

## Hilti HIT-RE500- SD Injectable Mortar with Rebar (500B)

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## SAMPLE SUBMISSION AND APPROVAL FORM

Contract Title: _____	Ref. No.: _____
_____	Date: _____
_____	Ref. No. of Previous Submission: _____
Contract No: _____	(1) _____
File Reference: _____	(2) _____

### DETAILS OF SUBMISSION

To: Contract Manager's Representative Attention: \_\_\_\_\_

From: \_\_\_\_\_

The enclosed sample and catalogue\* / certificate of origin\* / technical data\* / test report\* / job reference\* as described below have been checked for compliance with the Specifications and Drawings, and are submitted for approval.

#### 1. General Information

- a. Material Description HIT – RE500-SD Injection Adhesive  
\_\_\_\_\_
- b. Location: \_\_\_\_\_  
\_\_\_\_\_
- c. Specification Ref. Page: \_\_\_\_\_ Item: \_\_\_\_\_  
\_\_\_\_\_
- d. Drawing Ref. No. \_\_\_\_\_  
\_\_\_\_\_
- e. B.Q. Ref.No.: \_\_\_\_\_  
\_\_\_\_\_
- f. Anticipated date of approval: \_\_\_\_\_  
\_\_\_\_\_

#### 2. Technical Information

The submitted sample has been checked against the specification and drawings as listed below:-

Specification Requirements	Submitted Sample (State details against each item)
a. <b>Brand</b> Not specified	Hilti
b. <b>Country of Origin</b> Not specified	Germany
c. <b>Manufacturer's Name &amp; Address</b> Not specified	Hilti Corporation, FL-9494 Principality of Liechtenstein.
d. <b>Factory's Name &amp; Address(es)</b> Not specified	Hilti Gmbh Ind. Ges. F. Befestigungstechnik Hiltistrasse 6, D-86916 Kaufering, Germany.
e. <b>Supplier (with Applicator, if any)</b> Not specified	Hilti (Hong Kong) Ltd

f. <b>Appearance</b> Not specified	According to the sample submitted
g. <b>Color +</b> Not specified	Red
h. <b>Specification</b> Not specified	Attached
i. <b>Manufacturer's Catalogue</b> Not specified	Attached
j. <b>Test Report</b> (Original/Certificated True Copy) Not specified	Attached
k. <b>Previous Job Reference</b> Not specified	Attached
l. <b>Supplementary Information</b> Not specified	NIL

For and on behalf of the Contractor

\_\_\_\_\_  
(Quality Control Manager)

<b>CONTRACT MANAGER'S COMMENTS</b>	
To:	
From:	Contract Manager's Representative: _____
On the basis of the sample and information given, the above sample submitted is:	
(1) *	<b>Approved.</b>
(2) *	<b>Not approved</b> because _____
_____	
_____	
Remarks:	_____
_____	
_____	
Approval does not alter the requirements of the Contract	
Contract Manager's Representative: _____	
_____	
Date:	_____

cc. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\* Delete if appropriate)

(+ For glass or vitreous mosaic tiles, the contractor is required to confirm the colour range(s) of the submitted sample, i.e. a) light and or medium; or b) dark)

## Injectable mortar HIT-RE 500-SD



### Base materials

- Concrete (cracked)
- Concrete (uncracked)

### 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.)
- Structural renovation of buildings, bridges and other civil structures, retrofitting and re-strengthening of concrete members possible
- Suitable for underwater applications in hammer-drilled holes (ICC-ESR)

### Advantages

- European Technical Approval covering automatic cleaning of holes drilled using TE-CD or TE-YD drill bits and Hilti vacuum cleaners
- Seismic approval for use in seismic applications
- Suitable for anchoring in diamond-cored holes (ICC-ESR)
- Virtually odourless, hence pleasant to work with

### Technical data

<b>SAFEset</b>	Yes
<b>Material composition</b>	Epoxy adhesive
<b>Tested/approved for diamond drilling</b>	Yes
<b>Seismic</b>	Yes
<b>In-service temperature – range</b>	-40 - 70 °C
<b>IBC compliance</b>	IBC 2003, IBC 2006, IBC 2009
<b>Additional product information</b>	Always wear eye protection and gloves while handling

Recommended load (kN), non-cracked concrete at 25N/mm<sup>2</sup>, safety factor (γ) =3

Model	Size	M8	M10	M12	M16
<b>HIT-RE 500 SD + HIT-V</b>	Tensile Load, N <sub>rec</sub>	4.0	6.4	9.3	11.2
	Shear Load, V <sub>rec</sub>	2.3	4.0	5.6	10.4
Model	Size	M20	M24	M27	M30
<b>HIT-RE 500 SD + HIT-V</b>	Tensile Load, N <sub>rec</sub>	17.7	24.4	29.8	35.5
	Shear Load, V <sub>rec</sub>	16.2	23.4	30.6	37.3

Remarks:

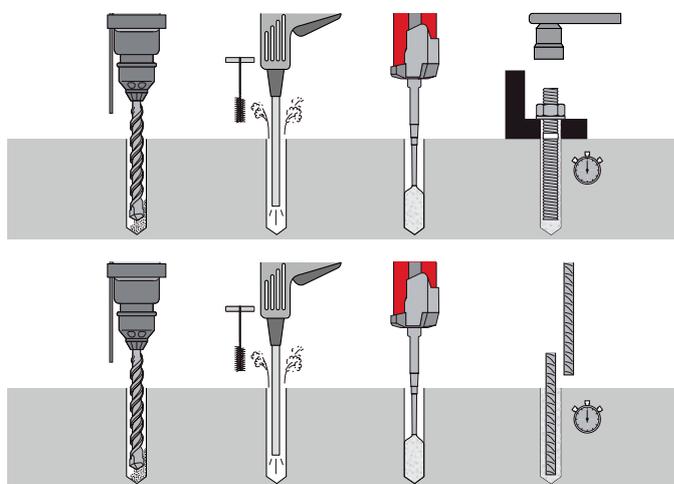
- 1) All the data applies to no edge distance, spacing and other influences
- 2) For detail design method please refer to Fastening Technology Manual
- 3) HAS-HCR anchor rod are only up to M24 only



### Approvals

ETA, Seismic | ETA 07/0260 for HIT-RE 500-SD injection mortar for anchoring applications (ETAG 001-05, 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. Always observe/follow the instructions accompanying the product or refer to [www.hilti.com/techlib](http://www.hilti.com/techlib).

### Curing time

Temperature of the base material	Working time	Curing time
40°C	12 min.	4 hours
30°C	20 min.	8 hours
20°C	30 min.	12 hours
10°C	2 hours	24 hours

Info | Shop



Ordering designation	Package contents	Sales pack quantity	Item number
<b>HIT-RE 500-SD/330/1</b>	1x Foil pack, 1x Mixer, 1x Mixer extension	1 pc	<b>387092<sup>1)</sup></b>
<b>HIT-RE 500-SD/500/1</b>	1x Foil pack, 1x Mixer, 1x Mixer extension	1 pc	<b>387093</b>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

May 2016

## Dispenser HDE 500-A22



### Applications

- Injection of Hilti HIT adhesive mortar for fastening anchor rods and rebars in concrete and masonry
- No need for external power source supply
- Serial fastenings and/or injection in deep holes

### Advantages

- Dose adjustment knob for accurate and controlled dispensing
- Fast, easy foil pack loading
- High battery capacity (up to 100x500ml foil packs)



reddot design award  
winner 2013

### Technical data

Dispenser, setting tool, accessory, tester type	Dispensers
---	------------

Ordering designation	Weight	Sales pack quantity	Item number
HDE 500 CB DISPENSER KIT		1 pc	3499078 <sup>1)</sup>
HDE 500-A22 box	2.2 kg	1 pc	2005630
HDE 500-A22 CR/CB cas	2.2 kg	1 pc	2005637
HDE 500-A22 empty	2.4 kg	1 pc	434724

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

## Dispenser HDM



### Applications

- Injection of Hilti HIT adhesive mortar for fastening anchor rods and rebars in concrete and masonry

### Advantages

- Fast, easy foil pack loading

### Technical data

Dispenser, setting tool, accessory, tester type	Dispensers, n/a
---	-----------------

Ordering designation	Weight	Sales pack quantity	Item number
HDM 330 CB DISPENSER KIT		1 pc	3499082 <sup>1)</sup>
HDM 330 CB CARDBOARD BOX		1 pc	3499103 <sup>1)</sup>
HDM 500 CB DISPENSER KIT (2060870 W/ACC)		1 pc	3499081
HDM 330 cas		1 pc	2060429
HDM 500 cas		1 pc	2060870
HDM 330 box	1.5 kg	1 pc	2005640
HDM 500 box	1.8 kg	1 pc	2005641

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

### Hammer drill bit TE-YD



#### Applications

- Drilling holes for anchoring structural steel connections (e.g. steel columns, beams)

#### Advantages

- Drilling and hole cleaning in one step

Ordering designation	Diameter	Working length	Length	Sales pack quantity	Item number
TE-YD 16/59	16 mm	400 mm	590 mm	1 pc	2018956
TE-YD 18/59	18 mm	400 mm	590 mm	1 pc	2018957
TE-YD 20/59	20 mm	400 mm	590 mm	1 pc	2018959
TE-YD 22/59	22 mm	400 mm	590 mm	1 pc	2018960
TE-YD 25/59	25 mm	400 mm	590 mm	1 pc	2018962
TE-YD 28/59	28 mm	400 mm	590 mm	1 pc	2018964
TE-YD 32/59	32 mm	400 mm	590 mm	1 pc	2018966



### Hammer drill bit TE-CD



#### Applications

- Drilling holes for structural connections with post-installed rebars

#### Advantages

- Drilling and hole cleaning in one step

Ordering designation	Diameter	Working length	Length	Sales pack quantity	Item number
TE-CD 12/33	12 mm	200 mm	330 mm	1 pc	2018940
TE-CD 14/37	14 mm	240 mm	360 mm	1 pc	2018942
TE-CD 16/37	16 mm	240 mm	360 mm	1 pc	2018945
TE-CD 18/37	18 mm	240 mm	360 mm	1 pc	2018946

## Accessories for blowing out drilled holes Hilti HIT



### Applications

- For fast and efficient removal of dust and debris from drilled holes of varying diameters and depths to allow correct installation of anchors and rebar

### Technical data

Dispenser, setting tool, accessory, tester type	Cleaning accessories
---	----------------------

Ordering designation	Sales pack quantity	Item number
Blow-out pump	1 pc	60579
Extension tube HIT-VL 16/0.7	10 pc	336646

## Hilti HIT Profi accessories Air nozzle



### Applications

- Clearing dust and debris from drilled holes under various conditions including where adhesive anchors are set at great depth

### Technical data

Dispenser, setting tool, accessory, tester type	Cleaning accessories
---	----------------------

### Advantages

- Fast, effective cleaning of drilled holes

Ordering designation	Drill hole diameter	Sales pack quantity	Item number
Air nozzle HIT-DL 20	20 mm	1 pc	371719 <sup>1)</sup>
Air nozzle HIT-DL 25	25 mm	1 pc	371720 <sup>1)</sup>
Air nozzle HIT-DL 32	32 mm	1 pc	371721 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

## Accessories for using brushes to clean holes Hilti HIT



### Applications

- For the proper brushing of drilled holes of varying diameters and embedment depths

### Technical data

Dispenser, setting tool, accessory, tester type	Cleaning accessories
---	----------------------

Ordering designation	Drill hole diameter	Sales pack quantity	Item number
Brush extension HIT-RBH		1 pc	229138 <sup>1)</sup>
Brush extension HIT-RBV		1 pc	238727 <sup>1)</sup>
Holder TE-Y		1 pc	263439 <sup>1)</sup>
Brush extension HIT-RBS 10/0.7		1 pc	336645 <sup>1)</sup>
Round brush 13 HG	12 mm	1 pc	229133
Round brush 18 HG	18 mm	1 pc	229134
Round brush 18 GA	18 mm	1 pc	229136 <sup>1)</sup>
Round steel brush HIT-RB 20	20 mm	1 pc	336552 <sup>1)</sup>
Round steel brush HIT-RB 25	25 mm	1 pc	336553 <sup>1)</sup>
Round brush 28 HG	28 mm	1 pc	229135
Round brush 28 GA	28 mm	1 pc	229137 <sup>1)</sup>
Round steel brush HIT-RB 30	30 mm	1 pc	380920 <sup>1)</sup>
Round brush 38 GA	38 mm	1 pc	229673 <sup>1)</sup>
Round steel brush HIT-RB 40	40 mm	1 pc	382260 <sup>1)</sup>
Round steel brush HIT-RB 47	47 mm	1 pc	382264 <sup>1)</sup>
Round brush 50 GA	50 mm	1 pc	229674 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

**Profi accessories for mortar injection Hilti HIT**



**Applications**

- For injection of Hilti HIT adhesive mortars in a variety of situations including deep holes, overhead holes and in underwater applications

**Advantages**

- Injection pistons and flexible extension hoses help ensure consistent injection of the adhesive into the hole without formation of air voids

**Technical data**

<b>Dispenser, setting tool, accessory, tester type</b>	Mixing nozzles and injection accessories
--	--

Ordering designation	Drill hole diameter	Sales pack quantity	Item number
Hose HIT-VL 11/1.0		10 pc	2042533 <sup>1)</sup>
Coupler VL-K		10 pc	335021 <sup>1)</sup>
Piston plug HIT-SZ 20	20 mm	10 pc	2039312 <sup>1)</sup>
Piston plug HIT-SZ 25	25 mm	10 pc	2039315 <sup>1)</sup>
Piston plug HIT-SZ 30	30 mm	10 pc	2039317 <sup>1)</sup>
Piston plug HIT-SZ 40	40 mm	10 pc	2039325 <sup>1)</sup>
Piston plug HIT-SZ 47	47 mm	10 pc	2039332 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

**Overhead cup**



**Technical data**

<b>Dispenser, setting tool, accessory, tester type</b>	Mixing nozzles and injection accessories
--	--

Ordering designation	Sales pack quantity	Item number
Drip guard HIT-OHC1	10 pc	387551
Drip guard HIT-OHC2	10 pc	387552
Wedge HIT-OHW	100 pc	387550

**HIT Profi accessories (Glasses & empty cases)**



**Technical data**

<b>Dispenser, setting tool, accessory, tester type</b>	Other accessories
--	-------------------

Ordering designation	Sales pack quantity	Item number
<b>Safety glasses</b>	1 pc	5205 <sup>1)</sup>

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.

