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# Main Catalogue




























































Metal Products				18
			Concrete C20/25 Compressive strength 25 N/mm <sup>2</sup> Natural Stone, Rock Sand-lime brick Brick Perforated Brick Lightweight Concrete Gypsum Plasterboard, Chipboard Polystyrene panel, PU rigid foam panel, Polystyrene Metal	
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<b>m1t-C</b> Throughbolt		Option 1 CE F120 	■ ■	22
<b>m1tr</b> Throughbolt, stainless steel A4/316		Option 1 CE F120 	■ ■	23
<b>m2</b> Throughbolt		Option 7 CE 	■ ■	25
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	Concrete C20/25 Compressive strength 25 N/mm <sup>2</sup>	Natural Stone, Rock	Sand-lime brick	Brick	Perforated Brick	Lightweight Concrete	Gypsum	Plasterboard, Chipboard	Polystyrene panel, PU rigid foam panel, Polystyrene	Metal
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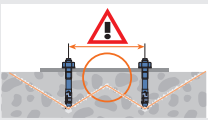
			Concrete C20/25 Compressive strength 25 N/mm <sup>2</sup>	Natural Stone, Rock	Sand-lime brick	Brick	Perforated Brick	Lightweight Concrete	Gypsum	Plasterboard, Chipboard	Polystyrene panel, PU rigid foam panel, Polystyrene	Metal	
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			Concrete C20/25 Compressive strength 25 N/mm <sup>2</sup>	Natural Stone, Rock	Sand-lime brick	Brick	Perforated Brick	Lightweight Concrete	Gypsum	Plasterboard, Chipboard	Polystyrene panel, PU rigid foam panel, Polystyrene	Metal	
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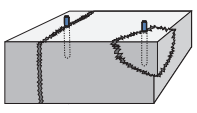
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### 1 Spacing distance



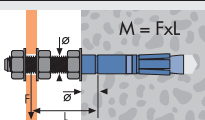
Consideration must be given to the minimum distances required when setting groups of fixings to avoid failure of the building material. A factor of 3 times the setting depth must be used to achieve maximum loads.

### 2 Edge distance




Consideration must be given to the minimum edge distances to avoid failure of the building material.

### 3 Bending moment M



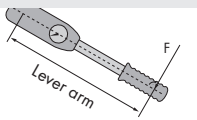
For some applications anchors are subjected to bending moments. For example, at a distance fixing.

### 4 Screw types



- Hexagon
- PZ2/3
- T25/T30/T40
- Hexagon, T40, collar

### 5 Torque



Force (F) x lever arm, measured at fulcrum, Nm = Newton meter

The anchor should be set using the recommended torque settings.

### 6 Installation torque

When the anchor is set using the correct torque a guaranteed fixing can be achieved.

### 7 Load directions



Tension (Z), Shear (Q), Combined (S)

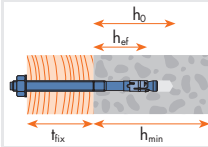
### 8 Force

The force is indicated in Kilo-Newton (kN) / Newton (N)

1kN=1000N=100dN ≈ 100kg

10N=1dN ≈ 1kg

### 9 Setting data



$h_{ef}$ : Effective anchorage depth  
 $h_0$ : Drilling depth  
 $h_{min}$ : Minimum thickness of concrete member  
 $t_{fix}$ : Usable length

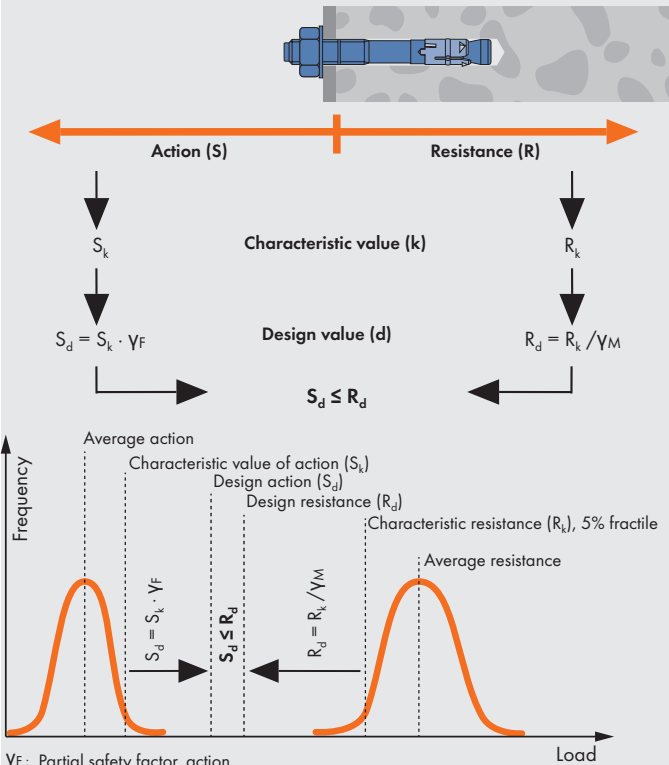
### 10 Breaking load

Failure of fixing (pt. 17)

### 11 Approved and recommended loads

Approved loads are those given in the corresponding approval. Working loads for products with European Technical Approval include a partial safety factor given by ETAG. Recommended loads are not always equal to approved loads. Recommended loads are determined under laboratory conditions and do not consider any influence of edge or centre distances.

### 12 Partial safety factor concept

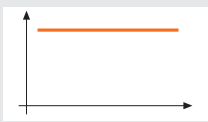


$S_d = S_k \cdot \gamma_F$   
 $R_d = R_k / \gamma_M$   
 $S_d \leq R_d$

$S_k$ : Characteristic value of action  
 $R_k$ : Characteristic resistance (5% fractile)  
 $S_d$ : Design action  
 $R_d$ : Design resistance  
 $S_d \leq R_d$ : Design condition

$\gamma_F$ : Partial safety factor, action  
 $\gamma_M$ : Partial safety factor, resistance

## 13 Load classification



Static loads



Dynamic loads / Pulsating

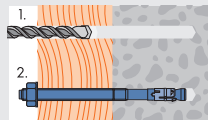


Dynamic loads / Shock

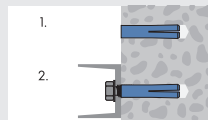


Dynamic loads / Alternative

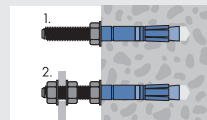
## 14 Methods of application



Through fixing



Pre installation



Distance fixing

## 15 Drilling process

Rotary drilling with wood drills and carbide drills: Drilling without percussion. Application: wood, plywood, particle board, wood fibreboard, gypsum plasterboard, fibrecementboard, aerated concrete, perforated brick.

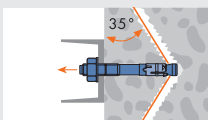
Percussion drilling with carbide drills: Drilling at high speed with fast, short impacts. Application: brickwork made of solid blocks.

Hammer drilling with SDS-drills: Drilling at low speed with slow, strong impacts. Application: concrete and natural stone.

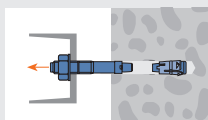
## 16 Setting pattern of insulation fixings



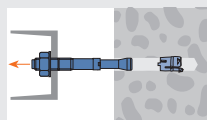
## 17 Modes of failure



Concrete failure

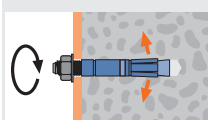


Steel failure

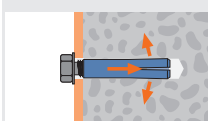


Anchor failure

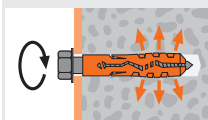
## 18 Different anchor types



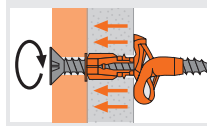
Torque controlled expansion anchors (e.g. m2, HL). Expansion achieved by application of torque.



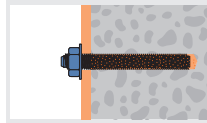
Hammer set expansion anchor (e.g. MEA). Expansion is achieved by hammering a cone in the body of the anchor.



Nylon plug (e.g. MN, MQ, MU, MNA, ML, MQL, MB, MBR, MDD). Performance is achieved by the introduction of an expansion component which is screwed or driven into the anchor body. The anchor body is thus firmly blocked against the sides of the drilled hole.



Cavity wall anchor (e.g. MU, MHD-S). The head of the plug is pushed down onto the base material with the screw, and the anchor body is drawn against the interior of the base material by deformation.



Chemical anchor (e.g. MIT, MVA). The anchor consists of a fixing element (male or female rod) and a synthetic-based mortar. Manufactured from 2 components, hardener and resin which when mixed together create the chemical reaction, which hardens to create the fixing by bonding to the base material. Adhesive anchors do not generate stress in the building material.



Concrete Screw (e.g. MCS): The special thread of the anchor cuts an internal thread in the member while setting. The anchorage is characterised by mechanical interlock in the special thread, thus small edge and spacing distances and high loads.

## 19 Minimum setting depth

The indicated minimum setting depths may not be under-run. Non bearing layers such as plaster, flagstones, insulating materials etc. do not count as setting depths.

## 20 Fire protection



Fixings, for which fire rated anchors are required, Mungo offers a considerable range of metal anchors and MIT Injection Technique.

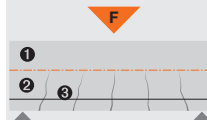
MQL/MB-S/MBR-S are approved for fixing of curtain walls without any restriction. The expansion part in the building material remains fire-resistant for at least 90 minutes.

## 21 Corrosion protection



Anchors made from galvanic zinc coated steel are used for fixings of fixtures indoors, with the exception of wet rooms. The thickness of the zinc coating is 5 microns. For external applications, wet rooms, areas of high humidity found in industrial atmospheres etc and locations in close proximity to the sea, require fixings of stainless steel A4 (1.4401 or 1.4571).

## 22 Concrete non-cracked/cracked



- ① Compression strength: concrete non-cracked
- ② Tensile strength: concrete cracked
- ③ Reinforcing steel

## 23 Nylon Quality PA6

Mungo nylon products are made from high-grade polyamide PA6. Due to its excellent characteristics PA6 can be described as the most valuable material in the fastening world.

