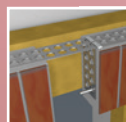


# Façade fastenings for masonry and concrete

The complete programme  
[www.mfixings.de](http://www.mfixings.de)



**MOSO  
perforated strip**



**Attachment for pre-  
fabricated parts**



**Single-bracket  
anchors**



**Scaffold anchors**



**Angle-bracket  
anchors**



**Horizontal  
connector**



**Façade fastenings  
optimised for  
thermal insulation**



**Lean Duplex Steel – The alternative**



DIN EN 845-1



Modersohn  
GmbH & Co. KG

*Stainless Steel?  
Modersohn!*

## Stainless Steel? Modersohn!

Dear customer,  
dear business friend,

welcome to Wilhelm Modersohn GmbH & Co. KG!

For more than 30 years now we are engaged in special attachment systems of stainless steel for the building industry.

This catalogue presents an overview of the various special attachment opportunities. In many cases an individual technical preparation is necessary. Please get in touch with our engineers, they will do it for you.

In addition to our system products in this catalogue, we offer to be your partner for special solutions of stainless steel.

More and more frequently, we are faced with questions concerning thermal bridges. To answer these, we contracted the Fraunhofer Institute for Building Physics in Stuttgart carry out some studies for us. We are delighted to say that the results show that, in the area of thermal insulation, too, brackets of duplex steels are far superior to products of normal steel. Another point is, that you can achieve better results with a lean construction style than using thermal breaks.

You can find more details about these results on pages 82 and 83 in this catalogue.

If you want to use brackets whose lean construction has a reduced effect on heat transfer, look out for our ecoINOX labels.

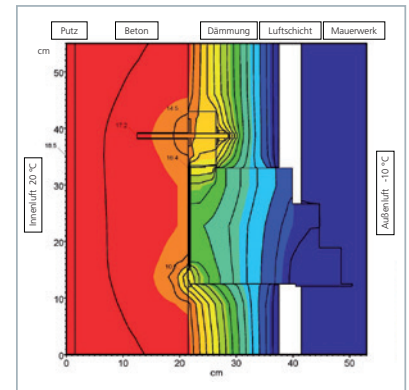
Yours sincerely



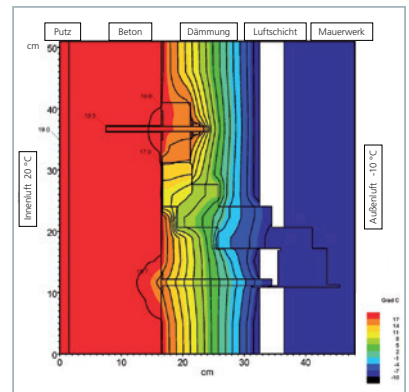
Wilhelm Modersohn jr.



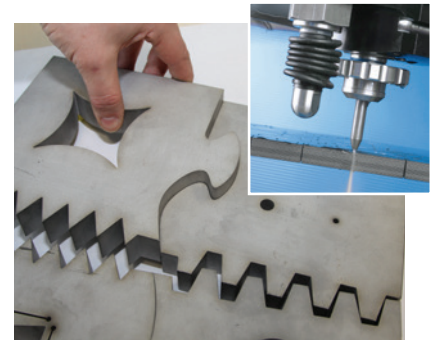
▲ A flexible staff and a modern machinery open up a multitude of possibilities machining stainless steel.



▲ Isotherm diagram of angle-bracket anchor WK-N-290-7,0 in normal steel



▲ Isotherm diagram of angle-bracket anchor WK-N-290-7,0 in stainless steel



▲ ... realised with our automatically or manual production.



▲ A well sorted store and an efficient logistic are basics for the fastest delivery.



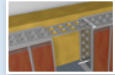
# The MOSO-House

MOSO-HAUS  
1

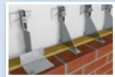


**Lintel opening**  
cw < 2,51m, conventional  
laid bricks

MOSO-HAUS  
2



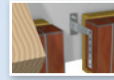
**Lintel opening**  
cw > 2,51m, conventional  
laid bricks



Page

8 | 42

MOSO-HAUS  
3



**Lintel opening**  
not visible,  
with low masonry height

24

8 | 10

MOSO-HAUS  
3



48 | 50

14 | 16

MOSO-HAUS  
4



**Masonry support**  
for short wall surfaces

28 | 30

18

MOSO-HAUS  
5



**Masonry support**  
for large wall surfaces

14 | 16
















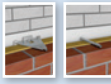

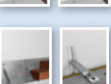
28 | 30



20





		<b>Masonry support at corners</b>	38			<b>Masonry support a band of windows with prefabricated parts</b>	28
		<b>Masonry support for low concrete heights</b>	32   34				50
		<b>Masonry support at pile</b>	28   38			<b>Fascia facing</b>	62
		<b>Masonry support continuous bottom view</b>	48   50			<b>Scaffold anchor</b>	72
			44   56				





# The products

## MOSO perforated strip

LB

Seite



The first coiled reinforcement. For universal use. In stainless steel or galvanized.

• Officially approved lintel reinforcement*:	MOSO perforated strip	<b>8/9</b>
• Variant specification	Lintel reinforcement	
• For large lintel openings	MOSO perforated strip	
	+ Supporting anchors:	<b>10</b>
• Masonry reinforcement with stretcher course:	MSP	<b>11</b>
• Structural masonry reinforcement		

## Single-bracket anchors

EK



The universal anchor for a double skinned façade. Rapidly available, easy installation. Tried-and-tested for many years.

Now available with labelling

• Universal anchors, adjustable:	EK-D	<b>14/15</b>
• Universal anchors:	EK-U	<b>16/17</b>
• The flexible solution for small loads:	EK-W	<b>18/19</b>
• With longer support:	EK-L	<b>20/21</b>
• For retroactive anchorage in the masonry	EK-M	<b>22/23</b>
• For soldier-course lintels with low masonry height:	EK-G	<b>24/25</b>
• Special anchors:	EK-S	<b>26</b>

## Angle-bracket anchors

WK



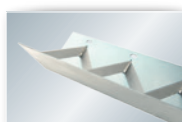
The systematic special solution for all situations. Contact our engineering team for further advice.

Now available with labelling

• Adjustable:	WK-D	<b>28/29</b>
• Standard angle-bracket anchors:	WK-N	<b>30/31</b>
• For low concrete heights at the base of the laying work:	WK-K	<b>32/33</b>
• For attachment to concrete floors:	WK-O	<b>34/35</b>
• For masonry as the base of the laying work:	WK-M	<b>36/37</b>
• For supporting walls at corners and piles:	WK-Z	<b>38/39</b>
• Special anchors:	WK-S	<b>40</b>

## Angled supports

WA



The solution for simple attachment situations. Customized versions are also available at short notice.

• Always well supported:	WA-Ü	<b>42/43</b>
	WA-Z	
• For a continuous soffit:	WA-D	<b>44/45</b>
	WA-M	
• Special anchors:	WA-S	<b>46</b>

## Attachments for prefabricated parts

• Universal anchor for prefabricated lintels, adjustable:	FB-D	<b>48/49</b>
• Universal anchor for prefabricated lintels:	FB-U	<b>50/51</b>
• Multiple anchors for parapet slabs:	FB-H	<b>52/53</b>
• Clamping anchor for parapet units:	FB-E	<b>54/55</b>
• Retaining anchor with adjustment:	FB-Z	<b>56/57</b>
• Retaining anchor with adjustment:	FB-DZA	<b>58/59</b>
• Special anchors:	FB-S	<b>60</b>



Do you manufacture or install prefabricated parts? We can offer you a large variety of tried-and-tested solutions for this purpose.

Now available with labelling

## Horizontal connectors

HV



Holds the façade perfectly secure and prevents it tipping over with due regard for movement due to temperature effects.

• Fascia facing:	HV-A	<b>62/63</b>
• Retainer for special supporting conditions:	HV-T	<b>64/65</b>
• Wire standard tie:	HV-D	<b>66/67</b>
• Cavity-wall tie for retroactive attachment:	HV-L	<b>68/69</b>
• Special versions:	HV-S	<b>70</b>

## Scaffold anchors

GA



Remain in the double skinned façade. These anchors can be reused many times. Made from high-quality stainless steel.

• Scaffold anchors for masonry façades:	GA-Q • GA-Z	<b>72/73</b>
• Special systems:	GA-S	<b>74</b>

## Accessories and versions

ZU



Everything is supplied by us from a single source. From suitable dowels and plugs to effective protection against pests. We can help.

• Lintel ties for invisible support:	DB•GH•HB•MBA-ES	<b>76/77</b>
• Connecting masonry with wall anchors:	MA-A	<b>78/79</b>
• Other accessories:		<b>80</b>

## Technical details



Our service means success for you!  
A concise and concentrated presentation of the technology behind masonry support and reinforcement.

• Comparative studies on thermal bridges		<b>82/83</b>
• For attachment in cracked concrete:	Fischer FHB II-AS	<b>84</b>
	Hilti HIT-Z-R	<b>85</b>
	Fischer FAZ II	<b>86</b>
	Fischer threaded rod FIS A	<b>87</b>
• For attachment to the anchor rail:	MBA	<b>88/89</b>
• Corners and edges, right and left		<b>90/91</b>
• Corner abutments and for expansion joints:	WL•WD	<b>92/93</b>
• Technical regulation governing masonry support		<b>94/95</b>
• Technical regulation governing the arrangement of expansion joints		<b>96</b>
• Scaffold anchorage DIN 4420		<b>97</b>
• Installation instructions for MOSO supporting anchors		<b>98/99</b>
• Principles for dimensioning		<b>100</b>
• Surface treatment		<b>101</b>

\*Valid for all products in our catalogue: The mentioned applications only reflect a focus. Please ask our engineers for more details.





## Technical DIBT approval for MOSO wall façade fastenings made of duplex steel D4, approval no. Z-30.3-19

**National technical approval Z-30.3-6 of 20th April 2009: "Products, fasteners and components made of stainless steels"**

Compared to well-known A4/A5 steels no. 1.4404/1.4571, the use of lean duplex steel for MOSO façade fastening systems has the following advantages:

- Better corrosion resistance, especially to chloride and hydrogen-induced stress corrosion cracking and pitting corrosion
- Twice as much strength! In accordance with the approval, the technical elastic limit  $R_p 0.2$ , which is taken as a basis for the static calculation, is at least 400 N/mm<sup>2</sup> (1.4362), or even 450 N/mm<sup>2</sup> (1.4062) depending on the lean duplex material. These strength values are basic strengths and may be taken as a basis for welded material. This does not apply to strain hardened A4/A5 steels which lose their strength again in the heat-affected zone through strain hardening.
- Approx. 18% higher rigidity, instead of E-module 170 000 N/mm<sup>2</sup> now 200 000 N/mm<sup>2</sup> can be taken as basis for static calculation
- Noticeably higher fatigue strength due to the ferritic content of the structure. This results in higher load capacity when exposed to dynamic forces
- Lower cold fusing tendency when tightening threads under load, due to the ferritic structure content
- Slimmer designs and more filigree constructions are possible with same load capacity
- Smaller and fewer thermal bridges in the façade
- Thermal expansion is lower due to the approx. 50% ferritic structure
- Higher load capacity at high temperatures. As high-temperature steel no waste at the technical elastic limit  $R_p 0.2$ . Lower tendency to become brittle than in 1.4462, also a low tendency towards

sigma phase formation due to the very low molybdenum content

- Continuous product and production control by the responsible approving authorities for MOSO façade fastening products
- The corrosion resistance of our fastening components is significantly higher in the sensitive welding seams! According to the approval, we weld our fastening products made of resistance class IV lean duplex steel, which is also approved for 1.4462.

See also the research project "Technical and economical alternatives to conventional austenitic steels under atmospheric conditions" AiF 16049 N/1.

With special welding procedures, which were proven in procedure tests conducted at SLV Duisburg, we are allowed to weld lean duplex steel also with 1.4404, 1.4401, 1.4571, normal steel S235, twisted ribbed steel BST 500 S, etc.

Lean Duplex steel is intensely magnetic. This is due to the 50% ferritic steel structure.

### Please note,

... that combinations of 1.4404, 1.4401, 1.4571 as well as lean duplex steel 1.4362 or 1.4062 are used for the MOSO façade fastenings depending on material procurement possibilities and current stock availability.

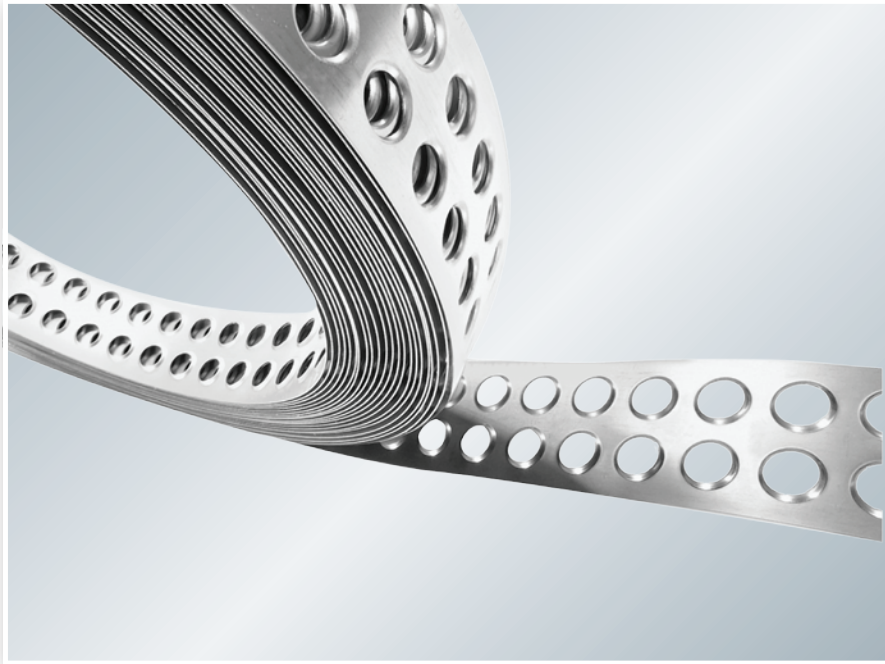
... that modification of MOSO façade fastenings made of Lean Duplex steel, particularly with regard to welding, may only be performed by Modersohn GmbH & Co. KG based in Spenge, Germany!

### Alloy constituents and structures compared to 1.4404/1.4571, DIBt approval Z-21.8-1892

See also materials of resistance class III

Type of structure	Mat. No.	DIN	C % Max.	Cr % From Up to	Mo % From Up to	Ni % From Up to	Other % Max. / From Up to
Lean Duplex	1.4062	X2CrNi22-2	0,030	21,5-24,0	≤ 0,45	1,00-2,90	N 0,16-0,28
	1.4162	X2CrMnNiN21-5-1	0,04	21,0-22,0	0,10-0,80	1,35-1,70	N 0,20-0,25; Cu 0,10-0,80
	1.4482	X2CrMnNiMoN21-5-3	0,030	19,5-21,5	0,10-0,60	1,50-3,50	N 0,05-0,20; Cu max. 0,10
	1.4362	X2CrNiN23-4	0,030	22,0-24,0	0,10-0,60	3,50-5,50	N 0,05-0,20; Cu 0,10-0,60
Standard-Austenite	1.4404	X2CrNiMo17-12-2	0,030	16,5-18,5	2,00-2,50	10,0-13,0	N max. 0,10
	1.4571	X6CrNiMoTi17-12-2	0,08	16,5-18,5	2,00-2,50	10,5-13,5	Ti:5xC bis 0,70
Standard Duplex Stainless Steel	1.4462	X2CrNiMoN22-5-3	0,030	21,0-23,0	2,50-3,50	4,50-6,50	N 0,10-0,22





# MOSO-perforated strip



## MOSO perforated strip: reinforcement in coils

MOSO perforated strip was specially developed to durable prevent unattractive visible cracks forming in buildings, to minimize claims under warranty and above all to make the bricklayer's everyday work easier.

Self-supporting lintel reinforcement over doors and windows is another preferred area of use for MOSO perforated strip.

### Areas of use include the following, for example:

- Connecting attachment from wall to wall
- Connecting attachment between concrete and masonry
- Preventing the formation of cracks near door and window openings, on walls subject to vertical point loads and connected structural elements of different heights
- Supporting masonry for lintel openings



▲ MOSO perforated strip in a mortar bed as structural reinforcement while raising the wall.



▲ Used as supporting element, MOSO perforated strip stabilizes door and window lintels.



▲ MOSO perforated strip in the original packaging


MOSO perforated strip is supplied in coils of 25, 50 or 100 m in a cardboard packaging.

### Easy to use:



- ① Conveniently carried on site.
- ② Simply pull the strip out of the box ...
- ③ ... cut to length with metal shears
- ④ ... And press it firmly into the mortar. That is all!



Suitable:	Lintel reinforcement	Structural prevention of cracks	Structural prevention of cracks	Structural prevention of cracks	Structural prevention of cracks
Perforated strip length	 E 420 (high-tensile stainless steel)	E 235 (stainless steel)	Steel (galvanized)	Thin-bed stainless steel	Thin-bed steel (galvanized)
	Artikel-No.	Artikel-No.	Artikel-No.	Artikel-No.	Artikel-No.
25 m (box)	600500	600300	600100	600200	600250
50 m (box)	600510	600310	600110	600210	600260
100 m (box)	600520	600320	600120	-	-

Perforated binder	Artikel-No.	Artikel-No.	Artikel-No.	Artikel-No.	Artikel-No.
050 (stretcher course)	600660*	-	-	-	-
090 (brick-on-edge course)	600600	-	-	-	-
190 (soldier course)	600610	-	-	-	-
310 (1½-fold soldier course)	600650	-	-	-	-

\* Not covered by the permit

Attachment accessories (application - see installation instructions)	Packing unit	Article No.
Re-anchoring binder to deflect forces into the compression zone	100 units	600620
Round bar 4 x 250 mm for pinning the brick-on-edge course or soldier course	100 units	600630



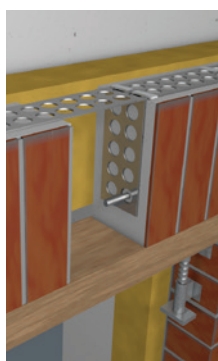
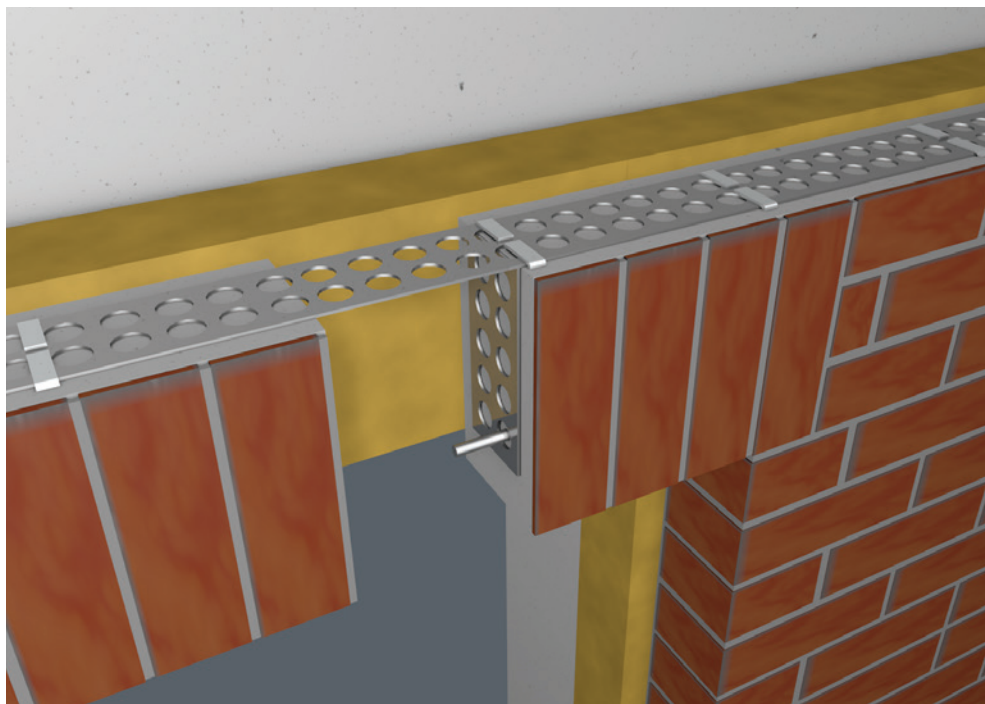
# MOSO perforated strip as supporting element



▲ Perforated binder ...

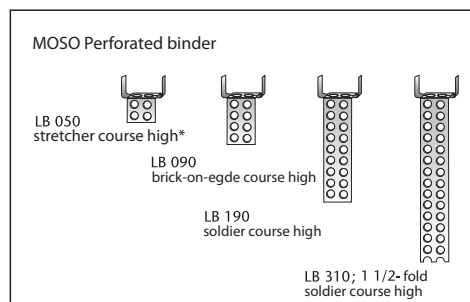


▲ ...hooked onto the brick while raising the wall.



▲ In addition to soldier courses (see diagram), stretcher and brick-on-edge courses or 1½-fold soldier courses can also be realized.

- Use of the MOSO perforated strip effectively reinforces the brick lintel and makes it self-supporting.
- The lintel can be realized as either a soldier course or a brick-on-edge course.
- Perforated binders and re-anchoring binders are also installed to ensure a secure connection between the brickwork (see detail).
- MOSO perforated strip is officially approved for use in lintels in double skinned façades work in accordance with DIN 1053-1 using bricks in accordance with DIN 105-1 and DIN 105-2 of compression strength class 12.



When the soldier course is complete, MOSO perforated strip is inserted between the binders and the binder arms are simply folded inwards. That is all!

Table of material required per lintel *1)		Maximum width of opening $l_w$ (m)						
		≤ 1,01	≤ 1,26	≤ 1,51	≤ 1,76	≤ 2,01	≤ 2,26	≤ 2,51
Number of perforated strip layers	on $h_0 \geq 0,42$ m *2)	1	1	1	1	1	1	2
	on $h_0 \geq 0,75$ m *2)	1	1	1	1	1	1	1
Cut perforated strip length (m)		1,73	1,98	2,23	2,48	2,73	2,98	3,23
Number of perforated binders (LB..)		4	5	6	7	8	9	10
Number of re-anchoring binders (RVB)				6	7	8	9	10

\*1) On-site pinning for brick-on-edge and soldier courses must be included additionally

\*2)  $h_0$  equals the height of masonry above the perforated strip layer. The minimum masonry height equals five layers normal format (NF) 42 cm.

## Text for invitations to tender

...m lintel support with MOSO perforated strip **type 50 E 420** for clear width ...m, facing brick format ..., lintel height ...cm, including secondary reinforcement of stainless steel, to be delivered and installed correctly.

# MOSO perforated strip and supporting anchors

## Lintels with Version c<sub>w</sub> 2,51 m - 5,00 m

Through the combination of

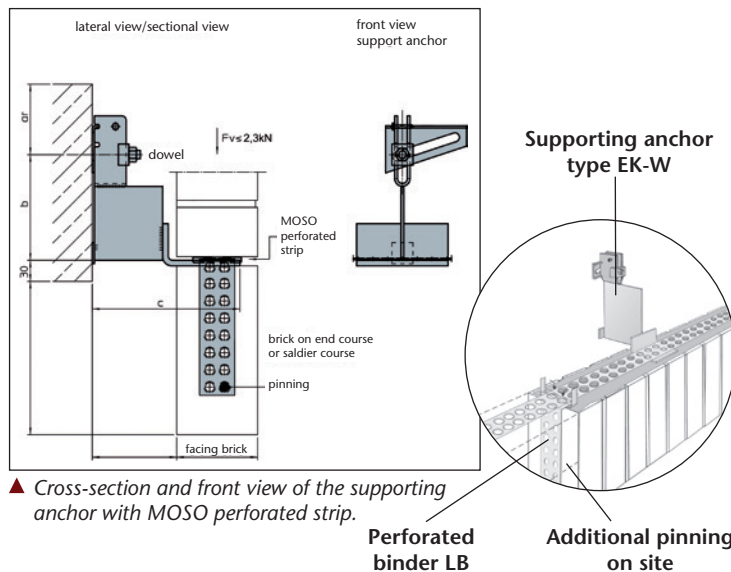
- officially approved MOSO perforated strip type 50 E 420 and
- MOSO supporting anchors, lintels with a length of more than 2,50 m can also be realized.

### Product information

The first coiled reinforcement.  
For universal use. In stainless steel.

### Use and application

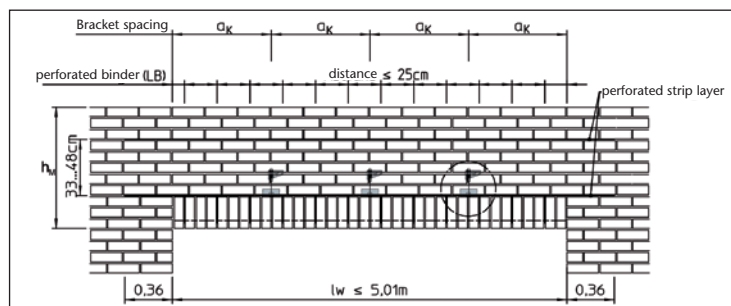
- Supporting anchors allow the MOSO perforated strip to be used for clear widths > 2.51 metres.
- The supporting anchors are in turn anchored in the concrete of the load-bearing wall by means of officially approved fastening elements.
- Other bracket versions are possible. Contact our technical advisers for further information.
- The intervals between supporting anchors must be selected in accordance with the planned masonry height.
- A second layer of MOSO perforated strip is laid between 33 cm and 48 cm above the first layer.
- Perforated binders installed at intervals of < 25 cm ensure a secure connection to the brick-on-edge or soldier course below.
- Further information can be found in our installation instructions.
- Round bars sized 4 x 250 mm are also available for soldier course pinning.



▲ Cross-section and front view of the supporting anchor with MOSO perforated strip.

Supporting anchor EK-W		Load capacity 3.5 kN		Other anchor versions on request			
Distance from wall	Anchor designation	Cantilever length c	Center distance b	Distance from wall	Anchor designation	Cantilever length c	Center distance b
1 - 3	EK-W 110-2,3	11,0	15,0	9 - 11	EK-W 190 - 2,3	19,0	15,0
3 - 5	EK-W 130-2,3	13,0	15,0	11 - 13	EK-W 210 - 2,3	21,0	15,0
5 - 7	EK-W 150-2,3	15,0	15,0	13 - 15	EK-W 230 - 2,3	23,0	17,5
7 - 9	EK-W 170-2,3	17,0	15,0	15 - 17	EK-W 250 - 2,3	25,0	17,5

specification in cm



▲ Arrangement of perforated strip layers and supporting anchors in the masonry wall.

Table of material required <sup>(1)</sup> per lintel

Maximum clear width c <sub>w</sub> [m]										
	≤ 2,76	≤ 3,01	≤ 3,26	≤ 3,51	≤ 3,76	≤ 4,01	≤ 4,26	≤ 4,51	≤ 4,76	≤ 5,01
Min.height of masonry h <sub>m</sub> [m]	0,42 <sup>(2)</sup> - 1,00									
Distance between anchors a <sub>k</sub> [m]	< 1,00									
Number of supporting anchors	3	3	3	4	4	4	4	5	5	5
Cut perforated strip length [m] (2x)	3,48	3,73	3,98	4,23	4,48	4,73	4,98	5,23	5,48	5,73
Number of perforated binders (LB...)	11	12	13	14	15	16	17	18	19	20
Maximum clear width c <sub>w</sub> [m]										
	≤ 2,76	≤ 3,01	≤ 3,26	≤ 3,51	≤ 3,76	≤ 4,01	≤ 4,26	≤ 4,51	≤ 4,76	≤ 5,01
Min.height of masonry h <sub>m</sub> [m]	1,00 - 1,60									
Distance between anchors a <sub>k</sub> [m]	< 0,75									
Number of supporting anchors	4	5	5	6	6	6	7	7	7	8
Cut perforated strip length [m] (2x)	3,48	3,73	3,98	4,23	4,48	4,73	4,98	5,23	5,48	5,73
Number of perforated binders (LB...)	11	12	13	14	15	16	17	18	19	20

<sup>(1)</sup> On-site pinning for brick-on-edge and soldier courses, as well as lintel sheeting if applicable, must be included additionally. <sup>(2)</sup> Min. masonry height of 5 layers normal format (NF) = 42 cm required on site.

**Order data:** Number Supporting anchors as specified in Table 1 (dowels must be ordered separately) or supporting anchors on request.

Metres Perforated strip type 50 E 420 (packed in lengths of 25, 50, 100 or 200 m).

Number Perforated binders LB 190 E 420 or LB 090 E 420 (also wire pins and lintel sheeting on request).

Subject to change without notice. Errors and omissions expected.

**Version 5.1**



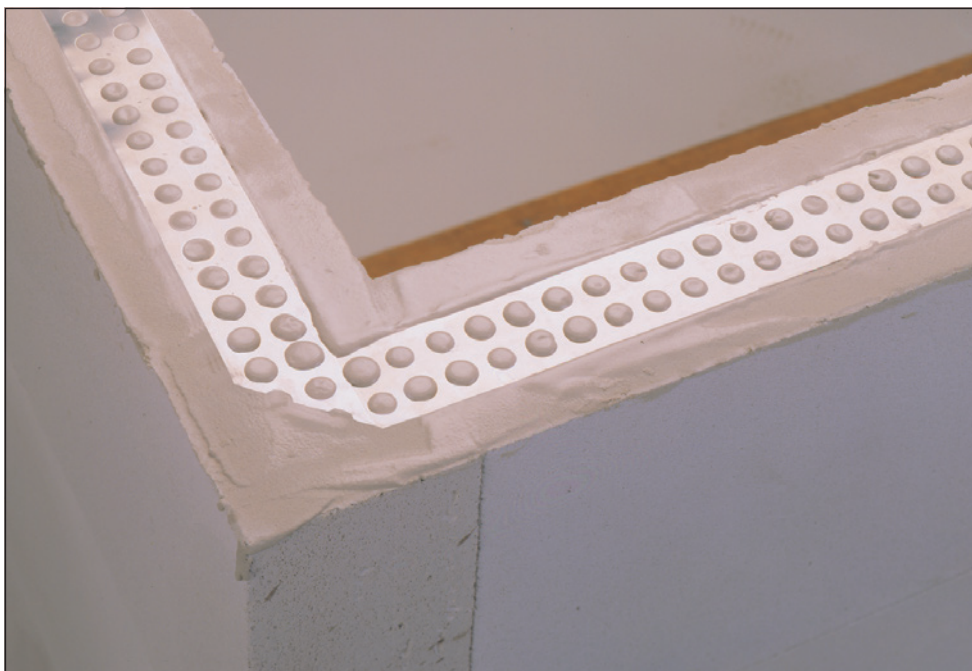
# Structural masonry reinforcement

... with MOSO perforated strip type 50 E 235 stainless steel or type 50 normal steel galvanized.

## Range of applications:

Cracking cannot be excluded in certain parts of the masonry wall. Although they generally have no effect on the stability against collapse, they frequently constitute a visual and functional defect.

Such cracking can be prevented by inserting a 5 cm wide MOSO perforated strip in the masonry. Use of structural reinforcement to prevent the formation of cracks is not subject to any official regulations by the construction supervisory authorities or DIN standards.

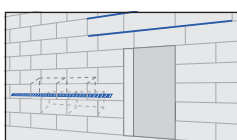
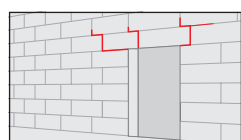


MOSO-perforated strip in a thinbed fugue as reinforcement of gas-aerated concrete walls

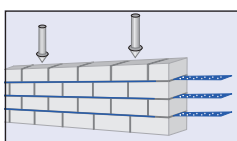
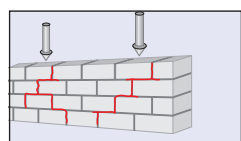
A number of illustrative examples for using the perforated strip are shown on this page.

The MOSO perforated strip type 50 E 235

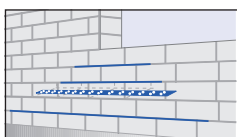
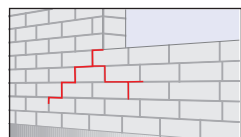
stainless steel should be used for exterior and facing brick work, as well as for other places, which are exposed to corrosion.



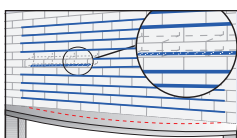
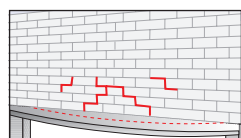
Use of MOSO perforated strip (right) prevents the formation of large shrinkage cracks.



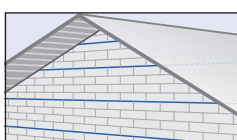
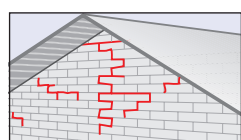
Such critical areas as brick walls subject to point loads, e.g. due to steel girders, can also be protected against large cracks and compressive stresses.



Cracks due to notch stresses can similarly be prevented by inserting MOSO perforated strip (right) when connecting building parts of different heights.



A wall reinforced with MOSO perforated strip (right) is structurally very much more resistant to tensile and compressive stresses, e.g. by sagging ceilings near the partition walls.



Use of MOSO perforated strip in the gable (right) minimizes the width of cracks due to shrinkage/tensile stress and/or temperature-related stresses.



▲ MOSO perforated strip on a roll

# Overview of load stages and cantilever lengths

Type	Load stage	3,5 kN		7,0 kN		10,5 kN		25,0 kN	
	Distance/wall	Cantilever lengths K	Bracket height x	Cantilever lengths K	Bracket height x	Cantilever lengths K	Bracket height x	Cantilever lengths K	Bracket height x
<b>EK - D</b> <b>EK - U</b> <b>WK - D</b> <b>WK - N</b> <b>FB - D</b> <b>FB - U</b>	0-30	110	150	110	200	110	250	110	based on static calculation
	20 - 50	130	150	130	200	130	250	130	
	40 - 70	150	150	150	200	150	250	150	
	60 - 90	170	150	170	200	170	250	170	
	80 - 110	190	150	190	200	190	250	190	
	100 - 130	210	150	210	200	210	250	210	
	120 - 150	230	175	230	250	230	300	230	
	140 - 170	250	175	250	250	250	300	250	
	160 - 190	270	175	270	250	270	300	270	
	180 - 210	290	175	290	250	290	300	290	
	200 - 230	310	175	310	300	310	350	310	
	220 - 250	330	175	330	300	330	350	330	
	240 - 270	350	200	350	300	350	400	350	
	260 - 290	370	200	370	300	370	400	370	
	280 - 310	390	200	390	350	390	400	390	
	300 - 330	410	250	410	350	410	450	410	
	320 - 350	430	250	430	400	430	450	430	
	340 - 370	450	250	450	400	450	450	450	

Other dimensions on request

Legend		
$c_w$	clear width	[m]
$a_k$	Distance between brackets	[m]
$a_r$	distance/edge	[mm]
$h_{min}$	Minimum component height	[mm]
$x$	bracket height	[mm]
$B$	Support length	[mm]
$B_v$	Distance from lower edge of concrete to support layer	[mm]
$V$	Offset measurement, $V \geq B_v + 30\text{mm}$	[mm]
$K$	cantilever lengths	[mm]
$L$	bond length / length	[mm]
$a$	distance / Load leverage	[mm]
$h_{min}$	Min. thickness of part	[mm]
$h_{D,cr}; I_{D,o}$	Position of compression/gravitation head anchor	[mm]
$h_{D,w}; I_{D,u}$	Position of compression/suction anchor below	[mm]
$h_{H,o}$	Position of built-in parts	[mm]
$h_{F,cr}; I_F$	Position of clamping anchor	[mm]
$H$	Slab height	[mm]
$d_o$	nominal drill diameter	[mm]
$h_o$	Depth of drilled hole	[mm]
$T_{inst}$	torque	[mm]
$F_v$	Vertical force (characteristic)	[kN]
$L_R$	recommended distance between expansion joints	[m]
$R$	resulting anchoring force	[kN]
$D$	Compressive force (characteristic)	[kN]
$Z$	tensile force (characteristic)	[kN]
$b$	Anchorage lever arm	[mm]
$j$	overall possibility of adjustment	[mm]

## Method

A building project takes several steps from design to completion. We are happy to assist you with any queries you have about fastening technologies.

At this point we would like to provide you with a small outline of when which decisions and which planning steps are necessary in order to move forward with the curtain wall. Once the fundamental questions for the fastening technology – such as the building's elevations, the cavity width and the type of brick (precast concrete component) – have been established, it is time for the architect to plan the expansion joints together with fastenings experts, because, as the design moves forward, a lot depends on the decisions taken in this area. If you are hesitating between different systems, such as conventional bricks and precast components, we will be more than happy to discuss the pros and cons of each with you. A rough cost estimate can also be useful at this stage.

Before you move on to the next, time-consuming step of drawing up the specifications we recommend that you obtain an offer for fastenings.

The following documents are necessary for a conclusive technical clarification, before the required fixing anchors can be supplied: elevations, ground plans, cross-sections and detailed drawings; specifications of the stone used (bulk density, dimensions, base material (building shell)). Following this, we will provide you with a project manager, who will assist you with your project right through to its conclusion.





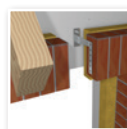
**EK-D**



**EK-M**



**EK-U**



**EK-G**



**EK-W**



**EK-S**



**EK-L**

# MOSO Single-bracket anchor

## Adjustable pressure with screw:

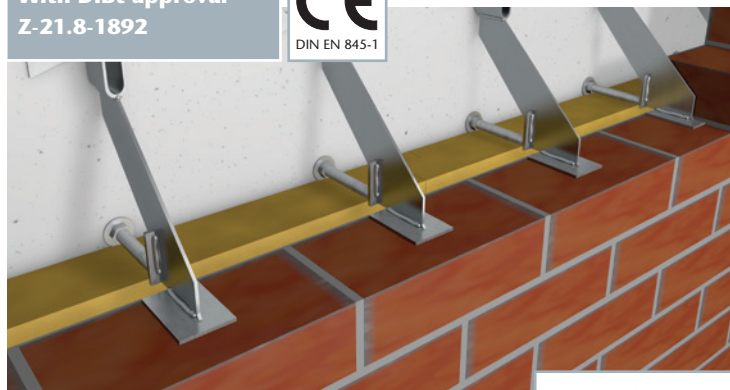
EK-D

The MOSO single-bracket anchor type EK-D for easy mounting with adjustable pressure screw. The lean construction guarantees a reduced heat transfer. The adjustable screws levels uneven spots in the concrete wall.

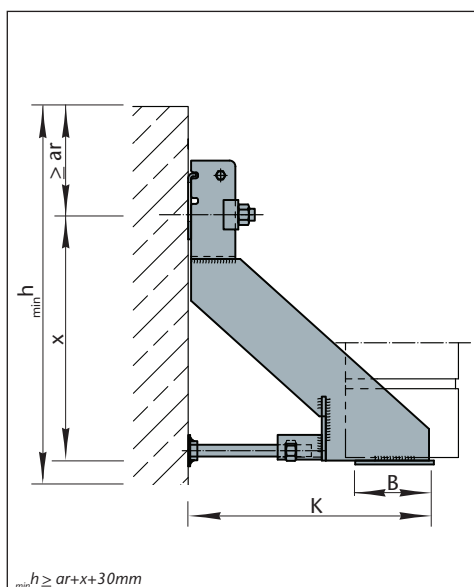
### Product information

- Load Stages: 3,5kN - 25,0kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$ mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation

With DIBt approval  
Z-21.8-1892



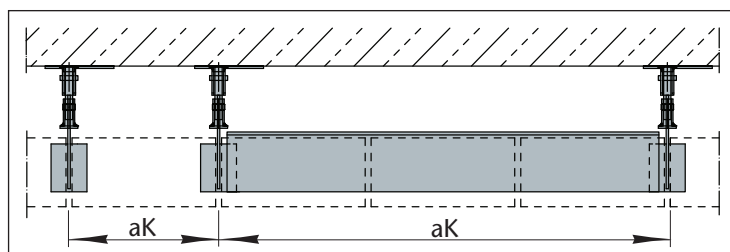
▲ Wall supported by MOSO single-bracket anchors type EK-D



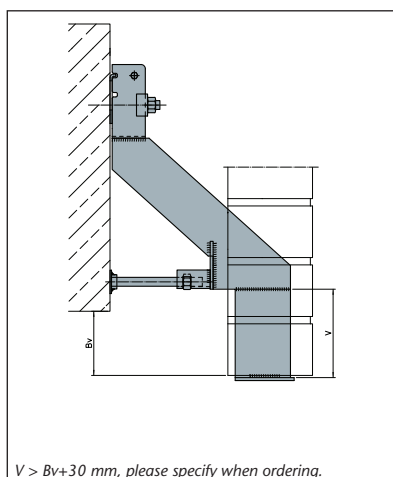
▲ MOSO single-bracket anchor type EK-D.

### Use and application

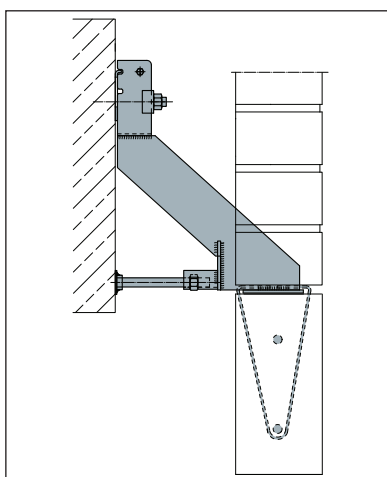
- Particularly suitable for invisibly supporting large wall surfaces.
- Variable anchor spacing (ak) depending on load and brick format
- Install anchors at intervals ak and loosely fit intermediate angles type WA-Z in between if necessary.
- The angles must be fully supported until the brick mortar has set hard.



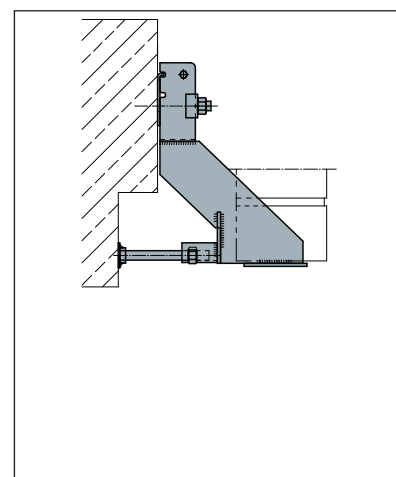
▲ Different intervals between anchors can be achieved with the intermediate angle type WA-Z.



▲ Type EK-DV.

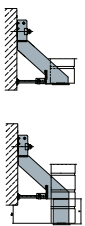


▲ Type EK-D with wire binder type 2.



▲ Type EK-DS with raised supporting plate.



Type / Version	Load stage	3,5 kN		7,0 kN		10,5 kN	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
 <b>EK- D</b> <b>DV</b>	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
	Bigger wall distance on request						
Supporting plate	W / L / B	80 / 60 / 3		80 / 60 / 4		80 / 60 / 5	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II M12/60		FHB II AS M12x75/60		FHB II AS M16x95/60	
		edge distance ar = 80		edge distance ar = 140		edge distance ar = 140	
MHK screw on anchor rail in concrete > C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance ar = 75		edge distance ar = 150		edge distance ar = 200	

Values apply for facing bricks 115 mm thick with a superimposed load ≤ 2 storeys, otherwise the anchor must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: EK - D - 190 - 7,0

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Cantilever length \_\_\_\_\_  
Load stage \_\_\_\_\_

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Anchor spacing ak (m)	Load stage	Intermediate angle
< 1,5	< 3,105	1,00	3,5	WA-Z-95/50/3-980
< 2	< 4,14	0,75	3,5	WA-Z-95/30/3-730
< 3	< 6,21	0,50	3,5	WA-Z-95/20/2-480
< 4,5	< 9,315	0,75	7,0	WA-Z-95/30/3-730
< 6	< 12,42	0,50	7,0	WA-Z-95/20/2-480
< 9	< 18,63	0,50	10,5	WA-Z-95/20/2-480
< 12	< 24,84	0,375	10,5	WA-Z-95/20/2-360

(Assuming a 115 mm wide facing brick with  $\gamma = 18 \text{ kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
18 - 19	Edge formation with MOSO-single-bracket type EK-W
42 - 43	Intermediate angles with MOSO angled support type WA-Z
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 -99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitations to tender

...pcs MOSO single-bracket anchors type EK-D-210<sup>1)</sup>-7,0<sup>2)</sup> including Anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO single-bracket anchors type EK-D for masonry height ...m, distance from wall (insulation and air space) ... cm, thickness of facing brick ...cm, including Anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

## Universal anchor:

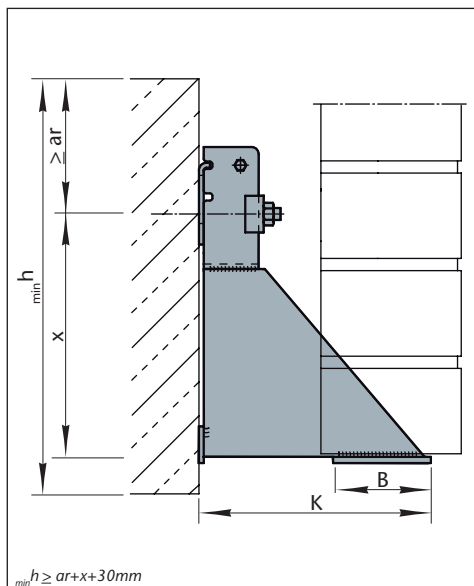
EK-U

The MOSO single-bracket anchor type EK-U is a universal anchor for supporting brick facework.

Different versions allow these anchors to be used for virtually all purposes on building sites.

### Product information

- Load Stages: 3,5kN - 25,0kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$ mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation



▲ MOSO single-bracket anchor type EK-U.

