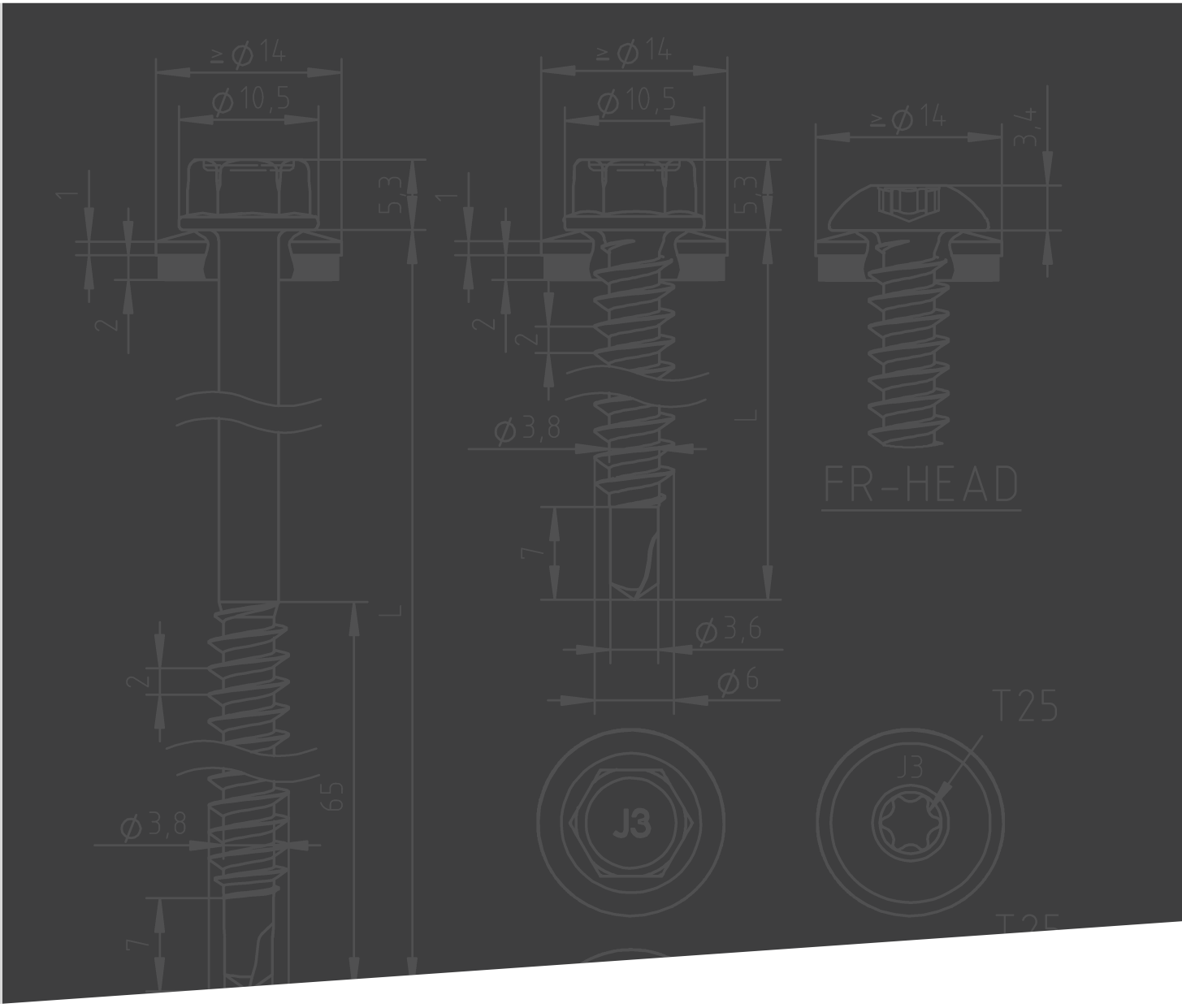
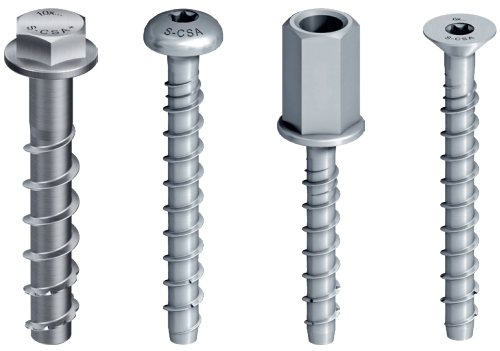
EJOT®

Applications | Products | Special



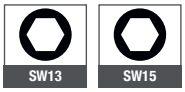
Concrete screws

Technical Specifications



Bringing it together.

Concrete screws product overview

Screw	JC6-KB	JC6-FR	JC6-ST
			
Material	A4 stainless steel		
Application range	Awnings, gates, shelving systems, cable traverses, handrails and railings, stadium seating, impact protection/ram protection, timber add-on components (e,g, joist hanger, angles, ...)		
Drive			
Cracked concrete ETAG-001-1	Ø 6 – 10 mm	Ø 6 mm	
Cracked concrete ETAG-001-6	–		
Non-cracked concrete	Ø 6 – 10 mm	Ø 6 mm	
Certifications			
Technical specifications			
mode of action	Undercut		
Type of load	static		
Recommended tensile loads	1.2 – 4.3 kN		
Recommended shear loads	6.8 – 14.0 kN		

Concrete screws product overview

JC2-KB Plus	JC2-KB	JC2-FR	JC2-ST	JC2-IT
				
Carbon steel, zinc electroplated	Galvanised or zinc alloy coated carbon steel			
Facade scaffolds, temporary fastening, contact surfaces, shelves, cable racks, hand rails, battens, formworks	Facade scaffolds, temporary fastening, contact surfaces, shelves, cable racks, hand rails, battens			Pipe brackets. profile rails
SW13 SW15 SW21 SW24	SW13/TX30	TX30	TX30	SW13
Ø 8–14 mm	Ø 6 mm			
–	Ø 6 mm			
Ø 8–14 mm	Ø 6 mm			
ETA-20/0446 Option 1; ETA-21/0020 Option 1; Z-21.8-2141	ETA-17/0835 Option 1; ETA-18/0221; ETA-16/0945; ETA-17/1009			
Undercut				
static				
3.1–14.3 kN	1.4 kN			
10.9–37.1 kN	4.5 kN			

