



 **Porotherm[®]**

Fixings Information

The duo of power and intelligence



Wall cabinets



TV-brackets

BUILDING MATERIALS

- Concrete
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Plasterboard
- Gypsum plasterboard and gypsum fibreboards
- Hollow blocks made from lightweight concrete
- Cavity floor slabs made from bricks and concrete or similar
- Natural stone
- Chipboard
- Solid panel made from gypsum
- Solid brick made from lightweight concrete

CHARACTERISTICS



ADVANTAGES

- Two component materials for top load values and intelligent functioning depending on the substrate.
- Great feedback (feel-good factor) of the plug. You can feel exactly when the plug is installed perfectly.
- The short plug length ensures fast fixing without deep drilling.
- The narrow plug rim prevents slipping into the drill hole.
- The serrated anti-rotation feature prevents rotation in the drill hole during installation.
- The greater anchorage depth of the DUOPOWER 6 x 50, 8 x 65 and 10 x 80 means that the plug is especially suited to fixings in hollow building materials, aerated concrete and to bridge plaster.

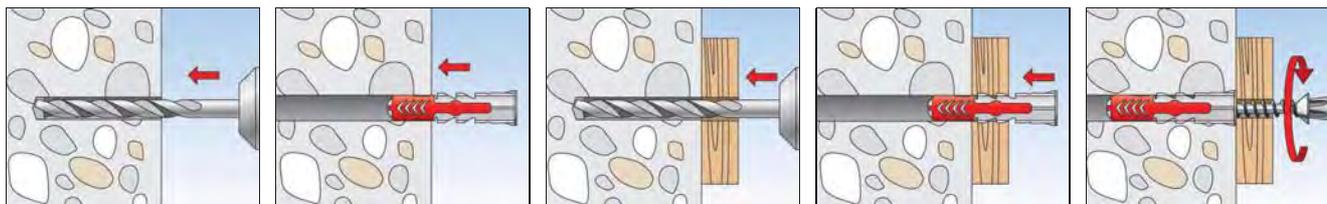
APPLICATIONS

- TV consoles
- Lighting
- Shelves
- Mirror cabinets
- Letter boxes
- Pictures
- Fixing blinds
- Curtain rails
- Wash basin fixings
- Plumbing and heating fixings
- Bath and toilet installations
- Wall cabinets
- Range hood

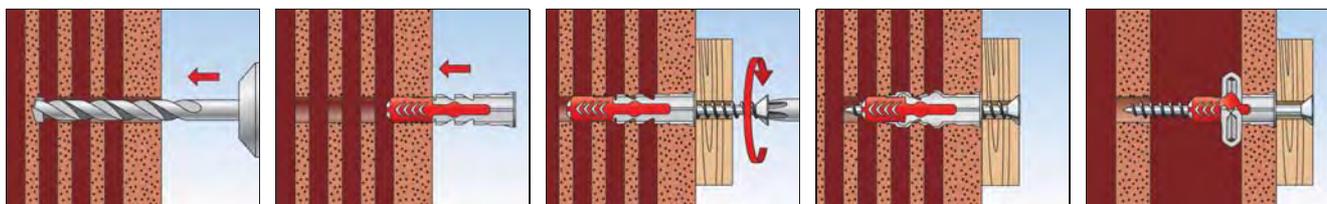
FUNCTIONING

- The DUOPOWER is suitable for pre-positioned and push-through installation.
- The duo of two different materials and its multiple functional abilities (expanding, folding, and knotting) extend the range of applications to additional materials with top loads.
- The required screw length is given by the plug length + fixture thickness + 1x the screw diameter.
- Suitable for wood and chipboard screws, as well as stud screws.
- In the case of fixing boards, the threadless part of the screw must not be longer than the fixture.

