

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

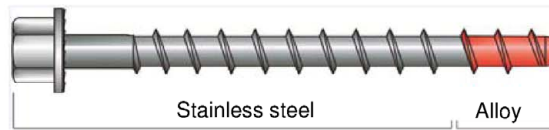
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

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

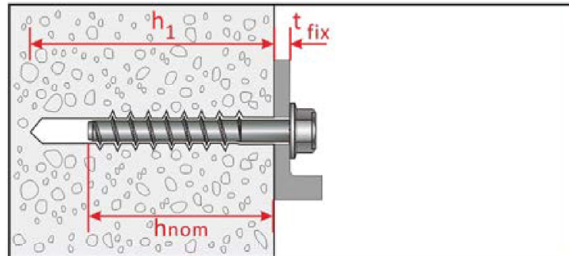
Dipl.-Ing. Beatrix Wittstock
Head of Section

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 ²	640	640
	Nominal value of the characteristic teisile strength	f _{uk}	N/mm ²	800	800
Elongation at rupture	A _s	[%]	≤ 8		
		Hexagon washer head 1) J-H A4 size 6,8 (stainless A4)			

EJOT concrete screw J6

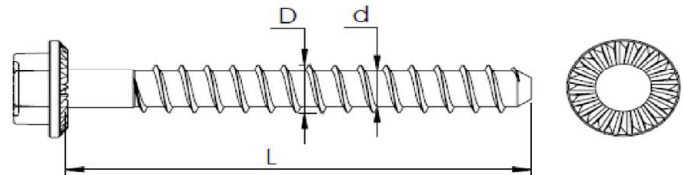
Product description
Installed condition, Materials and screw types

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 ¹⁾	T_{inst}	[Nm]	- ¹⁾	31
Wrench size	WS	[mm]	-	13
Maximum power output, machine setting	$T_{max} \leq$	[Nm]	120	185

¹⁾ 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

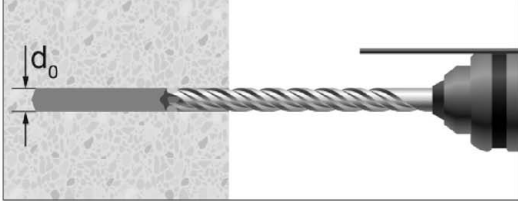
EJOT concrete screw J6

Intended use

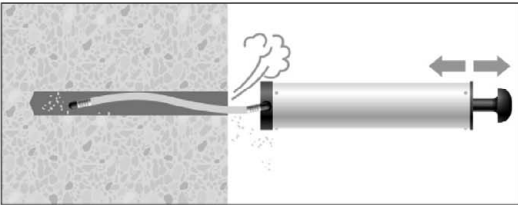
Installation parameters, minimum thickness of member, minimum spacing and edge distance

Annex B2

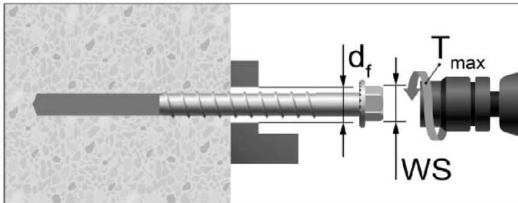
Installation instruction



Drill the hole to the depth h_1 .



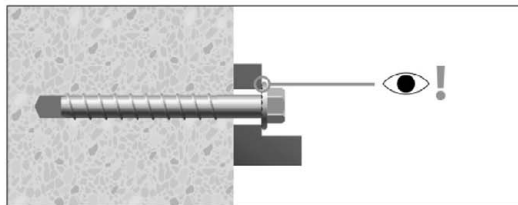
Clean the hole.



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
Steel failure				
Characteristic resistance	$N_{Rk,s}$	[kN]	18,1	33,0
Partial factor	γ_{Ms}	[-]	1,5	1,5
Pull-out failure				
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	ψ_c	C30/37	1,22	1,20
		C40/50	1,41	1,37
		C50/60	1,58	1,51
Installation factor	γ_{inst}	[-]	1,0	1,0
Concrete cone failure				
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	γ_{inst}	[-]	1,0	1,0
Factor for cracked concrete	$k_{cr,N}$	[-]	7,7	
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0	
Splitting failure				
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	γ_{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
Steel failure without lever arm				
Characteristic resistance	$V_{Rk,s}$	[kN]	9,0	13,2
Ductility factor	k_7	[-]	0,8	
Partial factor	γ_{Ms}	[-]	1,25	1,25
Steel failure with lever arm				
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	14,6	35,9
Partial factor	γ_{Ms}	[-]	1,25	1,25
Concrete pryout failure				
k-factor	k_8	[-]	1,0	1,0
Partial factor	γ_{Mcp}	[-]	1,5	
Concrete edge failure				
Effective length of anchor in shear loading	ℓ_f	[mm]	43,1	22,2
Effective diameter of anchor	d_{nom}	[mm]	5,37	7,4
Partial factor	γ_{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
Steel failure					
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
Pull-out failure					
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
Concrete cone failure					
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]	≥ 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	
Steel failure without level arm					
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
Steel failure with level arm					
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
Pry-out failure					
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
Concrete edge failure					
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