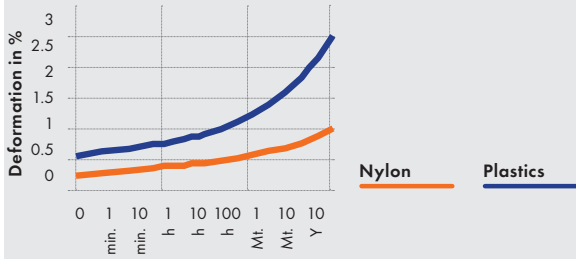


- Large temperature range of  $-40^{\circ}\text{C}$  up to  $+100^{\circ}\text{C}$
- Resistance to humidity maintains important technical features such as impact strength and low deformation risk
- Excellent stability in terms of dynamic loads
- Low flammability and self-extinguishing
- Halogen-free material

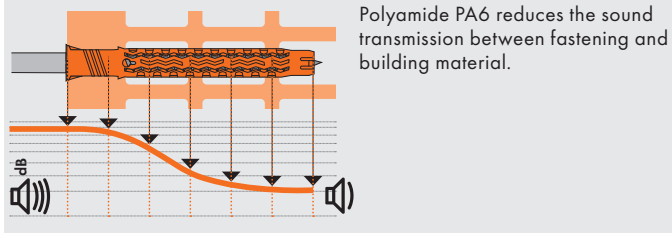


## 24 Deformation

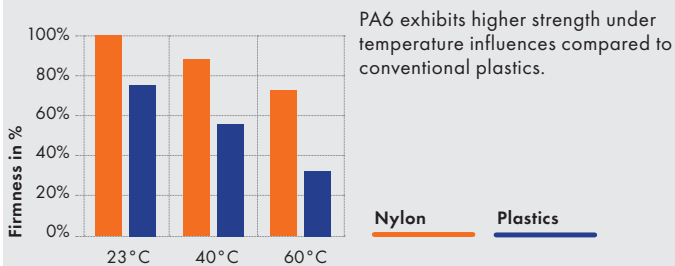
The deformation characteristics of polyamide PA6 clearly offers better value in comparison to conventional materials.



## 25 Sound absorption

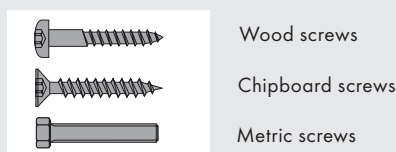


## 26 Solidity under temperature influences

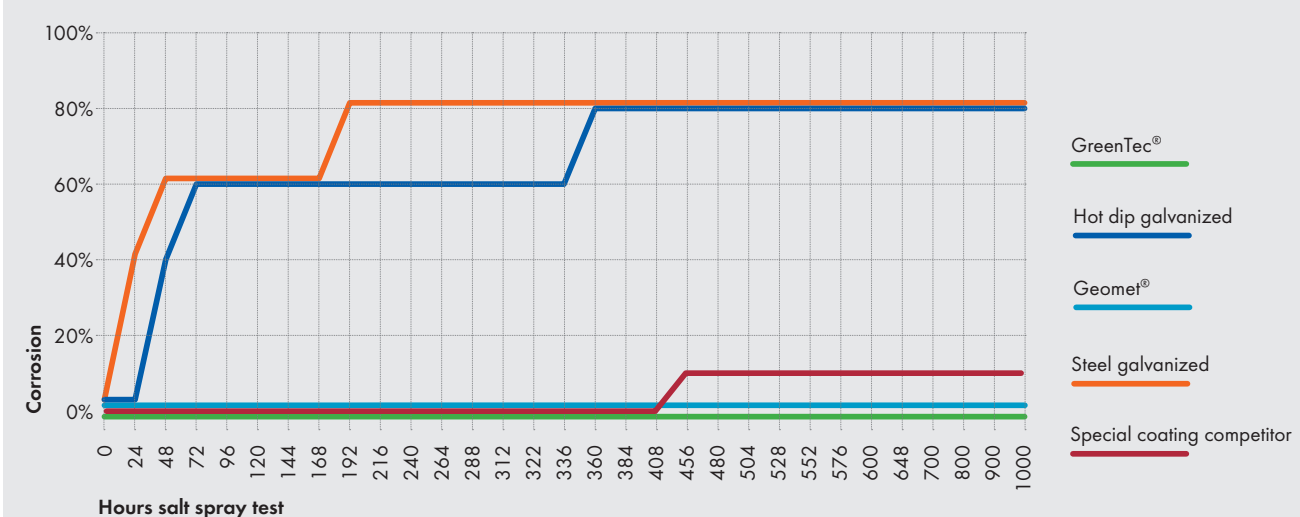


## 27 Screw types

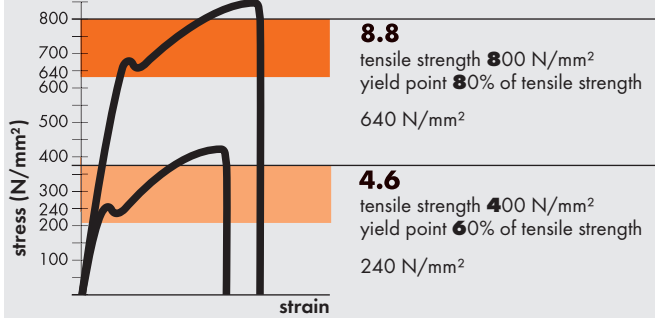
The following screw types can be used with Mungo nylon plugs:



## 28 Corrosion behavior in a salt spray test



## 29 Grades of steel



## 30 GreenTec® Corrosion resistant zinc alloy layer



**GreenTec®** is a special alloy layer system on a zinc and nickel foundation which provides hard, wear and tear resistant layers with a very high corrosion resistance, even with the lowest layer thicknesses. The layer system **GreenTec®** with its excellent metal distribution and constant alloy layer composition can be used for various purposes, given the right after care. Due to its excellent corrosion resistance,

**GreenTec®** is even used with the lowest layer thicknesses, especially for high quality purposes in the automobile hydraulic and electronic industry. The layer system provides further advantages through the hydrogen de-embrittlement of highly solid components without a loss of properties. Typical applications are coatings of connecting elements in the mid-cost area with corrosion and wear and tear requirements as well as high quality applications and applications in the high-tech industry. An important economic factor for the use of **GreenTec®** is the excellent extension of the durability in comparison with conventional zinc coatings which have a much lower layer thickness.



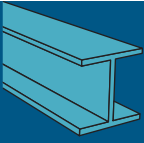
## 31 Zinc flake coating



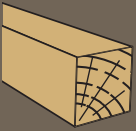
Zinc flake coatings are non-electrolytically applied coatings, which provide good protection against corrosion. These coatings consist of a mixture of zinc and aluminium flakes. Further characteristics: uniform appearance, high protection against corrosion, chemical resistance and good friction characteristics.

# Branches

# Approvals



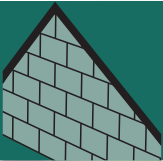
Steel and metal



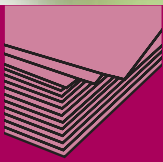
Woodwork



Civil engineering



Façade Scaffold



Drywall



Electrician



Sanitary installation



European Organisation for Technical Approval  
EOTA, Brussels



German Institute of Construction Technology  
DIBT, Berlin



Controlled by independent laboratory  
Certification of conformity



Institute of Constructional Physics  
IFB, Mülheim



Swiss Testing Service, RUAG



Fire resistance test certification



ÖNORM certification



ICC-ES International Code Council  
Evaluation Service



Certification for drinking water  
systems



Seismic action  
Performance category C1



Seismic action  
Performance category C2



Shock proof fastening in civil  
defence projects



Approved for use with fixed water  
sprinkler systems from M8 to M20



CE marking



Nylon Quality PA6  
Proved Material



Class B1 according to DIN 4102-1



Class B2 according to DIN 4102



Class B-s1,d0 according to  
EN 13501-1



Fire resistance up to 240 minutes;  
EI240 according to EN 13501-2



oSa (The Organisation for the  
Safety of Abrasives)



Complying EN13236 standards



LEED - Test Report



VOC free product



VOC free according to Swiss  
legislation and certified A+  
according to DEVL 1101903D /  
DEVL 1104875A


























Emicode EC1<sup>PLUS</sup>  
very low emission



PGM Masonry Drill Bit Certification  
Board Remscheid

# Symbols

-  Hammer drilling
-  Diamond drilling
-  Hammer drilling / Diamond drilling
-  Fixed setting depth
-  Variable setting depth (4-12xd)
-  Variable setting depth (4-20xd)
-  Variable setting depth (8-12xd)
-  Variable setting depth (8-20xd)
-  Medium duty fastening
-  Heavy duty fastening
-  Slow curing
-  Fast curing
-  Dry drill holes
-  Dry and damp drill holes
-  Dry, damp and water-filled drill holes
-  50 litres
-  All seasons
-  High Performance
-  Hammer setting
-  No jamming with reinforcement hits
-  SDS-Plus
-  SDS-Max
-  Mungo Design software  
Use our anchor design software for fast and reliable calculations of your application

-  New generation
-  Fungus-inhibiting
-  UV resistant
-  Adhesion Promoter
-  Self opening
-  Width of layer
-  Height of layer
-  Noise reduction
-  Laser welded
-  High cutting speed
-  Long life
-  Dry operation
-  Wet operation
-  Philips
-  Pozi
-  TX
-  Hexagon socket
-  Hexagon screw
-  Hexagon screw, T40, collar

# Material

-  Zinc plated
-  Stainless steel A2
-  Stainless steel A4
-  Hot dip galvanized
-  GreenTec® > 750h EN ISO 9227  
Corrosion resistant zinc alloy layer
-  Geomet®
-  Zinc flake coating
-  Nautilus > 1000h EN ISO 9227

# 50 years success



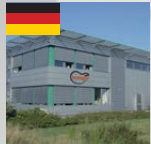
## Your construction project will benefit from our experience

In 50 years Mungo has gained experience, technical know how and profound market knowledge. With these competences we are in a position to develop innovative and technically fully matured solutions. Creativity and innovation of our employees secure our market position in the future.

# Worldwide market presence



1968  
Olten, CH



1976  
Bremen, DE



2003  
Padua, IT



2011  
Changsha, CN



2015  
Woodstock, GA



2016  
Amsterdam, NL

## Where building takes place

The head office and production facility in Olten is ideally located in central Switzerland, which offers advantages in our home country and, moreover, provides an ideal platform for distribution of our products to more than 52 countries worldwide.

