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European Technical Assessment

ETA-21/1107
of 5. 6. 2025

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General Part

Technical Assessment Body issuing the European Technical Assessment	**ZAG**
Trade name of the construction product	**EJOT Concrete Screw Anchor JC6-D**
Product family to which the construction product belongs	**33: Concrete screws for fastenings sandwich panels**
Manufacturer	**EJOT SE & Co. KG** **Market Unit Construction** **In der Stockwiese 35** **DE-57334 Bad Laasphe** www.ejot.com
Manufacturing plants	**EJOT Production Plants**
This European Technical Assessment contains	10 pages including 3 annexes, which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 332700-00-0601, edition August 2019

Specific part

1 Technical description of the product

EJOT Concrete Screw Anchor JC6-D is concrete screw size 6 made of galvanized carbon steel (bottom part) and stailness steel (upper part) used for fastening of sandwich panels.

The fastener is screwed into a pre-drilled hole, drilled through sandwich panel. The special thread of the fastener cuts an internal thread into the concrete member while setting. The anchorage is characterised by mechanical interlock in the special thread.

Description of product is given in Annex A (1/2) and A (2/2).

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

EJOT Concrete Screw Anchor JC6-D is intended to be used for fastening sandwich panels to concrete structures (cracked and non-cracked concrete).

The intende use comprises connections with predominantly static load (e.g. wind and dead loads. In case of using the screws under wind loads (e.g. for outside walls), the cyclig pull-through resistances shall be used by the designer.

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

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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 Mechanical resistance and stability (BWR 1)

The basic work requirements for mechanical resistance and stability are listed in Annexes C (1/3), C (2/3) and C (3/3).

3.2 Safety in case of fire (BWR 2)

Regarding to reaction to fire product is specified in class A1 according to EN 13501-1.

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

According to the decision 1996/582/EC of the European Commission[1] the system of assessment and verification of constancy of performance (see Annex V to regulation (EU) No 305/2011) **1** applies.

5 Technical details necessary for the implementation of the AVCP system, as provided for on the applicable EAD

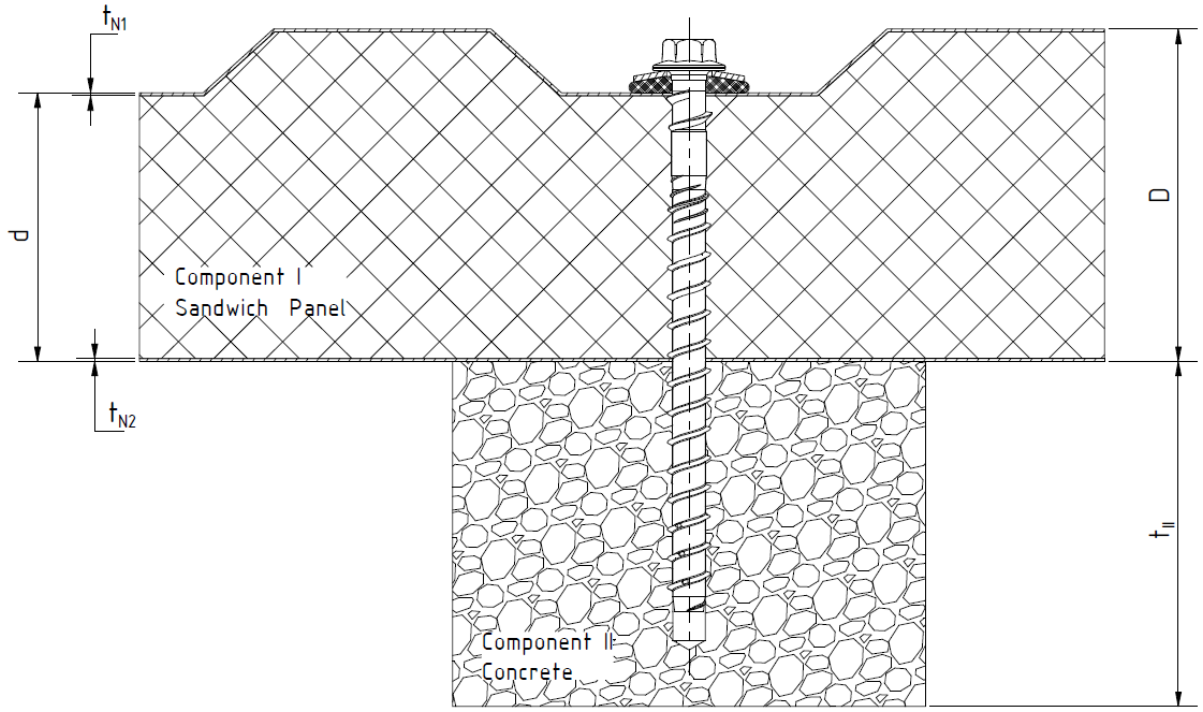
Technical details necessary for the implementation of the AVCP system are laid down in chapter 3 of EAD 332700-00-0601.

