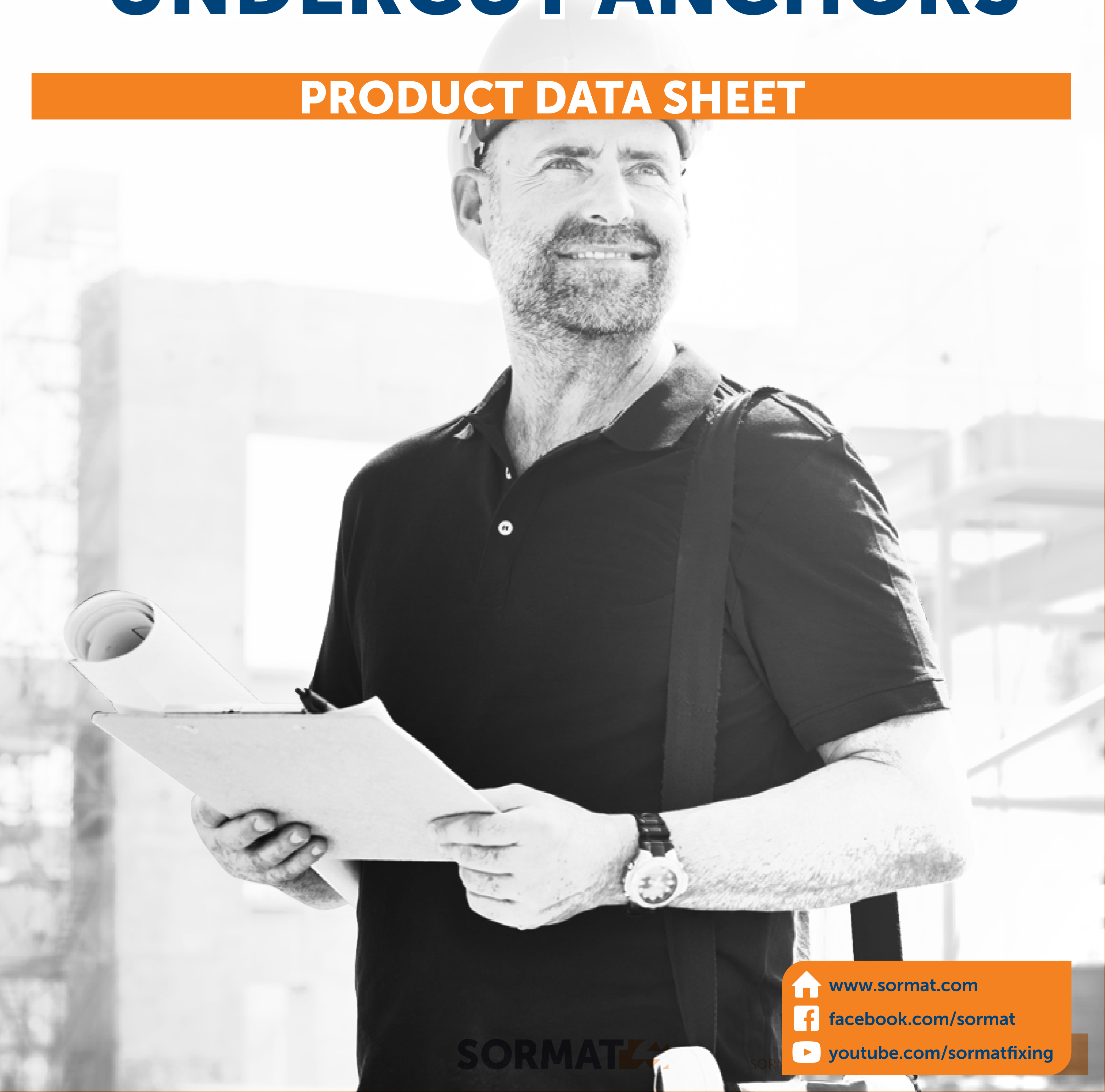
SORMAT

SIMPLY THE BEST HEAVY DUTY SELF-UNDERCUTTING ANCHOR IN THE WORLD

UNDERCUT ANCHORS

PRODUCT DATA SHEET



www.sormat.com
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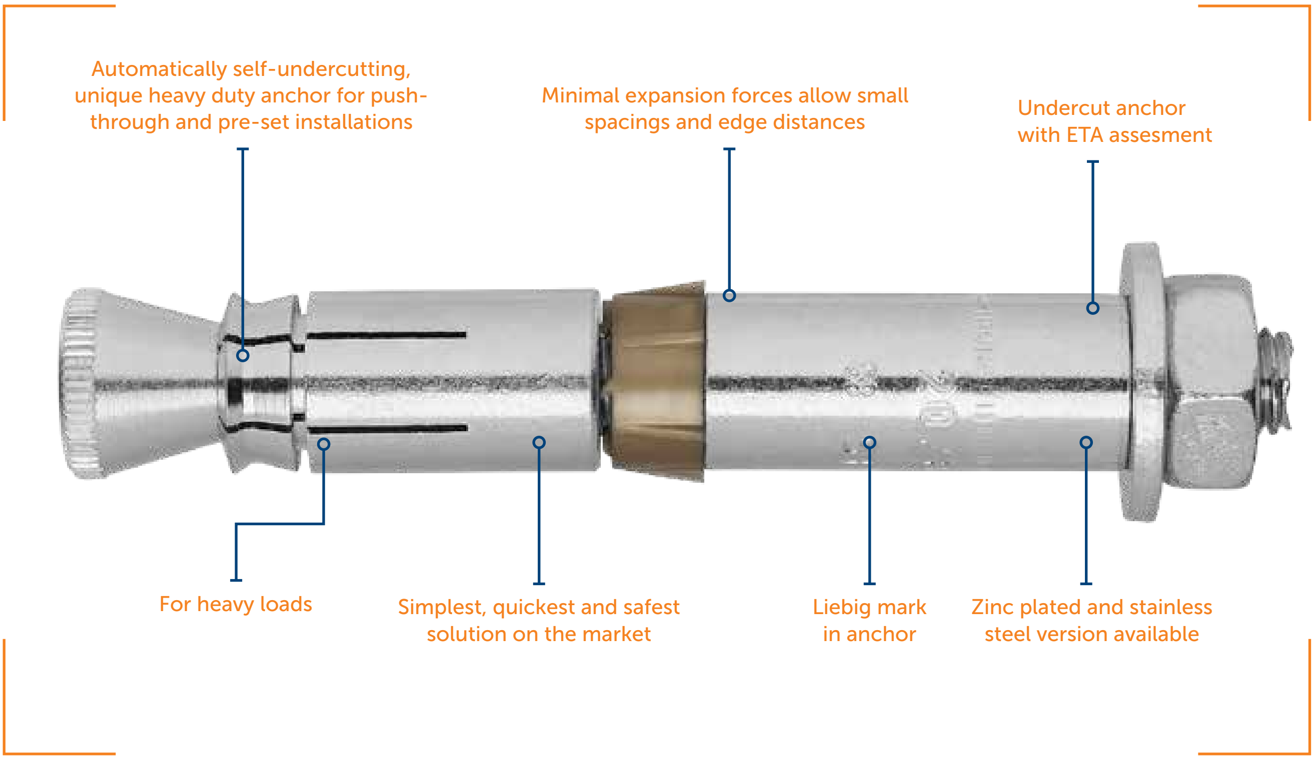
Simply the best heavy duty self-undercutting anchor in the world