## Mixer and extensions Hilti HIT



## Technical data

Dispenser, setting tool, accessory, tester type	Mixing nozzles and injection accessories
---	--

Ordering designation	Sales pack quantity	Item number
Mixer HIT-RE-M	1 pc	337111
Mixer HIT-M1 assy	100 pc	68156

## Universal vacuum cleaner VC 40-UM



## Applications

- Removing dust from drilling, slitting, grinding, cutting and dry coring
- Removing slurry from wet coring and cleaning

## Advantages

- Hilti AirBoost filter technology for consistently high suction performance
- Very good handling thanks to compact design
- Full exploitation of tank capacity due to placement of filter and hose connection in the upper part of the machine
- Robust housing to withstand the harshest jobsite conditions
- New tank concept for easy and virtually dust-free dust removal
- Maximum total load of dust: up to 40 kg



## Technical data

Container capacity	36 l
Dust capacity	40 kg
Water capacity	25 l
A-weighted emission sound pressure level acc. to EN 60745	71 dB (A)
Hose diameter	36 mm
Hose length	5000 mm
Weight according to EPTA Procedure 01/2003	14.7 kg
Dimensions (LxWxH)	505 x 380 x 610 mm



Ordering designation	Package contents	Sales pack quantity	Item number
VC 40-U 110V	1x Univ. vacuum cleaner VC 40-U 110 V	1 pc	218345 <sup>1)</sup>
VC 40-U 230V	1x Univ. vacuum cleaner VC 40-U 230 V	1 pc	212300

<sup>1)</sup> This is a non-stock item. For detailed lead time information please contact your Hilti representative.



## HIT-RE 500-SD Injection Adhesive with Rebar (Grade 500B)

<b>Features:</b>	base material: concrete
	Injection system with high loading capacity
	Good performance in diamond drilled holes and wet holes
	Suitable for water saturated concrete
	Large diameter applications
	Long working time at elevated temperatures
	Odorless epoxy res in
	No expansion force in base material
	Small edge distance and anchor spacing
	Clean and simple application
	SAFEset system with hollow drill bit TE-CD & TE-YD
<b>Material:</b>	
<b>Rebar:</b>	Steel grade fy k:500N/ mm2
<b>Cartridge:</b>	Foil pack: 500ml Foil pack: 330ml (special request)
<b>Dispenser:</b>	HDE 500-A22 and HDM 500



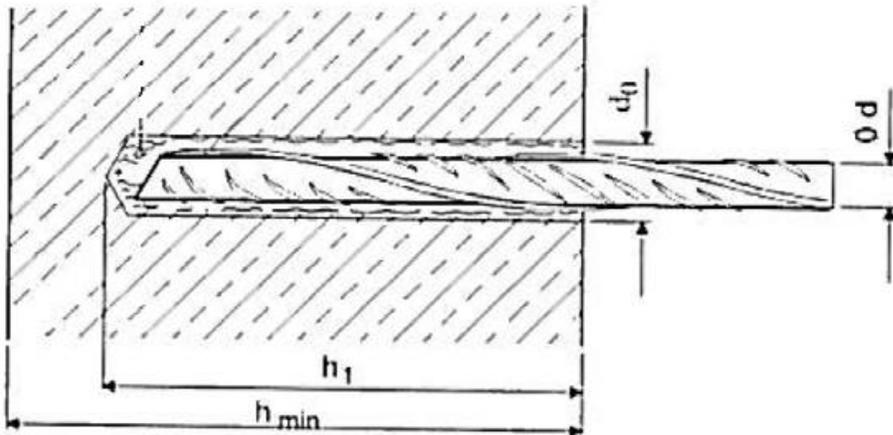
HIT RE 500-SD foil pack, mixer

### Basic loading data & Installation Details

	Y10	Y12	Y16	Y20	Y25	Y32
Rebar diameter (mm) [Ød]	10	12	16	20	25	32
Hole diameter (mm) [d0]	12	16	20	25	32	40
Embedment Depth (mm) [h1]	100	120	160	200	250	320
<b>Ultimate mean pull-out load as per BS5080 Part 1 (kN)</b>	<b>43.7</b>	<b>64.4</b>	<b>115.4</b>	<b>184.2</b>	<b>257.2</b>	<b>411.6</b>
Yield load of rebar (kN)	39.3	56.6	100.6	157.1	245.5	402.1
<b>Max. Testing Load (0.87 x Yield Load)</b>	<b>34.1</b>	<b>49.2</b>	<b>87.5</b>	<b>136.7</b>	<b>213.5</b>	<b>349.8</b>
<b>Installation system</b>						
Hollow Drill bit	TE-CD12	TE-CD16	TE-YD20	TE-YD25	TE-YD32	n/a
Drill bit	TE-CX12	TE-CX16	TE-CX20	TE-CX25	TE-YX32	TE-YX40
Drilling system	TE2 / TE7 / TE30 / TE40				TE 50 / TE60 / TE70	
Core bit	DD-C12	DD-C16	DD-C20	DD-C25	DD-B30	DD-B40
Diamond core system	DD-EC1				DD 120 / DD 150 / DD 160	

#### Remarks:

- It is based on non-cracked concrete with strength 30N/mm<sup>2</sup>;
- Yield strength of rebar  $f_{yk}$  is 500N/mm<sup>2</sup>;
- **There is no factor of safety introduced in the ultimate mean pull out load. Please apply appropriate factor of safety in your design;**
- All the spacing and edge distance requirement for reinforced concrete design should be reference to BS8110;
- **If there is a fire resistance concern, the loading should be referred to the fire tables**



## Consumption Table

Rebar Size $\phi$	Hole Diameter D [ mm ]	Hole Depth l [ mm ]	Filled Volume V [ ml ]
Y8	10	80	2.3
Y10	12	100	3.5
Y12	16	120	10.6
Y16	20	160	18.1
Y20	25	200	35.3
Y25	32	250	54.0
Y32	40	320	144.7

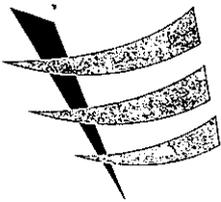
Remark:

- 1) The filled volume was calculated by the following equation and is for reference only.  

$$\text{Filled volume} = [(D/2)^2 - (R/2)^2] \times 3.14 \times l$$
 where D = hole diameter, l = hole depth, R = rebar diameter
- 2) The filled volume showed in the table did not include any wastage during the installation.
- 3) 1 trigger pull of dispenser HDM is approx. 6 ml of RE 500-SD.  
 To dispense 1 cartridge of 500ml RE 500-SD needs approx. 80 triggers.

## Mechanical Properties

Property	Standard	Value
Density Cured Mortar	DIN 53479	1.5g/cm <sup>3</sup>
Bond Strength	ASTM C882-91	15.4N/mm <sup>2</sup>
Compressive Yield Strength	ASTM D695-96	86 N/mm <sup>2</sup>
Compressive Strength	ISO 604	7days - 120 N/mm <sup>2</sup>
Bending / Flexural Strength	DIN 53452	90 N/mm <sup>2</sup>



東業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong  
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Fax : 2695 3944 Web site : www.ets-testconsult.com



**TEST REPORT**

Form C/FD/R77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project : -  
Test Location : Ma On Shan Workshop  
Anchor Type : Hilti HIT-RE 500-SD + Grade 500B Y10 Rebar  
Amb. Temperature : 20°C

Report No. : FDA50006  
Test Date : 31-Dec-2014  
Report Date : 07-Feb-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 Cl 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
4.0	0.21	0.10	0.10	0.17	0.09
8.0	0.38	0.19	0.29	0.24	0.20
12.0	0.42	0.23	0.47	0.38	0.30
16.0	0.47	0.30	0.56	0.53	0.50
20.0	0.59	0.39	0.67	0.77	0.71
24.0	0.71	0.45	0.79	0.82	0.82
28.0	0.79	0.56	0.91	0.94	0.98
32.0	0.87	0.62	1.14	1.07	1.14
36.0	0.94	0.87	1.26	1.28	1.27
40.0	1.29	1.12	1.37	1.53	1.41
44.0	-	-	1.44	-	1.95
48.0	-	-	-	-	-
52.0	-	-	-	-	-
56.0	-	-	-	-	-
Failure Load (kN)	42.5	43.0	44.2	42.9	45.7
Failure Mode	F3	F3	F3	F3	F3
Average Failure Load (kN)	43.7				
Standard Deviation (kN)	1.3				

A) Test Apparatus	Load Cell : Comp. Load Cell CWFK-10t, 100kN Load Cell Indicator :XH315A1-8 Cylinder : RCH 202 Digital Dial Gauge : Digital Indicator	(ET/930/15/01) (ET/930/36/02) (ET/903/13) (ET/915/52)	S/N : K03360 S/N : - S/N : C3696C S/N : 102389
B) Concrete Grade	30D/20		
C) Anchor installed date	29-Dec-2014		
D) Failure Modes	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load	
E) Min. distance between reaction frame and centre of the fixing (mm)	200		
F) Min. distance between the centre of fixing and free edge (mm)	300		
G) Rebar embedment depth (mm)	100		

