Hilti HRD-C Plastic Frame Anchor

Submission Folder

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Frame anchor with countersunk head HRD-C

Technical data

Recommended load (kN), safety factor(γ)=3

Model	Size	10x80	10x100	10x120	10x140
HRD-C (h_{ef}=70 mm) at concrete 15 N/mm²	Tensile Load, Nrec	2.0	2.0	2.0	2.0
	Shear Load, Vrec	3.5	3.5	3.5	3.5
HUD-1 at AAC block	Tensile Load, Nrec	1.0	1.0	1.0	1.0
	Shear Load, Vrec	1.2	1.2	1.2	1.2

Remarks:
1) All the data applies to no edge distance, spacing and other influences
2) Holes must be produced by rotary drilling only
3) For detail design method, please refer to Fastening Technology Manual

Order Now

Ordering designation	Anchor size	Anchor Length	Min. hole depth 1	Min. hole depth 2	Min. anchorage depth 1	Min. anchorage depth 2	Drill bit diameter	Fastening thickness at embed.2	Base plate clearance hole	Sales pack quantity	Item number
HRD-C 10x60	10 mm	60 mm	60 mm	-	50 mm	-	10 mm	-	11 mm	50 pc	423859[1)]
HRD-C 10x80	10 mm	80 mm	60 mm	80 mm	50 mm	70 mm	10 mm	10 mm	11 mm	50 pc	423860
HRD-C 10x100	10 mm	100 mm	60 mm	80 mm	50 mm	70 mm	10 mm	30 mm	11 mm	50 pc	423861
HRD-C 10x120	10 mm	120 mm	60 mm	80 mm	50 mm	70 mm	10 mm	50 mm	11 mm	50 pc	423862
HRD-C 10x140	10 mm	140 mm	60 mm	80 mm	50 mm	70 mm	10 mm	70 mm	11 mm	50 pc	423863
HRD-C 10x160	10 mm	160 mm	60 mm	80 mm	50 mm	70 mm	10 mm	90 mm	11 mm	50 pc	423864[1)]
HRD-C 10x180	10 mm	180 mm	60 mm	80 mm	50 mm	70 mm	10 mm	110 mm	11 mm	50 pc	423865[1)]
HRD-C 10x200	10 mm	200 mm	60 mm	80 mm	50 mm	70 mm	10 mm	130 mm	11 mm	50 pc	423866[1)]
HRD-C 10x230	10 mm	230 mm	60 mm	80 mm	50 mm	70 mm	10 mm	160 mm	11 mm	50 pc	423867[1)]
HRD-C 10x270	10 mm	270 mm	60 mm	80 mm	50 mm	70 mm	10 mm	200 mm	11 mm	50 pc	423868[1)]
HRD-C 10x310	10 mm	310 mm	60 mm	80 mm	50 mm	70 mm	10 mm	240 mm	11 mm	50 pc	423869[1)]

[1)] This is a non-stock item. For detailed lead time information please contact your Hilti representative.

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

Frame anchor with countersunk head HRD-CR

Technical data	
Anchor type	Anchor with screw
Head configuration	Countersunk
Material composition	Steel, A4 (SS 316) or duplex equivalent, Polyamide
Material, corrosion	Steel, stainless
Suitable for cracked concrete with redundant fastenings	Yes
Bit size	T40

Order Now

Ordering designation	Anchor size	Anchor Length	Min. hole depth 1	Min. hole depth 2	Min. anchorage depth 1	Min. anchorage depth 2	Drill bit diameter	Fastening thickness at embed.2	Base plate clearance hole	Sales pack quantity	Item number
HRD-CR 10x60	10 mm	60 mm	60 mm	-	50 mm	-	10 mm	-	11 mm	50 pc	423885[1)]
HRD-CR 10x100	10 mm	100 mm	60 mm	80 mm	50 mm	70 mm	10 mm	30 mm	11 mm	50 pc	423886[1)]
HRD-CR 10x140	10 mm	140 mm	60 mm	80 mm	50 mm	70 mm	10 mm	70 mm	11 mm	50 pc	423887[1)]

[1)] This is a non-stock item. For detailed lead time information please contact your Hilti representative.

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HRD Plastic frame anchor

Everyday standard plastic frame anchor suitable for wide range of base materials

Anchor version

HRD-C
HRD-CR
(M8)

HRD-C
HRD-CR
(M10)

Benefits

- Innovative screw design for better hold
- Suitable on practically all base materials
- Flexible embedment depth (approved at 50mm and 70mm)
- Suitable for fastening thicknesses up to 260mm
- Pre-assembled for optimum handling and fastening quality

Base material

Uncracked concrete

Solid brick

Hollow brick

Autoclaved aerated concrete

Drywall

Prestressed hollow core slabs

Window frame

Load conditions

Tension zone [a]

Fire resistance

Other information

European Technical Assessment

CE conformity

a) Redundant fastening only

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European Technical Assessment [a]	DIBt, Berlin	ETA-07/0219 / 2017-09-19
Fire test report	MFPA, Leipzig	GS 3.2/10-157-1/ 2010-09-02
Window frame report [b]	Ift, Rosenheim	Ift report 105 33035 / 2007-07-09

a) All data given in this section according ETA-07/0219, issue 2017-09-19. The anchor is to be used only for redundant fastening for non-structural applications
b) Only available for HRD 8

Recommended general notes

* The below clauses based on Hilti product qualifications are for references only. Selection of clauses by the engineer shall be based on the specific application needs. Please contact Hilti's technical team for further details.

