Hilti HIT-RE100 Epoxy Anchor

(Post-Installed Rebar) Submission Folder

Hilti (HK) | askHilti 工程師技術支援平台 ask.hilti.com.hk | 香港客戶熱線 +852 8228 8118 澳門客戶熱線(免費) 00800 8228 8118 | 香港門市：大角咀洋松街1號形品星寓地下2號舖 澳門門市：澳門布魯塞爾街70號建興龍廣場地下W座地舖 | 電郵：hksales@hilti.com 傳真：+852 2954 1751

Injectable mortar Hilti HIT-RE 100 NEW

BASE MATERIALS

- Concrete (non-cracked)

APPLICATIONS

- Structural connections with post-installed rebar (e.g. extension/ connection to walls, slabs, stairs, columns, foundations, etc.)
- Anchoring structural steel connections (e.g. steel columns, beams, etc.)
- Suitable for underwater applications in hammer-drilled holes

ADVANTAGES

- European Technical Approval covering automatic cleaning of holes drilled using TE-CD or TE-YD drill bits and Hilti vacuum cleaners
- Especially suitable for large-diameter elements and/or deep embedment depths
- Virtually odourless, hence pleasant to work with

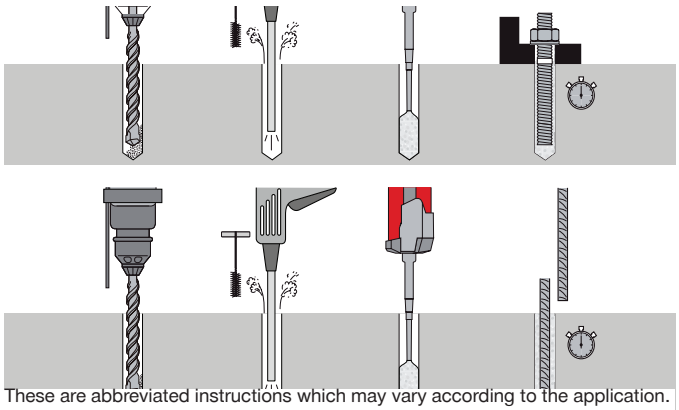
Technical data	
Material composition	Epoxy Adhesive
Base material condition	Dry, submerged, water-filled, wet
Tested/approved for diamond drilling	Yes
Seismic	No
Compatible cartridge holder	CB (Black)
Additional product information	Always wear eye protection and gloves while handling

Curing time

Temperature in the base material T [°C]	Maximum working time t_{work} [min]	Minimum curing time t_{cure} [h]
-5 to 9	120	72
10 to 14	90	48
15 to 19	30	24
20 to 24	25	12
25 to 29	20	10
30 to 39	12	8
40	12	4

Approvals	
ETA	ETA-15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7)
	ETA-15/0883 for HIT-RE 100 injection mortar for rebar (ETAG 001-5, Option 1)

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



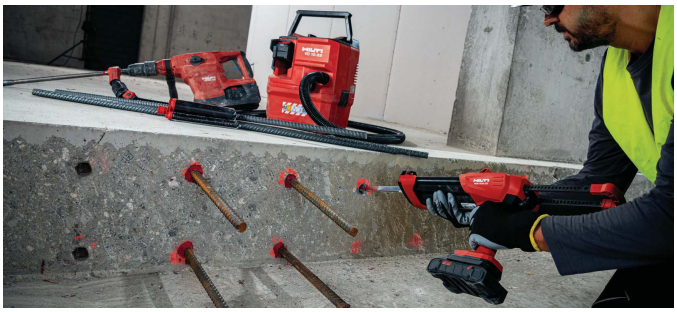
These are abbreviated instructions which may vary according to the application.

Order Now

Ordering designation	Package contents	Sales pack quantity	Item number
HIT-RE 100/500/1 INT	1x Foil pack, 1x Mixer, 1x Mixer extension	1 pc	**2123386**
RE 100/500/1 + HDE A22 Dispenser	80x Foil pack, 1x Dispenser HDE 500-A22, 1x Cartridge Holder	1 pc	**3732752**

Please visit Hilti website for the latest item numbers and related products

Dispenser HDE 500-22



APPLICATIONS

- Injecting Hilti HIT epoxy or adhesive mortar for fastening anchor rods and rebar in concrete and masonry
- Dispensing Hilti firestop foams (only when packaged in compatible soft foil packs)

ADVANTAGES

- Faster anchoring
- Significantly reduce mortar wastage
- Improve fastener safety and reliability
- Repeat and resume functions
- On the Nuron battery platform

Technical data	
Power source type	Compact B22-55 or B22-85 battery pack
Dispenser type	Battery
Performance (at 20°C)	55 sec (RE100 500 ml)
B22-55 Battery capacity	100 cartridges (500 ml)
Dimension (L x W x H)	440mm x 120mm x 230 mm
Modes available	Off / continuous / smart discard / measured volume dispensing with ml
Dispensing volume per trigger	1 ml

Order Now

Ordering designation	Content per can/cartridge	Sales pack quantity	Item number
HDE 500-22 + CB (Ultimate) 110V	1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CB, 1x Battery pack B 22-55, 1x Battery charger C 4-22 110V	1 pc	**3880132**
HDE 500-22 + CR (Ultimate) 110V	1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CR, 1x Battery pack B 22-55, 1x Battery charger C 4-22 110V	1 pc	**3880183**
HDE 500-22 + CB (Ultimate) 230V	1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CB, 1x Battery pack B 22-55, 1x Battery charger C 4-22 230V	1 pc	**3880184**
HDE 500-22 + CR (Ultimate) 230V	1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CR, 1x Battery pack B 22-55, 1x Battery charger C 4-22 230V	1 pc	**3880186**
Battery pack B 22-85 Li-ion	-	1 pc	**2251351**
Battery charger C 4-22 110V	-	1 pc	**2372874**
Battery charger C 4-22 230V	-	1 pc	**2372873**

Please visit Hilti website for the latest item numbers and related products

HILTI SAFE-SET TECHNOLOGY

A small step for engineers.
And a giant leap forward for your next design.

Now you can design anchor rod and post-installed rebar connections with more confidence. Inadequately cleaning holes during installation can reduce the performance of conventional chemical anchor systems significantly. Hilti SAFE-SET Technology eliminates this factor almost entirely – in both cracked or uncracked concrete and with anchor rods or post-installed rebar.

HIT-RE 500 V3

HIT-HY 200- R

HIT-RE 100

APPLICATIONS

- Post-installed rebar connections forconcrete slab, column or wall extensions
- Heavy-duty anchoring in cracked or uncracked concrete, e.g. for steel beams, colum

WHAT IS SAFE-SET

Hilti SAFE-SET Technology eliminates the most load-affecting and time-consuming step in the installation process: cleaning the hole before injection of the adhesive. As a consequence, engineers can now have peace of mind because the specified application will perform on the jobsite as it has been designed in the plan.

SAFE-SET Application Ranges

Thread rod size / Drill hole dia.	M8 (10mm)	M10 (12mm)	M12 (14mm)	M16 (18mm)	M20 (22mm)	M24 (28mm)	M27 (30mm)	M30 (35mm)
Anchoring								
HIT-HY 200-R, standard drill bit and HIT-Z Rod (zero cleaning)			SAFE-SET					
HIT-HY 200-R, HIT-RE100, HIT-RE 500 V3, Hollow Drill Bits and HAS-E Rod, HAS-U Rod or HIT-V Rod (auto-cleaning)		SAFE-SET						

Rebar size / Drill hole dia.	Y8 (12mm)	Y10 (14mm)	Y12 (16mm)	Y16 (20mm)	Y20 (25mm)	Y25 (32mm)	Y32 (40mm)
Rebar							
HIT-HY 200-R, HIT-RE100 , HIT-RE 500 V3, Hollow Drill Bits and rebar (auto-cleaning)	SAFE-SET						

INTRODUCING HILTI SAFESET TECHNOLOGY

Once in a blue moon, something comes along with the power to accelerate the way you work.

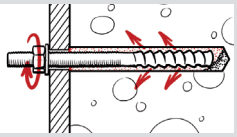
SAFESET

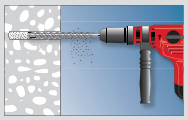
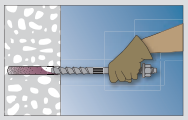
SAFEset is a registered trade mark of Hilti.

1 ZERO CLEANING SOLUTION.

HIT-Z anchor rods + HIT-HY 200-R

The new Hilti HIT-Z anchor rod works as a torque-contolled bonded anchor. Because of their unique shape, HIT-Z anchor rods, used in hammer-drilled holes in dry or water-saturated concrete above 5°C, are not affected by uncleaned holes. The benefits are clear: fewer steps and more productivity in anchoring applications.



Drill	Set
	

Hilti SAFESET Technology
Up to 60% faster!

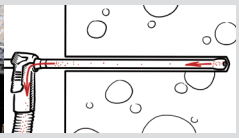
Drill	Done	Productivity gain

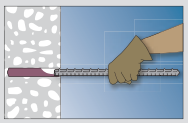
Anchor diameter range	M8 to M20
Material	Carbon or stainless steel (A4)
Embedment depth	Up to 12 times rod diameter
Concrete compressive strengths	C20/25 to C50/60
Installation temperature range	5°C to 40°C

2 AUTO-CLEANING SOLUTION.

Hollow drill bits + HIT-HY 200-R / HIT-RE 100 / HIT-RE 500 V3

Hilti TE-CD and TE-YD hollow drill bits, in conjunction with HIT-HY 200-R, HIT-RE 100 or HIT-RE 500 V3, make subsequent hole cleaning completely unnecessary. Dust is removed by the Hilti vacuum system while drilling is in progress for faster drilling and a virtually dustless working environment.



Drill	Set
	

Hilti SAFESET Technology
Up to 60% faster!

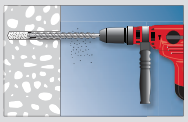
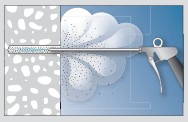
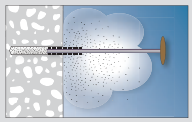
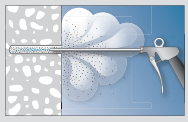
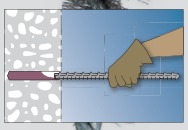
Drill	Done	Productivity gain

Rebar diameter range	Y8 to Y25
Threaded rod diameters	M10 to M30
Embedment depth	Up to 1000 mm
Concrete compressive strengths	C20/25 to C50/60
Installation temperature range	-10°C to 40°C

3 CONVENTIONAL SOLUTION.

Brush and blow

Another option is to continue using the traditional hole cleaning method with any Hilti HIT system for superior performance.

Drill	Blow twice	Brush twice	Blow twice	Set
				

*Cleaning Sequence when using manual dust pump are : blow twice , brush twice , blow twice.

Drill	2x	2x	2x	Done

Rebar diameter range	Y8 to Y40
Threaded rod diameters	M8 to M39
Embedment depth	Up to 20 times element diameter
Concrete compressive strengths	C20/25 to C50/60
Installation temperature range	-10°C to 40°C

SUMMARY TABLE FOR CHEMICAL ANCHORS

	HIT-HY 200-R	HIT-RE 500 V3	HIT-RE 100	HIT-HY 270
HIT-Z 	■			
HAS-U 	■	■	■	■
HIS-N 	■	■	■	■
Setting tool TE-C 				
Setting tool HIS-S 				
Mixer HIT-RE-M	■	■	■	■
Profi accessories for HIT 	■	■	■	■
HIT-SC 				■
CR Cartridge holder 	■			
CB Cartridge holder 		■	■	■
HDE Dispenser 	■	■	■	■
TE-CD/YD Hollow drill bit 	■	■	■	
VC 20/40 Vacuum cleaner 	■	■	■	
Setting tool TE-C-E/ TE-Y-E 				
Blow-out pump 	■	■	■	■
Steel brush 	■	■	■	■

Hilti HIT-RE 100 injection mortar

Rebar design (EN 1992-1) / Rebar elements / Concrete

Injection mortar system	Benefits
 Hilti HIT-RE 100 330 ml foil pack (also available as 500 ml and 1400 ml foil pack)	- Suitable for concrete C 12/15 to C 50/60 - High loading capacity - Suitable for dry and water saturated concrete - For rebar diameters up to 40 mm - Non corrosive to rebar elements - Long working time at elevated temperatures
 Rebar B500 B (Ø8 - Ø 40)	

Base material			Load conditions
 Concrete (non-cracked)	 Dry concrete	 Wet concrete	 Static/ quasi-static

Installation conditions		Other informations	
 Hammer drilling	 Variable embedment depth	 European Technical Assessment	 CE conformity

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment [a)]	DIBt, Berlin	ETA – 15/0883 / 2016-04-21

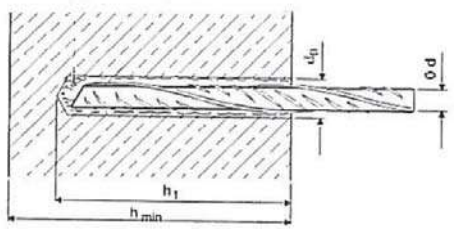
Basic loading data & testing load

	Y10	Y12	Y16	Y20	Y25	Y32	Y40
Rebar diameter (mm) [$Ø_d$]	10	12	16	20	25	32	40
Hole diameter (mm)	12	16	20	25	32	40	50.8
Min. Embedment Depth (mm) [h1]	Min. embedment depth should be according to EN 1992-1-1 (clause 8.6)						
Ultimate mean pull-out load as per BS5080 Part 1 (kN) Test Report *See Remark 3	42.4	61.6	109.0	168.7	262.5	419.7	640.5
Yield load of Rebar (kN)	39.3	56.6	100.6	157.1	245.5	*402.1*	628.3
Max. Testing Load	**34.1**	**49.2**	**87.5**	**136.7**	**213.5**	**349.8**	**546.6**

Remarks:

1. It is based on non-cracked concrete with strength 25N/mm²;
2. Yield strength of rebar f_{yk} is 500N/mm²;
3. **There is no factor of safety introduced in the ultimate mean pull out load. Please apply appropriate factor of safety in your design**;
4. **Onsite pullout test can be carried out to verify the workmanship of the installation but should not be verification of the ultimate loading. The testing load shall be subjected to the designer's decision but should not exceed the 0.87 x yield load to avoid permanent damage to the rebar.**
5. All the spacing and edge distance requirement for reinforced concrete design should be reference to BS8110;

Consumption table for quick reference



Rebar Size, φ	Hole diameter, d_0 [mm]	Depth of drilled hole, h_1 [mm]	Volume of mortar, v [ml]
Y10	12	100	4
Y12	16	120	13
Y16	20	160	22
Y20	25	200	42
Y25	32	250	94
Y32	40	320	174
Y40	50.8 (2")	400	370

Remarks:

1. The volume of mortar corresponds to the formula "1.2* (d_0^2 - d_s^2)* π* h_1/ 4" for hammer drilling
2. 1 trigger pull of dispenser HDM is approx. 6 ml of RE 100.
   To dispense 1 cartridge of 500ml RE 100 needs approx. 80 triggers.

Basic design data

Static EC2 design

Design bond strength in N/mm² according to ETA 15/0883 for good bond conditions

Rebar-size	Concrete class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
All allowed hammer drilling methods									
ϕ8 - ϕ32	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
ϕ34	1,6	2,0	2,3	2,6	2,9	3,3	3,6	3,9	4,2
ϕ36	1,5	1,9	2,2	2,6	2,9	3,3	3,6	3,8	4,1
ϕ40	1,5	1,8	2,1	2,5	2,8	3,1	3,4	3,7	4,0
Diamond coring wet									
ϕ8 - ϕ32	1,6	2,0	2,3	2,7					
ϕ34	1,6	2,0	2,3	2,6					
ϕ36	1,5	1,9	2,2	2,6					
ϕ40	1,5	1,8	2,1	2,5					

For poor bond conditions multiply the values by 0,7. Values valid for non-cracked and cracked concrete

Minimum anchorage length and minimum lap length

The minimum anchorage length $\ell_{b,min}$ and the minimum overlap length $\ell_{0,min}$ according to EN 1992-1-1 shall be multiplied by the relevant **Amplification factor** in the table below.

Amplification factor α_{lb} for the min. anchorage length and min. lap length according to EN 1992-1-1 for:

Rebar - size	Concrete class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
All allowed hammer drilling methods									
ϕ8 -ϕ40	1,0								
Diamond coring dry and wet									
ϕ8 -ϕ40	1,5								

Fitness for use

Some creep tests have been conducted in accordance with ETAG guideline 001 part 5 and TR 023 in the following conditions: **in dry environment at 50 °C during 90 days.**
These tests show an excellent behaviour of the post-installed connection made with HIT-RE 100: low displacements with long term stability, failure load after exposure above reference load.

Resistance to chemical substances

Chemical	Resistance	Chemical	Resistance
Acetic acid 100%	o	Methanol 100%	o
Acetic acid 10%	+	Peroxide of hydrogen 30%	o
Hydrochloric Acid 20%	+	Solution of phenol (sat.)	-
Nitric Acid 40%	-	Sodium hydroxide pH=14	+
Phosphoric Acid 40%	+	Solution of chlorine (sat.)	+
Sulphuric acid 40%	+	Solution of hydrocarbons (60 % vol Toluene, 30 % vol Xylene,10 % vol Methyl naphtalene)	+
Ethyl acetate 100%	o		
Acetone 100%	-		
Ammoniac 5%	o	Salted solution 10%	+
Diesel 100%	+	sodium chloride	
Gasoline 100%	+	Suspension of concrete (sat.)	+
Ethanol 96%	o	Chloroform 100%	+
Machine oils 100%	+	Xylene 100%	+

+ resistant
o resistant in short term (max. 48h) contact
- not resistant

Electrical Conductivity

HIT-RE 100 in the hardened state **is not conductive electrically**. Its electric resistivity is $1{,}4 \cdot 10^{10}\ \Omega \cdot m$ (DIN IEC 93 – 12.93). It is adapted well to realize electrically insulating anchorings (ex: railway applications, subway).

Installation temperature range:
+5°C to +40°C

Service temperature range
Hilti HIT-RE 100 injection mortar may be applied in the temperature ranges given below. An elevated base material temperature may lead to a reduction of the design bond resistance.

