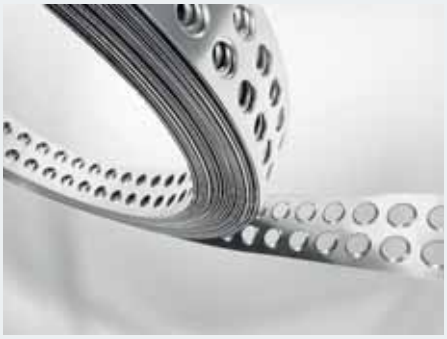
MODERSOHN®
Stainless Steel

www.modersohn.eu

MOSO® façade fixings for masonry walls

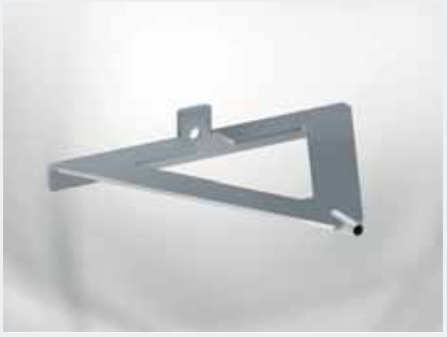
MOSO® perforated strip



Single-bracket anchors

Angle-bracket anchors

Scaffold anchors



Fixings for precast parts

Horizontal connection

duplexstahl.eu
DUPLEX rostfrei

LEAN DUPLEX STEEL
The better alternative

GSI SLV

CE
DIN EN 845-1

SYSTEM
Façade fastenings masonry

Stainless steel? Modersohn!

Dear Sir or Madam,
Dear customer and structural engineer,

With our new edition of the "MOSO® Masonry Façade Fixings Catalogue", we have compiled many new topics relating to façade fixings for masonry walls for you, and documented these in-depth with illustrative graphics.

The objective was to simplify the selection of supporting and restraint anchor systems while properly applying the new standards and licensing regulations, such as the Eurocodes in the Member States' national provisions (e.g. DIN EN 1996-2/NA).
This is crucial for ensuring that no installation issues occur during the construction phase, and no defects in workmanship are found after the works are completed.

At this point, I would like to highlight the importance of thorough pre-planning by a specialist firm - such as Modersohn! This saves a lot of money, time and hassle later on.

With high-tensile and extremely corrosion-resistant Lean Duplex steels, and technically advanced and optimised MOSO® fixing systems, you can enjoy enormous additional security. This allows all companies, planners and developers involved to focus on their regular activities with confidence and peace of mind.

Our engineers and technicians are happy to advise you. In particular, in relation to new product systems, such as the pressure-transferring insulation technology (thermal separation), the new toothed MZA anchor rail system, or - in the area of façade fixings for concrete precast parts - the new adjustable panel anchors or restraint anchors.

Your Modersohn

Wilhelm Modersohn jr.

▲ Modern machinery provides a great range of opportunities for stainless steel machining

The products

MOSO® perforated strip LB

The first off-roll reinforcement.
For universal application.
In stainless steel or galvanised.

Single-bracket anchors EK

The universal anchor for masonry façades. Available for fast delivery. Easy to install. Proven for years.

Angle-bracket anchors WK

The systematic special solution for any fixing situation. Our engineering team is happy to advise you.

Angle bearing WA

The solution for simple fixing situations. Even customised solutions are available at short notice.

Fixings for precast parts FB

Do you produce pre-cast lintels, or do you need to install these? We offer a number of tried and tested solutions.

Horizontal connection HV

For perfect façade support against tipping, while taking account of heat flows.

Scaffold anchors GA

To remain in the masonry façade. These anchors can be re-used again and again. Made from high-quality stainless steel.

Accessories and options ZV

We are your one-stop supplier. From the right dowels to effective vermin protection. We can help you.

Technical details TD

Our service - your success! The technology of masonry support and reinforcement in a nutshell.

The following applies to all products in this catalogue: The specified intended uses only represent the key area. Our technicians are happy to provide you with any further explanation.

MOSO® House

Conventional construction: MOSO® HOUSE 1

Prefabricated part construction: MOSO® HOUSE 1

Complete system solutions for concrete façade anchors

Panel anchors

Balustrade anchors

Pressing screws

Anchor rails

Toothed mounting brackets

Compression and tension rods

Wind restraints

Dowel connections

Gallow anchor

... as well as customised special solutions

ORDER IT NOW! TEL +49 5225 87 99-0 | email info@modersohn.de

Deutsches Institut für Bautechnik DIBt

General Type Approval Z-17.1-603

MOSO® perforated strip

MOSO® perforated strip – Reinforcement from the reel

The MOSO® perforated strip was developed to realise self-supporting lintels over door and window openings.

Another key area of application is constructive crack safeguarding, to secure buildings permanently against unsightly visible cracks, minimise warranty claims, and - above all: to make bricklaying as easy as possible.

▲ MOSO® perforated strip on the reel

Use and application

- Approved self-supporting lintel reinforcement
- Wall connection from masonry wall to masonry wall
- Crack safeguard at window and door openings, vertical walls with point loads, and connected structural components of different heights.

Easy to use

▲ Convenient on-site transport

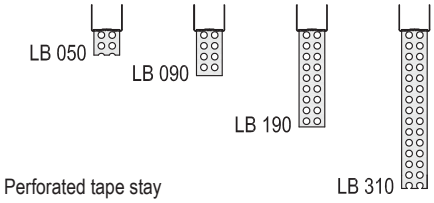
▲ Simply pull it out of the box...

▲ ... cut with plate shears…

▲ ... and push into the mortar. Finished!

	Lintel reinforcement acc. to Z-17.1-603	Constructive crack safeguard			
Perforated strip length	E 420 (high-tensile stainless steel)	E 235 (stainless steel)	Steel (galvanised)	Thin bed stainless steel	Thin bed steel (galvanised)
	Item no.	Item no.	Item no.	Item no.	Item no.
25 m (box)	600500	600300	600100	600200	600250
50 m (box)	600510	600310	600110	600210	600260
100 m (box)		600320			

Perforated tape stay	Packaging unit	Item no.
050 (heading course)*	100 pieces	600660
090 (upright course of bricks)	100 pieces	600600
190 (brick-on-edge course)	100 pieces	600610
310 (1.5 times brick-on-edge course)*	50 pieces	600650



Perforated tape stay

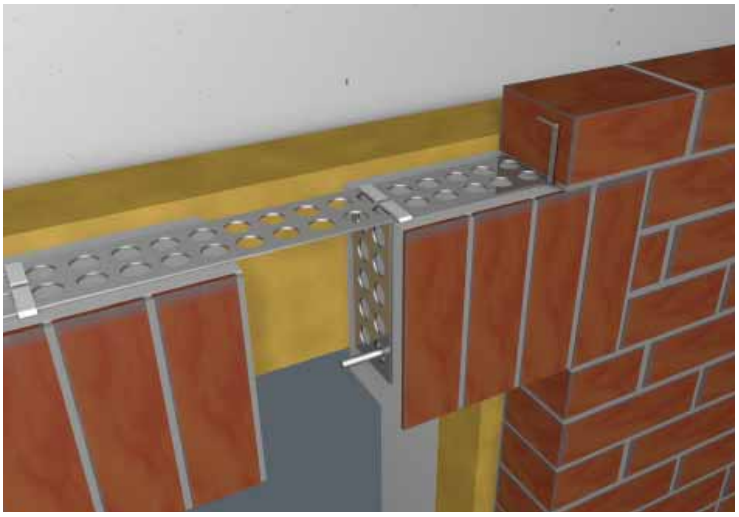
* not part of the approval

Mounting accessories (applications - see assembly instructions)	Packaging unit	Item no.
Rear anchor bracket for transmission of force in the pressure zone	100 pieces	600620
Round bar 4 x 250 mm for pinning of brick courses	100 pieces	600630

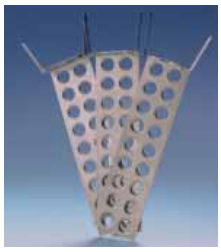
MOSO® perforated strip as approved self-supporting lintel reinforcement

MOSO® perforated strip acts as a supporting component that stabilises window and door lintels.

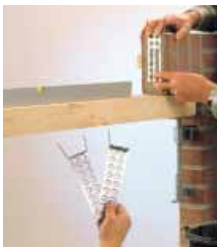
The Type Approval Z-17.1-603 regulates the application in brick courses. This facilitates the same reinforcement for heading courses and 1.5 times brick-on-edge courses.



▲ MOSO® perforated strip as approved self-supporting lintel reinforcement



▲ Install perforated tape stays...



▲ ... on the bricks while laying the brick-on-edge course...

▲ ... and place MOSO® perforated tape masonry reinforcement in between the stays after completing the course. Then simply bend the stays over. Finished!

Handling MOSO® perforated strip

- Roll MOSO® perforated strip off the reel and cut off with plate shears
  Cutting length = clear span of the lintel + 2 x 36 cm
- Lay brick courses with full-mortar bedding, and install the perforated tape stays at intervals of ≤ 25 cm
- Apply mortar for heading course generously
- Apply MOSO® perforated strip and press into the mortar bed
- Bend the MOSO® perforated tape stays over the MOSO® perforated strip
- For lintels of l_w ≥ 1.51 m, lay heading course and alternate insertion of a MOSO® rear anchor bracket with that of an arm above the perforated strip with a spacing of ≤ 25 in the butt joints
- The lintel should be supported until the mortar hardens

Tender text

Delivery and professional installation of ... m lintel support with MOSO® perforated strip **type 50 E 420** for clear span of ... m, facing brick format ..., lintel height ... cm, incl. additional allowance.

Material requirements per lintel ①

Width of opening l_w [m]	1.01	1.26	1.51	1.76	2.01	2.26	2.51
Cutting length of perforated strip [m]	1.73	1.98	2.23	2.48	2.73	2.98	3.23
Quantity of perforated tape stays (...)	4	5	6	7	8	9	10
Quantity of rear anchor brackets (RVB)			6	7	8	9	10

① Plan for additional pinnings of brick courses on-site

Please note: The minimum height of masonry overlying the MOSO® perforated strip is 5 layers NF (≥ 42 cm).

MOSO® HOUSE 1 see page 4/5

MOSO® perforated strip as approved lintel reinforcement for large openings

Lintel construction l_w > 2.51 m ≤ 5.01 m

The combination of

- type approved MOSO® perforated strip type 50 E 420 and
- MOSO® support brackets type EK-W

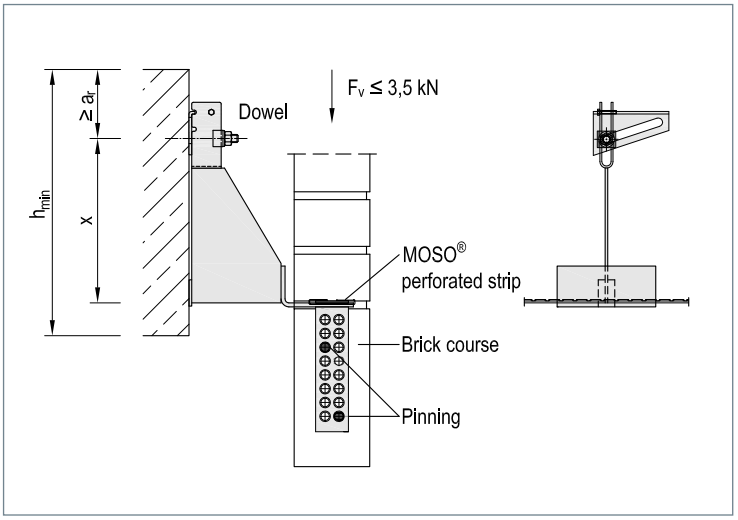
even facilitates lintels over 2.51 m.

Product info

The first off-roll reinforcement.
For universal application. In stainless steel.

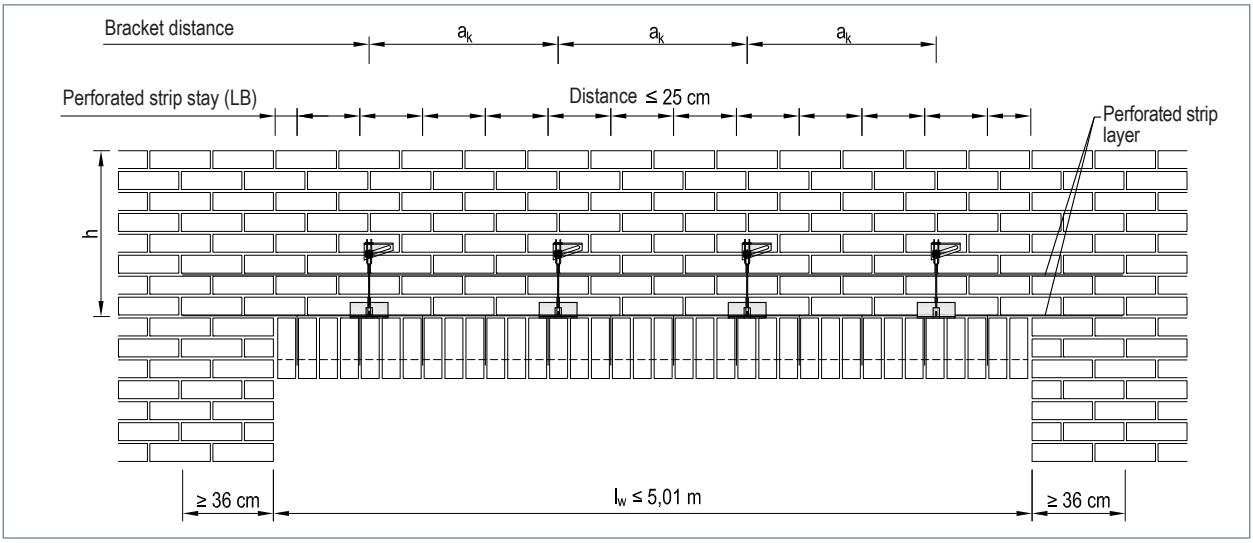
Use and application

- The installation of support brackets allows MOSO® perforated strip to be used for clear spans of > 2.51 m
- The support brackets are anchored in the concrete on the supporting wall shell with type approved fasteners
- Other support variants are possible. Our technical experts are happy to advise you.
- The anchor spacing between the support brackets should be selected in accordance with the planned brickwork height



▲ Profile and frontal view of support bracket EK-W with MOSO® perforated strip

- A second layer of MOSO® perforated strip is installed in the second bed joint above the first layer
- Perforated tape stays ensure a secure connection to the lower brick course, and should be installed at intervals of ≤ 25 cm
- Further information is provided in the installation instructions
- We can supply rods in 4 x 250 mm for the necessary pining of the brick course



▲ Arrangement of the perforated strip layers and support anchors in the brickwork

Material requirements per lintel ①

Width of opening l_w [m]	2.76	3.01	3.26	3.51	3.76	4.01	4.26	4.51	4.76	5.01
Height of brickwork h [m]	0.42 - 1.60									
Sym. anchor spacing a_k [m]	≤ 0.75									
Number of support brackets EK-W 3.5	3	4	4	4	5	5	5	6	6	6
Cutting length of perforated strip [m] (2x)	3.48	3.73	3.98	4.23	4.48	4.73	4.98	5.23	5.48	5.73
Quantity of perforated tape stays (...)	11	12	13	14	15	16	17	18	19	20

① Plan for additional pinnings of brick courses on-site

Please note: The minimum height of masonry overlying the MOSO® perforated strip is 5 layers NF (≥ 42 cm).

MOSO® HOUSE 2
see page 4/5

MOSO® perforated strip as constructive masonry reinforcement

With MOSO® perforated strip type 50 E 235 stainless steel or type 50 galvanised.

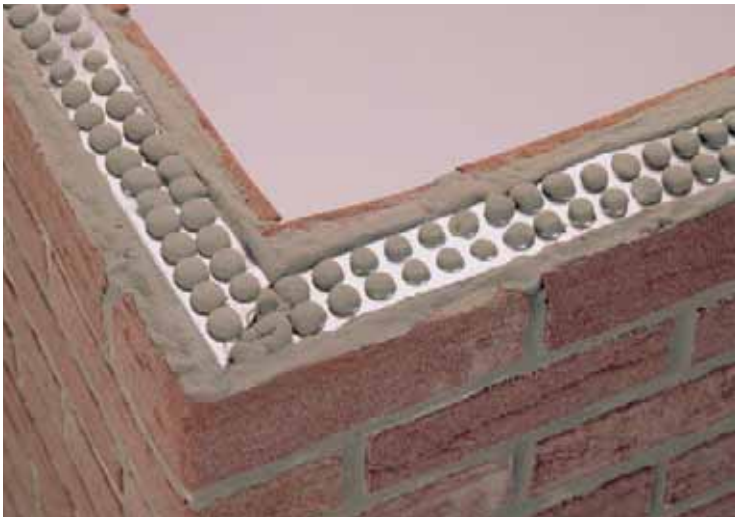
Use and application

Crack formation in the brickwork cannot be ruled out, especially for certain masonry components. While they generally have no impact on structural stability, they often constitute a visual and functional defect.

Crack formation can be prevented by inserting the 5 cm wide MOSO® perforated strip into the brickwork. The use of constructive reinforcement as a crack safeguard is not subject to any regulation by the construction authorities or any DIN standard.

Please see the examples on this page for information on the use of the perforated strip.

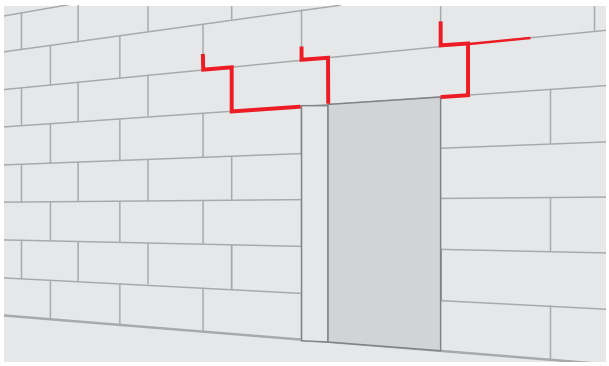
Use the MOSO® perforated strip type 50 E 235 **stainless steel** for exterior and facing masonry, as well as other areas prone to corrosion.



▲ MOSO® perforated strip in a mortar bed as constructive reinforcement when laying bricks

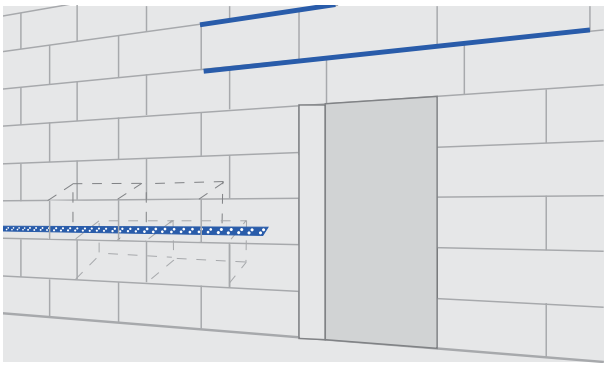
Brickwork components subject to pressure

Crack development

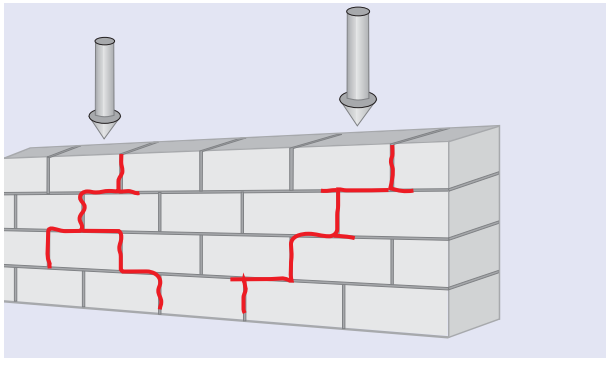


▲ Corner areas of openings through line tension and/or shrinkage stress

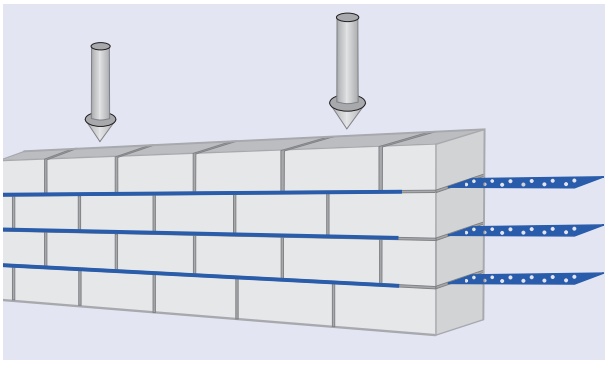
Recommended reinforcement arrangement



▲ MOSO® perforated strip minimises shrinkage cracks



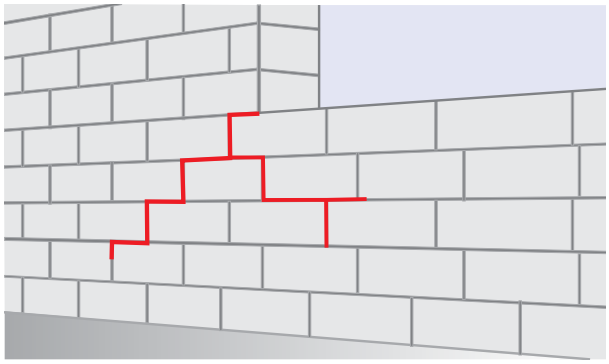
▲ Individual loads (e.g. through steel girders) create peak stresses



▲ MOSO® perforated strip minimises peak pressures

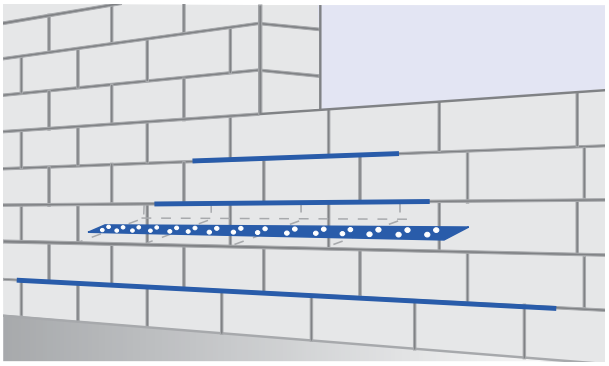
Brickwork components subject to pressure

Crack development

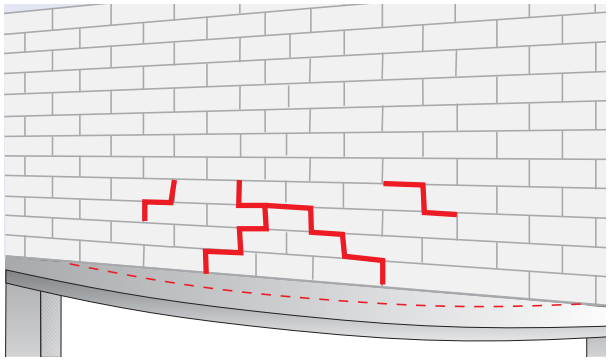


▲ Changes in component dimensions trigger line tension and shrinkage stress

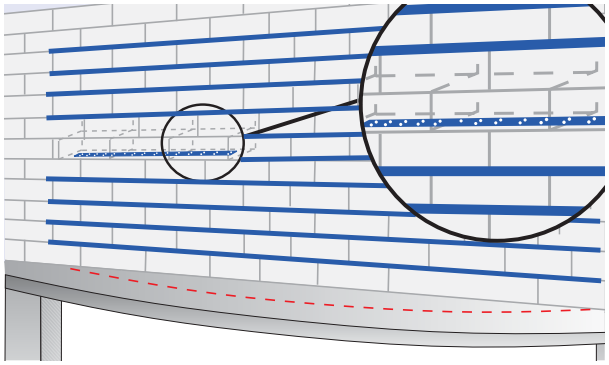
Recommended reinforcement arrangement



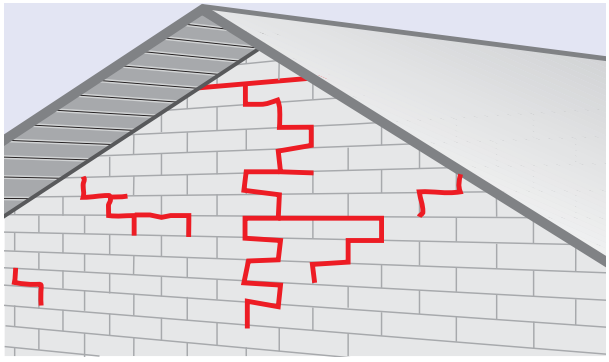
▲ MOSO® perforated strip minimises line tension cracks



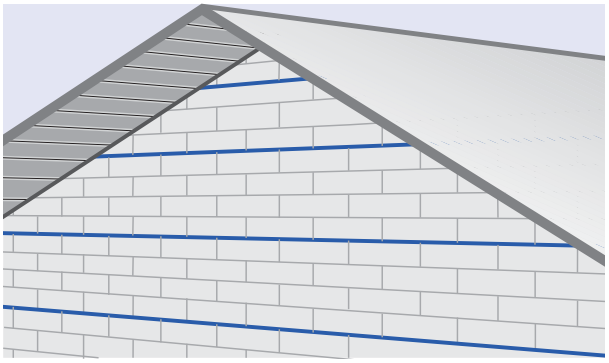
▲ Partitions deflect ceilings



▲ Tensile stress due to a sagging ceiling is minimised by the MOSO® perforated strip



▲ Temperature differences in gable walls, infills and veneers create different tensions



▲ Tensile stress due to temperature differences is minimised by the MOSO® perforated strip

EK-D

ecoINOX

EK-U

EK-W

EK-L

EK-M

EK-G

EK-S

MOSO® single-bracket anchors

Adjustable pressing screw

EK-D

The MOSO® single-bracket anchor EK-D with adjustable pressing screw for easy installation. The slim construction facilitates reduced heat transition. Imperfections in the concrete surface can easily be offset with the pressing screw.

With General Type Approval Z-21.8-1892

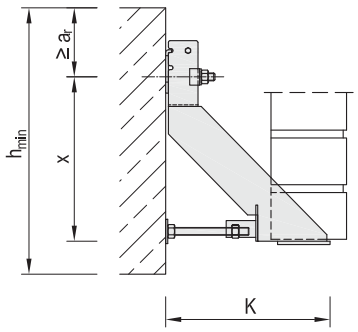
CE DIN EN 845-1

See page 82

▲ Wall support with MOSO® single-bracket anchor EK-D

Product info

- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation

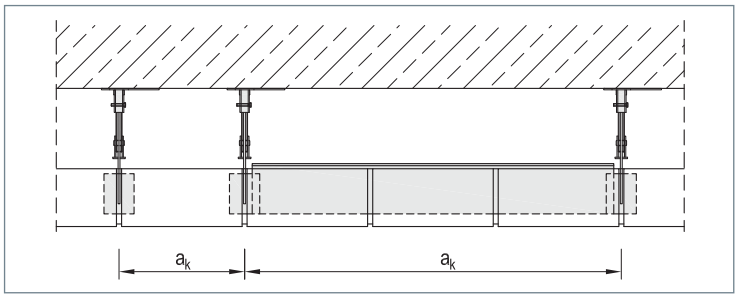


$h_{min} \geq a_r + x + 30$ mm

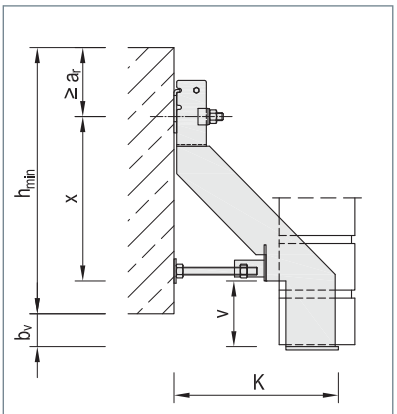
▲ MOSO® single-bracket anchors EK-D

Use and application

- Particularly suited for invisible support of large wall surfaces
- Variable anchor spacing acc. to load and stone format (a_k)
- Install support brackets at intervals of a_k and loosely fit intermediate angle type WA-Z if required
- Support the entire surface of the angle until the mortar is set

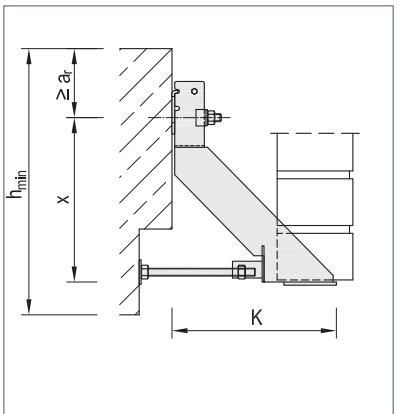


▲ Various anchor spacings can be configured with the intermediate angle type WA-Z



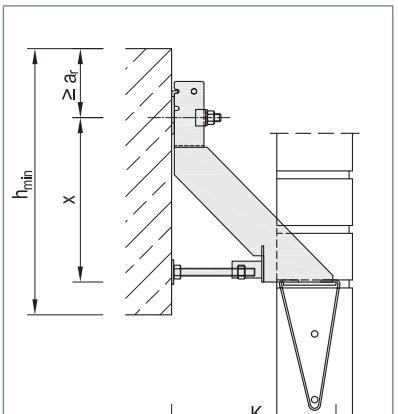
$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ EK-DV



$h_{min} \geq a_r + x + 30$ mm

▲ EK-DS for concrete offsets



$h_{min} \geq a_r + x + 30$ mm

▲ EK-D with wire binder type 2

MOSO® HOUSE 2 see page 4/5
MOSO® HOUSE 5 see page 4/5

Technical data / measurement chart

EK-D / EK-DV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK- D / DV	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
	Larger wall clearances on request						
Support plate [mm]	W / L / T	80 / 60 / 3		80 / 60 / 4		80 / 60 / 5	
Mounting size		M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **EK - D - 190 - 7.0**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]	Intermediate angle
1.5	3.11	100.0	3.5	WA-Z-95/50/3-980
2.0	4.14	75.0	3.5	WA-Z-95/30/3-730
3.0	6.21	50.0	3.5	WA-Z-95/20/1.5-480
4.5	9.32	75.0	7.0	WA-Z-95/30/3-730
6.0	12.42	50.0	7.0	WA-Z-95/20/1.5-480
9.0	18.63	50.0	10.5	WA-Z-95/20/1.5-480
12.0	24.84	37.5	10.5	WA-Z-95/20/1.5-355

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
18 - 19	Edge formation with MOSO® single-bracket anchor EK-W
42 - 43	Intermediate angles with MOSO® angle bearing WA-Z
70 - 71	Lintel formation with MOSO® accessories DB
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-D-210[1]-7.0[2] with type approved support anchor head for cracked concrete[3], incl. dowels.

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® single-bracket anchor type EK-D with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3].

[1] Cantilever length acc. to table
[2] Load stage acc. to table
[3] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

Universal anchor

EK-U

The MOSO® single-bracket anchor EK-U is the universal anchor for the support of masonry facings.

Various variants facilitate the use for virtually any building application.

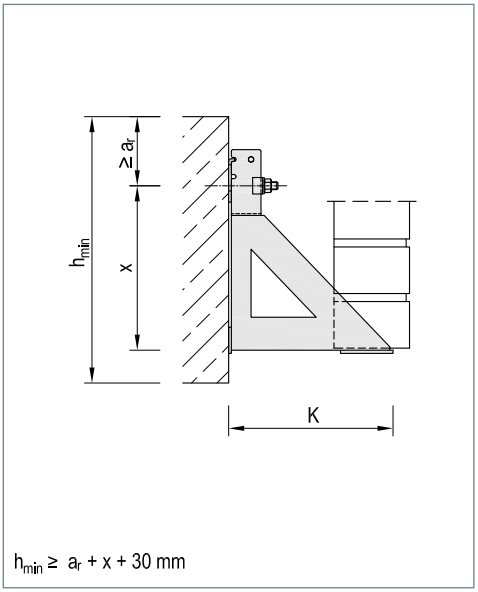
With General Type Approval Z-21.8-1892

CE DIN EN 845-1

▲ Wall support with MOSO® single-bracket anchor EK-U

Product info

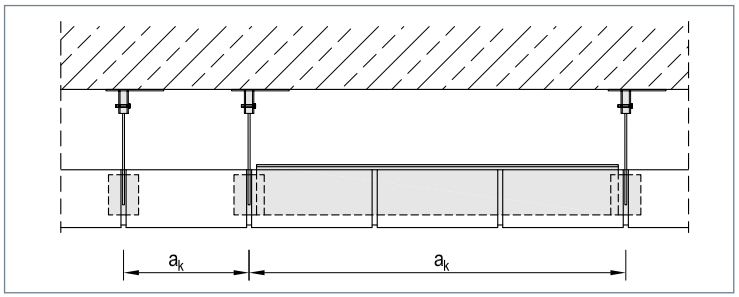
- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation



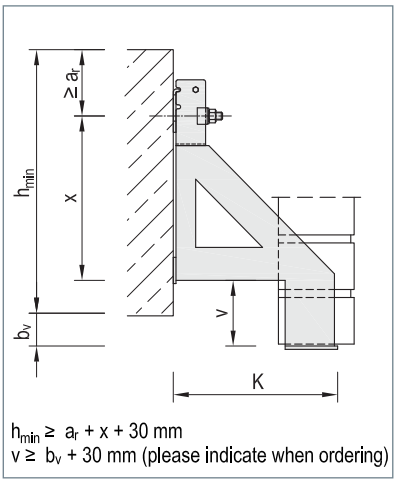
▲ MOSO® single-bracket anchor EK-U

Use and application

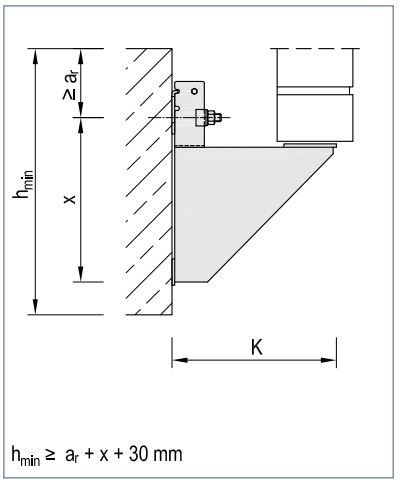
- Particularly suited for invisible support of large wall surfaces
- Variable anchor spacing acc. to load and stone format (a_k)
- Install support brackets at intervals of a_k and loosely fit intermediate angle type WA-Z if required
- Support the entire surface of the angle until the mortar is set



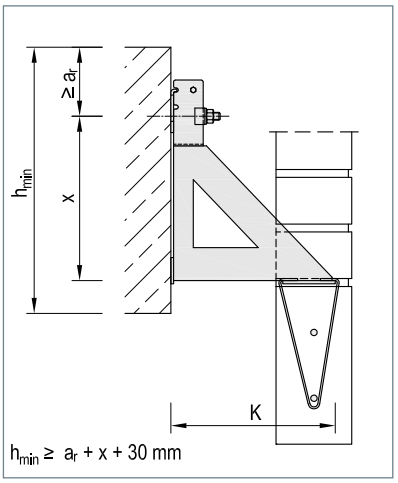
▲ Various anchor spacings can be configured with the intermediate angle type WA-Z



▲ EK-UV with offset



▲ EK-UH



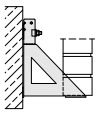
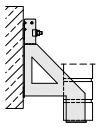
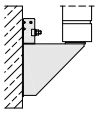
▲ EK-U with wire binder type 2

MOSO® HOUSE 2 see page 4/5

MOSO® HOUSE 5 see page 4/5

Technical data / measurement chart

EK-U / EK-UV / EK-UH

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK-  U	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
 UV	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
 UH	200 - 230	310	175	310	300	310	350
	220 - 250	330	175	330	300	330	350
	240 - 270	350	200	350	300	350	400
	Larger wall clearances on request						
Support plate [mm]	W / L / T	80 / 60 / 3		80 / 60 / 4		80 / 60 / 5	
Mounting size		M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **EK - U - 190 - 7.0**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]	Intermediate angle
1.5	3.11	100.0	3.5	WA-Z-95/50/3-980
2.0	4.14	75.0	3.5	WA-Z-95/30/3-730
3.0	6.21	50.0	3.5	WA-Z-95/20/1.5-480
4.5	9.32	75.0	7.0	WA-Z-95/30/3-730
6.0	12.42	50.0	7.0	WA-Z-95/20/1.5-480
9.0	18.63	50.0	10.5	WA-Z-95/20/1.5-480
12.0	24.84	37.5	10.5	WA-Z-95/20/1.5-355

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
18 - 19	Edge formation with MOSO® single-bracket anchor EK-W
42 - 43	Intermediate angles with MOSO® angle bearing WA-Z
70 - 71	Lintel formation with MOSO® accessories DB
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-U-210[1)]-7.0[2)] with type approved support anchor head for cracked concrete[3)], incl. dowels.

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® single-bracket anchor type EK-U with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3)].

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

The flexible solution for small loads

EK-W

The MOSO® single-bracket anchor EK-W with angle bearing is the ideal addition to the MOSO® single-bracket anchor EK-U for expansion joints and edge areas.

The free support allows secure placement of a full brick.