- Plastic anchor with ribbed surface for toggling in hollow material, made of polyamide PA6 and an accompanying specific screw of galvanized steel or stainless steel; for use in concrete, solid brick, hollow brick, aerated concrete and drywall.
- Anchor shall be installed as per the manufacturer's approved procedure and equipment

Basic loading data

All data in this section applies to:
- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Base material as specified in the table
- Minimum base material thickness
- *Steel* failure
- Shear without lever arm
- Anchor in redundant fastening
- Includes additional Hilti recommended data which is not part of the approval

Characteristic resistance

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Concrete C12/15		F_{Rk}	[kN]	2,0	3,0	6,0	-
		V_{Rk}	[kN]	6,9 / 6,6 a)	10,6 / 10,1 a) / 11,1 b)		-
Concrete C16/20 – C50/60		F_{Rk}	[kN]	3,0	4,5	8,5	-
		V_{Rk}	[kN]	6,9 / 6,6 a)	10,6 / 10,1 a) / 11,1 b)		-
Solid clay brick Mz 2,0 DIN V 105-100/EN 771-1	$f_b \geq 20$ N/mm²	F_{Rk}	[kN]	1,5	3,0 4,5 c)	e)	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	1,2	2,0 3,0 c)	e)	-
Solid sand-lime brick KS 2,0 DIN V 106/EN 771-2	$f_b \geq 20$ N/mm²	F_{Rk}	[kN]	2,5	3,0 4,5 c)	e)	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	2,0	2,0 3,0 c)	e)	-
Lightweight solid block Vbl 0,9 DIN V 18151-100/EN 771	$f_b \geq 20$ N/mm²	F_{Rk}	[kN]	-	3,5 6,0 c)	e)	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	2,5 4,5 c)	e)	-
	$f_b \geq 6$ N/mm²	F_{Rk}	[kN]	0,5	-	-	-
Ital. solid brick Tufo	$f_b \geq$ n/a	F_{Rk}	[kN]	1,4	-	-	-
Hollow clay brick Hlz B 12/1,2 Brick **A** d)	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	0,5	-	-	-
Vertic. perforated clay brick Hlz 1,2-2DF Brick **F** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	1,5	-	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	2,0	-	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	2,0	-	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **G** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	0,4	0,75	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	0,5	0,9	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	0,6	0,9	-
	$f_b \geq 20$ N/mm²	F_{Rk}	[kN]	-	0,9	1,5	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **H** d)	$f_b \geq 28$ N/mm²	F_{Rk}	[kN]	-	2,0	2,5	-
	$f_b \geq 50$ N/mm²	F_{Rk}	[kN]	-	3,0	3,5	-
Vertic. perforated clay brick Poroton T8 Brick **M** d)	$f_b \geq 6$ N/mm²	F_{Rk}	[kN]	-	0,75	1,5	-
Vertic. perforated clay brick Hlz 1,0-9DF Brick **L** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	1,2	1,5	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	1,5	1,5	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	1,5	2,0	-
	$f_b \geq 16$ N/mm²	F_{Rk}	[kN]	-	2,0	3,0	-

a) Values for hot-dipped galvanized carbon steel
b) Values for stainless steel
c) Valid for edge distance c ≥150mm, intermediate values can be interpolated
d) Specification on hollow base material brick types see separate table below
e) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Characteristic resistance

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Hollow sand-lime brick KSL 12/1,4 Brick **O** d)	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	0,75	-	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **P** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	1,5	-	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	1,5	-	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	2,0	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **Q** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	-	2,0	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	-	2,5	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	-	3,0	-
Vertic. perforated clay brick KSL R 1,6-16DF Brick **R** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	0,9	1,2	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	1,2	1,5	-
	$f_b \geq 12$ N/mm²	F_{Rk}	[kN]	-	1,5	2,0	-
	$f_b \geq 16$ N/mm²	F_{Rk}	[kN]	-	2,0	2,5	-
Lightweight hollow brick Hbl B 2/0,8 Brick **S** d)	$f_b \geq 2$ N/mm²	F_{Rk}	[kN]	0,30	-	-	-
Lightweight concrete hollow block Hbl 1,2-12DF Brick **T** d)	$f_b \geq 8$ N/mm²	F_{Rk}	[kN]	-	0,5	0,75	-
	$f_b \geq 10$ N/mm²	F_{Rk}	[kN]	-	1,2	2,0	-
Ital. hollow brick Poroton P700 Brick **N** d)	$f_b \geq 20$ N/mm²	F_{Rk}	[kN]	1,5	-	-	-
Ital. hollow brick Doppio Uni Brick **C+I** d)	$f_b \geq 28$ N/mm²	F_{Rk}	[kN]	-	-	0,6	-
	$f_b \geq 50$ N/mm²	F_{Rk}	[kN]	0,9 (C)	-	1,5 (I)	-
Span. hollow brick Rojo hydrofugano Brick **D** d)	$f_b \geq 6$ N/mm²	F_{Rk}	[kN]	0,60	-	-	-
Span. hollow brick Ladrillo perforado Brick **J** d)	$f_b \geq 16$ N/mm²	F_{Rk}	[kN]	-	1,5	2,0	-
Span. hollow brick Clinker mediterraneo Brick **K** d)	$f_b \geq 75$ N/mm²	F_{Rk}	[kN]	-	-	1,5	-
French hollow brick Brique Creuse **B** d)	$f_b \geq 6$ N/mm²	F_{Rk}	[kN]	0,50	-	-	-
Autoclaved aerated concrete AAC	AAC 2	F_{Rk}	[kN]	-	-	0,9	0,9
	AAC 4	F_{Rk}	[kN]	-	-	2,0	2,5
	AAC 6	F_{Rk}	[kN]	-	-	2,0	2,5
				-	-	3,5 c)	4,5 c)

a) Values for hot-dipped galvanized carbon steel
b) Values for stainless steel
c) Valid for edge distance c ≥150mm, intermediate values can be interpolated
d) Specification on hollow base material brick types see separate table below
e) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Design resistance

