DECLARATION OF PERFORMANCE

DoP: 0152

for fischer frame fixing SXR/SXRL (Plastic anchors for use in concrete and masonry) – **EN**

1. Unique identification code of the product-type: **DoP: 0152**

2. Intended use/es: **For use in systems, such as façade systems, for fixing or supporting elements which contribute to the stability of the systems, see appendix, especially Annexes B 1 to B 12**

3. Manufacturer: **fischerwerke GmbH & Co. KG, Klaus-Fischer-Straße 1, 72178 Waldachtal, Germany**

4. Authorised representative: **--**

5. System/s of AVCP: **2+**

6. European Assessment Document: **EAD 330284-00-0604**

   European Technical Assessment: **ETA-07/0121; 2018-12-13**

   Technical Assessment Body: **DIBt**

   Notified body/ies: **1343 – MPA Darmstadt**

7. Declared performance/s:

Mechanical resistance and stability (BWR 1)

- **Resistance to steel failure under tension loading: See appendix, especially Annex C 1**
- **Resistance to steel or polymer failure under shear loading: See appendix, especially Annex C 1**
- **Resistance to pull-out or concrete failure or polymer failure under tension loading (base material group a): See appendix, especially Annexes C 1**
- **Resistance in any load direction without lever arm (base material group b, c and d): See appendix, especially Annexes C 3 to C 20**
- **Edge distance and spacing (base material group a): See appendix, especially Annex B 3**
- **Edge distance and spacing (base material group b, c and d): See appendix, especially Annex B 4**
- **Displacements under short-term and long-term loading: See appendix, especially Annex C 2**

Safety in case of fire (BWR 2)

- **Reaction to fire: Anchorages satisfy requirements for Class A 1**
- **Resistance to fire: See appendix, especially Annex C 2**

8. Appropriate Technical Documentation and/or Specific Technical Documentation: ---

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Andreas Bucher, Dipl.-Ing.

Wolfgang Hengesbach, Dipl.-Ing., Dipl.-Wirtsch.-Ing.

Tumlingen, 2018-12-20

- This DoP has been prepared in different languages. In case there is a dispute on the interpretation the english version shall always prevail.
- The Appendix includes voluntary and complementary information in English language exceeding the (language-neutrally specified) legal requirements.

Specific Part

1 Technical description of the product

The fischer frame fixing in the range SXR 8, SXRL 8, SXR 10, SXRL 10 and SXRL 14 is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel, of galvanised steel with an additional Duplex-coating or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchors of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Resistance to steel failure under tension loading	See Annex C 1
Resistance to steel or polymer failure under shear loading	See Annex C 1
Resistance to pull-out or concrete failure or polymer failure under tension loading (base material group a)	See Annex C 1
Resistance in any load direction without lever arm (base material group b, c and d)	See Annexes C 3 - C 20
Edge distance and spacing (base material group a)	See Annex B 3
Edge distance and spacing (base material group b, c and d)	See Annex B 4
Displacements under short-term and long-term loading	See Annex C 2

3.2 Safety in case of fire (BWR 2)

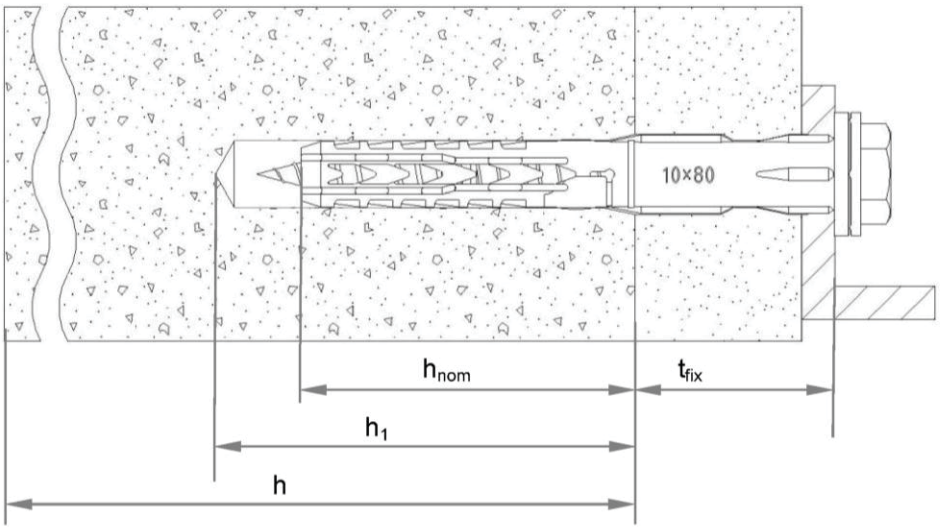
Essential characteristic	Performance
Reaction to fire	Class A 1
Resistance to fire	See Annex C 2

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

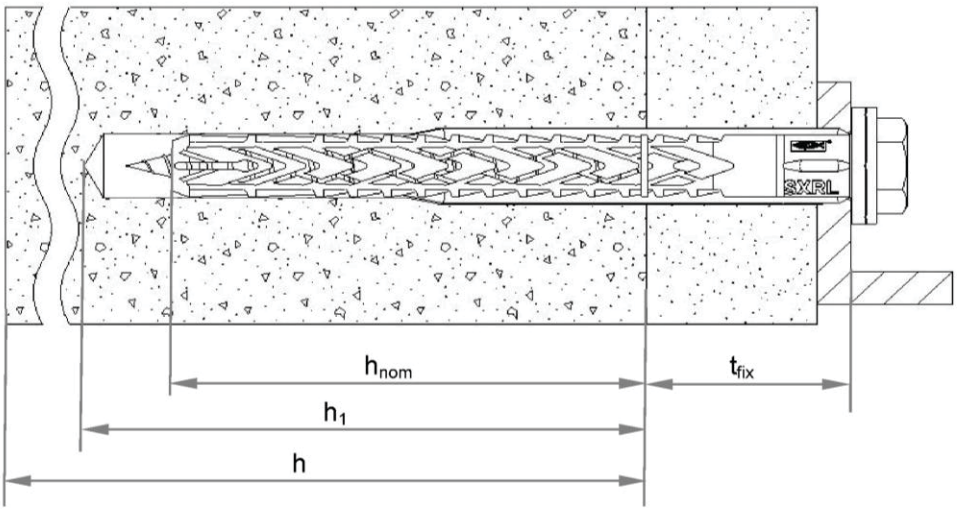
In accordance with the European Assessment Document EAD 330284-00-0604 the applicable European legal act is: 97/463/EC.

The system to be applied is: 2+

SXR



SXRL (e.g. with h_{nom2})



Legend

h_{nom} = overall plastic anchor embedment depth in the base material

h_1 = depth of drill hole to deepest point

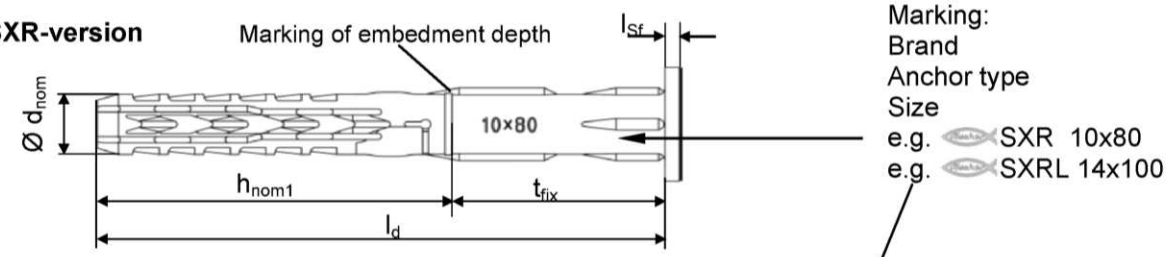
h = thickness of member (wall)

t_{fix} = thickness of fixture and / or non-load bearing layer

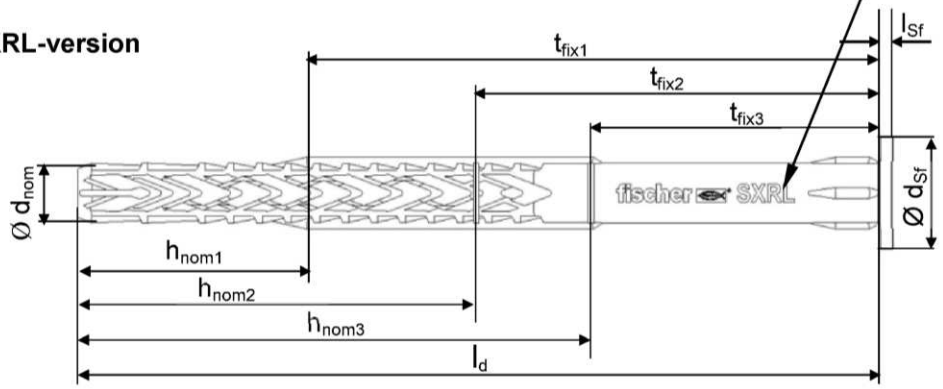
fischer frame fixing SXR / SXRL	**Annex A 1**
Product description Installed anchor	

Anchor sleeves – flat collar versions of SXR and SXRL

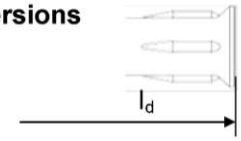
SXR-version



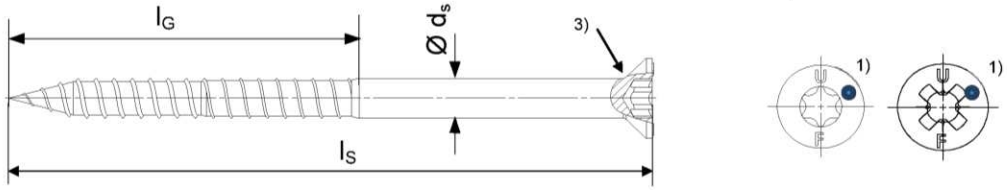
SXRL-version



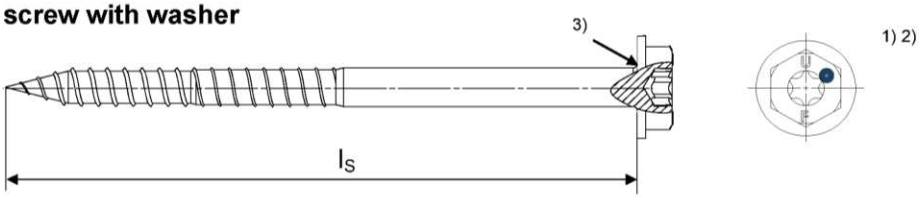
Countersunk sleeve version also available for both versions



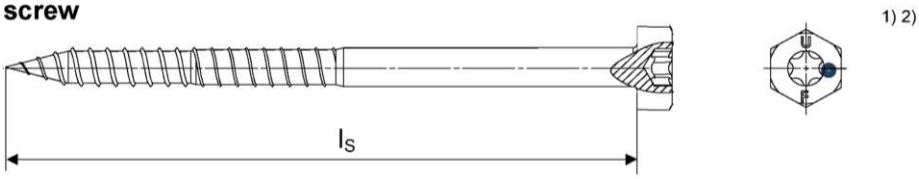
Countersunk screws



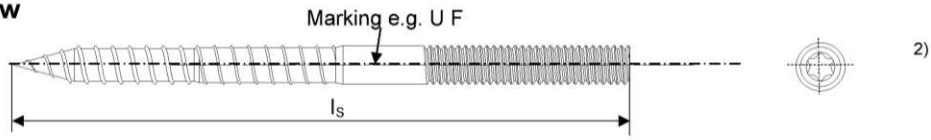
Hexagonal screw with washer



Hexagonal screw



Stud screw



1) Additional marking for the special screw, stainless steel version: „e.g. A4“.
2) Internal driving feature for Torx bit is optional for hexagonal head and for stud screw
3) Optional additional version with underhead ribs

fischer frame fixing SXR / SXRL	**Annex A 2**
Product description Anchor types / special screws	