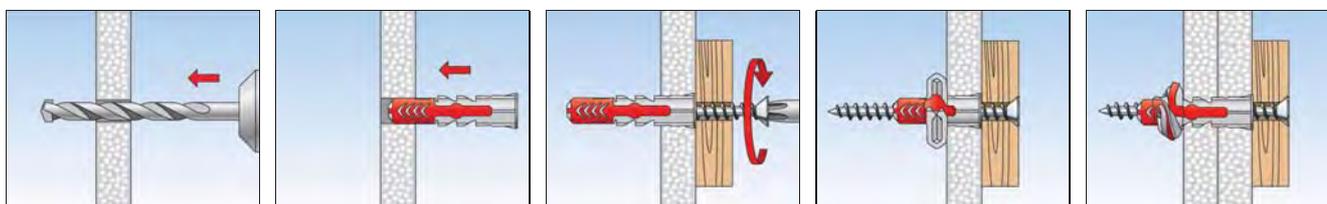
INSTALLATION IN SOLID BUILDING MATERIALS



INSTALLATION IN HOLLOW BUILDING MATERIALS



INSTALLATION IN PANEL BUILDING MATERIALS



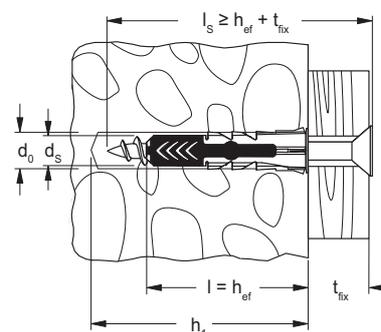
TECHNICAL DATA



DUOPOWER



DUOPOWER with greater anchorage depth



Item	Art.-No. without screw	Art.-No. with screw	Drill hole diameter	Min. drill hole depth	Min. panel thickness	Min. bolt penetration	Anchor length	Wood and chipboard screws	Drive	Max. fixture thickness	Sales unit
			d_0 [mm]	h_1 [mm]	d_p [mm]	$l_{E,min}$ [mm]	l [mm]	$d_s / d_s \times l_s$ [mm]			
DUOPOWER 5 x 25	555005	—	5	35	12,5	28	25	3 - 4	—	—	100
DUOPOWER 6 x 30	555006	—	6	40	12,5	34	30	4 - 5	—	—	100
DUOPOWER 8 x 40	555008	—	8	50	12,5	45	40	4,5 - 6	—	—	100
DUOPOWER 10 x 50	555010	—	10	60	—	56	50	6 - 8	—	—	50
DUOPOWER 5 x 25 S	—	555105	5	35	12,5	29	25	4 x 35	PZ2	6	50
DUOPOWER 6 x 30 S	—	555106	6	40	12,5	35	30	4,5 x 40	PZ2	5	50
DUOPOWER 8 x 40 S	—	555108	8	60	12,5	45	40	5 x 60	PZ2	15	50
DUOPOWER 10 x 50 S	—	555110	10	70	—	57	50	7 x 70	SW 13 / TX 40	13	25
DUOPOWER 6 x 50	538240	—	6	60	12,5	55	50	4 - 5	—	—	100
DUOPOWER 8 x 65	538241	—	8	75	2 x 12,5	70	65	4,5 - 6	—	—	50
DUOPOWER 10 x 80	538242	—	10	90	—	87	80	6 - 8	—	—	25
DUOPOWER 12 x 60	538243	—	12	70	—	68	60	8 - 10	—	—	25
DUOPOWER 14 x 70	538244	—	14	80	—	80	70	10 - 12	—	—	20
DUOPOWER 6 x 50 S	—	538245	6	75	12,5	55	50	4,5 x 70	PZ2	15	50
DUOPOWER 8 x 65 S	—	538246	8	85	2 x 12,5	70	65	5 x 80	PZ2	10	25
DUOPOWER 10 x 80 S	—	538247	10	112	—	87	80	7 x 107	SW 13	20	10
DUOPOWER 12 x 60 S	—	538248	12	85	—	68	60	8 x 80	SW 13	12	10