Tested By : SHUM, Chi Wai

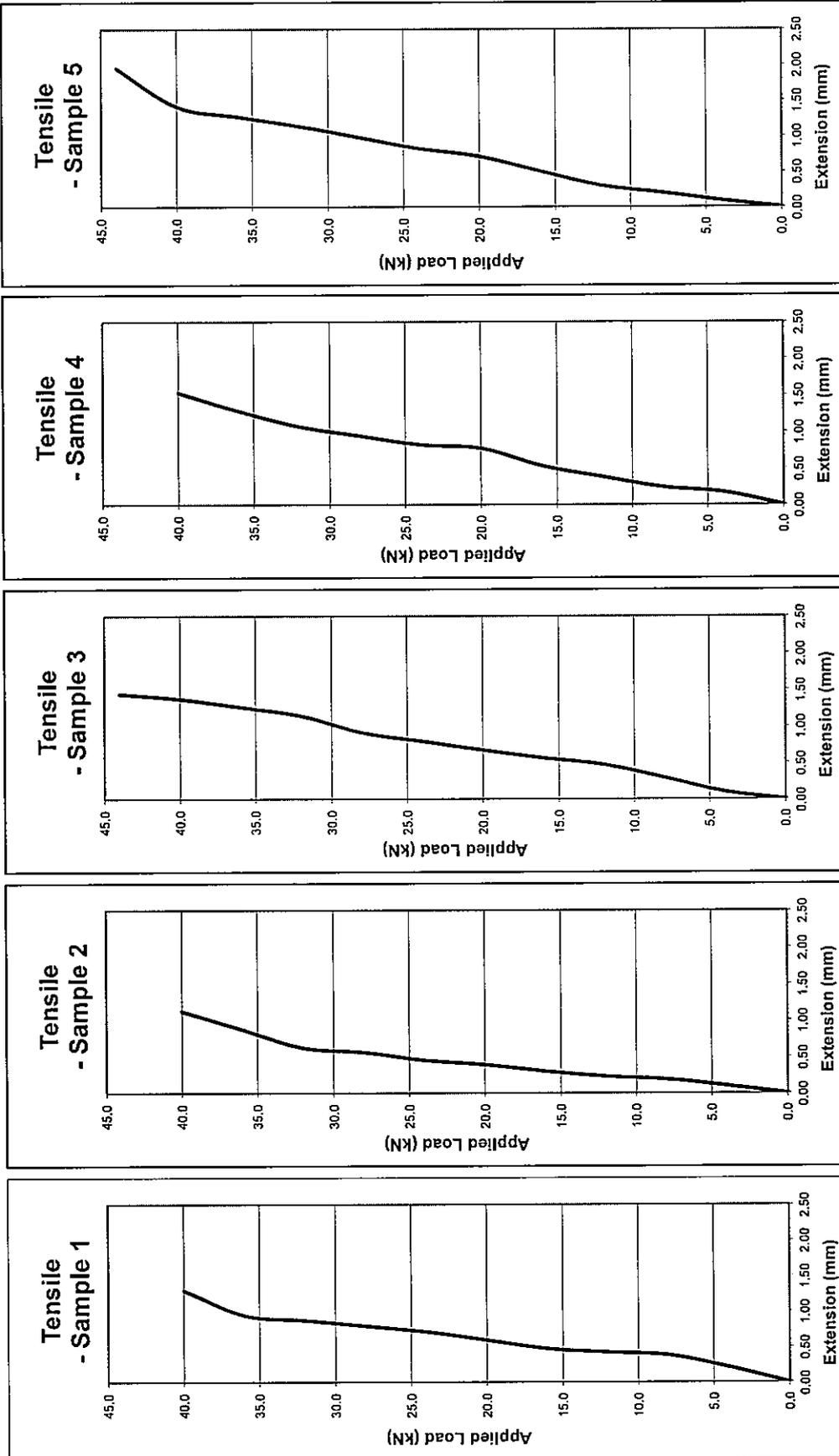
Approved Signatory : MONG, Seng Ming

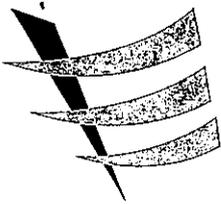
Checked By : (Assistant Engineer)

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Hilti HIT-RE 500-SD + Grade 500B Y10 Rebar





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ETS-TESTCONSULT LIMITED

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Fax : 2695 3944 Web site : www.ets-testconsult.com



**TEST REPORT**

Form C/FD/R/77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project : -  
Test Location : Ma On Shan Workshop  
Anchor Type : Hilti HIT-RE 500-SD + Grade 500B Y12 Rebar  
Amb. Temperature : 20°C

Report No. : FDA50007  
Test Date : 31-Dec-2014  
Report Date : 07-Feb-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 Cl 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
5.5	0.01	0.02	0.00	0.00	0.09
11.0	0.06	0.18	0.09	0.06	0.21
16.5	0.10	0.32	0.31	0.12	0.30
22.0	0.18	0.48	0.48	0.15	0.57
27.5	0.41	0.61	0.69	0.18	0.71
33.0	0.52	0.82	0.85	0.43	0.93
38.5	0.67	0.99	1.03	0.64	1.12
44.0	0.96	1.14	1.21	0.84	1.32
49.5	1.11	1.32	1.43	1.01	1.53
55.0	1.42	1.52	1.59	1.39	1.79
60.5	1.86	1.84	1.81	1.84	2.37
66.0	-	-	-	-	-
71.5	-	-	-	-	-
77.0	-	-	-	-	-
Failure Load (kN)	64.5	64.8	64.7	63.8	64.2
Failure Mode	F3	F3	F3	F3	F3
Average Failure Load (kN)	64.4				
Standard Deviation (kN)	0.4				

A) Test Apparatus	Load Cell : Comp. Load Cell CWFK-10t, 100kN Load Cell Indicator : XK315A1-8 Cylinder : RSCH302 Digital Dial Gauge : Digital Indicator	(ET/930/16/01) (ET/930/37/02) (ET/903/25) (ET/915/55)	S/N : M16679 S/N : - S/N : - S/N : 102382
B) Concrete Grade	30D/20		
C) Anchor installed date	29-Dec-2014		
D) Failure Modes	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load	
E) Min. distance between reaction frame and centre of the fixing (mm)	240		
F) Min. distance between the centre of fixing and free edge (mm)	360		
G) Rebar embedment depth (mm)	120		

Tested By : SHUM, Chi Wai

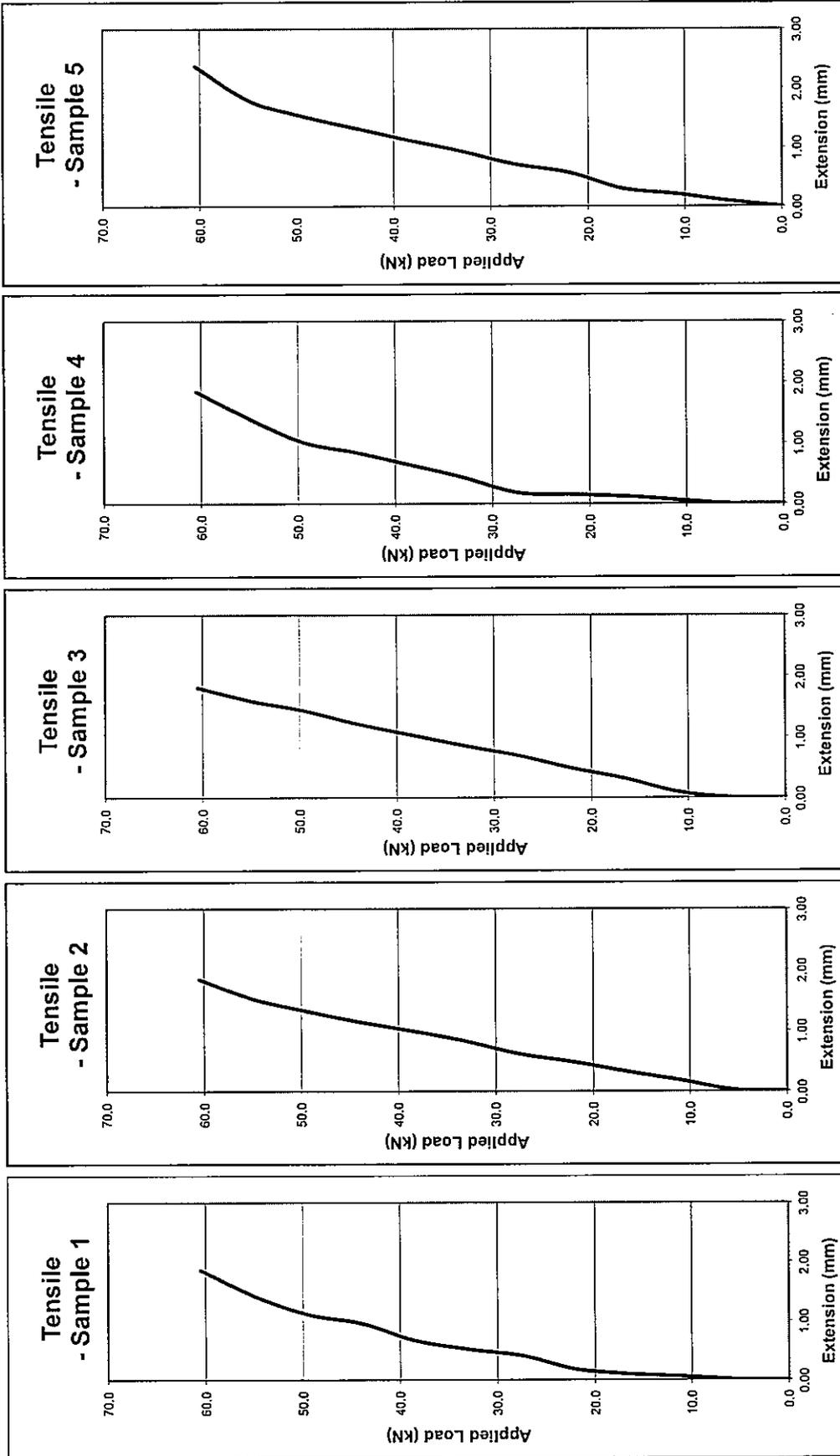
Approved Signatory : MONG, Seng Ming

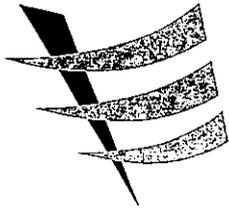
Checked By : (Assistant Engineer)

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Hilti HIT-RE 500-SD + Grade 500B Y12 Rebar





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**TEST REPORT**

Form C/FD/R/77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project :-  
Test Location : ETL Laboratory  
Anchor Type : Hilti HIT-RE 500-SD + Grade 500B Y16 Rebar  
Amb. Temperature : 18°C

Report No. : FDA50101  
Test Date : 13-Jan-2015  
Report Date : 07-Feb-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 Cl 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
10.0	0.03	0.02	0.03	0.08	0.06
20.0	0.09	0.01	0.19	0.12	0.21
30.0	0.25	0.03	0.39	0.28	0.67
40.0	0.45	0.05	0.63	0.44	1.12
50.0	0.63	0.17	0.87	0.61	1.54
60.0	0.81	0.36	1.11	0.77	1.76
70.0	1.04	0.55	1.28	0.95	1.98
80.0	1.30	0.83	1.52	1.19	2.20
90.0	1.58	1.11	1.86	1.42	2.48
100.0	2.10	1.52	2.26	1.80	2.92
110.0	2.40	2.17	3.46	2.37	3.66
120.0	-	-	-	-	-
130.0	-	-	-	-	-
140.0	-	-	-	-	-
Failure Load (kN)	117.0	118.0	114.0	113.0	115.0
Dial Gauge Reading (mm)	5.09	5.12	5.10	5.08	5.14
Failure Mode	F5 & F1	F5 & F1	F5 & F1	F5 & F1	F5 & F1
Average Failure Load (kN)	115.4				
Standard Deviation (kN)	2.1				

A) Test Apparatus	Load Cell : Comp. Load Cell CWFK-50t, 500kN Load Cell Indicator : XK315A1-8 Cylinder : RSCH302 Digital Dial Gauge : Digital Indicator	(ET/930/14/02) (ET/930/29/02) (ET/903/25) (ET/915/54)	S/N : K03362 S/N : - S/N : - S/N : 103131
B) Concrete Grade	30/20D		
C) Anchor installed date	09-Jan-2015		
D) Failure Modes	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load	
E) Min. distance between reaction frame and centre of the fixing (mm)	320		
F) Min. distance between the centre of fixing and free edge (mm)	480		
G) Rebar embedment depth (mm)	160		

