KERNOW FIXINGS KFX

TECHNICAL DATA SHEET

KFX Concrete Screw Bolt - Large Pan Head (M6x60)

High Performance Concrete Anchor

Fast & Easy Installation

Optimised thread enables fast cutting into concrete, speeding up the installation process.

Non-Expansion

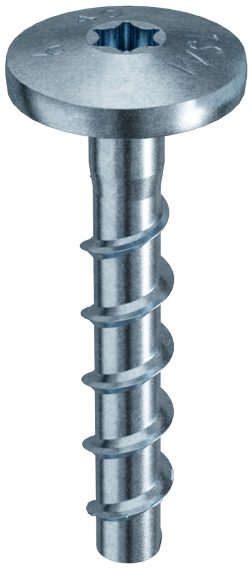
Allows for installation closer to the substrate edge, as well as closer distances between anchors.

Easily Adjusted & Removed

Can be adjusted twice during installation. Once installed can be easily removed suiting temporary applications.

Extreme Hold in Concrete

Special thread geometry offers extreme hold in concrete. for both tensile & shear loads.



Order Code 03677

APPROVALS

Approvals

ETA Approval ETA-23/0946:
- For use in concrete for redundant non-structural systems.

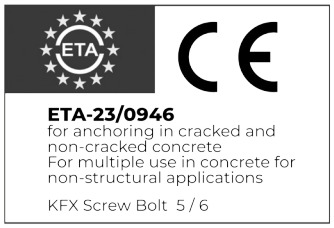
ETA Approval ETA-23/0947:
- Mechanical anchors for use in concrete.

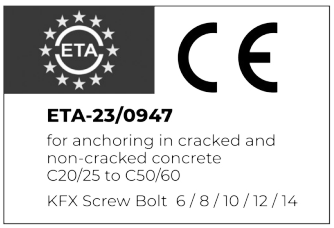
Base Material

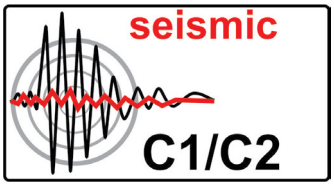
Approved for concrete strength classes from C20/25 to C50/60.

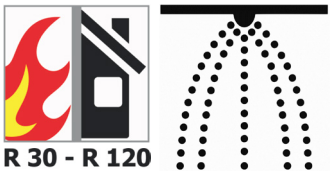
Cracked and non-cracked concrete.

Prestressed hollow core slabs.









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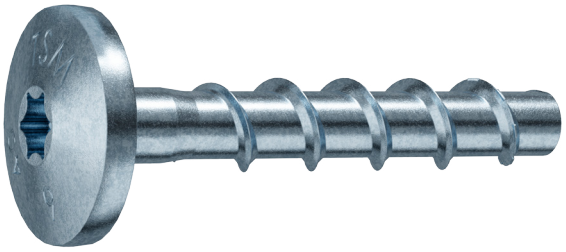
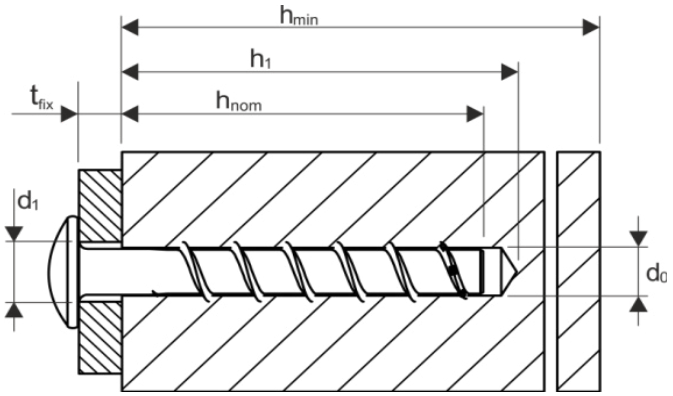
Product Overview