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Concrete C12/15		N_{Rd}	[kN]	1,1	1,7	3,3	-
		V_{Rd}	[kN]	5,5 / 5,2 a)	8,5 / 8,1 a) / 8,5 b)		-
Concrete C16/20 – C50/60		N_{Rd}	[kN]	1,7	2,5	4,7	-
		V_{Rd}	[kN]	5,5 / 5,2 a)	8,5 / 8,1 a) / 8,5 b)		-
Solid clay brick Mz 2,0 DIN V 105-100/EN 771-1	$f_b \geq 20$ N/mm²	F_{Rd}	[kN]	0,6	1,2	e)	-
					1,8 c)		
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	0,48	0,8	e)	-
					1,2 c)		
Solid sand-lime brick KS 2,0 DIN V 106/EN 771-2	$f_b \geq 20$ N/mm²	F_{Rd}	[kN]	1,0	1,2	e)	-
					1,8 c)		
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	0,8	0,8	e)	-
					1,2 c)		
Lightweight solid block Vbl 0,9 DIN V 18151-100/EN 771	$f_b \geq 20$ N/mm²	F_{Rd}	[kN]	-	1,4	e)	-
					2,4 c)		
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	1,0	e)	-
					1,8 c)		
	$f_b \geq 6$ N/mm²	F_{Rd}	[kN]	0,2	-	-	-
Ital. solid brick Tufo	$f_b \geq$ n/a	F_{Rd}	[kN]	0,56	-	-	-
Hollow clay brick Hlz B 12/1,2 Brick **A** d)	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	0,2	-	-	-
Vertic. perforated clay brick Hlz 1,2-2DF Brick **F** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,6	-	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,8	-	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	0,8	-	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **G** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,16	0,3	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,2	0,36	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	0,24	0,36	-
	$f_b \geq 20$ N/mm²	F_{Rd}	[kN]	-	0,36	0,6	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **H** d)	$f_b \geq 28$ N/mm²	F_{Rd}	[kN]	-	0,8	1,0	-
	$f_b \geq 50$ N/mm²	F_{Rd}	[kN]	-	1,2	1,4	-
Vertic. perforated clay brick Poroton T8 Brick **M** d)	$f_b \geq 6$ N/mm²	F_{Rd}	[kN]	-	0,3	0,6	-
Vertic. perforated clay brick Hlz 1,0-9DF Brick **L** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,48	0,6	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,6	0,6	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	0,6	0,8	-
	$f_b \geq 16$ N/mm²	F_{Rd}	[kN]	-	0,8	1,2	-

a) Values for hot-dipped galvanized carbon steel
b) Values for stainless steel
c) Valid for edge distance c ≥150mm, intermediate values can be interpolated
d) Specification on hollow base material brick types see separate table below
e) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Design resistance

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Hollow sand-lime brick KSL 12/1,4 Brick **O** d)	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	0,3	-	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **P** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,6	-	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,6	-	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	0,8	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **Q** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	-	0,8	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	-	1,0	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	-	1,2	-
Vertic. perforated clay brick KSL R 1,6-16DF Brick **R** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,36	0,48	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,48	0,6	-
	$f_b \geq 12$ N/mm²	F_{Rd}	[kN]	-	0,6	0,8	-
	$f_b \geq 16$ N/mm²	F_{Rd}	[kN]	-	0,8	1,0	-
Lightweight hollow brick Hbl B 2/0,8 Brick **S** d)	$f_b \geq 2$ N/mm²	F_{Rd}	[kN]	0,12	-	-	-
Lightweight concrete hollow block Hbl 1,2-12DF Brick **T** d)	$f_b \geq 8$ N/mm²	F_{Rd}	[kN]	-	0,2	0,3	-
	$f_b \geq 10$ N/mm²	F_{Rd}	[kN]	-	0,48	0,8	-
Ital. hollow brick Poroton P700 Brick **N** d)	$f_b \geq 20$ N/mm²	F_{Rd}	[kN]	0,6	-	-	-
Ital. hollow brick Doppio Uni Brick **C+I** d)	$f_b \geq 28$ N/mm²	F_{Rd}	[kN]	-	-	0,24	-
	$f_b \geq 50$ N/mm²	F_{Rd}	[kN]	0,36 (C)	-	0,6 (I)	-
Span. hollow brick Rojo hydrofugano Brick **D** d)	$f_b \geq 6$ N/mm²	F_{Rd}	[kN]	0,24	-	-	-
Span. hollow brick Ladrillo perforado Brick **J** d)	$f_b \geq 16$ N/mm²	F_{Rd}	[kN]	-	0,6	0,8	-
Span. hollow brick Clinker mediterraneo Brick **K** d)	$f_b \geq 75$ N/mm²	F_{Rd}	[kN]	-	-	0,6	-
French hollow brick Brique Creuse **B** d)	$f_b \geq 6$ N/mm²	F_{Rd}	[kN]	0,20	-	-	-
Autoclaved aerated concrete AAC	AAC 2	F_{Rd}	[kN]	-	-	0,45	0,45
	AAC 4	F_{Rd}	[kN]	0,21	-	1,0	1,25
	AAC 6	F_{Rd}	[kN]	0,21	-	1,0	1,25
				0,21	-	1,75 c)	2,25 c)

a) Values for hot-dipped galvanized carbon steel
b) Values for stainless steel
c) Valid for edge distance c ≥150mm, intermediate values can be interpolated
d) Specification on hollow base material brick types see separate table below
e) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Recommended loads [a]

