

# Frame fixing SXRL

The versatile with multiple anchorage depth



Timber substructures



Wall consoles

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## Applications

- Façade, ceiling and roof substructures made of wood and metal
- Facade substructures under compression load (e.g. distance installation without a wall bracket)
- Windows
- Gates and doors
- Wardrobes
- Kitchen hanging cabinets
- Squared timbers
- Beams
- TV consoles
- Wall covering
- Metal brackets
- Metal supports
- Cable ducts
- Cable trays

## Advantages

- The long expansion element with multiple anchorage depths of 50, 70 or 90 mm for SXRL 8 and SXRL 10 and 70 or 90 mm for SXRL 14 makes the SXRL a versatile applicable product.
- Through the special geometry of the plug, the loads 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 approval for single-point fixing in cracked concrete makes the SXRL the

designated specialist in concrete particularly for tasks such as the installation of awning roofs and outdoor railings compared to steel anchors.

- 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.
- Complete range available with diameters of 8, 10 and 14 mm and usable lengths up to 290 mm.

## Certificates



ETA-07/0121, multiple use for non-structural applications



Fire resistance classification R90



INOX 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

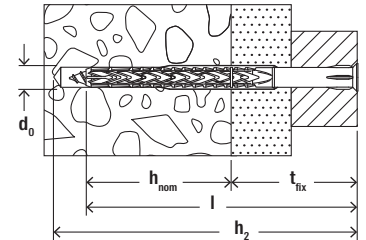
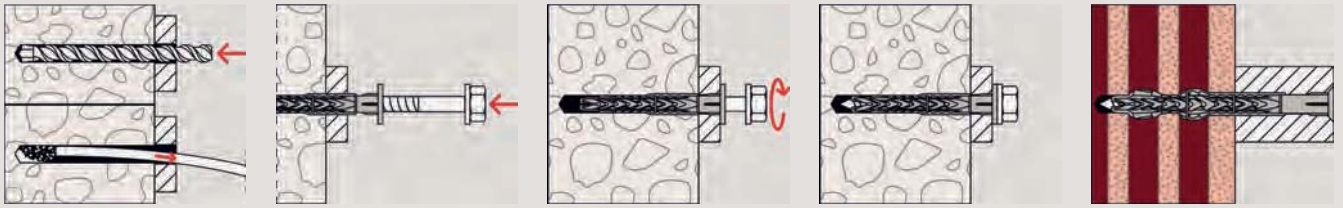
## Functioning

- In hollow building materials, 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 aerated concrete 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.
- SXRL-T with countersunk head screw is recommended for the installation of timber constructions; in the case of metal constructions, use SXRL-FUS with a wide sleeve rim and a moulded washer on the screw, which also features an integrated hexagon socket.

## Versions

- Zinc-plated steel
- Stainless steel

### Installation SXRL



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### Technical data

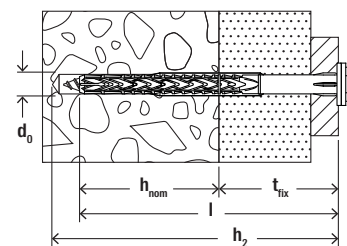
#### Frame fixing SXRL-T



SXRL-T with fischer counter-sunk head safety screw

Item	Zinc-plated steel	Stainless steel	Approval		Drill diameter	Min. drill hole depth for through fixings	Usable length at anchorage depth 50mm	Usable length at anchorage depth 70mm	Usable length at anchorage depth 90mm	Anchor length	Drive	Sales unit
	Item No.	Item No.	ETA	DIBt	d <sub>0</sub> [mm]	h <sub>2</sub> [mm]	t <sub>fix</sub> [mm]	t <sub>fix</sub> [mm]	t <sub>fix</sub> [mm]	l [mm]		[pcs]
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 60 T	546477	546505	●	●	10	70	10	—	—	60	T40	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 <sup>1)</sup>	522717 <sup>1)</sup>	●	●	10	270	210	190	170	260	T40	50
SXRL 10 x 290 T	522708 <sup>1)</sup>	522718 <sup>1)</sup>	●	●	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 <sup>1)</sup>	530941 <sup>1)</sup>	●	●	14	315	—	230	210	300	T50	20
SXRL 14 x 330 T	530930 <sup>1)</sup>	530942 <sup>1)</sup>	●	●	14	345	—	260	240	330	T50	20
SXRL 14 x 360 T	530931 <sup>1)</sup>	530943 <sup>1)</sup>	●	●	14	375	—	290	270	360	T50	20

