

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-21/0352**  
**of 12 October 2021**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

EJOT concrete screw J6

Product family  
to which the construction product belongs

Fasteners for use in concrete for  
redundant non-structural systems

Manufacturer

EJOT UK Limited  
Hurricane Close, Sherburn Enterprise Park  
SHERBURN IN ELMET, LS25 6PB  
GROSSBRITANNIEN

Manufacturing plant

EJOT Plant 16

This European Technical Assessment  
contains

13 pages including 4 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 330747-00-0601, Edition 6/2018

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## Specific Part

### 1 Technical description of the product

The EJOT concrete screw J6 is an anchor made of stainless steel of sizes 6 and 8. The anchor is screwed into a predrilled cylindrical drill hole. The special thread of the anchor cuts an internal thread into the member while setting. The anchorage is characterised by mechanical interlock in the special thread.

The product description is given in Annex A.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 3 and C 4

#### 3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance to tension load (static and quasi-static loading)	See Annex B 2 and C 1
Characteristic resistance to shear load (static and quasi-static loading)	See Annex C 2
Durability	See Annex B 1

### 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with European Assessment Document EAD No. 330747-00-0601, the applicable European legal act is: [97/161/EC].

The system to be applied is: 2+

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document**

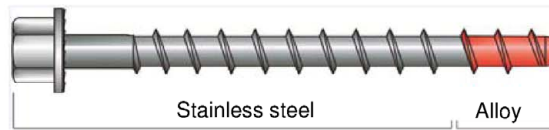
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 12 October 2021 by Deutsches Institut für Bautechnik

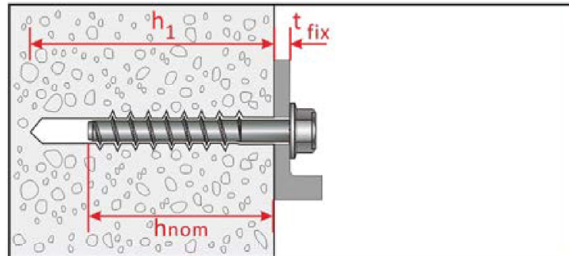
Dipl.-Ing. Beatrix Wittstock  
Head of Section

*beglaubigt:*  
Baderschneider

**Product in the installed condition**



Stainless steel A4



Hexagon Head: J-H  
A4 (J6 6, J6 8)

**Table A1: Materials and screw types**

Name	Material			
Screw anchor	Head marking		material	
	J A4		Stainless steel 1.4401, 1.4404 (both A4)	
Anchor size / head types			J6 6	J6 8
			-H	-H
material			A4	A4
Nominal value of the characteristic yield strength	$f_{yk}$	N/mm <sup>2</sup>	640	640
Nominal value of the characteristic teisile strength	$f_{uk}$	N/mm <sup>2</sup>	800	800
Elongation at rupture	$A_s$	[%]	≤ 8	
			Hexagon washer head 1) J-H A4 size 6,8 (stainless A4)	

**EJOT concrete screw J6**

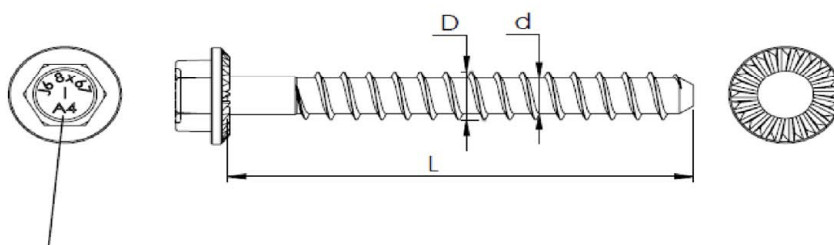
**Product description**  
Installed condition, Materials and screw types

