

# fischer fixing compass

## **Solid and hollow brick masonry.**



**fischer**   
innovative solutions

# Our fixing specialists for solid and hollow brick masonry.

## Injection system FIS V

The strongest and most flexible solution in masonry.

Maximum load-bearing capacity in solid brick Mz: 2.29 kN (229 kg)

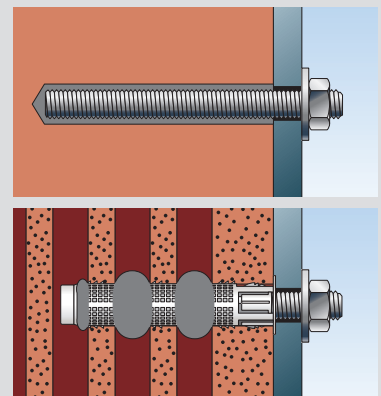


Maximum load-bearing capacity in hollow brick KSL: 1.71 kN (171 kg)



fischer injection mortar FIS V – securely bonds the anchor part in solid and perforated brick masonry and allows for the highest loads

- Highest loads due to bonding technology in solid and hollow brick
  - The anchor rod FIS A can be anchored in solid brick at a depth of 50 – 100 mm according to the approval. Larger anchorage depths are possible at all times
  - In hollow brick, the anchor sleeve provides the necessary distribution of the mortar and ensures an economical use of the mortar
- The push-through anchor sleeve allows for push-through installation for bulky fixture parts and for multiple fixing points; this considerably reduces installation effort and saves time
- Non-bearing plaster layers can be easily bridged
- Full load-bearing capacity after mortar curing time – *HIGH SPEED* mortar after just 30 minutes



### Type

System in solid and hollow brick can be used with:



Metric anchor rod FIS A for indoor and outdoor use

Metric indoor thread anchor FIS E for indoor use with metric screws and anchor rods

### Accessories for perforated brick masonry



Anchor sleeve FIS H K for anchorage in hollow masonry

Push-through anchor sleeve FIS H K for the anchorage of attachments with several fixing points using push-through installation

### Type of installation



## Frame fixing SXR

The all-rounder for solid and hollow brick masonry.

Maximum load-bearing capacity in solid brick Mz: 0.57 kN (57 kg)

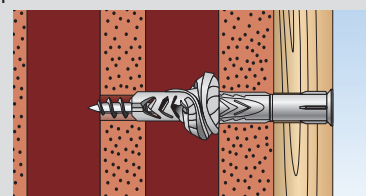
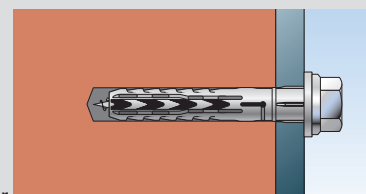


Maximum load-bearing capacity in hollow brick KSL: 0.57 kN (57 kg)



**fischer frame fixing SXR – the short expansion element allows for high loads with a low anchorage depth**

- High loads due to the knotting/expanding of the anchor in the building material
  - In solid brick, the safety screw expands the expansion part against the drill hole wall
  - In hollow brick, the SXR knots behind the solid part of the bricks, thus ensuring a secure load application
- Pre-assembled set comprising fixing sleeve and safety screw
- Quick and easy push-through installation
- Approved for the anchorage of multiple fixings, e.g. façade sub-structures. Over 40 different solid and hollow bricks are regulated in the approval
- Load bearing capacity immediately after installation



### Versions



Frame fixing SXR-T  
for timber constructions



Frame fixing SXR-FUS  
for metal constructions

### Type of installation



## Frame fixing SXRL

The problem-solver with a long expansion part for hollow bricks.

Maximum load-bearing capacity in solid brick Mz: 1.57 kN (157 kg)

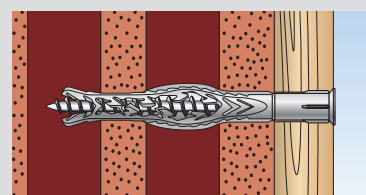
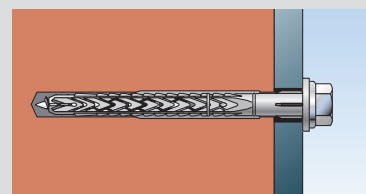


Maximum load-bearing capacity in hollow brick KSL: 0.71 kN (71 kg)