### The Milestones

- 1968 Mungo Befestigungstechnik AG Switzerland was established
- 1976 Foundation of Mungo Germany Stettenhofen
- 1977 Establishment of our worldwide distribution organisation
- 1980 New company build in Olten
- 2000 The fully automated high-bay warehouse has been commissioned
- 2003 Opening of the multi-stage cold forming plant in Olten
- 2003 Foundation of Mungo Italia in Padua
- 2004 Japanese honour for extraordinary product innovation
- 2005 Winner of the Solothurn Innovation Award
- 2009 Fully automated packaging machine has been commissioned
- 2011 Foundation of the establishment in Changsha, China
- 2015 Foundation of the establishment in Woodstock (GA), USA
- 2016 Olivier W. Annaheim, new CEO of Mungo Befestigungstechnik Ltd.
- 2016 Foundation of the establishment in Benelux
- 2018 50 years Mungo Befestigungstechnik AG Switzerland

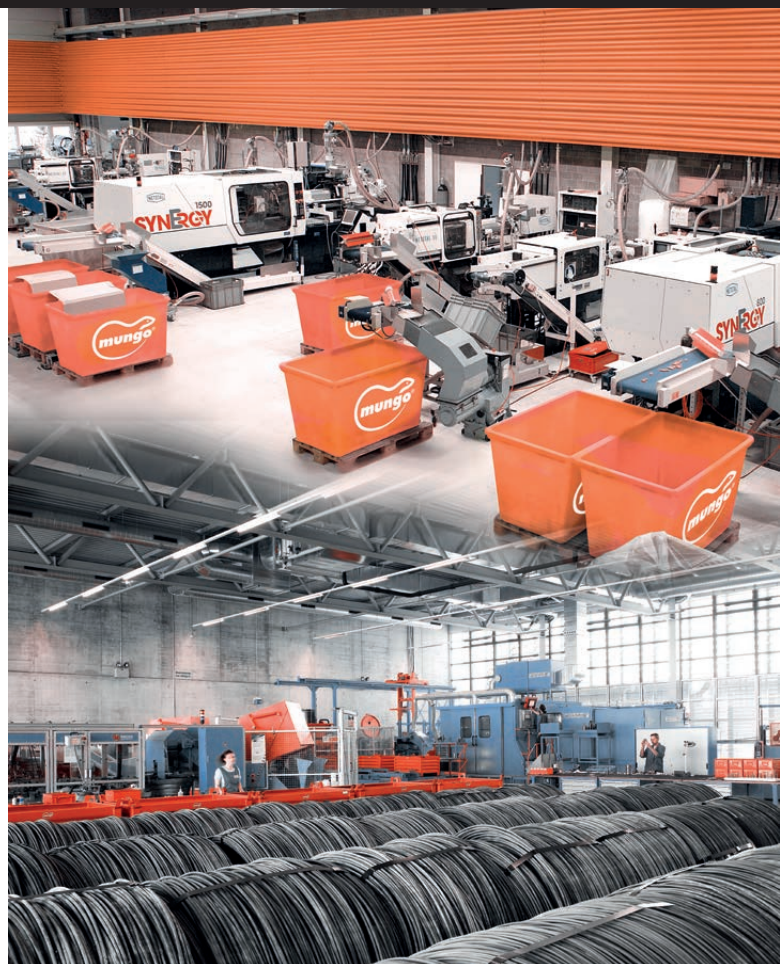
## High expertise in production

### Nylon products production, injection moulding

Mungo nylon products are made from high-grade polyamide PA6. Due to its excellent characteristics PA6 can be described as the most valuable material in the fastening world.

### Throughbolt production with cold forming techniques

For more than 48 years, Mungo has gained expertise in distribution and manufacturing of throughbolts. With our investment, we have established an important platform in cold forming techniques, which enables our company to play an important role in this worldwide market.



## Our brand name

## Attributes you can build on

The Mongoose, also known as a Mungo, inhabits South America, the Mediterranean coastline and Asia. This corresponds perfectly to Mungo's international reputation.

The Mungo is fast, mobile and resilient – similar characteristics to application friendliness, flexibility and maximum strength which distinguish our products.

The need to discover new technologies and applications is our commitment to the future.

Life as part of a community is natural for the Mungo, as it is for us being in constant contact with our customers, potential customers, colleagues and suppliers.



# Mungo Design software



Download our design software  
[www.mungo.swiss/en/design-software.html](http://www.mungo.swiss/en/design-software.html)

## Available as a download

The advantages of Mungo Design software at a glance:

- User-friendly look and feel
- Optional user prompting and helpful reminders for missing information serve to reduce familiarisation time to a minimum
- The data can be edited either directly in the graphic or in the provided data fields
- Multilingual user interface
- Contact details of companies can be saved and reused
- Online updates: Quick and easy updates load automatically

## Expert advice



## Mungo has a strong presence - even on site

All those working with Mungo will enjoy the benefit of high quality products combined with expert advice from our field and in-house teams of sales and technical consultants, qualified engineers and product technicians.

Whether you need anchor calculations for a complex project or on site recommendations including pull out tests - we work together with you to define and optimise fixing solutions.

# Quality assurance is a core competence

## Consistent processes create satisfied customers

When it comes to quality, we do not compromise. SQS and IQNet certification demonstrates that Mungo operates an appropriate management system meeting the requirements of the international standards for quality management and quality assurance according to ISO 9001:2015. In addition to outside monitoring, in-house test, inspection equipment and laboratories ensure the safety and quality of the individual products. Optical gauging of the products with analysis in the SPC offers a reliable indication of the controlled and capable production process.

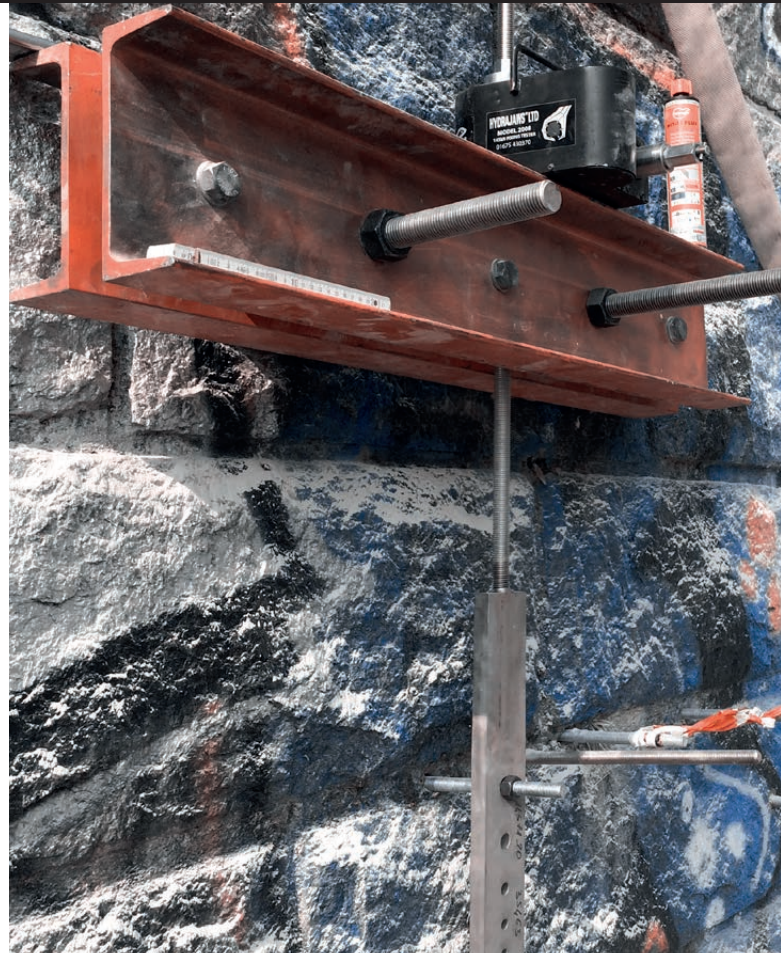


## Comprehensive training courses for users

### Learning and experience shared at team meetings

Mungo offers you full-day training courses on products and how to use them. Popular learning objectives include increasing efficiency or getting the most out of products. The training courses optimise users' economic viability and they increase the conscious use of technical advantages.

Training courses for post-installed rebar connections are in great demand. The course is led by experienced Mungo fastening experts. The course programme covers both theory, such as approvals, as well as practice with lots of helpful tips from the expert. Our professional user training provided by our specialists will prepare you for the Deutsches Institut für Bautechnik (DIBT - German Institute of Construction Technology) aptitude certificate.



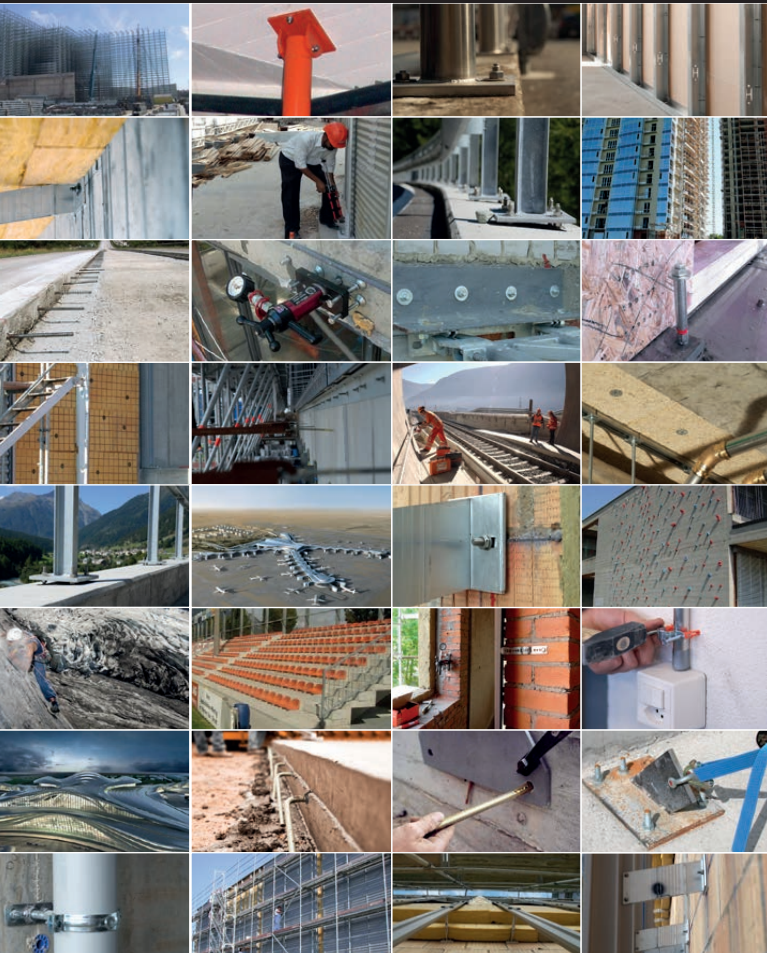
# Professional sales promotion



## Together we succeed

With professional marketing tools and sales aids, we are able to support your company in sales, and help promote customer relationships with the brand image of Mungo.

# Mungo references demonstrate top performance



## Well equipped for the future

Mungo is a leading player in the development, manufacturing and distribution of high-quality fastening products that offer added value to professional customers in the construction industry and the building maintenance sector. Mungo's product range includes nylon plugs, metal anchors, chemical fixings, insulation fixings, drill bits and accessories.



