

The all-round solution with short drill hole depth



Façade sub-structures



Façade sub-structures

VERSIONS

- zinc-plated steel
- stainless steel
- hot-dip galvanised steel

BUILDING MATERIALS

Approved for:

- Concrete \geq C12/15
- Vertically perforated brick
- Hollow blocks made from lightweight concrete
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid block made from lightweight and normal weight concrete
- Solid brick
- Thermal insulation blocks

Also suitable for:

- Natural stone with dense structure
- Solid panel made from gypsum

ADVANTAGES

- The special functioning allows for use in solid and hollow building materials with an anchorage depth of just 50 mm, ensuring an economical fixing.
- The ETA approval covers use in a range of solid and hollow building materials, and guarantees a secure fixing.
- The specially developed combination of plugs and screws ensures the very best handling. The plug has a noticeable hold, making installation more convenient.
- The extensive range with diameters of 6, 8 and 10 mm offers the right plug for every fixing.

APPLICATIONS

- Façade, ceiling and roof substructures made of wood and metal
- Windows
- Gates and doors
- Wardrobes
- Cable trays
- Squared timbers
- Kitchen cabinets

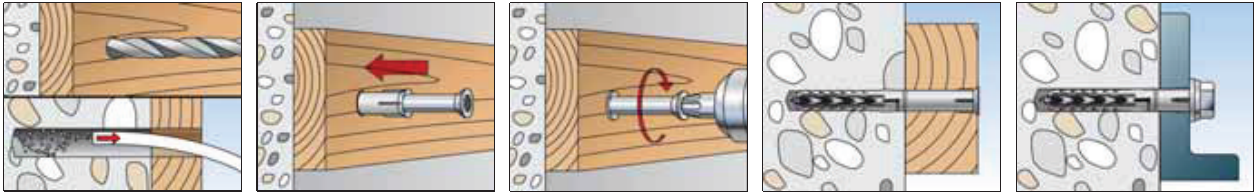
ASSESSMENT/APPROVAL



FUNCTIONING

- The SXR is suitable for push-through installation.
- The SXR expands in solid building materials and knots in hollow building materials.
- With vertically perforated bricks, only use rotary drilling (no impact drilling).
- Countersunk head screws are recommended for the installation of timber constructions; in the case of metal constructions, use plugs with a wide sleeve rim and a moulded washer on the screw, which also features an integrated hexagon socket.

INSTALLATION



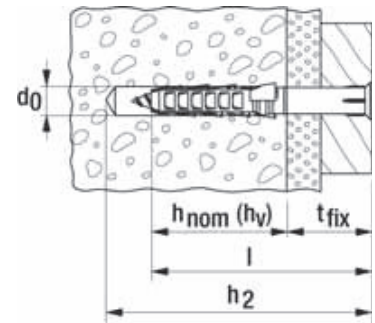
TECHNICAL DATA

5

Frame fixings / Stand-off installation



SXR - without screw

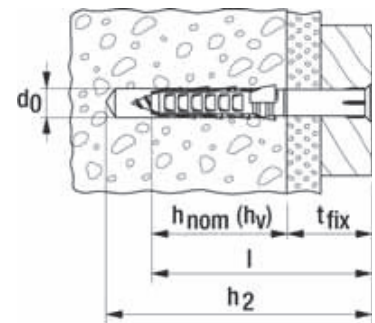


Item	Art.-No.	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Min. anchorage depth $h_{nom} (h_y)$ [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Sales unit [pcs]
SXR 6 x 35	503228	6	45	30	35	5	100
SXR 6 x 50	503229	6	60	30	50	20	100
SXR 6 x 60	503230	6	70	30	60	30	100
SXR 8 x 60	506194	8	70	50	60	10	100
SXR 8 x 80	506196	8	90	50	80	30	100
SXR 8 x 100	506198	8	110	50	100	50	100
SXR 8 x 120	506199	8	130	50	120	70	100

TECHNICAL DATA



SXR-Z - with zinc-plated fischer safety screw with cross drive PZ



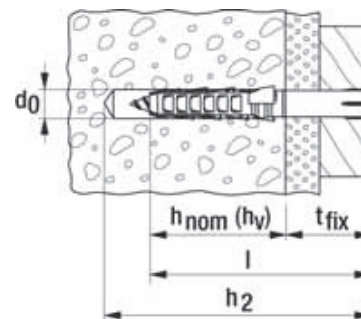
Item	Art.-No.	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Min. anchorage depth $h_{nom} (h_y)$ [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Drive	Sales unit [pcs]
SXR 6 x 50 Z	503232 ¹⁾	6	60	30	50	20	PZ2	50
SXR 6 x 60 Z	503233 ¹⁾	6	70	30	60	30	PZ2	50