**fischer frame fixing SXRL – two expansion zones allow for an ideal load distribution and thus a high load-bearing capacity**

- High load due to long, powerful expansion part
  - In solid brick, the two expansion zones combine to create a long expansion element
  - In hollow brick, the two expansion zones ensure a force transition that protects the building material
- With usage lengths up to 290 mm – for a wide range of applications
- Pre-assembled set comprising fixing sleeve and safety screw
- Quick and easy push-through installation
- Approved for the anchorage of multiple fixings, e.g. façade sub-structures
- Load bearing capacity immediately after installation



### Versions



Frame fixing SXRL-T  
for timber constructions



Frame fixing SXRL-FUS  
for metal constructions

### Type of installation



## Frame fixing FUR

The adaptable lamella plug for solid and hollow masonry.

Maximum load-bearing capacity in solid brick Mz: **0.86 kN (86 kg)**

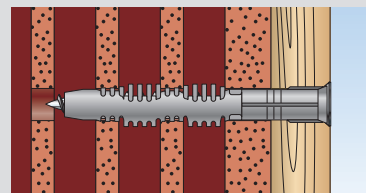
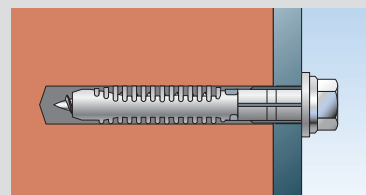


Maximum load-bearing capacity in hollow brick KSL: **0.57 kN (57 kg)**



**fischer frame fixing FUR – the powerful specialist with lamella technology**

- High loads in solid and hollow brick masonry due to the lamella teeth
- Gentle force transmission due to the adaptation of the asymmetric lamella teeth in the building material
- Pre-assembled set comprising fixing sleeve and safety screw
- A very user-friendly anchor – quick and easy push-through installation
- Approved for the anchorage of multiple fixings, e.g. façade sub-structures
- Load-bearing capacity immediately after installation



### Versions



Frame fixing FUR-T  
for timber constructions



Frame fixing FUR-FUS  
for metal constructions



Frame fixing FUR-SS  
for metal constructions

### Type of installation



## Frame fixing SXS

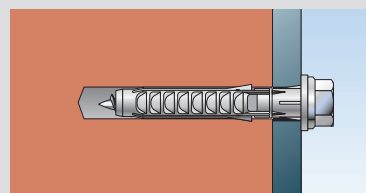
The specialist for solid brick.

Maximum load-bearing capacity in solid brick Mz: **0.43 kN (43 kg)**



**fischer frame fixing SXS – the powerful specialist with 4-way expansion**

- High loads due to CO-NA screw (conical expansion) and expansion in four directions in solid brick
- The largest possible screw diameter of the CO-NA screw provides a high bending moment for challenging fixings
- Pre-assembled set comprising fixing sleeve and CO-NA safety screw
- Quick and easy push-through installation
- Approved for the anchorage of multiple fixings, e.g. façade sub-structures
- Can be loaded immediately after installation



### Versions



Frame fixing SXS-T  
for timber constructions



Frame fixing SXS-FUS  
for metal constructions

### Type of installation





## Universal fixing UX

The universal solution in masonry for light loads.

Maximum load-bearing capacity in solid brick Mz: **0.50 kN (50 kg)**

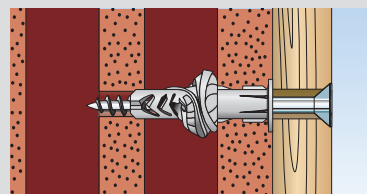
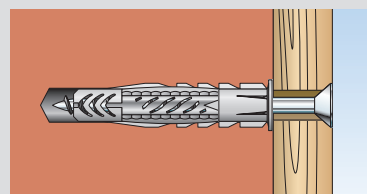


Maximum load-bearing capacity in hollow brick KSL: **0.60 kN (60 kg)**



**fischer universal fixing UX – the universal expansion part ideally adapts to the building material**

- Good load-bearing capacity due to the universal expansion part
  - In solid brick, the anchor expands against the drill hole wall
  - In hollow brick, the UX knots behind the first solid part of brick
- Quick and easy pre-positioned and push-through installation
- Load-bearing capacity immediately after installation



### Versions



Universal fixing UX with or without rim for the use of screws, hooks and eyes

### Type of installation



## Expansion plug SX

The strong solution for medium loads in solid and hollow brick.