# Direct access to information about Mungo and its products

## Give it a go

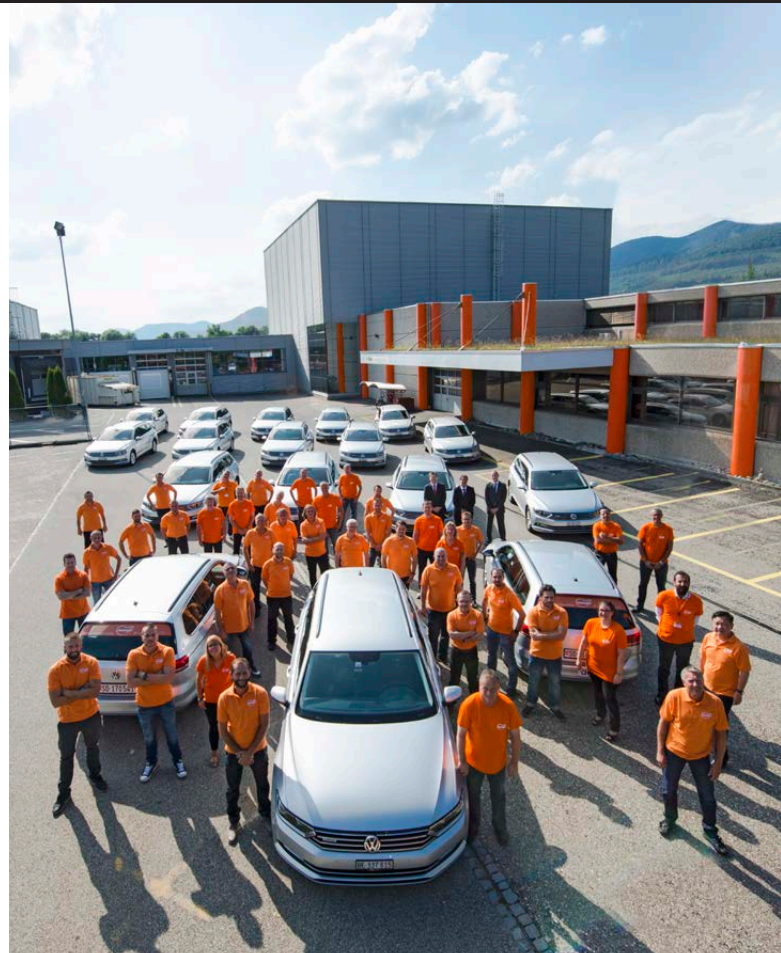
Download a free app onto your mobile, scan the QR Code on the Mungo boxes and outer carton labels and you will have easy and quick access on mobile devices to all product information.



## Your perfect partner

## Professional partner in the fastening industry

Formed in 1968, Mungo has developed into a medium-sized enterprise with a worldwide customer base and has secured a firm position as a professional partner in the fastening industry. This is due to its consistent enhancements of its product range and the active expansion of its presence on the international market.

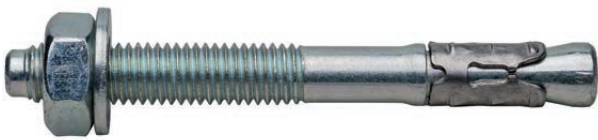




# Metal Products

<b>m1t</b>	20	<b>m2-l</b>	33	<b>MMD</b>	45	<b>MJB</b>	54
							
<b>m1t-C</b>	22	<b>HL</b>	34	<b>MHDA</b>	46	<b>TR-R</b>	55
							
<b>m1tr</b>	23	<b>MCS</b>	36	<b>MAN</b>	47	<b>TR</b>	56
							
<b>m2</b>	25	<b>MCSr</b>	38	<b>MMS</b>	48	<b>SBS</b>	58
							
<b>m2-C</b>	27	<b>MSS</b>	40	<b>MMM</b>	49		
							
<b>m2f</b>	29	<b>MHA</b>	41	<b>MEN</b>	50		
							
<b>m2r</b>	31	<b>MEA</b>	43	<b>MRS</b>	52		
							



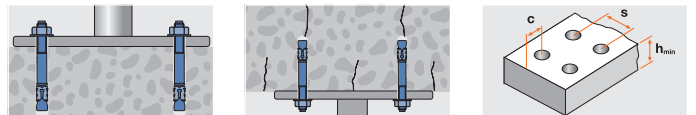


### Features

- European Technical Approval Option 1 for cracked and non-cracked concrete
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1 + C2
- Small edge and spacing distances
- Greater performance
- Nine teeth for enhanced interaction with hole
- Hardened and tempered anchor body with special high resistance zinc plating 10µm ISO 4042, ≥ 1000 hours in salt spray test ISO 9227
- Pre installation or through fixing
- Indoor applications

### Applications

steel constructions, profiles, machines, substructures, high-racks, cable trays

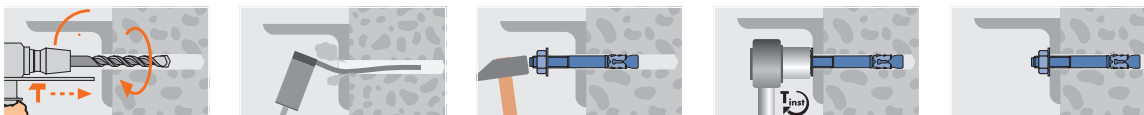


### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/at edge distance mm $S_{min}/c$	Min. edge distance/at distance betw. anchors mm $c_{min}/s$	Minimum thickness of concrete member mm $h_{min}$	Installation torque (Nm)	Wrench size
			$c \geq 10x_{ef}$					$T_{inst}$	SW
M8	4.3	2.9	6.1	16.2	50/65	50/75	100	20	13
M10	7.6	5.7	11.5	32	60/80	60/120	120	40	17
M12	9.5	7.6	16.1	56.2	70/90	70/150	150	60	19
M16	16.7	9.5	31.6	143	80/120	85/170	170	120	24

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

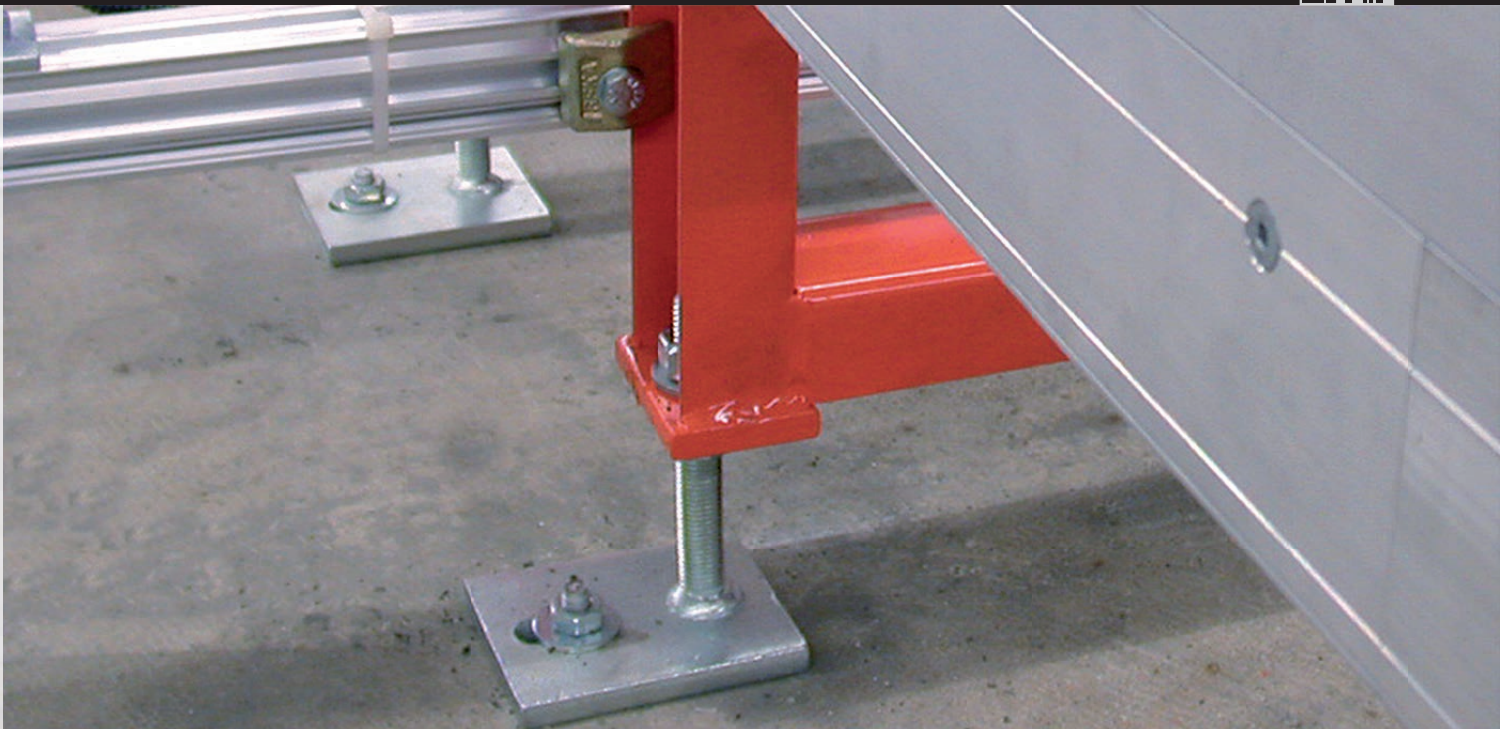
### Installation



**m 1 t** Throughbolt with washer DIN 125A


Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{\text{plug}} = d_0$	L	$h_0$	$t_{\text{fix}}$	$h_{\text{eff}}$	$\overline{\text{ES}}$	$\overline{\text{SK}}$	
3600806	8	68	70	4	48	100 $\overline{\text{31}}$	600 $\overline{\text{22}}$	36000
3600807	8	75	70	10	48	100 $\overline{\text{41}}$	300 $\overline{\text{12}}$	18000
3600809	8	90	70	25	48	100 $\overline{\text{51}}$	300 $\overline{\text{22}}$	18000
3600811	8	115	70	50	48	100 $\overline{\text{51}}$	300 $\overline{\text{22}}$	18000
3600813	8	135	70	70	48	50 $\overline{\text{41}}$	150 $\overline{\text{12}}$	9000
3600816	8	165	70	100	48	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601009	10	90	80	10	60	100 $\overline{\text{51}}$	300 $\overline{\text{22}}$	18000
3601010	10	105	80	25	60	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601011	10	115	80	35	60	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601013	10	135	80	55	60	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601015	10	155	80	75	60	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601018	10	185	80	105	60	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	4500
3601211	12	110	100	10	72	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601212	12	120	100	20	72	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601214	12	145	100	45	72	25 $\overline{\text{41}}$	75 $\overline{\text{12}}$	4500
3601217	12	170	100	70	72	50 $\overline{\text{51}}$	150 $\overline{\text{22}}$	9000
3601220	12	200	100	100	72	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	4500
3601613	16	130	115	10	86	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	3600
3601615	16	150	115	30	86	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	3600
3601618	16	185	115	60	86	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	3600
3601622	16	220	115	100	86	25 $\overline{\text{51}}$	75 $\overline{\text{22}}$	3600