¹⁾ not pre-assembled

TECHNICAL DATA



SXR-T - with fischer countersunk head safety screw

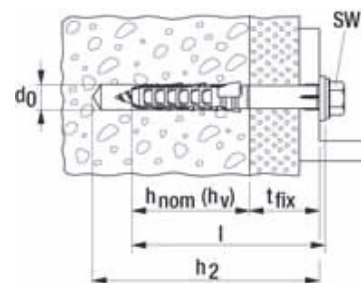


	zinc-plated steel	stainless steel	hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Art.-No.	Art.-No.	Art.-No.	ETA	d_0 [mm]	h_2 [mm]	$h_{nom} (h_V)$ [mm]	l [mm]	t_{fix} [mm]		[pcs]
Item	gvz	A4	fvz								
SXR 8 x 60 T	502999	—	—	■	8	70	50	60	10	T30	50
SXR 8 x 80 T	503000	—	—	■	8	90	50	80	30	T30	50
SXR 8 x 100 T	503001	—	—	■	8	110	50	100	50	T30	50
SXR 8 x 120 T	503002	—	—	■	8	130	50	120	70	T30	50
SXR 10 x 80 T	046263	046272	—	■	10	90	50	80	30	T40	50
SXR 10 x 100 T	046264	046274	—	■	10	110	50	100	50	T40	50
SXR 10 x 100 T	—	—	509534	—	10	110	50	100	50	T40	50
SXR 10 x 120 T	046265	046278	—	■	10	130	50	120	70	T40	50
SXR 10 x 120 T	—	—	509535	—	10	130	50	120	70	T40	50
SXR 10 x 140 T	046266	046279	—	■	10	150	50	140	90	T40	50
SXR 10 x 140 T	—	—	509536	—	10	150	50	140	90	T40	50
SXR 10 x 160 T	046267	046283	—	■	10	170	50	160	110	T40	50
SXR 10 x 180 T	046268	046285	—	■	10	190	50	180	130	T40	50
SXR 10 x 200 T	046269	046286	—	■	10	210	50	200	150	T40	50
SXR 10 x 230 T	046270	046287	—	■	10	240	50	230	180	T40	50
SXR 10 x 260 T	046271	046288	—	■	10	270	50	260	210	T40	50

TECHNICAL DATA



SXR-FUS - with fischer hexagon head safety screw, moulded washer and integrated T40 bit recess



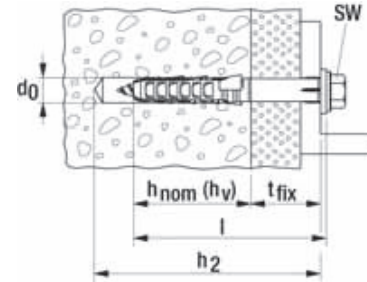
	zinc-plated steel	stainless steel	hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Art.-No.	Art.-No.	Art.-No.	ETA	d_0 [mm]	h_2 [mm]	$h_{nom} (h_V)$ [mm]	l [mm]	t_{fix} [mm]		[pcs]
Item	gvz	A4	fvz								
SXR 10 x 52 FUS	502456 ¹⁾	—	—	■	10	62	50	52	2	T40/SW13	50
SXR 10 x 60 FUS	046329	046339	—	■	10	70	50	60	10	T40/SW13	50
SXR 10 x 60 FUS	—	—	509537	—	10	70	50	60	10	T40/SW13	50
SXR 10 x 80 FUS	046330	046340	—	■	10	90	50	80	30	T40/SW13	50
SXR 10 x 80 FUS	—	—	509538	—	10	90	50	80	30	T40/SW13	50
SXR 10 x 100 FUS	046331	046342	—	■	10	110	50	100	50	T40/SW13	50
SXR 10 x 100 FUS	—	—	509539	—	10	110	50	100	50	T40/SW13	50
SXR 10 x 120 FUS	046332	046343	—	■	10	130	50	120	70	T40/SW13	50

¹⁾ not pre-assembled

TECHNICAL DATA



SXR-FUS - with fischer hexagon head safety screw, moulded washer and integrated T40 bit recess