No special drill bits, undercut tools or setting tools needed



BENEFITS

Description

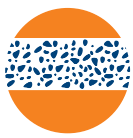
- Automatically self-undercutting and mechanical interlock.
- Unique heavy duty anchor for concrete C20/25...C50/60.
- For push-through and pre-set installation methods.
- Good suitability for overhead installation.
- For static, quasi-static and seismic loads.
- Economical: No special drill bits, undercut tools or setting tools needed.
- Minimal expansion forces allow small spacings and edge distances.
- Suitable for special conditions such as power plant use.
- ZP for dry indoor and temporary outdoor use. A4 for indoor, outdoor and industrial use.

ETA/CE

TRUSTFIX

Base materials

Approved for



Non-cracked concrete

Cracked concrete

SORMAT

TYPE BLS

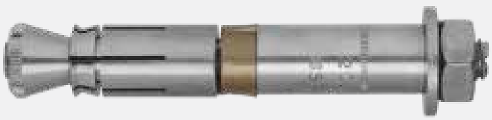
Push through installations
Zinc electroplated acc. EN ISO 4042, t ≥ 5 µm
Dry indoor conditions, indoor with temporary condensation

TYPE BLS-P

Pre-set installations
Zinc electroplated acc. EN ISO 4042, t ≥ 5 µm
Dry indoor conditions, indoor with temporary condensation

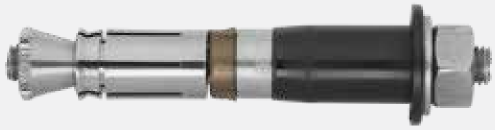
TYPE BLS A4

Push through installations
Stainless steel A4
For indoor, outdoor and industrial use



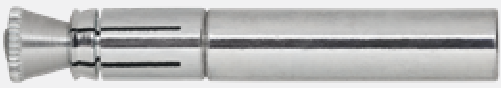
TYPE SD

Push through installations
Used for fixing step irons.
Stainless steel A4



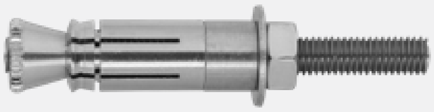
TYPE ILS

Pre-set installations
Zinc electroplated acc. EN ISO 4042, t ≥ 5 µm
Internal thread M8



TYPE LPA A4

Retrofitted grounding systems.
Stainless steel A4



TYPE SLS A4

Push through installations
Stainless steel A4
For indoor, outdoor and industrial use

TYPE SKLS A4

Push through installations
Stainless steel A4
For indoor, outdoor and industrial use

APPROVALS / CERTIFICATIONS / APPLICATIONS

Description of document		Authority/ Laboratory	ID	Additional info
European Technical Assesment		Centre Scientifique et Technique du Bâtiment	ETA-01-0011	ETAG 001-1 Option 1
Fire resistance		Centre Scientifique et Technique du Bâtiment	ETA-01-0011	EOTA TR 020 - Evaluation of Anchorages in Concrete concerning Resistance to Fire
Seismic resistance		Centre Scientifique et Technique du Bâtiment	ETA-01-0011	EOTA TR 045 - Design of Metal Anchors For Use In Concrete Under Seismic Actions
Liebig Superplus CAD-blocks for AutoCAD		Sormat Oy		Blocks installation instructions for AutoCAD
Components for TEKLA Structures		Sormat Oy		Tekla structures components + instructions video
YouTube installation videos		Sormat Oy	2rqU4YKZVEE / 8D_IqiJHnyfVdCGN	Sormat LIEBIG SUPERPLUS anchor installation
Sormat Trustfix anchor calculation software		Sormat Oy / S&P Software Consulting		TrustFIX anchor calculation

STATIC AND QUASI-STATIC LOADS: BLS, BLS-P, ILS

The data of these tables is based on:

- ETA-01/0011: Zinc plated versions BLS, BLS-P
- Concrete C20/25, $f_{ck,cube}$ = 25 N/mm²
- Installation has been done correctly (page 11-12)
- Push-through installation BLS and Pre-set installation BLS-P, see setting instructions (page 11-12)
- Without influence of edge- and spacing distances (page 13)
- In minimum base material thickness (page 13)

Anchor size		M8		M12		M16	
Effective anchorage depth h_{ef}	[mm]	40	80	80	150	150	200
Nominal anchorage depth h_{nom}	[mm]	52	92	96	166	168	218

Characteristic resistances

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{Rk}	[kN]	12,8	29,3*	36,1	67,4*	92,8	125,6*
Shear V_{Rk} Push-through installation : BLS	[kN]	12,8	41,4*	70,0*	70,0*	118,0*	118,0*
Shear V_{Rk} Pre-set installation : ILS , BLS-P	[kN]	12,8	15,0	34,0*	34,0*	63,0*	63,0*
Cracked concrete							
Tensile N_{Rk}	[kN]	9,1	16,0	25,0	40,0	50,0	75,0
Shear V_{Rk} Push-through installation : BLS	[kN]	9,1	41,4*	51,5	70,0*	118,0*	118,0*
Shear V_{Rk} Pre-set installation : ILS, BLS-P	[kN]	9,1	15	34,0*	34,0*	63,0*	63,0*
Characteristic bending moment $M^0_{Rk,s}$	[Nm]	30		105		266	