Steel - Zinc plated

Large pan head with Torx TX30 internal drive

Head Ø - 18mm





Order Code	Product Reference	Dimensions	Depth of drill hole $h_{1,1}$ / $h_{1,2}$	Embedment depth of anchor $h_{nom,1}$ / $h_{nom,2}$	Max. thickness of fixture $t_{fix,1}$ / $t_{fix,2}$	Packing Unit
03677	KFX BDZ-06060	M6x60	40mm / 45mm / 60mm	35mm / 40mm / 55mm	25mm / 20mm / 5mm	100

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Technical Characteristics

Single fastening without fire exposure (steel)

Screw size: M6			M6	
Nominal embedment depth	h_{nom}	[mm]	h_{nom1}	h_{nom2}
			40	55
Nominal diameter of drill bit	d_0	[mm]	6	
Depth of drill hole	h_0 min	[mm]	45	60
Effective anchorage depth	h_{ef}	[mm]	31	44
Diameter of clearance hole in the fixture	d_f max	[mm]	8	
Approved tension load in cracked concrete [1) 2)]	N_{zul}	[kN]	1,0	1,9
Approved shear load in cracked concrete [1) 2)]	V_{zul}	[kN]	2,8	4,0
Approved tension load in non-cracked concrete [1) 2)]	N_{zul}	[kN]	1,9	4,3
Approved shear load in non-cracked concrete [1) 2)]	V_{zul}	[kN]	4,0	4,0
Approved bending resistance	M_{zul}	[kN]	6,2	
Minimum egde distance	C_{min}	[mm]	40	
Minimum spacing	S_{min}	[mm]	40	
Minimum base material thickness	h_{min}	[mm]	100	
Installation torque (with metric connection thread)	T_{inst}	[Nm]	10	
Maximum torque (with impact screw driver)		[Nm]	160	
ETA Seismic C1	C1		Yes	
ETA Seismic C2 [3)]	C2		x	

Single fastening under fire exposure (steel)

Screw size M6				M6	
Nominal embedment depth		h_{nom}	[mm]	h_{nom1}	h_{nom2}
				40	55
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)					
Fire resistance class					
R 30	Approved load	$F_{zul,fi\ 30}$	[kN]	0,5	0,9
R 60		$F_{zul,fi\ 60}$	[kN]	0,5	0,8
R 90		$F_{zul,fi\ 90}$	[kN]	0,5	0,6
R 120		$F_{zul,fi\ 120}$	[kN]	0,4	
R 30		$M_{zul,fi\ 30}$	[Nm]	0,7	
R 60		$M_{zul,fi\ 60}$	[Nm]	0,6	
R 90		$M_{zul,fi\ 90}$	[Nm]	0,5	
R 120		$M_{zul,fi\ 120}$	[Nm]	0,3	
Edge distance					
R 30 to R 120		$C_{cr,fi}$	[mm]	$2 \times h_{ef}$	
The edge distance must be at least 300 mm if the fire load attacks from more than one side.					
Spacing					
R 30 to R 120		$S_{cr,fi}$	[mm]	$4 \times h_{ef}$	
Concrete pry-out failure					
R 30 to R 120		k	[-]	1,0	
In wet concrete, the embedment depth must be increased by at least 30 mm.					

[1)] For the determination of the approved loads, the partial safety factor from the approval γM=1,0 was taken into account for material resistance and a partial safety factor γF=1,4 for load actions.

[2)] These values apply without influence of the spacing and edge distances. [3)] C2 only for version zinc plated.