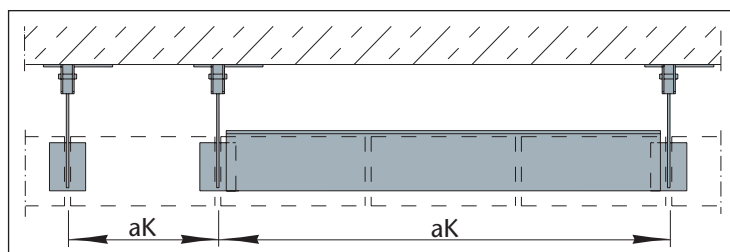
With DIBt approval  
Z-21.8-1892



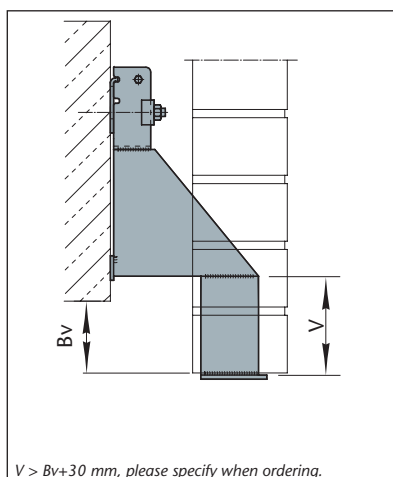
▲ Wall supported by MOSO single-bracket anchors type EK-U

### Use and application

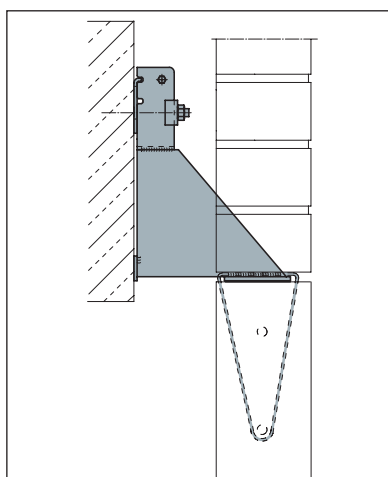
- Particularly suitable for invisibly supporting large wall surfaces.
- Variable anchor spacing (ak) depending on load and brick format (25 cm intervals).
- Install anchors at intervals ak and loosely fit intermediate angles type WA-Z in between if necessary.
- The angles must be fully supported until the brick mortar has set hard.



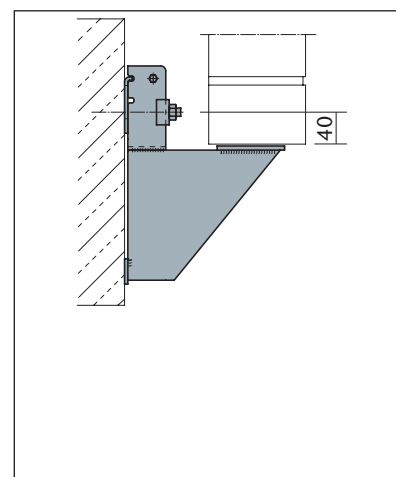
▲ Different intervals between anchors can be achieved with the intermediate angle type WA-Z.



▲ Type EK-UV, with offset.



▲ Type EK-U with wire binder type 2.



▲ Type EK-UH with raised supporting plate.



Type / Version	Load stage	3,5 kN		7,0 kN		10,5 kN	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
EK- UV UH	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
Bigger wall distance on request							
Supporting plate	W / L / B	80 / 60 / 3		80 / 60 / 4		80 / 60 / 5	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II M12/60		FHB II AS M12x75/60		FHB II AS M16x95/60	
		edge distance ar = 80		edge distance ar = 140		edge distance ar = 140	
MHK screw on anchor rail in concrete > C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance ar = 75		edge distance ar = 150		edge distance ar = 200	

Values apply for facing bricks 115 mm thick with a superimposed load ≤ 2 storeys, otherwise the anchor must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: EK - U - 190 - 7,0

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Anchor spacing ak (m)	Load stage	Intermediate angle
< 1,5	< 3,105	1,00	3,5	WA-Z-95/50/3-980
< 2	< 4,14	0,75	3,5	WA-Z-95/30/3-730
< 3	< 6,21	0,50	3,5	WA-Z-95/20/2-480
< 4,5	< 9,315	0,75	7,0	WA-Z-95/30/3-730
< 6	< 12,42	0,50	7,0	WA-Z-95/20/2-480
< 9	< 18,63	0,50	10,5	WA-Z-95/20/2-480
< 12	< 24,84	0,375	10,5	WA-Z-95/20/2-360

(Assuming a 115 mm wide facing brick with  $\gamma = 18 \text{ kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
18 - 19	Edge formation with MOSO-single-bracket type EK-W
42 - 43	Intermediate angles with MOSO angled support type WA-Z
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 -99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitations to tender

...pcs MOSO single-bracket anchors type EK-U-210<sup>1)</sup>-7,0<sup>2)</sup> including anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO single-bracket anchors type EK-U for masonry height ...m, distance from wall (insulation and air space) ... cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

The MOSO single-bracket anchor type EK-W with angled support is the ideally complements to the MOSO single-bracket anchor type EK-U near expansion joints and at the edge.

A complete brick can be laid securely on account of the free support.

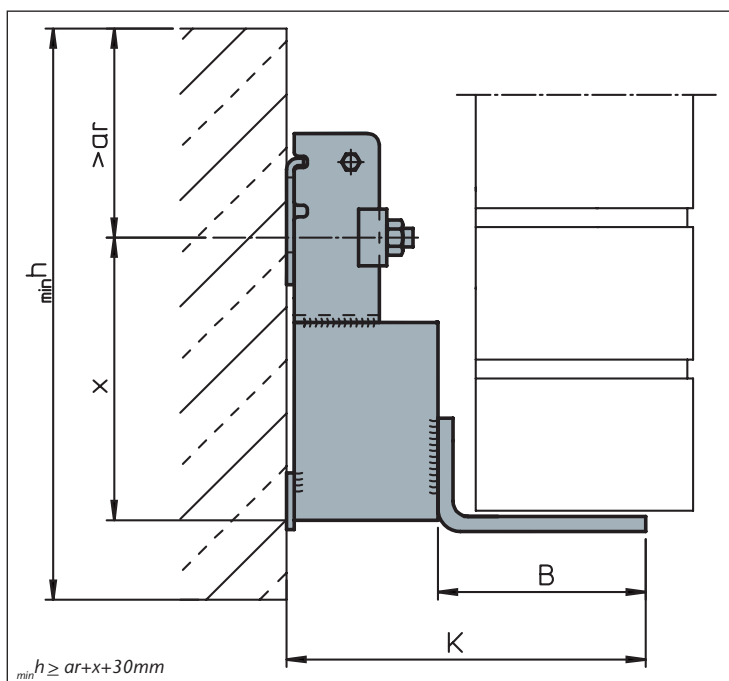
With DIBt approval  
Z-21.8-1892



▲ MOSO single-bracket anchor type EK-W as first anchor after an expansion joint.

### Product information

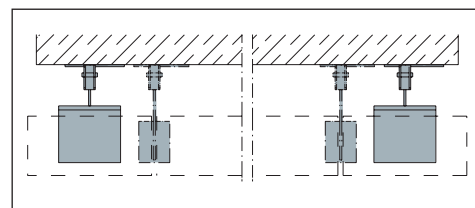
- Load stages: 2,3 – 4,6 kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25\text{mm}$
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation



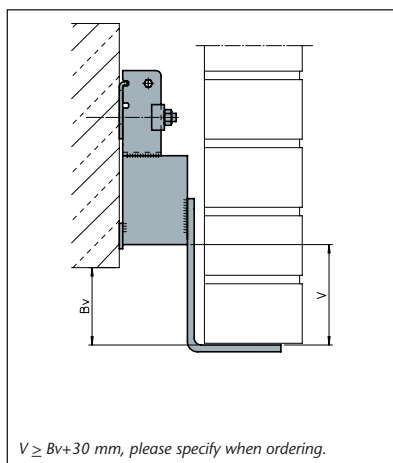
▲ MOSO single-bracket anchor type EK-W.

### Use and application

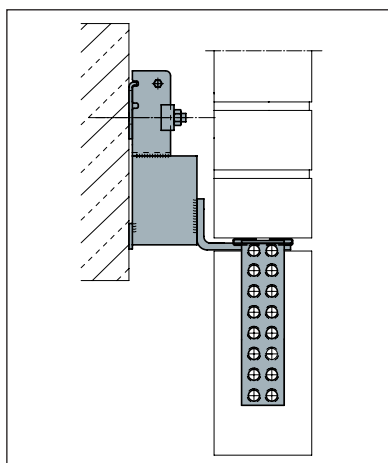
- With single-bracket anchor type EK-U as first/last anchor near expansion joints/edge.
- As supporting bracket for supported lintels with MOSO perforated strip and openings  $>2.5\text{ m}$  long.
- With welded-on gudgeon for supporting prefabricated concrete elements.
- Masonry support near piles, as well as for small areas of wall.
- The angle must be fully supported until the brick mortar has set hard.



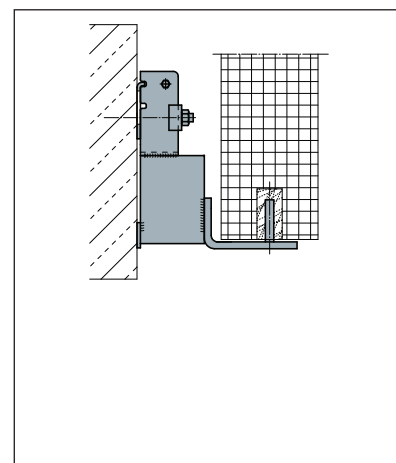
▲ Top view, type EK-W together with type EK-U.



▲ EK-WV, with offset.



▲ EK-W with perforated strip.



▲ EK-WS with gudgeon.



Type / Version	Load stage	2,3 kN		4,6 kN	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	150	130	200
	40 - 70	150	150	150	200
	60 - 90	170	150	170	200
	80 - 110	190	150	190	200
	100 - 130	210	150	210	200
	120 - 150	230	175	230	250
	140 - 170	250	175	250	250
	160 - 190	270	175	270	250
	180 - 210	290	175	290	250
	200 - 230	310	175	310	300
	220 - 250	330	175	330	300
	240 - 270	350	200	350	300
	Bigger wall distance on request				
Supporting bracket	W / H / B...L	110/60/6...120		110/60/8...130	
Max. size of fastener		up to M12		up to M12	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II M12/60		FAZ II M12/60	
		edge distance ar = 80		edge distance ar = 80	
MHK screw on anchor rail in concrete > C20/25		MHK 38/17 M12x80		MHK 38/17 M12x80	
		MBA 38/17K		MBA 38/17K	
		edge distance ar = 75		edge distance ar = 75	

Values apply for facing bricks 115 mm thick with a superimposed load ≤ 2 storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see page 94 + 95).

Other dimensions on request

## Example for ordering: EK - W - 210 - 2,3

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Cantilever length \_\_\_\_\_  
Load stage \_\_\_\_\_

## Recommended anchor selection

Superimposed Load(m)	Load (kN/m)	Load stage
< 1,50	< 3,105	2,3
< 2,00	< 4,140	2,3
< 3,00	< 6,210	2,3
< 4,50	< 9,315	4,6
< 6,00	< 12,420	4,6

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ )

## Cross-references for additional information

Page	Subject
10 - 11	Lintel support with MOSO perforated strip
14 - 17	Wall support with MOSO single-bracket anchors type EK-U
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO single-bracket anchors type EK-W-210<sup>1)</sup>-2,3<sup>2)</sup> including Anchor bolts for cracked concrete<sup>3)</sup> to be delivered and correctly installed.

### Alternatively:

...pcs wall support with MOSO single-bracket anchors type EK-W for masonry height ...m, distance from wall (insulation and air space) ... cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

## With longer support:

## EK-L

The MOSO single-bracket anchor type EK-L with longer support is an interesting alternative to the standard solution, as the flat supporting bracket makes installation more convenient.

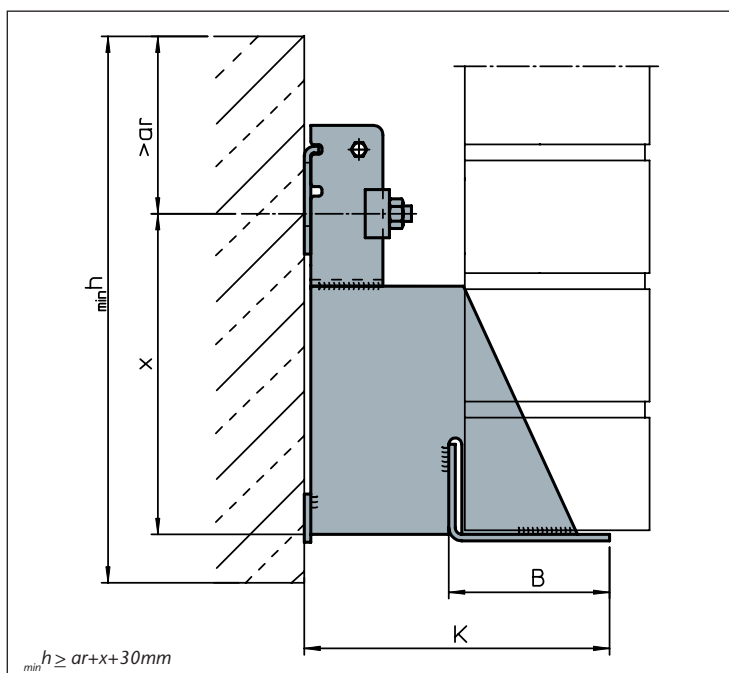
With DIBt approval  
Z-21.8-1892



▲ Wall supported by MOSO single-bracket anchors type EK-L.

### Product information

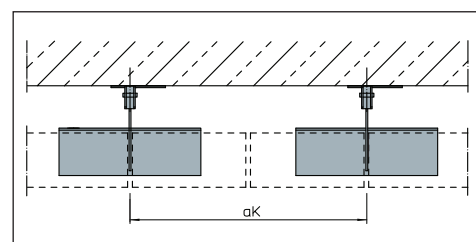
- Load stages: 3,5kN - 25,0kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$ mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation



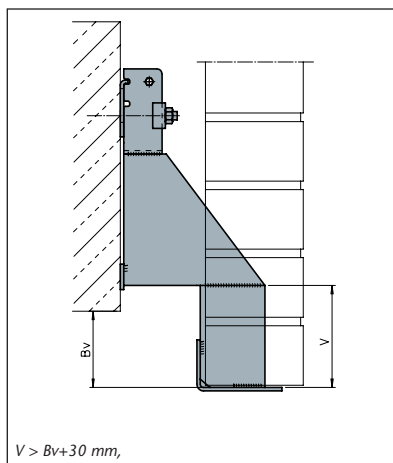
▲ MOSO single-bracket anchor type EK-L.

### Use and application

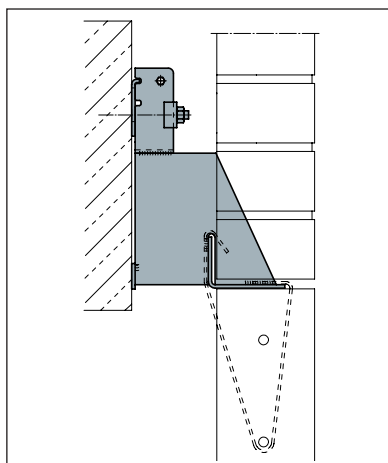
- Particularly suitable for invisibly supporting large wall surfaces.
- Can also be used near corners and edges if outer and inner walls are closely spaced.
- Fixed anchor spacing aK from 2 bricks (< 50 cm)
- The angles must be fully supported until the brick mortar has set hard.



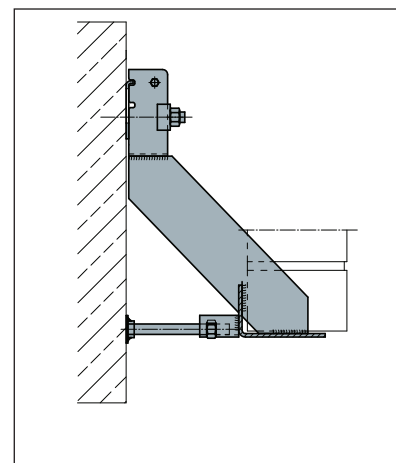
▲ Each anchor supports two bricks.



▲ EK-LV, with offset.

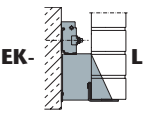



▲ EK-L with wire binder type 1.



▲ EK-LD with additional anti-twist device.



Type / Version	Load stage	3,5 kN		7,0 kN		10,5 kN	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
 EK-L  EK-LV	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
	Bigger wall distance on request						
Supporting bracket	W / H / B...L	100/40/3...300		100/60/3...300		100/60/4...300	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete $\geq$ C20/25 (tension/compression zone)		FAZ II M12/60		FHB II AS M12x75/60		FHB II AS M16x95/60	
		edge distance $a_r \geq 80$		edge distance $a_r \geq 140$		edge distance $a_r \geq 140$	
MHK screw on anchor rail in concrete $>$ C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance $a_r \geq 75$		edge distance $a_r \geq 150$		edge distance $a_r \geq 200$	

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchor must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: EK - L - 170 - 3,5

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_

## Recommended anchor selection

Superimposed Load(m)	Load (kN/m)	Load stage
< 1,50	< 3,105	3,5
< 2,00	< 4,140	3,5
< 3,00	< 6,210	3,5
< 4,50	< 9,315	7,0
< 6,00	< 12,420	7,0
< 9,00	< 18,630	10,5

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO single-bracket anchors type EK-L-210<sup>1)</sup>-3,5<sup>2)</sup> including Anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

### Alternatively:

...pcs wall support with MOSO single-bracket anchors type EK-L for masonry height ...m, distance from wall (insulation and air space) ... cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

The MOSO single-bracket anchor type EK-M is a masonry bracket ensuring reliable support on existing buildings.

The anchors can be individually dimensioned to solve difficult cases.

### Product information

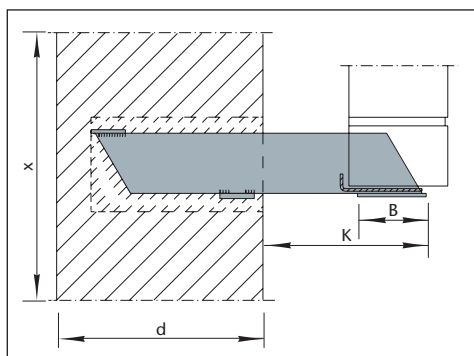
- Load stages: 3,5kN - 7,0kN
- Distance from the wall: 20 - 200 mm, bigger on request
- Material: approved stainless steel
- Evidence: static calculation



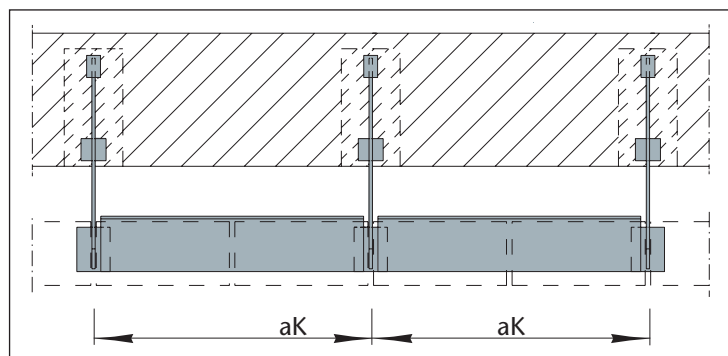
▲ Wall supported by the MOSO single-bracket anchor type EK-M.

### Use and application

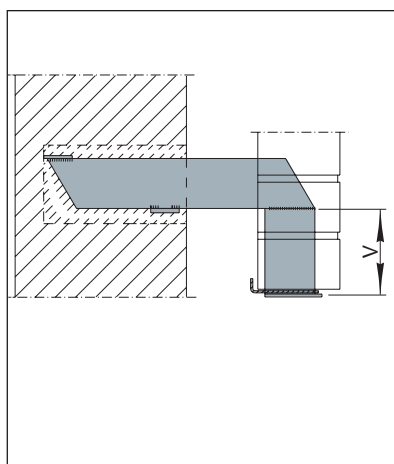
- For retroactive invisible support for wall surfaces.
- Variable anchor spacing ( $a_k$ ), depending on load.
- Cannot be used near corners and edges.
- Install anchors at intervals  $a_k$  and loosely fit intermediate angles type WA-Z in between if necessary.
- The angles must be fully supported until the brick mortar has set hard.



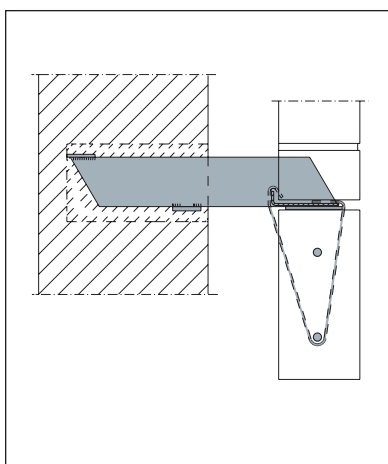
▲ MOSO single-bracket anchor type EK-M.



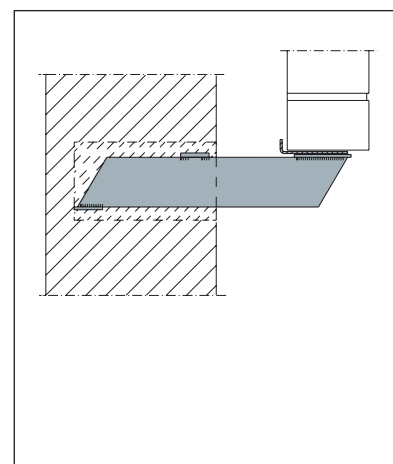
Type EK-M with interm. bracket type WA-Z for variable spacing.



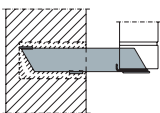
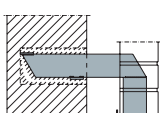
▲ Type EK-MV, with offset.



▲ Type EK-M with wire binder type 1.



▲ Type EK-MH with raised supporting plate.

Type / Version	Load stage	3,5 kN		7,0 kN	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
 EK-M  EK-MV	20 - 50	130	72	130	91
	40 - 70	150	72	150	91
	60 - 90	170	72	170	91
	80 - 110	190	80	190	101
	100 - 130	210	80	210	101
	120 - 150	230	87	230	106
	140 - 170	250	87	250	106
	160 - 190	270	87	270	106
	180 - 200	290	87	290	106
Supporting plate	W / L / B	80/60/3		80/60/4	
Core hole or recess		$\geq \varnothing 140 \times 200$		$\geq \varnothing 250 \times 220$	
Attachment in mortar		Expanding mortar MG III		Expanding mortar MG III	
Attachment in concrete		$\geq C12/15$		$\geq C12/15$	

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request.

## Example for ordering: EK - M - 230 - 3,5

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_

### \* Note

The permissible compressive stress for the back-up masonry must equal at least 0.12 kN/cm<sup>2</sup>. The back-up masonry must be able to bear the applied loads.

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Anchor spacing ak (m)	Load stage	Intermediate angle
< 1,50	< 3,105	1,00	3,5	WA-Z-95/50/3-980
< 2,00	< 4,140	0,75	3,5	WA-Z-95/30/3-730
< 3,00	< 6,210	1,00	7,0	WA-Z-95/50/3-980
< 4,50	< 9,315	0,75	7,0	WA-Z-95/30/3-730
< 6,00	< 12,420	0,50	7,0	WA-Z-95/20/2-480

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
36 - 37	Wall support with MOSO angle-bracket anchor type WK-M
42 - 43	Intermediate angle with MOSO angle support type WA-Z
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitations to tender

...pcs MOSO single-bracket anchors type EK-M-170<sup>1)</sup>-3,5<sup>2)</sup>, to be delivered and correctly installed.

### Alternatively:

..em wall support with MOSO single-bracket anchors type EK-M for masonry height ... m, distance from wall (insulation and air space) ... cm, thickness of facing brick ... cm, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table.

<sup>2)</sup>Load stage as specified in table

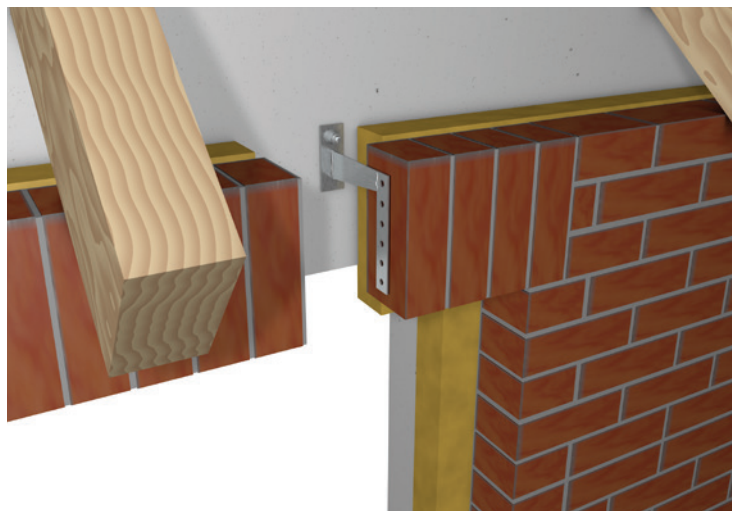


## For soldier-course lintels with low masonry height:

EK-G

The MOSO single-bracket anchor type EK-G is the cost-efficient answer for soldier-course lintels with low masonry height.

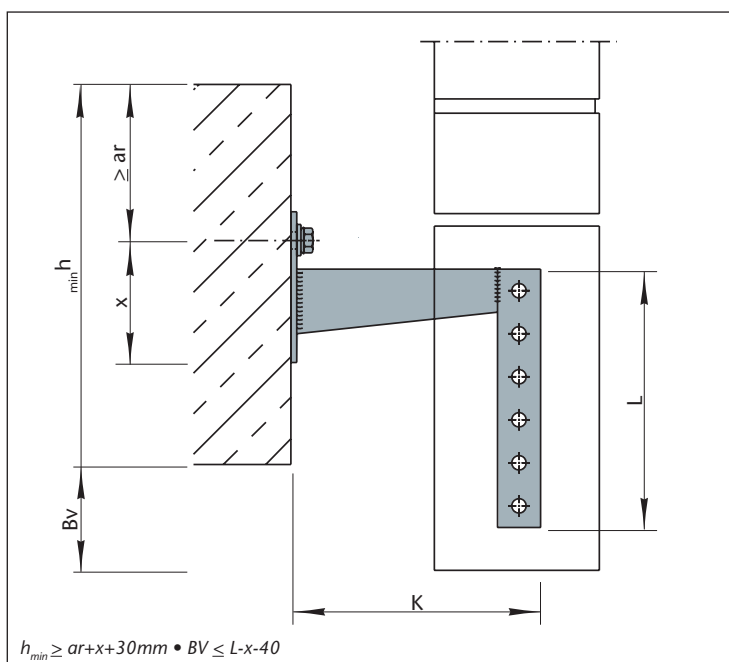
Corner lintels can also be produced without difficulty by using version EK-GE.



### Product information

- Load stages: 0,8kN
- Distance from the wall: 20 - 200 mm, bigger on request
- Material: approved stainless steel
- Evidence: static calculation

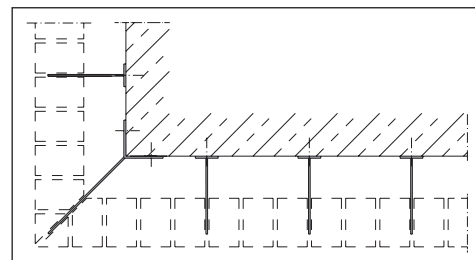
▲ Lintel supported by the MOSO single-bracket anchor type EK-G.



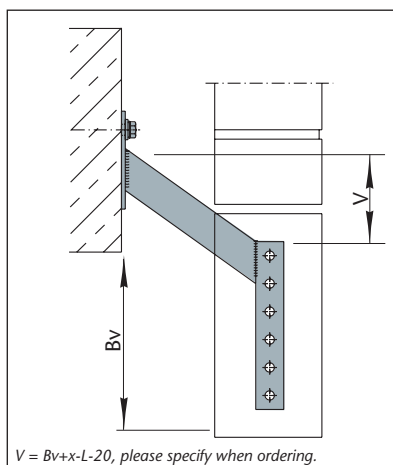
▲ MOSO single-bracket anchor type EK-G.

### Use and application

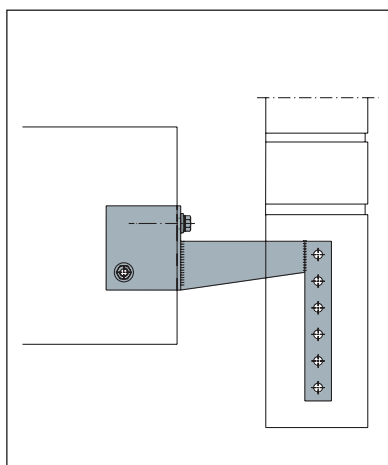
- For invisibly supporting lintels with low masonry height.
- Can also be used near corners and edges.
- When using facing bricks with poor mortar bonding, the bricks should be pinned additionally.
- Choice of single-bracket anchors is not dependent on the length of lintel.
- Single-bracket anchors set at intervals of  $a_k \leq 25$  cm.



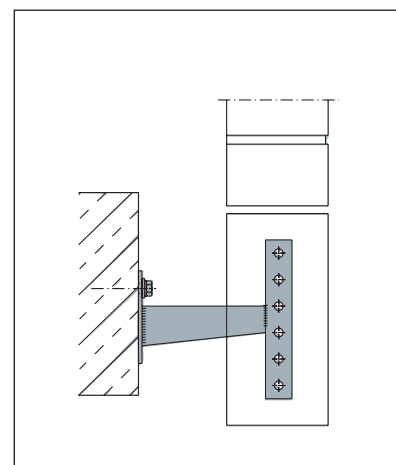
▲ Corner lintel with types EK-G and EK-GE, top view.



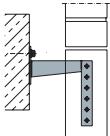
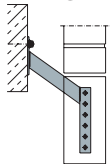
▲ Type EK-GV, with offset.



▲ Type EK-GE in the corner case.



▲ Type EK-GH with raised web plate.

Type / Version	Load stage	0,8 kN	
	Distance/wall	Cantilever length K	Bracket height x
<div></div> <div></div>	10 - 30	95	55
	30 - 50	115	55
	50 - 70	135	65
	70 - 90	155	75
	90 - 110	175	85
	110 - 130	195	95
	130 - 150	215	105
	150 - 170	235	125
	170 - 190	255	135
	190 - 200	275	145
	Bigger wall distance on request		
Bond length	L	180	
Max. size of fastener		up to M10	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		SXS 10	
		edge distance ar ≥ 80	
MHK screw on anchor rail in concrete > C20/25		MHK 28/15 M10x30	
		MBA 28/15	
		edge distance ar > 50	

Values apply for facing briks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: EK - G - 175 - 0,8

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Cantilever length \_\_\_\_\_  
Load stage \_\_\_\_\_

## Recommended anchor selection

Superimposed load (m)	Load(kN/m)	Anchor spacing ak (m)	Load stage
< 1,50	< 3,105	0,25	0,8

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment.)

## Cross-references for additional information

Page	Subject
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO single-bracket anchors type EK-G-155<sup>1)</sup>-0,8<sup>2)</sup> including attachment, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO single-bracket anchors type EK-G for masonry height ...m, distance from wall (insulation and air space) ... cm, thickness of facing brick ...cm, including attachment, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

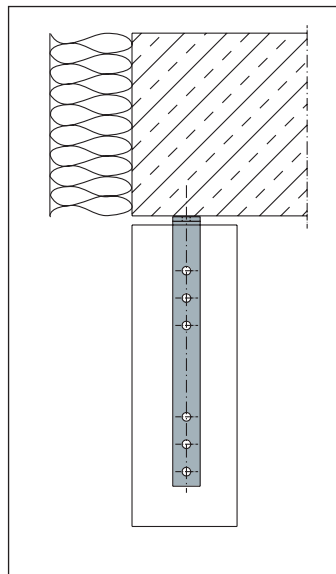
<sup>2)</sup>Load stage as specified in table

The MOSO single-bracket anchors type EK-S are custom-built versions designed by our engineering office to yield optimum solutions even in difficult situations.

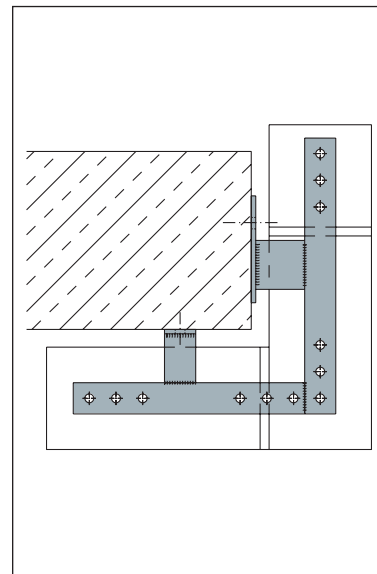
Our engineers require your planning documents (view, layouts and sectional drawings) so that the anchors can be dimensioned precisely.

## Product information

- Load stages: as required
- Distance from the wall: as required
- Material: approved stainless steel
- Evidence: static calculation



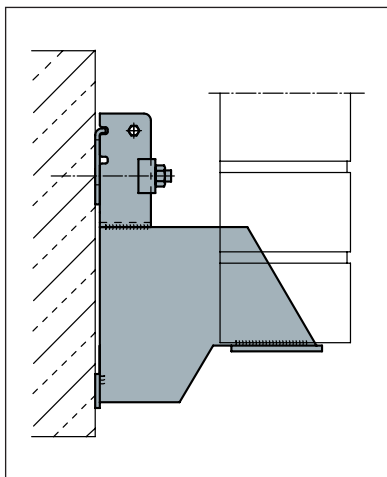
▲ For suspended soldier courses.



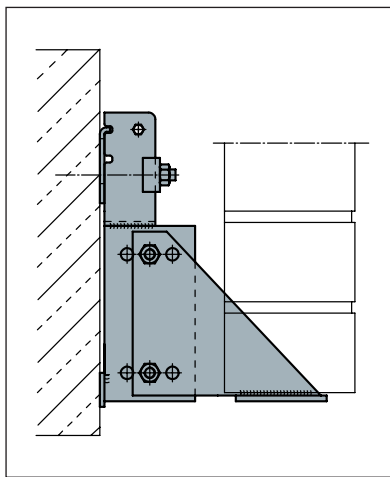
▲ For L-shaped lintel formation.

## Use and application

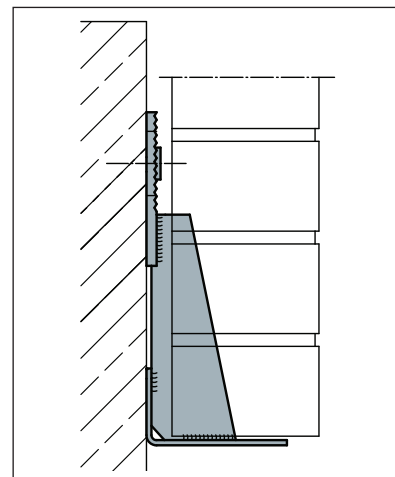
- Special anchors are dimensioned in accordance with structural and engineering requirements.



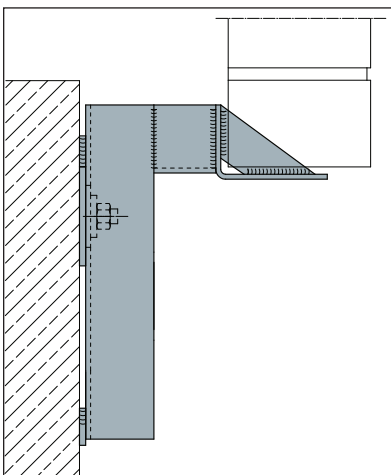
▲ With raised supporting plate.



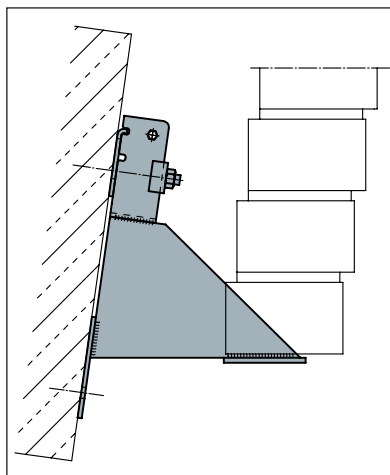
▲ With horizontal adjustment.



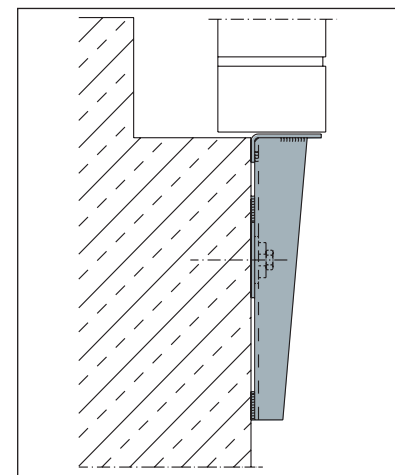
▲ For small loads.



▲ EK-GS.



▲ Inclined version.



▲ As enlargement of the foundation.





**WK-D**



**WK-M**



**WK-N**



**WK-Z**



**WK-K**



**WK-S**



**WK-O**

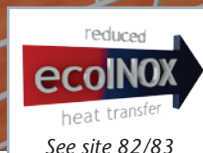
# MOSO Angle-bracket anchor

## Adjustable:

WK-D

The MOSO angle-bracket anchor type WK-D with adjustable pressure screw is the ideal solution for supports with continuous angle rail. Any unevenness in the concrete is easily compensated via the pressure screw.

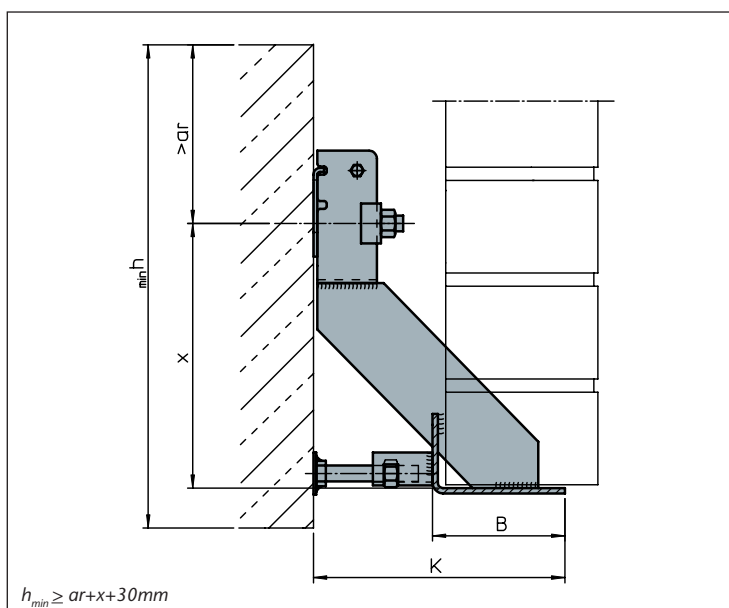
With DIBt approval  
Z-21.8-1892



### Product information

- Load stages: 3,5kN - 25,0kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$ mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBt approval Z-21.8-1892 type-testing or static calculation

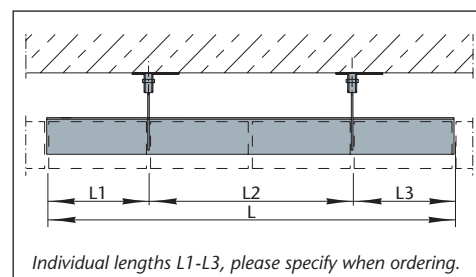
▲ Wall supported with MOSO angle-bracket anchor type WK-D.



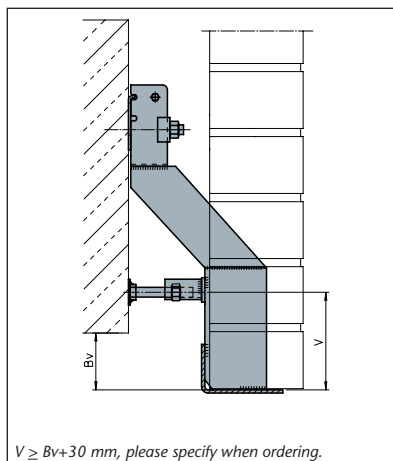
▲ MOSO angle-bracket anchor type WK-D.

### Use and application

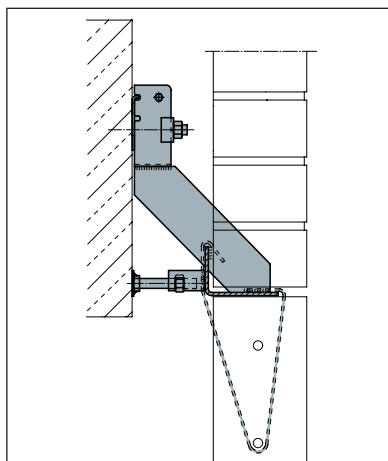
- Particularly suitable for compensating unevenness in concrete
- Can also be used near corners and edges.
- Must be fully supported until the brick mortar has set hard.



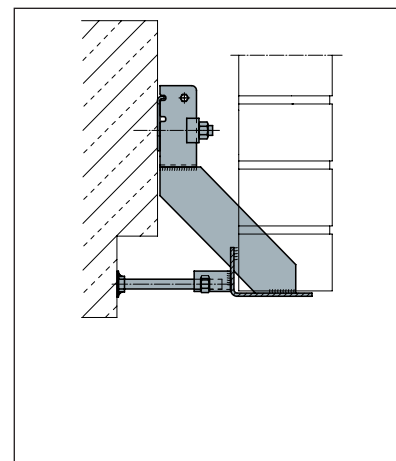
▲ Lengths dimensioned in accordance with prevailing conditions.



▲ Type WK-DV, with offset.



▲ Type WK-D with wire binder type 1.



▲ Type WK-DS with long pressure screw.

Type / Version	Load stage	3,5 kN/back		7,0 kN/back		10,5 kN/back	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
Bigger wall distance on request							
Angle width	W	100		100		100	
Angle length	L	up to 4000		up to 4000		up to 4000	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II M12/60 edge distance ar ≥ 80		FHB II AS M12x75/60 edge distance ar ≥ 140		FHB II AS M16x95/60 edge distance ar ≥ 140	
MHK screw on anchor rail in concrete > C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance ar ≥ 75		edge distance ar ≥ 150		edge distance ar ≥ 200	

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: WK - D - 230 - 7,0 - 1000 - 2R

Type	
Version	
Cantilever length	
Load stage	
Angle length	
Number of backs	

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	2000 mm/2R	3,5	500 / 1000 / 500
< 2,00	< 4,140	1500 mm/2R	3,5	250 / 1000 / 250
< 3,00	< 6,210	1750 mm/2R	7,0	375 / 1000 / 375
< 4,50	< 9,315	1500 mm/2R	7,0	375 / 750 / 375
< 6,00	< 12,420	1000 mm/2R	7,0	250 / 500 / 250
< 9,00	< 18,630	1000 mm/2R	10,5	250 / 500 / 250
< 12,00	< 24,840	750 mm/2R	10,5	187,5 / 375 / 187,5

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references of additional information

Page	Subject
38 - 39	Corner support with type WK-Z
76 - 77	Wire binders for suspended facework
84 - 89	Individual evidence of attachment in the anchorage base
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angle-bracket anchors type WK-D-210<sup>1)</sup>-7,0<sup>2)</sup>-1000<sup>3)</sup>-2R<sup>4)</sup> including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO angle-bracket anchors type WK-D for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.



## Standard angle-bracket anchors:

**WK-N**

The MOSO angle-bracket anchor type WK-N is the standard (normal) anchor for supports with continuous angle rail. Complete supports can be realized with just one type of bracket, even in corner areas, when using this anchor.

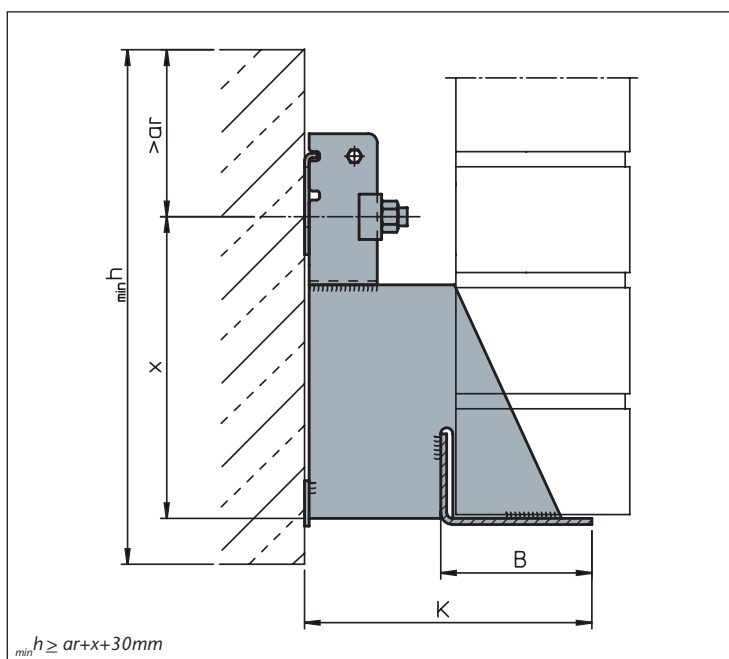
With DIBt approval  
Z-21.8-1892



### Product information

- Load stages: 3,5kN - 25,0kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$ mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation

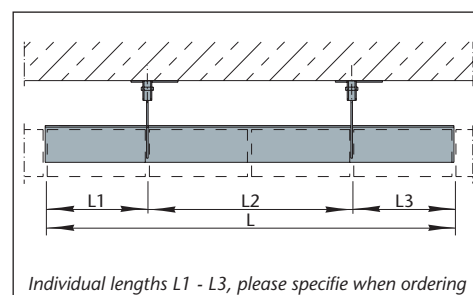
▲ Wall supported with MOSO angle-bracket anchors type WK-N.



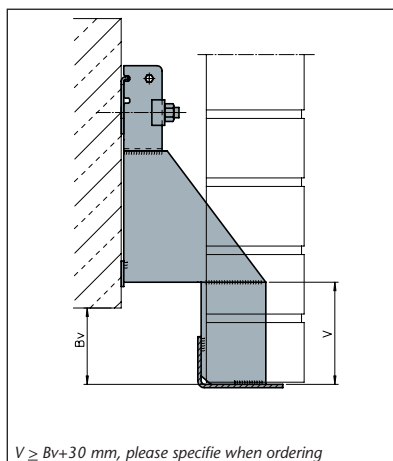
▲ MOSO angle-bracket anchor type WK-N.

