ASTM D7205/D7205M-06 (Reapproved 2016)
	Strength of FRP bent bars and stirrups at bend locations	ACI 440.3R-04 Cl. B5
	Transverse shear strength of FRP bars for reinforcing or strengthening concrete structures	ACI 440.3R-04 Cl. B4 ACI 440.3R-12 Cl. B4 ASTM D7617/D7617M-11 (Reapproved 2017)

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Foundation	Borehole video inspection test	Hong Kong Housing Authority Materials Testing Services (2024/2026) for Non-destructive Pile Testing Cl. D8 & D10
	Compression static loading test on pile (SLT)	Architectural Services Department General Specification for Building (2017) Section 5.29 Buildings Department Code of Practice for Foundations (2017) Cl. 8.4 General Specification for Civil Engineering Works (2006) Vol. 1 App. 8.1 General Specification for Civil Engineering Works (2020) Vol. 1 App. 8.1 Hong Kong Housing Authority Specification Library (2018) PIL1.T610.8 to PIL1.T1110.8
	Compression static loading test on pile (SLT) using multiple hydraulic jacks and load cells	Buildings Department Code of Practice for Foundations (2017) Cl. 8.4 with modification
	Crosshole sonic logging test (SOLT)	ASTM D6760-08 ASTM D6760-16
	Pile dynamic test (PDA)	ASTM D4945-12 ASTM D4945-17
	Pile integrity test (PIT)	ASTM D5882-07 (Reapproved 2013)
	Pile loading test at a constant rate of penetration	BS 8004: 1986 Cl. 7.5.6
	Plate load test (PLT)	BS 1377: Part 9: 1990 Cl. 4.1 (incremental loading) excluding Cl. 4.1.6.1 Buildings Department Code of Practice for Foundations (Apr 2017) Cl. 8.2(2) excluding 8.2(f) to (h) Hong Kong Housing Authority Specification Library (2022) GIN.T190.9
	Single-hole sonic logging test (SOLT)	ASTM D6760-16
	Tension static loading test on pile (SLT)	Architectural Services Department, Technical Instruction No. 04/2005 Particular Specification for Tension Piles Buildings Department Code of Practice for Foundations (2017) Cl. 8.10
	Ultrasonic echo sounder test (UEST)	Hong Kong Concrete Institute TM3 Issue 2 (2024)

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Foundation (Geotechnical monitoring)	Horizontal ground movement monitoring	In-house method INS 38 (by inclinometer)
	Inclination monitoring	In-house method INS 39 (by electronic sensor) In-house method INS 56 (by inclinometer)
	Monitoring ground movement using probe-type inclinometers	ASTM D6230-13
	Tilt monitoring	In-house method INS 32 (by tiltmeter)
	Vibration monitoring	In-house method INS 09
	Water level monitoring	In-house method INS 55 (by dipmeter) In-house method INS 60 (by vibrating wire piezometer)



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Foundation (other)	Deflection characteristics of pile driving cushion	Deep Foundation Institute: Nov. 1983 (revised Dec. 1984); Standard testing method for deflection characteristics of pile driving cushion materials
	Survey monitoring for pile loading test by digital level	In-house method SVY 005
	Survey monitoring for pile loading test by automatic precise level	In-house method SVY 006

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Ground Granulated Blastfurnace Slag (GGBS)	Moisture content	BS EN 15167-1: 2006 Annex A
Ground water (chemical analysis)	pH value	GEOSPEC 3: 2001 Test 9.5 GEOSPEC 3: 2017 Test 9.5
Grout	Bleeding and free expansion	ASTM C940-16 BS EN 445:2007 Cl. 4.5 (E) General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 17.60 General Specification for Civil Engineering Works (2020) Vol. 2 Cl. 17.60
	Compressive strength of grout cubes in force range 50 kN - 3000 kN	CS1: 1990 + Amd.1201, 1202 & 1203 Section 12 CS1: 2010 Section 12
	Curing of test specimens (Tropical zone temperature)	In-house method GRT 05
	Flow of grout (flow cone method)	ASTM C939-97 ASTM C939-10
	Fluidity Test - Cone Method	BS EN 445:2007 Cl. 4.3.1 (E)
	Making test grout cubes	In-house method GRT 06

