



EKSPLOATACINIŲ SAVYBIŲ DEKLARACIJA

Nr. 24-756579-002 LT

1. Produkto tipo unikalus identifikavimo kodas:
Berner Simplexanchor B-SN
Berner Simplexanchor B-SN-A2
Berner Simplexanchor B-SN-A4
2. Naudojimo paskirtis (-ys): M6, M8, M10, M12, M14, M16 ir M20 dydžių M6, M8, M10, M12, M14, M16 ir M20 dydžio inkarai iš cinkuoto plieno arba nerūdijančiojo plieno, skirti naudoti neįtrūkusiame betone.
3. Gamintojas:
Berner Omnichannel Trading Holding SE, Bernerstraße 6, 74653 Künzelsau, Germany
4. Įgaliotasis atstovas: -
5. Eksploatacinių savybių pastovumo vertinimo ir tikrinimo sistema (-os):
Sistema 1
- 6a. Suderintas standartas: -
- 6b. Europos vertinimo dokumentas: EAD 330232-01-0601 "Mechanical fasteners for use in concrete", ed. December 2019

Europos techninis įvertinimas: ETA-24/0798

Techninio vertinimo įstaiga: 1219 Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

Notifikuotoji (-osios) įstaiga (-os): 1219 Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)



7. Deklaruojama (-os) eksploatacinė (-ės) savybė (-ės):

Mechaninis atsparumas ir stabilumas (BWR 1):

Esminė savybė	Veikimas
Simplexanchor B-SN produkto veikimas statinių ir kvazistatinių veiksmų atveju	Žr. ETA, C2 ir C3 priedus.
Simplexanchor B-SN-A2 ir Simplexanchor B-SN-A4 gaminių veikimas, kai atliekami statiniai ir kvazistatiniai veiksmi	Žr. ETA, D1, D2 ir D3 priedus.

Sauga gaisro atveju (BWR 2):

Esminė savybė	Veikimas
Reakcija į ugnį	Ankeriai atitinka A1 klasės reikalavimus
Atsparumas ugniai	Veiklos efektyvumas nenustatytas

8. Atitinkami techniniai dokumentai ir (arba) specifiniai techniniai dokumentai:

Nurodyto produkto eksploatacinės savybės atitinka visas deklaruotas eksploatacines savybes. Ši eksploatacinių savybių deklaracija pateikiama vadovaujantis Reglamentu (ES) Nr. 305/2011, atsakomybė už jos turinį tenka tik joje nurodytam gamintojui.

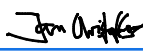
Pasirašyta (gamintojo ir jo vardu):

Künzelsau
05/12/2024


Michael Götz (Dec 16, 2024 17:27 GMT+1)

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Jan Christoffers (Dec 16, 2024 17:32 GMT+1)

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Senior Director International / Quality Management

Priedas C2:

Table C2: Characteristic resistance values to tension loads of design method A according to EN 1992-4 for Simplexanchor B-SN

Simplexanchor B-SN: GALVANISED ANCHOR			Performances						
			M6	M8	M10	M12	M14	M16	M20
STEEL FAILURE									
$N_{Rk,s}$	Characteristic resistance:	[kN]	7.4	13.0	23.7	33.3	49.1	60.1	99.5
$\gamma_{M,s}$	Partial safety factor:	[-]	1.40	1.40	1.40	1.40	1.40	1.40	1.40
PULL OUT FAILURE									
Standard embedment depth									
$N_{Rk,p}$	Characteristic resistance in C20/25 uncracked concrete:	[kN]	-- ¹⁾	-- ¹⁾	19.0	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
$\gamma_{M,p}$	Installation safety factor:	[-]	1.0						
Ψ_c	Increasing factors for $N_{Rk,p}$:	C30/37	1.22						
		C40/50	1.41						
		C50/60	1.58						
Reduced embedment depth									
$N_{Rk,p}$	Characteristic resistance in C20/25 uncracked concrete:	[kN]	--	10	-- ¹⁾	-- ¹⁾	--	-- ¹⁾	-- ¹⁾
$\gamma_{M,p}$	Installation safety factor:	[-]	--	1.0			--	1.0	
Ψ_c	Increasing factors for $N_{Rk,p}$:	C30/37	--	1.22			--	1.22	
		C40/50	--	1.41			--	1.41	
		C50/60	--	1.58			--	1.58	
CONCRETE CONE FAILURE AND SPLITTING FAILURE									
Standard embedment depth									
$h_{ef,red}$	Effective anchorage depth:	[mm]	40	48	55	65	75	84	103
$k_{sct,N}$	Factor for uncracked concrete:	[-]	11.0						
$\gamma_{M,p}$	Installation safety factor:	[-]	1.0						
$S_{cr,N}$	Concrete cone failure:	[mm]	$3 \times h_{ef}$						
$S_{cr,N}$	Concrete cone failure:	[mm]	$1.5 \times h_{ef}$						
$S_{cr,sp}$	Splitting failure:	[mm]	160	192	220	260	300	280	360
$S_{cr,sp}$	Splitting failure:	[mm]	80	96	110	130	150	140	180
Reduced embedment depth									
$h_{ef,red}$	Effective anchorage depth:	[mm]	--	35	42	50	--	65	75
$k_{sct,N}$	Factor for uncracked concrete:	[-]	--	11.0			--	11.0	
$\gamma_{M,p}$	Installation safety factor:	[-]	--	1.0			--	1.0	
$S_{cr,N}$	Concrete cone failure	[mm]	--	$3 \times h_{ef}$			--	$3 \times h_{ef}$	
$S_{cr,N}$	Concrete cone failure	[mm]	--	$1.5 \times h_{ef}$			--	$1.5 \times h_{ef}$	
$S_{cr,sp}$	Splitting failure:	[mm]	--	140	168	200	--	260	300
$S_{cr,sp}$	Splitting failure:	[mm]	--	70	84	100	--	130	150