### Use and application

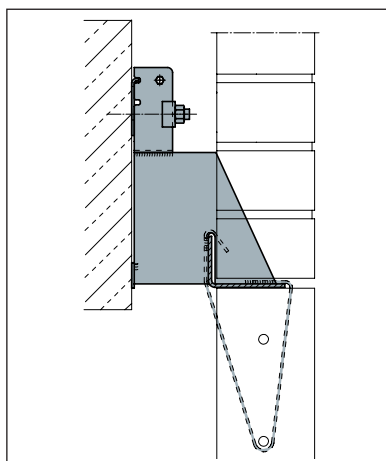
- Highly suitable for invisibly supporting wall surfaces.
- Can also be used near corners and edges.
- The angles must be fully supported until the brick mortar has set hard.



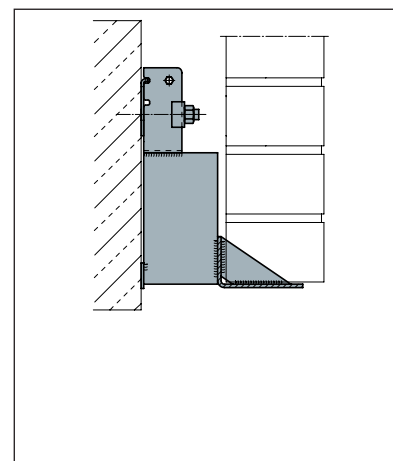
▲ Lengths dimensioned in accordance with prevailing conditions..



▲ Type WK-NV, with offset.



▲ Type WK-N with wire binder type 1.



▲ Type WK-NS with welded-in gusset.

Type / Version	Load stage	3,5 kN/back		7,0 kN/back		10,5 kN/back	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
	Bigger wall distance on request						
	Angle width	W	100	100	100	100	100
	Angle length	L	up to 4000	up to 4000	up to 4000	up to 4000	up to 4000
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete $\geq C20/25$ (tension/compression zone)		FAZ II M12/60 edge distance $a_r \geq 80$		FHB II AS M12x75/60 edge distance $a_r \geq 140$		FHB II AS M16x95/60 edge distance $a_r \geq 140$	
MHK screw on anchor rail in concrete $> C20/25$		MHK 38/17 M12x80 MBA 38/17K edge distance $a_r \geq 75$		MHK 50/30 M12x80 MBA 50/31 edge distance $a_r \geq 150$		MHK 50/30 M16x100 MBA 52/34 edge distance $a_r \geq 200$	

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: WK - N - 170 - 3,5 - 1500 - 2R

Type	_____
Version	_____
Cantilever length	_____
Load stage	_____
Angle length	_____
Number of backs	_____

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	2000 mm/2R	3,5	500 / 1000 / 500
< 2,00	< 4,140	1500 mm/2R	3,5	250 / 1000 / 250
< 3,00	< 6,210	1750 mm/2R	7,0	375 / 1000 / 375
< 4,50	< 9,315	1500 mm/2R	7,0	375 / 750 / 375
< 6,00	< 12,420	1000 mm/2R	7,0	250 / 500 / 250
< 9,00	< 18,630	1000 mm/2R	10,5	250 / 500 / 250
< 12,00	< 24,840	750 mm/2R	10,5	187,5 / 375 / 187,5

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
38 - 39	Corner support with type WK-Z
76 - 77	Wire binders for suspended facework
84 - 89	Individual evidence of attachment in the anchorage base
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angle-bracket anchors type WK-N-210<sup>1)</sup>-7,0<sup>2)</sup>-1000<sup>3)</sup>-2R<sup>4)</sup> including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO angle-bracket anchors type WK-N for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

## For low concrete heights at the base of the laying work:

WK-K

The claw of the MOSO angle-bracket anchor type WK-K rests on the concrete.

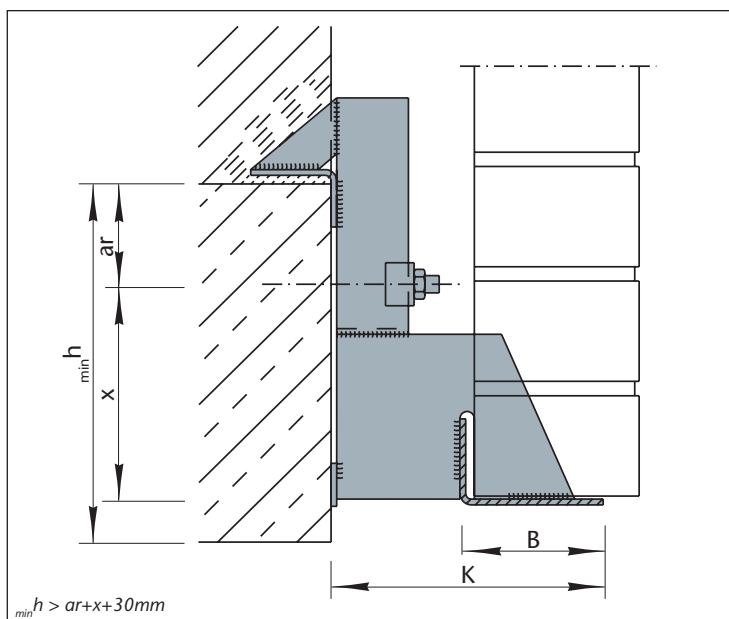
This relieves the attachment so that high loads can be securely anchored on the face side even in the presence of low concrete heights.



### Product information

- Load stages: 3,5kN - 7,0kN
- Distance from the wall: 20 - 200 mm, bigger on request
- Height adjustment:  $\pm 10\text{mm}$
- Material: approved stainless steel
- Evidence: static calculation

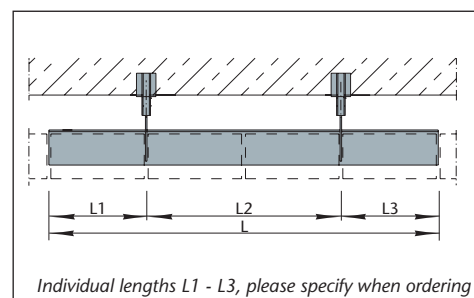
▲ Wall supported with MOSO angle-bracket anchors type WK-K.



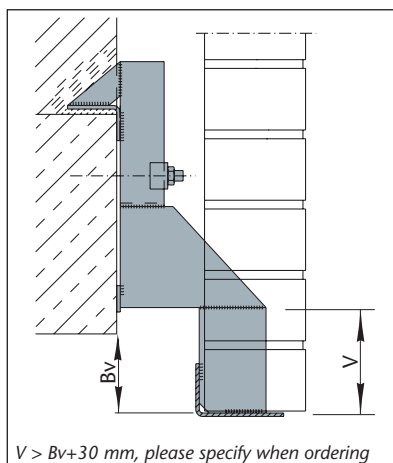
▲ MOSO angle-bracket anchor type WK-K.

### Use and application

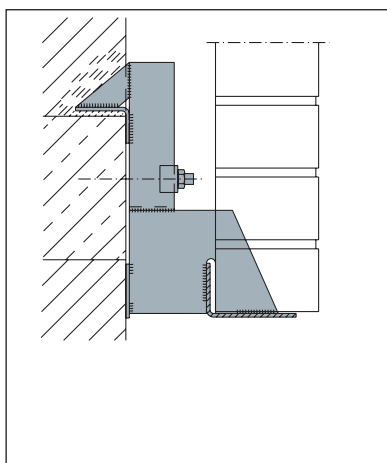
- Particularly suitable for supports on low concrete heights.
- Can also be used at corners and edges.
- Install the anchor and create a full bed of mortar between concrete and claw.
- The angles must be fully supported until the brick mortar has set hard.



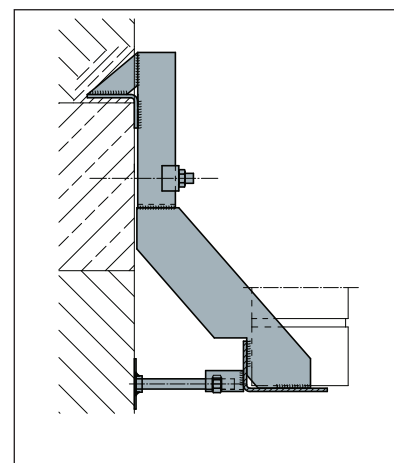
▲ Lengths dimensioned in accordance with prevailing conditions..



▲ Type WK-KV, with offset.



▲ WK-KS with large pressure distribution plate.



▲ Type WK-KS with large pressure distribution plate.



Type / Version	Load stage	3,5 kN/back		5,0 kN/back		7,0 kN/back	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	140	130	150	130	180
	40 - 70	150	140	150	150	150	180
	60 - 90	170	140	170	150	170	180
	80 - 110	190	140	190	150	190	180
	100 - 130	210	140	210	150	210	180
	120 - 150	230	160	230	180	230	210
	140 - 170	250	160	250	180	250	210
	160 - 190	270	160	270	180	270	210
	180 - 200	290	160	290	180	290	210
Bigger wall distance on request							
Angle width	W	100		100		100	
Angle length	L	up to 4000		up to 4000		up to 4000	
Max. size of fastener		up to M12		up to M12		up to M12	
Anchor bolt for cracked concrete $\geq$ C20/25 (tension/compression zone)		Fischer FHB II-AS M10x60/60 edge distance ar = 80		Fischer FHB II-AS M10x60/60 edge distance ar = 100		Fischer FHB II-AS M12x75/60 edge distance ar = 120	
MHK-screw on anchor rail in concrete $\geq$ C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M12x80	
		MBA 38/17K		MBA 50/31		MBA 50/31	
		edge distance ar = 80		edge distance ar = 100		edge distance ar = 120	

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: WK - K - 230 - 7,0 - 1000 - 2R

Type	_____
Version	_____
Cantilever length	_____
Load stage	_____
Angle length	_____
Number of backs	_____

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	2000 mm/2R	3,5	500 / 1000 / 500
< 2,00	< 4,140	1500 mm/2R	3,5	250 / 1000 / 250
< 3,00	< 6,210	1500 mm/2R	5,0	250 / 1000 / 250
< 4,50	< 9,315	1500 mm/2R	7,0	250 / 1000 / 250
< 6,00	< 12,420	1000 mm/2R	7,0	250 / 500 / 250
< 9,00	< 18,630	750 mm/2R	7,0	125 / 500 / 125

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
34 - 35	Wall support for very low concrete heights, type WK-O
76 - 77	Wire binders for suspended facework
84 - 89	Individual evidence of attachment in the anchorage base
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angle-bracket anchors type WK-K-190<sup>1)</sup>-5,0<sup>2)</sup>-1500<sup>3)</sup>-2R<sup>4)</sup> including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO angle-bracket anchors type WK-K for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

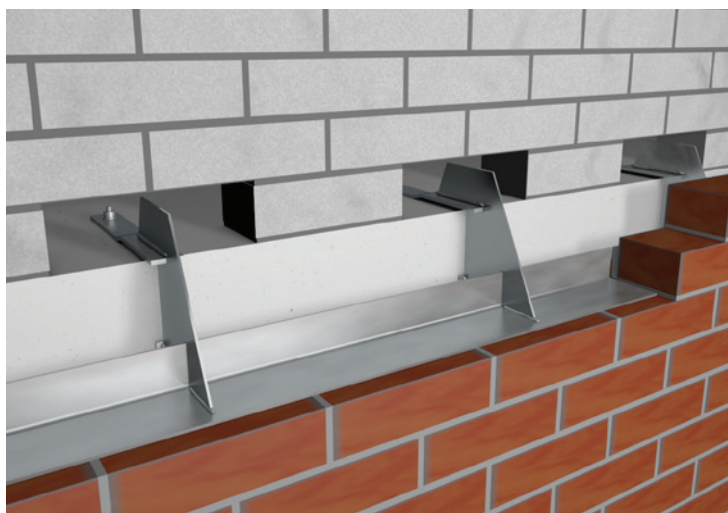
### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

## For attachment on concrete floors:

## WK-O

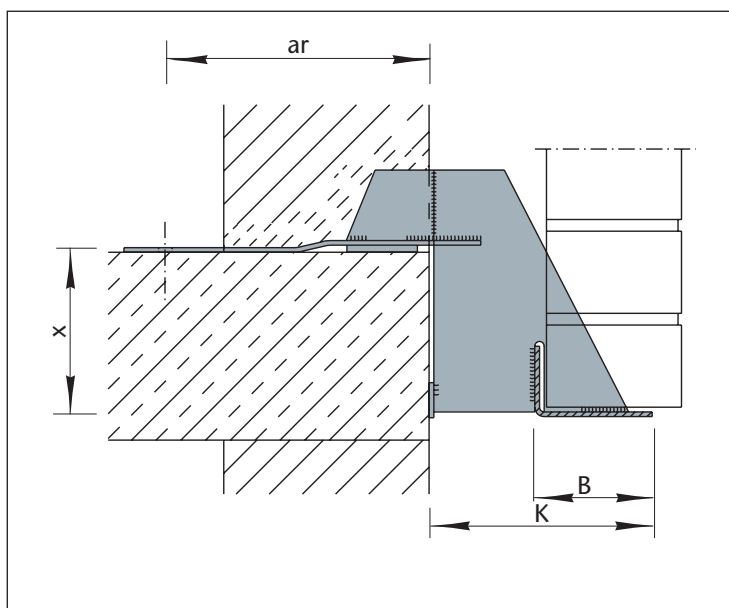
The MOSO angle-bracket anchor type WK-O is attached to the concrete floor from above. This allows an anchorage to be produced with dowels even in thin concrete layers.



### Product information

- Load stages: 3,5kN - 10,5kN
- Distance from the wall: 20 - 270 mm, bigger on request
- Material: approved stainless steel
- Evidence: static calculation

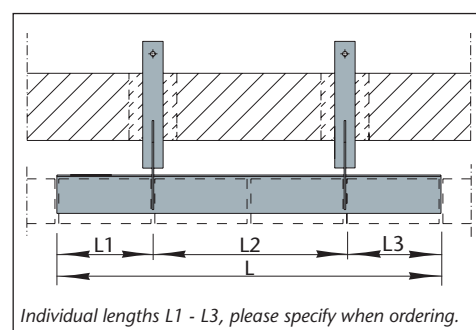
▲ Wall supported with angle-bracket anchors type WK-O.



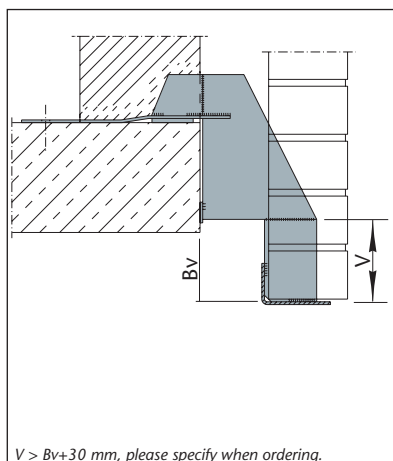
▲ MOSO angle-bracket anchor type WK-O.

### Use and application

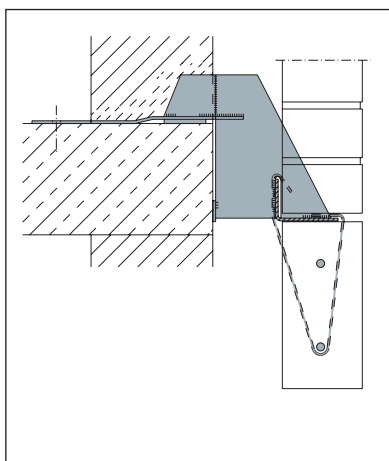
- Particularly suitable for supports on low concrete floors.
- Can also be used at corners and edges.
- Height can be adjusted by shimming.
- The angles must be fully supported until the brick mortar has set hard.



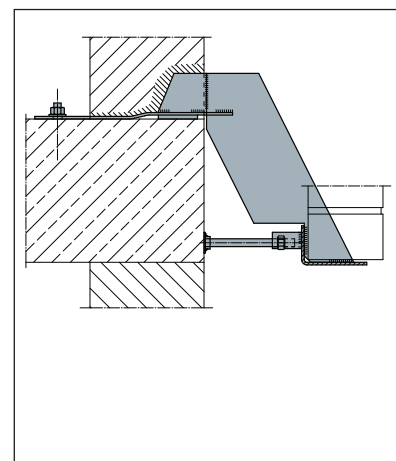
▲ Lengths dimensioned in accordance with prevailing conditions.



▲ Type WK-OV, with offset.



▲ WK-O with wire binder type 1.



▲ WK-OS with adjustable pressure screw.

Type / Version	Load stage	3,5 kN/back		7,0 kN/back		10,5 kN/back	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	120	130	150	130	200
	40 - 70	150	120	150	150	150	200
	60 - 90	170	120	170	150	170	200
	80 - 110	190	120	190	150	190	200
	100 - 130	210	150	210	200	210	250
	120 - 150	230	150	230	200	230	250
	140 - 170	250	150	250	200	250	250
	160 - 190	270	150	270	200	270	250
	180 - 210	290	150	290	200	290	250
	200 - 230	310	200	310	250	310	300
	220 - 250	330	200	330	250	330	300
	240 - 270	350	200	350	250	350	300
Bigger wall distance on request							
Angle width	W	100		100		100	
Angle length	L	up to 4000		up to 4000		up to 4000	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II M12/30 edge distance ar ≥ 300		FAZ II M12/30 edge distance ar ≥ 300		FAZ II M16/25 edge distance ar ≥ 300	
MHK screw on anchor rail in concrete > C20/25		MHK 38/17 M12x40		MHK 50/30 M12x40		MHK 50/30 M12x40	
		MBA 38/17K		MBA 50/31		MBA 50/31	
		edge distance ar ≥ 300		edge distance ar ≥ 300		edge distance ar ≥ 300	

Values apply for facing bricks 115 mm thick with a superimposed load ≤ 2 storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

**Example for ordering: WK - O - 170 - 3,5 - 1500 - 2R**

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_  
 Angle length \_\_\_\_\_  
 Number of backs \_\_\_\_\_

Other dimensions on request

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	2000 mm/2R	3,5	500 / 1000 / 500
< 2,00	< 4,140	1500 mm/2R	3,5	250 / 1000 / 250
< 3,00	< 6,210	1750 mm/2R	7,0	375 / 1000 / 375
< 4,50	< 9,315	1500 mm/2R	7,0	250 / 1000 / 250
< 6,00	< 12,420	1000 mm/2R	7,0	250 / 500 / 250
< 9,00	< 18,630	1000 mm/2R	10,5	250 / 500 / 250
< 12,00	< 24,840	750 mm/2R	10,5	187,5 / 375 / 187,5

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
76 - 77	Wire binders for suspended facework
84 - 89	Individual evidence of attachment in the anchorage base
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angle-bracket anchors type WK-O-230<sup>1)</sup>-7,0<sup>2)</sup>-1000<sup>3)</sup>-2R<sup>4)</sup> including Anchor bolts for cracked concrete<sup>5)</sup> including Anchor bolts for cracked concrete.

### Alternatively:

...m wall support with MOSO anglebracket anchors type WK-O for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.



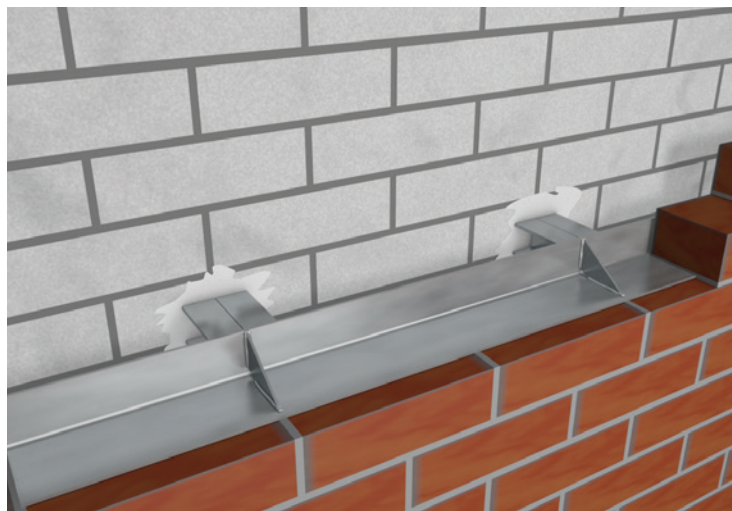
## For masonry as the base of the laying work: WK-M

The MOSO angle-bracket anchor type WK-M is set into the masonry. This type of anchor is preferably used whenever the anchorage base does not permit the use of dowels.

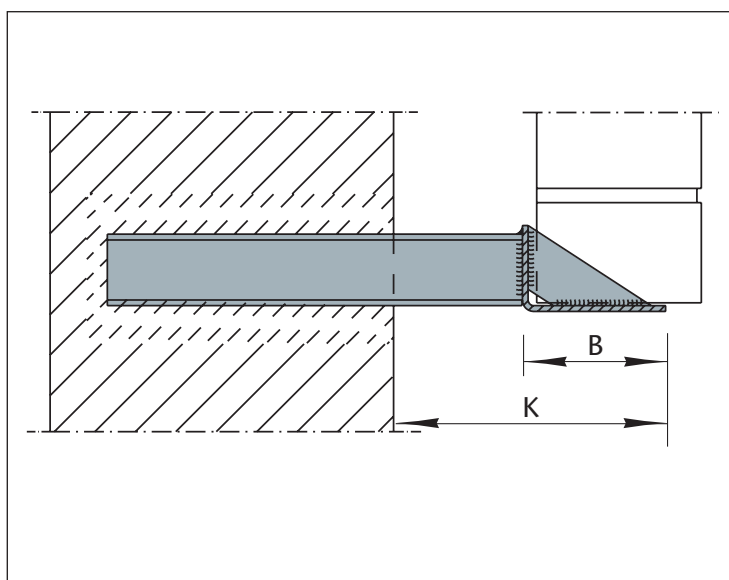
In order to minimize the effort involved in installation, the anchors can be individually dimensioned by our engineering office.

### Product information

- Load stages: 3,5kN - 7,0kN
- Distance from the wall: 20 - 200 mm, bigger on request
- Height adjustment: in accordance with the height of the recess
- Material: approved stainless steel
- Evidence: static calculation



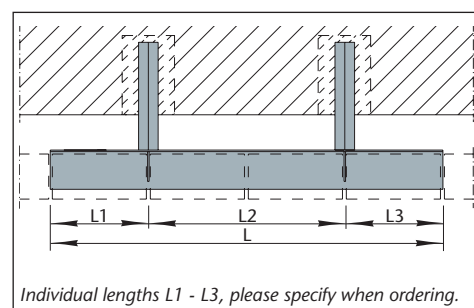
▲ Wall supported with MOSO angle-bracket anchor type WK-M.



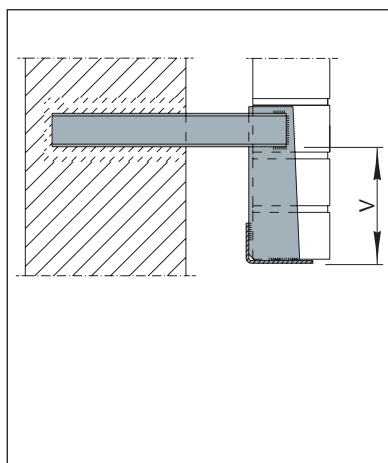
▲ Wall supported with MOSO angle-bracket anchor type WK-M.

### Use and application

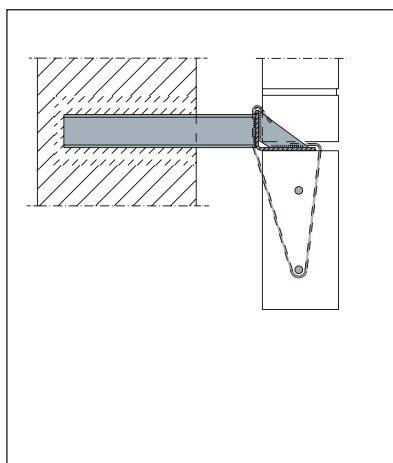
- Particularly suitable for retroactive supports.
- Can also be used at corners and edges.
- Height can be adjusted with the aid of larger recesses.
- The angles must be fully supported until the brick mortar has set hard.



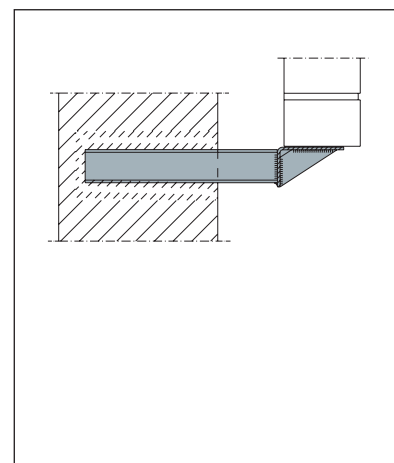
▲ Lengths dimensioned in accordance with prevailing conditions.



▲ Type WK-MV, with offset.



▲ Type WK-M with wire-binder type 1.



▲ Type WK-MS in the plinth area.

Type / Version	Load stage	3,5 kN/back			7,0 kN/back		
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	50	≥ Ø80x200	130	50	≥ Ø160x200
	40 - 70	150	50	≥ Ø90x200	150	50	≥ Ø170x200
	60 - 90	170	50	≥ Ø100x200	170	50	≥ Ø190x200
	80 - 110	190	50	≥ Ø120x200	190	50	≥ Ø200x200
	100 - 130	210	50	≥ Ø120x200	210	50	≥ Ø210x200
	120 - 150	230	50	≥ Ø120x200	230	50	≥ Ø230x200
	140 - 170	250	50	≥ Ø120x200	250	50	≥ Ø250x200
	160 - 190	270	50	≥ Ø140x200	270	60	≥ Ø270x200
	180 - 200	290	50	≥ Ø140x200	290	60	≥ Ø300x200
Bigger wall distance on request							
Angle width	W	100			100		
Angle length	L	up to 4000			up to 4000		
Attachment in mortar		Expanding mortar MG III			Expanding mortar MG III		
Attachment in concrete		≥ C12/15			≥ C12/15		

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: WK - M - 170 - 3,5 - 1500 - 2R

Type	_____
Version	_____
Cantilever length	_____
Load stage	_____
Angle length	_____
Number of backs	_____

### \* Note

The permitted compression stress of the back-up masonry must be equal to at least 0.12 kN / cm<sup>2</sup>. The back-up masonry must be capable of supporting the loads to be applied.

## Recommended anchor selection

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	2000 mm/2R	3,5	500 / 1000 / 500
< 2,00	< 4,140	1500 mm/2R	3,5	250 / 1000 / 250
< 3,00	< 6,210	1750 mm/2R	7,0	375 / 1000 / 375
< 4,50	< 9,315	1500 mm/2R	7,0	250 / 1000 / 250
< 6,00	< 12,420	1000 mm/2R	7,0	250 / 500 / 250

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ . Note individual evidence of attachment!)

## Cross-references for additional information

Page	Subject
76 - 77	Wire binder for suspended facework
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support
100	Principles for dimensioning masonry support

### Text for invitation to tender

.....pcs MOSO angle-bracket anchors WK-M-230<sup>1)</sup>-7,0<sup>2)</sup>-1000<sup>3)</sup>-2R<sup>4)</sup> to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO anglebracket anchors type WK-O for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

## For supporting walls at corners and piles:

**WK-Z**

Together with the type WK-D and WK-N, the MOSO angle-bracket anchor type WK-Z with tie strap is an interesting alternative for forming corners.

This anchor is also highly suitable for support at piles.

### Product information

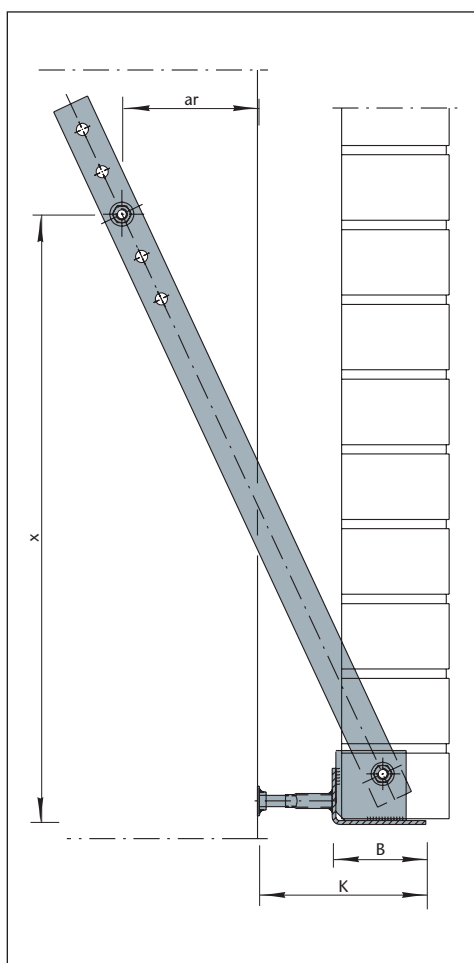
- Load stages: 3,5 kN - 25,0 kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Material: approved stainless steel
- Evidence: static calculation



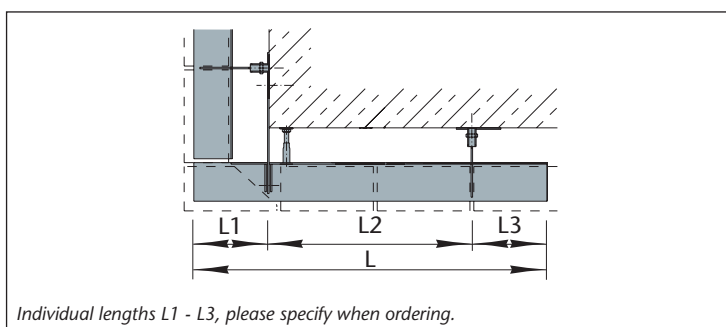
▲ Corner supported with MOSO angle-bracket anchor type WK-ZD.

### Use and application

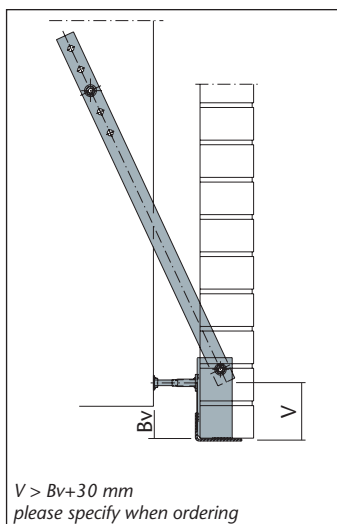
- Type WK-ZD is particularly suitable for supporting corners.
- Highly suitable for supporting piles.
- Type WK-ZG for highly uneven concrete surfaces.
- The angles must be fully supported until the brick mortar has set hard.



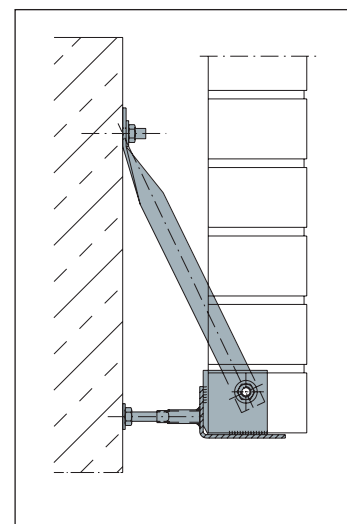
▲ MOSO angle-bracket anchor type WK-Z.



▲ Lengths dimensioned in accordance with prevailing conditions.



▲ Type WK-ZV, with offset.



▲ Type WK-ZG, turned.



Type / Version	Load stage	3,5 kN/back		7,0 kN/back		10,5 kN/back	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
	20 - 50	130	≥ 550	130	≥ 550	130	≥ 650
	40 - 70	150	≥ 550	150	≥ 600	150	≥ 700
	60 - 90	170	≥ 600	170	≥ 650	170	≥ 750
	80 - 110	190	≥ 650	190	≥ 700	190	≥ 800
	100 - 130	210	≥ 700	210	≥ 700	210	≥ 850
	120 - 150	230	≥ 700	230	≥ 750	230	≥ 900
	140 - 170	250	≥ 750	250	≥ 800	250	≥ 950
	160 - 190	270	≥ 800	270	≥ 850	270	≥ 950
	180 - 210	290	≥ 850	290	≥ 900	290	≥ 1000
	200 - 230	310	≥ 900	310	≥ 950	310	≥ 1050
	220 - 250	330	≥ 950	330	≥ 1000	330	≥ 1100
	240 - 270	350	≥ 1000	350	≥ 1050	350	≥ 1150
Bigger wall distance on request							
Angle width	W	100		100		100	
Angle length	L	up to 4000		up to 4000		up to 4000	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete ≥ C20/25 (tension/compression zone)		FAZ II 12/10 edge distance ar ≥ 120		FHB II AS M12x75/25 edge distance ar ≥ 150		FHB II AS M16x95/30 edge distance ar ≥ 200	

Values apply for facing bricks 115 mm thick with a superimposed load ≤ 2 storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95).

Other dimensions on request

## Example for ordering: WK - ZDAL - 210 - 7,0 - 1210 - 2R

Type	
Version	
Cantilever length	
Load stage	
Angle length	
Number of backs	

## Recommended anchor selection (anchor type Z at corner)

Super-imposed Load(m)	Load (kN/m)	Angle length, No. of backs	Load stage	Arrangement L1 / L2 / L3
< 1,50	< 3,105	≤ 1500 mm/2R	3,5	L1 / 1000 / L3
< 2,00	< 4,140	≤ 1500 mm/2R	3,5	L1 / 1000 / L3
< 3,00	< 6,210	≤ 1500 mm/2R	7,0	L1 / 1000 / L3
< 4,50	< 9,315	≤ 1250 mm/2R	7,0	L1 / 750 / L3
< 6,00	< 12,420	≤ 1000 mm/2R	7,0	L1 / 500 / L3
< 9,00	< 18,630	≤ 1000 mm/2R	10,5	L1 / 500 / L3
< 12,00	< 24,840	≤ 750 mm/2R	10,5	L1 / 250 / L3

(Assuming a 115 mm wide facing brick with  $\gamma=18\text{kN/m}^3$ ). L1 = L3 = cantilever length K

## Cross-references for additional information

Page	Subject
28 - 31	Wall support with type WK-D
76 - 77	Wire binder for suspended facework
84 - 89	Individual evidence of attachment in the anchorage base
90 - 91	Formation of corners and edges
92 - 93	Abutments for suspended facework
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angle-bracket anchors type WK-ZD-210<sup>1)</sup>-7,0<sup>2)</sup>-1000<sup>3)</sup>-2R<sup>4)</sup> including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO angle-bracket anchors type WK-ZD for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>5)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

<sup>4)</sup>Number of backs

<sup>5)</sup>Attachment as specified in table

<sup>6)</sup>Column dimension like version

## Special anchors:

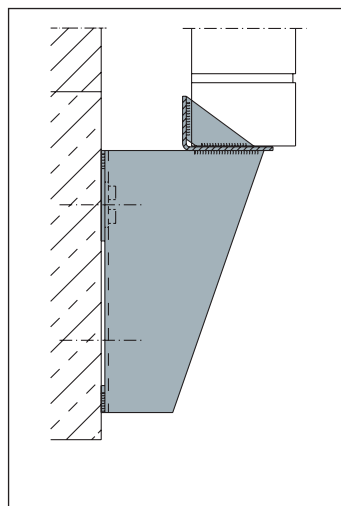
WK-S

The MOSO angle-bracket anchors type WK-S are custom-built versions designed by our engineering office to yield optimum solutions even in difficult situations.

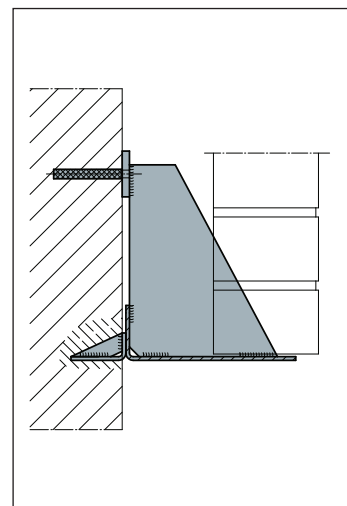
Our engineers require your planning documents (views, layouts and sectional drawings) so that the anchors can be dimensioned precisely.

### Product information

- Load stages: as required
- Distance from the wall: as required
- Material: approved stainless steel
- Evidence: static calculation



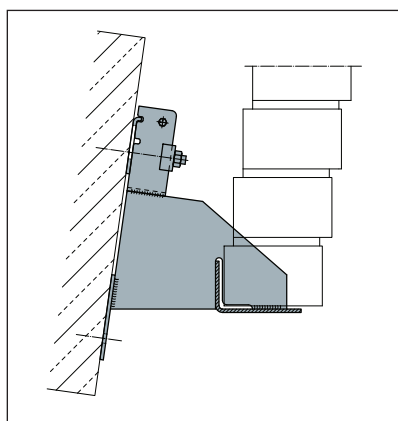
▲ As plinth support.



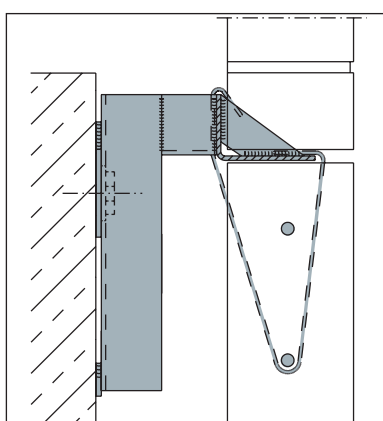
▲ For anchorage in the masonry.

### Use and application

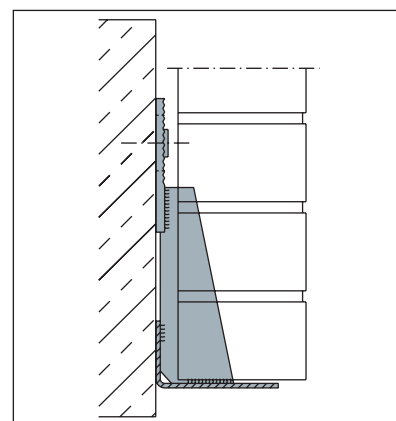
- Special anchors are dimensioned in accordance with structural and engineering requirements.



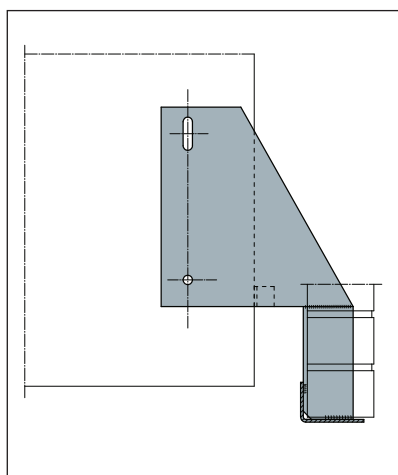
▲ Inclined version.



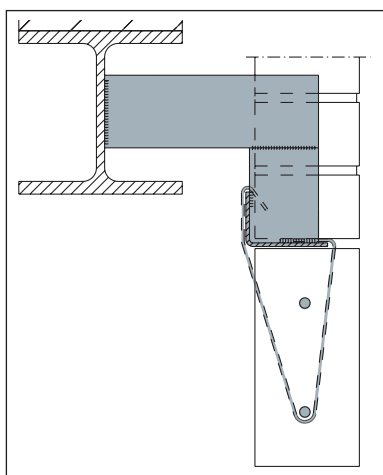
▲ For suspended lintel formation.



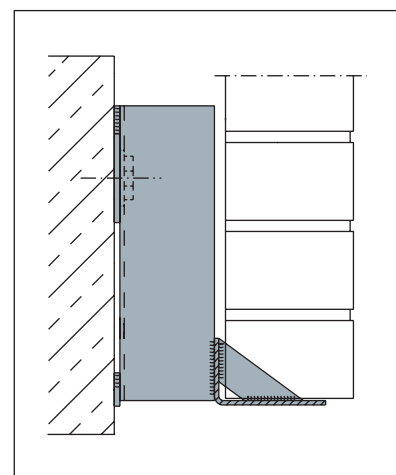
▲ For close up to the wall.



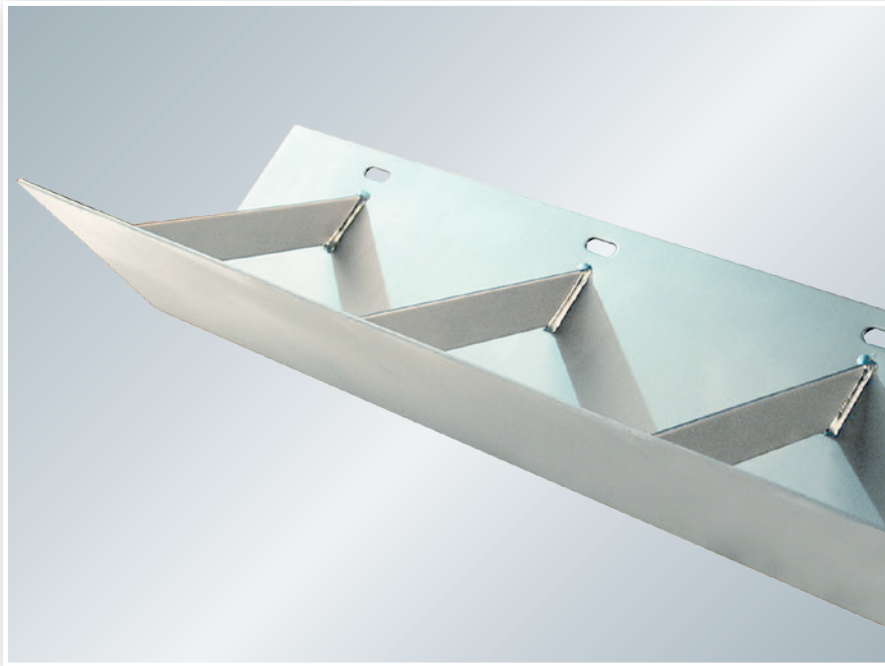
▲ As corner anchors.



▲ For connection to a steel profile.



▲ For high loads.



**WA-Ü/WA-Z**



**WA-D/WA-M**



**WA-S**

# MOSO Angled supports

## Always well supported:

## WA-Ü/WA-Z

The MOSO angled support type WA-Ü spans the opening for a lintel. Additional attachment is not required, as the angled bar is merely laid onto the masonry.

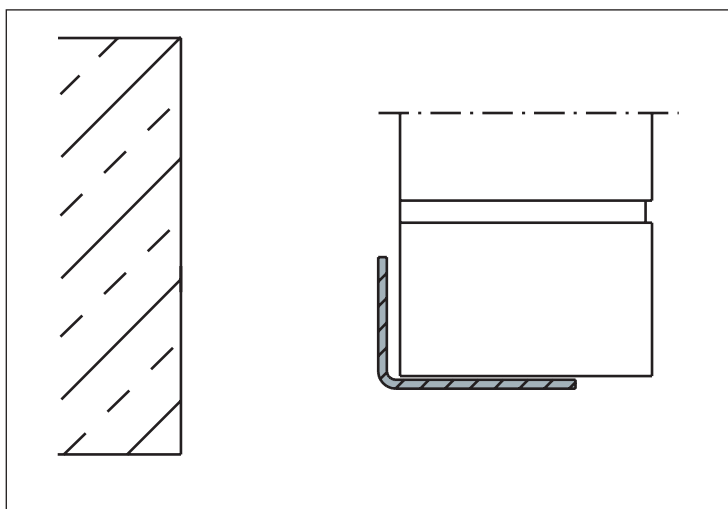
The MOSO angled support type WA-Z is used as intermediate angle for a support with single-bracket anchors and makes it possible to vary the spacing between anchors through its different lengths.

### Product information

- Support width: 90, 95 and 100 mm
- Width of opening: up to 2,51 m
- Material: approved stainless steel
- Evidence: static calculation



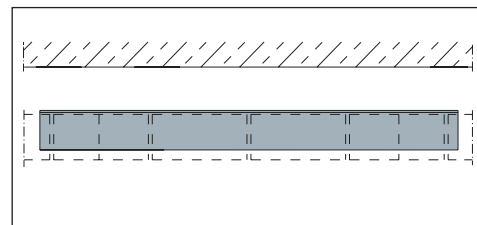
▲ Lintel with MOSO angled support type WA-Ü.



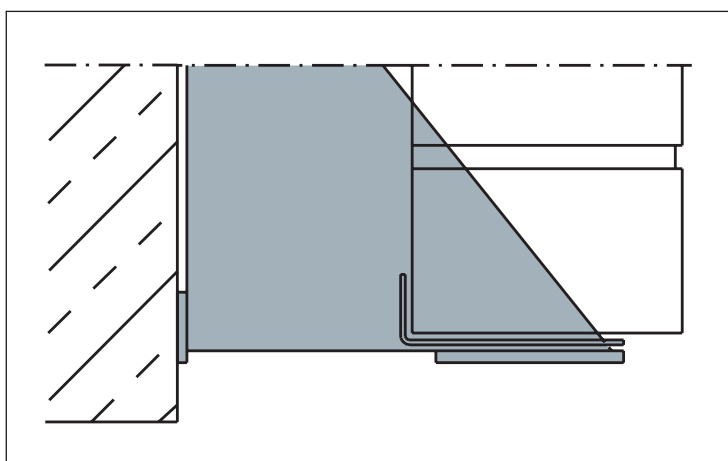
▲ MOSO angled support type WA-Ü.

### Use and application WA-Ü

- Angled support spanning the opening for a lintel.
- The angles must be fully supported until the brick mortar has set hard.



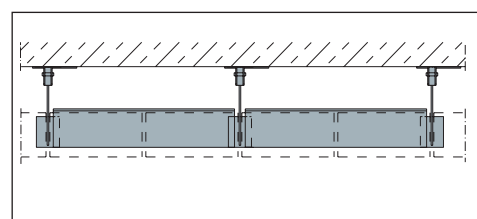
▲ Top view of the MOSO angled support type WA-Ü.



▲ MOSO angled support type WA-Z combined with type EK-U.


### Use and application WA-Z

- As intermediate angle between single-bracket anchors.
- The angles must be fully supported until the brick mortar has set hard.



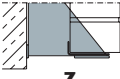
▲ Top view of MOSO angled support type WA-Z.