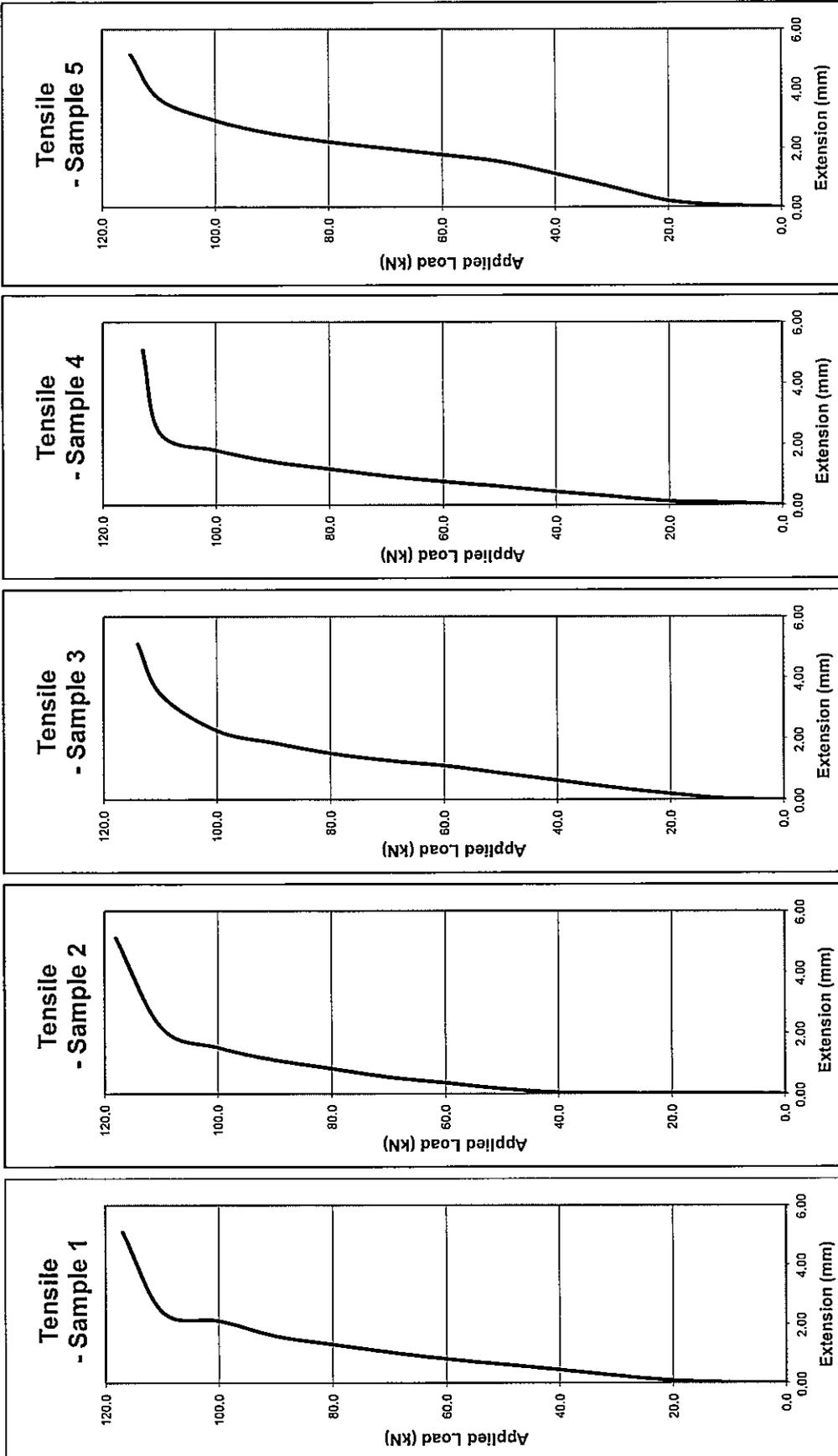
Tested By : HON, Yu Chung / CHOW, Sui Luen

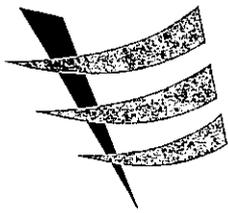
Approved Signatory :

Checked By :   
(Assistant Engineer)

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Hifti HIT-RE 500-SD + Grade 500B Y16 Rebar





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**TEST REPORT**

Form C/FD/R/77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd .  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project : -  
Test Location : ETL Laboratory  
Anchor Type : Hilti HIT-RE 500-SD + Grade 500B Y20 Rebar  
Amb. Temperature : 18°C

Report No. : FDA50102  
Test Date : 13-Jan-2015  
Report Date : 07-Feb-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 Cl 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
16.0	0.08	0.02	0.08	0.12	0.20
32.0	0.25	0.11	0.23	0.49	0.45
48.0	0.45	0.30	0.53	0.72	0.76
64.0	0.69	0.45	0.85	0.99	1.04
80.0	0.85	0.65	1.19	1.19	1.29
96.0	1.02	0.90	1.36	1.41	1.53
112.0	1.22	1.10	1.67	1.71	1.75
128.0	1.47	1.38	1.89	1.91	2.09
144.0	1.85	1.62	2.14	2.16	2.39
160.0	2.20	1.96	2.41	2.48	2.71
176.0	2.84	2.39	2.74	2.92	3.17
192.0	-	-	-	-	-
208.0	-	-	-	-	-
224.0	-	-	-	-	-
Failure Load (kN)	182.0	185.0	186.0	185.0	183.0
Dial Gauge Reading (mm)	5.08	5.10	5.06	5.09	5.06
Failure Mode	F5 & F1	F5 & F1	F5 & F1	F5 & F1	F5 & F1
Average Failure Load (kN)	184.2				
Standard Deviation (kN)	1.6				

A) Test Apparatus	Load Cell : Comp. Load Cell CWFK-50t, 500kN Load Cell Indicator : XK315A1-8 Cylinder : RSCH302 Digital Dial Gauge : Digital Indicator	(ET/930/24/01) (ET/930/38/02) (ET/903/29) (ET/915/53)	S/N : 034491 S/N : - S/N : - S/N : 1301344
B) Concrete Grade	30/20D		
C) Anchor installed date	09-Jan-2015		
D) Failure Modes	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load	
E) Min. distance between reaction frame and centre of the fixing (mm)	400		
F) Min. distance between the centre of fixing and free edge (mm)	600		
G) Rebar embedment depth (mm)	200		

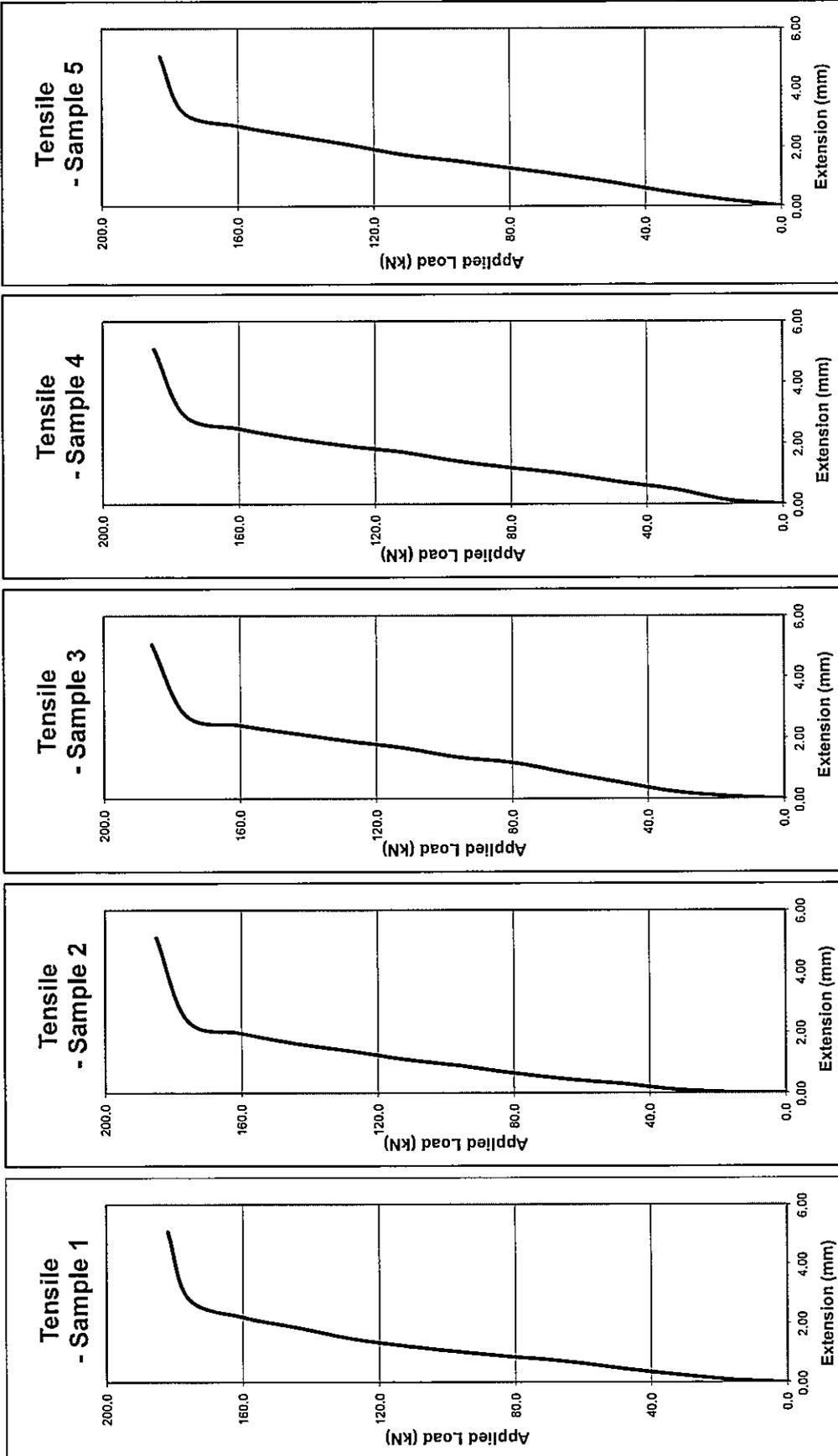
Tested By : WONG, Tsz San / KO, Ching Ho

Approved Signatory : MONG, Seng Ming

Checked By : (Assistant Engineer)

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Hilti HIT-RE 500-SD + Grade 500B Y20 Rebar





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**TEST REPORT**

Form C/FD/R/77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project : -  
Test Location : ETL Laboratory  
Anchor Type : Hilti RE 500-SD + Grade 500B Y25 Rebar  
Amb. Temperature : 29°C

Report No. : FDA50853  
Test Date : 05-May-2015  
Report Date : 07-May-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 CI 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
25.0	0.31	0.46	0.28	0.30	0.10
50.0	0.50	0.74	0.46	0.55	0.32
75.0	0.72	1.06	0.70	0.84	0.54
100.0	1.00	1.42	0.97	1.07	0.88
125.0	1.31	1.75	1.33	1.43	1.24
150.0	1.66	2.19	1.76	1.83	1.66
175.0	2.09	2.59	2.20	2.38	2.17
200.0	2.57	3.13	2.73	2.90	2.76
225.0	3.12	3.63	3.44	3.68	3.38
250.0	4.03	4.49	4.16	4.38	4.08
275.0	-	-	-	-	-
300.0	-	-	-	-	-
325.0	-	-	-	-	-
350.0	-	-	-	-	-
Failure Load (kN)	259.4	255.2	255.9	257.3	258.1
Failure Mode	F1 / F5	F1 / F5	F1 / F5	F1 / F5	F1 / F5
Displacement	7.17	7.05	7.13	7.07	7.21
Average Failure Load (kN)	257.2				
Standard Deviation (kN)	1.7				

<b>A) Test Apparatus</b>	Load Cell : Comp. Load Cell CWFK-50t, 500kN (ET/930/14/01) Load Cell Indicator : XK315A1-8 (ET/930/29/02) Cylinder : Hydraulic Cylinder RSCH302 (ET/903/29) Digital Dial Gauge : Digital Indicator (ET/915/53)	S/N : K03362 S/N : - S/N : E02121602-11 S/N : 1301344
<b>B) Concrete Grade</b>	30/20D	
<b>C) Anchor installed date</b>	28-Apr-2015	
<b>D) Failure Modes</b>	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load
<b>E) Min. distance between reaction frame and centre of the fixing (mm)</b>	500	
<b>F) Min. distance between the centre of fixing and free edge (mm)</b>	750	
<b>G) Rebar embedment depth (mm)</b>	250	