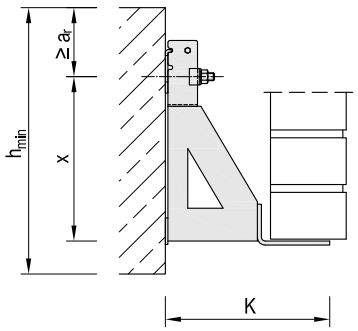
With General Type Approval Z-21.8-1892

CE DIN EN 845-1

▲ MOSO® single-bracket anchor EK-W as an initial anchor after an expansion joint

Product info

- Load stages: 1.8 kN - 3.5 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation

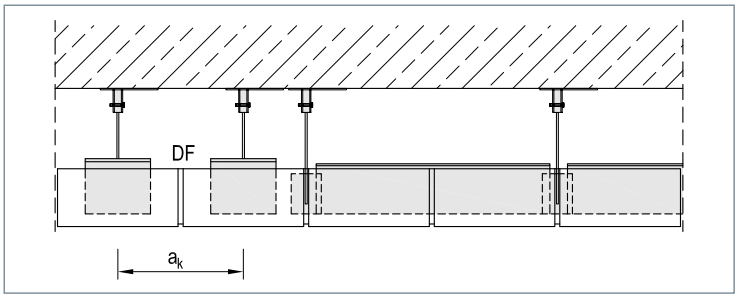


$h_{min} \geq a_r + x + 30$ mm

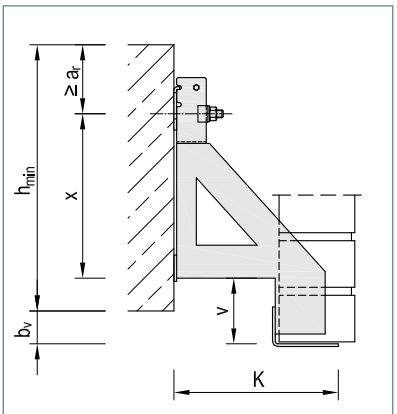
▲ MOSO® single-bracket anchor EK-W

Use and application

- With single-bracket anchor EK-U as initial/end anchor in expansion joint/edge areas
- As a support bracket for lintel reinforcement with MOSO® perforated tape at openings > 2.51 m
- With welded mandrel for bedding precast concrete parts
- Masonry support in pillar areas and for smaller wall surfaces
- Support the entire surface of the angle until the mortar is set

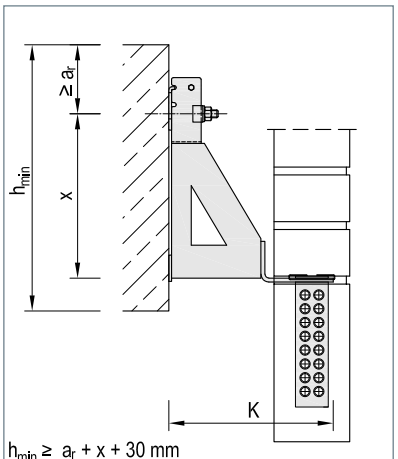


▲ Variant EK-W in combination with EK-U



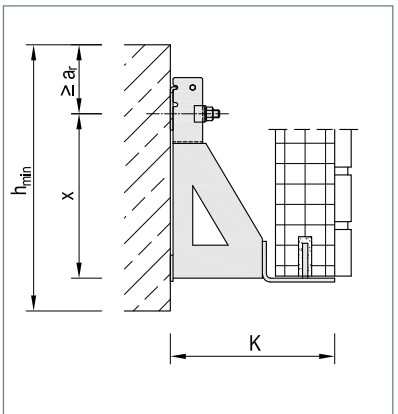
$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ EK-WV with offset



$h_{min} \geq a_r + x + 30$ mm

▲ EK-W with perforated strip



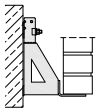
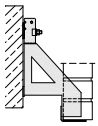
$h_{min} \geq a_r + x + 30$ mm

▲ EK-WS with mandrel

MOSO® HOUSE 2 see page 4/5

Technical data / measurement chart

EK-W / EK-WV

Type / Design	Load stage	1.8 kN		3.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK-  W	20 - 50	130	150	130	150
	40 - 70	150	150	150	150
	60 - 90	170	150	170	150
	80 - 110	190	150	190	150
	100 - 130	210	150	210	150
 WV	120 - 150	230	175	230	175
	140 - 170	250	175	250	175
	160 - 190	270	175	270	175
	180 - 210	290	175	290	175
	200 - 230	310	175	310	175
	220 - 250	330	175	330	175
	240 - 270	350	200	350	200
	Larger wall clearances on request				
Support angle [mm]	W / H / T...L	100 / 80 / 4...150		100 / 80 / 5...180	
Mounting size		M10 / M12		M10 / M12	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **EK - W - 210 - 1.8**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]
1.50	3.11	25.0	1.8
2.00	4.14	25.0	1.8
3.00	6.21	25.0	1.8
4.50	9.32	25.0	3.5
6.00	12.42	25.0	3.5

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
10	Lintel support with MOSO® perforated strip
14 - 17	Wall support with MOSO® single-bracket anchor EK-U / EK-D
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-W-210[1)]-1.8[2)] with type approved support anchor head for cracked concrete[3)], incl. dowels.

Alternatively:
Delivery and professional installation of ... pieces of wall bracing with MOSO® single-bracket anchor type EK-Wall support with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3)].

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

With longer support

EK-L

The MOSO® single-bracket anchor EK-L with its longer support is an interesting alternative to the standard solution, as the flat supporting bracket simplifies installation.

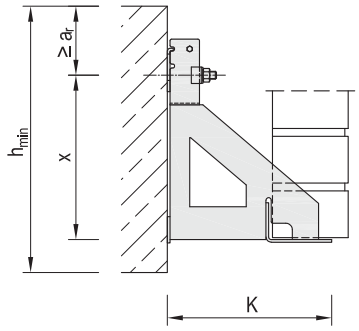
With General Type Approval Z-21.8-1892

CE DIN EN 845-1

▲ Wall support with MOSO® single-bracket anchor EK-L

Product info

- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation

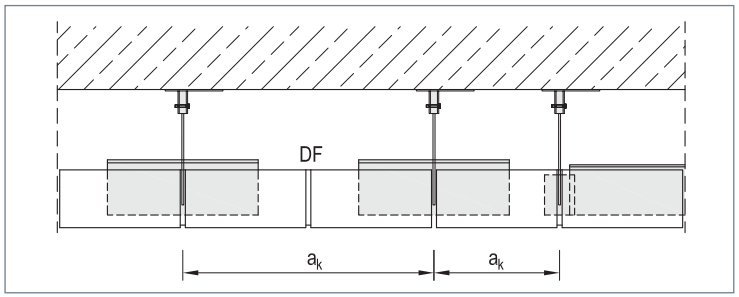


$h_{min} \geq a_r + x + 30$ mm

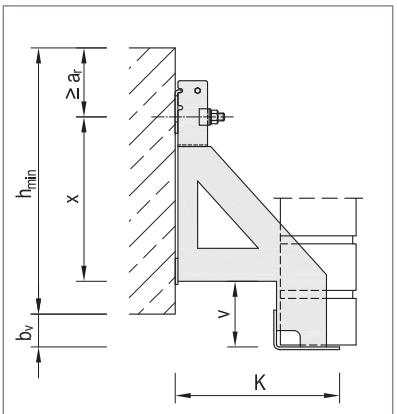
▲ MOSO® single-bracket anchor EK-L

Use and application

- Particularly suited for invisible support of wall surfaces
- Can also be used near corners and edges if the gap between walls is small
- Fixed anchor spacing a_k of 2 bricks (≤ 50 cm)
- The entire surface of the angle should be supported until the mortar is set

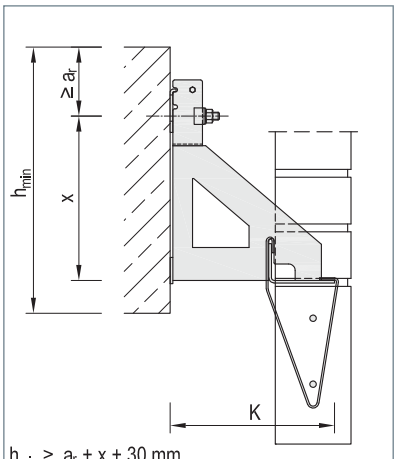


▲ Each support bracket supports 2 bricks



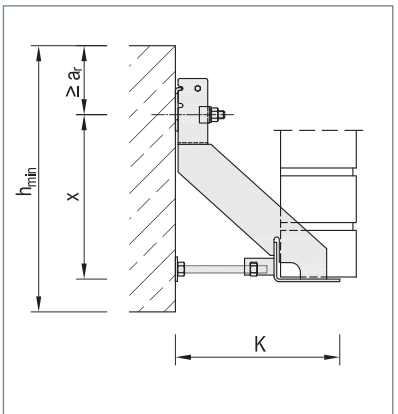
$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ EK-LV with offset



$h_{min} \geq a_r + x + 30$ mm

▲ EK-L with wire binder type 1



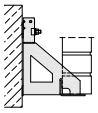
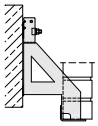
$h_{min} \geq a_r + x + 30$ mm

▲ EK-LD

MOSO® HOUSE 5 see page 4/5

Technical data / measurement chart

EK-L / EK-LV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK- L 	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
LV 	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
	Larger wall clearances on request						
Support angle [mm]	W / H / T...L	100 / 40 / 3...300		100 / 60 / 3...300		100 / 60 / 4...300	
Mounting size		M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **EK - L - 170 - 3.5**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]
1.50	3.11	50.0	3.5
2.00	4.14	50.0	3.5
3.00	6.21	50.0	3.5
4.50	9.32	50.0	7.0
6.00	12.42	50.0	7.0
9.00	18.63	50.0	10.5

③ Assumption: Facing brick 115 mm thickness with $\gamma = 18$ kN/m³

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-L-210[1]-3.5[2] with type approved support anchor head for cracked concrete[3], incl. dowels.

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® single-bracket anchor type EK-L with type approved support anchor head for a brickwork height of (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3].

[1] Cantilever length acc. to table
[2] Load stage acc. to table
[3] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

Cross-reference for additional information

Pages	Topic
70 - 71	Lintel formation with MOSO® accessories DB
81 - 94	Technical details

For subsequent anchoring in masonry

EK-M

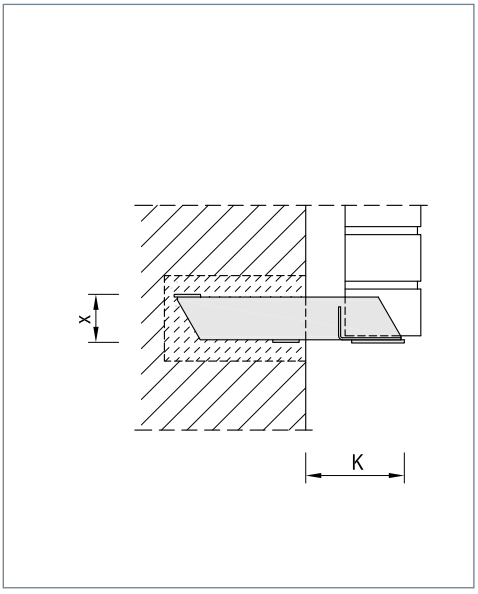
The MOSO® single bracket anchor EK-M is a masonry bracket that provides secure support for existing buildings.

Customised dimensioning provides solutions for challenging situations.

Product info

- Load stages: 3.5 kN - 7.0 kN
- Wall clearances: 20 mm - 200 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation

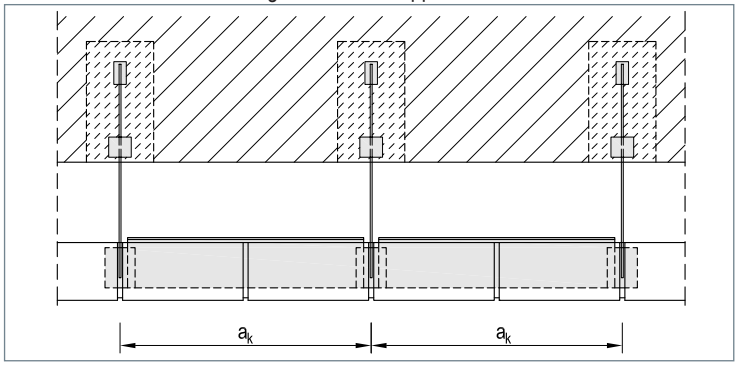
▲ Wall support with MOSO® single-bracket anchor EK-M



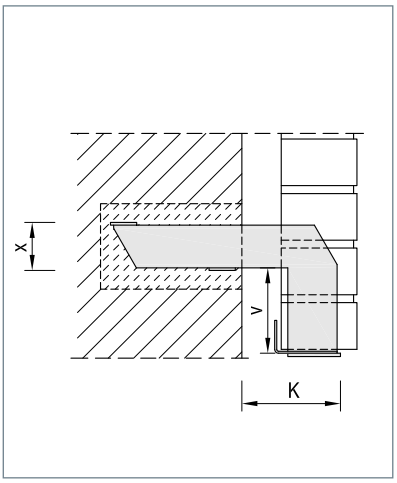
▲ MOSO® single-bracket anchor EK-M

Use and application

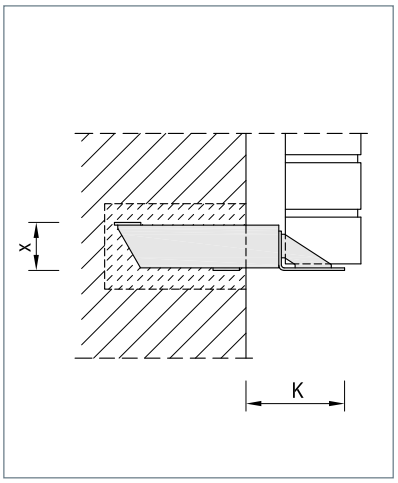
- For subsequent invisible support of wall surfaces
- Variable anchor spacing acc. to load (a_k)
- Cannot be used near corners or edges
- Install support brackets at intervals of a_k and loosely fit intermediate angle type WA-Z if required
- The entire surface of the angle should be supported until the mortar is set



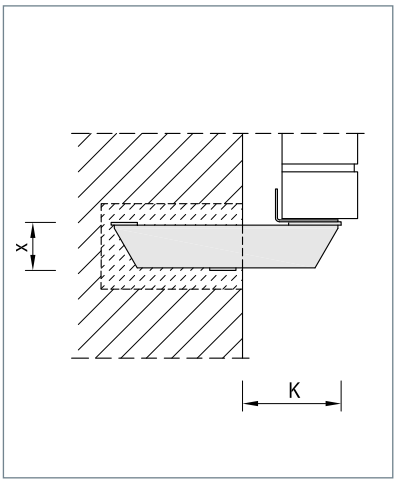
▲ EK-M with intermediate angle type WA-Z



▲ EK-MV with offset



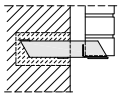
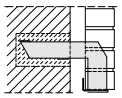
▲ EK-M with welded bracket



▲ EK-MH with raised supporting plate

Technical data / measurement chart

EK-M / EK-MV

Type / Design	Load stage	3.5 kN		7.0 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK-  M	20 - 50	130	72	130	91
	40 - 70	150	72	150	91
	60 - 90	170	72	170	91
	80 - 110	190	80	190	101
 MV	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
	Larger wall clearances on request				
Support plate [mm]	W / L / T	80 / 60 / 3		80 / 60 / 4	
Core hole or recess [mm] ②		≥ Ø 140 x 200		≥ Ø 250 x 220	
Fixing in mortar		Expanding mortar MG III		Expanding mortar MG III	
Fixing in concrete		≥ C12/15		≥ C12/15	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.

② The allowable compressive stress for the backing wall must be at least 0.12 kN/cm² The stated values are benchmarks. The backing wall must withstand the applied loads.

Example order: **EK - M - 230 - 3.5**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]	Intermediate angle
1.50	3.11	100.0	3.5	WA-Z-95/50/3-980
2.00	4.14	75.0	3.5	WA-Z-95/30/3-730
3.00	6.21	100.0	7.0	WA-Z-95/50/3-980
4.50	9.32	75.0	7.0	WA-Z-95/30/3-730
6.00	12.42	50.0	7.0	WA-Z-95/20/1.5-480

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-M-210[1)]-3.5[2)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® single-bracket anchor type EK-M for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm.

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table

Cross-reference for additional information

Pages	Topic
36 - 37	Wall support with MOSO® angle-bracket anchor WK-M
42 - 43	Intermediate angles with MOSO® angle bearing WA-Z
81 - 94	Technical details

For soldier lintels with low brickwork heights

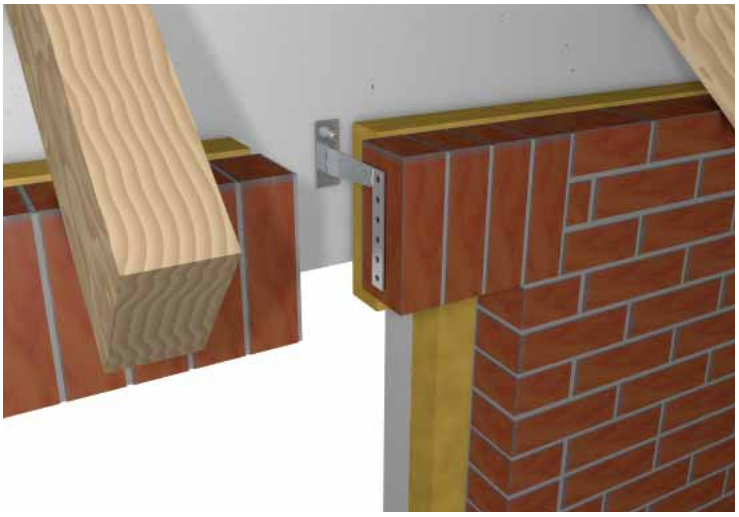
EK-G

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

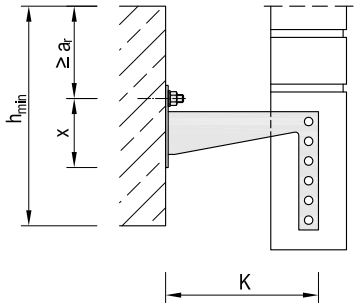
Variant EK-GE also allows for the production of corner lintels.

Product info

- Load stages: 0.8 kN
- Wall clearances: 20 mm - 200 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



▲ Lintel support with MOSO® single-bracket anchor EK-G

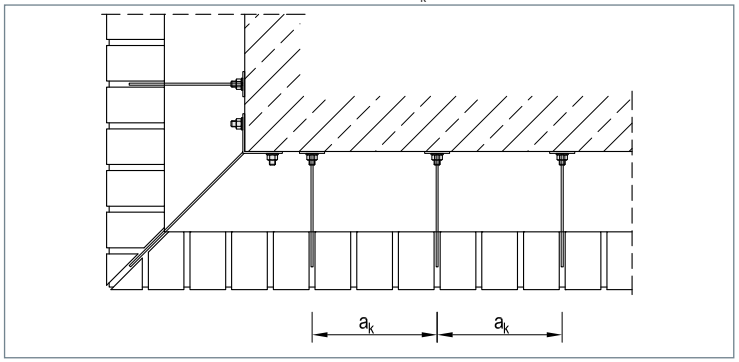


$h_{min} \geq a_r + x + 15$ mm

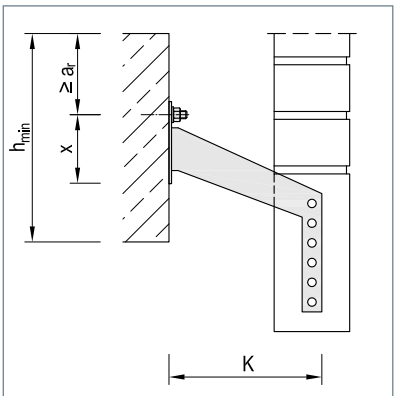
▲ MOSO® single-bracket anchor EK-G

Use and application

- For invisible lintel support with a low brickwork height
- Can also be used near corners and edges
- When using facing bricks with poor mortar bonding, additional pinning of the bricks is recommended
- Single-bracket anchor selection is not dependent on the length of the lintel
- Install single-bracket anchors at intervals of $a_k \leq 25$ cm

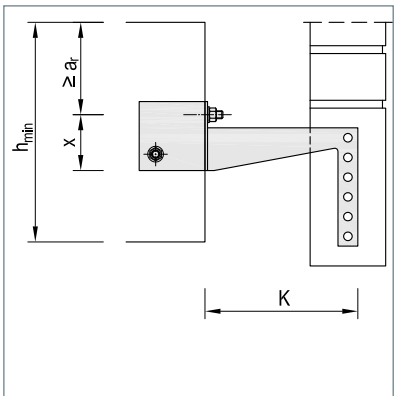


▲ Corner lintel with types EK-G and EK-GE



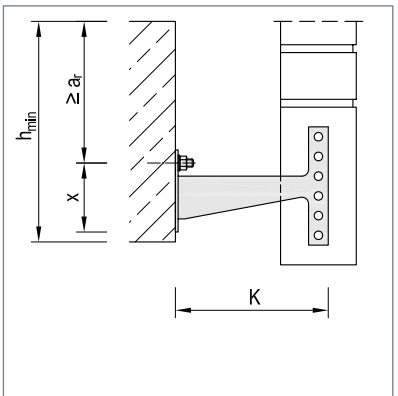
$h_{min} \geq a_r + x + 15$ mm

▲ EK-GV with offset



$h_{min} \geq a_r + x + 15$ mm

▲ EK-GE in corner areas



$h_{min} \geq a_r + x + 15$ mm

▲ Type EK-GH with raised web plate

MOSO® HOUSE 3 see page 4/5

Technical data / measurement chart

EK-G / EK-GV

Type / Design	Load stage	0.8 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]
EK- G EK- GV	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
	Larger wall clearances on request		
Bond length [mm] ③		180	
Mounting size		M10	
Recommended fixing ②	Dowels	SXS 10x60 F US A4 Edge clearance $a_r \geq 80$ mm	
	Anchor rails	MBA-CE 28/15 with MHK 28/15 M10x30 Edge clearance $a_r \geq 50$ mm	

① Specifications apply to facing bricks of 115 mm thickness
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.
③ Length of perforated strip

Example order: **EK - G - 175 - 0.8**

- Type
- Variant
- Cantilever length
- Load stage

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Anchor spacing a_k [cm]	Load stage [kN]
1.50	3.11	25.0	0.8

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Tender text

Delivery and professional installation of ... pieces of MOSO® single-bracket anchor type EK-G-155[1)]-0.8[2)], incl. fixing.

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® single-bracket anchor type EK-G for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. fixing.

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table

Cross-reference for additional information

Pages	Topic
81 - 94	Technical details

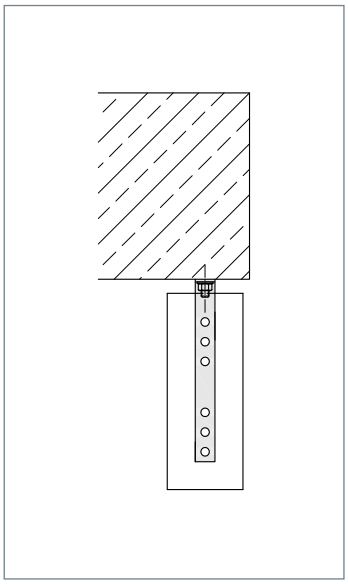
Special anchors

EK-S

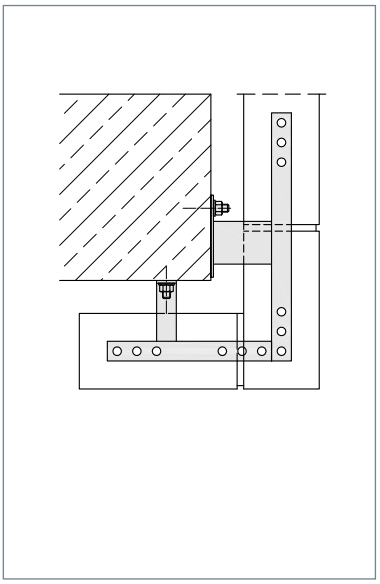
Customised MOSO® single-bracket anchors EK-S are calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.

Product info

- Load stages: as required
- Wall clearances: as required
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



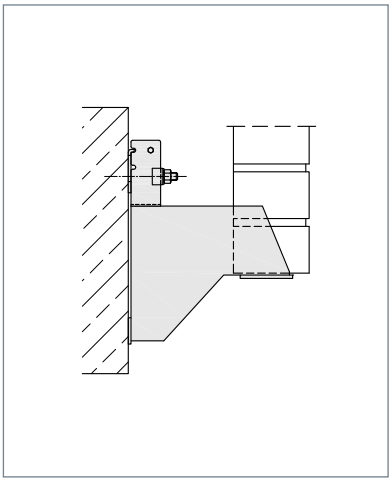
▲ For suspended brick course



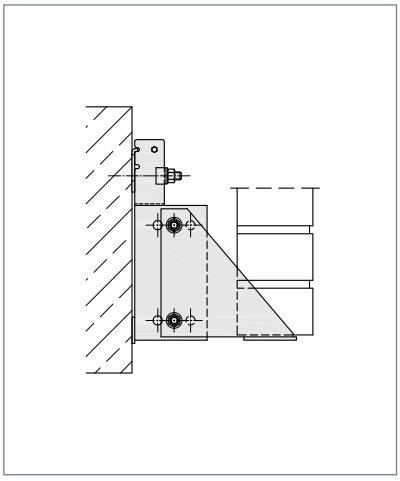
▲ For L-shaped lintel construction

Use and application

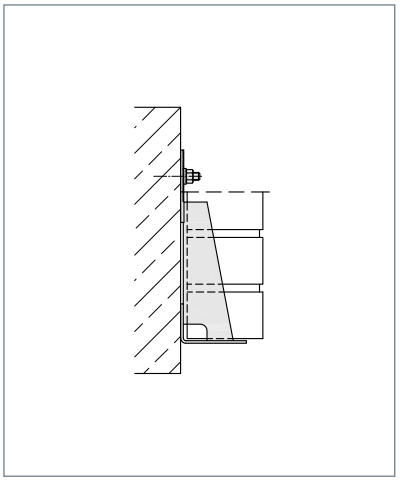
- Dimensioning of special support brackets acc. to structural and constructional requirements



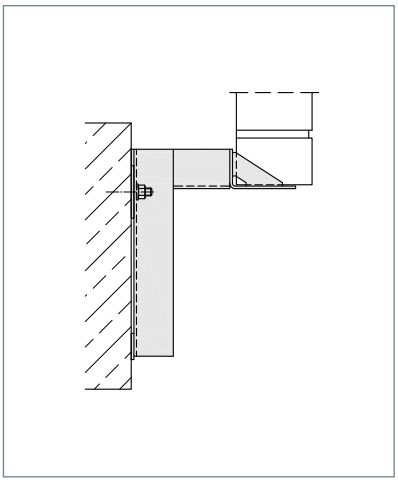
▲ With raised supporting plate



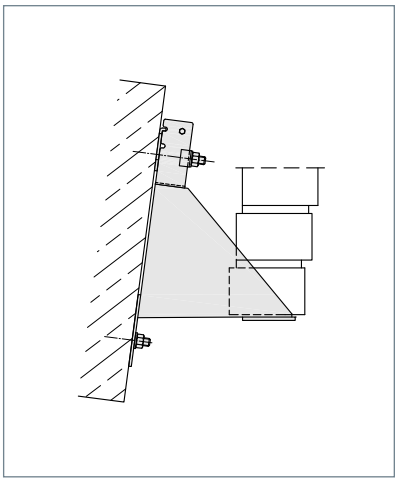
▲ With horizontal adjustment



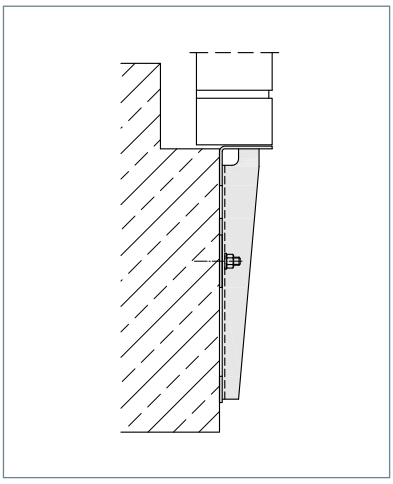
▲ For small loads



▲ With raised supporting angle



▲ Inclined version



▲ As an extension of the foundation

WK-D

WK-N

WK-K

WK-O

WK-M

WK-Z

WK-S

MOSO® angle-bracket anchor

Adjustable pressing screw

WK-D

The MOSO® angle-bracket anchor type WK-D with adjustable pressing screw is the perfect solution for supports with a continuous angle rail. Imperfections in the concrete surface can easily be offset with the pressing screw.

With General Type Approval Z-21.8-1892

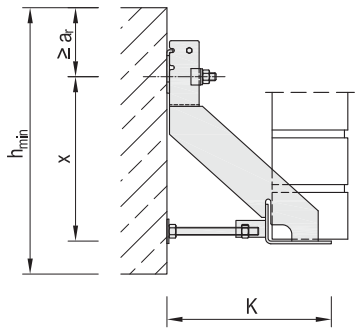
CE DIN EN 845-1

See page 82

▲ Wall support with MOSO® angle-bracket anchor WK-D

Product info

- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation

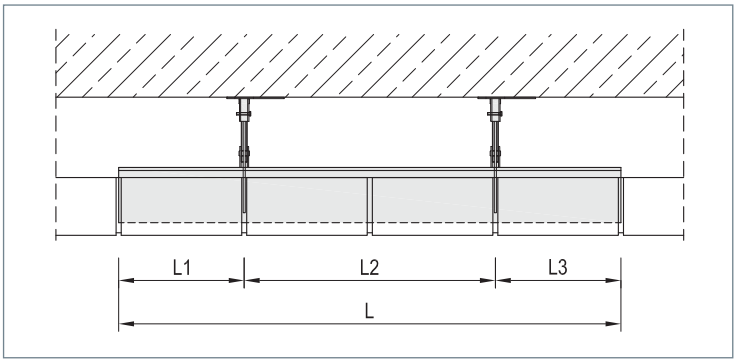


$h_{min} \geq a_r + x + 30$ mm

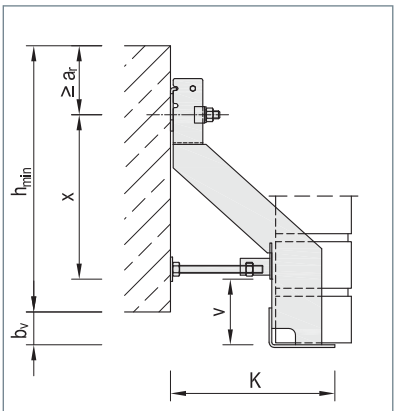
▲ MOSO® angle-bracket anchor WK-D

Use and application

- Particularly suitable for compensating concrete offsets
- Can also be used in corner and edge areas
- Support the entire surface of the angle until the mortar is set

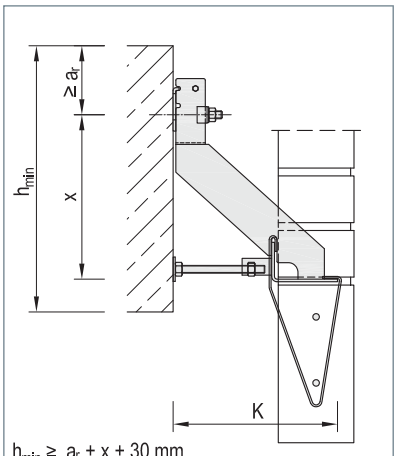


▲ Length dimensioning acc. to local conditions



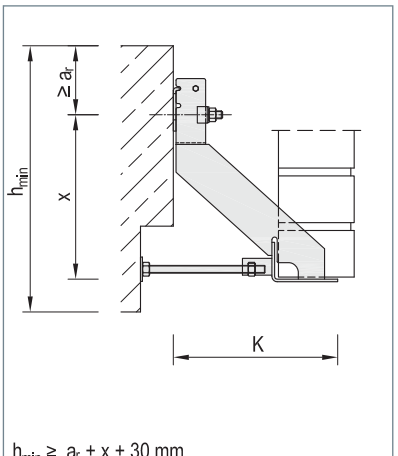
$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ WK-CV with offset



$h_{min} \geq a_r + x + 30$ mm

▲ WK-D with wire binder type 1



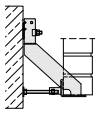
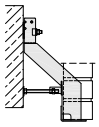
$h_{min} \geq a_r + x + 30$ mm

▲ WK-DS with long pressing screw

MOSO® HOUSE 2 4 8
see page 4/5

Technical data / measurement chart

WK-D / WK-DV

Type / Design		Load stage	3.5 kN		7.0 kN		10.5 kN	
		Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
WK-	 D	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
	 DV	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
		Larger wall clearances on request						
Angle width [mm]		B	100		100		100	
Angle length [mm]		L	up to 4000		up to 4000		up to 4000	
Mounting size			M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②		Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
		Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

Example order: **WK - D - 230 - 7.0 - 1000 - 2R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- Number of backs

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.

② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.11	2000 mm / 2R	3.5	500 / 1000 / 500
2.0	4.14	1500 mm / 2R	3.5	250 / 1000 / 250
3.0	6.21	1750 mm / 2R	7.0	375 / 1000 / 375
4.5	9.32	1500 mm / 2R	7.0	375 / 750 / 375
6.0	12.42	1000 mm / 2R	7.0	250 / 500 / 250
9.0	18.63	1000 mm / 2R	10.5	250 / 500 / 250
12.0	24.84	750 mm / 2R	10.5	125 / 500 / 125

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
38 - 39	Corner support with type WK-Z
70 - 71	Lintel construction with DB / HB
74 - 75	Corners and edging
76 - 77	Abutment for suspended facing
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-D-210[1)]-7.0[2)]-1000[3)]-2R[4)] with type approved support anchor head, incl. dowels for cracked concrete[5)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-ZD with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. anchors for cracked concrete[5)]
.

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Length of element
[4)] Number of backs
[5)] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

Standard angle-bracket anchor

WK-N

The MOSO® angle-bracket anchor type WK-N is the standard anchor for supports with a continuous angle rail. This anchor facilitates the realisation of complete supports with just one type of bracket, even in corner areas.

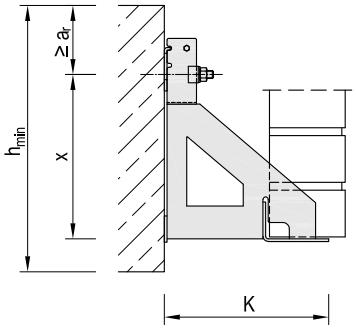
With General Type Approval Z-21.8-1892

CE DIN EN 845-1

▲ Wall support with MOSO® angle-bracket anchor WK-N

Product info

- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation

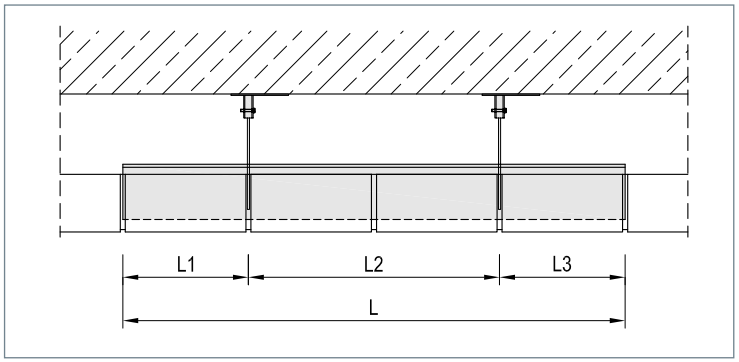


$h_{min} \geq a_r + x + 30$ mm

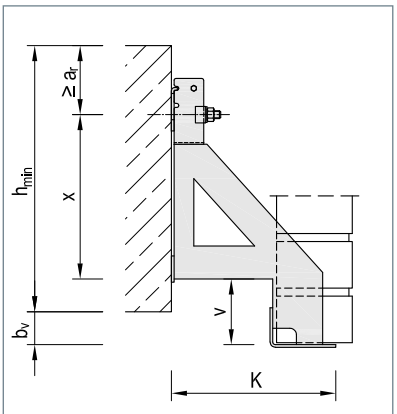
▲ MOSO® angle-bracket anchor WK-N

Use and application

- Particularly suited for invisible support
- Can also be used in corner and edge areas
- Support the entire surface of the angle until the mortar is set

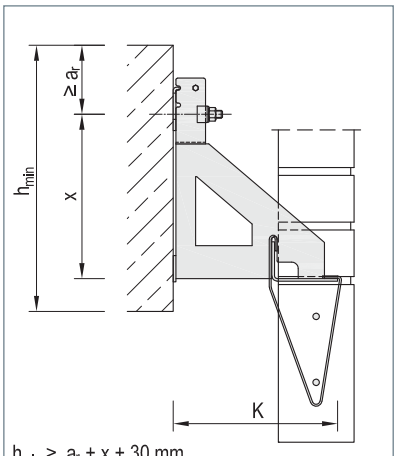


▲ Length dimensioning acc. to local conditions



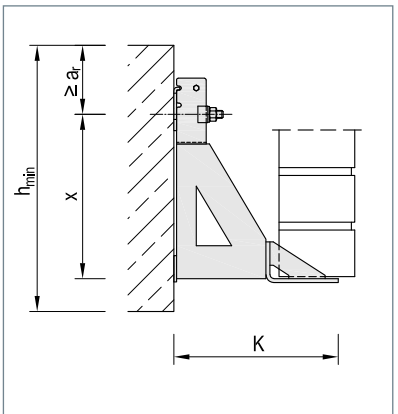
$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ WK-NV with offset



$h_{min} \geq a_r + x + 30$ mm

▲ WK-N with wire binder type 1



$h_{min} \geq a_r + x + 30$ mm

▲ Type WK-NS with welded-in gusset

MOSO® HOUSE 2 4
see page 4/5

Technical data / measurement chart

WK-N / WK-NV

Type / Design		Load stage	3.5 kN		7.0 kN		10.5 kN	
		Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
WK-	N	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
	NV	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
		Larger wall clearances on request						
Angle width [mm]		B	100		100		100	
Angle length [mm]		L	up to 4000		up to 4000		up to 4000	
Mounting size			M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②		Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
		Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

Example order: **WK - N - 170 - 3.5 - 1500 - 2R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- Number of backs

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.

② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.11	2000 mm / 2R	3.5	500 / 1000 / 500
2.0	4.14	1500 mm / 2R	3.5	250 / 1000 / 250
3.0	6.21	1750 mm / 2R	7.0	375 / 1000 / 375
4.5	9.32	1500 mm / 2R	7.0	375 / 750 / 375
6.0	12.42	1000 mm / 2R	7.0	250 / 500 / 250
9.0	18.63	1000 mm / 2R	10.5	250 / 500 / 250
12.0	24.84	750 mm / 2R	10.5	125 / 500 / 125

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
38 - 39	Corner support with type WK-Z
70 - 71	Lintel construction with DB / HB
74 - 75	Corners and edging
76 - 77	Abutment for suspended facing
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-N-210[1]-7.0[2]-1000[3]-2R[4] with type approved support anchor head, incl. dowels for cracked concrete[5].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-N with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[5].

[1] Cantilever length acc. to table
[2] Load stage acc. to table
[3] Length of element
[4] Number of backs
[5] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for tender.

For low concrete heights at the binder pit

WK-K

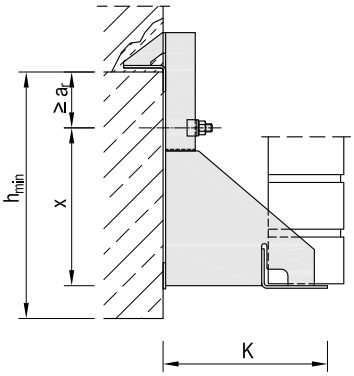
The MOSO® angle-bracket anchor type WK-K clamps onto the concrete.

This reduces the load on the fixing, facilitating secure anchoring of high loads on the face, even at low concrete heights.

Product info

- Load stages: 3.5 kN - 7.0 kN
- Wall clearances: 20 mm - 200 mm (> on request)
- Height adjustment: + 10 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation

▲ Wall support with MOSO® angle-bracket anchor WK-K

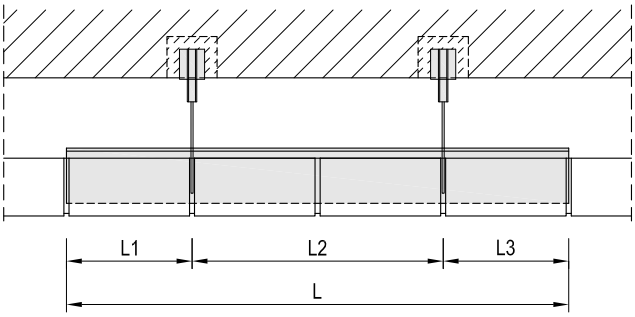


$h_{min} \geq a_r + x + 30$ mm

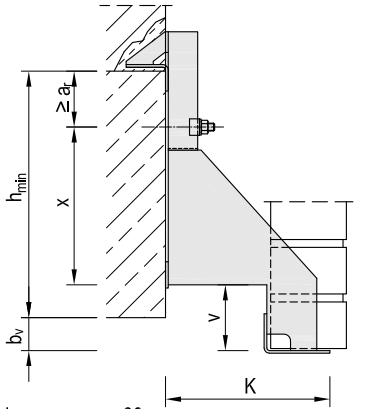
▲ MOSO® angle-bracket anchor WK-K

Use and application

- Particularly suited for supports at low concrete heights
- Can also be used in corner and edge areas
- Install support brackets and create a full mortar bed between concrete and clamp
- Support the entire surface of the angle until the mortar is set

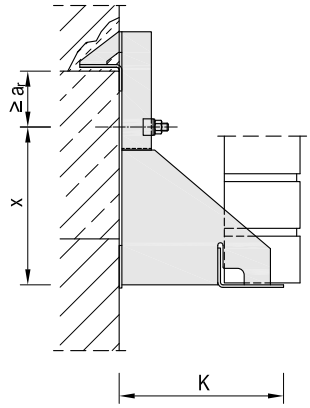


▲ Length dimensioning acc. to local conditions

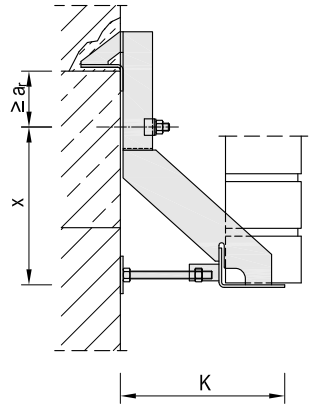


$h_{min} \geq a_r + x + 30$ mm
$v \geq b_v + 30$ mm (please indicate when ordering)

▲ WK-KV with offset



▲ WK-KS with large pressure distribution plate



▲ WK-KDS with large pressure distribution plate

MOSO® HOUSE 7
see page 4/5

Technical data / measurement chart

WK-K / WK-KV

Type / Design	Load stage	3.5 kN		5.0 kN		7.0 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
WK- K	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
KV	140 - 170	250	160	250	180	250	210
	160 - 190	270	160	270	180	270	210
	180 - 200	290	160	290	180	290	210
	Larger wall clearances on request						
Angle width [mm]	B	100		100		100	
Angle length [mm]	L	up to 4000		up to 4000		up to 4000	
Mounting size		M12		M12		M12	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 100$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 120$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 80$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 100$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 120$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.

② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **WK - K - 230 - 7.0 - 1000 - 2R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- Number of backs

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.11	2000 mm / 2R	3.5	500 / 1000 / 500
2.0	4.14	1500 mm / 2R	3.5	250 / 1000 / 250
3.0	6.21	1500 mm / 2R	5.0	250 / 1000 / 250
4.5	9.32	1500 mm / 2R	7.0	250 / 1000 / 250
6.0	12.42	1000 mm / 2R	7.0	250 / 500 / 250
9.0	18.63	750 mm / 2R	7.0	125 / 500 / 125

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
34 - 35	Wall support for very low concrete heights WK-O
70 - 71	Lintel construction with DB / HB
74 - 75	Corners and edging
76 - 77	Abutment for suspended facing
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-K-210[1]-5.0[2]-1500[3]-2R[4], incl. dowels for cracked concrete[5].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-K for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[5].

[1] Cantilever length acc. to table
[2] Load stage acc. to table
[3] Length of element
[4] Number of backs
[5] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

For fixing on concrete ceilings

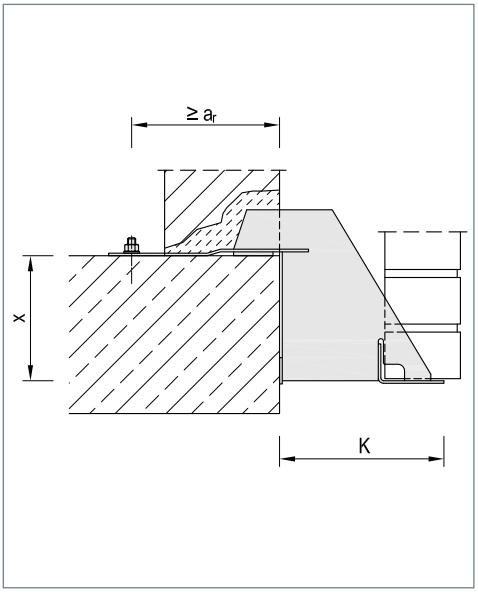
WK-O

The MOSO® ngle-bracket anchor type WK-O is fixed to the concrete ceiling from the top. This facilitates the creation of anchoring through dowel installation, even at low concrete heights.

▲ Wall support with angle-bracket anchor WK-O

Product info

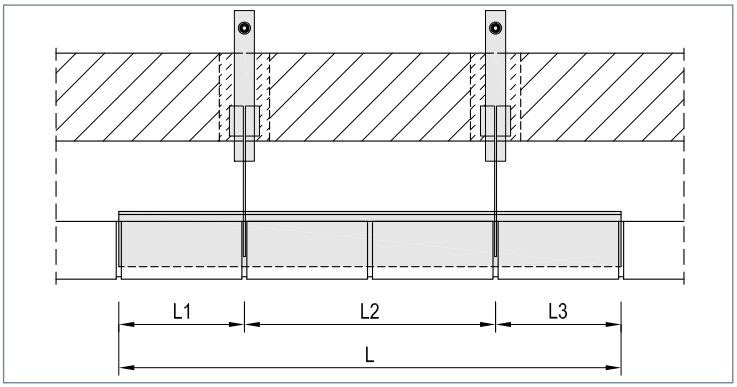
- Load stages: 3.5 kN - 10.5 kN
- Wall clearances: 20 mm - 270 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



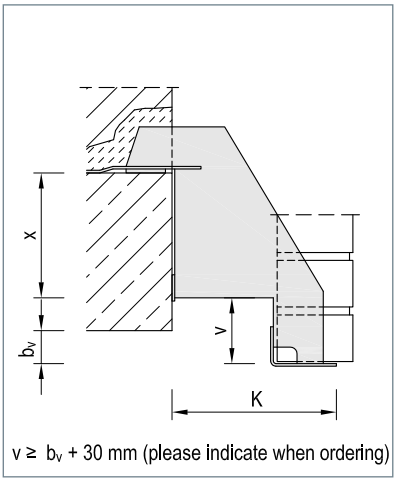
▲ MOSO® angle-bracket anchor WK-O

Use and application

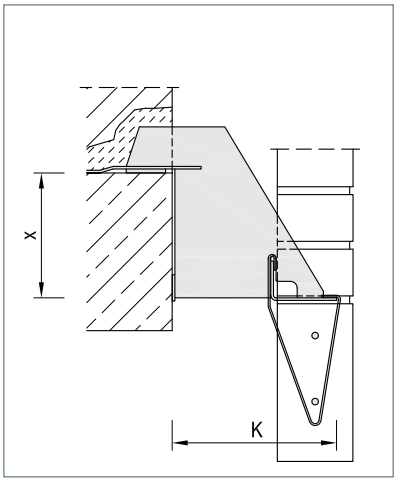
- Particularly suited for supports at low concrete ceilings
- Can also be used in corner and edge areas
- Height can be adjusted by shimming
- Support the entire surface of the angle until the mortar is set



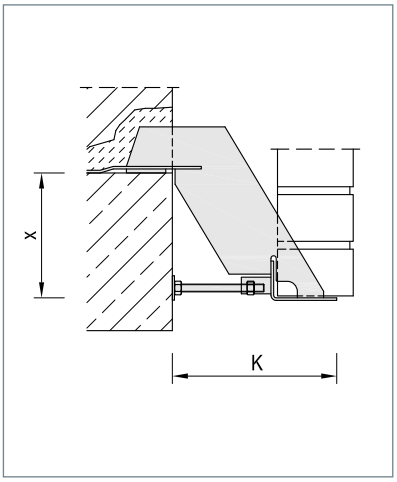
▲ Length dimensioning acc. to local conditions



▲ WK-OV with offset



▲ WK-O with wire binder type 1

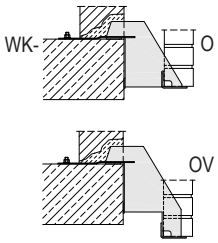


▲ WK-OD with adjustable pressing screw

MOSO® HOUSE 7
see page 4/5

Technical data / measurement chart

WK-O / WK-OV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
	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
	Larger wall clearances on request						
Angle width [mm]	B	100		100		100	
Angle length [mm]	L	up to 4000		up to 4000		up to 4000	
Mounting size		M12		M12		M16	
Recommended fixing ②	Dowels	FAZ II 12/30 A4 Edge clearance $a_r \geq 150$ mm		FAZ II 12/30 A4 Edge clearance $a_r \geq 175$ mm		FAZ II 16/25 A4 Edge clearance $a_r \geq 200$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x40 Edge clearance $a_r \geq 150$ mm		MBA-CE 50/31 with MHK 50/30 M12x40 Edge clearance $a_r \geq 175$ mm		MBA-CE 50/31 with MHK 50/30 M16x50 Edge clearance $a_r \geq 200$ mm	

Example order: **WK - O - 170 - 3.5 - 1500 - 2R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- Number of backs

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.12	2000 mm / 2R	3.5	500 / 1000 / 500
2.0	4.14	1500 mm / 2R	3.5	250 / 1000 / 250
3.0	6.21	1750 mm / 2R	7.0	375 / 1000 / 375
4.5	9.32	1500 mm / 2R	7.0	250 / 1000 / 250
6.0	12.42	1000 mm / 2R	7.0	250 / 500 / 250
9.0	18.63	1000 mm / 2R	10.5	250 / 500 / 250
12.0	24.84	750 mm / 2R	10.5	125 / 500 / 125

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
70 - 71	Lintel construction with DB / HB
74 - 75	Corners and edging
76 - 77	Abutment for suspended facing
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-O-230[1)]-7.0[2)]-1000[3)]-2R[4)], incl. dowels for cracked concrete[5)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-O for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[5)].

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Length of element
[4)] Number of backs
[5)] Fixing acc. to table

Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

For masonry as binder pit

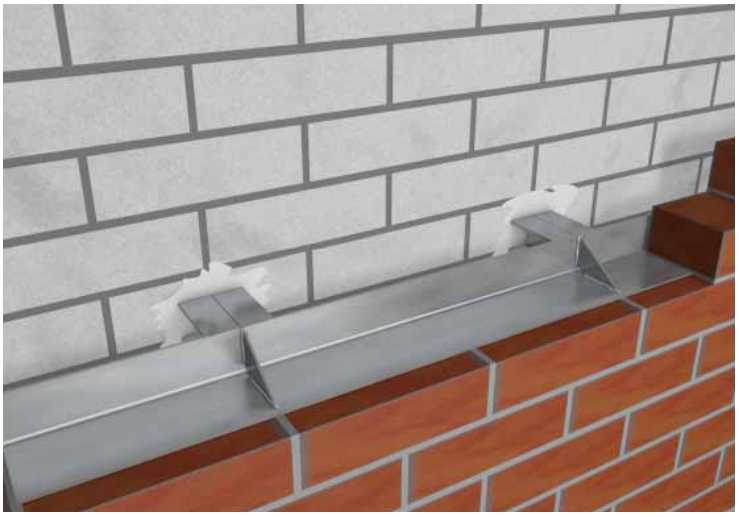
WK-M

The MOSO® angle-bracket anchor type WK-M is set into the brickwork. This anchor is preferred if the anchorage base does not allow dowel installation.

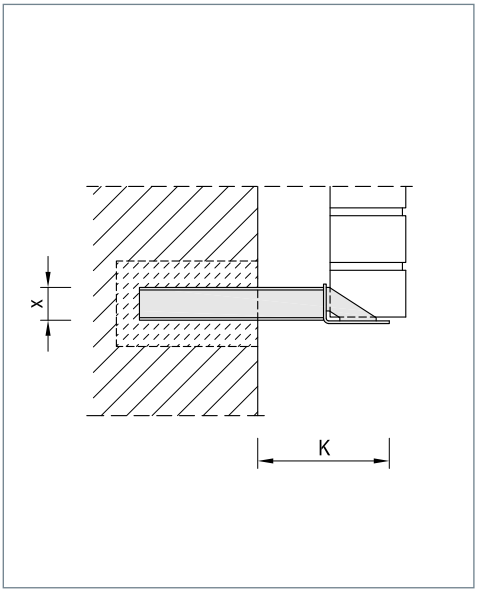
We offer customised dimensioning through our engineering office to minimise your installation effort and cost.

Product info

- Load stages: 3.5 kN - 7.0 kN
- Wall clearances: 20 mm - 200 mm (> on request)
- Height adjustment: through height of recess
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



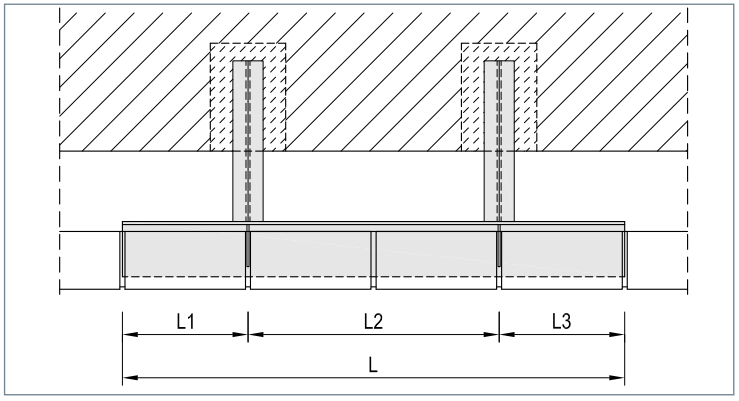
▲ Wall support with MOSO® angle-bracket anchor WK-M



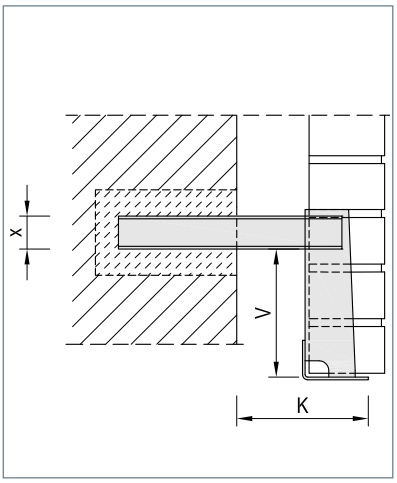
▲ MOSO® angle-bracket anchor WK-M

Use and application

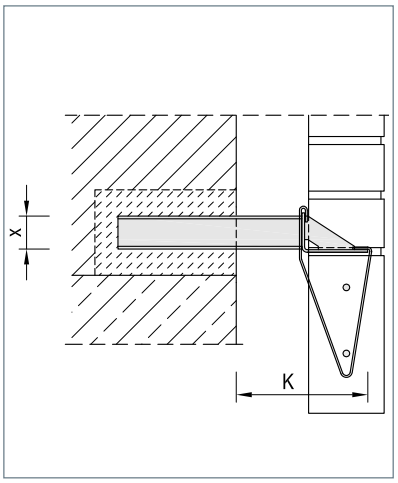
- Particularly suited for subsequent supports
- Can also be used in corner and edge areas
- Height adjustment possible through larger recesses
- Support the entire surface of the angle until the mortar is set



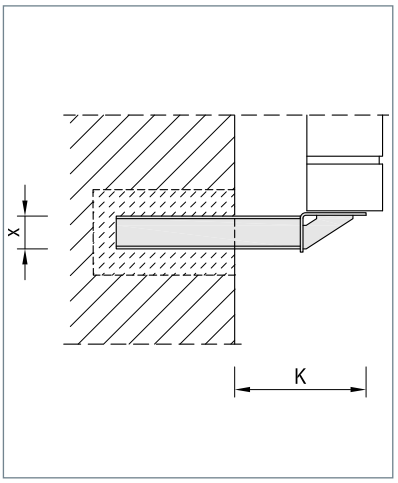
▲ Length dimensioning acc. to local conditions



▲ WK-MV with offset



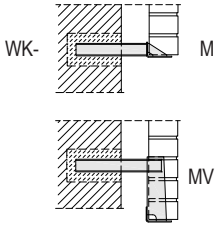
▲ WK-M with wire binder type 1



▲ WK-MS in the plinth area

Technical data / measurement chart

WK-M / WK-MV

Type / Design	Load stage	3.5 kN			7.0 kN		
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	min. core hole ② [mm]	Cantilever length K [mm]	Bracket height x [mm]	min. core hole ② [mm]
	20 - 50	130	50	Ø80 x 200	130	50	Ø160 x 200
	40 - 70	150	50	Ø90 x 200	150	50	Ø170 x 200
	60 - 90	170	50	Ø100 x 200	170	50	Ø190 x 200
	80 - 110	190	50	Ø120 x 200	190	50	Ø200 x 200
	100 - 130	210	50	Ø120 x 200	210	50	Ø210 x 200
	120 - 150	230	50	Ø120 x 200	230	50	Ø230 x 200
	140 - 170	250	50	Ø120 x 200	250	50	Ø250 x 200
	160 - 190	270	50	Ø140 x 200	270	60	Ø270 x 200
	180 - 200	290	50	Ø140 x 200	290	60	Ø300 x 200
	Larger wall clearances on request						
Angle width [mm]	B	100			100		
Angle length [mm]	L	up to 4000			up to 4000		
Fixing in mortar		Expanding mortar MG III			Expanding mortar MG III		
Fixing in concrete		≥ C12/15			≥ C12/15		

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.

② The allowable compressive stress for the backing wall must be at least 0.12 kN/cm² The stated values are benchmarks. The backing wall must withstand the applied loads.

Example order: **WK - M - 170 - 3.5 - 1500 - 2R**

Type
Variant
Cantilever length
Load stage
Angle length
Number of backs

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.11	2000 mm / 2R	3.5	500 / 1000 / 500
2.0	4.14	1500 mm / 2R	3.5	250 / 1000 / 250
3.0	6.21	1750 mm / 2R	7.0	375 / 1000 / 375
4.5	9.32	1500 mm / 2R	7.0	250 / 1000 / 250
6.0	12.42	1000 mm / 2R	7.0	250 / 500 / 250

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-M-230[1)]-7.0[2)]-1000[3)]-2R[4)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-M for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm.

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Length of element
[4)] Number of backs

Cross-reference for additional information

Pages	Topic
74 - 75	Corners and edging
81 - 94	Technical details

For wall bracing at corners and pillars

WK-Z

The MOSO® angle-bracket anchor type WK-Z with tie strap in combination with types WK-D and WK-N is an interesting alternative for corner formation.

This anchor is also a great choice for abutment supports.

Product info

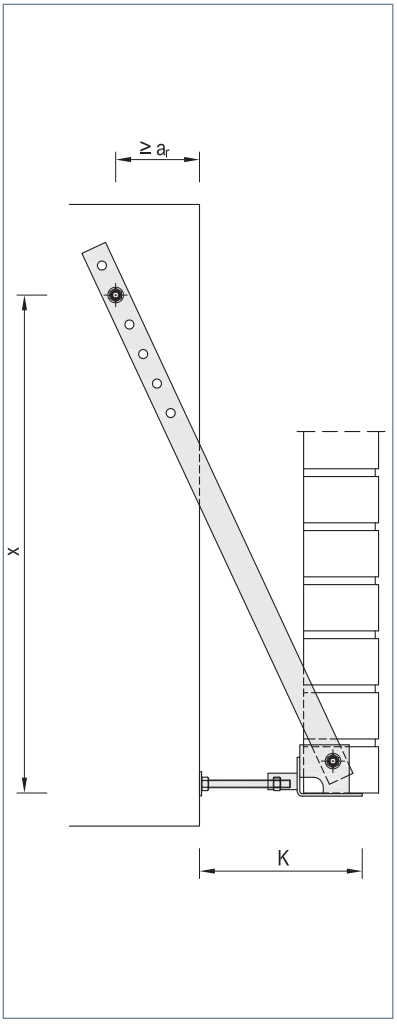
- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation

See page 82

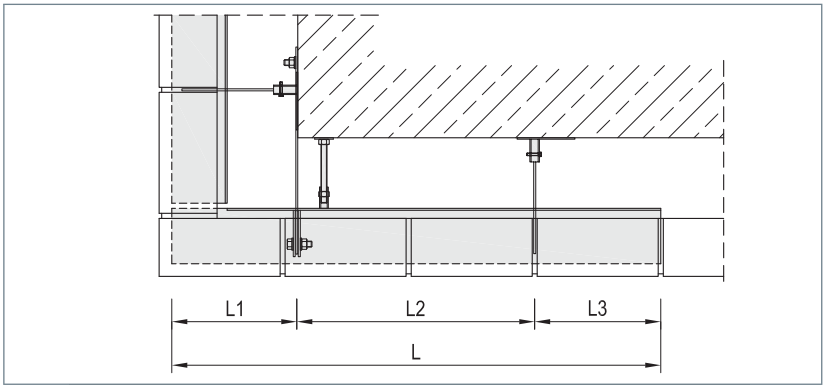
▲ Corner support with MOSO® angle-bracket anchor WK-ZD

Use and application

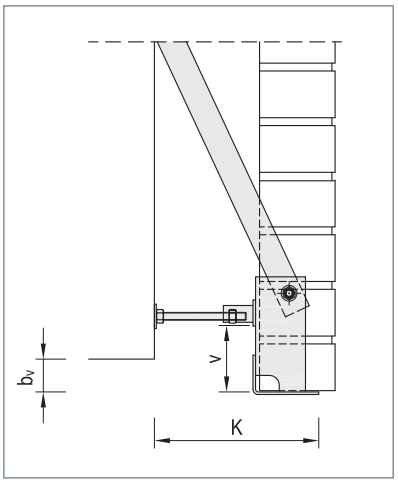
- Type WK-ZD especially for corner supports
- Strong suitability for abutment supports
- Type WK-ZG for very uneven concrete surfaces
- Support the entire surface of the angle until the mortar is set



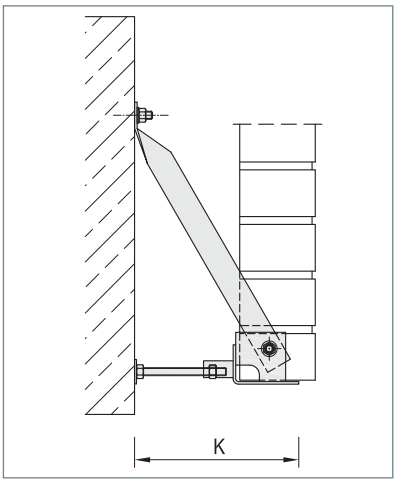
▲ MOSO® angle-bracket anchor WK-Z



▲ Length dimensioning acc. to local conditions



▲ WK-ZV with offset

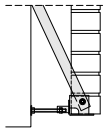
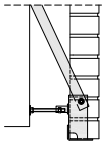


▲ Type WK-ZG turned

MOSO® HOUSE 6 8
see page 4/5

Technical data / measurement chart

WK-Z / WK-ZV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	min. bracket height x ③ [mm]	Cantilever length K [mm]	min. bracket height x ③ [mm]	Cantilever length K [mm]	min. bracket height x ③ [mm]
WK-  Z	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
 ZV	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
	Larger wall clearances on request						
Angle width [mm]	B	100		100		100	
Angle length [mm]	L	up to 4000		up to 4000		up to 4000	
Mounting size		M10 / M12		M12		M16	
Recommended fixing ②	Dowels	FAZ II 12/10 A4 Edge clearance $a_r \geq 100$ mm		FAZ II 12/10 A4 Edge clearance $a_r \geq 125$ mm		FAZ II 16/25 A4 Edge clearance $a_r \geq 150$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.
③ Bracket height x is dependent upon the tie strap incline.

Example order: **WK - ZDAL - 210 - 7.0 - 1210 - 2R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- Number of backs

Recommended anchor selection

Superimposed load [m]	Load ③ [kN/m]	Angle length / No. Bracket backs	Load stage [kN]	Distribution L1 / L2 / L3
1.5	3.12	1500 mm / 2R	3.5	L1 = L3 = Cantilever length K L2 = L - L1 - L3
2.0	4.14	1500 mm / 2R	3.5	
3.0	6.21	1500 mm / 2R	7.0	
4.5	9.32	1250 mm / 2R	7.0	
6.0	12.42	1000 mm / 2R	7.0	
9.0	18.63	1000 mm / 2R	10.5	
12.0	24.84	750 mm / 2R	10.5	

③ Assumption: Facing brick 115 mm thickness with γ = 18 kN/m³

Cross-reference for additional information

Pages	Topic
28 - 31	Wall support with WK-D / WK-N
70 - 71	Lintel construction with DB / HB
74 - 75	Corners and edging
76 - 77	Abutment for suspended facing
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® angle-bracket anchor type WK-ZD-210[1)]-7.0[2)]-1000[3)]-2R[4)] with type approved support anchor head, incl. dowels for cracked concrete[5)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle-bracket anchor type WK-ZD with type approved support anchor head for a brickwork height (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[5)].

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Length of element
[4)] Number of backs
[5)] Fixing acc. to table

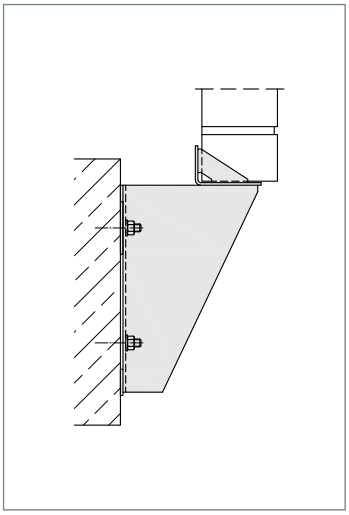
Special anchors

WK-S

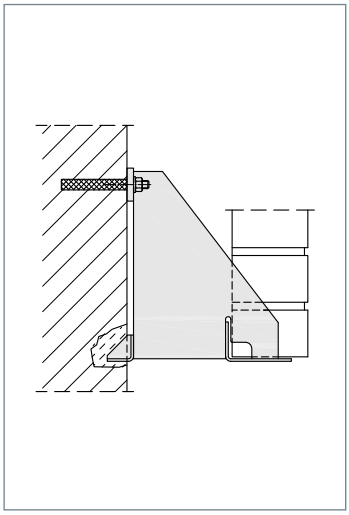
Customised MOSO® angle-bracket anchors WK-S are calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.

Product info

- Load stages: as required
- Wall clearances: as required
- Material: stainless steel
  corrosion resistance class (CRC) III
- Validation: sructural calculation



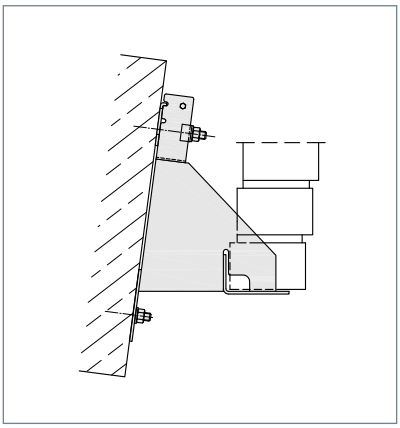
▲ As pillar support



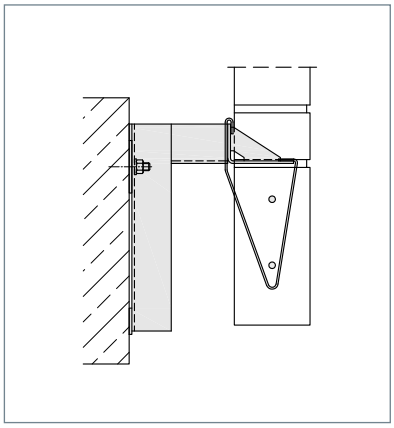
▲ For anchoring in masonry

Use and application

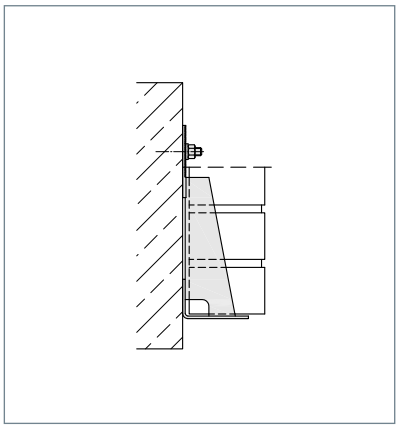
- Dimensioning of special support brackets acc. to structural and constructional requirements.



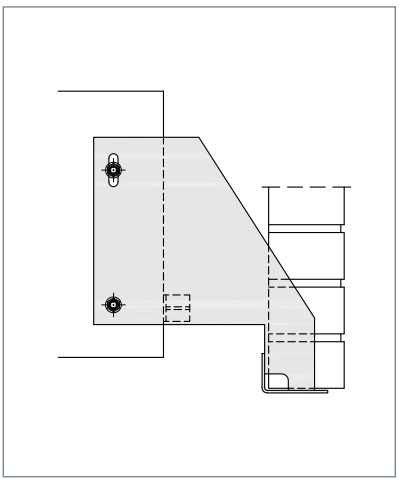
▲ Inclined version



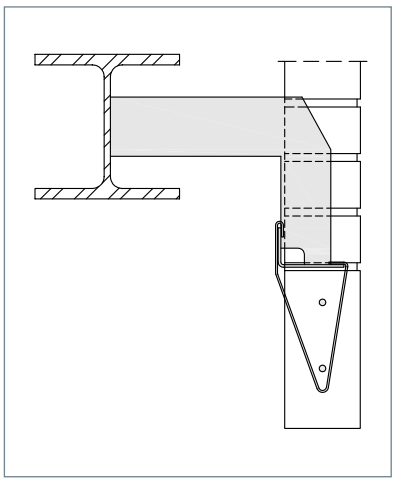
▲ For suspended lintel construction



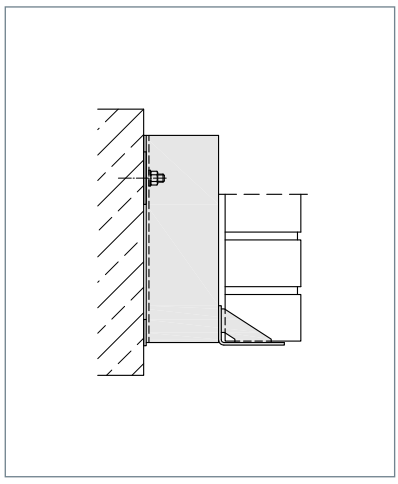
▲ For narrow wall clearances



▲ As corner anchor



▲ To connect to a steel profile



▲ For high loads

WA-Ü / WA-Z

S
special design

WA-S

WA-D / WA-M

MOSO® angle bearing

Always well supported

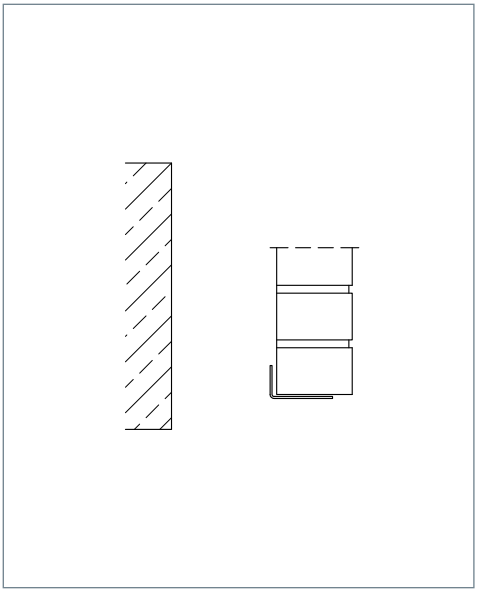
The MOSO® angle bearing WA-Ü bridges a lintel opening. Since this angle only needs to be laid on top, additional fastening is not necessary.

The MOSO® angle bearing WA-Z is used as an intermediate angle for a support with a single-bracket anchor, and facilitates variable support bracket spacings through different lengths.

▲ Lintel overlap with MOSO® angle bearing WA-Ü

Product info

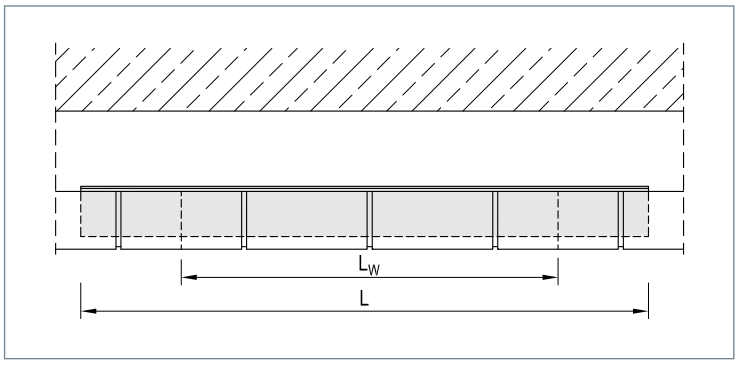
- Width of support: 90, 95 and 100 mm
- Width of opening: up to 2.26 m (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



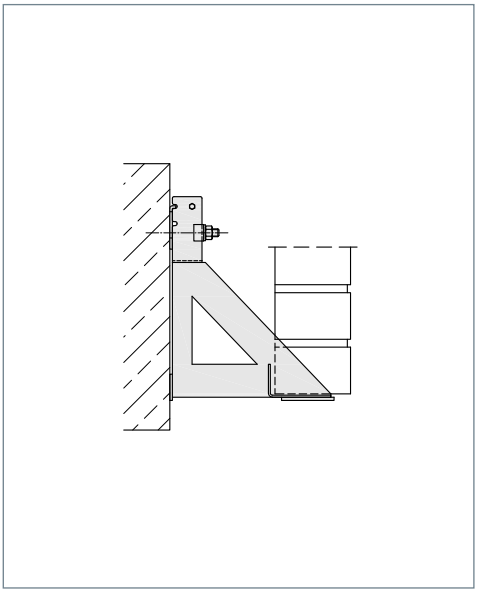
▲ MOSO® angle bearing WA-Ü

Use and application

- As bridging angle for lintel openings
- The entire surface of the angle should be supported until the mortar is set



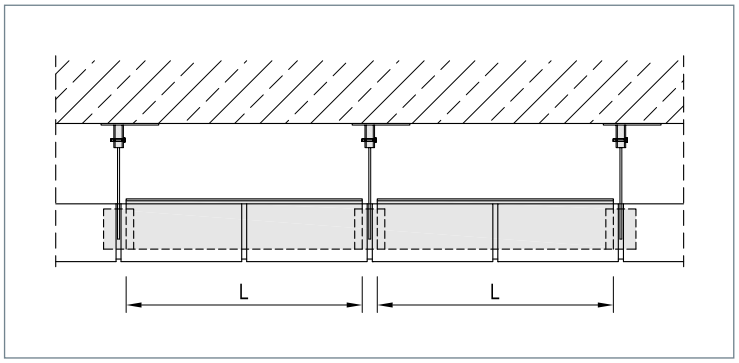
▲ Angle bearing WA-Ü as lintel overlap



▲ MOSO® angle bearing WA-Z combined with EK-U

Use and application

- As intermediate angle for single-bracket anchors
- The entire surface of the angle should be supported until the mortar is set



▲ Angle bearing WA-Z as intermediate angle

MOSO® HOUSE 1
see page 4/5

Technical data / measurement chart

WA-Ü / WA-Z

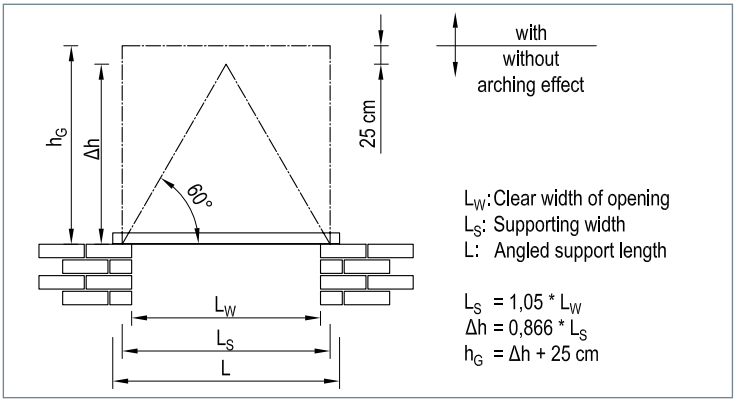
Type / Design	Profile (height/thickness of angle) in [mm]													
	L_W [m]	L [mm]	Load [m] 0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	>2.75	h_G [m]
WA- Ü	0.76	950	30/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	30/3	0.94
	0.885	1100	40/3	40/3	40/3	40/3	40/3	40/3	40/3	40/3	40/3	40/3	40/3	1.05
	1.01	1200	40/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	1.17
	1.135	1350	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	60/3	1.28
	1.26	1450	60/3	60/3	60/3	60/4	60/3	60/3	60/3	60/3	60/3	60/3	60/3	1.40
	1.385	1600	60/3	60/3	60/4	80/4	80/4	60/4	60/4	60/4	60/4	60/4	60/4	1.51
	1.51	1700	60/3	60/4	80/4	80/4	80/4	80/4	80/4	80/4	80/4	80/4	80/4	1.62
	1.76	1950	60/4	80/4	80/4	80/5	100/5	100/5	80/5	80/5	80/5	80/5	80/5	1.85
	2.01	2200	80/4	80/5	100/5	100/5	100/5	100/6	120/6	100/6	100/6	100/6	100/6	2.08
For the profiles to the right of the demarcation line, continuous brickwork must be in place from the height h_G to ensure an arching effect.	2.26	2450	80/5	100/5	100/5	100/6	120/6	120/6	120/8	120/8	100/6	100/6	100/6	2.31
Angle width [mm] for 115 mm thick facing brick								90 - 100						
Angle width [mm] for 100 mm thick facing brick								95						
Angle width [mm] for 90 mm thick facing brick								90						

Assumption: The table values were calculated with a facing brick width of 115 mm and a gross density of γ = 18 kN/m³.

Type / variant	Intermediate angle	Anchor spacing a_k [cm]	Application with single-bracket anchor type
WA- Z	WA-Z-95/50/3-980	100.0	EK-D, EK-U, EK-M
	WA-Z-95/30/3-730	75.0	
	WA-Z-95/20/1.5-480	50.0	
	WA-Z-95/20/1.5-355	37.5	

Example order: WA - Ü - 100/60/4 - 1450

- Type
- Variant
- Angle width
- Profile acc. to table
- Length L acc. to table



Tender text

Delivery and professional installation of ... pieces of MOSO® angle bearing WA-Ü-100/60/4-1450[1].

Alternatively:
Delivery and professional installation of ... pieces of lintel overlap for clear spans L_W ... m with MOSO® angle bearing type WA-Ü for a brickwork height of ... m, facing brick thickness of ... cm.

[1] acc. to table

Cross-reference for additional information

Pages	Topic
14 - 17	Wall support with MOSO® single-bracket anchor EK-D / EK-U
22 - 23	Wall support with MOSO® single-bracket anchor EK-M
70 - 71	Lintel formation with MOSO® accessoryDB
81 - 94	Technical details
94	Dimensioning principles for masonry support

For a closed view from below

Thanks to its welded compression struts, the MOSO® angle bearing type WA-D can bridge large wall clearances.

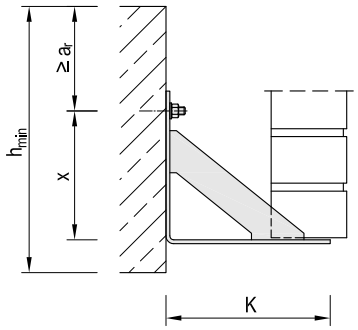
The MOSO® angle bearing type WA-M facilitates direct mounting to the base material.

Both types are used when the bracing remains visible and a closed view is desired.