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Concrete C12/15		N_{Rec}	[kN]	0,8	1,2	2,4	-
		V_{Rec}	[kN]	3,9 / 3,7 [b]	6,1 / 5,8 [b] / 6,1 [c]		-
Concrete C16/20 – C50/60		N_{Rec}	[kN]	1,2	1,8	3,4	-
		V_{Rec}	[kN]	3,9 / 3,7 [b]	6,1 / 5,8 [b] / 6,1 [c]		-
Solid clay brick Mz 2,0 DIN V 105-100/EN 771-1	$f_b \geq 20$ N/mm²	F_{Rec}	[kN]	0,42	0,85	[f]	-
					1,28 [d]		
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	0,34	0,57	[f]	-
					0,85 [d]		
Solid sand-lime brick KS 2,0 DIN V 106/EN 771-2	$f_b \geq 20$ N/mm²	F_{Rec}	[kN]	0,7	0,85	[f]	-
					1,28 [d]		
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	0,57	0,57	[f]	-
					0,85 [d]		
Lightweight solid block Vbl 0,9 DIN V 18151-100/EN 771	$f_b \geq 20$ N/mm²	F_{Rec}	[kN]	-	1,0	[f]	-
					1,71 [d]		
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,71	[f]	-
					1,28 [d]		
	$f_b \geq 6$ N/mm²	F_{Rec}	[kN]	0,14	-	-	-
Ital. solid brick Tufo	$f_b \geq$ n/a	F_{Rec}	[kN]	0,4	-	-	-
Hollow clay brick Hlz B 12/1,2 Brick **A** [e]	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	0,14	-	-	-
Vertic. perforated clay brick Hlz 1,2-2DF Brick **F** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,42	-	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,57	-	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	0,57	-	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **G** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,11	0,21	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,14	0,25	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	0,17	0,25	-
	$f_b \geq 20$ N/mm²	F_{Rec}	[kN]	-	0,25	0,42	-
Vertic. perforated clay brick Hlz 1,0-2DF Brick **H** [e]	$f_b \geq 28$ N/mm²	F_{Rec}	[kN]	-	0,57	0,71	-
	$f_b \geq 50$ N/mm²	F_{Rec}	[kN]	-	0,85	1,0	-
Vertic. perforated clay brick Poroton T8 Brick **M** [e]	$f_b \geq 6$ N/mm²	F_{Rec}	[kN]	-	0,21	0,42	-
Vertic. perforated clay brick Hlz 1,0-9DF Brick **L** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,34	0,42	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,42	0,42	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	0,42	0,57	-
	$f_b \geq 16$ N/mm²	F_{Rec}	[kN]	-	0,57	0,85	-

a) With overall partial safety factor for action γ = 1,4. The partial safety factors for action depend on the type of loading and shall be taken from national regulations
b) Values for hot-dipped galvanized carbon steel
c) Values for stainless steel
d) Valid for edge distance c ≥150mm, intermediate values can be interpolated
e) Specification on hollow base material brick types see separate table below
f) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Recommended loads [a]

Anchor size				HRD 8	HRD 10		
		h_{nom}	[mm]	50	50	70	90
Hollow sand-lime brick KSL 12/1,4 Brick **O** [e]	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	0,21	-	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **P** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,42	-	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,42	-	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	0,57	-	-
Vertic. perforated clay brick Hlz 1,6-2DF Brick **Q** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	-	0,57	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	-	0,71	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	-	0,85	-
Vertic. perforated clay brick KSL R 1,6-16DF Brick **R** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,25	0,34	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,34	0,42	-
	$f_b \geq 12$ N/mm²	F_{Rec}	[kN]	-	0,42	0,57	-
	$f_b \geq 16$ N/mm²	F_{Rec}	[kN]	-	0,57	0,71	-
Lightweight hollow brick Hbl B 2/0,8 Brick **S** [e]	$f_b \geq 2$ N/mm²	F_{Rec}	[kN]	0,09	-	-	-
Lightweight concrete hollow block Hbl 1,2-12DF Brick **T** [e]	$f_b \geq 8$ N/mm²	F_{Rec}	[kN]	-	0,14	0,21	-
	$f_b \geq 10$ N/mm²	F_{Rec}	[kN]	-	0,34	0,57	-
Ital. hollow brick Poroton P700 Brick **N** [e]	$f_b \geq 20$ N/mm²	F_{Rec}	[kN]	0,43	-	-	-
Ital. hollow brick Doppio Uni Brick **C+I** [e]	$f_b \geq 28$ N/mm²	F_{Rec}	[kN]	-	-	0,17	-
	$f_b \geq 50$ N/mm²	F_{Rec}	[kN]	0,25 (C)	-	0,42 (I)	-
Span. hollow brick Rojo hydrofugano Brick **D** [e]	$f_b \geq 6$ N/mm²	F_{Rec}	[kN]	0,17	-	-	-
Span. hollow brick Ladrillo perforado Brick **J** [e]	$f_b \geq 16$ N/mm²	F_{Rec}	[kN]	-	0,42	0,57	-
Span. hollow brick Clinker mediterraneo Brick **K** [e]	$f_b \geq 75$ N/mm²	F_{Rec}	[kN]	-	-	0,42	-
French hollow brick Brique Creuse **B** [e]	$f_b \geq 6$ N/mm²	F_{Rec}	[kN]	0,14	-	-	-
Autoclaved aerated concrete AAC	AAC 2	F_{Rec}	[kN]	-	-	0,32	0,32
	AAC 4	F_{Rec}	[kN]	0,15	-	0,71	0,89
	AAC 6	F_{Rec}	[kN]	0,15	-	0,71	0,89
				0,15	-	1,25 [d]	1,6 [d]

