



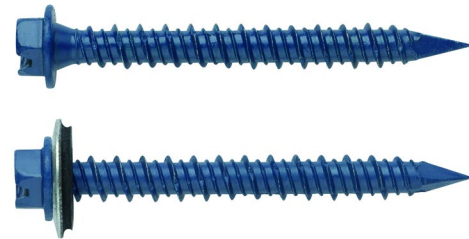
HP



HPZ



HR

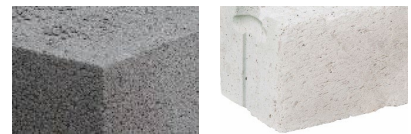


HEA / HEA + ARVUL

## CHARACTERISTICS

- Cylindrical head HR, countersunk HP, HPZ or hexagonal with stamped washer HE.
- Tx recess (HR, HP and HPZ screws) and hexagonal + slotted (HE screw)
- Special high-low 60° / 30° grooved thread (HP, HPZ and HR screws) and high-low 60° / 40°, grooved thread (HE screw).
- Covering: zinc plated yellow passivated (HR and HP screws), zinc plated (HPZ screw) and blue ruspert (HE screw) which provides a higher corrosion resistance.
- It does not transmit expansion forces to concrete.
- Requires pilot hole.
- Grooves under the head of HP and HPZ screws, which allows a direct countersunk in soft materials during drilling
- Optional: black or brown cap for HP and HPZ screws.
- Optional: galvanized EPDM washer  $\varnothing 16$  mm for HE screws to ensure watertightness.

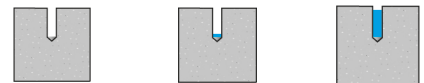
## BASE MATERIAL



## SIZE RANGE

$\varnothing 5 - \varnothing 6$

## DRILL HOLE CONDITION



DRY

WET







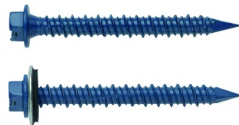

FLOODED

## APPLICATIONS

- For fixing elements (sandwich panels, door and window frames, etc.) directly to concrete, solid bricks or wood (HR, HP and HPZ screws), and to concrete, solid bricks, blocks or premanufactured panels (HE screw).