TECHNICAL DATA SHEET

Multiple fastening without fire exposure (steel)

Screw size M6			M6	
Nominal embedment depth	h_{nom}	[mm]	35	55
Nominal diameter of drill bit	d_0	[mm]	6	
Depth of drill hole	h_0 min	[mm]	40	60
Effective anchorage depth	h_{ef}	[mm]	27	44
Diameter of clearance hole in the fixture	d_f max	[mm]	8	
Approved tension load in cracked concrete [1);2)]	N_{zul}	[kN]	1,4	3,6
Approved shear load in cracked concrete [1);2)]	V_{zul}	[kN]	2,3	4,8
Approved tension load in non-cracked concrete [1);2)]	N_{zul}	[kN]	1,4	3,6
Approved shear load in non-cracked concrete [1);2)]	V_{zul}	[kN]	3,3	4,0
Minimum egde distance	C_{min}	[mm]	35	40
Minimum spacing	S_{min}	[mm]	35	40
Minimum base material thickness	h_{min}	[mm]	80	100
Installation torque (with metric connection thread)	T_{inst}	[Nm]	10	
Maximum torque (with impact screw driver)		[Nm]	160	

[1)] For the determination of the approved loads, the partial safety factor from the approval γM=1,0 was taken into account for material resistance and a partial safety factor γF=1,4 for load actions.

[2)] These values apply without influence of the space and edge distancing.