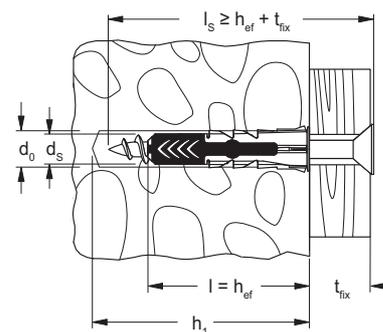
TECHNICAL DATA



DUOPOWER



DUOPOWER with greater anchorage depth



	Art.-No. without screw	Art.-No. with screw	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Min. panel thickness d_p [mm]	Min. bolt penetration $l_{E,min}$ [mm]	Anchor length l [mm]	Wood and chipboard screws $d_s / d_s \times l_s$ [mm]	Drive	Max. fixture thickness t_{fix} [mm]	Sales unit [pcs]
Item											
DUOPOWER 14 x 70 S	—	538249	14	100	—	80	70	10 x 95	SW 17	15	8

LOADS

DUOPOWER

Highest recommended loads¹⁾ for a single anchor.
The given loads are valid for screws with the specified diameter.

Type		DUOPOWER									
		5 x 25	6 x 30	6 x 50	8 x 40	8 x 65	10 x 50	10 x 80	12 x 60	14 x 70	
Screw diameter ³⁾	\emptyset [mm]	4	5	5	6	6	8	8	10	12	
Min. edge distance in concrete	c_{min} [mm]	30	35	35	50	50	65	65	80	100	
Recommended loads in the respective base material F_{rec}²⁾											
Concrete	\geq C20/25 [kN]	0,40	0,95	1,65	1,10	2,30	2,15	4,20	3,30	5,30	
Solid brick	\geq Mz 12 [kN]	0,30	0,50	0,55	0,62	0,69	1,20	1,45	1,30	1,35	
Solid sand-lime brick	\geq KS 12 [kN]	0,50	1,00	1,60	1,25	2,25	2,20	3,85	2,80	4,50	
Aerated concrete	\geq PB2, PP2 (G2) [kN]	0,05	0,10	0,15	0,10	0,16	0,20	0,30	0,24	0,35	
Aerated concrete	\geq PB4, PP4 (G4) [kN]	0,25	0,38	0,55	0,42	0,60	0,60	1,10	1,00	1,45	
Perforated brick	\geq Hlz 12 ($\rho \geq 0,9$ kg/dm ³) [kN]	0,13	0,15	0,17	0,25	0,40	0,25	0,40	0,35	0,40	
Sand-lime hollow block	\geq KSL 12 ($\rho \geq 1,6$ kg/dm ³) [kN]	0,40	0,60	0,60	0,70	1,00	0,70	2,00	0,75	1,50	
Plasterboards	$\rho \geq 0,9$ kg/dm ³ [kN]	0,10	0,18	0,37	0,25	0,50	0,35	0,65	0,50	0,50	
Gypsum fibreboard	12,5 mm [kN]	0,24	0,33	0,35	0,35	-	0,50	-	-	-	
Gypsum plasterboard	12,5 mm [kN]	0,12	0,15	0,15	0,15	-	0,15	-	-	-	
Gypsum plasterboard	2 x 12,5 mm [kN]	0,13	0,15	0,24	0,20	0,32	0,30	-	-	-	
Mattone Forato Typ F8	[kN]	0,30	0,30	-	0,25	-	0,25	-	-	-	
Tramezza Doppio UNI 19	[kN]	0,15	0,15	0,23	0,15	0,30	0,20	0,52	0,35	0,35	
Sepa Parpaing	[kN]	0,30	0,45	0,25 ⁴⁾	0,45	0,45 ⁴⁾	0,45	0,45 ⁴⁾	0,60 ⁴⁾	0,60 ⁴⁾	

¹⁾ Required safety factors are considered.