Temperature range	Base material temperature	Maximum long term base material temperature	Maximum short term base material temperature
Temperature range I	-40 °C to +80 °C	+50 °C	+80 °C

Max short term base material temperature
Short-term elevated base material temperatures are those that occur over brief intervals, e.g. as a result of diurnal cycling.
Max long term base material temperature
Long-term elevated base material temperatures are roughly constant over significant periods of time.

Working time and curing time[a]

Temperature IN the base material T_{BM}	Maximum working time t_{work}	Initial curing time $t_{cure,ini}$[b]	Minimum curing time t_{cure}
-5 °C ≤ T_{BM} < 9 °C	2 hours	18 hours	72 hours
10 °C ≤ T_{BM} < 14 °C	1,5 hours	12 hours	48 hours
15 °C ≤ T_{BM} < 19 °C	30 min	8 hours	24 hours
20 °C ≤ T_{BM} < 24 °C	25 min	6 hours	12 hours
25 °C ≤ T_{BM} < 29 °C	20 min	5 hours	10 hours
30 °C ≤ T_{BM} ≤ 39 °C	12 min	4 hours	8 hours
40 °C	12 min	2 hours	4 hours

a) The curing time data are valid for dry base material only. In wet base material the curing times must be doubled.
b) After $t_{cure,ini}$ has elapsed preparation work may continue

Setting information

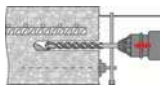
Installation equipment

Rebar – size	ϕ8-ϕ16	ϕ18-ϕ40
Rotary hammer	TE2(-A) – TE30(-A)	TE40 – TE80
Other tools	Blow out pump (h_{ef} ≤ 10·d)	-
	Compressed air gun[a] Set of cleaning brushes[b], dispenser, piston plug	

a) Compressed air gun with extension hose for all drill holes deeper than 250 mm (for ϕ 8 to ϕ 12) or deeper than 20·ϕ (for ϕ > 12 mm)
b) Automatic brushing with round brush for all drill holes deeper than 250 mm (for ϕ 8 to ϕ 12) or deeper than 20·ϕ (for ϕ > 12 mm)

Minimum concrete cover c_{min} of the post-installed rebar

Drilling method	Rebar – size [mm]	Minimum concrete cover c_{min} [mm]	
		Without drilling aid	With drilling aid
Hammer drilling **(HD)**	ϕ < 25	30 + 0,06 · l_v ≥ 2 · ϕ	30 + 0,02 · l_v ≥ 2 · ϕ
	ϕ ≥ 25	40 + 0,06 · l_v ≥ 2 · ϕ	40 + 0,02 · l_v ≥ 2 · ϕ
Compressed air drilling **(CA)**	ϕ < 25	50 + 0,08 · l_v	50 + 0,02 · l_v
	ϕ ≥ 25	60 + 0,08 · l_v ≥ 2 · ϕ	60 + 0,02 · l_v ≥ 2 · ϕ
Diamond coring dry **(PCC)** or wet **(DD)**	ϕ < 25	Drill stand is used as drilling aid	30 + 0,02 · l_v ≥ 2 · ϕ
	ϕ ≥ 25		40 + 0,02 · l_v ≥ 2 · ϕ



Drilling and cleaning diameters

Rebar [mm]	Hammer drill (HD)	Compressed air drill (CA)	Diamond core		Brush HIT-RB	Air nozzle HIT-RB
			Wet (DD)	Dry (PCC)[b]		
	d_0 [mm]				size	
						
ϕ8	12 (10[a])	-	12 (10[a])	-	12 (10[a])	12 (10[a])
ϕ10	14 (12[a])	-	14 (12[a])	-	14 (12[a])	14 (12[a])
ϕ12	16 (14[a])	-	16 (14[a])	-	16 (14[a])	16 (14[a])
	-	17	-	-	18	16
ϕ14	18	17	18	-	18	18
ϕ16	20	-	20	-	20	20
	-	20	-	-	22	20
ϕ18	22	22	22	-	22	22
ϕ20	25 (24[a])	-	25	-	25 (24[a])	25 (24[a])
	-	26	-	-	28	25
ϕ22	28	28	28	-	28	28
ϕ24	32	32	32	35	32	32
ϕ25	32 (30[a])	32 (30[a])	32 (30[a])	35	32 (30[a])	
ϕ26	35	35	35	35	35	
ϕ28	35	35	35	35	35	
ϕ30	-	35	35	35	35	
	37	-	-		37	
ϕ32	40	40	40	47	40	
ϕ34	-	42	42	47	42	
	45	-	-		45	
ϕ36	45	45	-	47	45	
	-	-	47		47	
ϕ40	-	-	52	52	52	
	55	57	-		55	

a) Both of a given values can be used.
b) No cleaning required.

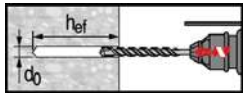
Dispenser and corresponding maximum embedment depth $\ell_{v,max}$

Rebar	Dispenser	
	HDM 330, HDM 500	HDE 500
	$\ell_{v,max}$ [mm]	
ϕ8 to ϕ10	1000	1000
ϕ12 to ϕ14		1200
ϕ16		1500
ϕ18 to ϕ20	700	1300
ϕ22 to ϕ25		1000
ϕ26 to ϕ28	500	700
ϕ30 to ϕ32	-	
ϕ34 to ϕ40		500

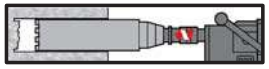
Setting instructions

***For detailed information on installation see instruction for use given with the package of the product.**

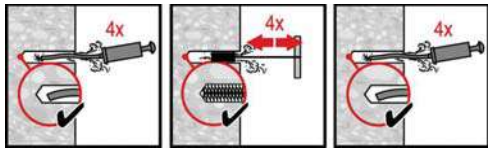
Safety regulations.
Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-RE 100.



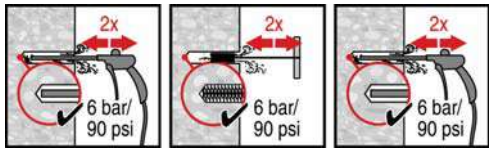
Hammer drilled hole (HD)



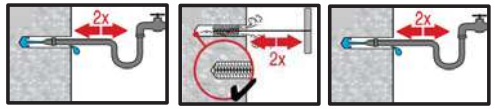
Diamond Drilling (DD)



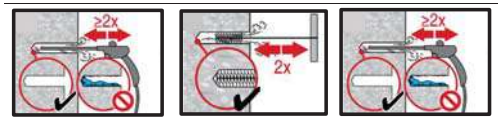
Hammer Drilling:
Manual cleaning (MC)
for drill diameters $d_0 \leq 20$ mm and drill hole depth $h_0 \leq 10 \cdot d$.



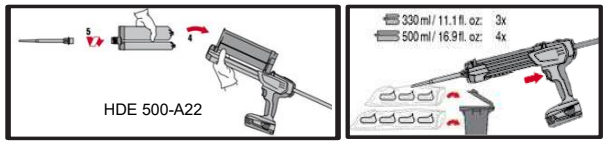
Hammer Drilling:
Compressed air cleaning (CAC)
for all drill hole diameters d_0 and drill hole depths $h_0 \leq 20 \cdot d$.



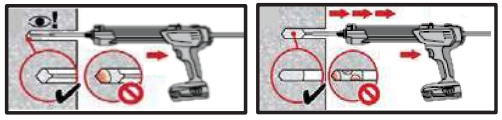
Wet diamond coring:
Compressed air cleaning (CAC)
for all drill hole diameters d_0 and drill hole depths h_0 .



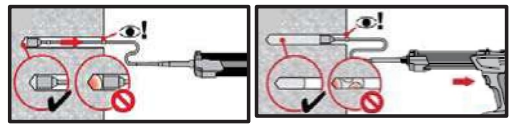
Dry diamond coring:
Compressed air cleaning (CAC)
for all drill hole diameters d_0 and drill hole depths h_0 .



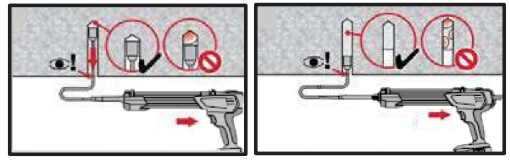
Injection system preparation.



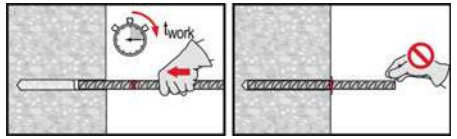
Injection method for drill hole depth $h_{ef} \leq 250$ mm.



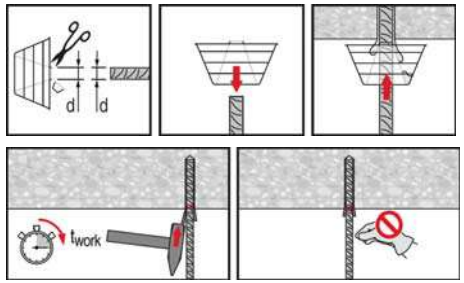
Injection method for drill hole depth $h_{ef} > 250$mm.



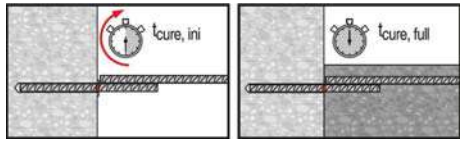
Injection method for overhead application.



Setting element, observe working time "t_{work}".



Setting element for overhead applications, observe working time "t_{work}".



Apply full load only after curing time "t_{cure}".

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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y10 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 12-Oct-2017 Page 1 of 14 Report No. GCD171000040

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y10 Grade 500B

(d) Mass concrete size : 600mm x 600mm x 200mm

(e) Concrete grade : C25

(f) Drill hole diameter : 12 mm

(g) Drill hole depth : 100 mm

(h) Rebar embedment depth : 100 mm

(i) Test standard : BS 5080 : Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 200 mm

(k) Minimum distance between the center of fixing and free edge : 300 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y10 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	42.7	41.3	42.6	42.9	42.5
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	42.4				
Standard deviation (kN)	0.63				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s)

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171000040 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE100+ Y10 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	--	0.0	0.00	0.00	0.00	P	Hilti RE100+ Y10 Grade 500B
2		3.9	0.5	3.9	0.03	0.00	0.02	P	
3		7.9	0.5	7.9	0.13	-0.05	0.04	P	
4		11.8	0.5	11.8	0.24	-0.11	0.07	P	
5		15.7	0.5	15.7	0.34	-0.16	0.09	P	
6		19.6	0.5	19.6	0.43	-0.18	0.13	P	
7		23.6	0.5	23.6	0.51	-0.21	0.15	P	
8		27.5	0.5	27.5	0.59	-0.22	0.19	P	
9		31.4	0.5	31.4	0.67	-0.23	0.22	P	
10		35.3	0.5	35.3	0.77	-0.26	0.26	P	
11		39.3	0.5	39.3	1.06	-0.36	0.35	P	
12		43.2	--	42.7	2.01	-0.41	0.80	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 200
F) Minimum distance between center of fixing and free edge (mm) 300
G) Drill hole diameter /size (mm) 12
H) Drill hole depth (mm) 100
I) Anchor/rebar embedment depth (mm) 100

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171000040 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE100+ Y10 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	--	0.0	0.00	0.00	0.00	P	Hilti RE100+ Y10 Grade 500B
2		3.9	0.5	3.9	-0.01	0.09	0.04	P	
3		7.9	0.5	7.9	-0.01	0.17	0.08	P	
4		11.8	0.5	11.8	-0.01	0.22	0.11	P	
5		15.7	0.5	15.7	-0.02	0.30	0.14	P	
6		19.6	0.5	19.6	-0.02	0.36	0.17	P	
7		23.6	0.5	23.6	-0.02	0.42	0.20	P	
8		27.5	0.5	27.5	-0.02	0.50	0.24	P	
9		31.4	0.5	31.4	0.01	0.59	0.30	P	
10		35.3	0.5	35.3	0.05	0.64	0.35	P	
11		39.3	0.5	39.3	0.09	0.81	0.45	P	
12		43.2	--	41.3	0.54	1.52	1.03	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	200
F)	Minimum distance between center of fixing and free edge (mm)	300
G)	Drill hole diameter /size (mm)	12
H)	Drill hole depth (mm)	100
I)	Anchor/rebar embedment depth (mm)	100

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171000040 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE100+ Y10 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	--	0.0	0.00	0.00	0.00	P	Hilti RE100+ Y10 Grade 500B
2		3.9	0.5	3.9	0.09	0.00	0.05	P	
3		7.9	0.5	7.9	0.09	0.05	0.07	P	
4		11.8	0.5	11.8	0.09	0.09	0.09	P	
5		15.7	0.5	15.7	0.11	0.14	0.13	P	
6		19.6	0.5	19.6	0.14	0.18	0.16	P	
7		23.6	0.5	23.6	0.18	0.23	0.21	P	
8		27.5	0.5	27.5	0.21	0.27	0.24	P	
9		31.4	0.5	31.4	0.25	0.31	0.28	P	
10		35.3	0.5	35.3	0.28	0.38	0.33	P	
11		39.3	0.5	39.3	0.28	0.60	0.44	P	
12		43.2	--	42.6	0.59	1.23	0.91	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	200
F)	Minimum distance between center of fixing and free edge (mm)	300
G)	Drill hole diameter /size (mm)	12
H)	Drill hole depth (mm)	100
I)	Anchor/rebar embedment depth (mm)	100

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171000040 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE100+ Y10 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	--	0.0	0.00	0.00	0.00	P	Hilti RE100+ Y10 Grade 500B
2		3.9	0.5	3.9	0.02	-0.01	0.01	P	
3		7.9	0.5	7.9	-0.04	0.05	0.01	P	
4		11.8	0.5	11.8	-0.12	0.16	0.02	P	
5		15.7	0.5	15.7	-0.16	0.22	0.03	P	
6		19.6	0.5	19.6	-0.19	0.34	0.08	P	
7		23.6	0.5	23.6	-0.20	0.39	0.10	P	
8		27.5	0.5	27.5	-0.22	0.52	0.15	P	
9		31.4	0.5	31.4	-0.22	0.58	0.18	P	
10		35.3	0.5	35.3	-0.22	0.68	0.23	P	
11		39.3	0.5	39.3	-0.22	0.79	0.29	P	
12		43.2	--	42.9	-0.22	1.23	0.51	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	200
F)	Minimum distance between center of fixing and free edge (mm)	300
G)	Drill hole diameter /size (mm)	12
H)	Drill hole depth (mm)	100
I)	Anchor/rebar embedment depth (mm)	100

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171000040 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE100+ Y10 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	--	0.0	0.00	0.00	0.00	P	Hilti RE100+ Y10 Grade 500B
2		3.9	0.5	3.9	0.08	0.00	0.04	P	
3		7.9	0.5	7.9	0.19	0.00	0.10	P	
4		11.8	0.5	11.8	0.26	0.00	0.13	P	
5		15.7	0.5	15.7	0.32	0.01	0.17	P	
6		19.6	0.5	19.6	0.38	0.01	0.20	P	
7		23.6	0.5	23.6	0.43	0.03	0.23	P	
8		27.5	0.5	27.5	0.49	0.08	0.29	P	
9		31.4	0.5	31.4	0.53	0.10	0.32	P	
10		35.3	0.5	35.3	0.58	0.16	0.37	P	
11		39.3	0.5	39.3	0.64	0.21	0.43	P	
12		43.2	--	42.5	1.05	0.32	0.69	F4	
13									

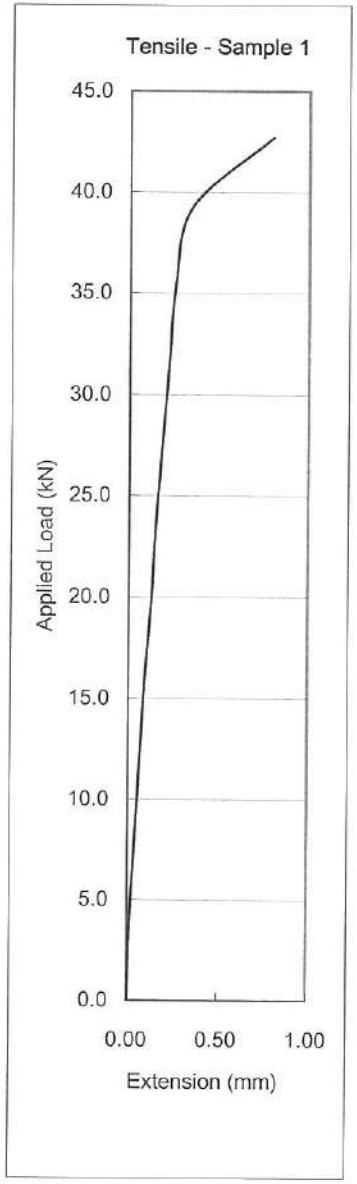
Notes :
A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 200
F) Minimum distance between center of fixing and free edge (mm) 300
G) Drill hole diameter /size (mm) 12
H) Drill hole depth (mm) 100
I) Anchor/rebar embedment depth (mm) 100

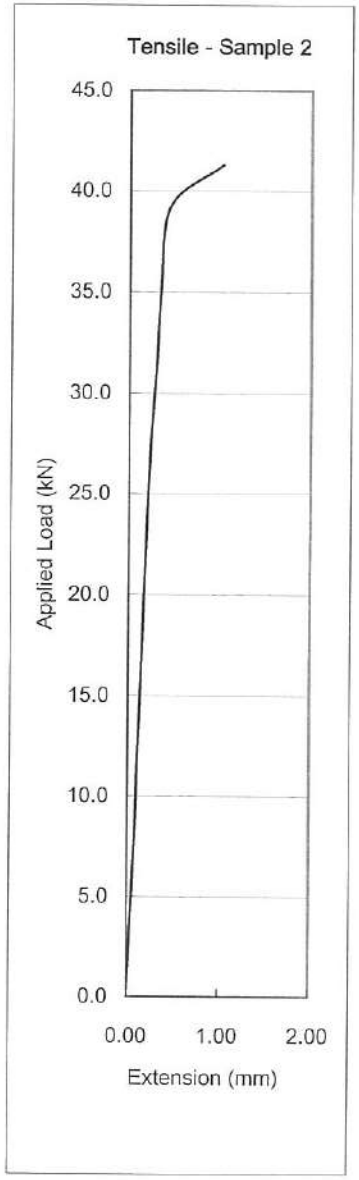
* Information provided by customer

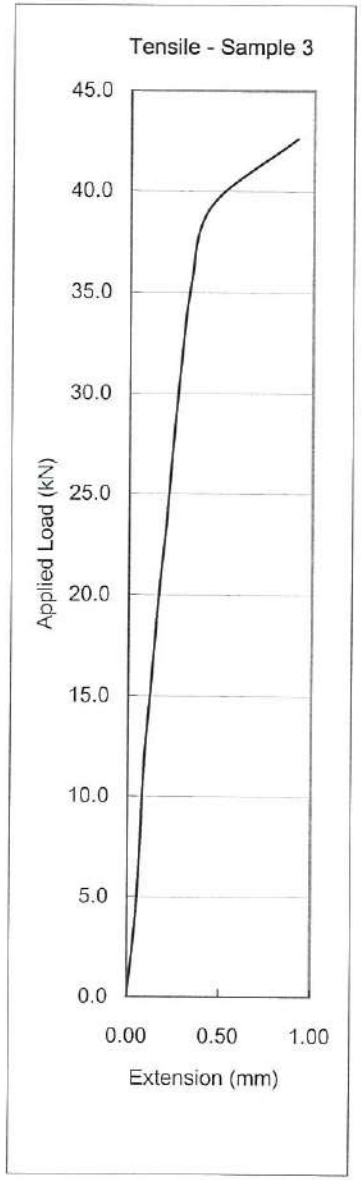
Tested By : K.K. Wong
Checked By :