Approvals / Certifications / Applications

Description of document		Authority/ Laboratory	ID	Additional info
European Technical Assessment	CE	ZAG National Building and Civil Engineering Institute, Slovenia	ETA-16/0945 JC2 6, 8, 10	EAD 330232-01-0601, Option 1
European Technical Assessment	CE	ZAG National Building and Civil Engineering Institute, Slovenia	ETA-17/0835 JC2 6, 8, 10	EAD 330232-00-0601, Option 1
European Technical Assessment	CE	ZAG National Building and Civil Engineering Institute, Slovenia	ETA-18/0221 ETA-17/1009 (JC2 6)	Concrete screw of size 6 for multiple use in non-structural applications. EAD 330747-00-0601, (ETAG Part 6)
European Technical Assessment	CE	ZAG National Building and Civil Engineering Institute, Slovenia	ETA-20/0446 ETA-21/0020 (JC2 PLUS 8, 10, 14)	EAD 330232-01-0601, Option 1
European Technical Assessment	CE	ZAG National Building and Civil Engineering Institute, Slovenia	ETA-22/0413 (JC6 6, 8, 10)	EAD 330232-01-0601, Option 1
General construction technique permit DIBt	Ü	DIBt	Z-21.8-2141	JC2-PLUS 14 mm for temporary fastenings in concrete
Seismic resistance		ZAG -National Building and Civil Engineering Institute, Slovenia	ETA-20/0446 (JC2 PLUS 8, 10, 14)	EN 1992-4
Fire resistance		ZAG National Building and Civil Engineering Institute, Slovenia	ETA-16/0945 ETA-17/0835 ETA-17/1009 ETA-18/0221 ETA-20/0446 ETA-21/0020 ETA-22/0413	
EJOT Anchor Fix calculation software	EJOT ANCHOR FIX	EJOT Software		Free download: www.ejot.com/software-anchorfix

Additional information concerning all given data in the product data sheet

> Load figures include the partial safety factors as per approvals and a partial safety factor on the action of γ_F= 1.4. Load figures apply for a rebar spacing s ≥ 15 cm or alternatively for a rebar spacing s ≥ 10 cm in combination with a rebar diameter of d_s ≤ 10 mm.

> If spacings or edge distances become smaller than the characteristic figures ($s_{cr.N}$ / $c_{cr.N}$) a calculation as per EOTA TR 055 needs to be carried out. For more details. see the ETAs.

> Concrete is considered non-cracked when the value of tension within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification σ_R = 3 N/mm² can be assumed (σL equals the tension within the concrete as a result of external loads. forces on anchor included; σ_R equals the tension coming from shrinkage or creep of the concrete. as well as displacements of supports or temperature variations).

> Shear load figures apply for an anchor without influence of a concrete edge. For shear loads close to an edge ($c \leq 10 \times h_{ef}$). concrete edge failure has to be checked as per EOTA TR 055 or EN 1992-4.

Static and quasi-static loads | JC2 / JC2 PLUS

Characteristic resistances

Anchor size			JC2 6			JC2 Plus 8		JC2 Plus 10		JC2 Plus 14	
			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27.6	31.9	42.5	39.2	51.9	42.5	68.0	49.3	91.8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Non-cracked concrete											
Tensile	N_{Rk}	[kN]	3.0	3.5	9.5	12.1	18.4	13.6	27.6	15.0	42.0
Shear	V_{Rk}	[kN]	9.4*	9.4*	9.8*	19.1*	21.5*	31.8*	35.2*	56.2	64.9*
Cracked concrete											
Tensile	N_{Rk}	[kN]	3.0	3.5	4.5	6.5	12.0	7.5	19.0	8.5	30.0
Shear	V_{Rk}	[kN]	9.4*	9.4*	9.5	19.1*	21.5*	28.6	35.2*	39.3	64.9*
*Failure mode = steel											

Design resistances

Anchor size			JC2 6			JC2 Plus 8		JC2 Plus 10		JC2 Plus 14	
			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27.6	31.9	42.5	39.2	51.9	42.5	68.0	49.3	91.8
Nominal anchorage depth h_{nom}	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Non-cracked concrete											
Tensile	N_{Rd}	[kN]	2.0	2.3	6.3	8.0	12.3	9.1	18.4	100	28.0
Shear	V_{Rd}	[kN]	7.5*	7.5*	7.8*	15.3*	17.2*	25.4*	28.2*	37.5	51.9*
Cracked concrete											
Tensile	N_{Rd}	[kN]	2.0	2.3	3.0	4.3	8.0	5.0	12.7	5.7	20.0
Shear	V_{Rd}	[kN]	7.5*	7.5*	6.3	15.3*	17.2*	19.1	28.2*	26.2	51.9*
*Failure mode = steel											

Recommended resistances

Anchor size			JC2 6			JC2 Plus 8		JC2 Plus 10		JC2 Plus 14	
			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27.6	31.9	42.5	39.2	51.9	42.5	68.0	49.3	91.8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Non-cracked concrete											
Tensile	N_{Rec}	[kN]	1.4	1.7	4.5	5.7	8.8	6.5	13.1	7.1	20.0
Shear	V_{Rec}	[kN]	5.4*	5.4*	5.6*	10.9*	12.3*	18.2*	20.1*	26.8	37.1*
Cracked concrete											
Tensile	N_{Rec}	[kN]	1.4	1.7	2.1	3.1	5.7	3.6	9.0	4.0	14.3
Shear	V_{Rec}	[kN]	5.4*	5.4*	4.5	10.9*	12.3*	13.6	20.1*	18.7	37.1*
*Failure mode = steel											

The data of these tables is based on:

> Concrete C20/25. $f_{ck.cube}$ = 25 N/mm²
> Installation has been done correctly
> No influence of edge distances and spacings
> Respect of minimum base material thickness