Tested By : CHUI, Chi To

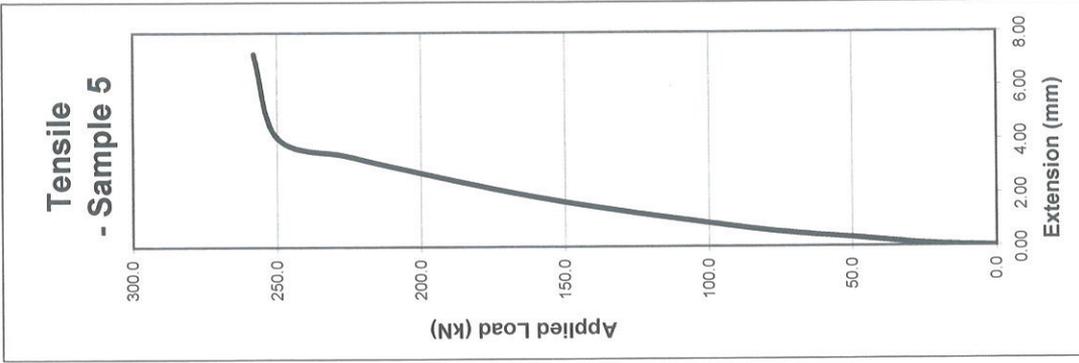
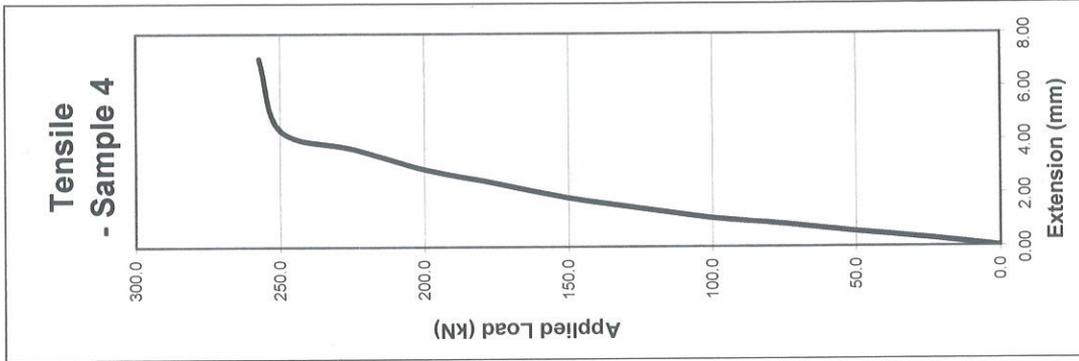
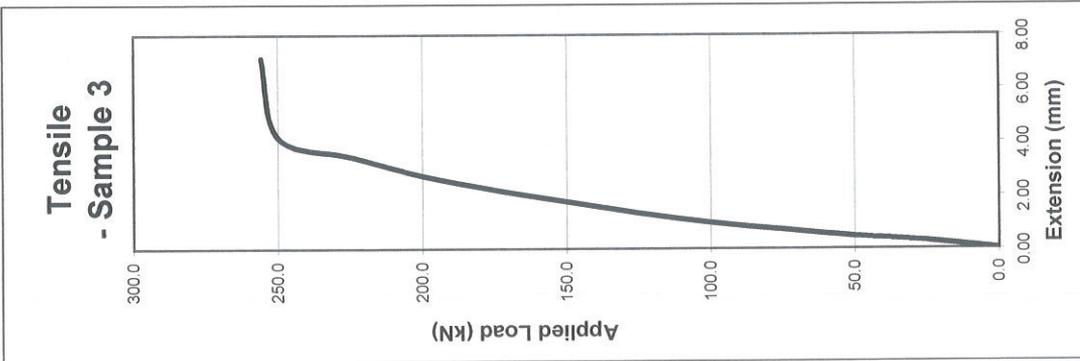
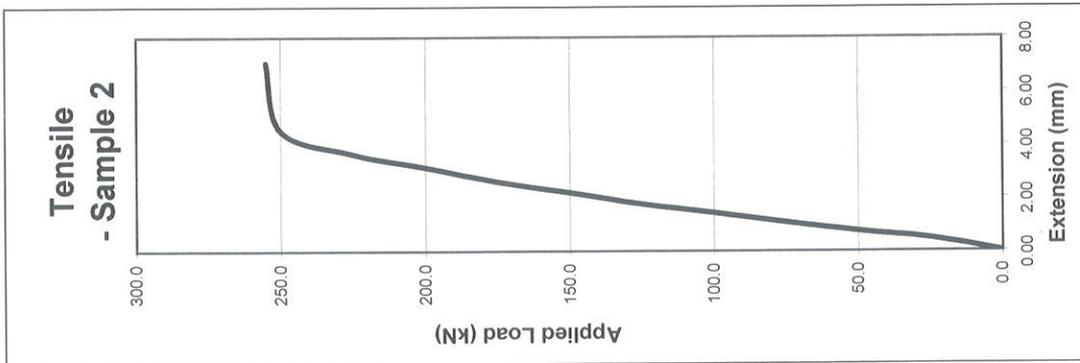
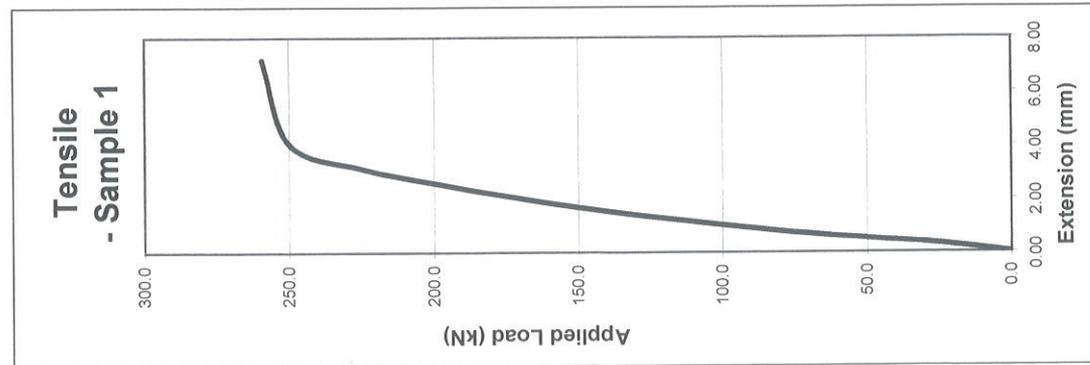
Approved Signatory :

MONG, Seng Ming

Checked By :

(Assistant Engineer)

Hilti RE 500-SD + Grade 500B Y25 Rebar





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**TEST REPORT**

Form C/FD/R/77/Issue 1 (1/1) [06/06]

**Tensile Load Test on Dowel Bar**

Customer : Hilti (Hong Kong) Ltd  
Address : 701-704, 7/F, Tower A, Manulife Financial Centre,  
223 Wai Yip Street, Kwun Tong, Kowloon  
Project : -  
Test Location : ETL Laboratory  
Anchor Type : Hilti RE 500-SD + Grade 500B Y32 Rebar  
Amb. Temperature : 29°C

Report No. : FDA50852  
Test Date : 05-May-2015  
Report Date : 07-May-2015  
Page No. : 3 of 4  
Test Method : BS 5080:Part 1:1993 CI 7.1.1  
Test Procedure : TPF/003

Load (kN)	Dial Gauge Reading (mm)				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0.0	0.00	0.00	0.00	0.00	0.00
40.5	0.28	0.21	0.23	0.12	0.08
81.0	0.62	0.51	0.41	0.43	0.37
121.5	1.04	0.90	0.68	0.86	0.69
162.0	1.39	1.18	0.98	1.25	1.02
202.5	1.68	1.57	1.31	1.65	1.42
243.0	2.01	2.00	1.64	2.08	1.83
283.5	2.38	2.43	2.02	2.49	2.36
324.0	2.77	2.98	2.49	2.95	2.92
364.5	3.16	3.55	3.29	3.48	3.50
405.0	3.72	4.34	4.07	4.30	4.41
445.5	-	-	-	-	-
486.0	-	-	-	-	-
Failure Load (kN)	413.6	410.7	411.3	412.0	410.5
Failure Mode	F1 / F5	F1 / F5	F1 / F5	F1 / F5	F1 / F5
Displacement	7.98	8.06	8.22	8.14	8.03
Average Failure Load (kN)	411.6				
Standard Deviation (kN)	1.3				

<b>A) Test Apparatus</b>	Load Cell : Comp. Load Cell CWFK-50t, 500kN (ET/930/14/01) Load Cell Indicator : XK315A1-8 (ET/930/29/02) Cylinder : Hydraulic Cylinder RSCH302 (ET/903/29) Digital Dial Gauge : Digital Indicator (ET/915/53)	S/N : K03362 S/N : - S/N : E02121602-11 S/N : 1301344
<b>B) Concrete Grade</b>	30/20D	
<b>C) Anchor installed date</b>	28-Apr-2015	
<b>D) Failure Modes</b>	P = No sign of failure in anchor and/or structural member F2 = Failure in structural member F4 = Failure of structural member in a shear cone F6 = Failure in structural member with crack radiates outward from anchor F7 = Other failure mode(s) : Bar Breaking	F1 = Failure of anchor or its accessories F3 = Pull out of anchor F5 = Failure by continuous displacement or decreasing load
<b>E) Min. distance between reaction frame and centre of the fixing (mm)</b>	640	
<b>F) Min. distance between the centre of fixing and free edge (mm)</b>	960	
<b>G) Rebar embedment depth (mm)</b>	320	

Tested By : CHUI, Chi To

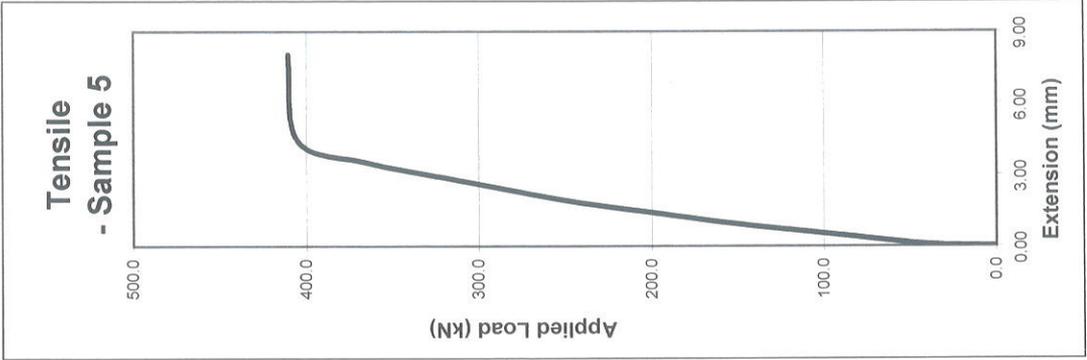
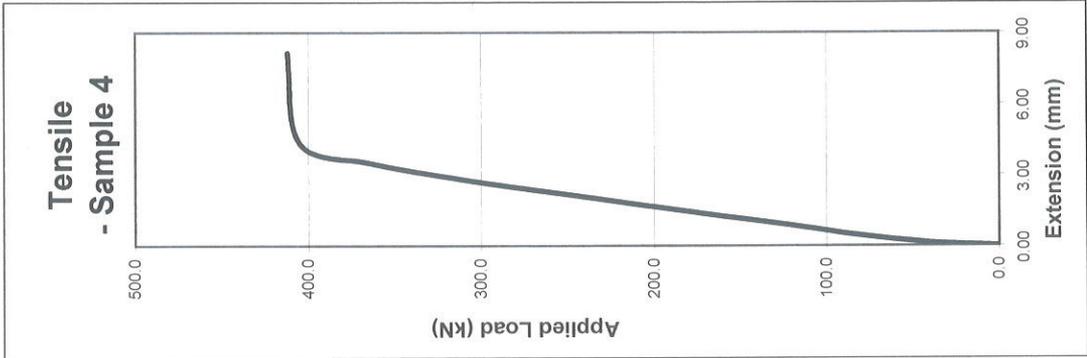
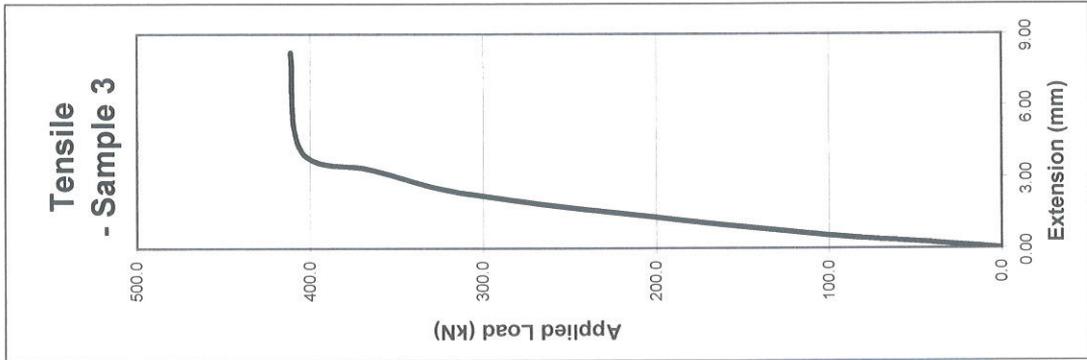
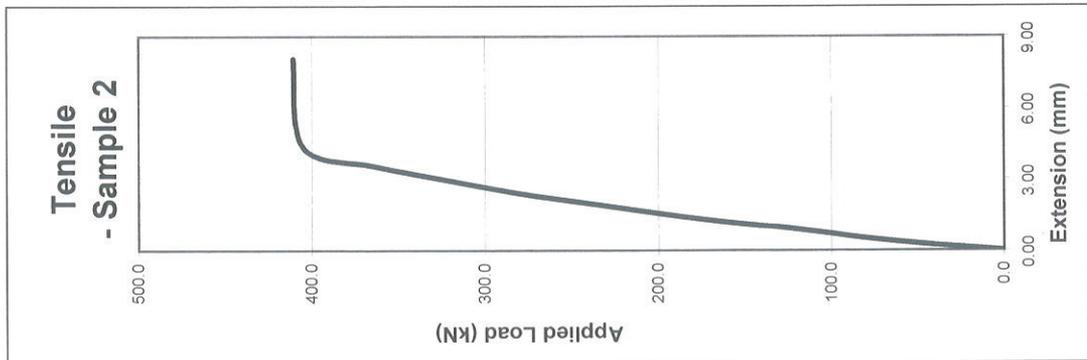
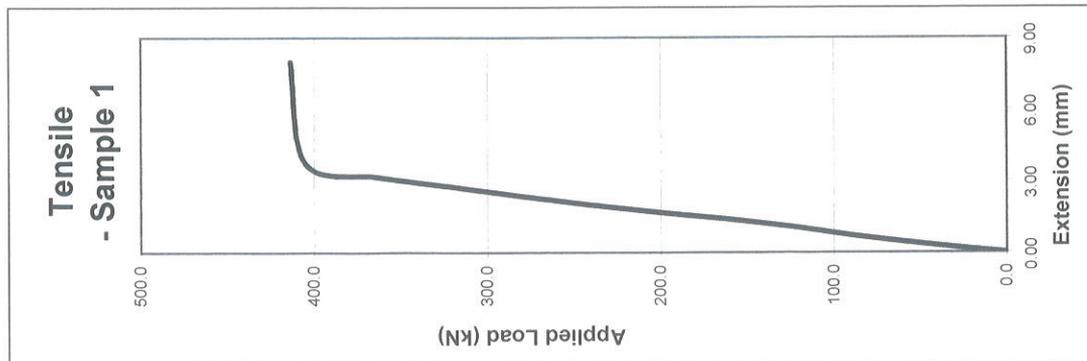
Approved Signatory :   
MONG, Seng Ming