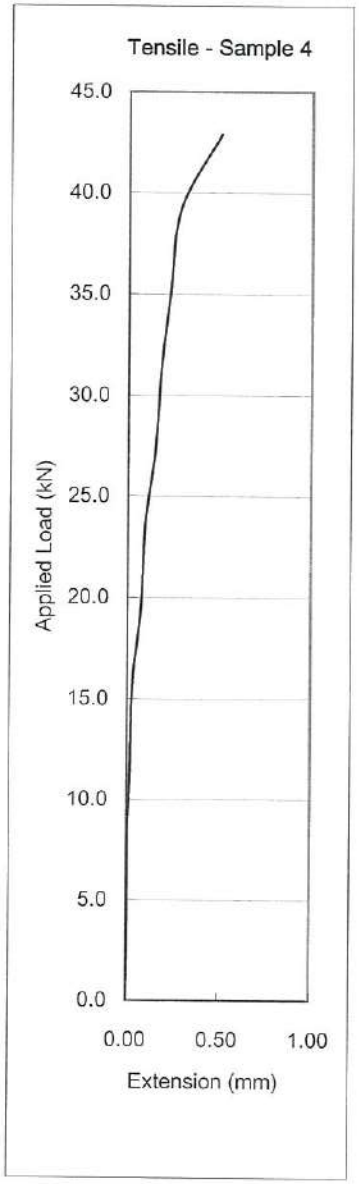
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

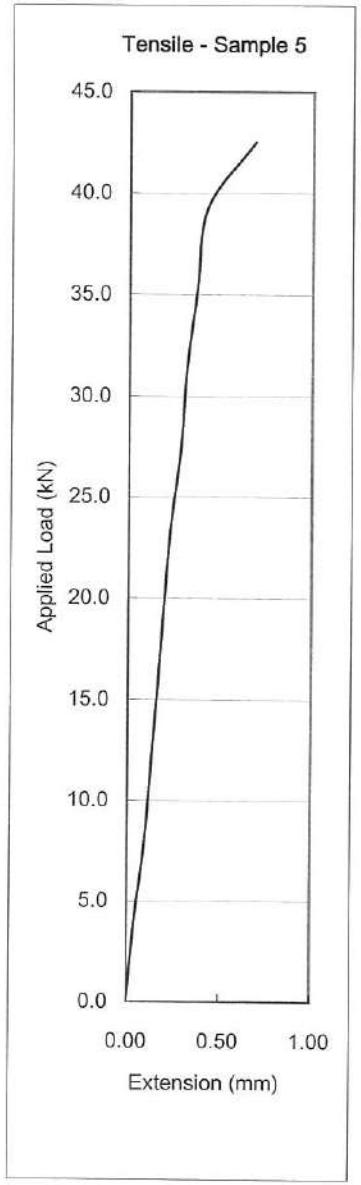
Hilti RE100 + Y10 Grade 500B











GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123
FAX NO.: 852-2765 8034

Issued date: 12 Oct 2017

Report No : GCD171000040

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y12 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 12-Oct-2017 Page 1 of 14 Report No. GCD171001397

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y12 Grade 500B

(d) Mass concrete size : 720mm x 720mm x 240mm

(e) Concrete grade : C25

(f) Drill hole diameter : 16 mm

(g) Drill hole depth : 120 mm

(h) Rebar embedment depth : 120 mm

(i) Test standard : BS 5080 Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 240 mm

(k) Minimum distance between the center of fixing and free edge : 360 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y12 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	61.3	61.9	61.5	61.7	62.0
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	61.6				
Standard deviation (kN)	0.29				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001397 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y12 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y12 Grade 500B
2		5.7	0.5	5.7	0.00	0.07	0.04	P	
3		11.3	0.5	11.3	0.10	0.04	0.07	P	
4		17.0	0.5	17.0	0.20	0.01	0.11	P	
5		22.6	0.5	22.6	0.31	0.00	0.16	P	
6		28.3	0.5	28.3	0.43	-0.03	0.20	P	
7		33.9	0.5	33.9	0.52	-0.04	0.24	P	
8		39.6	0.5	39.6	0.62	-0.05	0.29	P	
9		45.2	0.5	45.2	0.68	-0.04	0.32	P	
10		50.9	0.5	50.9	0.75	0.01	0.38	P	
11		56.5	0.5	56.5	0.83	0.02	0.43	P	
12		62.2	-	61.3	1.17	1.00	1.09	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	240
F)	Minimum distance between center of fixing and free edge (mm)	360
G)	Drill hole diameter /size (mm)	16
H)	Drill hole depth (mm)	120
I)	Anchor/rebar embedment depth (mm)	120

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001397 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y12 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y12 Grade 500B
2		5.7	0.5	5.7	-0.01	0.12	0.06	P	
3		11.3	0.5	11.3	-0.04	0.21	0.09	P	
4		17.0	0.5	17.0	-0.05	0.31	0.13	P	
5		22.6	0.5	22.6	-0.04	0.32	0.14	P	
6		28.3	0.5	28.3	-0.05	0.35	0.15	P	
7		33.9	0.5	33.9	-0.03	0.37	0.17	P	
8		39.6	0.5	39.6	-0.02	0.41	0.20	P	
9		45.2	0.5	45.2	0.03	0.52	0.28	P	
10		50.9	0.5	50.9	0.07	0.63	0.35	P	
11		56.5	0.5	56.5	0.07	0.69	0.38	P	
12		62.2	-	61.9	0.16	1.09	0.63	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	240
F)	Minimum distance between center of fixing and free edge (mm)	360
G)	Drill hole diameter /size (mm)	16
H)	Drill hole depth (mm)	120
I)	Anchor/rebar embedment depth (mm)	120

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001397 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y12 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y12 Grade 500B
2		5.7	0.5	5.7	0.28	-0.18	0.05	P	
3		11.3	0.5	11.3	0.23	-0.01	0.11	P	
4		17.0	0.5	17.0	0.24	0.10	0.17	P	
5		22.6	0.5	22.6	0.30	0.14	0.22	P	
6		28.3	0.5	28.3	0.38	0.13	0.26	P	
7		33.9	0.5	33.9	0.46	0.12	0.29	P	
8		39.6	0.5	39.6	0.53	0.12	0.33	P	
9		45.2	0.5	45.2	0.64	0.12	0.38	P	
10		50.9	0.5	50.9	0.73	0.12	0.43	P	
11		56.5	0.5	56.5	0.83	0.11	0.47	P	
12		62.2	-	61.5	1.38	0.15	0.77	F4	
13									

Notes :
A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 240
F) Minimum distance between center of fixing and free edge (mm) 360
G) Drill hole diameter /size (mm) 16
H) Drill hole depth (mm) 120
I) Anchor/rebar embedment depth (mm) 120

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001397 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y12 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y12 Grade 500B
2		5.7	0.5	5.7	0.18	-0.15	0.02	P	
3		11.3	0.5	11.3	0.11	-0.03	0.04	P	
4		17.0	0.5	17.0	0.07	0.09	0.08	P	
5		22.6	0.5	22.6	-0.01	0.23	0.11	P	
6		28.3	0.5	28.3	-0.06	0.31	0.13	P	
7		33.9	0.5	33.9	-0.08	0.40	0.16	P	
8		39.6	0.5	39.6	-0.19	0.57	0.19	P	
9		45.2	0.5	45.2	-0.27	0.71	0.22	P	
10		50.9	0.5	50.9	-0.47	0.97	0.25	P	
11		56.5	0.5	56.5	-0.47	1.08	0.31	P	
12		62.2	-	61.7	-0.48	1.68	0.60	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	240
F)	Minimum distance between center of fixing and free edge (mm)	360
G)	Drill hole diameter /size (mm)	16
H)	Drill hole depth (mm)	120
I)	Anchor/rebar embedment depth (mm)	120

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001397 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y12 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y12 Grade 500B
2		5.7	0.5	5.7	0.21	-0.15	0.03	P	
3		11.3	0.5	11.3	0.19	-0.07	0.06	P	
4		17.0	0.5	17.0	0.23	-0.04	0.10	P	
5		22.6	0.5	22.6	0.26	0.03	0.15	P	
6		28.3	0.5	28.3	0.23	0.09	0.16	P	
7		33.9	0.5	33.9	0.30	0.16	0.23	P	
8		39.6	0.5	39.6	0.32	0.25	0.29	P	
9		45.2	0.5	45.2	0.36	0.32	0.34	P	
10		50.9	0.5	50.9	0.41	0.40	0.41	P	
11		56.5	0.5	56.5	0.48	0.47	0.48	P	
12		62.2	-	62.0	0.75	0.71	0.73	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

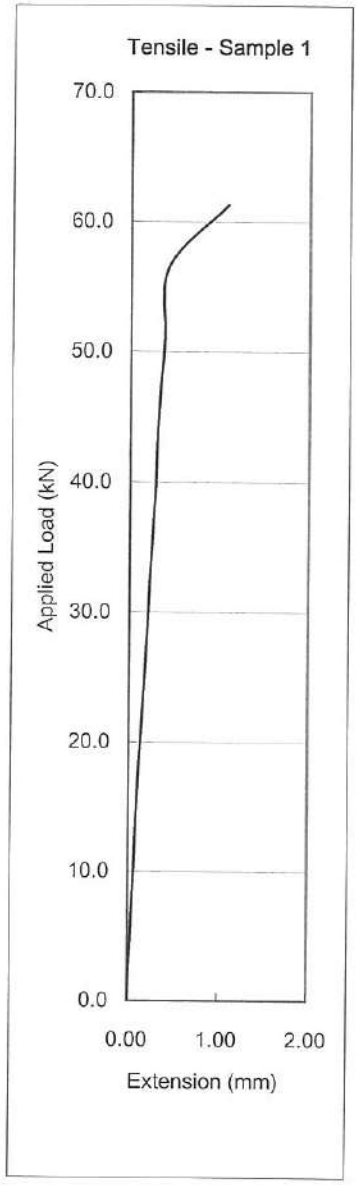
E)	Minimum distance between reaction frame and center of fixing (mm)	240
F)	Minimum distance between center of fixing and free edge (mm)	360
G)	Drill hole diameter /size (mm)	16
H)	Drill hole depth (mm)	120
I)	Anchor/rebar embedment depth (mm)	120

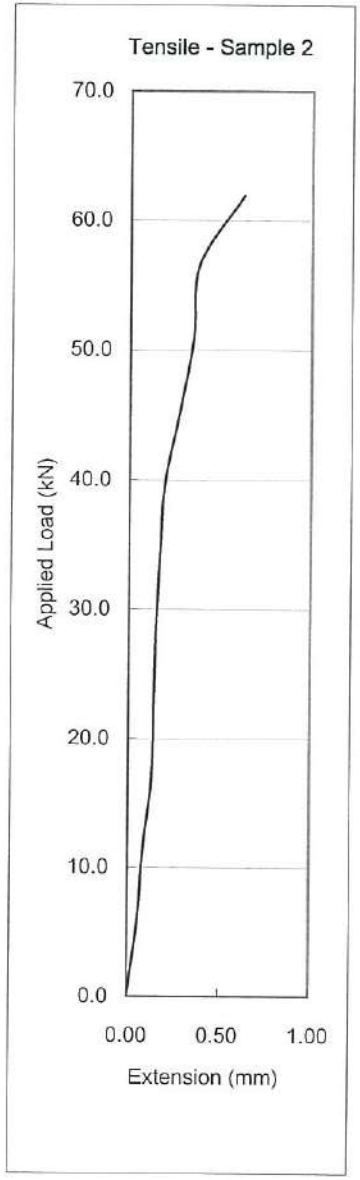
* Information provided by customer

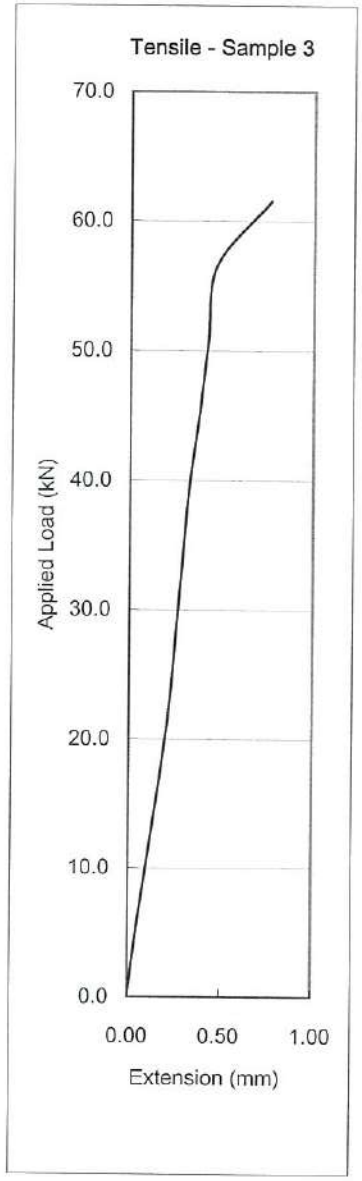
Tested By : K.K. Wong
Checked By :

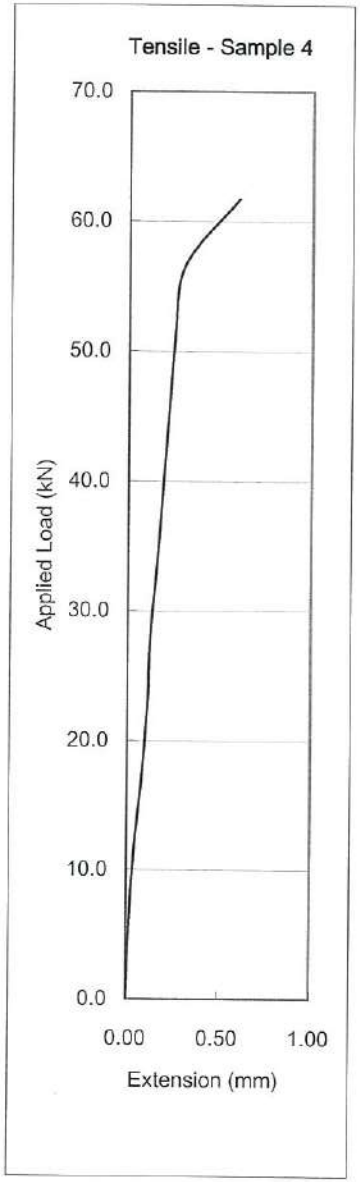
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

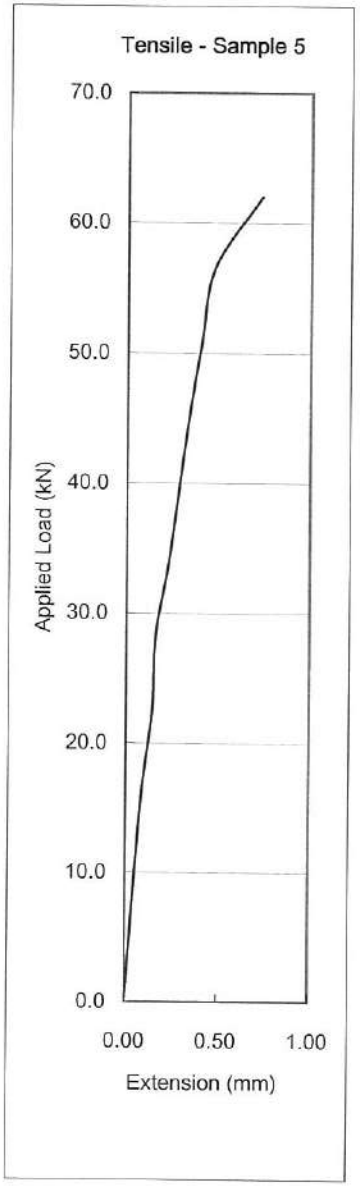
Hilti RE100 + Y12 Grade 500B











GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123
FAX NO.: 852-2765 8034

Issued date: 12 Oct 2017

Report No : GCD17001397

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y16 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 12-Oct-2017 Page 1 of 14 Report No. GCD171001402

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y16 Grade 500B

(d) Mass concrete size : 960mm x 960mm x 320mm

(e) Concrete grade : C25

(f) Drill hole diameter : 20mm

(g) Drill hole depth : 160mm

(h) Rebar embedment depth : 160mm

(i) Test standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 320 mm

(k) Minimum distance between the center of fixing and free edge : 480 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y16 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	107.4	109.2	108.6	110.2	109.8
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	109.0				
Standard deviation (kN)	1.10				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001402 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y16 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y16 Grade 500B
2		10.1	0.5	10.1	0.08	0.01	0.05	P	
3		20.1	0.5	20.1	0.20	-0.07	0.07	P	
4		30.2	0.5	30.2	0.35	-0.12	0.12	P	
5		40.2	0.5	40.2	0.44	-0.12	0.16	P	
6		50.3	0.5	50.3	0.52	-0.10	0.21	P	
7		60.3	0.5	60.3	0.60	-0.08	0.26	P	
8		70.4	0.5	70.4	0.72	-0.05	0.34	P	
9		80.4	0.5	80.4	0.77	-0.05	0.36	P	
10		90.5	0.5	90.5	0.90	-0.03	0.44	P	
11		100.5	0.5	100.5	1.09	-0.03	0.53	P	
12		110.6	-	107.4	1.58	0.28	0.93	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 320
F) Minimum distance between center of fixing and free edge (mm) 480
G) Drill hole diameter /size (mm) 20
H) Drill hole depth (mm) 160
I) Anchor/rebar embedment depth (mm) 160

