

R-XPTIII-HD Hot Dip Galvanized Throughbolt

Hot Dip Galvanized throughbolt for non-cracked concrete



Approvals and Reports

- ETA 21/0062



Product information

Features and benefits

- Increased corrosion resistance due to hot dip zinc protection layer with a thickness of 50 µm
- Design of R-XPTIII allows drilling and installing directly through the fixture and helps to reduce installation time
- High quality with cost effectiveness
- Cold formed body ensures consistent dimensional accuracy
- Approved for outdoor use according to EAD EAD 330232-01-0601-01

Applications

- Cladding restraint
- Curtain wall
- Balustrading
- Barriers
- Handrails
- Racking
- Structural steel
- Bollards

Base materials

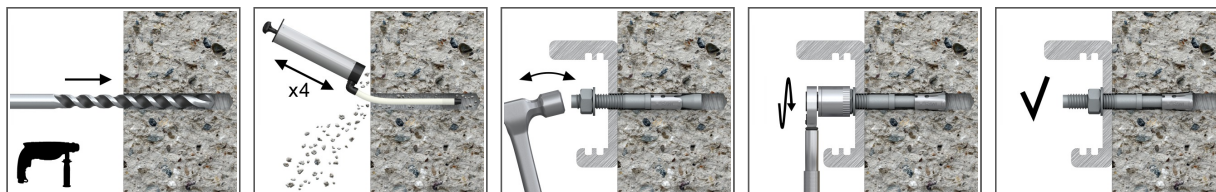
Approved for use in:

- Non-cracked concrete C20/25-C50/60
- Unreinforced concrete
- Reinforced concrete

Also suitable for use in:

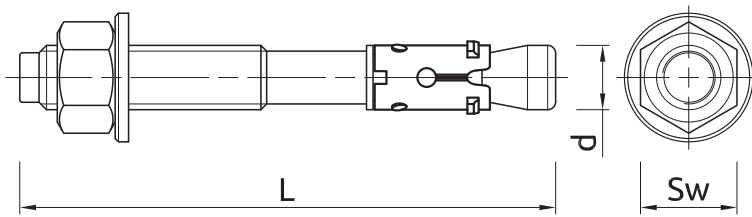
- Natural Stone (after site testing)

Installation guide



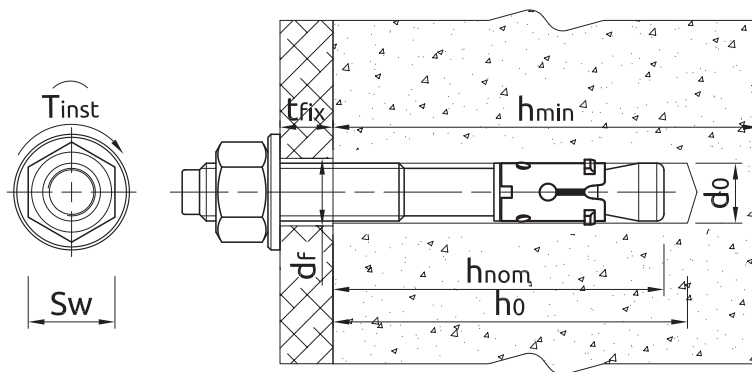
1. Drill a hole of required diameter and depth
2. Clear the hole of drilling dust and debris (using blowpump or equivalent method)
3. Lightly tap the throughbolt through the fixture into hole with a hammer, until fixing depth is reached
4. Tighten to the recommended torque