Static and quasi-static | JC6 A4

Characteristic resistances

Anchor size			JC6 A4 6		JC6 A4 8		JC6 A4 10	
			OPT 1		OPT 1		OPT 1	
Effective anchorage depth	h_{ef}	[mm]	34.0	42.5	35.8	48.5	39.1	64.6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Non-cracked concrete								
Tensile	N_{Rk}	[kN]	6.0	9.5	8.5	16.6	11.0	25.4
Shear	V_{Rk}	[kN]	14.3*	14.3*	24.3*	24.3*	29.4*	29.4*
Cracked concrete								
Tensile	N_{Rk}	[kN]	2.5	3.5	3.0	8.5	2.5	9.0
Shear	V_{Rk}	[kN]	14.3*	14.3*	24.3*	24.3*	29.4*	29.4*
*Failure mode = steel								

Design resistances

Anchor size			JC6 A4 6		JC6 A4 8		JC6 A4 10	
			OPT 1		OPT 1		OPT 1	
Effective anchorage depth	h_{ef}	[mm]	34.0	42.5	35.8	48.5	39.1	64.6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Non-cracked concrete								
Tensile	N_{Rd}	[kN]	4.0	6.3	5.7	11.1	7.3	16.9
Shear	V_{Rd}	[kN]	9.5*	9.5*	16.2*	16.2*	19.6*	19.6*
Cracked concrete								
Tensile	N_{Rd}	[kN]	1.7	2.3	2.0	5.7	1.7	6.0
Shear	V_{Rd}	[kN]	9.5*	9.5*	14.3	16.2*	18.5	19.6
*Failure mode = steel								

Recommended resistances

Anchor size			JC6 A4 6		JC6 A4 8		JC6 A4 10	
			OPT 1		OPT 1		OPT 1	
Effective anchorage depth	h_{ef}	[mm]	34.0	42.5	35.8	48.5	39.1	64.6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Non-cracked concrete								
Tensile	N_{Rec}	[kN]	2.9	4.5	4.0	7.9	5.2	12.1
Shear	V_{Rec}	[kN]	6.8*	6.8*	11.6*	11.6*	14.0*	14.0*
Cracked concrete								
Tensile	N_{Rec}	[kN]	1.2	1.7	1.4	4.0	1.2	4.3
Shear	V_{Rec}	[kN]	6.8*	6.8*	10.2	11.6*	13.2	14.0*
*Failure mode = steel								

The data of these tables is based on:

> Concrete C20/25. $f_{ck.cube}$ = 25 N/mm²
> Installation has been done correctly
> No influence of edge distances and spacings
> Respect of minimum base material thickness

Basic loading data for precast pre-stressed hollow core slabs | JC2 6

Characteristic resistances

Anchor size				JC2 6	
Nominal anchorage depth	h_{nom}	[mm]		35 / 40	
Flange thickness	d_b	[mm]	≥ 25	≥ 30	≥ 40
Loading for all directions	F_{Rk}	[kN]	2.5	3.5	5.0
Char. bending resistance	$M^0_{Rk.s}$	[Nm]		16.0	
Edge distance	$c_{cr} = c_{min}$	[mm]		100	
Spacing	$s_{cr} = s_{min}$	[mm]		100	

Design resistances

Anchor size				JC2 6	
Nominal anchorage depth	h_{nom}	[mm]		35 / 40	
Flange thickness	d_b	[mm]	≥ 25	≥ 30	≥ 40
Loading for all directions	F_{Rd}	[kN]	1.7	2.3	3.3
Char. bending resistance	$M_{Rd.s}$	[Nm]		12.8	
Edge distance	$c_{cr} = c_{min}$	[mm]		100	
Spacing	$s_{cr} = s_{min}$	[mm]		100	

Recommended loads

Anchor size				JC2 6	
Nominal anchorage depth	h_{nom}	[mm]		35 / 40	
Flange thickness	d_b	[mm]	≥ 25	≥ 30	≥ 40
Loading for all directions	F_{Rec}	[kN]	1.2	1.7	2.4
Char. bending resistance	M_{Rec}	[Nm]		9.1	
Edge distance	$c_{cr} = c_{min}$	[mm]		100	
Spacing	$s_{cr} = s_{min}$	[mm]		100	
The partial safety factor for action is $\gamma = 1.4$					

Requirements for multiple anchoring

The definition of multiple use acc. to the Member States is given in annex of the EAD 330747 § 1.2.1.

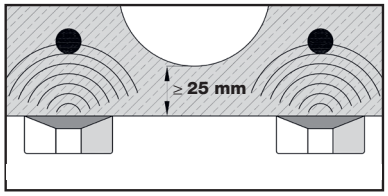
Minimum numbers of fixing points	Minimum numbers of anchors per fixing points	Maximum design loads of action N_{sd}
3	1	2 kN
4	1	3 kN
The value N_{sd} migth be increased if in the design it is shown that the requirements an the strength and stiffness of the fixture in the serviceability and ultimate states after the failure of one anchor are fulfilled.		

The data of these tables is based on:

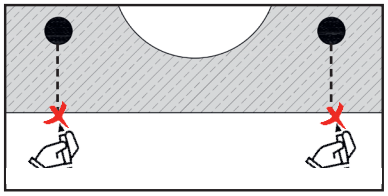
> Concrete C30/37 to C50/60
> Installation has been done correctly
> Edge distances and spacings
> The data of these tables is based on the ETAs

Setting instructions

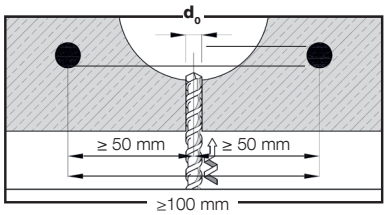
Installation instructions in pre-stressed hollow core slabs



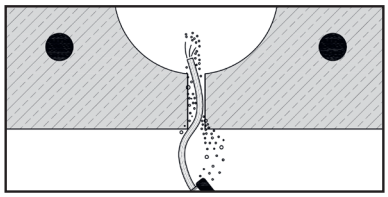
1. Locate rebars by means of suitable detector