Multiple fastening under fire exposure (steel)

Screw size M6				M6	
Nominal embedment depth		h_{nom}	[mm]	h_{nom1}	h_{nom2}
				35	55
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)					
Fire resistance class					
R 30	Approved load	$F_{zul,fi\ 30}$	[kN]	0,8	0,9
R 60		$F_{zul,fi\ 60}$	[kN]	0,8	0,8
R 90		$F_{zul,fi\ 90}$	[kN]	0,6	
R 120		$F_{zul,fi\ 120}$	[kN]	0,4	
R 30		$M_{zul,fi\ 30}$	[Nm]	0,7	
R 60		$M_{zul,fi\ 60}$	[Nm]	0,6	
R 90		$M_{zul,fi\ 90}$	[Nm]	0,5	
R 120		$M_{zul,fi\ 120}$	[Nm]	0,3	
Edge distance					
R 30 to R 120		$C_{cr,fi}$	[mm]	$2 \times h_{ef}$	
The edge distance must be at least 300 mm if the fire load attacks from more than one side.					
Spacing					
R 30 to R 120		$S_{cr,fi}$	[mm]	$4 \times h_{ef}$	
Concrete pry-out failure					
R 30 to R 120		k	[-]	1,0	
In wet concrete, the embedment depth must be increased by at least 30 mm.					

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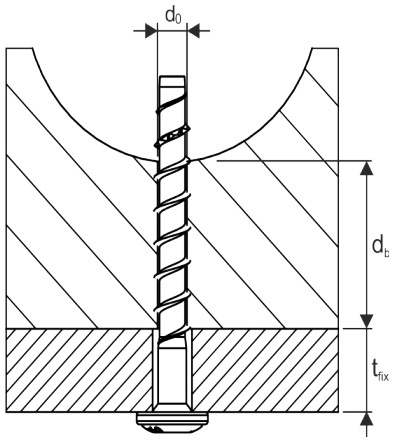
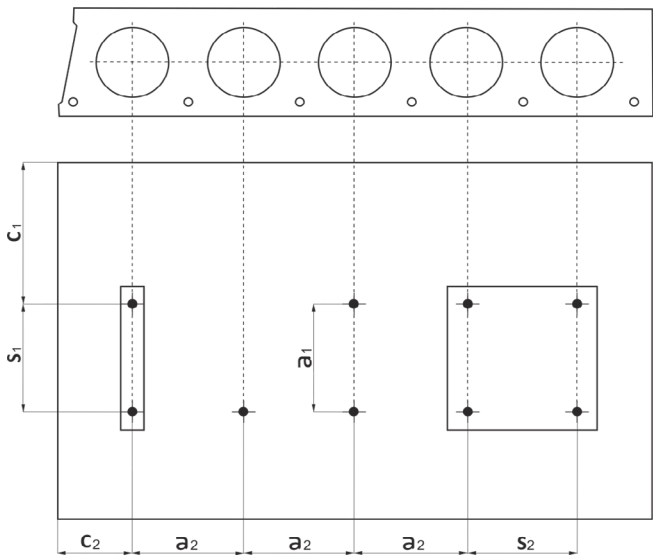
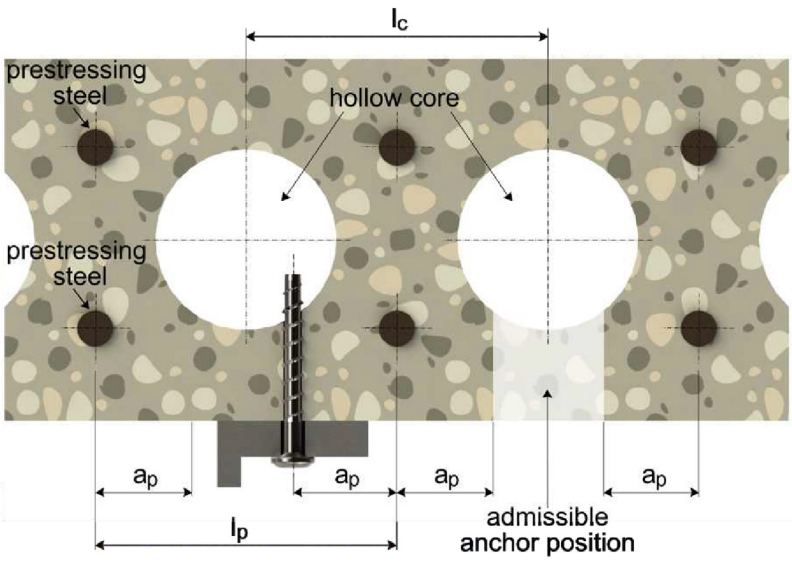
Multiple fastening in pre-stressed hollow core slabs without fire exposure (steel)