Table A3.1: Dimensions

Anchor type	Anchor sleeve									Special screw		
	h_{nom1} [mm]	h_{nom2} [mm]	h_{nom3} [mm]	Ø d_{nom} [mm]	t_{fix} [mm]	min. l_d [mm]	max. l_d [mm]	l_{Sf} [1] [mm]	Ø d_{Sf} [mm]	Ø d_s [mm]	l_G [mm]	l_s [mm]
SXR 8	**50**	**-**	**-**	**8**	**≥ 1**	**51**	**360**	**1,8**	**> 15,0**	**6,0**	**≥ 55**	**≥ l_d + 6**
SXRL 8	**50**	**70**	**90**	**8**	**≥ 1**	**51**	**360**	**1,8**	**> 15,0**	**6,0**	**≥ 55**	**≥ l_d + 6**
SXR 10	**50**	**-**	**-**	**10**	**≥ 1**	**51**	**360**	**2,2**	**> 18,5**	**7,0**	**≥ 57**	**≥ l_d + 7**
SXRL 10	**50** [2]	**70**	**90**	**10**	**≥ 1**	**51**	**360**	**2,2**	**> 18,5**	**7,0**	**≥ 57**	**≥ l_d + 7**
SXRL 14	**-**	**70**	**90**	**14**	**≥ 1**	**71**	**600**	**3,1**	**> 24,0**	**9,6**	**≥ 63**	**≥ l_d + 10**

[1] Only valid for flat collar version

[2] Marking optional

Table A3.2: Materials

Name	Material
Anchor sleeve	Polyamide, PA6, colour grey
Special screw	- Steel gvz A2G or A2F acc. to EN ISO 4042:2001 **or** - Steel gvz A2G or A2F acc. to EN ISO 4042:2001+ Duplex-coating type Delta-Seal in three layers (total layer thickness ≥ 6 µm) **or** - Stainless steel acc. to EN 10 088-3:2014, e.g. 1.4301, 1.4567 (A2) **or** - Stainless steel acc. to EN 10 088-3:2014, e.g. 1.4401, 1.4571, 1.4578, 1.4362 (A4)

Specifications of intended use

Anchorages subject to:
- Static and quasi-static loads.

Base materials:
- Reinforced or unreinforced normal weight concrete with strength classes ≥ C12/15 (use category “a”), in accordance with EN 206:2013.
- Thin-walled concrete components (e.g. weather shells) ≥ 40 mm thickness.
- Solid brick masonry (use category “b”), in accordance with to Annex C3 – C7.
  Note: The characteristic resistance is also valid for larger brick sizes and higher compressive strength of the masonry unit.
- Hollow brick masonry (use category “c”), in accordance with to Annex B6 – B12 and C7 – C19.
- Autoclaved aerated concrete (use category “d”), in accordance with Annex C20.
- Mortar strength class of the masonry ≥ M2,5 in accordance with EN 998-2:2010.
- For other comparable base materials of the base material group “a”, “b”, “c” and “d” the characteristic resistance of the anchor may be determined by job site tests in accordance with TR 051:2018-04.

Temperature Range:
SXR 8 and 10 and SXRL 8
- c: - 40 °C to 50 °C (max. short term temperature + 50 °C and max long term temperature + 30 °C)
- b: - 40 °C to 80 °C (max. short term temperature + 80 °C and max long term temperature + 50 °C)

SXRL 10 and 14
- c: - 20 °C to 50 °C (max. short term temperature + 50 °C and max long term temperature + 30 °C)
- b: - 20 °C to 80 °C (max. short term temperature + 80 °C and max long term temperature + 50 °C)

Use conditions (Environmental conditions):
- Structures subject to dry internal conditions: Special screw made of zinc coated steel, stainless steel A2 or A4.
- The specific screw made of galvanised steel or galvanised steel with an additional Duplex-coating may also be used in structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e.g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist: Special screw made of stainless steel A4.
  Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:
- The anchorages are to be designed in accordance with TR 064:2018-05 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.
- Fasteners are only to be used for multiple use for non-structural application, in accordance with TR 064:2018-05.

Installation:
- Hole drilling by the drilling method in accordance with Annex C3 – C20 for use categories “b”, “c” and “d”.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation temperature from SXR 8/10, SXRL 8 and SXRL 14: - 5 °C to + 40 °C
  SXRL 10: - 20 °C to + 40 °C
- Exposure to UV due to solar radiation of the not protected anchor ≤ 6 weeks.
- No ingress of water in the borehole at temperatures < 0 °C

fischer frame fixing SXR / SXRL	**Anhang B 1**
Intended use Specifications	

Table B2.1: Installation parameters

Anchor type				SXR 8	SXRL 8	SXR 10	SXRL 10	SXRL 14
Drill hole diameter	d_0	=	[mm]	8	8	10	10	14
Cutting diameter of drill bit	d_{cut}	≤	[mm]	8,45	8,45	10,45	10,45	14,45
Overall plastic anchor embedment depth in the base material [1) 2)]	h_{nom1}	≥	[mm]	50	50	50	50	-
	h_{nom2}	≥	[mm]	-	70	-	70	70
	h_{nom3}	≥	[mm]	-	90	-	90	90
Depth of drill hole to deepest point [1)]	$h_{1,1}$	≥	[mm]	60	60	60	60	-
	$h_{1,2}$	≥	[mm]	-	80	-	80	85
	$h_{1,3}$	≥	[mm]	-	100	-	100	105
Diameter of clearance hole in the fixture	d_f	≤	[mm]	8,5	9,5	10,5/12,5[3)]	10,5/12,5[3)]	15,4

1) See Annex A1.

2) For hollow and perforated masonry: If the embedment depth is higher than h_{nom} given in the Table B2.1, job site tests have to be carried out in accordance with TR 051:2018-04.

3) See Table C2.1.

Table B2.2: Assignment of h_{nom}, l_d and t_{fix} for use in thin concrete slabs (e.g. weather resistant shells of external wall panels) and pre-stressed concrete core slabs

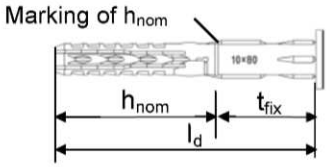
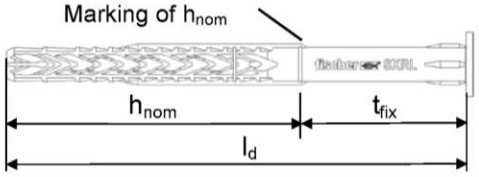
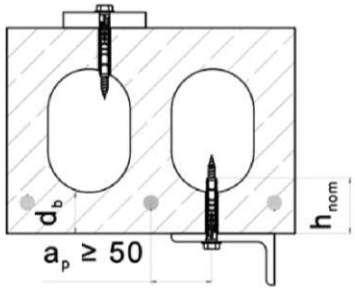
Anchor type	SXR 10 / SXRL 10			
Use category "a"	l_d		h_{nom} ≥ 50 mm	
	SXR	SXRL	$t_{fix,\,min}$	$t_{fix,\,max}$
Marking of h_{nom} 	52	-	1	2
	60	60	1	10
	80	80	21	30
	100	100	41	50
	120	120	61	70
	140	140	81	90
	160	160	101	110
	180	180	121	130
	200	200	141	150
	230	230	171	180
	260	260	201	210
Marking of h_{nom} 	-	290	231	240
	[mm]			

Table B2.3: Installation parameters for use in pre-stressed hollow concrete core slabs

Anchor type	SXRL 10				
	Mirror thickness	d_b	≥	[mm]	30
	Overall plastic anchor embedment depth in the base material	h_{nom}		[mm]	50 to 59

fischer frame fixing SXR / SXRL

Intended use
Installation parameters, parameters for use in thin skins (weather resistant concrete skins of external wall panels) and pre-stressed hollow concrete core slabs

Anhang B 2

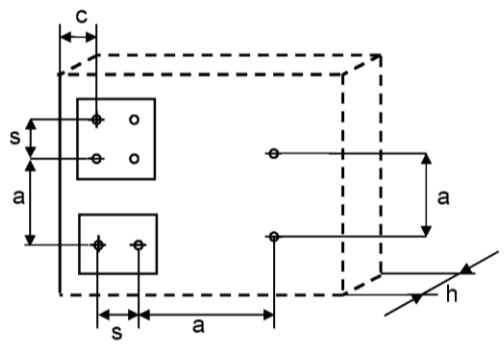
Table B3.1: Minimum thickness of member, edge distance and spacing in concrete

Anchor Type	h_{nom} ≥ [mm]	Concrete Strength class	Min. thickness of member h_{min} [mm]	Characteristic edge distance c_{cr} [mm]	Characteristic spacing s_{cr} [mm]	Min. spacing and edge distances [1] [mm]
SXR 8	50	≥ C16/20	100	50	65	s_{min} = 50 for c ≥ 50 c_{min} = 50 for s ≥ 50
		C12/15		70	70	s_{min} = 70 for c ≥ 70 c_{min} = 70 for s ≥ 70
SXRL 8	50	≥ C16/20	80	60	75	s_{min} = 60 for c ≥ 60 c_{min} = 60 for s ≥ 60
		C12/15		85	90	s_{min} = 85 for c ≥ 85 c_{min} = 85 for s ≥ 85
	70	≥ C16/20	100	60	90	s_{min} = 60 for c ≥ 60 c_{min} = 60 for s ≥ 60
		C12/15		85	105	s_{min} = 85 for c ≥ 85 c_{min} = 85 for s ≥ 85
SXR 10	50	≥ C16/20	100[4]	100	90	s_{min} = 50 for c ≥ 150 c_{min} = 60 for s ≥ 70
		C12/15		140	100	s_{min} = 70 for c ≥ 210 c_{min} = 85 for s ≥ 100
SXRL 10	50	≥ C16/20	100[4]	100	105	s_{min} = 50 for c ≥ 100 c_{min} = 50 for s ≥ 125
		C12/15		140	120	s_{min} = 70 for c ≥ 140 c_{min} = 70 for s ≥ 175
	70[2]	≥ C16/20		100	105	s_{min} = 50 for c ≥ 100 c_{min} = 50 for s ≥ 125
		C12/15		140	120	s_{min} = 70 for c ≥ 140 c_{min} = 70 for s ≥ 175
SXRL 14	70[3]	≥ C16/20	110	100	120	s_{min} = 60 for c ≥ 100 c_{min} = 60 for s ≥ 125
		C12/15		140	135	s_{min} = 85 for c ≥ 140 c_{min} = 85 for s ≥ 175

1) Intermediate values by linear interpolation.
2) Values valid for reinforced concrete.
Please note: Values for non-reinforced concrete are h_{min} = 110 mm and c_{min} = s_{min} = 80 mm for concrete ≥ C16/20 and c_{min} = s_{min} = 110mm for C12/15.
3) Please note: Values for non-reinforced concrete are h_{min} = 110 mm and c_{min} = 100 and s_{min} = 80 mm for concrete ≥ C16/20 and c_{min} = 140 and s_{min} = 110 mm for C12/15.
4) Also valid for thin concrete slabs h ≥ 40 mm, h_{nom} = 50 mm to 59 mm

Fixing points with a spacing a ≤ s_{cr} are considered as a group with a max. characteristic resistance $N_{Rk,p}$ acc. to Table C1.3. For a spacing a > s_{cr} the anchors are considered as single anchors, each with a characteristic resistance $N_{Rk,p}$ acc. to Table C1.3.

