Deutsches Institut für Bautechnik

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

European Technical Assessment Body for construction products

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European Technical Assessment ETA-25/0587 of 25 August 2025

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	R-SLX
Product family to which the construction product belongs	Mechanical fasteners for use in concrete
Manufacturer	RAWLPLUG S.A. Kwidzynska 6 51-416 WROCLAW POLEN
Manufacturing plant	Manufacturing Plant No.22
This European Technical Assessment contains	18 pages including 3 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 330232-01-0601, Edition 05/2021

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Specific Part

1 Technical description of the product

The Concrete Screw R-SLX of sizes 8, 10 and 12 mm is an anchor made of stainless steel. 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 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance to tension load (static and quasi-static loading)	See Annex B3 und C1
Characteristic resistance to shear load (static and quasi-static loading)	See Annex C3
Displacements (static and quasi-static loading)	See Annex C2 and C4
Characteristic resistance for seismic performance categorie C1	See Annex C5
Characteristic resistance and displacements for seismic performance categorie C2	No performance assessed

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C6 and C7

3.3 Aspects of durability linked with the Basic Works Requirements

Essential characteristic	Performance
Durability	See Annex B1

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. 330232-01-0601 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 in the applicable European Assessment Document

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

Issued in Berlin 25 August 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Tempel

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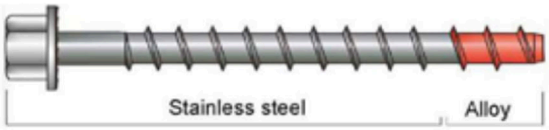
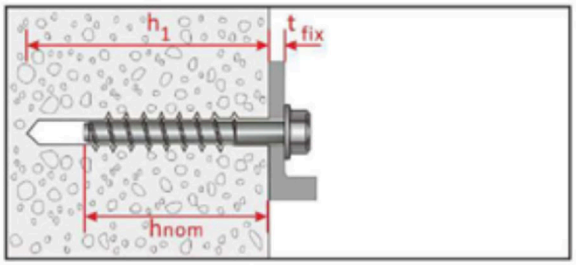
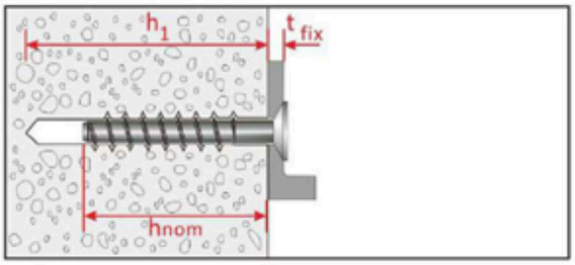
Product in the installed condition



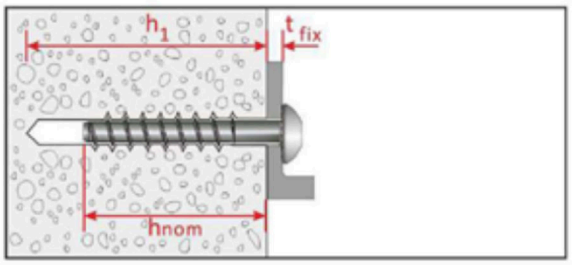
Stainless steel



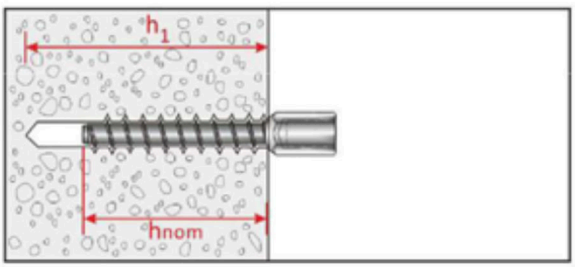
Hexagon Head:
R-SLX-HF
Size: 8,10,12



Countersunk
Head:R-SLX-CS
Size:8,10



Pan Head: R-SLX-P
Size:8,10



Hanger Bolt: R- SLX-I
Size: 10, M12

R-SLX	Annex A1
Product description Installed condition	

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Table A1: Materials and screw types