Design resistances

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{Rd}	[kN]	8,5	19,6*	24,1	44,9*	61,9	83,7*
Shear V_{Rd} Push-through installation : BLS	[kN]	8,5	33,2*	48,2	56,0*	94,4*	94,4*
Shear V_{Rd} Pre-set installation : ILS, BLS-P	[kN]	8,5	12,0	27,2*	27,2*	50,4*	50,4*
Cracked concrete							
Tensile N_{Rd} : BLS, BLS-P	[kN]	6,0	10,6	16,7	26,6	33,3	50,0
Shear V_{Rd} Push-through installation : BLS	[kN]	6,0	33,2*	34,3	56,0*	88,2	94,4*
Shear V_{Rd} Pre-set installation : ILS, BLS-P	[kN]	6,0	12,0	27,2*	27,2*	50,4*	50,4*
Design bending moment $M_{Rd,s}$	[Nm]	24		84		213	

Recommended loads

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{rec}	[kN]	6,1	13,9*	17,2	32,1*	44,1	59,8*
Shear V_{rec} Push-through installation : BLS	[kN]	6,1	23,7*	34,4	40,0*	67,4*	67,4*
Shear V_{rec} Pre-set installation : ILS, BLS-P	[kN]	6,1	8,6	19,3*	19,3*	35,9*	35,9*
Cracked concrete							
Tensile N_{rec}	[kN]	4,3	7,6	11,9	19,0	23,8	35,7
Shear V_{rec} Push-through installation : BLS	[kN]	4,3	23,7*	24,6	40,0*	63,0	67,4*
Shear V_{rec} Pre-set installation : ILS, BLS-P	[kN]	4,3	8,6	19,3*	19,3*	35,9*	35,9*
Recommended bending moment $M_{rec,s}$	[Nm]	17		60		152	

* = Failure mode is STEEL

- The partial safety factor for action is γ = 1.4.
- ILS steel grade ≥ 8.8

STATIC AND QUASI-STATIC LOADS:
BLS A4, SD (M8), SLS A4, SKLS A4

The data of these tables is based on:

- ETA-01/0011: Stainless steel versions BLS A4, BLS SD (M8), , SLS A4, SKLS A4
- Concrete C20/25, $f_{ck,cube}$ = 25 N/mm^2
- Installation has been done correctly (page 11-12)
- Push-through installation BLS A4 see setting instructions (page 11-12)
- Without influence of edge- and spacing distances (page 13)
- In minimum base material thickness (page 13)

Anchor size		M8		M12		M16	
Effective anchorage depth h_{ef}	[mm]	40	80	80	150	150	200
Nominal anchorage depth h_{nom}	[mm]	52	92	96	166	168	218

Characteristic resistances

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{Rk}	[kN]	12,8	29,3*	36,1	67,4*	92,8	125,6*
Shear V_{Rk} Push-through installation	[kN]	12,8	44,6*	72,3	90,3*	169,8*	169,8*
Cracked concrete							
Tensile N_{Rk}	[kN]	9,0	12,0	25,0	40,0	60,0	60,0
Shear V_{Rk} Push-through installation	[kN]	9,1	44,6*	51,5	90,3*	132,3	169,8*
Characteristic bending moment $M^0_{Rk,s}$	[Nm]	30		105		266	

* Failure mode = STEEL

Design resistances

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{Rd}	[kN]	8,5	18,3*	24,1	42,1*	61,9	78,5*
Shear V_{Rd} Push-through installation	[kN]	8,5	33,6*	48,2	67,9*	123,8	127,7*
Cracked concrete							
Tensile N_{Rd}	[kN]	6,0	8,0	16,7	26,6	40,0	40,0
Shear V_{Rd} Push-through installation	[kN]	6,0	33,6*	34,3	67,9*	88,2	127,7*
Design bending moment $M_{Rd,s}$	[Nm]	23		79		200	

* Failure mode = STEEL

Recommended loads

Anchor size		M8		M12		M16	
Non-cracked concrete							
Tensile N_{rec}	[kN]	6,1	13,1*	17,2	30,1*	44,2	56,1*
Shear V_{rec} Push-through installation	[kN]	6,1	24,0*	34,4	48,5*	88,4	91,2*
Cracked concrete							
Tensile N_{rec}	[kN]	4,3	5,7	11,9	19,0	28,6	28,6
Shear V_{rec} Push-through installation	[kN]	4,3	24,0*	24,5	48,5*	63,0	91,2*
Recommended bending moment $M_{rec,s}$	[Nm]	16		56		143	

* Failure mode = STEEL

The partial safety factor for action is γ = 1.4.

SEISMIC RESISTANCE C1:
BLS, BLS-P

Design acc. EOTA TR 045: Performance Category C1

The data of these tables is based on:
- ETA-01/0011: Zinc plated anchors BLS, BLS-P
- Concrete C20/25, $f_{ck,cube}$ = 25 N/mm^2
- Installation has been done correctly (page 11-12)
- Without influence of edge- and spacing distances (page 13)
- In minimum base material thickness (page 13)

Characteristic resistance C1

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C1	$N^0_{Rk, seis, C1}$	[kN]	25,0	40,0	50,0	50,0
Shear resistance C1	$V^0_{Rk, seis, C1}$	[kN]	30,3*	30,3*	62,8*	62,8*

* Failure mode = STEEL

Design resistance C1

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C1	$N_{Rd, seis, C1}$	[kN]	14,6	26,6	33,3	33,3
Shear resistance C1	$V_{Rd, seis, C1}$	[kN]	12,1*	12,1*	25,1*	25,1*

* Failure mode = STEEL

Recommended loads C1

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C1	$N_{rec, seis, C1}$	[kN]	10,4	19,0	23,8	23,8
Shear resistance C1	$V_{rec, seis, C1}$	[kN]	8,7*	8,7*	17,9*	17,9*