Type / Version	Profile (bracket height / bracket thickness)													
	lw (m)	L (mm)	Superimposed load (m)											hG (m)
			0,5	0,75	1	1,25	1,5	1,75	2	2,25	2,5	2,75	>2,75	
<div>WA-</div> <div>Ü</div> <div>For the profiles to the right of the dividing line, continuous masonry must be present to ensure the vault action at height hG.</div>	0,76	950	30/3	40/3	50/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	1,01
	0,885	1100	40/3	50/3	50/3	60/3	40/3	40/3	40/3	40/3	40/3	40/3	40/3	1,12
	1,01	1200	40/3	50/3	60/3	60/3	50/3	50/3	50/3	50/3	50/3	50/3	50/3	1,23
	1,135	1350	50/3	60/3	70/3	70/3	70/4	60/3	60/3	60/3	60/3	60/3	60/3	1,34
	1,26	1450	50/3	60/3	70/3	70/4	80/4	60/4	60/4	60/4	60/4	60/4	60/4	1,45
	1,385	1600	60/3	70/3	70/3	80/4	80/4	90/4	70/4	70/4	70/4	70/4	70/4	1,55
	1,51	1700	60/3	70/3	70/3	80/4	90/4	90/5	80/4	80/4	80/4	80/4	80/4	1,66
	1,76	1950	70/3	80/4	80/4	90/4	110/5	110/5	110/5	90/5	90/5	90/5	90/5	1,88
	2,01	2200	90/4	100/5	110/5	110/5	110/6	120/6	110/8	120/8	110/5	110/5	110/5	2,09
	2,26	2450	90/5	110/5	110/6	120/6	120/8	120/8	130/8	130/8	130/8	120/6	120/6	2,31
Angle width for a 115 mm wide facing brick								90 - 100						
Angle width for a 100 mm wide facing brick								95						
Angle width for a 90 mm wide facing brick								90						

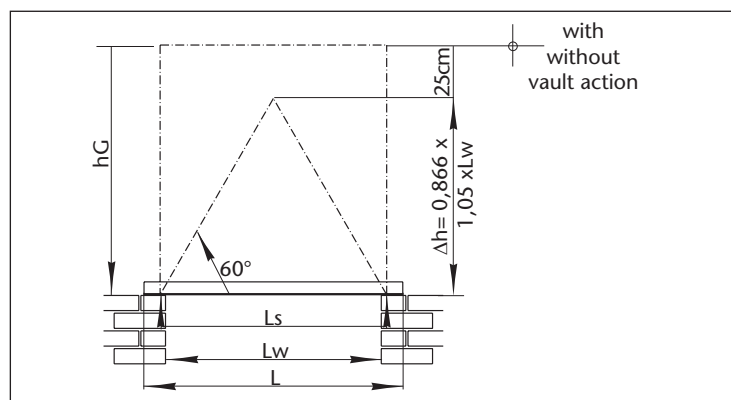
(Chart count on 115 mm width, facing brick with  $\gamma=18\text{kN/m}^3$   
basis of calculation: DIN 18800 and DIN 1053)

Other dimensions on request

Type / Version	Intermediate angle	Anchor spacing ak (m)	Used with single-bracket anchor type
<b>WA-Z</b> 	WA-Z-95 / 50 / 3-980 WA-Z-95 / 30 / 3-730 WA-Z-95 / 20 / 2-480 WA-Z-95 / 20 / 2-360	1,000 0,750 0,500 0,375	EK-D, EK-U, EK-M

## Example for ordering: WA - Ü - 100/60/4 - 1450

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Angle width \_\_\_\_\_  
 Profile according to table \_\_\_\_\_  
 Length L according to table \_\_\_\_\_



## Cross-references for additional information

Page	Subject
14 - 17	Wall support with MOSO single-bracket anchor type EK-U
22 - 23	Wall support with MOSO single-bracket anchor type EK-M
76 - 77	Lintel formation with MOSO accessories DB • GH • HB • TA
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angled supports type WA-Ü-100/60/4-1450<sup>1)</sup>, to be delivered and correctly installed.

### Alternatively:

...pcs lintel header for clear width  $c_w$  ...m with MOSO angled support type WA-Ü for masonry height ...m, with facing bricks ...cm thick, to be delivered and correctly installed.

<sup>1)</sup>As specified in table

## For a continuous soffit:

## WA-D/WA-M

The MOSO angled support type WA-M permits direct installation at the anchorage base.

The MOSO angled support type WA-D with welded-in gusset is used to bridge large distances from the wall.

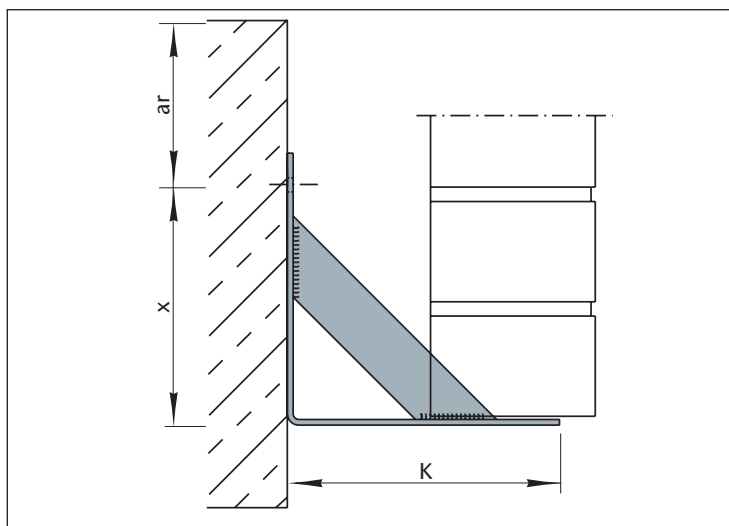
Both types are used when the support remains visible and a continuous soffit is required.



▲ Wall supported with MOSO angled support type WA-D.

### Product information

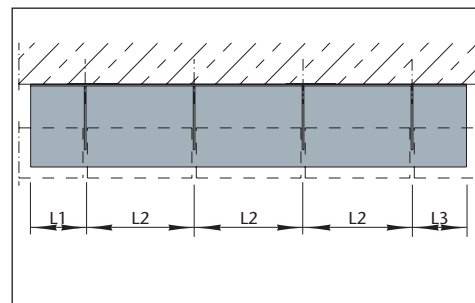
- Load stages: 1,2 kN - 3,2 kN
- Distance from the wall: 10 - 200 mm
- Material: approved stainless steel
- Evidence: static calculation



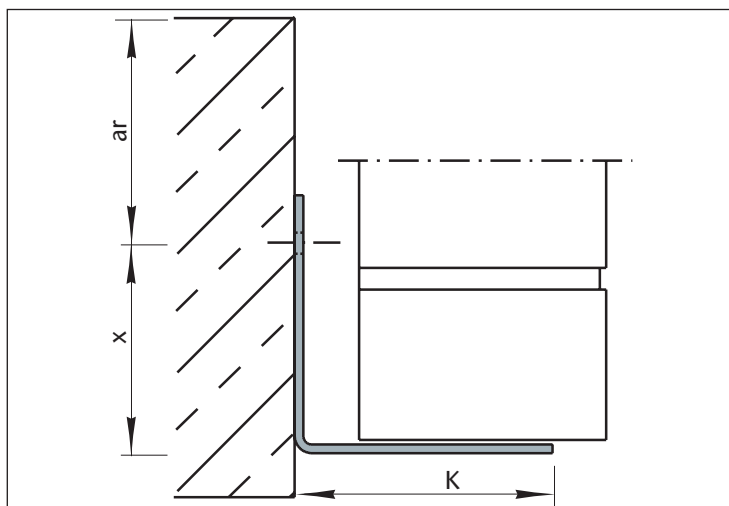
▲ MOSO angled support type WA-D.

### Use and application WA-D

- For visible support of walls.
- Can only be used in corners to a limited extent.
- The angles must be fully supported until the brick mortar has set hard.



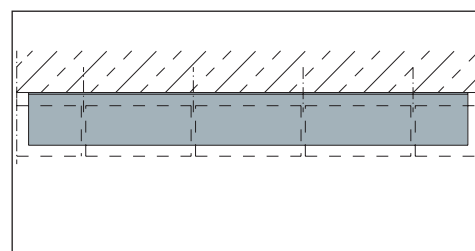
▲ Top view of MOSO angled support type WA-D.



▲ MOSO angled support type WA-M.

### Use and application WA-M

- For visible support of walls.
- The angles must be fully supported until the brick mortar has set hard.



▲ Top view of MOSO angled support type WA-M.

Type / Version	Load stage	1,5 kN/attachment point		3,2 kN/attachment point	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
 WA-D	20 - 40	130	104	130	102
	40 - 60	150	124	150	122
	60 - 80	170	144	170	142
	80 - 100	190	174	190	172
	100 - 120	210	194	210	192
	120 - 140	230	224	230	222
	140 - 160	250	244	250	242
	160 - 180	270	264	270	262
	180 - 200	290	284	290	282
Bigger wall distance on request					
Material thickness	s	4		6	
Length of element			up to 4000		up to 4000
Max. size of fastener			up to M12		up to M12
Anchor bolt for cracked concrete $\geq$ C20/25 (tension/compression zone)			Fischer FAZ II M10/10 edge distance $a_r \geq 60$		Fischer FAZ II M12/30 edge distance $a_r \geq 120$

Type / Version	Load stage	1,2 kN/attachment point		2,1 kN/attachment point		3,2 kN/attachment point	
	Distance/wall	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x	Cantilever length K	Bracket height x
 WA-M	10 - 20	100	74	100	72	100	70
	30 - 40	120	94	120	92	120	90
Material thickness	s	4		6		8	
Length of element			up to 4000		up to 4000		up to 3000
Max. size of fastener			up to M12		up to M12		up to M12
Anchor bolt for uncracked concrete $\geq$ C20/25 (tension/compression zone)			Fischer FAZ II M10/10 edge distance $a_r \geq 60$		Fischer FAZ II M10x10 edge distance $a_r \geq 80$		Fischer FAZ II M12/30 edge distance $a_r \geq 120$

Values apply for facing bricks 115 mm thick with a superimposed load  $\leq 2$  storeys, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95)

Other dimensions on request

## Example for ordering: WA - D - 230 - 3,2 - 1000

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_  
 Angle length \_\_\_\_\_

## Standard dimensions, types WA-D and WA-M

Length of element	Number of attachments	Layout of angle-bracket anchors
500	2	125/250/125
750	3	125/2x250/125
1000	4	125/3x250/125
1250	5	125/4x250/125
1500	6	125/5x250/125

## Cross-references for additional information

Page	Subject
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO angled supports type WA-D-210<sup>1)</sup>-3,2<sup>2)</sup>-1000<sup>3)</sup> including anchor bolts for cracked concrete<sup>4)</sup>, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO angled supports type WA-D for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including Anchor bolts for cracked concrete<sup>4)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Length of element

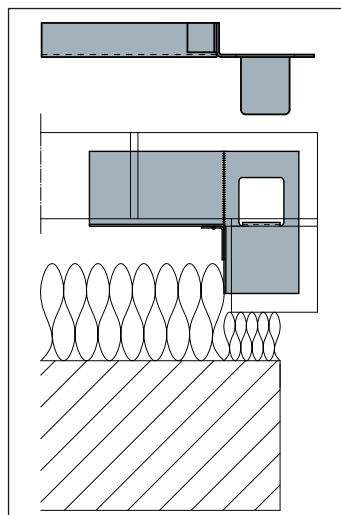
<sup>4)</sup>Attachment as specified in table

The MOSO angled supports type WA-S are custom-built versions designed by our engineering office to yield optimum solutions even in difficult situations.

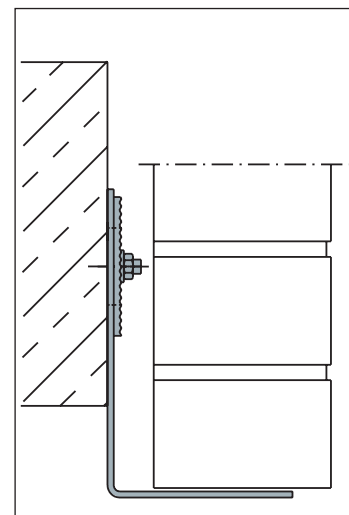
Our engineers require your planning documents (views, layouts and sectional drawings) so that the parts can be dimensioned precisely.

## Product information

- Material: approved stainless steel
- Evidence: static calculation



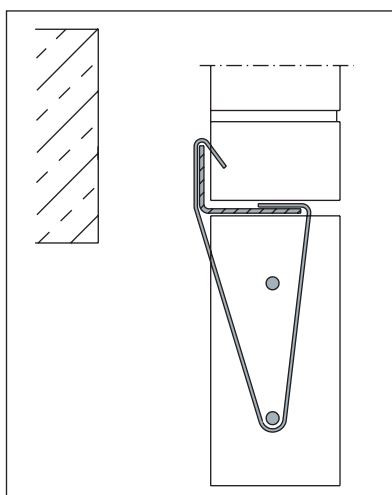
▲ Reveal bracket



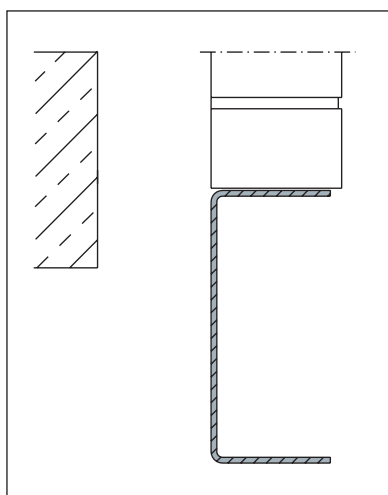
▲ With height adjustment.

## Use and application

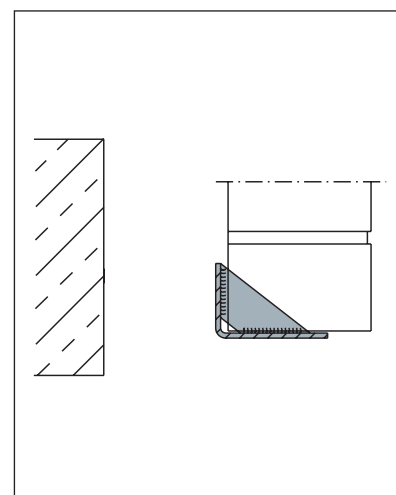
- Special anchors are dimensioned in accordance with structural and engineering requirements.



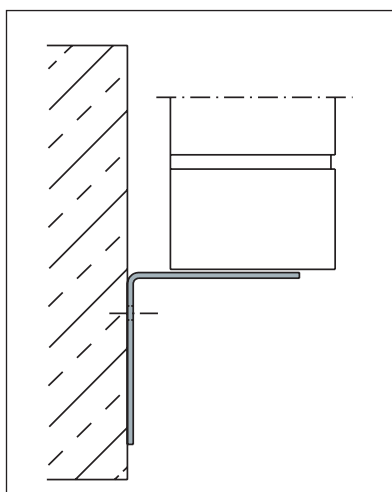
▲ For suspended soldier courses.



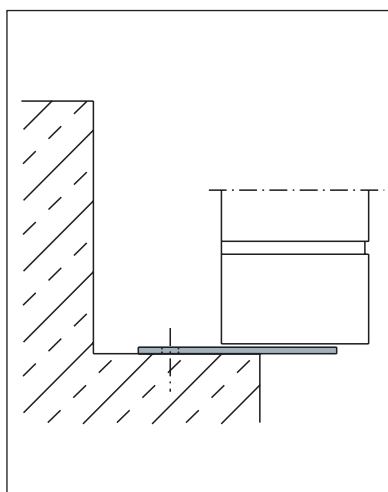
▲ As visible element.



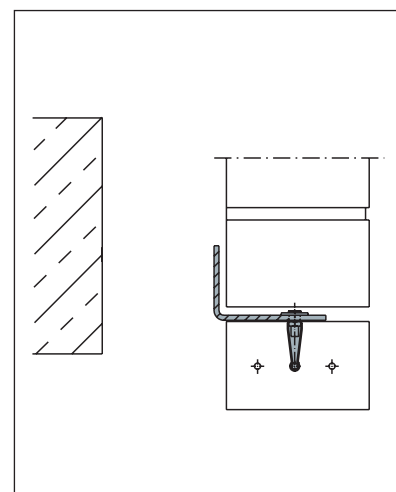
▲ With welded-in gusset.



▲ As plinth support.



▲ As extension for supports.



▲ For suspended stretcher courses.





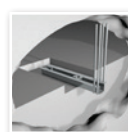
**FB-D**



**FB-U**



**FB-H**



**FB-E**



**FB-Z**



**FB-S**



# MOSO Attachment for prefabricated parts

## Universal anchor for prefabricated parts:

FB-D

The MOSO attachment for precast parts type FB-D with adjustable pressure screw for securing precast concrete parts. This slim construction method reduces thermal transmittance.

Depending on attachment, this anchor permits adjustment in three directions for optimum installation.

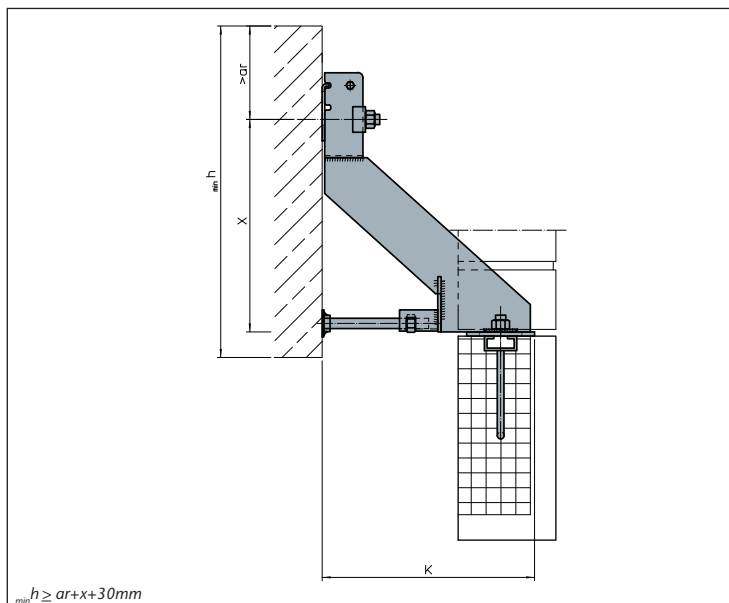
### Product information

- Load stages: 3,5 kN - 25,0 kN
- Distance from the wall: 20 - 370 mm, bigger on request
- Height adjustment:  $\pm 25$  mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation

With DIBt approval  
Z-21.8-1892



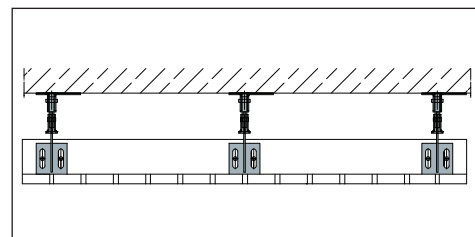
▲ Lintel support with MOSO attachment for prefabricated parts type FB-D.



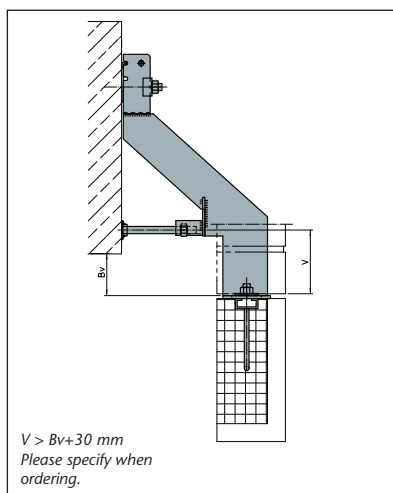
▲ MOSO attachment for prefabricated parts type FB-D.

### Use and application

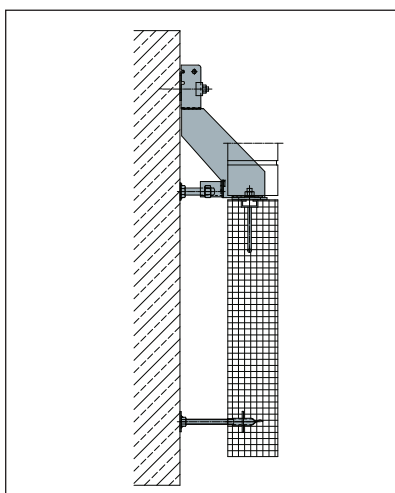
- For invisible support of prefabricated lintels.
- Can be adjusted in three directions when a type ES rail is used in the prefabricated part.
- Can also be used at corners and edges.



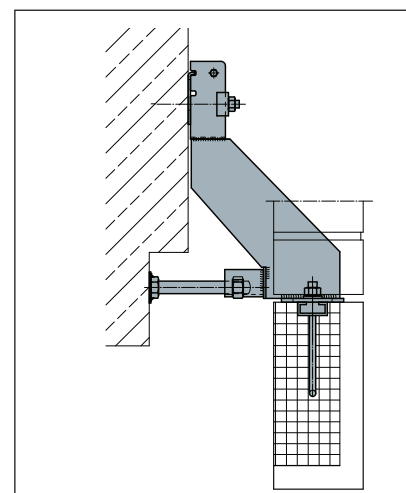
▲ MOSO attachment for prefabricated parts, top view.



▲ Type FB-DV with offset.



▲ Type FB-D with supporting anchor rail.



▲ Type FB-D with long pressure screw

Type / Version	Load stage	3,5 kN		7,0 kN		10,5 kN	
	Distance/wall	Cant. leng. K	Bra. height x	Cant. leng. K	Bra. height x	Cant. leng. K	Bra. height x
<b>FB-D</b>	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
Bigger wall distance on request							
Supporting plate	W / L / S	80/80/4 mit 2 LL 11x50		80/80/6 mit 2 LL 13x50		80/80/8 mit 2 LL 13x50	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete $\geq$ C20/25 (tension/compression zone)		FAZ II M12/60		FHB II AS M12x75/60		FHB II AS M16x95/60	
		edge distance $a_r \geq 80$		edge distance $a_r \geq 140$		edge distance $a_r \geq 140$	
MHK screw on anchor rail in concrete $>$ C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance $a_r \geq 75$		edge distance $a_r \geq 150$		edge distance $a_r \geq 200$	

Values apply for facing bricks 115mm thick with a suprimposed load  $\leq 2$  storeys. Otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95)

Other dimensions on request

## Example for ordering: FB - D - 190 - 7,0

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_

## Attachments for prefabricated parts

Load stage	Screws	Washers	Nuts
MBA 28/15 ES	2x MHK 28/15 M10x30	2x DIN 9021 for M10	2x DIN 934 for M10
MBA 38/17 ES	2x MHK 38/17 M10x30	2x DIN 9021 for M10	2x DIN 934 for M10
TA 50/31 ES*	2x MHK 50/30 M12x40	2x DIN 125 for M12	2x DIN 934 for M12

## Cross-references for additional information

Page	Subject
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
84 - 89	Individual evidence of attachment in anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

... pcs MOSO attachment for prefabricated parts type FB-D-210<sup>1)</sup>-7,0<sup>2)</sup> including Anchor bolts for cracked concrete<sup>3)</sup> and attachment for anchor rail type MBA 38/17 ES<sup>4)</sup> embedded in concrete the prefabricated part, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO attachment for prefabricated parts type FB-D for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>3)</sup> and attachment for anchor rail<sup>4)</sup> cemented into the prefabricated part, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment, cast-in-place concrete, as specified in table

<sup>4)</sup>Attachment, prefabricated part, as specified in table

### Note:

Parts to be cemented in (anchor rails) should constitute a separate item in the invitation to tender.

The MOSO attachment for prefabricated parts type FB-U is a universal anchor for securing prefabricated concrete parts.

Depending on attachment, this anchor permits adjustment in three directions for optimum installation.

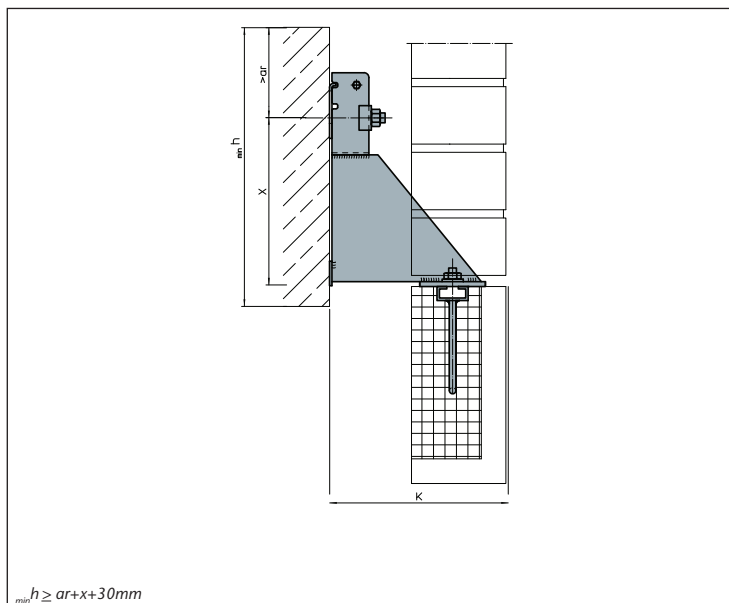
With DIBt approval  
Z-21.8-1892



▲ Lintel support with MOSO attachment for prefabricated parts type FB-U.

### Product information

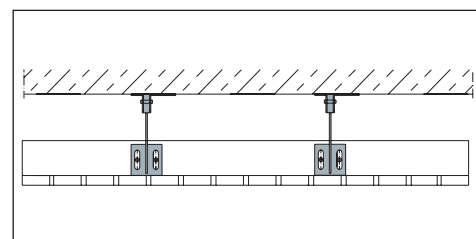
- Load stages: 3,5 kN - 25,0 kN
- Distance from the wall: 20 - 270 mm, bigger on request
- Height adjustment:  $\pm 25$  mm
- Material: approved stainless steel
- Evidence: Support anchor head according to DIBT approval Z-21.8-1892 type-testing or static calculation



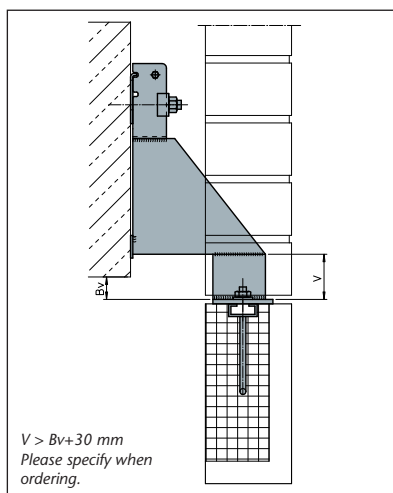
▲ MOSO attachment for prefabricated parts type FB-U.

### Use and application

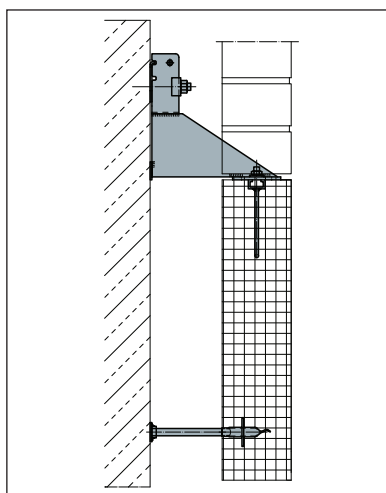
- For invisible support of prefabricated lintels.
- Can be adjusted in three directions when a type ES rail is used in the prefabricated part.
- Can also be used at corners and edges.



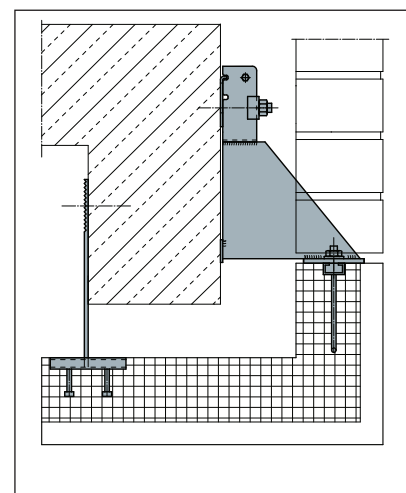
▲ MOSO attachment for prefabricated parts, top view.



▲ Type FB-UV with offset.

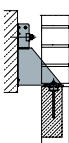
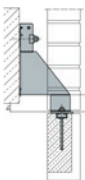


▲ MOSO-FB-U with pressure screw.



▲ Type FB-U with type FB-ZK as anti-twist device.



Type / Version	Load stage	3,5 kN		7,0 kN		10,5 kN	
	Distance/wall	Cant. leng. K	Bra. height x	Cant. leng. K	Bra. height x	Cant. leng. K	Bra. height x
 	20 - 50	130	150	130	200	130	250
	40 - 70	150	150	150	200	150	250
	60 - 90	170	150	170	200	170	250
	80 - 110	190	150	190	200	190	250
	100 - 130	210	150	210	200	210	250
	120 - 150	230	175	230	250	230	300
	140 - 170	250	175	250	250	250	300
	160 - 190	270	175	270	250	270	300
	180 - 210	290	175	290	250	290	300
	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
Bigger wall distance on request							
Supporting plate	W / L / S	80/80/4 mit 2 LL 11x50		80/80/6 mit 2 LL 13x50		80/80/8 mit 2 LL 13x50	
Max. size of fastener		up to M12		up to M12		up to M16	
Anchor bolt for cracked concrete $\geq$ C20/25 (tension/compression zone)		FAZ II M12/60		FHB II AS M12x75/60		FHB II AS M16x95/60	
		edge distance $a_r \geq 80$		edge distance $a_r \geq 140$		edge distance $a_r \geq 140$	
MHK screw on anchor rail in concrete $>$ C20/25		MHK 38/17 M12x80		MHK 50/30 M12x80		MHK 50/30 M16x100	
		MBA 38/17K		MBA 50/31		MBA 52/34	
		edge distance $a_r \geq 75$		edge distance $a_r \geq 150$		edge distance $a_r \geq 200$	

Values apply for facing bricks 115mm thick with a superimposed load  $\leq 2$  storeys. Otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95)

Other dimensions on request

## Example for ordering: FB - U - 190 - 7,0

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Cantilever length \_\_\_\_\_  
 Load stage \_\_\_\_\_

## Attachments for prefabricated parts

Load stage	Screws	Washers	Nuts
MBA 28/15 ES	2x MHK 28/15 M10x30	2x DIN 9021 for M10	2x DIN 934 for M10
MBA 38/17 ES	2x MHK 38/17 M10x30	2x DIN 9021 for M10	2x DIN 934 for M10
TA 50/31 ES*	2x MHK 50/30 M12x40	2x DIN 125 for M12	2x DIN 934 for M12

\*not part of the approval Z-21.4-1907

Note: The attachment of the prefabricated part has to be proved separately.

## Cross-references for additional information

Page	Subject
76 - 77	Lintel formation with MOSO accessories DB•GH•HB•MBA-ES
84 - 89	Individual evidence of attachment in anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
98 - 99	Installation instructions
100	Principles for dimensioning masonry support

## Text for invitation to tender

... pcs MOSO attachment for prefabricated parts type FB-U-210<sup>1)</sup>-7,0<sup>2)</sup> including anchor bolts for cracked concrete<sup>3)</sup> and attachment for anchor rail type TA 38/17 ES<sup>4)</sup> cemented into the prefabricated part, to be delivered and correctly installed.

### Alternatively:

...m wall support with MOSO attachment for prefabricated parts type FB-U for masonry height ...m, distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>3)</sup> and attachment for anchor rail<sup>4)</sup> cemented into the prefabricated part, to be delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment, cast-in-place concrete, as specified in table

<sup>4)</sup>Attachment, prefabricated part, as specified in table

### Note:

Parts to be cemented in (anchor rails) should constitute a separate item in the invitation to tender.

## Multiple anchors for parapet slabs:

**FB-H**

The MOSO attachment for prefabricated parts FB-H is a multiple anchor for tying-in prefabricated parapet slabs.

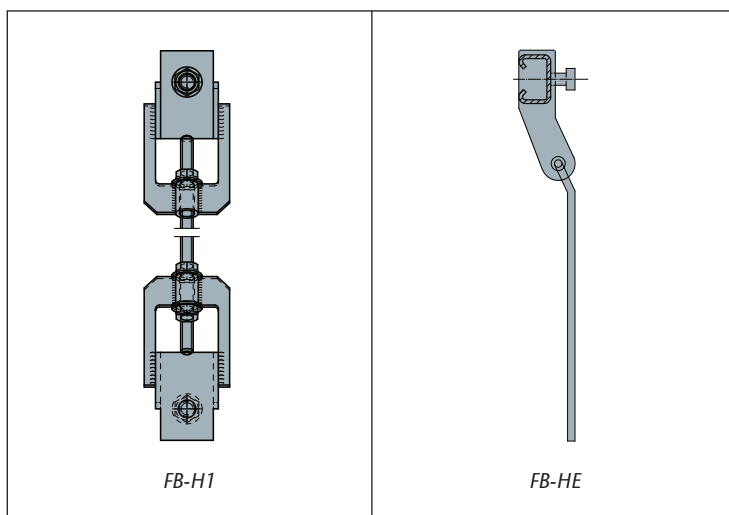
Its excellent adjustability means that MOSO suspension anchors are also ideal for larger dimensional tolerances. The lateral manoeuvrability of the MOSO suspension anchor always allows enough play for any thermal movement of the precast concrete façade slabs.

### Product information

- Load stages: 5kN - 56kN
- Distance from the wall: up to 500 mm
- Wall clearance adjustment: up to ca.  $\pm 30$  mm
- Material: approved stainless steel
- Evidence: type-testing or static calculation



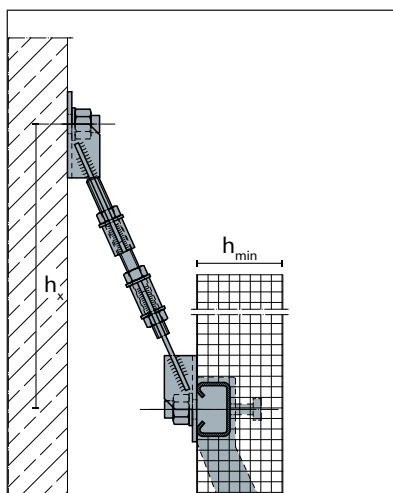
▲ Mounting of prefabricated parts with MOSO FB-H.



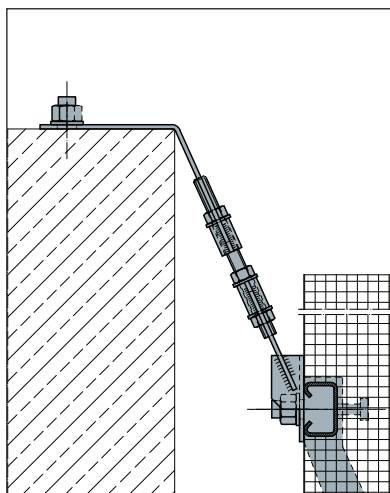
▲ MOSO-attachment for prefabricated parts FB-H

### Use and application

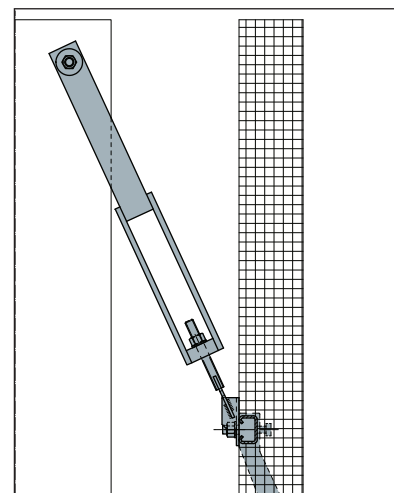
- Precast concrete façade slabs with minimal installation space and in difficult installation positions
- Thanks to the use of DIBt-approved fastening points in the precast part and the cast-in-situ concrete, small concrete thicknesses and edge distances are possible
- The design allows for three-dimensional adjustment, so that any irregularities in the brick structure can be perfectly offset
- Application in combination with pressure screw
- Two-hole upper part for heavy loads



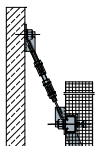
▲ FB-H1, Normal version



▲ FB-HA, Asymmetrical version



▲ FB-HS, Corner version

Type/version	Load Stage	5,0 kN / anchor		8,0 kN / anchor		11,5 kN / anchor		16,0 kN / anchor		22,0 kN / anchor		34,0 kN / anchor		46,0 kN / anchor		56,0 kN / anchor	
	Dist./ Wall	hx	Angle	hx	Angle	hx	Angle	hx	Angle	hx	Angle	hx	Angle	hx	Angle	hx	Angle
 <b>FB-H1</b>	60	185	18,5	185	18,5	210	16,5	240	14,5	260	13,5	-	-	-	-	-	-
	70	180	21,5	180	21,5	210	19,0	235	17,0	260	15,5	285	14	-	-	-	-
	80	175	25,0	175	25,0	205	22,0	230	19,5	255	18,0	285	16	-	-	-	-
	90	200	25,0	195	25,0	200	25,0	225	22,5	250	20,0	280	18,5	-	-	-	-
	100	220	25,0	215	25,0	220	25,0	220	25,0	245	22,5	275	20,5	380	15	-	-
	110	240	25,0	240	25,0	240	25,0	245	25,0	270	22,5	270	22,5	365	17	450	14
	120	265	25,0	260	25,0	265	25,0	265	25,0	290	22,5	295	22,5	365	20	450	15
	130	285	25,0	280	25,0	285	25,0	285	25,0	315	22,5	320	22,5	375	20	450	18
	140	305	25,0	305	25,0	305	25,0	310	25,0	340	22,5	340	22,5	385	20	450	18
	150	325	25,0	325	25,0	325	25,0	330	25,0	365	22,5	365	22,5	410	20	450	18
	160	350	25,0	345	25,0	350	25,0	350	25,0	390	22,5	390	22,5	435	20	450	20
	170	370	25,0	370	25,0	370	25,0	375	25,0	410	22,5	415	22,5	465	20	465	20
	180	390	25,0	390	25,0	390	25,0	395	25,0	435	22,5	440	22,5	490	20	495	20
	190	415	25,0	410	25,0	415	25,0	415	25,0	460	22,5	460	22,5	520	20	520	20
	200	435	25,0	430	25,0	435	25,0	440	25,0	485	22,5	485	22,5	545	20	550	20
	210	455	25,0	450	25,0	455	25,0	460	25,0	510	22,5	505	22,5	570	20	575	20
	220	475	25,0	475	25,0	475	25,0	480	25,0	535	22,5	530	22,5	595	20	600	20
	230	495	25,0	495	25,0	500	25,0	500	25,0	560	22,5	555	22,5	620	20	625	20
	240	520	25,0	515	25,0	520	25,0	520	25,0	580	22,5	580	22,5	650	20	655	20
	250	540	25,0	540	25,0	540	25,0	545	25,0	605	22,5	605	22,5	675	20	680	20
Color coding		black		red		green		white		yellow		orange		blue		brown	
built-in part		FB-HE-5,0		FB-HE-8,0		FB-HE-11,5		FB-HE-16,0		FB-HE-22,0		FB-HE-34,0		FB-HE-46,0		FB-HE-56,0	
Anchor bolt for cracked concrete > C20/25		FAZ II M10/10		FAZ II M12/30		FAZ II M16/25		FAZ II M16/25		FHB II AS M16x95/30		FAZ II M20/30		FAZ II M20/30		FAZ II M24/30	
max. size of fastener		bis M10		bis M12		bis M16		bis M16		bis M16		bis M20		bis M20		bis M24	
Threaded rod		M8		M10		M12		M16		M16		M20		M24		M27	

## Example for ordering

**Built-in part: FB - H1 - 120 - 11,5**

**Built-in part: FB - HE - 11,5**

Type

Version

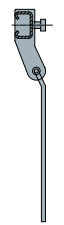
Wall distance

Load stage

Type

Version

Load stage

Type	Load Stage	Attachment with built-in part	Minimum thickness slab
 <b>FB-HE</b>	FB - HE - 5,0	MHK 38/17 M10x30	70
	FB - HE - 8,0	MHK 40/25 M12x40	70
	FB - HE - 11,5	MHK 50/30 M16x50	80
	FB - HE - 16,0	MHK 50/30 M16x50	80
	FB - HE - 22,0	MHK 50/30 M20x60	90
	FB - HE - 34,0	welded in SKS M20	100
	FB - HE - 46,0	welded in SKS M20	115
	FB - HE - 54,0	welded in SKS M20	125

## Cross-references for additional information

Page	Subject
58 - 59	Retaining anchor with adjustment
84 - 89	Individual evidence of attachment in anchorage base

## Text for invitation to tender

...pcs MOSO attachment for pre-fabricated parts type FB-H1-210<sup>1)</sup>-5,0<sup>2)</sup> including anchor bolts for cracked concrete<sup>3)</sup> and attachment for built-in part FB-HE -5,0<sup>4)</sup> to be delivered and correctly installed.

<sup>1)</sup>Execution as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment, cast-in-place concrete, as specified in table

<sup>4)</sup>Attachment, prefabricated part, as specified in table

### Note:

Parts to be cemented in (built-in parts) should constitute a separate item in the invitation to tender.

## Clamping anchor for parapet units:

FB-E

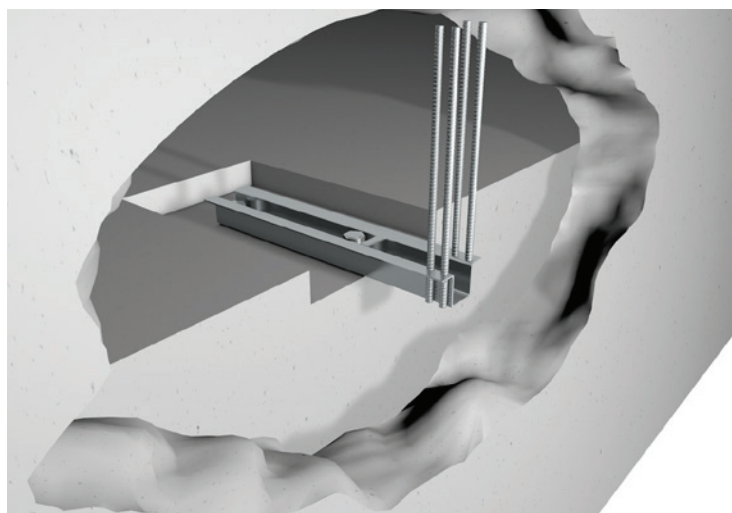
The MOSO attachment for prefabricated parts type FB-E is an anchor for fastening parapet units. Very high loads can be secured on account of the robust design.

### Note!

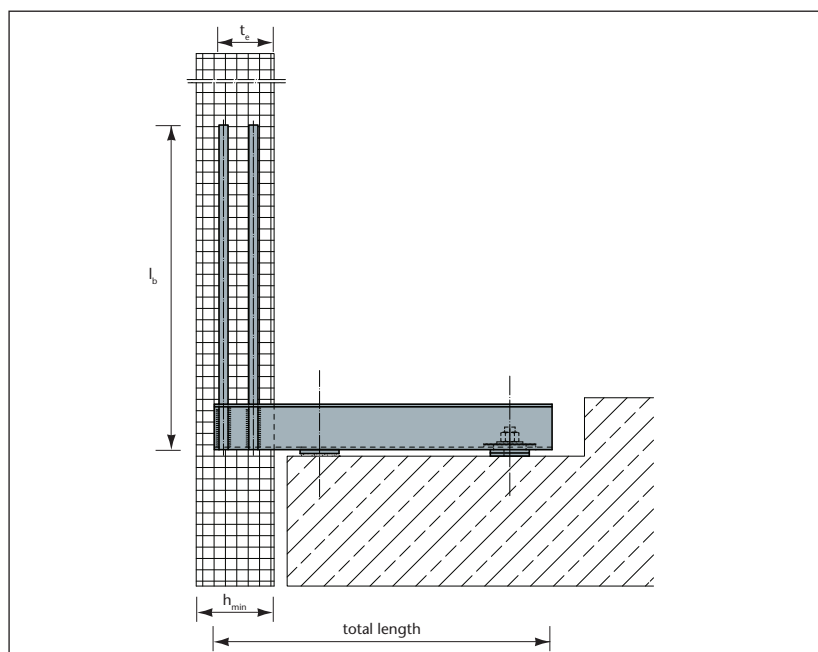
Each concrete element should be braced with exactly 2 anchors. This will ensure a uniform load distribution. When using multiple clamping anchors, it is advisable to use the version with an adjusting screw.

### Product information

- Load stages: According to calculation
- Height adjustments:  $\pm 10$  mm (type EJ)
- Material: approved stainless steel, normal steel (with sufficient concrete coverage)
- Evidence: structure analysis



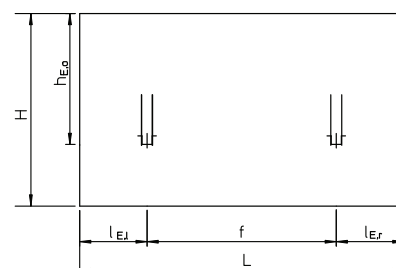
▲ Parapet anchorage with MOSO attachment for prefabricated parts type FB-E.



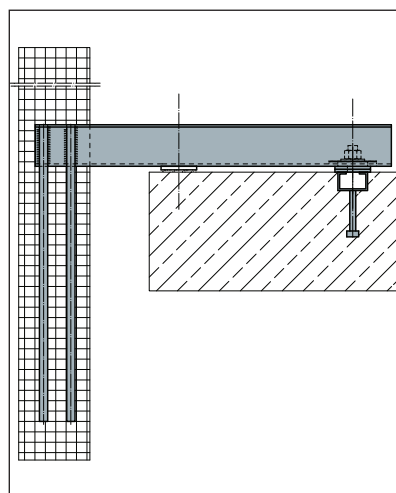
▲ FB-E

### Use and application

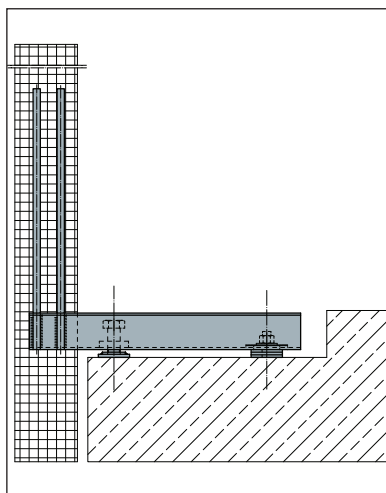
- Ideal for balcony and roof parapet slabs, which project upwards and downwards respectively on one side
- Fastening to cast-in-situ concrete with anchors or anchor rails
- Height adjustment over additional steel plates (FB-E / FB-EA)
- Precise height adjustment with adjusting screw (FB-EJ / FB-EAJ)



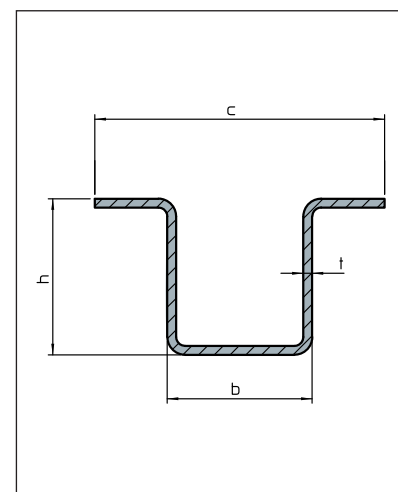
▲ FB-E, top view.