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001402 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y16 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	-0.02	-0.01	P	Hilti RE 100 + Y16 Grade 500B
2		10.1	0.5	10.1	0.13	-0.02	0.06	P	
3		20.1	0.5	20.1	0.24	-0.02	0.11	P	
4		30.2	0.5	30.2	0.31	-0.02	0.15	P	
5		40.2	0.5	40.2	0.40	-0.02	0.19	P	
6		50.3	0.5	50.3	0.43	-0.02	0.21	P	
7		60.3	0.5	60.3	0.53	-0.02	0.26	P	
8		70.4	0.5	70.4	0.60	-0.02	0.29	P	
9		80.4	0.5	80.4	0.70	-0.02	0.34	P	
10		90.5	0.5	90.5	0.83	0.03	0.43	P	
11		100.5	0.5	100.5	1.04	0.16	0.60	P	
12		110.6	-	109.2	1.65	0.52	1.09	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	320
F)	Minimum distance between center of fixing and free edge (mm)	480
G)	Drill hole diameter /size (mm)	20
H)	Drill hole depth (mm)	160
I)	Anchor/rebar embedment depth (mm)	160

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001402 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y16 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y16 Grade 500B
2		10.1	0.5	10.1	0.18	0.00	0.09	P	
3		20.1	0.5	20.1	0.19	0.01	0.10	P	
4		30.2	0.5	30.2	0.22	0.03	0.13	P	
5		40.2	0.5	40.2	0.24	0.11	0.18	P	
6		50.3	0.5	50.3	0.25	0.21	0.23	P	
7		60.3	0.5	60.3	0.26	0.34	0.30	P	
8		70.4	0.5	70.4	0.27	0.48	0.38	P	
9		80.4	0.5	80.4	0.28	0.58	0.43	P	
10		90.5	0.5	90.5	0.28	0.72	0.50	P	
11		100.5	0.5	100.5	0.28	0.97	0.63	P	
12		110.6	-	108.6	0.29	1.78	1.04	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	320
F)	Minimum distance between center of fixing and free edge (mm)	480
G)	Drill hole diameter /size (mm)	20
H)	Drill hole depth (mm)	160
I)	Anchor/rebar embedment depth (mm)	160

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001402 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y16 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y16 Grade 500B
2		10.1	0.5	10.1	0.00	0.26	0.13	P	
3		20.1	0.5	20.1	0.00	0.28	0.14	P	
4		30.2	0.5	30.2	0.00	0.37	0.19	P	
5		40.2	0.5	40.2	0.00	0.44	0.22	P	
6		50.3	0.5	50.3	0.00	0.51	0.26	P	
7		60.3	0.5	60.3	0.01	0.54	0.28	P	
8		70.4	0.5	70.4	-0.01	0.60	0.30	P	
9		80.4	0.5	80.4	-0.01	0.69	0.34	P	
10		90.5	0.5	90.5	-0.01	0.74	0.37	P	
11		100.5	0.5	100.5	-0.01	0.85	0.42	P	
12		110.6	-	110.2	-0.03	1.62	0.80	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 320
F) Minimum distance between center of fixing and free edge (mm) 480
G) Drill hole diameter /size (mm) 20
H) Drill hole depth (mm) 160
I) Anchor/rebar embedment depth (mm) 160

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001402 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y16 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y16 Grade 500B
2		10.1	0.5	10.1	0.01	0.00	0.01	P	
3		20.1	0.5	20.1	0.13	0.00	0.07	P	
4		30.2	0.5	30.2	0.25	-0.01	0.12	P	
5		40.2	0.5	40.2	0.37	-0.03	0.17	P	
6		50.3	0.5	50.3	0.50	-0.04	0.23	P	
7		60.3	0.5	60.3	0.59	-0.05	0.27	P	
8		70.4	0.5	70.4	0.69	-0.07	0.31	P	
9		80.4	0.5	80.4	0.81	-0.08	0.37	P	
10		90.5	0.5	90.5	0.96	-0.08	0.44	P	
11		100.5	0.5	100.5	1.06	-0.08	0.49	P	
12		110.2	-	109.8	1.85	0.08	0.97	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	320
F)	Minimum distance between center of fixing and free edge (mm)	480
G)	Drill hole diameter /size (mm)	20
H)	Drill hole depth (mm)	160
I)	Anchor/rebar embedment depth (mm)	160

* Information provided by customer

Tested By : K.K. Wong

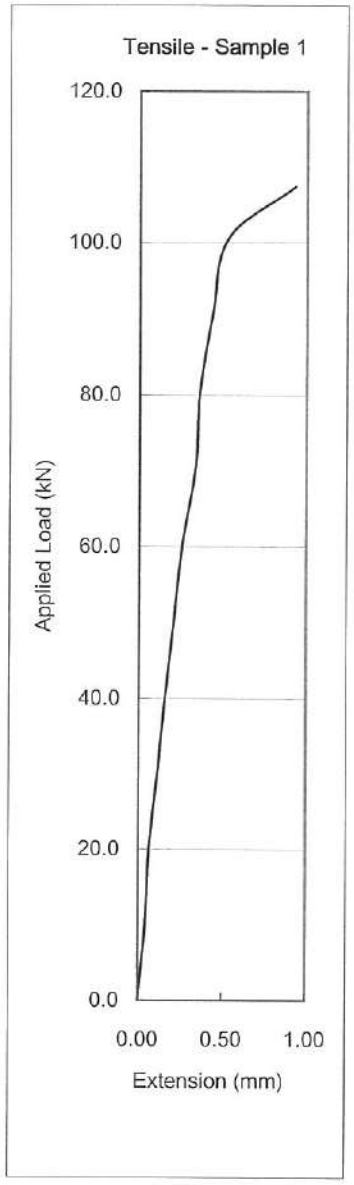
Checked By :

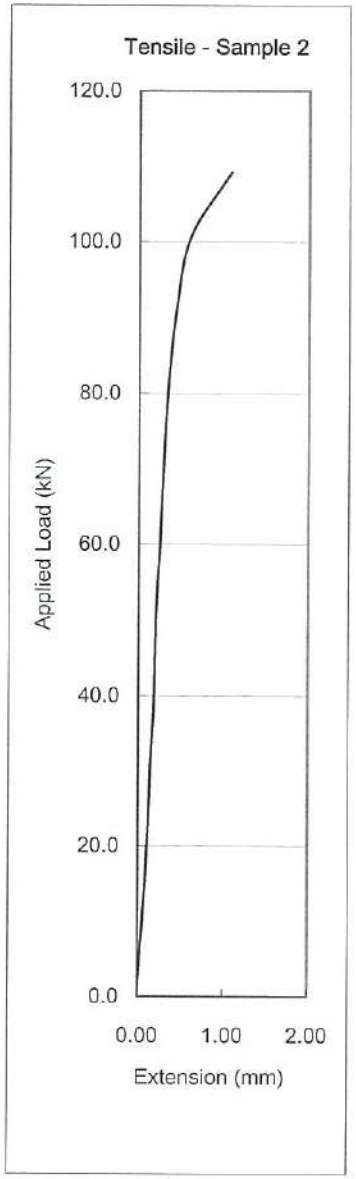
Approved Signatory :

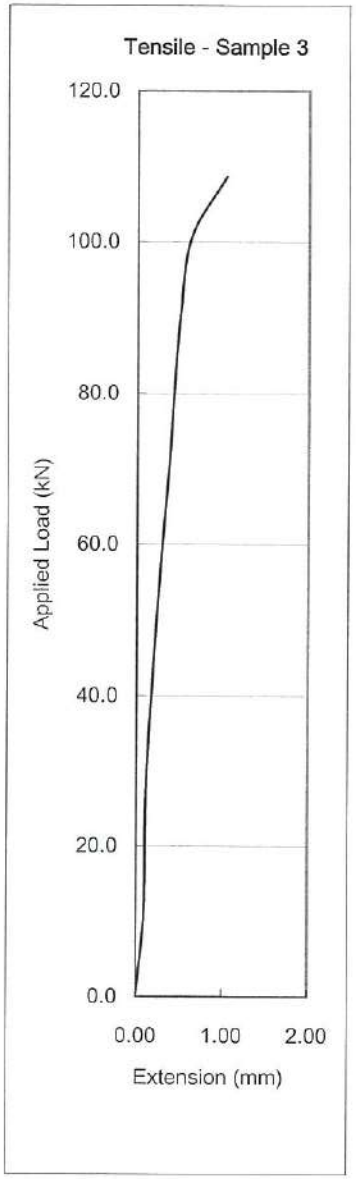
LAU SUN HUNG, IVAN

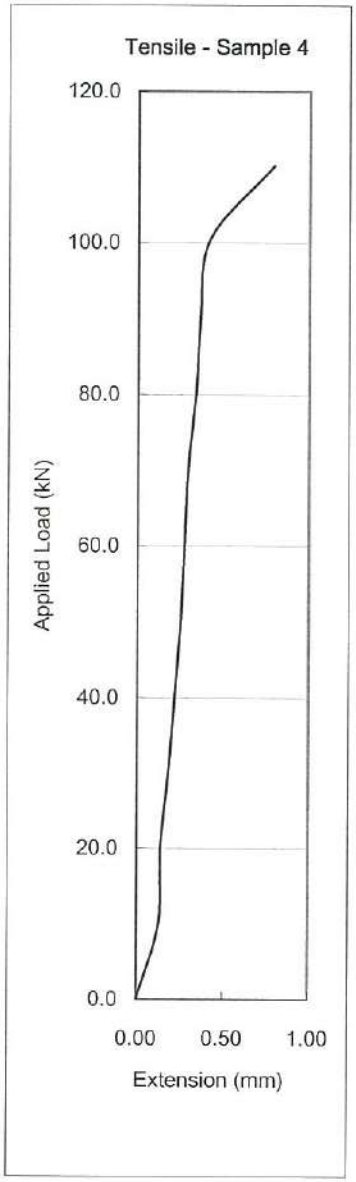
Post : Senior Testing Manager

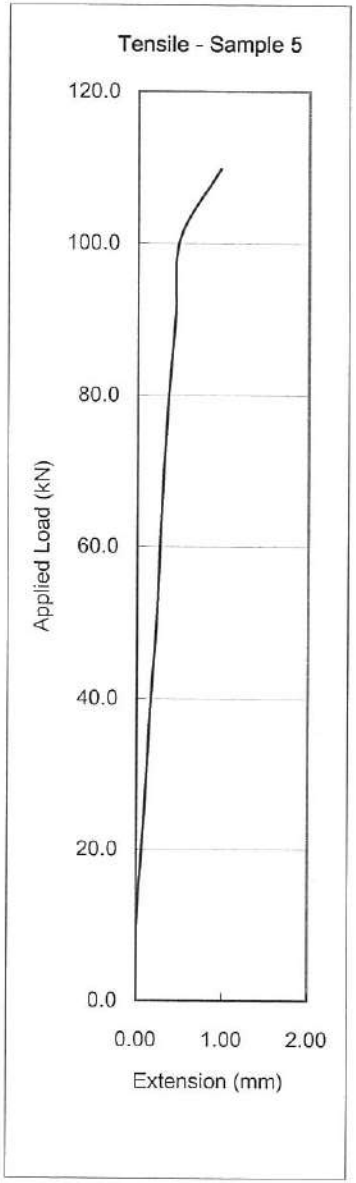
Hilti RE100 + Y16 Grade 500B











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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123
FAX NO.: 852-2765 8034

Issued date: 12 Oct 2017

Report No : GCD171001402

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y20 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 12-Oct-2017 Page 1 of 14 Report No. GCD171001444

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y20 Grade 500B

(d) Mass concrete size : 1200 mm x 1200mm x 400mm

(e) Concrete grade : C25

(f) Drill hole diameter : 25 mm

(g) Drill hole depth : 200 mm

(h) Rebar embedment depth : 200 mm

(i) Test standard : BS 5080 : Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 400 mm

(k) Minimum distance between the center of fixing and free edge : 600 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y20 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	168.3	170.2	166.4	170.5	168.1
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	168.7				
Standard deviation (kN)	1.68				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001444 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y20 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y20 Grade 500B
2		15.7	0.5	15.7	0.00	0.00	0.00	P	
3		31.4	0.5	31.4	0.00	0.00	0.00	P	
4		47.1	0.5	47.1	0.00	0.00	0.00	P	
5		62.8	0.5	62.8	0.09	0.00	0.05	P	
6		78.5	0.5	78.5	0.14	0.00	0.07	P	
7		94.2	0.5	94.2	0.19	0.00	0.10	P	
8		110.0	0.5	110.0	0.21	0.00	0.11	P	
9		125.7	0.5	125.7	0.24	0.08	0.16	P	
10		141.4	0.5	141.4	0.26	0.15	0.21	P	
11		157.1	0.5	157.1	0.36	0.32	0.34	P	
12		172.8	-	168.3	0.50	0.57	0.54	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	400
F)	Minimum distance between center of fixing and free edge (mm)	600
G)	Drill hole diameter /size (mm)	25
H)	Drill hole depth (mm)	200
I)	Anchor/rebar embedment depth (mm)	200

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001444 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y20 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y20 Grade 500B
2		15.7	0.5	15.7	0.00	0.00	0.00	P	
3		31.4	0.5	31.4	0.00	0.00	0.00	P	
4		47.1	0.5	47.1	0.00	0.00	0.00	P	
5		62.8	0.5	62.8	0.01	0.00	0.01	P	
6		78.5	0.5	78.5	0.02	0.00	0.01	P	
7		94.2	0.5	94.2	0.13	0.06	0.10	P	
8		110.0	0.5	110.0	0.16	0.15	0.16	P	
9		125.7	0.5	125.7	0.23	0.24	0.24	P	
10		141.4	0.5	141.4	0.30	0.33	0.32	P	
11		157.1	0.5	157.1	0.37	0.43	0.40	P	
12		172.8	-	170.2	0.58	0.66	0.62	F4	
13									

Notes :
A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 400
F) Minimum distance between center of fixing and free edge (mm) 600
G) Drill hole diameter /size (mm) 25
H) Drill hole depth (mm) 200
I) Anchor/rebar embedment depth (mm) 200

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001444 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y20 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y20 Grade 500B
2		15.7	0.5	15.7	0.00	0.00	0.00	P	
3		31.4	0.5	31.4	0.00	0.00	0.00	P	
4		47.1	0.5	47.1	0.00	0.00	0.00	P	
5		62.8	0.5	62.8	0.09	0.00	0.05	P	
6		78.5	0.5	78.5	0.15	0.05	0.10	P	
7		94.2	0.5	94.2	0.19	0.18	0.19	P	
8		110.0	0.5	110.0	0.23	0.22	0.23	P	
9		125.7	0.5	125.7	0.26	0.25	0.26	P	
10		141.4	0.5	141.4	0.31	0.30	0.31	P	
11		157.1	0.5	157.1	0.35	0.34	0.35	P	
12		172.8	-	166.4	0.71	0.65	0.68	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 400
F) Minimum distance between center of fixing and free edge (mm) 600
G) Drill hole diameter /size (mm) 25
H) Drill hole depth (mm) 200
I) Anchor/rebar embedment depth (mm) 200

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001444 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y20 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y20 Grade 500B
2		15.7	0.5	15.7	0.00	0.00	0.00	P	
3		31.4	0.5	31.4	0.00	0.00	0.00	P	
4		47.1	0.5	47.1	0.00	0.00	0.00	P	
5		62.8	0.5	62.8	0.00	0.05	0.03	P	
6		78.5	0.5	78.5	0.00	0.10	0.05	P	
7		94.2	0.5	94.2	0.06	0.13	0.10	P	
8		110.0	0.5	110.0	0.16	0.15	0.16	P	
9		125.7	0.5	125.7	0.21	0.20	0.21	P	
10		141.4	0.5	141.4	0.25	0.24	0.25	P	
11		157.1	0.5	157.1	0.31	0.30	0.31	P	
12		172.8	-	170.5	0.64	0.60	0.62	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 9 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	400
F)	Minimum distance between center of fixing and free edge (mm)	600
G)	Drill hole diameter /size (mm)	25
H)	Drill hole depth (mm)	200
I)	Anchor/rebar embedment depth (mm)	200

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001444 Date of Issue : 12-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y20 Grade 500B Date Tested : 11-Oct-17
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y20 Grade 500B
2		15.7	0.5	15.7	0.00	0.00	0.00	P	
3		31.4	0.5	31.4	0.00	0.00	0.00	P	
4		47.1	0.5	47.1	0.00	0.00	0.00	P	
5		62.8	0.5	62.8	0.00	0.08	0.04	P	
6		78.5	0.5	78.5	0.00	0.18	0.09	P	
7		94.2	0.5	94.2	0.00	0.23	0.12	P	
8		110.0	0.5	110.0	0.00	0.29	0.15	P	
9		125.7	0.5	125.7	0.08	0.32	0.20	P	
10		141.4	0.5	141.4	0.15	0.35	0.25	P	
11		157.1	0.5	157.1	0.32	0.41	0.37	P	
12		172.8	-	168.1	0.57	0.73	0.65	F4	
13									