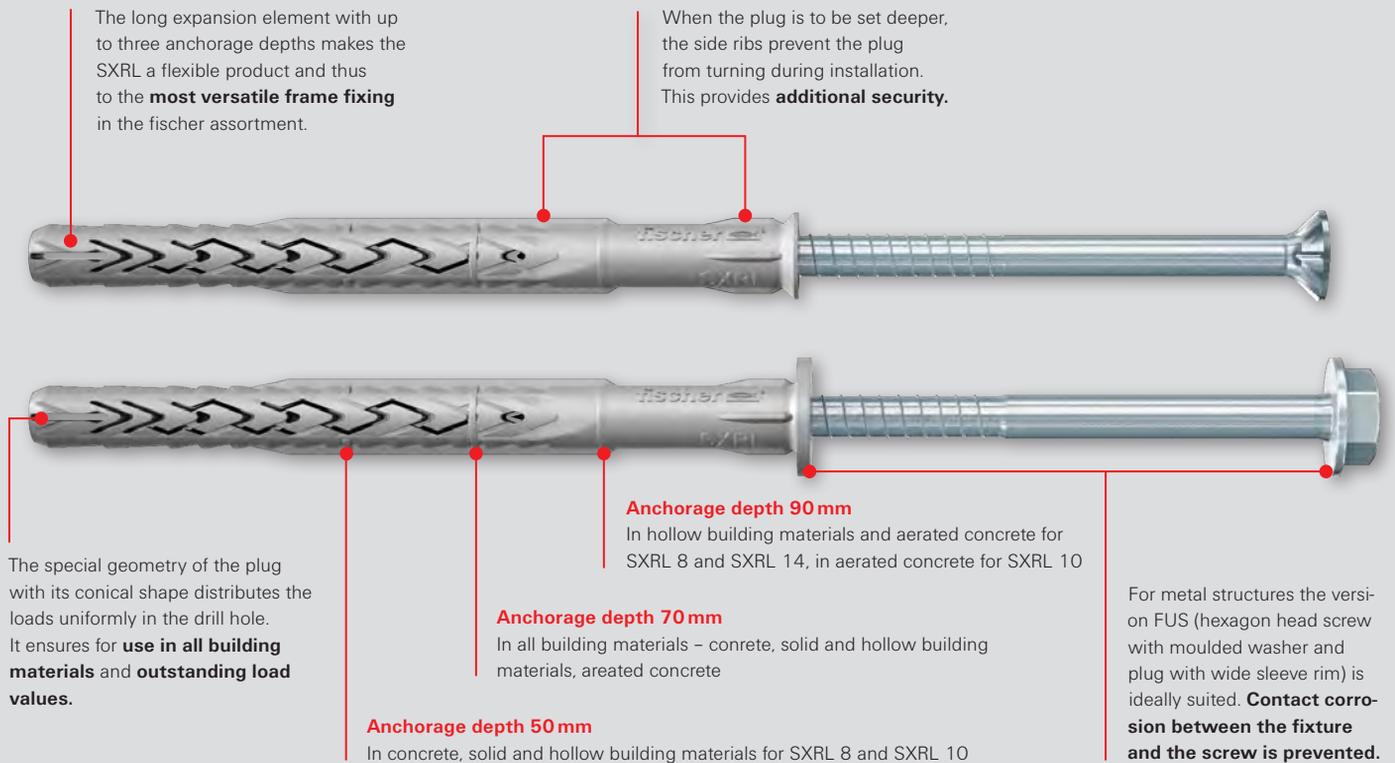
²⁾ The load data are valid for tension, shear and combined tension and shear load.

³⁾ Wood screw

⁴⁾ Load determination on plastered wall.

SXRL frame fixing

The versatile with multiple anchorage depth



Our extensive assortment

- Diameter 8, 10 and 14
- fischer safety screws available in the versions of zinc-plated steel and stainless A4 steel
- Two head variants:
 - countersunk head
 - hexagon head with moulded washer

Overview of the advantages

- In the European Technical Assessment (ETA), which takes into consideration all classes of building materials, several anchorage depths are regulated: 50, 70 and 90 mm for SXRL 8 and SXRL 10, 70 and 90 mm for SXRL 14.
- The SXRL 14 is additionally approved for applications that are subject to pressure and may be used for façade structures that are installed without wall brackets with a spacing.

