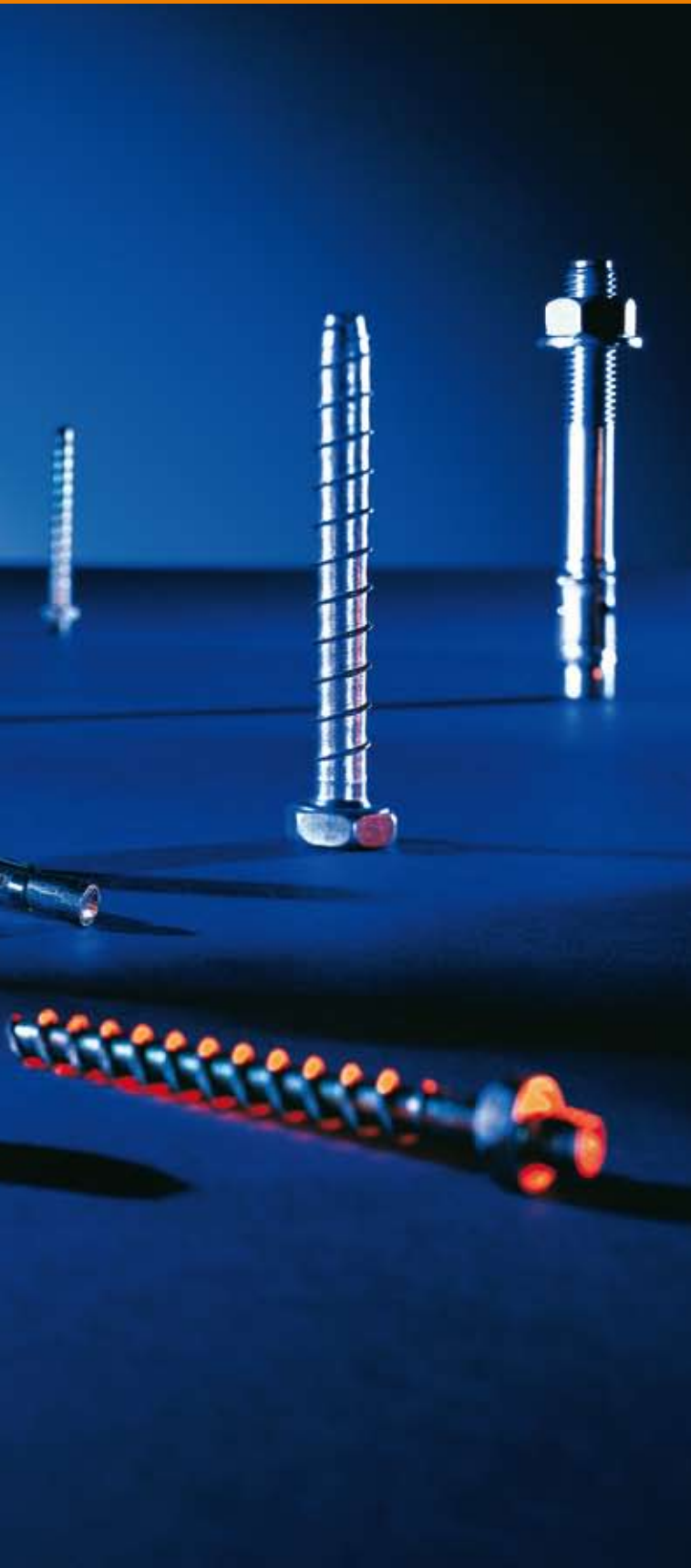


- ▶ Fastenings tested and approved for fires
- ▶ Various substrates possible
- ▶ High fire resistance period
- ▶ Safe installations with tested systems



Fastening systems



Basic principles

376

Overview

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Products

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Basic principles of fastening systems

Fire testing

Special anchors are required for the fireproof fastening of routing systems for electrical installations for wall and ceiling mounting. These are not taken into account in the testing of cable

systems with integrated function maintenance. They require their own proof of suitability as a fastening material in case of fire. This can be obtained with its own fire testing. All the OBO fire protection fastenings pos-

sess either a European technical (ETA) or a German national approval (AbZ to DIN) as proof of usability.