Product info

- Load stages: 1.2 kN - 3.2 kN
- Wall clearances: 10 mm - 200 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation

▲ Wall support with MOSO® angle bearing WA-D

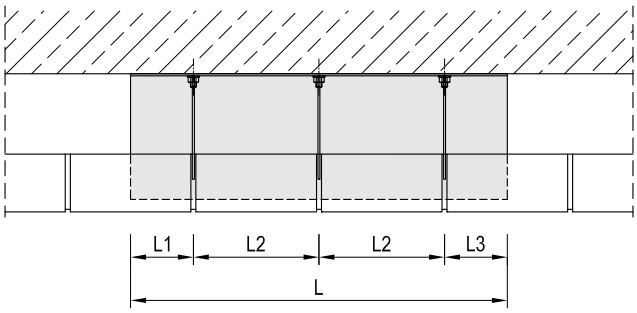


$h_{min} \geq a_r + x + 15$ mm

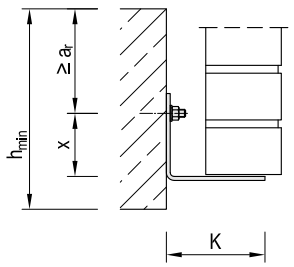
▲ MOSO® angle bearing WA-D

Use and application

- For visible wall bracing
- Limited use in corner and edge areas
- The entire surface of the angle should be supported until the mortar is set



▲ Angle bearing WA-D as foot bracing

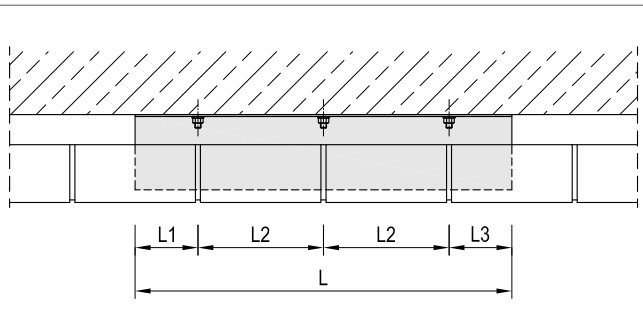


$h_{min} \geq a_r + x + 15$ mm

▲ MOSO® angle bearing WA-M

Use and application

- For visible wall bracing
- The entire surface of the angle should be supported until the mortar is set



▲ Angle bearing WA-M as foot bracing

MOSO® HOUSE 9
see page 4/5

Technical data / measurement chart

WA-D / WA-M

Type / Design	Load stage	1.5 kN / fixing point		3.2 kN / fixing point	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
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
	Larger wall clearances on request				
Material thickness	T	4		6	
Length of element		up to 4000		up to 4000	
Mounting size		M10 / M12		M10 / M12	
Recommended fixing ②	Dowels	FAZ II 10/10 A4 Edge clearance $a_r \geq 60$ mm		FAZ II 12/10 A4 Edge clearance $a_r \geq 80$ mm	

Type / Design	Load stage	1.2 kN / fixing point		2.1 kN / fixing point		3.2 kN / fixing point	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
WA- M	10 - 20	100	74	100	72	100	70
	30 - 40	120	94	120	92	120	90
Material thickness	T	4		6		8	
Length of element		up to 4000		up to 4000		up to 3000	
Mounting size		M10 / M12		M10 / M12		M10 / M12	
Recommended fixing ②	Dowels	FAZ II 10/10 A4 Edge clearance $a_r \geq 60$ mm		FAZ II 10/10 A4 Edge clearance $a_r \geq 60$ mm		FAZ II 12/30 A4 Edge clearance $a_r \geq 80$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **WA - D - 230 - 3.2 - 1000 - 4R**

- Type
- Variant
- Cantilever length
- Load stage
- Angle length
- No. of fixing points

Standard dimensions WA-D and WA-M

Length of element [mm]	Qty. Fixings	Distribution [mm]
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

Tender text

Delivery and professional installation of ... pieces of MOSO® angle bearing type WA-D-210 [1]-3.2[2]-1000[3]-4R[5], incl. dowels for cracked concrete[4].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® angle bearing type WA-D for a brickwork height of ... m, wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[5].

[1] Cantilever length acc. to table
[2] Load stage acc. to table
[3] Length of element
[4] No. of fixing points
[5] Fixing acc. to table

Cross-reference for additional information

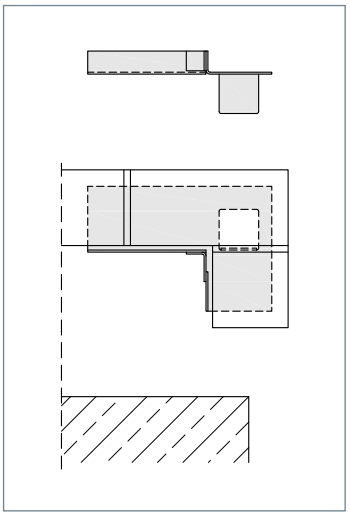
Pages	Topic
81 - 94	Technical details

Special designs

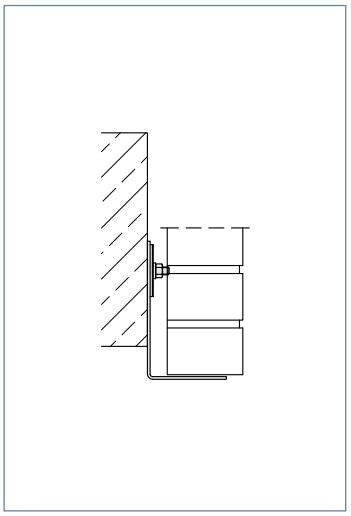
Customised MOSO® angle bearings WA-S are calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.

Product info

- Material: stainless steel
  corrosion resistance class (CRC) III
- Validation: structural calculation



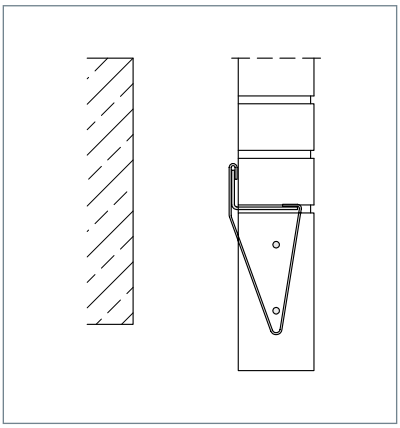
▲ Soffits



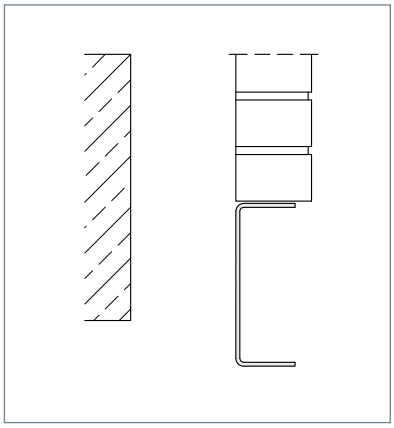
▲ With height adjustment

Use and application

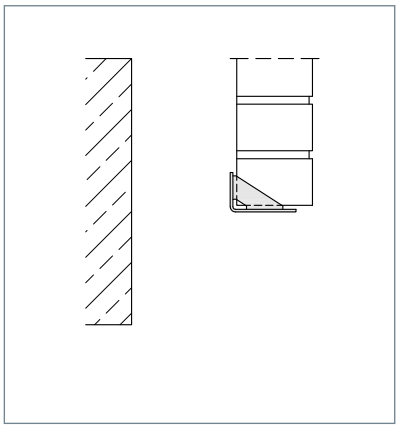
- Dimensioning of special support brackets acc. to structural and constructional requirements.



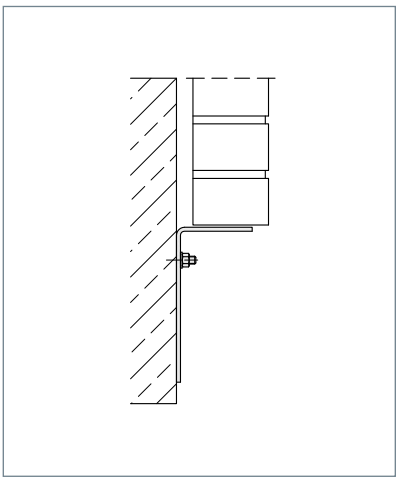
▲ For suspended brick-on-edge



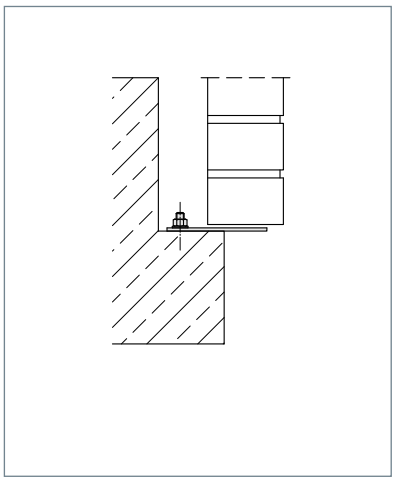
▲ As a visual element



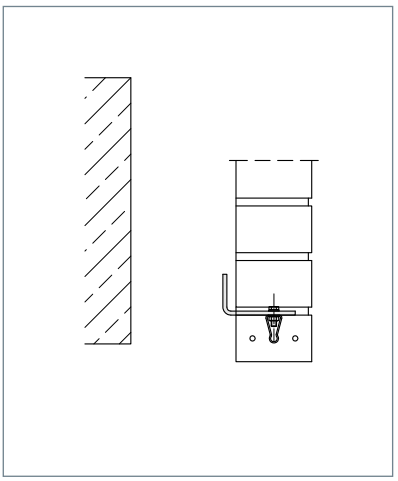
▲ With gusset



▲ As pillar support



▲ As an extension of the support



▲ For suspended heading courses

FB-D

ecoINOX

FB-U

S
special design

FB-S

MOSO® precast part fixings

Adjustable pressing screw

FB-D

The MOSO® precast part fixing FB-D with adjustable pressing screw for fixing concrete precast parts. The slim construction facilitates reduced heat transition.

This anchor facilitates 3-dimensional adjustment for optimal installation depending on the fixing.

With General Type Approval Z-21.8-1892

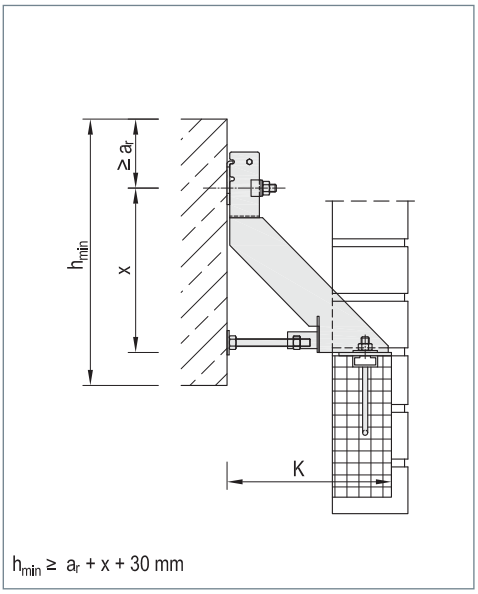
CE DIN EN 845-1

See page 82

▲ Lintel support with MOSO® fixings for precast parts FB-D

Product info

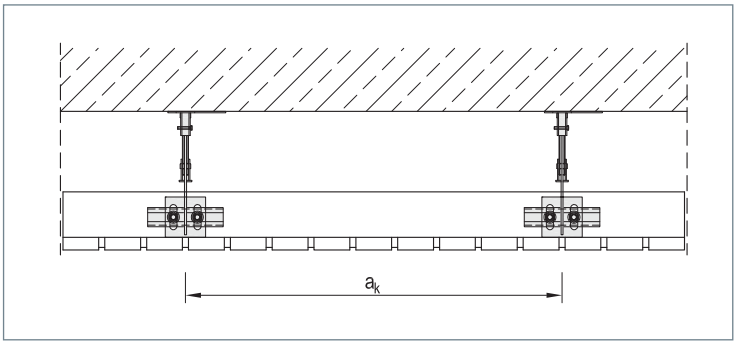
- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 370 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation



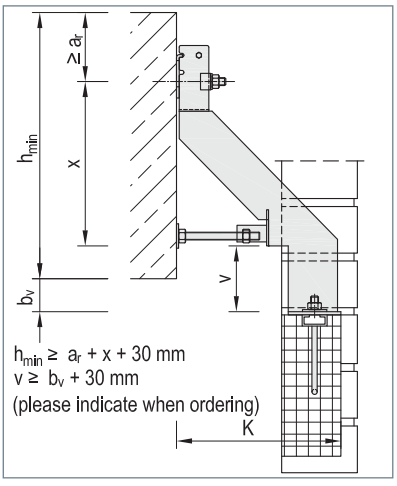
▲ MOSO® fixing for precast parts FB-D with anchor rail

Use and application

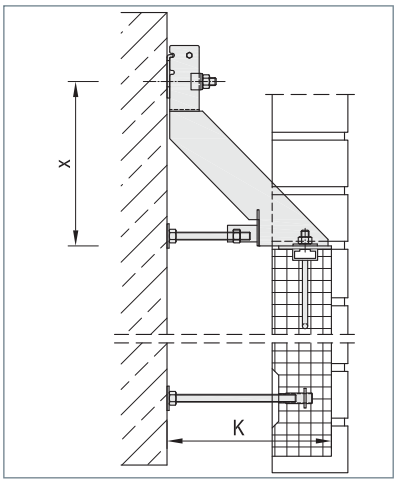
- For invisible support of pre-cast lintels
- 3-dimensional adjustment possible if used with an MBA-ES rail
- Can also be used in corner and edge areas



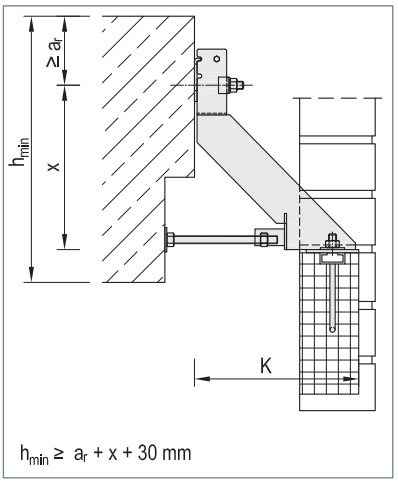
▲ Fixing for precast parts FB-D



▲ FB-DV



▲ FB-D with pressing screw

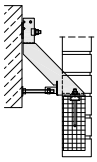
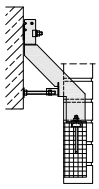


▲ FB-D with long pressing screw

MOSO® HOUSE 9 10 3
see page 4/5

Technical data / measurement chart

FB-D / FB-DV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
FB- D 	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
DV 	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
	Larger wall clearances on request						
Support plate	W / L / T	80 / 80 / 4 with 2 LL 11x50		80 / 80 / 6 with 2x LL 13x50		80 / 80 / 8 with 2x LL 13x50	
Mounting size		M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: **FB - D - 190 - 7.0**

- Type
- Variant
- Cantilever length
- Load stage

Fixing for precast part

Lintel mounting part ③	Screws	Washers	Nut
MBA 28/15 ES (3.5 kN)	2x MHK 28/15 M10x30	2x DIN 9021 M10	2x DIN 934 M10
MBA 38/17 ES (7.0 kN)	2x MHK 38/17 M10x30	2x DIN 9021 M10	2x DIN 934 M10
MBA 38/17 ESL (10.5 kN)	2x MHK 38/17 M12x40	2x DIN 125 M12	2x DIN 934 M12

③ Part is regulated under Approval Z-21.4-1907

Cross-reference for additional information

Pages	Topic
70 - 71	Lintel construction with MBA-ES
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® precast part fixing FB-D-210[1)]-7.0[2)] with type approved support anchor head, incl. dowels for cracked concrete[3)] and type approved fixing for anchor rail MBA 38/17 ES concreted into the precast part[4)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® precast part fixing type FB-D with type approved support anchor head for a brickwork height of ... m, wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3)] and type approved fixing for anchor rail concreted into the precast part[4)].

[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Fixing for in-situ concrete acc. to table
[4)] Fixing for precast part acc. to table

Note:
Parts to be concreted in (anchor rails) should be put out to tender separately.

Universal anchor for pre-cast lintels

FB-U

The MOSO® precast part fixing FB-U is the universal anchor for fixing concrete precast parts.

This anchor facilitates 3-dimensional adjustment for optimal installation depending on the fixing.

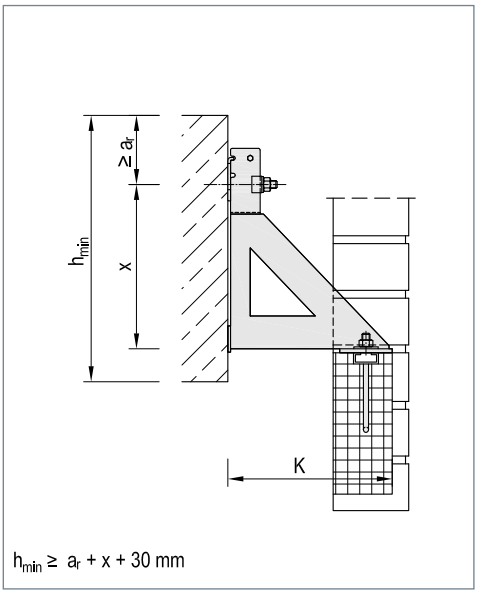
With General Type Approval Z-21.8-1892

CE DIN EN 845-1

▲ Lintel support with MOSO® fixing for precast parts FB-U

Product info

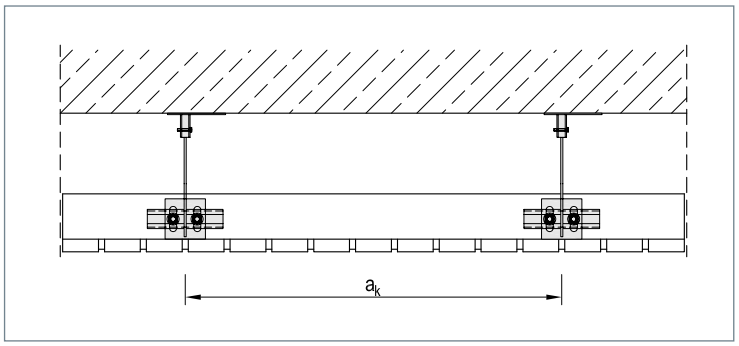
- Load stages: 3.5 kN - 25.0 kN
- Wall clearances: 20 mm - 270 mm (> on request)
- Height adjustment: ± 25 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: support anchor head acc. to DIBt Approval Z-21.8-1892 type testing or structural calculation



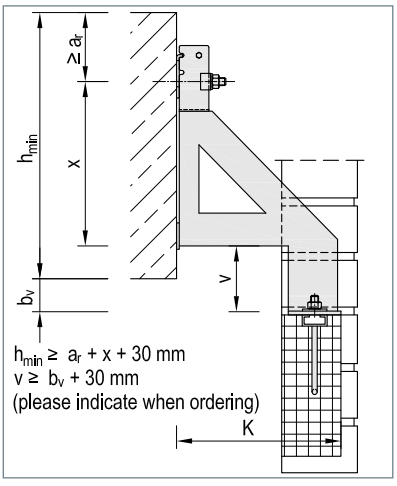
▲ MOSO® fixing for precast parts FB-U with support anchor

Use and application

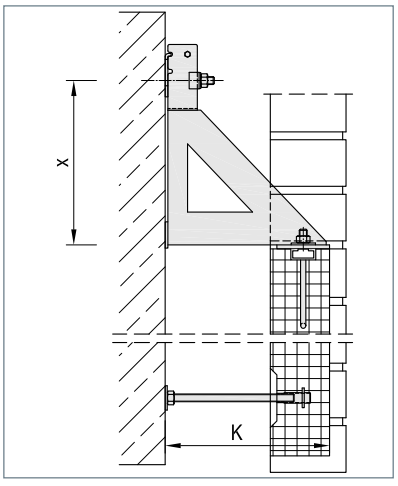
- For invisible support of pre-cast lintels
- 3-dimensional adjustment possible if an ES rail is used in the precast part
- Can also be used in corner and edge areas



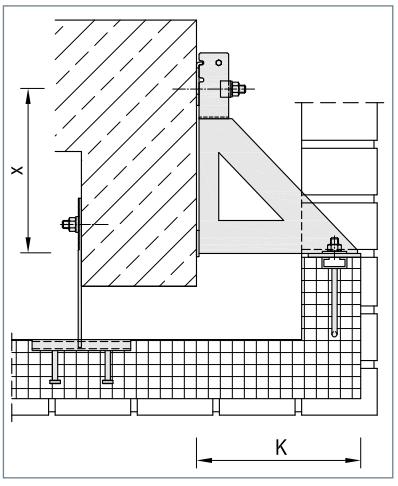
▲ Fixings for precast parts FB-U



▲ FB-UV with offset



▲ FB-U with pressing screw



▲ FB-U with FB-ZK as rotation lock

MOSO® HOUSE 9 10 3
see page 4/5

Technical data / measurement chart

FB-U / FB-UV

Type / Design	Load stage	3.5 kN		7.0 kN		10.5 kN	
	Wall clearance ① [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]	Cantilever length K [mm]	Bracket height x [mm]
FB- U	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
UV	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
	Larger wall clearances on request						
Support plate	W / L / T	80 / 80 / 4 with 2 LL 11x50		80 / 80 / 6 with 2x LL 13x50		80 / 80 / 8 with 2x LL 13x50	
Mounting size		M10 / M12		M10 / M12		M12 / M16	
Recommended fixing ②	Dowels	FAZ II 12/60 A4 Edge clearance $a_r \geq 80$ mm		RG M12x200 A4 with RSB 12 Edge clearance $a_r \geq 140$ mm		RG M16x250 A4 with RSB 16 Edge clearance $a_r \geq 140$ mm	
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x80 Edge clearance $a_r \geq 75$ mm		MBA-CE 50/31 with MHK 50/30 M12x80 Edge clearance $a_r \geq 150$ mm		MBA-CE 52/34 with MHK 50/30 M16x100 Edge clearance $a_r \geq 200$ mm	

① Specifications apply to facing bricks of 115 mm thickness, and a superimposed load of ≤ 2 storeys. Otherwise, support brackets should be adjusted acc. to DIN EN 1996-2/NA.
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Example order: FB - U - 190 - 7.0

- Type
- Variant
- Cantilever length
- Load stage

Fixing for precast part

Lintel mounting part ③	Screws	Washers	Nut
MBA 28/15 ES (3.5 kN)	2x MHK 28/15 M10x30	2x DIN 9021 M10	2x DIN 934 M10
MBA 38/17 ES (7.0 kN)	2x MHK 38/17 M10x30	2x DIN 9021 M10	2x DIN 934 M10
MBA 38/17 ESL (10.5 kN)	2x MHK 38/17 M12x40	2x DIN 125 M12	2x DIN 934 M12

③ Part is regulated under Approval Z-21.4-1907

Cross-reference for additional information

Pages	Topic
70 - 71	Lintel construction with MBA-ES
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® precast part fixing FB-U-210[1)]-7.0[2)] with type approved support anchor head, incl. dowels for cracked concrete[3)] and type approved fixing for anchor rail MBA 38/17 ES concreted into the precast part[4)].

Alternatively:
Delivery and professional installation of ... m wall bracing with MOSO® precast part fixing type FB-U with type approved support anchor head for a brickwork height of ... m, wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[3)] and type approved fixing for anchor rail concreted into the precast part[4)].

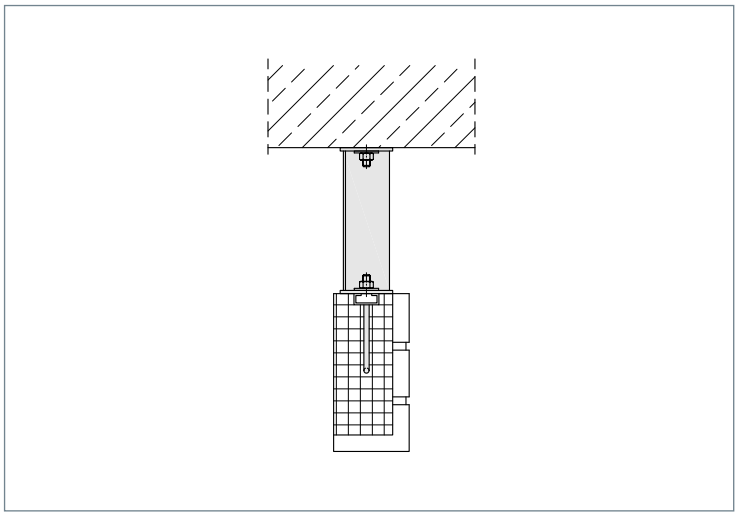
[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Fixing for in-situ concrete acc. to table
[4)] Fixing for precast part acc. to table

Note:
Parts to be concreted in (anchor rails) should be put out to tender separately.

Special designs

FB-S

Customised MOSO® precast parts fixing FB-S is calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.



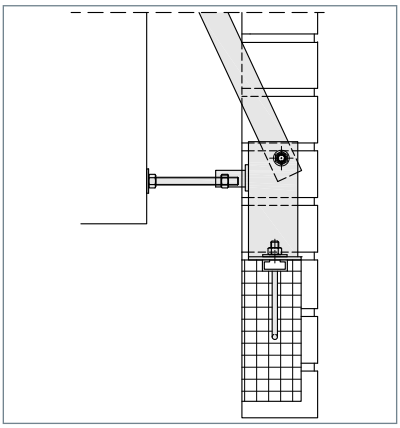
▲ For anchoring below the ceiling

Product info

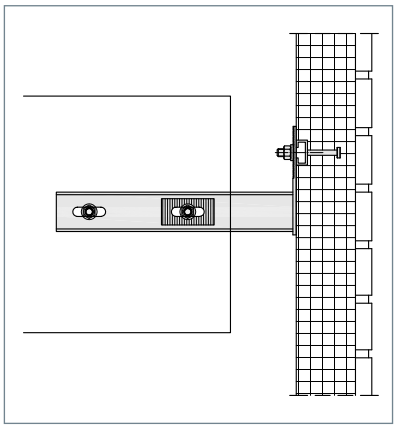
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation

Use and application

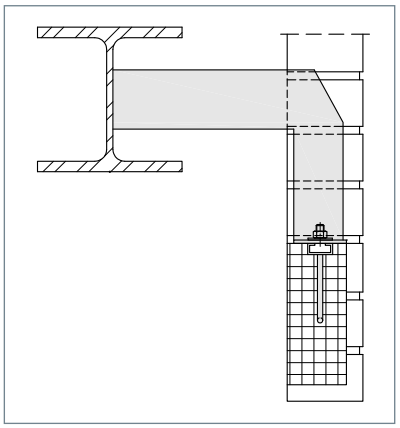
- Dimensioning of special support brackets acc. to structural and constructional requirements.



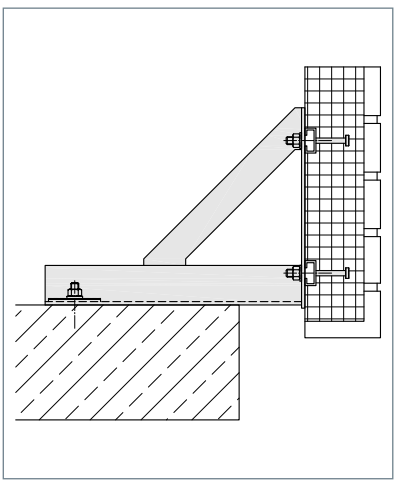
▲ Corner bracket for precast parts



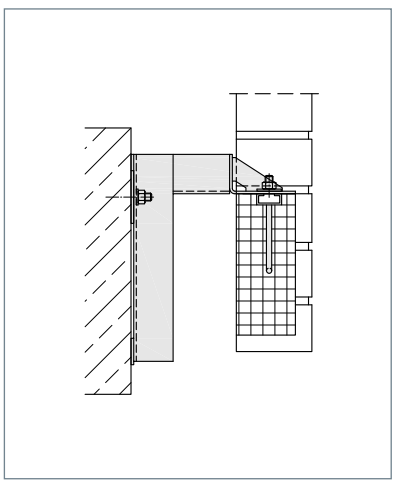
▲ For lateral anchoring



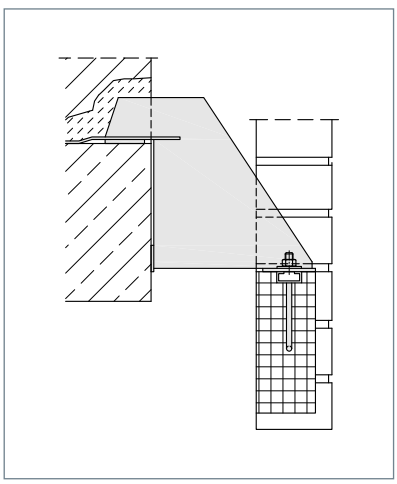
▲ To connect to a steel profile



▲ To anchor cornice strips



▲ For anchoring behind the precast part



▲ For anchoring om the ceiling

HV-WP

HV-D

HV-A

HV-L

HV-T

HV-S

MOSO® horizontal connection

MOSO® wind post fixings

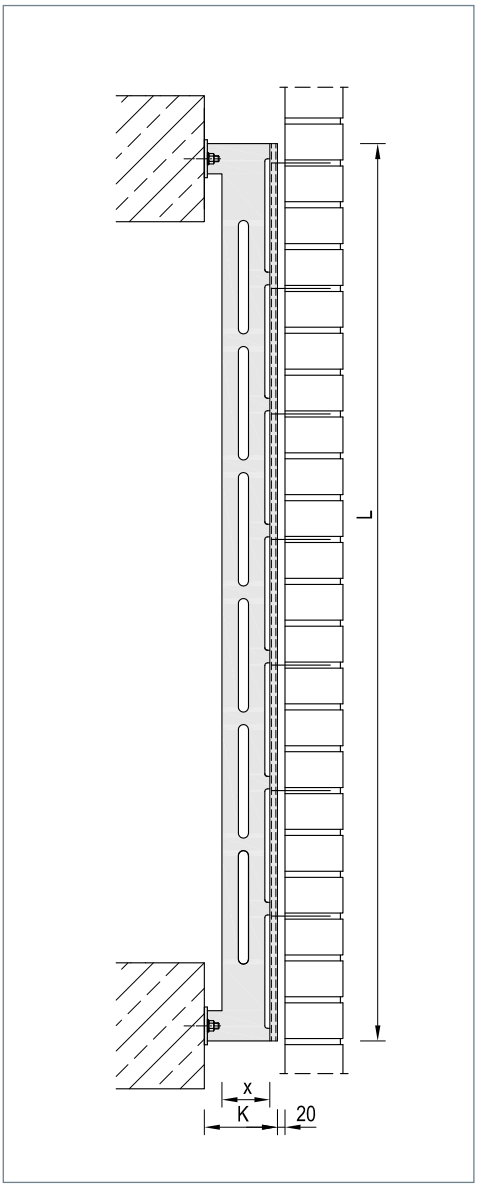
HV-WP

MOSO® wind post anchor HV-WP helps to hold the facing shell horizontally. It is used whenever a non-load bearing fixing base makes construction with regular horizontal connections impossible.

▲ Anchoring with MOSO® wind post anchor HV-WP

Product info

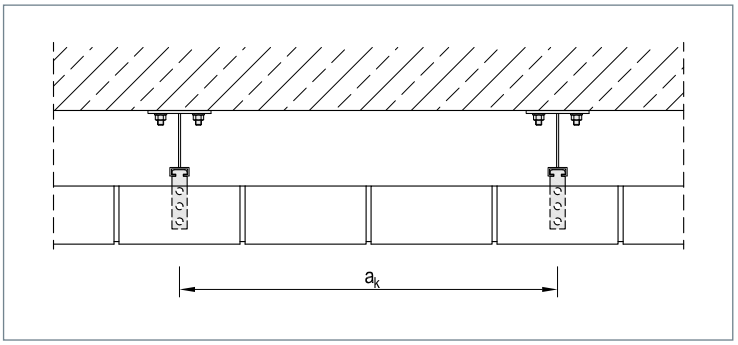
- Wall clearances: 105 mm - 370 mm (> on request)
- Material: stainless steel
  corrosion resistance class (CRC) III
- Validation: structural calculation



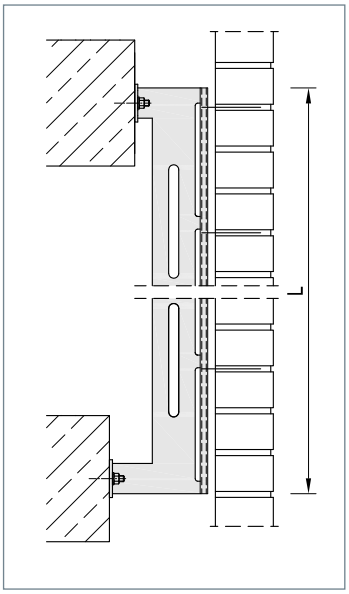
▲ Wind post anchor HV-WP

Use and application

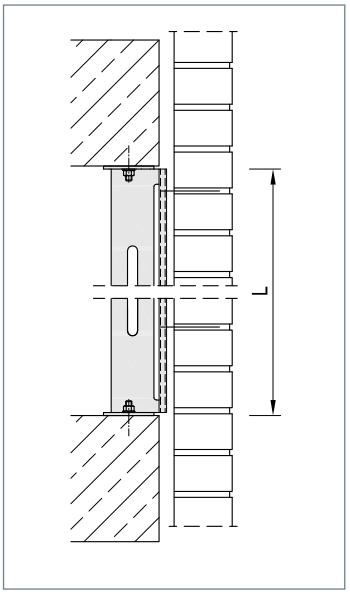
- Use as a vertical bridge element
- In combination with the brick tie anchor MA-A-85-A4
- Install wind post anchors at intervals of $a_k \leq 75$ cm according to wind load



▲ Wind post anchors at variable intervals a_k



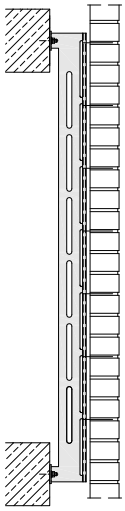
▲ Wind post anchor HV-WPS with different cantilever lengths



▲ Wind post anchor HV-WPS between reinforced concrete ceilings

Technical data / measurement chart

HV-WP

Type / Variant	Length L [mm]	x [mm]	min. cantilever length K [mm]	Qty. brick tie anchors MA-A-85-A4
HV-  WP	2500	65	85	10
	2750	75	95	11
	3000	75	95	12
	3250	85	105	13
	3500	90	100	14
	3750	95	115	15
	4000	100	120	16

Mounting size		M12
Recommended fixing ①	Dowels	FAZ II 12/10 A4 Edge clearance $a_r \geq 80$ mm
	Anchor rails	MBA-CE 38/17 with MHK 38/17 M12x40 A4 Edge clearance $a_r \geq 75$ mm

① The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

Anchor spacing for wind post anchors acc. to DIN EN 1996-2/NA:2012-01

Wind zone		Velocity pressure q_p and anchor spacing a_K ② for a building height of h					
		q_p [kN/m²]	a_K [cm]	q_p [kN/m²]	a_K [cm]	q_p [kN/m²]	a_K [cm]
		h ≤ 10 m		h > 10 m up to ≤ 18 m		h > 18 m up to ≤ 25 m	
1	Inland	0.50	75	0.65	75	0.75	65
2	Inland	0.65	75	0.80	62.5	0.90	55
	Baltic Sea coast and islands ③	0.85	57.5	1.00	50	1.10	45
3	Inland	0.80	62.5	0.95	52.5	1.10	45
	Baltic Sea coast and islands ③	1.05	45	1.20	40	1.30	37.5
4	Inland	0.95	52.5	1.15	42.5	1.30	37.5
	Baltic Sea coast and islands, North Sea coast ③	1.25	40	1.40	35	1.55	30
	North Sea islands	1.40	35	④	④	④	④

② For the dimension a_K, a design load of 0.75 kN/m was applied for the wind post anchor.
③ Coastal regions include strips running parallel with the coast and reaching 5 km inland.
④ On the North Sea islands, the simplified velocity pressure is only applied to buildings which are up to 10 m high.

Example order: **HV - WP - 250 - 3000**

Type
Variant
Cantilever length
Length

Cross-reference for additional information

Pages	Topic
72 - 73	Brick tie anchor MA-A
81 - 94	Technical details

▲ Fixing in the brickwork with MOSO® wall anchor MA-A

Tender text

Delivery and professional installation of ... pieces of MOSO® wind post anchor type HV-WP-180[1]-2500[2], incl. dowels for cracked concrete and 10[3] pieces of brick tie anchor type MA-A-85-A4.

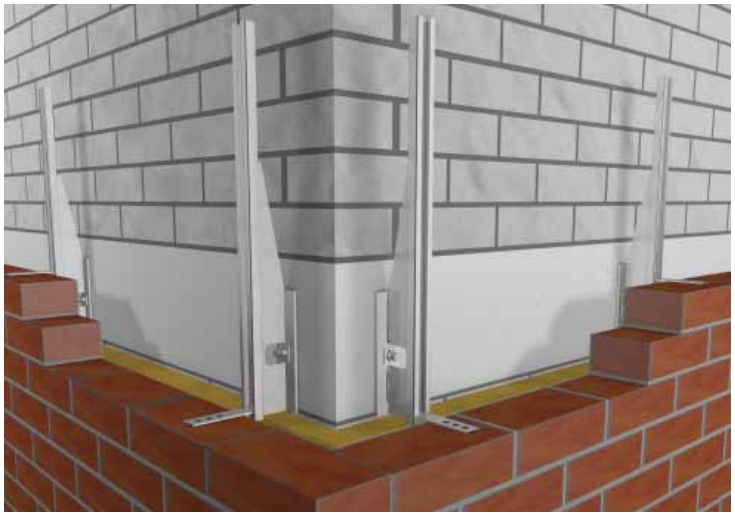
[1] Cantilever length K
[2] Length L acc. to table
[3] Quantity acc. to table

Brackets for fascia facing

HV-A

The MOSO® horizontal connection HV-A is a fascia restraint anchor for preventing cracks caused by diverging movements of flat roofs and facing.

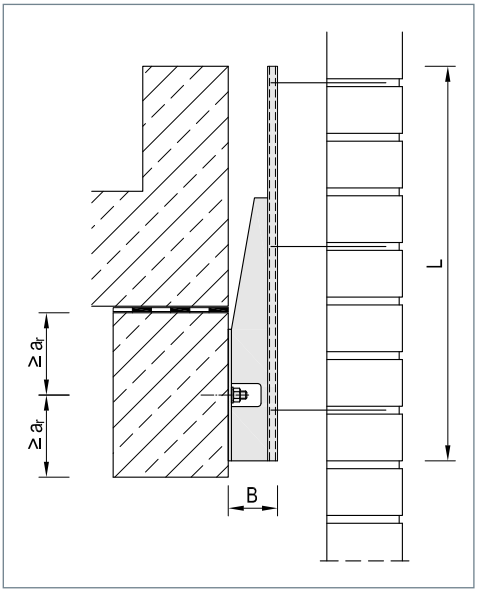
Since the anchor is attached below the flat roof support, the movements of the flat roof have no impact on the facing.