Functionality

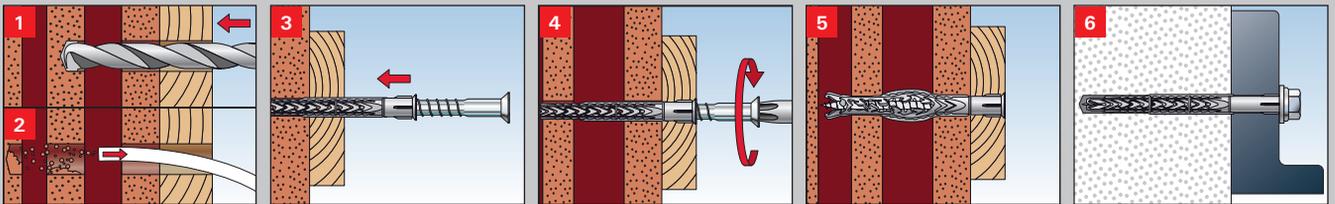


A In **hollow building materials** the force is transmitted equally through the two expansion zones. The internal substrate webs are not crushed by the expansion zones and so transmit the force safely.



B In **solid building materials and aerated concrete** the two expansion zones combine to form one long expansion element, thus providing for a uniform and even distribution of the load into substrate.

Installation



Recommendation



Approvals and markings



Applications



Façade substructures

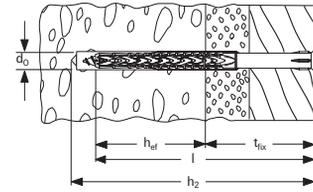


Interior fitting



Wood construction

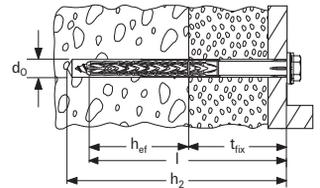
SXRL technical data



SXRL-T – fischer safety screw with countersunk head

Item	Steel, zinc-plated Art.-No. zinc-plated	Stainless steel  Art.-No. A4	Approval		Nominal drill hole diame- ter d ₀ [mm]	Min. drill hole depth for push- through installation h ₂ [mm]	Usable length at anchorage depth h _{ef}			Anchor length l [mm]	Drive type 	Sales unit [pcs]
			DIBt	ETA			50 mm	70 mm	90 mm			
							t _{fix} [mm]	t _{fix} [mm]	t _{fix} [mm]			
SXRL 8 x 60 T	540113	540119	-	■	8	70	10	-	-	60	T30	50
SXRL 8 x 80 T	540114	540121	-	■	8	90	30	10	-	80	T30	50
SXRL 8 x 100 T	540115	540123	-	■	8	110	50	30	10	100	T30	50
SXRL 8 x 120 T	540116	540124	-	■	8	130	70	50	30	120	T30	50
SXRL 8 x 140 T	540117	540125	-	■	8	150	90	70	50	140	T30	50
SXRL 8 x 160 T	540118	540126	-	■	8	170	110	90	70	160	T30	50
SXRL 10 x 80 T	522698	522709	-	■	10	90	30	10	-	80	T40	50
SXRL 10 x 100 T	522699	522710	-	■	10	110	50	30	10	100	T40	50
SXRL 10 x 120 T	522700	522711	-	■	10	130	70	50	30	120	T40	50
SXRL 10 x 140 T	522701	522712	-	■	10	150	90	70	50	140	T40	50
SXRL 10 x 160 T	522703	522713	-	■	10	170	110	90	70	160	T40	50
SXRL 10 x 180 T	522704	522714	-	■	10	190	130	110	90	180	T40	50
SXRL 10 x 200 T	522705	522715	-	■	10	210	150	130	110	200	T40	50
SXRL 10 x 230 T	522706	522716	-	■	10	240	180	160	140	230	T40	50
SXRL 10 x 260 T	522707 1)	522717 1)	-	■	10	270	210	190	170	260	T40	50
SXRL 10 x 290 T	522708 1)	522718 1)	-	■	10	300	240	220	200	290	T40	50
SXRL 14 x 80 T	530920	530932	●	■	14	95	-	10	-	80	T50	50
SXRL 14 x 100 T	530921	530933	●	■	14	115	-	30	10	100	T50	50
SXRL 14 x 120 T	530922	530934	●	■	14	135	-	50	30	120	T50	50
SXRL 14 x 140 T	530923	530935	●	■	14	155	-	70	50	140	T50	50
SXRL 14 x 160 T	530924	530936	●	■	14	175	-	90	70	160	T50	50
SXRL 14 x 180 T	530925	530937	●	■	14	195	-	110	90	180	T50	50
SXRL 14 x 200 T	530926	530938	●	■	14	215	-	130	110	200	T50	50
SXRL 14 x 230 T	530927	530939	●	■	14	245	-	160	140	230	T50	50
SXRL 14 x 260 T	530928	530940	●	■	14	275	-	190	170	260	T50	50
SXRL 14 x 300 T	530929 1)	530941 1)	●	■	14	315	-	230	210	300	T50	20
SXRL 14 x 330 T	530930 1)	530942 1)	●	■	14	345	-	260	240	330	T50	20
SXRL 14 x 360 T	530931 1)	530943 1)	●	■	14	375	-	290	270	360	T50	20

