KERNOW FIXINGS KFX

TECHNICAL DATA SHEET

KFX Drop-In (Wedge) Anchors

Steel, zinc plated



KFX Drop-In (Wedge) Anchor (DPZ)



KFX Lipped Drop-In (Wedge) Anchor (DLZ)



KFX Lipped Drop-In (Wedge) Anchor (DLZ), 25 mm

ETA-02/0020 — **M6–M20** [1]

ETA-05/0116 — **M6–M16**

BBA UKTA - 22/6208 Option 7 for uncracked concrete — **M6–M20**

R 30 – R 120

FM APPROVED — **M10–M20** [2]

M8–M16 [2]

Range of loading: 1,2 kN – 28,6 kN

Range of concrete quality: C20/25 – C50/60

Description

The KFX Drop-In (Wedge) Anchor (DPZ) and Lipped Drop-In (Wedge) Anchor (DLZ) are approved for redundant fastening for non-structural applications in cracked and uncracked concrete. The sizes with an anchorage depth of 30 mm and deeper are also approved as single anchors in uncracked concrete. The lipped anchors with an anchorage depth of 25 mm are also permitted in pre-stressed hollow core slabs.

The anchor is placed into the drill hole in pre-setting installation and expanded reliably with a manual or hammer drill setting tool. The plug-on setting tool with stop drill bit allows quick, efficient, high-volume installation. The safety setting tool leaves a visible mark on the anchor sleeve, which confirms correct installation.

Advantages

- Approved for use as multiple fixing in cracked and uncracked concrete
- Approved as multiple fixing in pre-stressed hollow core slabs (lipped, anchorage depth 25 mm)
- Approved for use as single fixing in uncracked concrete (anchorage depth ≥ 30 mm)
- Shallow drilling depth, so low risk of hitting reinforcement (anchorage depth 25 mm)
- Quick, efficient installation with the plug-on setting tool with stop drill bit
- Simple visual inspection with the safety setting tool
- Many possible applications, using standard metric screws and threaded rod
- FM approval for the installation of sprinkler systems (M10–M20) [2]
- Suitable for the installation of sprinkler systems to the requirements of VdS (damage prevention) (M8–M16) [2]
- Fire resistance tested in concrete C20/25 to C50/60

[1] Applies only to anchorage depths $h_{ef} \geq 30$ mm.

[2] Also applies to KFX DLZ-10025.





Applications

Suspensions for heating, sanitary and ventilation services; anchorage with threaded rods and screws, flat steel and profiled steel.

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Product Overview

KFX Drop-In (Wedge) Anchor – DPZ



Steel, zinc plated · Approved for concrete

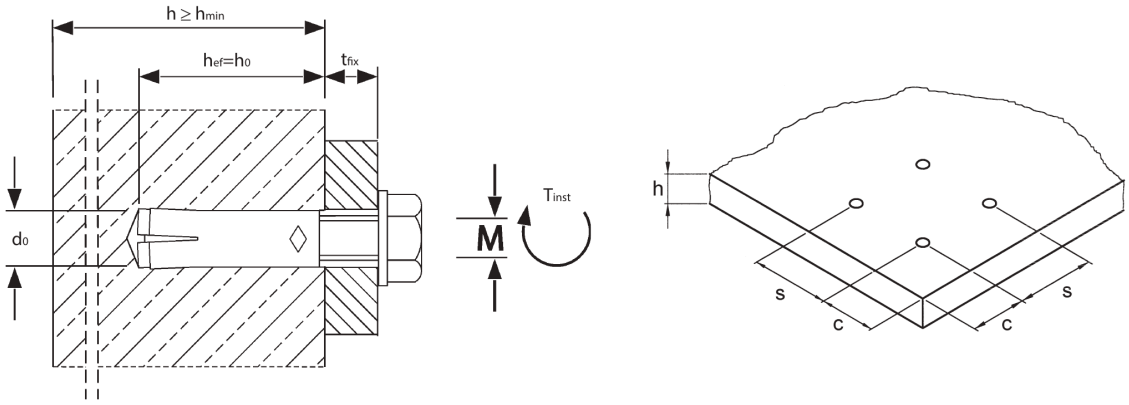
Order Code	KFX Code	Size	Drill hole Ø x depth [mm]	Thread Ø x length [mm]	Packing Unit [pcs]
03101	KFX DPZ-06030	M6x30	8 x 30	M6 x 13	200
03102	KFX DPZ-08030	M8x30	10 x 30	M8 x 13	200
03103	KFX DPZ-10040	M10x40	12 x 40	M10 x 15	100
03104	KFX DPZ-12050	M12x50	15 x 50	M12 x 18	50
03105	KFX DPZ-16065	M16x65	20 x 65	M16 x 23	25
03106	KFX DPZ-20080	M20x80	25 x 80	M20 x 34	25