▲ Fascia anchoring with MOSO® horizontal connection HV-A

Product info

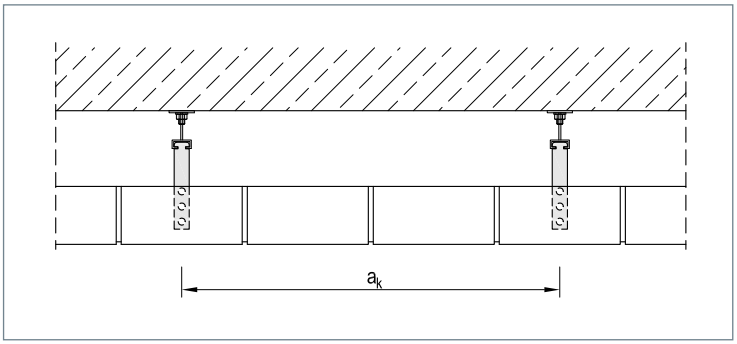
- Length: 600 mm - 1100 mm
- Wall clearances: 80 mm - 200 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



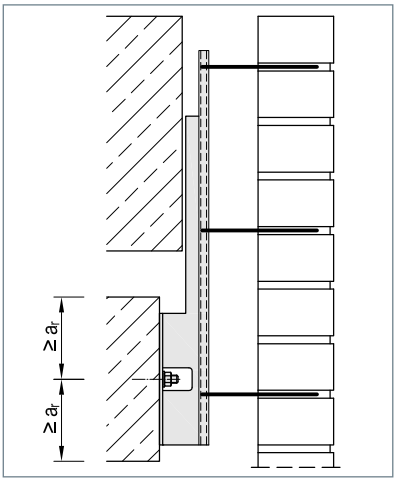
▲ MOSO® horizontal connection HV-A

Use and application

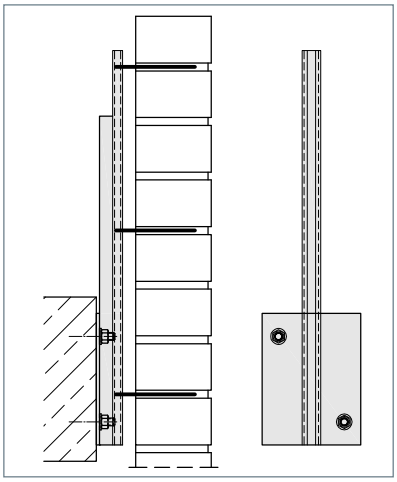
- For horizontal connection in the fascia area
- Anchor spacing a_k ≤ 75 cm (≤ 37.5 cm on the periphery) according to wind load



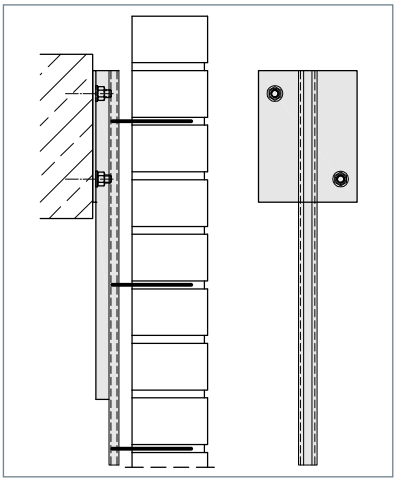
▲ Horizontal connection HV-A



▲ HV-AS, special solution



▲ HV-AS for smaller clearances

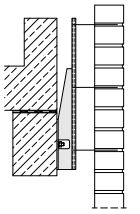


▲ HV-S, special solution

MOSO® HOUSE 11
see page 4/5

Technical data / measurement chart

HV-A

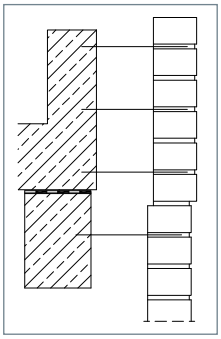
Type / Design	Length L [mm]	600	850	1100
	Wall clearance ① [mm]	Brick tie anchor	Brick tie anchor	Brick tie anchor
HV-  A	80 - 110	3 x MA-A-85-A4	4 x MA-A-85-A4	5 x MA-A-85-A4
	90 - 145	3 x MA-A-120-A4	4 x MA-A-120-A4	5 x MA-A-120-A4
	145 - 200	3 x MA-A-180-A4	4 x MA- A-180-A4	5 x MA-A-180-A4
	Larger wall clearances on request			
Width [mm]	B	75	75	75
Mounting size		M10 / M12	M12	M12
Recommended fixing ②	Dowels	FAZ II 10/10 A4 Edge clearance $a_r \geq 100$ mm	FAZ II 12/30 A4 Edge clearance $a_r \geq 75$ mm	RG M12x160 A4 with RSB12 Edge clearance $a_r \geq 100$ mm
	Anchor rails	MBA-CE 28/15 with MHK 28/15 M10x30 Edge clearance $a_r \geq 100$ mm	MBA-CE 38/17 with MHK 38/17 M12x40 Edge clearance $a_r \geq 100$ mm	MBA-CE 38/17 with MHK 38/17 M12x40 Edge clearance $a_r \geq 100$ mm

① Specifications apply to facing bricks of 115 mm thickness
② The stated edge clearances are benchmarks. The anchoring should be validated in consideration of the relevant installation situation.

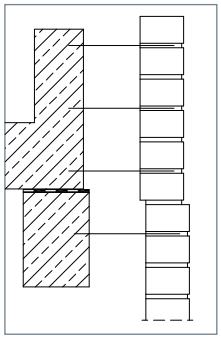
Example order: **HV - A - 600**

Type
Variant
Length L

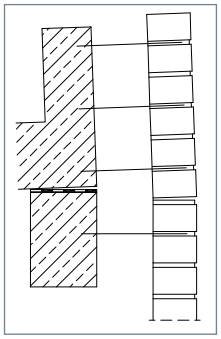
Possible causes of damage



▲ At high temperatures



▲ At low temperatures



▲ Due to torsion

Cross-reference for additional information

Pages	Topic
72 - 73	Brick tie anchor MA-A
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® horizontal connection type HV-A-850[1], including dowels for cracked concrete [2] and brick tie anchors type MA-A-120[3].

Alternatively:
Delivery and professional installation of ... m fascia facing with MOSO® horizontal connection type HV-A for a fascia height of ... m, wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. dowels for cracked concrete[2] and brick tie anchors required.

[1] Type acc. to table
[2] Fixing for in-situ concrete acc. to table
[3] Brick-tie anchor acc. to table

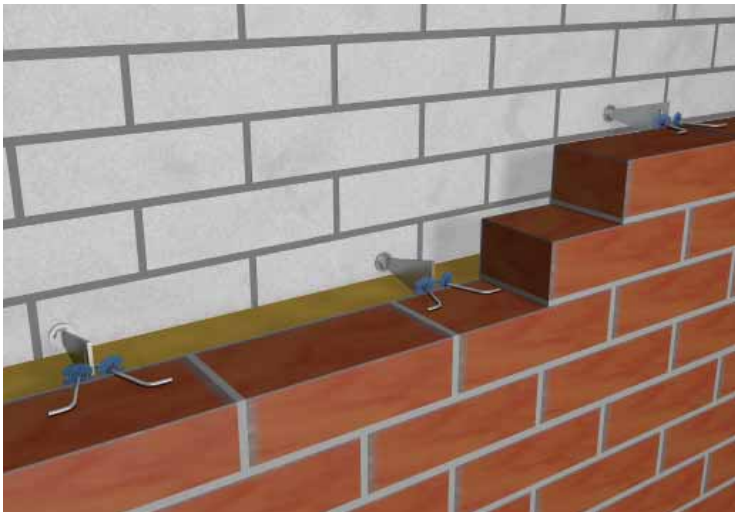
Note:
If fixed with hammerhead bolts, the associated support anchor rail should be put out for a separate tender.

Horizontal connection with joint

HV-T

The MOSO® horizontal connection HV-T is a trapezoidal joint anchor, which removes the usual need for bracing.

Thanks to the articulated connection, diverging movements of the outer and inner shell are compensated.



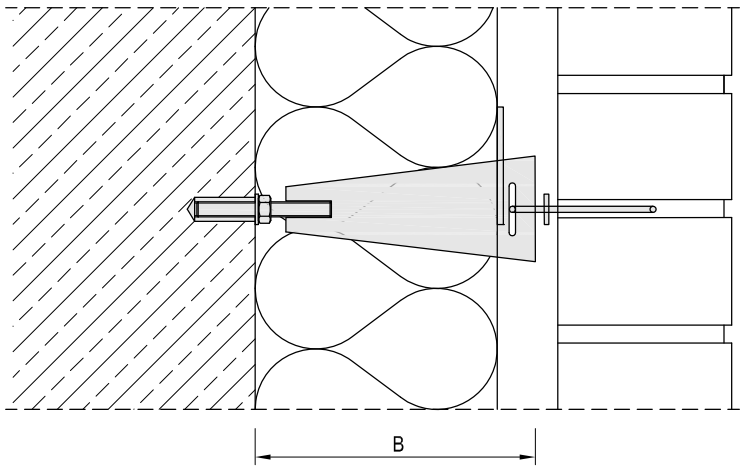
▲ Anchoring with MOSO® horizontal connection HV-T

Product info

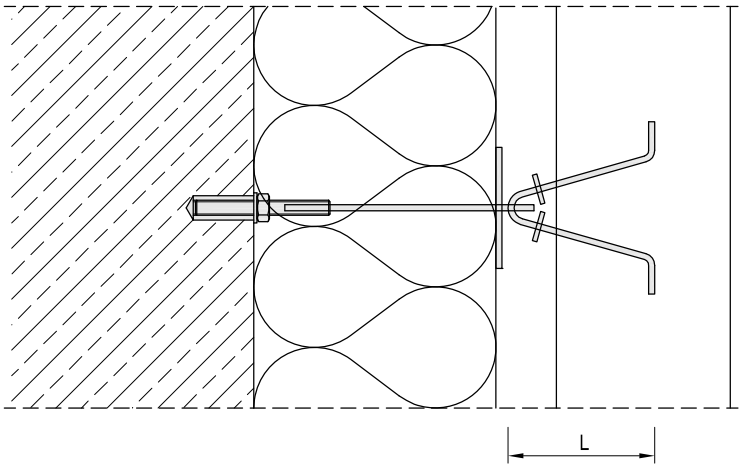
- Adjustment: ± 15 mm
- Wall clearances: 60 mm - 200 mm
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: approval in individual cases, structural calculation

Use and application

- For horizontal connections without horizontal bracings



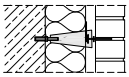
▲ MOSO® horizontal connection HV-T, vertical section



▲ MOSO® horizontal connection HV-T, horizontal section

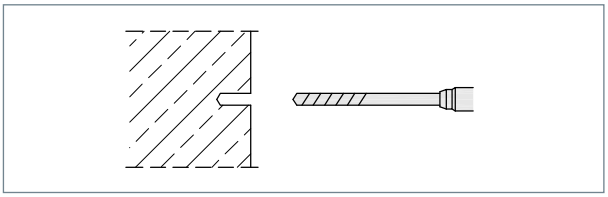
Technical data / measurement chart

HV-T

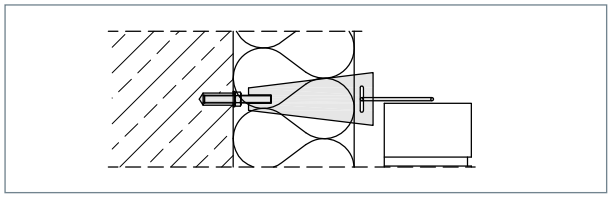
Type / Design	Components	Trapezoid plate		Binders		Fixing
	Wall clearance ① [mm]	Width W [mm]	Adjustment [mm]	Diameter [mm]	Length L [mm]	
HV-  T	60 - 80	55	± 15	4	90	Approved female thread anchor V = Solid brick / concrete L = perforated brick
	80 - 100	75	± 15	4	90	
	100 - 120	95	± 15	4	90	
	120 - 140	115	± 15	4	90	
	140 - 160	135	± 15	4	90	
	160 - 180	155	± 15	4	90	
	180 - 200	175	± 15	4	90	
	Larger wall clearances on request					

① Specifications apply to facing bricks of 115 mm thickness

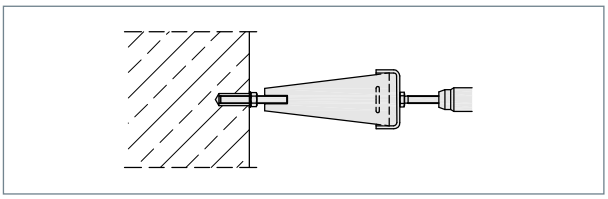
Installation HV-T



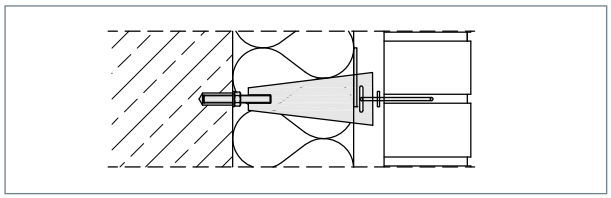
▲ Step 1: Drill and clean a hole. Insert female thread anchor acc. to approval.



▲ Step 3: Fit and align the binder.



▲ Step 2: Screw in the anchor with trapezoidal plate (paying attention to the position of the trapezoidal plate) and fasten the anchor with torque.



▲ Step 4: Fit holder for insulation and drip plates if required.

Example order: **HV - T - 115 - V**

- Type
- Variant
- Width W
- Fixing

Cross-reference for additional information

Pages	Topic
81 - 94	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® horizontal connections type HV-T-135-V[1)], incl. insulation holder MOSO® ISO-Clip.

Alternatively:
Delivery and professional installation of ... m² wall surface with MOSO® horizontal connection type HV-T[1)] for a wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. insulation holder.

[1)] Type acc. to table

Wire anchors for subsequent fixing

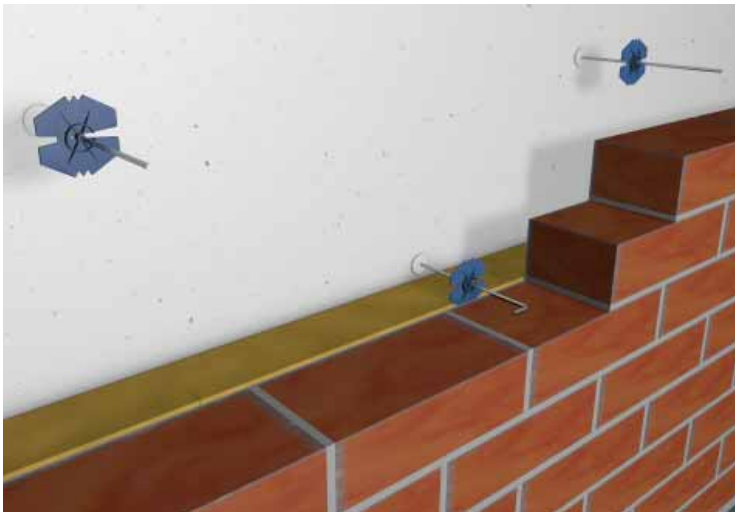
HV-D

The MOSO® horizontal connection HV-D is the wire tie for the subsequent connection of cavity walls according to DIN EN 1996-2/NA.

Different variants allow anchors to be placed in different anchor bases.

Product info

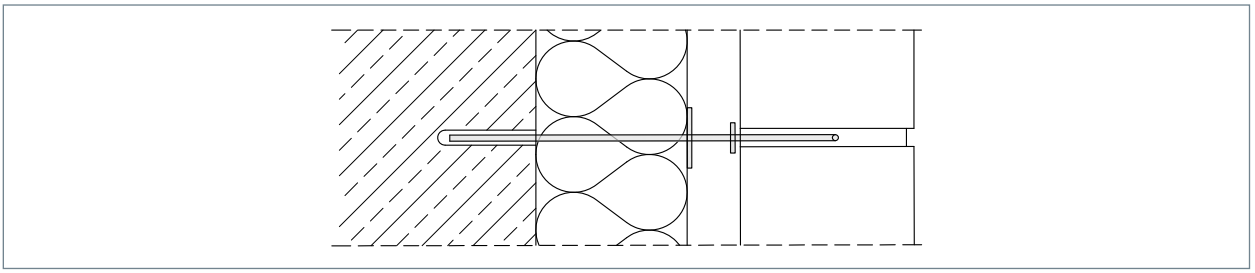
- Diameter: 4 mm
- Wall clearances: up to 250 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: inspection authority approval or test certificate



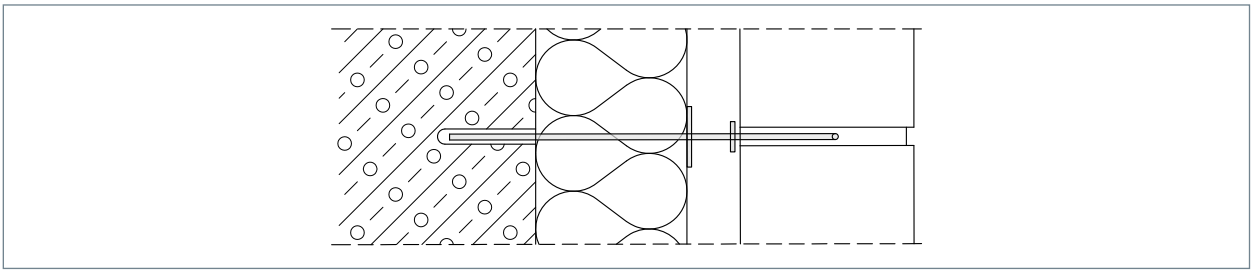
▲ Anchoring with MOSO® horizontal connection HV-DAZ

Use and application

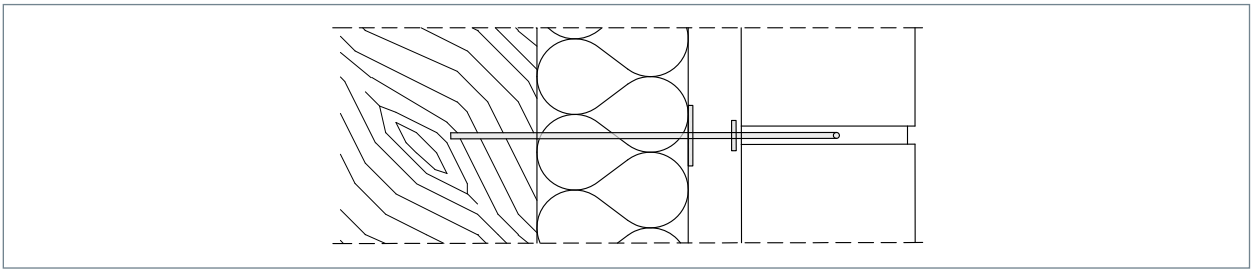
- HV-DAZ: Plug anchors for concrete or solid brick
- HV-DPB: Screw-in anchors for aerated concrete
- HV-DU: Screw-in anchors for wood



▲ MOSO® horizontal connection HV-DAZ



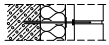
▲ MOSO® horizontal connection HV-DPB



▲ MOSO® horizontal connection HV-DU

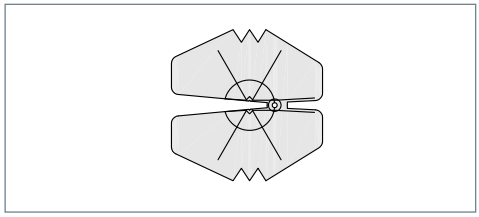
Technical data / measurement chart

HV-DAZ / HV-DPB / HV-DU

Type / Design	Dimensions [mm]	max. gap between walls [mm]	Hole [mm]	Validation
HV-  DAZ	4x180	45	8x60	Inspection authority approval
	4x210	75		
	4x250	115		
	4x275	140		
	4x300	165		
	4x320	185		
	4x350	215		
	4x375	240		
	4x400	250		
 DPB	4x160	60	10x60	Inspection authority approval
	4x200	100		
	4x225	125		
	4x250	150		
	4x300	200		
	4x330	230		
	4x350	250		
 DU	4x180	60	n/a	Inspection authority approval
	4x210	90		
	4x235	115		
	4x260	140		
	4x300	170		
	4x330	200		

Example order: **HV - DU - 4x210**

Type
Variant
Dimensions



▲ Accessories: Iso clip

Accessories

Description	for variant
Claw plates Ø 60 mm	-DAZ, -DPB, -DU
Drip plate Ø 25 mm	-DAZ, -DPB, -DU
ISO clip Ø 60 mm	-DAZ, -DPB, -DU
Screw-in adapter	-DPB, -DU

Cross-reference for additional information

Pages	Topic
88 - 89	Technical specifications for masonry support DIN EN 1996-2/NA

Tender text

Delivery and professional installation of ... pieces of MOSO® horizontal connection type HV-DAZ[1)]-4x275[2)], including ISO clip.

Alternatively:
Delivery and professional installation of ... m² wall surface with MOSO® horizontal connection type HV-DAZ[1)] for a wall clearance (insulation and air layer) of ... cm, facing brick thickness of ... cm, incl. insulation holder.

[1)] Type acc. to table
[2)] Dimensions acc. to table

Air layer eyelet anchor for subsequent connection HV-L

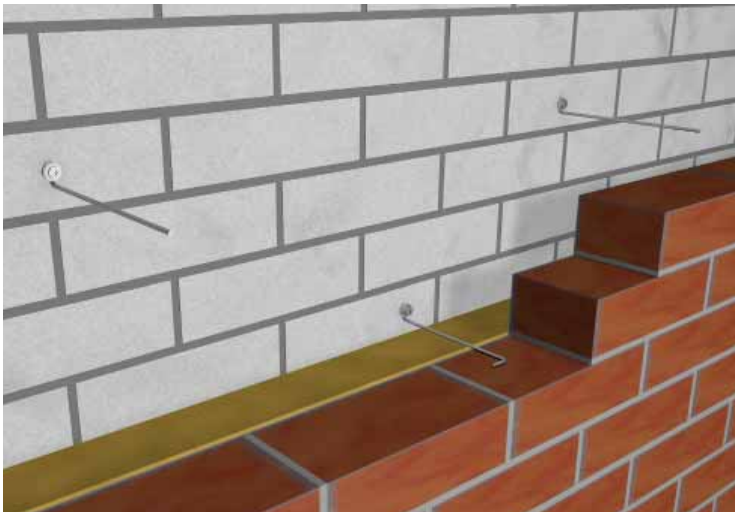
The MOSO® horizontal connection HV-L is the air layer eyelet anchor for the subsequent connection of cavity walls.

The demolition of the old facing shell during restoration is not necessary, because anchoring can be realised through the old shell.

These anchors can also be placed in difficult anchoring bases if load-bearing capacity is verified through tensile tests.

Product info

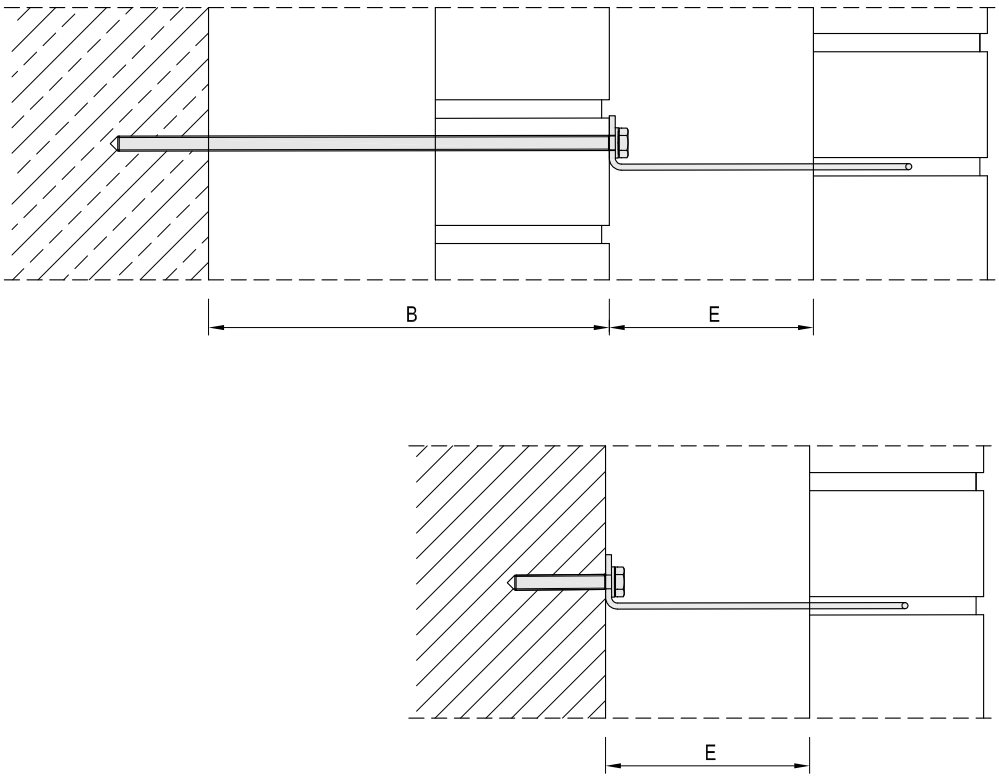
- Diameter: 4 mm
- Wall clearances: up to 150 mm (> on request)
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: inspection authority approval or test certificate for frame anchors



▲ Anchoring with MOSO® horizontal connection HV-L

Use and application

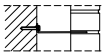
- For restoration projects aiming to preserve the old facing shell
- For subsequent fixing in perforated brick



▲ MOSO® horizontal connection HV-L, anchoring in perforated brick possible

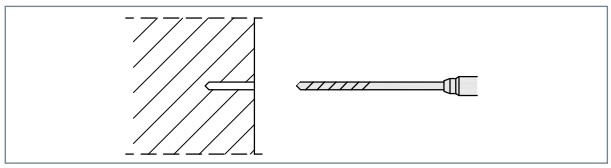
Technical data / measurement chart

HV-L

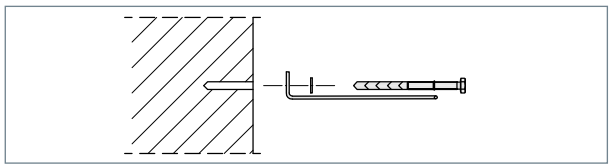
Type / Design	Description ①	max. fixing thickness B [mm]	Anchoring base
HV-  L	HV-L-10-235	10	Solid brick Perforated brick
	HV-L-30-235	30	
	HV-L-50-235	50	
	HV-L-70-235	70	
	HV-L-90-235	90	
	HV-L-110-235	110	
	HV-L-130-235	130	
	HV-L-150-235	150	
	HV-L-180-235	180	
	HV-L-210-235	210	

① Applies to a wall clearance E of up to 150 mm. Further dimensions on request.

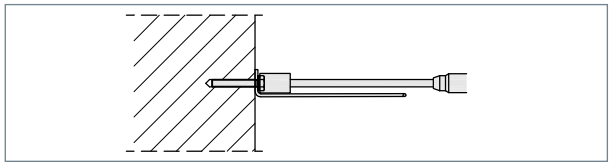
Installation HV-L



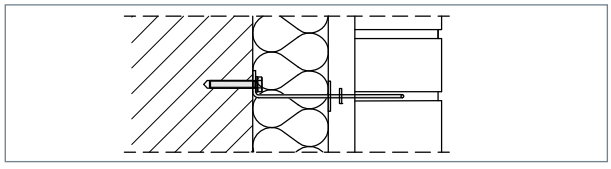
▲ Step 1: Drill and clean a hole.



▲ Step 2: Pull eyelet anchor and washer over the dowel casing from the back.



▲ Step 3: Screw in MOSO® horizontal connection HV-L.



▲ Step 4: Fit holder for insulation and drip plates if required.

Cross-reference for additional information

Pages	Topic
86	Fixing façade dowels
88 - 89	Technical specifications for masonry support DIN EN 1996-2/NA

Accessories

Description
Claw plates Ø 60 mm
Drip plate Ø 25 mm
ISO clip Ø 60 mm

Example order: **HV - L - 10 - 235**

- HV - Type
- L - Variant
- 10 - Fixing thickness
- 235 - Length of eyelet anchor

Tender text

Delivery and professional installation of ... pieces of MOSO® horizontal connection type V-L-10-235[1)], including ISO clip.

Alternatively:
Delivery and professional installation of ... m² wall surface with MOSO® horizontal connection type HV-L for wall construction: old insulation and air space ... cm, old facing brick thickness ... cm, new insulation and wall space ... cm, new facing brick thickness ... cm, including insulation holders.

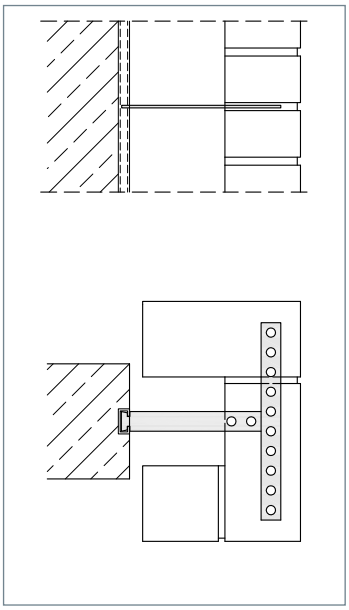
[1)] Type acc. to table

Special designs

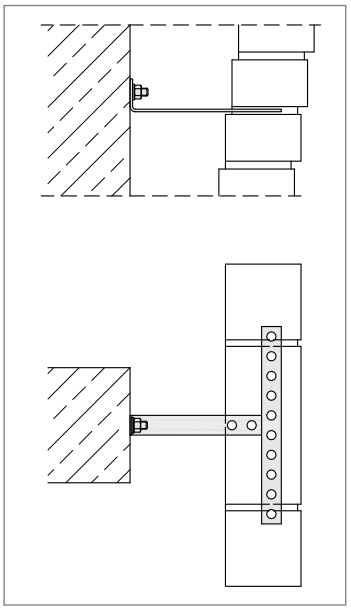
Customised MOSO® horizontal connections HV-S are calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.

Product info

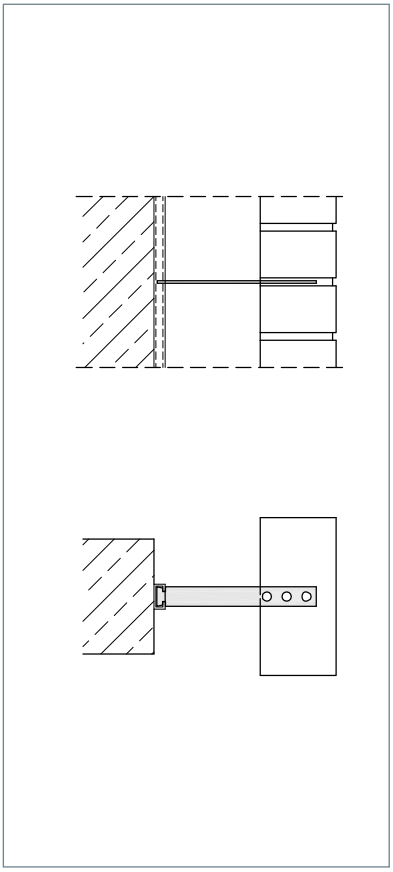
- Load stages: as required
- Wall clearances: as required
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



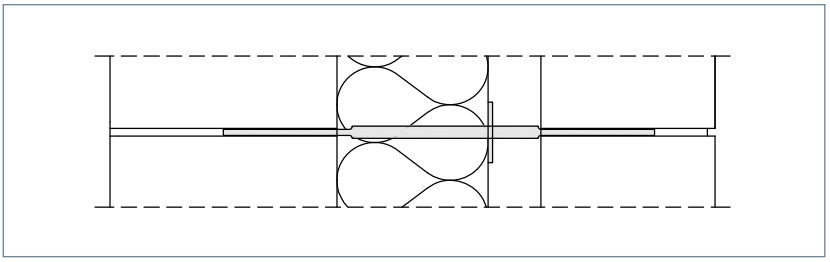
▲ For pillar anchoring



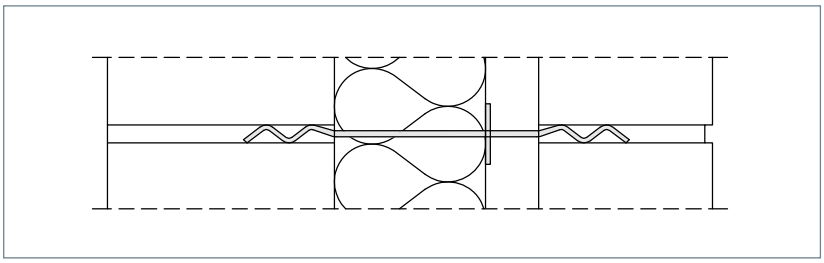
▲ For stepped brickwork



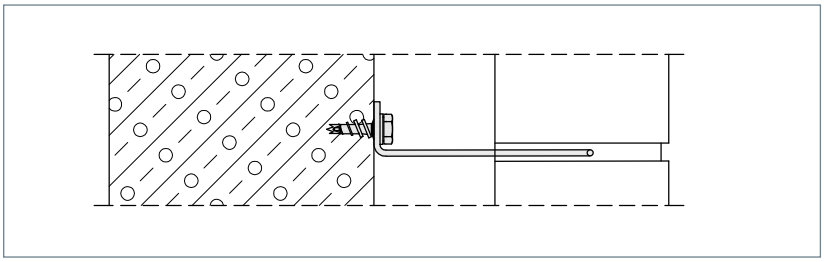
▲ To connect to a rail



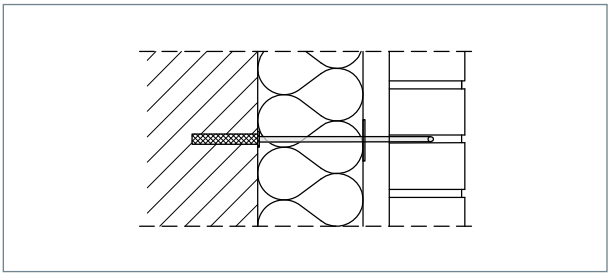
▲ For thin-bed joints



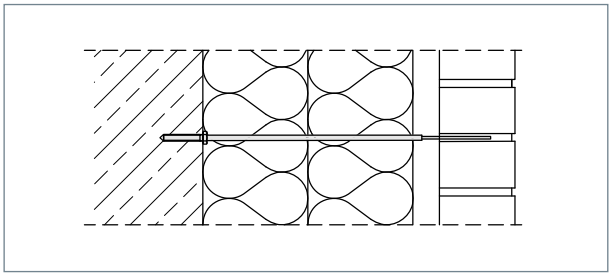
▲ To insert into masonry



▲ To connect to aerated concrete



▲ For difficult anchoring bases



▲ For large gap between walls

GA-Q

GA-S

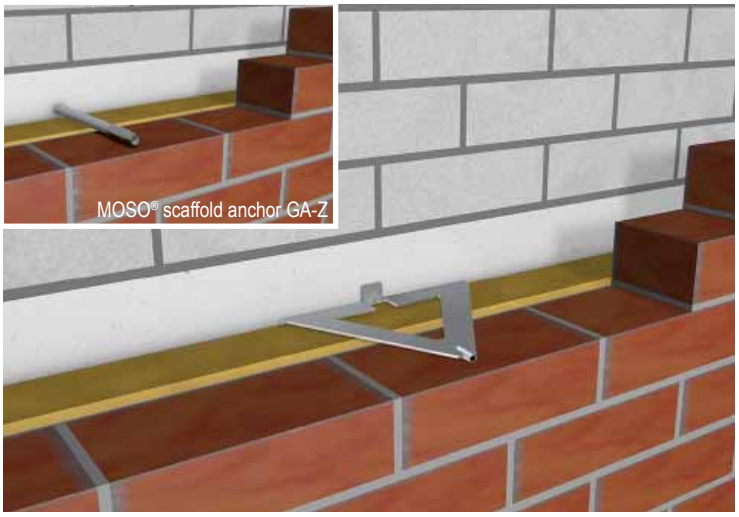
GA-Z

MOSO® scaffold anchor

Scaffold anchor for masonry façades

GA-Q / GA-Z

In Germany, scaffolding must be anchored in accordance with DIN 4420-3:2006-01 or DIN 4426:2017-01. The load capacity of the MOSO® scaffold anchors GA-Q and GA-Z are calculated according to the specifications of DIN 4426:2017-01, because the loads to be anchored are adverse.



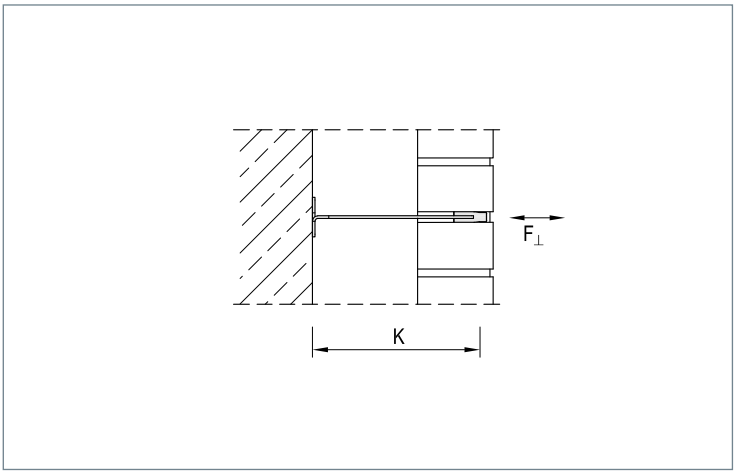
▲ Anchoring with MOSO® scaffold anchor GA-Q

Product info

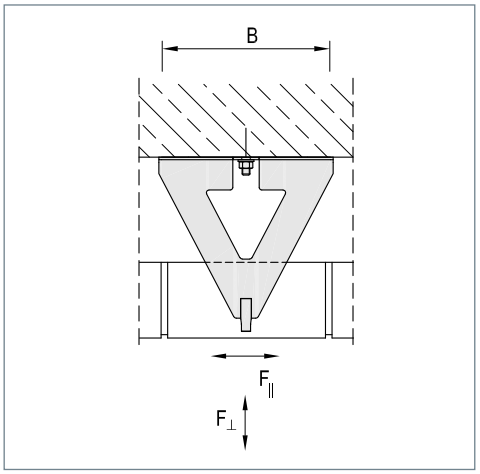
- Load stages: 5.7 kN
- Wall clearances: 15 mm - 260 mm (> on request)
- Material: stainless steel
  corrosion resistance class (CRC) III
- Validation: structural calculation

Use and application

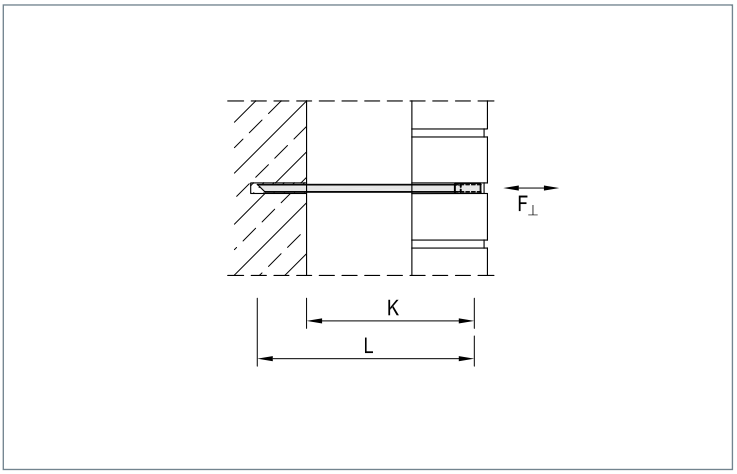
- Type GA-Q for tensile and lateral forces
- Type GA-Z only for tensile forces



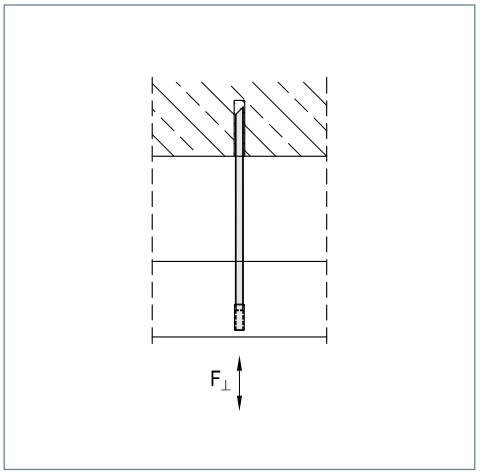
▲ MOSO® scaffold anchor GA-Q



▲ GA-Q



▲ MOSO® scaffold anchor GA-Z



▲ GA-Z

MOSO® HOUSE 12 see page 4/5

Technical data / measurement chart

GA-Q / GA-Z

Type / Design	Load stage	5.7 kN		
	Wall clearance ① [mm]	Cantilever length K [mm]	GA-Q (width W) [mm]	GA-Z (length L) [mm]
GA- Q	15 - 40	125		200
	35 - 60	145		220
	55 - 80	165		240
	75 - 100	185	185	260
	95 - 120	205	205	280
	115 - 140	225	225	300
GA- Z	135 - 160	245	245	320
	155 - 180	265	265	340
	175 - 200	285	285	360
	195 - 220	305	305	380
	215 - 240	325	325	400
	235 - 260	345	345	420
	Larger wall clearances on request			
Lifting screw to be used			M12	M12
Protective plug			grey Ø20 mm	grey Ø20 mm
Mounting size			M12	M12
Recommended fixing ②			RG M12x160 A4 with RSB12	RSB12 mini

① Specifications apply to facing bricks of 115 mm thickness
② The anchoring should be validated in consideration of the relevant installation situation.