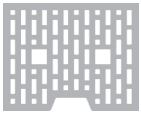
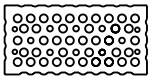
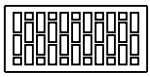
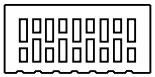
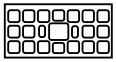
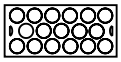
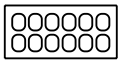
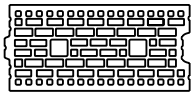
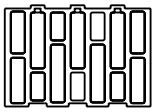
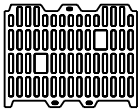
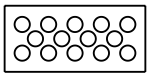
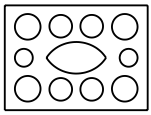
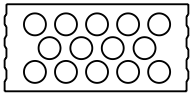
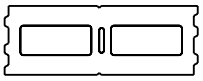
a) With overall partial safety factor for action $\gamma = 1,4$. The partial safety factors for action depend on the type of loading and shall be taken from national regulations
b) Values for stainless steel
c) Valid for edge distance c ≥150mm, intermediate values can be interpolated
d) Specification on hollow base material brick types see separate table below
e) Data can be determined by job-site testing, data for h_{nom}=50mm can be applied

Characteristic resistance for pull-out failure (plastic sleeve) for use in concrete

Anchor size					HRD 8	HRD 10	
In standard concrete slabs							
Embedment depth			h_{nom}≥	[mm]	50	50	70
Characteristic resistance		≥C16/20	$N_{Rk,p}$	[kN]	3,0	4,5	8,5
		C12/15	$N_{Rk,p}$	[kN]	2,0	3,0	6,0
Partial safety factor			γ_{Mc} a)			1,8	
In thin skins (weather resistant skins of external wall panels)							
Embedment depth			h_{nom}≥	[mm]	-	50	-
Characteristic resistance	h=100mm to 400mm	≥C16/20	$N_{Rk,p}$	[kN]	-	3,5	-
		C12/15	$N_{Rk,p}$	[kN]	-	2,5	-
Partial safety factor			γ_{Mc} a)			1,8	
In precast prestressed hollow cored slabs							
Embedment depth			h_{nom}≥	[mm]	-	50	-
Characteristic resistance	d_b≥25mm	≥C16/20	$N_{Rk,p}$	[kN]	-	0,6	-
	d_b≥30mm	≥C16/20	$N_{Rk,p}$	[kN]	-	1,5	-
	d_b≥35mm	≥C16/20	$N_{Rk,p}$	[kN]	-	2,5	-
	d_b≥40mm	≥C16/20	$N_{Rk,p}$	[kN]	-	3,5	-
Partial safety factor			γ_{Mc} a)			1,8	

a) In absence of other regulations

Specification of hollow base material brick types

Specification	Picture	Drilling method	Specification	Picture	Drilling method
Brick **A** Hlz B 12/1,2 LxWxH [mm]: 300x240x248 h_{min} [mm]: 240		Rotary drilling	Brick **B** Brique Creuse LxWxH [mm] : 210x198x… h_{min} [mm]: 210		Rotary drilling
Brick **C** Doppio Uni LxWxH [mm]: 230x120x100 h_{min} [mm]: 120		Rotary drilling	Brick **D** Rojo hydrofugano LxWxH [mm]: 240x115x50 h_{min} [mm]: 115		Rotary drilling
Brick **E** Mattone LxWxH [mm]: 240x180x100 h_{min} [mm]: 180		Rotary drilling	Brick **F** Hlz 1,2-2DF LxWxH [mm]: 240x115x113 h_{min} [mm]: 115		Hammer drilling
Brick **G** Hlz 1,0-2DF LxWxH [mm]: 240x115x113 h_{min} [mm]: 110		Hammer drilling	Brick **H** VHlz 1,6-2DF LxWxH [mm]: 240x115x113 h_{min} [mm]: 115		Hammer drilling
Brick **I** Doppio Uni LxWxH [mm]: 250x120x190 h_{min} [mm]: 120		Rotary drilling	Brick **J** Ladrillo perforado LxWxH [mm]: 240x110x100 h_{min} [mm]: 110		Rotary drilling
Brick **K** Clinker mediterr. LxWxH [mm]: 240x113x50 h_{min} [mm]: 113		Hammer drilling	Brick **L** Hlz 1,0-9DF LxWxH [mm]: 372x175x238 h_{min} [mm]: 175		Rotary drilling
Brick **M** Poroton T8 LxWxH [mm]: 248x365x249 h_{min} [mm]: 365		Rotary drilling	Brick **N** Poroton P700 LxWxH [mm]: 225x300x190 h_{min} [mm]: 300		Rotary drilling
Hollow sand-lime bricks according EN 771-2					
Brick **O** KSL 12/1,4 LxWxH [mm]: 240x248x248 h_{min} [mm]: 240		Hammer drilling	Brick **P** KS L 1,6-2DF LxWxH [mm]: 240x115x113 h_{min} [mm]: 115		Hammer drilling
Brick **Q** KS L 1,4-3DF LxWxH [mm]: 240x175x113 h_{min} [mm]: 175		Hammer drilling	Brick **R** KS L R 1,6-16DF LxWxH [mm]: 480x240x248 h_{min} [mm]: 240		Rotary drilling
Brick **S** Hbl 2/0,8 LxWxH [mm]: 497x240x248 h_{min} [mm]: 240		Hammer drilling	Brick **T** Hbl 1,2-12DF LxWxH [mm]: 497x175x238 h_{min} [mm]: 175		Rotary drilling

Requirements for redundant fastening

The definition of redundant fastening according to Member States is given in ETAG 020. In Absence of a definition by a Member State the following default values may be taken		
Maximum number of fixing points	**Minimum number of anchors per fixing point**	**Maximum design load of action N_{sd} per fixing point** [a]
3	1	3 [kN]
4	1	4,5 [kN]