Product information



Size	Product Code	Anchor		Fixture		
		Diameter	Length	Max. thickness t_{fix} for:		Hole diameter
		d	L	$h_{nom,red}$	$h_{nom,std}$	d_f
		[mm]	[mm]	[mm]	[mm]	[mm]
M8	R-XPTIIIHD08060/10	8	60	-	10	9
	R-XPTIIIHD08065/1	8	65	-	1	9
	R-XPTIIIHD08075/10	8	75	-	10	9
	R-XPTIIIHD08080/15	8	80	-	15	9
	R-XPTIIIHD08095/30	8	95	-	30	9
	R-XPTIIIHD08110/45	8	110	-	45	9
	R-XPTIIIHD08115/50	8	115	-	50	9
R-XPTIIIHD08140/75	8	140	-	75	9	
M10	R-XPTIIIHD10080/10	10	80	-	10	12
	R-XPTIIIHD10095/25	10	95	-	25	12
	R-XPTIIIHD10115/45	10	115	-	45	12
	R-XPTIIIHD10130/60	10	130	-	60	12
	R-XPTIIIHD10140/70	10	140	-	70	12
M12	R-XPTIIIHD12080/5	12	80	-	5	14
	R-XPTIIIHD12100/5	12	100	-	5	14
	R-XPTIIIHD12120/25	12	120	-	25	14
	R-XPTIIIHD12125/30	12	125	-	30	14
	R-XPTIIIHD12135/40	12	135	-	40	14
	R-XPTIIIHD12150/55	12	150	-	55	14
	R-XPTIIIHD12180/85	12	180	-	85	14
	R-XPTIIIHD12220/125	12	220	-	125	14
M16	R-XPTIIIHD16125/5	16	125	-	5	18
	R-XPTIIIHD16140/20	16	140	-	20	18
	R-XPTIIIHD16150/30	16	150	-	30	18
	R-XPTIIIHD16180/60	16	180	-	60	18
	R-XPTIIIHD16220/100	16	220	-	100	18

Installation data



Size			M8	M10	M12	M16
Thread diameter	d	[mm]	8	10	12	16
Hole diameter in substrate	d _o	[mm]	8	10	12	16
Installation torque	T _{inst}	[Nm]	15	30	50	100
Wrench size	Sw	[mm]	13	17	19	24
STANDARD EMBEDMENT DEPTH						
Min. hole depth in substrate	h _{0,s}	[mm]	65	70	90	110
Min. installation depth	h _{nom,s}	[mm]	55	60	80	100
Min. substrate thickness	h _{min,s}	[mm]	100	100	140	170
Min. spacing	s _{min,s}	[mm]	50	70	75	95
Min. edge distance	c _{min,s}	[mm]	40	60	65	85

Mechanical properties

Size			M8	M10	M12	M16
Nominal ultimate tensile strength - tension	f _{uk}	[N/mm ²]	650	650	650	650
Nominal yield strength - tension	f _{yk}	[N/mm ²]	520	520	520	520
Cross sectional area - tension	A _s	[mm ²]	26.9	42.4	61.5	109.3
Elastic section modulus	W _{el}	[mm ³]	31.2	62.3	109.2	277.5
Characteristic bending resistance	M ⁰ _{Rk,s}	[Nm]	22	45	79	200
Design bending resistance	M	[Nm]	17.6	36	63.2	160

Basic performance data

Performance data for single anchor without influence of edge distance and spacing

Size		M8	M10	M12	M16
MEAN ULTIMATE LOAD					
TENSION LOAD N _{Ru,m}	[kN]	16.03	18.20	32.76	42.13
SHEAR LOAD V _{Ru,m}	[kN]	12.10	19.14	27.83	51.81
CHARACTERISTIC LOAD					
TENSION LOAD N _{Rk}	[kN]	13.00	15.00	25.00	34.00
SHEAR LOAD V _{Rk}	[kN]	11.00	17.39	25.30	47.10
DESIGN LOAD					
TENSION LOAD N _{Rd}	[kN]	8.67	10.00	16.67	22.67
SHEAR LOAD V _{Rd}	[kN]	8.80	11.60	20.24	37.68

Design performance data

Size			M8	M10	M12	M16
Effective embedment depth	h_{ef}	[mm]	47.00	50.00	68.00	85.00
TENSION LOAD						
STEEL FAILURE						
Characteristic resistance	$N_{Rk,s}$	[kN]	17.50	27.60	40.00	71.00
Partial safety factor	γ_{Ms}	-	1.50	1.50	1.50	1.50
PULL-OUT FAILURE; NON-CRACKED CONCRETE C20/25						
Characteristic resistance	$N_{Rk,p}$	[kN]	13.00	15.00	25.00	34.00
PULL-OUT FAILURE						
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00
Increasing factors for $N_{Rd,p}$ - C30/37	ψ_c	-	1.12	1.08	1.17	1.22
Increasing factors for $N_{Rd,p}$ - C40/50	ψ_c	-	1.23	1.15	1.32	1.41
Increasing factors for $N_{Rd,p}$ - C50/60	ψ_c	-	1.30	1.19	1.42	1.55
CONCRETE CONE FAILURE						
Factor for non-cracked concrete	$k_{ucr,N}$	-	11.00	11.00	11.00	11.00
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00
Spacing	$s_{cr,N}$	[mm]	141.0	150.0	204.0	255.0
Edge distance	$c_{cr,N}$	[mm]	71.00	75.00	102.0	128.0
CONCRETE SPLITTING FAILURE						
Spacing	$s_{cr,sp}$	[mm]	240.0	260.0	340.0	430.0
Edge distance	$c_{cr,sp}$	[mm]	120.0	130.0	170.0	215.0
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00
SHEAR LOAD						
STEEL FAILURE						
Characteristic resistance without lever arm	$V_{Rk,s}$	[kN]	11.00	17.40	25.30	47.10
Ductility factor	k_γ	-	1.00	1.00	1.00	1.00
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	22.00	45.00	79.00	200.0
Partial safety factor	γ_{Ms}	-	1.25	1.25	1.25	1.25
CONCRETE PRY-OUT FAILURE						
Factor	k	-	1.00	1.00	2.00	2.00
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00
CONCRETE EDGE FAILURE						
Effective length of anchor	ℓ_f	[mm]	47.00	50.00	68.00	85.00
Anchor diameter	d_{nom}	[mm]	8.00	10.00	12.00	16.00
Installation safety factor	γ_{inst}	-	1.00	1.00	1.00	1.00