5 Frame fixings / Stand-off installation

	zinc-plated steel	stainless steel	hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Art.-No.	Art.-No.	Art.-No.	ETA	d ₀ [mm]	h ₂ [mm]	h _{nom} (h _y) [mm]	l [mm]	t _{fix} [mm]		[pcs]
Item	gvz	A4	fvz								
SXR 10 x 140 FUS	046333	046344	—	■	10	150	50	140	90	T40/SW13	50
SXR 10 x 140 FUS	—	—	509540	—	10	150	50	140	90	T40/SW13	50
SXR 10 x 160 FUS	046334	046345	—	■	10	170	50	160	110	T40/SW13	50
SXR 10 x 180 FUS	046335	046361	—	■	10	190	50	180	130	T40/SW13	50
SXR 10 x 200 FUS	046336	046362	—	■	10	210	50	200	150	T40/SW13	50
SXR 10 x 230 FUS	046337	046363	—	■	10	240	50	230	180	T40/SW13	50
SXR 10 x 260 FUS	046338	046364	—	■	10	270	50	260	210	T40/SW13	50

1) not pre-assembled

ACCESSORIES



Cover cap **ADT**

Item	Art.-No.	Colour	Cap	Match	Sales unit
			[Ø mm]		[pcs]
ADT 15 W	060326	white	15	Safety screw with integrated bit recess T40	100
ADT 15 DB	060329	dark brown	15	Safety screw with integrated bit recess T40	100
ADT 18 W	060334	white	18	Safety screw with integrated bit recess T40	100
ADT 18 DB	060337	dark brown	18	Safety screw with integrated bit recess T40	100

ACCESSORIES



Washer **U** stainless steel A2

Item	Art.-No.	External-Ø	Hole diameter	Thickness	Matching anchor type	Sales unit
		d [mm]	D [mm]	S [mm]		[pcs]
U 11,5 x 21 x 1,5 DIN 522 A2	010026	21	11,5	1,5	SXR 10, SXRL 10, FUR 10, SXS 10	500

ACCESSORIES



Aircrete hole punch **GBS**

Item	Art.-No.	Drill hole d_0 [Ø mm]	Min. drill hole depth for through fixings h_2 [mm]	Match	Sales unit [pcs]
GBS 10 x 80	050590 ¹⁾	9	85	SXR 10 x 52, SXR 10 x 60, SXR 10 x 80	1
GBS 10 x 100	050591 ¹⁾	9	105	SXR 10 x 100	1
GBS 10 x 135	050593 ¹⁾	9	140	SXR 10 x 120	1
GBS 10 x 160	050594 ¹⁾	9	165	SXR 10 x 140, SXR 10 x 160	1
GBS 10 x 185	050595 ¹⁾	9	190	SXR 10 x 180	1
GBS 10 x 230	050596 ¹⁾	9	235	SXR 10 x 200, SXR 10 x 230	1

¹⁾ According to the approval, the Aircrete hole punch GBS must be used for drill-hole production in aerated concrete.

LOADS

Frame fixing SXR ⁴⁾

Highest permissible loads¹⁾ for a single anchor for multiple fixings of non-structural applications in masonry.
For the design the complete approval ETA-07/O121 has to be considered.

Type	compressive brick strength f_b [N/mm ²]	brick type, naming acc. DIN [-] [-]	min. anchorage depth h_{nom} [mm]	min. member thickness h_{min} [mm]	Solid brick masonry and perforated brick masonry		
					permissible load F_{perm} ³⁾⁵⁾ [kN]	min. spacing s_{min} ²⁾ [mm]	min. edge distance c_{min} ²⁾ [mm]
Solid brick Mz							
SXR 8	≥ 20	Mz	50	100	0,71	100	100
SXR 10	≥ 20	Mz	50	100	0,86	100	100
Solid sand-lime brick and solid block KS							
SXR 8	≥ 10	KS	50	100	0,71	100	100
SXR 10	≥ 10	KS	50	100	0,86	100	100
Vertically perforated brick HLz							
SXR 8	≥ 20	HLz	50	100	0,34	100	100
SXR 10	≥ 12	HLz	50	100	0,26	100	100
SXR 10	≥ 20	HLz	50	100	0,71	100	100
Perforated sand-lime brick KSL							
SXR 8	≥ 12	KSL	50	100	0,57	100	100
SXR 10	≥ 12	KSL	50	100	0,57	100	100
Hollow block of lightweight aggregate concrete Hbl							
SXR 8	≥ 10	Hbl	50	100	0,71	100	100
SXR 10	≥ 6	Hbl	50	100	0,71	100	100
SXR 10	≥ 10	Hbl	50	100	0,71	100	100
Solid brick and solid block of lightweight aggregate concrete V							
SXR 8	≥ 2	V	50	100	0,34	100	100
SXR 10	≥ 2	V	50	100	0,21	100	100
Aerated concrete blocks and reinforced panels AAC							
SXR 10	≥ 2	AAC	50	100	0,14 ⁷⁾	200	100
SXR 10	≥ 6	AAC	50	100	0,27	200	100