Materials

Mechanical properties

Anchor size		**HRD 8**		**HRD 10**		
		Galvanized steel	Stainless steel	Galvanized steel	Hot-deep galvanized	Stainless steel
Nominal tensile strength f_{uk}	[N/mm²]	600	580	600	600	630
Yield strength f_{yk}	[N/mm²]	480	450	480	480	480
Stressed cross-section A_s	[mm²]	22,9	22,9	35,3	33,7	35,3
Moment of resistance W	[mm³]	15,5	15,5	29,5	27,6	29,5
Char. bending resistance $M^0_{Rk,s}$	[Nm]	11,1	10,8	21,3	19,9	22,3

Material quality

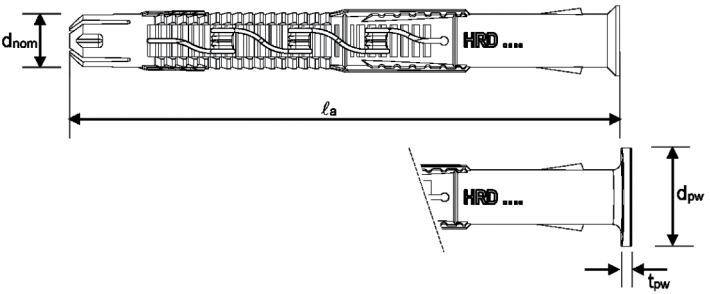
Part		**Material**
Sleeve		Polyamide, colour red
Screw	HRD-C	Carbon steel, galvanized to min.5 µm
	HRD-CR	Stainless steel, corrosion class III: 1.4362/1.4401/1.4404/1.4571

Anchor dimension [a]

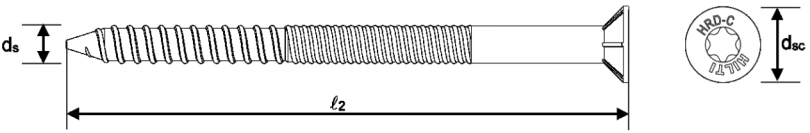
Anchor size			**HRD 8**	**HRD 10**
Minimum thickness of fixture	$t_{fix,min}$	[mm]	0	0
Maximum thickness of fixture	$t_{fix,max}$	[mm]	90	260
Diameter of the sleeve	d_{nom}	[mm]	8	10
Minimum length of the sleeve	$l_{1,min}$	[mm]	60	60
Maximum length of the sleeve	$l_{1,max}$	[mm]	140	310
Diameter of plastic washer	d_{pw}	[mm]	-	17,5
Thickness of plastic washer	t_{pw}	[mm]	-	2
Diameter of the screw	d_S	[mm]	6	7
Minimum length of the screw	$l_{2,min}$	[mm]	65	65
Maximum length of the screw	$l_{2,max}$	[mm]	145	315
Head diameter of countersunk screw	d_{sc}	[mm]	11	14
Head diameter of hexhead screw	d_{sw}	[mm]	-	17,5

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

Anchor sleeve



Special screw



Setting information

Installation temperature
-10°C to +40°C

Service temperature range
Hilti HRD frame anchors may be applied in the temperature range given below.

Temperature range	Base material temperature	Max. long term base material temperature	Max. short term base material temperature
Temperature range	-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.

Setting details

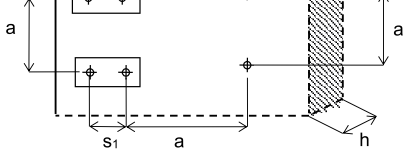
Anchor size				HRD 8	HRD 10
Drill hole diameter		d_o	[mm]	8	10
Cutting diameter of drill bit		$d_{cut} \leq$	[mm]	8,45	10,45
Depth of drilled hole to deepest point		$h_{1,1} \geq$	[mm]	60	60
		$h_{1,2} \geq$	[mm]	-	80
		$h_{1,3} \geq$	[mm]	-	100 a)
Overall plastic anchor embedment depth in base material		$h_{nom,1} \geq$	[mm]	50	50
		$h_{nom,2} \geq$	[mm]	-	70
		$h_{nom,3} \geq$	[mm]	-	90 a)
Diameter of clearance hole in the fixture	Countersunk screw	$d_f \leq$	[mm]	8,5	11
	Hexhead screw	$d_f \leq$	[mm]	-	12

a) For use in AAC

Setting parameters

Anchor size				HRD 8	HRD 10	
		h_{nom}	[mm]	50	50	70
Minimum base material thickness	Concrete	h_{min}	[mm]	100	100	120
	Concrete thin skin	h_{min}	[mm]	-	40	-
	Masonry e)	h_{min}	[mm]	115-300		
Minimum spacing	Concrete ≥C16/20	s_{min}	[mm]	100	50	
		for c ≥	[mm]	50	100 c)	
	Concrete C12/15	s_{min}	[mm]	140	70	
		for c ≥	[mm]	70	140 c)	
	Masonry and AAC	a_{min}	[mm]	250	250	
		s_{min1}	[mm]	200 (120 d))	100	
		s_{min2}	[mm]	400 (240 d))	100	
Minimum edge distance	Concrete ≥C16/20	c_{min}	[mm]	50	50	
		for s ≥	[mm]	100	150 c)	
	Concrete C12/15	c_{min}	[mm]	70	70	
		for s ≥	[mm]	140	210 c)	
	Masonry and AAC	c_{min}	[mm]	100 (60 d))	100	
Critical spacing in concrete a)	Concrete ≥C16/20	$s_{cr,N}$	[mm]	62	80	125
	Concrete C12/15	$s_{cr,N}$	[mm]	68	90	135
Critical edge distance in concrete b)	Concrete ≥C16/20	$c_{cr,N}$	[mm]	100	100	
	Concrete C12/15	$c_{cr,N}$	[mm]	140	140	

a) For spacing larger than the critical spacing each anchor in a group can be considered in design
b) For edge distance smaller than critical edge distance the design loads
c) Linear interpolation allowed
d) Only for brick “Doppio Uni” and “Mattone”
e) Minimum base material thickness of masonry depends on brick type; see specification of brick types in the table above