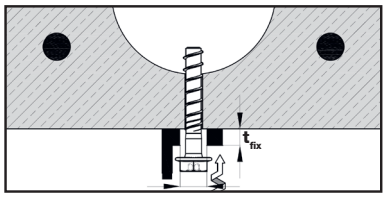
2. Mark rebar location



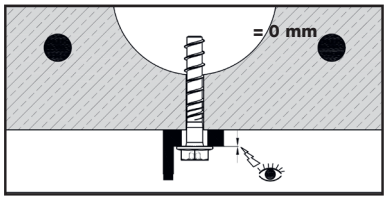
3. Make a cylindrical hole



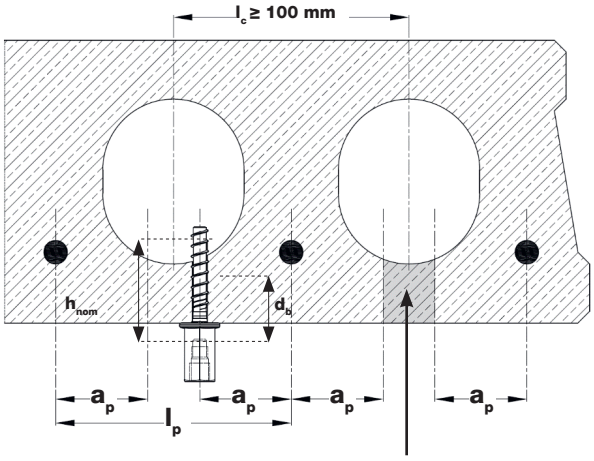
4. Clean the hole



5. Install the screw anchor very gently by screw-driver or torque wrench. Avoid overtightening.



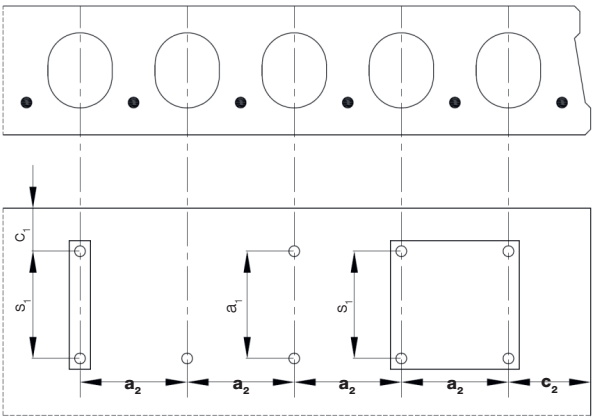
6. Ensure that the screw anchor head fully rests without any gap on the fixture and is not damaged



Admissible anchor position

Admissible anchor position in pre-stressed hollow core slabs

Core distance	$l_c \geq 100$ mm
Pre-stressing steel distance	$l_p \geq 100$ mm
Distance between anchor position and prestressing steel	$a_p \geq 50$ mm



Minimum spacing and edge distance of anchors and distance between anchor groups in pre-stressed hollow core slabs

c1, c2	edge distance
s1, s2	anchor spacing
a1, a2	distance between anchor groups

Seismic resistance | JC2 PLUS

Design acc. EN 1992-4 Performance category C2

Characteristic resistances

Anchor size			8-2	10-2	14-2
Effective anchorage depth	h_{ef}	[mm]	51.9	68.0	91.8
Cracked concrete					
Tension	$N_{Rk,\,seis}$	[kN]	1.9	3.8	6.9
Shear	$V_{Rk,\,seis}$	[kN]	13.6*	24.6*	41.5*

Design resistances

Anchor size			8-2	10-2	14-2
Effective anchorage depth	h_{ef}	[mm]	51.9	68.0	91.8
Cracked concrete					
Tension	$N_{Rd,\,seis}$	[kN]	1.3	2.5	4.6
Shear	$V_{Rd,\,seis}$	[kN]	10.9*	19.7*	33.2*

Recommended loads

Anchor size			8-2	10-2	14-2
Effective anchorage depth	h_{ef}	[mm]	51.9	68.0	91.8
Cracked concrete					
Tension	$N_{Rec,\,seis}$	[kN]	0.9	1.8	3.3
Shear	$V_{Rec,\,seis}$	[kN]	7.8*	14.1*	23.7*

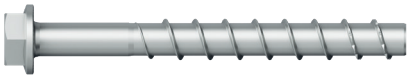
α_{seis} and α_{gap} included as per EN 1992-4. he shear values consider filling of the annular gap between the anchor and the fixture.
* Failure mode = steel

The data of these tables is based on:

> Concrete C20/25, $f_{ck,cube}$ = 25 N/mm²
> Installation has been done correctly
> No influence of edge distances and spacings
> Respect of minimum base material thickness
> α_{gap} = 1.0 (used with seismic filling washer, concerns only the shear values)
> ETA-20/0446 (JC2 Plus)

Filling Washer

For seismic applications
Installation with JC2 Plus



When selecting a JC2 PLUS concrete screw, please note that the use of the filling washer reduces the fixture thickness t_{fix} of the concrete screw.

1.) Mount matching Filling Washer additionally to concrete screw

2.) Drive in concrete screw with filling washer until the anchorage depth h_{nom} is reached

3.) Stick mixer reducer tip on static mixer nozzle. Adhesive tape can be used if necessary.

4.) Fill the annular gap between Concrete screw and fixture through the hole of the Filling Washer until resin leaks out of this hole.

Please observe installation instructions of injection resin. Load may only be applied after the curing time of the injection resin is reached.

Filling Washer is used for filling the gap between fixture and concrete screw after it has been set.

JC2 PLUS	8	10	14
Filling washer size	26x12x5	28x14x5	34x17x5
Reduction of fixture thickness t_{fix}	t_{fix} -5 mm	t_{fix} -5 mm	t_{fix} -5 mm

Fire resistance | JC2 / JC2 PLUS

Design under fire exposure is performed according to the design method given in EN 1992-4. The data of these tables is based on the ETAs.