Maximum load-bearing capacity in solid brick Mz: **0.65 kN (65 kg)**

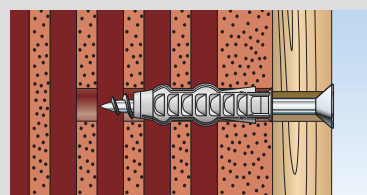
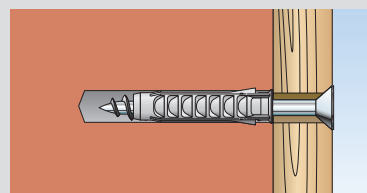


Maximum load-bearing capacity in hollow brick KSL: **0.30 kN (30 kg)**



**fischer expansion plug SX – the 4-way expansion enables an ideal force transition in the building material**

- Very good load-bearing capacity due to expansion in four directions, especially in solid brick
- Quick and easy pre-positioned and push-through installation
- Load-bearing capacity immediately after installation



### Versions









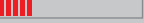

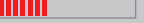
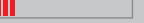
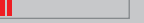
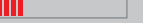

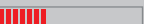
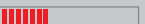
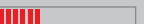
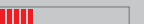
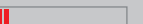


Universal fixing SX with rim for the use of screws, hooks and eyes

### Type of installation



# The right fixing for every application.

Designation	fischer Injection technology FIS V	fischer long-shaft fixings				fischer universal fixing	
		SXR 10	SXRL 10/14	FUR 10	SXS 10	UX	SX
Illustration							
Possible max. load with ø 10 in brick Mz	2.29 kN (229 kg) 	0.57 kN (57 kg) 	1.57 kN (157 kg) 	0.86 kN (86 kg) 	0.43 kN (43 kg) 	0.50 kN (50 kg) 	0.65 kN (65 kg) 
Possible max. load with ø 10 in perforated sand-lime brick KSL	1.71 kN (171 kg) 	0.57 kN (57 kg) 	0.71 kN (71 kg) 	0.57 kN (57 kg) 	-	0.60 kN (60 kg) 	0.30 kN (30 kg) 
Approval	Single point fixing	Multiple fixing	Multiple fixing	Multiple fixing	Multiple fixing	No approval	No approval
Functionality	Bonded	Expansion / knotting	Expansion	Expansion	Expansion	Expansion / knotting	Expansion
Application out-doors	Yes, with anchor rod A4	Yes, with safety screw A4	Yes, with safety screw A4	Yes, with safety screw A4	Yes, with safety screw A4	Yes, with screw A4	Yes, with screw A4
Pre-positioned installation	Yes	No	No	No	No	Yes	Yes
Push-through installation in hollow brick	Yes, with push-through anchor sleeve	Yes	Yes	Yes	Yes	Yes	Yes
Push-through installation in solid brick	Yes, with annular gap filling	Yes	Yes	Yes	Yes	Yes	Yes
Stand-off installation	Yes	No	No	No	No	No	No
Type of connection	External and internal thread	Safety screw	Safety screw	Safety screw	CO-NA safety screw	Chipboard screws	Chipboard screws
Usage length (conditional)	Anchor rod length	up to 210 mm	up to 220 mm / up to 290 mm	up to 160 mm	up to 130 mm	screw length	screw length
Anchorage depth in hollow brick	50 mm to 200 mm, depending on perforated sleeve	50 mm	70 mm and 90 mm	70 mm	-	Depends on anchor size	Depends on anchor size
Anchorage depth in solid brick	50 mm to 100 mm	50 mm	70 mm and 90 mm	70 mm	50 mm	Depends on anchor size	Depends on anchor size

## Please note:

Loading capacity	Note curing time	Instantly load-bearing	Instantly load-bearing	Instantly load-bearing	Instantly load-bearing	Instantly load-bearing	Instantly load-bearing
Installation	Sophisticated installation, accessories required	Simple and quick installation	Simple and quick installation	Simple and quick installation	Simple and quick installation	Simple and quick installation	Simple and quick installation
Installation through tiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Removal	Surface-flush removal with internal thread anchor	Surface-flush removal	Surface-flush removal	Surface-flush removal	Surface-flush removal	Surface-flush removal	Surface-flush removal