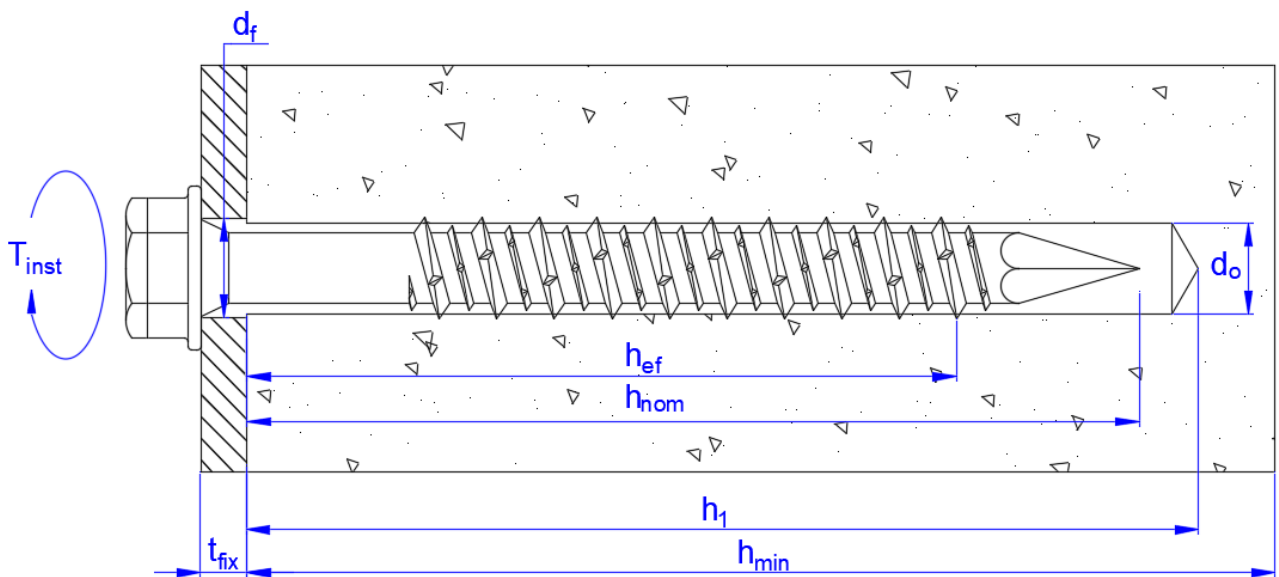
## APPLICATION EXAMPLES



1. RANGE						
ITEM	CODE	SIZE	PHOTO	DESCRIPTION	MATERIAL	COATING
1	HP	Ø6		Countersunk head	Cold formed carbon steel	
2	HPZ	Ø6		Countersunk head	Cold formed carbon steel	
3	HR	Ø6		Cylindrical head	Cold formed carbon steel	
4	HEA / HEA + ARVUL	Ø5		Hexagonal head	Cold formed carbon steel	

2. INSTALLATION DATA

2.1. INSTALLATION DRAWING



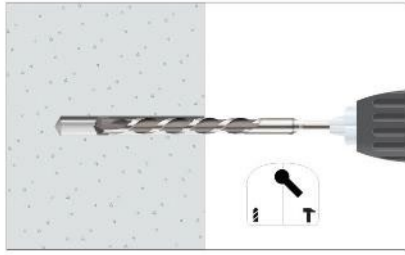
- $d_o$ : Drillbit diameter
- $d_f$ : Fixture clearance hole
- $h_{ef}$ : Effective anchorage depth
- $h_1$ : Drillhole depth
- $h_{nom}$ : Installation depth
- $h_{min}$ : Minimum concrete thickness
- $t_{fix}$ : Maximum thickness of fixture

3. INTALLATION PARAMETERS

Family	Code	Size	Drill bit diameter		Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Minimum concrete thickness	Depth of drill hole $\geq$	Installation depth	Effective anchorage depth	Thickness of fixture $\leq$	Critical spacing (concrete cone)	Critical edge distance (concrete cone)
			$d_0$	$d_f$											
[--]	[--]	[--]	[mm]	[mm]	[--]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
HP	HP75072	7,5 x 72 Ø6	6	9	Tx30	15	45	35	100	50	30	25	40	45	35
	HP75092	7,5 x 92 Ø6											60		
	HP75112	7,5 x 112 Ø6											80		
	HP75132	7,5 x 132 Ø6											100		
	HP75152	7,5 x 152 Ø6											120		
	HP75182	7,5 x 182 Ø6											150		
HPZ	HPZ75072	7,5 x 72 Ø6	6	9	Tx30	15	45	35	100	50	30	25	40	45	35
	HPZ75092	7,5 x 92 Ø6											60		
	HPZ75112	7,5 x 112 Ø6											80		
	HPZ75132	7,5 x 132 Ø6											100		
	HPZ75152	7,5 x 152 Ø6											120		
	HPZ75182	7,5 x 182 Ø6											150		
	HPZ75212	7,5 x 212 Ø6											180		
HR	HR75072	7,5 x 72 Ø6	6	9	Tx30	15	45	35	100	50	30	15	40	45	35
	HR75092	7,5 x 92 Ø6											60		
	HR75112	7,5 x 112 Ø6											80		
	HR75132	7,5 x 132 Ø6											100		
HEA	HE65032	6,5 x 32 Ø5	5	8	SW 8	12	81	41	100	50	40	27	70	81	41
	HE65045	6,5 x 45 Ø5											5		
	HE65057	6,5 x 57 Ø5											17		
	HE65070	6,5 x 70 Ø5											30		
	HE65080	6,5 x 80 Ø5											40		
	HE65100	6,5 x 100 Ø5											60		
	HE65115	6,5 x 115 Ø5											75		
	HE65125	6,5 x 125 Ø5											85		
	HE65150	6,5 x 150 Ø5											110		
	HE65180	6,5 x 180 Ø5											140		
	HE65200	6,5 x 200 Ø5											160		
HEA + ARVUL	HE1665032	6,5 x 32 Ø5	5	8	SW 8	12	81	41	100	50	40	27	70	81	41
	HE1665045	6,5 x 45 Ø5											5		
	HE1665057	6,5 x 57 Ø5											17		
	HE1665070	6,5 x 70 Ø5											30		
	HE1665080	6,5 x 80 Ø5											40		
	HE1665100	6,5 x 100 Ø5											60		
	HE1665115	6,5 x 115 Ø5											75		
	HE1665125	6,5 x 125 Ø5											85		
	HE1665150	6,5 x 150 Ø5											110		
	HE1665180	6,5 x 180 Ø5											140		
	HE1665200	6,5 x 200 Ø5											160		