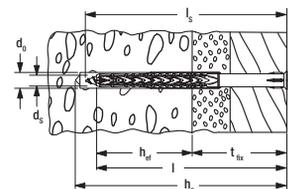
1) not pre-assembled



SXRL-FUS – fischer hexagon head safety screw, moulded washer and integrated bit recess

Item	Steel, zinc-plated Art-No. zinc-plated	Stainless steel ROBUST Rost frei BOX STAINLESS STEEL Art-No. A4	Approval		Nominal drill hole diame- ter d ₀ [mm]	Min. drill hole depth for push- through installation h ₂ [mm]	Usable length at anchorage depth h _{ef}			Anchor length l [mm]	Drive type 	Sales unit [pcs]
			DIBt	ETA			50 mm	70 mm	90 mm			
							t _{fix} [mm]	t _{fix} [mm]	t _{fix} [mm]			
SXRL 8 x 60 FUS	540127	540135	-	■	8	70	10	-	-	60	T30/SW10	50
SXRL 8 x 80 FUS	540129	540136	-	■	8	90	30	10	-	80	T30/SW10	50
SXRL 8 x 100 FUS	540130	540137	-	■	8	110	50	30	10	100	T30/SW10	50
SXRL 8 x 120 FUS	540131	-	-	■	8	130	70	50	30	120	T30/SW10	50
SXRL 8 x 140 FUS	540133	-	-	■	8	150	90	70	50	140	T30/SW10	50
SXRL 8 x 160 FUS	540134	-	-	■	8	170	110	90	70	160	T30/SW10	50
SXRL 10 x 80 FUS	522719	522730	-	■	10	90	30	10	-	80	T40/SW13	50
SXRL 10 x 100 FUS	522720	522731	-	■	10	110	50	30	10	100	T40/SW13	50
SXRL 10 x 120 FUS	522721	522732	-	■	10	130	70	50	30	120	T40/SW13	50
SXRL 10 x 140 FUS	522723	522733	-	■	10	150	90	70	50	140	T40/SW13	50
SXRL 10 x 160 FUS	522724	522734	-	■	10	170	110	90	70	160	T40/SW13	50
SXRL 10 x 180 FUS	522725	522735	-	■	10	190	130	110	90	180	T40/SW13	50
SXRL 10 x 200 FUS	522726	522736	-	■	10	210	150	130	110	200	T40/SW13	50
SXRL 10 x 230 FUS	522727	522737	-	■	10	240	180	160	140	230	T40/SW13	50
SXRL 10 x 260 FUS	522728 1)	522738 1)	-	■	10	270	210	190	170	260	T40/SW13	50
SXRL 10 x 290 FUS	522729 1)	522739 1)	-	■	10	300	240	220	200	290	T40/SW13	50
SXRL 14 x 80 FUS	530946	530955	●	■	14	95	-	10	-	80	T50/SW17	50
SXRL 14 x 100 FUS	530947	530956	●	■	14	115	-	30	10	100	T50/SW17	50
SXRL 14 x 120 FUS	530948	530957	●	■	14	135	-	50	30	120	T50/SW17	50
SXRL 14 x 140 FUS	530949	530958	●	■	14	155	-	70	50	140	T50/SW17	50
SXRL 14 x 160 FUS	530950	530959	●	■	14	175	-	90	70	160	T50/SW17	50
SXRL 14 x 180 FUS	530951	530960	●	■	14	195	-	110	90	180	T50/SW17	50
SXRL 14 x 200 FUS	530952	530961	●	■	14	215	-	130	110	200	T50/SW17	50
SXRL 14 x 230 FUS	530953	530962	●	■	14	245	-	160	140	230	T50/SW17	50
SXRL 14 x 260 FUS	530954	530963	●	■	14	275	-	190	170	260	T50/SW17	50