Tested fire protection anchors for concrete ceilings and walls

The OBO fire protection anchors for concrete walls and ceilings were subjected to fire testing. Depending on the fire resistance class, values for the maximum load capacity were determined, which are also documented in

the appropriate test certificates. In addition, the anchors have a general construction approval from DIBt Berlin or a European approval. The OBO anchors are metal spreading anchors, which are able to accept and dissipate safely the loads which occur during a fire. The precondition is the

compliance with the maximum approved load data specified in the test certificates and approvals.



Fastening in hollow brick and porous concrete

Injection mortar systems are available for these substrates. A spread-free closure is created with the stone substrate using the mortar in a wire sleeve. This system also has the proof of use for fires.

Fire protection bolt tie tested for masonry

The OBO fire protection bolt ties were also tested to DIN 4102 and received the appropriate test certificates for mounting in masonry. In addition, some of the products have a general construction approval from DIBt Berlin for mounting in concrete. The fire protection bolt ties must be mounted in accordance with the specifications in the test reports. The loads which occur in a fire and in normal use are safely accepted by the ties, whose special thread cuts into the masonry when screwed into the drill hole.

Overview of fastening systems

Metal spreading anchor



Fire protection anchor FAZ II

- ▶ To fasten normal loads
- ▶ For reinforced or unreinforced concrete

Heavy-duty anchor FH

- ▶ To fasten heavy loads
- ▶ For reinforced or unreinforced concrete

Fire protection nail tie FNA II with threaded connection M6

- ▶ To fasten normal loads
- ▶ For reinforced or unreinforced concrete



Fire protection nail tie FNA II with nail head M6

- ▶ To fasten normal loads
- ▶ For reinforced or unreinforced concrete

Internal thread anchor FZEA II

- ▶ To fasten normal loads
- ▶ For reinforced or unreinforced concrete

FHY cavity ceiling tie

- ▶ To fasten normal loads
- ▶ For pre-stressed concrete, cavity ceilings

Injection tie



Injection mortar FIS V

- ▶ To fasten normal loads
- ▶ For hollow brick, hollow concrete blocks



Injection mortar FIS V

- ▶ To fasten normal loads for porous concrete

Fire protection bolt tie



Bolt tie MMS6

- ▶ To fasten normal loads
- ▶ For calcareous sandstone full brick, calcareous sandstone hollow brick and tiled full brick



Bolt tie MMS10

- ▶ To fasten heavy loads
- ▶ For calcareous sandstone full brick, calcareous sandstone hollow brick and tiled full brick



Bolt tie MMS-ST

- ▶ With M6 threaded connection
- ▶ To fasten normal loads
- ▶ For calcareous sandstone solid brick, calcareous sandstone hollow brick and tiled full brick



Bolt tie HMS-KS

- ▶ To fasten normal loads
- ▶ For calcareous sandstone solid brick, calcareous sandstone hollow brick and tiled full brick

Metal spreading anchor



**European technical approval
ETA-05/0069
Fire resistance class to F120**

Approved data (FAZ II)		
Substrate	Concrete	
Resistance classes	Min. C20/25	Max. C50/60
Load max. [kN]	30 minutes	90 minutes
M8	1.3	0.9
M10	2.3	1.9
M12	4.0	3.2



OBO Bettermann's fire protection anchors were fire-tested in a manner similar to DIN 4102. A maximum load capacity for anchoring in concrete was determined according to the fire resistance class. This load data is documented in an appropriate test certificate.

In addition to the proof of fire protection, the anchors have a European technical approval for normal applications. The load capacity during a fire is considerably below that in a cold state. However, this is completely sufficient to fasten the routing components of the various routing types.

Drilling an anchor hole



Drill the anchor hole according to the anchor approval information for the drill hole diameter and the drill hole depth.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Mounting anchors



Insert the anchor in the drill hole. The anchor can be mounted using the push-through mounting.

Anchor fastening



Anchor fastening by tightening the hexagonal nuts with the torque specified in the approval.

Alternative heavy-duty anchor



If very large loads need to be fastened, then the FH heavy-duty anchor can be used as an alternative.

Mounted anchor



Ideal fastening option with fire protection classification in concrete.