¹⁾ Pull out failure is not decisive

Simplexanchor B-SN

Performances

Characteristic values for tension loads

Annex C2

Priedas C3:

Table C3: Characteristic resistance values to shear loads of design method A according to EN 1992-4 for Simplexanchor B-SN

Simplexanchor B-SN: GALVANISED ANCHOR			Performances							
			M6	M8	M10	M12	M14	M16	M20	
STEEL FAILURE WITHOUT LEVER ARM										
$V_{Rk,s}$	Characteristic resistance:	[kN]	5.1	9.3	14.7	20.6	28.1	38.4	56.3	
k_T	Ductility factor:	[-]	1.0							
$\gamma_{M,s}$	Partial safety factor:	[-]	1.25							
STEEL FAILURE WITH LEVER ARM										
$M_{Rk,s}$	Characteristic bending moment:	[Nm]	7.7	19.1	38.1	64.1	102.2	163.1	298.5	
$\gamma_{M,s}$	Partial safety factor:	[-]	1.25							
CONCRETE PRYOUT FAILURE										
k_s	k factor:	for $h_{ef,red}$	[-]	1.0	1.0	1.0	2.0	2.0	2.0	2.0
		for $h_{ef,red}$	[-]	--	1.0	1.0	1.0	--	2.0	2.0
$\gamma_{M,s}$	Installation safety factor:	[-]	1.0							
CONCRETE EDGE FAILURE										
l_r	Effective length of anchor:	for $h_{ef,red}$	[mm]	40	48	55	65	75	84	103
		for $h_{ef,red}$	[mm]	--	35	42	50	--	65	75
d_{nom}	Outside diameter of anchor:	[mm]	6	8	10	12	14	16	20	
$\gamma_{M,s}$	Installation safety factor:	[-]	1.0							

Table C4: Displacements under tension loads for Simplexanchor B-SN

Simplexanchor B-SN: GALVANISED ANCHOR			Performances						
			M6	M8	M10	M12	M14	M16	M20
Standard embedment depth									
	Tension load in uncracked concrete:	[kN]	3.8	6.6	9.0	12.6	15.6	18.5	25.1
δ_{N0}	Displacement:	[mm]	0.4	0.7	1.0	1.2	1.3	1.9	2.2
δ_{Nw}		[mm]	1.8	2.1	2.4	2.6	2.7	3.3	3.8
Reduced embedment depth									
	Tension load in uncracked concrete:	[kN]	--	4.8	6.5	8.5	--	12.6	15.6
δ_{N0}	Displacement:	[mm]	--	0.3	0.6	1.0	--	1.6	1.9
δ_{Nw}		[mm]	--	1.4	1.7	2.1	--	2.7	3.0

Table C5: Displacements under shear loads for Simplexanchor B-SN

Simplexanchor B-SN: GALVANISED ANCHOR			Performances						
			M6	M8	M10	M12	M14	M16	M20
Standard embedment depth									
	Shear load in uncracked concrete:	[kN]	2.9	5.3	8.4	11.8	16.0	21.9	32.1
δ_{V0}	Displacement:	[mm]	0.65	2.80	1.75	2.45	2.78	3.53	4.13
δ_{Vw}		[mm]	0.98	4.20	2.63	3.68	4.16	5.29	6.19
Reduced embedment depth									
	Shear load in uncracked concrete:	[kN]	--	5.3	8.4	11.8	--	21.9	32.1
δ_{V0}	Displacement:	[mm]	--	0.59	1.22	1.10	--	3.10	3.40
δ_{Vw}		[mm]	--	0.89	1.63	1.65	--	4.60	5.10