Scheme of distance and spacing in concrete



fischer frame fixing SXR / SXRL

Intended use
Edge distances and spacings for use in concrete

Anhang B 3

Table B4.1: Minimum thickness of member, edge distance and spacing in masonry

Anchor type			SXR 8	SXRL 8	SXR 10	SXRL 10	SXRL 14
Minimum thickness of member	h_{min}	[mm]	100	115	100	110	115
Single anchor							
Minimum spacing	a_{min}	[mm]	250	250	250	250	250
Minimum edge distance	c_{min}	[mm]	100	100	100	100	100
Anchor group							
Minimum spacing perpendicular to free edge	$s_{1,min}$	[mm]	100	100	100	100	100
Minimum spacing parallel to free edge	$s_{2,min}$	[mm]	100	100	100	100	100
Minimum edge distance	c_{min}	[mm]	100	100	100	100	100
Distance between anchor groups and / or single anchors	a	[mm]	250				

Scheme of distance and spacing in masonry and aerated concrete AAC

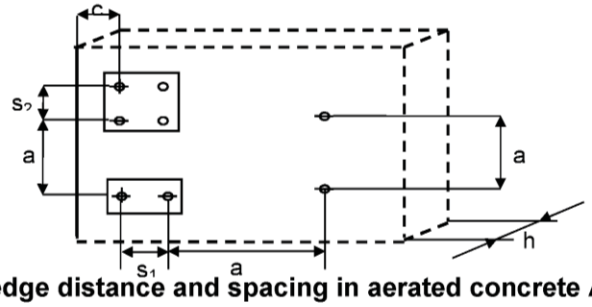


Table B4.2: Minimum thickness of member, edge distance and spacing in aerated concrete AAC

Anchor type			SXRL 8		SXR 10	SXRL 10		SXRL 14			
Compressive strength	f_b	[N/mm²]	≥ 2 to < 6	≥ 6	≥ 2	≥ 2		≥ 2 to < 4		≥ 4	
Nominal embedment depth	h_{nom} ≥	[mm]	70 and 90		50	70	90	70	90	70	90
Minimum thickness of member	h_{min}	[mm]	175		100	100	120	175		300	
Single anchor											
Minimum spacing	a_{min}	[mm]	250	250	250	250		250			
Minimum edge distance	c_{min}	[mm]	60	80	100	120		80		100	120
Anchor group											
Minimum spacing perpendicular to free edge	$s_{1,min}$	[mm]	80	110	200	100 / 120[1)]		80		80	100
Minimum spacing parallel to free edge	$s_{2,min}$	[mm]	80	110	400	100 / 120[1)]		80	100	80	125
Minimum edge distance	c_{min}	[mm]	90	110	100	120		120		120	150
Distance between anchor groups and / or single anchors	a	[mm]	250[2)]								

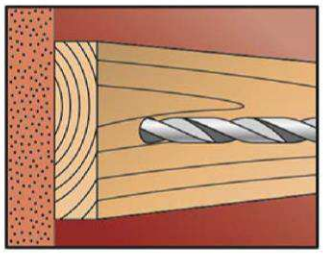
1) Valid for AAC ≥ 600 kg/m³
2) For SXR 10 a ≥ 400 mm

fischer frame fixing SXR / SXRL

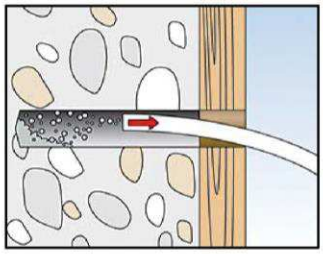
Intended use
Edge distances and spacing for use in masonry and in autoclaved aerated concrete AAC

Anhang B 4

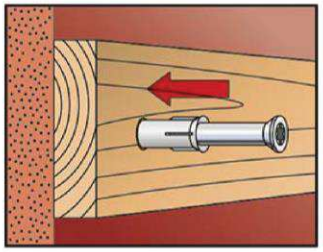
Installation instructions (the following pictures show fixing through timber)



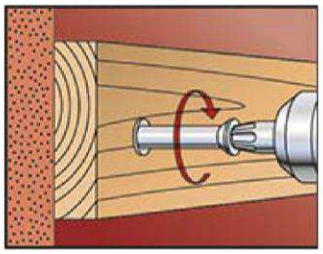
1. Drill the bore hole acc. to Table B2.1 using the drill method described in the corresponding Annex C.



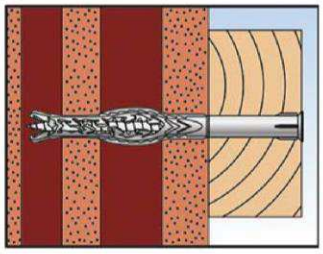
2. Use category „a“, „b“, „d”: Remove dust from borehole.



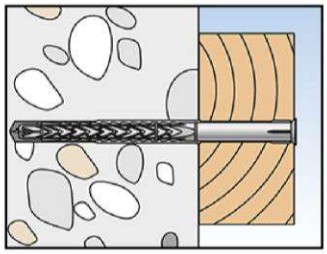
3. Insert anchor (screw and plug) by using a hammer until the collar of the plastic sleeve is flush with the surface of the fixture.



4. The screw is screwed-in until the head of the screw touches the sleeve. The anchor is correctly mounted, when the head of the screw fits tight on the surface and cannot be screwed-in any further.



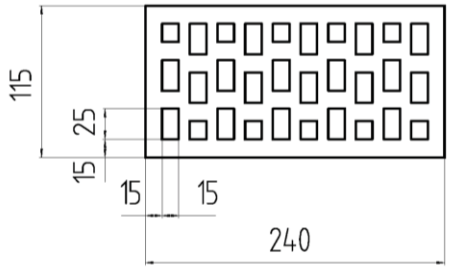
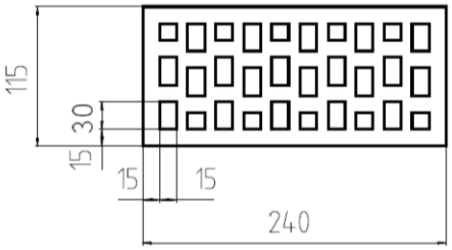
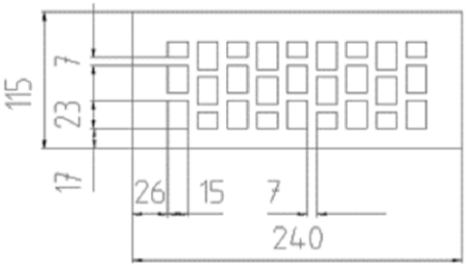
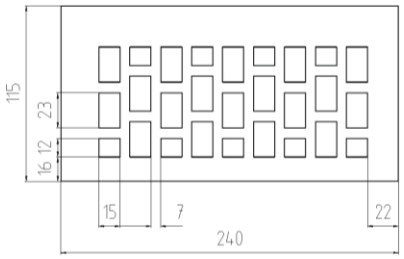
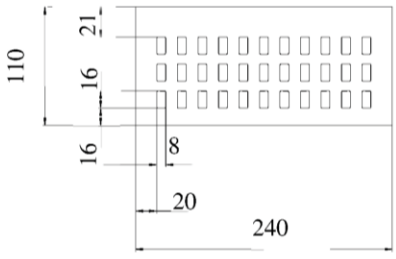
5. Correctly installed anchor in hollow masonry.



6. Correctly installed anchor in concrete.

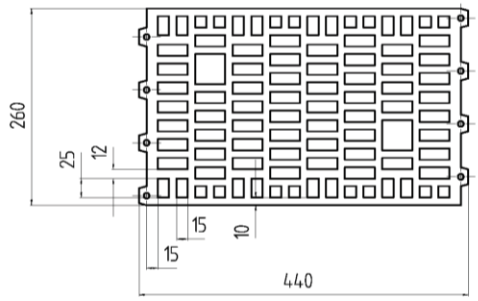
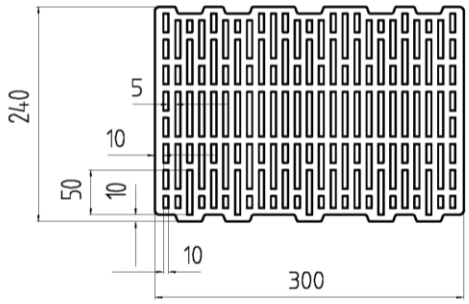
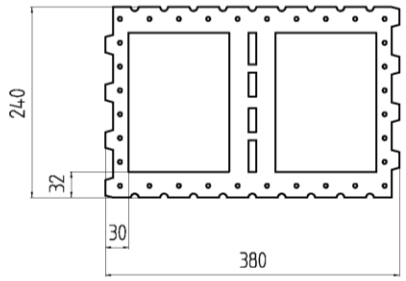
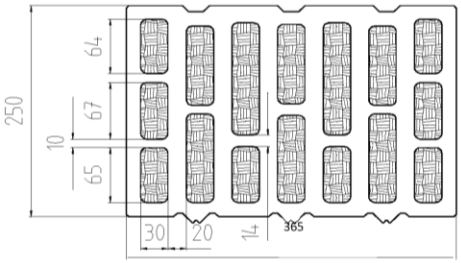
fischer frame fixing SXR / SXRL	**Anhang B 5**
Intended use Installation instructions	

Table B6.1: Summary of hollow and perforated bricks – see Annex C 7 – C 9

Brick No./ Country	Dimensions	Brick drawing	See Annex
S1/DE	2 DF 240 x 115 x 113 mm		C 7
S2/DE	2 DF 240 x 115 x 113 mm		C 8
S3/DE	NF 240 x 115 x 71 mm		C 8
S4/DE	2 DF 240 x 115 x 113 mm		C 8
S5/DE	DF 240 x 110 x 52 mm		C 9

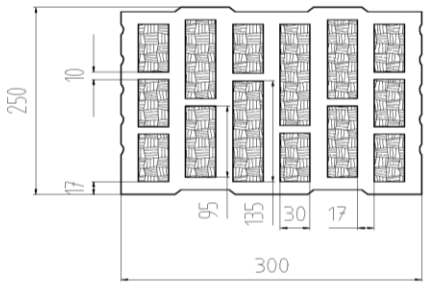
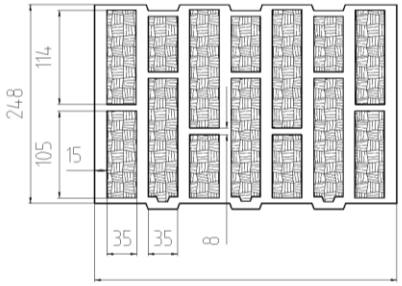
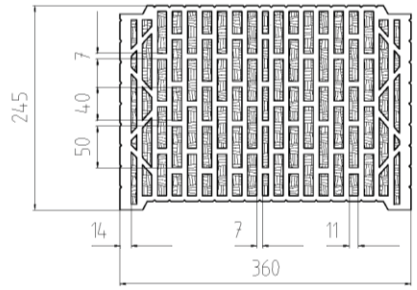
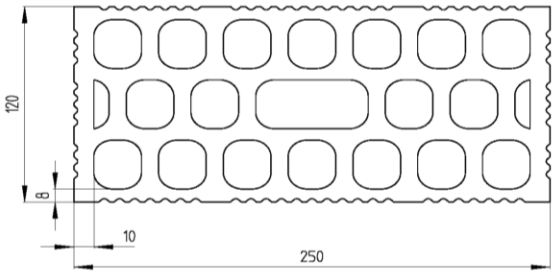
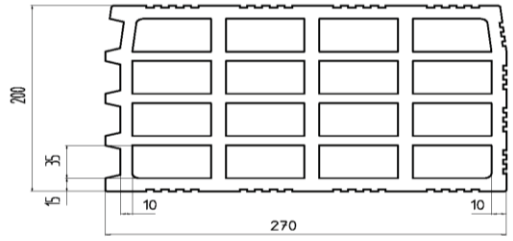
fischer frame fixing SXR / SXRL	**Anhang B 6**
Intended use Summary of hollow and perforated bricks	