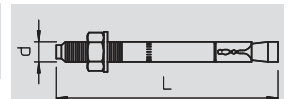
Fire protection anchor



Type	Thread	Dimension L mm	Dimension d mm	Clamping area mm	Pack. pcs	Weight kg/% pc	Item No.	
							ST	G
FAZ II 8/30 GS	M8	97	8	30	50	3.800	3498 48 4	
FAZ II 10/10 GS	M10	95	10	10	50	7.680	3498 54 9	
FAZ II 10/30	M10	115	10	30	25	7.520	3498 58 1	
FAZ II 12/10	M12	110	12	10	20	10.400	3498 65 4	

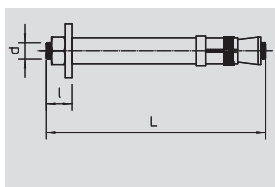
Bolt tie for fastening heavy-duty anchors. Matches OBO mounting systems and wall support brackets and suspended supports.

Price /% pc



Metal spreading anchor

Heavy-duty anchor



Type	Thread	Dimension L mm	Dimension d mm	Clamping area mm	Drill hole Ø mm	Pack. pcs	Weight kg/% pc	Item No. ST / G	Price /% pc
FH II 18x80	M12	120	18	10	18	10	20.000	3498 74 3	

Heavy-duty anchor for fastening components with large loads.



Metal spreading anchor



European technical approval
ETA-06/0175
Fire resistance class to F120

Approved data (FNA II)		
Substrate	Concrete	
Resistance classes	Min. C20/25	Max. C50/60
Load max. [kN]	30 minutes	90 minutes
Thread	0.35	0.30
Nail head	1.60	0.70



OBO Bettermann's fire protection anchors were fire-tested in a manner similar to DIN 4102. For a fire resistance length of 90 minutes, a maximum load capacity was determined when anchored in concrete. This load data is documented in the construction approval. The low load capacity in a fire is absolutely sufficient for fastening components such as profile rails, spacer clips and also collecting clamps.

Drilling an anchor hole



Drill the anchor hole according to the anchor approval information for the drill hole diameter and the drill hole depth.

Blowing out of the drill hole



Freeing the drill hole of dust by blowing it out.

Mounting preparations



Insert the anchor in the drill hole. The anchor can be mounted using the push-through mounting.

Mounting anchors



Knock the anchor into the drill hole until the anchor head or the washer touches the connection component.

Mounted anchor



Simple fastening option as pass-through mounting with fire protection classification in concrete.

Mounted anchor



Simple fastening option with fire protection classification in concrete.

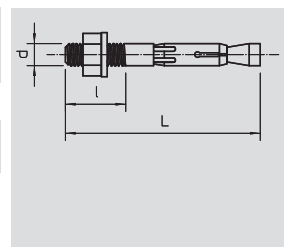
Nail tie



Type	Thread	Clamping area	Dimension d	Dimension l	Dimension L	Pack.	Weight	Item No.
		mm	mm	mm	mm	pcs	kg/% pc	ST / G
FNA II 6	M6	5	6	13	53	100	1.400	3498 42 5

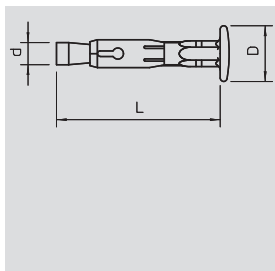
Nail tie with M6 thread. European technical approval for concrete. Fire resistance class to F 120 according to fire protection testing report.

Price /% pc



Metal spreading anchor

Nail tie



Type	Clamping area mm	Dimension d mm	Dimension L mm	Dimension D mm	Pack. pcs	Weight kg/% pc	Item No. ST / G	Price /% pc
FNA II 6	5	6	40	15	100	1.120	3498 46 8	

Nail tie with drive-in head. European technical approval for concrete. Fire resistance class to F 120 according to fire protection testing report.



Metal spreading anchor



**European technical approval
ETA-06/0271
Fire resistance class to F120**

Approved data (FZEA II)		
Substrate	Concrete	
Resistance classes	Min. C20/25	Max. C50/60
Load max. [kN]	30 minutes	90 minutes
M8	1.0	0.8
M10	1.8	1.6
M12	1.8	1.8



OBO Bettermann's fire protection anchors were fire-tested in a manner similar to DIN 4102. For a fire resistance length of 90 minutes, a maximum load capacity was determined when anchored in concrete. This load data is documented in the construction approval. The considerably reduced load capacity in a fire is, however, completely sufficient to fasten the components of the various routing types.

