Deutsches Institut für Bautechnik

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body for construction products

Member of EOTA
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Designated in accordance with Article 39 of Regulation (EU) No 2024/3110 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-13/0372 of 28 September 2026

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	CELO Drop-in anchor SA plus
Product family to which the construction product belongs	Mechanical fasteners for use in concrete
Manufacturer	CELO Befestigungssysteme GmbH Industriestraße 6 86551 Aichach DEUTSCHLAND
Manufacturing plant	Plant 8 Plant 13
This European Technical Assessment contains	14 pages including 3 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Article 95(4) of Regulation (EU) 2024/3110, on the basis of	EAD 330232-02-0601
This version replaces	ETA-13/0372 issued on 15 December 2020

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Specific Part

1 Technical description of the product

The CELO Drop-In Anchor SA plus is an anchor made of zinc-plated steel which is placed into a drilled hole and anchored by deformation-controlled expansion.

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 concrete screw 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 Mechanical resistance and stability (BWR 1)

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
Displacements (static and quasi-static loading)	see Annex C 3
Characteristic resistance and displacements for seismic performance categories C1 and C2	No performance assessed
Durability	See Annex B 1

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	No performance assessed

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

In accordance with European Assessment Documents EAD No. 330232-02-0601 the applicable European legal act is: [96/582/EC].

The system to be applied is: 1

5 Technical details necessary for the implementation of the AVCP system, as provided for 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.

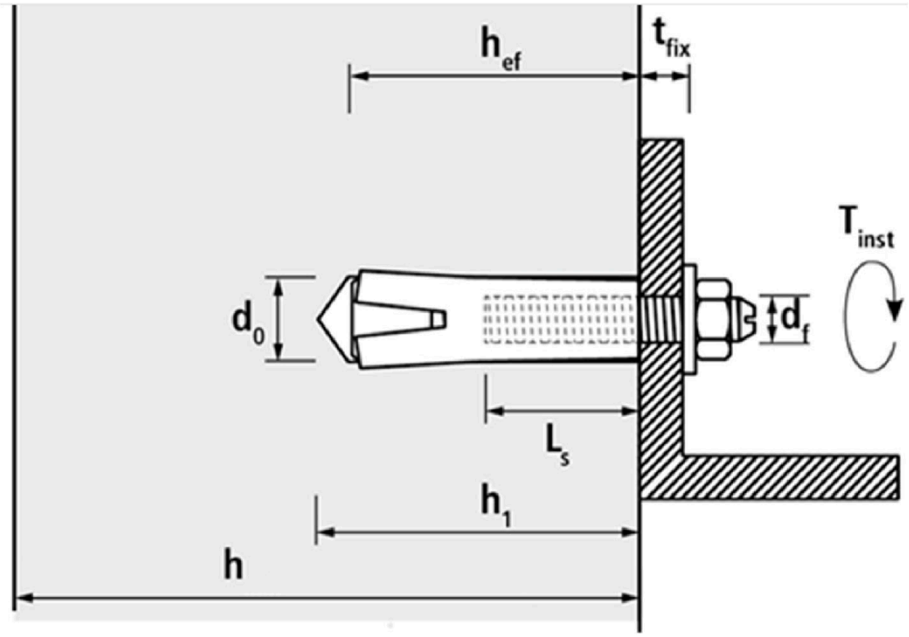
Issued in Berlin on 28 September 2026 by Deutsches Institut für Bautechnik.

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Tempel

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Installation situation in uncracked concrete C20/25 – C50/60

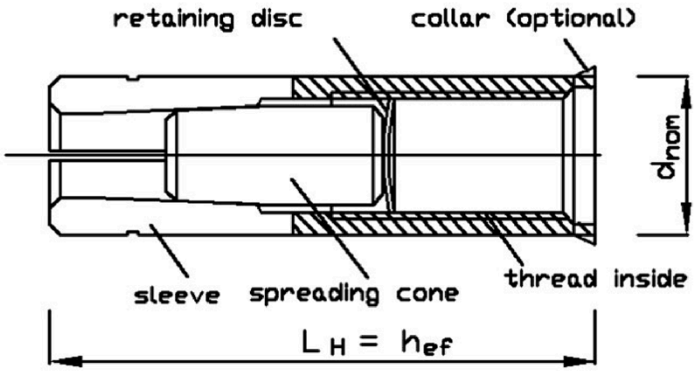


h	=	thickness of member
d_0	=	nominal drill bit diameter
h_1	=	depth of drill hole
h_{ef}	=	effective embedment depth
t_{fix}	=	thickness of fixture
L_s	=	length of thread inside of the anchor
T_{inst}	=	max. installation torque
d_f	=	Diameter of clearance hole in the fixture