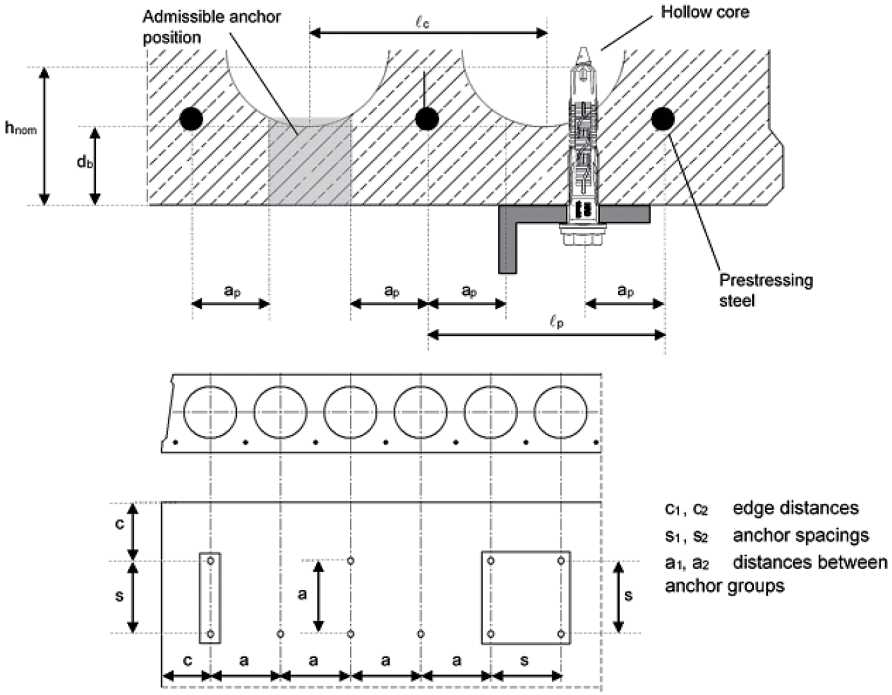
Installation equipment

Anchor size	HRD 8	HRD 10
Rotary hammer	TE 2- TE16	
Other tools	Hammer, Screwdriver	

Admissible anchor positons, min. spacing and edge distance of anchors and distance between anchor groups in precast pre-stressed hollow core slabs

Anchor size			HRD 8	HRD 10
Overall plasic anchor embedment depth in the base material	$h_{nom} \geq$	[mm]	-	50
Bottom flange thickness	$d_b \geq$	[mm]	-	25
Core distance	$\ell_c \geq$	[mm]	-	100
Prestressing steel distance	$\ell_p \geq$	[mm]	-	100
Distance between anchor position and prestressing steel	$a_p \geq$	[mm]	-	50
Minimum edge distance	$c_{min} \geq$	[mm]	-	100
Minimum anchor spacing	$s_{min} \geq$	[mm]	-	100
Minimum distance between anchor groups	$a_{min} \geq$	[mm]	-	100

Schemes of distances and spacing

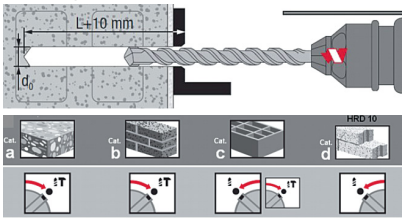


Setting instructions

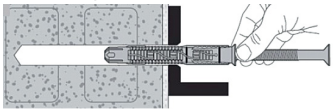
*** For detailed information on installation see instruction for use given with the package of the product.**

Setting instruction for HRD

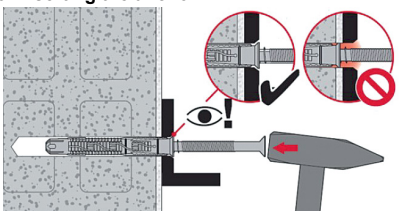
1. Drilling



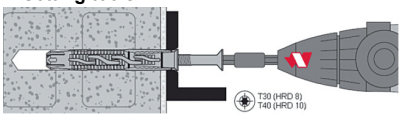
2. Inserting the anchor



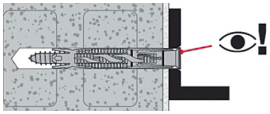
3. Inserting the anchor



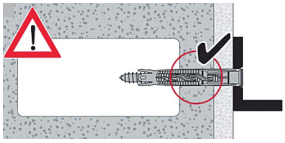
4. Setting tools



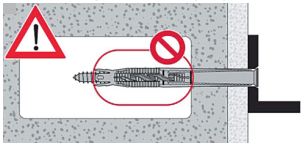
5. Checking



6. Attaching the belonging washer



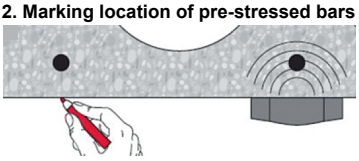
7. Attaching the belonging washer



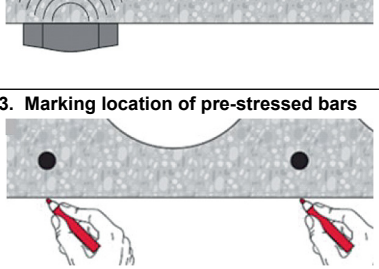
Additional preparation in case of application in precast prestressed hollow core slabs

1. Location of pre-stressed bars

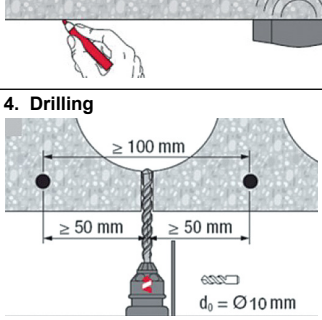
2. Marking location of pre-stressed bars



3. Marking location of pre-stressed bars



4. Drilling



Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 125/AM/DY/23

Subject : Country of Origin- Hilti HRD-C Plastic Frame Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HRD-C Plastic Frame Anchor.