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a minimum spacing s_{min} according table 11 resp. table 15 of the approval.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance while reducing the permissible load. The combination of the given min. spacing and min. edge distance is not possible. One of them has to be increased according approval.

³⁾ Valid for tensile load, shear load and oblique load under any angle. For combinations of tensile loads, shear loads and bending moments see approval.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according approval have to be taken.

⁵⁾ The given values for hollow or perforated masonry apply for rotary drilling (without impact). The given loads are reference values which may change due to type of brick and manufacturer. If the embedment depth is higher than $h_{nom} = 50$ mm, job site tests have to be carried out.

⁶⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). For long term temperatures up to 30 °C higher permissible loads may be possible.

⁷⁾ Drill hole created by punching.

LOADS

Frame fixing SXR ⁴⁾

Highest permissible loads ^{1) 6)} for a single anchor for multiple fixings of non-structural applications in normal concrete \geq C12/15 resp. \geq B15. For the design the complete approval ETA-07/0121 has to be considered.

Type	Min. anchorage depth h_{nom} [mm]	Min. member thickness h_{min} [mm]	Cracked or Non-cracked concrete			
			Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
			SXR 8	50	100	1,0
SXR 10	50	100	1,8	2,0 ⁵⁾	50	60

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq s_{cr,N}$ and an edge distance $c \geq c_{cr,N}$ according table 8 of the approval.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance for concrete \geq C16/20 while reducing the permissible load. The combination of the given min. spacing and min. edge distance is not possible. One of them has to be increased according approval. Values for concrete C12/15 see approval.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according approval have to be taken.

⁵⁾ The permissible shear load determined acc. ETAG 020, Annex C considers exclusively steel failure of the screw. For SXR 8 it amounts $V_{perm} = 4,2$ kN for galvanised screws and $V_{perm} = 3,4$ kN for screws made of stainless steel. For SXR 10 it amounts $V_{perm} = 6,0$ kN. Due to that the expected displacements will disable the proper function of the fixture a maximum shear load on the basis of table 7 of the approval is recommended.

⁶⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). For long term temperatures up to 30 °C higher permissible loads may be possible.

LOADS

Frame fixing SXR

Highest recommended loads ¹⁾ for a single anchor.

The given loads are valid for wood screws with the specified diameter.

Type			SXR 6
Screw diameter	\emptyset	[mm]	4,5
Min. edge distance in concrete	a_r	[mm]	50
Recommended loads in the respective base material $F_{rec}^{2)}$			
Concrete	\geq C20/25	[kN]	0,25
Solid brick	\geq Mz 12	[kN]	0,20
Solid sand-lime brick	\geq KS 12	[kN]	0,20
Vertically perforated brick	\geq Hlz 12 ($\rho \geq 1,0$ kg/dm ³)	[kN]	0,10
Perforated sand-lime brick	\geq KSL 12	[kN]	0,20

¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

The powerful problem solver with long expansion sleeve



Timber sub-structures



Wall consoles

VERSIONS

- zinc-plated steel
- stainless steel

BUILDING MATERIALS

Approved for:

- Vertically perforated brick
- Aerated concrete
- Hollow blocks made from lightweight concrete
- Perforated sand-lime brick
- Thermal insulation blocks
- Solid block made from lightweight and normal weight concrete
- Solid brick
- Solid sand-lime brick
- Concrete \geq C12/15

Also suitable for:

- Natural stone with dense structure
- Solid panel made from gypsum

ASSESSMENT/APPROVAL



ADVANTAGES

- Through the special geometry of the plug, the retention forces are evenly distributed in the drill hole.
- When the plug is to be set below the plaster, the longer ribs prevent plug rotation during installation.
- The variable anchorage depths of 70 or 90 mm offer special advantages and high loads when anchoring in aerated concrete.
- When anchoring in hollow and solid construction materials, the two expansion zones lead to optimum retention values.
- SXRL 14 is approved for the application under compression load and is thus for example useable for facade substructures that are mounted at a distance without wall brackets.
- The SXRL with effective lengths up to 290 mm provides the right plug for every application.