Name	Material
Screw anchor	

Head marking	material
R-SLX	Stainless steel 1.4401, 1.4404

Anchor size / head types			8		10		12
			HF	CS P	HF I	CS P	HF
Nominal value of the characteristic yield strength	f_{yk}	N/mm²	640	432	640	432	640
Nominal value of the characteristic tensile strength	f_{uk}	N/mm²	800	540	800	540	800
Elongation at rupture	As	[%]	≤ 8				

	Hexagon washer head 1) R-SLX-HF size 8,10,12
	Countersunk head 2) R-SLX-CS size 8,10
	Pan head 3) R-SLX-P size 8,10
	Hanger Bolt head 4) R-SLX-I size 10 with M12 internal thread

R-SLX

Product description
Materials and screw types

Annex A2

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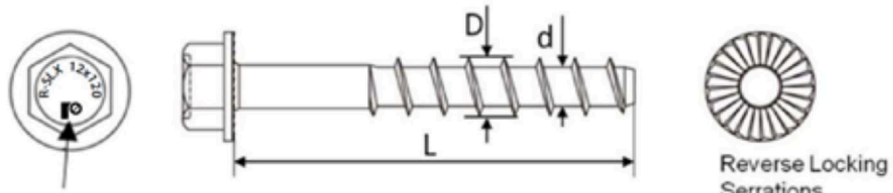
Table A2: Dimensions and markings

Anchor size			8		10		12
Head type			HF, P	CS	HF, P, I	CS	HF
Embedment depth	h_{nom}	[mm]	85	85	100	100	120
Length of anchor	min L	[mm]	90	95	105	110	125
	max L	[mm]	150		150		150
Thread diameter	D	[mm]	9,9		12,5		14,3
Core diameter	d	[mm]	7,4		9,4		11,3
Thread pitch	p	[mm]	5,8		7,7		8,1

Stainless Steel



Head marking:
Identifying mark of producer: R-SLX
Nominal size: e.g. 12mm
Length L: 120mm

R-SLX

Product description
Dimensions and markings

Annex A3

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Intended use

Anchorages subject to:

- Static and quasi-static loads
- Seismic action for performance category C1
- Fire exposure

Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206:2013+A2:2021
- Strength classes C20/25 to C50/60 according to EN 206:2013+A2:2021
- Uncracked or cracked concrete

Use conditions (Environmental conditions)

- Anchorages subject to dry internal conditions: all screw types
- For all other conditions corresponding to corrosion resistance classes CRC III according to EN 1993-1-4:2006 + A1:2015:
  all screw types

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.).
- Anchorages are designed for design method A in accordance with:
  - EN 1992-4: 2018 in addition with Technical Report TR 055, Edition February 2018

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.

R-SLX	Annex B1
Intended Use Specifications	

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Table B1: Installation parameters

Anchor size			8			10				12
Head type			**HF**	**CS**	**P**	**HF**	**I**	**CS**	**P**	HF
Diameter of drill bit	d_0	[mm]	8			10				12
Embedment depth	h_{nom}	[mm]	85			100				120
Min. hole depth in concrete	$h_1 \geq$	[mm]	95			110				130
Effective anchorage depth	h_{ef}	[mm]	51,9			58,7				75,6
Clearance hole	d_f	[mm]	11			13				15
Thickness of fixture	t_{fix}	[mm]	5-65	10-65	5-65	5-50	5-50	10-50	5-50	5-30
Installation torque	T_{inst}	[Nm]	-[1]	-[1]	-[1]	-[1]	-[1]	-[1]	-[1]	-[1]
Wrench size (types: HF, I)	WS	[mm]	13	-	-	17	19	-	-	19
Torx size (types: CS, P)	TX	-	-	45		-	-	50		-
Max. torque moment, machine setting	$T_{max} \leq$	[Nm]	120	120	120	185	185	185	185	185

1) For the installation of the CS and P head types only impact screw driver can be used.