**Annex A1**

**Table A2: Dimensions and markings**

Anchor size			J6 6	J6 8
Nominal Embedment depth	$h_{nom}$	[mm]	70	52
Length of anchor	min L	[mm]	75	55
	max L	[mm]	140	150
Thread diameter	D	[mm]	7,5	9,9
Shaft diameter	d	[mm]	5,5	7,4
Thread pitch	p	[mm]	4,45	5,8

Stainless Steel  
A4



**Head Marking:**  
Identifying mark of producer: J6  
Nominal Size: e.g. 8mm  
Length: e.g. 67mm

**EJOT concrete screw J6**

**Product description**  
Dimensions and markings

**Annex A2**

### Specifications of Intended use

#### Anchorage subject to:

- Static and quasi-static loads.
- Only for use for redundant non-structural systems.
- Fire exposure: only for concrete C20/25 to C50/60.

#### Base materials:

- Compacted reinforced or unreinforced normal weight concrete without fibres according to EN 206:2013,
- Strength classes C20/25 to C50/60 according to EN 206:2013,
- Uncracked or cracked concrete: all sizes.

#### Use conditions (Environmental conditions)

- Anchorages subject to dry internal conditions.
- Anchorages subject to external atmospheric exposure (including industrial and marine environment) or exposure in permanently damp internal conditions if no particular aggressive conditions exist.

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere or indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used)

#### Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e. g. position of the anchor relative to reinforcement or to supports, etc.).
- Only for use for redundant non-structural systems according to EN 1992-4:2018, Chapter 7.3. Design Method A according to EN 1992-4:2018 and Technical Report TR 055, Edition February 2018.
- Anchorages under fire exposure are designed according to EN 1992-4:2018, Annex D.

#### Installation:

- Hammer drilling only: all sizes and all embedment depths.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of the aborted hole or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of the load application.
- After installation further turning of the anchor shall not be possible.
- The head of the anchor must be fully engaged on the fixture and show no signs of damage.

**EJOT concrete screw J6**

**Intended use  
Specifications**

**Annex B1**

**Table B1: Installation parameters**

Anchor size			J6 6	J6 8
Nominal diameter of drill bit	$d_0$	[mm]	6	8
Nominal embedment depth	$h_{nom}$	[mm]	70	52
Minimum hole depth in concrete	$h_1 \geq$	[mm]	80	65
Effective anchorage depth	$h_{ef}$	[mm]	43,1	22,2
Clearance hole	$d_f$	[mm]	9	11
Thickness of fixture	$t_{fix}$	[mm]	5-70	3-98
Installation torque <sup>1)</sup>	$T_{inst}$	[Nm]	- <sup>1)</sup>	31
Wrench size	WS	[mm]	-	13
Maximum power output, machine setting	$T_{max} \leq$	[Nm]	120	185

<sup>1)</sup> Screws can only be set using an impact screw driver.

**Table B2: Minimum thickness of member, minimum spacing and edge distance**

Anchor size			J6 6	J6 8
Minimum member thickness	$h_{min}$	[mm]	110	100
Minimum edge distance	$c_{min}$	[mm]	40	55
Minimum spacing	$s_{min}$	[mm]	40	55

**EJOT concrete screw J6**

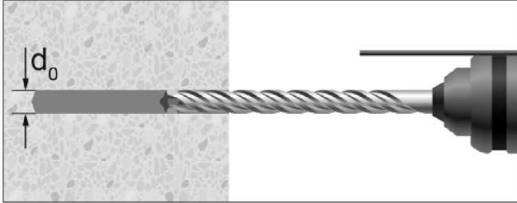
**Intended use**

Installation parameters, minimum thickness of member, minimum spacing and edge distance