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Metallic materials	Bend test of stainless steel bars	BS 6744: 2001 + A2: 2009 BS 6744: 2016
	Brinell hardness test of metallic materials in the scale of HB 2.5 / 187.5	BS EN ISO 6506-1: 1999
	Charpy V-notch impact test	BS EN10045-1: 1990 BS EN ISO 148-1: 2016
	Inter-granular corrosion test of stainless steel bars	BS EN ISO 3651-2: 1998 Method C (excluding welded test specimen)
	Mass per meter of steel reinforcing bars	BS EN ISO 15630-1: 2002 Cl. 12 BS EN ISO 15630-1: 2019 Cl. 12 CS2: 2012 (Rev. 6) Cl. 6.1 & 6.2 in conjunction with the following specification(s) BS 4449: 2005 Cl. 7.3
	Mass per metre square, pitch and dimension of steel fabrics for reinforcement of concrete	BS 4483: 1998 Cl. 6 & 10 BS EN ISO 15630-1: 2002 Cl. 12 in conjunction with the following specifications(s) BS 4483: 2005 Cl. 7.3, 8.1.3.2
	Proof load test of steel nuts in the force range 2 kN to 2000 kN	BS 3692: 2001 Annex C.1
	Rebend test of reinforcing bars, wire rods, welded fabrics or cold reduced wires for reinforcement of concrete	BS EN ISO 15630-1: 2010 Cl. 7 BS EN ISO 15630-1: 2019 Cl. 7 CS2: 2012 (Rev. 6) Cl. 6.1 & 6.5 in conjunction with the following specification(s): BS 4449: 2005 + A2: 2009 Cl. 7.2.5 BS 4483: 1998 Cl. 13.1 BS 4483: 2005 Cl. 7.2.5 & 8.1.3.2
	Rockwell hardness test of metallic materials in the following range 20 HRC to 70 HRC	BS EN ISO 6508-1: 1999
	Tensile test & slip/permanent elongation test of mechanical couplers for reinforcing bar in the force range 2 kN – 2000 kN	BS EN ISO 6892-1: 2009 Cl. 10.3 Method A & ISO 15835-2: 2018 Cl. 5.4 excluding Cl. 5.4.4 in conjunction with the following specification(s): Buildings Department Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.3 General specification for Civil Engineering Works (2006) Vol. 2 Cl. 15.35

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Metallic materials (cont'd)	Tensile test of high tensile 7-wire strands in the force range of 2 kN – 2000 kN	BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A & BS EN ISO 15630-3: 2010 Cl. 5 & BS EN ISO 15630-3: 2019 Cl. 5 in conjunction with the following specification: BS 5896: 2012 Cl. 7.2.2
	Tensile test of machined bolts and screws in the force range of 2 kN – 2000 kN	BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A in conjunction with the following specification(s): BS 3692: 2001 Cl. 11 & 13 BS EN ISO 898-1: 2013 Cl. 9.7
	Tensile test of metallic materials in the force range of 2kN - 2000kN	BS EN 10002-1: 2001 BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A in conjunction with the following specification(s): BS EN 10025-1: 2004 Cl. 7.3.1, 9.2.3.2 & Cl. 10.2.1 BS EN 10025-2: 2019 Cl.10.2.1, Table 6 & 7 BS EN 10210-1: 2006 Cl. 6.6.1, 9.2.1 & 9.2.2 BS EN 10219-1: 2006 Cl. 6.7.1, 9.2.1 & 9.2.2
	Tensile test of reinforcing bars, wire rod, welded fabric or cold reduced wire for reinforcement of concrete in the force range 0.2 kN – 2900 kN	BS EN ISO 6892-1: 2009 Cl. 10.3 Method A BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A in conjunction with the following specification(s): BS 4449: 2005 + A2: 2009 Cl. 7.2.2, 7.2.3, 8.1.3.1 & 9 BS 4483: 1998 Cl. 13.1 BS 4483: 2005 Cl. 7.2.2, 7.2.3, 8.1.3.1 & 9 BS EN ISO 15630-1: 2002 Cl. 5 BS EN ISO 15630-2: 2010 Cl. 5 CS2: 2012 (Rev. 6) Cl. 6.1 & 6.4
	Tensile test of stainless steel bars in the force range of 4 kN – 2000 kN	BS EN 10002-1: 2001 BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A in conjunction with the following specification(s): BS 6744: 2001 + A2: 2009 BS 6744: 2016
	Tensile test of unmachined specimens of bolts and screws in the force range of 2 kN – 2000 kN	BS EN ISO 6892-1: 2019 Cl. 10.3.2 Method A in conjunction with the following specification(s): BS 3692: 2001 Cl. 11 & 13 BS EN ISO 898-1: 1999 Cl. 8.2 BS EN ISO 898-1: 2013 Cl. 9.2