Simplexanchor B-SN

Performances

Characteristic values for shear loads
Displacements under tension and shear loads

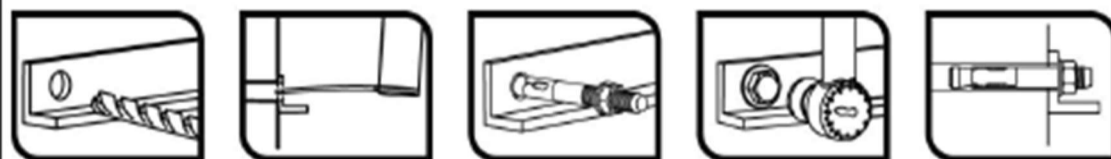
Annex C3

Priedas D1:

Table D1: Installation parameters for Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4: STAINLESS STEEL ANCHOR Installation parameters			Performances					
			M6	M8	M10	M12	M16	M20
d ₀	Nominal diameter of drill bit:	[mm]	6	8	10	12	16	20
d _f	Fixture clearance hole diameter:	[mm]	7	9	12	14	18	22
T _{inst}	Nominal installation torque:	[Nm]	7	20	35	60	120	240
Standard embedment depth								
L _{min}	Minimum length of the bolt:	[mm]	60	75	85	100	125	160
h _{min}	Minimum thickness of concrete member:	[mm]	100	100	110	130	168	208
h ₁	Depth of drilled hole ≥	[mm]	55	65	75	85	110	135
h _{nom}	Overall anchor embed depth in concrete:	[mm]	49.5	59.5	66.5	77	103.5	125
h _{ef, std}	Effective anchorage depth:	[mm]	40	48	55	65	84	103
t _{tx}	Thickness of fixture for DIN 125 washer ≤	[mm]	L-58	L-70	L-80	L-92	L-122	L-147
t _{tx}	Thickness of fixture for DIN 9021 or DIN 440 washer ≤	[mm]	L-58	L-71	L-80	L-94	L-124	L-149
S _{min}	Minimum allowable spacing:	[mm]	50	65	70	85	110	135
C _{min}	Minimum allowable distance:	[mm]	50	65	70	85	110	135
Reduced embedment depth								
L _{min}	Minimum length of the bolt:	[mm]	–	60	70	80	–	–
h _{min}	Minimum thickness of concrete member:	[mm]	–	100	100	100	–	–
h ₁	Depth of drilled hole:	[mm]	–	50	60	70	–	–
h _{nom}	Overall anchor embed depth in concrete:	[mm]	–	46.5	53.5	62	–	–
h _{ef, red}	Effective anchorage depth:	[mm]	–	35	42	50	–	–
t _{tx}	Thickness of fixture for DIN 125 washer ≤	[mm]	–	L-57	L-67	L-77	–	–
t _{tx}	Thickness of fixture for DIN 9021 or DIN 440 washer ≤	[mm]	–	L-58	L-67	L-79	–	–
S _{min}	Minimum allowable spacing:	[mm]	–	65	70	85	–	–
C _{min}	Minimum allowable distance:	[mm]	–	65	70	85	–	–

Installation process



Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Performances

Installation parameters and installation procedure

Annex D1

Priedas D2:

Table D2: Characteristic resistance values to tension loads of design method A according to EN 1992-4 for Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4: STAINLESS STEEL ANCHOR			Performances					
			M6	M8	M10	M12	M16	M20
STEEL FAILURE								
$N_{tR,k}$	Characteristic resistance:	[kN]	10.1	19.1	34.3	49.6	85.9	140.7
$\gamma_{M,k}$	Partial safety factor:	[-]	1.68					
PULL OUT FAILURE								
Standard embedment depth								
$N_{tR,p}$	Characteristic resistance in C20/25 uncracked concrete:	[kN]	-- ¹⁾	12	16	25	35	50
γ_{tR}	Installation safety factor:	[-]	--	1.0	1.2			
Reduced embedment depth								
$N_{tR,p}$	Characteristic resistance in C20/25 uncracked concrete:	[kN]	--	9	12	16	--	--
γ_{tR}	Installation safety factor:	[-]	--	1.2			--	--
Ψ_c	Increasing factors for $N_{tR,p}^0$:	C30/37	1.22					
		C40/50	1.41					
		C50/60	1.58					
CONCRETE CONE FAILURE AND SPLITTING FAILURE								
Standard embedment depth								
$h_{ef,red}$	Effective anchorage depth:	[mm]	40	48	55	65	84	103
$k_{cr,N}$	Factor for uncracked concrete:	[-]	11.0					
γ_{tR}	Installation safety factor:	[-]	1.0			1.2		
$S_{cr,N}$	Concrete cone failure:	[mm]	3 x h_{ef}					
$C_{cr,N}$		[mm]	1.5 x h_{ef}					
$S_{cr,sp}$	Splitting failure:	[mm]	160	192	220	260	338	412
$C_{cr,sp}$		[mm]	80	96	110	130	168	206
Reduced embedment depth								
$h_{ef,red}$	Effective anchorage depth:	[mm]	--	35	42	50	--	--
$k_{cr,N}$	Factor for uncracked concrete:	[-]	11.0					
γ_{tR}	Installation safety factor:	[-]	--	1.2			--	--
$S_{cr,N}$	Concrete cone failure:	[mm]	--	3 x h_{ef}			--	--
$C_{cr,N}$		[mm]	--	1.5 x h_{ef}			--	--
$S_{cr,sp}$	Splitting failure:	[mm]	--	140	168	200	--	--
$C_{cr,sp}$		[mm]	--	70	84	100	--	--

¹⁾ Pull out failure is not decisive

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Performances

Characteristic values for tension loads

Annex D2

Priedas D3:

Table D3: Characteristic resistance values to shear loads of design method A according to EN 1992-4 for Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4: STAINLESS STEEL ANCHOR			Performances						
			M6	M8	M10	M12	M16	M20	
STEEL FAILURE WITHOUT LEVER ARM									
$V_{Rk,s}$	Characteristic resistance:	[kN]	6.0	10.9	17.4	25.2	47.1	73.5	
k_T	Ductility factor:	[-]	1.0						
$\gamma_{M,s}$	Partial safety factor	[-]	1.52						
STEEL FAILURE WITH LEVER ARM									
$M^b_{Rk,s}$	Characteristic bending moment:	[Nm]	9.2	22.5	44.9	78.8	200	389	
$\gamma_{M,s}$	Partial safety factor:	[-]	1.52						
CONCRETE PRYOUT FAILURE									
k_s	k factor:	for $h_{ef,add}$	[-]	1.0	1.0	1.0	2.0	2.0	2.0
		for $h_{ef,red}$	[-]	--	1.0	1.0	1.0	--	--
$\gamma_{M,c}$	Installation safety factor:	[-]	1.0						
CONCRETE EDGE FAILURE									
l_f	Effective length of anchor under shear loads:	for $h_{ef,add}$	[mm]	40	48	55	65	84	103
		for $h_{ef,red}$	[mm]	--	35	42	50	--	--
d_{nom}	Outside diameter of anchor:	[mm]	6	8	10	12	16	20	
$\gamma_{M,c}$	Installation safety factor:	[-]	1.0						

Table D4: Displacements under tension loads for Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4: STAINLESS STEEL ANCHOR			Performances					
			M6	M8	M10	M12	M16	M20
Standard embedment depth								
	Tension load in uncracked concrete:	[kN]	4.3	5.7	6.3	9.9	13.8	19.8
δ_{N0}	Displacement:	[mm]	0.42	0.22	0.17	0.19	0.19	0.11
δ_{Nw}		[mm]	1.33	1.33	1.33	1.33	1.33	1.33
Reduced embedment depth								
	Tension load in uncracked concrete:	[kN]	--	4.2	5.7	7.6	--	--
δ_{N0}	Displacement:	[mm]	--	0.07	0.04	0.32	--	--
δ_{Nw}		[mm]	--	0.60	0.60	0.60	--	--

Table D5: Displacements under shear loads for Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4: STAINLESS STEEL ANCHOR			Performances					
			M6	M8	M10	M12	M16	M20
Standard embedment depth								
	Shear load in uncracked concrete:	[kN]	2.8	5.1	8.1	11.8	22.1	34.5
δ_{V0}	Displacement:	[mm]	1.68	1.79	3.83	4.13	5.75	6.59
δ_{Vw}		[mm]	2.49	2.68	5.74	6.19	8.62	9.88
Reduced embedment depth								
	Shear load in uncracked concrete:	[kN]	--	5.1	8.1	11.8	--	--
δ_{V0}	Displacement:	[mm]	--	0.60	3.83	4.13	--	--
δ_{Vw}		[mm]	--	0.90	5.74	6.19	--	--

Simplexanchor B-SN-A2, Simplexanchor B-SN-A4

Performances

Characteristic values for shear loads
Displacements under tension and shears

Annex D3