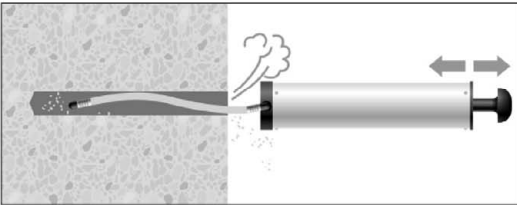
**Annex B2**



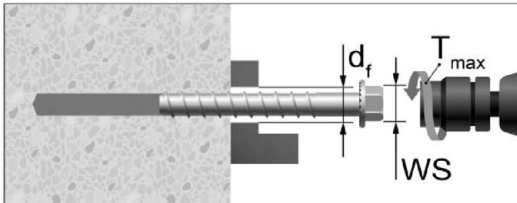
## Installation instruction



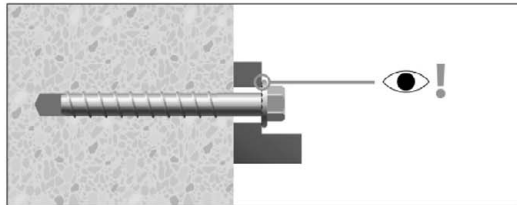
Drill the hole to the depth  $h_1$ .



Clean the hole.



Screw in the anchor by using a torque wrench or an impact screw driver.  
In case of using torque wrench:  $T_{inst}$  acc. to Table B1.  
In case of using impact screw driver:  $T_{max}$  acc. to Table B1.  
WS= Wrench Size



Control of complete setting, full contact of screw head with fixture part.

**EJOT concrete screw J6**

**Intended Use**  
Installation Instruction

**Annex B3**

**Table C1: Characteristic resistance under tension loading**

Anchor size			J6 6	J6 8
<b>Steel failure</b>				
Characteristic resistance	$N_{Rk,s}$	[kN]	18,1	33,0
Partial factor	$\gamma_{Ms}$	[-]	1,5	1,5
<b>Pull-out failure</b>				
Characteristic resistance in cracked and uncracked concrete C20/25	$N_{Rk,p}$	[kN]	5,0	2,0
Increasing factors for $N_{Rk,p}$ in cracked or uncracked concrete	$\psi_c$	C30/37	1,22	1,20
		C40/50	1,41	1,37
		C50/60	1,58	1,51
Installation factor	$\gamma_{inst}$	[-]	1,0	1,0
<b>Concrete cone failure</b>				
Effective anchorage depth	$h_{ef}$	[mm]	43,1	22,2
Characteristic edge distance	$c_{cr,N}$	[mm]	1,5 $h_{ef}$	
Characteristic spacing	$s_{cr,N}$	[mm]	3,0 $h_{ef}$	
Installation factor	$\gamma_{inst}$	[-]	1,0	1,0
Factor for cracked concrete	$k_{cr,N}$	[-]	7,7	
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0	
<b>Splitting failure</b>				
Characteristic edge distance for splitting	$c_{cr,sp}$	[mm]	1,5 $h_{ef}$	2,5 $h_{ef}$
Characteristic anchor spacing for splitting	$s_{cr,sp}$	[mm]	3,0 $h_{ef}$	5,0 $h_{ef}$
Installation factor	$\gamma_{inst}$	[-]	1,0	1,0
Factor for cracked concrete	$k_{cr,N}$	[-]	7,7	
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0	

**EJOT concrete screw J6**

**Performance**  
Characteristic values under tension loading

**Annex C1**

**Table C2: Characteristic resistance under shear loading**

Anchor size			J6 6	J6 8
Setting depth	$h_{nom}$	[mm]	70	52
Effective embedment depth	$h_{ef}$	[mm]	43,1	22,2
<b>Steel failure without lever arm</b>				
Characteristic resistance	$V_{Rk,s}$	[kN]	9,0	13,2
Ductility factor	$k_7$	[-]	0,8	
Partial factor	$\gamma_{Ms}$	[-]	1,25	1,25
<b>Steel failure with lever arm</b>				
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	14,6	35,9
Partial factor	$\gamma_{Ms}$	[-]	1,25	1,25
<b>Concrete pryout failure</b>				
k-factor	$k_8$	[-]	1,0	1,0
Partial factor	$\gamma_{Mcp}$	[-]	1,5	
<b>Concrete edge failure</b>				
Effective length of anchor in shear loading	$\ell_f$	[mm]	43,1	22,2
Effective diameter of anchor	$d_{nom}$	[mm]	5,37	7,4
Partial factor	$\gamma_{Mc}$	[-]	1,5	