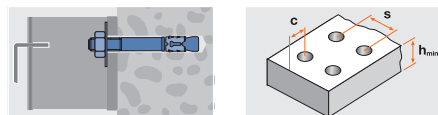
# m1t-C Throughbolt



### Features

- European Technical Approval Option 1 for cracked and non-cracked concrete
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1 + C2
- Design with an oversized washer according to DIN 9021 for fixings with slotted holes
- Small edge and spacing distances
- Greater performance
- Nine teeth for enhanced interaction with hole
- Hardened and tempered anchor body with special high resistance zinc plating 10µm ISO 4042, ≥ 1000 hours in salt spray test ISO 9227
- Pre installation or through fixing
- Indoor applications

**Applications**  
profiles, substructures

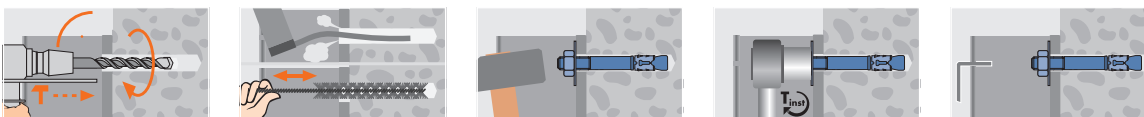


### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/at edge distance mm $s_{min}/c$	Min. edge distance/at distance betw. anchors mm $c_{min}/s$	Minimum thickness of concrete member mm $h_{min}$	Installation torque (Nm)	Wrench size
			$c \geq 10h_{af}$					$T_{inst}$	SW
M8	4.3	2.9	6.1	16.2	50/65	50/75	100	20	13
M10	7.6	5.7	11.5	32	60/80	60/120	120	40	17

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

### Installation



### m1t-C Throughbolt with big washer DIN 9021



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{th}$	$h_{ef}$	FS	SK	
3610807	8	75	70	10	48	100 <sup>51</sup>	300 <sup>22</sup>	18000
3611009	10	90	80	10	60	50 <sup>51</sup>	150 <sup>22</sup>	9000

# m1tr Throughbolt, stainless steel A4/316



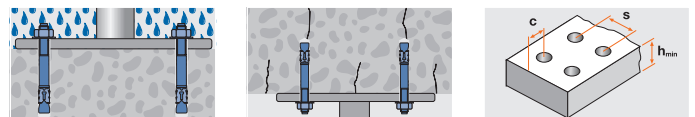
## Features

- European Technical Approval Option 1 for cracked and non-cracked concrete
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1 + C2
- Small edge and spacing distances
- Greater performance
- Nine teeth for enhanced interaction with hole
- Stainless steel A4/316
- Pre installation or through fixing
- Indoor and outdoor applications



## Applications

railings, steel constructions, profiles, machines, substructures

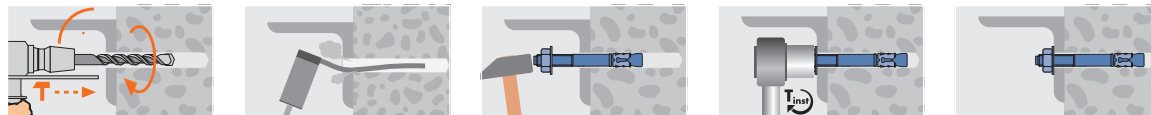


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/at edge distance mm	Min. edge distance/at distance betw. anchors mm	Minimum thickness of concrete member mm	Installation torque (Nm)		Wrench size	
								$c \geq 10x_{ef}$	$S_{min}/c$	$c_{min}/s$	$h_{min}$
M8	4.3	2.4	6.5	13	50/50	50/50	100	20	13		
M10	7.6	4.3	10.4	27	55/70	50/110	120	40	17		
M12	9.5	5.7	15.1	47	60/80	60/120	150	60	19		
M16	16.7	11.9	28.0	120	70/100	70/130	170	120	24		

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

## Installation



**m1fr** Throughbolt with washer DIN 125A, stainless steel A4/316



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Drilling depth mm $h_0$	Usable length mm $f_{in}$	Effective anchorage depth mm $h_{ef}$	Box content FS	Outer carton SK	Quantity per pallet
3700806	8	68	70	4	48	100 31	600 22	36000
3700807	8	75	70	10	48	100 41	300 12	18000
3700809	8	90	70	25	48	100 51	300 22	18000
3700811	8	115	70	50	48	100 51	300 22	18000
3700813	8	135	70	70	48	50 41	150 12	9000
3700816	8	165	70	100	48	50 51	150 22	9000
3701009	10	90	80	10	60	100 51	300 22	18000
3701010	10	105	80	25	60	50 51	150 22	9000
3701011	10	115	80	35	60	50 51	150 22	9000
3701013	10	135	80	55	60	50 51	150 22	9000
3701015	10	155	80	75	60	50 51	150 22	9000
3701018	10	185	80	105	60	25 51	75 22	4500
3701211	12	110	100	10	72	50 51	150 22	9000
3701212	12	120	100	20	72	50 51	150 22	9000
3701214	12	145	100	45	72	25 41	75 12	4500
3701217	12	170	100	70	72	50 51	150 22	9000
3701220	12	200	100	100	72	25 51	75 22	4500
3701613	16	130	115	10	86	25 51	75 22	3600
3701615	16	150	115	30	86	25 51	75 22	3600
3701618	16	185	115	60	86	25 51	75 22	3600
3701622	16	220	115	100	86	25 51	75 22	3600

**m1fr-C** Throughbolt with big washer DIN 9021, stainless steel A4/316



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Drilling depth mm $h_0$	Usable length mm $f_{in}$	Effective anchorage depth mm $h_{ef}$	Box content FS	Outer carton SK	Quantity per pallet
3710807	8	75	70	10	48	100 51	300 22	18000





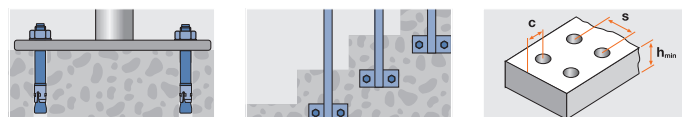
**Features**

- European Technical Approval Option 7 for non-cracked concrete
- GreenTec® corrosion protection - Extra long lasting
- Advanced corrosion resistance ≥ 750 hours in salt spray test
- Higher loads, higher security
- Improved clip design; higher loads and best expansion
- High-quality and stainless steel appearance
- Small edge and spacing distances
- Highest shear loads and bending moment for safe distance fixing
- Setting depth mark for correct installation
- Simple setting process due to low resistance to impacts
- Fast achievement of installation torque
- GreenTec® coating
- Pre installation or through fixing
- Indoor applications and unweathered outdoor applications



**Applications**

steel constructions, profiles, machines, high-racks, cable trays

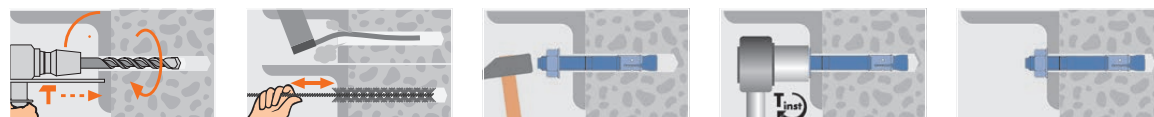


**Technical Data**

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance btw. anchors/ at edge distance mm		Minimum thickness of concrete member mm	Installation torque (Nm)		Wrench size
				$S_{min}/c$	Min. edge distance/ distance btw. anchors mm $C_{min}/s$		$T_{inst}$		
M6	3.6	2.1	5.7	40/70	40/80	100	5	10	
M8	5.7	6.1	14.9	45/45	45/45	100	15	13	
M10	7.6	10.1	31.9	50/50	50/50	120	30	17	
M12	9.5	13.7	52.3	75/80	75/80	140	50	19	
M16	11.9	15.7	118.6	100/190	130/190	160	100	24	
M20	19.8	24.3	231.5	200/400	300/350	200	200	30	

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN = 100 kg

**Installation**



**m2** Throughbolt with washer DIN 125A



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{fix}$	$h_{ef}$	$\overline{FS}$	$\overline{SK}$	
<sup>1)</sup> 3200605	6	50	50	5	30	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
3200606	6	65	60	10	40	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
3200608	6	80	60	25	40	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
<sup>1)</sup> 3200805	8	50	45	5	27	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
<sup>1)</sup> 3200806	8	60	50	10	30	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
3200808	8	80	65	10	50	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
3200885	8	85	65	15	50	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
3200809	8	95	65	25	50	100 <sup>51)</sup>	300 <sup>22)</sup>	18000
3200811	8	115	65	45	50	100 <sup>51)</sup>	300 <sup>22)</sup>	18000
3200816	8	165	65	95	50	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201006	10	60	55	5	33	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
<sup>1)</sup> 3201007	10	70	60	10	35	100 <sup>51)</sup>	300 <sup>22)</sup>	18000
3201009	10	95	80	15	58	100 <sup>51)</sup>	300 <sup>22)</sup>	18000
3201011	10	110	80	30	58	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201012	10	125	80	45	58	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201014	10	140	80	60	58	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201016	10	160	80	80	58	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201018	10	180	80	100	58	25 <sup>51)</sup>	75 <sup>22)</sup>	4500
<sup>1)</sup> 3201208	12	80	70	5	49	50 <sup>41)</sup>	150 <sup>12)</sup>	9000
3201211	12	110	90	15	68	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201212	12	125	90	30	68	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201214	12	145	90	50	68	25 <sup>41)</sup>	75 <sup>12)</sup>	4500
3201216	12	165	90	70	68	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
3201218	12	185	90	90	68	50 <sup>51)</sup>	150 <sup>22)</sup>	9000
<sup>1)</sup> 3201609	16	90	80	5	50	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
<sup>1)</sup> 3201611	16	115	100	10	70	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
3201613	16	130	110	15	80	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
3201614	16	145	110	30	80	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
3201616	16	160	110	45	80	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
3201618	16	180	110	65	80	25 <sup>51)</sup>	75 <sup>22)</sup>	3600
<sup>5)</sup> 1452013	20	130	110	10	76	20 <sup>51)</sup>	60 <sup>22)</sup>	2880
<sup>5)</sup> 1452016	20	160	130	30	100	20 <sup>51)</sup>	60 <sup>22)</sup>	2880