KFX Lipped Drop-In (Wedge) Anchor – DLZ



Steel, zinc plated · Approved for concrete · Lipped for installation in a bottomless hole

Order Code	KFX Code	Size	Drill hole Ø x depth [mm]	Thread Ø x length [mm]	Packing Unit [pcs]
03120	KFX DLZ-06025	M6x25	8 x 25	M6 x 12	200
03121	KFX DLZ-08030	M8x30	10 x 30	M8 x 13	200
03126	KFX DLZ-10025	M10x25	12 x 25	M10 x 12	100
03122	KFX DLZ-10030	M10x30	12 x 30	M10 x 12	100
03125	KFX DLZ-10040	M10x40	12 x 40	M10 x 15	100
03127	KFX DLZ-12025	M12x25	15 x 25	M12 x 12	100
03123	KFX DLZ-12050	M12x50	15 x 50	M12 x 18	50
03124	KFX DLZ-16065	M16x65	20 x 65	M16 x 23	25



TECHNICAL DATA SHEET

Setting Tools

Safety setting tool (with hand guard)



Order Code	Size	For Anchor	Weight per piece [kg]
03111	M6x25	KFX DLZ-06025	0,42
03112	M8x30	KFX DPZ-08030 / DLZ-08030	0,42
03117	M10x25	KFX DLZ-10025	0,50
03119	M10x30	KFX DLZ-10030	0,50
03113	M10x40	KFX DPZ-10040 / DLZ-10040	0,45
03118	M12x25	KFX DLZ-12025	0,45
03114	M12x50	KFX DPZ-12050 / DLZ-12050	0,47
03115	M16x65	KFX DPZ-16065 / DLZ-16065	0,50
03116	M20x80	KFX DPZ-20080	0,62

Standard setting tool (without hand guard)

Order Code	Size	For Anchor	Weight per piece [kg]
03110	M6x30	KFX DPZ-06030	0,09

Plug-on setting tool with stop drill bit



Order Code	Size	For Anchor	Drill hole Ø x depth [mm]	Packing Unit [pcs]	Weight per kit [kg]
03136	M6x25	KFX DLZ-06025	8 x 25	1	0,31
03137	M8x30	KFX DPZ-08030 / DLZ-08030	10 x 30	1	0,31
03138	M10x25	KFX DLZ-10025	12 x 25	1	0,33
03139	M10x30	KFX DLZ-10030	12 x 30	1	0,33
03140	M10x40	KFX DPZ-10040 / DLZ-10040	12 x 40	1	0,36

Supplied as a kit: SDS stop drill bit and plug-on setting tool. Weight includes both parts.

TECHNICAL DATA SHEET

M12 stop drill bits (supplied separately)



Order Code	Size	For Anchor	Drill hole Ø x depth [mm]	Packing Unit [pcs]	Weight per piece [kg]
03096	M12x25	KFX DLZ-12025	15 x 25	1	0,15
03097	M12x50	KFX DPZ-12050 / DLZ-12050	15 x 50	1	0,17

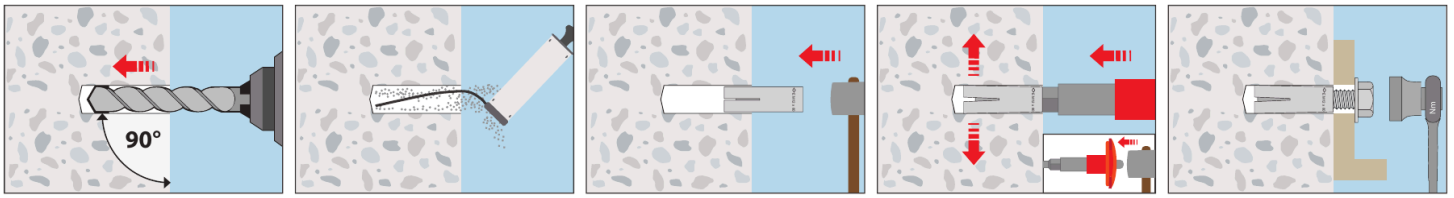
M12 SDS setting tools (supplied separately)