Characteristic resistances

Anchor size			JC2 6			JC2 PLUS 8		JC2 PLUS 10		JC2 PLUS 14	
			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27.6	31.9	42.5	39.2	51.9	42.5	68	49.3	91.8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Fire Exposure R30											
Tension	$N_{Rk,fi}$	[kN]	0.24	0.24	0.24	0.42	0.42	0.99	0.99	2.13	2.65
Shear	$V_{Rk,fi}$	[kN]	0.24	0.24	0.24	0.42	0.42	0.99	0.99	2.65	2.65
Fire Exposure R60											
Tension	$N_{Rk,fi}$	[kN]	0.22	0.22	0.22	0.38	0.38	0.85	0.85	1.99	1.99
Shear	$V_{Rk,fi}$	[kN]	0.22	0.22	0.22	0.38	0.38	0.85	0.85	1.99	1.99
Fire Exposure R90											
Tension	$N_{Rk,fi}$	[kN]	0.17	0.17	0.17	0.30	0.30	0.66	0.66	1.73	1.73
Shear	$V_{Rk,fi}$	[kN]	0.17	0.17	0.17	0.30	0.30	0.66	0.66	1.73	1.73
Fire Exposure R120											
Tension	$N_{Rk,fi}$	[kN]	0.12	0.12	0.12	0.21	0.21	0.53	0.53	1.33	1.33
Shear	$V_{Rk,fi}$	[kN]	0.12	0.12	0.12	0.21	0.21	0.53	0.53	1.33	1.33

The recommended loads under fire exposure include a safety factor for resistance under fire exposure $\gamma_{M,fi} = 1,0$ and the partial safety factor for action $\gamma_{F,fi} = 1,0$.
The partial safety factors for action shall be taken from national regulations.

The data of these tables is based on:

> Concrete C20/25, $f_{ck,cube} = 25$ N/mm²
> Values cannot be used with hollow core slabs
> Installation has been done correctl
> No influence of edge distances and spacings
> Respect of minimum base material thickness

Fire resistance | JC6 A4

Design under fire exposure is performed according to the design method given in EN 1992-4. The data of these tables is based on the ETAs.

Characteristic resistances

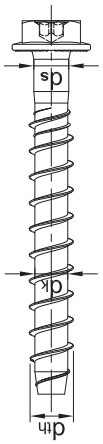
Anchor size			JC6 A4 6		JC6 A4 8		JC6 A4 10	
			OPT 1		OPT 1		OPT 1	
Effective anchorage depth	h_{ef}	[mm]	34.0	42.5	35.8	48.5	39.1	64.6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Fire Exposure R30								
Tension	$N_{Rk,\,fi}$	[kN]	0.24	0.24	0.75	0.85	1.70	1.70
Shear	$V_{Rk,\,fi}$	[kN]	0.24	0.24	0.85	0.85	1.70	1.70
Fire Exposure R60								
Tension	$N_{Rk,\,fi}$	[kN]	0.22	0.22	0.68	0.68	1.36	1.36
Shear	$V_{Rk,\,fi}$	[kN]	0.22	0.22	0.68	0.68	1.36	1.36
Fire Exposure R90								
Tension	$N_{Rk,\,fi}$	[kN]	0.17	0.17	0.51	0.51	1.09	1.09
Shear	$V_{Rk,\,fi}$	[kN]	0.17	0.17	0.51	0.51	1.09	1.09
Fire Exposure R120								
Tension	$N_{Rk,\,fi}$	[kN]	0.12	0.12	0.42	0.42	0.95	0.95
Shear	$V_{Rk,\,fi}$	[kN]	0.12	0.12	0.42	0.42	0.95	0.95

The recommended loads under fire exposure include a safety factor for resistance under fire exposure $\gamma_{M,fi} = 1{,}0$ and the partial safety factor for action $\gamma_{F,fi} = 1{,}0$.
The partial safety factors for action shall be taken from national regulations.

The data of these tables is based on:

- Concrete C20/25, $f_{ck,cube} = 25$ N/mm²
- Values cannot be used with hollow core slabs
- Installation has been done correctl
- No influence of edge distances and spacings
- Respect of minimum base material thickness

Material and dimensions | JC2 / JC2 PLUS



Material quality and coating

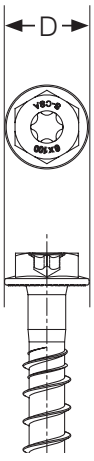
Part	
Material	Cold forged carbon steel
Coating GVZ	Zinc electroplated according to EN ISO 4042 ≥ 5 µm
Coating C1000ZA	Zinc alloy coating ≥ 8 µm

Mechanical properties

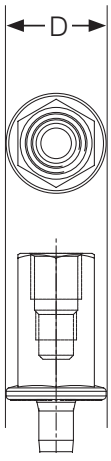
Specification			JC2 6			JC2 PLUS 8		JC2 PLUS 10		JC2 PLUS 14	
			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27.6	31.9	42.5	39.2	51.9	42.5	68.0	49.3	91.8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Nominal tensile strength	F_{uk}	[N/mm²]	800								
Char. bending resistance	$M^0_{Rk,s}$	[Nm]	16			37	45	72	84	207	227
Design bending resistance	$M_{Rd,s}$	[Nm]	12.8			29.6	36	57.6	67.2	165.6	181.6
Recommended bending resistance	M_{rec}	[Nm]	9.1			21.1	25.7	41.1	48	118.3	129.7

Specification			JC2 6	JC2 PLUS 8	JC2 PLUS 10	JC2 PLUS 14
Nominal diameter	d_{nom}	[mm]	6	8	10	14.4
Thread outer diameter	d_{th}	[mm]	7.45	10.50	12.70	16.55
Core diameter	d_k	[mm]	5.55	7.30	9.15	13.00
Shaft diameter	d_s	[mm]	5.88	7.80	9.62	13.40
Stressed section	$A_{s.}$	[mm²]	24.19	42.43	65.76	132.73
Diameter of integrated washer (KB)	D	[mm]	16.5	17.5	20.5	28/29.5
Diameter of integrated washer (IT)	D	[mm]	14.2	-	-	-
Diameter of pan head (FR)	D	[mm]	14.5	-	-	-
Diameter of countersunk (ST)	D	[mm]	14	-	-	-