1) not pre-assembled



SXRL – without screw

Item	Art-No.	Approval		Nominal drill hole diameter d ₀ [mm]	Min. drill hole depth for push- through h ₂ [mm]	Usable length at anchorage depth h _{ef}			Anchor length l [mm]	Screw diameter d _s [mm]	Screw length l _s [mm]	Sales unit [pcs]
		DIBt	ETA			50 mm	70 mm	90 mm				
						t _{fix} [mm]	t _{fix} [mm]	t _{fix} [mm]				
SXRL 8 x 60	540879	-	-	8	70	10	-	-	60	5,5 - 6,0	65	100
SXRL 8 x 80	540880	-	-	8	90	30	10	-	80	5,5 - 6,0	85	100
SXRL 8 x 100	540881	-	-	8	110	50	30	10	100	5,5 - 6,0	105	100
SXRL 8 x 120	540882	-	-	8	130	70	50	30	120	5,5 - 6,0	125	100

Permissible loads

Permissible loads of a single anchor as part of a multiple fixing of non-structural systems in concrete and masonry according to European Technical Assessment or Approval (ETA).

Product		SXRL ⁵⁾						SXR ⁵⁾		FUR ⁵⁾	SXS ⁵⁾		
		Ø 8			Ø 10			Ø 14		Ø 10	Ø 10		
Anchor diameter	[mm]	50	70	90	50	70	90	70	90	50	50		
Anchorage depth	h_{nom} [mm]	50	70	90	50	70	90	70	90	50	50		
Anchorage in concrete \geq C12/15													
Permissible tensile load	[kN]	1,59	1,98	1,98	2,58	3,37	0,99	1,79	1,79	1,39	1,39		
Permissible shear load	Zinc-plated steel [kN]	4,23			5,98			12,40	4,23	5,98	5,37	7,37	
	Stainless steel A4 [kN]	3,93			5,98			11,63	3,93	5,98	4,98	6,92	
Minimum member thickness	h_{min} [mm]	80	100	120	100	120	110	130	100	100	110	100	
Characteristic edge distance	$c_{cr,N}$ [mm]	85			140			140	70	140	140	100	
Characteristic spacing	a resp. $s_{cr,N}$ [mm]	90	105		120			135	70	100	90	75	
Minimum spacing with an edge distance	s_{min} [mm]	85			70			85	70	70	70	55	
	$c \geq$ [mm]	85			140			140	70	210	140	100	
Minimum edge distance with a spacing	c_{min} [mm]	85			70			85	70	85	70	50	
	$s \geq$ [mm]	85			175			175	70	100	210	250	
Anchorage in narrow concrete members ($h \geq 40$ mm) made of concrete \geq C12/15, e.g. weather shells of triple-skin outer wall panels													
Permissible tensile load	[kN]	-			0,99	-	-	-	1,19	-	-		
Permissible shear load	[kN]	-			5,98	-	-	-	5,98	-	-		
Anchorage in pre-stressed hollow-core concrete slabs (mirror thickness $d_b \geq 30$ mm) made of concrete \geq C45/55													
Permissible tensile load	[kN]	-			1,39	-	-	-	-	-	-		
Permissible shear load	[kN]	-			5,98	-	-	-	-	-	-		
Anchorage in masonry													
Permissible load in solid brick	\geq Mz 12 a. \geq NF [kN]	0,57	0,71	0,57	1,14	-	0,86	0,57	0,57	0,86	0,34		
	\geq Mz 20 a. \geq NF [kN]	0,86	1,14	1,00	1,14	-	1,14	0,71	0,86	0,86	0,57		
Permissible load in solid sand-lime brick	\geq KS 10 a. \geq NF [kN]	0,57			0,57	0,71	-	0,86	0,57	0,57	0,43		
	\geq KS 20 a. \geq NF [kN]	0,71	0,86	1,00			-	1,29	0,71	0,71	0,71		