## Application examples

<ul style="list-style-type: none"> <li>- Canopies</li> <li>- Awnings</li> <li>- Railings</li> <li>- Consoles</li> <li>- Satellite antennas</li> <li>- Wooden beams and timber constructions (push-through anchor sleeve FIS H K)</li> <li>- Car ports (push-through anchor sleeve FIS H K)</li> </ul>	<ul style="list-style-type: none"> <li>- Wood façade sub-structures</li> <li>- Aluminium façade sub-structures</li> <li>- Wall cabinets</li> <li>- Fixing of wooden beams</li> <li>- Screen mountings</li> </ul>	<ul style="list-style-type: none"> <li>- Lighting</li> <li>- Light shelves</li> <li>- Hanging baskets</li> <li>- Curtain rails</li> <li>- Letter boxes</li> </ul>
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# Loads

Highest recommended loads of an individual anchor in kN.

fischer injection technique

Designation	Permissible tension load $N_{perm}$ and Permissible shear load $V_{perm}$	Vertically perforated brick HLz	Hollow sand-lime brick KSL	Solid brick Mz	Solid sand-lime brick KS
Injection system FIS V with anchor rod FIS A (ETA-10/0383), valid for temperature range -40 °C to +80 °C and dry masonry (d/d) <sup>1,3</sup>					
M6	$N_{app}$	1.57 <sup>a</sup>	1.29 <sup>a</sup>	2.00 <sup>11</sup>	2.29 <sup>a</sup>
	$F_{app}$	1.43 <sup>a</sup>	1.14 <sup>a</sup>	1.14 <sup>a</sup>	1.29 <sup>a</sup>
M8	$N_{app}$	1.57 <sup>a</sup>	1.71 <sup>1</sup>	2.00 <sup>11</sup>	3.43 <sup>a</sup>
	$F_{app}$	2.71 <sup>1</sup>	1.71 <sup>1</sup>	1.43 <sup>a</sup>	2.57 <sup>a</sup>
M10	$N_{app}$	100 <sup>4</sup>	1.71 <sup>1</sup>	2.14 <sup>11</sup>	3.43 <sup>a</sup>
	$F_{app}$	1.86 <sup>6</sup>	1.71 <sup>1</sup>	1.57 <sup>a</sup>	3.14 <sup>a</sup>
M12	$N_{app}$	1.29 <sup>a</sup>	1.71 <sup>a</sup>	2.29 <sup>11</sup>	3.43 <sup>a</sup>
	$F_{app}$	3.43 <sup>a</sup>	1.71 <sup>a</sup>	1.57 <sup>a</sup>	3.43 <sup>a</sup>
M16	$N_{app}$	1.29 <sup>a</sup>	1.71 <sup>a</sup>	2.29 <sup>11</sup>	3.43 <sup>a</sup>
	$F_{app}$	3.43 <sup>a</sup>	1.71 <sup>a</sup>	1.43 <sup>a</sup>	3.43 <sup>a</sup>
Injection system FIS V with internal thread anchor FIS E (ETA-10/0383), valid for temperature range -40 °C to +80 °C and dry masonry (d/d) <sup>1,3</sup>					
FIS E 11x85 M6	$N_{app}$	1.00 <sup>1a</sup>	1.43 <sup>1a</sup>	1.571 <sup>a</sup>	3.43 <sup>1a</sup>
	$F_{app}$	1.43 <sup>a</sup>	1.14 <sup>a</sup>	1.14 <sup>a</sup>	1.29 <sup>a</sup>
FIS E 11x85 M8	$N_{zul}$	1.00 <sup>1a</sup>	1.43 <sup>1a</sup>	1.57 <sup>1a</sup>	3.43 <sup>1a</sup>
	$F_{app}$	1.86 <sup>6</sup>	1.71 <sup>1</sup>	1.43 <sup>a</sup>	2.57 <sup>a</sup>
FIS E 15x85 M10	$N_{app}$	1.29 <sup>1a</sup>	1.71 <sup>1a</sup>	1.57 <sup>1a</sup>	3.43 <sup>1a</sup>
	$F_{app}$	-	1.71 <sup>a</sup>	1.43 <sup>a</sup>	3.14 <sup>a</sup>
FIS E 15x85 M12	$N_{app}$	1.29 <sup>1a</sup>	1.71 <sup>1a</sup>	1.57 <sup>1a</sup>	3.43 <sup>1a</sup>
	$F_{app}$	-	1.71 <sup>1</sup>	1.43 <sup>a</sup>	3.43 <sup>1</sup>