Drilling an anchor hole



Drill the anchor hole using the system-bound drill, type FZUB, and create the drill hole back cut by making swivelling movements with the hammer drill.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Mounting anchors



Insert the anchor in the drill hole. The anchor must be flush with the drill hole.

Anchor fastening



Knock in the spreading pin in the anchor using the appropriate impact mandrel. Then the component to be mounted can be fastened.

Tie for pre-stressed concrete hollow ceilings



The FHY is used with concrete false ceilings. Spreading takes place when the component is mounted, an impact mandrel is not required.

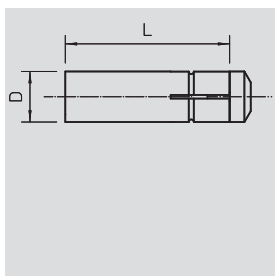
Mounted anchor



Ideal fastening option with fire protection classification.

Metal spreading anchor

Internal thread anchor

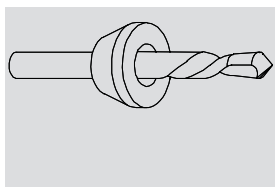


Type	Thread	Dimension D mm	Dimension L mm	Screw-in depth min-max mm	Pack. pcs	Weight kg/% pc	Item No. ST / G	Price / % pc
FZEA II 10x40	M8	10	40	11-17	100	1.550	3492 03 6	
FZEA II 12x40	M10	12	40	13-19	100	2.075	3492 06 0	
FZEA II 14x40	M12	14	40	15-21	50	2.750	3492 09 5	

Back cut steel tie with internal thread.



Universal drill

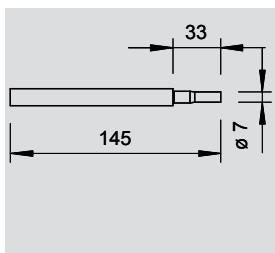


Type	Drill hole Ø mm	Pack. pcs	Weight kg/% pc	Item No. ST	Price /pc.
FZUB 10x40	10	1	11.800	3492 33 8	
FZUB 12x40	12	1	12.200	3492 36 2	
FZUB 14x40	14	1	12.500	3492 39 7	

The universal drill for SDS seats guarantees correct, approved mounting of the FZEA tie.



Drive-in mandrel

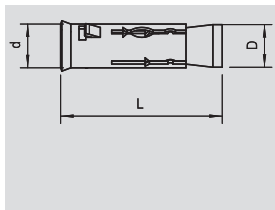


Type	Pack. pcs	Weight kg/% pc	Item No. ST / G	Price /pc.
FZED 10x40	10	10.500	3492 62 1	
FZED 12x40	10	17.800	3492 66 4	
FZED 14x40	10	25.000	3492 69 9	

The impact mandrel guarantees correct, approved mounting of the FZEA tie.



Cavity ceiling tie



Type	Thread	Screw-in depth min-max mm	Pack. pcs	Weight kg/% pc	Item No. ST / G	Price / % pc
FHY M8	M8	43-55	25	1.300	3498 76 0	
FHY M10	M10	52-60	20	3.200	3498 76 4	

Cavity ceiling tie with internal thread for use in stressed concrete core slab ceilings.



Injection tie



General construction approval
Z-21.3-1824
Report of the MPA BS
Function maintenance class to
F120

Approved data

Substrate	Hollow brick	HLz4
	Hollow blocks	Hbl2
	Porous concrete	
Load max. [kN]	See approval!	



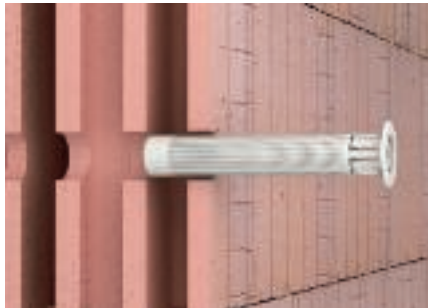
The FIS V injection mortar system is particularly suitable for fire protection fastening in hollow brick, cavity concrete blocks or even in porous concrete. The non-spreading connection is created through the use of the plastic wire sleeve and a threaded anchor rod. The components are tested and approved for a fire resistance period of 90 minutes, rising to 120 minutes in porous concrete.