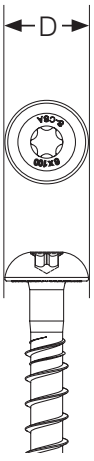
KB



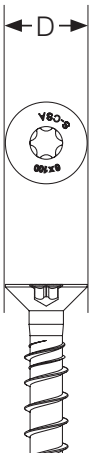
IT



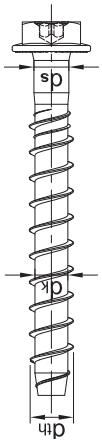
FR



ST



Material and dimensions | JC6 A4



Material quality and coating

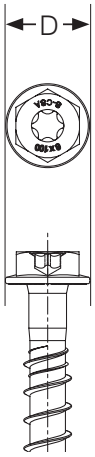
Part	
Material	Cold forged stainless steel A4, hardened steel tip

Mechanical properties

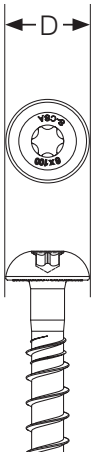
Specification			JC6 A4 6		JC6 A4 8		JC6 A4 10	
Effective anchorage depth	h_{ef}	[mm]	34	42.5	35.8	48.5	39.1	64.6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Nominal tensile strength	F_{uk}	[N/mm²]	800		800		705	
Char. bending resistance	$M^0_{Rk,s}$	[Nm]	19.4		45.6		75.1	
Design bending resistance	$M_{Rd,s}$	[Nm]	12.9		30.4		50.1	
Recommended bending resistance	M_{rec}	[Nm]	9.2		21.7		35.8	

Specification			JC6 A4 6	JC6 A4 8	JC6 A4 10
Nominal diameter	d_{nom}	[mm]	6	8	10
Thread outer diameter	d_{th}	[mm]	7.45	9.9	11.9
Core diameter	d_k	[mm]	5.55	7.35	9.3
Shaft diameter	d_s	[mm]	5.9	7.85	9.67
Stressed section	A_s	[mm²]	24.19	42.43	67.93
Diameter of integrated washer (KB)	D	[mm]	16.5	17.5	20.5
Diameter of pan head (FR)	D	[mm]	14.5	-	-
Diameter of countersunk (ST)	D	[mm]	14	-	-

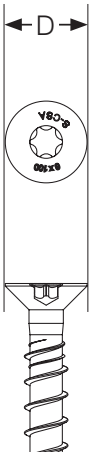
KB



FR



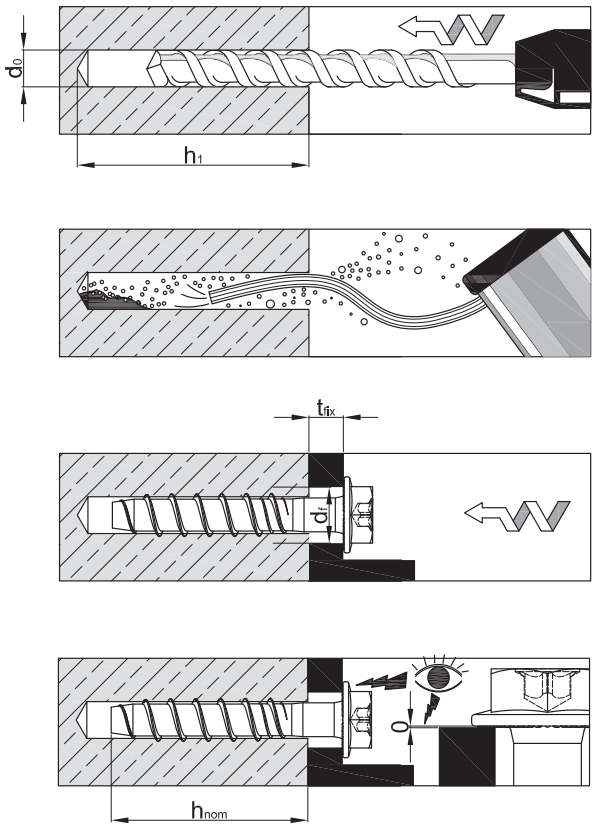
ST



Installation instructions

Installation equipment

Specification	JC2 6	JC2 PLUS 8	JC2 PLUS 10	JC2 PLUS 14	JC6 A4 6	JC6 A4 8	JC6 A4 10
Rotary hammer (recomendation)	750 – 1200 U/min / 1.8 – 3.3 J						
Drill bit	SDS+ 2-CUT or 4-CUT sizes 6, 8, 10, 14 mm						
Socket (SW)	13	13	15	21 oder 24	13	13	15
T-drive / Torx	T30	-	-	-	-	-	-
Additional tools	air pump/compressor, torque wrench, impact screw driver						



Notes

Concrete and hollow core slab

> Concrete strength is C20/25 to C50/60
Hollow core slabs C30/37 to C50/60
> No significant voids in concrete.
> Concrete is well compacted.
> Thickness of concrete is according PDS installation data.

Installation

Edge distances and spacing are according PDS installation data

> Use proper air pump or compressor.
> Drill hole is deep enough (mentioned h_1 in PDS installation data).
> All dust should be cleaned from the hole to avoid screw jamming during installation.
> Pay special attention to cleaning, especially when installing downwards.
> In case of aborted hole, drilling of new hole at a minimum distance of twice the depth of the aborted hole, or smaller distance provided the aborted drill hole is filled with high strength non-shrinkage mortar. No shear or oblique tension loads are allowed in the direction of a not filled aborted hole.

Other base materials

> Concrete screw can be used also in other base materials such as solid clay brick and solid sand-lime brick.