fischer frame fixing and general fixing

Designation	Anchorage depth $h_{ef}$	Vertically perforated brick HLz	Hollow sand-lime brick KSL	Solid brick Mz	Solid sand-lime brick KS
Frame fixing					
Frame fixing SXR 10 (ETA-07/0121) <sup>1,3</sup>	50	0.26	0.57	0.57	0.86
Frame fixing SXRL 10 (ETA-07/0121) <sup>1,3</sup>	70	0.21	0.71	1.57	0.71
	90	0.21	0.71	1.57	2.43
Frame fixing SXRL 14 (ETA-14/0297) <sup>1,3</sup>	70	0.57	0.43	1.29	3.14
	90	0.71	0.71	-	-
Frame fixing FUR 10 (ETA-13/0235) <sup>1,3</sup>	70	0.37	0.57	0.86	1.00
Frame fixing SXS 10 (ETA-09/0352) <sup>1,3</sup>	50	-	-	0.43	0.71
fischer universal fixing UX (without approval), Recommended loads for a single anchor <sup>2,3,12</sup>					
UX 6x50	50	0.20	0.40	0.30	-
UX 8x50	50	0.20	0.50	0.30	-
UX 10x60	60	0.20	0.60	0.50	-
Universal fixing SX (without approval), Recommended loads for a single anchor <sup>2,3,12</sup>					
SX 6x50	50	0.07	0.30	0.30	0.50
SX 8x40	40	0.17	0.35	0.60	0.60
SX 10x50	50	0.30	0.30	0.65	1.20

When dimensioning, observe the approval in its entirety. Permissible edge distances and spacing and the minimum member thickness  $t_{min}$  should be taken from the relevant approval.

<sup>1)</sup> The required material safety factors and safety value of

$\gamma_F=1.4$  are considered

<sup>2)</sup> Contains safety factor 7

<sup>3)</sup> Applies to tension load, shear load and diagonal pull under each angle

<sup>4)</sup> When using perforated sleeve FIS H 12x50 K

<sup>5)</sup> When using perforated sleeve FIS H 12x85 K

<sup>6)</sup> When using perforated sleeve FIS H 16x85 K

<sup>7)</sup> When using perforated sleeve FIS H 16x130 K

<sup>8)</sup> When using perforated sleeve FIS H 20x85 K

<sup>9)</sup> Anchorage depth  $h_{ef}$  = 50 mm

<sup>10)</sup> Anchorage depth  $h_{ef}$  = 85 mm

<sup>11)</sup> Anchorage depth  $h_{ef}$  = 100 mm

<sup>12)</sup> Load values apply when using with wood screws:

6 mm anchor with screw diameter 5 mm

8 mm anchor with screw diameter 6 mm

10 mm anchor with screw diameter 8 mm

## What is solid and hollow brick masonry?



Masonry shows a very large variety in contrast to a concrete base material. The spectrum of different bricks that are joined together using various mortars or adhesives into a single masonry compound is very large.

**Perforated hollow** blocks with a dense structure like vertically perforated brick (HLz) or hollow sand-lime brick (KSL) are often made from the same compressive strength materials as solid bricks. However, they feature cavities. If higher loads are introduced into these building materials, special fixings should be used (e.g. injection technique or frame fixings), like those which bridge or fill out the cavities.

**Solid blocks** with a dense structure like masonry bricks (bricks or clinker bricks) or solid sand-lime bricks are building materials that are very resistant to compressive loads without cavities or with only a low percentage of hole surfaces (up to max. 15 %, e.g. as grip-hole). They are very well suited for anchoring fixings.

## Our all-round service for you.



We are a reliable partner, one that will stand by your side and address your individual requirements with advice and action:

- Our products range from chemical systems and steel anchors to plastic anchors.
- Competence and innovation through own research and development.
- Global presence and active sales service in more than 100 countries.
- Qualified application-specific advice for economic installation solutions that are compliant with directives. If need be we are there for you – even at the construction site.
- Training measures (some with certification) at your premises or at the fischer ACADEMY.
- Construction and design software for challenging fixings.