Table B7.1: Summary of hollow and perforated bricks – see Annex C 9 – C 10

Brick No./ Country	Dimensions	Brick drawing	See Annex
S6/DE	10 DF 440 x 240 x 260 mm		C 9
S7/DE	10 DF 300 x 240 x 240 mm		C 9
S8/DE	12 DF 380 x 240 x 240 mm		C 10
S9/DE	3 DF 240 x 175 x 113 mm		C 10
S10/DE	12 DF 365 x 250 x 240 mm		C 10

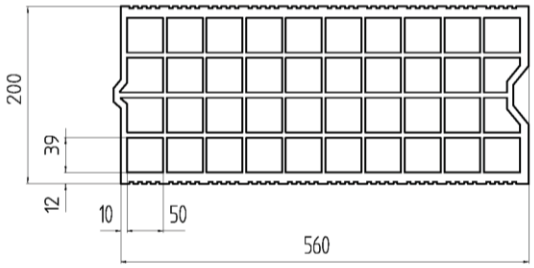
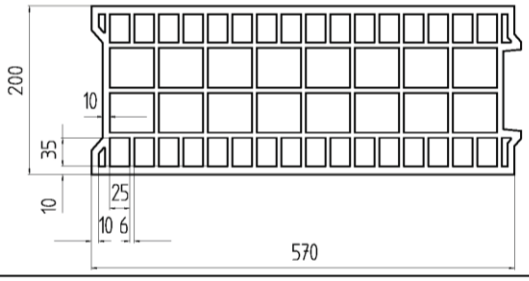
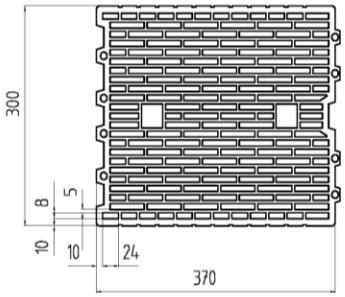
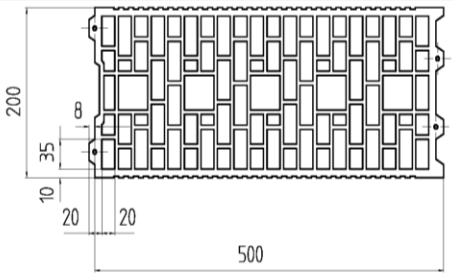
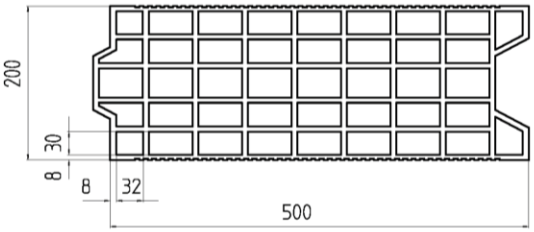
fischer frame fixing SXR / SXRL	**Anhang B 7**
Intended use Summary of hollow and perforated bricks	

Table B8.1: Summary of hollow and perforated bricks – see Annex C11 – C12

Brick No./ Country	Dimensions	Brick drawing	See Annex
S11/DE	10 DF 300 x 250 x 240 mm		C 11
S12/DE	10 DF 365 x 248 x 240 mm		C 11
S13/DE	10 DF 360 x 245 x 240 mm		C 11
S14/IT	250 x 120 x 190 mm		C 12
S15/FR	500 x 200 x 270 mm		C 12

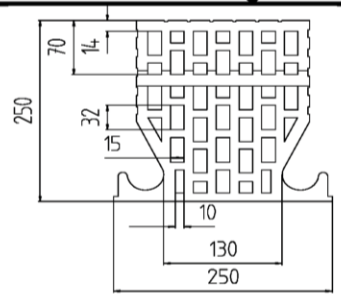
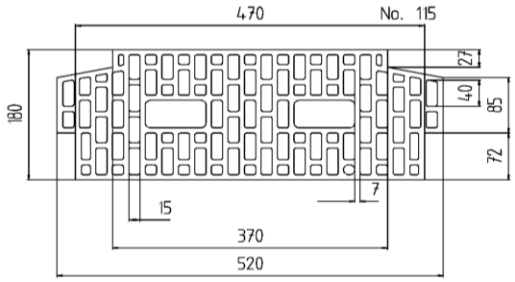
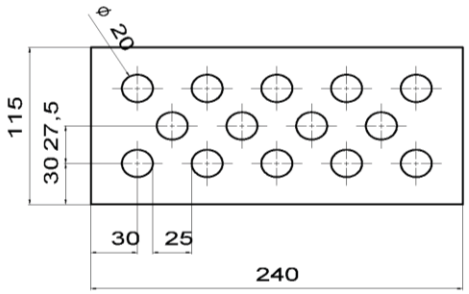
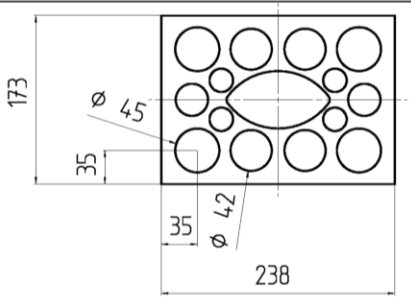
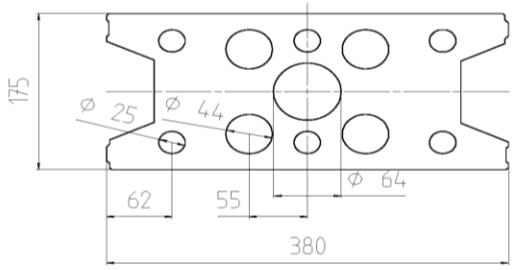
fischer frame fixing SXR / SXRL	**Anhang B 8**
Intended use Summary of hollow and perforated bricks	

Table B9.1: Summary of hollow and perforated bricks – see Annex C12 – C14

Brick No./ Country	Dimensions	Brick drawing	See Annex
S16/FR	560 x 200 x 275 mm		C 12
S17/FR	570 x 200 x 315 mm		C 13
S18/FR	370 x 300 x 250 mm		C 13
S19/FR	500 x 200 x 275 mm		C 13
S20/FR	500 x 200 x 220 mm		C 14

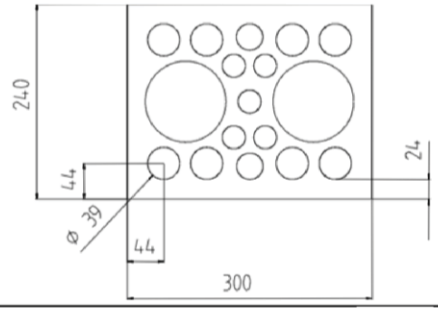
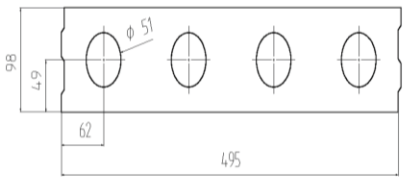
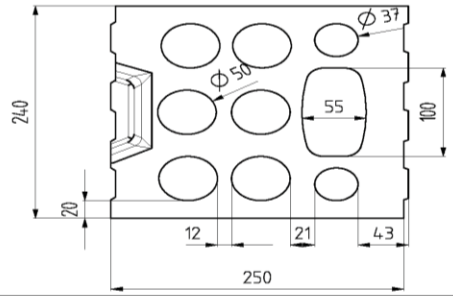
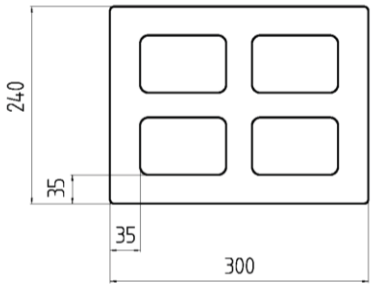
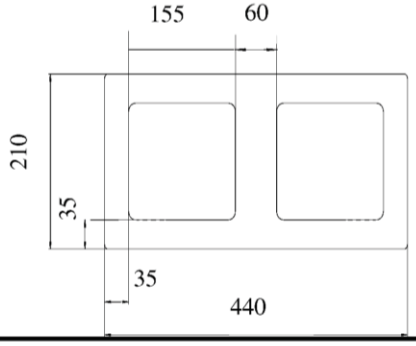
fischer frame fixing SXR / SXRL	**Anhang B 9**
Intended use Summary of hollow and perforated bricks	

Table B10.1: Summary of hollow and perforated bricks – see Annex C14 – C15

Brick No./ Country	Dimensions	Brick drawing	See Annex
S21/DE	250 x 250 x 190 mm		C 14
S22/DE	520 x 180 x 250 mm		C 14
S23/DE	2 DF 240 x 115 x 113 mm		C 15
S24/DE	3 DF 240 x 175 x 113 mm		C 15
S25/DE	9 DF 380 x 175 x 240 mm		C 15

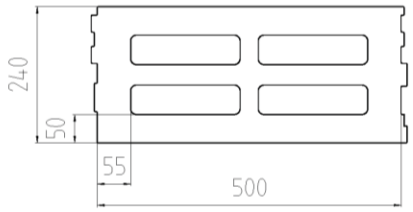
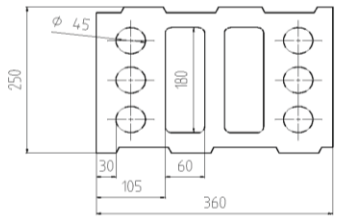
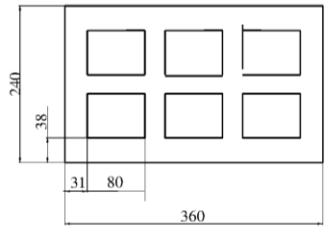
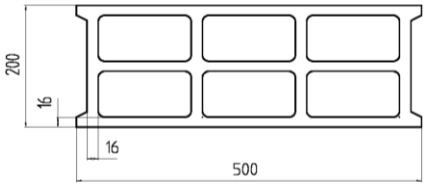
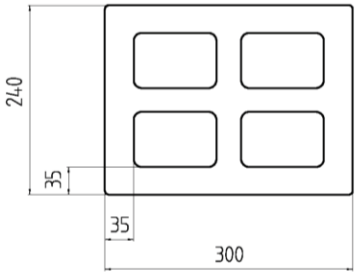
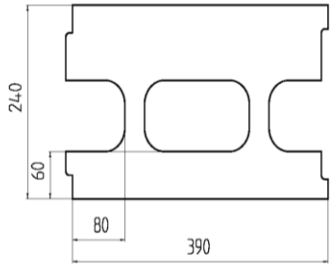
fischer frame fixing SXR / SXRL	**Anhang B 10**
Intended use Summary of hollow and perforated bricks	

Table B11.1: Summary of hollow and perforated bricks – see Annex C16 – C17

Brick No./ Country	Dimensions	Brick drawing	See Annex
S26/DE	5 DF 300 x 240 x 113 mm		C 16
S27/DE	2 DF 495 x 98 x 245 mm		C 16
S28/DE	9 DF 250 x 240 x 240 mm		C 16
S29/DE	300 x 240 x 240 mm		C 17
S30/IE	440 x 210 x 215 mm		C 17

fischer frame fixing SXR / SXRL	**Anhang B 11**
Intended use Summary of hollow and perforated bricks	

Table B12.1: Summary of hollow and perforated bricks – see Annex C17 – C19

Brick No./ Country	Dimensions	Brick drawing	See Annex
S31/DE	500 x 240 x 240 mm		C 17
S32/DE	360 x 250 x 250 mm		C 18
S33/DE	360 x 240 x 240 mm		C 18
S34/FR	500 x 200 x 200 mm		C 18
S35/DE	300 x 240 x 240 mm		C 19
S36/DE	390 x 240 x 240		C 19

fischer frame fixing SXR / SXRL	**Anhang B 12**
Intended use Summary of hollow and perforated bricks	