▲ FB-EA

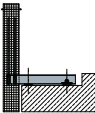
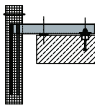


▲ FB-EJ



▲ Cap profile



			Cap profile c/b/h/t	Installation depth t <sub>e</sub> in mm	Thickness slab h <sub>min</sub> in mm	Reinforcement I <sub>b</sub> in mm	long hole	(only with ad- justing screw)
<div><div></div><div></div></div>	E	FB-E(J) 1	90/50/45/3	70	100	350	17 x 50	M16
		FB-E(J) 2	95/50/50/3	72	100	400	17 x 50	M16
		FB-E(J) 3	110/60/55/4	82	110	450	17 x 50	M20
	EA	FB-E(J) 4	130/65/70/4	92	120	500	17 x 50	M24
		FB-E(J) 5	140/70/75/5	102	130	525	21 x 50	M30
		FB-E(J) 6	150/80/90/6	108	135	600	21 x 50	M30
		FB-E(J) 7	160/80/90/6	123	150	625	21 x 50	M30
		FB-E(J) 8	180/90/100/8	125	150	700	21 x 50	M30

## Example for ordering: FB - EJ - 3 - 600

Other dimensions on request

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Profile type \_\_\_\_\_  
Total length \_\_\_\_\_

Typ	US t=3 mm		US t=6 mm		gez. US t=5 mm		DVP	
	Length [mm]	SL Ø	Length [mm]	SL Ø	Length [mm]	RL Ø	Length [mm]	t [mm]
1	65	17	65	17	40	17	40	6
2	65	17	65	17	45	17	40	6
3	65	17	65	17	45	17	40	8
4	65	17	65	17	45	17	50	8
5	90	21	90	21	45	21	70	10
6	90	21	90	21	45	21	70	10
7	90	21	90	21	45	21	70	10
8	90	21	90	21	45	21	70	10

## Cross-references for additional information

Page	Subject
84 – 89	Individual evidence of attachment in anchorage base

## Text for invitation to tender

... pc. Deliver and professionally install MOSO attachment for precast parts type FB-E-3-600 incl. anchor for cracked concrete.

Distance from the wall = ... cm

## Retaining anchor with adjustment

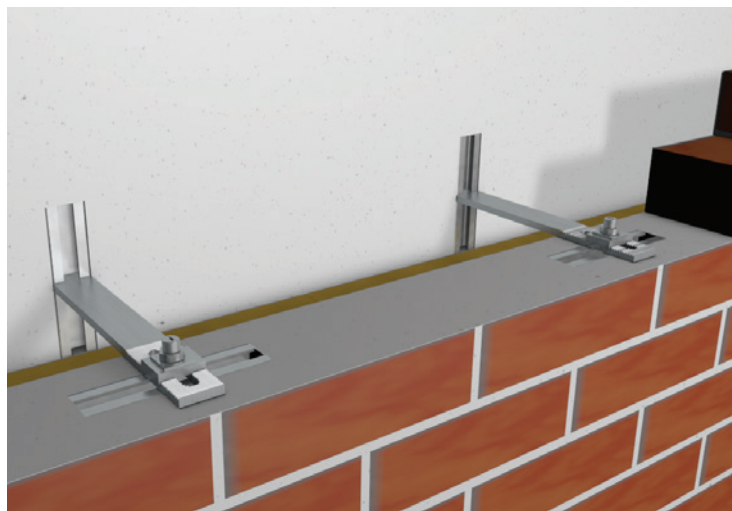
FB-Z

The MOSO attachment for prefabricated parts type FB-Z is a serrated anchor for retaining prefabricated concrete parts.

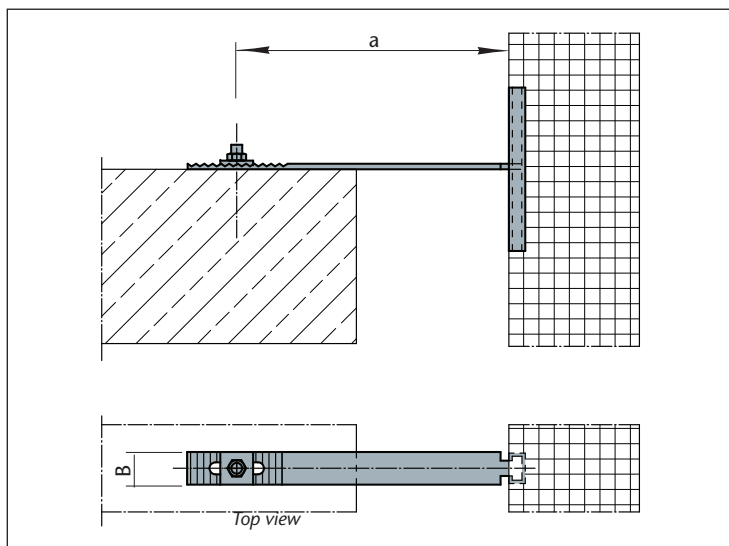
Different types permit attachment in virtually all situations

### Product information

- Load stages: 3,5 kN - 12,0 kN
- Adjustment:  $\pm 25$  mm
- Material: Approved stainless steel
- Evidence: Static calculation



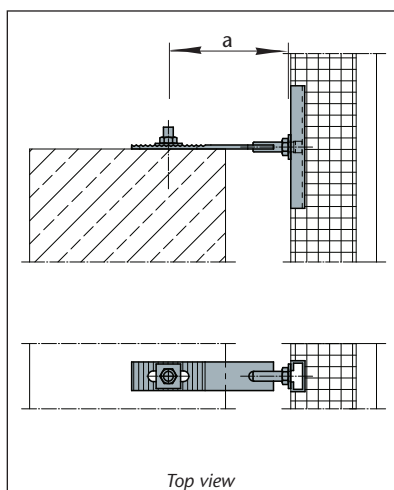
▲ Retention with the MOSO attachment for prefabricated parts type FB-Z.



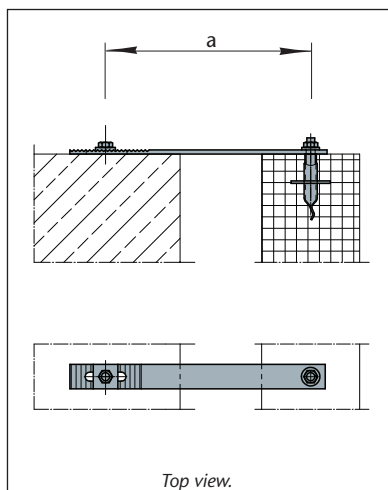
▲ MOSO-Attachment for prefabricated parts type FB-ZK.

### Use and application

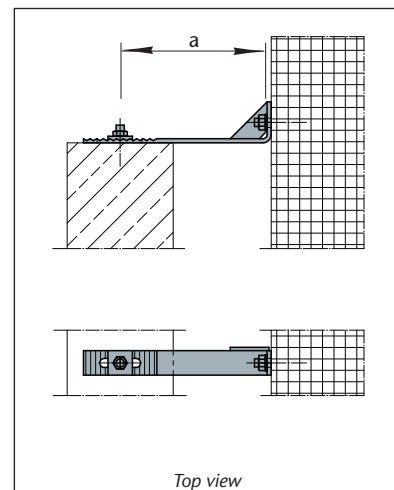
- ZK: with header for tensile connection to a supporting anchor rail
- ZW: as angle bracket for tensile and compressive connection with dowel attachment.
- ZH: with welded-in MHK screw for tensile and compressive connection to a supporting anchor
- ZL: with hole for securing a layer horizontally with dowel, threaded sleeve or supporting rail.



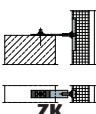
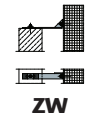
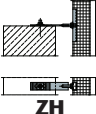
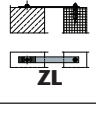
▲ FB-ZH with MHK-Screw.



▲ FB-ZL with hole.



▲ FB-ZW as angle bracket.

Type / Version	Load stage	3,5 kN	7,0 kN	12,0 kN
	Distance a			
<b>FB-</b>  <b>ZK</b>  <b>ZW</b>  <b>ZH</b>  <b>ZL</b>	0-200 mm	Connecting head for profile 28/15	Connecting head for profile 38/17	Connecting head for profile 50/31
	0-200 mm	Bracket height H = 60 mm	Bracket height H = 70 mm	Bracket height H = 80 mm
	0-200 mm	Welded-in MHK screw for profile 28/15	Welded-in MHK screw for profile 38/17	Welded-in MHK screw for profile 50/31
	0-200 mm	Round hole diameter 11 mm	Round hole diameter 13 mm	Round hole diameter 17 mm
	Bigger wall distance on request			
Width	W	30	35	50
Serrated long hole		11 x 70	13 x 70	17 x 70
Max. size of fastener		up to M10	up to M12	up to M16
Anchor bolt for uncracked concrete $\geq$ C20/25 (compression zone)		UPAT UKA3 M10x130 edge distance $a_r \geq 60$	UPAT UKA3 M12x160 edge distance $a_r \geq 190$	UPAT UKA3 M16x190 edge distance $a_r \geq 280$
MHK screw on anchor rail in concrete $\geq$ C20/25		MHK 28/15 M10x30 MBA 28/15 edge distance $a_r \geq 50$	MHK 38/17 M12x40 MBA 38/17 edge distance $a_r \geq 75$	MHK 50/30 M16x50 MBA 50/31 edge distance $a_r \geq 150$

Other dimensions on request

## Example for ordering: FB - ZK - 250 - 7,0

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Distance a \_\_\_\_\_  
 Load stage \_\_\_\_\_

## Accessories for type FB-Z

Load stage	3,5 kN	7,0 kN	12,0 kN
Serrated washer	30/30/5 Rdl 11	35/35/5 Rdl 13	40/40/5 Rdl 17

## Cross-references for additional information

Page	Subject
84 - 89	Individual evidence of attachment in the anchorage base
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO attachment for prefabricated parts type FB-ZK-200<sup>1)</sup>-7,0<sup>2)</sup> including anchor bolts for cracked Beton<sup>3)</sup>, to be delivered and correctly installed.

<sup>1)</sup>Distance as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment, cast-in-place concrete, as specified in table.

### Note:

Parts to be cemented in (anchor rails) should constitute a separate item in the invitation to tender.

## Tensile, compressive and horizontal fastenings:

The MOSO attachment for precast parts type FB-DZA is a compression/tension anchor for securing precast concrete parts.

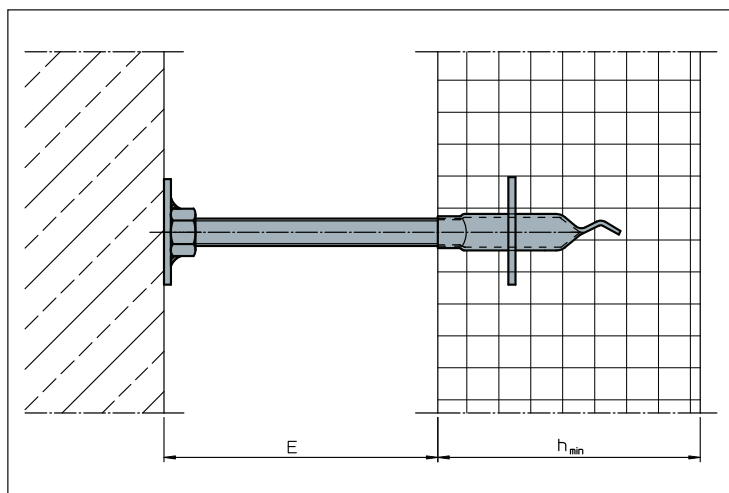
The system also requires the MOSO FB-VD as a dowelling and the FB-DS as a pressure screw.

### Product information

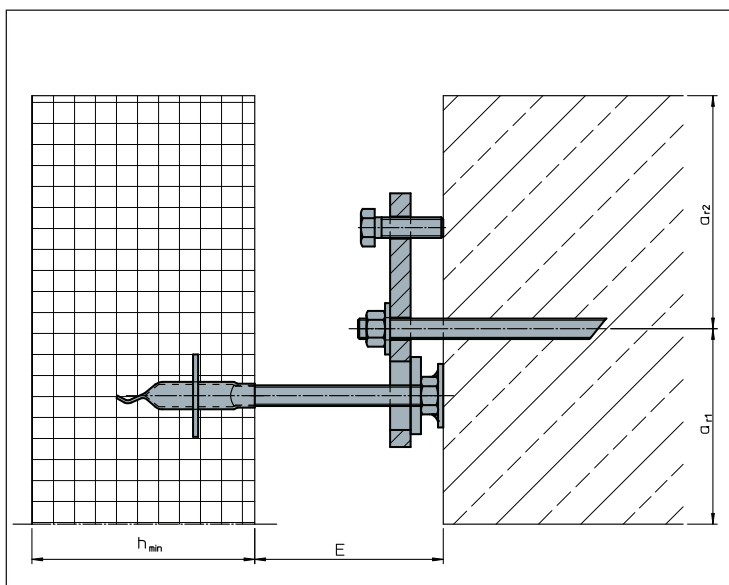
- Load stages: DZA: 2 - 6 kN  
VD: 2,5 - 5 kN
- Distance from the wall: up to 500 mm
- Adjustment (DZA u. DS): Standard up to ca.  $\pm 15$  mm
- Material: Approved stainless steel
- Evidence: Static calculation



▲ Retention with the MOSO attachment for prefabricated parts type FB-Z.



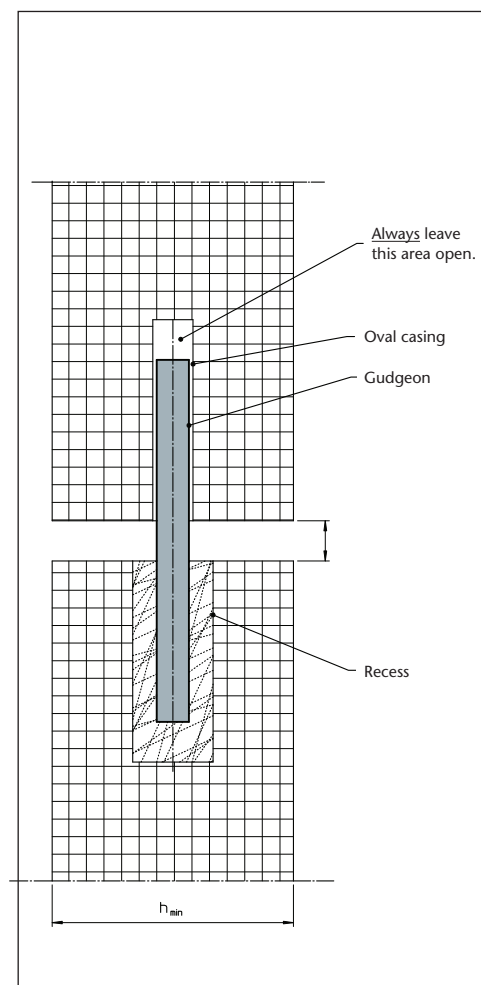
▲ FB-DS is a pressure strut for use above and below precast concrete façade slabs. If an additional suction fastening is required under the slab, the lower DS are replaced by 2 x DZA.



▲ FB-DZA is a compression/suction fastening for use below precast concrete façade slabs.

### Use and application

- The accessories pictured supplement the suspension anchors when bracing precast concrete façade slabs.



▲ FB-VD, dowelling. VD anchors are used to pin the precast concrete façade slabs.



	Thread		Fitted parts	
<b>FB- DS</b>	M10	for Distance from the wall from 60 up to 250 mm	HüDüDV M10x80	
	M12	for Distance from the wall from 60 up to 250 mm	HüDüDV M12x80	
	M16	for Distance from the wall from 60 up to 250 mm	HüDüDV M16x80	
	M20	for Distance from the wall from 60 up to 250 mm	HüDüDV M20x100	

## Example for ordering: FB - DS - M10x100

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Threaded rod \_\_\_\_\_

## Example for ordering: HüDüDV M12x80

Type \_\_\_\_\_  
Internal thread \_\_\_\_\_

### Text for invitation to tender

... pc. MOSO attachments for precast parts deliver FB-DS-M10x100 as an accessory for precast concrete façade slabs.

Note:  
Parts to be set in concrete should be listed separately.  
Distance from the wall = ... cm

	Lastfase	Dowel	Edge distance	DS	Fitted parts
<b>FB- DZA</b>	$F_k = 2,00 \text{ kN}$	FAZ II 10/30	$a_r < 50\text{mm}$	M10	HüDüDV M10x80
				M12	HüDüDV M12x80
	$F_k = 3,50 \text{ kN}$	FAZ II 12/60	$a_r < 100\text{mm}$	M12	HüDüDV M12x80
				M16	HüDüDV M16x80
	$F_k = 6,00 \text{ kN}$	FAZ II 16/60	$a_r < 125\text{mm}$	M16	HüDüDV M16x80
				M20	HüDüDV M20x100

## Example for ordering: FB - DZA - 3,5 - M12

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Load stage \_\_\_\_\_  
Thread size \_\_\_\_\_

### Text for invitation to tender

... pc. MOSO attachments for precast parts deliver FB-DZA-3.5 – M12 including anchor for cracked concrete as an accessory for precast concrete façade slabs.

Note:  
The pressure screw should be listed separately.  
Distance from the wall = ... cm

	Lastfase	Bar	Length	Fitted parts Plastic casing		Thickness of part	Additional re- inforcement
	kN	mm		oben	unten	mm	
<b>FB- VD</b>	2,5	12	180	12 x 80	40 x 100	≥100	required
	5	16	200	16 x 100	40 x 100	≥100	required

## Example for ordering: FB - VD - 2,5

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Load stage \_\_\_\_\_

### Text for invitation to tender

... pc. MOSO attachments for precast parts deliver FB-VD-2.5 as an accessory for precast concrete façade slabs.

Note:  
Parts to be set in concrete (plastic casing) should be listed separately.  
Distance from the wall = ... cm

## Special anchors:

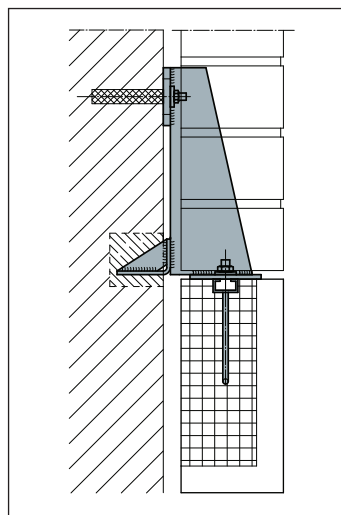
FB-S

The MOSO attachment for prefabricated parts type FB-S is a custom built version designed by our engineering office to yield optimum solutions even in difficult situations.

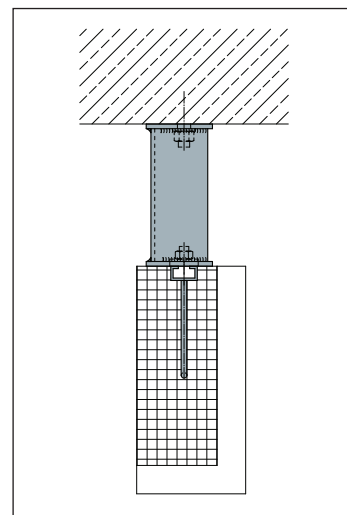
Our engineers require your planning documents (views, layouts and sectional drawings) so that the anchors can be dimensioned precisely.

### Product information

- Material: approved stainless steel
- Evidence: static calculation



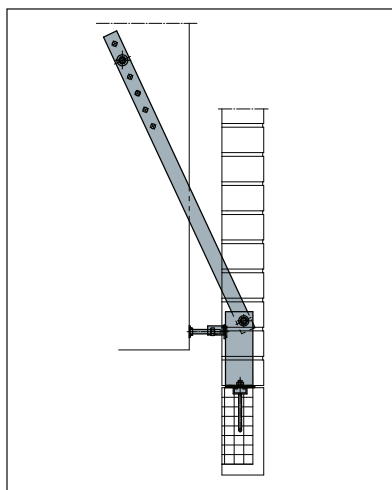
▲ For anchorage in the masonry.



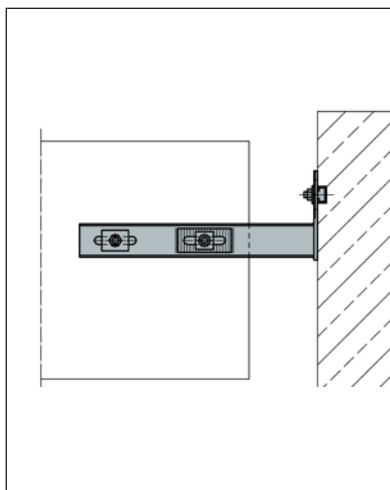
▲ As suspended tie rod.

### Use and application

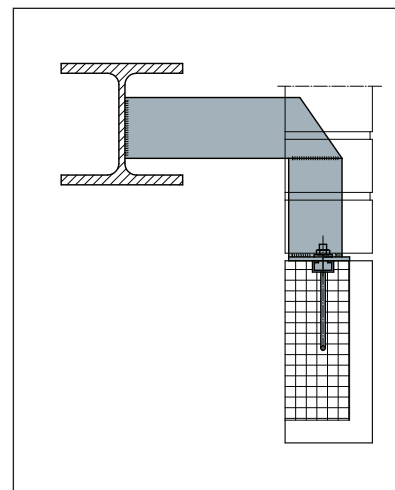
- Special anchors are dimensioned in accordance with structural and engineering requirements.



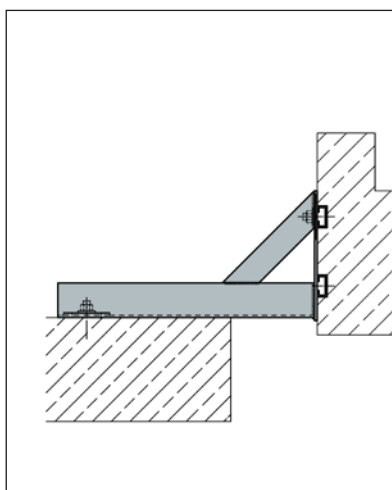
▲ Attachment for prefabricated parts.



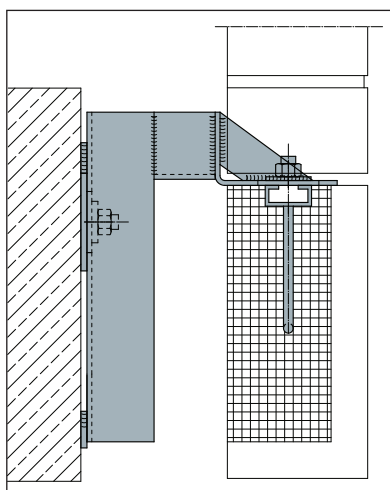
▲ As push-pull connection.



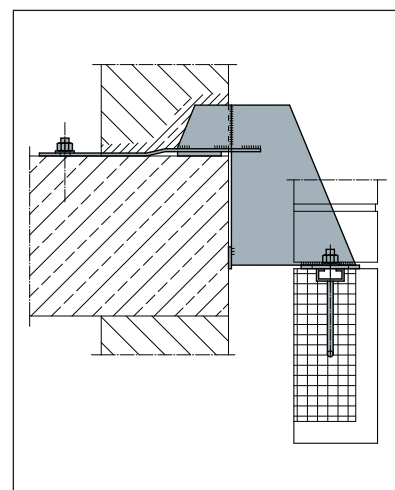
▲ For connecting to steel girders.



▲ As compressive support.



▲ For anchorage behind prefabricated part.



▲ For anchorage on the floor.



**HV-A**



**HV-L**



**HV-T**



**HV-S**



**HV-D**



# MOSO Horizontal connector

## Retainer for fascia facing:

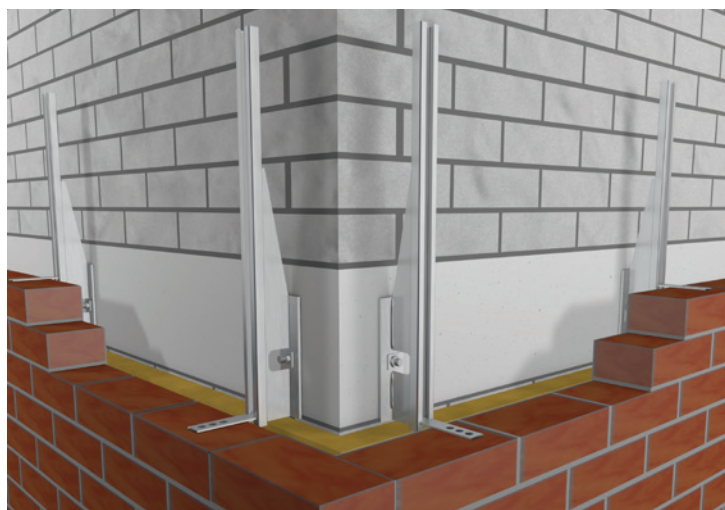
## HV-A

The MOSO horizontal connector type HV-A is a retaining anchor for fascias to prevent the formation of cracks due to differences in movement by the flat roof and facework.

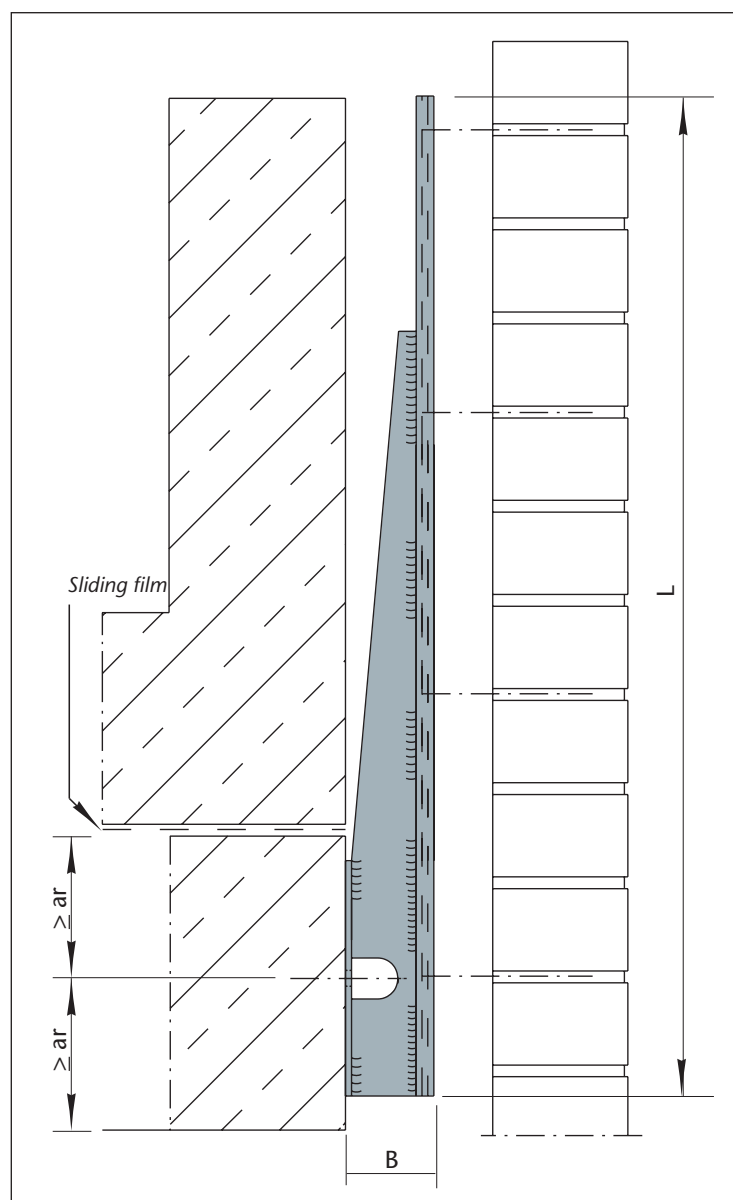
Since the anchor is attached below the support for the flat roof, movement by the flat roof remains without effect on the facework.

### Product information

- Lengths: 600 - 1100 mm
- Distance from the wall: 80 - 200 mm
- Material: approved stainless steel
- Evidence: static calculation



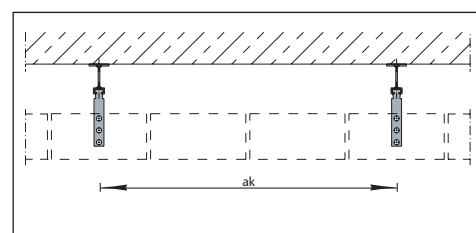
▲ Fascia anchorage with MOSO horizontal connector type HV-A.



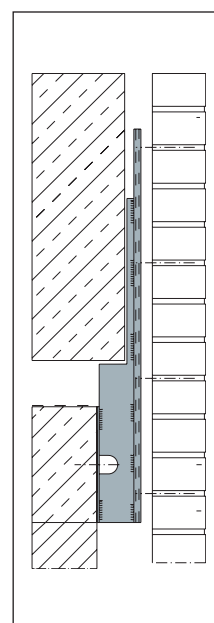
▲ MOSO-Horizontal connector type HV-A.

### Use and application

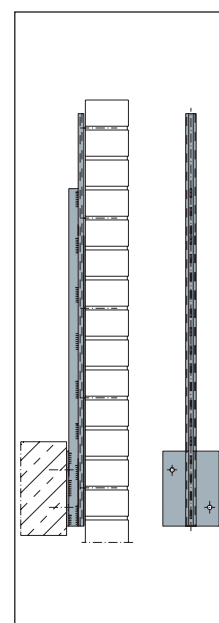
- for horizontal connections in the fascia area
- Anchor spacing  $a_k < 75$  cm (at the edge  $< 37,5$  cm)



▲ MOSO-Horizontal connector HV-A, top view



▲ HV-AS, special solution.



▲ HV-AS for short distances.



Type / Version	Length L	600	850	1100
	Distance/wall	Wall anchor	Wall anchor	Wall anchor
 A	80 - 110	3 x MA-A-085-A4	4 x MA-A-085-A4	5 x MA-A-085-A4
	90 - 145	3 x MA-A-120-A4	4 x MA-A-120-A4	5 x MA-A-120-A4
	145 - 200	3 x MA-A-180-A4	4 x MA-A-180-A4	5 x MA-A-180-A4
Width	W	75	75	75
Max. size of fastener		up to M12	up to M12	up to M12
Anchor bolt for cracked concrete ≥ C20/25 (Tension/Compression zone)		Fischer FHB II-AS M10x60/20 Edge distance ar ≥ 100	Fischer FHB II-AS M12x75/25 Edge distance ar ≥ 100	Fischer FHB II-AS M12x75/25 Edge distance ar ≥ 100
MHK screw on anchor rail in concrete ≥ C20/25		MHK 38/17 M12x30 MBA 38/17 l=150 mm Edge distance ar ≥ 75	MHK 38/17 M12x30 MBA 38/17 l=150 mm Edge distance ar ≥ 75	MHK 38/17 M12x30 MBA 38/17 l=150 mm Edge distance ar ≥ 75

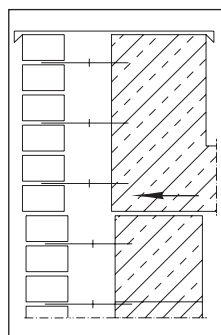
Values apply for facing bricks 115 mm thick and a building height ≤ 20m above ground, otherwise the anchors must be adapted in accordance with DIN 1053 (see pages 94 + 95)

Other dimensions on request

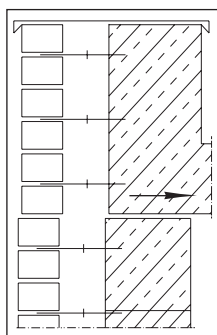
## Example for ordering: HV - A - 600

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Length L \_\_\_\_\_

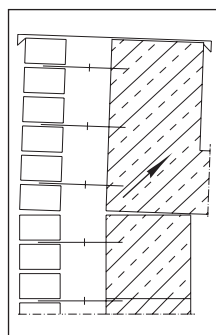
## Possible causes of damage



▲ At high temperatures.



▲ At low temperatures.



▲ Due to torsion.

## Cross-references for additional information

Page	Subject
78 - 79	Wall anchors Type MA-A
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO horizontal connector type HV-A850<sup>1)</sup> including anchor bolts for cracked<sup>2)</sup> and wall anchor type MA-A-120<sup>3)</sup>.

### Alternatively:

...m fascia facework with MOSO horizontal connector type HV-A for fascia height ...m, distance from wall (insulation + air space) ...cm, thickness of facing brick ...cm, including anchor bolts for cracked concrete<sup>2)</sup> and required wall anchors, to be delivered and correctly installed

<sup>1)</sup> Type as specified

<sup>2)</sup> Attachment, cast-in-place concrete, as specified in table

<sup>3)</sup> Wall anchor as specified in table

### Note:

When secured with MHK screws, the corresponding anchor rail should constitute a separate item in the invitation to tender.

## Horizontal connector with joint:

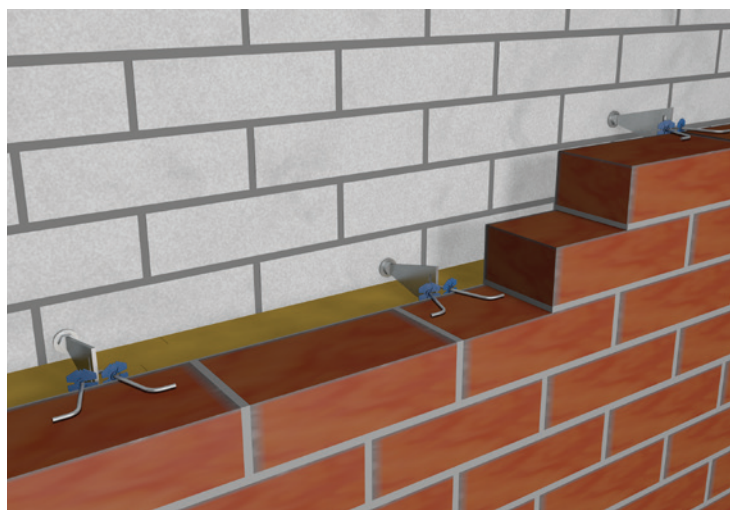
**HV-T**

The MOSO horizontal connector type HV-T is a trapezoidal articulated anchor making the normally required support unnecessary.

Different movements by the outer and inner walls can be compensated through this articulated connector.

### Product information

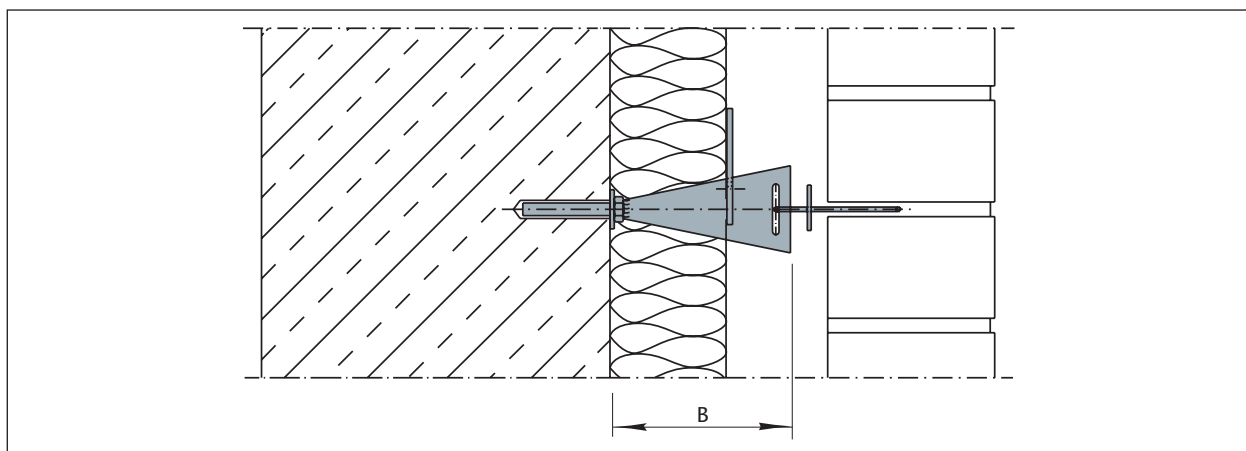
- Adjustment:  $\pm 15$  mm
- Distance from the wall: 60 - 200 mm
- Material: approved stainless steel
- Evidence: consent in individual cases, static calculation, permit(attachment)



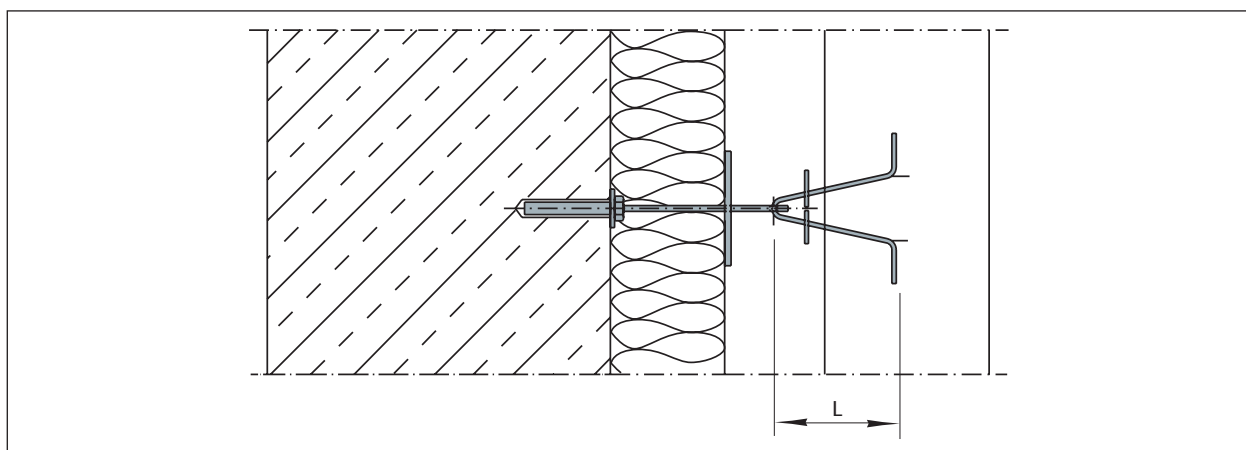
▲ Anchorage with MOSO horizontal connector type HV-T.

### Use and application

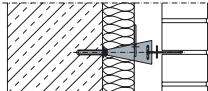
- for horizontal connections without horizontal support
- Number of anchors required: 5 anchors per m<sup>2</sup> (area) 3 anchors per m (free edges)



▲ MOSO horizontal connector type HV-T.



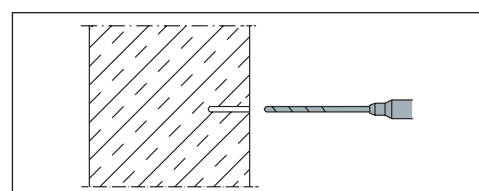
▲ MOSO horizontal connector type HV-T, top view.

Type / Version	Components	Trapezoidal plate		Binder		Attachment
	Distance/wall	Width B	Adjustment	Diameter	Length L	
<b>HV-T</b> 	60 - 80	55	+ 15	4	90	For DIN 1053 authorized frame dowels  V = solid brick L = cored brick
	80 - 100	75	+ 15	4	90	
	100 - 120	95	+ 15	4	90	
	120 - 140	115	+ 15	4	90	
	140 - 160	135	+ 15	4	90	
	160 - 180	155	+ 15	4	90	
	180 - 200	175	+ 15	4	90	

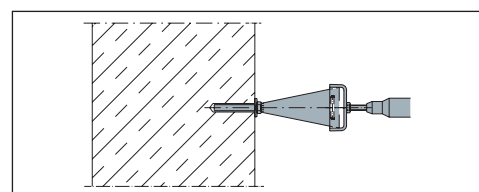
Values apply for facing bricks 115 mm thick. The permissible forces must be established by tensile testing for anchorage in cored brick.

Other dimensions on request

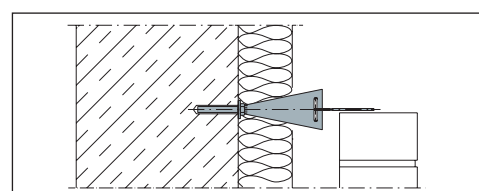
## Installation of type HV-T



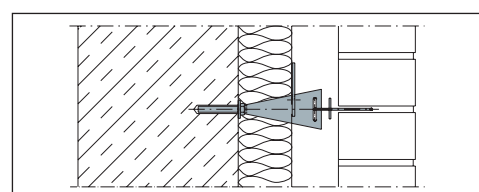
◀ Drill and clean a hole.



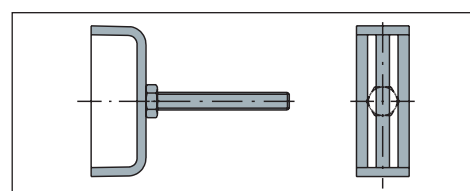
◀ Screw in the facade dowel with trapezoidal plate, taking care to ensure that the trapezoidal plate is perpendicular.



◀ Fit and align the binder.



◀ Fit holder for insulation and drip plates if required.



▲ Assembly device for type HV-T.

## Example for ordering:

**HV - T - 115 - V**

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Width W \_\_\_\_\_  
Attachment \_\_\_\_\_

## Cross-references for additional informationen

Page	Subject
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitation to tender

...pcs MOSO horizontal connectors type HV-T-135-V<sup>1)</sup> including MOSO-ISO-Clip insulation holder, to be delivered and correctly installed.

### Alternatively:

...m<sup>2</sup> wall area with MOSO horizontal connectors type HV-T for distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including insulation holder, to be delivered and correctly installed.

<sup>1)</sup>Type as specified in table

## Wire tie for retroactive attachment:

## HV-D

The MOSO horizontal connector type HV-D is a wire tie for retroactively connecting double-leaf masonry in accordance with DIN 1053

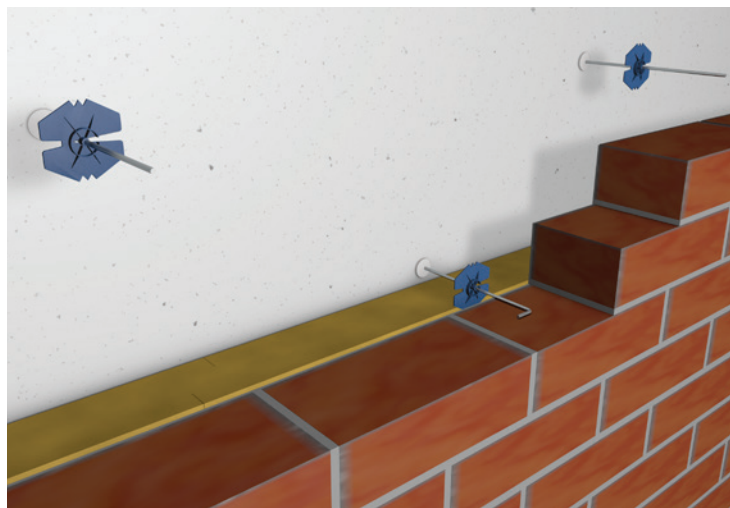
Different versions allow the anchors to be used in different anchorage bases.

### Product information

- Diameter: 3 and 4 mm
- Distance from the wall: up to 200 mm
- Material: approved stainless steel construction
- Evidence: supervisory permit and test certificate

### \* Note

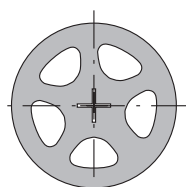
Wire anchors for projections > 20cm are available on request.



▲ Anchorage with MOSO-horizontal connector type HV-DAZ.

### Use and application

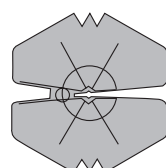
- HV-DAZ: dowelled anchor for concrete and solid brick
- HV-DPB: screw-in anchor for aerated concrete
- HV-DU: screw-in anchor for timber



Claw plate

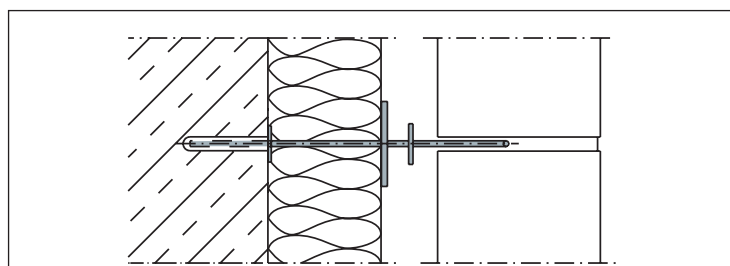


Drip plate

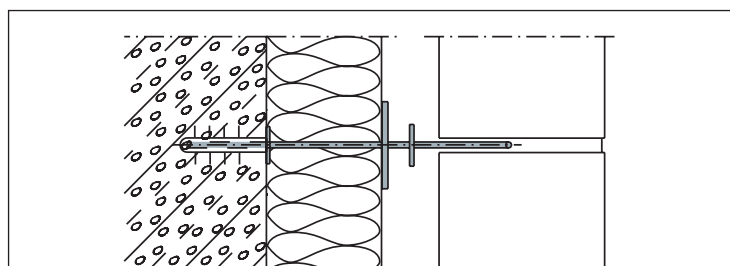


Iso-Clip

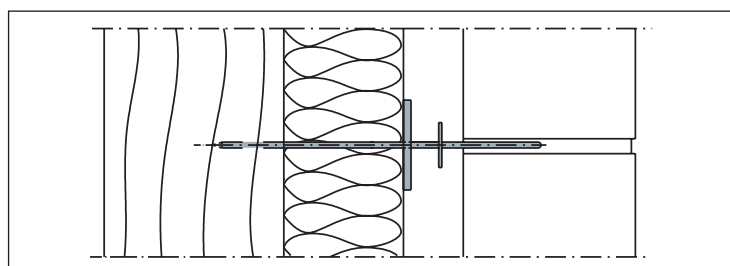
▲ Accessories.



▲ MOSO-horizontal connector HV-DAZ.



▲ MOSO horizontal connector HV-DPB.



▲ MOSO horizontal connector HV-DU.