* Failure mode = STEEL

The partial safety factor for action is γ = 1.4.
α_{seis} and α_{gap} included as per EOTA TR 045
Values don't consider any filling of annular gap between anchor and fixture

SEISMIC RESISTANCE C2: BLS, BLS-P

Design acc. EOTA TR 045: Performance Category C2

The data of these tables is based on:
- ETA-01/0011: Zinc plated anchors BLS, BLS-P
- Concrete C20/25, $f_{ck,cube}$ = 25 N/mm²
- Installation has been done correctly (page 11-12)
- Without influence of edge- and spacing distances (page 13)
- In minimum base material thickness (page 13)

Characteristic resistance C2

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C2	$N^0_{Rk, seis, C2}$	[kN]	25,0	40,0	50,0	50,0
Shear resistance C2	$V^0_{Rk, seis, C2}$	[kN]	18,2*	18,2*	51,5*	51,5*

* Failure mode = STEEL

Design resistance C2

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C2	$N_{Rd, seis, C2}$	[kN]	14,6	26,6	33,3	33,3
Shear resistance C2	$V_{Rd, seis, C2}$	[kN]	7,3*	7,3*	20,6*	20,6*

* Failure mode = STEEL

Recommended loads C2

Anchor size			M12		M16	
Effective anchorage depth h_{ef}		[mm]	80	150	150	200
Tensile resistance C2	$N_{rec, seis, C2}$	[kN]	10,4	19,0	23,8	23,8
Shear resistance C2	$V_{rec, seis, C2}$	[kN]	5,2*	5,2*	14,7*	14,7*

* Failure mode = STEEL

The partial safety factor for action is γ = 1.4.
α_{seis} and α_{gap} included as per EOTA TR 045
Values don't consider any filling of annular gap between anchor and fixture

FIRE RESISTANCE: BLS, BLS-P, BLS A4, SD, SLS A4, SKLS A4

Design method acc. to EOTA TR 020

The data of these tables is based on:

- ETA-01/0011: Zinc plated and stainless steel A4 anchors
- Concrete C20/25, $f_{ck,cube}$ = 25 N/mm^2
- Installation has been done correctly (page 11-12)
- Without influence of edge- and spacing distances (page 13)
- In minimum base material thickness (page 13)

Characteristic resistance

Anchor size				M8		M12		M16	
Effective anchorage depth h_{ef}			[mm]	40	80	80	150	150	200
Cracked and non-cracked concrete									
Zinc-plated	R30	Tensile N_{Rk}	[kN]	0,37		1,70		3,10	
		Shear V_{Rk}	[kN]	0,37		1,70		3,10	
	R120	Tensile N_{Rk}	[kN]	0,18		0,84		1,60	
		Shear V_{Rk}	[kN]	0,18		0,84		1,60	
Stainless steel A4	R30	Tensile N_{Rk}	[kN]	0,73		2,50		4,70	
		Shear V_{Rk}	[kN]	0,73		2,50		4,70	
	R120	Tensile N_{Rk}	[kN]	0,37		1,30		2,50	
		Shear V_{Rk}	[kN]	0,37		1,30		2,50	

Design resistance

Anchor size				M8		M12		M16	
Effective anchorage depth h_{ef}			[mm]	40	80	80	150	150	200
Cracked and non-cracked concrete									
Zinc-plated	R30	Tensile N_{Rd}	[kN]	0,37		1,70		3,10	
		Shear V_{Rd}	[kN]	0,37		1,70		3,10	
	R120	Tensile N_{Rd}	[kN]	0,18		0,84		1,60	
		Shear V_{Rd}	[kN]	0,18		0,84		1,60	
Stainless steel A4	R30	Tensile N_{Rd}	[kN]	0,73		2,50		4,70	
		Shear V_{Rd}	[kN]	0,73		2,50		4,70	
	R120	Tensile N_{Rd}	[kN]	0,37		1,30		2,50	
		Shear V_{Rd}	[kN]	0,37		1,30		2,50	

Recommended loads

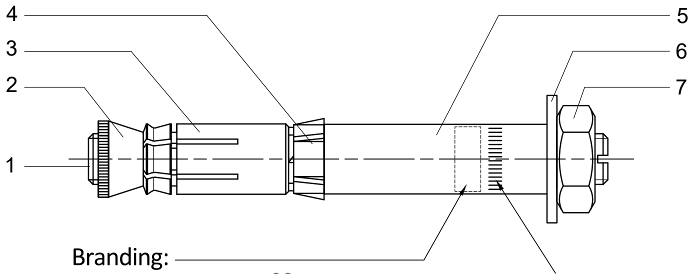
Anchor size				M8		M12		M16	
Effective anchorage depth h_{ef}			[mm]	40	80	80	150	150	200
Cracked and non-cracked concrete									
Zinc-plated	R30	Tensile N_{rec}	[kN]	0,37		1,70		3,10	
		Shear V_{rec}	[kN]	0,37		1,70		3,10	
	R120	Tensile N_{rec}	[kN]	0,18		0,84		1,60	
		Shear V_{rec}	[kN]	0,18		0,84		1,60	
Stainless steel A4	R30	Tensile N_{rec}	[kN]	0,73		2,50		4,70	
		Shear V_{rec}	[kN]	0,73		2,50		4,70	
	R120	Tensile N_{rec}	[kN]	0,37		1,30		2,50	
		Shear V_{rec}	[kN]	0,37		1,30		2,50	

In absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,FI}$ = 1,0 is recommended.