Order Code	Size	For Anchor	Packing Unit [pcs]	Weight per piece [kg]
03098	M12x25	KFX DLZ-12025	1	0,10
03099	M12x50	KFX DPZ-12050 / DLZ-12050	1	0,10

Installation Instructions

Installation instructions for concrete



1. Drill the hole at 90° to the surface to depth h_0 using a rotary hammer drill, or the plug-on setting tool with stop drill bit.
2. Thoroughly clean the hole using a blow out hand pump.
3. Insert the anchor and tap it in flush with the surface (lipped anchor: until the lip sits flush).
4. Drive the setting tool into the anchor with a hammer, or with the hammer drill when using an SDS or plug-on setting tool, until the anchor is fully expanded.
5. Position the fixture and tighten the screw to T_{inst} using a calibrated torque wrench. The screw must engage at least L_{sd} and no more than L_{th}.

Tools Required:

- SDS drill with a drill bit of diameter d_0 (or plug-on setting tool with stop drill bit)
- Blow out pump
- Setting tool for the anchor size: safety setting tool and hammer, or SDS / plug-on setting tool
- Torque wrench

TECHNICAL DATA SHEET



Extract from Permissible Service Conditions of European Technical Assessment ETA-02/0020 for use in uncracked concrete (Option 7)

Approved loads according to EN 1992-4 for single anchors without the influence of spacing and edge distances. The total safety factor (γ_M and γ_F) is included. Load capacities under fire exposure: see page 6.

Loads and performance data	KFX Drop-In (Wedge) Anchor DPZ / DLZ			M6x30 [1]	M8x30 [1]	M10x30 [1]	M10x40	M12x50	M16x65	M20x80
KFX code				DPZ-06030	DPZ-08030 DLZ-08030	DLZ-10030	DPZ-10040 DLZ-10040	DPZ-12050 DLZ-12050	DPZ-16065 DLZ-16065	DPZ-20080
				uncracked concrete						
Mean ultimate loads, tension (screw 8.8)	C25/30	N_{um}	[kN]	10,0	11,5	15,6	16,9	24,1	36,4	50,5
Mean ultimate loads, shear (screw 8.8)	C25/30	V_{um}	[kN]	6,9	11,1	13,5	13,5	29,5	50,4	76,4
Approved loads, tension (screw 5.6 to 8.8)	C20/25	appr. N	[kN]	3,2	3,2	3,2	4,9	6,9	10,2	14,0
	C25/30	appr. N	[kN]	3,6	3,6	3,6	5,5	7,7	11,4	15,6
	C30/37	appr. N	[kN]	3,6	3,9	3,9	6,0	8,5	12,5	17,1
	C40/50	appr. N	[kN]	3,6	4,5	4,5	7,0	9,8	14,5	19,8
	C50/60	appr. N	[kN]	3,6	5,1	5,1	7,8	10,9	16,2	22,1
Approved loads, shear (screw 5.6)	≥ C20/25	appr. V	[kN]	2,1	3,8	3,8	4,1	9,0	16,8	26,2
Approved loads, shear (screw 5.8)	≥ C20/25	appr. V	[kN]	2,9	3,8	3,8	4,1	11,1	18,0	28,6
Approved loads, shear (screw 8.8)	≥ C20/25	appr. V	[kN]	2,9	3,8	3,8	4,1	11,1	18,0	28,6
Approved bending moments (screw 5.6)		appr. M	[Nm]	3,3	8,1	15,8	15,8	27,8	71,0	138,6
Approved bending moments (screw 5.8)		appr. M	[Nm]	4,3	10,9	21,1	21,1	37,1	94,9	185,1
Approved bending moments (screw 8.8)		appr. M	[Nm]	6,9	17,1	33,7	34,3	60,0	152,0	296,6
Spacing and edge distance										
Effective anchorage depth		h_{ef}	[mm]	30	30	30	40	50	65	80
Characteristic spacing		$s_{cr,N}$	[mm]	90	90	90	120	150	195	240
Characteristic edge distance		$c_{cr,N}$	[mm]	45	45	45	60	75	97,5	120
Minimum spacing		s_{min}	[mm]	55	60	100	100	120	150	160
Minimum edge distance		c_{min}	[mm]	95	95	115	135	165	200	260
Minimum thickness of concrete slab		h_{min}	[mm]	100	100	120	120	130	160	200
Installation parameters										
Drill hole diameter		d_0	[mm]	8	10	12	12	15	20	25
Diameter of clearance hole in the fixture		d_f	[mm]	7	9	12	12	14	18	22
Depth of drill hole		h_0	[mm]	30	30	30	40	50	65	80
Installation torque		$T_{inst} \leq$	[Nm]	4	8	15	15	35	60	120
Minimum screwing depth		L_{sd}	[mm]	7	9	10	11	13	18	22
Maximum screwing depth		L_{th}	[mm]	13	13	12	15	18	23	34