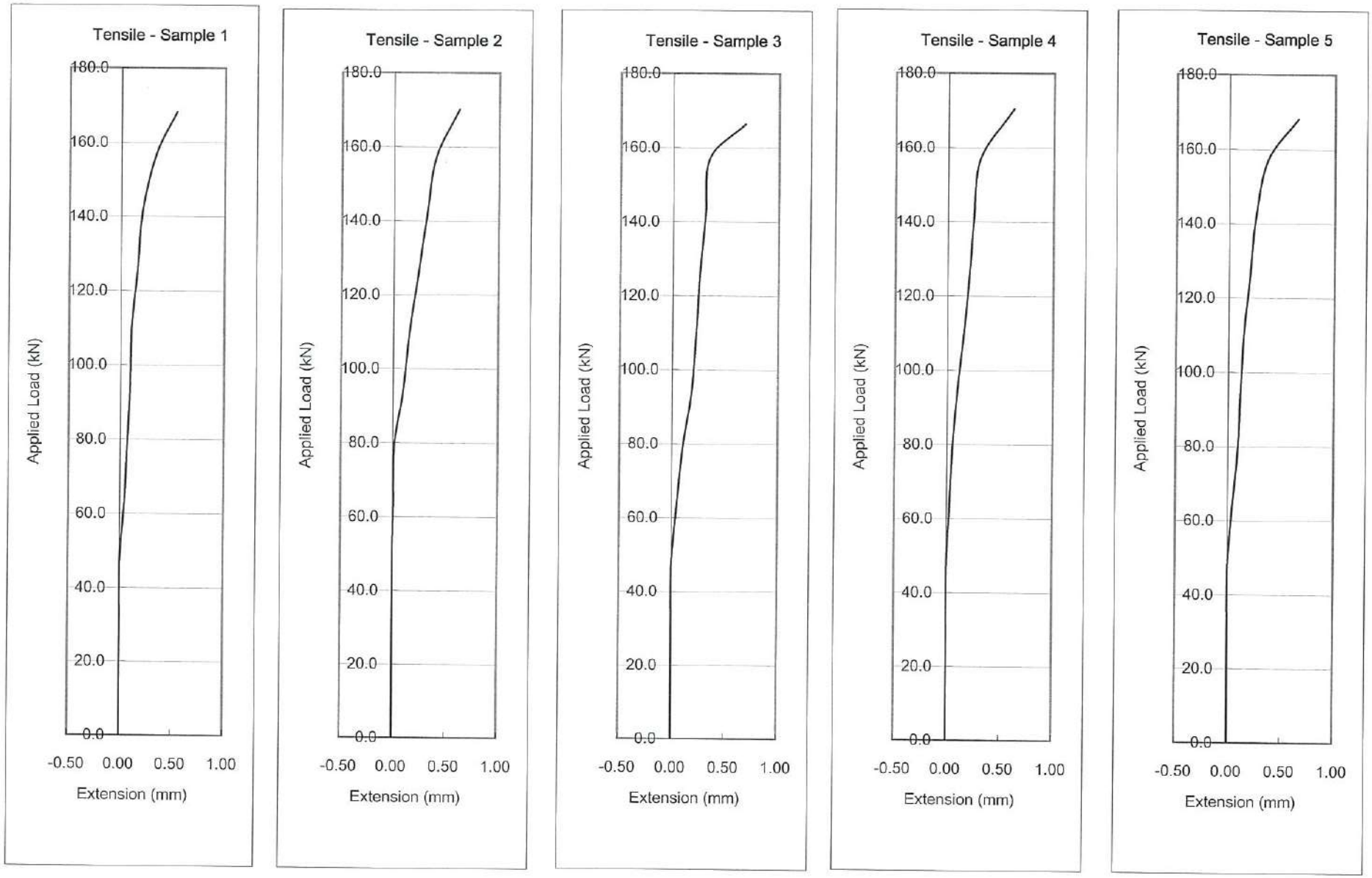
Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 9 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 400
F) Minimum distance between center of fixing and free edge (mm) 600
G) Drill hole diameter /size (mm) 25
H) Drill hole depth (mm) 200
I) Anchor/rebar embedment depth (mm) 200

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory : LAU SUN HUNG, IVAN
Post : Senior Testing Manager

Hilti RE100 + Y20 Grade 500B



GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

Issued date: 12 Oct 2017

Report No : GCD171001444

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y25 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 21-Oct-2017 Page 1 of 14 Report No. GCD171001410

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y25 Grade 500B

(d) Mass concrete size : 1500 mm x 1500mm x 500mm

(e) Concrete grade : C25

(f) Drill hole diameter : 30mm

(g) Drill hole depth : 250mm

(h) Rebar embedment depth : 250 mm

(i) Test standard : BS 5080 : Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 500 mm

(k) Minimum distance between the center of fixing and free edge : 750 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y25 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	258.8	261.2	264.5	262.8	265.2
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	262.5				
Standard deviation (kN)	2.59				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001410 Date of Issue : 21-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y25 Grade 500B Date Tested : 18-10-2017
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y25 Grade 500B
2		24.5	0.5	24.5	0.00	0.00	0.00	P	
3		49.1	0.5	49.1	0.05	0.00	0.03	P	
4		73.6	0.5	73.6	0.12	0.05	0.09	P	
5		98.2	0.5	98.2	0.18	0.11	0.15	P	
6		122.7	0.5	122.7	0.23	0.19	0.21	P	
7		147.2	0.5	147.2	0.29	0.26	0.28	P	
8		171.8	0.5	171.8	0.35	0.34	0.35	P	
9		196.3	0.5	196.3	0.40	0.43	0.42	P	
10		220.9	0.5	220.9	0.48	0.49	0.49	P	
11		245.4	0.5	245.4	0.58	0.63	0.61	P	
12		269.9	-	258.8	0.79	0.88	0.84	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 5 days
B) Anchor /Rebar Installed Date : 16 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 500
F) Minimum distance between center of fixing and free edge (mm) 750
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 250
I) Anchor/rebar embedment depth (mm) 250

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001410 Date of Issue : 21-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y25 Grade 500B Date Tested : 18-10-2017
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y25 Grade 500B
2		24.5	0.5	24.5	0.02	0.00	0.01	P	
3		49.1	0.5	49.1	0.08	0.00	0.04	P	
4		73.6	0.5	73.6	0.15	0.01	0.08	P	
5		98.2	0.5	98.2	0.23	0.09	0.16	P	
6		122.7	0.5	122.7	0.29	0.15	0.22	P	
7		147.2	0.5	147.2	0.35	0.23	0.29	P	
8		171.8	0.5	171.8	0.41	0.31	0.36	P	
9		196.3	0.5	196.3	0.46	0.37	0.42	P	
10		220.9	0.5	220.9	0.52	0.45	0.49	P	
11		245.4	0.5	245.4	0.56	0.58	0.57	P	
12		269.9	-	261.2	0.78	0.81	0.80	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 5 days

B) Anchor /Rebar Installed Date : 16 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	500
F)	Minimum distance between center of fixing and free edge (mm)	750
G)	Drill hole diameter /size (mm)	30
H)	Drill hole depth (mm)	250
I)	Anchor/rebar embedment depth (mm)	250

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001410 Date of Issue : 21-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y25 Grade 500B Date Tested : 18-10-2017
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y25 Grade 500B
2		24.5	0.5	24.5	0.00	0.00	0.00	P	
3		49.1	0.5	49.1	0.01	0.00	0.01	P	
4		73.6	0.5	73.6	0.08	0.05	0.07	P	
5		98.2	0.5	98.2	0.15	0.10	0.13	P	
6		122.7	0.5	122.7	0.22	0.15	0.19	P	
7		147.2	0.5	147.2	0.29	0.19	0.24	P	
8		171.8	0.5	171.8	0.36	0.24	0.30	P	
9		196.3	0.5	196.3	0.44	0.29	0.37	P	
10		220.9	0.5	220.9	0.51	0.33	0.42	P	
11		245.4	0.5	245.4	0.62	0.39	0.51	P	
12		269.9	-	264.5	0.91	0.56	0.74	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 5 days

B) Anchor /Rebar Installed Date : 16 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	500
F)	Minimum distance between center of fixing and free edge (mm)	750
G)	Drill hole diameter /size (mm)	30
H)	Drill hole depth (mm)	250
I)	Anchor/rebar embedment depth (mm)	250

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001410 Date of Issue : 21-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y25 Grade 500B Date Tested : 18-10-2017
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y25 Grade 500B
2		24.5	0.5	24.5	0.01	0.00	0.01	P	
3		49.1	0.5	49.1	0.07	0.00	0.04	P	
4		73.6	0.5	73.6	0.13	0.00	0.07	P	
5		98.2	0.5	98.2	0.19	0.01	0.10	P	
6		122.7	0.5	122.7	0.25	0.03	0.14	P	
7		147.2	0.5	147.2	0.35	0.11	0.23	P	
8		171.8	0.5	171.8	0.45	0.21	0.33	P	
9		196.3	0.5	196.3	0.54	0.29	0.42	P	
10		220.9	0.5	220.9	0.63	0.41	0.52	P	
11		245.4	0.5	245.4	0.72	0.63	0.68	P	
12		269.9	-	262.8	0.98	0.85	0.92	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 5 days
B) Anchor /Rebar Installed Date : 16 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 500
F) Minimum distance between center of fixing and free edge (mm) 750
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 250
I) Anchor/rebar embedment depth (mm) 250

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001410 Date of Issue : 21-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y25 Grade 500B Date Tested : 18-10-2017
GCE Reg. No. : GCE171990 Test Unit No. : MI17182

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y25 Grade 500B
2		24.5	0.5	24.5	0.00	0.01	0.01	P	
3		49.1	0.5	49.1	0.00	0.07	0.04	P	
4		73.6	0.5	73.6	0.04	0.12	0.08	P	
5		98.2	0.5	98.2	0.13	0.15	0.14	P	
6		122.7	0.5	122.7	0.21	0.16	0.19	P	
7		147.2	0.5	147.2	0.29	0.20	0.25	P	
8		171.8	0.5	171.8	0.39	0.25	0.32	P	
9		196.3	0.5	196.3	0.48	0.31	0.40	P	
10		220.9	0.5	220.9	0.60	0.38	0.49	P	
11		245.4	0.5	245.4	0.77	0.44	0.61	P	
12		269.9	-	265.2	1.02	0.74	0.88	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 5 days
B) Anchor /Rebar Installed Date : 16 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

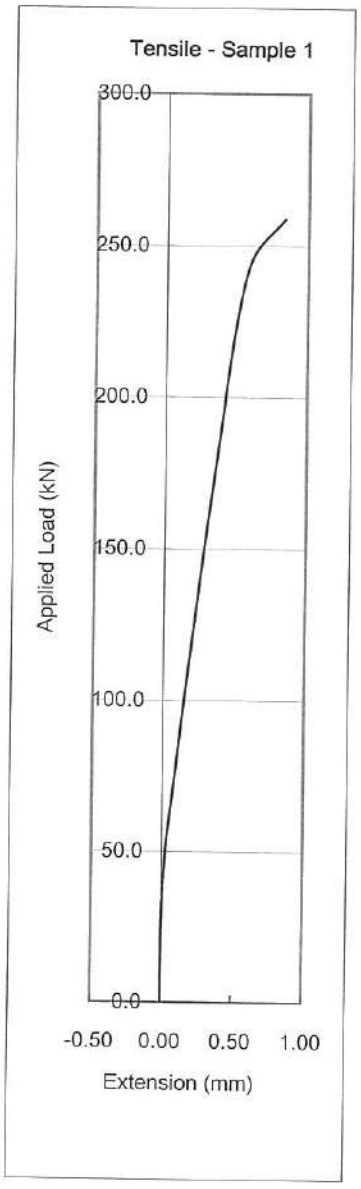
E)	Minimum distance between reaction frame and center of fixing (mm)	500
F)	Minimum distance between center of fixing and free edge (mm)	750
G)	Drill hole diameter /size (mm)	30
H)	Drill hole depth (mm)	250
I)	Anchor/rebar embedment depth (mm)	250

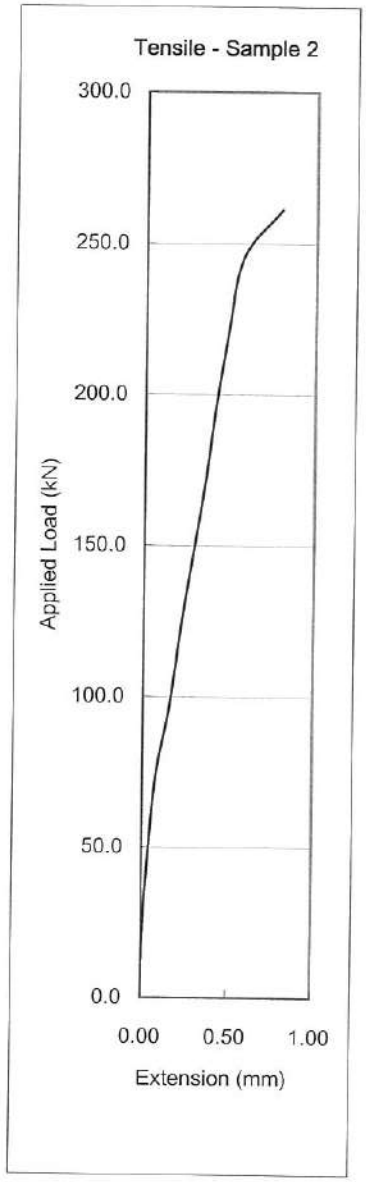
* Information provided by customer

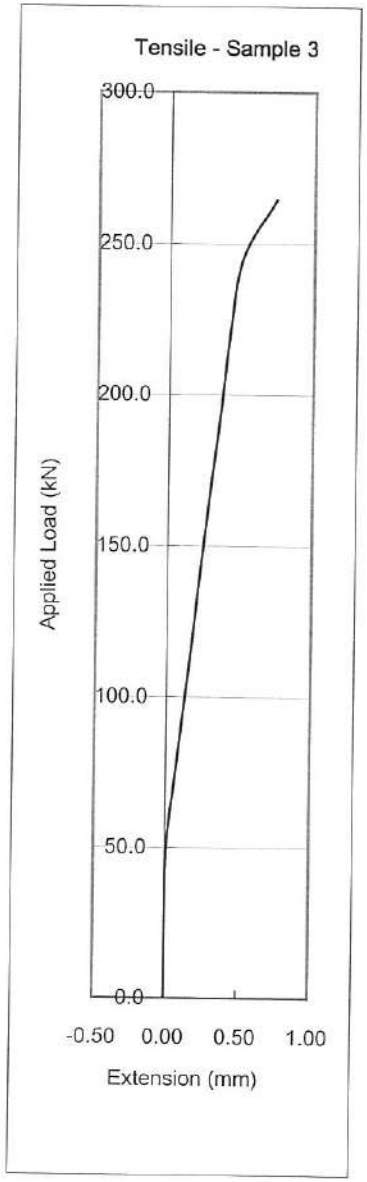
Tested By : K.K. Wong
Checked By :

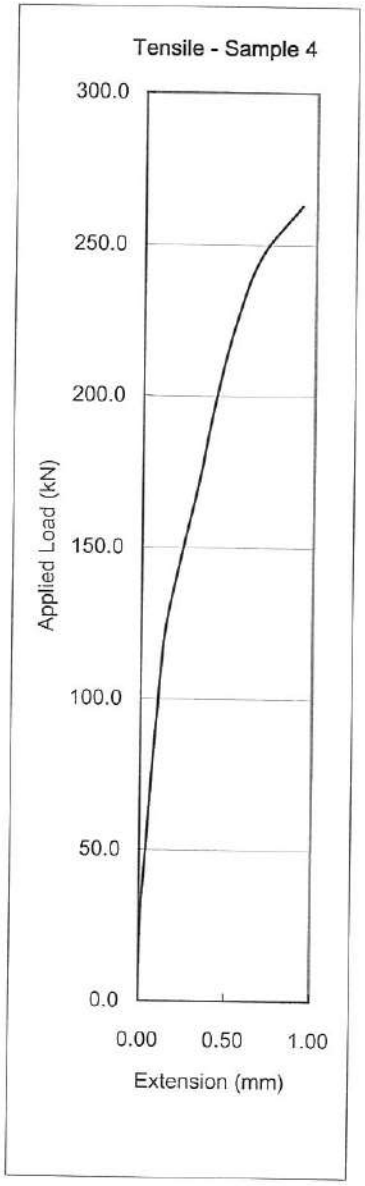
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

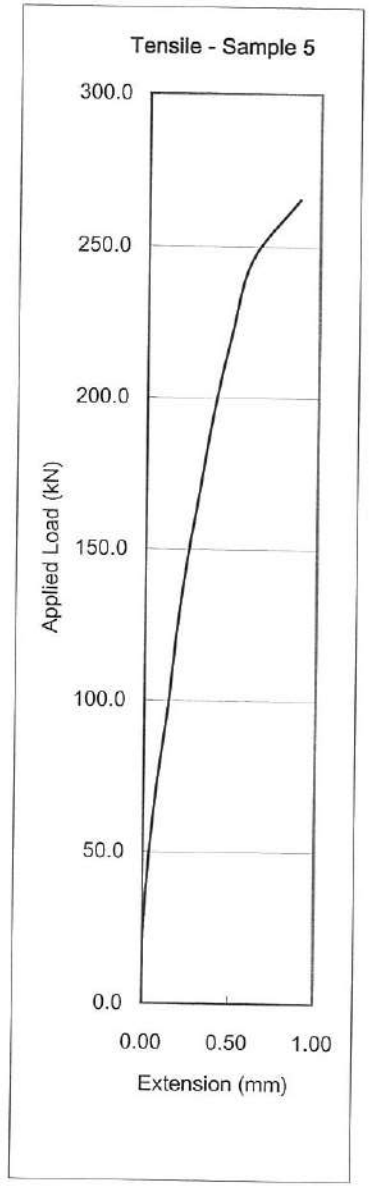
Hilti RE100 + Y25 Grade 500B











GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

Issued date: 21 Oct 2017

Report No : GCD171001410

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y32 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

Issued Date: 27-Oct-2017 Page 1 of 14 Report No. GCD171001428

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y32 Grade 500B

(d) Mass concrete size : 1920 mm x 1920mm x 640mm

(e) Concrete grade : C25

(f) Drill hole diameter : 40mm

(g) Drill hole depth : 320mm

(h) Rebar embedment depth : 320 mm

(i) Test standard : BS 5080 : Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 640 mm

(k) Minimum distance between the center of fixing and free edge : 960 mm

2.0 Test results

Anchor Type	Hilti RE100 + Y32 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	419.8	419.6	421.2	418.3	419.5
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	419.7				
Standard deviation (kN)	1.03				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001428 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y32 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y32 Grade 500B
2		40.2	0.5	40.2	0.00	0.00	0.00	P	
3		80.4	0.5	80.4	0.00	0.00	0.00	P	
4		120.7	0.5	120.7	0.00	0.00	0.00	P	
5		160.9	0.5	160.9	0.00	0.00	0.00	P	
6		201.1	0.5	201.1	0.01	0.00	0.01	P	
7		241.3	0.5	241.3	0.05	0.00	0.03	P	
8		281.5	0.5	281.5	0.18	0.00	0.09	P	
9		321.8	0.5	321.8	0.23	0.03	0.13	P	
10		362.0	0.5	362.0	0.26	0.05	0.16	P	
11		402.2	0.5	402.2	0.38	0.07	0.23	P	
12		442.4	-	419.8	0.39	0.08	0.24	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 640
F) Minimum distance between center of fixing and free edge (mm) 960
G) Drill hole diameter /size (mm) 40
H) Drill hole depth (mm) 320
I) Anchor/rebar embedment depth (mm) 320