Type / Version	Dimensions	Wall spacing	Hole size	Evidence
<b>HV-</b>   <b>DAZ</b>   <b>DPB</b>   <b>DU</b>	3x160	up to 25 mm	8x60	Construction supervisory permit
	3x210	up to 70 mm		
	4x160	up to 25 mm		
	4x180	up to 45 mm		
	4x210	up to 75 mm		
	4x250	up to 115 mm		
	4x275	up to 140 mm		
	4x300	up to 165 mm		
	4x320	up to 185 mm		
	4x350	up to 200 mm		
	4x160	up to 60 mm	10x60	Construction supervisory permit
	4x200	up to 100 mm		
	4x225	up to 125 mm		
	4x250	up to 150 mm		
	4x300	up to 200 mm		
	3x180	up to 70 mm	not applicable	Construction supervisory permit
	4x180	up to 80 mm		
	4x210	up to 100 mm		
	4x235	up to 125 mm		
	4x260	up to 150 mm		

Other dimensions on request

## Example for ordering: HV - DU - 4x210

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Dimension \_\_\_\_\_

## Accessories

Designation	for version
Claw plate Ø 60 mm	-DAZ, -DPB, -DU
Drip plate Ø 25 mm	-DAZ, -DPB, -DU
ISO-Clip Ø 60 mm	-DAZ, -DPB, -DU
Screw-adapter	-DPB, -DU
Bending pliers	-DAZ

## Cross-references for additional information

Page	Subject
94 - 95	Technical regulation governing masonry support (DIN 1053)

## Text for invitation to tender

...pcs MOSO-horizontal connectors type HV-DAZ<sup>1)</sup>-4x275<sup>2)</sup> including Iso-Clip, to be delivered and correctly installed.

### Alternatively:

...m<sup>2</sup> wall area with MOSO-horizontal connectors type HV-DPB<sup>1)</sup> for distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including insulation holder, to be delivered and correctly installed.

<sup>1)</sup>Type as specified in table

<sup>2)</sup>Dimensions as specified in table

## Cavity-wall tie for retroactive attachment:

**HV-L**

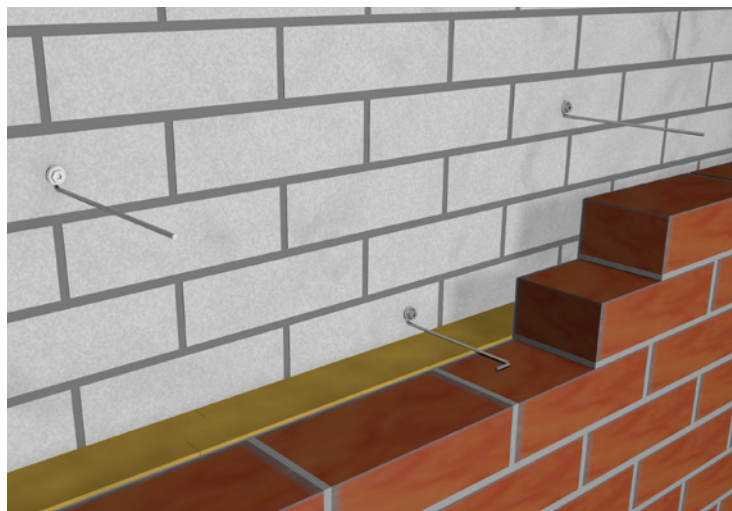
The MOSO horizontal connector type HV-L is a cavity-wall tie for retroactively connecting double leaf masonry in accordance with DIN 1053.

It is not necessary to pull down the outer wall for rehabilitation projects, as the old wall can be used for anchorage.

This anchor can also be used in difficult anchorage bases, provided that the load-bearing capacity has been demonstrated by tensile testing.

### Product information

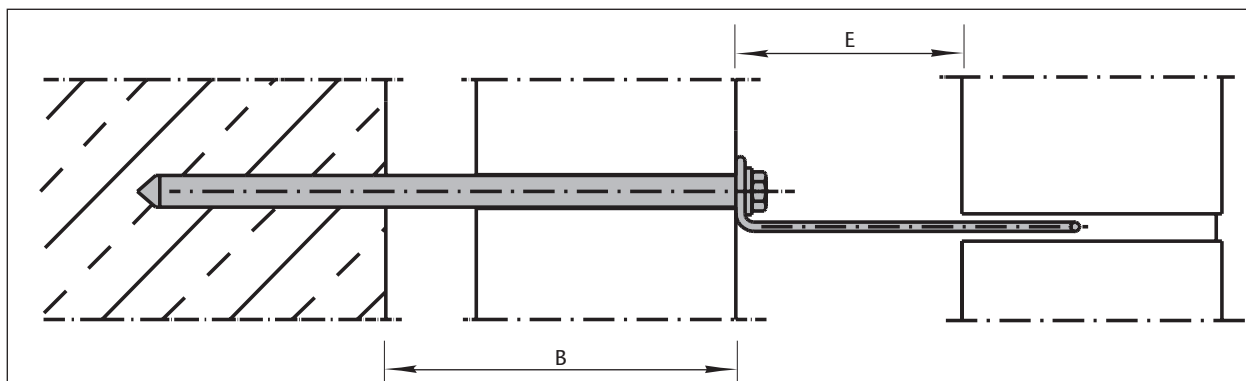
- Diameter: 4 mm
- Distance from the wall: up to 430 mm
- Material: approved stainless steel construction
- Evidence: construction supervisory permit and tensile testing



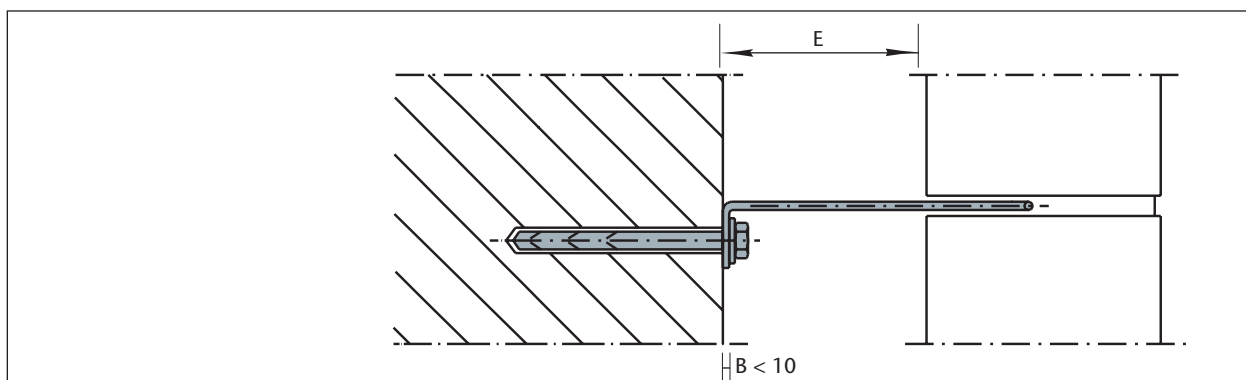
▲ Anchorage with MOSO horizontal connector type HV-L.

### Use and application

- For rehabilitation projects in which the old facework is not to be demolished
- Attachment with type SXS or FUR for concrete, natural stone and solid brick masonry.
- Attachment with type FUR or ULR also for cored brick, cavity blocks and solid materials with low compressive strength.



▲ MOSO horizontal connector type HV-L.



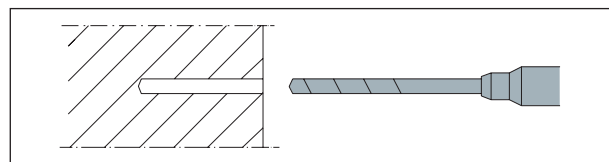
▲ MOSO horizontal connector type HV-L, Anchorage in hollow blocks possible.

Type / Version	Designation Distance/wall E ≤ 150 mm	Designation Distance/wall E 150 - 200 mm	Attachment thickness (B)	Anchorage
<b>HV-L</b> 	HV-LV-10-235	HV-LV-10-275	up to 10 mm	full brick
	HV-LV-30-235	HV-LV-30-275	up to 30 mm	
	HV-LV-50-235	HV-LV-50-275	up to 50 mm	
	HV-LV-70-235	HV-LV-70-275	up to 70 mm	
	HV-LV-90-235	HV-LV-90-275	up to 90 mm	
	HV-LV-110-235	HV-LV-110-275	up to 110 mm	
	HV-LV-130-235	HV-LV-130-275	up to 130 mm	
	HV-LV-150-235	HV-LV-150-275	up to 150 mm	
	HV-LV-180-235	HV-LV-180-275	up to 180 mm	
	HV-LV-210-235	HV-LV-210-275	up to 210 mm	
	HV-LL-10-235	HV-LL-10-275	up to 10 mm	perforated brick
	HV-LL-30-235	HV-LL-30-275	up to 30 mm	
	HV-LL-45-235	HV-LL-45-275	up to 45 mm	
	HV-LL-65-235	HV-LL-65-275	up to 65 mm	
	HV-LL-90-235	HV-LL-90-275	up to 90 mm	
	HV-LL-115-235	HV-LL-115-275	up to 115 mm	
	HV-LL-130-235	HV-LL-130-275	up to 130 mm	
	HV-LL-160-235	HV-LL-160-275	up to 160 mm	
	HV-LL-230-235	HV-LL-230-275	up to 230 mm	

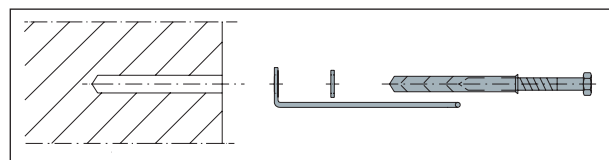
Note information in permit notices!

Other dimensions on request

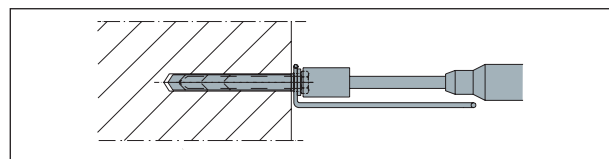
## Installation of type HV-L



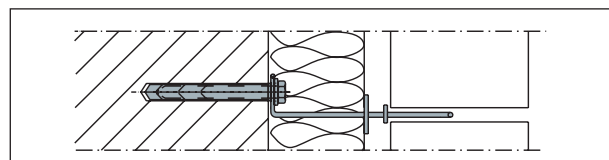
▲ Drill and clean a hole.



▲ Fit LSA-anchor and washer over the dowel sleeve from behind.



▲ Screw in MOSO horizontal connector type HV-L.



▲ Fit facade dowel (insulation holder / drip plates if required)

## Cross-references for additional information

Page	Subject
87	Attachment of facade dowels
94 - 95	Technical regulation governing masonry support (DIN 1053)

## Accessories

Designation
Claw plate Ø 60 mm
Drip plate Ø 25 mm
ISO-Clip Ø 60 mm

## Text for invitation to tender

...pcs MOSO horizontal connectors type HV-LL-10-235<sup>1)</sup> including Iso-Clip, to be delivered and correctly installed.

### Alternatively:

...m<sup>2</sup> wall area with MOSO horizontal connector type HV-L for back-up masonry comprising...<sup>2)</sup> Wall structure: old insulation and air space ...cm, thickness of old facing brick ...cm, new insulation and air space ...cm, thickness of new facing brick ...cm including insulation holder, to be delivered and correctly installed.

<sup>1)</sup>Type as specified in table

<sup>2)</sup>Description of type of back-up masonry

## Special versions:

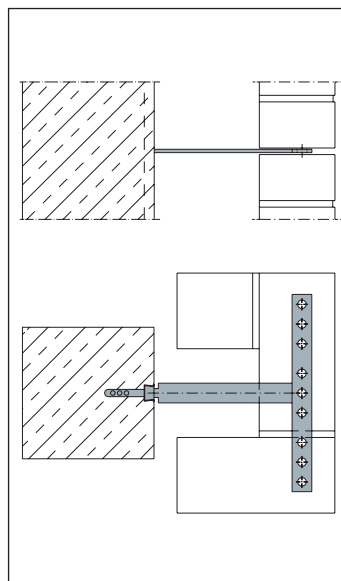
## HV-S

The MOSO horizontal connectors type HV-S are custom-built versions designed by our engineering office to yield optimum solutions even in difficult situations.

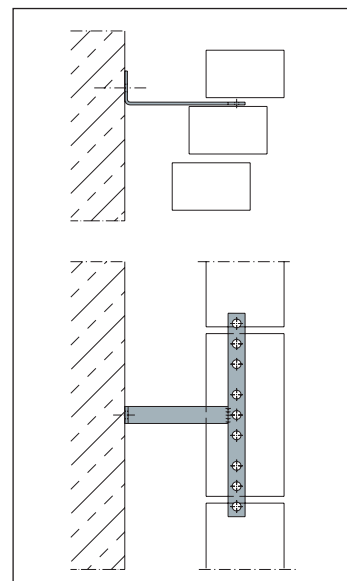
Our engineers require your planning documents (views, layouts and sectional drawings) so that the connectors can be dimensioned precisely.

### Product information

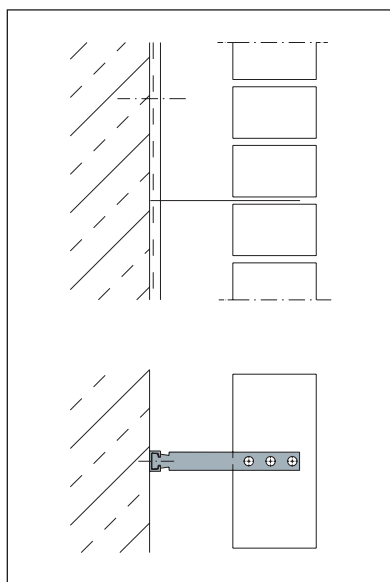
- Load stages: as required
- Distance from the wall: as required
- Material: approved stainless steel
- Evidence: static calculation and tensile tests



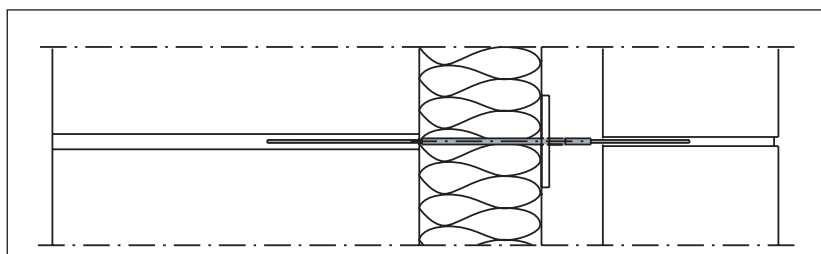
▲ For anchoring piles.



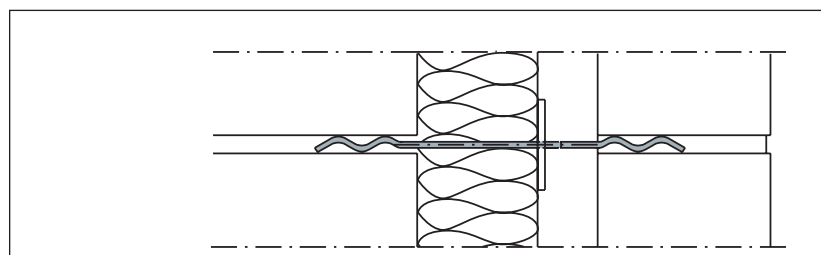
▲ For stepped masonry.



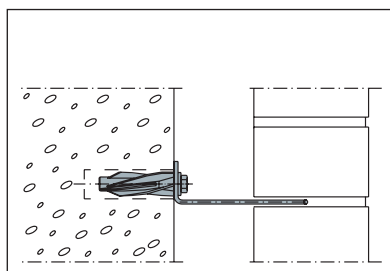
▲ For connection to rail.



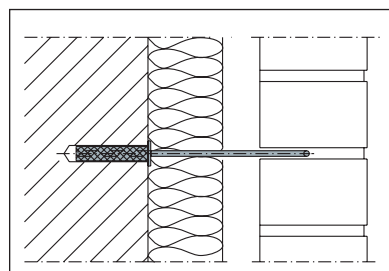
▲ For thin-bed joints.



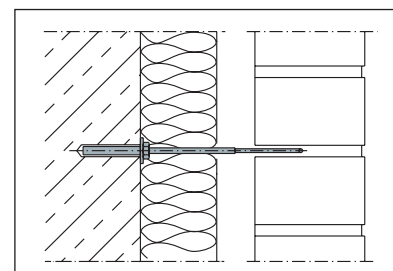
▲ For insertion in the masonry.



▲ For connecting to aerated concrete.

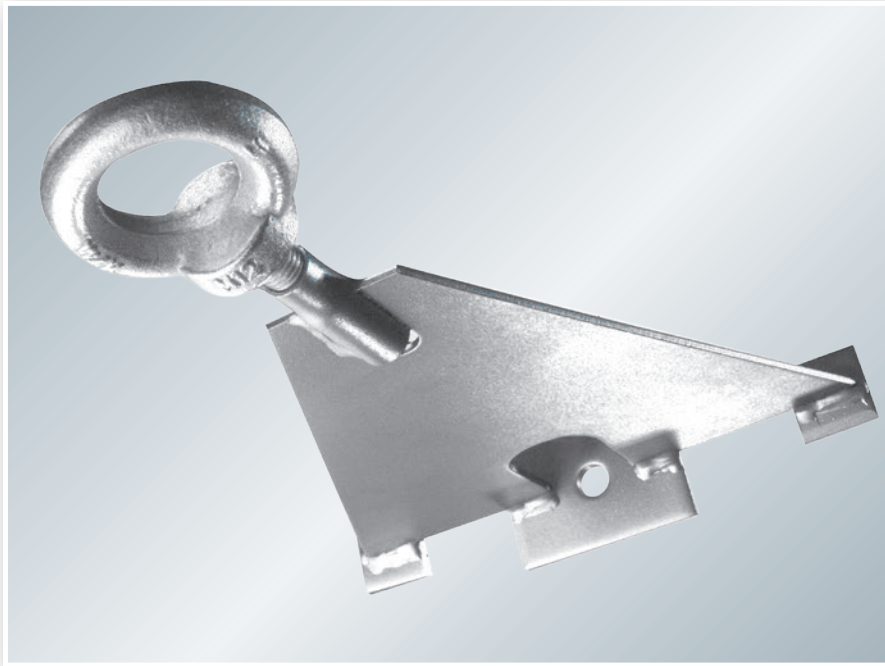


▲ For difficult anchorage bases.



▲ For large distances between masonry walls.





**GA-Q**



**GA-Z**



**GA-S**

# MOSO scaffold anchors

## Scaffold anchors for masonry facades:

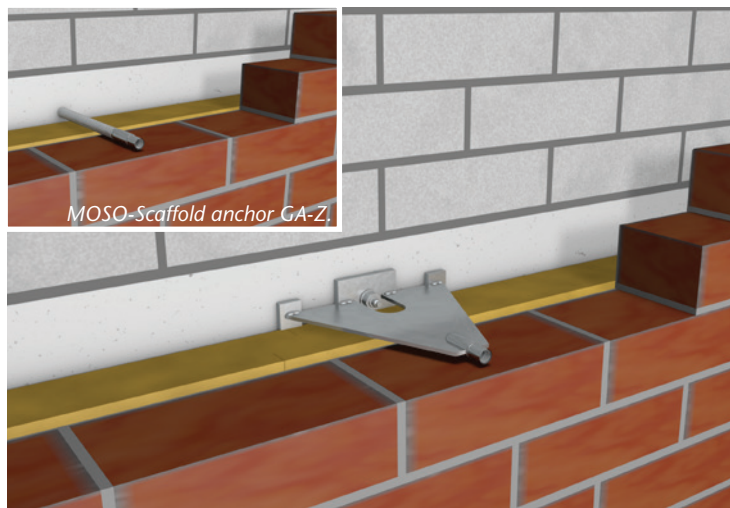
GA-Q • GA-Z

Scaffold must be secured in accordance with DIN 4420.

The MOSO scaffold anchor type GA-Z only transmits tensile loads, while the type GA-Q anchor ensures that transverse forces are also reliably transmitted into the anchorage base.

### Product information

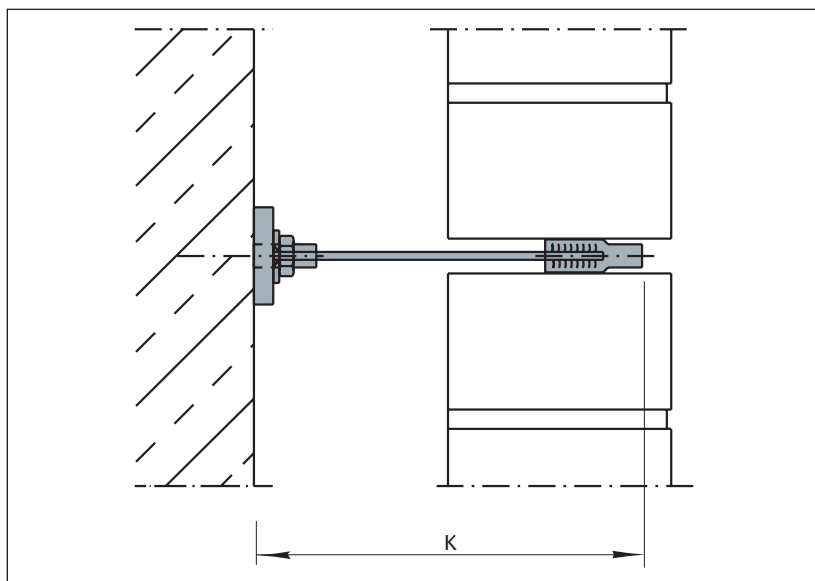
- Load stages: 3,3 - 8,0 kN
- Distance from the wall: 50 - 200 mm
- Material: approved stainless steel
- Evidence: static calculation



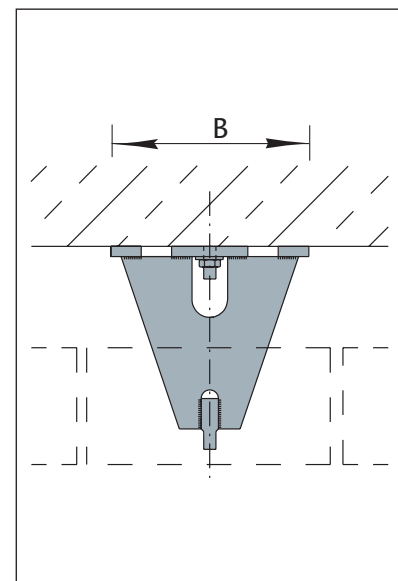
▲ Anchorage with MOSO scaffold anchor type GA-Q.

### Use and application

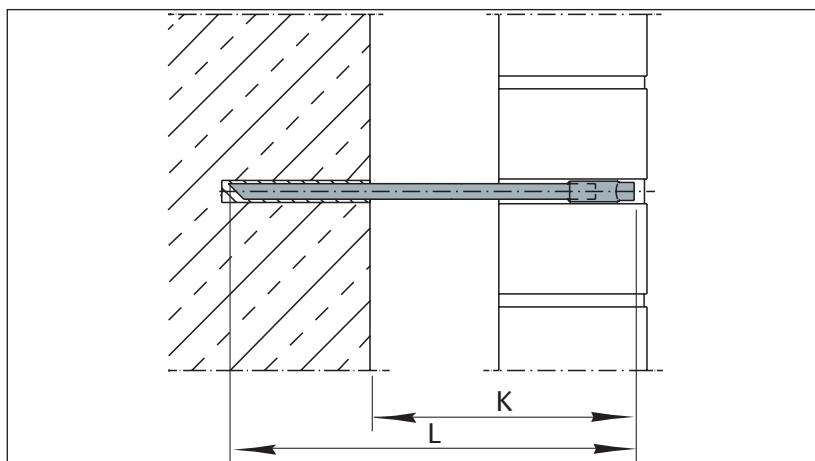
- Type GA-Q for tensile and transverse forces, also for anchorage in cracked concrete.
- Type GA-Z for tensile only, for anchorage in uncracked concrete



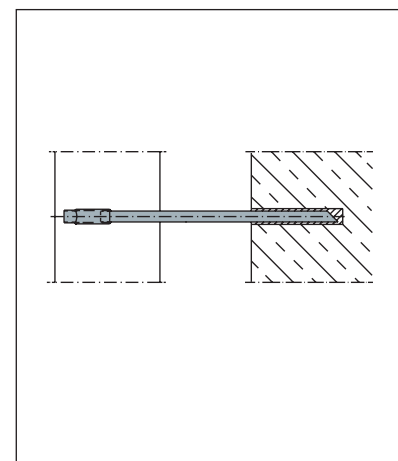
▲ MOSO scaffold anchor type GA-Q.



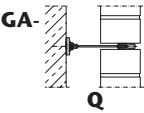
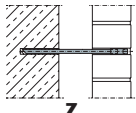
▲ MOSO scaffold anchor type GA-Q, top view.



▲ Type GA-Z.



▲ Type GA-Z, top view.

Type / Version	Load stage Distance/wall	Cantilever length K	3,3 kN (GA-Q) Width W	5,0 kN (GA-Z) Length L	8,0 kN (GA-Q) Width W
  	50 - 60	155	120	230	155
	60 - 70	165	130	240	165
	70 - 80	175	136	250	175
	80 - 90	185	143	260	185
	90 - 100	195	150	270	195
	100 - 110	205	156	280	205
	110 - 120	215	163	290	215
	120 - 130	225	170	300	225
	130 - 140	235	177	310	235
	140 - 150	245	184	320	245
	150 - 160	255	191	330	255
	160 - 170	265	198	340	265
	170 - 180	275	205	350	275
	180 - 190	285	212	360	285
	190 - 200	295	219	370	295
Bigger wall distance on request					
Required eyebolt			M12	M12	M12
Protective plug			grey Ø 20 mm	grey Ø 20 mm	grey Ø 20 mm
Max. size of fastener			up to M12	up to M12	up to zzz
Anchor bolt for cracked concrete > C20/25 (Tension/Compression zone)			Fischer FHB II-AS M10x60/20	Fischer RSB 12 Mini	Fischer FHB II-AS M12x75/25

Values apply for facing bricks 115 mm thick, load stage = permissible tensile force F I in accordance with DIN 4420, Part 3.

Other dimensions on request

## Example for ordering: GA - Q- 205 - 8,0

Type \_\_\_\_\_  
Version \_\_\_\_\_  
Cantilever Length \_\_\_\_\_  
Load stage \_\_\_\_\_

## Permissible transverse force

Type	Load stage	Permissible transverse force F II
GA-Q	3,3 kN	1,2 kN
GA-Z	5,0 kN	0 kN
GA-Q	8,0 kN	0,9 kN

Transverse force F II in accordance with DIN 4420, Part 3.

## Cross-reference for additional information

Page	Subject
84 - 89	Individual evidence of attachment in the anchorage base
97	Technical regulation for scaffold anchorage (DIN 4420)
100	Principles for dimensioning masonry support

## Text for invitations to tender

...pcs MOSO scaffold anchors Type GA-Q-185<sup>1)</sup>-3,3<sup>2)</sup> including protective plugs and Anchor bolts for cracked concrete<sup>3)</sup>, to be delivered and correctly installed.

### Alternatively:

...pcs scaffold anchorage type MOSO scaffold anchors type GA-Q for an enclosed scaffold<sup>4)</sup>. Distance from wall (insulation and air space) ...cm, thickness of facing brick ...cm, including protective plugs and anchor bolts for cracked concrete<sup>3)</sup> delivered and correctly installed.

<sup>1)</sup>Cantilever length as specified in table

<sup>2)</sup>Load stage as specified in table

<sup>3)</sup>Attachment as specified in table

<sup>4)</sup>Type of scaffold (enclosed or not enclosed)

## Special systems:

GA-S

The MOSO scaffold anchors type GA-S are custom-built versions designed by our engineering office to yield optimum solutions even in difficult situations.

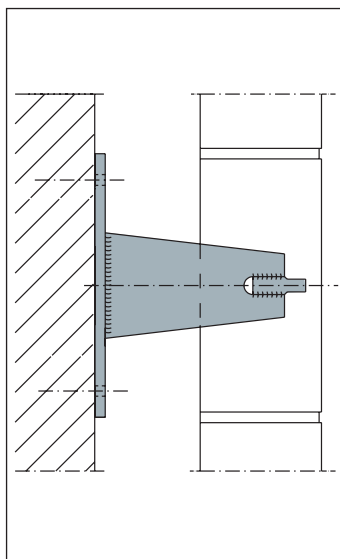
Our engineers require your planning documents (views, layouts and sectional drawings) so that the anchors can be dimensioned precisely.

### Product information

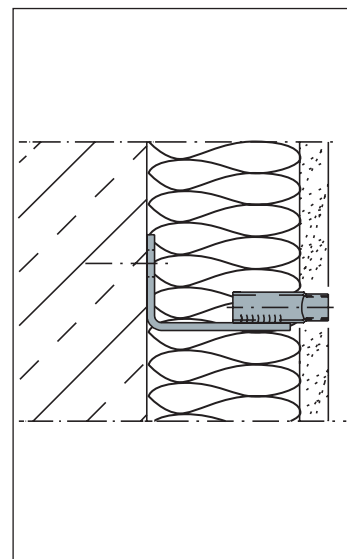
- Load stages: as required
- Distance from the wall: as required
- Material: approved stainless steel
- Evidence: static calculation

### Use and application

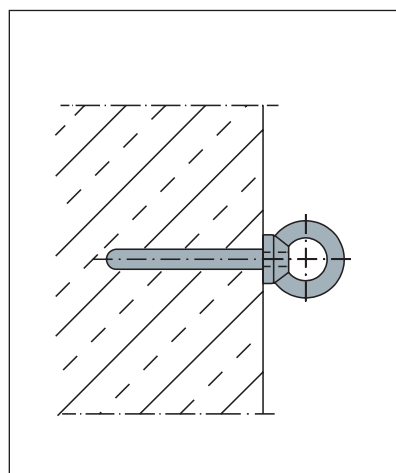
- Special anchors are dimensioned in accordance with structural and engineering requirements.



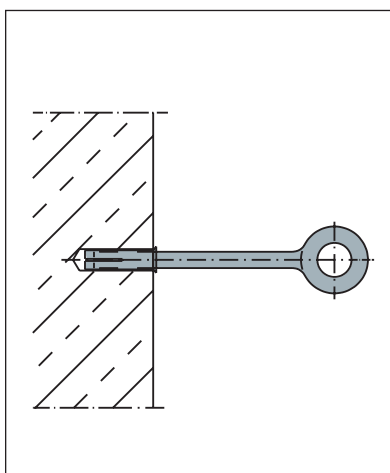
▲ For attachment to the masonry.



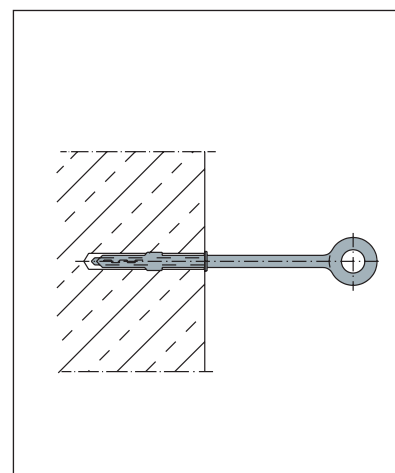
▲ For heat insulating facades.



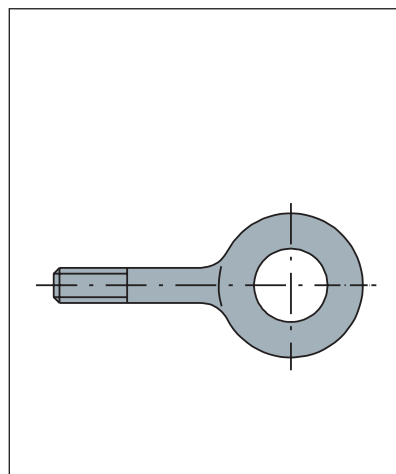
▲ Attachment with anchor bolt.



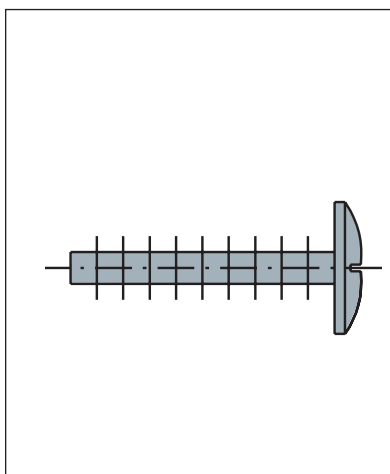
▲ Attachment with striking anchor



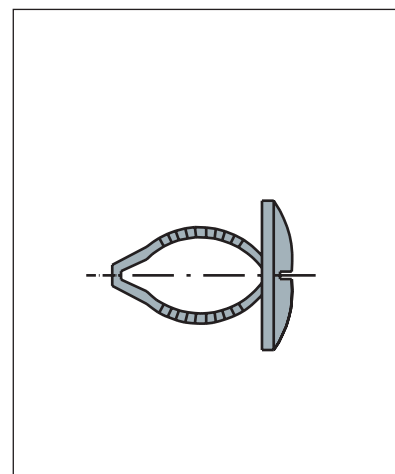
▲ Attachment with facade dowel



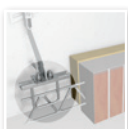
▲ Eyebolt M12.



▲ Cap, type AS.



▲ Cap, Type G.



**DB-GH-HB-  
MBA-ES**



**MA-A**



# MOSO Accessories and versions



## Lintel ties for invisible support:

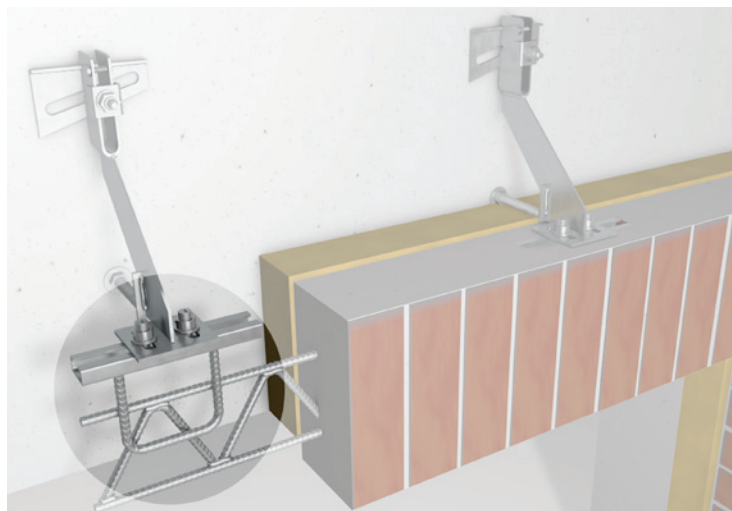
DB•GH•HB•TA

Additional retainers are required to produce an invisible support for facework.

In a brick lintel, the retainers hold the bricks structurally in position, while built-in parts in prefabricated lintels are subject to structural analysis or construction supervisory permit.

### Product information

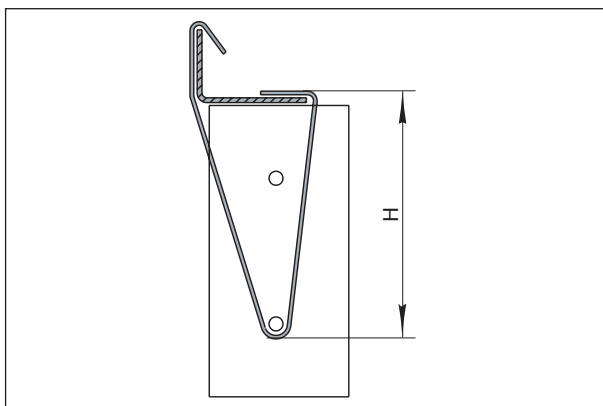
- Method: conventional or prefabricated lintel
- Lintel formation: strecher, brick-on-edge, soldier, 1½-fold soldier course
- Material: approved stainless steel
- Evidence: static calculation



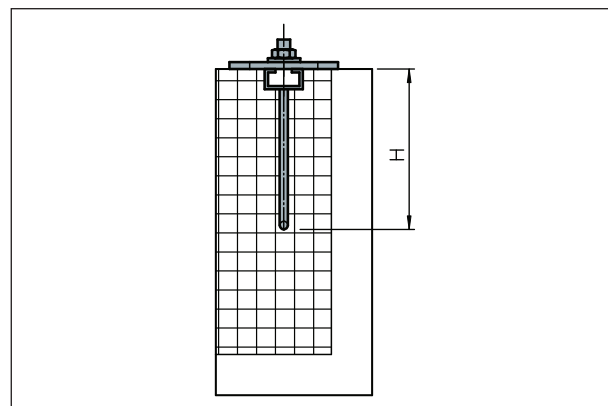
▲ Prefabricated lintel with cemented-in MOSO threaded tie type GB-4

### Use and application

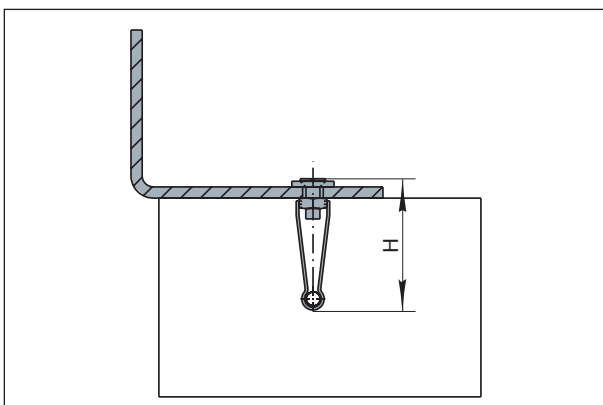
- Distance between ties in brick lintels <25 cm, in prefabricated lintels in accordance with structural requirement.
- Appropriate retention, such as longitudinal reinforcement or formation of mortar pockets, must be provided in brick lintels and in cases with poor adhesion between mortar and facing brick.
- It is essential to ensure that the supporting structure under brick lintels is fully supported until the brick mortar has set hard.



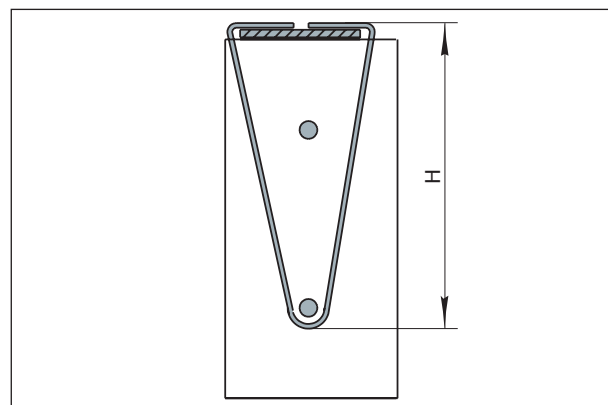
▲ MOSO wire binder type DB-1.



▲ MOSO supporting anchor rail type TA-ES.

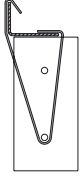

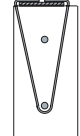


▲ Type HB-1 for suspended stretcher course.



▲ Type DB-2 for connection to a single-bracket anchor.

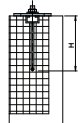
## Fitted parts for conventional brick lintels

Type / Version	Bracket height	Strecher H= 7,1 cm	Brick-on-edge H= 11,5 cm	Soldier H= 24 cm	1½-fold Soldier H= 36 cm	Width of facing brick	Use
<b>DB-1</b> 	20	-	80	180	310	115	WK-D WK-N WK-K WK-O WK-M WK-Z WA-Ü WA-Z
	30						
	40						
	50						
	60						
	70						
	80						
	90						
<b>HB-1</b> 	-	40	-	-	-		
<b>DB-2</b> 	-	-	80	180	310	115	EK-U EK-D

Other dimensions on request

Bracket height for angle-bracket anchors normally = 60 mm.

## Built-in parts for prefabricated lintels

Type / Version				Use
<b>MBA-ES</b> 	MBA-ES 28/15-150 (H=120 mm)	MBA-ES 38/17-150 (H=120 mm)	TA-ES * 50/31-150 (H=170 mm)	FB-U FB-D

Other dimensions on request

### Example for ordering: TA - ES - 28/15-150

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Dimensions \_\_\_\_\_

### Example for ordering (top): DB - 1 - 60 - 180

Type \_\_\_\_\_  
 Version \_\_\_\_\_  
 Agle height \_\_\_\_\_  
 Height \_\_\_\_\_

### Cross-references for additional information

Page	Subject
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

### Text for invitation to tender

For brick lintels: ...pcs MOSO lintel ties type DB<sup>1)</sup>-1<sup>2)</sup>-60<sup>3)</sup>-180<sup>4)</sup> to be delivered and correctly installed in conjunction with the facework.

#### Alternatively:

...m brick-on-edge course suspension with MOSO lintel ties type DB<sup>1)</sup>, to be delivered and correctly installed in conjunction with the facework.

<sup>1)</sup>Type as specified in table

<sup>2)</sup>Version as specified in table

<sup>3)</sup>Bracket height of supporting structure as specified in table (only for DB-1)

<sup>4)</sup>Selection as specified in table

## Connection masonry with wall anchors:

MA-A

Masonry connections are a simple matter with the MOSO wall anchors type MA-A.

The connection is made with the aid of rails permitting infinite adjustment. This largely prevents the formation of settlement cracks in the masonry.

Different types of rails allow these anchors to be used in a large variety of applications, including horizontal connections for masonry facework.



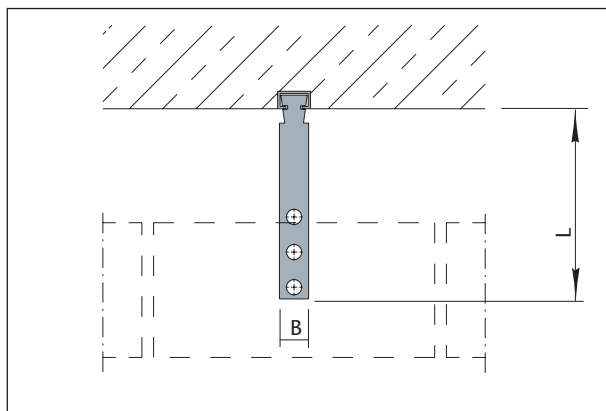
▲ Wall anchor type MA-A.

### Product information

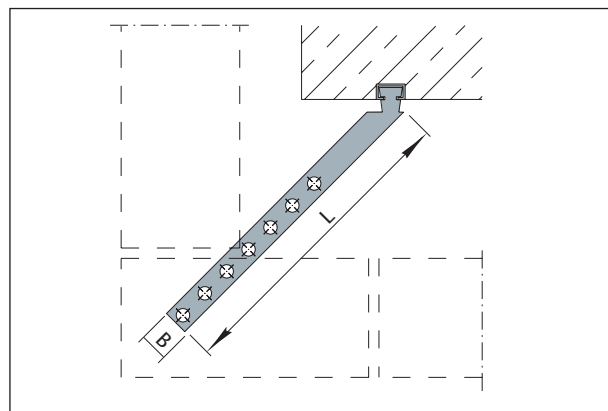
- Distance from the wall: 20 - 140 mm
- Material: approved stainless steel (outer area), hot-dip galvanised (protected inner area)
- Evidence: construction supervisory permit or static calculation

### Use and application

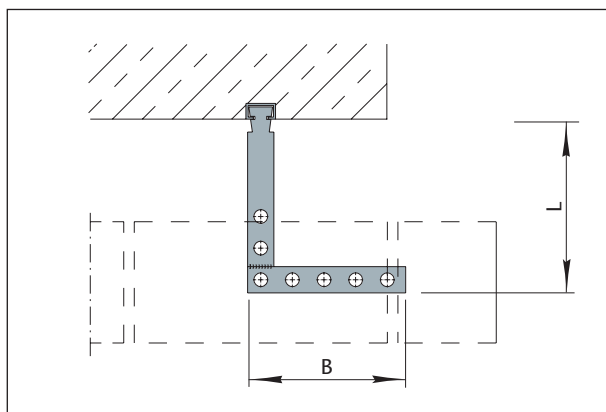
- Distance between wall anchors is normally approx. 25 cm
- Insert anchor in rail, turn through 90° and continue laying bricks
- Additional precautions must be taken to prevent cracking in long walls (e.g. reinforcement with MOSO perforated strip)



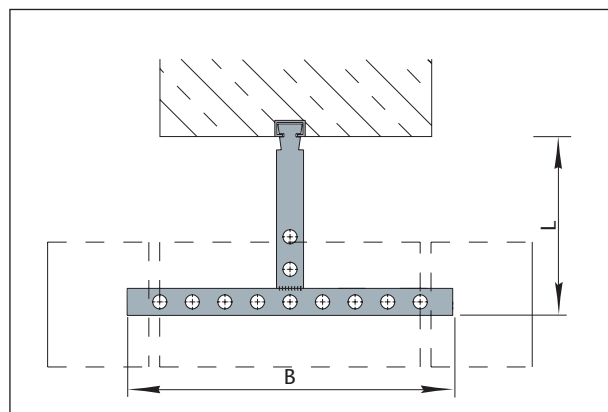
▲ MOSO wall anchor type MA-A.



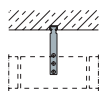
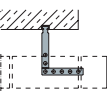
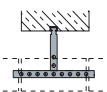
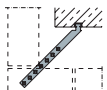
▲ MOSO wall anchor type MA-AW



▲ MOSO wall anchor type MA-AL.



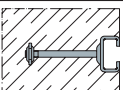
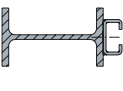
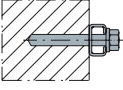
▲ MOSO wall anchor type MA-AT

Type / Version	Distance/ wall	Length L	Width B	Material	Use
<b>MA-</b>  <b>A</b>	20 - 40	85	25	Stainless steel or hot-dip galvanized	For fascia holder type HV-A or wall anchor rail type MAS 25/15 D or supporting anchor rail type MBA 28/15 or installation rail type MOS 28/15 or perforated rail type MLS 28/15
	40 - 80	120	25		
	85 - 140	180	25		
 <b>AL</b>	20 - 40	85	150		
	40 - 80	120	150		
	85 - 140	180	150		
 <b>AT</b>	20 - 40	85	300		
	40 - 80	120	300		
	85 - 140	180	300		
 <b>AW</b>	20 - 40	135	25		
	40 - 80	185	25		
	85 - 140	270	25		

Values apply for face bricks 115mm thick.