Table C1.1: Characteristic resistance of the screw

Failure of expansion element (special screw)		SXR 8 / SXRL 8		SXR 10 / SXRL 10		SXRL 14	
		galvanised steel	stainless steel (A2 and A4)	galvanised steel	stainless steel (A2 and A4)	galvanised steel	stainless steel (A2 and A4)
Characteristic tension resistance	$N_{Rk,s}$ [kN]	14,8	14,3	21,7 24,9[2)]	21,7	43,4	42,0
Partial safety factor	γ_{Ms} [1)]	1,50	1,55	1,55	1,55	1,50	1,55
Characteristic shear resistance	$V_{Rk,s}$ [kN]	7,4	7,1	10,8 12,4[2)]	10,8	21,7	21,0
Partial safety factor	γ_{Ms} [1)]	1,25	1,29	1,29	1,29	1,25	1,29

1) In absence of other national regulations.
2) Only for SXRL 10: "High load" screw version on request only for countersunk screws – head marking is ●●

Table C1.2: Characteristic bending resistance of the screw

Anchor type		SXR 8 / SXRL 8		SXR 10 / SXRL 10		SXRL 14			
Material		galvanised steel	stainless steel (A2 and A4)	galvanised steel	stainless steel (A2 and A4)	galvanised steel		stainless steel (A2 and A4)	
Overall plastic anchor embedment depth in the base material						h_{nom2} 70mm	h_{nom3} 90mm	h_{nom2} 70mm	h_{nom3} 90mm
Characteristic bending resistance	$M_{Rk,s}$ [Nm]	12,4	12,0	20,6 23,6[2)]	20,6	48,7	62,5	47,0	60,5
Partial safety factor	γ_{Ms} [1)]	1,25	1,29	1,29	1,29	1,25		1,29	

1) In absence of other national regulations.
2) Only for SXRL 10: "High load" screw version on request only for countersunk screws – head marking is ●●

Table C1.3: Characteristic resistance for use in concrete (use cat. "a")

Pull-out failure (plastic sleeve)				SXR 8	SXRL 8		SXR 10	SXRL 10		SXRL 14
Embedment depth h_{nom} [mm]				50	50	70	50	50	70	70
Concrete ≥ C12/15										
Characteristic resistance 30/50 °C	$N_{Rk,p}$	[kN]		3,0	4,0	5,0	5,0	5,5	6,5	8,5
Characteristic resistance 50/80 °C	$N_{Rk,p}$	[kN]		2,5 3,0[2)]	4,0	5,0	4,5	5,0	6,5	8,5
Concrete ≥ C12/15 (e.g. weather resistant shells of external wall panels)										
Characteristic resistance 30/50 °C	$N_{Rk,p}$	[kN]	h ≥ 40 mm	-	-	-	3,5	2,5 3,0[2)]	-	-
Characteristic resistance 50/80 °C	$N_{Rk,p}$	[kN]	h ≥ 40 mm	-	-	-	3,0	2,5 3,0[2)]	-	-
Concrete ≥ C45/55 in pre-stressed concrete core slabs										
Characteristic resistance 50/80 °C	$N_{Rk,p}$	[kN]	d_b ≥ 30 mm	-	-	-		3,5 4,0[3)]	-	-
			d_b ≥ 40 mm	-	-	-		5,5 6,0[3)]	-	-
Partial safety factor			γ_{Mc} [1)]	1,8						

1) In absence of other national regulations.
2) Value corresponds to concrete class ≥ C16/20.
3) only valid for temperature range 30 / 50 °C

fischer frame fixing SXR / SXRL

Performances
Characteristic resistance and characteristic bending resistance of the screw
Characteristic resistance for use in concrete

Annex C 1

Table C2.1: Displacements[1] under tension and shear loading in concrete and masonry

Anchor type	h_{nom} [mm]	F [kN]	Tension load [2] δ_{NO} [mm]	Tension load [2] $\delta_{N\infty}$ [mm]	Shear load [2] δ_{VO} [mm]	Shear load [2] $\delta_{V\infty}$ [mm]
SXR 8	50	1,2	0,65	1,30	1,02	1,53
SXRL 8	50	1,6	0,56	1,12	2,00	3,00
	70	2,0	0,64	1,28	2,30	3,45
SXR 10	50	2,0	1,29	2,58	1,15[3]/3,05[4]	1,74[3]/4,58[4]
SXRL 10	50	2,2	0,58	1,16	1,96	2,94
	70	2,6	1,67	3,34	1,15[3]/3,05[4]	1,74[3]/4,58[4]
SXRL 14	70	3,40	0,39	0,63	2,79	4,19

1) Valid for all ranges of temperatures.
2) Intermediate values by linear interpolation.
3) Valid for diameter in the clearance hole ≤ 10,5 mm (see Table B2.1).
4) Valid for diameter in the clearance hole = 12,5 mm (see Table B2.1).

Table C2.2: Displacements[1] under tension and shear loading in autoclaved aerated concrete AAC

Anchor type	f_b [N/mm²]	h_{nom} [mm]	F [kN]	Tension load [2] δ_{NO} [mm]	Tension load [2] $\delta_{N\infty}$ [mm]	Shear load [2] δ_{VO} [mm]	Shear load [2] $\delta_{V\infty}$ [mm]
SXRL 8	≥ 2	70/90	0,14/0,21	0,45/0,55	0,90/1,10	0,28/0,42	0,42/0,63
	≥ 6	70/90	1,07	0,73/0,80	1,46/1,60	2,14	3,21
SXR 10	≥ 2	50	0,32	0,03	0,06	0,21	0,31
SXRL 10	≥ 2	70/90	0,32	0,23	0,46	0,64	0,96
	≥ 6	70/90	1,43	0,65	1,30	2,86	4,29
SXRL 14	≥ 2	70/90	0,32/0,43	0,19/0,25	0,38/0,50	0,64/0,86	0,96/1,29
	≥ 3	70/90	0,60/0,77	0,23/0,31	0,45/0,63	1,19/1,54	1,79/2,31
	≥ 4	70/90	0,88/1,11	0,26/0,38	0,53/0,76	1,75/2,22	2,62/3,33
	≥ 6	70/90	1,43/1,79	0,34/0,51	0,68/1,02	2,86/3,58	4,29/5,37

1) Valid for all ranges of temperatures.
2) Intermediate values by linear interpolation.

Table C2.3: Values under fire exposure in concrete C20/25 to C50/60 in any load direction, no permanent centric tension load and without lever arm

Anchor type	Fire resistance class	$F_{Rk,fi,90}$	$\gamma_{M,fi}$ [1]
SXR 10 / SXRL 10 / SXRL 14	R 90	≤ 0,8 kN	1,0

1) In absence of other national regulations.

If one-side fire load, see table B3.1 for edge distance
In case of fire attack from more than one side the minimum edge distance shall be $c \geq 300$ mm, $c \geq 2 \cdot h_{ef}$; the bigger value is decisive

fischer frame fixing SXR / SXRL	**Annex C 2**
Performances Displacements under tension and shear loading in concrete, masonry and aerated concrete	

Table C3.1: Characteristic resistance F_{Rk} in [kN] in solid masonry (use category "b")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 50	≥ 70	≥ 70	≥ 90
Clay brick Mz, acc. to EN 771-1:2011 *e.g. Schlagmann DE* **3 DF** (240x175x113) hammer drilling	20/1,8	**3,0**	-	-	-	**2,0** **4,0**[4] **4,5**[6]	-	-	-	-
	10/1,8	**2,0**	-	-	-	**3,0**[4]	-	-	-	-
Clay brick Mz, acc. to EN 771-1:2011 *e.g. Schlagmann DE* *e.g. Ebersdobler DE* **NF** (240x115x71) hammer drilling	36/1,8	**2,5**	**3,0**	**4,0** **4,5**[3]	[8]	**5,0**	**3,5**	**4,0** **5,5**[3]	**4,0** **6,0**[4] **7,0**[6]	[8]
	20/1,8	**2,5**	**3,0**	**4,0** **4,5**[3]	[8]	**3,0** **3,5**[2]	**3,5**	**4,0** **5,5**[3]	**4,0** **6,0**[4] **7,0**[6]	[8]
	12/1,8	**2,0**	**2,0**	**2,5**	[8]	**2,0**	**2,0**	**4,0** **5,5**[3]	**3,0** **4,5**[4] **5,0**[6]	[8]
	10/1,8	**2,0**	**2,0**	**2,5**	[8]	**2,0**	-	**3,5** **4,5**[3]	**3,0** **4,5**[4] **5,0**[6]	[8]
Clay brick Mz, acc. to EN 771-1:2011 *e.g.Wienerberger, DK* **DF** (240x115x52) hammer drilling	28/1,8	**3,0**	**2,5**	**3,0** **3,5**[2]	[8]	**3,0**	**3,0** **4,5**[3] **5,0**[5]	**5,5** **6,5**[3]	-	-
	20/1,8	**2,0**	**2,5**	**3,0** **3,5**[2]	[8]	**2,0**	**3,0** **4,5**[3] **5,0**[5]	**4,0** **4,5**[3]	-	-
	16/1,8	**1,5**	**2,5**	**3,0** **3,5**[2]	[8]	**1,5**	**3,0** **4,5**[3] **5,0**[5]	**3,0** **3,5**[3]	-	-
	12/1,8	**1,5**	**1,5** **2,0**[2]	**2,0** **2,5**[2]	[8]	**1,2**	**2,5** **3,5**[3]	**2,5** **3,0**[3]	-	-
	10/1,8	**1,5**	**1,2** **1,5**[2]	[8]	[8]	**1,2**	-	**2,5** **3,0**[3]	-	-
Partial safety factor	γ_{Mm} [1]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
3) Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
4) Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
5) Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.
6) Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.
8) Values of lower h_{nom} can also be taken for next higher h_{nom}.

Table C4.1: Characteristic resistance F_{Rk} in [kN] in solid masonry (use category "b")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 50	≥ 70	≥ 70	≥ 90
Calcium silicate solid brick KS, acc. to EN 771-2:2011 *e.g. KS Wemding DE* **NF** (240x115x71) hammer drilling	36/2,0	-	-	-	-	**5,0**	**3,5** **4,0**[3]	[8]	-	-
	20/2,0	-	-	-	-	**3,0** **3,5**[2]	**3,5** **4,0**[3]	[8]	-	-
	20/1,8	**2,5**	**2,5**	**3,0**	[8]	**2,5** **4,0**[4]	-	**3,5**	**4,5** **5,0**[4] **6,0**[6]	[8]
	10/2,0	-	-	-	-	**2,0**	**2,0** **2,5**[3]	[8]	-	-
	10/1,8	**2,0**	**2,0**	**2,0**	[8]	**1,5**	-	**2,5**	**3,0** **3,5**[4] **4,0**[6]	[8]
Calcium silicate solid brick KS, acc. to EN 771-2:2011 *e.g. KS Wemding* **12 DF** (495x175x240) hammer drilling	28/2,0	**3,0**	-	-	-	**5,0**	-	-	-	-
	20/2,0	**3,0**	-	-	-	**4,5**	-	-	-	-
	20/1,8	-	-	-	-	-	-	**6,5** **8,5**[4]	**4,0** **11,0**[4] **11,5**[6]	[8]
	16/1,8	-	-	-	-	-	-	**6,5** **8,5**[4]	**4,0** **11,0**[4] **11,5**[6]	[8]
	12/1,8	-	-	-	-	-	-	**6,5** **8,5**[4]	**4,0** **11,0**[4] **11,5**[6]	[8]
	10/2,0	**2,5**	-	-	-	**3,0**	-	-	-	-
	10/1,8	-	-	-	-	-	-	**5,5** **7,0**[4]	**3,5** **9,0**[4] **9,5**[6]	[8]
	8/1,8	-	-	-	-	-	-	**4,0** **5,5**[4]	**2,5** **7,5**[4]	[8]
Partial safety factor	γ_{Mm}[1]	**2,5**								

[1] In absence of other national regulations.
[2] Only valid for temperature range 30/50° C.
[3] Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
[4] Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
[5] Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[6] Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[8] Values of lower h_{nom} can also be taken for next higher h_{nom}.