Brand Name : Hilti

Model Name : Hilti HRD-C Plastic Frame 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.
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Kowloon | Hong Kong
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www.hilti.com.hk

Hilti HRD-C Plastic Frame Anchors Job Reference

Year	Project Name	Customer Name	Project type
2020	KAI TAK SPORTS PARK	SHUN HING WOOD WORKING CO LTD	Sport & Recreation
2020	KAI TAK AREA 1K2 (6566)	SUNDART TIMBER PRODUCTS CO LTD	Residential
2020	TKO LOHAS PARK PH10	LEUNG'S WOODEN CO.	Residential
2020	1-3 SHEK KOK RD, TKO AREA 85	SHUN HING WOOD WORKING CO LTD	Residential
2020	1A-1P MARBLE RD NOVUM POINT	NGAI TO CONSTRUCTION LIMITED	Residential
2020	OCEAN PARK WATER PARK	YAT TONG ENGINEERING CO LTD	Sport & Recreation
2020	HKIA SKYCITY COMPLEX BLDG A2&A3	LAHINE ENGINEERING LIMITED	Retail
2020	TKO LOHAS PARK PH9 (SITE J)	FUNG SHING ENGINEERING AND	Residential
2020	LO FAI RD (EAST) TPTL 223 & 229	YEE HONG KEE WOOD WORKS CO LTD	Residential
2020	A&A - Infrastructure - Near Lok Wah South Estate, Chun Wah R	KING LAM (HING YIP) COMPANY LIMITED	Infrastructure
2021	AREA 54 TUNG CHUNG HOUSING	KWONG YIN WING KOO TIMBER CO LTD	Residential
2021	KAI TAK SPORTS PARK	SHUN HING WOOD WORKING CO LTD	Sport & Recreation
2021	HANG TAI RD, MA ON SHAN AREA 86B PH 1&2 - HOUSING	KWONG YIN WING KOO TIMBER CO LTD	Residential
2021	TKO DESALINATION PLANT PH1 13/WSD/17	WAI YIP BUILDING CONSTRUCTION	Utilities
2021	TKO LOHAS PARK PH9 (SITE J)	FUNG NGAI ENGINEERING AND	Residential
2021	1-3 SHEK KOK RD, TKO AREA 85	SHUN HING WOOD WORKING CO LTD	Residential
2021	KAI TAK INLAND REVENUE TOWER	NGAI TO CONSTRUCTION LIMITED	Office
2021	HKIA 3303 3RW & ASSOCIATED WORK	ROCK-ONE (HONG KONG) ENGINEERING	Infrastructure
2021	YAU MA TEI- KWONG WAH HOSPITAL PHASE 1	LAHINE ENGINEERING LIMITED	Health
2021	LI TAK ST & KOK CHEUNG ST	`	Residential
2022	DIAMOND HILL HOUSING PH1 & 2 RENTAL	KWONG YIN WING KOO TIMBER CO LTD	Residential
2022	KAI TAK SPORTS PARK	SHUN HING WOOD WORKING CO LTD	Sport & Recreation
2022	WAN CHAI HOPEWELL CENTRE 2	SUNDART TIMBER PRODUCTS CO LTD	Hospitality
2022	HKIA SKYCITY COMPLEX BLDG A2&A3	SHEREX ENGINEERING LIMITED	Retail
2022	HANG TAI RD, MA ON SHAN AREA 86B PH 1&2 - HOUSING	KWONG YIN WING KOO TIMBER CO LTD	Residential
2022	DIAMOND HILL HOUSING PH3 SALES FLAT	KWONG YIN WING KOO TIMBER CO LTD	Residential
2022	53-55A KWUN TONG RD	SUNDART TIMBER PRODUCTS CO LTD	Residential
2022	21 WANG YIP WEST ST YLTL 461	YEE HONG KEE WOOD WORKS CO LTD	Residential
2022	New - Infrastructure - Lai Ying Street, Sham Shui Po	SUNDART TIMBER PRODUCTS CO LTD	Infrastructure
2022	KAI TAK AREA 1L2 (6563)	RED ANGLE CONTRACTING COMPANY	Residential
2023	SHAP SZE HEUNG, TPTL 157 DD165, 207, 218	ENSURE ENGINEERING LIMITED	Residential
2023	TUEN MUN AREA 29 WEST - PUBLIC HOUSING	KWONG YIN WING KOO TIMBER CO LTD	Residential
2023	ORGANIC RESOURCES RECOVERY CENTRE PH2 (WASTE TREA	KWONG YIN WING KOO TIMBER CO LTD	Utilities
2023	KAI TAK SPORTS PARK	SHUN HING WOOD WORKING CO LTD	Sport & Recreation
2023	53-55A KWUN TONG RD	SUNDART TIMBER PRODUCTS CO LTD	Residential
2023	SIU HONG, AREA 54 DD 132 TMTL 483	HANG FAI INTERNATIONAL ENGINEERING	Residential
2023	WAN CHAI HOPEWELL CENTRE 2	SUNDART TIMBER PRODUCTS CO LTD	Hospitality
2023	KAI TAK AREA 4B, SITE 1, NKIL 6576	FUNG SHING ENGINEERING AND	Residential
2023	25-29 KOK CHEUNG ST - SQUARE MILE PH 4	NGAI TO CONSTRUCTION LIMITED	Residential
2023	IMMIGRATION HEADQUARTERS, TKO	LAHINE ENGINEERING LIMITED	Office
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