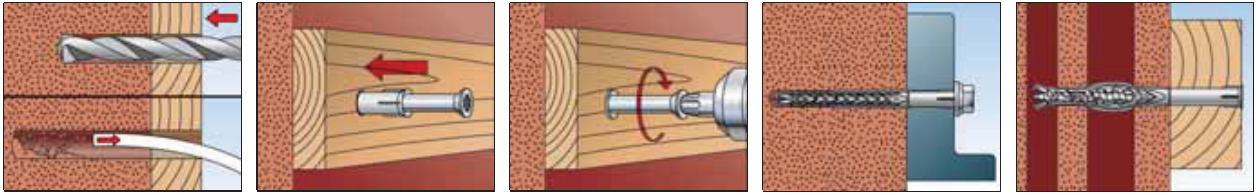
APPLICATIONS

- Façade, ceiling and roof substructures made of wood and metal
- TV consoles
- Kitchen cabinets
- Wardrobes
- Squared timbers
- Windows
- Gates and doors
- Façade substructures under compression load (e.g. distance installation without wall brackets)

FUNCTIONING

- In perforated brick masonry, the two expansion zones ensure that the introduction of force is gentle on the substrate. The porous block fillets are not crushed by the second expansion zone and therefore serve to transmit the force.
- In aircrete and solid building material, the two expansion zones combine to form one long expansion element, thus providing for a uniform and flat distribution of the load into substrate.

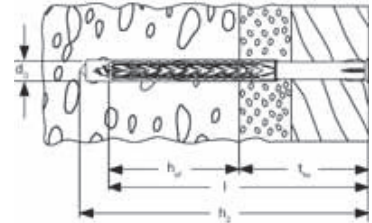
INSTALLATION



TECHNICAL DATA



SXRL-T - with fischer countersunk head safety screw



5 Frame fixings / Stand-off installation

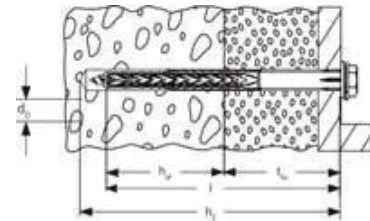
Item	zinc-plated steel	stainless steel	Approval		Drill diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Usable length at anchorage depth 70mm t_{fix} [mm]	Usable length at anchorage depth 90mm t_{fix} [mm]	Anchor length l [mm]	Drive	Sales unit [pcs]
	Art.-No.	Art.-No.	ETA	DIBt							
	gvz	A4									
SXRL 10 x 80 T	522698	522709	■	—	10	90	10	—	80	T40	50
SXRL 10 x 100 T	522699	522710	■	—	10	110	30	10	100	T40	50
SXRL 10 x 120 T	522700	522711	■	—	10	130	50	30	120	T40	50
SXRL 10 x 140 T	522701	522712	■	—	10	150	70	50	140	T40	50
SXRL 10 x 160 T	522703	522713	■	—	10	170	90	70	160	T40	50
SXRL 10 x 180 T	522704	522714	■	—	10	190	110	90	180	T40	50
SXRL 10 x 200 T	522705	522715	■	—	10	210	130	110	200	T40	50
SXRL 10 x 230 T	522706	522716	■	—	10	240	160	140	230	T40	50
SXRL 10 x 260 T	522707 ¹⁾	522717 ¹⁾	■	—	10	270	190	170	260	T40	50
SXRL 10 x 290 T	522708 ¹⁾	522718 ¹⁾	■	—	10	300	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