R-SLX

Intended Use
Installation parameters

Annex B2

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

Anchor size			**8**	**10**	**12**
Head type			**HF, CS, P**	**HF, CS, P, I**	**HF**
Minimum member thickness	h_{min}	[mm]	125	140	170
Minimum edge distance	c_{min}	[mm]	50	60	70
Minimum spacing	s_{min}	[mm]	50	60	70

R-SLX

Intended Use
Minimum member thickness, minimum edge distance and anchor spacing

Annex B3

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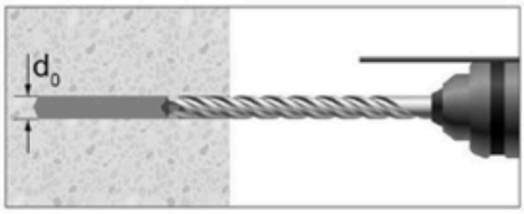
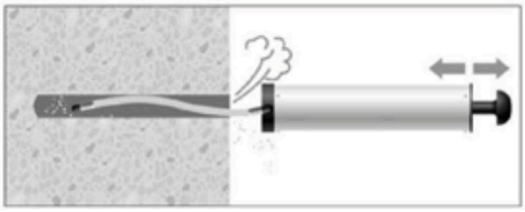
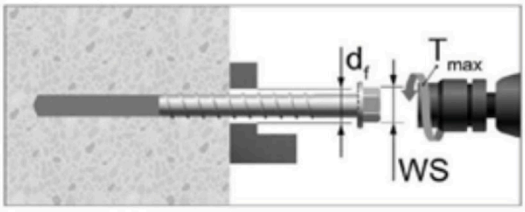
Installation instruction



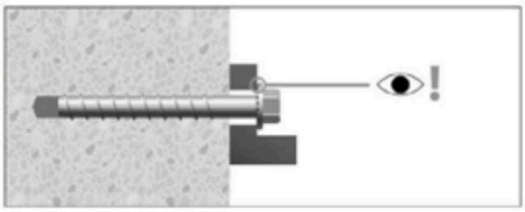
Drill the hole to the bore hole depth $\mathbf{h_1}$.



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.

R-SLX	Annex B4
Intended Use Installation Instruction	

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Table C1: Characteristic resistance under tension loading, Design method A

Anchor size			**8**			**10**				**12**
Head type			**HF**	**CS**	**P**	**HF**	**I**	**CS**	**P**	**HF**
Embedment depth	h_{nom}	[mm]	85			100				120
Steel failure										
Characteristic resistance	$N_{Rk,s}$	[kN]	33,0	22,3	22,3	53,7	53,7	36,2	36,2	78,1
Partial safety factor	γ_{Ms} 1)	[-]	1,5			1,5				1,5
Pull-out failure										
Characteristic resistance in cracked concrete C20/25	$N_{Rk,p}$	[kN]	7,0	4,5	4,0	7,0	7,0	7,0	7,0	16,0
Characteristic resistance in uncracked concrete C20/25	$N_{Rk,p}$	[kN]	9,0	5,5	4,0	16,0	16,0	10,0	7,0	25,0
Increasing factors for $N_{Rk,p} = N_{Rk,p(C20/25)} * \psi_c$ in cracked or uncracked concrete	ψ_c	C30/37	1,22							
		C40/50	1,41							
		C50/60	1,58							
Installation factor	γ_{inst}	[-]	1,4			1,0				1,2
Concrete cone failure										
Effective anchorage depth	h_{ef}	[mm]	51,9			58,7				75,6
Characteristic edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$							
Characteristic spacing	$s_{cr,N}$	[mm]	$3h_{ef}$							
Factor for cracked concrete	k_{cr}	[-]	7,7							
Factor for uncracked concrete	k_{ucr}	[-]	11,0							
Splitting failure										
Characteristic edge distance for splitting	$c_{cr,sp}$	[mm]	$1,5h_{ef}$							
Characteristic anchor spacing for splitting	$s_{cr,sp}$	[mm]	$3h_{ef}$							

1) In absence of other national regulations.