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Metallic materials (cont'd)	Vickers hardness test of metallic materials in the range of HV5, HV10 and HV30	BS EN ISO 6507-1: 1998 BS EN ISO 6507-1: 2018 BS EN ISO 6507-1: 2023
	Weld test of steel fabric for reinforcement of concrete	BS EN ISO 15630-2: 2010 Cl. 7 in conjunction with the following specification(s): BS 4483: 1998 Cl. 13.2 BS 4483: 2005 Cl. 7.2.2 & 7.2.4
Metallic materials (non-destructive)	Ultrasonic testing of H beams with parallel flanges (manual method)	BS EN 10306: 2002
	Ultrasonic testing of steel flat product (reflection method)	BS EN 10160: 1999
	Ultrasonic thickness measurement of metallic materials	BS EN ISO 16809: 2019 (Mode 1, 2, 3 & 4)
Playground equipment	Critical fall height for impact attenuating playground surfacing	BS EN 1177: 2008 BS EN 1177: 2018
	Head injury criteria value for impact absorbing playground surfacing in the height range of 0.6m to 3.5m	BS EN 1177: 1998 (excluding Cl.6.4.3.2 Free falling headform method)
	Impact attenuation on site for impact attenuating playground surface	BS EN 1177: 2018
	Resistance to abrasive wear for impact absorbing playground surfacing	BS 7188: 1998 + A2: 2009 Cl. 4
	Slip resistance for impact absorbing playground surfacing	BS 7188: 1998 + A2: 2009 Cl. 5
	Resistance to indentation	BS 7188: 1998 + A2: 2009 Cl. 6
	Ease of ignition for impact absorbing playground surfacing	BS 7188: 1998 + A2: 2009 Cl. 7
	Tensile properties for impact absorbing playground surfacing	BS 7188: 1998 + A2: 2009 Cl. 8

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Pulverized fuel ash	Moisture content	BS 3892: Part 1: 1997 Annex C
Rock	Direct shear strength of jointed rock	ASTM D5607-95 with modifications International Society for Rock Mechanics (1981) Part 2: Suggested method for determining direct shear strength with modifications
	Point load strength index of rock by diametral and axial tests	ASTM D5731-95 International Society for Rock Mechanics (1985) Suggested method for determining point load strength
	Porosity and density using saturation and caliper techniques	International Society for Rock Mechanics (1977) Part 1 Method 2: Suggested method for porosity/density determination using saturation and caliper techniques with modifications
	Porosity and density using saturation and buoyancy techniques	International Society for Rock Mechanics (1977) Part 1 Method 3: Suggested method for porosity/density determination using saturation and buoyancy techniques with modifications
	Preparation of rock core specimens and determination of dimensional and shape tolerances	ASTM D4543-01 with modifications
	Unconfined compression strength of intact rock core specimens	ASTM D2938-95 with modifications ASTM D7012-14 Method C
	Water content of rock	ASTM D2216-98

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Soil (Phase I)	Moisture content by oven-drying at $45^{\circ}\text{C} \pm 5^{\circ}\text{C}$	GEOSPEC 3: 2001 Test 5.1 GEOSPEC 3: 2017 Test 5.1
	Moisture content by oven-drying at $105^{\circ}\text{C} \pm 5^{\circ}\text{C}$	GEOSPEC 3: 2001 Test 5.2 GEOSPEC 3: 2017 Test 5.2
	Comparative test for the determination of moisture content by oven-drying	GEOSPEC 3: 2001 Test 5.3 GEOSPEC 3: 2017 Test 5.3
	Liquid limit, plastic limit and plasticity index	GEOSPEC 3: 2001 Test 6.1 GEOSPEC 3: 2017 Test 6.1
	Liquidity index	GEOSPEC 3: 2001 Test 6.2 GEOSPEC 3: 2017 Test 6.2
	Particle density by gas jar method	GEOSPEC 3: 2001 Test 7.1 GEOSPEC 3: 2017 Test 7.1
	Particle density by small pycnometer method	GEOSPEC 3: 2001 Test 7.2 GEOSPEC 3: 2017 Test 7.2
	Particle size distribution by wet sieving (with dispersant)	GEOSPEC 3: 2001 Test 8.1 GEOSPEC 3: 2017 Test 8.1
	Particle size distribution by wet sieving (without dispersant)	GEOSPEC 3: 2001 Test 8.2 GEOSPEC 3: 2017 Test 8.2
	Particle size distribution by hydrometer (with dispersant)	GEOSPEC 3: 2001 Test 8.5 GEOSPEC 3: 2017 Test 8.5
	Particle size distribution by hydrometer (without dispersant)	GEOSPEC 3: 2001 Test 8.6 GEOSPEC 3: 2017 Test 8.6
	Construction of a continuous particle size distribution curve from the results of wet sieving and sedimentation tests	GEOSPEC 3: 2001 Test 8.7 GEOSPEC 3: 2017 Test 8.7