TECHNICAL DATA



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



Item	zinc-plated steel	stainless steel	Approval		Drill diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Usable length at anchorage depth 70mm t_{fix} [mm]	Usable length at anchorage depth 90mm t_{fix} [mm]	Anchor length l [mm]	Drive	Sales unit [pcs]
	Art.-No.	Art.-No.	ETA	DIBt							
	gvz	A4									
SXRL 10 x 80 FUS	522719	522730	■	—	10	90	10	—	80	T40/SW13	50
SXRL 10 x 100 FUS	522720	522731	■	—	10	110	30	10	100	T40/SW13	50
SXRL 10 x 120 FUS	522721	522732	■	—	10	130	50	30	120	T40/SW13	50
SXRL 10 x 140 FUS	522723	522733	■	—	10	150	70	50	140	T40/SW13	50
SXRL 10 x 160 FUS	522724	522734	■	—	10	170	90	70	160	T40/SW13	50
SXRL 10 x 180 FUS	522725	522735	■	—	10	190	110	90	180	T40/SW13	50
SXRL 10 x 200 FUS	522726	522736	■	—	10	210	130	110	200	T40/SW13	50
SXRL 10 x 230 FUS	522727	522737	■	—	10	240	160	140	230	T40/SW13	50
SXRL 10 x 260 FUS	522728 ¹⁾	522738 ¹⁾	■	—	10	270	190	170	260	T40/SW13	50
SXRL 10 x 290 FUS	522729 ¹⁾	522739 ¹⁾	■	—	10	300	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

ACCESSORIES



Cover cap **ADT**

Item	Art.-No.	Colour	Cap [Ø mm]	Match	Sales unit [pcs]
ADT 15 DB	060329	dark brown	15	Safety screw with integrated bit recess T40	100
ADT 18 W	060334	white	18	Safety screw with integrated bit recess T40	100
ADT 18 DB	060337	dark brown	18	Safety screw with integrated bit recess T40	100

ACCESSORIES



Washer **U** stainless steel A2

Item	Art.-No.	External-Ø	Hole diameter	Thickness	Matching anchor type	Sales unit [pcs]
		d [mm]	D [mm]	S [mm]		
U 11,5 x 21 x 1,5 DIN 522 A2	010026	21	11,5	1,5	SXR 10, SXRL 10, FUR 10, SXS 10	500

LOADS

Frame fixing SXRL 10⁴⁾

Highest permissible loads¹⁾ for a single anchor for multiple fixings of non-structural applications in masonry. For the design the complete approval ETA-07/0121 has to be considered.

Type	compressive brick strength f_b [N/mm ²]	brick type, naming acc. DIN [-] [-]	min. anchorage depth h_{nom} [mm]	min. member thickness h_{min} [mm]	Solid brick masonry and perforated brick masonry		
					permissible load $F_{perm}^{3)5)}$ [kN]	min. spacing $s_{min}^{2)}$ [mm]	min. edge distance $c_{min}^{2)}$ [mm]
Solid brick Mz							
SXRL 10	≥ 20	Mz	70	110	1,14	100	100
SXRL 10	≥ 28	Mz	70	110	1,57	100	100
Solid sand-lime brick and solid block KS							
SXRL 10	≥ 12	KS	70	110	1,86	100	100
Vertically perforated brick HLz							
SXRL 10	≥ 20	HLz	70	110	0,34	100	100
Perforated sand-lime brick KSL							
SXRL 10	≥ 20	KSL	70	110	1,00	100	100
Hollow block of lightweight aggregate concrete Hbl							
SXRL10	≥ 6	Hbl	70	110	0,43 ⁷⁾	100	100
SXRL10	≥ 10	Hbl	70	110	0,71 ⁷⁾	100	100
Solid brick and solid block of lightweight aggregate concrete V							
SXRL 10	≥ 2	V	70	100	0,34	100	100
Aerated concrete blocks and reinforced panels AAC							
SXRL 10	≥ 2	AAC	90	175	0,32	200	100
SXRL 10	≥ 6	AAC	90	175	1,43	200	100

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1,4$ are considered. As a single anchor counts e.g. an anchor with a minimum spacing s_{min} according table 11 resp. table 15 of the approval.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance while reducing the permissible load. The combination of the given min. spacing and min. edge distance is not possible. One of them has to be increased according approval.

³⁾ Valid for tensile load, shear load and oblique load under any angle. For combinations of tensile loads, shear loads and bending moments see approval.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according approval have to be taken.

⁵⁾ The given values for hollow or perforated masonry apply for rotary drilling (without impact). The given loads are reference values which may change due to type of brick and manufacturer. If the embedment depth is higher than $h_{nom} = 70$ mm, job site tests have to be carried out.

⁶⁾ Valid for temperatures in the substrate up to +50°C (resp. short term up to 80°C). For long term temperatures up to 30°C higher permissible loads may be possible. Thickness of outer web min. 35mm and hammer drilling.