Product commercial data

Product Code	Anchor		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-XPTIIIHD08060/10 ₁₎	8	60	100	100	39200	2.8	2.8	1107.6	5906675505961
R-XPTIIIHD08065/1 ₁₎	8	65	100	100	39200	2.9	2.9	1157.0	5906675503295
R-XPTIIIHD08075/10 ₁₎	8	75	100	100	16000	3.1	3.1	529.2	5906675503301
R-XPTIIIHD08080/15 ₁₎	8	80	100	100	39200	3.3	3.3	1322.0	5906675503325
R-XPTIIIHD08095/30 ₁₎	8	95	100	100	12000	3.7	3.7	474.0	5906675503332
R-XPTIIIHD08110/45 ₁₎	8	110							
R-XPTIIIHD08115/50 ₁₎	8	115	100	100	12000	4.4	4.4	562.8	5906675503349
R-XPTIIIHD08140/75 ₁₎	8	140	100	100	16000	5.2	5.2	868.4	5906675503356
R-XPTIIIHD10080/10 ₁₎	10	80	50	50	8000	2.9	2.9	487.6	5906675503363

Product commercial data

Product Code	Anchor		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-XPTIIIHD10095/25 1)	10	95	50	50	19600	3.2	3.2	1286.8	5906675503370
R-XPTIIIHD10115/45 1)	10	115	50	50	19600	1.84	1.84	752.3	5906675503387
R-XPTIIIHD10130/60 1)	10	130	50	50	8000	4.1	4.1	686.0	5906675503394
R-XPTIIIHD10140/70 1)	10	140	50	50	19600	2.2	2.2	884.8	5906675503400
R-XPTIIIHD12080/5 1)	12	80	50	50	19600	4.2	4.2	1657.2	5906675505985
R-XPTIIIHD12100/5 1)	12	100	50	50	19600	2.4	2.4	972.4	5906675503417
R-XPTIIIHD12120/25 1)	12	120	50	50	19600	2.8	2.8	1120.9	5906675503424
R-XPTIIIHD12125/30 1)	12	125	50	50	19600	2.9	2.9	1151.3	5906675503431
R-XPTIIIHD12135/40 1)	12	135	50	50	19600	3.1	3.1	1257.7	5906675503448
R-XPTIIIHD12150/55 1)	12	150	50	50	19600	3.3	3.3	1338.3	5906675503455
R-XPTIIIHD12180/85 1)	12	180	50	50	19600	3.9	3.9	1563.5	5906675503462
R-XPTIIIHD12220125 1)	12	220	50	50	19600	4.7	4.7	1856.5	5906675503479
R-XPTIIIHD16125/5 1)	16	125	25	25	9800	5.4	5.4	2149.9	5906675503486
R-XPTIIIHD16140/20 1)	16	140	25	25	4000	5.9	5.9	977.2	5906675503493
R-XPTIIIHD16150/30 1)	16	150	25	25	9800	1.52	1.52	626.2	5906675503509
R-XPTIIIHD16180/60 1)	16	180	25	25	3000	7.2	7.2	898.8	5906675503516
R-XPTIIIHD16220100 1)	16	220	25	25	3000	8.6	8.6	1057.2	5906675503523

1) ETA 21/0062