1) not pre-assembled



## Technical data

### Frame fixing SXRL-FUS



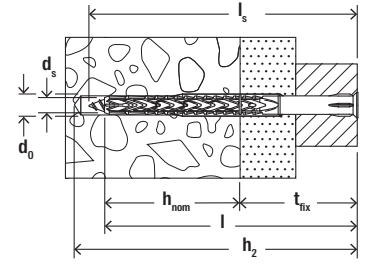
SXRL-FUS with fischer hexagon head safety screw, moulded washer and integrated bit recess

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Item	Zinc-plated steel	Stainless steel	Approval		Drill diameter	Min. drill hole depth for through fixings	Usable length at anchorage depth 50mm	Usable length at anchorage depth 70mm	Usable length at anchorage depth 90mm	Anchor length	Drive	Sales unit
	Item No.	Item No.	ETA	DIBt	$d_0$ [mm]	$h_2$ [mm]	$t_{fix}$ [mm]	$t_{fix}$ [mm]	$t_{fix}$ [mm]	$l$ [mm]		[pcs]
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 60 FUS	546506	546507	●	●	10	70	10	—	—	60	T40/SW13	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 <sup>1)</sup>	522738 <sup>1)</sup>	●	●	10	270	210	190	170	260	T40/SW13	50
SXRL 10 x 290 FUS	522729 <sup>1)</sup>	522739 <sup>1)</sup>	●	●	10	300	240	220	200	290	T40/SW13	50
SXRL 14 x 80 FUS	530946	—	●	●	14	95	—	10	—	80	T50/SW17	50
SXRL 14 x 80 FUS	—	530955 <sup>2)</sup>	●	●	14	95	—	10	—	80	SW17	50
SXRL 14 x 100 FUS	530947	—	●	●	14	115	—	30	10	100	T50/SW17	50
SXRL 14 x 100 FUS	—	530956 <sup>2)</sup>	●	●	14	115	—	30	10	100	SW17	50
SXRL 14 x 120 FUS	530948	—	●	●	14	135	—	50	30	120	T50/SW17	50
SXRL 14 x 120 FUS	—	530957 <sup>2)</sup>	●	●	14	135	—	50	30	120	SW17	50
SXRL 14 x 140 FUS	530949	—	●	●	14	155	—	70	50	140	T50/SW17	50
SXRL 14 x 140 FUS	—	530958 <sup>2)</sup>	●	●	14	155	—	70	50	140	SW17	50
SXRL 14 x 160 FUS	530950	—	●	●	14	175	—	90	70	160	T50/SW17	50
SXRL 14 x 160 FUS	—	530959 <sup>2)</sup>	●	●	14	175	—	90	70	160	SW17	50
SXRL 14 x 180 FUS	530951	—	●	●	14	195	—	110	90	180	T50/SW17	50
SXRL 14 x 180 FUS	—	530960 <sup>2)</sup>	●	●	14	195	—	110	90	180	SW17	50
SXRL 14 x 200 FUS	530952	—	●	●	14	215	—	130	110	200	T50/SW17	50
SXRL 14 x 200 FUS	—	530961 <sup>2)</sup>	●	●	14	215	—	130	110	200	SW17	50
SXRL 14 x 230 FUS	530953	—	●	●	14	245	—	160	140	230	T50/SW17	50
SXRL 14 x 230 FUS	—	530962 <sup>2)</sup>	●	●	14	245	—	160	140	230	SW17	50
SXRL 14 x 260 FUS	530954	—	●	●	14	275	—	190	170	260	T50/SW17	50
SXRL 14 x 260 FUS	—	530963 <sup>2)</sup>	●	●	14	275	—	190	170	260	SW17	50