LOADS

Frame fixing SXRL 10⁴⁾

Highest permissible loads^{1) 6)} for a single anchor for multiple fixings of non-structural applications in normal concrete $\geq C12/15$ resp. $\geq B15$. For the design the complete approval ETA-07/0121 has to be considered.

Type	Min. anchorage depth h_{nom} [mm]	Min. member thickness h_{min} [mm]	Cracked or Non-cracked concrete			
			Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
SXRL 10	70	110	2,6	2,6 ⁵⁾	50	50

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1,4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq s_{cr,N}$ and an edge distance $c \geq c_{cr,N}$ according table 8 of the approval.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance for concrete $\geq C16/20$ while reducing the permissible load. The combination of the given min. spacing and min. edge distance is not possible. One of them has to be increased according approval. Values for concrete C12/15 see approval.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according approval have to be taken.

⁵⁾ The permissible shear load determined acc. ETAG 020, Annex C considers exclusively steel failure of the screw. It amounts $V_{zul} = 6,0$. Due to that the expected displacements will disable the proper function of the fixture a maximum shear load on the basis of table 7 of the approval is recommended.

⁶⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). For long term temperatures up to 30 °C higher permissible loads may be possible.

LOADS

Frame fixing SXRL 14 ⁴⁾

Highest permissible loads ^{1) 6)} for a single anchor for multiple fixings of non-structural applications in normal concrete \geq C12/15 resp. \geq B15 up to C50/60. For the design the approvals Z-2.1.2-2037 and ETA-14/0297 have to be considered.

Type			cracked or non-cracked concrete			
	min. anchorage depth	min. member thickness	permissible axial load	permissible shear load	min. spacing	min. edge distance
	h_{nom1} [mm]	h_{min} [mm]	N_{perm} ^{3) 8)} [kN]	V_{perm} ³⁾ [kN]	s_{min} ²⁾ [mm]	c_{min} ²⁾ [mm]
SXRL 14	70 ⁷⁾	110	3,4 / 3,4	3,4 ⁵⁾	80	100

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1,4$ are considered. As an single anchor counts an anchor with a spacing $s \geq a$ and an edge distance $c \geq c_{cr,N}$ according ETA-14/0297, table B2.2.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance for non-reinforced concrete \geq C16/20 while reducing the permissible load. Values for concrete C12/15 see ETA-14/0297.

³⁾ For combinations of compression loads resp. tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see ETA-14/0297.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according ETA-14/0297 have to be taken.

⁵⁾ The permissible shear load determined acc. ETAG 020, Annex C considers exclusively steel failure of the screw. It amounts $V_{perm} = 12,4$ kN for galvanised screws and $V_{perm} = 11,6$ kN for screws made of stainless steel. Due to that the expected displacements will disable the proper function of the fixture a maximum shear load on the basis of ETA-14/0297, table C1.4 is recommended.

⁶⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C).

⁷⁾ To reach a higher characteristic bending moment an increased embedment depth $h_{nom2} = 90$ mm is allowed.

⁸⁾ The left value is the permissible tensile load and the right value is the permissible compression load. The permissible tensile loads are given in ETA-14/0297. The permissible compression loads are given in Z-2.1.2-2037.

LOADS

Frame fixing SXRL 14⁴⁾

Highest permissible loads^{1) 6)} for a single anchor for multiple fixings of non-structural applications in masonry. For the design the approvals Z-2.1.2-2037 and ETA-14/0297 have to be considered.