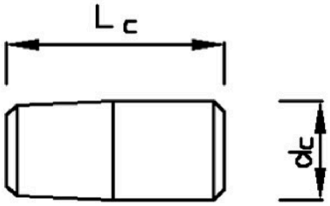
CELO Drop-in-anchor SA plus	**Annex A1**
Product description Installed condition	

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CELO Drop-in-anchor SA plus



assembled anchor



spreading cone



SA plus without collar

SA plus with collar

marking:	brand marking type size	Logo or company SA plus M … (i.e. M10)
Example:	**SA plus M10**	

Table A2: Dimensions of the anchor

Anchor		Sleeve		Cone	
	Thread inside	Length	Outer-ø sleeve	Length	Outer-ø sleeve
type		L_H	d_{nom}	L_C	d_C
SA plus		[mm]	[mm]	[mm]	[mm]
M8x30	M8	30	10	12	6,0
M10x40	M10	40	12	16	7,5
M12x50	M12	50	15	21	9,5
M16x65	M16	65	20	26	13,0

CELO Drop-in-anchor SA plus	**Annex A2**
Procuct description Product, marking and dimensions	

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Table A3.1: Designation and materials

Designation	Material
Sleeve M8 M10 M12 M16	Steel for cold forming C1008-C1012 or EN 10277:2018 C1015 or EN 10277:2018 C1008-C1012 or EN 10277:2018 C1008-C1012 or EN 10277:2018
Spreading cone	Steel for cold forming C1006-1008
Retaining disc	Paper or plastics

all parts zinc plated and blue passivated ≥ 5 µm acc. EN ISO 4042:2018

Table A3.2: Strength of the sleeve

CELO Drop-in-anchor SA plus			**Size**			
			M8	**M10**	**M12**	**M16**
Nominal characteristic steel ultimate strength	f_{uk}	[N/mm²]	535	535	430	430

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Handsetting tool

Optional: setting tool with size marking and/or rubber grip possible

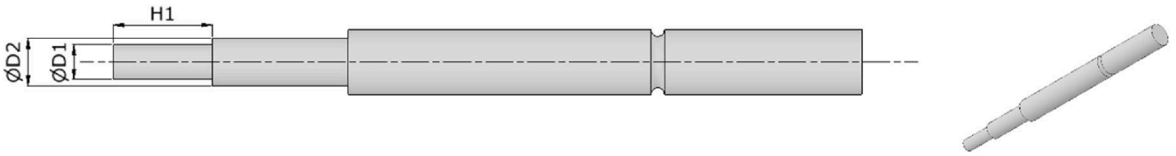


Table A4: Geometry of the setting tool

Setting tool	Setting pin		
Steel HRc 38-42	Dimension		
Type	D_1	D_2	H_1
	[mm]	[mm]	[mm]
ESW 8	6,6	9,5	17,0
ESW 10	8,3	12	23,5
ESW 12	10,2	14	29
ESW 16	13,9	19	39

Machine setting tool with SDS plus shank

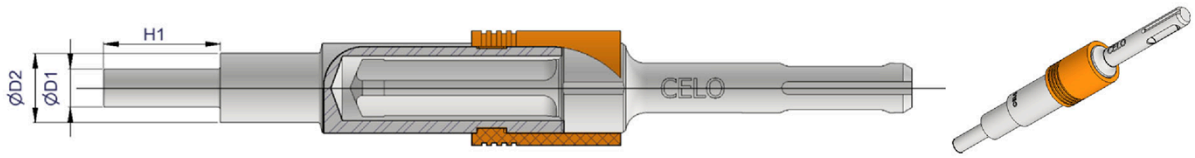


Table A4.2: Geometry of the SDS plus machine setting tool

Machine setting tool	Setting pin			
	dimensions			
Type	D_1	D_2	H1	Prägung
	[mm]	[mm]	[mm]	
ESW-SDS 8	6,3	10,0	17,0	M8x30
ESW-SDS 10	7,7	13,0	23,5	M10x40
ESW-SDS 12	10,2	15	30,0	M12x50

CELO Drop-in-anchor SA plus	**Annex A4**
Product description Setting tools	

Specifications of Intended use

Anchorages subject to:

- Static and quasi-static loading,

Base materials:

- Compacted, reinforced or unreinforced normal weight concrete without fibres according to EN 206:2013 + A1:2016.
- Strength classes C20/25 to C50/60 according to EN 206:2013 + A1:2016.
- Only uncracked concrete.