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Soil (Phase I) (cont'd)	Density of soil by linear measurement method	BS1377: Part 2: 1990 Cl. 7.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.1 GEOSPEC 3: 2017 Test 10.1
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.2 GEOSPEC 3: 2017 Test 10.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.3 GEOSPEC 3: 2017 Test 10.3
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.4 GEOSPEC 3: 2017 Test 10.4
	Dry density / moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.5 GEOSPEC 3: 2017 Test 10.5
	Dry density / moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.6 GEOSPEC 3: 2017 Test 10.6
	Dry density / moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.7 GEOSPEC 3: 2017 Test 10.7
	Dry density / moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.8 GEOSPEC 3: 2017 Test 10.8

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Soil (Phase I) (cont'd)	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)	GEOSPEC 3: 2001 Test 11.1 GEOSPEC 3: 2017 Test 11.1
	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine-, medium-, and coarse-grained soils (with large pouring cylinder)	GEOSPEC 3: 2001 Test 11.2 GEOSPEC 3: 2017 Test 11.2
	In-situ bulk density and in-situ dry density of soils by nuclear densometer method suitable for fine- and medium-grained soils	GEOSPEC 3: 2001 Test 11.3
	In-place density and water content of soil and soil-aggregate by nuclear methods (shallow depth)	ASTM D6938-17a
	Relative compaction of fill material	GEOSPEC 3: 2001 Test 11.4 GEOSPEC 3: 2017 Test 11.4
	California Bearing Ratio (CBR)	GEOSPEC 3: 2001 Test 12.1 GEOSPEC 3: 2017 Test 12.1
Soil (Phase II)	One-dimensional consolidation test	GEOSPEC 3: 2001 Test 14.1 GEOSPEC 3: 2017 Test 14.1
	Isotropic compression test in a triaxial cell	GEOSPEC 3: 2001 Test 14.2 GEOSPEC 3: 2017 Test 14.2
	Unconsolidated undrained triaxial compression test without pore pressure measurement	GEOSPEC 3: 2001 Test 15.1 GEOSPEC 3: 2017 Test 15.1
	Isotropically consolidated undrained triaxial compression test with pore pressure measurement	GEOSPEC 3: 2001 Test 15.2 GEOSPEC 3: 2017 Test 15.2
	Isotropically consolidated drained triaxial compression test with measurement volume change	GEOSPEC 3: 2001 Test 15.3 GEOSPEC 3: 2017 Test 15.3
	Direct shear test (small shear box apparatus)	GEOSPEC 3: 2001 Test 16.1 GEOSPEC 3: 2017 Test 16.1

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Soil (Phase II) (cont'd)	Triaxial test on loosely compaction fill material	In-house method SOL 055
Soil (other)	GCO probe test	GEOGUIDE 2 Section 23 (Dynamic Probing) General Specification for Civil Engineering Works (2006) Vol. 1 App. 7.1
	Lift-off test of ground anchors	GEOSPEC 1 App. A.16
	Pre-bored pressure meter testing in soil	ASTM D4719-00
	Pull-out test of soil nails	General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 7.138 Hong Kong Housing Authority Specification Library (2022) SLO.T320.9
	Pull-out capacity of the steel wire mesh embedded in compacted frictional fill	In-house method SOL 054
	Time domain reflectometry (TDR) test on soil nails	Geotechnical Engineering Office Guidelines on Test Procedure using Time Domain Reflectometry (TDR) to determine the length of installed soil nails (July 2007)
Structural fixings	Tensile test of anchors by incremental loading in the force range 1 kN – 1000 kN	BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3
	Tensile proof load test of drilled-in anchors used for cantilevered structure/hanger/curtain wall remedial works by incremental loading in the force range 1 kN – 1000 kN	Buildings Department PNAP APP-169 (Oct 2023) App. A
	Tensile proof load test of drilled-in anchors used for works other than cantilevered structure/hanger/curtain wall remedial works in the force range 1 kN – 1000 kN	Buildings Department PNAP APP-169 (Oct 2023) App. B