Issued in Ljubljana on 05. 06. 2025

Signed by:

Franc Capuder, M.Sc.
Head of Service of TAB

[1] Official Journal of the European Communities L 254 of 8.10.1996



Dimensions

D,d	thicknesses of component 1 (sandwich panel)
t_{N1}	thickness of the outer cover sheet of sandwich panel
t_{N2}	thickness of the inner cover sheet of sandwich panel

Performance characteristics

$V_{Rk,SP}$	Characteristic shear resistance value of the connection (see Table C3 in Annex C (3/3));
$N_{Rk,SP,cyc}$	Characteristic pull-through resistance of the screw through sandwich panel connection (see Table C3 in Annex C (3/3));
u	Maximum permissible head deflection of the screw (see Table C3 in Annex C (3/3))

EJOT Concrete Screw Anchor JC6-D	
Product description Designations used in the Annexes	**Annex A (1/2)**

JC6-D-7,5×L

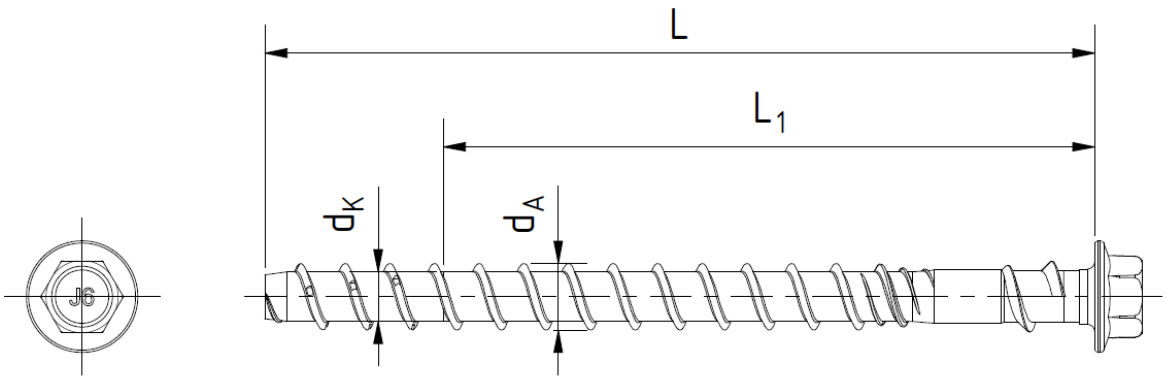


Table A1: Dimensions and material

Concrete screws			**JC6-D-7,5×L**
Length	L	[mm]	115-295
	L_1	[mm]	90-275
Core diameter	d_k	[mm]	5,5
Thread diameter	d_A	[mm]	7,45
Nominal value of the characteristic yield strength	f_{yk}	[MPa]	460
Nominal value of the characteristic tensile strength	f_{uk}	[MPa]	660
Material			carbon steel + stainless steel 1.4401 (AISI316)

EJOT Concrete Screw Anchor JC6-D	**Annex A (2/2)**
Product description Dimensions and head markings	

Specifications of intended use

Anchorages subjected to:

- Static and quasi static loads.