Screw size M6			M6		
Bottom flange thickness	d_b	[mm]	≥ 25	≥ 30	≥ 35
Nominal diameter of drill bit	d_o	[mm]	6		
Depth of drill hole	h_o min	[mm]	30	35	40
Clearance hole diameter	d_f max	[mm]	8		
Approved tension load [1]	F_{zul}	[kN]	0,5	1,0	1,4
Minimum egde distance	C_{min}	[mm]	100		
Minimum spacing	S_{min}	[mm]	100		
Minimum distance between anchor groups	a_{min}	[mm]	100		
Core distance	l_c min	[mm]	100		
Prestressing steel distance	l_p min	[mm]	100		
Distance between anchor position & prestressing steel	a_p min	[mm]	50		
Hollow core width (w)	(w/e) max	[mm]	4,2		
Bridge width (e)					
Installation torque	T_{inst}	[Nm]	10		

[1] For the determination of the approved loads, the partial safety factor from the approval γM=1,0 was taken into account for material resistance and a partial safety factor γF=1,4 for load actions.





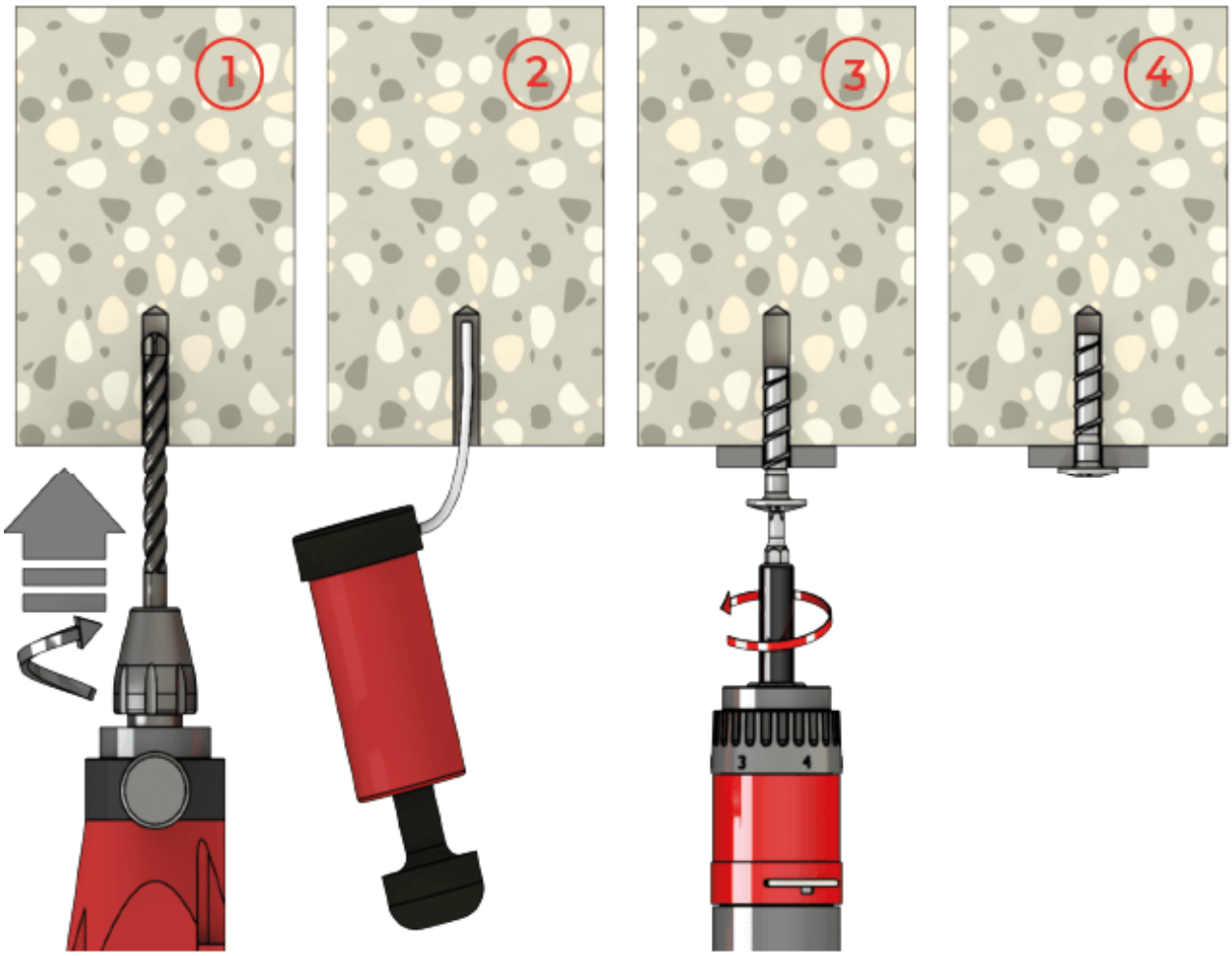


C1, C2 = Edge distance
S1, S2 = Spacing
a1, a2 = Distance between anchor groups

l_c = Core distance
l_p = Prestressing steel distance
a_p = Distance between anchor position & prestressing steel

Installation Instructions

Installation instructions for concrete



1. Drill the hole to required depth using with rotary hammer drill.
2. Thoroughly clean the hole using blow out hand pump (min 4 pumps).
3. Screw in the KFX Concrete Screw Bolt and tighten to the correct torque using a calibrated torque wrench.
4. Once installed, the screwhead must be secure and completely flush with the undamaged substrate surface.

Tools Required:

- SDS drill with 6mm drill bit
- Blow out pump
- Cordless screwdriver with a Torx TX30 head
- Torque wrench