<sup>5)</sup> No GreenTec® corrosion protection

<sup>1)</sup> Not part of the approval

**m2** Throughbolt with washer DIN 125A in Mini-Box, bulk packed

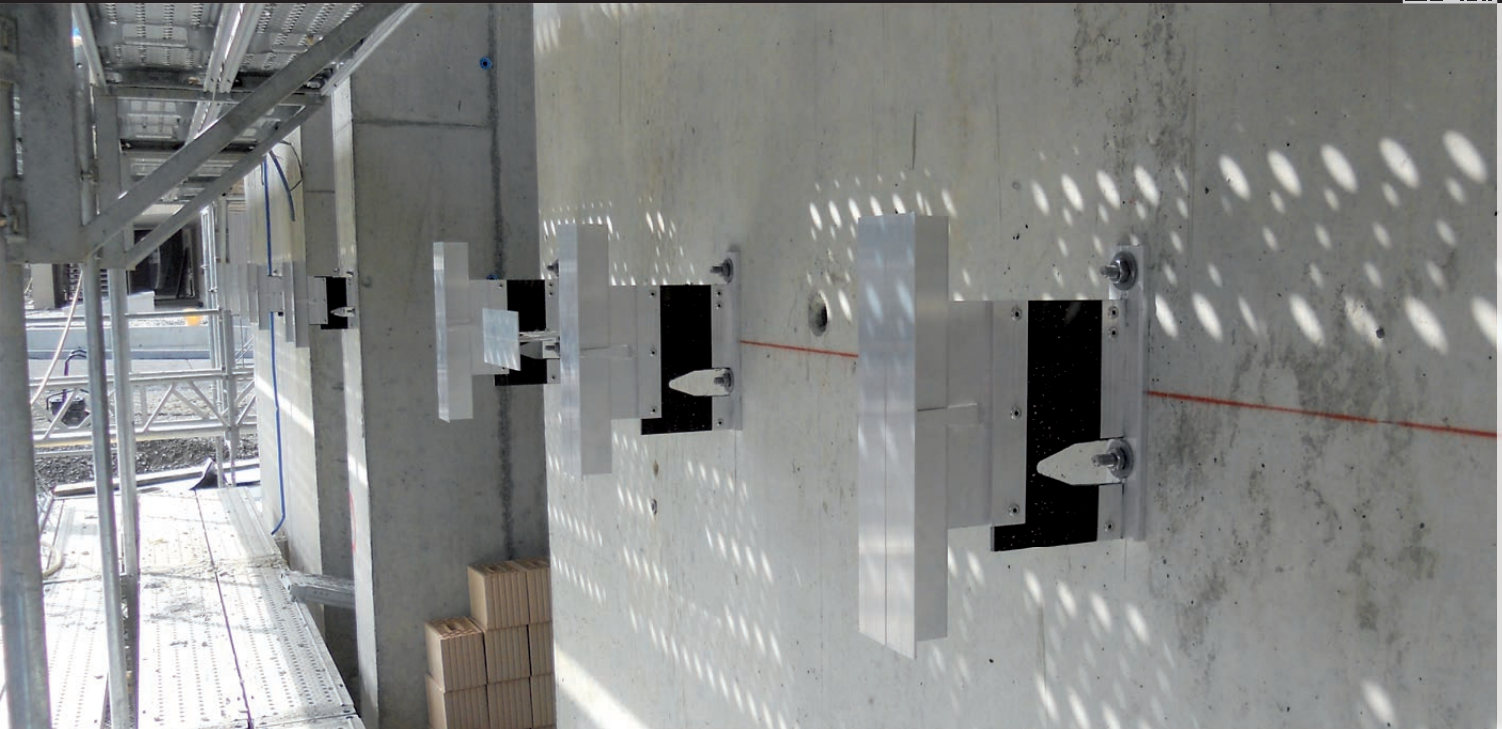


30 × 20 × 12.5 cm



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Unit content	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{fix}$	$h_{ef}$		
3200808	8	80	65	10	50	300	24000
<sup>1)</sup> 320095	10	95	80	15	58	150	12000
3200110	12	110	90	15	68	100	8000

# m2-C Throughbolt



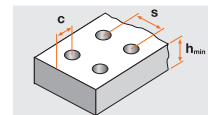
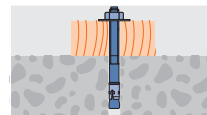
## Features

- European Technical Approval Option 7 for non-cracked concrete
- Higher loads, higher security
- Improved clip design; higher loads and best expansion
- With a big DIN 9021 washer for fixings with slotted holes and for wooden structures
- Small edge and spacing distances
- Highest shear loads and bending moment for safe distance fixing
- Setting depth mark for correct installation
- Simple setting process due to low resistance to impacts
- Fast achievement of installation torque
- Zinc plated > 5µm
- Pre installation or through fixing
- Indoor applications



## Applications

wooden constructions, distance fixing

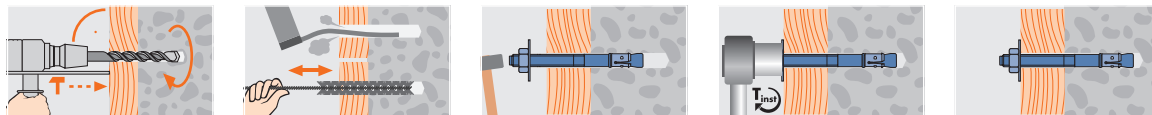


## Technical Data

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/ at edge distance mm $s_{min}/c$	Min. edge distance/ at distance betw. anchors mm $c_{min}/s$	Minimum thickness of concrete member mm $h_{min}$	Installation torque (Nm)		Wrench size	
							$T_{inst}$		SW	
M8	5.7	6.1	14.9	45/45	45/45	100	15		13	
M10	7.6	10.1	31.9	50/50	50/50	120	30		17	
M12	9.5	13.7	52.3	75/80	75/80	140	50		19	
M16	11.9	15.7	118.6	100/190	130/190	160	100		24	

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN = 100 kg

## Installation



**m2-C** Throughbolt with big washer DIN 9021



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{fix}$	$h_{ef}$	FS	SK	
1) 3210805	8	50	45	5	27	100	300	18000
1) 3210806	8	60	50	10	30	100	300	18000
3210808	8	80	65	10	50	100	300	18000
3210816	8	165	65	95	50	50	150	9000
1) 3211007	10	70	60	10	35	100	300	18000
3211009	10	95	80	15	58	50	150	9000
3211011	10	110	80	30	58	25	75	4500
3211012	10	125	80	45	58	25	75	4500
3211016	10	160	80	80	58	25	75	4500
3211018	10	180	80	100	58	25	75	4500
1) 1471021	10	210	80	130	58	25	75	4500
3211211	12	110	90	15	68	25	75	4500
3211212	12	125	90	30	68	25	75	4500
3211216	12	165	90	70	68	25	75	4500
3211218	12	185	90	90	68	25	75	4500
1471220	12	200	90	105	68	25	75	4500
1471222	12	220	90	125	68	20	60	3600
1471224	12	240	90	145	68	20	60	3600
1471226	12	260	90	165	68	20	40	2400
1471228	12	280	90	185	68	10	-	-
1471230	12	300	90	205	68	15	-	-
1471233	12	330	90	235	68	10	-	-
1471236	12	360	90	265	68	15	-	-
1471622	16	220	110	105	80	10	30	1800
1471624	16	240	110	125	80	10	20	1200
1471626	16	260	110	145	80	10	20	1200
1471628	16	280	110	165	80	5	-	-
1471630	16	300	110	185	80	5	-	-
1471633	16	330	110	215	80	5	-	-
1471644	16	440	110	325	80	5	-	-

1) Not part of the approval

**m2-C** Throughbolt with big washer DIN 9021 in Mini-Box, bulk packed



30 x 20 x 12.5 cm



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Unit content	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{fix}$	$h_{ef}$		
32100185	12	185	90	90	68	25	2000
32100200	12	200	90	105	68	25	2000
32100220	12	220	90	125	68	20	1600
32100240	12	240	90	145	68	20	1600
32100260	12	260	90	165	68	20	1600

# m2f Throughbolt, hot dip galvanised



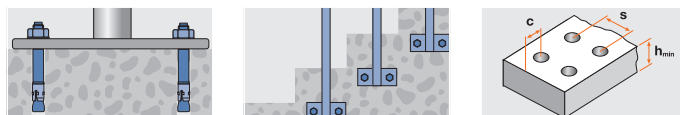
## Features

- Higher loads, higher security
- Improved clip design; higher loads and best expansion
- Torque controlled expansion
- Small edge and spacing distances
- Highest shear loads and bending moment for safe distance fixing
- Setting depth mark for correct installation
- Simple setting process due to low resistance to impacts
- Fast achievement of installation torque
- Hot dip galvanised > 40µm
- Pre installation or through fixing
- Indoor and outdoor applications



## Applications

cable trays, railings, steel constructions, machines, high-racks, profiles

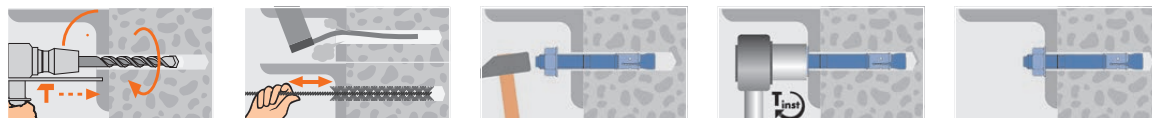


## Technical Data

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/ at edge distance mm $s_{min}/c$	Min. edge distance/ at distance betw. anchors mm $c_{min}/s$	Minimum thickness of concrete member mm $h_{min}$	Installation torque (Nm)		Wrench size SW
							$T_{inst}$		
M6	3.6	2.1	5.7	40/70	40/80	100	5		10
M8	5.7	6.1	14.9	45/45	45/45	100	15		13
M10	7.6	10.1	31.9	50/50	50/50	120	30		17
M12	9.5	13.7	52.3	75/80	75/80	140	50		19
M16	11.9	15.7	118.6	100/190	130/190	160	100		24
M20	19.8	24.3	231.5	200/400	300/350	200	200		30

The partial safety factors of the resistances regulated in the zinc plated m2 approval as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN  $\approx$  100 kg