Example order: **GA - Q - 205 - 5.7**

- Type
- Variant
- Cantilever length
- Load stage

Dimensioning of scaffold anchors

According to DIN 4426:2017-01 (Equipment for building maintenance - Safety requirements for workplaces and accesses - Design and construction), the vertical spacing between the anchoring levels must not exceed 4 m - the horizontal spacing is not specified. This standard does not differentiate between covered and uncovered scaffolds. The following loads are applied vertically and parallel for each metre of scaffolding length:

F_I = 2.25 kN/m
F_{II} = 0.75 kN/m

At a typical scaffold support spacing of 2.5 m, this results in the following loads for the MOSO® scaffold anchors:

F_I = 2.25 kN/m x 2.5 m = 5.63 kN
F_{II} = 0.75 kN/m x 2.5 m = 1.88 kN

Assuming a partial safety factor γ_Q of 1.5 for variable loads, the following design loads are derived:

$F_{ED,I}$ = 5.63 kN x 1.5 = 8.45 kN
$F_{ED,II}$ = 1.88 kN x 1.5 = 2.82 kN

If the vertical spacing is less than 4 m, linear reduction of the forces is permissible. The stated forces should be doubled at the edges of the building (e.g. eaves, corners of the building).

Cross-reference for additional information

Pages	Topic
84 - 87	Technical details

Tender text

Delivery and professional installation of ... pieces of MOSO® scaffold anchor type GA-Q-185[1)]-5,7[2)], incl. protective plugs and dowels for cracked concrete[3)].

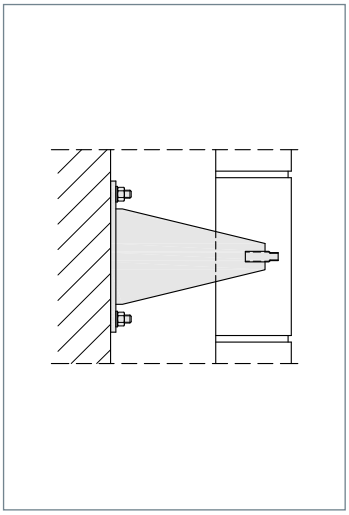
[1)] Cantilever length acc. to table
[2)] Load stage acc. to table
[3)] Fixing acc. to table

Special solutions

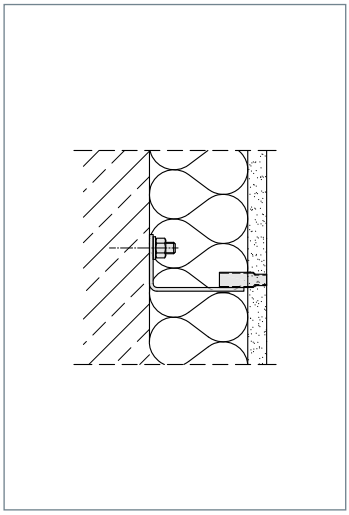
Customised MOSO® scaffold anchors WK-S are calculated individually by our engineering office, to ensure optimal solutions, even in challenging conditions.

Product info

- Load stages: as required
- Wall clearances: as required
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: structural calculation



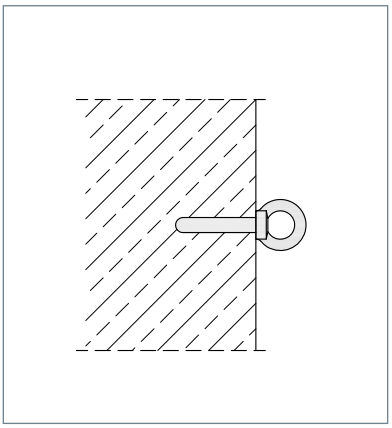
▲ For fixing to masonry



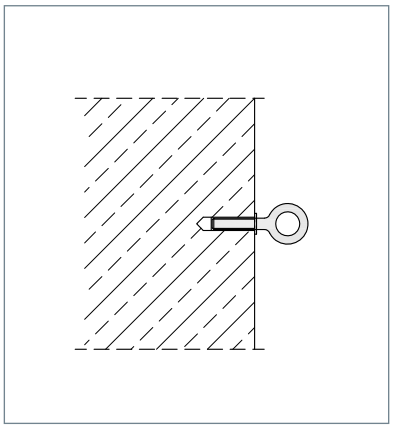
▲ For narrow clearances

Use and application

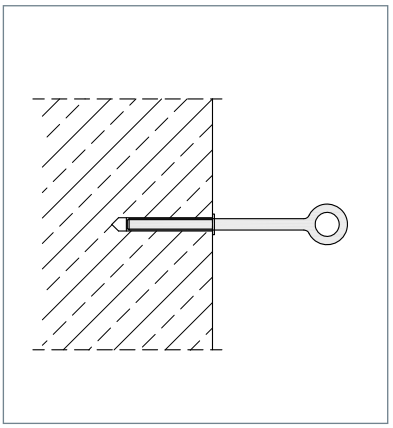
- Dimensioning of special support brackets acc. to structural and constructional requirements.



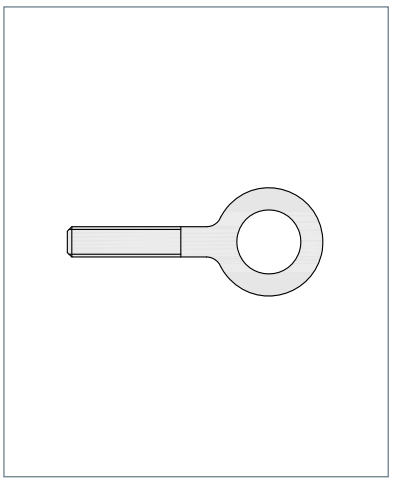
▲ Fixing with connection anchor



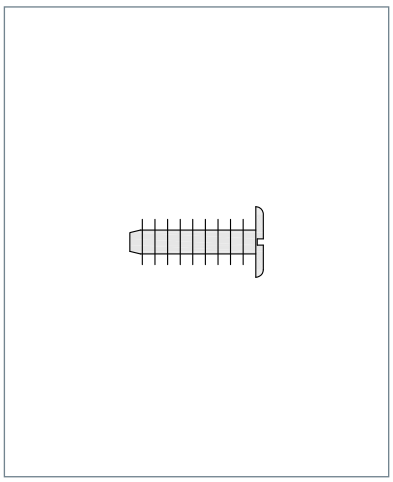
▲ Fixing with drive plug



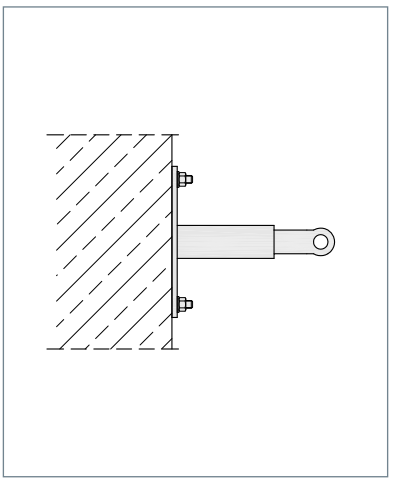
▲ Fixing with façade dowels



▲ Ring screw M12



▲ Cover plug



▲ Scaffold anchor type GA-F

DB / HB / MBA-ES

MA-A

Angle formation and abutment

Accessories

Air joint elements

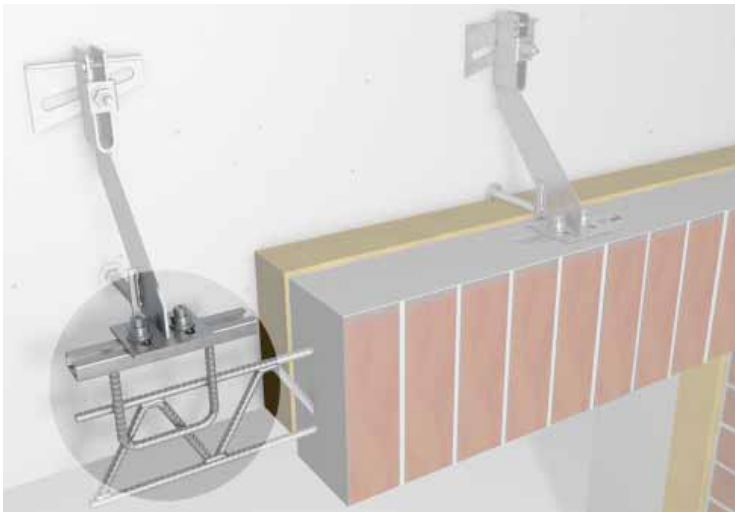
Vermin protection

MOSO® accessories and options

Crash bar for invisible support

The production of an invisible facing support requires additional brackets.

In the case of a brick lintel the brackets serve to secure the positioning of bricks, while the installation components (MOSO® MBA-ES) in a prefabricated lintel require a static verification or Approval no. Z-21.4-1907.



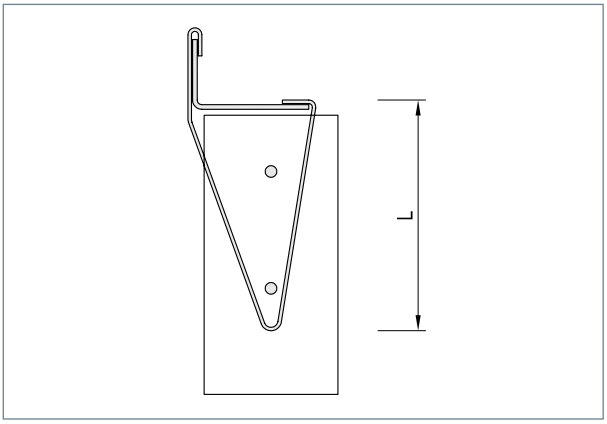
▲ Precast lintel with MOSO® anchor rail MBA-ES concreted in

Product info

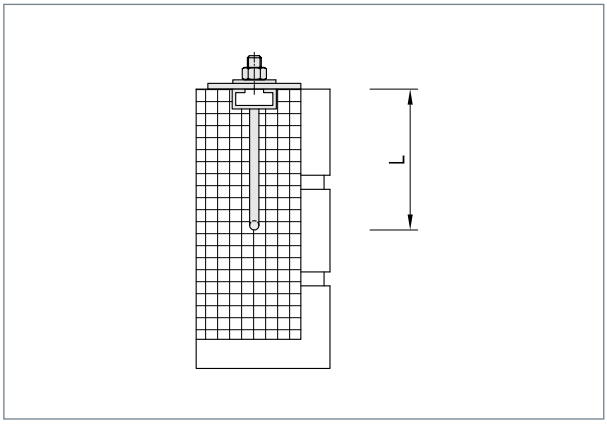
- Design: conventional or precast lintel
- Type Lintel formation: soldier or brick courses, 1.5 times brick-on-edge course
- Material: stainless steel corrosion resistance class (CRC) III
- Validation: installation component as precast part acc. to DIBt Approval Z-21.4-1907 or structural calculation

Use and application

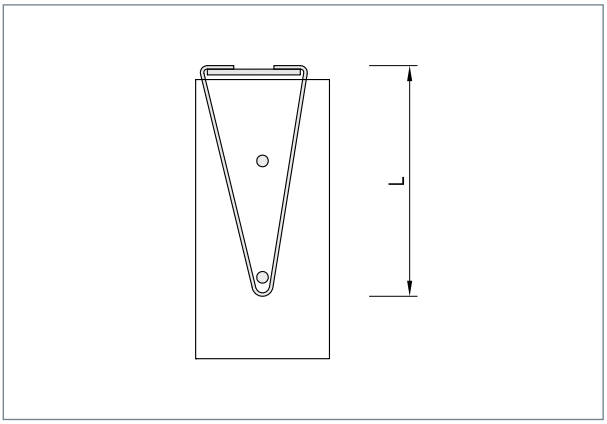
- Crash bar spacing for brick lintel ≤ 25 cm, for precast parts acc. to structural requirements
- In the case of brick lintels and poor adhesion of the mortar in facing bricks, appropriate safeguards such as longitudinal reinforcement or mortar joints should be provided.
- For brick lintels, it is crucial that the entire surface of the support construction is supported until the mortar is set.



▲ MOSO® wire binder DB-1 for suspended brick course



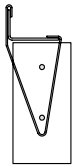
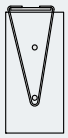
▲ MOSO® MBA-ES installation part for precast lintel



▲ MOSO® wire binder DB-2 for connection to single-bracket anchors

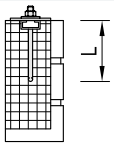
Technical data / measurement chart

Bond length L [mm] for installation parts (conventional brick lintels)

Type / Variant	Angle height ① [mm]	For suspended heading courses H = 7.1 cm	Brick-on-edge H = 24 cm	1.5 times Brick-on-edge H = 36 cm	Application
DB-1 	20	80	180	310	WK-D WK-N WK-K WK-O WK-M WK-Z WA-Ü WA-Z
	30				
	40				
	50				
	60				
	70				
	80				
	90				
DB-2 	-	80	180	310	EK-U EK-D

① Angle height for angle-bracket anchor usually = 60 mm

Installation parts for precast lintel

Type / Variant ②	Load stage			Application
	3.5 kN	7.0 kN	10.5 kN	
MBA-ES 	MBA 28/15 ES (L = 90 mm)	MBA 38/17 ES (L = 120 mm)	MBA 38/17 ESL (L = 160 mm)	FB-U FB-D

② Part is regulated under Approval Z-21.4-1907

Example order: MBA - 28/15 - ES

Type
Dimensions
Variant

Example order: DB - 1 - 60 - 180

Type
Variant
Angle height
Height

Tender text

for brick lintel: Delivery and professional installation of ... pieces MOSO® crash bar, type DB[1]-1[2]-60[3]-180[4] in the course of the facing works.

Alternatively:
Delivery and professional installation of ... m brick course supports with MOSO® crash bar, type DB[1] in the course of the facing works.

[1] Type acc. to table
[2] Variant acc. to table
[3] Angle height of support construction acc. to table (only for DB-1)
[4] Selection acc. to table

Cross-reference for additional information

Pages	Topic
87	MBA-CE anchor rail

Wall connections with anchor

MA-A

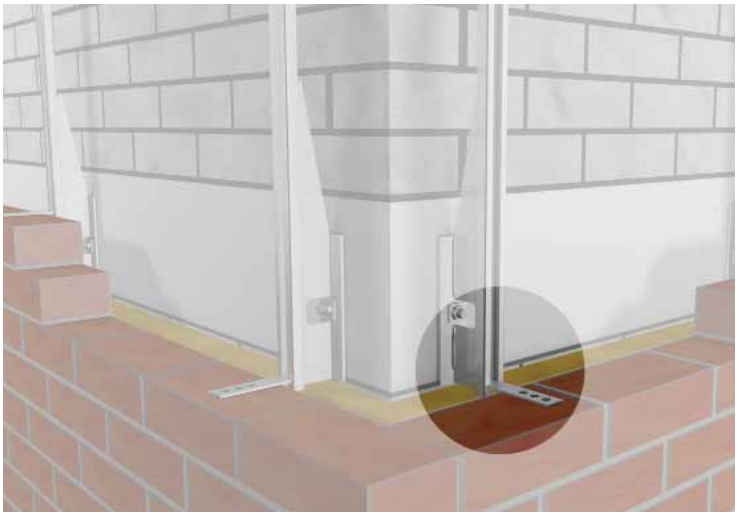
Masonry connections are easy to produce with MOSO® wall anchors MA-A.

Connection is made to rails, facilitating continuous adjustment. This largely prevents settlement cracks in the brickwork.

The different rail types allow for a great variety of applications; for instance, to produce a horizontal connection for facing masonry.

Product info

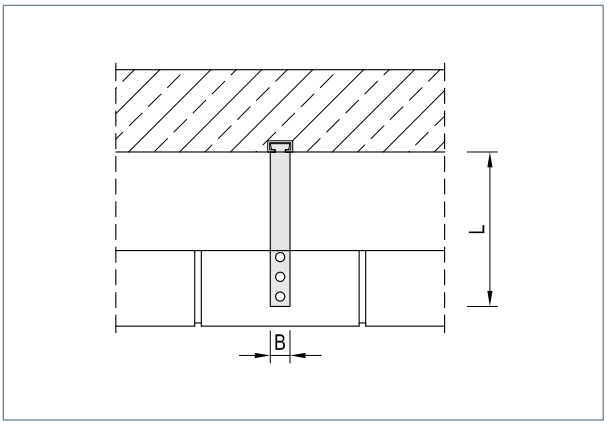
- Wall clearances: 20 mm - 140 mm
- Material: stainless steel
  corrosion resistance class (CRC) III (external)
  hot-dip galvanised steel (protected interior)
- Validation: structural calculation



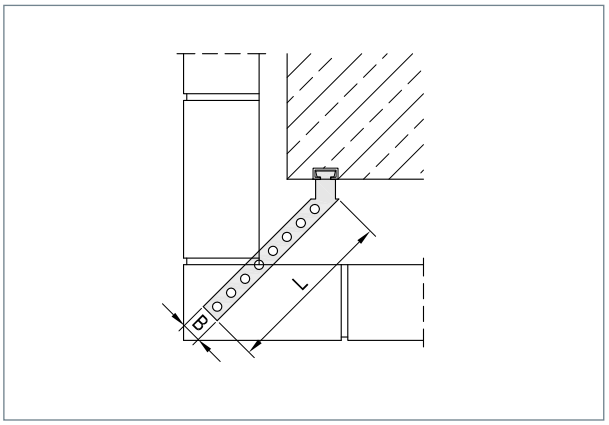
▲ Masonry anchor MA-A

Use and application

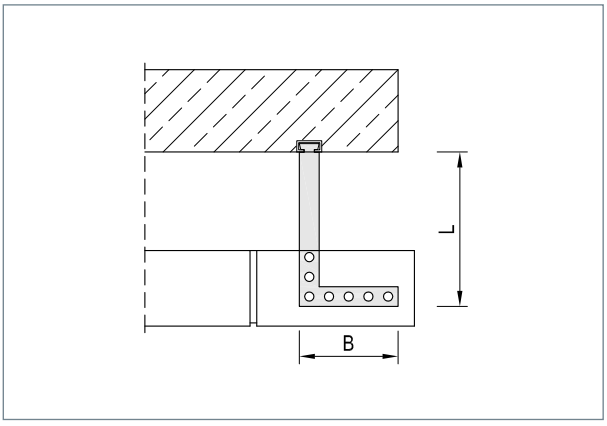
- Masonry anchor spacing usually approx. 25 cm
- Insert anchor into the rail with a 90° rotation and brick up



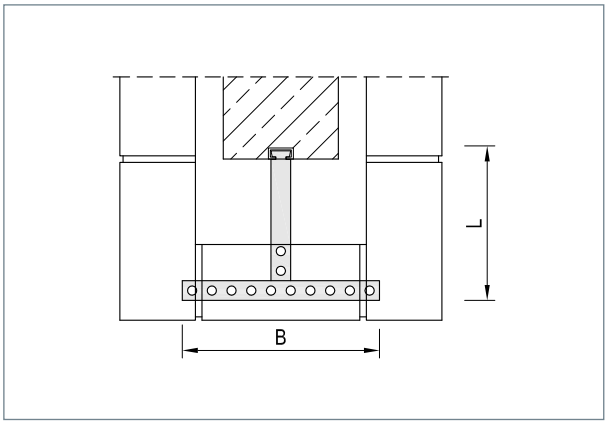
▲ MOSO® wall anchor MA-A



▲ MOSO® wall anchor MA-AW



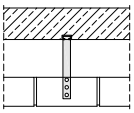
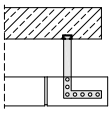
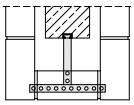
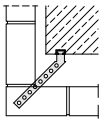
▲ MOSO® wall anchor MA-AL



▲ MOSO® wall anchor MA-AT

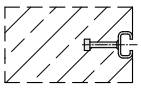
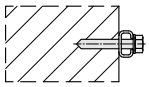
Technical data / measurement chart

MA-A / MA-AL / MA-AT / MA-AW

Type / Design	Wall clearance ① [mm]	Length L [mm]	Width W [mm]	Material	Application
MA-  A	20 - 40	85	25	Stainless steel or Hot-dip galvanised	Fascia restraint anchor type HV-A or Anchor rail MBA-CE 28/15 or Mounting rail MOS 28/15 or Perforated rail MLS 28/15
	40 - 80	120	25		
	85 - 140	180	25		
 AL	20 - 40	85	150		
	40 - 80	120	150		
	85 - 140	180	150		
 AT	20 - 40	85	300		
	40 - 80	120	300		
	85 - 140	180	300		
 AW	20 - 40	135	25		
	40 - 80	185	25		
	85 - 140	270	25		

① Specifications apply to facing bricks of 115 mm thickness

Anchor rails to be used

Type	Variant	Application
 MBA-CE 28/15	Stainless steel or hot-dip galvanised, standard length 6.0 m Fixed length on request	Concreted into concrete ≥ C20/25
 MOS 28/15	Stainless steel or hot-dip galvanised, standard length 6.0 m Fixed length on request	Welded on steel girders
 MLS 28/15	Stainless steel or hot-dip galvanised, standard length 6.0 m Fixed length on request	Subsequently dowelled or screwed

Example order: **MA - A - 180 - A4**

- Type
- Variant
- Length L
- Material

Cross-reference for additional information

Pages	Topic
88 - 89	Technical specifications for masonry support DIN EN 1996-2/NA

Tender text

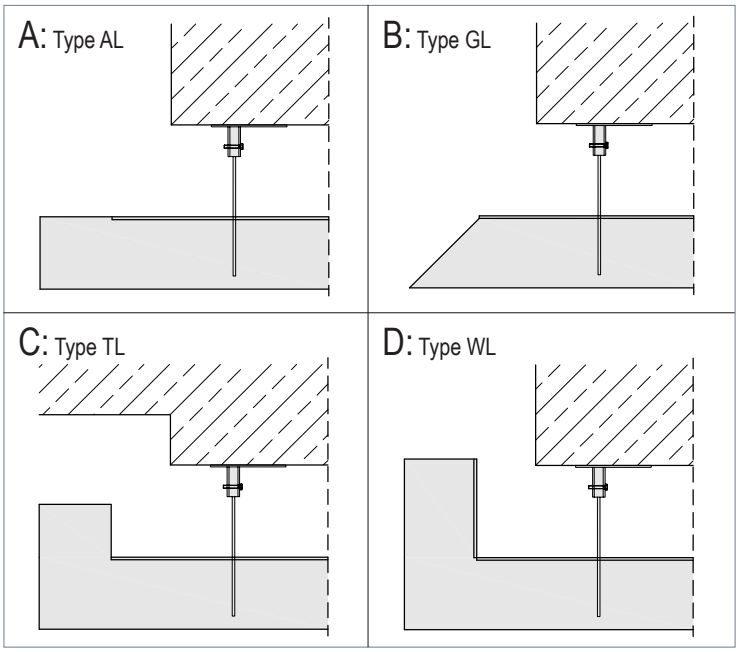
Delivery and professional installation of ... pieces of MOSO® wall anchor type MA[1)]-A[2)]-180[3)]-A4[4)] for the connection of walls.

[1)] Type acc. to table
[2)] Variant acc. to table
[3)] Length acc. to table
[4)] Material acc. to table

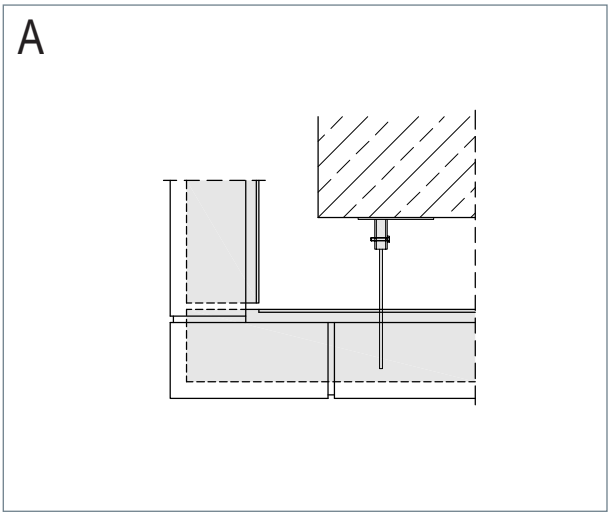
Corners and edging left

In order to meet the diverse requirements for corners of buildings, we have developed corner variants that can be executed for any angle-bracket anchor.

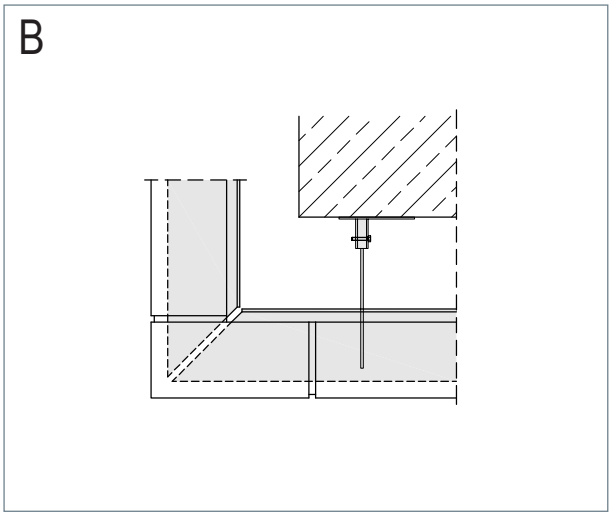
The relevant variant is labelled with an add-on to the item code, e.g. WK-NAL...



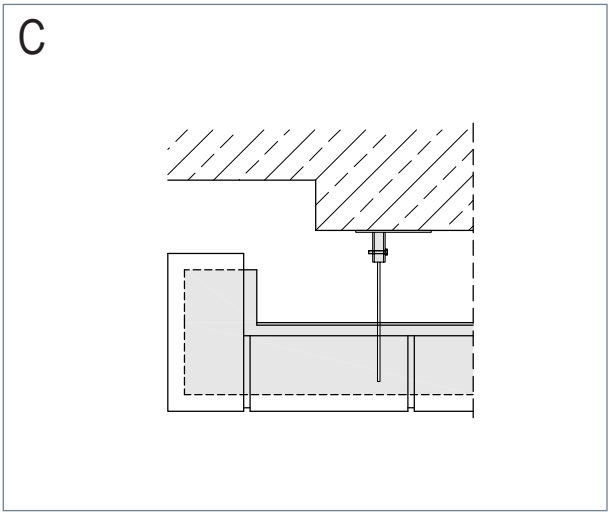
▲ Diverse corners and edging



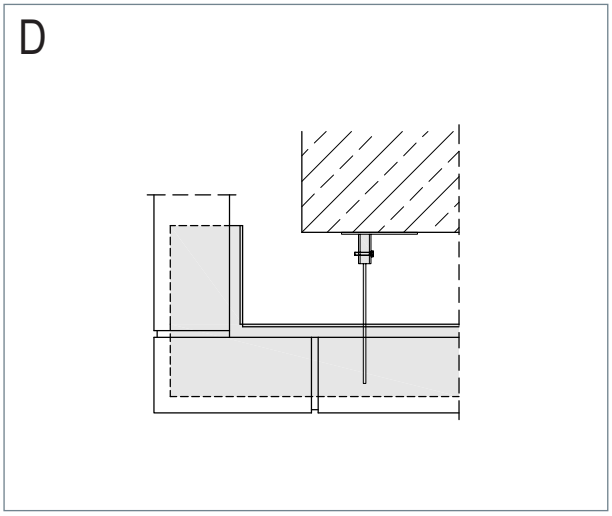
▲ Corner formation type AL



▲ Corner formation type GL



▲ Edge formation type TL

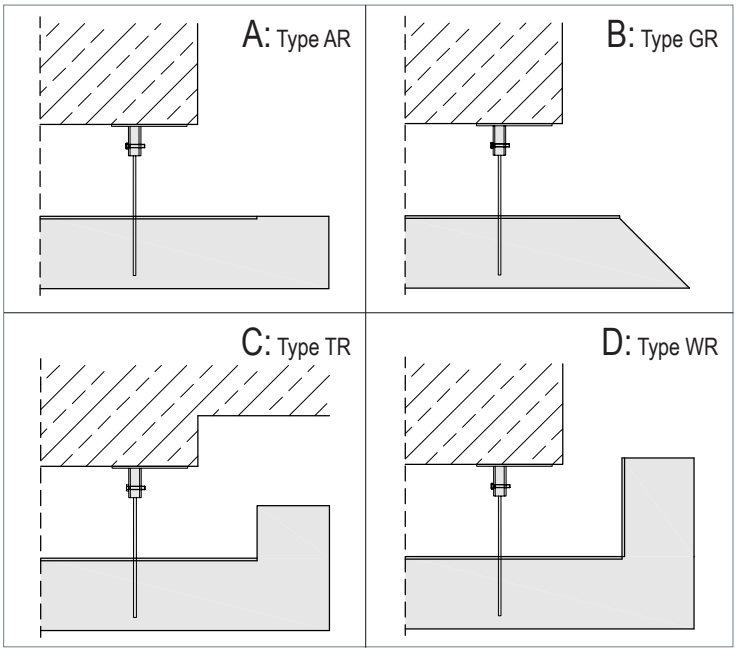


▲ Corner formation type WL

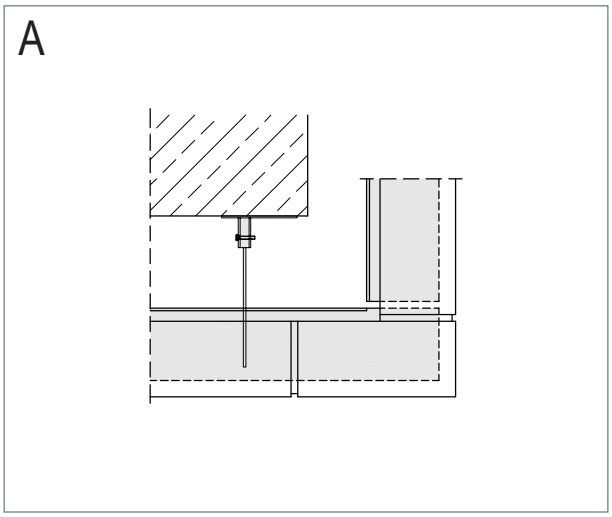
Corners and edging right

As a template, the corner variants are also illustrated for the right corner of the building.

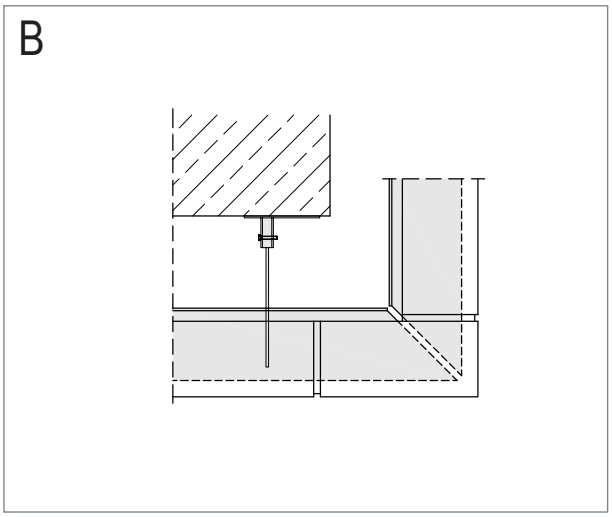
Due to the wide reach of the angles, as well as increased demands on the support brackets and fixing, we recommend arranging dimensioning by our engineering office.



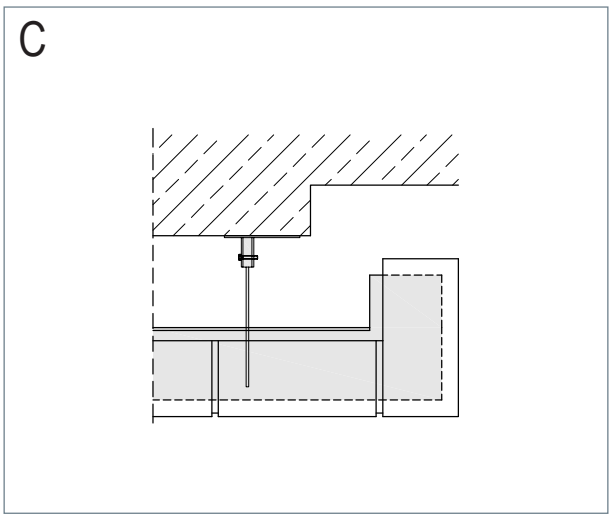
▲ Diverse corners and edging



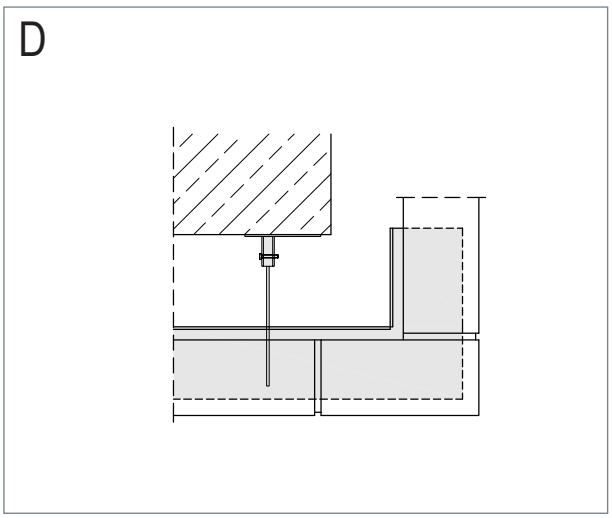
▲ Corner formation type AR



▲ Corner formation type GR



▲ Edge formation type TR



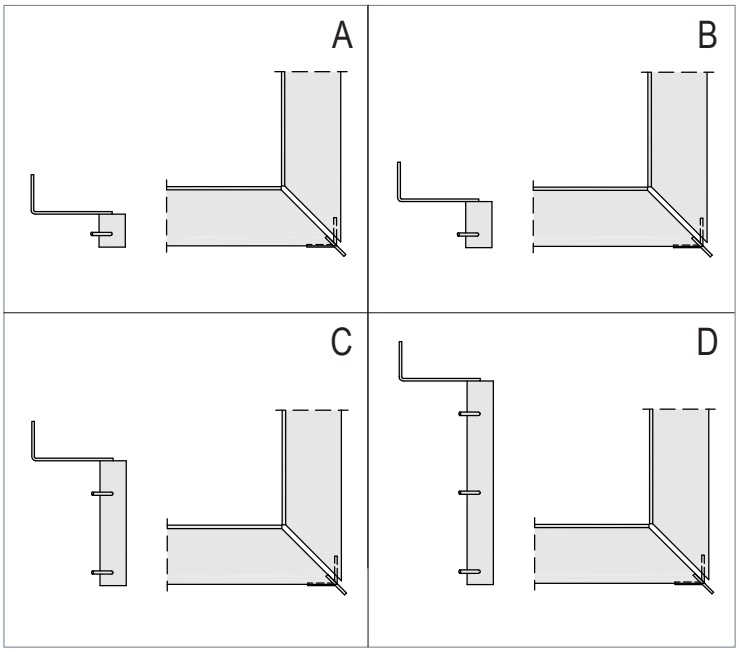
▲ Corner formation type WR

Abutment in corner areas

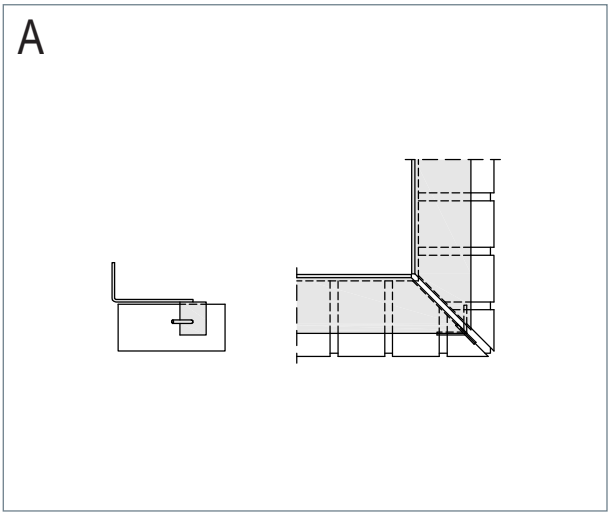
In order to prevent corner stones loosening in the corner area of a suspended facing, abutments are inserted.

They are securely welded to the supporting structure, and secure the brickwork through its mandrels which reach into the stones.

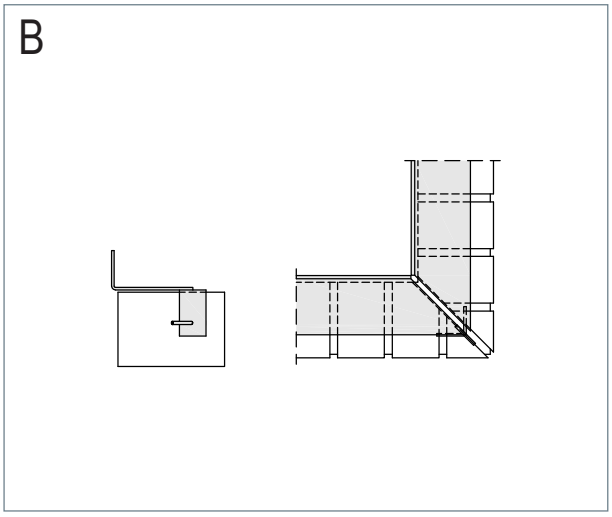
Naturally, corners of other mitres can also be secured in this manner.