Checked By :   
(Assistant Engineer)

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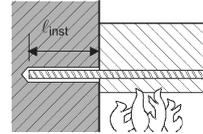
Hilti RE 500-SD + Grade 500B Y32 Rebar



### Fire Resistance

according to MFPA Leipzig, report GS 3.2/09-122

a) fire situation "anchorage"



Maximum force in rebar in conjunction with HIT-RE 500 SD as a function of embedment depth for the fire resistance classes F30 to F240 (yield strength  $f_{yk} = 500 \text{ N/mm}^2$ ) according EC2<sup>a)</sup>.

Bar $\varnothing$ [mm]	Drill hole $\varnothing$ [mm]	Max. $F_{s,T}$ [kN]	$l_{inst}$ [mm]	Fire resistance of bar in [kN]					
				R30	R60	R90	R120	R180	R240
8	10	16,19	65	1,38	0,57	0,19	0,05	0	0
			80	2,35	1,02	0,47	0,26	0	0
			95	3,87	1,68	0,88	0,55	0,12	0
			115	7,30	3,07	1,71	1,14	0,44	0,18
			150	16,19	8,15	4,59	3,14	1,41	0,8
			180		16,19	9,99	6,75	2,94	1,7
			205			16,19	12,38	5,08	2,86
			220				16,19	6,95	3,82
			265					16,19	8,57
			305						16,19
10	12	25,29	80	2,94	1,27	0,59	0,33	0	0
			100	5,68	2,45	1,31	0,85	0,24	0
			120	10,66	4,44	2,48	1,68	0,68	0,31
			140	17,57	7,76	4,38	2,99	1,33	0,73
			165	25,29	15,06	8,5	5,79	2,58	1,5
			195		25,29	17,63	12,18	5,12	2,93
			220			25,29	20,66	8,69	4,78
			235				25,29	11,8	6,30
			280					25,29	13,86
			320						25,29
12	16	36,42	95	5,80	2,52	1,32	0,83	0,18	0
			120	12,79	5,33	2,97	2,01	0,82	0,37
			145	23,16	10,68	6,02	4,12	1,84	1,03
			180	36,42	24,29	14,99	10,12	4,41	2,55
			210		36,42	27,38	20,65	8,47	4,74
			235			36,42	31,01	14,16	7,56
			250				36,42	19,13	9,89
			295					36,42	21,43
			335						36,42
			14	18	49,58	110	10,92	4,65	2,55
140	24,60	10,87				6,13	4,19	1,86	1,03
170	39,12	23,50				13,55	9,20	4,07	2,37
195	49,58	35,6				24,69	17,05	7,17	4,10
225		49,58				39,20	31,34	13,48	7,34
250						49,58	43,44	22,32	11,54
265							49,58	29,49	15,00
310								49,58	31,98
350									49,58

Bar Ø [mm]	Drill hole Ø [mm]	Max. F <sub>s,T</sub> [kN]	ℓ <sub>inst</sub> [mm]	Fire resistance of bar in [kN]					
				R30	R60	R90	R120	R180	R240
16	20	64,75	130	22,59	9,42	5,30	3,61	1,56	0,80
			160	39,17	21,33	11,95	8,15	3,65	2,11
			190	55,76	37,92	24,45	17,25	7,35	4,22
			210	64,75	48,98	36,51	27,53	11,29	6,32
			240		64,75	53,10	44,12	20,88	11,04
			265			64,75	57,94	33,7	17,14
			280				64,75	42,0	22,17
			325					64,75	44,84
			365						64,75
20	25	101,18	160	48,97	26,67	14,93	10,18	4,56	2,64
			200	76,61	54,31	38,73	27,5	11,42	6,48
			240	101,18	81,96	66,37	55,15	26,10	13,8
			270		101,18	87,11	75,88	45,58	23,36
			295			101,18	93,16	62,86	35,72
			310				101,18	73,23	45,69
			355					101,18	76,79
			395						101,18
25	30	158,09	200	95,77	67,89	48,41	34,37	14,27	8,10
			250	138,96	111,09	91,60	77,51	39,86	20,61
			275	158,09	132,69	113,2	99,17	61,30	31,81
			305		158,09	139,12	125,09	87,22	52,79
			330			158,09	146,69	108,82	74,39
			345				158,09	121,77	87,34
			390					158,09	126,22
			430						158,09
32	40	259,02	255	183,40	147,72	122,78	104,82	56,35	28,80
			275	205,52	169,84	144,90	126,94	78,46	40,71
			325	259,02	225,13	200,19	182,23	133,75	89,68
			368		259,02	238,89	220,93	172,46	128,39
			380			259,02	243,05	194,58	150,51
			395				259,02	211,16	167,09
			440					259,02	216,86
			480						259,02
36	42 - 46	327,82	290	249,87	209,73	181,67	161,46	106,93	59,10
			325	293,41	253,27	225,21	205,01	150,47	100,89
			355	327,82	290,59	262,54	242,33	187,80	138,22
			385		327,82	299,86	279,65	225,12	175,54
			410			327,82	310,75	256,22	206,64
			425				327,82	274,88	225,30
			470					327,82	281,28
			510						327,82
40	47	404,71	320	319,10	274,50	243,33	220,87	160,28	105,19
			355	367,48	322,88	291,71	269,25	208,66	153,57
			385	404,71	364,35	333,18	310,72	250,13	195,04
			415		404,71	374,64	352,19	291,60	236,51
			440			404,71	386,75	326,16	271,07
			455				404,71	346,89	291,80
			500					404,71	354,01
			540						404,71

### b) bar connection parallel to slab or wall surface exposed to fire

Max. bond stress,  $\tau_T$ , depending on actual clear concrete cover for classifying the fire resistance.

It must be verified that the actual force in the bar during a fire,  $F_{s,T}$ , can be taken up by the bar connection of the selected length,  $\ell_{inst}$ . Note: Cold design for ULS is mandatory.

$$F_{s,T} \leq (\ell_{inst} - c_f) \cdot \phi \cdot \pi \cdot \tau_T \quad \text{where: } (\ell_{inst} - c_f) \geq \ell_s;$$

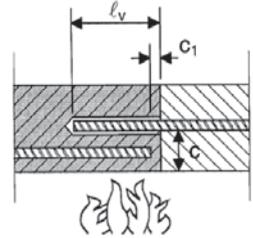
$\ell_s$  = lap length

$\phi$  = nominal diameter of bar

$\ell_{inst} - c_f$  = selected overlap joint length; this must be at least  $\ell_s$ ,

but may not be assumed to be more than  $80 \phi$

$\tau_T$  = bond stress when exposed to fire



**Critical temperature-dependent bond stress,  $\tau_c$ , concerning “overlap joint” for Hilti HIT-RE 500-SD injection adhesive in relation to fire resistance class and required minimum concrete coverage c.**

Clear concrete cover c [mm]	Max. bond stress, $\tau_c$ [N/mm <sup>2</sup> ]								
	R30	R60	R90	R120	R180	R240			
10	0	0	0	0	0	0			
20	0,49								
30	0,66								
40	0,89								
50	1,21								
60	1,63								
70	2,19	1,04	0,65	0,49	0,45	0			
80	2,96	1,35	0,83	0,61					
90	3,99	1,75	1,06	0,77					
100	5,38	2,26	1,36	0,97					
110	7,25	2,93	1,73	1,23			0,67	0,47	
120	9,78	3,79	2,21	1,55			0,81	0,55	
130	11,00	4,91	2,81	1,96			0,98	0,64	
140		6,35	3,59	2,47			1,18	0,76	
150		8,22	4,58	3,12			1,43	0,89	
160		10,65	5,84	3,94			1,73	1,04	
170		11,00	11,00	7,45	4,97	2,10	1,23		
180				9,51	6,27	2,54	1,44		
190				11,00	11,00	11,00	7,91	3,07	1,69
200							9,99	3,71	1,99
210							4,49	2,34	
220							5,44	2,75	
230							6,58	3,22	
240							7,96	3,79	
250							9,64	4,45	
260							11,00	11,00	11,00
270	6,14								
280	7,21								
290	8,47								
300	9,95								
310	11,00								

## Hilti HIT RE 500-SD System + Rebar (by SAFEset)

Hilti **SAFEset Technology** eliminates the most load-affecting and time-consuming step in the installation process: cleaning the hole before injection of the adhesive.

Installers are not required to clean the hole when using Hilti Hollow drill bit with Hilti vacuum cleaner.

Material : Rebar  
Mortar Cartridge: HIT RE 500-SD  
Dispenser: HDE 500 / HDM 500  
Hollow Drill Bits: TE-CD / TE-YD  
Vacuum System: VC 40

Reference : Hilti Fastening Technical Manual or Product Catalogue

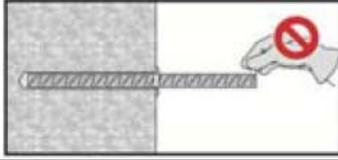


### Setting Operation:

<b>1. Dry and water-saturated concrete, hammer drilling- Bore hole drilling</b>	
	<p>Drill hole to the required embedment depth with an appropriately sized Hilti TE-CD or TE-YD hollow drill bit with Hilti vacuum attachment. This drilling method properly cleans the borehole and removes dust while drilling.</p> <p>After drilling is complete, proceed to the "injection preparation" step in the instructions for use.</p>
<b>No cleaning required for hollow drill bit drilled boreholes</b>	
<b>2. Injection preparation</b>	
<p>a.</p>	<p>Tightly attach new Hilti mixing nozzle HIT-RE-M to foil pack manifold (snug fit). Do not modify the mixing nozzle. Observe the instruction for use of the dispenser. Check foil pack holder for proper function. Do not use damaged foil packs / holders. Swing foil pack holder with foil pack into HIT- dispenser.</p>
<p>b.</p>	<p>Discard initial adhesive. The foil pack opens automatically as dispensing is initiated. Depending on the size of the foil pack an initial amount of adhesive has to be discarded.</p> <p>Discard quantities are 2 strokes for 330ml foil pack, 3 strokes for 500ml foil pack, 4 strokes for 500ml foil pack ≤ 5°C</p>

<p><b>3. Inject adhesive from the back of the borehole without forming air voids</b></p>	
<p>a.</p>	<p>Inject the adhesive starting at the back of the hole, slowly withdrawing the mixer with each trigger pull. Fill holes approximately 2/3 full, or as required to ensure that the annular gap between the anchor and the concrete is completely filled with adhesive along the embedment length.</p>
<p>b.</p>	<p>After injection is completed, depressurize the dispenser by pressing the release trigger. This will prevent further adhesive discharge from the mixer.</p>
	<p>Overhead installation and installation with embedment depth <math>h_{ef} &gt; 250\text{mm}</math>. For overhead installation the injection is only possible with the aid of extensions and piston plugs. Assemble HIT-RE-M mixer, extension(s) and appropriately sized piston plug. Insert piston plug to back of the hole and inject adhesive. During injection the piston plug will be naturally extruded out of the bore hole by the adhesive pressure.</p>
<p><b>4. Setting the element</b></p>	
<p>a.</p>	<p>Before use, verify that the element is dry and free of oil and other contaminants. Mark and set element to the required embedment depth until working time <math>t_{work}</math> has elapsed.</p>
<p>b.</p>	<p>After installing the rebar the annular gap must be completely filled with mortar. Proper installation can be verified when: Desired anchoring embedment is reached <math>\ell_v</math>: Embedment mark at concrete surface. Excess mortar flows out of the borehole after the rebar has been fully inserted until the embedment mark. Overhead application: Support the rebar and secure it from falling till mortar started to harden.</p>

c.