MECHANICAL PROPERTIES

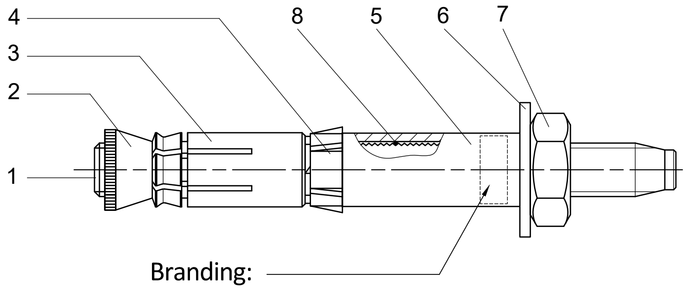
Zinc plated BLS

	Part	Material
1	Threaded rod	EN ISO 898-1: property class 8.8
2	Threaded cone	Carbon steel
3	Expansion shield	Carbon steel
4	Plastic grip	PE
5	Distance sleeve	Carbon steel
6	Washer	Carbon steel EN 10139
7	Hexagonal nut	EN ISO 898-2; property class 8



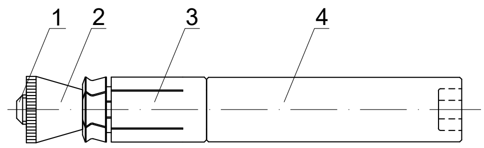
Zinc plated BLS-P

	Part	Material
1	Threaded rod	EN ISO 898-1: property class 8.8
2	Threaded cone	Carbon steel
3	Expansion shield	Carbon steel
4	Plastic grip	PE
5	Distance sleeve	Carbon steel
6	Washer	Carbon steel EN 10139
7	Hexagonal nut	EN ISO 898-2; property class 8
8	Grip	Drop of glue, tape or rubber O-ring



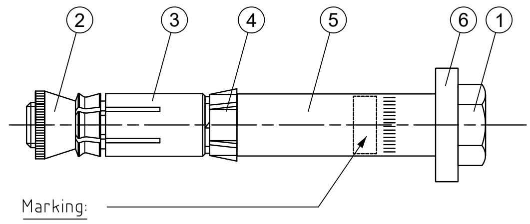
Zinc plated ILS

	Part	Material
1	Threaded rod	EN ISO 898-1: property class 8.8
2	Threaded cone	Carbon steel
3	Expansion shield	Carbon steel
4	Screw socket	Carbon steel (internal thread M8)



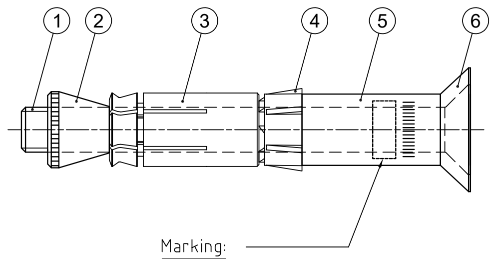
Stainless steel SLS A4

	Part	Material
1	Hexaconal screw	Stainless steel A4
2	Threaded cone	Stainless steel A4
3	Expansion shield	Stainless steel A4
4	Plastic grip	PE
5	Distance sleeve	Stainless steel A4
6	Washer	Stainless steel A4



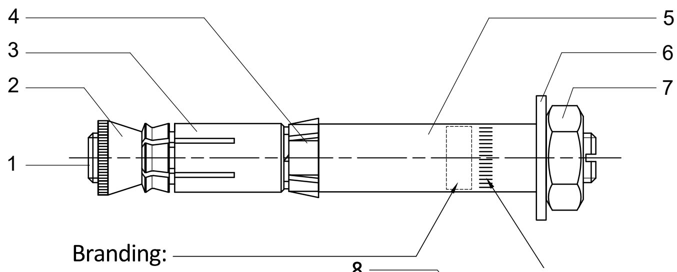
Stainless steel SKLS A4

	Part	Material
1	Countersunk screw	Stainless steel A4
2	Threaded cone	Stainless steel A4
3	Expansion shield	Stainless steel A4
4	Plastic grip	PE
5	Distance sleeve	Stainless steel A4
6	Washer	Stainless steel A4

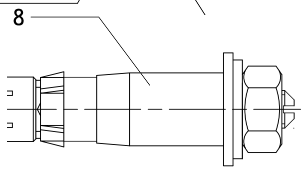


Stainless steel bls a4, sd (m8)

	Part	Material
1	Threaded rod	Property class A4-80; EN ISO 3506-1
2	Threaded cone	Stainless steel A4
3	Expansion shield	Stainless steel A4
4	Plastic grip	PE
5	Distance sleeve	Stainless steel A4
6	Washer	Stainless steel A4
7	Hexagonal nut	EN ISO 3506-2: property class A4-80
8	Plastic sleeve	PA; DIN EN ISO 1874-1



Type SD



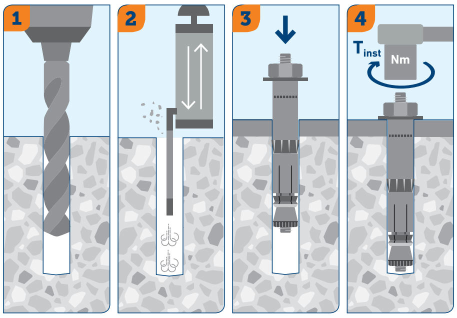
SORMAT

SETTING INSTRUCTIONS

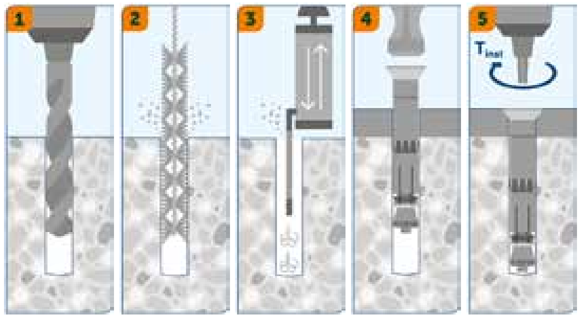
Installation equipment

	Specification	M8	M12	M16
Installation equipment	Drill bit	SDS+ 2-CUT or 4-CUT		
		14	20	25
	Rotary hammer	750...1200 r.p.m / 1.8 ...3.3 J		
			360...550 r.p.m / 4,9 ...11,5 J	
	Additional tools	Air pump/compressor, hammer, torque wrench, socket		