Table C5.1: Characteristic resistance F_{Rk} in [kN] in solid masonry (use category "b")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 50	≥ 70	≥ 70	≥ 90
Calcium silicate solid brick KS, acc. to EN 771-2:2011 *e.g. KS Wemding DE* **8 DF** (495x115x240) hammer drilling	16/2,0	-	**3,0** **4,5**[3] **5,0**[6]	**3,5** **5,0**[3] **6,0**[4] **6,5**[6]	[8]	-	**3,5** **5,0**[3] **6,0**[4] **6,5**[6]	[8]	-	-
	12/2,0	-	**2,5** **3,0**[3] **3,5**[5]	**2,5** **4,0**[3] **4,5**[4] **5,0**[6]	[8]	-	**2,5** **4,0**[3] **4,5**[4] **5,0**[6]	[8]	-	-
Lightweight solid brick Vbl, acc. to EN 771-3:2011 *e.g. KLB DE* **2 DF** (240x115x113) hammer drilling	4/1,4	-	-	-	-	**0,75**	-	**2,5**	-	-
	2/1,4	-	-	-	-	**0,4**	-	**1,2**	-	-
	2/1,2	**0,9**	**0,4** **0,5**[2]	**0,9** **1,2**[2]	[8]	**0,75** **0,9**[3]	**0,4**	[8]	**0,9** **1,2**[2]	[8]
Lightweight solid brick Vbl, acc. to EN 771-3:2011 *e.g. KLB DE* **8 DF** (490x240x115) hammer drilling	12/1,8	**2,5**	-	-	-	-	-	**3,0** **4,5**[3]	-	-
	10/1,8	**2,5**	-	-	-	-	-	**2,5** **3,5**[3]	-	-
	8/1,8	**2,5**	-	-	-	-	-	**2,0** **3,0**[3]	-	-
	8/1,6	-	-	-	-	**3,0**	-	-	-	-
	6/1,8	**2,0**	-	-	-	-	-	**1,5** **2,0**[3]	-	-
	6/1,6	-	-	-	-	**2,0**	-	-	-	-
	4/1,8	**1,2**	-	-	-	-	-	**0,9** **1,5**[3]	-	-
	2/1,2	-	-	-	-	**1,2**	-	-	-	-
	2/1,0	**1,2**	-	-	-	-	-	-	-	-
Partial safety factor	γ_{Mm} [1]	**2,5**								

[1] In absence of other national regulations.
[2] Only valid for temperature range 30/50° C.
[3] Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
[4] Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
[5] Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[6] Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[8] Values of lower h_{nom} can also be taken for next higher h_{nom}.

Table C6.1: Characteristic resistance F_{Rk} in [kN] in solid masonry (use category "b")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 50	≥ 70	≥ 70	≥ 90
Lightweight solid brick Vbl, acc. to EN 771-3:2011 *e.g. KLB DE* **8 DF** (245x240x240) hammer drilling	10/1,6	-	**2,0** **2,5**[2]	**3,0** **4,0**[5]	[8]	**2,5**	**3,0** **3,5**[5]	**7,5**	**3,5** **6,0**[4] **7,0**[6]	[8]
	8/1,6	-	**1,5** **2,0**[2]	**2,5** **3,5**[5]	[8]	**2,5**	**2,5** **3,0**[5]	**6,0**	**3,0** **5,0**[4] **6,0**[6]	[8]
	6/1,6	-	**1,2** **1,5**[2]	**2,0** **2,5**[5]	[8]	**2,5**	**2,0**	**4,5**	**2,0** **3,5**[4] **4,5**[6]	[8]
	6/1,4	**0,9**	-	-	-	-	-	-	-	-
	4/1,6	-	**0,75** **0,9**[2]	**1,2** **1,5**[5]	[8]	**0,9**	**1,2** **1,5**[5]	**3,0**	**1,5** **2,5**[4] **3,0**[6]	[8]
	4/1,4	**0,6** **0,75**[2]	-	-	-	-	-	-	-	-
	2/1,6	-	**0,4** **0,5**[2]	**0,6** **0,9**[5]	[8]	**0,5**	**0,6**	**1,5**	-	-
Lightweight solid brick Vbl, acc. to EN 771-3:2011, *e.g. Liapor Super-K DE* **16 DF** (500x240x248) hammer drilling	2/0,8	-	-	-	-	-	-	**0,5**	-	-
Lightweight solid bric Vbl, acc. to EN 771-3:2011, *e.g. Tarmac UK* (440x100x215) hammer drilling	6/1,4	-	-	-	-	**2,0** **2,5**[4]	-	**2,0** **3,0**[3]	-	-
	4/1,4		-	-	-	**1,2** **1,5**[4]	-	**1,2** **2,0**[3]	-	-
Partial safety factor	γ_{Mm}[1]	**2,5**								

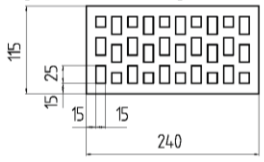
[1] In absence of other national regulations.
[2] Only valid for temperature range 30/50° C.
[3] Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
[4] Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
[5] Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[6] Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.
[8] Values of lower h_{nom} can also be taken for next higher h_{nom}.

Table C7.1: Characteristic resistance F_{Rk} in [kN] in solid masonry (use category "b")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 50	≥ 70	≥ 70	≥ 90
Solid brick normal concrete Vbn, acc. to EN 771-3:2011 *e.g. Adolf Blatt DE* (240x245x240) hammer drilling	20/1,8	**2,5**	-	-	-	**4,5**	-	-	-	-
	16/1,8	**2,5**	-	-	-	**3,5**	-	-	-	-
	12/1,8	**2,5**	-	-	-	**3,0**	-	-	-	-
	10/1,8	**1,5**	-	-	-	**3,0**	-	-	-	-
	8/1,8	**1,5**	-	-	-	-	-	-	-	-
	4/1,8	**0,75**	-	-	-	-	-	-	-	-
Solid brick normal concrete Vbn, acc. to EN 771-3:2011 *e.g.Tarmac UK* (440x100x215) hammer drilling	16/1,8	-	-	-	-	**4,0** **4,5**[2)]	-	**5,5**	-	-
	10/1,8	-	-	-	-	**2,5** **3,0**[2)]	-	**3,5**	-	-
Partial safety factor	γ_{Mm}[1)]	**2,5**								

Footnotes see C7.2

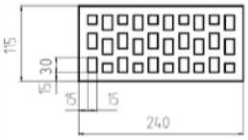
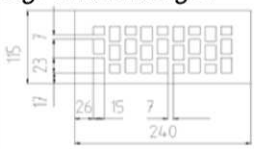
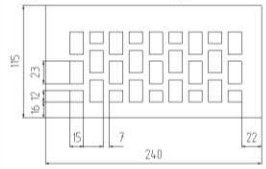
Table C7.2: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S1 Perforated clay brick **HLz** Form B, acc. to EN 771-1:2011 *e.g. Wienerberger* 	20/1,2	**1,2**	-	-	-	**2,5** **3,0**[5)]	-	**2,0**	-	-
	20/1,0	-	-	-	-	**2,0**	-	-	-	-
	12/1,2	-	-	-	-	-	-	**1,2**	-	-
	10/1,2	-	-	-	-	**1,5** **2,0**[2)]	-		-	-
	10/1,0	-	-	-	-	**1,2**	-	-	-	-
2 DF (240x115x113) rotary drilling	8/1,2	**0,5**	-	-	-	-	-	-	-	-
Partial safety factor	γ_{Mm}[1)]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
5) Only valid for edge distance c ≥ 150 mm at temperature range 30/50° C; intermediate values by linear interpolation.

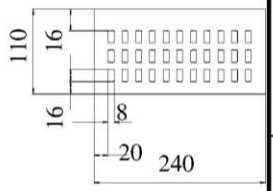
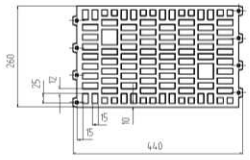
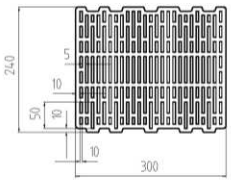
fischer frame fixing SXR / SXRL	**Annex C 7**
Performances Characteristic resistance for use in solid masonry and in hollow or perforated masonry	

Table C8.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8[7]			SXR 10	SXRL 10		SXRL 14[7]	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S2 Perforated clay brick HLz acc. to EN 771-1:2011 *e.g. Wienerberger*  **2 DF** (240x115x113) rotary drilling	28/1,2		**1,2** **1,5**[2]	**1,5** **2,0**[2]	**1,5** **2,0**[2]	-	-	**2,0**	-	-
	20/1,2		**0,9** **1,2**[2]	**0,9** **1,2**[2]	**1,2** **1,5**[2]	-	-	**1,2**	-	-
	12/1,0	**0,6**	-	-	-	**0,9**	-	**0,75**	-	-
	10/1,2	-	**0,6**	**0,6** **0,75**[2]	**0,6** **0,9**[2]	-	-	-	-	-
	10/1,0	-	-	-	-	**0,75**	-	**0,6**	-	-
	8/1,0	**0,4**	-	-	-	**0,6**	-	-	-	-
S3 Perforated clay brick VHLz acc. to EN 771-1:2011, *e.g. Wienerberger*  **NF** (240x115x71) rotary drilling	48/1,6	-	-	-	-	-	-	-	**4,5** **5,0**[2]	**4,5** **5,0**[2]
	28/1,6	-	-	-	-	-	-	-	**2,5** **3,0**[2]	**2,5** **3,0**[2]
	20/1,6	-	-	-	-	-	-	-	**1,5** **2,0**[2]	**1,5** **2,0**[2]
S4 Perforated clay brick VHLz acc. to EN 771-1:2011, *e.g. Wienerberger*  **2 DF** (240x115x113) rotary drilling	48/1,6	-	**2,5**	**2,5**	**1,5** **2,0**[2]	**2,5**	-	**4,5**	-	-
	36/1,6	-	**2,0**	**2,0**	**1,2** **1,5**[2]	**2,0**	-	**3,0**	-	-
	28/1,6	-	**1,5**	**1,5**	**0,9** **1,2**[2]	**1,5**	-	**2,5**	-	-
	20/1,6	-	**0,9**	**0,9**	**0,6** **0,9**[2]	**0,9**	-	**1,5**	-	-
	12/1,6	-	**0,6**	**0,6**	**0,4** **0,5**[2]	**0,6**	-	**0,9**	-	-
	10/1,6	-	-	-	-	-	-	**0,9**	-	-
Partial safety factor	γ_{Mm}[1]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
3) Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
4) Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
5) Only valid for edge distance c ≥ 150 mm at temperature range 30/50° C; intermediate values by linear interpolation.
6) Only valid for edge distance c ≥ 200 mm at temperature range 30/50° C; intermediate values by linear interpolation.
7) The lowest load of two consecutive embedment depths may be used for the intermediate embedment depths.