Observe the working time " $t_{\text{work}}$ ", which varies according to temperature of base material. Minor adjustments to the rebar position may be performed during the working time. After  $t_{\text{cure}}$  preparation work may continue.

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

## Hilti HIT RE 500-SD System + Rebar

Material : Mortar Cartridge: HIT RE 500-SD  
 Dispenser: HDE 500 / HDM 500  
 Drill Bits: TE-CX / TE-YX

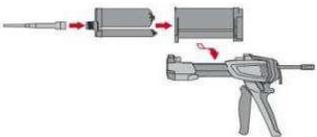
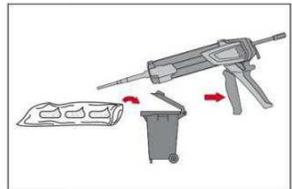


Reference : Hilti Fastening Technical Manual or Product Catalogue

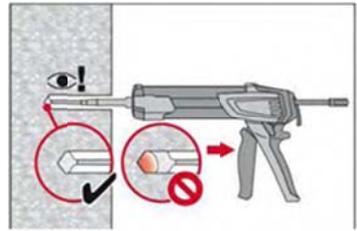
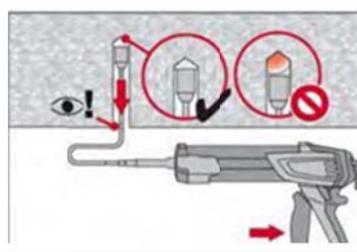
### Setting Operation:

<b>1. Hole drilling</b>	
	Drill the hole with dimension according to the installation details
<b>2. Manual cleaning</b> A manual cleaning is permitted for hammer drilled boreholes up to the hole diameters $d_0 < 20\text{mm}$ and depths $l_v$ resp. $l_{e,ges.} < 160\text{mm} / 10 \cdot d$ . The borehole must be free of dust, debris, water, ice, oil, grease and other contaminants prior to mortar injection.	
	4 strokes with Hilti blow-out pump from the back of the hole until return air stream is free of noticeable dust.
	4 times with the specified brush size (brush $\theta > \text{borehole}\theta$ ) by inserting the round steel wire brush to the back of the hole with a twisting motion.
	4 strokes with Hilti blow-out pump from the back of the hole until return air stream is free of noticeable dust.

### 3. Injection preparation

<p>a.</p> 	<p>Tightly attach new Hilti mixing nozzle HIT-RE-M to foil pack manifold (snug fit). Do not modify the mixing nozzle. Observe the instruction for use of the dispenser. Check foil pack holder for proper function. Do not use damaged foil packs / holders. Swing foil pack holder with foil pack into HIT- dispenser.</p>
<p>b.</p> 	<p>Discard initial adhesive. The foil pack opens automatically as dispensing is initiated. Depending on the size of the foil pack an initial amount of adhesive has to be discarded.</p> <p>Discard quantities are          2 strokes for 330ml foil pack,          3 strokes for 500ml foil pack,          4 strokes for 500ml foil pack <math>\leq 5^{\circ}\text{C}</math></p>

### 4. Inject adhesive from the back of the borehole without forming air voids

<p>a.</p> 	<p>Inject the adhesive starting at the back of the hole, slowly withdrawing the mixer with each trigger pull. Fill holes approximately 2/3 full, or as required to ensure that the annular gap between the anchor and the concrete is completely filled with adhesive along the embedment length.</p>
<p>b.</p> 	<p>After injection is completed, depressurize the dispenser by pressing the release trigger. This will prevent further adhesive discharge from the mixer.</p>
	<p>Overhead installation and installation with embedment depth <math>h_{ef} &gt; 250\text{mm}</math>. For overhead installation the injection is only possible with the aid of extensions and piston plugs. Assemble HIT-RE-M mixer, extension(s) and appropriately sized piston plug. Insert piston plug to back of the hole and inject adhesive. During injection the piston plug will be naturally extruded out of the bore hole by the adhesive pressure.</p>

5. Setting the element	
<p>a.</p>	<p>Before use, verify that the element is dry and free of oil and other contaminants. Mark and set element to the required embedment depth until working time <math>t_{work}</math> has elapsed.</p>
<p>b.</p>	<p>After installing the rebar the annular gap must be completely filled with mortar. Proper installation can be verified when: Desired anchoring embedment is reached <math>\ell_v</math>: Embedment mark at concrete surface. Excess mortar flows out of the borehole after the rebar has been fully inserted until the embedment mark. Overhead application: Support the rebar and secure it from falling till mortar started to harden.</p>
<p>c.</p>	<p>Observe the working time "<math>t_{work}</math>", which varies according to temperature of base material. Minor adjustments to the rebar position may be performed during the working time. After <math>t_{cure}</math> preparation work may continue.</p>

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

Attn. : To whom it may concern  
Date : 07 November 2011  
Ref. : LE/025/AC/06  
Subject : Hilti HIT-RE500-SD Injection Adhesive

Dear Sirs / Madams,

Enclosed please find the information of Hilti HIT-RE500-SD Injection Adhesive

Brand Name : Hilti  
Model Name : Hilti HIT-RE500-SD  
Manufacturer : Hilti Corporation  
Address of Manufacturer : FL-9494, Principality of Liechtenstein  
Supplier : Hilti (Hong Kong) Limited  
Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre, 223  
Wai Yip Street, Kwun Tong, Kowloon, Hong Kong  
Country of Origin : Germany  
Name of Factory : Hilti GmbH Ind. Ges. F. Befestigungstechnik  
Address of Factory : Hiltistrasse 6, D-86916 Kaufering, Germany

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

Yours sincerely,  
Hilti (Hong Kong) Limited



Alan Lee  
Marketing Manager

## 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** **Hilti HIT-RE 500-SD**
- **Container size** 330 ml, 500 ml, 1400 ml
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Sector of Use** Building and construction work
- **Application of the substance / the mixture** Adhesive mortar for rebar and anchor fastenings in solid concrete
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Hilti (Hong Kong) Limited  
701-704, 7F, Tower A,  
Manulife Financial Centre  
223 Wai Yip Street, Kwun Tong  
Kowloon, Hong Kong  
Phone: +852 8228 8118 (Hong Kong)  
00800 8228 8118 (Macau)  
Fax: +852 2954 1751  
E-mail: hksales@hilti.com
- **Informing department:**  
anchor.hse@hilti.com  
see section 16
- **Emergency telephone number:**  
Schweizerisches Toxikologisches Informationszentrum - 24 h Service  
Tel.: 0041 / 44 251 51 51 (international)
- Hilti (Hong Kong) Limited  
Phone: +852 8228 8118 (Hong Kong)  
00800 8228 8118 (Macau)  
Fax: +852 2954 1751

## 2 Hazards identification

- **Emergency overview:**  
Component A: grey  
Component B: red  
Mixture: red, pasty
- **Classification of the substance or mixture**  
Skin Corr. 1A      H314 Causes severe skin burns and eye damage.  
Eye Dam. 1        H318 Causes serious eye damage.  
Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.  
Skin Sens. 1      H317 May cause an allergic skin reaction.
- **Label elements**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**  
  
GHS05      GHS07      GHS09
- **Signal word** Danger
- **Hazard-determining components of labelling:**  
m-Xylylenediamine  
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin  
(number average molecular weight = 700)  
Reaction product: bisphenol-F epichlorhydrin resin, MW ≤ 700
- **Hazard statements**  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H411 Toxic to aquatic life with long lasting effects.
- **Precautionary statements**  
P260              Do not breathe vapours.

(Contd. on page 2)

HK-EN

Trade name: Hilti HIT-RE 500-SD

(Contd. of page 1)

- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- 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.

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Additional information:**



- **Information pertaining to particular dangers for man and environment: A**
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H411 Toxic to aquatic life with long lasting effects.
- **Information pertaining to particular dangers for man and environment: B**
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H412 Harmful to aquatic life with long lasting effects.

### 3 Composition/information on ingredients

- **Chemical characterisation: Mixtures**
- **Description:**
- 2-component-foilpack, contains:
- Component A: Epoxy resin, Reactive diluent, inorganic filler
- Component B: Amine hardener, inorganic filler

Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

#### · Dangerous components A:

25068-38-6	reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight = 700) ----- Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	25-50%
28064-14-4	Reaction product: bisphenol-F epichlorhydrin resin, MW ≤ 700 ----- Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; H401	10-30%
16096-31-4	1,6-bis(2,3-epoxypropoxy)hexane ----- Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; H402; Aquatic Chronic 3, H412	10-25%
30499-70-8	Trimethylolpropane, (chloromethyl)oxirane polymer ----- Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; H402; Aquatic Chronic 3, H412	2,5-10%

#### · Dangerous components B:

1477-55-0	m-Xylylenediamine ----- Skin Corr. 1A, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Sens. 1, H317; H402; Aquatic Chronic 3, H412	25-40%
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- **SVHC** None

### 4 First aid measures

- **Description of first aid measures**
- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
- Take affected persons into the open air and position comfortably

(Contd. on page 3)

HK-EN

Trade name: Hilti HIT-RE 500-SD

(Contd. of page 2)

- Seek medical treatment in case of complaints.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, call a physician.
- **After eye contact**  
Call a doctor immediately.  
Rinse opened eye for several minutes under running water.  
Protect unharmed eye.
- **After swallowing**  
Do not induce vomiting; immediately call for medical help.  
Rinse out mouth and then drink plenty of water.
- **Most important symptoms and effects, both acute and delayed** Allergic reactions
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Water spray, carbon dioxide (CO<sub>2</sub>), carbon dioxide blanket, foam, or dry powder.
- **For safety reasons unsuitable extinguishing agents** Water with full jet.
- **Special hazards arising from the substance or mixture**  
Can be released in case of fire  
Nitrogen oxides (NO<sub>x</sub>)  
Carbon monoxide (CO)  
Under certain fire conditions, traces of other toxic gases cannot be excluded.
- **Advice for firefighters**
- **Protective equipment:** In the event of fire, wear self contained breathing apparatus
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Wear protective clothing.  
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.
- **Environmental precautions:**  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.
- **Methods and material for containment and cleaning up:**  
Collect mechanically.  
Clean the accident area carefully; suitable cleaners are:  
organic solvent  
Ensure adequate ventilation.  
Dispose of contaminated material as waste according to item 13.
- **Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

## 7 Handling and storage

- **Precautions for safe handling**  
The usual precautionary measures should be adhered to general rules for handling chemicals.  
Use only in well ventilated areas.  
Take note of emission threshold.  
Check the expiry date: see imprint on manifold (month/year). Do not use expired mortar!
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Keep in a cool, dry and dark place; 5 °C to 25 °C.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Protect from heat and direct sunlight.
- **Storage class** As per VCI (1991) storage classification concept.

(Contd. on page 4)

HK EN

Trade name: Hilti HIT-RE 500-SD

· **Specific end use(s)** Adhesive mortar for rebar and anchor fastenings in solid concrete

(Contd. of page 3)

## 8 Exposure controls/personal protection

### · Control parameters

### · Components with limit values that require monitoring at the workplace:

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

· **Additional information:** The lists that were valid during the compilation were used as basis.

### · Exposure controls

#### · Personal protective equipment

#### · General protective and hygienic measures

The usual precautionary measures should be adhered to general rules for handling chemicals.

Do not eat, drink or smoke while working.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Use skin protection cream for preventive skin protection.

Clean skin thoroughly immediately after handling the product.

Ensure that washing facilities are available in the work place.

Do not carry cleaning cloths impregnated with the product in trouser pockets.

Keep away from foodstuffs, beverages and food.

Take off immediately all contaminated clothing

Store protective clothing separately.

Wash hands during breaks and at the end of the work.

#### · Breathing equipment:

Not necessary if room is well-ventilated.

In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.

· **Recommended filter device for short term use:** Filter AX

#### · Protection of hands:



Protective gloves

Only use chemical-protective gloves with CE-labelling of category III.  
EN 374

Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

#### · Material of gloves

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0,4$  mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

#### · Penetration time of glove material

Value for the permeation: Level 6 ( $> 480$  min)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **As protection from splashes gloves made of the following materials are suitable:** Nitrile rubber, NBR

· **Not suitable are gloves made of the following materials:**

Natural rubber, NR

Leather gloves

Strong gloves

#### · Eye protection:



Tightly sealed safety glasses.

Gauze goggles

Face protection

EN 166 / EN 170

(Contd. on page 5)

HK-EN

Trade name: Hilti HIT-RE 500-SD

(Contd. of page 4)

· **Body protection:**



Protective work clothing.