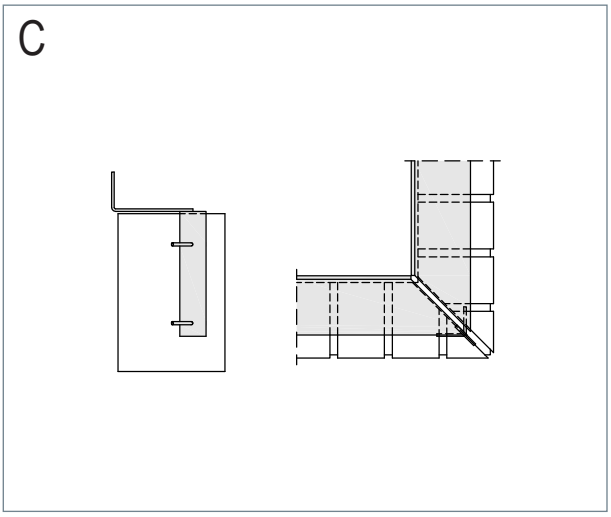
▲ Diverse abutments in corner area, Type WL



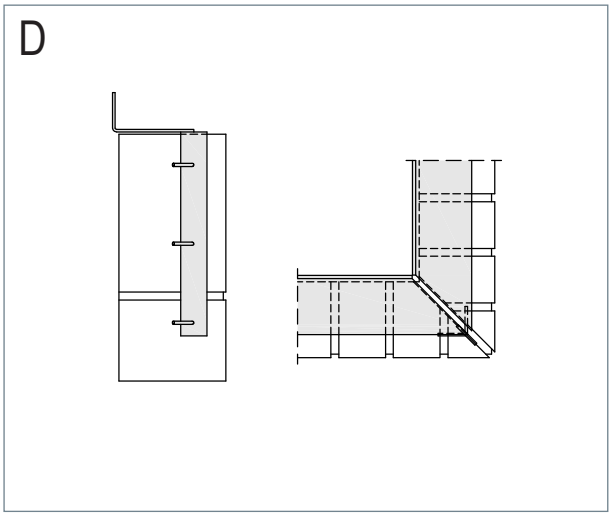
▲ MOSO® abutment WL-50



▲ MOSO® abutment WL-70



▲ MOSO® abutment WL-190

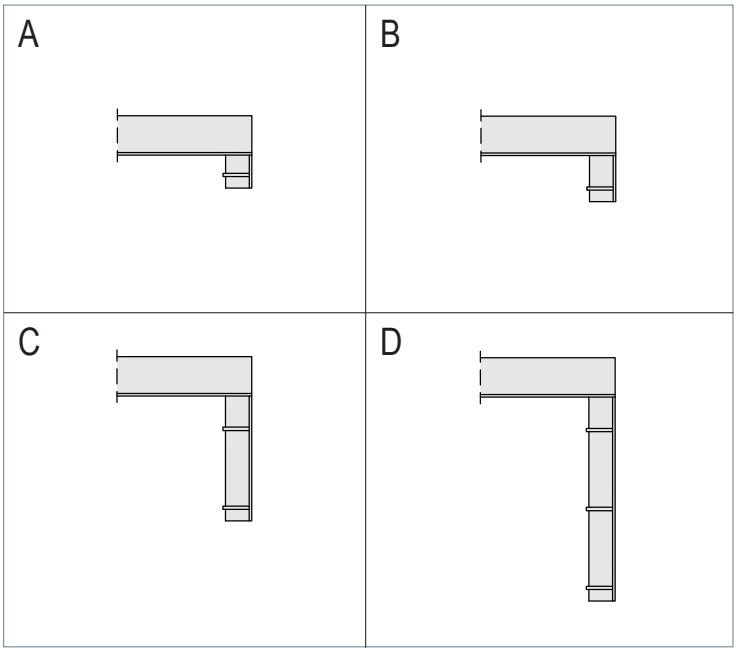


▲ MOSO® abutment WL-310

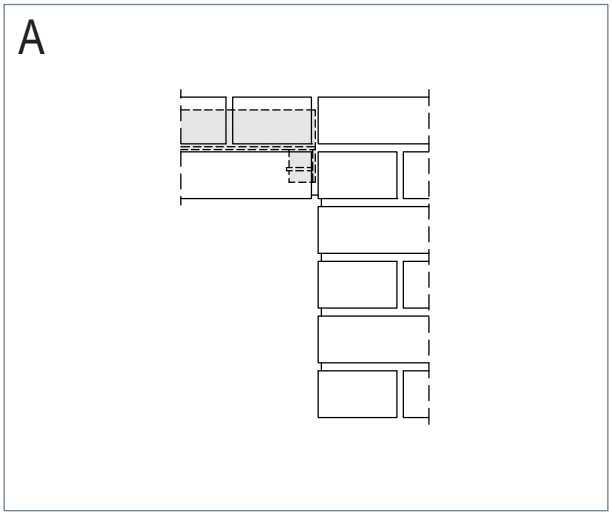
Abutment near expansion joints

Like the abutments in corner areas, these abutments prevent facing bricks tilting into the expansion joint.

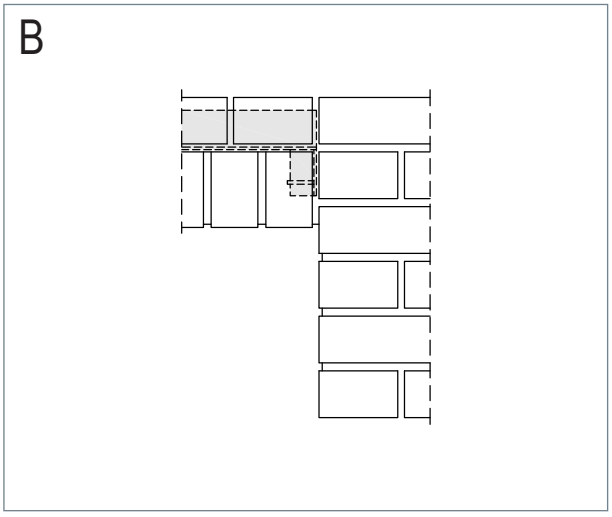
We recommend abutment dimensioning by our engineering office.



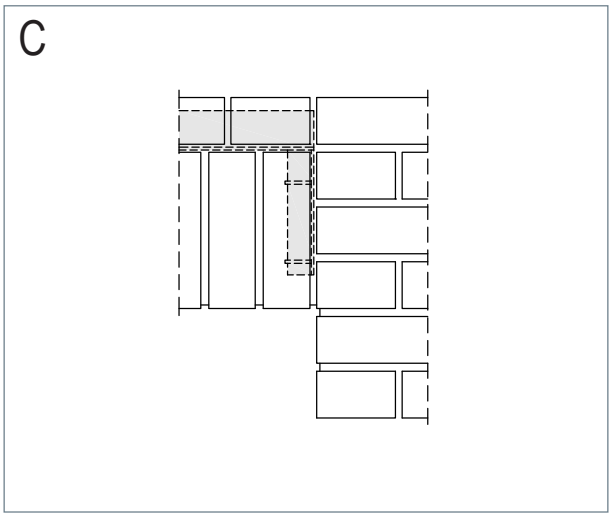
▲ Diverse abutments near expansion joints, type WD



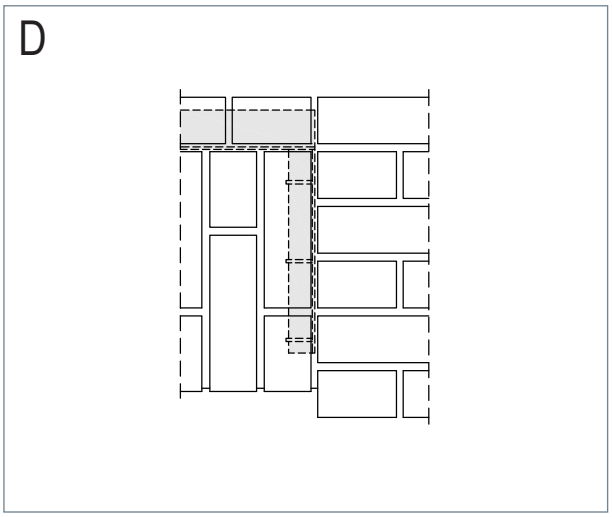
▲ MOSO® abutment WD-50



▲ MOSO® abutment WD-70

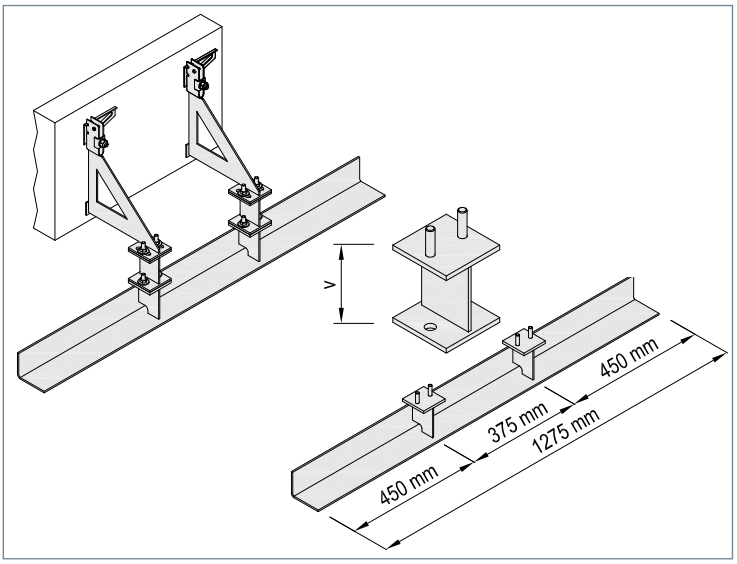


▲ MOSO® abutment WD-190



▲ MOSO® abutment WD-310

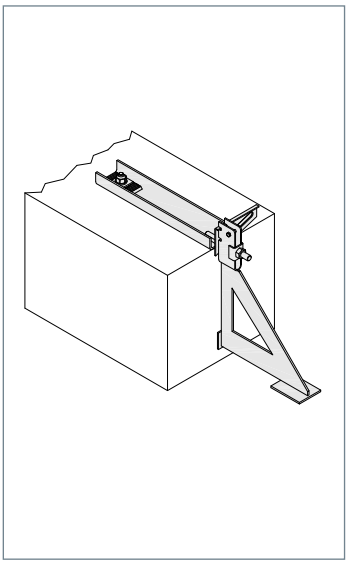
Accessories



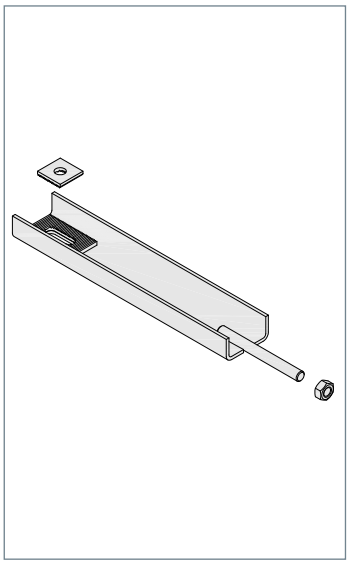
▲ From left: FB-U bracket combines FB-V and WK-E, spacer FB-V and angle element WK-E

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Spacer FB-V and angle element WK-E
- Only in connection with FB-U bracket
- Available in the sizes v = 50 mm, 100 mm, 150 mm, 200 mm, 250 mm and 300 mm
- Can be combined with precast part or angle element WK-E



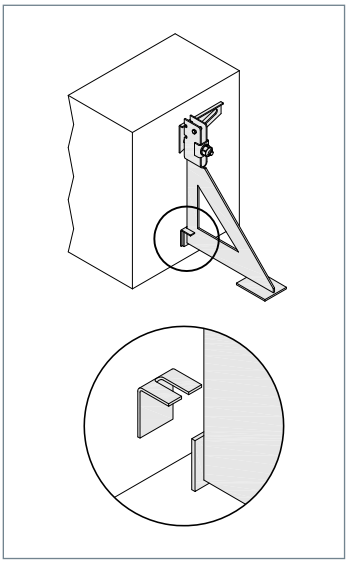
▲ EK-U bracket in combination with MODA



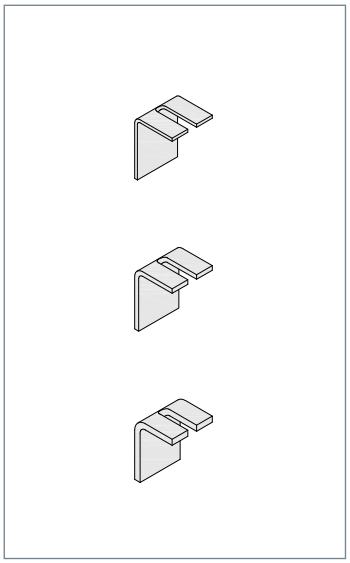
▲ Ceiling anchor

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Ceiling anchor MODA
- To be used if the concrete available at the mounting base in insufficient



▲ EK-U bracket with DVW

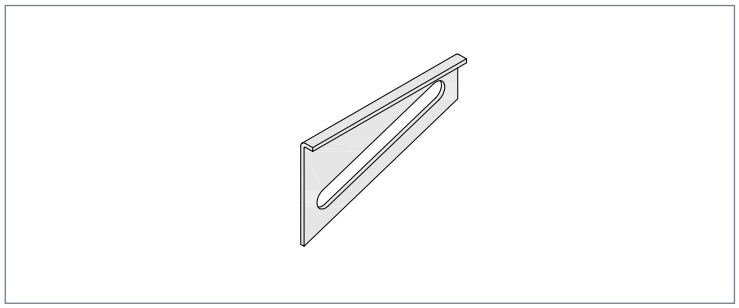


▲ Pressure distribution angle DVW2, DVW3 and DVW4

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Pressure distribution angle DVW
- Compensates irregularities
- Easy to use
- Available in 2 mm, 3 mm and 4 mm

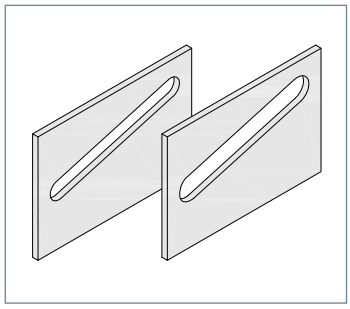
Accessories



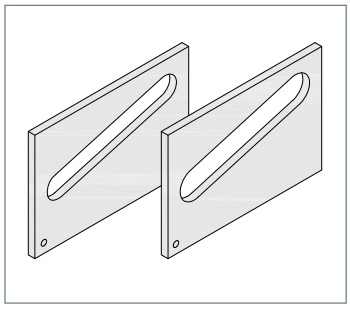
▲ KS13 / trapezoid (TAK1)

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Cranked V-pulley acc. to Approval Z-21.8-1892
- Use for support anchor head TAK1 (3.5 kN or 7.0 kN)
- Continuous adjustment possible



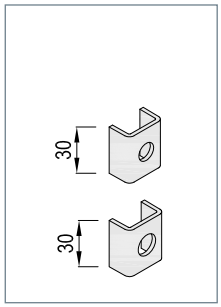
▲ KS13, smooth (TAK2) and KS17, smooth (TAK2)



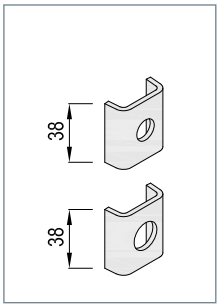
▲ KS17, smooth (TAK3) and KS21, smooth (TAK3)

Product info

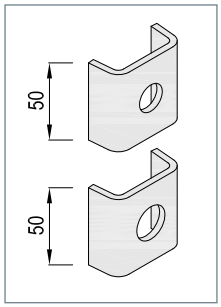
- Stainless steel
  Corrosion resistance class (CRC) III
- Smooth V-pulley acc. to Approval Z-21.8-1892
- Use for support anchor head TAK2 (10.5 kN)
  Or TAK3 (25.0 kN)
- Continuous adjustment possible



▲ USG11 (TAK1) and USG13 (TAK1)



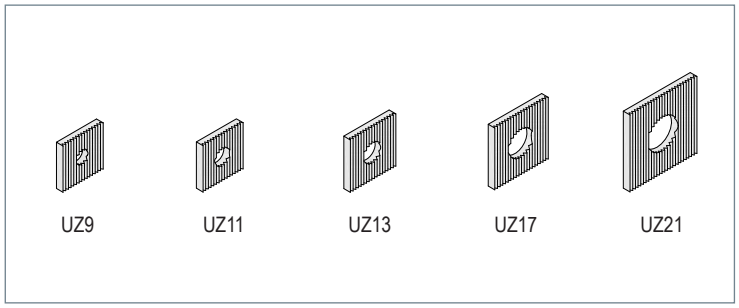
▲ USG13 (TAK2) and USG17 (TAK2)



▲ USG17 (TAK3) and USG21 (TAK3)

Product info

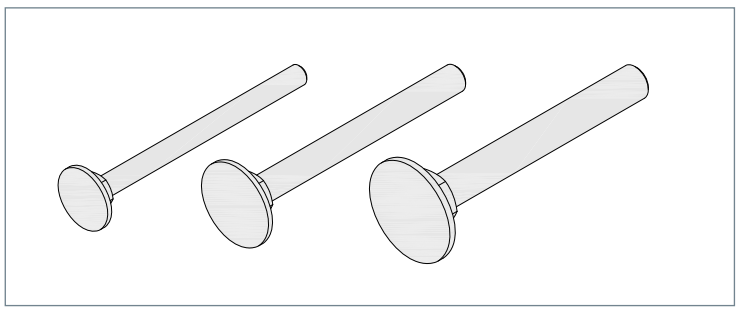
- Stainless steel
  Corrosion resistance class (CRC) III
- Cranked V-pulley acc. to Approval
  Z-21.8-1892
- Prevents splaying of support anchor head



▲ Toothed washers

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Toothed washers
- Very good form lock through milling
- Use for many applications where adjustment with high force transmission is required



▲ Pressing screw FB-DS1-M12, FB-DS1-M16 and FB-DS1-M20

Product info

- Stainless steel
  Corrosion resistance class (CRC) III
- Pressing screw
- Use for WK-D bracket
- Continuous adjustment possible
- Available in M12, M16 and M20

Air joint elements and perforated sheets as vermin protection in the masonry façade

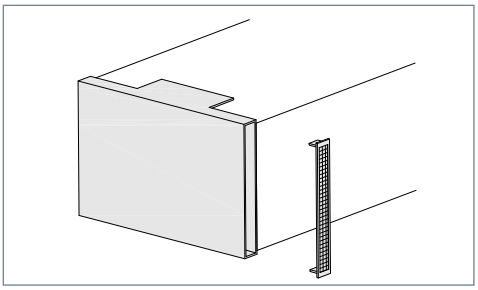
Air joint elements:
The air joint element LUFU conveniently and reliably ensures air flow behind the facing facade.

These elements remove the need for laboriously scraping out joints. The facing stones therefore stay clean and free from damage.

▲ LUFU view

Product info

- Brick format: NF (240/115/71) DF (240/115/52)
- Material: ageing resistant plastic
- Colours: white, concrete grey or anthracite

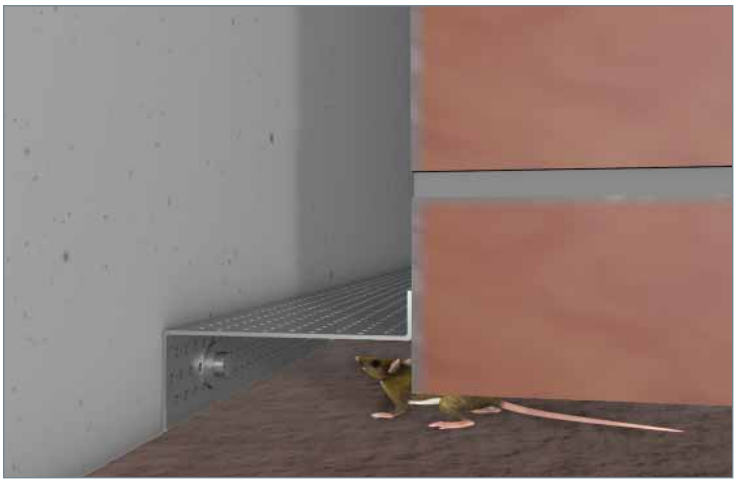


▲ LUFU element with sieve

Use and application

- Simply brick into the butt joint
- Close with a sieve after grouting to prevent vermin intrusion
- For standard bricks provide approx. 1.5 pieces/m², for thin bricks approx. 2 pieces/m²
- Sieve also available separately

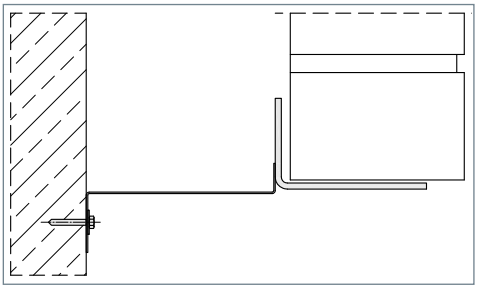
Perforated plate profiles:
Proven in practice, and aligned with the façade. Special profiles made from perforated plates in stainless steel or aluminium are also available. And they come with matching anchor plugs or plate screws for correct installation



▲ Vermin protection: Perforated plate

Product info

- Materials: stainless steel, aluminium
- Profile lengths: up to 2000 mm
- Shade: silver (painted on request)
- Installation accessories: depending on application
  - self-tapping screws
  - plastic dowels



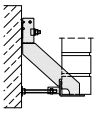
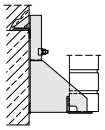
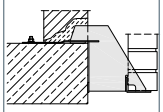
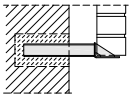
▲ Perforated plate profile

Use and application

- Near the ventilation holes in the masonry or brick facade
- As joint cover for in-situ concrete or precast concrete parts
- Along window and door openings
- In the plinth area of walls build on top of support anchors

Technical details

Point thermal transmittance χ

Load stage [kN]	Wall clearance [mm]	Cantilever length K [mm]	Point thermal transmittance χ [W/K]				
			 WK-D	 WK-N	 WK-K	 WK-O	 WK-M
3.5	80	170	0.026	0.024	0.024	0.029	0.036
5.0	80	170			0.025		
7.0	80	170	0.021	0.026	0.025	0.032	0.040
10.5	80	170	0.021	0.030		0.031	
3.5	100	190	0.024	0.022			
7.0	100	190	0.018	0.024			
10.5	100	190	0.020	0.028			
3.5	120	210	0.022	0.020			
7.0	120	210	0.018	0.027			
10.5	120	210	0.018	0.028			
3.5	140	230	0.022	0.020	0.020	0.028	0.031
5.0	140	230			0.025		
7.0	140	230	0.015	0.027	0.027	0.034	0.036
10.5	140	230	0.017	0.028		0.034	
3.5	160	250	0.021	0.019			
7.0	160	250	0.014	0.026			
10.5	160	250	0.020	0.028			
3.5	180	270	0.020	0.022			
7.0	180	270	0.015	0.025			
10.5	180	270	0.021	0.031			
3.5	200	290	0.022	0.021	0.021	0.025	0.026
5.0	200	290			0.022		
7.0	200	290	0.015	0.025	0.024	0.032	0.031
10.5	200	290	0.019	0.031		0.039	
3.5	220	310	0.023	0.020			
7.0	220	310	0.013	0.025			
10.5	220	310	0.019	0.032			
3.5	240	330	0.022	0.019			
7.0	240	330	0.017	0.025			
10.5	240	330	0.017	0.031			
3.5	260	350	0.023	0.020			
7.0	260	350	0.017	0.027			
10.5	260	350	0.018	0.033			

▲ χ values determined by the Fraunhofer Institute in Stuttgart

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

Key:

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

▲ Calculation of the U-value of a wall with point thermal transmittance coefficient χ (Chi)

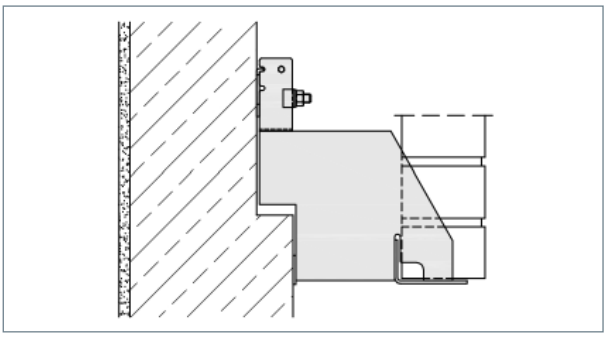
Optimised use: Brackets with pressing screw

Brackets with fixed pressure point

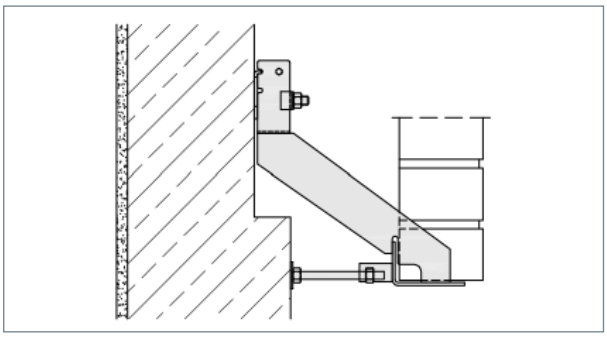
- Cost-effective construction

Brackets with adjustable pressure point

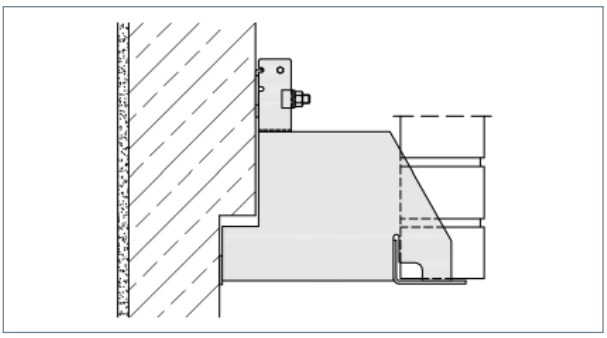
- Minimised risk of settlement crack formation through force-locking
- Reduced thermal bridge through lean construction



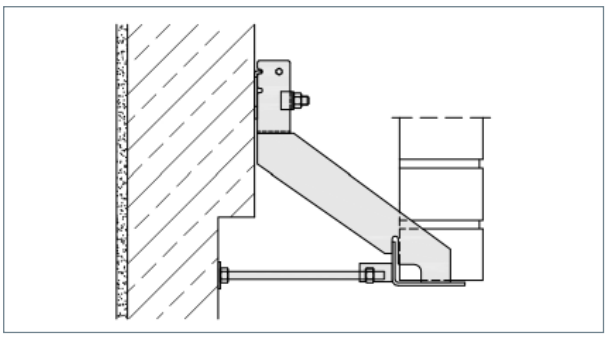
▲ Standard: WK-NS bracket with concrete offset



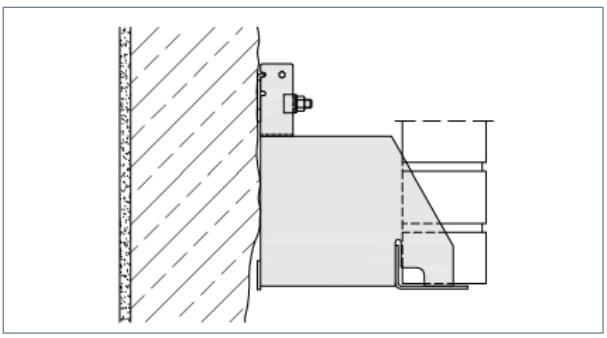
▲ Optimised variant: WK-DS bracket with concrete offset



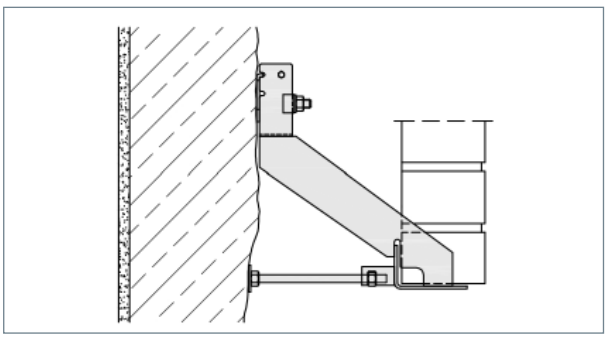
▲ Standard: WK-NS bracket with concrete offset



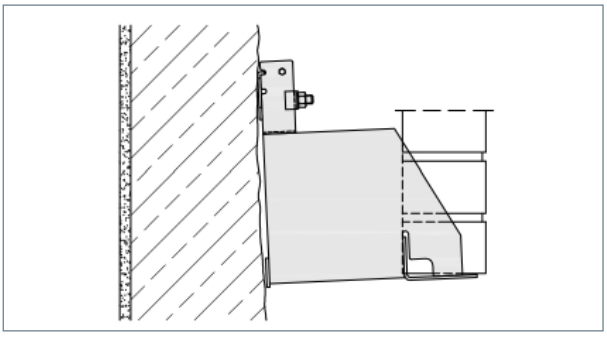
▲ Optimised variant: WK-DS bracket with concrete offset



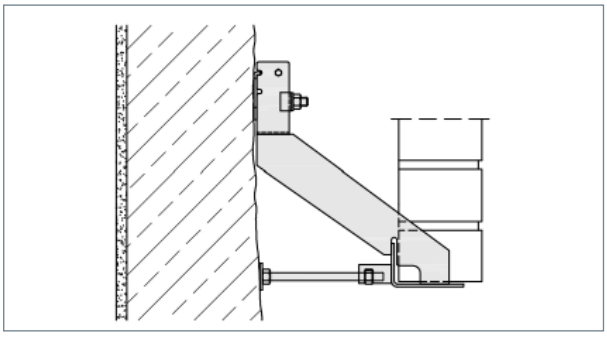
▲ Standard: WK-N bracket with receding concrete base



▲ Optimised variant: WK-D bracket with receding concrete base



▲ Standard: WK-N bracket with receding concrete base



▲ Optimised variant: WK-D bracket with receding concrete base

fischer FHB II

Product info

Acc. to **ETA - 05/0164** of fischer approved for:
- cracked and non-cracked concrete
- concrete grade C20/25 to C50/60

the high-bond system comprises:
Anchor rod FHB II-AS (short version)
Anchor rod FHB II-AL (long version)
Cartridge FHB II-P, FHB-PF or injection mortar FIS HB
Observe edge conditions acc. to ETA!

▲ fischer High-bond-system

Technical data

FHB II-AS M10x60	FHB II-AS M12x75	FHB II-AS M16x95	FHB II-AS M24x170
Nominal drill diameter d_0 [mm]			
10	12	16	25
Drill hole depth h_0 [mm]			
75	90	110	190
Minimum component thickness h_{min} [mm]			
100	120	150	240
Torque T_{inst} [Nm]			
15	30	50	100

Use and application

- Installation temperatures:
  Dowel parts: min. + 5°C
  Anchoring base: from - 5 °C
- Please observe processing and waiting times before attaching load!
- Drill hole production only with a hammer drill
- 2x blowing, 2x brushing, 2x blowing
- When using a mortar cartridge, the anchor rod is placed with a hammer drill with rotary and hammering action
- If the dowel is installed correctly, mortar should come out of the drill hole mouth
- Dowels should be placed by trained specialist staff

fischer FSB

Product info

Acc. to **ETA - 12/0258** of fischer approved for:
- cracked and non-cracked concrete
- concrete grade C20/25 to C50/60
- Seismic category C1 and C2 under certain conditions
- Fire resistance class A1

The super-bond system comprises:
Anchor rod RG M with inclined ceiling
Reaction cartridge RSB or
Super-bond mortar FIS SB:
- up to 3 installation heights possible with RSB (e.g. RSB 10mini, RSB 10, 2xRSB 10mini)

Observe edge conditions acc. to ETA!

▲ fischer Super-bond-system

Technical data

RG M10	RG M12	RG M16	RG M20
Nominal drill diameter d_0 [mm]			
12	14	18	25
Reaction cartridge RSB			
10mini / 10	12mini / 12	16mini / 16	20 / 20E
Drill hole depth h_0 [mm]			
75 / 90	75 / 110	95 / 125	170 / 210
Minimum component thickness h_{min} [mm]			
105 / 120	105 / 140	131 / 161	220 / 260
Torque T_{inst} [Nm]			
20	40	60	120

Use and application

- Installation temperatures: min. cartridge temperature - 15 °C
  min. cassette temperature + 5°C
  Anchoring base: from - 15 °C for FIS SB and RSB
- Please observe processing and waiting times before attaching load!
- Drill hole production only with a hammer drill
- FIS SB: 2x blowing, 2x brushing, 2x blowing
- RSB: 4x blowing (diamond drill, see ETA)
- When using a mortar cartridge, the anchor rod is placed with a hammer drill with rotary and hammering action
- If the dowel is installed correctly, mortar should come out of the drill hole mouth
- Dowels should be placed by trained specialist staff

fischer FAZ II

Product info

Acc. to **ETA - 05/0069** of fischer approved for:
- cracked and non-cracked concrete
- concrete grade C20/25 to C50/60
- Seismic category C1
  under certain conditions
- Fire resistance class A1
- Pre- and push-through installation

Observe edge conditions acc. to ETA!

▲ fischer bolt anchor FAZ II

Technical data

FAZ II M10	FAZ II M12	FAZ II M16	FAZ II M20
Nominal drill diameter d_0 [mm]			
10	12	16	20
Drill hole depth h_1 [mm]			
75	90	110	125
Minimum component thickness h_{min} [mm]			
120	140	170	200
Torque T_{inst} [Nm]			
45	60	110	200

Use and application

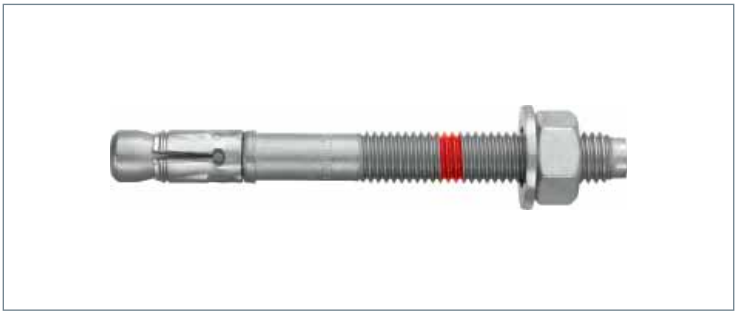
- Produce drill hole with hammer drill, clean drill hole, set anchor
- Splay anchor with installation torque
- Dowels should be placed by trained specialist staff

Hilti HST3-R

Product info

Acc. to **ETA - 98/0001** of Hilti approved for:
- cracked and non-cracked concrete
- concrete grade C20/25 to C50/60
- Seismic category C1 and C2
  under certain conditions
- Fire resistance class A1
- Pre- and push-through installation

Observe edge conditions acc. to ETA!



▲ Hilti bolt anchor HST3-R

Technical data

HST3-R M10	HST3-R M12	HST3-R M16	HST3-R M20
Nominal drill diameter d_0 [mm]			
10	12	16	20
Drill hole depth h_0 [mm]			
73	88	106	124
Minimum component thickness h_{min} [mm]			
120	140	160	200
Torque T_{inst} [Nm]			
45	60	110	180

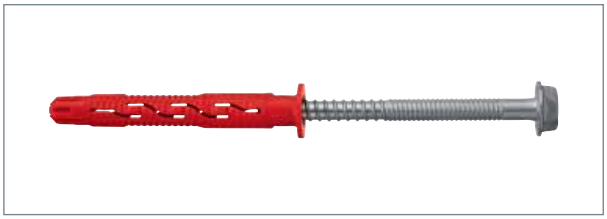
Use and application

- Produce drill hole with hammer drill, clean drill hole, set anchor
- Produce drill hole with diamond drill, clean / rinse out drill hole, set anchor
- Splay anchor with installation torque
- Dowels should be placed by trained specialist staff

Hilti-HRD HR

Product info

Plastic frame dowel / long-shaft fixing
Acc. to **Z-21.2-2034** of Hilti
• Concrete grade C20/25 to C50/60b cracked / non-cracked
Acc. to **ETA-07/0219** of Hilti
• Concrete grade C12/15 to C50/60b cracked / non-cracked
• Masonry full / perforated / hollow bricks
• Aerated concrete (non-cracked)
• Approved as single or group dowels
Observe edge conditions acc. to approval/ETA!

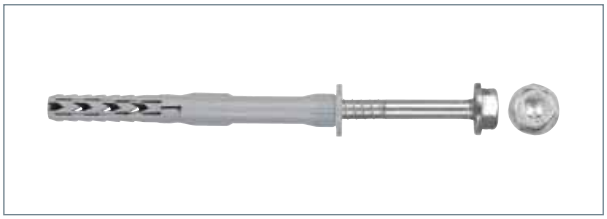


▲ Hilti frame anchors HRD

fischer SXR-FUS

Product info

Plastic long-shaft fixing
Acc. to **ETA - 07/0121** of fischer approved for:
• Concrete grade ≥ C12/15
• Masonry full / hollow / perforated bricks
• Aerated concrete (non-cracked)
• Approved as single or group dowels
Observe edge conditions acc. to ETA!

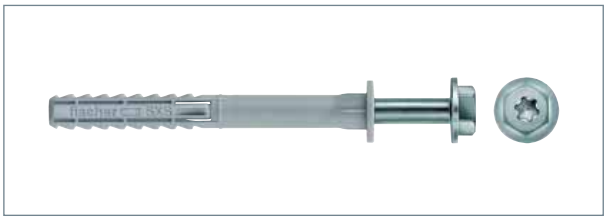


▲ fischer long-shaft fixing SXR

fischer SXS-FUS

Product info

Plastic long-shaft fixing
Acc. to **Z-21.2-1734** of fischer approved for:
• Concrete grade C20/25 to C50/60b cracked / non-cracked
Acc. to **ETA-09/0352** of fischer approved for:
• Concrete grade ≥ C12/15
• Masonry full bricks
• Aerated concrete (non-cracked)
• Approved as single or group dowels
Observe edge conditions acc. to approval/ETA!



▲ fischer long-shaft fixing SXS

fischer FIS V

Product info

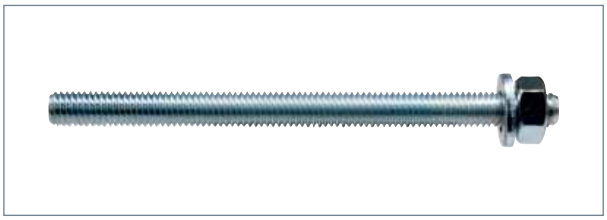
High-performance mortar
Acc. to **ETA-02/0024** of fischer approved for:
• Injection system - Connecting dowel for anchoring in concrete
Acc. to **ETA-08/0266** of fischer approved for:
• Reinforcement connection with injection mortar
Acc. to **ETA-10/0383** of fischer approved for:
• Injection system - For anchoring in masonry
• Concrete grade C20/25 to C50/60b cracked / non-cracked • Hollow bricks made of concrete or aerated concrete • Full and vertically perforated brick • sand-lime full bricks and sand-lime perforated bricks • aerated concrete
Observe edge conditions acc. to ETA!

▲ fischer high-performance mortar FIS V

fischer FIS A

Product info

Anchor rod
The fischer anchor rod FIS A is suitable for various building materials in combination with different injection mortars (e.g. FIS V, Superbond, ...).
The approvals / ETA of each mortar must be observed!



▲ fischer anchor rod FIS A

MOSO® CE anchor rail

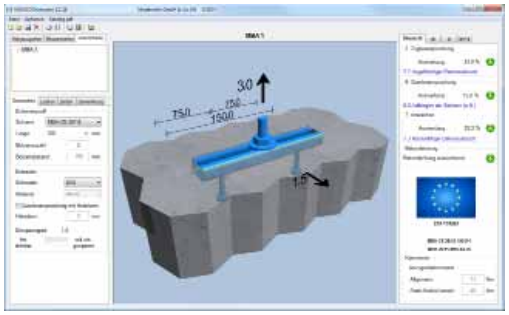
MBA-CE

The anchor rail MBA-CE is technically approved in Europe, and is used as a fixing for installation parts in in-situ concrete, or as an installation part in a precast part. Depending on the installation situation, the MBA-CE anchor rail offers horizontal or vertical adjustment options. The MOSO® hammerhead/hookhead bolts MHK are used as a connection.