Base materials:

- Cracked and non-cracked concrete.
- Reinforced and unreinforced normal weight concrete of strength class C20/25 at minimum and C50/60 at maximum according to EN 206:2013+A1:2016.

Use conditions (Environmental conditions):

- The anchor may be used in concrete subject to dry internal conditions and also in concrete subject to external atmospheric exposure (including industrial and marine environment), or exposure in permanently damp internal conditions, if no particular aggressive conditions exist.

Design:

Determinatino of design values

- The design values of the tensile and shear resistance of a connection may be determined as follows, unless otherwise specified in national regulations:

$$N_{R,d} = \min\left\{\frac{N_{Rk,SP,cycl}}{\gamma_M}\ ;\ N_{Rk,p}\right\} \qquad V_{R,d} = \frac{V_{Rk,SP}}{\gamma_M}$$

  The characteristic values $N_{Rk,SP,cyc}$ are given in Table C3 in Annex C (3/3). If the component thickness t_{N1} or t_{N2} is between two given component thicknesses, the characteristic value may be calculated by linear interpolation.
  The recommended partial safety factor for steel sheets is γ_{Ms} = 1,33, unless partial safety factor is given in national regulations or national Annexes to Eurocode 3.
  The recommended partial material safety factor for concrete is γ_{Mc} = 1,5 according to EN 1992-4:2018, unless otherwise specified in national Annexes to Eurocode 2.
- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Anchorages under static and quasi-static actions are designed in accordance with EN 1992-4:2018.
- Verifiable calculation notes and drawings are prepared taking into account of the load 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.).

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site.
- Use of the anchor only as supplied by the manufacturer without exchanging the components of an anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings using the appropriate tools.
- Hammer drilling only.

EJOT Concrete Screw Anchor JC6-D	
Intended use Specifications – design and installation	**Annex B (1/2)**

Head deflection

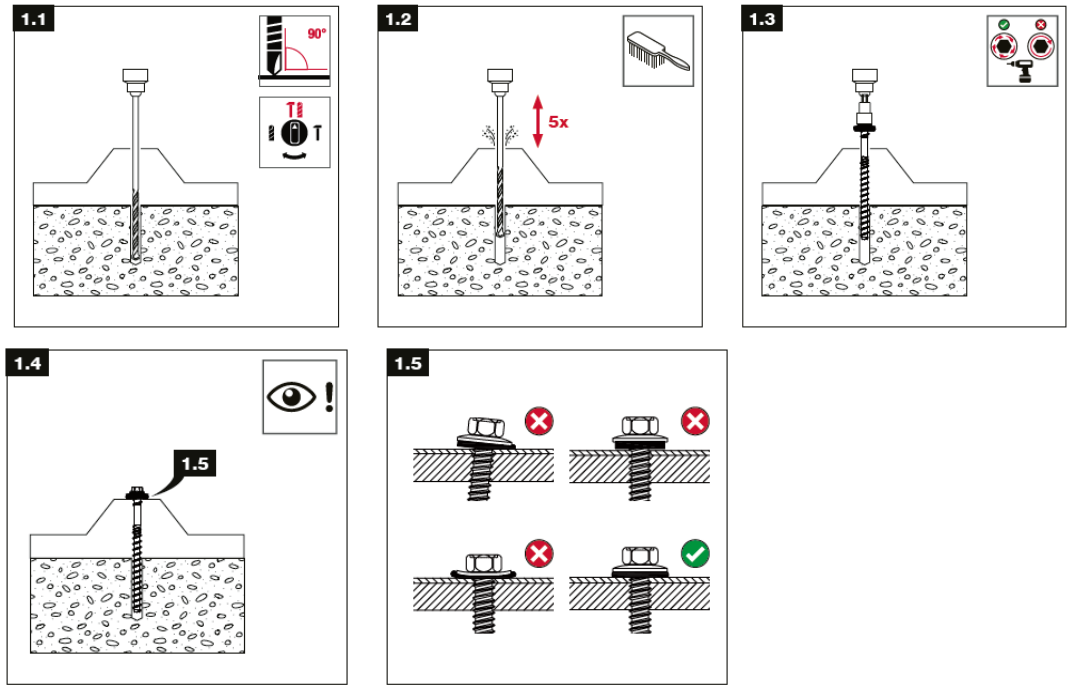
The head diplacement resulting from the thermal expansion of the outer surface layer of the sandwich panel may not exceed the maximum allowed head displacement “u” given in Table C3 in Annex C (3/3).