Other dimensions on request

## Required anchor rail

Type	Version	Use
 <b>MBA 28/15</b>	A4 or hot-dip galvanized, Standard length 6.0 m, Fixed lengths on request	Cemented into concrete > B25
 <b>MOS 28/15</b>	A4 or hot-dip galvanized, Standard length 6.0 m, Fixed lengths on request	Welded onto steel girder
 <b>MLS 28/15</b>	A4 or hot-dip galvanized, Standard length 6.0 m, Fixed lengths on request	Retroactively dowelled or screwed

## Example for ordering:

**MA - A - 180 - A4**  
 Type  
 Version  
 Length L  
 Material

## Cross references for additional information

Page	Subject
62 - 63	Horizontal connectors type HV-A
84 - 89	Individual evidence of attachment in the anchorage base
94 - 95	Technical regulation governing masonry support (DIN 1053)
100	Principles for dimensioning masonry support

## Text for invitations to tender

...pcs MOSO wall anchors type MA<sup>1)</sup>-A<sup>2)</sup>-180<sup>3)</sup>-A4<sup>4)</sup> for connection between walls, to be delivered and correctly installed.

### Alternatively:

...m MOSO rail type MAS<sup>1)</sup>-25/15D<sup>2)</sup>-A4<sup>4)</sup> with the associated MOSO wall anchors MA<sup>1)</sup>-A<sup>2)</sup>-180<sup>3)</sup>-A4<sup>4)</sup> (4h anchors per metre length), to be delivered and correctly installed.

<sup>1)</sup>Type as specified in table

<sup>2)</sup>Version as specified in table

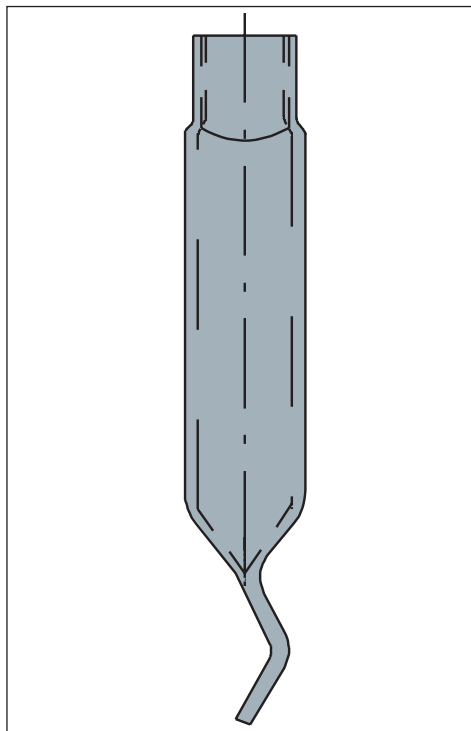
<sup>3)</sup>Length as specified in table

<sup>4)</sup>Material as specified in table

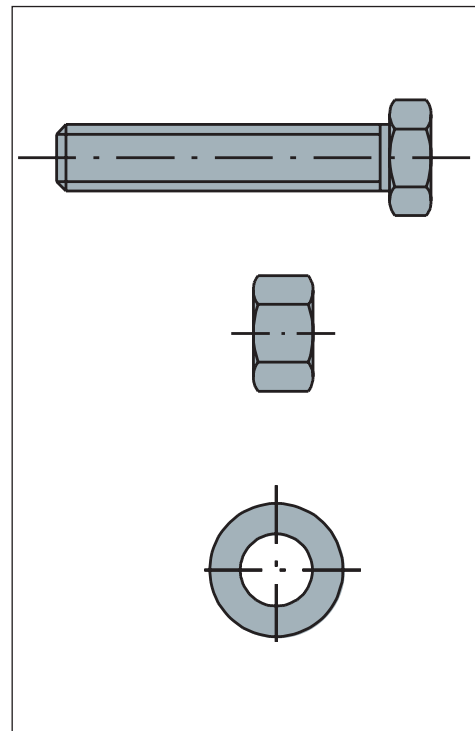
## Other accessories

The products illustrated on this page represent a small selection from our remaining range.

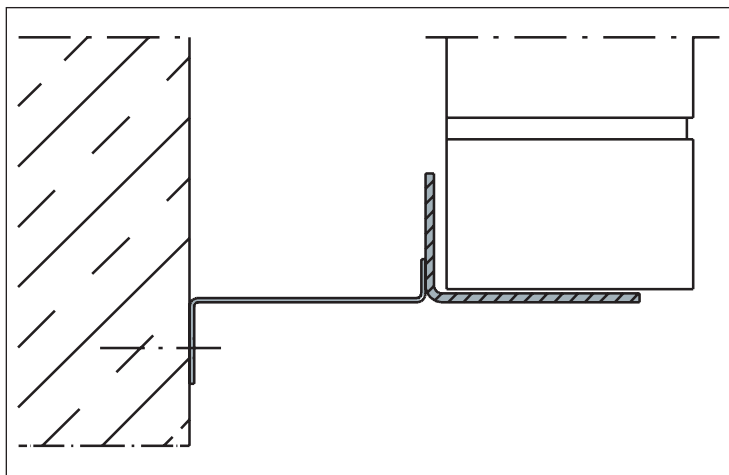
Do not hesitate to contact us if you require other building and attachment products, particularly in stainless steel.



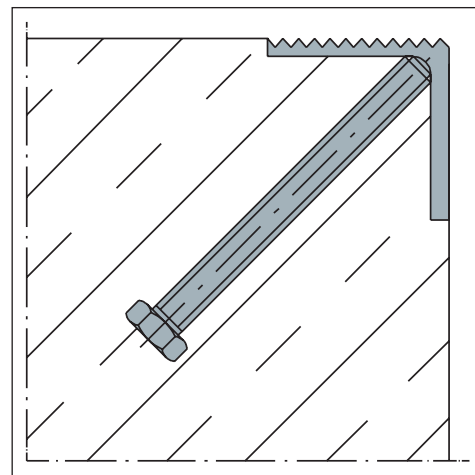
▲ Sleeve-type dowel.



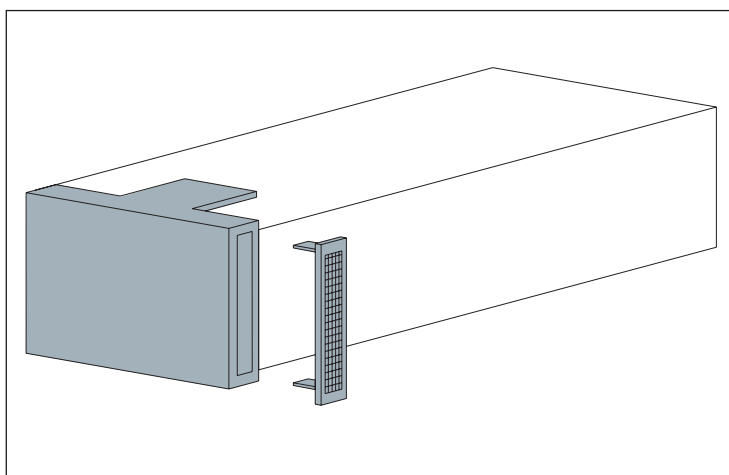
▲ Standard DIN parts.



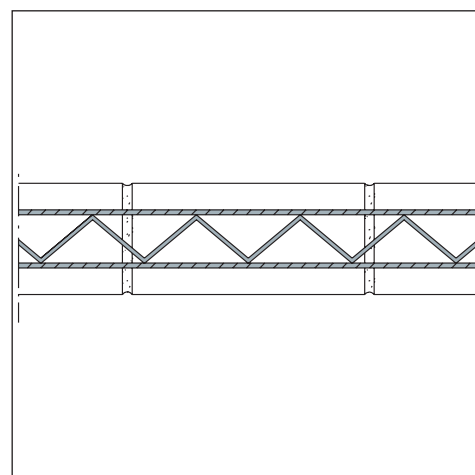
▲ Pest protection.



▲ Protective bracket for steps.



▲ Sealing strip.



▲ Reinforcement strip.





# Technical Details

## Comparative studies on thermal bridges

Much better to build with lean duplex stainless steel than to use thermal breaks!

With the growing requirements for energy-efficient building methods, façade designers need more information on metal fastenings, which create the risk of thermal bridges in cavity wall construction. As a result, we are being approached more and more often by façade designers with questions about thermal breaks.

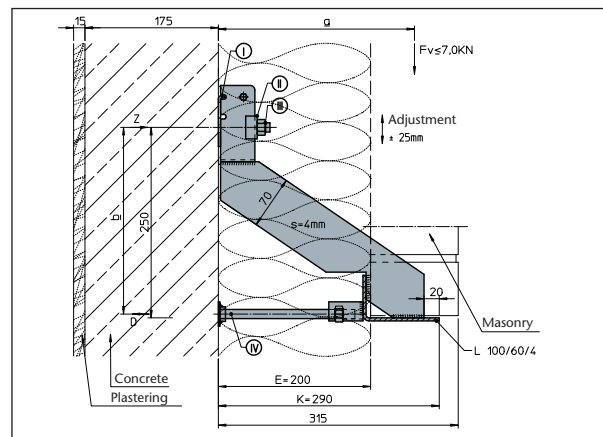
Studies at the Fraunhofer Institute for Building Physics show that several centimetres or more of insulation thickness are required to achieve functional systems that have any appreciable effect on the reduction of thermal flow.

However, due to the high standards of mechanical safety and longevity necessary to counter the numerous possible environmental factors, these still need to be tested at long-term.

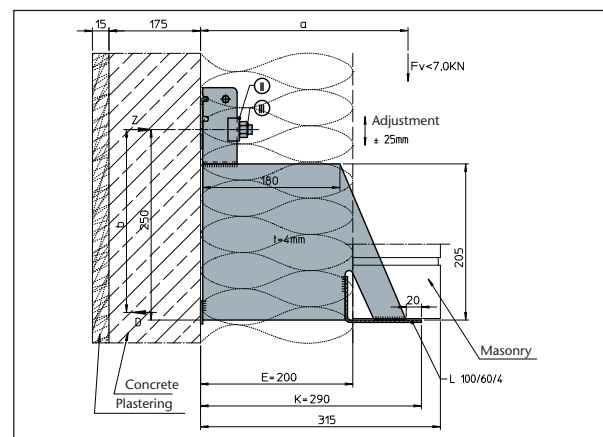
Additionally, when a thermal break is used, the additional bending load on the fastening must be taken into consideration.

This unfavourable load transfer can lead to increased material requirements and thus to a negative effect on the thermal break.

It is significantly more promising, as well as saving on materials, to build with high-strength steel. In this case the use of stainless steel with an austenitic structure (1.4401/1.4404/1.4571) or duplex stainless steel (1.4362/1.4062) is to be recommended since both these types of structure have a very low thermal conductivity. An extremely slim construction style means that, particularly with higher loads, the use of lean duplex rather than normal steel can reduce the  $\chi$  value by a factor of about 2.5.



▲ FIGURE 1: WK-D-290-7.0- Lean Duplex Stainless D4  $\chi$  (W/K) = 0,015 (W/K). The 7.0 kN bracket is superior to the 3.5 kN bracket thanks to its slim design.



▲ FIGURE 2: WK-N-290-7.0- Lean Duplex Stainless D4  $\chi$  (W/K) = 0,025 (W/K)

### The following example illustrates the possibilities:

Calculation of the U-value of a wall with point thermal transmittance coefficient  $\chi$  (chi-value)

$$U_{Ges} = \frac{\Sigma (A_{Wall} \times U_{ungest}) + \Sigma (n \times \chi)}{A_{Wall}}$$

#### Key:

- $U_{Ges}$  resulting thermal transmittance coefficient in a wall with thermal bridges
- $A_{Wall}$  wall area
- $U_{ungest}$  thermal transmittance coefficient of a normal cross-section in a wall without thermal bridges
- $n$  number of brackets
- $\chi$  (Chi) point thermal transmittance coefficient

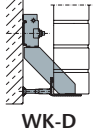

In a detached house, the brick of the facing masonry is braced in the plinth with angle-bracket anchors. In simple terms the house has an undisturbed wall length of 40m and a height of 6m with a cavity width of 20cm. This produces a wall area of  $A_{Wall} = 240 \text{ m}^2$ . Given the load, brackets are set on average every 0.5m. That produces a number of brackets equal to  $n = 80$  brackets.

In figures 1 and 2, the thermal transmittance coefficient of a normal cross-section in a wall without thermal bridges for  $U_{ungest}$  stands at  $U = 0.161 \text{ W / (m}^2\text{K)}$ .

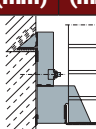
The sample calculation uses the values given above for a detached house and the point thermal transmittance coefficient from figure 2.


$$U_{Ges} = 0,1693 \frac{\text{W}}{(\text{m}^2 \times \text{K})} = \frac{\Sigma \left( 240 \text{ m}^2 \times 0,161 \frac{\text{W}}{(\text{m}^2 \times \text{K})} \right) + \Sigma \left( 80 \times 0,025 \times \frac{\text{W}}{\text{K}} \right)}{240 \text{ m}^2} \quad (\text{WK-N with } \chi = 0,025 \text{ (W/K)})$$

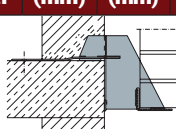
## Point thermal transmittance coefficients $\chi$ for bracket types WK-N and WK-D

Load level	K (mm)	E (mm)	$\chi^*$ (W/K)	$\chi^*$ (W/K)
				
3,5	170	80	0,026	0,024
7,0	170	80	0,021	0,026
10,5	170	80	0,021	0,030
3,5	190	100	0,024	0,022
7,0	190	100	0,018	0,024
10,5	190	100	0,020	0,028
3,5	210	120	0,022	0,020
7,0	210	120	0,018	0,027
10,5	210	120	0,018	0,028
3,5	230	140	0,022	0,020
7,0	230	140	0,015	0,027
10,5	230	140	0,017	0,028
3,5	250	160	0,021	0,019
7,0	250	160	0,014	0,026
10,5	250	160	0,020	0,028

3,5	270	180	0,020	0,022
7,0	270	180	0,015	0,025
10,5	270	180	0,021	0,031
3,5	290	200	0,022	0,021
7,0	290	200	0,015	0,025
10,5	290	200	0,019	0,031
3,5	310	220	0,023	0,020
7,0	310	220	0,013	0,025
10,5	310	220	0,019	0,032
3,5	330	240	0,022	0,019
7,0	330	240	0,017	0,025
10,5	330	240	0,017	0,031
3,5	350	260	0,023	0,020
7,0	350	260	0,017	0,027
10,5	350	260	0,018	0,033

Load level	K (mm)	E (mm)	$\chi^*$ (W/K)
			
3,5	170	80	0,024
5,0	170	80	0,025
7,0	170	80	0,025
3,5	230	140	0,020
5,0	230	140	0,025
7,0	230	140	0,027
3,5	290	200	0,021
5,0	290	200	0,022
7,0	290	200	0,024

Load level	K (mm)	E (mm)	$\chi^*$ (W/K)
			
3,5	170	80	0,036
7,0	170	80	0,040
3,5	230	140	0,031
7,0	230	140	0,036
3,5	290	200	0,026
7,0	290	200	0,031

Load level	K (mm)	E (mm)	$\chi^*$ (W/K)
			
3,5	170	80	0,029
7,0	170	80	0,032
10,5	170	80	0,031
3,5	230	140	0,028
7,0	230	140	0,034
10,5	230	140	0,034
3,5	290	200	0,025
7,0	290	200	0,032
10,5	290	200	0,039

\*Thermal transmittance coefficient " $\chi$ " calculated by the Fraunhofer Institute for Building Physics.

## Conclusion

The difference between the undisturbed U-value  $U_{\text{ungest.}} = 0.161 \text{ W / (m}^2\text{K)}$  and the resulting U-value  $U_{\text{gest.}} = 0.1693 \text{ W / (m}^2\text{K)}$  is 0.0083. According to the Fraunhofer Institute for Building Physics in Stuttgart, changes to the thermal transmittance coefficients in the third decimal place are not decisive.

If a better result is required for well-insulated façades, we recommend the use of a MOSO supporting anchor with adjustable pressure screw (fig. 1).

At 0.015 (W/K), the point thermal transmittance coefficient of WK-D-290-7.0 (fig. At 1) is 66% better than that of WK-N-290-7.0 (fig. 2).

Calculations have shown that, with the current state of the art, such a large improvement in the point thermal transmittance coefficient cannot be achieved with the use of thermal breaks. This result shows that choosing the slim construction method has a greater effect than

using high-quality insulation material. The most effective solution for reducing heat loss through brackets is to use MOSO supporting anchors with adjustable pressure screw, with a load level of > 7.0kN (fig. 1).

We therefore recommend: Firstly, our MOSO supporting anchor with adjustable pressure screw in order to minimise the per-bracket heat loss, and secondly an expert design in order to reduce the number of supporting anchors to a minimum.

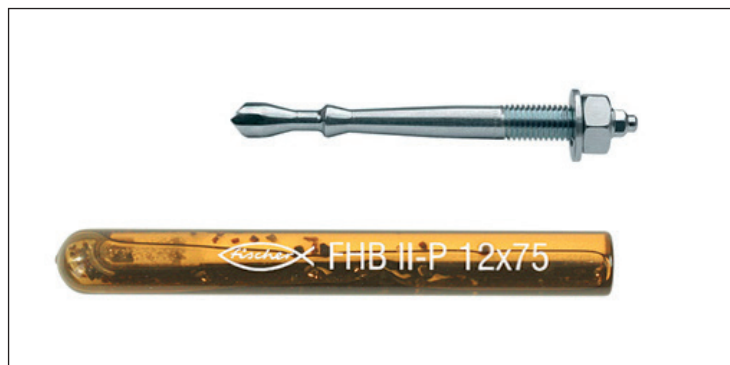
Brackets with adjustable pressure screws can be found in our catalogue labelled with our ecoINOX symbol.



For the fixing in cracked concrete is the FHB II-AS by Fischer perfect.

For the first time it is possible to use the anchor optional for single applications with cartridge or series montage with injection cartridge.

We advise our montage set of cleaning, blow out and set adapter for an optimal inserting of the anchor.



▲ Fischer FHB II

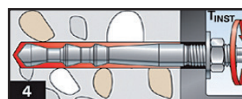
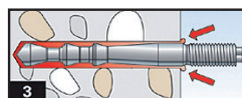
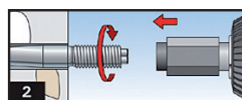
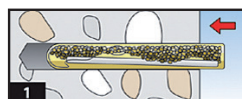
### Technical data

FHB II M10	FHB II M12	FHB II M16	FHB II M24
Nominal drill diameter $d_o$ (mm)			
10	12	16	25
Depth of drilled hole $h_o$ (mm)			
75	90	110	190
Min. thickness of part $h_{min}$ (mm)			
100	120	150	240
Torque $T_{inst}$ (Nm)			
15	30	50	80

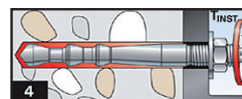
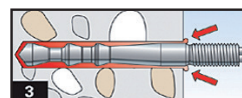
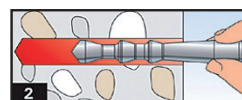
The first steps for the montage are

- Drill hole, b) 2x blowing out,
- 2x cleaning, d) 2x blowing out

### with cartridge



### with injection cartridge



◀ Inserting of cartridge/  
mortar

◀ Inserting of the  
anchor bar at  
inserting of the  
cartridge drillhammer  
necessary

◀ Visual control of the  
mortar

◀ When set, attach  
part with torque

### Permissible force $F_v$ for different anchor spacings

com- ponent thickness	Type / Version	Load stage	Anchor	ak>	25 cm	50 cm	75 cm	100 cm
				ar	FV	FV	FV	FV
150 mm	EK-U/-D/-L • WK-D/-N • FB-U	3,5	FHB II-AS M10x60/60 A4	100	3,0 kN	3,5 kN	3,5 kN	3,5 kN
	WK-K	3,5	FHB II-AS M10x60/60 A4	80	3,5 kN	3,5 kN	3,5 kN	3,5 kN
	WK-O	3,5	FHB II-AS M10x60/20 A4	300	2,7 kN	3,5 kN	3,5 kN	3,5 kN
	WK-Z	3,5	FHB II-AS M10x60/20 A4	130	3,5 kN	3,5 kN	3,5 kN	3,5 kN
200 mm	WK-K	5,0	FHB II-AS M10x60/60 A4	100	5,0 kN	5,0 kN	5,0 kN	5,0 kN
	EK-U/-D/-L • WK-D/-N • FB-U/-D	7,0	FHB II-AS M12x75/60 A4	140	4,4 kN	7,0 kN	7,0 kN	7,0 kN
	WK-K	7,0	FHB II-AS M12x75/60 A4	120	7,0 kN	7,0 kN	7,0 kN	7,0 kN
	WK-O	7,0	FHB II-AS M12x75/25 A4	300	4,3 kN	7,0 kN	7,0 kN	7,0 kN
	WK-Z /-D	7,0	FHB II-AS M12x75/25 A4	210	7,0 kN	7,0 kN	7,0 kN	7,0 kN
240 mm	EK-U/-L • WK-D/-N • FB-U /-D	10,5	FHB II-AS M16x95/60 A4	140	5,7 kN	10,5 kN	10,5 kN	10,5 kN
	WK-O	10,5	FHB II-AS M16x95/30 A4	300	7,0 kN	10,5 kN	10,5 kN	10,5 kN
	WK-Z	10,5	FHB II-AS M16x95/30 A4	250	10,5 kN	10,5 kN	10,5 kN	10,5 kN

The values specified in the table apply for anchors with standard dimensions.

For a technical application, the attachment values will be recalculated by our engineering office with input of the actual conditions; this may lead to higher load-bearing capacities and other distances from the edge

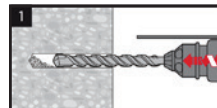
The new Safe SET System of HILTI is containing the injection anchor rod HIT-Z-R and injection mortar Hilti- HIT-HY 200-A for mounting in cracked and non-cracked concrete. While inserting the injection rod, it is not necessary to clean the drill hole. Flexible mounting depths guarantee highest loadstages by a maximum of economy.



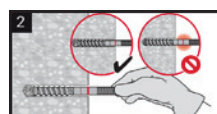
▲ HIT-Z-R with injection mortar HIT HY 200-A

## Technical data

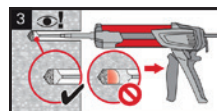
HIT-Z-R M10x135	HIT-Z-R M12x155	HIT-Z-R M16x205
<b>Nominal drill diameter <math>d_0</math> (mm)</b>		
12	14	18
<b>Depth of drilled hole <math>h_{0,min}</math> (mm)</b>		
60	60	96
<b>Min. thickness of part <math>h_{min}</math> (mm)</b>		
120	120	196
<b>Torque <math>T_{inst}</math> (Nm)</b>		
25	40	80



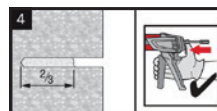
◀ Drill hole



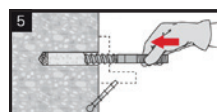
◀ Control of depth and compression of drillpowder



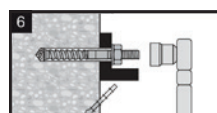
◀ Inserting of cartridge/mortar



◀ Amount of mortar



◀ Inserting the anchor



◀ Attach part with torque

## Permissible force $F_v$ for different anchor spacings

com- ponent thickness	Type / Version	Load stage	Anchor	aK>	25 cm	50 cm	75 cm	100 cm
				ar	FV	FV	FV	FV
150 mm	EK-U/-D/-L • WK-D/-N/-E • FB-U	3,5	HIT-Z-R M10x135	100	3,0 kN	3,5 kN	3,5 kN	3,5 kN
	WK-K	3,5	HIT-Z-R M10x135	80	3,5 kN	3,5 kN	3,5 kN	3,5 kN
	WK-O	3,5	HIT-Z-R M10x95	300	2,5 kN	3,5 kN	3,5 kN	3,5 kN
	WK-Z	3,5	HIT-Z-R M10x95	130	3,5 kN	–	–	–
200 mm	WK-K	5,0	HIT-Z-R M12x155	100	5,0 kN	5,0 kN	5,0 kN	5,0 kN
	EK-U/-D/-L • WK-D/-N/-E • FB-U	7,0	HIT-Z-R M12x155	140	4,5 kN	7,0 kN	7,0 kN	7,0 kN
	WK-K	7,0	HIT-Z-R M12x155	120	7,0 kN	7,0 kN	7,0 kN	7,0 kN
	WK-O	7,0	HIT-Z-R M12x105	300	3,5 kN	7,0 kN	7,0 kN	7,0 kN
	WK-Z /-D	7,0	HIT-Z-R M12x105	210	7,0 kN	–	–	–
240 mm	EK-U/-L • WK-D/-N/-E • FB-U /-D	10,5	HIT-Z-R M16x205	140	5,0 kN	10,5 kN	10,5 kN	10,5 kN
	WK-O	10,5	HIT-Z-R M16x155	300	5,0 kN	10,5 kN	10,5 kN	10,5 kN
	WK-Z	10,5	HIT-Z-R M16x155	250	10,5 kN	–	–	–

The values specified in the table apply for anchors with standard dimensions.

For a technical application, the attachment values will be recalculated by our engineering office with input of the actual conditions; this may lead to higher load-bearing capacities and other distances from the edge



## Fischer FAZ II

Alternative to the Anchor bolt, the bolt anchor FAZ II of Fischer could also be used.

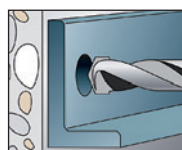
The character of the bolt anchor is the installation. The anchor could be used like an inserted through anchor. They are directly resilient.



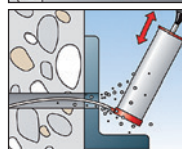
▲ Fischer bolt anchor FAZ

### Technical data

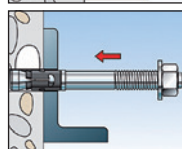
FAZ II M8	FAZ II M10	FAZ II M12	FAZ II M16
<b>Nominal drill diameter <math>d_0</math> (mm)</b>			
8	10	12	16
<b>Depth of drilled hole <math>h_1</math> (mm)</b>			
55	75	90	110
<b>Min. thickness of part <math>h_{min}</math> (mm)</b>			
100	120	140	170
<b>Torque <math>T_{inst}</math> (Nm)</b>			
20	45	60	100



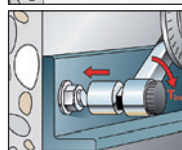
◀ Drill hole



◀ Clean drilled hole



◀ Apply dowel



◀ Attach part with torque

### Permissible force $F_v$ for different anchor spacings

com- ponent thickness	Type / Version	Load stage	Anchor	aK>	25 cm	50 cm	75 cm	100 cm
				ar	FV	FV	FV	FV
150 mm	EK-U/-L • WK-D/-N/-E • FB-U/-D	3,5	FAZ II M12/60 A4	100	3,0 kN	3,5 kN	3,5 kN	3,5 kN
	WK-K	3,5	FAZ II M12/60 A4	80	3,5 kN	3,5 kN	3,5 kN	3,5 kN
	WK-O	3,5	FAZ II M10/10 A4	300	2,5 kN	3,5 kN	3,5 kN	3,5 kN
	WK-Z	3,5	FAZ II M10/10 A4	130	3,5 kN	3,5 kN	3,5 kN	3,5 kN
200 mm	WK-K	5,0	FAZ II M12/60 A4	100	4,6 kN	4,6 kN	4,6 kN	4,6 kN
	EK-U/-L • WK-D/-N/-E • FB-U/-D	7,0	FAZ II M12/60 A4	140	3,8 kN	5,2 kN	5,7 kN	5,7 kN
	WK-K	7,0	FAZ II M12/60 A4	120	5,4 kN	5,4 kN	5,4 kN	5,4 kN
	WK-O	7,0	FAZ II M12/10 A4	300	3,5 kN	7,0 kN	7,0 kN	7,0 kN
	WK-Z	7,0	FAZ II M12/10 A4	210	7,0 kN	7,0 kN	7,0 kN	7,0 kN
240 mm	EK-U/-D/-L • WK-D/-N/-E • FB-U/-D	10,5	FAZ II M16/60 A4	140	5,1 kN	9,0 kN	10,4 kN	10,5 kN
	WK-O	10,5	FAZ II M16/25 A4	300	5,0 kN	10,5 kN	10,5 kN	10,5 kN
	WK-Z	10,5	FAZ II M16/25 A4	250	10,5 kN	10,5 kN	10,5 kN	10,5 kN

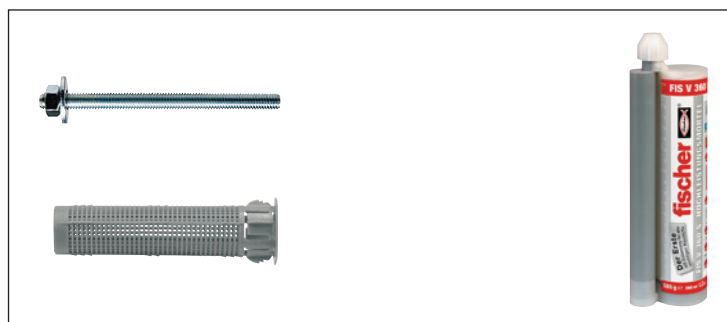
The values specified in the table apply for anchors with standard dimensions.

For a technical application, the attachment values will be recalculated by our engineering office with input of the actual conditions; this may lead to higher load-bearing capacities and other distances from the edge

## Other attachments:

Fischer injection mortar FIS V is used for the anchorage in the masonry.

Although the load-bearing capacity depends on the anchorage base, only very much smaller loads can be transmitted in relation to a comparable attachment in concrete.



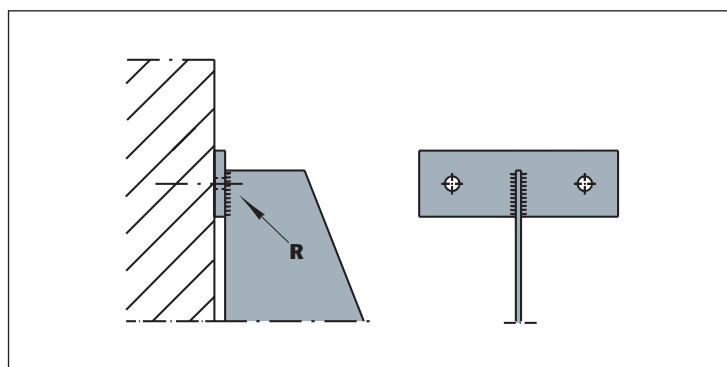
▲ Fischer injection threaded bar FIS A with plastic injection anchor sleeve FIS HK and FIS V 360S.

Attachment base		R <sub>max</sub>
Solid brick	MZ 12	1,7
Lime sand solid brick	KS 12	1,7
Vertical cored brick	HLz 4	0,6 <sup>2)</sup>
	HLz 6	0,8 <sup>2)</sup>
	HLz 12	1,0
Cored lime-sand brick	KSL 4	0,6
	KSL 6	0,8
	KSL 12	1,4

Use with anchor sleeve.

<sup>2)</sup> Only use rotary drilling (no impact drilling).

The entire approval notification must be taken into account for the calculation!

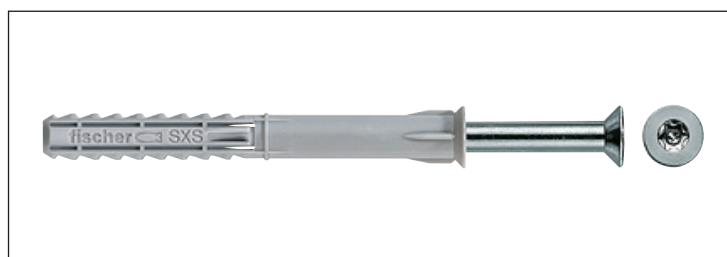


## Fischer frame dowel

The frame dowel is ideal for small loads (e.g. Single-bracket anchor type EK-G).

The façade dowel type SXS with short expansion range is anchored in the concrete or solid brick, while the type FUR dowel can also be used in hollow blocks and in solid materials with little compressive strength.

Façade anchors can be supplied with Torx or hexagon head screws.



### Max. load capacity\* per dowel

Attachment base		SXS 10	SXR 10	FUR 10	FUR 14
Concrete	≥ C20/25	1,6	1,6	1,6	1,8
Solid brick	≥ Mz 12	0,8	0,8	0,8	0,8
Solid lime-sand brick	≥ KS 12	0,8	0,8	0,8	0,8
Vertical cored brick	≥ HLz 12	-	0,3	0,3	0,5
Cored lime-sand brick	≥ KSL 6	-	0,4	0,4	0,6
Hollow blocks/lightweight concrete	Hbl 2	0,25	0,25	0,25	0,3
Solid brick/lightweight concrete	≥ V 2	0,25	0,25	0,25	0,5
Aerated concrete > Strength class 2 or 3.3 [kN]-		0,32	0,2	-	-
Aerated concrete > Strength class 4 or 4.4 [kN]-		0,62	0,3	-	0,6

The full permit notice must be observed for dimensioning!

## For attachment to cast in channel

MBA

Anchorage on cast in channels with construction supervisory permit is more easier to install than dowel installation.

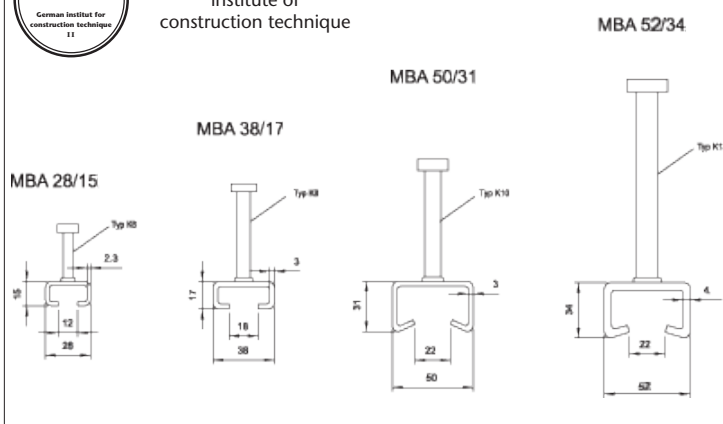
However, this type of attachment imposes high demands on the planning stage, as the façade planning should be completed during construction of the carcass.

The cast in channels are produced, according to the authorisation, of material 1.4571/1.4401 or 1.4362. The bolts are of material 1.4301.

### MOSO-Anchor rails.



Authorise of the German  
institute of  
construction technique



### Technical Data

MBA 28/15	MBA 38/17	MBA 50/31	MBA 52/34
<b>Screw diameter</b>			
M10	M12	M12	M16
<b>Overall rail height (mm)</b>			
50	77	106	159
<b>Torque <math>T_{inst}</math> (Nm)</b>			
15	25	25	60

**Permissible loads (KN) (concrete >C20/25) point load**  
further information see authorisation

Type	FQ
	Continuous + short lengths
MBA 28/15	3,5
MBA 38/17	8
MBA 50/31	12
MBA 52/34	22

FQ: Transverse tension and ablique tension(<15°)

### Permissible force Fv for different anchor spacings

Type / Version	Load stage	Anchor rail	MHK screw
<b>EK-U/-W-L • WK-D/-N/-E • FB-U</b>	3,5	Continuous length MBA 38/17K or Short length (<25cm) MBA 38/17	MHK 38/17 M12x80
<b>WK-K</b>	3,5		MHK 38/17 M12x80
<b>WK-O</b>	3,5		MHK 38/17 M12x80
<b>WK-K</b>	5,0	Continuous length or Short length (<25cm) MBA 50/31	MHK 50/30 M12x80
<b>EK-U/-W-L • WK-D/-N/-E • FB-U</b>	7,0		MHK 50/30 M12x80
<b>WK-K</b>	7,0		MHK 50/30 M12x80
<b>WK-O</b>	7,0	Continuous length or Short length (<25cm) MBA 52/34	MHK 50/30 M12x40
<b>EK-U/-W-L • WK-D/-N/-E • FB-U</b>	10,5		MHK 50/30 M16x100
<b>WK-O</b>	10,5		MHK 50/30 M16x40

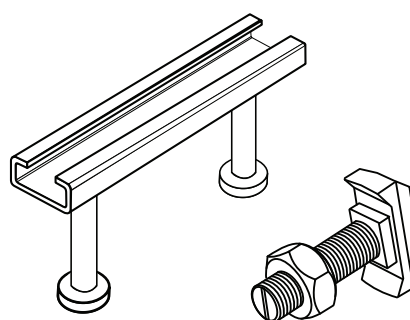
\* The value in brackets applies for anchor rail lengths > 250mm. The values specified in the table apply for anchors with standard dimensions. For a technical application, the attachment values will be recalculated by our engineering office with input of the actual conditions; this may lead to higher load-bearing capacities and other distances from the edge.

# MOSO MBA cast in channels

with authorisation of Institut für construction technique, Berlin

Authorisation-No.: Z-21.4-1826

Stainless steel 1.4404/1.4571 or 1.4362



## Anchor rails (cold-roll)

Designation	Continuous length	Short lengths	Corner piece
MBA 28/15	6050 mm	10 - 1050 cm	-
MBA 38/17	6050 mm	10 - 1050 cm	15 x 25 cm
MBA 50/31	6050 mm	10 - 1050 cm	15 x 25 cm
MBA 52/34	6050 mm	10 - 1050 cm	25 x 25 cm
Installation rails			
MOS 28/15	6050 mm	On request	Also available with perforation (type MLS)
MOS 38/17	6050 mm	On request	
MOS 50/31	6050 mm	On request	
MOS 52/34	6050 mm	On request	

Other dimensions on request

## Hammer head (MHK) screws

Type	For profile	Diameter	Right-hand thread,length	Left-hand thread,length
MHK 28/15	28/15	M 8	30 mm	On request
		M10	20 - 200 mm	
MHK 38/17	38/17	M10	30 - 60 mm	On request
		M12	25 - 200 mm	
		M16	25 - 200 mm	
MHK 50/30	50/31 52/34	M12	30 - 100 mm	On request
		M16	30 - 150 mm	
		M20	45 - 150 mm	

Other dimensions on request

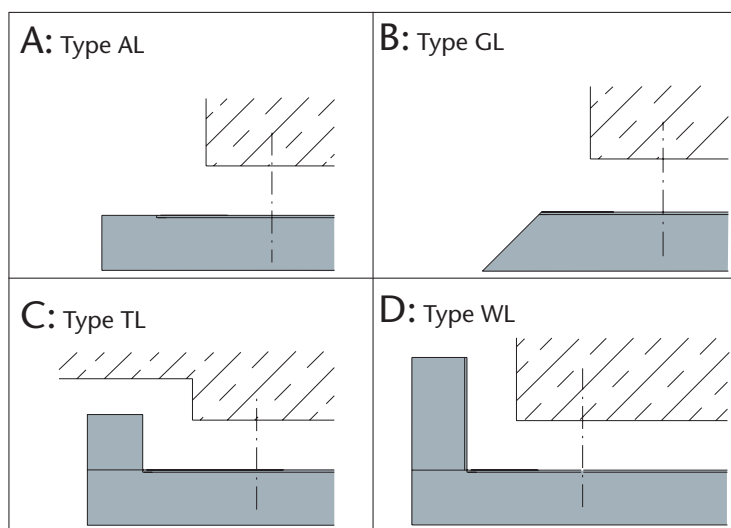
## Bolt arrangement

Rail length (mm)	Arrangement of head bolt - end distance (mm)
100	25   50   25
150	25   100   25
200	25   150   25
250	25   200   25
> 250 - 6000	25   ≤ 250   25      ≤ 250   25

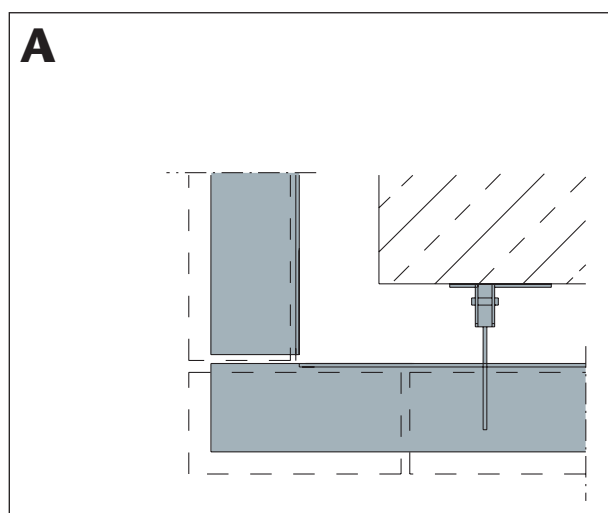
## Corners and edges, left

We have developed a variety of edges which can be implemented with every angle-bracket anchor in order to meet the various requirements imposed with regard to quoins.

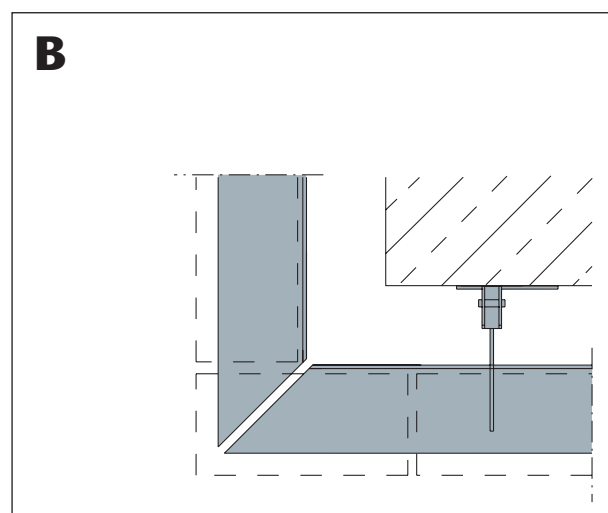
The applicable version is suffixed to the designation, e.g. WK-NAL...



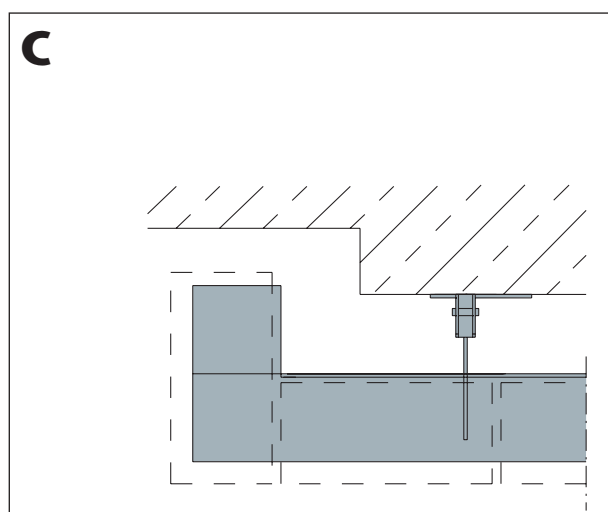
▲ Miscellaneous corners and edges.



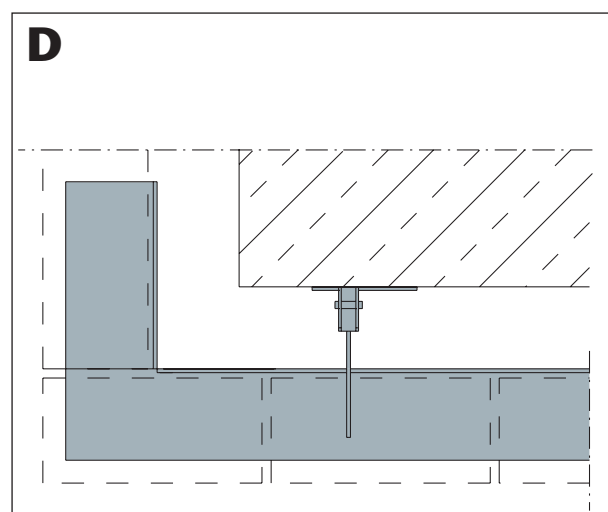
▲ Type AL corner.



▲ Type GL corner.



▲ Type TL edging.



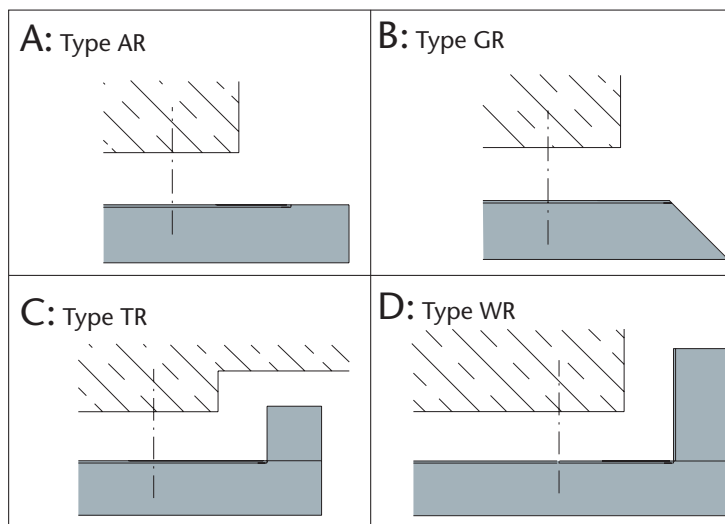
▲ Type WL corner.



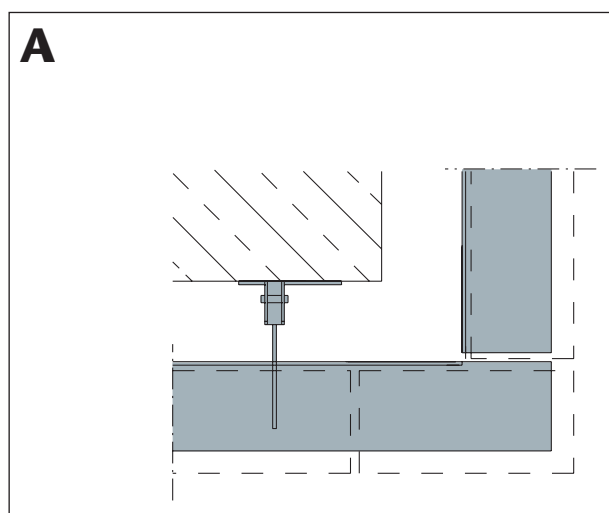
# Corners and edges, right

The corners for right-hand quoin are shown again here as seen from above.

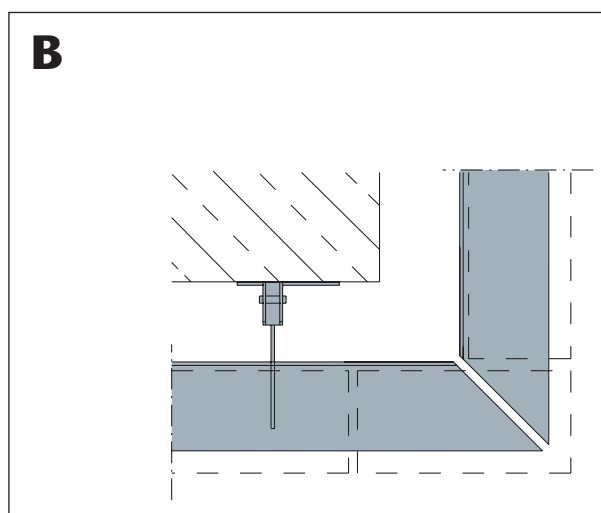
Due to the large reach of the angle brackets and the higher demands imposed on both the anchors and the attachment, we recommend that they be dimensioned by our engineering office.