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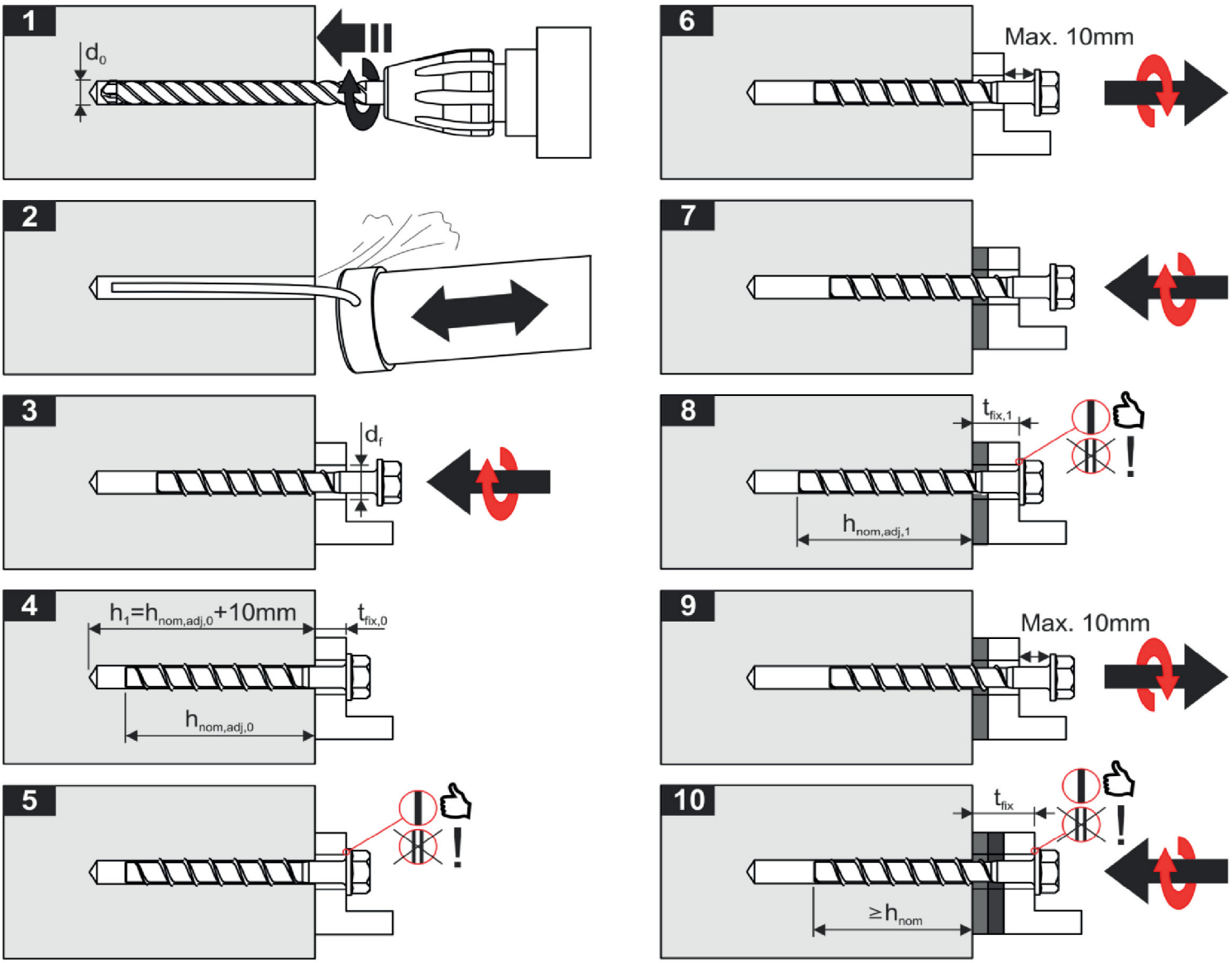
Installation instructions with adjustment for M6 screws



Important - please note during adjustment:

- The anchor may be adjusted no more than twice, whilst the anchor may be unscrewed a maximum of 10mm.
- The total allowed thickness of shims added during the adjustment process is 10mm.
- The final embedment depth after adjustment process must be equal or longer than h_{nom}.