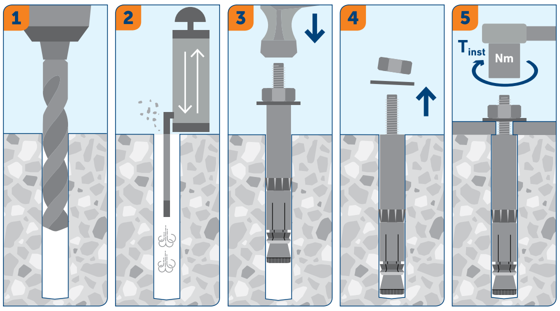
BLS, BLS A4, SD, SLS A4



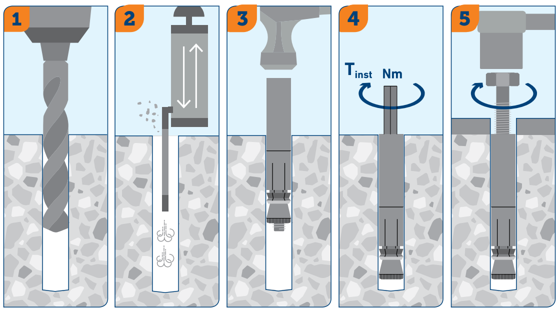
SKLS A4



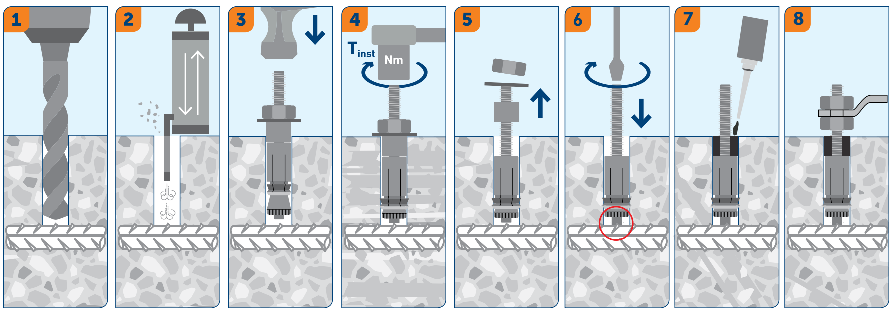
BLS-P



ILS



LPA A4



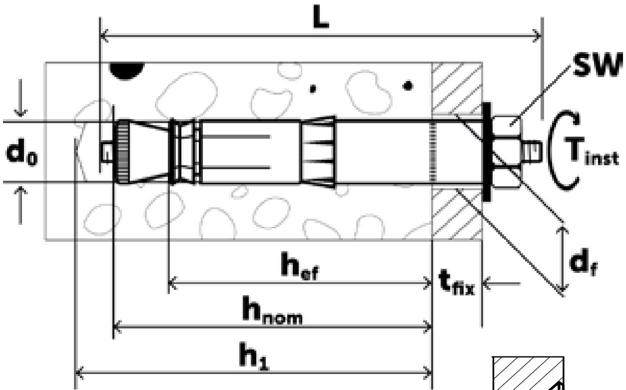
INSTALLATION DATA

Types BLS, BLS-P, BLS A4, SD (M8), SLS A4, SKLS A4

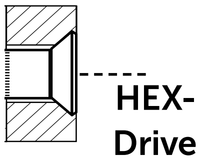
Parameters and anchors sizes				M8		M12		M16	
Effective anchorage depth		h_{ef}	[mm]	40	80	80	150	150	200
Nominal anchorage depth		h_{nom}	[mm]	52	92	96	166	168	218
Drill hole diameter		d_0	[mm]	14		20		25	
Diameter of the drill bit at the upper tolerance limit		$d_{cut,max} \leq$	[mm]	14,50		20,55		25,55	
Depth of drilled hole to deepest point		$h_1 \geq$	[mm]	60	100	105	175	185	235
Diameter of clearance hole in the fixture	In-place installation (BLS)	$d_f \leq$	[mm]	16		21		26	
	Mounting on the threaded bolt (BLS-P /dist. Mounting)	$d_f \leq$	[mm]	10		14		18	
Installation torque		T_{inst}	[Nm]	25		80		180	

Push-through Installation (BLS, BLS A4, SLS A4, SKLS A4)

- BLS and SD versions installed through fixture using an ordinary hammer and tightened to specified torque.

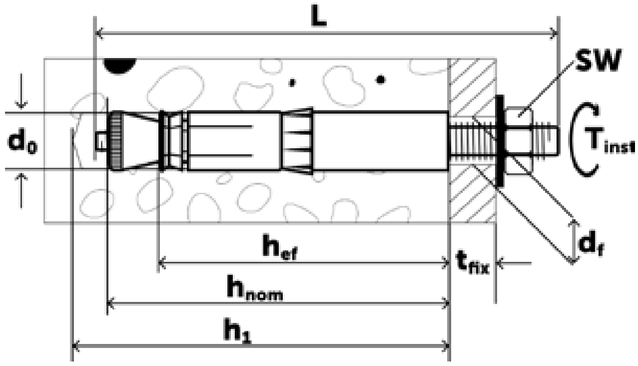


SKLS A4



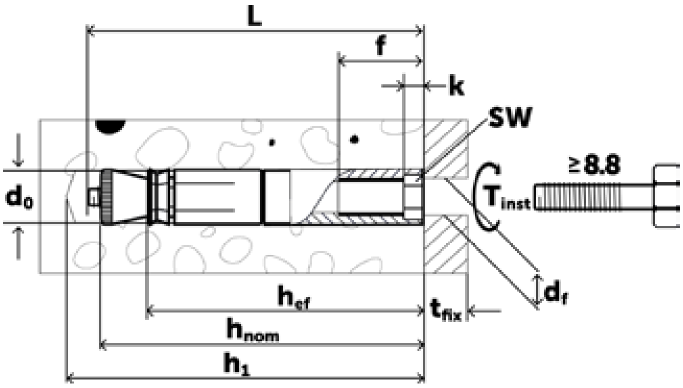
Pre-set installation (BLS-P)

- BLS-P versions installed into the drill-hole using an ordinary hammer. Then, nut and washer are re-moved, fixture installed, washer and nut installed, and tightened to the specified torque.