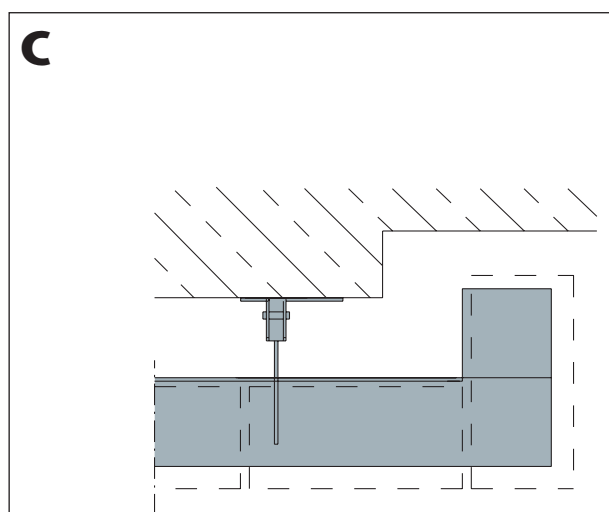
▲ Miscellaneous corners and edges.



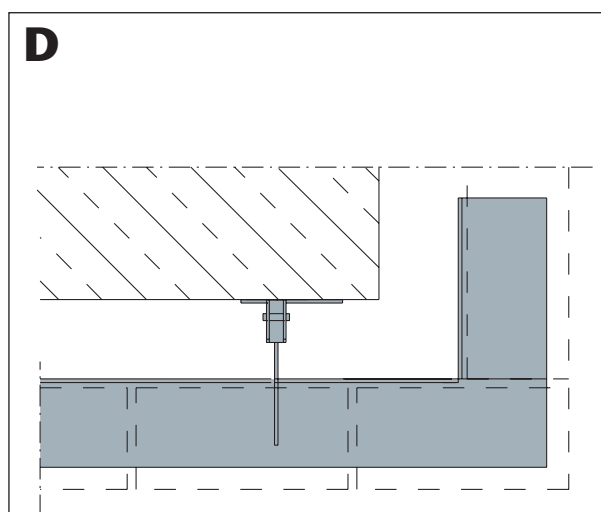
▲ Type AR corner.



▲ Type GR corner.



▲ Type TR edging.



▲ Type WR corner.

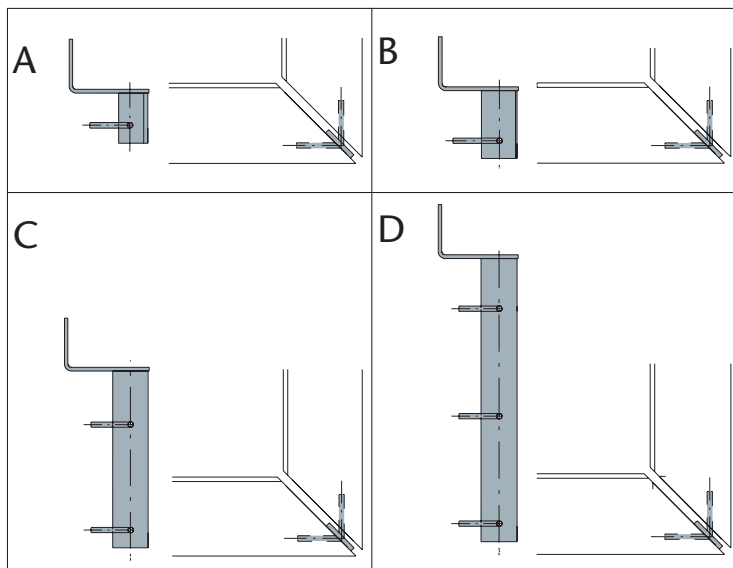
## Corner abutments:

WL

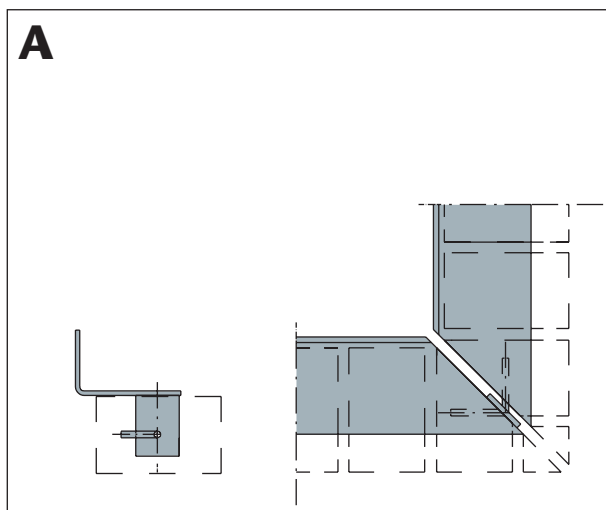
Abutments are used to prevent the corner bricks becoming disengaged in the corners of a suspended facing.

These abutments are firmly welded to the supporting structure and secure the masonry wall by means of gudgeons which engage in the bricks.

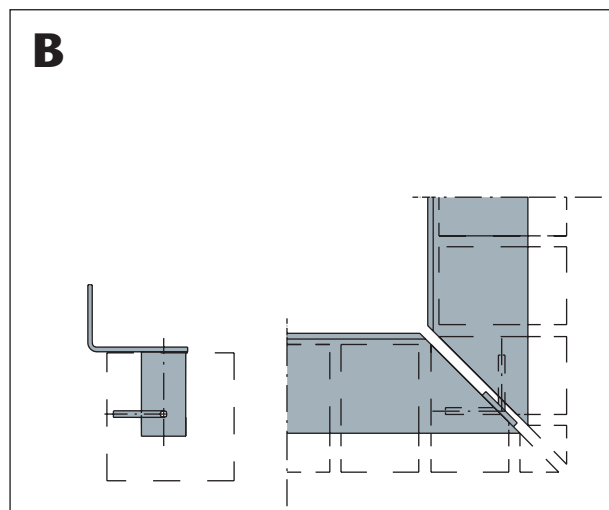
It goes without saying that variously mitred corners can also be secured in the same way.



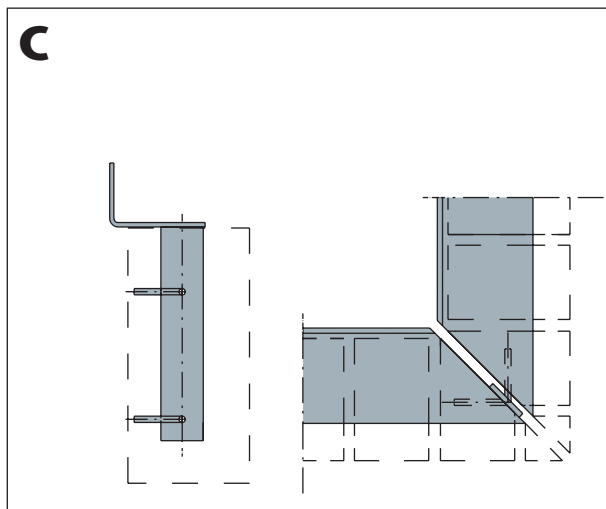
▲ Miscellaneous corner abutments, type WL.



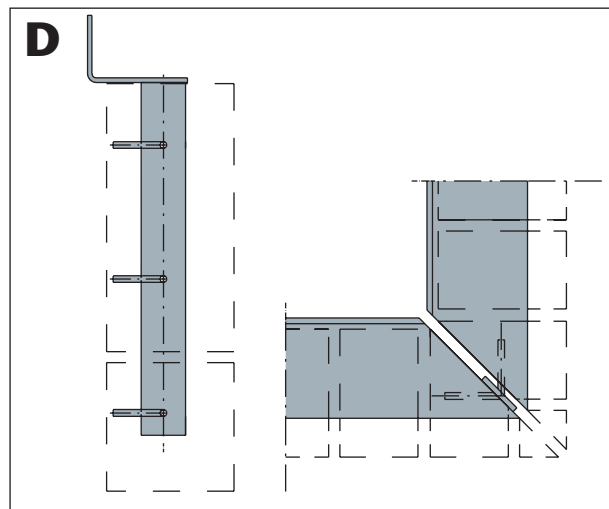
▲ MOSO abutment type WL-50.



▲ MOSO abutment type WL-70.



▲ MOSO abutment type WL-190.



▲ MOSO abutment type WL-310.

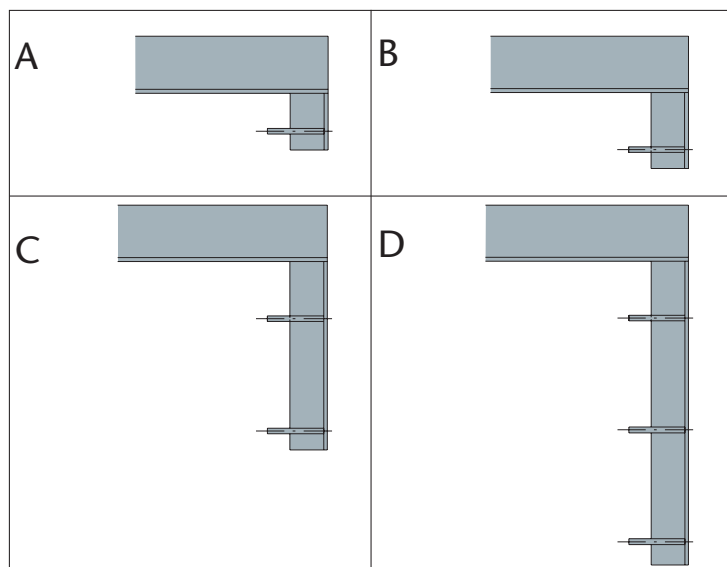
# Abutments for expansion joints:

WD

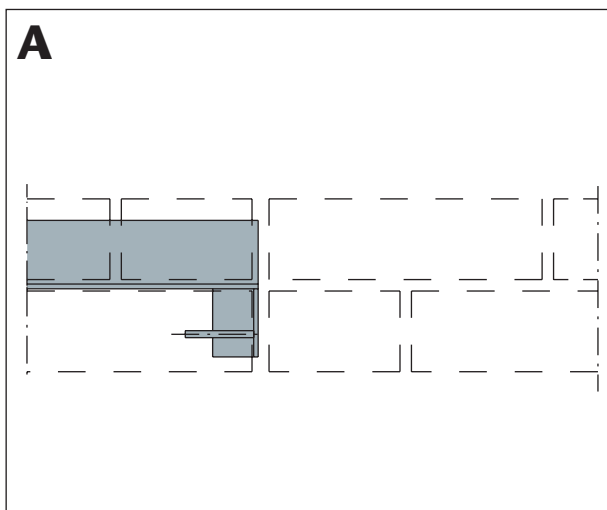


Like the corner abutments, these abutments prevent the facing bricks tipping over into the expansion joint.

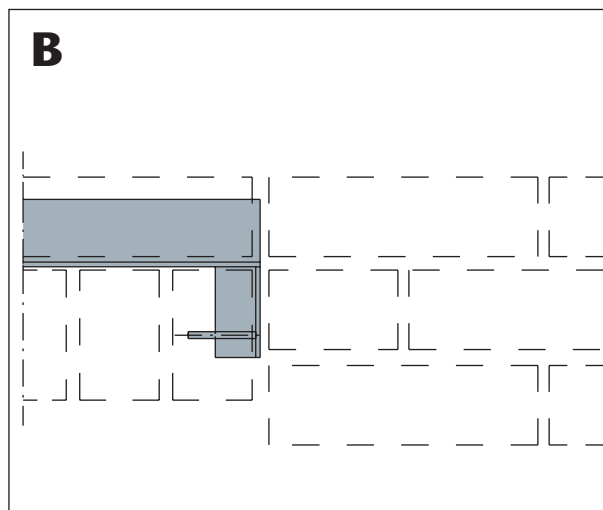
We recommend that the abutments be dimensioned by our engineering office.



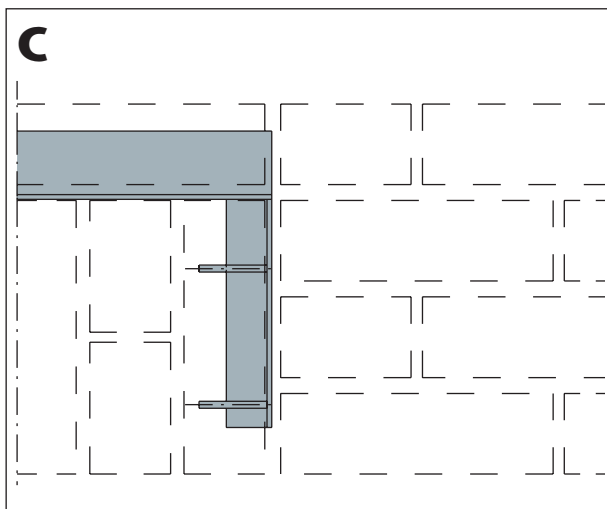
▲ Miscellaneous corner abutments, type WD.



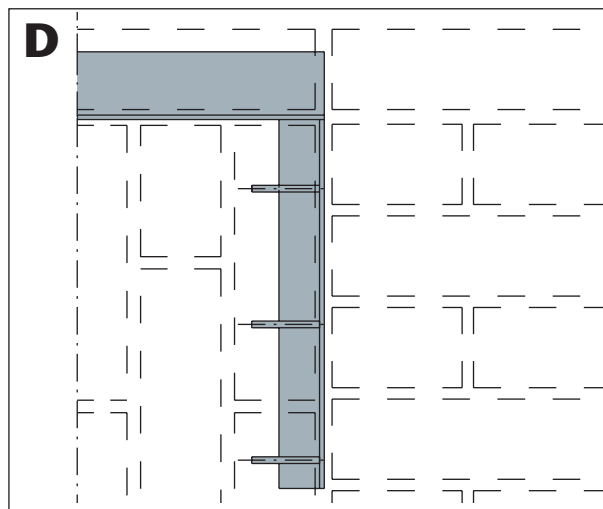
▲ MOSO abutment type WD-50.



▲ MOSO abutment type WD-70.



▲ MOSO abutment type WD-190.



▲ MOSO abutment type WD-310.

## Technical regulation governing masonry support

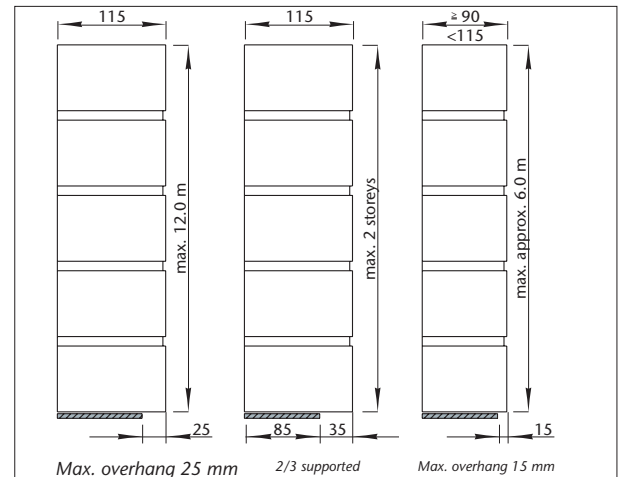
(extracts)

### 1. DIN 1053 Part 1 Masonry; masonry according to formulation, design and execution. Edition dated November 1996

#### 8.4.3 Double-leaf outer walls

##### 8.4.3.1 Types of design and general regulations for execution

- The outer wall has a minimum thickness of 90 mm. Thinner outer walls are referred to as linings, the execution of which is governed by DIN 18515. Brick piles in the outer wall which need only bear loads from the outer wall have a minimum length of 240 mm. The outer wall must be fully supported over its complete length. If borne on intermittent supports (e.g. brackets), all bricks must be supported at both ends in the supported plane.
- Outer walls with a thickness of 115 mm must be supported at vertical intervals of approx. 12 metres. They may protrude up to 25 mm beyond their support. If the 115 mm thick outer wall is no more than two storeys high or is supported every two storeys, it may protrude beyond its supports by up to one-third of its thickness. This overhang must be taken into account when demonstrating the pressure on the supports. Refer to 8.4.2.2. with regard to execution of the joints in the fair face of facing walls.
- Outer walls less than 115 mm thick must not rise more than 20 metres above the ground and must be supported at vertical intervals of roughly 6 metres. On buildings with up to two full storeys, the triangular gable may rise to a height of 4 metres without additional support. These outer walls may protrude not more than 15 mm beyond their supports. Joints in the fair faces of such facing walls must be smoothed.
- The masonry walls must be connected by means of wire ties made of stainless steel with the material numbers 1.4401 or 1.4571 to DIN 17 440 (see Table 11). The wire ties must correspond with Figure 9 as regards form and dimensions. The vertical distance



▲ Supports and masonry height.

between wire ties must not exceed 500 mm, the horizontal distance 750 mm.

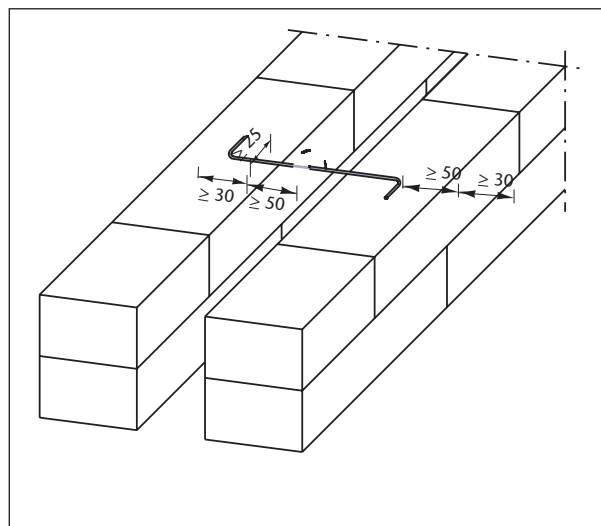
In addition to the requirements specified in Table 11, three wire ties must be fitted per metre edge length along all free edges, in openings and at quoins, along expansion joints and at the upper ends of the outer walls.

Other methods of anchoring the wire ties are permitted if test certificates can prove that the type of anchorage used can absorb a tensile and compressive force of at least 1 kN with 1.0 mm slip per wire tie.

The number of wire ties must be increased accordingly if either of these values is not achieved.

The wire ties must be produced with due regard for their structural effect so that they cannot transmit moisture from the outer wall to the inner wall (e.g. by fitting a plastic washer).

- Supporting structures which can no longer be inspected after installation must be durably protected against corrosion.



▲ Supports and masonry height.

### Wire ties per m<sup>2</sup> wall area

Requirement	Wire ties		
	Min. Quantities	Diameter	
1. minimum, unless lines 2 + 3 apply	5	3	DIN
2. wall area more than 12m above ground or distance between masonry walls more than 70 - 120mm	5	4	
3. Distance between the masonry walls more than 120 - 150 mm	7	4	
4. Distance between the masonry walls more than 150 - 170mm	8	4	Admission
5. Distance between the masonry walls more than 170 - 200mm	9	4	





## Technical regulation governing the arrangement of expansion joints

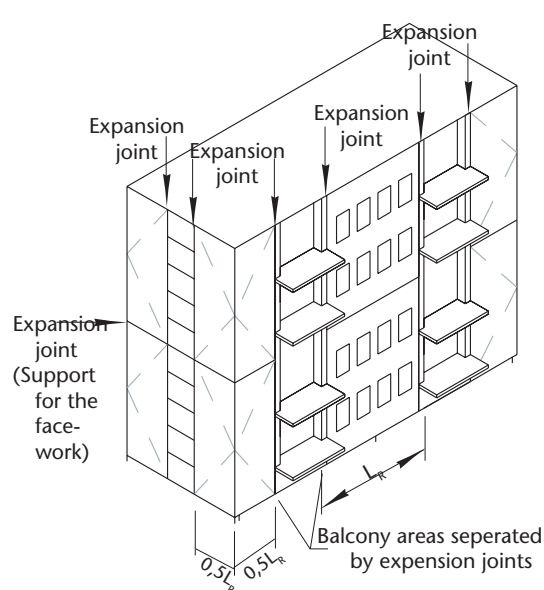
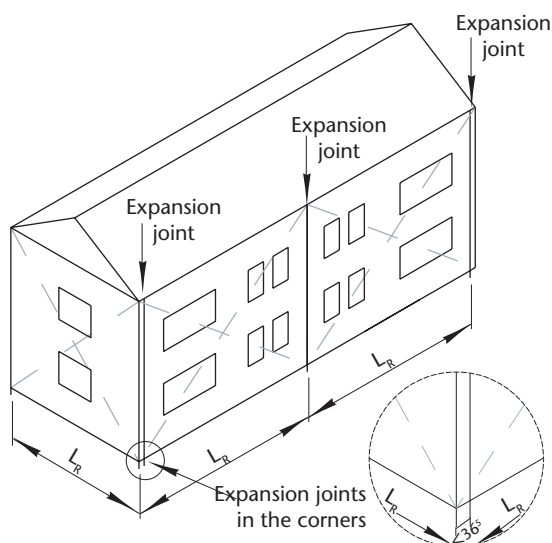
DIN 1053 Part 1 stipulates that expansion joints must be included in the facing wall. Expansion joints serve to compensate differences in deformation between the outer wall and the back-up masonry. Such differences are primarily attributable to temperature changes in the outer wall (summer / winter), as well as to creepage and shrinkage of the load-bearing back-up masonry. Model calculations (1) have yielded deformation differences of roughly 4 - 7 mm for a masonry height of 12 m.

Precise calculation of the distance between expansion joints (crack-free wall length) is difficult, due to the large number of influencing factors, such as paint, mechanical strength and mortar adhesion of the facing brick, intensity of sunlight to be expected, and many others. The following guideline values (1) are based on calculations, analyses and empirical results and are intended as a rough guide for the user.

### Recommended distance $L_R$ between expansion joints in the outer wall of double-leaf exterior masonry(\*):

Wall structure	$L_R$ (m) between expansion joints in:	
	Brick masonry <sup>1)</sup>	Lime-sand masonry <sup>1)</sup>
Double-leaf facework with air space	10,00 - 12,00	6,00 - 8,00
Double-leaf facework with air space and heat insulation	10,00 - 12,00	6,00 - 8,00
Double-leaf facework with core insulation	10,00 - 12,00	5,00 - 6,00
Double-Leaf facework with plaster coat	10,00 - 12,00	–

1) the smaller distance must be selected for walls exposed to strong sunlight, with dark brick surfaces and / or facework with low weight.



### Main problem areas

Cracks can form if there is a concentration of stresses at individual points in the façade. Particular attention must be paid to the following points in this context:

- Parapet areas above supporting structures
- Differences in height between facework supports
- Connections over balcony slabs and canopy roofs
- Connection of doors and windows

It is not always possible to enforce the „pure theory“ when planning a façade. Consult our experienced engineers in cases of doubt. The danger of cracks forming can also be minimized by using masonry reinforcing strip (e.g. MOSO perforated strip) in addition to the provision of expansion joints.

### Minimum width of expansion joints

The minimum width of expansion joints depends not only on the deformation to be expected, but also on the elastic resilience of the joint material. The following are recommended by:

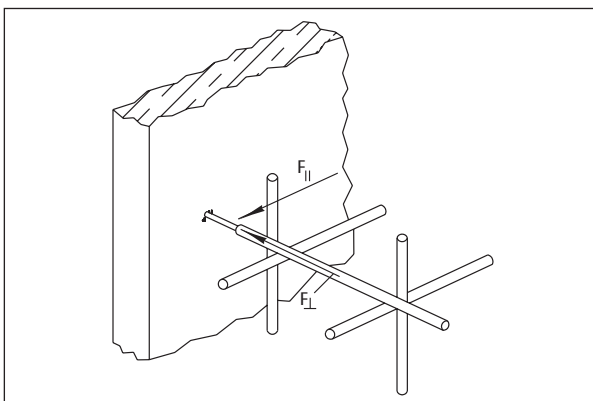
- **For vertical joints:** 15-20 mm (when using elastic sealant)
- **For horizontal joints:** 15-30 mm (in general); 20-30 mm (for 12 m high wall and binder-bonded back-up masonry).

# Technical regulation governing scaffold anchorage (Extracts from DIN 4420)

## Part 1, General provisions, edition March 2004

The anchorage may only be attached to solid, stable parts which cannot collapse, normally floor sheets or supports.

Only materials which have been proved in tests to transmit the required anchor forces in accordance with the existing anchorage base may be used for this purpose. Anchorages must be installed correctly. If netting or sheeting is applied to scaffolds or protective walls, for instance, additional anchorage is required in accordance with the static calculation on account of the resulting higher wind stress.



▲ Anchor forces  $F_{\perp}$  and  $F_{\parallel}$  (Fig. 7).

## Part 3, Scaffold constructions, excluding ladder and system scaffolds, edition dated January 2006 from section 6.4.4.2

The maximum anchor forces  $F_{\perp}$  and  $F_{\parallel}$  (see Fig. 7) for the standard versions of scaffolds with tubular steel coupling as stationary scaffolds with longitudinally oriented scaffold layers are shown in Table 2 in accordance with the anchoring pattern, type of scaffolding and scaffold height.

The specified forces must be compared with the permissible anchor loads and refer to systems with a spacing between uprights of  $l = 2.00$  m and a coefficient  $c_1 = 0.76$  (see DIN 4420 Part 1). If other distances between uprights are selected, the associated forces  $F_{\perp}$  and  $F_{\parallel}$  may be determined from the values in Table 2 by linear conversion. Anchorage of the canopy roof must be demonstrated with anchor forces  $F_{\perp}$  and  $F_{\parallel}$  augmented by 50% for unlined scaffolds.

In the case of unlined scaffolds up to 10 m high, force  $F_{\parallel}$  may be disregarded when calculating the anchorage, provided that the external scaffold retainers are connected to the two uprights and the distance between inside edge of the scaffold board and building does not exceed 0.30 m.

## Anchoring pattern and required permissible anchor load for standard scaffolds with tubular steel couplings and longitudinally oriented scaffold layers (table 3)

Anchoring pattern <sup>1)</sup>	Scaffold height	unlined scaffold		lined scaffold	
		$F_{\perp}$ kN	$F_{\parallel}$ kN	$F_{\perp}$ kN	$F_{\parallel}$ kN
	$h \leq 10$	2,7	0,9	–	–
	$h \leq 20$	3,1	1,0	–	–
	$h \leq 30$	3,3	1,2	–	–
	$h \leq 10$	–	–	7,5	0,7
	$h \leq 20$	–	–	8,0	0,9
	$h \leq 30$	–	–	8,3	1,2
	$h \leq 10$	–	–	3,7	0,3
	$h \leq 20$	–	–	3,9	0,5
	$h \leq 30$	–	–	4,1	0,6

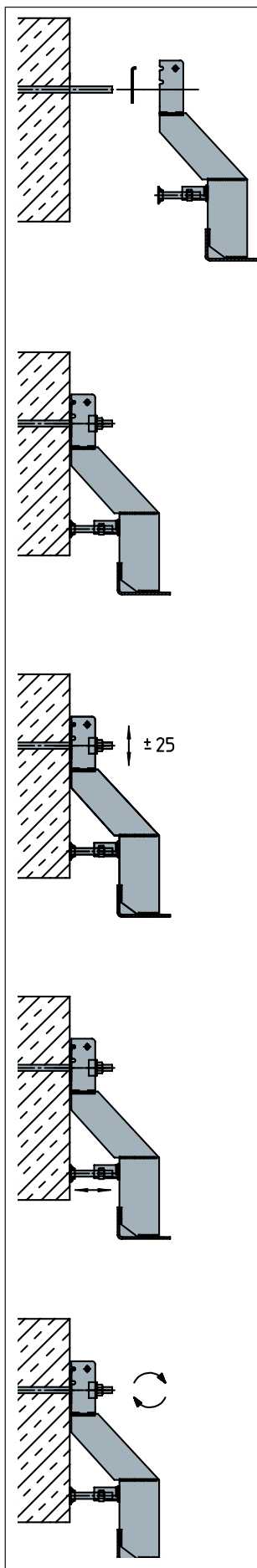
1) Additional measures (horizontal or vertical bracing) must be provided if individual nodes cannot be anchored. The forces specified may be linearly converted if other distances are selected between the uprights.

2) The forces specified here are based on the aerodynamic force coefficients in accordance with section 5.3.4.

## Installation instructions for supporting anchors

### With dowels

### On anchor rail

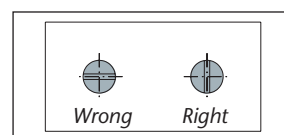


Set dowel in accordance with permit, fit wedge plate and supporting anchor on the dowelled anchor rod, ...

Pre-assemble supporting anchor with wedge plate, deep-offset washer, MHK screw and nut, ...

... Fit deep-offset washer and pre-assemble hand-tight with nut; ...

... Horizontally introduce head of MHK screw into anchor rail, turn MHK screw with slight pressure until notch at end of screw is perpendicular and tighten nut by hand; ...



▲ Detail of MHK screw when installed.

... Adjust height of supporting anchor by shifting and, if necessary, turning over the wedge plate, ...

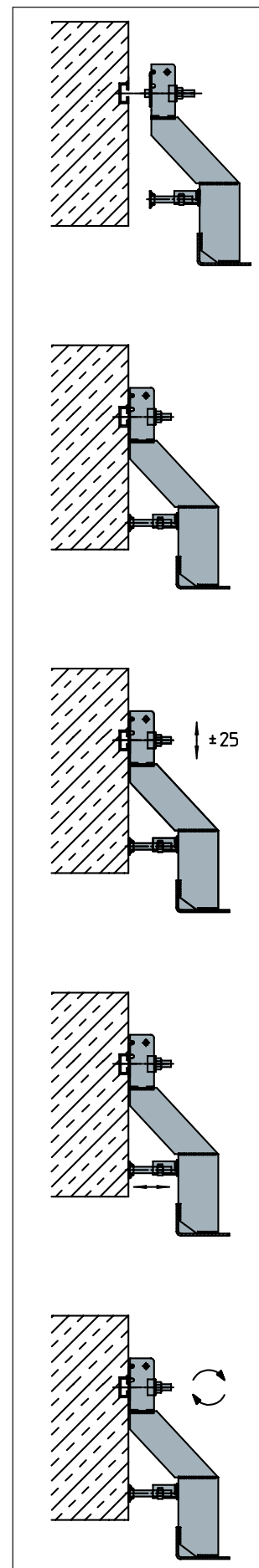
... adjust pressure screw until it rests securely in place, ...

... Then apply tightening torque in accordance with the fastener or in accordance with type-test, at least as follows:

M 10 = 15 NM

M 12 = 25 NM

M 16 = 60 NM.

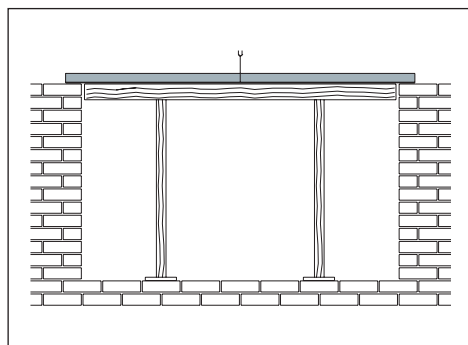


▲ With dowel

▲ On anchor rail

## Support for the supporting angles

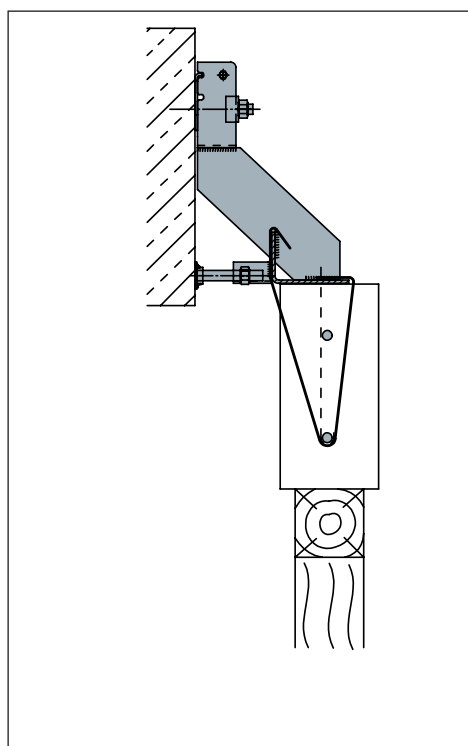
- To prevent undesirable deflexion under load, the supporting angles must be adequately supported until the brick mortar has set hard.
- In the case of intermediate supports, the supporting angle is laid on the facework with suitable spacers (e.g. wooden or plastic wedges). Since intermediate supports must normally be produced in the form of horizontal expansion joints, it is essential to remove the spacers when the brick mortar has set hard. (Refer to the section on arrangement of the expansion joints for further information).



▲ Support for the supporting bracket.

## Producing a suspended soldier course

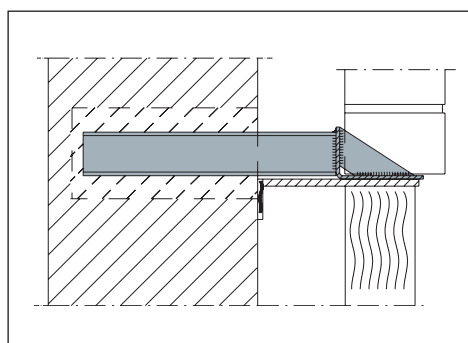
- Wire binders or screw hooks are used to suspend a soldier course.
- When using wire binders, the supporting bracket is mounted on the upper edge of the soldier course, aligned and a head set on the lower edge of the soldier course. The soldier course is then laid between supporting bracket and head with integration of the wire binders.
- When using screw hooks, the soldier course can be laid on the head before fitting the supporting bracket. Particular attention must be paid to ensuring that the screw hooks are installed in a straight line (must be aligned with a string).
- In masonry work produced according to standards and professional rules, the wire binder or screw hook ensures that the soldier course is adequately secured and cannot work loose. Depending on the brick and mortar quality used (e.g. in the case of brick mortar with poor adhesion), the soldier course can also be pinned additionally on site. Suitable stainless steel wires e.g. > 4 mm can be supplied additionally on request.



▲ Suspended soldier course.

## Installation of wall brackets type MK...

- Recesses are produced in the load-bearing masonry as specified in the delivery documents.
- These recesses are filled with concrete or mortar (MG III with expanding mortar additive) and the supporting anchors pressed in. They are then re-compacted and flush-finished.
- The supporting anchors and supporting brackets must be adequately supported.



▲ Installation of wall bracket type MK...

## Principles for dimensioning

### Choice of anchorage system(\*)

Type of support	Situation	Anchorage system
Plinth or intermediate support	Wall length < 3 m and corners	Angle-bracket anchors
Plinth or intermediate support	Wall length > 3 m	Single-bracket anchors
Lintel header (visible)	Width of opening < 2,01 m	Angled supports
Lintel header (visible)	Width of opening > 2,01 m	Angle-bracket anchors
Lintel header (concealed)	Masonry height < 0,5 m	Single-bracket anchor type EK-G
Lintel header (concealed)	Width of opening < 2,51 m Masonry height > 0,42 m	MOSO perforated strips
Lintel header (concealed)	Width of opening > 2,51 m	Angle-bracket anchors with wire binders
Lintel header (with prefabricated lintel facing)		Attachment for prefabricated parts or laid on

(\*) This table is intended as a basic recommendation. Since we can provide planning and production from a single source, we are able to perform a cost-benefit analysis even during the project planning phase in order to submit the best possible quotation for you.

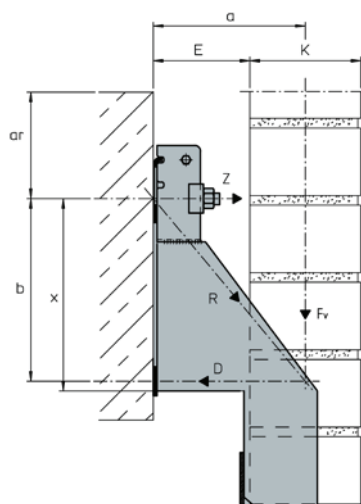
### Choice of attachment system(\*)

Attachment system	Advantages	Disadvantages
Anchor rail, embedded in the cast-in-place concrete	Rapid assembly of the supporting structures	Higher material costs, early planning required, dimensionally accurate cast-in-place work
Officially approved dowels, retroactively set in cast-in-place concrete	Dowels can be set immediately before assembling the support, lower material costs	Assembly times are longer due to the need to drill out holes

(\*) As a rule, we recommend that our customers use dowels, as experience has shown that they meet more effectively with the practical conditions prevailing on site.

### Evidence of the supporting structures

Calculation of the resultant anchoring force R:	
<b>D</b> Compressive force (kN)	= $Z \times F_v \times (a/(b-0,5 \times j))$
<b>R</b> Resultant anchoring force (kN)	= $\sqrt{F_v^2 + D^2}$
<b>F<sub>v</sub></b> Load per anchor	
<b>Z</b> Tensile force	
<b>a</b> Load leverage (mm)	= $E + k/2 + 10$
<b>b</b> Anchoring leverage (mm)	= $x - 10$ mm (normal case) (Value between attachment and middle of pressure plate)
<b>j</b> Overall possibility of adjustment	



Depending on the permit, either the anchoring force R or the tensile force Z and transverse force F<sub>v</sub> are the device variables for demonstration of the attachment.

The conditions imposed in the permit must be observed in all classes.



The fasteners supplied by Modersohn are made from high-grade stainless steel in accordance with the permit for stainless steel issued by the Construction Technology Institute (material number 1.4571 or 1.4401). A manufacturer's certificate (version 3.1 B) can be sent to you on request at any time with further information on the mechanical properties and chemical composition of the steel supplied.

The parts are finally pickled and passivated in our production so that the passive layer reforms immediately after machining and normal steel abrasion is excluded on the surface of the stainless steel parts.

If stains of any kind nevertheless appear on the surface after delivery to the building site, they are in no way related to the actual resistance and load-bearing capacity of the stainless steel supplied by our company.

Some of the commonest causes of stains and discolorations on stainless steel parts are outlined below.

### 1. During transport / unloading:

When the parts are unloaded, the haulage company's driver removes the parts from their packaging and pulls them over the unprotected loading edge which is made of St 37 (normal steel). Even slight pressure is sufficient for normal steel to be transferred to the surface of the harder stainless steel. Only this abraded material subsequently corrodes during storage in damp conditions (e.g. outdoors).

This problem naturally also arises when handling or hoisting gear made of normal steel comes into direct contact with the stainless steel surface. For instance, if the parts are placed in a crane chain without any protective layer between the normal steel chains on the crane and the stainless steel parts. A brown abrasion stain forms on the stainless steel parts at the points of contact, particularly in combination with moisture.

### 2. During interim storage:

The unprotected stainless steel parts must not be stored directly beside one another or worse still on top of one another with normal steel parts. As already mentioned, the normal steel abrades onto the stainless steel parts with which it is in direct contact. When stored side by side out of doors, exposed to wind and rain, a so-called rust film forms and is precipitated onto the stainless steel parts too. It cannot simply be wiped off. If stainless steel and normal steel must be stored together in direct vicinity of one another, then only if separated by a protective plastic sheet.

It is also important to ensure that parts containing normal steel are not worked in any way nearby during storage. Cutting normal steel sections, for instance, is a common cause of staining on stainless steel parts, as the glowing sparks can fly over great distances. The greatest problem with this type of impurity is that the normal steel particles burn into the surface of the stainless steel..

### 3. During installation:

According to our installation instructions for supporting the brick facework „The angles must be fully supported until the brick mortar has set hard.“ Under no circumstances, however, may a normal steel support be used for this purpose! Here too the normal steel abrades and will spoil the entire appearance, particularly in the case of visible supports over windows. Always use a wooden beam which has not been in contact with normal steel beforehand when supporting the angles.

It is also important during installation to ensure that tools or splashes of normal steel do not come into contact with the stainless steel surface, thus causing abrasion or burn marks on the stainless steel parts. A light tap with a hammer made of common tool steel or pliers will suffice to produce such marks. The tools used should at least be chrome-plated; they should preferably not be made of normal steel at all.

### 4. During subsequent work on the façade:

Treating engineering brick walls - often using hydrochloric acid or an agent containing hydrochloric acid, is a highly problematical process for stainless steel. It is not uncommonly carried out using dilute hydrochloric acid or an agent containing hydrochloric acid. Hydrochloric acid is one of the most corrosive chemicals for all metallic materials. This substance should therefore not be used on any façade parts in which it could come into direct contact with stainless steel or

which it could reach either as droplets carried by the wind or through spraying! If acid-treatment of the complete façade is absolutely essential, all stainless steel parts should be protected with plastic film before starting the treatment! Any stainless steel parts which nevertheless come into contact with the acid-treatment agent must immediately be thoroughly cleaned with fresh water and a sponge. Never wait before cleaning the parts and let the acid work its way into the stainless steel!

However, any stains which form due to acid residues remaining on the stainless steel parts for some time merely constitute a visual impairment. The brown discoloration can be removed with a special passivating agent, particularly on visible window lintels. Once it has been allowed to take effect, the passivating agent must also be thoroughly removed by rinsing with fresh water. The passivating agent is described in more detail below.

### Action to remove stains due to abrasion, rust film or acid-

#### treatment:

Impurities which have formed on stainless steel surfaces cannot simply be wiped off with a rag, not even if they are merely due to a film of rust. The minute particles are wedged into the pores on the metal surface or are forced into the surface by the rubbing or brushing action. Such pores are even to be found in seemingly smooth, cold-rolled metal surfaces, with the result that the brown discoloration due to normal steel impurities constantly reappears after being wiped or brushed off.

These stains can only be removed with a passivating agent containing a weak nitric acid. Nitric acid is an oxidizing acid. It therefore speeds up the formation of a passive layer on the surface of the stainless steel. In addition to removing undesirable normal steel and dirt residues, the composition of the nitric acid used also enhances the mechanical strength of the stainless steel without attacking its surface. After a corresponding exposure time, the passivating agent must be removed by thoroughly rinsing with fresh water.

Coarse dirt can naturally first be removed with a stainless steel brush or a pickling paste for stainless steel. The paste is applied with a brush and must subsequently be washed off again with fresh water. The pickling paste is highly corrosive and may only be applied with suitable personal protective equipment, such as gloves, apron and goggles, in order to avoid caustic burns.

Surface damage on the stainless steel parts can be removed with special roughing or flap wheel attachments for your electric drill. However, it should be remembered that the surface of the stainless steel will be damaged in the process and that the protective passive layer only re-forms automatically in the course of several days. Here too, the passivation process can of course be speeded up considerably with the aid of the passivating agent described above.

### Surface treatment agents and protective equipment

•Passivating agent RP-GEL	Art. Nr. 140414
•Cleaning agent plus 3000	Art. Nr. 140425
•Surface protection OS 540	Art. Nr. 140426
•Brushing pickle TS in units of 2 kg each	Art. Nr. 140422
•Pickle brush of acid-proof plastic material	Art. Nr. 140418
•Protective acid-proof gloves	Art. Nr. 140513
•Acid-proof apron	Art. Nr. 140362
•Nylon goggles, shatter-proof	Art. Nr. 140363
•Hand brush, stainless steel wire	Art.Nr. 140417
•Stainless steel barrel-brush attachment for electric drills	Art. Nr. 140061
•Roughing wheel for hand-held right-angle grinders, diameter 180 mm	Art. Nr. 140390
•Roughing wheel for hand-held right-angle grinders, diameter 115 mm	Art. Nr. 140391
•Flap wheel for hand-held right-angle grinders, diameter 178 mm	Art. Nr. 140392
•Flap wheel for hand-held right-angle grinders, diameter 115 mm	Art. Nr. 140393

# Modersohn GmbH & Co. KG:

## Experience & expertise



Stainless steel fastenings  
for special structures and  
building renovation

### Monument and old-building renovation fastenings

- Tensioning systems and tie bars
- Needle anchors
- Retaining plates and cross stays
- Substructures
- Twist clamps
- Pest-protection structures

### Special concrete fastenings

- MBA anchor rails, welded anchor-rail structures, bent anchor rails
- Ribbed reinforcement and reinforcement systems
- Edge protection and angled stair nosing
- Tie and weld plates and profiles
- Mounting plates and profiles
- Joint coverings and clamping profiles

### Heavy-duty fastenings, frames, mounts and linings for special structures, such as:

- Tunnels
- Bridges
- Timber structures
- Power stations
- Swimming pools
- Glass façades

### Standard components and anchors in stainless steel

- Threaded bars (up to 3000mm)
- Screws, nuts and washers, including customised shapes and sizes
- Dowel systems in stainless steel



**M-CONSTRUCT Sales headquarters:**  
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Façade fastenings for masonry and concrete

### Masonry fastenings

- MOSO masonry façade fastenings
  - Single-bracket anchors
  - Angle bracket anchors
  - Angled supports
  - Cavity wall ties (wire anchors, special scaffold anchors)

- MOSO masonry reinforcement - perforated strip
- MOSO attachments for fixing prefabricated parts to masonry façades
- MOSO scaffold anchors for masonry façades

### Attachments for prefabricated parts

- MOSO supporting anchors for concrete façades
  - Suspension anchors
  - Clamping anchors
  - Bearing and suspension brackets for prefabricated façades
- MOSO Concrete façade retaining anchors
  - Serrated retaining anchors
  - Compression/tension anchors
  - Pressure struts



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Industrial parts in stainless steel

### Cutting to size in stainless steel

- Laser cutting
- Water-jet cutting
- Cutting with shears
- Sawing
- Slit strip die-cutting in series

### Stainless steel shaping for profiles, linings, ducts, assembly parts etc.

- Flange profiles

- Bent profiles
- Embossed and pressed components

### Welded structures for troughs, containers, housings, frames etc.

- WIG welding
- MAG welding
- Manual arc welding
- Laser welding
- Bolt welding

### Turned and milled components

- Automatic turning and milling of components in series
- Face-milled components
- Serrated components
- Threaded components with metric coarse thread

### Surface finishing in stainless steel

- Pickling and passivating
- Blasting with glass beads
- Dry grinding and deburring
- Body grinding
- Tumbling



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Stainless Steel?  
Modersohn!

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