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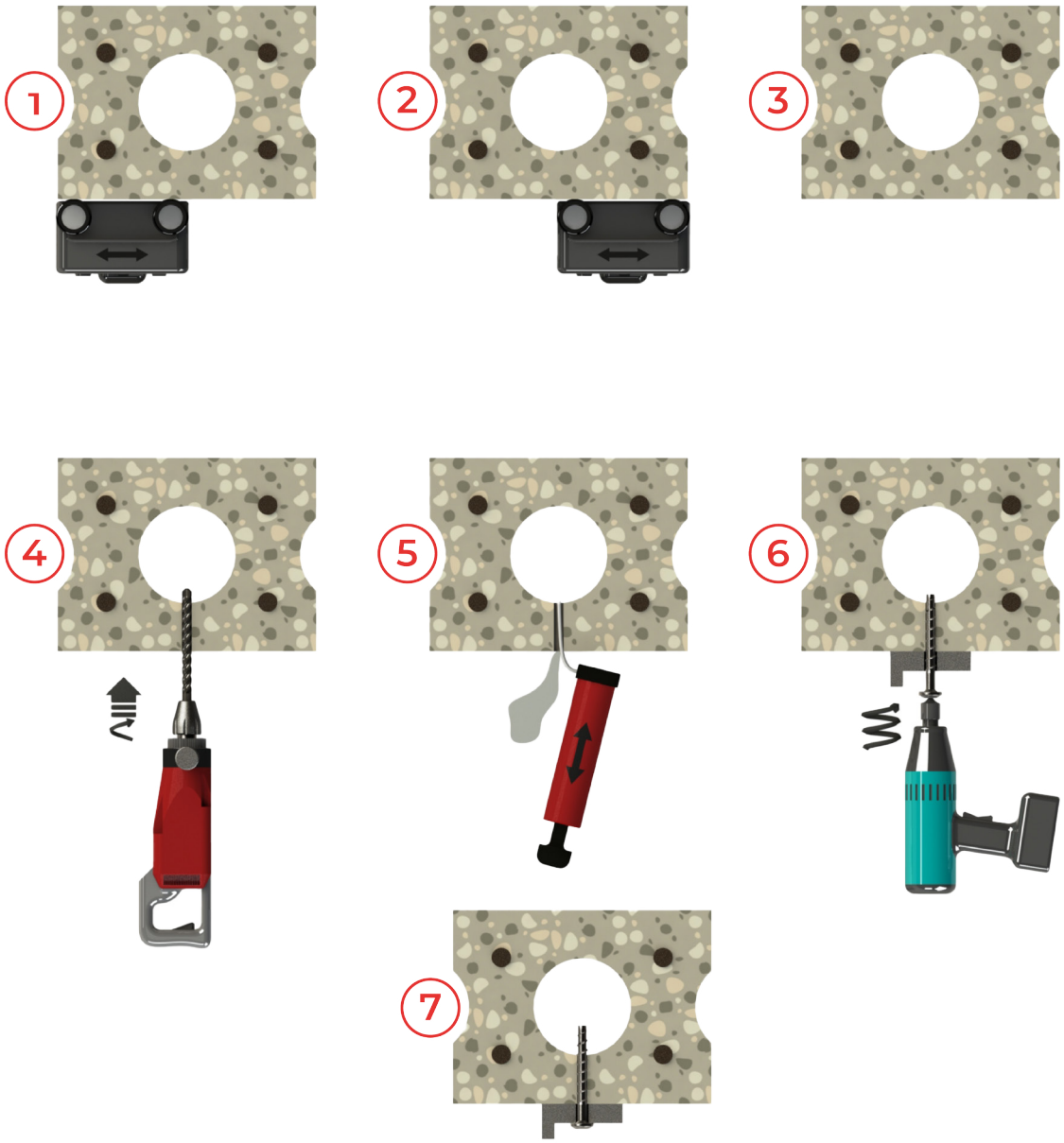
Installation instructions for prestressed hollow core slabs



1) - 3) Locate prestressed steel with a reinforcement bar detector and mark the location.

4) Create a hole in the permissible anchoring area.

5) Clean hole using blow out hand pump (min 4 pumps).

6) Screw in the KFX Concrete Screw Bolt and tighten to the correct torque using a calibrated torque wrench.

7) Once installed, the screwhead must be secure and completely flush with the undamaged substrate surface.