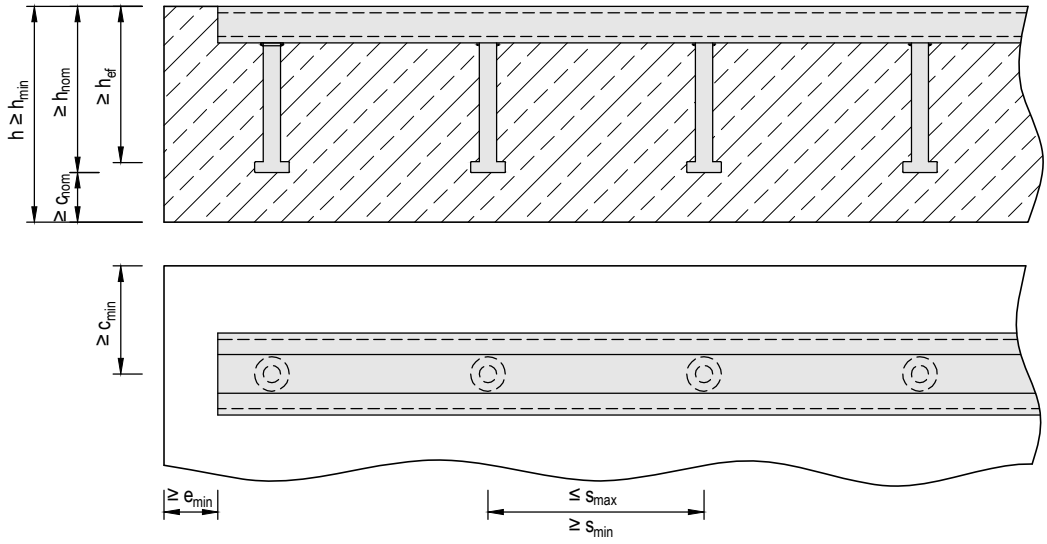
The dimensions are shown in the table.

Product info

- Profile sizes: 28/15, 38/17, 40/25, 50/31 and 52/34
  further profile sizes on request
- Material: approved stainless steel
- Validation: European approval acc. to ETA-13/0224



▲ Surface MBA-CE in our free dimensioning software MOSOCONstructor



▲ MBA-CE: Installation condition

Example order: MBA - CE - 50/31 - 150

Profile type
Profile size
Profile length

Technical data / measurement chart

MBA-CE

Anchor rails		28/15	38/17	40/25	50/31	52/34
min. h_{ef}	[mm]	45	72	80	99	151
min. h_{nom}	[mm]	50	77	85	106	159
c_{min}	[mm]	40	50	50	75	100
e_{min}	[mm]	15	25	25	50	65
s_{min} / s_{max}	[mm]	50 / 200	50 / 200	50 / 250	50 / 250	80 / 250
h_{min} ①	[mm]	80	107	115	136	189

① c_{nom} = 30 mm

Note

The hammerhead/hookhead bolt should be put out for tender separately.

Tender text

Delivery and professional installation of ... pieces of of MOSO® precast part attachment MBA-CE-50/31[1)]-150[2)].

[1)] Profile size acc. to table

[2)] Profile length acc. to table

Profile size	Length [mm] ①											MHK	Screw size ①			
	100	150	200	250	300	350	400	550	1050	3025	6050		M10	M12	M16	M20
28/15	x	x	x	x	x	x	x	x	x	x	x	28/15	x			
38/17	x	x	x	x	x	x	x	x	x	x	x	38/17	x	x	x	
40/25		x	x	x	x	x	x	x		x	x	40/25		x	x	
50/31		x	x	x	x	x	x	x	x	x	x	50/30		x	x	x
52/34		x	x	x	x	x		x	x	x	x					

① Further dimensions on request.

Technical specifications for masonry support

(Extracts from DIN EN 1996-2/NA:2012-01)

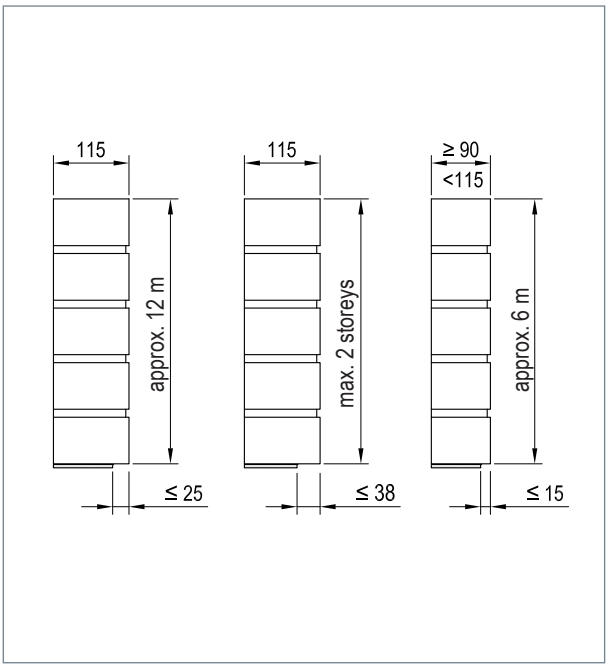
NA.D.1 General provisions for the implementation

b) The minimum thickness of the outer shell is 90 mm. Thinner outer shells are claddings which are regulated by DIN 18515. The minimum length of brick pillars in the outer shell that have to support loads from the outer shell only is 240 mm. The outer shell must be fully supported over its entire length. In the case of interrupted support (e.g. on brackets) all bricks must be supported on both sides in the support level.

d) Outer shells of 115 mm thickness should be supported at vertical intervals of about 12 m. They may protrude up to 25 mm over their support. If the 115 mm thick outer shell is not higher than two storeys or is supported every two storeys, then it may protrude up to 38 mm over its support. These protrusions are to be taken into account in the validation of support loads. If jointing is carried out subsequently, joints of visible areas must be scraped out at least 15 mm deep with clean edges and then jointed in accordance with trade standards.

e) Outer shells with a thickness of t ≥ 105 mm and t < 115 mm must not be higher than 25 m above ground level, and should be supported at vertical intervals of about 6 m. In buildings up to two full storeys, a pediment of up to 4 m height is possible without additional support. These outer shells may protrude up to 15 mm over their support. The joints of the visible surfaces of these facing shells will usually have a smooth cement finish. If jointing is carried out subsequently, joints of visible areas must be scraped out at least 15 mm deep with clean edges and then jointed in accordance with trade standards.

f) Outer shells with a thickness of t ≥ 90 mm and t < 105 mm must not be higher than 20 m above ground level, and should be supported at vertical intervals of about 6 m. In buildings up to two full storeys, a pediment of up to 4 m height is possible without additional support. The joints of the visible surfaces of these facing shells should have a smooth cement finish. These outer shells may protrude up to 15 mm over their support.



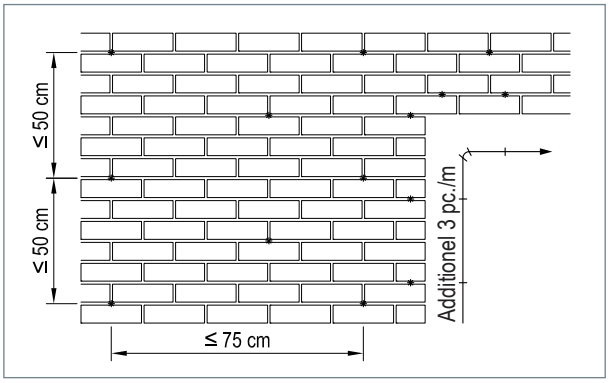
▲ Max. brick overhang acc. to DIN EN 1996-2/NA:2012-01

g) The masonry shells should be connected with stainless steel wire stays as defined under the general type approval or stainless steel wire stays as defined under DIN EN 845-1, the use of which is regulated in a general type approval. The following applies to wire stays which correspond in shape and dimensions to image NA.D.1:

- vertical spacing: max. 500 mm
- horizontal spacing: max. 750 mm
- clear span of masonry shells: max. 150 mm
- Diameter: 4 mm
- Regular brick mortar: min. group IIa
- Minimum quantity: see table NA.D.1

unless otherwise specified in the approval for the wire anchors. On all free edges, at openings and building corners, along expansion joints and at the upper ends of the outer shells, three wire stays per m edge length are required in addition to table NA.D.1.

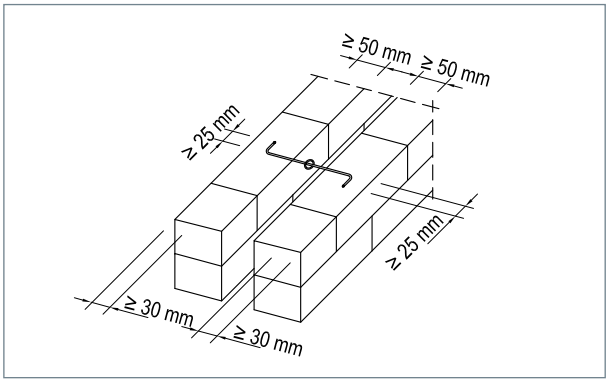
The wire stays must be executed in compliance with their static effectiveness so that they cannot conduct moisture from the outer to the inner shell. (e.g. placing a plastic washer, see image NA.D.1). If the outer shell anchoring is not two-dimensional, e.g. in a line or



▲ Arrangement of wire anchor acc. to DIN EN 1996-2/NA:2012-01

only at ceiling height, its structural stability must be verified. For bent masonry shells, the type, arrangement and number of anchors must be specified while taking account of the deformation.

i) Support constructions that cannot be checked after installation should be made from materials with permanent corrosion protection which are standardised for the application or have type approval.



▲ Image NA.D.1

Technical specifications for masonry support

Number of wire anchors acc. to DIN EN 1996-2/NA:2012-01

Building height	Wind zones 1 to 3 Wind zone 4 Inland	Wind zone 4 North and Baltic Sea coast and Baltic Sea islands	Wind zone 4 North Sea islands
h ≤ 10 m	7[a]	7	8
10 m < h ≤ 18 m	7[b]	8	9
18 m < h ≤ 25 m	7	8[c]	not regulated

[a] In wind zone 1 and wind zone 2 inland: 5 wire binders per m²
[b] In wind zone 1: 5 wire binders per m²
[c] If a building layout length is smaller than h/4: 9 wire anchors per m²

▲ Table NA.D.1

Number of wire anchors acc. to Approval Z.17.1-825 for shell spacings ≤ 200 mm

Building height	Wind zones 1 to 3 Wind zone 4 Inland	Wind zone 4 North and Baltic Sea coast and Baltic Sea islands	Wind zone 4 North Sea islands
h ≤ 10 m	7[a]	7	8
10 m < h ≤ 18 m	7[b]	8	9
18 m < h ≤ 20 m	7	8[c]	not regulated

[a] In wind zone 1 and wind zone 2 inland: 5 wire binders per m²
[b] In wind zone 1: 5 wire binders per m²
[c] If a building layout length is smaller than h/4: 9 wire anchors per m²

▲ Table 1 from Approval Z.17.1-825

Number of wire anchors acc. to Approval Z.17.1-825 for shell spacings > 200 mm to ≤ 250 mm

Building height	Wind zones 1 to 3 Wind zone 4 Inland	Wind zone 4 North and Baltic Sea coast and Baltic Sea islands	Wind zone 4 North Sea islands
h ≤ 10 m	7[a]	8	9
10 m < h ≤ 18 m	7[b]	9	10
18 m < h ≤ 25 m	8	10	not regulated

[a] In wind zone 1 and wind zone 2 inland: 5 wire binders per m²
[b] In wind zone 3, Baltic Sea islands and coastal areas: 8 wire anchors per m²

▲ Table 1 from Approval Z.17.1-1138

A coastal region is defined as follows:
it comprises a strip running in parallel with the coast and reaching 5 km inland.

◀ Wind zone map acc. to DIN EN 1991-1-4/NA:2010-12

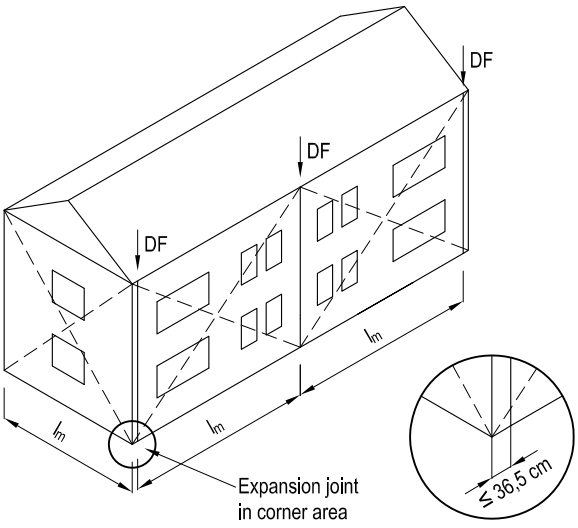
Technical specifications for expansion joint arrangement

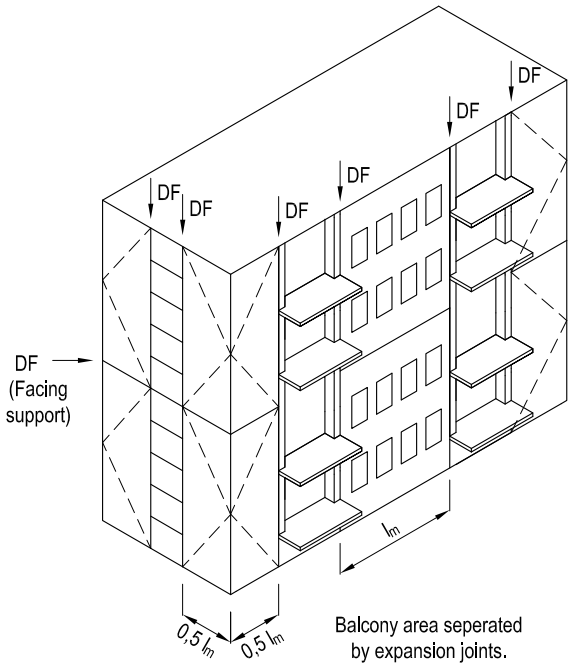
According to DIN EN 1996-2/NA:2012-01, vertical expansion joints must be placed in facing shells. Expansion joints serve to compensate deformations between the outer shell and common brickwork. Their distances depend on the orientation of the external wall which is subject to the varying climatic stress (temperature fluctuations, humidity, etc.), the type of material, and the colour of the outer shell.
Where cavity walls are used, these arise mainly due to temperature movements of the outer shell and by creep and shrinkage of the supporting common brickwork. It is therefore recommended that expansion joints of L_R > 10 m be arranged on longer walls to facilitate absorption of these deformations without causing damage. The following table shows reference values for the spacing of vertical expansion joints. The values have been substantiated through experience, as well as calculations and analyse.

Reference values for expansion joint spacing l_m according to DIN EN 1996-2:2010-12

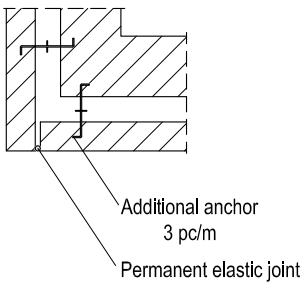
Wall construction	Expansion joint spacing L_R [m] for	
	Brick masonry ①	Limestone/sandstone masonry ①
Double-skin facing masonry with air layer	10 - 12	6 - 8
Cavity walls with air layer and thermal insulation	10 - 12	6 - 8
Cavity facing walls with core insulation	10 - 12	5 - 6
Cavity facing walls with plaster layer	10 - 12	–

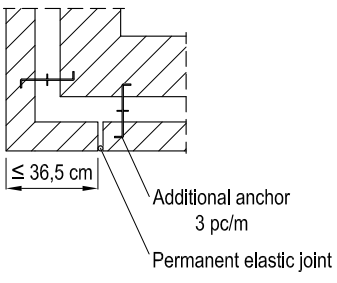
① Smaller intervals should be selected for surfaces exposed to strong sunlight, dark stone surfaces and/or facing shells with low mass.

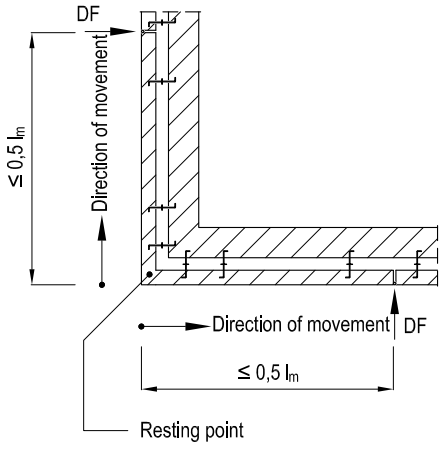




Possible arrangement of vertical expansion joints in corner areas







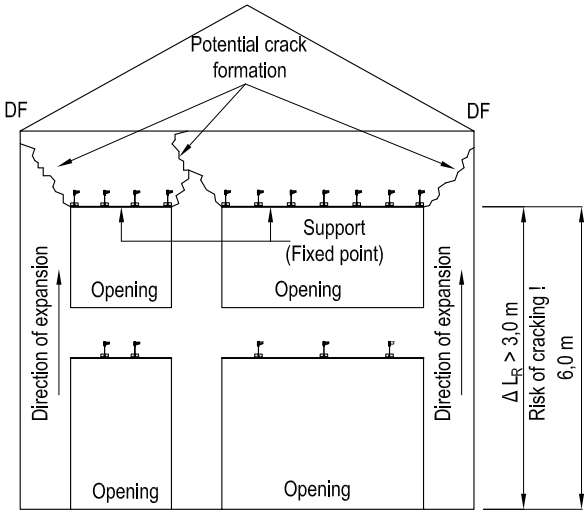
Technical specifications for expansion joint arrangement

Prevent cracks

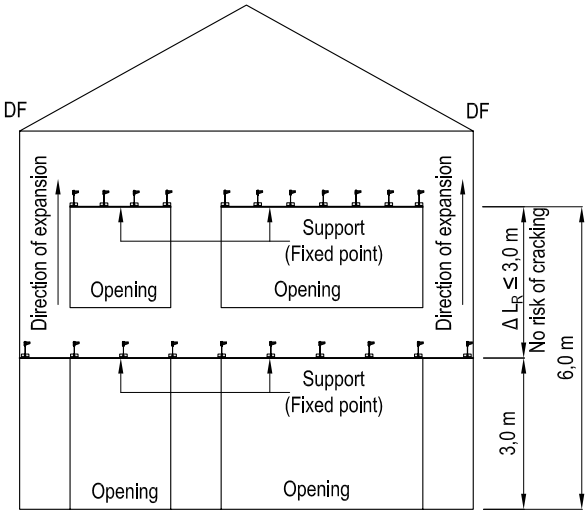
The risk of crack formation is higher if unhindered expansion of the facing masonry is not possible when affected by temperature. For instance, the installation of support brackets create fixed points in the façade which counteract natural expansion.

Due to the fixed connection with the supporting wall, the brackets are fixed such that tensions will invariably build up in the façade when exposed to high or low temperatures. In our experience, these tensions are not critical if the façade expansion is only possible above a storey height of 3 m, as the expansion potential is only 1 to 1.5 mm. If expansion is across 2 storey, it already amounts to 2 to 3 mm. These movements suffice to cause cracks in the façade.

The use of MOSO® perforated strip as joint reinforcement significantly lowers the crack formation risk. From a technical perspective, however, expansion joints arrangements that allow for virtually unhindered façade expansion are more effective than joint reinforcements.

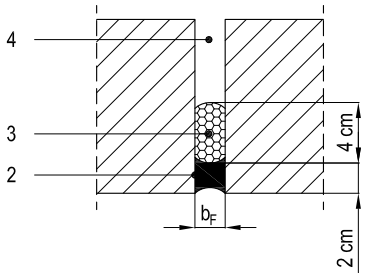


▲ The risk of crack formation is higher for expansion joint spacings of more than 3 m



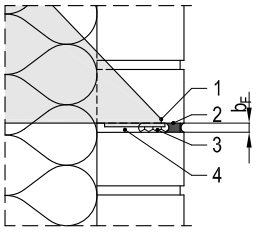
▲ for expansion joint spacings up to 3 m, the risk of crack formation is minimal

Expansion joint formation



$b_F \geq$ 1,5 * Distance between expansion joints / 1000

▲ Formation of a vertical expansion joint



1 Support bracket
2 Elastoplastic joint sealant
3 Backing material (round foam profile)
4 Expansion joint

$b_F \geq$ 2 * Distance between expansion joints / 1000

▲ Formation of a horizontal expansion joint under support bracket

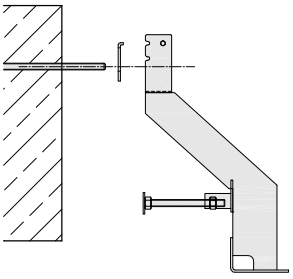
Minimum width of expansion joints

Joint orientation	Width of the joint [mm]	Note
Vertical	15 - 20	Use of elastic sealing compounds
Horizontal	15 - 30	Standard
	20 - 30	12 m shell height and for cement bound backing walls

Installation instructions for MOSO® support anchor

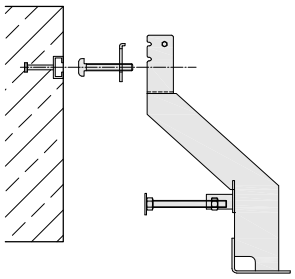
Dowels

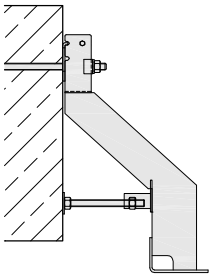
Anchor rail



Insert approved dowels, place wedge plate and support anchor on the plug anchor rod, ...

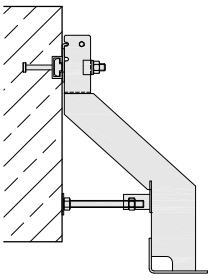
Pre-assemble support anchor with wedge plate, cranked washer, hammerhead/hookhead bolts and nuts, ...

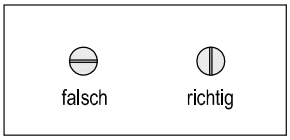




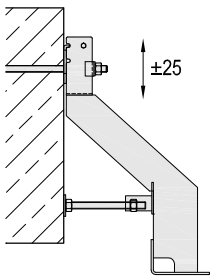
... fit cranked washer with nut and pre-assemble by hand, ...

... ... Insert head of hammer-head/hookhead bolt horizontally into the anchor rail.
Turn the hammerhead/hookhead bolt with light pressure until the notch on the end of the screw is vertical and tighten the nut by hand; ...

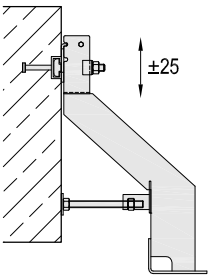


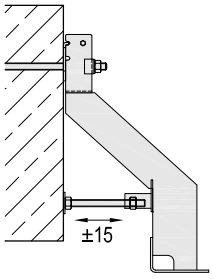


▲ Detail view of hammerhead bolt as installed.

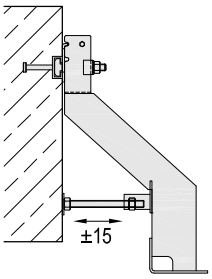


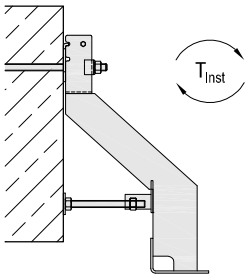
... adjust support anchor height by shifting (and moving) the cranked wedge plate, (TAK1) or turn the smooth wedge plate (TAK2 and TAK3)...



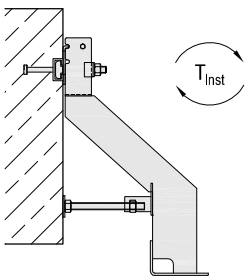


... ... adjust pressing screw until it fits firmly, ...





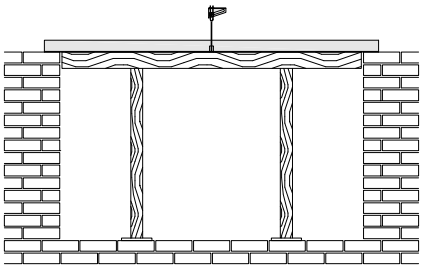
... apply tightening moment in accordance with the approval for the fixing or according to type testing, at least for:
M10 = 15 NM
M12 = 25 NM
M16 = 60 NM



Installation information

Propping for supporting bracket

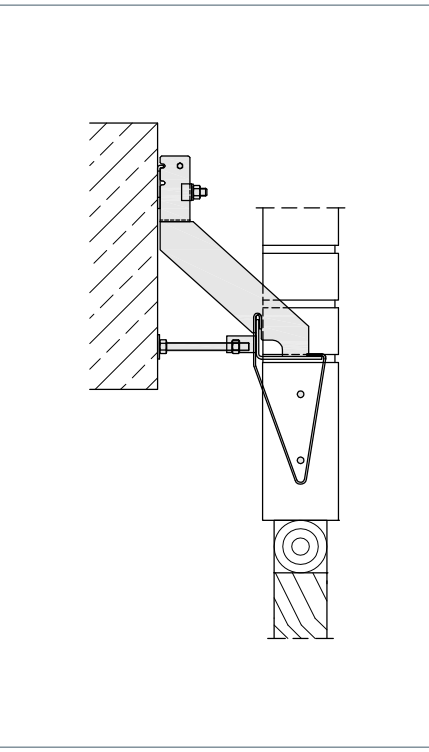
- To avoid undesirable deflections the supporting brackets must be sufficiently propped until the brick mortar is fully set.
- For intermediate propping the supporting bracket is placed on the masonry using an appropriate spacer (e.g. wood or plastic wedges). Since intermediate propping is usually implemented as a horizontal expansion joint, it is absolutely necessary to remove the spacers after the mortar is fully set (for further details, see expansion joint arrangement).



▲ Propping for supporting brackets

Production of a suspended brick-on-edge course

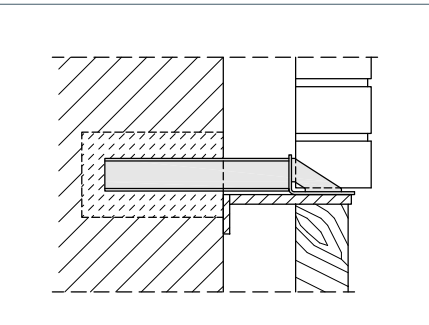
- Wire binders or threaded hooks are used for the suspension of a brick-on-edge course.
- When using wire binders, the supporting bracket is mounted on the top side of the brick-on-edge course, aligned and a top plate set on the lower side. Now the brick-on-edge course, including wire binders, can be laid between the supporting bracket and plate.
- When using threaded hooks, however, the brick-on-edge course can be laid on the plate and the supporting brackets mounted afterwards. The correct alignment of the threaded hooks should be ensured (align with cord).
- Technically correct implementation of the wire binder or threaded hook sufficiently secures the brick-on-edge course against detachment. Depending on the stone and mortar quality used (e.g. poor adhesion mortar) additional pinning of the brick-on-edge course can be undertaken. Suitable wires e.g. ≥ 4 mm stainless steel can be supplied on request.



▲ Suspended brick-on-edge course

Installation of bridge bracket type MK...

- In supporting masonry recesses are created according to the specifications of the delivery documents.
- The recesses are filled with concrete or mortar (MG III with expanding mortar additive) into which the support anchor is pressed. It is then compressed and aligned in a flush surface.
- The support anchor and support angles must be sufficiently supported.



▲ Installation of bridge bracket type MK...

Dimensioning principles

Selection of the anchoring system(*)

Type of bracing	Situation	Anchoring system
Plinth or intermediate support	Wall length < 3 m and corners	Angle-bracket anchor
Plinth or intermediate support	Wall length > 3 m	Single-bracket anchors
Lintel overlap (visible)	Width of opening < 2.01 m	Angle bearing
Lintel overlap (visible)	Width of opening < 2.01 m	Angle-bracket anchor
Lintel overlap (invisible)	Brickwork < 0.5 m	Single-bracket anchor EK-G
Lintel overlap (invisible)	Width of opening ≤ 2,51 m Brickwork ≤ 0.42 m	Moso perforated strip
Lintel overlap (invisible)	Width of opening < 2.51 m	Angle-bracket anchor with wire binder
Lintel overlap (with precast facing lintel)		Fixings for precast parts or laid on

(*) This table generally constitutes a recommendation. Since we offer planning and production as a one-stop-shop, we are already in a position to carry out a cost-benefit analysis while planning the project, so that we can provide you with an optimal offer.

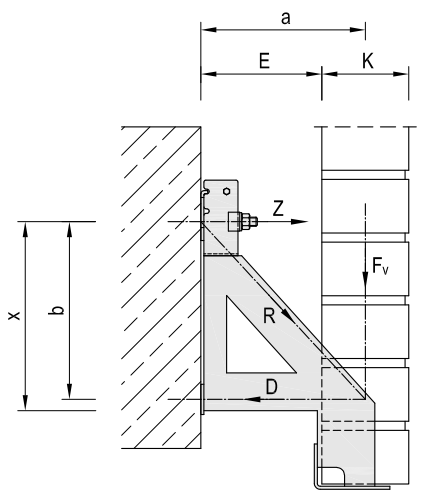
Selection of the anchoring system(*)

Anchoring system	Advantages	Disadvantages
Anchor rail, concreted in in-situ concrete	• short installation times for bracing constructions	• higher material costs • early planning required • precise in-situ concrete preparation necessary
Approved dowels, subsequently placed in the in-situ concrete	• dowels can be placed immediately before installation • low material costs	• longer installation times due to dowel hole drilling

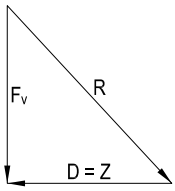
(*) We usually recommend that our customers use dowels, as - in our experience - these serve the practical construction flow requirements better.

Validation of the support construction

Calculation of the resulting distribution force R		
D compressive force [kN]	=	$Z = F_v \times (a / (b - 0{,}5 \times j))$
R resulting anchor force [kN]	=	$\sqrt{F_v^2 + D^2}$
F_v Load per support bracket		
Z tensile force		
a load lifting arm [mm]	=	E + k/2 + 10
b anchoring lifting arm [mm]	=	x - 10 (regular)
j adjustment option total [50 mm]		



Structural system:



The decisive variables for the validation of fixings are - depending on the Approval - the anchor force R or the tensile force Z and the lateral force F_v.

In any case, the approval condition must be observed.

Surface treatment

Treatment of stainless steel surfaces

The fixing parts supplied by us are made of high-quality stainless steel acc. to Eurocode 3 (DIN EN 1993-1-4) and type approvals of the German Institute for Structural Engineering. We are happy to provide you with a factory certification (version 3.1) at any time on request, which provides information on mechanical properties and chemical composition of the supplied steel.

In our production, the parts are blasted or stained, so that the passive layer immediately rebuilds after mechanical treatment, and regular steel abrasion on the surface of the stainless steel parts is excluded.

If any stains form on the surface on-site despite our efforts, these are not indicative of the actual resistance and capacity of the stainless steel supplied by us.

Please find a summary of common causes of marks or stains on stainless steel items:

1. During transport / unloading:
The carrier driver takes the parts out of the packaging when unloading, and pulls them over the unprotected loading edge made from regular steel. In this process, some regular steel is transferred onto the surfaces of the stronger stainless steel - even with only slight pressure. These abrasion particles corrode during storage in humid environments (e.g. outside) and can be seen on the stainless steel article.

Of course, this issue also arises if conveyors or lifting gears made of regular steel touch the stainless steel surface. For instance, if parts are hung in a crane chain without a protective layer between the regular steel chains and the stainless steel parts. At the contact points, a brown abrasion mark will occur on the stainless steel parts when humidity is at play.

2. During intermediate storage:
The unprotected stainless steel parts must not be stored directly next to - and especially not on top or underneath of - regular steel parts. As described above, direct contact will lead to regular steel abrasion on the stainless steel parts. If stored next to one another outside, exposed to wind and rain, “flash rust” is formed. This falls onto the stainless steel parts and can be removed easily by wiping the parts down. If stainless steel and regular steel are stored in immediate proximity, a sheet as protective separation is recommended.

Care should also be taken that no work on steel parts is carried out near the stainless steel parts. For instance, cutting regular steel profiles with a flex may result in glowing sparks flying long distances, and these are a common cause for later mark formation on the stainless steel parts. The big issue with this contamination is that the regular steel particles burn into the stainless steel surface.

3. During installation:
“The supporting angles should be supported until the mortar has fully set.” That’s what our installation instructions for the brick support say. But regular steel brackets should definitely not be used for this support. Naturally, regular steel abrasion happens here as well; and especially with the visible bracings near the windows, it can ruin the entire appearance. We therefore recommend using a piece of wood for this support - one that hasn’t been in contact with regular steel, and which hasn’t been treated. Impregnation can attack stainless steel.

Please take care during installation that no regular steel equipment or splashes contact the stainless steel surface during processing, which may cause abrasion or burning on the stainless steel parts. Even a slight knock with a hammer made from regular tool steel, or a grip with some pliers is enough. If you need to use these tools, please ensure you use chromed or - ideally - tools not made from tool steel.

4. During subsequent façade works:
Acid washing the brick wall - often done with diluted hydrochloric acid or an agent containing hydrochloric acid - can be very problematic for stainless steel. Hydrochloric acid is one of the most aggressive materials for any metal materials. This is why these agents should not be used near the facade, where it comes into direct contact with the stainless steel, or where it might be blown by wind or splashed during application.

We recommend not carrying out the traditional acid wash with diluted hydrochloric acid, and to follow recommendations of relevant specialist firms and associations instead. However, if diluted hydrochloric acid does come into contact with the lower sides of the bracings due to a lack of knowledge on modern cleaning methods, it must be rinsed of with clean water immediately (within a few minutes).

If acid remnants have soaked into the stainless steel parts for longer, the resulting marks constitute a purely visual impairment. Any brown colourings can then be removed with a special passivating agent, especially on visible window lintels. The passivating agent must also be removed thoroughly after application by rinsing the surface with clean water. The passivating agent is described in more detail below:

Measures to remove marks through abrasion, flash rust, acid impact or contact with impregnated woods:
It is not always possible to remove contamination accumulated on the stainless steel by wiping these down with a cloth, even if through airborne particles. The particles are embedded in the pores of the metal surface, or rubbed in by rubbing or brushing the surface. Even if cold-pressed plate surfaces appear, these pores exist, so that the brown colouration will reappear after wiping or brushing in contaminated by regular steel.

Their removal requires a passivating agent which contains nitric acid. Nitric acids is an oxidising acid. Nitric acid therefore accelerates the formation of a passive layer on the surface of the stainless steel. In addition to cleaning the surface from undesirable regular steel and dirt residues, the composition with nitric acid promotes stainless steel resistance without attacking the surface. Once applied for a certain period, the passivating agent must be thoroughly rinsed off with clean water.

Of course, coarse contaminations can be removed first with a stainless steel wire brush or a stainless steel pickling paste. The stainless steel pickling paste must be applied with a brush and then rinsed off with clean water. The pickling paste is very aggressive, and must only be applied with suitable protective clothing, such as protective gloves, aprons and protective goggles to prevent bodily injuries.

Surface damage on the stainless steel parts can be removed with a special rough grinder or mop wheel fitted onto your drill. However, it should be notes that this causes damage to the stainless steel part, and the passive layer will only reform several days later Of course, the passivating process can be accelerated significantly with the aforementioned passivating agent.

Agents for surface treatment and protective clothing

- Passivating agent RP-GEL — Item no. 140414
- Cleaning agent plus 3000 — Item no. 140425
- Surface protection OS 540 — Item no. 140426
- Brush mordant TS a 2 kg — Item no. 140422
- Acid-resistant plastic mordant brush — Item no. 140418
- Acid protection gloves — Item no. 140513
- Acid-proof apron — Item no. 140362
- Nylon protective goggles , shatterproof — Item no. 140363
- Stainless steel wire hand brush — Item no. 140417
- Stainless steel pot brush for power drill — Item no. 140061
- Roughing disc for hand angle grinder, 180 mm Ø — Item no. 140390
- Roughing disc for hand angle grinder, 115 mm Ø — Item no. 140391
- Abrasive mop wheel disc, for hand angle grinder 178 mm Ø — Item no. 140392
- Abrasive mop wheel disc, for hand angle grinder 115 mm Ø — Item no. 140393

MODERSOHN®
Stainless Steel

Experience & expertise

The company:

1970:
Company founded by Wilhelm Modersohn senior. We started with the MU anchor for attaching pre-fabricated façade slabs to concrete

1974:
Rental of office and warehouse space

1979:
Rental of an empty factory building

1984:
Own production building on an industrial estate

End of the 1990s:
Expansion of production facilities, production of stainless steel special and series components for other sectors of industry

2000:
Wilhelm Modersohn junior takes over management To date, the two company managers have registered more than 100 innovations in the field of fastening technology and other sectors of industry with the Munich Patent Office. Patent protection has also been granted for numerous applications

2008/2009:
New administrative building for the Sales Service Centre and Work Scheduling. Production expansion: 2,500 sqm shipping hall

2010-2013:
Expansion of glass bead blasting systems with 3 blasting rooms; extension of the production, warehouse and staff rooms; number of welder positions increased to 20

2014:
Dipl.-Ing. Jürgen Matzelle is appointed second managing director. Alongside his work as a structural engineer, he is also a welding engineer.

2015:
Expansion of the administrative building on Industriestraße

2016:
Move to our extended office building

2017-2019:
Purchase of a building in the neigh-borhood, for the storage of small parts. Expansion of our pre-material stock. Use of a 10 kW fibre laser. New construction of a hall for surface treatment. Further investment in machinery and plant

SYSTEM
Façade fastenings

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 prefabricated parts for masonry façades**
- **MOSO® scaffold anchors for masonry façades**

Attachments for precast parts
- **MOSO® supporting anchors for concrete façades**
  - Panel hangers
  - Clamping anchors
  - Special solutions for precast panel façades
- **MOSO® concrete façade retaining anchors**
  - Serrated restraint anchor
  - Compression/tension anchors
  - Pressure struts
- **MOSO® anchor rails**
  - MBA-CE rails with headed studs
  - ES anchor rails for prefabricated parts

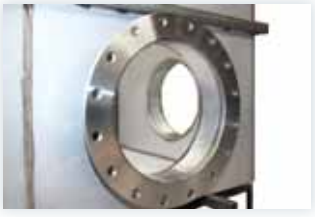
CUSTOM
Custom-made solutions

- **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.**
- **Turned and milled components**
- **Surface finishing in stainless steel**
- **Heavy duty attachments, cladding for special structure work:**
  - Monuments
  - Restoration of buildings
  - Tunnels
  - Bridges
  - Time constructions
  - Swimming pools
  - Glass façades

TRADE
Attachment accessories

- **Stainless steel fastenings, high strength screw fastenings**
  - Threaded rods max length 3000 mm
  - Screws
  - Nuts
  - Washers
  - Rod connectors
  - Tighteners
- **Anchor bolts**
- **Anchor channels**
- **Elastomer bearings and friction bearings**
- **Bearing insulation**
- **Threaded sleeves for transport and attachment purposes**
- **Assembling aid accessories for precast panels**
- **Stainless steel tube and cable attachments**

M-SYSTEM: +49 5225 87 99-0



M-CUSTOM: +49 5225 87 99-220

M-TRADE: +49 5225 87 99-200

Wilhelm Modersohn GmbH & Co. KG

Industriestraße 23 • 32139 Spenge • Germany • Telephone: +49 5225 87 99-0 • Fax: +49 5225 6710
e-mail: info@modersohn.de • www.modersohn.eu • www.facebook.de/modersohn.gmbh

SYSTEM
Façade fastenings masonry