Instalaltion parameters

Table B1: Installation parameters

Fastener			**JC6-D-7,5×L**
Embedment depth in concrete	$h_{nom} \geq$	[mm]	65
Nominal borehole diameter	d_0	[mm]	6
Drill bit cutting diameter	$d_{cut} \leq$	[mm]	6,4
Depth of the drilled hole	$h_1 \geq$	[mm]	80
Minimum thickness of concrete substrate	h_{min}	[mm]	100
Minimum spacing	s_{min}	[mm]	35
Minimum edge distance	c_{min}	[mm]	35

Instalaltion instructions



EJOT Concrete Screw Anchor JC6-D	
Intended use Specifications – design and installation	**Annex B (2/2)**

Table C1: Characteristic resistances in cracked and non-cracked concrete C20/25-C50/60

Concrete screw			**JC6-D-7,5×L**
Nominal embedment depth	h_{nom}	[mm]	65
Minimum thickness of concrete element	h_{min}	[mm]	100
Steel failure			
Characteristic tension resistance	$N_{Rk,s}$	[kN]	15,7
Partial safety factor for tension	γ_{Ms}	[-]	1,5
Characteristic shear resistance	$V_{Rk,s}$	[kN]	9,6
Partial safety factor for shear	γ_{Ms}	[-]	1,4
Ductility factor	k_7	[-]	0,8
Caracteristic bending resistance	$M^0_{Rk,s}$	[Nm]	12,9
Pull-out failure			
Characteristic resistance in **cracked** concrete C20/25	$N_{Rk,p}$	[kN]	4
Characteristic resistance in **non-cracked** concrete C20/25	$N_{Rk,p}$	[kN]	8
Increasing factor for $N_{Rk,p}$	Ψ_C	C25/30	1,04
		C30/37	1,07
		C35/45	1,09
		C40/50	1,12
		C45/55	1,14
		C50/60	1,16
Partial safety factor	γ_{inst}	[-]	1,0
	γ_{Mp} [1)]	[-]	1,5
Concrete cone and splitting failure			
Effective anchorage depth	h_{ef}	[mm]	51
Factor for cracked concrete	k_{cr}	[-]	7,7
Factor for non-cracked concrete	k_{ucr}	[-]	11
Characteristic splitting resistance	$N^0_{Rk,sp}$	[kN]	min ($N_{Rk,p}$; $N^0_{Rk,c}$ [2)])
Axial spacing for concrete cone failure	$s_{cr,N}$	[mm]	3 h_{ef}
Axial spacing for splitting failure	$s_{cr,sp}$	[mm]	153
Edge distance for concrete cone failure	$c_{cr,N}$	[mm]	1,5 h_{ef}
Edge distance for splitting failure	$c_{cr,sp}$	[mm]	76,5
Installation safety factor	γ_{inst}	[-]	1,0

[1)] In absence of other national regulations

[2)] $N^0_{Rk,c}$ according to EN 1992-4:2018

EJOT Concrete Screw Anchor JC6-D

Performance

Characteristic resistance under tension loads

Annex C(1/3)