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions.

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.).
- A The anchorages are designed in accordance to EN 1992-4:2018 and Technical Report TR 055, Edition February 2018.

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Create drill hole with hammer drill only.
- 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 drill hole is filled with high strength mortar and only if the hole is not in the direction of the oblique tensile or shear load.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.

CELO Drop-in-anchor SA plus	**Annex B1**
Intended use Specifications	

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Table B2.1: Installation parameters

Fixing screws or anchor rods:
It can be used the strength categories 4.6, 5.6, 5.8 or 8.8 acc. EN ISO 898-1.

Minimal screwing depth:
The lenght of the fixing screw depends on the thickness t_{fix} on the fixed part, permissible tolerances and usable thread length $L_{s,max}$ as well as on the minimal screwing depth $L_{s,min}$.

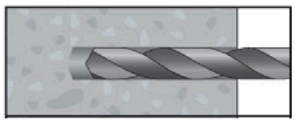
CELO Drop-in-anchor SA plus			Size			
			M8	M10	M12	M16
Nominal drill bit diameter	d_o	[mm]	10	12	15	20
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	10,45	12,50	15,50	20,55
Diameter of thread	M	[mm]	8	10	12	16
Depth of drill hole (deepest point)	$h_1 \geq$	[mm]	32	43	54	70
Effective embedment depth	h_{ef}	[mm]	30	40	50	65
Maximum screwing depth	$L_{s,max}$	[mm]	13	16	23	32
Minimum screwing depth	$L_{s,min}$	[mm]	8	10	12	16
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	9	12	14	18
Maximum installation torque moment	max T_{inst}	[Nm]	8	15	35	60

Table B2.2: Minimum thickness of concrete member, spacing and edge distance

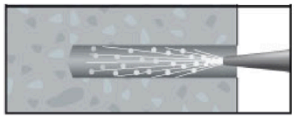
CELO Drop-in-anchor SA plus			Size			
			M8	M10	M12	M16
Minimum thickness of member	h_{min}	[mm]	100	100	120	160
Minimum spacing	s_{min}	[mm]	105	105	125	180
Minimum edge distance	c_{min}	[mm]	105	140	175	230

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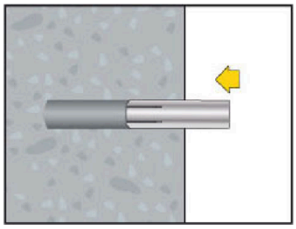
Installation instruction:



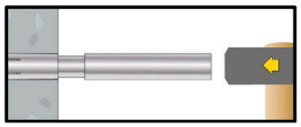
1. Drill the hole with a hammer drill

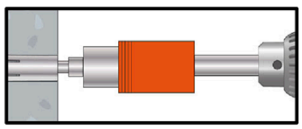


2. Clean the borehole

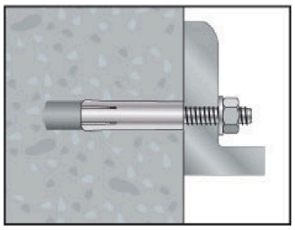


3. To set the anchor by hand or by hammer blows, anchor should be flush to the concrete edge





4. Spread the anchor using the manual or machine setting tool. The anchor is installed correctly when the setting pin is fully inserted



5. To fix the fixture, do not exceed the max. installation torque T_{inst}

CELO Drop-in-anchor SA plus	**Annex B3**
Intended use Installation instruction	

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Table C1: Characteristic resistance under tension loads