Use in hollow brick



Drill the hole in the hollow brick according to the selected anchor size and then clean it.

Mounting preparations



Insert the fitting plastic sieve sleeve in the drill hole.

Applying the injection mortar



Press in the injection mortar from the cartridge from the base of the drill hole to the opening. In so doing, draw the point back slowly.

Inserting the anchor rod



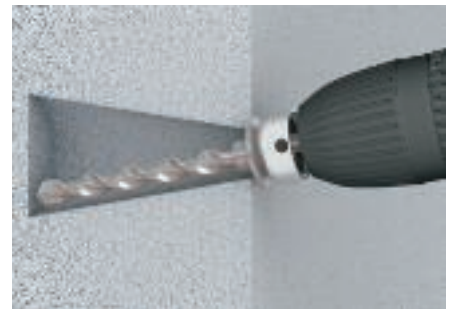
Attach the anchor rod in the filled wire sleeve up to the set marking. The mortar pushes through the openings of the wire sleeve, forming a closure.

Mount the component



The component can be mounted when the injection mortar has hardened. Comply with the tightening torque in the approval. The hardening time is dependent on the ambient temperature.

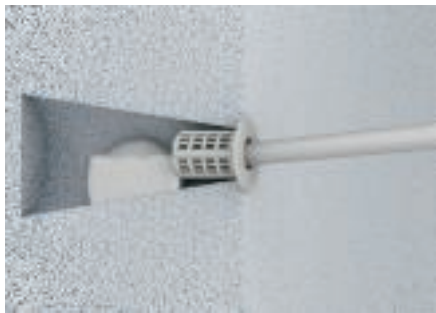
Use in porous concrete wall



Drill the anchor hole using the special PBB conical drill. In so doing, rotate the drill to create the back cut of the opening.

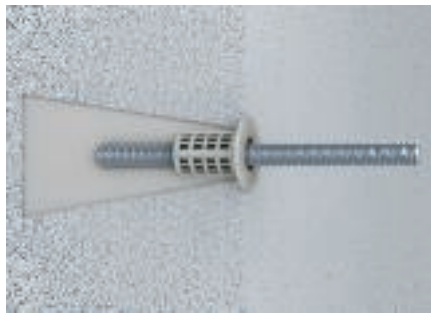
Injection tie

Applying the injection mortar



After thorough cleaning of the opening, insert the centring sleeve into the opening. Then insert mortar from the cartridge from the base of the drill hole to the opening.

Inserting the anchor rod



Attach the anchor rod in the filled wire sleeve up to the set marking. The mortar closes up the back-cut.

Mount the component



The component can be mounted when the injection mortar has hardened. Comply with the tightening torque in the approval. The hardening time is dependent on the ambient temperature.

Mounted component



Approved, fire-protected system for fastening in hollow brick and porous concrete.

2-K mortar cartridge

Type	Unit TE	Contents	Pack.	Weight	Item No.	Price /pc.
		l	pcs	kg/% pc		
FIS V360S	180	0.36	6	50.000	3488 40 3	

Two-component injection mortar for universal, spread-free anchoring in concrete and stone substrates.



Anchor rod

Type	Dimension L	Dimension d	SW	Pack.	Weight	Item No.	Price /% pc
	mm	mm	mm	pcs	kg/% pc	ST / G	
FIS A M6x70	70	6	10	10	1.800	3488 29 2	
FIS A M8x90	90	8	13	10	3.800	3488 29 8	

Injection threaded rod for use in injection mortar.



Plastic wire sleeve

Type	Dimension d	Dimension L	Consumption TE	Pack.	Weight	Item No.	Price /% pc
	mm	mm		pcs	kg/% pc	PP	
FIS H 12x50 K	12	50	5	50	0.225	3488 45 2	
FIS H 12x85 K	12	85	10	50	0.420	3488 46 4	
FIS H 16x85 K	16	75	12	50	1.000	3488 46 2	

Injection tie sleeve for use in hollow brick and stones in combination with injection mortar system.