**4. INSTALLATION PROCEDURE**

**4.1 INSTALLATION IN CONCRETE**



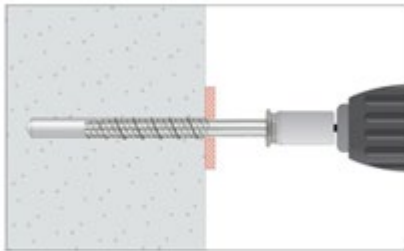
**1. DRILLING**

Check the concrete is well compacted and without significant porosity. Suitable for dry, wet and flooded holes. Use drill in hammer mode. Drill according to specified depths in previous tables.



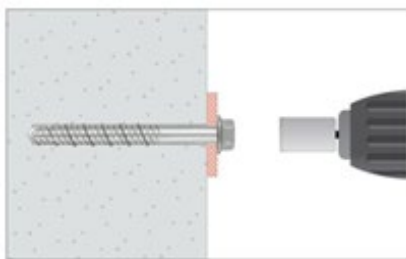
**2. BLOW AND CLEAN**

Clean the hole from dust and concrete remains. Use blow pump and brush.



**3. INSTALL**

Select a powered impact wrench or a torque wrench that does not exceed the maximum torque indicated in previous tables. Attach an appropriate size hex socket to the wrench. Mount the screw anchor head in the socket.



**4. APPLY THE TORQUE**

Drive the anchor with an impact driver or a torque wrench through the fixture and into the hole until the anchor head washer comes in contact with the fixture. The anchor must be snug after installation. Do not spin the hex socket off the anchor to disengage.

## 5. RESISTANCES

Resistances in concrete class C20/25 for an isolated anchor without spacing or concrete edge distance effects are indicated in the following table:

Values underlined and in italics show Steel failure, **bold** values concrete failure and other indicate pull out failure. 1 KN ≈ 100 kg

### 5.1 CHARACTERISTIC RESISTANCE [kN]

General parameters			Non-cracked concrete	
Family	Code	Size	Tension $N_{Rk, ucr}$	Shear $V_{Rd, ucr}$
HP	HP75072	7,5 x 72 Ø6	2,29	--
	HP75092	7,5 x 92 Ø6		
	HP75112	7,5 x 112 Ø6		
	HP75132	7,5 x 132 Ø6		
	HP75152	7,5 x 152 Ø6		
	HP75182	7,5 x 182 Ø6		
HPZ	HPZ75072	7,5 x 72 Ø6	2,29	--
	HPZ75092	7,5 x 92 Ø6		
	HPZ75112	7,5 x 112 Ø6		
	HPZ75132	7,5 x 132 Ø6		
	HPZ75152	7,5 x 152 Ø6		
	HPZ75182	7,5 x 182 Ø6		
HR	HR75072	7,5 x 72 Ø6	2,29	--
	HR75092	7,5 x 92 Ø6		
	HR75112	7,5 x 112 Ø6		
	HR75132	7,5 x 132 Ø6		
HEA	HE65032	6,5 x 32 Ø5	--	--
	HE65045	6,5 x 45 Ø5	4,07	--
	HE65057	6,5 x 57 Ø5		
	HE65070	6,5 x 70 Ø5		
	HE65080	6,5 x 80 Ø5		
	HE65100	6,5 x 100 Ø5		
	HE65115	6,5 x 115 Ø5		
	HE65125	6,5 x 125 Ø5		
	HE65150	6,5 x 150 Ø5		
HE65180	6,5 x 180 Ø5			
HEA + ARVUL	HE1665032	6,5 x 32 Ø5	--	--
	HE1665045	6,5 x 45 Ø5	4,07	--
	HE1665057	6,5 x 57 Ø5		
	HE1665070	6,5 x 70 Ø5		
	HE1665080	6,5 x 80 Ø5		
	HE1665100	6,5 x 100 Ø5		
	HE1665115	6,5 x 115 Ø5		
	HE1665125	6,5 x 125 Ø5		
	HE1665150	6,5 x 150 Ø5		
	HE1665180	6,5 x 180 Ø5		
HE1665200	6,5 x 200 Ø5			