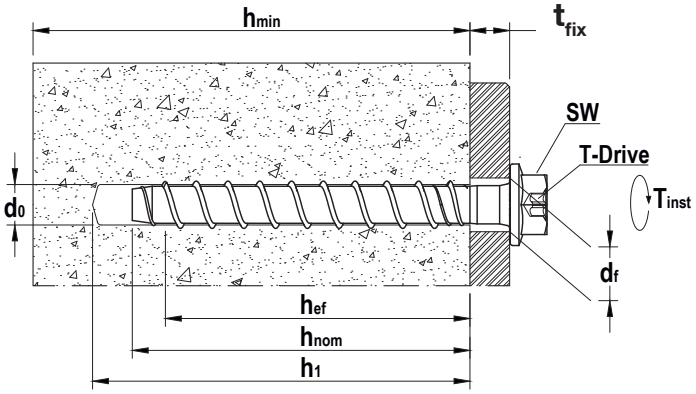
Installation instructions | JC2 / JC2 PLUS

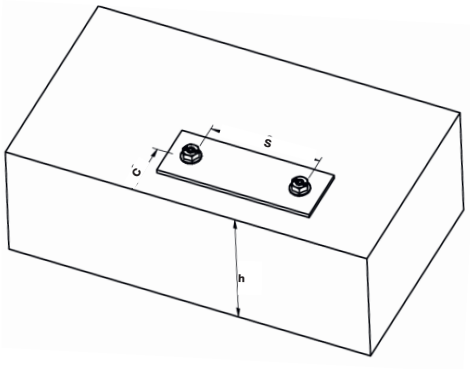
Installation parameters

Specification			JC2 6			JC2 PLUS 8		JC2 PLUS 10		JC2 PLUS 14	
Approval			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Drill hole diameter	d_0	[mm]	6			8		10		14	
Cutting diameter at the upper tolerance limit (max. diam. bit)	$d_{cut,max}$ ≤	[mm]	6,40			8,45		10,45		14,50	
Depth of drilled hole to deepest point	h_1 ≥	[mm]	40	50	65	60	75	65	95	75	125
Effective anchorage depth	h_{ef}	[mm]	27,6	31,9	42,5	39,2	51,9	42,5	68	49,3	91,8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Diameter of clearance hole in the fixture	d_f	[mm]	7,7 – 9,0			10,8 – 12,0		13,0 – 14,0		17,0 – 18,0	
Max. torque, manual	T_{inst}	[Nm]	14			45		85		100	
Max. torque. impact screw driver	T_{SD}	[Nm]	90			290		650		650	
Width across flats	SW	[mm]	13			13		15		21 / 24	
T-drive (in types KB, ST and FR)	T-drive		TX30			-		-		-	

Minimum thickness of concrete member, spacing and edge distance

Specification			JC2 6			JC2 PLUS 8		JC2 PLUS 10		JC2 PLUS 14	
Approval			PART 6	PART 6	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1	OPT 1
Effective anchorage depth	h_{ef}	[mm]	27,6	31,9	42,5	39,2	51,9	42,5	68	49,3	91,8
Nominal anchorage depth	h_{nom}	[mm]	35	40	55	50	65	55	85	65	115
Minimum thickness of base materials	h_{min}	[mm]	80	100	100	100	115	100	130	120	150
Minimum spacing	s_{min}	[mm]	35	35	35	35	35	40	40	60	60
Minimum edge distance	c_{min}	[mm]	30	35	35	35	35	40	40	60	60
Critical spacing for splitting failure and concrete cone failure (in case characteristic loading affects)	$s_{cr,rp}$	[mm]	110	96	128	118	176	128	232	148	275
	$s_{cr,N}$	[mm]	83	96	128	118	156	128	204	148	275
Critical edge distance for splitting failure and concrete cone failure (in case characteristic loading affects)	$c_{cr,sp}$	[mm]	55	48	64	59	88	64	116	74	138
	$c_{cr,N}$	[mm]	41	48	64	59	78	64	102	74	138





Installation instructions | JC6 A4

Installation parameters

Specification			JC6 A4 6		JC6 A4 8		JC6 A4 8	
Approval			OPT1		OPT 1		OPT 1	
Drill hole diameter	d_o	[mm]	6		8		10	
Cutting diameter at the upper tolerance limit (max. diam. bit)	$d_{cut,max} \leq$	[mm]	6,40		8,45		10,45	
Depth of drilled hole to deepest point	$h_1 \geq$	[mm]	55	65	60	75	65	95
Effective anchorage depth	h_{ef}	[mm]	34	42,5	35,8	48,5	39,1	64,6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Diameter of clearance hole in the fixture	d_f	[mm]	≤ 9		≤ 12		≤ 14	
Max. torque, manual	T_{inst}	[Nm]	14		40		75	
Max. torque. impact screw driver	T_{SD}	[Nm]	90		290		360	
Width across flats	SW	[mm]	13		13		15	
T-drive (in types ST and FR)	T-drive		TX30		-		-	

Minimum thickness of concrete member, spacing and edge distance

Specification			JC6 A4 6		JC6 A4 8		JC6 A4 8	
Approval			OPT1		OPT 1		OPT 1	
Effective anchorage depth	h_{ef}	[mm]	34	42,5	35,8	48,5	39,1	64,6
Nominal anchorage depth	h_{nom}	[mm]	45	55	50	65	55	85
Minimum thickness of base materials	h_{min}	[mm]	80	100	100	100	100	100
Minimum spacing	s_{min}	[mm]	35	35	35	35	40	40
Minimum edge distance	c_{min}	[mm]	35	35	35	35	40	40
Critical spacing for splitting failure and concrete cone failure (in case characteristic loading affects)	$s_{cr,rp}$	[mm]	136,0	127,5	121,7	165,0	195,5	184,5
	$s_{cr,N}$	[mm]	102,0	127,5	107,4	145,5	117,3	193,8
Critical edge distance for splitting failure and concrete cone failure (in case characteristic loading affects)	$c_{cr,sp}$	[mm]	68,0	63,8	60,9	82,5	97,8	92,3
	$c_{cr,N}$	[mm]	51,0	63,8	53,7	72,8	58,7	96,9

Reusability | JC2 PLUS 14

DIBt Z-21.8-2141 approves the reuse of the concrete screw JC2 PLUS 14, 14 mm diameter with hexagon head in combination with the CG checking gauge. The checking gauge is a tool for measuring the reusability of the JC2 PLUS 14 concrete screw for temporary applications. The checking must be performed before each reuse.

Field of application

JC2 PLUS 14 shall only be applied for temporary fastening of construction site equipment, such as shoring props, fall protection devices or scaffolds. After it has been unscrewed, the fastener may be reused in other drill holes. However, a drilled hole shall not be reused after the fastener has been removed. Reusability of the fastener shall be checked prior to every use, both visually as well as with a sleeve gauge in accordance with installation parameters. Installed fasteners shall be checked for visible damage (for example due to corrosion) on an ongoing basis and replaced if required. The fastener may be used in cracked and non-cracked concrete. The fastener is intended for temporary use in internal and external conditions.