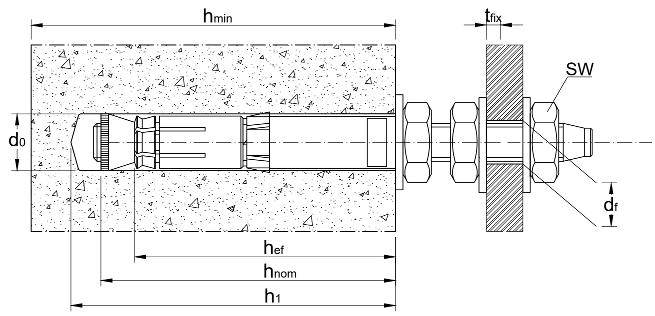


Pre-set installation (ILS)

- ILS is installed into the drill-hole using an ordinary ham-mer. Then, anchor is tightened to the specified torque with hexagonal drive. Bolt is installed to the anchor through the fixture.



Distance mounting (BLS-P)

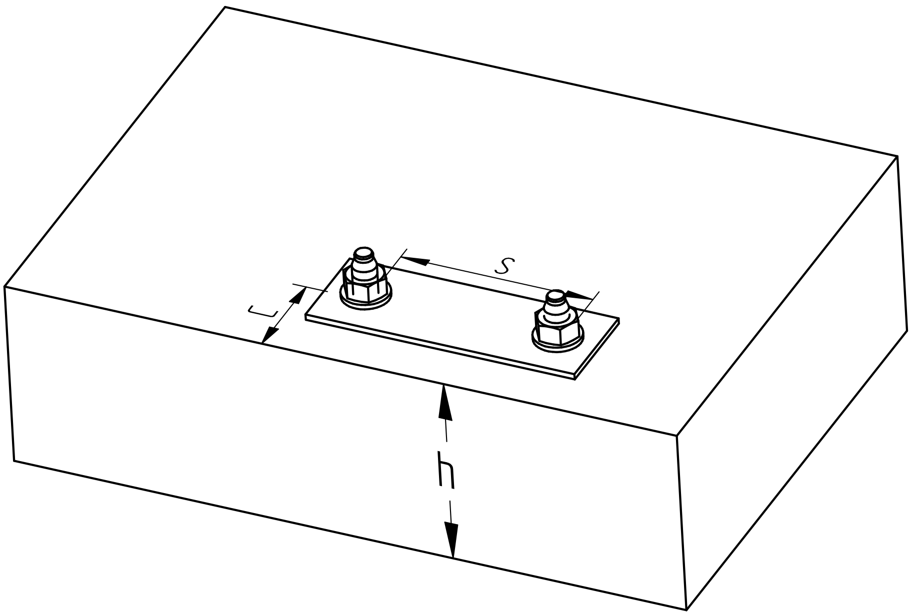


SORMAT

Minimum thickness of concrete member, spacing and edge distance

TYPES BLS, BLS-P, BLS A4, SD, SLS A4, SKLS A4

Cracked concrete and non-cracked concrete				M8		M12		M16	
Effective anchorage depth		h_{ef}	[mm]	40	80	80	150	150	200
Nominal anchorage depth		h_{nom}	[mm]	52	92	96	166	168	218
Minimum thickness of base material		h_{min}	[mm]	100	160	160	300	300	400
Zinc plated	Minimum spacing	s_{min}	[mm]	100	80	120	150	200	150
	Minimum edge distance	c_{min}	[mm]	80	50	100	80	150	100
Stainless steel	Minimum spacing	s_{min}	[mm]	80	80	150	150	150	180
	Minimum edge distance	c_{min}	[mm]	60	50	100	80	100	100
Critical spacing for splitting failure and concrete cone failure	Center Spacing (splitting)	$s_{cr,sp}$	[mm]	140	360	360	540	560	560
	Center spacing	$s_{cr,N}$	[mm]	120	240	240	450	450	600
Critical edge distance for splitting failure and concrete cone failure	Edge distance (splitting)	$c_{cr,sp}$	[mm]	70	180	180	270	280	280
	Edge distance	$c_{cr,N}$	[mm]	60	120	120	225	225	300