R-SLX

Performance
Characteristic values under tension loading

Annex C1

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Table C2: Displacements under tension loads for uncracked and cracked concrete

Anchor size	Embedment depth	Material	Head type	Concrete	Tension load N	Displacement	
						δ_{N0}	$\delta_{N\infty}$
[-]	[mm]	[-]	[-]	[-]	[kN]	[mm]	[mm]
8	85	Stainless Steel	HF	cracked C20/25	1,5	0,1	0,8
			CS		1,5		
			P		1,4		
10	100		HF/I		3,3	0,2	1,0
			CS				
			P				
12	120		HF		4,8	0,3	1,2
8	85	Stainless Steel	HF	uncracked C20/25	3,1	0,1	0,8
			CS		1,8		
			P		1,4		
10	100		HF/I		7,6	0,1	1,0
			CS		4,8		
			P		3,3		
12	120		HF		9,9	0,3	1,2

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Performance
Displacements under tension loading

Annex C2

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Table C3: Characteristic resistance under shear loading, Design method A

Anchor size			8		10		12
Head type			HF	CS P	HF I	CS P	HF
Embedment depth	h_{nom}	[mm]	85		100		120
Effective embedment depth	h_{ef}	[mm]	51,9		58,7		75,6
Steel failure without lever arm							
Characteristic resistance	$V_{Rk,s}$	[kN]	16,5	11,2	26,8	18,1	39,0
Factor for groups	k_7	[-]	0,8				
Partial safety factor	γ_{Ms} 1)	[-]	1,25		1,25		1,25
Steel failure with lever arm							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	35,9	24,2	74,4	50,2	130.6
Partial safety factor	γ_{Ms} 1)	[-]	1,25		1,25		1,25
Concrete pryout failure							
k-factor	k_8	[-]	1,0				2,0
Installation factor	γ_{inst}	[-]	1,0				
Concrete edge failure							
Effective length of anchor	$l_f = h_{ef}$	[mm]	50,6	51,9	58,1	58,7	75,6
Effective diameter of anchor	d_{nom}	[mm]	7,25		9,24		11,15
Installation factor	γ_{inst}	[-]	1,0				

1) In absence of other national regulations.

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Table C4: Displacements under shear loads for uncracked and cracked concrete

Anchor size	Embedment depth	Material	Head type	Concrete	Shear load V	Displacement	
						δ_{V0}	$\delta_{V\infty}$
[-]	[mm]	[-]	[-]	[-]	[kN]	[mm]	[mm]
8	85	Stainless steel	HF	Cracked and uncracked C20/25	9,4	1,8	2,7
			CS		6,4		
			P				
10	100		HF/I		15,3		
			CS		10,3		
			P				
12	120		HF		22,3		

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Performance
Displacements under shear loading

Annex C4

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Table C5: Characteristic values for seismic actions C1

Anchor size			**8**			**10**			**12**
Head type			**HF**	**CS**	**P**	**HF**	**CS**	**P**	**HF**
Embedment depth	h_{nom}	[mm]	85			100			120
Steel failure for tension and shear load									
Characteristic resistance	$N_{Rk,s,C1}$	[kN]	33,0	22,3	22,3	53,7	36,2	36,2	78,1
Partial safety factor	$\gamma_{Ms,N}$	[-]	1,4						
Characteristic resistance	$V_{Rk,s,C1}$	[kN]	11,5	11,5	11,2	18,5	18,5	18,1	26,5
Partial safety factor	$\gamma_{Ms,V}$	[-]	1,5						
Pull-out failure									
Characteristic resistance in cracked concrete C20/25	$N_{Rk,p,C1}$	[kN]	6,0	4,5	4,0	7,0			16,0
Concrete cone failure									
Effective embedment depth	h_{ef}	[mm]	51,9			58,7			75,6
Edge distance	$c_{cr,N}$	[mm]	$1{,}5h_{ef}$						
Spacing	$s_{cr,N}$	[mm]	$3h_{ef}$						
Robustness	γ_{inst}	[-]	1.4			1.0			1.2
Concrete pryout failure									
Pry-out factor	k_8	[-]	1.0						2.0
Concrete edge failure									
Effective length of fastener	$l_f = h_{ef}$	[mm]	51,9			58,7			75,6
Outside diameter of fastener	d_{nom}	[mm]	8			10			12