## Installation



**m2f** Throughbolt with washer DIN 125A, hot dip galvanised



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{in}$	$h_{eff}$	$\overline{FS}$	$\overline{SK}$	
3400605	6	50	50	5	30	100 $\overline{21}$	900 $\overline{22}$	54000
3400606	6	65	60	10	40	100 $\overline{21}$	900 $\overline{22}$	54000
3400805	8	50	45	5	27	100 $\overline{21}$	900 $\overline{22}$	54000
3400806	8	60	50	10	30	100 $\overline{21}$	900 $\overline{22}$	54000
3400808	8	80	65	10	50	100 $\overline{41}$	300 $\overline{12}$	18000
3400809	8	95	65	25	50	100 $\overline{51}$	300 $\overline{22}$	18000
3400811	8	115	65	45	50	100 $\overline{51}$	300 $\overline{22}$	18000
3401006	10	60	55	5	33	100 $\overline{41}$	300 $\overline{12}$	18000
3401007	10	70	60	10	35	100 $\overline{51}$	300 $\overline{22}$	18000
3401009	10	95	80	15	58	100 $\overline{51}$	300 $\overline{22}$	18000
3401011	10	110	80	30	58	50 $\overline{51}$	150 $\overline{22}$	9000
3401012	10	125	80	45	58	50 $\overline{51}$	150 $\overline{22}$	9000
3401014	10	140	80	60	58	50 $\overline{51}$	150 $\overline{22}$	9000
3401016	10	160	80	80	58	50 $\overline{51}$	150 $\overline{22}$	9000
3401018	10	180	80	100	58	25 $\overline{51}$	75 $\overline{22}$	4500
3401208	12	80	70	5	49	50 $\overline{41}$	150 $\overline{12}$	9000
3401211	12	110	90	15	68	50 $\overline{51}$	150 $\overline{22}$	9000
3401212	12	125	90	30	68	50 $\overline{51}$	150 $\overline{22}$	9000
3401214	12	145	90	50	68	25 $\overline{41}$	75 $\overline{12}$	4500
3401216	12	165	90	70	68	50 $\overline{51}$	150 $\overline{22}$	9000
3401218	12	185	90	90	68	50 $\overline{51}$	150 $\overline{22}$	9000
3401609	16	90	80	5	50	25 $\overline{51}$	75 $\overline{22}$	3600
3401611	16	115	100	10	70	25 $\overline{51}$	75 $\overline{22}$	3600
3401613	16	130	110	15	80	25 $\overline{51}$	75 $\overline{22}$	3600
3401614	16	145	110	30	80	25 $\overline{51}$	75 $\overline{22}$	3600
3401616	16	160	110	45	80	25 $\overline{51}$	75 $\overline{22}$	3600
3402016	20	160	130	30	100	20 $\overline{51}$	60 $\overline{22}$	2880

# m2r Throughbolt, stainless steel A4/316



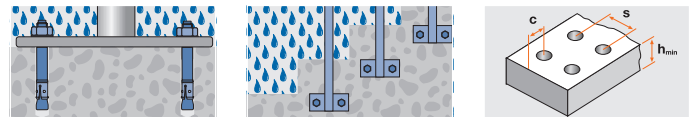
## Features

- European Technical Approval Option 7 for non-cracked concrete
- Higher loads, higher security
- Improved clip design; higher loads and best expansion
- Torque controlled expansion
- Highest shear loads and bending moment for safe distance fixing
- Setting depth mark for correct installation
- Simple setting process due to low resistance to impacts
- Stainless steel A4/316
- Pre installation or through fixing
- Indoor and outdoor applications



## Applications

façades, cable trays, railings, steel constructions, machines, high-racks, profiles

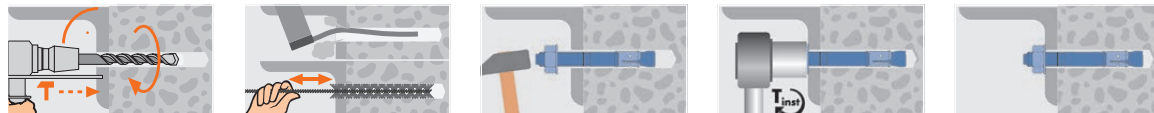


## Technical Data

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Min. distance betw. anchors/ at edge distance mm $s_{min}/c$	Min. edge distance/ at distance betw. anchors mm $c_{min}/s$	Minimum thickness of concrete member mm $h_{min}$	Installation torque (Nm)		Wrench size SW
							$T_{inst}$		
M6	3.6	3.8	6.4	40/70	40/80	100	6.5		10
M8	5.7	7.0	16.1	45/45	45/45	100	15		13
M10	7.6	11.2	32.2	55/55	55/55	120	30		17
M12	11.9	16.1	56.4	75/75	75/75	140	50		19
M16	14.3	30.1	142.8	100/190	130/190	160	140		24

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN  $\approx$  100 kg

## Installation



**m2r** Throughbolt with washer DIN 125A, stainless steel A4/316



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{in}$	$h_{eff}$	$\overline{FS}$	$\overline{SK}$	
<sup>1)</sup> 3300605	6	50	50	5	30	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
3300606	6	65	60	10	40	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
<sup>1)</sup> 3300805	8	50	45	5	27	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
<sup>1)</sup> 3300806	8	60	50	10	30	100 <sup>21)</sup>	900 <sup>22)</sup>	54000
3300808	8	80	65	10	50	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
3300885	8	85	65	15	50	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
3300809	8	95	65	25	50	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
3300811	8	115	65	45	50	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
<sup>1)</sup> 3301006	10	60	55	5	33	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
<sup>1)</sup> 3301007	10	70	60	10	35	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
3301009	10	95	80	15	58	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
3301011	10	110	80	30	58	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301012	10	125	80	45	58	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301014	10	140	80	60	58	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301016	10	160	80	80	58	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301018	10	180	80	100	58	25 <sup>41)</sup>	75 <sup>22)</sup>	4500
<sup>1)</sup> 3301208	12	80	70	5	49	50 <sup>41)</sup>	150 <sup>12)</sup>	9000
3301211	12	110	90	15	68	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301212	12	125	90	30	68	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301214	12	145	90	50	68	25 <sup>41)</sup>	75 <sup>12)</sup>	4500
3301216	12	165	90	70	68	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
3301218	12	185	90	90	68	50 <sup>41)</sup>	150 <sup>22)</sup>	9000
<sup>1)</sup> 3301611	16	115	100	10	70	25 <sup>41)</sup>	75 <sup>22)</sup>	3600
3301613	16	130	110	15	80	25 <sup>41)</sup>	75 <sup>22)</sup>	3600
3301614	16	145	110	30	80	25 <sup>41)</sup>	75 <sup>22)</sup>	3600
3301616	16	160	110	45	80	25 <sup>41)</sup>	75 <sup>22)</sup>	3600
3301618	16	180	110	65	80	25 <sup>41)</sup>	75 <sup>22)</sup>	3600

<sup>1)</sup> Not part of the approval

**m2r-C** Throughbolt with big washer DIN 9021, stainless steel A4/316

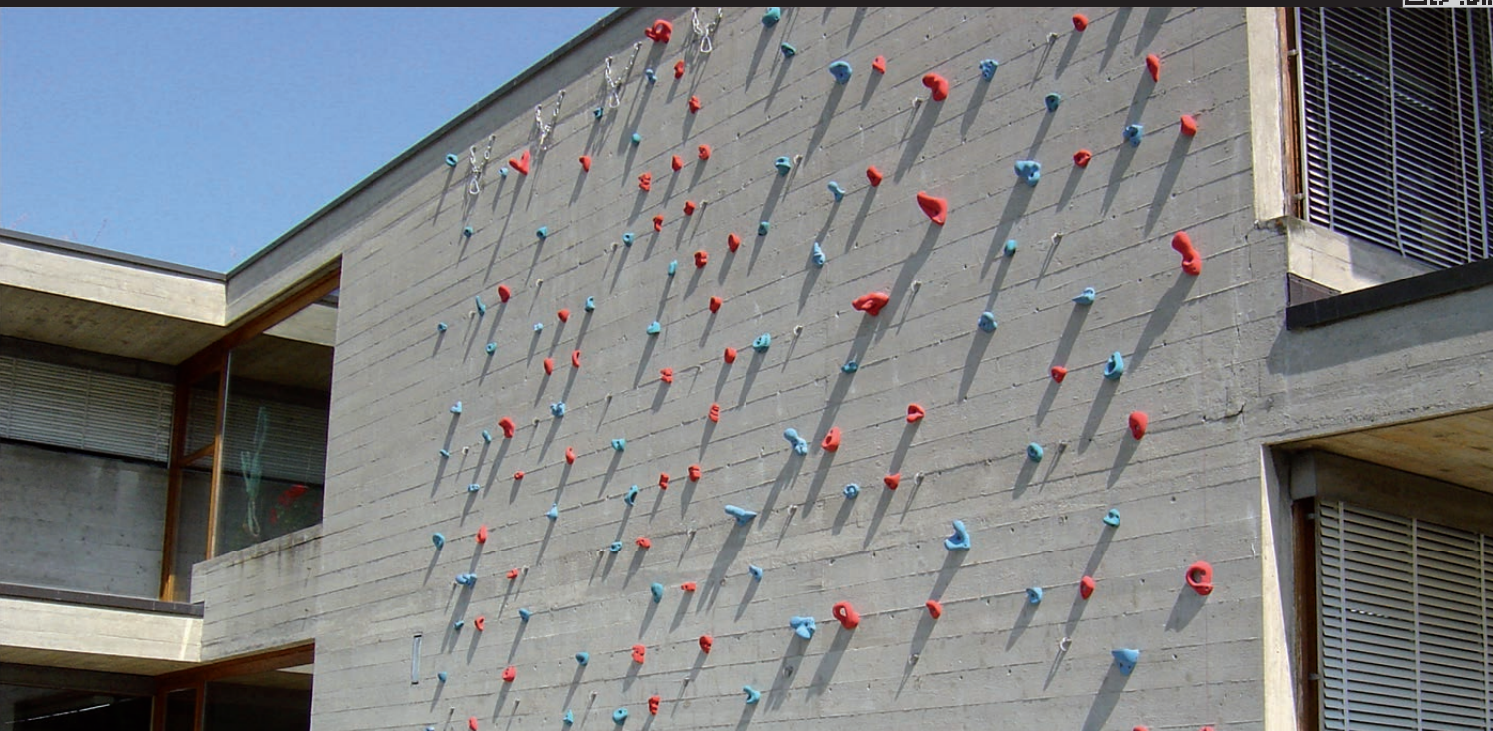


Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$h_0$	$f_{in}$	$h_{eff}$	$\overline{FS}$	$\overline{SK}$	
<sup>1)</sup> 3310606	6	65	60	10	40	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
<sup>1)</sup> 3310806	8	60	50	10	30	100 <sup>41)</sup>	300 <sup>12)</sup>	18000
<sup>1)</sup> 3310808	8	80	65	10	50	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
<sup>1)</sup> 3311007	10	70	60	10	35	100 <sup>41)</sup>	300 <sup>22)</sup>	18000
<sup>1)</sup> 3311009	10	95	80	15	58	50 <sup>41)</sup>	150 <sup>22)</sup>	9000