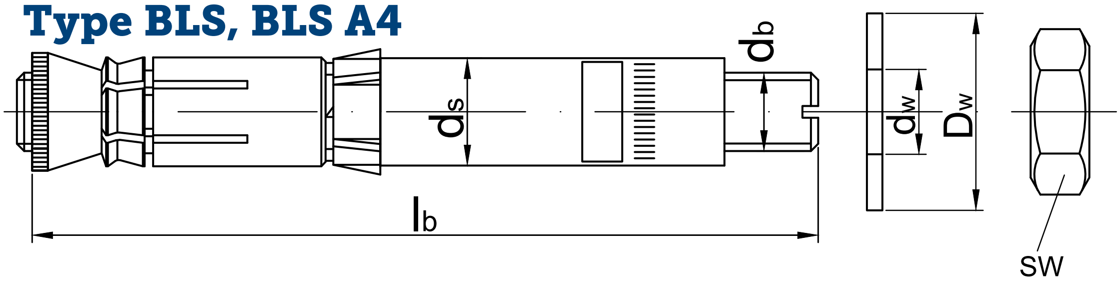
ANCHOR DIMENSIONS

Type	Size / Drill ø / Anchorage depth h_{ef} / t_{fix}	Product code	Lenght of bolt (l_b)	Diameter of bolt (d_b)	Max diameter of sleeve (d_s)	Washer diameter (D_w)	Washer diameter (d_w)	Washer thickness S	SW
BLS	M8-14/80/25	9654080025	130	8	13,8	20	8,4	1,5	17
	M12-20/80/15	9650080015	130	12	19,1	30	13	3,5	19
	M12-20/80/30	9650080030	145	12	19,1	30	13	3,5	19
	M12-20/150/30	9650150030	215	12	19,1	30	13	3,5	19
	M16-25/150/30	9655150030	220	16	24,1	40	17	6	24
	M16-25/150/40	9655200040	230	16	24,1	40	17	6	24
	M16-25/200/60	9655200060	300	16	24,1	40	17	6	24
BLS-P	M12-20/80/15	9650180015	135	12	19,1	24	13	2,5	19
	M12-20/150/30	9651150030	220	12	19,1	24	13	2,5	19
	M16-25/150/40	9655250040	240	16	24,1	30	17	3	24
	M16-25/200/40	9655210040	290	16	24,1	30	17	3	24
BLS A4	M8-14/40/15 A4	9654404015	82	8	13,8	20	8,4	1,5	16
	M8-14/80/25 A4	9654080254	130	8	13,8	20	8,4	1,5	16
	M12-20/80/15 A4	9650080154	130	12	19,1	30	13	3,5	22
	M12-20/80/30 A4	9650080304	145	12	19,1	30	13	3,5	22
	M16-25/150/30 A4	9655150304	220	16	24,1	40	17	4	27
SLS A4	M8-14/40/15 A4	9653144015	70	8	13,7	21	8,4	4	13
	M8-14/80/25 A4	9653148025	120	8	13,7	21	8,4	4	13
	M12-20/80/15 A4	9653208015	120	12	19	30	13	6	19
SKLS A4	M8-14/40/15 A4	9654144015	70	8	13,7	27	8,4	6,5	5 HEX
	M8-14/80/25 A4	9654148025	120	8	13,7	24	8,4	6,5	5 HEX
	M12-20/80/15 A4	9654208015	120	12	19	33	13	8	8 HEX
SD	M8-14/40 SD A4	9650814040	95	8	15,5	20	8,4	2	16
	M8-14/60SA A4N	9650040060	115	8	15,5	20	8,4	2	16
ILS	M8-14/80	9650814080	95	8	13,8	-	-	-	8
LPA A4	M8-14BS085 A4	9650814085	85	8	13,8	20	8,4	2	13

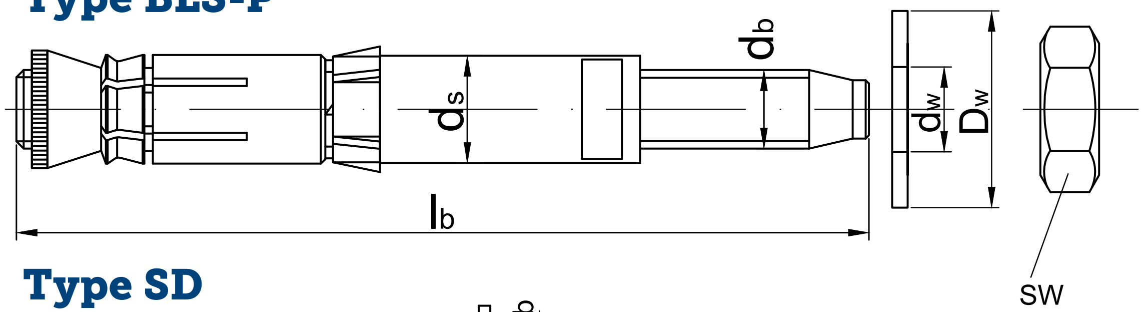
SORMAT

ANCHOR DIMENSIONS

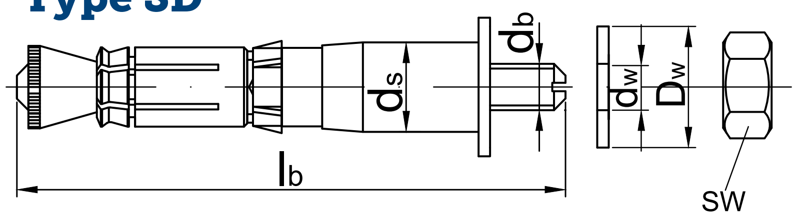
Type BLS, BLS A4



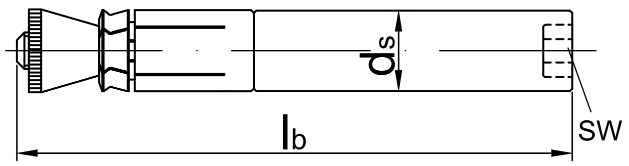
Type BLS-P



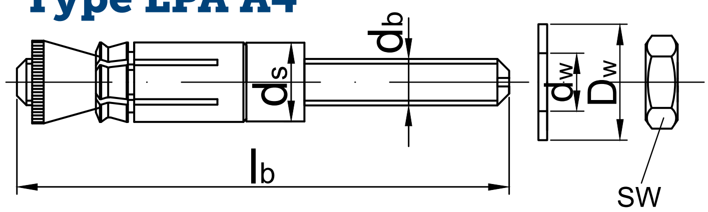
Type SD



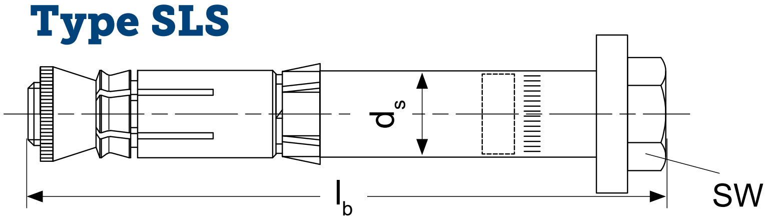
Type ILS



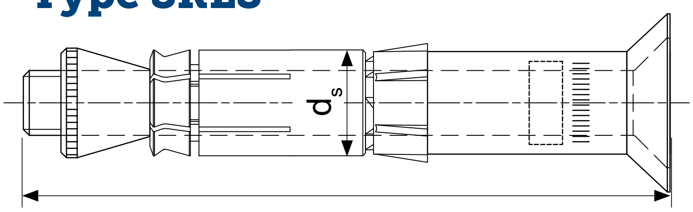
Type LPA A4



Type SLS



Type SKLS



DELIVERY PROGRAM

Thread size	Size - Drill ø / Anchorage depth h_{ef} / t_{fix}	t_{fix}	BLS Zinc	BLS -P Zinc	BLS A4 A4	SLS A4 A4	SKLS A4 A4	SD A4	ILS Zinc	LPA A4 A4
M8	M8-14									O
	M8-14/40/15	15			x	x	x			
	M8-14/40	25						x		
	M8-14/60	25						x		
	M8-14/80								O	
	M8-14/80/25	25	x		x	x	x			
M12	M12-20/80/15	15	x	x	x	x	x			
	M12-20/80/30	30	x		x					
	M12-20/150/30	30	x	x						
M16	M16-25/150/30	30	x		x					
	M16-25/150/40	40		x						
	M16-25/200/40	40	x	x						
	M16-25/200/60	60	x							

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