1) not pre-assembled

2) without integrated bit recess T50



### Technical data

#### Frame fixing SXRL



SXRL without screw

Item	Item No.	Drill diameter $d_0$ [mm]	Min. drill hole depth for through fixings $h_2$ [mm]	Usable length at anchorage depth 50mm $t_{fix}$ [mm]	Usable length at anchorage depth 70mm $t_{fix}$ [mm]	Usable length at anchorage depth 90mm $t_{fix}$ [mm]	Anchor length $l$ [mm]	Screw diameter $d_s$ [mm]	Min. screw length $l_s$ [mm]	Sales unit [pcs]
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

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### Accessories

#### Washer U



U

Item	Item No.	External-Ø $d$ [mm]	Hole-Ø $D$ [mm]	Thickness $S$ [mm]	Matching anchor type	Sales unit [pcs]
U 11,5 x 21 x 1,5 DIN 522 A2	010026	21	11.5	1.5	SXR 10, SXRL 10, FUR 10	500

## Loads

### Frame fixing SXRL 10

Permissible loads of a single anchor<sup>1)</sup> in normal concrete of strength class C20/25.  
For the design the complete current general construction technique permit Z-21.2-2092 has to be considered.

Type	Material/ surface <sup>2)</sup>	Nominal anchorage depth $h_{nom}$ [mm]	Cracked concrete					Non-cracked concrete				
			Minimum member thickness $h_{min}$ [mm]	Permissible tension ( $N_{perm}$ ) and shear loads ( $V_{perm}$ ); minimum spacing ( $s_{min}$ ) and edge distances ( $c_{min}$ ) with reduced loads		$s_{min}^{3)}$ [mm]	$c_{min}^{3)}$ [mm]	Minimum member thickness $h_{min}$ [mm]	Permissible tension ( $N_{perm}$ ) and shear loads ( $V_{perm}$ ); minimum spacing ( $s_{min}$ ) and edge distances ( $c_{min}$ ) with reduced loads			
$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{3)}$ [mm]	$c_{min}^{3)}$ [mm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]				$s_{min}^{3)}$ [mm]	$c_{min}^{3)}$ [mm]		
SXRL 10	gvz	70	100	1.5	3.6	50	50	110	2.6	6.0	80	80
	R	70	100	1.5	3.6	50	50	110	2.6	6.0	80	80

<sup>1)</sup> Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance well as a partial safety factor for load actions of  $\gamma_L = 1.4$  are considered. As a single anchor counts e.g. an anchor with a spacing  $s \geq 3 \times h_{ef}$  and an edge distance  $c \geq 1.5 \times h_{ef}$ . Accurate data see approval.

<sup>2)</sup> Further steel grades, versions and technical data see current general construction technique permit.

<sup>3)</sup> In the case of combinations of tensile and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete approval and the provisions of the EN 1992-4:2018. The given loads are valid for temperature range II. We recommend using our anchor design software C-FIX.

## Loads

### Frame fixing SXRL 8

Recommended loads<sup>1)2)3)</sup> for a single anchor as part of a multiple fixing of non-structural systems.  
The given loads are valid for wood screws with the specified diameter.

Type		SXRL 8			
Screw diameter	[mm]	6.0	6.0	6.0	
Anchorage depth	$h_{nom}$ [mm]	50	70	90	
Minimum edge distance concrete	$c_{min}$ [mm]	60	80	100	
Recommended loads in the respective base material $F_{rec}^{2)}$					
Concrete	$\geq$ C20/25	[kN]	0.60	1.00	1.00
Solid brick	$\geq$ Mz 12	[kN]	0.45	0.60	0.60
Solid sand-lime brick	$\geq$ KS 12	[kN]	0.40	0.50	0.50
Vertically perforated brick	$\geq$ Hlz 12; $\rho \geq 1.0$ [kg/dm <sup>3</sup> ]	[kN]	0.15	0.15	0.15
Perforated sand-lime brick	$\geq$ KSL 12	[kN]	0.10	0.40	0.40
Aerated concrete	AAC 2	[kN]	–	0.10	0.10
Aerated concrete	AAC 4	[kN]	–	0.15	0.20

<sup>1)</sup> Required safety factors are considered.