Table C2: Displacements under tension loads for static and quasi-static loading

Concrete screw			**JC6-D-7,5×L**
Nominal embedment depth	h_{nom}	[mm]	65
Displacements under tension loads in non-cracked concrete			
Tension load	N	[kN]	3,8
Short term displacement	δ_{N0}	[mm]	0,23
Long term displacement	δ_{N}	[mm]	0,57
Displacements under tension loads in cracked concrete			
Tension load	N	[kN]	1,9
Short term displacement	δ_{N0}	[mm]	0,22
Long term displacement	δ_{N}	[mm]	0,57
Displacements under shear loads			
Shear load	V	[kN]	5,1
Short term displacement	δ_{V0}	[mm]	1,23
Long term displacement	δ_{V}	[mm]	1,84

EJOT Concrete Screw Anchor JC6-D

Performance

Displacements under tension and shear loads

Annex C(2/3)

Table C3: Panel fixings properties

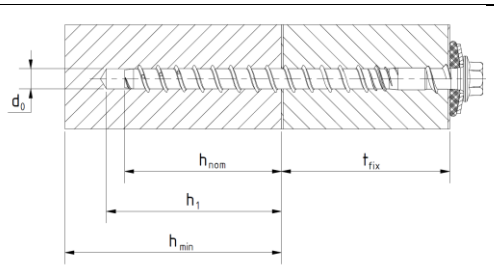
Materials

Screw: Carbon steel and stainless steel 1.4401 (AISI316)

Washer:E16, E19, made of stainless steel A2/A4

Component I: steel sheets with $R_m \geq 270$ MPa

Component II: concrete – strength class C20/25 – C50/60



Component II (concrete)							
Embedment depth		h_{nom}	[mm]	65			
Nominal drill bit diameter		d_0	[mm]	6[1)]			
Depth of a drilled hole		h_1	[mm]	80			
screw				**JC6-D-7,5×L for steel sheets with $R_m \geq 270$ MPa**		**JC6-D-7,5×L for steel sheets with $R_m \geq 360$ MPa**	
washer				**≥ E16**	**≥ E19**	**≥ E16**	**≥ E19**
Component I (Sandwich panel)	Predrilled hole in sandwich panel	d_{SW}	[mm]	6,0 – 6,5			
	Characteristic shear resistance $V_{Rk,SP}$ [kN]	Thickness of inner sheet t_{N2} [mm]	0,40	0,51		0,63	
			0,50	1,05		1,40	
			0,55	1,03		1,39	
			0,60	1,01		1,35	
			0,63	0,72		0,96	
			0,70	0,82		1,09	
			0,75	0,89		1,18	
			0,88	0,89		1,18	
			≥ 1,00	0,89		1,18	
	Characteristic cycling pull-through resistance $N_{Rk,SP,cycl}$ [kN]	Thickness of outer sheet t_{N1} [mm]	0,40	1,04	1,49	1,39	1,98
			0,50	2,00	2,32	2,67	3,10
			0,55	2,22	2,59	2,95	3,46
			0,60	2,43	2,86	3,23	3,81
			0,63	2,49	2,93	3,31	3,91
			0,70	2,63	3,12	3,52	4,16
			0,75	2,73	3,25	3,63	4,33
			0,88	2,73	3,25	3,63	4,33
			≥ 1,00	2,73	3,25	3,63	4,33
Maximum head displacement »u« [mm] depending on thickness of sandwich panel D [mm]			40	6,0			
			50	7,5			
			60	9			
			80	12			
			100	15			
			120	18			
			≥ 140	21			

[1)] Outer skin of SW panel can be pre-drilled with drill bit diameter 6 – 6,5 mm

EJOT Concrete Screw Anchor JC6-D

Performance

Panel fixings properties

Annex C(3/3)