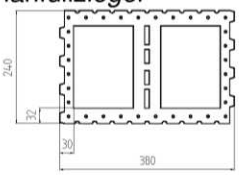
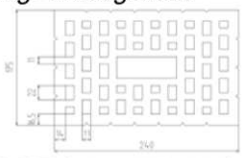
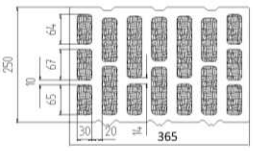
Table C9.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S5 Perforated clay brick **HLz** acc. to EN 771 -1:2011+A1:2014, *e.g. Wienerberger, BS*  **DF**(240x110x52) hammer drilling	28/1,5	**2,5**	-	-	-	**2,5**	-	-	-	-
	20/1,5	**1,2** **1,5**[2)]	-	-	-	**2,0**	-	-	-	-
	10/1,5	**0,6** **0,9**[2)]	-	-	-	**1,2**	-	-	-	-
S6 Perforated clay brick **HLz** Form B, acc. to EN 771-1:2011 *e.g. Schlagmann*  **10 DF** (260x240x440) rotary drilling	8/0,9	**0,9**	-	-	-	-	-	-	-	-
	6/0,9	**0,6**	-	-	-	-	-	-	-	-
	4/0,9	**0,4**	-	-	-	-	-	-	-	-
S7 Perforated clay brick **HLz** acc. to EN 771-1:2011 *e.g. Schlagmann Poroton T14*  **10 DF** (300x240x240) rotary drilling	6/0,7	-	-	-	-	**0,3** **0,4**[2)]	-	**0,5**	-	-
Partial safety factor	γ_{Mm}[1)]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.

fischer frame fixing SXR / SXRL	**Annex C 9**
Performances Characteristic resistance for use in hollow or perforated masonry	

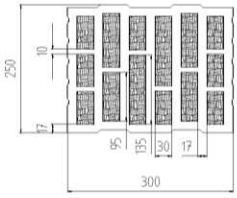
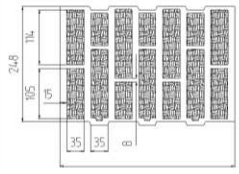
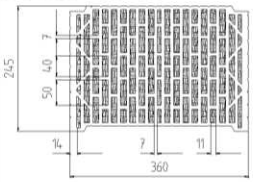
Table C10.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S8 Perforated clay brick **HLz** Form B, acc. to EN 771-1:2011, *e.g. Schlagmann Planfüllziegel*  **12 DF** (380x240x240) rotary drilling	6/0,7	**1,2**	-	-	-	**2,0**	-	-	-	-
	4/0,7	**0,75**	-	-	-	-	-	-	-	-
	2/0,7	**0,4**	-	-	-	-	-	-	-	-
S9 Perforated clay brick **HLz** acc. to EN 771-1:2011 *e.g. Schlagmann*  **3 DF** (240x175x113) rotary drilling	12/1,0	-	-	-	-	-	-	-	**2,0**	**2,5**
	10/1,0	-	-	-	-	-	-	-	**2,0**	**2,0**
	8/1,0	-	-	-	-	-	-	-	**1,5**	**1,5**
	6/1,0	-	-	-	-	-	-	-	**1,2**	**1,2**
S10 Perforated clay brick **HLz** acc. to EN 771-1:2011, *e.g. Schlagmann Poroton S11*  **12 DF** (365x250x240) rotary drilling	8/0,8	-	-	-	-	-	-	**1,5**	-	-
	6/0,8	-	-	-	-	-	-	**1,2**	-	-
	4/0,8	-	-	-	-	-	-	**0,75**	-	-
Partial safety factor	γ_{Mm} [1)]	**2,5**								

[1)] In absence of other national regulations.

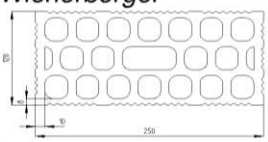
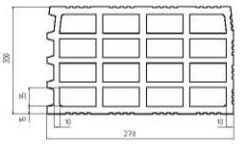
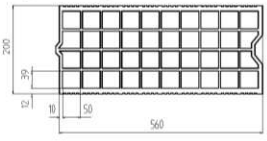
fischer frame fixing SXR / SXRL	**Annex C 10**
Performances Characteristic resistance for use in hollow or perforated masonry	

Table C11.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S11 Perforated clay brick **HLz** acc. to EN 771-1:2011 *e.g. Schlagmann Poroton S10*  **10 DF** (300x250x240) rotary drilling	6/0,7	-	-	-	-	-	-	**1,5**	-	-
	4/0,7	-	-	-	-	-	-	**0,9**	-	-
S12 Perforated clay brick **HLz** acc. to EN 771-1:2011 *e.g. Schlagmann Poroton T8*  **12 DF** (365x248x240) rotary drilling	4/0,6	-	-	-	-	-	-	**1,2**	-	-
	2/0,6	-	-	-	-	-	-	**0,6**	-	-
S13 Perforated clay brick **HLz** acc. to EN 771-1:2011, *e.g. Hörl & Hartmann Coriso WS 09*  (360x245x240) rotary drilling	6/0,8	-	-	-	-	-	-	**0,9**	-	-
	4/0,8	-	-	-	-	-	-	**0,6**	-	-
	2/0,8	-	-	-	-	-	-	**0,3**	-	-
Partial safety factor	γ_{Mm} [1)]	**2,5**								

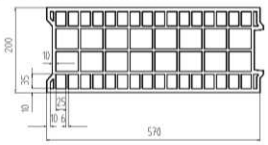
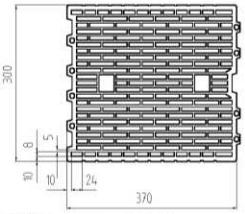
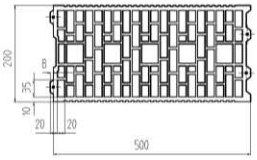
1) In absence of other national regulations.

Table C12.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8[7]			SXR 10	SXRL 10		SXRL 14[7]	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S14 Perforated clay brick HLz acc. to EN 771-1:2011 *e.g. Doppio Uni IT Wienerberger*  (250x120x190) rotary drilling	20/0,9	-	**1,2**	**0,9** **1,5**[2]	**1,5** **2,0**[2]	-	-	-	-	-
	16/0,9	-	**0,9**	**0,9** **1,2**[2]	**1,2** **1,5**[2]	-	-	-	-	-
	12/0,9	-	**0,75**	**0,6** **0,75**[2]	**0,9** **1,2**[2]	-	-	-	-	-
S15 Perforated clay brick HLz acc. to EN 771-1:2011, *e.g. Imerys Gelimatic*  (500x200x270) rotary drilling	6/0,6	-	-	-	-	**0,6** **0,75**[6]	-	**1,5**	-	-
	4/0,6	-	-	-	-	-	-	**0,9**	-	-
	2/0,6	-	-	-	-	-	-	**0,5**	-	-
S16 Perforated clay brick HLz acc. to EN 771-1:2011, *e.g. Imerys Optibric*  (560x200x275) rotary drilling	10/0,6	-	-	-	-	**1,2**	-	**1,5**	-	-
	8/0,6	-	-	-	-	-	-	**1,2**	-	-
	6/0,6	-	-	-	-	-	-	**0,9**	-	-
	4/0,6	-	-	-	-	-	-	**0,6**	-	-
Partial safety factor	γ_{Mm}[1]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
6) Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.
7) The lowest load of two consecutive embedment depths may be used for the intermediate embedment depths.

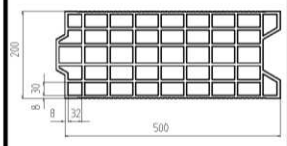
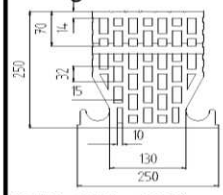
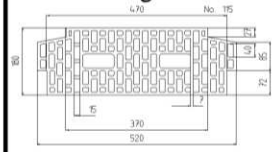
Table C13.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S17 Perforated clay brick **HLz** acc. to EN 771-1:2011, *e.g. Bouyer Leroux BGV* (570x200x315)  rotary drilling	6/0,6	-	-	-	-	**0,75** **0,9**[3] **1,2**[5]	-	**0,9**	-	-
S18 Perforated clay brick **HLz** acc. to EN 771-1:2011, *e.g. Wienerberger Porotherm 30 R*  (370x300x250) rotary drilling	10/0,7	-	-	-	-	**0,5** **0,6**[3]	-	-	-	-
S19 Perforated clay brick **HLz** acc. to EN 771-1:2011, *e.g. Wienerberger Porotherm GF R20*  (500x200x275) rotary drilling	10/0,7	-	-	-	-	**0,6** **0,75**[3]	-	**0,9**	-	-
Partial safety factor	γ_{Mm}[1]	**2,5**								

1) In absence of other national regulations.
3) Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
5) Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.
7) The lowest load of two consecutive embedment depths may be used for the intermediate embedment depths.

fischer frame fixing SXR / SXRL	**Annex C 13**
Performances Characteristic resistance for use in hollow or perforated masonry	

Table C14.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

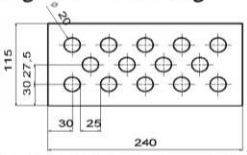
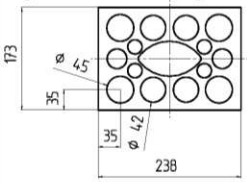
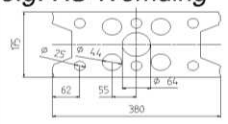
Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S20 Perforated clay brick HLz acc. to EN 771-1:2011, *e.g. Terreal Calibric*  (500x200x220) rotary drilling	8/0,7	-	-	-	-	**0,6 0,75**[6)]	-	**0,9**	-	-
	6/0,7	-	-	-	-	-	-	**0,75**	-	-
	4/0,7	-	-	-	-	-	-	**0,4**	-	-
Perforated clay ceiling brick acc. to DIN 4159:2014-05, *e.g. Hörl & Hartmann ceiling block*  (250x250x190) rotary drilling	10/0,7	-	-	-	-	-	-	**2,0**	-	-
	8/0,7		-	-	-	-	-	**1,5**	-	-
	6/0,7		-	-	-	-	-	**1,2**	-	-
Perforated clay ceiling brick acc. to EN 15037-3:2011, *e.g. Hörl & Hartmann block for beam-and-block ceilings*  (520x250x180) rotary drilling	8/0,7	-	-	-	-	-	-	**1,5**	-	-
	6/0,7		-	-	-	-	-	**1,2**	-	-
	4/0,7		-	-	-	-	-	**0,9**	-	-
Partial safety factor	γ_{Mm} [1)]	**2,5**								

1) In absence of other national regulations.

6) Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.

fischer frame fixing SXR / SXRL	**Annex C 14**
Performances Characteristic resistance for use in hollow or perforated masonry	

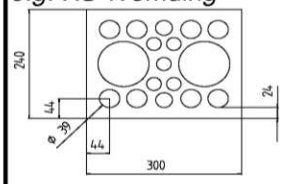
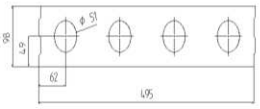
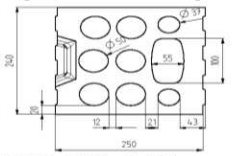
Table C15.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8[7]			SXR 10	SXRL 10		SXRL 14[7]	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S23 Hollow calcium silicate brick *KSL* acc. to EN 771-2:2011 *e.g. KS Wemding*  **2 DF** (240x115x113) hammer drilling	20/1,4	-	**2,0**	**2,5**	**2,5**	-	-	-	-	-
	12/1,4	**2,0**	**1,2**	**1,5**	**1,5**	**2,0** **2,5**[2]	-	**2,5**	**1,5** **2,0**[2]	**2,5**
	10/1,4	**1,5**	-	-	-	**2,0**	-	**2,0**	**1,5**	**2,0**
	8/1,4	**1,2**	-	-	-	**1,5**	-	**1,5**	**1,2**	**1,5**
	6/1,4	**0,9**	-	-	-	-	-	-	**0,9**	**1,2**
S24 Hollow calcium silicate brick KSL acc. to EN 771-2:2011 *e.g. KS Wemding*  **3 DF** (240x175x113) hammer drilling	20/1,4	**1,2** **1,5**[2]	-	-	-	-	-	-	-	-
	16/1,4	**0,9** **1,2**[2]	-	-	-	-	-	**2,0**	-	-
	12/1,4	**0,75** **0,9**[2]	-	-	-	-	-	**1,5**	-	-
	10/1,4	**0,6** **0,75**[2]	-	-	-		-	**1,2**	-	-
	8/1,4	**0,5** **0,6**[2]	-	-	-	-	-	**1,0**	-	-
	6/1,4	-	-	-	-	-	-	**0,75**	-	-
S25 Hollow calcium silicate brick KSL acc. to EN 771-2:2011 *e.g. KS Wemding*  **9 DF** (380x175x240) hammer drilling	20/1,4	-	**0,6** **0,75**[2]	**1,5** **2,0**[2]	**0,9** **1,2**[2]	-	-	**3,5**	**3,5** **4,0**[2]	**1,5** **2,0**[2]
	12/1,4	-	**0,4** **0,5**[2]	**0,9** **1,2**[2]	**0,5** **0,75**[2]	-	-	**2,0**	**2,0** **2,5**[2]	**0,9** **1,2**[2]
	10/1,4	-	-	-	-	-	-	**2,0**	**1,5** **2,0**[2]	**0,75** **0,9**[2]
Partial safety factor	γ_{Mm}[1]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
7) The lowest load of two consecutive embedment depths may be used for the intermediate embedment depths.