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** pasty  
**Colour:** Component A: grey  
Component B: red  
Mixture: red

· **Odour:** Amine-like

· **Odour threshold:** Not determined

· **pH-value:** Component A: 7  
Component B: 11,5  
Mixture: 11,5  
Not applicable.

· **Change in condition**

**Melting point/Melting range:** Not determined  
**Boiling point/Boiling range:** > 200 °C

· **Flash point:** >100 °C (DIN EN ISO 1523)

· **Inflammability (solid, gaseous)** Not determined

· **Ignition temperature:** Not determined

· **Decomposition temperature:** Not determined

· **Self-inflammability:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive.

· **Critical values for explosion:**

**Lower:** Not determined  
**Upper:** Not determined

· **Vapour pressure at 20 °C:** 0,04 hPa

· **Density** Component A: 1,5 g/cm<sup>3</sup> (DIN 51757)  
Component B: 1,4 g/cm<sup>3</sup> (DIN 51757)  
Not determined

· **Relative density** Not determined

· **Vapour density** Not determined

· **Evaporation rate** Not determined

· **Solubility in / Miscibility with Water:** Insoluble

· **Partition coefficient (n-octanol/water):** Not determined

· **Viscosity:**

**dynamic at 20 °C:** 50 Pa.s (DIN 53019)  
**kinematic at 20 °C:** >20 s (ISO 2431)

· **Solvent separation test** Not determined

· **Solvent content:**

**Organic solvents:** 0 %  
**Water:** 0 %

· **Other information** No further relevant information available.

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Trade name: Hilti HIT-RE 500-SD

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## 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

### 1477-55-0 m-Xylylenediamine

Oral	LD50	1040 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rabbit)
Inhalative	LC50/4h	2,4 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**  
Strong caustic effect.  
Strong irritant with the danger of severe eye injury.
- **Sensitisation:** Sensitization possible by skin contact.
- **Additional toxicological information:**  
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:  
Harmful  
Corrosive  
Irritant
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** None

## 12 Ecological information

- **Toxicity**

· **Aquatic toxicity:**

### 25068-38-6 reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight = 700)

EC50/48h	9,4 mg/l (Algae)
	1,7 mg/l (magna daphnia)
EC50/96h	1,2 mg/l (fish)

### 28064-14-4 Reaction product: bisphenol-F epichlorhydrin resin, MW ≤ 700

EC50/48h	9,4 mg/l (Algae)
	1,7 mg/l (magna daphnia)
EC50/96h	1,5 mg/l (fish)

### 1477-55-0 m-Xylylenediamine

EC50/48h	12 mg/l (Algae)
	15,2 mg/l (magna daphnia)
EC50/96h	75 mg/l (fish)

### 16096-31-4 1,6-bis(2,3-epoxypropoxy)hexane

EC50/48h	23,1 mg/l (Algae)
	39 mg/l (magna daphnia)
EC50/96h	17,1 mg/l (fish)

- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

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Trade name: Hilti HIT-RE 500-SD

(Contd. of page 6)

- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **According to recipe contains the following heavy metals and compounds according to EC guideline NO. 76/464 EC:**  
None
- **General notes:**  
Avoid transfer into the environment.  
The product contains materials that are harmful to the environment.  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms  
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Hand over to disposers of hazardous waste.  
Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations.

- **European waste catalogue**

08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27*	paint, inks, adhesives and resins containing dangerous substances

- **Uncleaned packagings:**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Dispose of packaging according to regulations on the disposal of packagings.

### 14 Transport information

- **UN-Number**
- **ADR, IMDG, IATA** UN3259
- **UN proper shipping name**
- **ADR, IMDG, IATA** AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine)
- **Transport hazard class(es)**
- **ADR, IMDG, IATA**
- **Class** 8 Corrosive substances.
- **Label** 8
- **Packing group**
- **ADR, IMDG, IATA** II
- **Environmental hazards:** Not applicable.
- **Special precautions for user** Warning: Corrosive substances.
- **EMS Number:** F-A,S-B
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:**
- **ADR**
- **Limited quantities (LQ)** 1 kg
- **Tunnel restriction code** E
- **IMDG**
- **Limited quantities (LQ)** 1 kg

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Trade name: Hilti HIT-RE 500-SD

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· <b>IATA</b>	
· <b>Remarks:</b>	Packing Instruction No.: 859
· <b>UN "Model Regulation":</b>	UN3259 AMINES, SOLID, CORROSIVE, N.O.S. (m-Xylylenediamine), 8, II
· <b>HS-Code:</b>	3214 10 10: Glaziers' putty, grafting putty, resin cements, caulking compounds and other mastics

**15 Regulatory information**· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Chinese Chemical Inventory of Existing Chemical Substances**

All ingredients are listed.

· **National regulations**

Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work. Article 12 Training of workers

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.· **Chemical safety assessment:** not required.**16 Other information**

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

- 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.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- 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.

· **Department issuing data specification sheet:**

Hilti Entwicklungsgesellschaft mbH  
Hiltistrasse 6  
D-86916 Kaufering  
Tel.: +49 8191 906310  
Fax: +49 8191 90176310  
e-mail: anchor.hse@hilti.com

· **Contact:** Mechthild Krauter· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A  
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1  
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1  
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· **\* Data compared to the previous version altered.**

- 2 Hazards identification
- 3 Composition/information on ingredients
- 14 Transport information
- 16 Other information

Hilti (Hong Kong) Limited  
17/F, Tower 6,  
China Hong Kong City,  
33 Canton Road,  
Tsimshatsui,  
Kowloon.

4 June, 1997

Attention: Mr. Denny Wu

Dear Sir,

**Procedures for building materials submission**

I refer to your letter dated 19 May, 1997 concerning the above.

2. Please be advised that there is no provision under the Buildings Ordinance for the Building Authority to approve any proprietary building products. Under the Buildings Ordinance, authorized persons and/or registered structural engineers are required to supervise building works including the selection and installation of proprietary building products and to certify compliance with the Buildings Ordinance upon completion of works. They are therefore responsible for ensuring the health and structural safety requirements, inter alia, of these building products in the building projects which they have been appointed by the developer to co-ordinate and supervise. It is also their responsibility to ensure these products have been installed in accordance with the manufacturers' specifications and complied with the Buildings Ordinance and Regulations.
3. In establishing the acceptability of the proprietary products in building works, reference may be made to the performance standards laid down in Building (Construction) Regulations 1990 and the current Practice Note for Authorized Persons and Registered Structural Engineers 140 in which performance requirements for compliance are given. Reliance may also be placed on the test/assessment report prepared by a recognized laboratory or an equivalent establishment.
4. Before the proprietary products are installed in a building project, the authorized person and/or registered structural engineer appointed for the project should be approached by the manufacturers or their agents for advice and guidance. **Prior approval/acceptance from the Buildings Department is not required.**
5. Generally, all relevant information supporting the use of the proprietary products in building works under the Buildings Ordinance should be submitted associated with the prescribed plans for approval on project basis.

/ Notwithstanding....

- 2 -

6. Notwithstanding the above, the proprietary building products to which 'No objection' letters have been given are still recognized as accepted constructional materials to be used in building works under the Buildings Ordinance provided that all conditions specified in the letters are satisfied. You are informed that the procedures currently adopted by the Building Authority for processing statutory approval of plans which involve the use of these proprietary building products remain unchanged.

7. It is a fact that the 'No objection' letter giving general acceptance to a proprietary building product is based on the technical information submitted to this Department at the time of its application. Should there be any significant modification to these technical information, the product will certainly be considered as 'new' product. The acceptability of such proprietary product in building works should be evaluated by the authorized person and/or registered structural engineer appointed for the project as mentioned above.

8. Should you have any further queries to the above, please feel free to contact the undersigned or Mr. T.C. Kan of this office at phone no. 2626 1583.

Yours faithfully,



(K.S. Chang)

Technical Secretary/Structural  
for Building Authority

tck/

Date	Project Name	Contractor	Application
<b>Project Type:ASD</b>			
2013	Kai Tak Development		Rebar fixing
2015	Kai Tak Trade & Industry Tower 工業及貿易發展局大樓	Dragages	Rebar fixing
<b>Project Type:Buildings</b>			
2014	InterContinental, Holiday Inn and Cosmopolitan (Parcel 3)	VOL	Rebar fixing
2014	Lok Wo Sha Complex Development 落禾沙綜合發展	HIP HING / EMAN	Rebar fixing
2014	New World - Pak Kong Residential	NEW WORLD	Rebar fixing
2015	Lok Wo Sha Complex Development 落禾沙綜合發展	HIP HING / EMAN	Steel beam/bracket fixing
<b>Project Type:HKAA</b>			
2015	Airport Development 機場主要發展	GAMMON	Rebar fixing
<b>Project Type:Macau - Casino &amp; Hotel</b>			
2012	Macau Studio City	MERCURIO SERVICOS DE ENGENHARIA	Fixing on steel structural
2012	Macau Studio City	MERCURIO SERVICOS DE ENGENHARIA	Rebar fixing
2012	Macau Studio City	PAUL Y CONST CO LTD	Rebar fixing
2013	Galaxy Maga Resort銀河渡假村	Hsin Chong	Catch fence fixing
2013	Macau Studio City	MERCURIO SERVICOS DE ENGENHARIA	Rebar fixing
2013	Macau Studio City	Paul Y Yau Lee JV	Rebar fixing
2013	Macau Studio City	VOL	Rebar fixing
2013	The Venetian Casino Resort	MERCURIO SERVICOS DE ENGENHARIA	Rebar fixing
2014	City of Dreams Hotel Tower D 新濠天地酒店大樓D	Dragages	Rebar fixing
2014	Galaxy Maga Resort銀河渡假村	Hsin Chong	Rebar fixing
2014	Galaxy Mega Resort (Phase 2) 銀河渡假村二期	Hsin Chong	Interior finishings fixing
2014	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Machine/Equipment fixng
2014	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Others
2014	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Rebar fixing
2014	Macau Studio City	Paul Y Yau Lee JV	Rebar fixing
2014	MGM Cotai 美高梅(路氹發展)	China State	Rebar fixing



Date	Project Name	Contractor	Application
2014	MGM Cotai 美高梅(路氹發展)	CHINA STATE (HONG KONG) - CHINA	Shear connector fixing
2014	Wynn Palace 永利皇宮	Leighton	Others
2014	Wynn Palace 永利皇宮	Leighton	Rebar fixing
2015	City of Dreams Hotel Tower D 新濠天地酒店大樓D	Dragages	Others
2015	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Aluminium cladding fixing
2015	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Machine/Equipment fixng
2015	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Others
2015	Macao Studio City 星麗門	Paul Y & Yau Lee JV	Rebar fixing
2015	MGM Cotai 美高梅(路氹發展)	China State	Rebar fixing
2015	Venetian (Parcel 3) - Parisian 威尼斯人(三期) - 巴黎人	Hsin Chong	Others
2015	Venetian (Parcel 3) - Parisian 威尼斯人(三期) - 巴黎人	Hsin Chong	Rebar fixing
2015	Wynn Palace 永利皇宮	Leighton	Signage fixing
<b>Project Type:Others</b>			
2012	Hong Kong University Redevelopment	APPI MARBLE LIMITED	Stone cladding fixing
<b>Project Type:Railway</b>			
2013	MTR - South Island Line 地鐵南港島線	KIER LAING O'ROURKE KADEN JV	Rebar fixing
2013	MTR - South Island Line 地鐵南港島線	MTRCL	Electrical services fixing
2013	MTR - South Island Line 地鐵南港島線	MTRCL	Rebar fixing
2014	MTR - Express Rail Link 港深廣高速鐵路	MTRC	Rebar fixing
2014	MTR - Kwun Tong Line Extension 地鐵觀塘延長線	MTRC	Rebar fixing
2014	MTR - South Island Line 地鐵南港島線	MTRC	Rebar fixing



Date	Project Name	Contractor	Application
2014	MTR - South Island Line 地鐵南港島線	MTRCL	Rebar fixing
2014	MTR - West Island Line 地鐵西港島線	MTRC	Steel beam/bracket fixing
2015	MTR - Express Rail Link 港深廣高速鐵路	MTRC	Rebar fixing
2015	MTR - Express Rail Link 港深廣高速鐵路	MTRC	Steel beam/bracket fixing
2015	MTR - Kwun Tong Line Extension 地鐵觀塘延長線	MTRC	Rebar fixing
2015	MTR - Shatin to Central Link 沙中線	MTRC	Rebar fixing
2015	MTR - Shatin to Central Link 沙中線	MTRC	Steel beam/bracket fixing
2015	MTR - South Island Line 地鐵南港島線	MTRC	Rebar fixing