<sup>2)</sup> Valid for tensile load, shear load and oblique load under any angle.

<sup>3)</sup> Valid for zinc coated screws (gvz) and for screws made of stainless steel (R).

For exterior use of the zinc coated screws measures against incoming humidity have to be taken.

Loads

Frame fixing SXRL

Permissible loads<sup>1)2)3)</sup> of a single anchor as part of a multiple fixing of non-structural systems. For the design the complete current assessment ETA-07/0121 has to be considered.

Type		SXRL 8			SXRL 10			SXRL 14		
Anchor diameter	[mm]	8	8	8	10	10	10	14	14	
Anchorage depth	$h_{nom}$	[mm]	50	70	90	50	70	90	70	90
Anchorage in concrete $\geq$ C12/15										
Permissible tensile load $N_{perm}$		[kN]	1.59	1.98	1.98	2.18	2.58	2.58	3.37	3.37
Permissible shear load $V_{perm}$	zinc coated screws (gvz)	[kN]	4.23	4.23	4.23	5.98	5.98	5.98	12.40	12.40
	stainless steel screw (R)	[kN]	3.93	3.93	3.93	5.98	5.98	5.98	11.63	11.63
Minimum member thickness	$h_{min}$	[mm]	80	100	120	100	100	120	110	130
Characteristic edge distance	$c_{cr,N}$	[mm]	85	85	85	140	140	140	140	140
Characteristic spacing	$a$ resp. $s_{cr,N}$	[mm]	90	105	105	120	120	120	135	135
Minimum spacing	$s_{min}$	[mm]	85	85	85	70	70	70	85	85
with an edge distance	$c \geq$	[mm]	85	85	85	140	140	140	140	140
Minimum edge distance	$c_{min}$	[mm]	85	85	85	70	70	70	85	85
with a spacing	$s \geq$	[mm]	85	85	85	175	175	175	175	175
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 $N_{perm}$		[kN]	-	-	-	0.99	-	-	-	-
Permissible shear load $V_{perm}$		[kN]	-	-	-	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 $N_{perm}$		[kN]	-	-	-	1.39	-	-	-	-
Permissible shear load $V_{perm}$		[kN]	-	-	-	5.98	-	-	-	-
Anchorage in masonry										
Permissible load <sup>4)</sup> $F_{perm}$ in solid brick	$\geq Mz$ 12/1.8; $\geq NF$	[kN]	0.57	0.71	0.71	0.57	1.14	-	0.86	0.86
	$\geq Mz$ 20/1.8; $\geq NF$	[kN]	0.86	1.14	1.14	1.00	1.14	-	1.14	1.14
Permissible load <sup>4)</sup> $F_{perm}$ in solid sand-lime brick	$\geq KS$ 10/1.8; $\geq NF$	[kN]	0.57	0.57	0.57	-	0.71	-	0.86	0.86
	$\geq KS$ 20/1.8; $\geq NF$	[kN]	0.71	0.86	0.86	-	1.00	-	1.29	1.29
Permissible load <sup>4)</sup> $F_{perm}$ in lightweight concrete block	$\geq Vbl$ 2; $\rho \geq 1.2$ kg/dm <sup>3</sup>	[kN]	0.11	0.26	0.26	0.11	0.11	-	0.26	0.26
	$\geq Vbl$ 6; $\rho \geq 1.6$ kg/dm <sup>3</sup>	[kN]	0.34	0.57	0.57	0.57	1.29	-	0.57	0.57
Permissible load <sup>4)5)</sup> $F_{perm}$ in vertically perforated brick	$\geq HLz$ 10; $\rho \geq 1.2$ kg/dm <sup>3</sup>	[kN]	0.17	0.17	0.17	-	-	-	-	-
	$\geq HLz$ 12; $\rho \geq 1.0$ kg/dm <sup>3</sup>	[kN]	-	-	-	-	0.21	-	0.57	0.71