Installation

JC2 PLUS 14 is only intended for temporary application in a single drilled hole. After it has been removed, it may be reused in other drilled holes. However, it may not be screwed into the same drilled hole for a second time. Prior to every reuse, the wear of the thread shall be verified with an appropriate sleeve gauge (CG). The fastener shall only be reused under the condition that it will penetrate the sleeve only so far that it does not protrude at the rear of the sleeve (see Annex 2). Screws which are visibly damaged, e.g. due to corrosion, shall not be reused. The fastener may be screwed in using an impact screw driver. To prevent the screw from spinning, the screw driver with a power output in the upper range shall be equipped with an automatic cut-off device, e.g. via a depth stop.

The fastener is installed correctly if

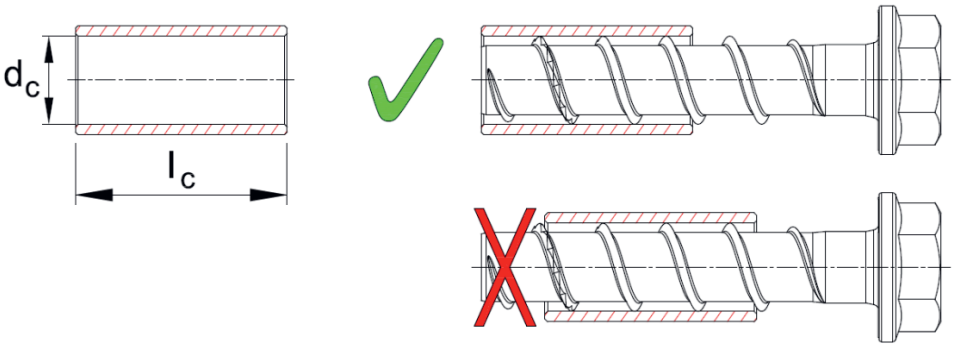
> the base plate (fixture) is screwed flush against the concrete without an intermediate layer,
> the fastener head is fully in contact with the base plate,
> the fastener cannot easily be turned further,
> the embedment depth h_{nom} is adhered to.

Anchor size			JC2 PLUS 14	
Nominal embedment depth	h_{nom}	[mm]	65	115
Design resistance for concrete with a compressive strength $f_{ck,cube} \geq 10$ N/mm²	F_{Rd} [1)]	[kN]	2.7	6.7
Design resistance for concrete with a compressive strength $f_{ck,cube} \geq 15$ N/mm²	F_{Rd} [1)]	[kN]	3.0	8.0
Design resistance for concrete with a compressive strength $f_{ck,cube} \geq 20$ N/mm²	F_{Rd} [1)]	[kN]	3.0	9.3
Design resistance for concrete with a compressive strength $f_{ck,cube} \geq 25$ N/mm²	F_{Rd} [1)]	[kN]	3.3	10.0

[1)] Design resistance incl. partial safety factor.

Checking gauge CG

Gauge CG	
Gauge inner diameter d_c [mm]	15.5
Length l_c [mm]	40.0



Delivery program

JC2-KB PLUS	Size	t_{fix}	ETA
8	8x55	5	•
	8x70	5/20	•
	8x80	15/30	•
	8x90	25/40	•
	8x100	35/50	•
	8x120	55/70	•
	8x140	75/90	•
10	10x60	5	•
	10x70	15	•
	10x80	25	•
	10x90	5/35	•
	10x100	15/45	•
	10x120	35/65	•
	10x140	55/85	•
	10x160	75/105	•
14	14x75 SW21	10	•
	14x100 SW21	35	•
	14x130 SW21	15/65	•
	14x150 SW21	35/85	•
	14x80 SW24 *	15	•
	14x110 SW24 *	45	•
	14x130 SW24 *	15/65	•

Zink plated or multi layer coating, * = only ZP

JC2-KB	Size	t_{fix}	ETA
6	6x35 SW13	1	•
	6x45 SW13	5/10	•
	6x50 SW13	10/15	•
	6x60 SW13	5/20	• •
	6x70 SW13	15/30	• •
	6x80 SW13	25/40	• •
	6x100 SW13	45/60	• •
	6x120 SW13	65/80	• •
	6x140 SW13	85/100	• •

Zink plated

JC2-ST	Size	t_{fix}	ETA
6	6x45	5/10	•
	6x50	10/15	•
	6x60	5/20	• •
	6x80	25/40	• •
	6x100	45/60	• •
	6x120	65/80	• •

Zink plated

JC2-FR	Size	t_{fix}	ETA
6	6x35 (L)	1	•
	6x45	5	•
	6x45 (L)	5	•
	6x60	5/20	• •

Zink plated, L = low pan head

JC2-IT	Size	ETA
6	6x35 M8/M10x30	•
	6x45 M8/M10x30	•
	6x60 M8/M10x30	• •

Zink plated

JC6 A4	Size	t_{fix}	ETA
6	6x50	5	•
	6x60	5/15	•
	6x70	15/25	•
	6x80	25/35	•
8	8x55	5	•
	8x70	5/20	•
	8x80	15/30	•
	8x100	35/50	•
10	10x90	5/35	•
	10x100	15/45	•
	10x120	35/65	•

Stainless steel A4, hardened tip, coated

• Option 1 | • Part 6

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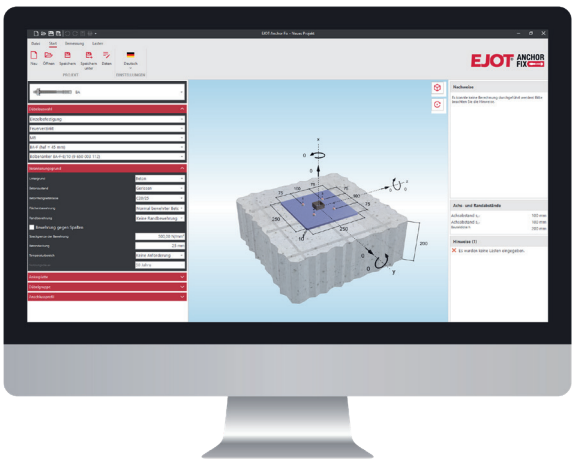

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