Injection tie

Pressing gun



Type	Colour	Pack.	Weight	Item No.
		pcs	kg/% pc	
FIS AK	red	1	140.000	3488 52 7

Price /pc.

Pressing gun for two-component injection mortar.

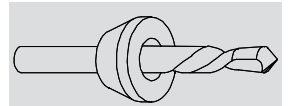
Conical drill for porous concrete



Type	Drill hole Ø	Pack.	Weight	Item No.
	mm	pcs	kg/% pc	ST
FIS PBB	15	1	22.570	3488 52 5

Price /% pc

Conical drill PBB with SDS chuck for correct, approval mounting of the injection tie system in porous concrete.



Centring sleeves for porous concrete



Type	Dimension d	Pack.	Weight	Item No.
	mm	pcs	kg/% pc	PP
FIS PBZ	15	10	0.350	3488 51 5

Price /% pc

Centring sleeve for using the injection tie system in porous concrete.



General DIBt construction approval for concrete substrates
Tested in accordance with DIN 4102
Fire resistance classes to F90

Approved data		
Substrate	Concrete	
	Masonry	KSV, KSL, Vz
Load max. [kN]	30 minutes	90 minutes
MMS10	2.3	1.0



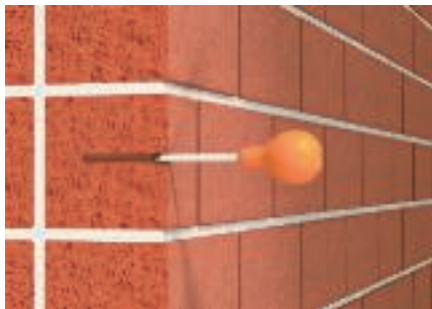
OBO Bettermann's fire protection bolt ties, type MMS10, were fire-tested in a manner similar to DIN 4102. The maximum load capacity depending on the fire resistance class was determined for different types of masonry. This load data is documented in an appropriate test certificate. If there is a fire, the load capacity for the tested masonry types is sufficient for fireproof fastening of the different components for function maintenance false ceiling mounting. The fire protection bolt ties are screwed directly into the drill hole, like a threaded drill in metal. There is no need for an additional anchor.

Drilling the fastening hole



Drill the fastening hole in accordance with the specifications in the mounting instructions. The drill hole depth must be at least 2 cm deeper than the length of the bolt tie. Any layer of plaster should not be taken into account in the minimum setting depth.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Fixing the fire protection bolt tie



Push the fire protection bolt tie through the fastening hole of the appropriate component and fix in the drill hole.

Fastening the component



Turn the bolt tie into the drill hole. Turning in can take place using a rechargeable or ratchet screwdriver, or also by hand.

Fastened fire protection bolt tie



Ideal fastening option with fire protection classification for various types of masonry.

Bolt tie

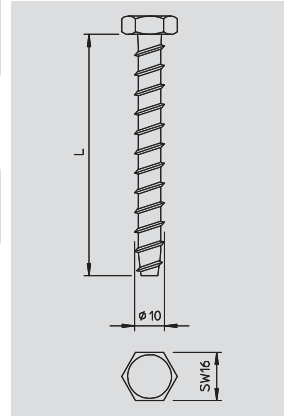
MMS hex



Type	Dimension mm	Drill hole Ø mm	Dimension L mm	Pack. pcs	Weight kg/% pc	Item No. ST / G
MMS10	10 x 80	8	80	50	3.800	3498 12 3 ST / G
MMS10	10 x 100	8	100	50	4.600	3498 15 8 ST / G

Price
/% pc

Fire protection bolt tie with hexagonal head for direct installation without additional anchors.
Substrate: concrete or masonry. WAF 16. Drill hole 8 mm. Fire protection tested according to DIN 4102. Fire resistance class to F90.