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001428 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y32 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y32 Grade 500B
2		40.2	0.5	40.2	0.00	0.00	0.00	P	
3		80.4	0.5	80.4	0.00	0.00	0.00	P	
4		120.7	0.5	120.7	0.00	0.00	0.00	P	
5		160.9	0.5	160.9	0.00	0.05	0.03	P	
6		201.1	0.5	201.1	0.00	0.11	0.06	P	
7		241.3	0.5	241.3	0.00	0.12	0.06	P	
8		281.5	0.5	281.5	0.00	0.12	0.06	P	
9		321.8	0.5	321.8	0.00	0.12	0.06	P	
10		362.0	0.5	362.0	0.04	0.19	0.12	P	
11		402.2	0.5	402.2	0.15	0.31	0.23	P	
12		442.4	-	419.6	0.15	0.32	0.24	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 640
F) Minimum distance between center of fixing and free edge (mm) 960
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 320
I) Anchor/rebar embedment depth (mm) 320

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001428 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y32 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y32 Grade 500B
2		40.2	0.5	40.2	0.00	0.00	0.00	P	
3		80.4	0.5	80.4	0.00	0.00	0.00	P	
4		120.7	0.5	120.7	0.00	0.00	0.00	P	
5		160.9	0.5	160.9	0.00	0.00	0.00	P	
6		201.1	0.5	201.1	0.08	0.00	0.04	P	
7		241.3	0.5	241.3	0.08	0.00	0.04	P	
8		281.5	0.5	281.5	0.22	-0.08	0.07	P	
9		321.8	0.5	321.8	0.18	0.00	0.09	P	
10		362.0	0.5	362.0	0.26	-0.06	0.10	P	
11		402.2	0.5	402.2	0.40	-0.05	0.18	P	
12		442.4	-	421.2	0.4	-0.03	0.19	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	640
F)	Minimum distance between center of fixing and free edge (mm)	960
G)	Drill hole diameter /size (mm)	30
H)	Drill hole depth (mm)	320
I)	Anchor/rebar embedment depth (mm)	320

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
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REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001428 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd

Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon

Project : -

Test Location : Workshop at Yick Yuen Tsuen

Anchor Type : Hilti RE 100 + Y32 Grade 500B Date Tested : 25-10-2017

GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y32 Grade 500B
2		40.2	0.5	40.2	0.00	0.00	0.00	P	
3		80.4	0.5	80.4	0.00	0.00	0.00	P	
4		120.7	0.5	120.7	0.00	0.00	0.00	P	
5		160.9	0.5	160.9	0.00	0.00	0.00	P	
6		201.1	0.5	201.1	0.08	-0.01	0.04	P	
7		241.3	0.5	241.3	0.13	0.02	0.08	P	
8		281.5	0.5	281.5	0.19	0.12	0.16	P	
9		321.8	0.5	321.8	0.30	0.24	0.27	P	
10		362.0	0.5	362.0	0.40	0.41	0.41	P	
11		402.2	0.5	402.2	0.53	0.59	0.56	P	
12		442.4	-	418.3	0.61	0.68	0.65	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 20 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E) Minimum distance between reaction frame and center of fixing (mm) 640

F) Minimum distance between center of fixing and free edge (mm) 960

G) Drill hole diameter /size (mm) 30

H) Drill hole depth (mm) 320

I) Anchor/rebar embedment depth (mm) 320

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001428 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y32 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y32 Grade 500B
2		40.2	0.5	40.2	0.00	0.00	0.00	P	
3		80.4	0.5	80.4	0.00	0.00	0.00	P	
4		120.7	0.5	120.7	0.00	0.00	0.00	P	
5		160.9	0.5	160.9	0.00	0.00	0.00	P	
6		201.1	0.5	201.1	0.15	0.00	0.08	P	
7		241.3	0.5	241.3	0.20	0.00	0.10	P	
8		281.5	0.5	281.5	0.29	0.00	0.15	P	
9		321.8	0.5	321.8	0.41	0.00	0.21	P	
10		362.0	0.5	362.0	0.55	0.11	0.33	P	
11		402.2	0.5	402.2	0.81	0.28	0.55	P	
12		442.4	-	419.5	0.83	0.32	0.58	F4	
13									

Notes :
A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 640
F) Minimum distance between center of fixing and free edge (mm) 960
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 320
I) Anchor/rebar embedment depth (mm) 320

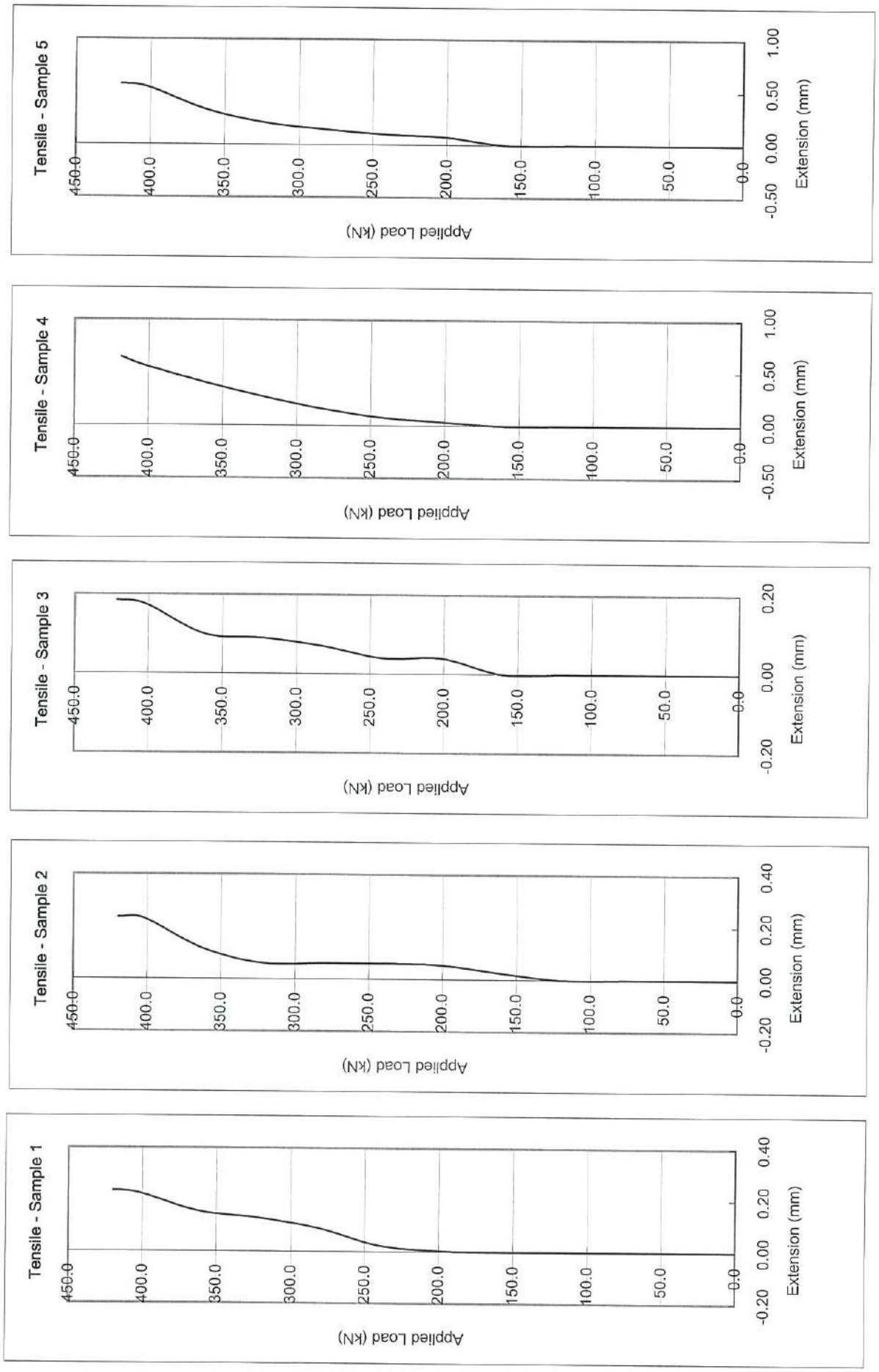
* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

Hilti RE100 + Y32 Grade 500B



Report No : GCD171001428

Page 14 of 14

Issued date: 27 Oct 2017

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6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

香港土力混凝土工程有限公司
九龍紅磡高山道六號地下
電話：852-2365 9123

TEST REPORT

HILTI (Hong Kong) Ltd

701-704, 7/F, Tower A, Manulife Financial Center,
223 Wai Yip Street, Kwun Tong, Kowloon

Tensile Proof Load Test on Anchor

Anchor Type : Hilti RE100 + Y40 Grade 500B

(Sample 1 to Sample 5)

Ref. Standard : BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3

Checked by: _____
Technical Officer

Approved Signatory: _____
LAU SUN HUNG, IVAN
Senior Testing Manager

1.0 Information

(a) Manufacturer : Hilti (Hong Kong) Ltd

(b) Chemical grout : Hilti RE100

(c) Rebar size and type : Y40 Grade 500B

(d) Mass concrete size : 2400 mm x 2400mm x 800mm

(e) Concrete grade : C25

(f) Drill hole diameter : 55mm

(g) Drill hole depth : 400mm

(h) Rebar embedment depth : 400mm

(i) Test standard : BS 5080 : Part 1 : 1993 cl 6, 7.1.1 & 7.1.3

(j) Minimum distance between reaction frame and center of the fixing : 800mm

(k) Minimum distance between the center of fixing and free edge : 1200mm

2.0 Test results

Anchor Type	Hilti RE100 + Y40 Grade 500B				
Sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Failure load (kN)	639.6	640.1	643.1	637.7	640.5
Failure mode	F4	F4	F4	F4	F4
Average failure load (kN)	640.2				
Standard deviation (kN)	1.94				

Failure mode

P = No sign of failure in anchor/bar and/or structural member

F1 = Breaking of anchor /bar

F2 = Failure in structural member in a shear cone

F3 = Pull out of anchor/bar

F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar

F5 = Failure in structural member with crack radiates outward from anchor/bar

F6 = Other failure mode(s) :

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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001440 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y40 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 1

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y40 Grade 500B
2		62.8	0.5	62.8	0.00	0.00	0.00	P	
3		125.6	0.5	125.6	0.00	0.00	0.00	P	
4		188.5	0.5	188.5	0.00	0.00	0.00	P	
5		251.3	0.5	251.3	0.00	0.00	0.00	P	
6		314.1	0.5	314.1	0.00	0.00	0.00	P	
7		376.9	0.5	376.9	0.00	0.08	0.04	P	
8		439.7	0.5	439.7	0.00	0.20	0.10	P	
9		502.5	0.5	502.5	0.00	0.40	0.20	P	
10		565.4	0.5	565.4	0.21	0.63	0.42	P	
11		628.2	0.5	628.2	0.32	0.73	0.53	P	
12		691.0	-	639.6	0.39	0.82	0.61	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 800
F) Minimum distance between center of fixing and free edge (mm) 1200
G) Drill hole diameter /size (mm) 55
H) Drill hole depth (mm) 400
I) Anchor/rebar embedment depth (mm) 400

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001440 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y40 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 2

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y40 Grade 500B
2		62.8	0.5	62.8	0.00	0.00	0.00	P	
3		125.6	0.5	125.6	0.00	0.00	0.00	P	
4		188.5	0.5	188.5	0.00	0.00	0.00	P	
5		251.3	0.5	251.3	0.00	0.00	0.00	P	
6		314.1	0.5	314.1	0.02	0.00	0.01	P	
7		376.9	0.5	376.9	0.09	0.00	0.05	P	
8		439.7	0.5	439.7	0.16	0.13	0.15	P	
9		502.5	0.5	502.5	0.25	0.20	0.23	P	
10		565.4	0.5	565.4	0.37	0.32	0.35	P	
11		628.2	0.5	628.2	0.48	0.42	0.45	P	
12		691.0	-	640.1	0.54	0.53	0.54	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 800
F) Minimum distance between center of fixing and free edge (mm) 1200
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 400
I) Anchor/rebar embedment depth (mm) 400

* Information provided by customer

Tested By : K.K. Wong
Checked By :

Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001440 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd

Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon

Project : -

Test Location : Workshop at Yick Yuen Tsuen

Anchor Type : Hilti RE 100 + Y40 Grade 500B Date Tested : 25-10-2017

GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 3

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y40 Grade 500B
2		62.8	0.5	62.8	0.00	0.00	0.00	P	
3		125.6	0.5	125.6	0.00	0.00	0.00	P	
4		188.5	0.5	188.5	0.00	0.00	0.00	P	
5		251.3	0.5	251.3	0.00	0.00	0.00	P	
6		314.1	0.5	314.1	0.05	0.00	0.03	P	
7		376.9	0.5	376.9	0.18	0.00	0.09	P	
8		439.7	0.5	439.7	0.25	0.06	0.16	P	
9		502.5	0.5	502.5	0.43	0.09	0.26	P	
10		565.4	0.5	565.4	0.56	0.19	0.38	P	
11		628.2	0.5	628.2	0.70	0.28	0.49	P	
12		691.0	-	643.1	0.73	0.52	0.63	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days

B) Anchor /Rebar Installed Date : 20 Oct 2017

C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block

D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar F5 = Failure in structural member with crack radiates outward from anchor/bar F6 = Other failure mode(s) :

E)	Minimum distance between reaction frame and center of fixing (mm)	800
F)	Minimum distance between center of fixing and free edge (mm)	1200
G)	Drill hole diameter /size (mm)	30
H)	Drill hole depth (mm)	400
I)	Anchor/rebar embedment depth (mm)	400

* Information provided by customer

Tested By : K.K. Wong

Checked By :

Approved Signatory :

LAU SUN HUNG, IVAN

Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001440 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y40 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 4

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Deformation Gauge 1 (mm)	Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y40 Grade 500B
2		62.8	0.5	62.8	0.00	0.00	0.00	P	
3		125.6	0.5	125.6	0.00	0.00	0.00	P	
4		188.5	0.5	188.5	0.00	0.00	0.00	P	
5		251.3	0.5	251.3	0.00	0.00	0.00	P	
6		314.1	0.5	314.1	0.00	0.00	0.00	P	
7		376.9	0.5	376.9	0.00	0.00	0.00	P	
8		439.7	0.5	439.7	0.06	0.05	0.06	P	
9		502.5	0.5	502.5	0.25	0.13	0.19	P	
10		565.4	0.5	565.4	0.34	0.30	0.32	P	
11		628.2	0.5	628.2	0.51	0.50	0.51	P	
12		691.0	-	637.7	0.62	0.61	0.62	F4	
13									

Notes :

A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 800
F) Minimum distance between center of fixing and free edge (mm) 1200
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 400
I) Anchor/rebar embedment depth (mm) 400

* Information provided by customer

Tested By : K.K. Wong
Checked By :
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

REPORT ON IN-SITU TENSILE PROOF LOAD TEST ON ANCHOR

In accordance with BS 5080 : Part 1 : 1993 Cl. 6, 7.1.1 & 7.1.3 (Incremental Loads)

Report No. : GCD171001440 Date of Issue : 27-10-2017

Client : Hilti (Hong Kong) Ltd
Address : 701-704, 7/F, Tower A, Manulife Financial Center, 223, Wai Yip Street, Kwun Tong, Kowloon
Project : -
Test Location : Workshop at Yick Yuen Tsuen
Anchor Type : Hilti RE 100 + Y40 Grade 500B Date Tested : 25-10-2017
GCE Reg. No. : GCE172137 Test Unit No. : MI17203

Sample ID : Sample 5

Test Stage	Location Code	Specified Test Force (kN)	Force Holding Time (min)	Measured Results: Applied Forced (kN)	Measured Results: Deformation Gauge 1 (mm)	Measured Results: Deformation Gauge 2 (mm)	Relative Deformation (mm)	Failure Modes (see note D)	Type*
1	CB	0.0	-	0.0	0.00	0.00	0.00	P	Hilti RE 100 + Y40 Grade 500B
2		62.8	0.5	62.8	0.00	0.00	0.00	P	
3		125.6	0.5	125.6	0.00	0.00	0.00	P	
4		188.5	0.5	188.5	0.00	0.00	0.00	P	
5		251.3	0.5	251.3	0.00	0.00	0.00	P	
6		314.1	0.5	314.1	0.00	0.00	0.00	P	
7		376.9	0.5	376.9	0.00	0.00	0.00	P	
8		439.7	0.5	439.7	0.11	0.00	0.06	P	
9		502.5	0.5	502.5	0.22	0.00	0.11	P	
10		565.4	0.5	565.4	0.35	0.00	0.18	P	
11		628.2	0.5	628.2	0.55	0.26	0.41	P	
12		691.0	-	640.5	0.57	0.31	0.44	F4	
13									

Notes :

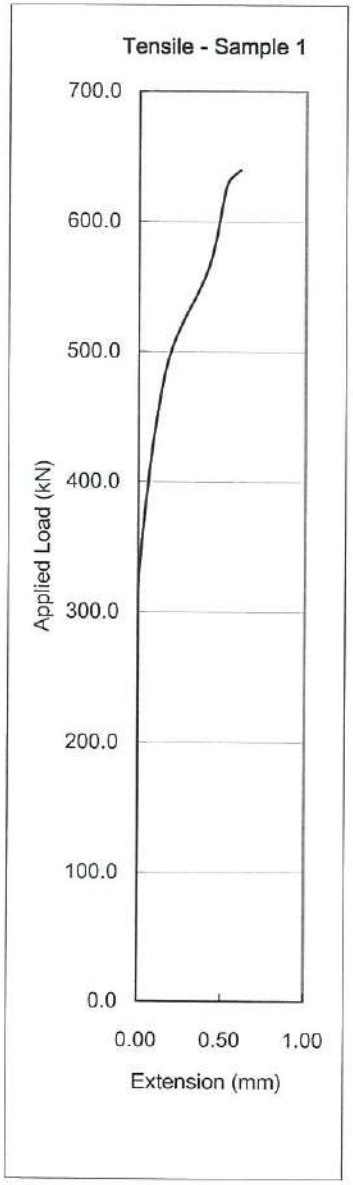
A) Structural member : 1. Grade : C25 2. Age at test : 8 days
B) Anchor /Rebar Installed Date : 20 Oct 2017
C) Location codes : CO = corridor ST = stairway CE = ceiling EW = external wall SR = store room
MR = meter room IW = Internal wall B = beam F = floor slab C = column CB = concrete block
D) Failure Modes : P = No sign of failure in anchor/bar and/or structural member F1 = Breaking of anchor /bar
F2 = Failure in structural member in a shear cone F3 = Pull out of anchor/bar
F4 = Sign of any separation, plastic deformation or deleterious effect on anchor/bar
F5 = Failure in structural member with crack radiates outward from anchor/bar
F6 = Other failure mode(s) :
E) Minimum distance between reaction frame and center of fixing (mm) 800
F) Minimum distance between center of fixing and free edge (mm) 1200
G) Drill hole diameter /size (mm) 30
H) Drill hole depth (mm) 400
I) Anchor/rebar embedment depth (mm) 400