**EJOT concrete screw J6**

**Performance**  
Characteristic values under shear loading

**Annex C2**

**Table C3: Characteristic values for resistance to fire (Tension)**

Anchor size				J6 6	J6 8
Partial factor		$\gamma_{M,fi}$	[-]	1,0	1,0
<b>Steel failure</b>					
Characteristic resistance	R30	$N_{Rk,s,fi}$	[kN]	0,23	0,8
	R60	$N_{Rk,s,fi}$	[kN]	0,20	0,7
	R90	$N_{Rk,s,fi}$	[kN]	0,16	0,5
	R120	$N_{Rk,s,fi}$	[kN]	0,11	0,4
<b>Pull-out failure</b>					
Characteristic resistance in concrete $\geq$ C20/25	R30	$N_{Rk,p,fi}$	[kN]	1,3	0,5
	R60				
	R90				
	R120	$N_{Rk,p,fi}$	[kN]	1,0	0,4
<b>Concrete cone failure</b>					
Characteristic resistance in concrete $\geq$ C20/25	R30	$N^0_{Rk,c,fi}$	[kN]	2,1	0,4
	R60				
	R90				
	R120	$N^0_{Rk,c,fi}$	[kN]	1,7	0,3
Effective embedment depth	$h_{ef}$	[mm]	43,1	22,2	
Minimum member thickness	$h_{min}$	[mm]	110	100	
Spacing	$s_{cr,N,fi}$	[mm]	$4h_{ef}$		
	$s_{min}$	[mm]	40	55	
Edge distance	$c_{cr,N,fi}$	[mm]	$2h_{ef}$		
Fire exposure from one side only	$c_{min}$	[mm]	40	55	
Fire exposure from more than one side	$c_{min}$	[mm]	$\geq 300$ mm		

**EJOT concrete screw J6**

**Performance**  
Characteristic values for resistance to fire

**Annex C3**

**Table C4: Characteristic values for resistance to fire (Shear)**

Anchor size				J6 6	J6 8
Partial factor	$\gamma_{M,fi}$		[-]	1.0	
<b>Steel failure without level arm</b>					
Characteristic resistance	R30	$V_{Rk,s,fi}$	[kN]	0,23	0,8
	R60	$V_{Rk,s,fi}$	[kN]	0,20	0,7
	R90	$V_{Rk,s,fi}$	[kN]	0,16	0,5
	R120	$V_{Rk,s,fi}$	[kN]	0,11	0,4
<b>Steel failure with level arm</b>					
Characteristic resistance	R30	$M^0_{Rk,p,fi}$	[Nm]	0,18	0,9
	R60	$M^0_{Rk,p,fi}$	[Nm]	0,16	0,7
	R90	$M^0_{Rk,p,fi}$	[Nm]	0,13	0,5
	R120	$M^0_{Rk,p,fi}$	[Nm]	0,09	0,4
<b>Pry-out failure</b>					
$k_8$			[-]	1,0	1,0
Characteristic resistance	R30	$V_{Rk,cp,fi}$	[kN]	2,1	0,4
	R60				
	R90				
	R120	$V_{Rk,cp,fi}$	[kN]	1,7	0,3
<b>Concrete edge failure</b>					
Characteristic resistance	$\leq R90$	$V_{Rk,c,fi}$	[kN]	$V^0_{Rk,c,fi} = 0,25 * V^0_{Rk,c}$	
	R120	$V_{Rk,c,fi}$	[kN]	$V^0_{Rk,c,fi} = 0,20 * V^0_{Rk,c}$	

**EJOT concrete screw J6**

**Performance**  
Characteristic values for resistance to fire

**Annex C4**