[1] Valid only for statically indeterminate systems.

TECHNICAL DATA SHEET



Extract from Permissible Service Conditions of European Technical Assessment ETA-05/0116 for use in concrete for redundant non-structural systems

Approved loads according to EN 1992-4 for single anchors without the influence of spacing and edge distances. The total safety factor (γ_M and γ_F) is included. The admissible loads per fixing point can be taken from the relevant national regulations of the EOTA member states and may be lower than the approved load of the anchor.

Loads and performance data	KFX Drop-In (Wedge) Anchor DPZ / DLZ			M6x25	M6x30	M8x30	M10x25	M10x30	M10x40	M12x25	M12x50	M16x65
KFX code				DLZ-06025	DPZ-06030	DPZ-08030 DLZ-08030	DLZ-10025	DLZ-10030	DPZ-10040 DLZ-10040	DLZ-12025	DPZ-12050 DLZ-12050	DPZ-16065 DLZ-16065
				cracked and uncracked concrete								
Approved loads (C12/15 and C16/20)		appr. F	[kN]	1,2	-	-	1,7	-	-	1,7	-	-
Approved loads (C20/25 to C50/60)		appr. F	[kN]	1,7	1,2	1,7	2,1	2,0	2,0	2,1	2,4	6,3
Approved bending moments (screw 4.6)		appr. M	[Nm]	2,6	2,6	6,4	12,8	12,8	12,8	22,2	22,2	56,9
Approved bending moments (screw 5.6)		appr. M	[Nm]	3,3	3,3	8,1	15,8	15,8	15,8	27,8	27,8	71,0
Approved bending moments (screw 5.8)		appr. M	[Nm]	4,3	4,3	10,9	21,1	21,1	21,1	37,1	37,1	94,9
Approved bending moments (screw 8.8)		appr. M	[Nm]	6,9	6,9	17,1	34,3	33,7	34,3	60,0	60,0	152,0
Spacing and edge distance												
Effective anchorage depth		h_{ef}	[mm]	25	30	30	25	30	40	25	50	65
Characteristic spacing		s_{cr}	[mm]	75	130	180	75	230	170	75	170	400
Characteristic edge distance		c_{cr}	[mm]	38	65	90	38	115	85	38	85	200
Minimum spacing [1)]		s_{min}	[mm]	30	55	60	60	100	100	100	120	150
Minimum edge distance [1)]		c_{min}	[mm]	60	95	95	100	115	135	110	165	200
Standard / minimum thickness of concrete slab		$h_{min,2}$ / $h_{min,1}$	[mm]	100/80	100	100	100/80	120	120	100/80	130	160
Installation parameters												
Drill hole diameter		d_0	[mm]	8	8	10	12	12	12	15	15	20
Diameter of clearance hole in the fixture		d_f	[mm]	7	7	9	12	12	12	14	14	18
Depth of drill hole		h_0	[mm]	25	30	30	25	30	40	25	50	65
Installation torque		$T_{inst} \leq$	[Nm]	4	4	8	15	15	15	35	35	60
Minimum screwing depth [1)]		L_{sd}	[mm]	6	7	9	10	10	11	12	13	18
Maximum screwing depth [1)]		L_{th}	[mm]	12	13	13	12	12	15	12	18	23
Loads under fire exposure (C20/25 to C50/60)												
Approved loads R30	screw ≥ 4.8	appr. F	[kN]	0,4	0,4	0,9	0,6	0,9	1,5	0,6	1,5	4,0
Approved loads R60	screw ≥ 4.8	appr. F	[kN]	0,35	0,35	0,9	0,6	0,9	1,5	0,6	1,5	4,0
Approved loads R90	screw ≥ 4.8	appr. F	[kN]	0,3	0,3	0,6	0,6	0,9	1,1	0,6	1,5	3,0
Approved loads R120	screw ≥ 4.8	appr. F	[kN]	0,25	0,3	0,5	0,5	0,7	0,9	0,5	1,2	2,4
Approved loads R30	screw ≥ 5.6	appr. F	[kN]	0,4	0,8	0,9	0,6	0,9	1,5	0,6	1,5	4,0
Approved loads R60	screw ≥ 5.6	appr. F	[kN]	0,35	0,8	0,9	0,6	0,9	1,5	0,6	1,5	4,0
Approved loads R90	screw ≥ 5.6	appr. F	[kN]	0,3	0,4	0,9	0,6	0,9	1,5	0,6	1,5	3,7
Approved loads R120	screw ≥ 5.6	appr. F	[kN]	0,25	0,3	0,5	0,5	0,7	1,0	0,5	1,2	2,4
Characteristic spacing		$s_{cr,fi}$	[mm]	100	130	180	100	170	170	100	200	400
Characteristic edge distance		$c_{cr,fi}$	[mm]	50	65	90	50	85	85	50	100	200