CELO Drop-in-anchor SA plus				size			
				M8	M10	M12	M16
Steel failure							
Characteristic resistance	$N_{Rk,s}$	[kN]	steel 4.6	14,6	23,2	33,7	62,7
Partial factor	γ_{Ms}	[-]		2,0			
Characteristic resistance	$N_{Rk,s}$	[kN]	steel 5.6	18,3	29,0	42,1	78,3
Partial factor	γ_{Ms}	[-]		2,0			
Characteristic resistance	$N_{Rk,s}$	[kN]	steel 5.8	18,3	22,5	30,8	51,5
Partial factor	γ_{Ms}	[-]		1,5			
Characteristic resistance	$N_{Rk,s}$	[kN]	steel 8.8	17,8	22,5	30,8	51,5
Partial factor	γ_{Ms}	[-]		1,5			
Pull out failure							
Characteristic resistance in uncracked concrete C 20/25	$N_{Rk,p}$	[kN]		7,5	12	16	30
Increasing factors for concrete $N_{Rk,p} = N_{Rk,p\ (C20/25)} \cdot \Psi_c$	Ψ_C	[-]	C30/37	1,22	1,11	1,22	
			C40/50	1,41	1,21	1,41	
			C50/60	1,58	1,28	1,58	
Installation factor	γ_{inst}	[-]		1,0	1,2		
Concrete cone failure							
Effective anchorage depth	h_{ef}	[mm]		30	40	50	65
Factor for uncracked concrete	$k_{ucr,N}$	[-]		11,0			
Factor for cracked concrete	$k_{cr,N}$	[-]		No performance assessed			
Spacing	$s_{cr,N}$	[mm]		3 x h_{ef}			
Edge distance	$c_{cr,N}$	[mm]		1,5 x h_{ef}			
Installation factor	γ_{inst}	[-]		1,0	1,2		
Concrete splitting failure							
Characteristic resistance	$N^0_{Rk,sp}$	[kN]		$N^0_{Rk,sp} = \min[N_{Rk,p} ; N^0_{Rk,c}]$			
Spacing (splitting)	$s_{cr,sp}$	[mm]		210	280	350	460
Edge distance (splitting)	$c_{cr,sp}$	[mm]		105	140	175	230
Installation factor	γ_{inst}	[-]		1,0	1,2		

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Table C2: Characteristic resistance under shear load

CELO Drop-in-anchor SA plus				size			
				M8	M10	M12	M16
Steel failure without lever arm							
Characteristic resistance	$V^0_{Rk,s}$	[kN]	steel 4.6	7,3	9,5	15,4	25,7
Partial factor	γ_{Ms}	[-]		1,67	1,5		
Characteristic resistance	$V^0_{Rk,s}$	[kN]	steel 5.6	8,9	9,5	15,4	25,7
Partial factor	γ_{Ms}	[-]		1,5			
Characteristic resistance	$V^0_{Rk,s}$	[kN]	steel 5.8	8,9	9,5	15,4	25,7
Partial factor	γ_{Ms}	[-]		1,5			
Characteristic resistance	$V^0_{Rk,s}$	[kN]	steel 8.8	8,9	9,5	15,4	25,7
Partial factor	γ_{Ms}	[-]		1,5			
Steel failure with lever arm							
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	steel 4.6	15,0	29,9	52,4	132,8
Partial factor	γ_{Ms}	[-]		1,67			
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	steel 5.6	18,7	37,4	65,5	165,9
Partial factor	γ_{Ms}	[-]		1,67			
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	steel 5.8	18,7	37,4	65,5	165,9
Partial factor	γ_{Ms}	[-]		1,25			
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	steel 8.8	30,0	59,8	104,7	265,5
Partial factor	γ_{Ms}	[-]		1,25			
Ductility factor	k_7	[-]		0,8			
Concrete pryout failure							
k-Factor	k_8	[-]		1,0			2,0
Concrete edge failure							
Effective anchor length under shear load	l_f	[mm]		30	40	50	65
Effective external diameter of anchor	d_{nom}	[mm]		10	12	15	20
Installation factor	γ_{inst}	[-]		1,0			

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Table C3.1: Displacements of the anchors under tension loads

CELO Drop-in-anchor SA plus			Size			
			M8	M10	M12	M16
Tension load	N	[kN]	3,5	4,8	6,3	11,9
Displacements	δ_{No}	[mm]	0,2			
Displacements	$\delta_{N\infty}$	[mm]	1,3			

Celo Drop-in-anchor SA plus			Size			
			M8	M10	M12	M16
Shear load	V	[kN]	4,2	4,5	7,3	12,2
Displacements	δ_{Vo}	[mm]	1,4	1,6	2,3	1,0
Displacements	$\delta_{V\infty}$	[mm]	2,1	2,4	3,5	1,5