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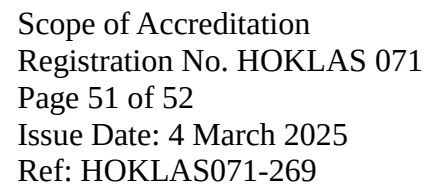
Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Welds (destructive)	Bend test on welded reinforcement steel	BS EN ISO 17660-1: 2006 Cl. 14.4
	Bend test on welds in metallic materials	BS EN 910: 1996 BS EN ISO 5173: 2010 + A1: 2011
	Charpy V-notch impact test on welds in metallic materials	BS EN 875: 1995 BS EN ISO 9016: 2012 BS EN ISO 9016: 2022
	Fracture test on welds in metallic materials	BS EN 1320: 1997 BS EN ISO 9017: 2013 BS EN ISO 9017: 2018
	Longitudinal tensile test on welds in metallic materials in the force range 2 kN –2000 kN	BS EN 876: 1995
	Macroscopic examination on welds in metallic materials	BS EN 1321: 1997 BS EN ISO 17639: 2013 BS EN ISO 17639: 2022
	Tensile test on welded reinforcement steel in the force range 2 kN – 2000 kN	BS EN ISO 17660-1: 2006 Cl. 14.1 & Cl. 14.2
	Transverse tensile test on welds in metallic materials in the force range 2 kN –2000 kN	BS EN 895: 1995 BS EN ISO 4136: 2012 BS EN ISO 4136: 2022
	Vickers hardness test on welded joints in the scale of HV 5, HV 10 & HV 30	BS EN 1043-1: 1996 BS EN ISO 9015-1: 2011

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Welds (non-destructive)	Liquid penetrant test (Colour contrast method)	BS EN 571-1: 1997 BS EN ISO 3452-1: 2013 BS EN ISO 3452-1: 2021 in conjunction with the following specification(s): BS 5135: 1984 Table 18 & 19 BS EN 1289: 1998 Table 1 BS EN 25817: 1992 Table 1 Buildings Department Code of Practice for the Structural Use of Steel (2011) Table14.3b & Cl. 14.3.6.7
	Magnetic particle test (Magnetic flow method, colour contrast technique using permanent magnets, D.C. and A.C. yokes)	BS EN 1290: 1998 BS EN ISO 9934-1: 2001 BS EN ISO 9934-1: 2016 BS EN ISO 17638: 2009 BS EN ISO 17638: 2016 in conjunction with the following specification(s): BS 5135: 1984 Table 18 & 19 BS EN 1291: 1998 Table 1 BS EN 25817: 1992 Table 1 Buildings Department Code of Practice for the Structural Use of Steel (2011) Table14.3b & Cl. 14.3.6.7
	Radiographic examination (Gamma Ray & X-ray)	BS EN 1435: 1997 BS EN ISO 17636-1: 2013 in conjunction with the following specification(s): BS 5135: 1984 Table 18 & 19 BS EN 12517: 1998
	Ultrasonic test (Butt welds in plates and pipes, 'T' joint welds and nozzle welds)	BS EN 1714: 1998 (Level A, B, & C) BS EN ISO 17640: 2010 (Level A, B, & C) BS EN ISO 17640: 2018 (Level A, B, & C) in conjunction with the following specification(s): BS 5135: 1984 Table 18 BS 5400-6: 1999 Cl. 5.5.2.4.2 BS EN 1712: 1997 BS EN 25817: 1992 Table 1 BS EN ISO 11666: 2010 Annex A BS EN ISO 5817: 2007 Table 1 BS EN ISO 5817: 2014 Table 1 Buildings Department Code of Practice for the Structural Use of Steel (2011) Table14.3b & Cl. 14.3.6.7



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Construction Materials		
SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術	ITEM TESTED OR MEASURED 測試或量度項目
Visual examination	BS EN 970: 1997 BS EN ISO 17637: 2011 BS EN ISO 17637: 2016 in conjunction with the following specification(s): BS 5135: 1984 Table 18 & 19 BS EN 25817: 1992 Table 1 Buildings Department Code of Practice for the Structural Use of Steel (2011) Table 14.3b & Cl. 14.3.6.7	Welds (non-destructive) (cont'd)
Visual examination and bend test on stud connectors	<Visual examination as follows:> BS EN 970: 1997 BS EN ISO 17637: 2011 BS EN ISO 17637: 2016 <together with the following bend test method(s):> BS EN ISO 14555: 2017 Cl. 11.2, 11.3 (excluding Torque wrench method), 12.2 & 12.3 Buildings Department Code of Practice for the Structural Use of Steel (2011) Cl. 14.3.7.3	



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Environmental Testing 環境測試		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Water and Wastewater	Non-metallic Constituents : Chloride	APHA 19e 4500-Cl ⁻ B