Permissible load <sup>4)</sup> $F_{perm}$ in perforated sand-lime brick	$\geq KSL$ 12; $\rho \geq 1.4$ kg/dm <sup>3</sup>	[kN]	0.34	0.43	0.43	-	0.71	-	0.43	0.71
	$\geq Hbl$ 2; $\rho \geq 0.7$ kg/dm <sup>3</sup>	[kN]	0.43	0.57	0.43	0.57	0.71	-	0.34	0.21
Permissible load <sup>4)5)</sup> $F_{perm}$ in hollow lightweight concrete blocks		[kN]	-	-	-	-	0.57	-	-	-
Permissible load <sup>4)5)</sup> $F_{perm}$ in ceilings made of vertically perforated bricks	$f_b \geq 10$ N/mm <sup>2</sup> ; $\rho \geq 0.7$ kg/dm <sup>3</sup>	[kN]	-	-	-	-	0.57	-	-	-
Minimum member thickness	$h_{min}$	[mm]	115	115	115	110	110	110	115	115
Minimum spacing (single anchor)	$a_{min}$	[mm]	250	250	250	250	250	250	250	250
Minimum spacing (anchor group)	$s_{min}$	[mm]	100	100	100	100	100	100	100	100
Minimum edge distance (anchor group)	$c_{min}$	[mm]	100	100	100	100	100	100	100	100
Anchorage in aerated concrete										
Permissible load <sup>4)</sup> $F_{zul}$ in aerated concrete	AAC $\geq 2$ N/mm <sup>2</sup>	[kN]	-	0.14	0.21	-	0.18	0.21	0.32	0.43
	AAC $\geq 4$ N/mm <sup>2</sup>	[kN]	-	0.32	0.43	-	0.43	0.54	0.89	1.07
	AAC $\geq 6$ N/mm <sup>2</sup>	[kN]	-	0.54	0.71	-	0.71	0.89	1.43	1.79
Minimum member thickness	$h_{min}$	[mm]	-	175	175	-	100	120	175 <sup>6)</sup> /300 <sup>7)</sup>	175 <sup>6)</sup> /300 <sup>7)</sup>
Minimum spacing (single anchor)	$a_{min}$	[mm]	-	250	250	-	250	250	250	250
Minimum spacing (anchor group)	$s_{min}$	[mm]	-	80 <sup>6)</sup> /110 <sup>8)</sup>	80 <sup>6)</sup> /110 <sup>8)</sup>	-	100 <sup>6)</sup> /120 <sup>8)</sup>	100 <sup>6)</sup> /120 <sup>8)</sup>	80	100 <sup>6)</sup> /125 <sup>7)</sup>
Minimum edge distance (anchor group)	$c_{min}$	[mm]	-	90 <sup>6)</sup> /110 <sup>8)</sup>	90 <sup>6)</sup> /110 <sup>8)</sup>	-	120	120	120	120 <sup>6)</sup> /150 <sup>7)</sup>

<sup>1)</sup> Valid for zinc coated screws (gvz) and for screws made of stainless steel (R). For exterior use of the zinc coated screws measures against incoming humidity according to assessment have to be taken.

<sup>2)</sup> 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  $a$  according to Annex B 4 of the assessment.

<sup>3)</sup> 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.

<sup>4)</sup> Valid for tensile load, shear load and oblique load under any angle. For combinations of tensile loads, shear loads and bending moments see assessment.

<sup>5)</sup> Rotary drilling.

<sup>6)</sup> Only valid for AAC with compression strength  $\geq 2$  to  $< 4$  N/mm<sup>2</sup>.

<sup>7)</sup> Only valid for AAC with compression strength  $\geq 4$  N/mm<sup>2</sup>.

<sup>8)</sup> Only valid for AAC with compression strength  $\geq 6$  N/mm<sup>2</sup>.