General DIBt construction approval for concrete substrates Tested in accordance with DIN 4102 Fire resistance classes to F90

Approved data		
Substrate	Concrete	
	Masonry	KSV, KSL, Vz
Load max. [kN]	30 minutes	90 minutes
MMS6	0.80	0.35
MMS7.5	1.25	0.50



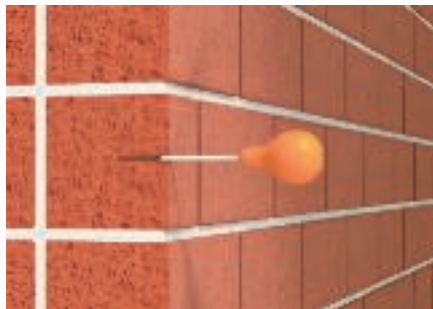
OBO Bettermann's fire protection bolt ties, type MMS, were fire-tested in a manner similar to DIN 4102. The maximum load capacity, depending on the fire resistance class, was determined for different types of masonry. These values are documented in an appropriate test certificate. Taking the occurring loads for the function maintenance application and for false ceiling mounting into account, the determined load capacities for the different masonry types are absolutely sufficient. The fire protection bolt tie can simply be screwed directly into the drill hole without additional anchors.

Drilling the fastening hole



Drill the fastening hole in accordance with the specifications in the mounting instructions. The drill hole depth must be at least 2 cm deeper than the length of the bolt tie. Any layer of plaster should not be taken into account in the minimum setting depth.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Fixing the fire protection bolt tie



Push the fire protection bolt tie through the fastening hole of the appropriate component and fix in the drill hole.

Fastening the component



Turn the bolt tie into the drill hole. Turning in can take place using a rechargeable or ratchet screwdriver, or also by hand.

Fastened fire protection bolt tie



Ideal fastening option with fire protection classification for various types of masonry.

Bolt tie

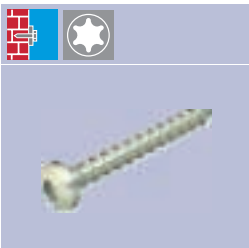
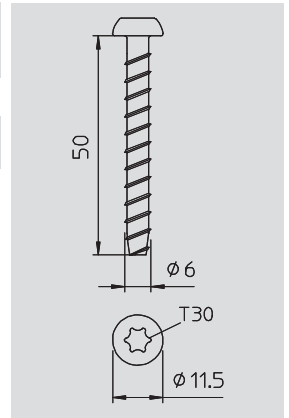
MMS pan head



Type	Dimension	Pack.	Weight	Item No.
	mm	pcs	kg/% pc	ST / GC
MMS6	6 x 50	100	0.960	3498 10 7

Price
/% pc

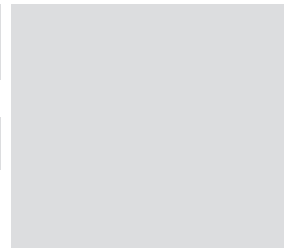
Fire protection bolt tie with pan head, drive T30, drill hole 5 mm. Fire protection tested according to DIN 4102. Fire resistance class to F90.



Type	Dimension	Pack.	Weight	Item No.
	mm	pcs	kg/% pc	ST / G
MMS7,5	7.5 x 80	50	2.174	3498 27 1

Price
/% pc

Fire protection bolt tie with pan head, drive T40, drill hole 6 mm. Fire protection tested according to DIN 4102. Fire resistance class to F90.





General DIBt construction approval for concrete substrates Tested in accordance with DIN 4102 Fire resistance classes to F90



Approved data		
Substrate	Concrete	
	Masonry	KSV, KSL, Vz
Load max. [kN]	30 minutes	90 minutes
MMS-ST	0.80	0.35

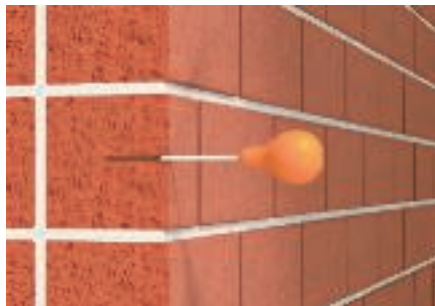
OBO Bettermann's fire protection bolt tie, type MMS-ST, was fire-tested in a manner similar to DIN 4102. The maximum load capacity in a fire was determined for various masonry substrates. These load values are documented in an appropriate test certificate. The proven load capacity is fully sufficient for the loads occurring for function maintenance when mounted with the spacer clip, type 732. The bolt tie is mounted without additional anchors. It cuts into the substrate like a threaded drill and therefore can be screwed directly into the drill hole.