Type	compressive brick strength f_b [N/mm ²]	raw density ρ [kg/dm ³]	min. brick dimensions (L x W x H) [mm]	min. anchorage depth h_{nom} [mm]	min. member thickness h_{min} [mm]	Solid brick masonry and perforated brick masonry		
						permissible load $F_{perm}^{3)}$ [kN]	min. spacing $s_{min}^{2)}$ [mm]	min. edge distance $c_{min}^{2)}$ [mm]
Solid brick Mz acc. DIN 105-100:2012-01, EN 771-1:2011								
SXRL 14	≥ 10	≥ 1,8	NF (240x115x71)	70	115	0,86 / 0,86	100	100
SXRL 14	≥ 10					1,29 / 1,29	100	200
SXRL 14	≥ 20					1,14 / 1,14	100	100
SXRL 14	≥ 20					1,71 / 1,71	100	200
Solid sand-lime brick KS acc. DIN V 106, DIN EN 771-2								
SXRL 14	≥ 10	≥ 1,8	NF (240x115x71)	70	115	0,86 / 0,86	100	100
SXRL 14	≥ 10					1,00 / 1,29	100	200
SXRL 14	≥ 20					1,29 / 1,29	100	100
SXRL 14	≥ 20					1,43 / 1,86	100	200
SXRL 14	≥ 6	≥ 1,8	12DF (495x175x240)	70	175	0,57 / 0,57	100	100
SXRL 14	≥ 6					1,57 / 1,71	100	200
SXRL 14	≥ 8					0,71 / 0,71	100	100
SXRL 14	≥ 8					2,14 / 2,00	100	200
SXRL 14	≥ 12					1,14 / 1,14	100	100
SXRL 14	≥ 12					3,14 / 2,43	100	200
Solid brick of lightweight aggregate concrete V acc. DIN V 18152-100, DIN EN 771-3								
SXRL 14	≥ 2	≥ 1,2	2DF (240x115x113)	70	115	0,26 / 0,26	100	100
SXRL 14	≥ 6	≥ 1,6	250x240x245		240	0,57 / 0,57	100	100
SXRL 14	≥ 6			1,00 / 1,00		100	200	
SXRL 14	≥ 10			1,00 / 1,00		100	100	
SXRL 14	≥ 10			1,71 / 1,71		100	200	
Vertically perforated brick Hlz acc. DIN 105-100:2012-01, DIN EN 771-1:2011								
SXRL 14	≥ 6	≥ 1,0	3DF (240x175x113)	70	175	0,34 / 0,21 ⁵⁾	100	100
SXRL 14	≥ 6			90		0,34 / 0,34 ⁵⁾	100	100
SXRL 14	≥ 12			70		0,57 / 0,43 ⁵⁾	100	100
SXRL 14	≥ 12			90		0,71 / 0,71 ⁵⁾	100	100
Perforated sand-lime brick KSL acc. DIN V 106, DIN EN 771-2								
SXRL 14	≥ 6	≥ 1,4	2 DF (240x115x113)	70	115	0,26 / 0,21	100	100
SXRL 14	≥ 6			90		0,34 / 0,34	100	100
SXRL 14	≥ 12			70		0,43 / 0,60	100	100
SXRL 14	≥ 12			90		0,71 / 0,71	100	100
SXRL 14	≥ 10			9 DF		0,43 / 0,43	100	100
SXRL 14	≥ 20			(380x175x240)		1,00 / 0,71	100	100
Hollow brick of lightweight aggregate concrete Hbl acc. DIN V 18153-100, EN 771-3								
SXRL 14	≥ 0,7	≥ 20	240x500x240 ⁷⁾	70	240	0,34 / 0,26 ⁵⁾	100	100
Aerated concrete blocks acc. DIN V 4165-100:2005-10, EN 771-4 and reinforced wall panels acc. EN 12602, DIN 4223								
SXRL 14	≥ 2	0,35	599x300x249	70	300	0,32 / 0,32	80	80
SXRL 14	≥ 4	0,55		70		0,89 / 0,89	80	100
SXRL 14	≥ 4			90		1,07 / 1,07	80	100
SXRL 14	≥ 6	0,65		70		1,43 / 1,43	80	100
SXRL 14	≥ 6			90		1,79 / 1,79	100	120

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_F = 1,4$ are considered. As an single anchor counts an anchor with a spacing $s \geq s_{min}$ and an edge distance $c \geq c_{min}$ according ETA-14/0297, table B3.1 resp. B3.2.

²⁾ Minimum possible axial spacings (anchor group) resp. edge distance while reducing the permissible load.

³⁾ For combinations of compression loads resp. tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see ETA-14/0297. The left value is the permissible tensile load and the right value is the permissible compression load. The permissible tensile loads are given in the ETA-14/0297. The permissible compression loads are given in Z-2.1.2-2037.

⁴⁾ Valid for zinc coated screws and for screws made of stainless steel. For exterior use of the zinc coated screws measures against incoming humidity according ETA-14/0297 have to be taken.

⁵⁾ The given values for hollow or perforated masonry apply for rotary drilling (without impact). The given loads are reference values which may change due to type of brick and manufacturer.

⁶⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). For long term temperatures up to 30 °C higher permissible loads in solid and hollow bricks may be possible.

⁷⁾ Thickness of outer web 50 mm.