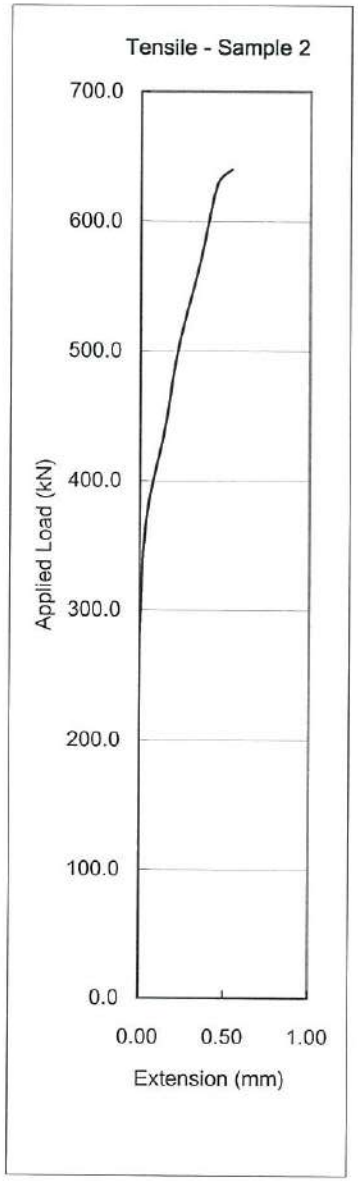
* Information provided by customer

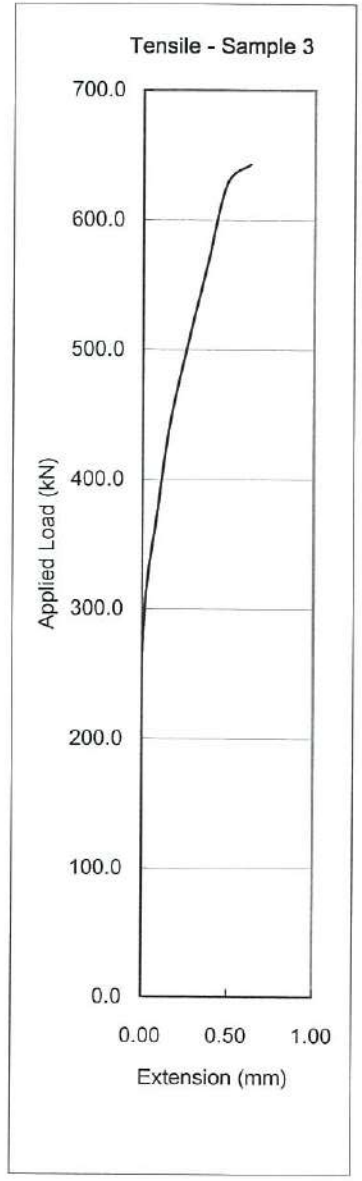
Tested By : K.K. Wong
Checked By :

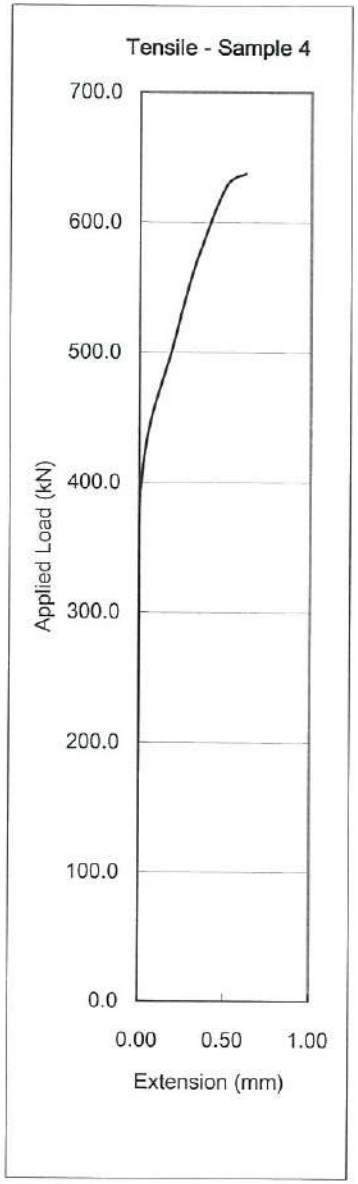
Approved Signatory :
LAU SUN HUNG, IVAN
Post : Senior Testing Manager

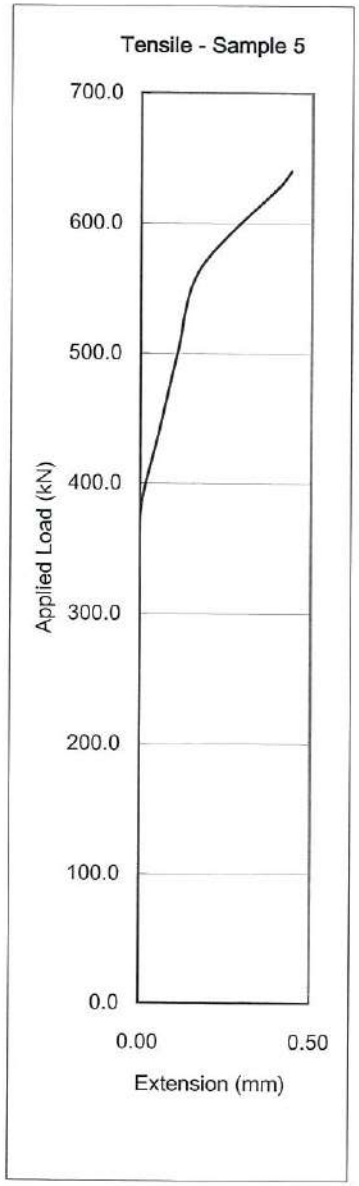
Hilti RE100 + Y40 Grade 500B











GEOTECHNICS & CONCRETE ENGINEERING (H.K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123
FAX NO.: 852-2765 8034

Issued date: 27 Oct 2017

Report No : GCD171001436

Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 118/AC/DY/23

Subject : Country of Origin- Hilti HIT-RE100 Epoxy Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HIT-RE100 Epoxy Anchor. .

Brand Name : Hilti

Model Name : Hilti HIT-RE100 Epoxy Anchor

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Germany

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,

Dennis Yeung
Head of Product Leadership Strategy, F&P

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong
Kowloon | Hong Kong
P +852-8228 8118 I **F** +852-2954 1751
www.hilti.com.hk

Date : 30 April 2019
Ref. : 038/AC/KC/19

To whom it may concern,

Subject: **RE: Hilti HIT-RE 100 – New product replacement of HIT-RE 500**

With the continuous upgrade in Hilti chemical anchor portfolio, we are pleased to introduce the new epoxy mortar **Hilti HIT-RE 100 injection mortar system** to replace the existing HIT-RE 500. **HIT-RE 100** will be officially phased in from **July 2019,** meanwhile HIT-RE 500 will be phased out until the stock lasts the end of 2019.

Phase out item		**Phase in item**	
Item no.	Description	Item no.	Description
426672	HIT-RE 500/500/1	2123386	HIT-RE 100/500/1
426675	HIT-RE 500/330/1		

We thank you for the confidence in Hilti quality and we do our utmost to provide our customers with quality products and service. Below are the highlighted product features of HIT-RE 100.

- **Same design bond stress** as RE 500 in rebar application, as per ETA-15/0883
- **Same curing and working time** as RE 500
- **Same installation procedures and accessories** as RE 500
- For design under static and quasi-static action according to EOTA TR 029 and CEN/TS 1992-4 "Design of fastenings for use in concrete"
- Detailed technical data can be referred to Hilti RE 100 technical data

Should you need further information or support, please feel free to contact our customer service hotline 8228 8118.

Yours sincerely,
For and on behalf of
Hilti (Hong Kong) LTD.

Kelvin Chan
Product Manager

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong
Kowloon | Hong Kong
P +852-8228 8118 I **F** +852-2954 1751
www.hilti.com.hk

HIT-RE 100

Safety information for 2-Component-products

Issue date: 11/05/2020 Revision date: 11/05/2020 Supersedes: 11/07/2018 Version: 3.0

SECTION 1: Kit identification

1.1 Product identifier

Product name HIT-RE 100

Product code BU Anchor

1.2 Details of the supplier of the Safety information for 2-Component-products

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

SECTION 2: General information

Storage Storage temperature : 5 - 25 °C

A SDS for each of these components is included. Please do not separate any component SDS from this cover page

This Kit should be handled in accordance with good laboratory practices and appropriate personal protective equipment should be used

SECTION 3:

Classification of the Product

Classification according to the United Nations GHS (Rev. 4, 2011)

Acute Tox. 4 (Oral)	H302
Skin Corr. 1B	H314
Eye Dam. 1	H318
Skin Sens. 1	H317
Muta. 2	H341
Repr. 1B	H360
Aquatic Acute 2	H401
Aquatic Chronic 2	H411

Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)

GHS05 GHS07 GHS08 GHS09

Signal word (GHS UN) Danger

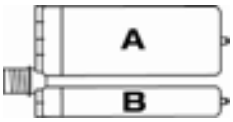
Hazardous ingredients Epoxy resin, Amines

Hazard statements (GHS UN)
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H341 - Suspected of causing genetic defects.
H360F - May damage fertility.

	H411 - Toxic to aquatic life with long lasting effects.
Precautionary statements (GHS UN)	P280 - Wear eye protection, protective clothing, protective gloves. P262 - Do not get in eyes, on skin, or on clothing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P302+P352 - IF ON SKIN: Wash with plenty of water.

Additional information

2-component-foilpack, contains:
Component A: Epoxy resin, Reactive diluent, inorganic filler
Component B: Amine hardener, inorganic filler



Name	General description	Quantity	Unit	Classification according to the United Nations GHS
HIT-RE 100, A		1	pcs	Skin Corr. 1C, H314 Skin Sens. 1, H317 Muta. 2, H341 Repr. 1B, H360 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
HIT-RE 100, B		1	pcs	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Acute 3, H402 Aquatic Chronic 3, H412

SECTION 4: General advice

General advice	For professional users only

SECTION 5: Safe handling advice

General measures	Spilled material may present a slipping hazard
Environmental precautions	Prevent entry to sewers and public waters Notify authorities if liquid enters sewers or public waters Avoid release to the environment Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste.
Storage conditions	Protect from sunlight. Store in a well-ventilated place.
Technical measures	Comply with applicable regulations
Precautions for safe handling	Wear personal protective equipment Avoid contact with skin and eyes Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work Avoid contact during pregnancy/while nursing
Methods for cleaning up	This material and its container must be disposed of in a safe way, and as per local legislation Mechanically recover the product On land, sweep or shovel into suitable containers Store away from other materials.
For containment	Collect spillage.
Incompatible materials	Sources of ignition Direct sunlight
Incompatible products	Strong bases Strong acids

SECTION 6: First aid measures

First-aid measures after eye contact	Get immediate medical advice/attention. Immediately rinse with water for a prolonged period while holding the eyelids wide open Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist
First-aid measures after ingestion	Do not induce vomiting Rinse mouth Immediately call a POISON CENTER/doctor.
First-aid measures after inhalation	Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	Wash with plenty of water/… Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get immediate medical advice/attention.
First-aid measures general	Never give anything by mouth to an unconscious person If you feel unwell, seek medical advice (show the label where possible)
Symptoms/effects	Causes severe skin burns and eye damage.
Symptoms/effects after eye contact	Causes serious eye damage.
Symptoms/effects after inhalation	May cause an allergic skin reaction.

SECTION 7: Fire fighting measures

Firefighting instructions	Use water spray or fog for cooling exposed containers Exercise caution when fighting any chemical fire Prevent fire fighting water from entering the environment
Protection during firefighting	Self-contained breathing apparatus Do not enter fire area without proper protective equipment, including respiratory protection
Hazardous decomposition products in case of fire	Thermal decomposition generates : Carbon dioxide Carbon monoxide

SECTION 8: Other information

No data available

HIT-RE 100, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Issue date: 11/05/2020 Revision date: 11/05/2020 Supersedes: 11/07/2018

Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	Mixture
Product name	HIT-RE 100, B
UN-No. (ADR)	3259
Product code	BU Anchor

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	For professional use only Composite mortar component for fasteners in the construction industry

1.3. Details of the supplier of the safety data sheet

Supplier
Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Department issuing data specification sheet
Hilti Entwicklungsgesellschaft mbH
Hiltistraße 6
86916 Kaufering - Deutschland
T +49 8191 906876
anchor.hse@hilti.com

1.4. Emergency telephone number

Emergency number	Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +852 27734 700

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS (Rev. 4, 2011)

Acute Tox. 4 (Oral)	H302
Skin Corr. 1B	H314
Skin Sens. 1	H317
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)

GHS05 GHS07

Signal word (GHS UN)	Danger
Hazardous ingredients	Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene; resorcinol; m-Xylylenediamine
Hazard statements (GHS UN)	H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements (GHS UN)	P262 - Do not get in eyes, on skin, or on clothing. P280 - Wear eye protection, protective clothing, protective gloves. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.
P333+P313 - If skin irritation or rash occurs: Get medical advice, medical attention.
P337+P313 - If eye irritation persists: Get medical advice, medical attention.
P302+P352 - IF ON SKIN: Wash with plenty of water.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to the United Nations GHS
m-Xylylenediamine	(CAS-No.) 1477-55-0	25 - 40	Acute toxicity (oral), Category 4, H302 Acute toxicity (inhalation:dust,mist) Category 4, H332 Skin corrosion/irritation, Category 1B, H314 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, category 1B, H317 Hazardous to the aquatic environment — Acute Hazard, Category 3, H402 Hazardous to the aquatic environment — Chronic Hazard, Category 3, H412
Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene	(CAS-No.) 710292-85-6	10 - 25	Skin sensitisation, category 1B, H317 Hazardous to the aquatic environment — Acute Hazard, Category 2, H401 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411
resorcinol	(CAS-No.) 108-46-3	0,1 - 1	Acute toxicity (oral), Category 4, H302 Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, category 1B, H317 Specific target organ toxicity — Single exposure, Category 1, H370 Specific target organ toxicity — Single exposure, Category 2, H371 Hazardous to the aquatic environment — Acute Hazard, Category 1, H400 Hazardous to the aquatic environment — Chronic Hazard, Category 3, H412

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact: Wash with plenty of water/…. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get immediate medical advice/attention.

First-aid measures after eye contact	Get immediate medical advice/attention. Immediately rinse with water for a prolonged period while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist.
First-aid measures after ingestion	Do not induce vomiting. Rinse mouth. Immediately call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	May cause an allergic skin reaction.
Symptoms/effects after eye contact	Causes serious eye damage.
Potential adverse human health effects and symptoms	No additional information available.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	Self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Spilled material may present a slipping hazard.

6.1.1.For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2.For emergency responders

Protective equipment	Use personal protective equipment as required. Equip cleanup crew with proper protection.
Emergency procedures	Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment. Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste.

6.3. Methods and material for containment and cleaning up

For containment	Collect spillage.
Methods for cleaning up	This material and its container must be disposed of in a safe way, and as per local legislation. Mechanically recover the product. On land, sweep or shovel into suitable containers. Store away from other materials.
Other information	Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	Wear personal protective equipment. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid contact during pregnancy/while nursing.
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	Comply with applicable regulations.
Storage conditions	Protect from sunlight. Store in a well-ventilated place.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	5 - 25 °C
Heat and ignition sources	Keep away from heat and direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional information	The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product.

8.2. Appropriate engineering controls

Appropriate engineering controls	Ensure good ventilation of the work station.
Environmental exposure controls	Avoid release to the environment.
Consumer exposure controls	Avoid contact during pregnancy/while nursing.
Other information	Do not eat, drink or smoke during use.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Hand protection: Wear protective gloves. The permeation time is not the maximum wearing time! Generally speaking, it must be reduced. Contact with either mixtures of substances or different substances may shorten the protective function's effective duration.

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	> 0,4		EN 374

Eye protection: Wear security glasses which protect from splashes

Type	Use	Characteristics	Standard
Safety glasses	Droplet	clear	EN 166, EN 170

Skin and body protection	Wear suitable protective clothing

8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Thixotropic paste.
Colour	Red-brown to black.
Odour	Amine-like.
Odour threshold	No data available
pH	11.5
Relative evaporation rate (butylacetate=1)	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Non flammable.
Vapour pressure	No data available
Relative vapour density at 20 °C	No data available
Relative density	No data available
Density	1.41 g/cm³ DIN EN ISO 1183-3
Solubility	insoluble in water.
Log Pow	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	43 - 57 Pa·s HN-0333
Explosive properties	No data available
Oxidising properties	No data available
Explosive limits	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : fume. Carbon monoxide. Carbon dioxide. Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Harmful if swallowed.
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified

ATE CLP (oral)	1706.776 mg/kg bodyweight

Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene (710292-85-6)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg

resorcinol (108-46-3)	
LD50 oral	301 mg/kg

m-Xylylenediamine (1477-55-0)	
LD50 oral rat	1090 mg/kg
LD50 oral	660 mg/kg
LD50 dermal rat	> 3100 mg/kg
LD50 dermal	> 3100 mg/kg
LC50 inhalation rat (Dust/Mist - mg/l/4h)	1.34 mg/l/4h

Skin corrosion/irritation	Causes severe skin burns and eye damage. pH: 11.5
Serious eye damage/irritation	Serious eye damage, category 1, implicit pH: 11.5
Respiratory or skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	No additional information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water	Harmful to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute)	Harmful to aquatic life.
Classification procedure (Hazardous to the aquatic environment, short-term (acute))	Expert judgment
Hazardous to the aquatic environment, long-term (chronic)	Harmful to aquatic life with long lasting effects.
Classification procedure (Hazardous to the aquatic environment, long-term (chronic))	Expert judgment

Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene (710292-85-6)	
LC50 fish 1	>= 50 mg/l
LC50 other aquatic organisms 1	>= 31.8 mg/l
EC50 Daphnia 1	2.4 mg/l
NOEC chronic algae	6.25 mg/l

resorcinol (108-46-3)	
EC50 Daphnia 1	1.28 mg/l

m-Xylylenediamine (1477-55-0)	
LC50 fish 1	75 mg/l
LC50 other aquatic organisms 1	20.3 ppb
EC50 Daphnia 1	15 mg/l
LOEC (chronic)	15 mg/l
NOEC (acute)	10.5 mg/kg
NOEC (chronic)	4.7 mg/l
NOEC chronic crustacea	4.7 mg/l

12.2. Persistence and degradability

HIT-RE 100, B	
Persistence and degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

HIT-RE 100, B	
Bioaccumulative potential	Not established.

Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene (710292-85-6)	
Bioconcentration factor (BCF REACH)	>= 12.9
Log Pow	5.14

12.4. Mobility in soil

Formaldehyde, telomer with 1,3-benzenedimethanamine, 1,3-benzenediol and ethenylbenzene (710292-85-6)	
Log Pow	See section 12.1 on ecotoxicology

12.5. Other adverse effects

Ozone	Not classified
Other adverse effects	No additional information available
Other information	Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	After curing, the product can be disposed of with household waste. . Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. Packaging contaminated by the product : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials	Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	RID
14.1. UN number			
3259	3259	3259	3259
14.2. UN proper shipping name			
AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine)	AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine)	Amines, solid, corrosive, n.o.s. (m-Xylylenediamine)	AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine)
Transport document description			
UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine), 8, II, (E)	UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine), 8, II	UN 3259 Amines, solid, corrosive, n.o.s. (m-Xylylenediamine), 8, II	UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine), 8, II
14.3. Transport hazard class(es)			
8	8	8	8
			
14.4. Packing group			
II	II	II	II
14.5. Environmental hazards			
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available			

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	C8
Special provisions (ADR)	274
Limited quantities (ADR)	1kg
Packing instructions (ADR)	P002, IBC08
Mixed packing provisions (ADR)	MP10
Transport category (ADR)	2
Orange plates	
Tunnel restriction code (ADR)	E

- Transport by sea

Special provisions (IMDG)	274
Limited quantities (IMDG)	1 kg
Packing instructions (IMDG)	P002
EmS-No. (Fire)	F-A
EmS-No. (Spillage)	S-B
Stowage category (IMDG)	A

Stowage and segregation (IMDG)	Separated from' acids.
MFAG-No	154

- Air transport

PCA packing instructions (IATA)	859
PCA max net quantity (IATA)	15kg
CAO packing instructions (IATA)	863
Special provisions (IATA)	A3

- Rail transport

Special provisions (RID)	274
Limited quantities (RID)	1kg
Packing instructions (RID)	P002, IBC08
Carriage prohibited (RID)	No

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

SECTION 16: Other information

SDS Major/Minor	None
Issue date	11/05/2020
Revision date	11/05/2020
Supersedes	11/07/2018

Indication of changes:

Section	Changed item	Change	Comments
2.1	Classification (GHS UN)	Modified	
2.2	Hazard statements (GHS UN)	Modified	
16	Additional information	Added	

Abbreviations and acronyms	ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road ATE - Acute Toxicity Estimate BCF - Bioconcentration factor CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 DMEL - Derived Minimal Effect level DNEL - Derived-No Effect Level EC50 - Median effective concentration IARC - International Agency for Research on Cancer IATA - International Air Transport Association IMDG - International Maritime Dangerous Goods LC50 - Median lethal concentration LD50 - Median lethal dose LOAEL - Lowest Observed Adverse Effect Level NOAEC - No-Observed Adverse Effect Concentration NOAEL - No-Observed Adverse Effect Level NOEC - No-Observed Effect Concentration OECD - Organisation for Economic Co-operation and Development PBT - Persistent Bioaccumulative Toxic PNEC - Predicted No-Effect Concentration REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail SDS - Safety Data Sheet vPvB - Very Persistent and Very Bioaccumulative
Other information	None.

Full text of H-statements:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H370	Causes damage to organs.
H371	May cause damage to organs.
H400	Very toxic to aquatic life.
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SDS_UN_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

HIT-RE 100, A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Issue date: 11/05/2020 Revision date: 11/05/2020 Supersedes: 11/07/2018

Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	Mixture
Product name	HIT-RE 100, A
UN-No. (ADR)	1759
Product code	BU Anchor

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	For professional use only Composite mortar component for fasteners in the construction industry

1.3. Details of the supplier of the safety data sheet

Supplier
Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Department issuing data specification sheet
Hilti Entwicklungsgesellschaft mbH
Hiltistraße 6
86916 Kaufering - Deutschland
T +49 8191 906876
anchor.hse@hilti.com

1.4. Emergency telephone number

Emergency number	Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +852 27734 700

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS (Rev. 4, 2011)

Skin Corr. 1C	H314
Skin Sens. 1	H317
Muta. 2	H341
Repr. 1B	H360
Aquatic Acute 2	H401
Aquatic Chronic 2	H411

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)

GHS05 GHS07 GHS08 GHS09

Signal word (GHS UN)	Danger
Hazardous ingredients	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol ; Reaction products of hexane-1,6-diol with 2-(chloromethyl); 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane; trimethylolpropane triglycidylether
Hazard statements (GHS UN)	H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H341 - Suspected of causing genetic defects. H360 - May damage fertility..

	H411 - Toxic to aquatic life with long lasting effects.
Precautionary statements (GHS UN)	P262 - Do not get in eyes, on skin, or on clothing. P280 - Wear eye protection, protective clothing, protective gloves. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P313 - If skin irritation or rash occurs: Get medical advice, medical attention. P337+P313 - If eye irritation persists: Get medical advice, medical attention. P302+P352 - IF ON SKIN: Wash with plenty of water.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to the United Nations GHS
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	(CAS-No.) 1675-54-3	25 - 40	Flammable liquids Not classified Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Acute Hazard, Category 2, H401 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411
Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	(CAS-No.) 9003-36-5	10 - 25	Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411
Reaction products of hexane-1,6-diol with 2-(chloromethyl)	(CAS-No.) 933999-84-9	10 - 25	Flammable liquids Not classified Acute toxicity (oral), Category 5, H303 Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Acute Hazard, Category 3, H402 Hazardous to the aquatic environment — Chronic Hazard, Category 3, H412
trimethylolpropane triglycidylether	(CAS-No.) 30499-70-8	5 - 10	Skin corrosion/irritation, Category 1C, H314 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, category 1B, H317 Germ cell mutagenicity, Category 2, H341 Reproductive toxicity, Category 1B, H360 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	Gently wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get immediate medical advice/attention.
First-aid measures after eye contact	Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	Rinse mouth. Get medical advice/attention. Do not induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	May cause an allergic skin reaction.
Symptoms/effects after skin contact	Causes skin irritation.
Symptoms/effects after eye contact	Causes serious eye irritation.
Potential adverse human health effects and symptoms	No additional information available.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Water spray. Carbon dioxide. Dry powder. Foam. Sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	Self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Spilled material may present a slipping hazard.

6.1.1.For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2.For emergency responders

Protective equipment: Use personal protective equipment as required. Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment. Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste.

6.3. Methods and material for containment and cleaning up

For containment	Collect spillage.
Methods for cleaning up	This material and its container must be disposed of in a safe way, and as per local legislation. Mechanically recover the product. On land, sweep or shovel into suitable containers. Store away from other materials.
Other information	Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	Wear personal protective equipment. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Protect from sunlight.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	5 - 25 °C
Heat and ignition sources	Keep away from heat and direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional information	The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product.

8.2. Appropriate engineering controls

Appropriate engineering controls	Ensure good ventilation of the work station.
Environmental exposure controls	Avoid release to the environment.
Consumer exposure controls	Avoid contact during pregnancy/while nursing.
Other information	Do not eat, drink or smoke during use.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Hand protection — Wear protective gloves. The permeation time is not the maximum wearing time! Generally speaking, it must be reduced. Contact with either mixtures of substances or different substances may shorten the protective function's effective duration.

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	> 0,4		EN 374

Eye protection — Wear security glasses which protect from splashes

Type	Use	Characteristics	Standard
Safety glasses	Droplet	clear	EN 166, EN 170

Skin and body protection — Wear suitable protective clothing

8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Thixotropic paste.
Colour	Light grey.
Odour	characteristic.
Odour threshold	No data available
pH	6.2
Relative evaporation rate (butylacetate=1)	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Non flammable.
Vapour pressure	No data available
Relative vapour density at 20 °C	No data available
Relative density	No data available
Density	1.46 g/ml DIN EN ISO 1183-3
Solubility	insoluble in water.
Log Pow	No data available
Viscosity, kinematic	No data available

Viscosity, dynamic	36 - 53 Pa·s HN-0333
Explosive properties	Product is not explosive.
Oxidising properties	No data available
Explosive limits	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3)	
LD50 dermal rat	> 2000 mg/kg (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (9003-36-5)	
LD50 oral rat	> 5000 mg/kg bodyweight (Rat; ECHA)
LD50 dermal rat	> 2000 mg/kg bodyweight (Rat; ECHA)

Reaction products of hexane-1,6-diol with 2-(chloromethyl) (933999-84-9)	
LD50 oral rat	3010 mg/kg
LD50 dermal rat	> 2000 mg/kg

Skin corrosion/irritation	Causes severe skin burns and eye damage. pH: 6.2
Serious eye damage/irritation	Serious eye damage, category 1, implicit pH: 6.2
Respiratory or skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	Not classified

Reproductive toxicity	May damage fertility..
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	No additional information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water	Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	Toxic to aquatic life.
Classification procedure (Hazardous to the aquatic environment, short-term (acute))	Calculation method
Hazardous to the aquatic environment, long-term (chronic)	Toxic to aquatic life with long lasting effects.
Classification procedure (Hazardous to the aquatic environment, long-term (chronic))	Calculation method

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3)	
LC50 fish 1	2.3 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	2 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value)
LC50 fish 2	2.3 mg/l (96 h; Oncorhynchus mykiss; Nominal concentration)
Threshold limit algae 1	> 11 mg/l (72 h; Scenedesmus sp.)
Threshold limit algae 2	4.2 mg/l (72 h; Scenedesmus sp.)

Reaction products of hexane-1,6-diol with 2-(chloromethyl) (933999-84-9)	
LC50 fish 1	30 mg/l
LC50 other aquatic organisms 1	23.1 mg/l
EC50 Daphnia 1	47 mg/l
NOEC (acute)	18 mg/l

12.2. Persistence and degradability

HIT-RE 100, A	
Persistence and degradability	May cause long-term adverse effects in the environment.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

HIT-RE 100, A	
Bioaccumulative potential	Not established.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3)	
BCF other aquatic organisms 1	31 (Estimated value, Fresh weight)
Log Pow	3 (Estimated value, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3)	
Surface tension	59 mN/m (20 °C, 0.09 g/l)
Log Pow	See section 12.1 on ecotoxicology
Log Koc	See section 12.1 on ecotoxicology
Ecology - soil	Low potential for adsorption in soil.

12.5. Other adverse effects

Ozone	Not classified
Other adverse effects	No additional information available
Other information	Avoid release to the environment.

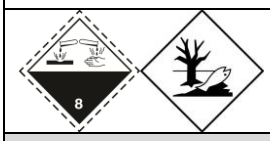
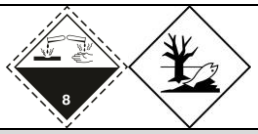
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	After curing, the product can be disposed of with household waste. . Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. Packaging contaminated by the product : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials	Avoid release to the environment.

SECTION 14: Transport information

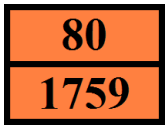
In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	RID
14.1. UN number			
1759	1759	1759	1759
14.2. UN proper shipping name			
CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether)	CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether)	Corrosive solid, n.o.s. (trimethylolpropane triglycidylether)	CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether)
Transport document description			
UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, (E), ENVIRONMENTALLY HAZARDOUS	UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1759 Corrosive solid, n.o.s. (trimethylolpropane triglycidylether), 8, III, ENVIRONMENTALLY HAZARDOUS	UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)			
8	8	8	8
			
14.4. Packing group			
III	III	III	III
14.5. Environmental hazards			
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available			

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	C10

Special provisions (ADR)	274
Limited quantities (ADR)	5kg
Packing instructions (ADR)	P002, IBC08, LP02, R001
Mixed packing provisions (ADR)	MP10
Transport category (ADR)	3
Orange plates	
Tunnel restriction code (ADR)	E

- Transport by sea

Special provisions (IMDG)	223, 274
Packing instructions (IMDG)	P002, LP02
EmS-No. (Fire)	F-A
EmS-No. (Spillage)	S-B
Stowage category (IMDG)	A

- Air transport

PCA packing instructions (IATA)	860
PCA max net quantity (IATA)	25kg
CAO packing instructions (IATA)	864
Special provisions (IATA)	A3, A803

- Rail transport

Special provisions (RID)	274
Packing instructions (RID)	P002, IBC08, LP02, R001
Carriage prohibited (RID)	No

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

SECTION 16: Other information

SDS Major/Minor	None
Issue date	11/05/2020
Revision date	11/05/2020
Supersedes	11/07/2018

Indication of changes:

Section	Changed item	Change	Comments
2.1	Classification (GHS UN)	Added	
2.2	Hazard statements (GHS UN)	Added	
9	pH	Added	
14	Transport information	Modified	
16	Additional information	Added	

Abbreviations and acronyms

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL - Derived Minimal Effect level
DNEL - Derived-No Effect Level
EC50 - Median effective concentration
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IMDG - International Maritime Dangerous Goods
LC50 - Median lethal concentration
LD50 - Median lethal dose
LOAEL - Lowest Observed Adverse Effect Level
NOAEC - No-Observed Adverse Effect Concentration
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
OECD - Organisation for Economic Co-operation and Development
PBT - Persistent Bioaccumulative Toxic
PNEC - Predicted No-Effect Concentration
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS - Safety Data Sheet
vPvB - Very Persistent and Very Bioaccumulative

Full text of H-statements:

H303	May be harmful if swallowed
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H360	May damage fertility or the unborn child.
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SDS_UN_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Hilti HIT-RE100 Epoxy Anchor Job Reference

Year	Project Name	Customer Name	Project type
2022	CINGLEOT LOGISTICS CENTRE, AIRPORT - ALIBABA	ABLE CONTRACTORS LIMITED	Industrial
2022	SIU HONG, AREA 54 DD 132 TMTL 483	RIDGID PLUMBING LIMITED	Residential
2022	AREA 54 TUNG CHUNG HOUSING	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2022	R6 TKO-LAM TIN TUNNEL NE/2015/01	LEIGHTON - CHINA STATE JOINT	Infrastructure
2022	HANG TAI RD, MA ON SHAN AREA 86B PH 1&2 - HOU	SUN FOOK KONG CONSTRUCTION LIMITED	Residential
2022	TAI WAI STATION NW RES	WORLD GENIUS CORPORATION LIMITED	Residential
2022	98 HOW MING ST	RIDGID PLUMBING LIMITED	Office
2022	KAI TAK 1E SITE 2A&B (6557)	HIP HING CONSTRUCTION CO LTD	Office
2022	YIN PING RD, TAI WO PING (6542)	HIP HING CONSTRUCTION CO LTD	Residential
2022	TUEN MUN AREA 29 WEST - PUBLIC HOUSING	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2023	SAI SHA SHK SHAP SZE HEUNG, TPTL 157 DD165, 20	LONG SING PLUMBING LIMITED	Residential
2023	TAI WAI STATION NW RES	WORLD GENIUS CORPORATION LIMITED	Residential
2023	SIU HONG, AREA 54 DD 132 TMTL 483	RIDGID PLUMBING LIMITED	Residential
2023	KAI TAK AREA 4A, SITE 2, NKIL 6554	HOP HING CONSTRUCTION	Residential
2023	KAI TAK NEW ACUTE HOSPITAL (SITE B)	CHINA STATE CONSTRUCTION	Health
2023	Maintenance - Health - 1 Shing Cheong Road, Kowloon E	HONG CHANG CONSTRUCTION	Health
2023	HKIA 3508 TERMINAL 2	GAMMON ENGINEERING & CONSTRUCTION	Transport
2023	TIN SHUI WAI T.L.23 TIN WING STOP	CHIT TAT ELECTRICAL ENGINEERING LTD	Residential
2023	ORGANIC RESOURCES RECOVERY CENTRE PH2 (W	JEC - AGRIVERT IJV	Utilities
2023	TUEN MUN AREA 29 WEST - PUBLIC HOUSING	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2023	SIU LEK YUEN ROAD, YUEN HONG ST & YUEN SHUN	WORLD GENIUS CORPORATION LIMITED	Hospitality
2024	TAI WAI STATION NW RES	WORLD GENIUS CORPORATION LIMITED	Residential
2024	FORMER EXCELSIOR REDEVELOP - PROJECT BLUE	RIDGID PLUMBING LIMITED	Office
2024	SAI SHA SHK SHAP SZE HEUNG, TPTL 157 DD165, 20	LONG SING PLUMBING LIMITED	Residential
2024	HONG KONG-SHENZHEN INNOVATION & TECHNOLO	WO KAI DEVELOPMENT LIMITED	Office
2024	TUEN MUN AREA 29 WEST - PUBLIC HOUSING	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2024	SHEK WU HUI EFFLUENT POLISHING PLANT	KL-CW JV	Utilities
2024	CHING HONG RD N HOUSING PH1,2	CHINA STATE CONSTRUCTION	Residential
2024	TIN SHUI WAI T.L.23 TIN WING STOP	CHIT TAT ELECTRICAL ENGINEERING LTD	Residential
2024	KAI TAK AREA 4A, SITE 2, NKIL 6554	HOP HING CONSTRUCTION	Residential
2024	TAI PO FU TIP EST PH2	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2024	KAI TAK AREA 1L1 (6564)	GAMMON BUILDING CONSTRUCTION LTD	Residential