5.2 DESIGN RESISTANCE [kN]				
General parameters			Non-cracked concrete	
Family	Code	Size	Tension $N_{Rd, ucr}$	Shear $V_{Rd, ucr}$
HP	HP75072	7,5 x 72 Ø6	1,27	--
	HP75092	7,5 x 92 Ø6		
	HP75112	7,5 x 112 Ø6		
	HP75132	7,5 x 132 Ø6		
	HP75152	7,5 x 152 Ø6		
	HP75182	7,5 x 182 Ø6		
HPZ	HPZ75072	7,5 x 72 Ø6	1,27	--
	HPZ75092	7,5 x 92 Ø6		
	HPZ75112	7,5 x 112 Ø6		
	HPZ75132	7,5 x 132 Ø6		
	HPZ75152	7,5 x 152 Ø6		
	HPZ75182	7,5 x 182 Ø6		
HR	HR75072	7,5 x 72 Ø6	1,27	--
	HR75092	7,5 x 92 Ø6		
	HR75112	7,5 x 112 Ø6		
	HR75132	7,5 x 132 Ø6		
HEA	HE65032	6,5 x 32 Ø5	--	--
	HE65045	6,5 x 45 Ø5	2,26	--
	HE65057	6,5 x 57 Ø5		
	HE65070	6,5 x 70 Ø5		
	HE65080	6,5 x 80 Ø5		
	HE65100	6,5 x 100 Ø5		
	HE65115	6,5 x 115 Ø5		
	HE65125	6,5 x 125 Ø5		
	HE65150	6,5 x 150 Ø5		
	HE65180	6,5 x 180 Ø5		
HE65200	6,5 x 200 Ø5			
HEA + ARVUL	HE1665032	6,5 x 32 Ø5	--	--
	HE1665045	6,5 x 45 Ø5	2,26	--
	HE1665057	6,5 x 57 Ø5		
	HE1665070	6,5 x 70 Ø5		
	HE1665080	6,5 x 80 Ø5		
	HE1665100	6,5 x 100 Ø5		
	HE1665115	6,5 x 115 Ø5		
	HE1665125	6,5 x 125 Ø5		
	HE1665150	6,5 x 150 Ø5		
	HE1665180	6,5 x 180 Ø5		
HE1665200	6,5 x 200 Ø5			

5.3 MAXIMUM LOADS RECOMMENDED [kN]				
General parameters			Non-cracked concrete	
Family	Code	Size	Tension $N_{rec, ucr}$	Shear $V_{rec, ucr}$
HP	HP75072	7,5 x 72 Ø6	0,91	--
	HP75092	7,5 x 92 Ø6		
	HP75112	7,5 x 112 Ø6		
	HP75132	7,5 x 132 Ø6		
	HP75152	7,5 x 152 Ø6		
	HP75182	7,5 x 182 Ø6		
HPZ	HPZ75072	7,5 x 72 Ø6	0,91	--
	HPZ75092	7,5 x 92 Ø6		
	HPZ75112	7,5 x 112 Ø6		
	HPZ75132	7,5 x 132 Ø6		
	HPZ75152	7,5 x 152 Ø6		
	HPZ75182	7,5 x 182 Ø6		
HR	HR75072	7,5 x 72 Ø6	0,91	--
	HR75092	7,5 x 92 Ø6		
	HR75112	7,5 x 112 Ø6		
	HR75132	7,5 x 132 Ø6		
HEA	HE65032	6,5 x 32 Ø5	--	--
	HE65045	6,5 x 45 Ø5	1,62	--
	HE65057	6,5 x 57 Ø5		
	HE65070	6,5 x 70 Ø5		
	HE65080	6,5 x 80 Ø5		
	HE65100	6,5 x 100 Ø5		
	HE65115	6,5 x 115 Ø5		
	HE65125	6,5 x 125 Ø5		
	HE65150	6,5 x 150 Ø5		
	HE65180	6,5 x 180 Ø5		
HE65200	6,5 x 200 Ø5			
HEA + ARVUL	HE1665032	6,5 x 32 Ø5	--	--
	HE1665045	6,5 x 45 Ø5	1,62	--
	HE1665057	6,5 x 57 Ø5		
	HE1665070	6,5 x 70 Ø5		
	HE1665080	6,5 x 80 Ø5		
	HE1665100	6,5 x 100 Ø5		
	HE1665115	6,5 x 115 Ø5		
	HE1665125	6,5 x 125 Ø5		
	HE1665150	6,5 x 150 Ø5		
	HE1665180	6,5 x 180 Ø5		
HE1665200	6,5 x 200 Ø5			