[1)] Data for minimum thickness of concrete: see ETA-05/0116.

TECHNICAL DATA SHEET

ETA-05/0116

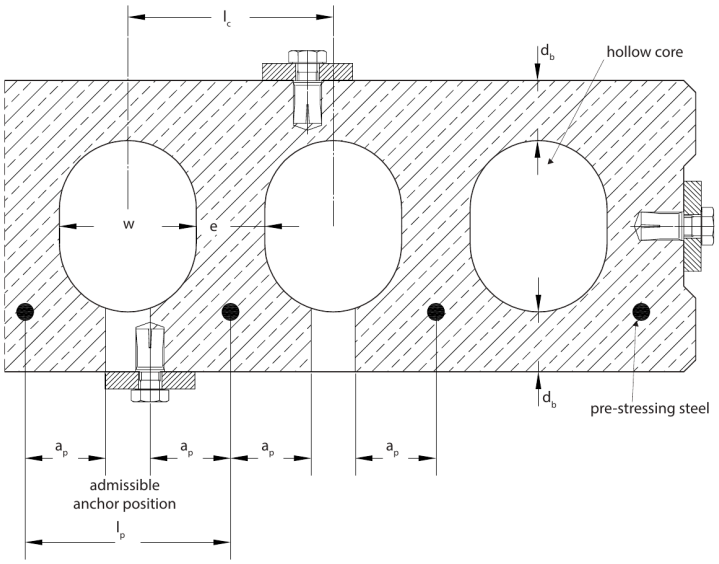
Extract from Permissible Service Conditions of European Technical Assessment ETA-05/0116 for use in precast pre-stressed hollow core slabs for redundant non-structural systems

Approved loads according to EN 1992-4 for single anchors without the influence of spacing and edge distances. The total safety factor (γ_M and γ_F) is included. The admissible loads per fixing point can be taken from the relevant national regulations of the EOTA member states and may be lower than the approved load of the anchor.