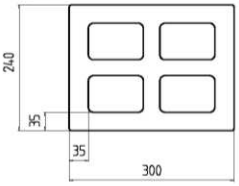
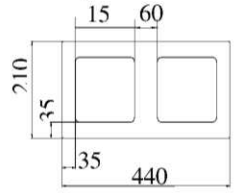
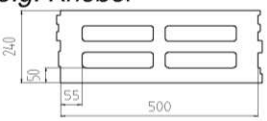
fischer frame fixing SXR / SXRL	**Annex C 15**
Performances Characteristic resistance for use in hollow or perforated masonry	

Table C16.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S26 Hollow calcium silicate brick KSL acc. to EN 771-2:2011 *e.g. KS Wemding*  **5 DF** (300x240x113) hammer drilling	16/1,4	**2,0**	-	-	-	**3,0** **3,5**[5]	-	-	-	-
	12/1,4	**1,5**	-	-	-	-	-	-	-	-
	10/1,4	**1,2**	-	-	-	**1,5**	-	-	-	-
	8/1,4	**0,9**	-	-	-	-	-	-	-	-
	6/1,4	**0,75** **0,9**[2]	-	-	-	-	-	-	-	-
S27 Hollow calcium silicate brick KSL acc. to EN 771-2:2011 *e.g. KS Wemding, P10*  (495x98x245) hammer drilling	6/1,2	**1,2** **1,5**[2]	-	-	-	**1,5** **2,0**[3] **2,5**[5]	-	-	-	-
	4/1,2	**0,75** **0,9**[2]	-	-	-	-	-	-	-	
	2/1,2	**0,4** **0,5**[2]	-	-	-	-	-	-	-	-
S28 Hollow calcium silicate brick KSL acc. to EN 771-2:2011 *e.g. KS Wemding*  **9** **DF** (250x240x240) hammer drilling	12/1,4	-	-	-	-	-	-	**2,0**	-	-
	10/1,4		-	-	-	-	-	**1,5**	-	-
	8/1,4		-	-	-	-	-	**1,2**	-	-
	6/1,4	-	-	-	-	-	-	**0,9**	-	-
Partial safety factor	γ_{Mm}[1]	**2,5**								

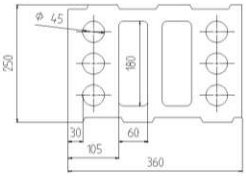
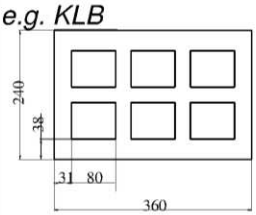
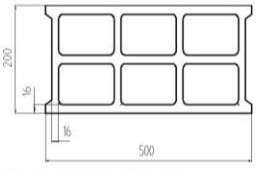
1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
3) Only valid for edge distance c ≥ 150 mm; intermediate values by linear interpolation.
5) Only valid for edge distance c ≥ 150 mm for temperature range 30/50° C; intermediate values by linear interpolation.

Table C17.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8[7]			SXR 10	SXRL 10		SXRL 14[7]	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S29 Hollow brick light-weight concrete Hbl acc. to EN 771-3, *e.g. KLB*  (300x240x240) hammer drilling	2/1,2	-	-	-	-	**1,5**	-	-	-	-
S30 Hollow brick light-weight concrete Hbl acc. to EN 771-3, *e.g. Roadstone masonry*  (440x210x215) hammer drilling	10/1,2	**2,5**	**2,0**	**2,0** **2,5**[2]	**0,4** **0,6**[2]	-	-	**2,5**	**3,0**	-
	8/1,2	**2,0**	**1,5**	**1,5** **2,0**[2]	**0,3** **0,5**[2]	**2,5**	-	**2,0**	**2,5**	-
	6/1,2	**1,5**	**1,2**	**1,2** **1,5**[2]	**0,3**	**2,0**	-	**1,5**	**2,0**	-
	4/1,2	-	-	-	-	-	-	**0,9**	**1,2**	-
	2/1,2	-	-	-	-	-	-	**0,5**	**0,6**	-
S31 Hollow brick light-weight concrete Hbl acc. to EN 771-3, *e.g. Knobel*  (500x240x240) rotary drilling	6/0,8	-	**1,5**	**2,5**	**1,5** **2,0**[2]	-	**2,5**	-	-	-
	4/0,8	-	**0,9**	**1,5**	**0,9** **1,2**[2]	-	**1,5**	-	-	-
	2/0,8	-	**0,5**	**0,75**	**0,5** **0,6**[2]	-	**0,75**	-	-	-
	2/0,7	-	**1,5** **2,0**[2]	**2,0** **2,5**[2]	**1,5** **2,0**[2]	-	**2,0** **2,5**[2]	**2,5**	**1,2** **1,5**[2]	**0,75**
Partial safety factor	γ_{Mm}[1]	**2,5**								

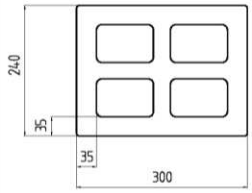
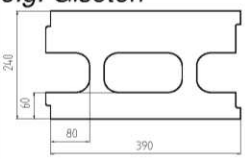
1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
7) The lowest load of two consecutive embedment depths may be used for the intermediate embedment depths.

Table C18.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S32 Hollow brick light-weight concrete Hbl acc. to EN 771-3, *e.g. KLB*  (360x250x250) hammer drilling	2/0,9	-	-	-	-	-	-	**0,75**	-	-
S33 Hollow brick light-weight concrete Hbl acc. to EN 771-3:2011, *e.g. KLB*  (360x240x240) hammer drilling	6/1,0	**1,5**	-	-	-	-	-	-	-	-
S34 Hollow brick light-weight concrete Hbl acc. to EN 771-3:2011, *e.g. Sepa Parpaing*  (500x200x200) rotary drilling	6/0,9	-	-	-	-	-	-	**0,5**	-	-
	4/0,9	**0,3** **0,4**[2)]	-	-	-	**0,9** **1,2**[4)] **1,5**[6)]	-	**0,3**	-	-
Partial safety factor	γ_{Mm}[1)]	**2,5**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
4) Only valid for edge distance c ≥ 200 mm; intermediate values by linear interpolation.
6) Only valid for edge distance c ≥ 200 mm for temperature range 30/50° C; intermediate values by linear interpolation.

Table C19.1: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (use category "c")

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²] / bulk density ρ [kg/dm³]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		50	50	70	90	50	50	70	70	90
S35 Hollow brick normal concrete Hbn acc. to EN 771-3, *e.g. Adolf Blatt*  (300x240x240) hammer drilling	6/1,6	-	-	-	-	**2,5**	-	**2,0**	-	-
	4/1,6	-	-	-	-	**1,5**	-	**1,2**	-	-
	2/1,6	-	-	-	-	**0,75**	-	**0,6**	-	-
S36 Heat insulation brick WDB *e.g. Gisoton*  (390x240x240) hammer drilling	2/0,7	--	-	-	-	**1,5**	-	-	-	-
Partial safety factor	γ_{Mm} [1)]	**2,5**								

[1)] In absence of other national regulations.

fischer frame fixing SXR / SXRL	**Annex C 19**
Performances Characteristic resistance for use in hollow or perforated masonry	

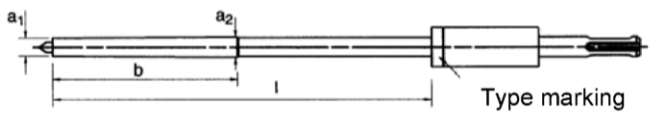
Table C20.1: Characteristic resistance F_{Rk} in [kN] in autoclaved aerated concrete (AAC), use category "d"

Base material [*Supplier Title*] Geometry, DF or nom. size (L x W x H) [mm] and drilling method	Min. compressive strength f_b [N/mm²]	Characteristic resistance F_{Rk} [kN] 50/80°C								
		SXR 8	SXRL 8			SXR 10	SXRL 10		SXRL 14	
		h_{nom} [mm]								
		≥ 50	≥ 50	≥ 70	≥ 90	≥ 50	≥ 70	≥ 90	≥ 70	≥ 90
Autoclaved aerated concrete, AAC acc. to EN 771-4:2011 e.g. (500x120x300) e.g. (500x250x300) hammer drilling	≥ 6	-	-	**1,5** **3,0**[5]	**2,0** **3,0**[5]	**0,75** **0,9**[2]	**2,0** **2,5**[6] **3,0**[4]	**2,5** **3,0**[6] **4,0**[4]	**4,0**	**5,0**
	≥ 4	-	-	**0,9** **1,5**[5]	**1,2** **1,5**[5]	**0,75** **0,9**[2]	**1,2** **1,5**[6] **2,0**[4]	**1,5** **2,5**[4]	**2,5**	**3,0**
	≥ 3	-	-	**0,6** **0,9**[5]	**0,9** **1,2**[5]	**0,4**[3] **0,5**[2)3)]	**0,9** **1,2**[4]	**0,9** **1,2**[6] **1,5**[4]	**1,5**	**2,0**
	≥ 2	-	-	**0,4**	**0,6**	**0,4**[3] **0,5**[2)3)]	**0,5** **0,75**[4]	**0,6** **0,9**[4]	**0,9**	**1,2**
Partial safety factor	γ_{MAAC} [1]	**2,0**								

1) In absence of other national regulations.
2) Only valid for temperature range 30/50° C.
3) For the fixing in autoclaved aerated concrete with a nominal compressive strength f_{ck} < 4 N/mm² the hole is made by using the accompanying AAC hole punch in accordance with Table C20.2.
4) Values valid for member thickness h_{min} ≥ 175 mm.
5) Only valid for edge distance c ≥ 120 mm.
6) Only valid for edge distance c ≥ 180 mm.

Table C20.2: Assignment AAC hole punch type – anchor type (length) only for AAC f_b < 4N/mm² SXR 10

Hole punch only for SXR 10 h_{nom} = 50 mm in AAC f_b < 4N/mm²					Anchor type (length)
Type	a_1	a_2	b	l	
GBS 10 x 80	9	10	80	85	SXR 10 x **52** SXR 10 x **60** SXR 10 x **80**
GBS 10 x 100			90	105	SXR 10 x **100**
GBS 10 x 135				140	SXR 10 x **120**
GBS 10 x 160				165	SXR 10 x **140** SXR 10 x **160**
GBS 10 x 185				190	SXR 10 x **180**
GBS 10 x 230				235	SXR 10 x **200** SXR 10 x **230**



fischer frame fixing SXR / SXRL

Performances
Characteristic resistance for use in autoclaved aerated concrete

Annex C 20