Drilling the fastening hole



Drill the fastening hole in accordance with the specifications in the mounting instructions. The drill hole depth must be at least 2 cm deeper than the length of the bolt tie. Any layer of plaster should not be taken into account in the minimum setting depth.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Fixing the fire protection bolt tie



Push the fire protection bolt tie into the drill hole and fix it.

Screw in the fire protection bolt tie



Turn the bolt tie into the drill hole. Turning in can take place using a rechargeable or ratchet screwdriver, or also by hand.

Fastened screw-in spacer clip



On the spacer clip screwed onto the connection thread of the bolt tie.

Fastened fire protection bolt tie



Ideal fastening option with fire protection classification for various types of masonry for screwing on screw-in spacer clips.

Bolt tie

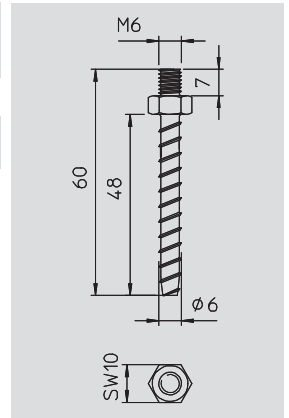
MMS-ST with thread



Type	Thread	Dimension	Drill hole Ø	Pack.	Weight	Item No.
		mm	mm	pcs	kg/% pc	ST / G
MMS-ST	M6	6 x 60	5	100	1.400	3498 26 3

Price
/% pc

Hexagonal fire protection bolt tie with M6 head, WAF 10, drill hole 5 mm. Fire protection tested according to DIN 4102. Fire resistance class to F90.





Tested in accordance with DIN 4102
Fire resistance classes to F90



Approved data		
Substrate	Concrete	
	Masonry	KSV, KSL, Vz
Load max. [kN]	30 minutes	90 minutes
HMS-KS	0.50	0.15

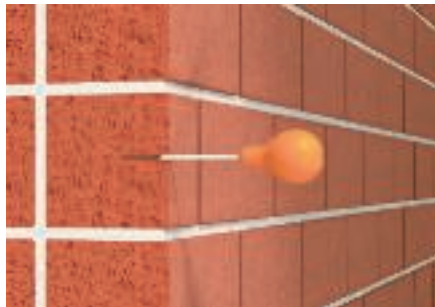
OBO Bettermann's fire protection bolt tie, type HMS-KS, was fire-tested in a manner similar to DIN 4102. The maximum load capacity depending on the fire resistance class was determined for different types of masonry. These values are documented in the appropriate test certificates. The shape of the bolt tie head is designed in such a way that it disappears in the catchment area of the thread in the base of the screw-in spacer clip, type 732. This means that it is possible to use the bolt tie for pass-through mounting through the thread. The load capacities occurring in conjunction with this clip are absolutely sufficient for the function maintenance application for the different masonry types. The fire protection bolt tie can simply be screwed directly into the drill hole without additional anchors.

Drilling the fastening hole



Drill the fastening hole in accordance with the specifications in the mounting instructions. The drill hole depth must be at least 2 cm deeper than the length of the bolt tie. Any layer of plaster should not be taken into account in the minimum setting depth.

Blowing out of the drill hole



Free the drill hole of dust by blowing it out.

Fixing the fire protection bolt tie



Push the fire protection bolt tie through the threaded section in the clip foot and fix in the drill hole.

Fastening the spacer clip



Turn the bolt tie into the drill hole. Turning in can take place using a rechargeable or ratchet screwdriver, or also by hand.

Fastened screw-in spacer clip



The head of the bolt tie fits exactly into the catchment area of the thread.

Fastened fire protection bolt tie



Ideal fastening option with fire protection classification for various types of masonry for screwing on fastening clips.

Bolt tie

HMS-KS countersunk head



Type	Dimension	Drill hole Ø	Pack.	Weight	Item No.
	mm	mm	pcs	kg/% pc	ST / G
HMS-KS	5 x 50	4	200	0.460	3498 20 4

Price
/% pc

Fire protection bolt tie with conical countersunk head, drive T20, drill hole 4 mm. Fire protection tested according to DIN 4102. Fire resistance class to F90.