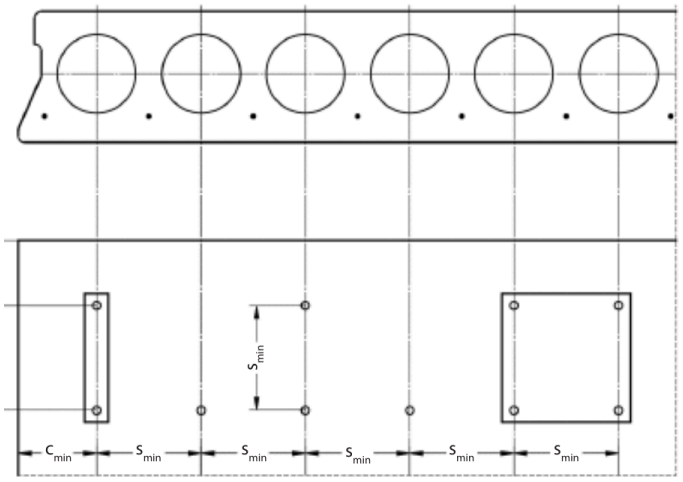
Loads and performance data	KFX Lipped Drop-In (Wedge) Anchor DLZ		M6x25	M10x25	M12x25
KFX code			DLZ-06025	DLZ-10025	DLZ-12025
			Precast pre-stressed hollow core slabs C30/37 to C50/60		
Flange thickness	$d_b \geq$	[mm]	35 (30 [1])		
Approved loads	F_{appr}	[kN]	1,7	2,1	2,1
Approved bending moments (steel 4.6)	appr. M	[Nm]	2,6	12,8	22,2
Approved bending moments (steel 4.8)	appr. M	[Nm]	3,5	17,1	29,7
Approved bending moments (steel 5.6)	appr. M	[Nm]	3,3	15,8	27,8
Approved bending moments (steel 5.8)	appr. M	[Nm]	4,3	21,1	37,1
Approved bending moments (steel 8.8)	appr. M	[Nm]	6,9	34,3	60,0
Spacing and edge distance					
Spacing distance	$s_{cr} = s_{min}$	[mm]	200		
Edge distance	$c_{cr} = c_{min}$	[mm]	150		
Installation parameters					
Drill hole diameter	d_0	[mm]	8	12	15
Diameter of clearance hole in the fixture	d_f	[mm]	7	12	14
Depth of drill hole	$h_0 \geq$	[mm]	25	25	25
Installation torque	$T_{inst} \leq$	[Nm]	4	15	35

[1] Drill hole must not cut hollow core.

Admissible anchor positions	
Hollow core width / web thickness	w / e ≤ 4,2
Core distance	$l_c \geq 100$ mm
Pre-stressing steel distance	$l_p \geq 100$ mm
Distance between anchor position & pre-stressing steel	$a_p \geq 50$ mm
Minimum edge distance	$c_{min} \geq 150$ mm
Minimum spacing	$s_{min} \geq 200$ mm



Admissible anchor positions



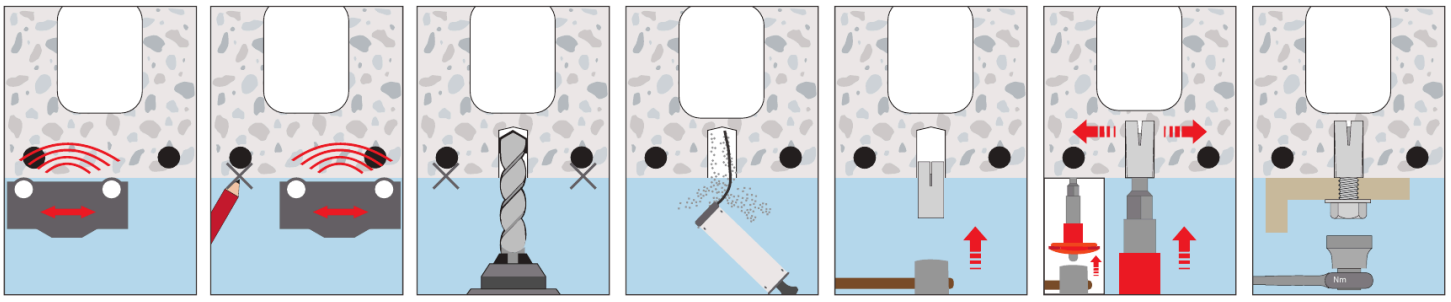
Minimum spacing and edge distance

w = Hollow core width
e = Web thickness
d_b = Bottom flange thickness

l_c = Core distance
l_p = Pre-stressing steel distance
a_p = Distance between anchor position & pre-stressing steel

Installation Instructions

Installation instructions for prestressed hollow core slabs (lipped anchors)



1) - 2) Locate the pre-stressing steel with a reinforcement bar detector and mark the location.

3) Drill the hole in the admissible anchoring area, clear of the pre-stressing steel.

4) Clean the hole using a blow out hand pump.

5) Insert the anchor and tap it in until the lip sits flush.

6) Drive the setting tool into the anchor with a hammer, or the hammer drill for SDS and plug-on tools, until fully expanded.

7) Position the fixture and tighten to T_{inst} using a calibrated torque wrench.