Permissible load in lightweight concrete block	\geq V 2; $\rho \geq 1,2$ kg/dm ³ [kN]	0,11	0,26	0,11			-	0,26	0,26	0,21	0,34		
	\geq V 6; $\rho \geq 1,6$ kg/dm ³ [kN]	0,34	0,57	0,57	1,29	-	0,57	0,26	0,71	0,57	0,43		
Permissible load in vertically perforated brick	\geq Hlz 10 $\rho \geq 1,0$ kg/dm ³ [kN]	0,17			-	0,21	-	0,57	0,71	0,17	0,26	0,37	-
Permissible load in perforated sand-lime brick	\geq KSL 6 [kN]	-			-	0,21	-	0,26	0,34	0,26	0,43	-	-
	\geq KSL 12 [kN]	0,34	0,43		-	0,71	-	0,43	0,71	0,57	0,57	0,57	-
Permissible load in hollow lightweight concrete blocks	\geq Hbl 2 [kN]	0,43	0,57	0,43	0,57	0,71	-	0,34	0,21	-	0,43	-	-
	\geq Hbl 6 [kN]	0,43	0,71	0,43	0,71	0,43	-	0,57	-	0,43	0,57	-	-
Permissible load in ceilings made of vertically perforated bricks	$f_b \geq 10$ N/mm ² $\rho \geq 0,7$ kg/dm ³ [kN]	-			-	0,57	-	-	-	-	-	-	
Minimum member thickness	h_{min} [mm]	115			110			115		100	100	110	115
Minimum spacing (single anchor)	a_{min} [mm]	250			250			250		250	250	250	250
Minimum spacing (anchor group)	s_{min} [mm]	100			100			100		100	100	100	100
Minimum edge distance (anchor group)	c_{min} [mm]	100			100			100		100	100	100	100
Anchorage in aerated concrete													
Permissible load in aerated concrete	2 N/mm ² [kN]	-	0,14	0,21	-	0,18	0,21	0,32	0,43	-	0,14 ¹⁾	-	0,32
	4 N/mm ² [kN]	-	0,32	0,43	-	0,43	0,54	0,89	1,07	-	0,27	-	0,62
	6 N/mm ² [kN]	-	0,54	0,71	-	0,71	0,89	1,43	1,79	-	0,27	-	0,92
Minimum member thickness	h_{min} [mm]	-	175		-	100	120	175 ²⁾ / 300 ³⁾		-	100	-	175
Minimum spacing (single anchor)	a_{min} [mm]	-	250		-	250		250		-	250	-	250
Minimum spacing (anchor group)	s_{min} [mm]	-	80 ²⁾ / 110 ⁴⁾		-	100 ²⁾ / 120 ⁴⁾		80	100 ²⁾ / 125 ³⁾	-	400	-	100
Minimum edge distance (anchor group)	c_{min} [mm]	-	90 ²⁾ / 110 ⁴⁾		-	120		120	120 ²⁾ / 150 ³⁾	-	100	-	100

For the design the related assessment (ETA) has to be considered.
 All loads refer to a long-term temperature of 50 °C and a short-term temperature of 80 °C.
 The material safety factor γ_M and the safety factor of $\gamma_F = 1,4$ were included in the calculation.
 For details on block parameters and joints please see relevant ETA.
 With other bricks/blocks or increased spacings and edge distances, higher loads can be achieved.

¹⁾ Drill holes to be made with aerated concrete hole punch
²⁾ Only valid for AAC with compression strength ≥ 2 to < 4 N/mm²
³⁾ Only valid for AAC with compression strength ≥ 4 N/mm²
⁴⁾ Only valid for AAC with compression strength ≥ 6 N/mm²
⁵⁾ ETA-07/0121 (SXR/SXRL), ETA-13/0235 (FUR) resp. ETA-09/0352 (SXS)



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