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Performance
Characteristic values for seismic actions C1

Annex C5

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Table C6: Characteristic tension resistance values for resistance to fire

Anchor size				8		10	12
Head type				HF CS	P	HF I CS P	HF
Embedment depth [mm]				85		100	120
Steel failure							
Characteristic resistance	R30	$N_{Rk,s,fi}$	[kN]	0,8		1,7	2,9
	R60	$N_{Rk,s,fi}$	[kN]	0,7		1,3	2,4
	R90	$N_{Rk,s,fi}$	[kN]	0,5		1,0	2,0
	R120	$N_{Rk,s,fi}$	[kN]	0,4		0,9	1,6
Pull-out failure							
Characteristic resistance in concrete ≥ C20/25	R30 R60 R90	$N_{Rk,p,fi}$	[kN]	1,1	1,0	1,8	3,0
	R120	$N_{Rk,p,fi}$	[kN]	0,9	0,8	1,4	2,4
Concrete cone failure							
Characteristic resistance in concrete ≥ C20/25	R30 R60 R90	$N^0_{Rk,c,fi}$	[kN]	3,3		4,5	8,6
	R120	$N^0_{Rk,c,fi}$	[kN]	2,7		3,6	6,8
Effective embedment depth		h_{ef}	[mm]	51,9		58,7	75,6
Minimum member thickness		h_{min}	[mm]	125		140	170
Spacing		$s_{cr,N,fi}$	[mm]	$4h_{ef}$			
		s_{min}	[mm]	50		60	70
Edge distance		$c_{cr,N,fi}$	[mm]	$2h_{ef}$			
Fire exposure from one side only		c_{min}	[mm]	50		60	70
Fire exposure from more than one side				≥ 300 mm			

R-SLX

Performance
Characteristic values for resistance to fire (tension)

Annex C6

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Table C7: Characteristic shear resistance values for resistance to fire

Anchor size				8	10	12
Head type				all	all	all
Embedment depth [mm]				85	100	120
Steel failure without level arm						
Characteristic resistance	R30	$V_{Rk,s,fi}$	[kN]	0,8	1,7	2,9
	R60	$V_{Rk,s,fi}$	[kN]	0,7	1,3	2,4
	R90	$V_{Rk,s,fi}$	[kN]	0,5	1,0	2,0
	R120	$V_{Rk,s,fi}$	[kN]	0,4	0,9	1,6
Steel failure with level arm						
Characteristic resistance	R30	$M^0_{Rk,p,fi}$	[Nm]	0,9	2,3	4,9
	R60	$M^0_{Rk,p,fi}$	[Nm]	0,7	1,9	4,0
	R90	$M^0_{Rk,p,fi}$	[Nm]	0,5	1,5	3,3
	R120	$M^0_{Rk,p,fi}$	[Nm]	0,45	1,3	2,6
Pry-out failure						
k_8			[-]		1	2
Characteristic resistance	R30	$V_{Rk,cp,fi}$	[kN]	3,3	4,5	17,1
	R60					
	R90					
	R120	$V_{Rk,cp,fi}$	[kN]	2,7	3,6	13,7
Concrete edge failure						
Characteristic resistance	≤ R90	$V_{Rk,c,fi}$	[kN]	$V^0_{Rk,c,fi} = 0.25 * V^0_{Rk,c}$ [1)]		
	R120	$V_{Rk,c,fi}$	[kN]	$V^0_{Rk,c,fi} = 0.20 * V^0_{Rk,c}$ [1)]		

1) $V^0_{Rk,c}$ = characteristic resistance for concrete edge failure in cracked concrete C20/C25 under normal temperature calculated according to EN 1992-4.

R-SLX

Performance
Characteristic values for resistance to fire (shear)

Annex C7