<sup>1)</sup> Not part of the approval



# m2-l Internally Threaded Bolt



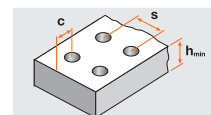
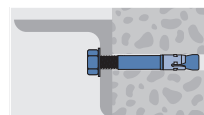
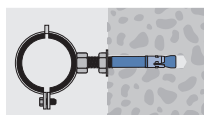
## Features

- Higher loads, higher security
- Improved clip design; higher loads and best expansion
- Suitable for metric screws and rods
- Zinc plated > 5µm
- Stainless steel A4/316
- Pre installation
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

pipes, ventilation systems, substructures, wooden structures

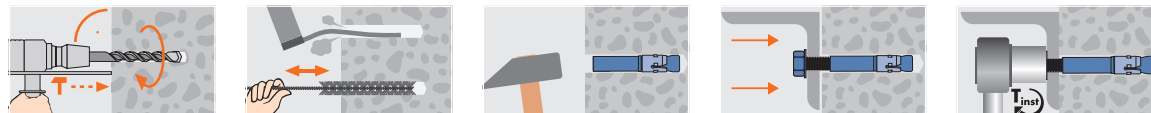


## Technical Data

	Concrete C20/25 tension load (kN) m2-l	Concrete C20/25 tension load (kN) m2-l	Distance betw. anchors mm s	Edge distance mm c	Min. distance betw. anchors mm s <sub>min</sub>	Min. edge distance mm c <sub>min</sub>	Minimum thickness of concrete member mm h <sub>min</sub>	Installation torque (Nm) T <sub>inst</sub>
M6	3.1	3.0	117	60	40	50	100	7
M8	3.5	3.4	141	71	47	60	120	10
M10	4.8	4.5	150	75	50	63	140	20
M12	5.2	5.3	177	89	60	75	160	50

Safety factor of 3 is included / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN ≈ 100 kg

## Installation



Article code	Thread	Internal thread length mm L <sub>th</sub>	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Drilling depth mm h <sub>0</sub>	Effective anchorage depth mm h <sub>ef</sub>	Minimal drive-in depth mm e <sub>min</sub>	Box content	Outer carton	Quantity per pallet
1450645	M6	15	8	45	60	39	6	100 <sup>FS</sup> 21	900 <sup>SK</sup> 22	21600
1450850	M8	17	10	51	69	47	8	100 <sup>FS</sup> 21	900 <sup>SK</sup> 22	21600
1451055	M10	17	12	55	75	50	10	100 <sup>FS</sup> 41	300 <sup>SK</sup> 12	7200
1451268	M12	20	16	69	96	59	12	50 <sup>FS</sup> 41	150 <sup>SK</sup> 12	3600

## m2-l Internally Threaded Bolt



Article code	Thread	Internal thread length mm L <sub>th</sub>	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Drilling depth mm h <sub>0</sub>	Effective anchorage depth mm h <sub>ef</sub>	Minimal drive-in depth mm e <sub>min</sub>	Box content	Outer carton	Quantity per pallet
14406455	M6	15	8	45	60	39	6	100 <sup>FS</sup> 21	900 <sup>SK</sup> 22	21600
14408505	M8	17	10	51	69	47	8	100 <sup>FS</sup> 21	900 <sup>SK</sup> 22	21600
14410555	M10	17	12	55	75	50	10	100 <sup>FS</sup> 41	300 <sup>SK</sup> 12	7200
14412685	M12	20	16	69	96	59	12	50 <sup>FS</sup> 41	150 <sup>SK</sup> 12	3600

## m2-r Internally Threaded Bolt, stainless steel A4/316



# HL Heavy Duty Anchor



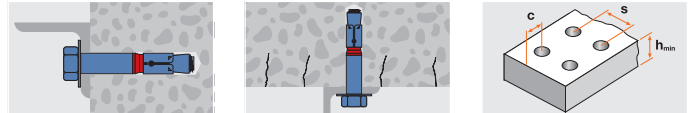
## Features

- European Technical Approval Option 1 for cracked and non-cracked concrete
- ICC-ES Report ESR-3137
- Fire resistance test certification F30-F120
- Approved for use with fixed water sprinkler systems from M8 to M20
- Shock proof fastening in civil defence projects
- Torque controlled expansion
- Zinc plated > 5µm
- Through fixing
- Indoor applications



## Applications

machines, cable trays, pipes, gates, substructures, railings

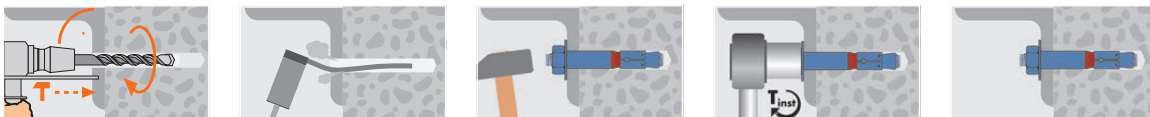


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Shear load (kN), SZ-B	Shear load (kN), SZ-S/SZ-SK	Bending moment (Nm)	Distance betw. anchors mm	Edge distance mm	Distance betw. anchors mm	Edge distance mm	Min. distance betw. anchors/at edge distance mm	Min. edge distance/at distance betw. anchors mm	Minimum thickness of concrete member mm	Wrench size SZ-S/SZ-B	Installation torque (Nm), SZ-S/SZ-B	Installation torque (Nm), SZ-S/SZ-SK	Wrench size SZ-SK
						s (3h <sub>a</sub> )	c (1.5h <sub>a</sub> )	s (5h <sub>a</sub> )	c (2.5h <sub>a</sub> )	S <sub>min</sub> /c	c <sub>min</sub> /s	h <sub>min</sub>	SW	T <sub>inst</sub>	T <sub>inst</sub>	SW
SZ M6	8.5	2.4	9.1	10.1	6.9	150	75	250	125	50/80	50/100	100	10	15	-	-
SZ M8	9.5	5.7	14	17.1	17.1	180	90	300	150	60/100	60/120	120	13	30	-	-
SZ M10	14.3	7.6	20.7	27.5	34.3	213	106	355	177	70/120	70/175	140	17	50	55	6
SZ M12	16.7	11.9	35.1	41.5	60.0	240	120	400	200	80/160	80/200	160	19	80	70	8
SZ M16	24	17.1	52.1	72	152.0	300	150	500	250	100/180	100/220	200	24	160	-	-
SZ M20	34	23.8	70	85	297	375	187	625	312	125/300	180/540	250	30	280	-	-

The partial safety factors of the resistances as well as a partial safety factor of the load of γ<sub>F</sub> = 1.4 are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN ≈ 100 kg

## Installation



Article code	Thread	Plug and drill $\varnothing$ mm	Usable length mm	Drilling depth mm	Effective anchorage depth mm	Length mm	Box content
1221000	M6	10	2	65	50	60	100 <sup>41</sup>
1221001	M6	10	10	65	50	70	50 <sup>31</sup>
1221003	M6	10	30	65	50	90	50 <sup>31</sup>
1221005	M6	10	50	65	50	110	50 <sup>31</sup>
1221200	M8	12	2	80	60	70	50 <sup>31</sup>
1221201	M8	12	10	80	60	80	50 <sup>41</sup>
1221203	M8	12	30	80	60	100	25 <sup>31</sup>
1221205	M8	12	50	80	60	120	25 <sup>31</sup>
1221500	M10	15	2	95	71	85	25 <sup>31</sup>
1221501	M10	15	15	95	71	100	25 <sup>31</sup>
1221502	M10	15	25	95	71	110	25 <sup>31</sup>
1221504	M10	15	45	95	71	130	25 <sup>41</sup>
1221509	M10	15	95	95	71	180	25 <sup>51</sup>
1221800	M12	18	2	105	80	100	20 <sup>31</sup>
1221801	M12	18	10	105	80	110	20 <sup>31</sup>
1221802	M12	18	20	105	80	120	20 <sup>31</sup>
1221804	M12	18	40	105	80	140	20 <sup>51</sup>
1221807	M12	18	70	105	80	170	20 <sup>51</sup>
1222400	M16	24	2	130	100	120	10 <sup>31</sup>
1222402	M16	24	20	130	100	140	10 <sup>51</sup>
1222405	M16	24	50	130	100	170	10 <sup>51</sup>
1222801	M20	28	10	160	125	170	5 <sup>41</sup>
1222803	M20	28	30	160	125	190	5 <sup>41</sup>
1222806	M20	28	60	160	125	220	5 <sup>41</sup>
1222810	M20	28	100	160	125	260	5 <sup>61</sup>

### HL-S (SZ-S) Heavy Duty Anchor with hexagon screw



Article code	Thread	Plug and drill $\varnothing$ mm	Usable length mm	Drilling depth mm	Effective anchorage depth mm	Length mm	Box content
1231000	M6	10	2	65	50	70	100 <sup>41</sup>
1231001	M6	10	10	65	50	80	50 <sup>31</sup>
1231003	M6	10	30	65	50	100	50 <sup>31</sup>
1231005	M6	10	50	65	50	120	50 <sup>31</sup>
1231010	M6	10	100	65	50	170	25 <sup>41</sup>
1231200	M8	12	2	80	60	80	50 <sup>31</sup>
1231201	M8	12	10	80	60	90	50 <sup>31</sup>
1231203	M8	12	30	80	60	110	25 <sup>31</sup>
1231205	M8	12	50	80	60	130	25 <sup>31</sup>
1231210	M8	12	100	80	60	180	25 <sup>41</sup>
1231500	M10	15	2	95	70	100	25 <sup>31</sup>
1231501	M10	15	15	95	70	115	25 <sup>31</sup>
1231502	M10	15	25	95	70	125	25 <sup>31</sup>
1231504	M10	15	45	95	70	145	25 <sup>41</sup>
1231509	M10	15	95	95	70	195	25 <sup>51</sup>
1231800	M12	18	2	105	80	115	20 <sup>31</sup>
1231801	M12	18	10	105	80	125	20 <sup>31</sup>
1231802	M12	18	20	105	80	135	20 <sup>41</sup>
1231804	M12	18	40	105	80	155	20 <sup>41</sup>
1231807	M12	18	70	105	80	185	20 <sup>51</sup>
1231810	M12	18	100	105	80	215	10 <sup>41</sup>
1232400	M16	24	2	130	100	140	10 <sup>51</sup>
1232402	M16	24	20	130	100	160	10 <sup>51</sup>
1232405	M16	24	50	130	100	190	10 <sup>51</sup>
1232410	M16	24	100	130	100	240	5 <sup>41</sup>
1232801	M20	28	10	160	125	180	5 <sup>41</sup>
1232803	M20	28	30	160	125	200	5 <sup>41</sup>
1232806	M20	28	60	160	125	230	5 <sup>41</sup>
1232810	M20	28	100	160	125	270	5 <sup>61</sup>

### HL-B (SZ-B) Heavy Duty Anchor with threaded bolt and nut

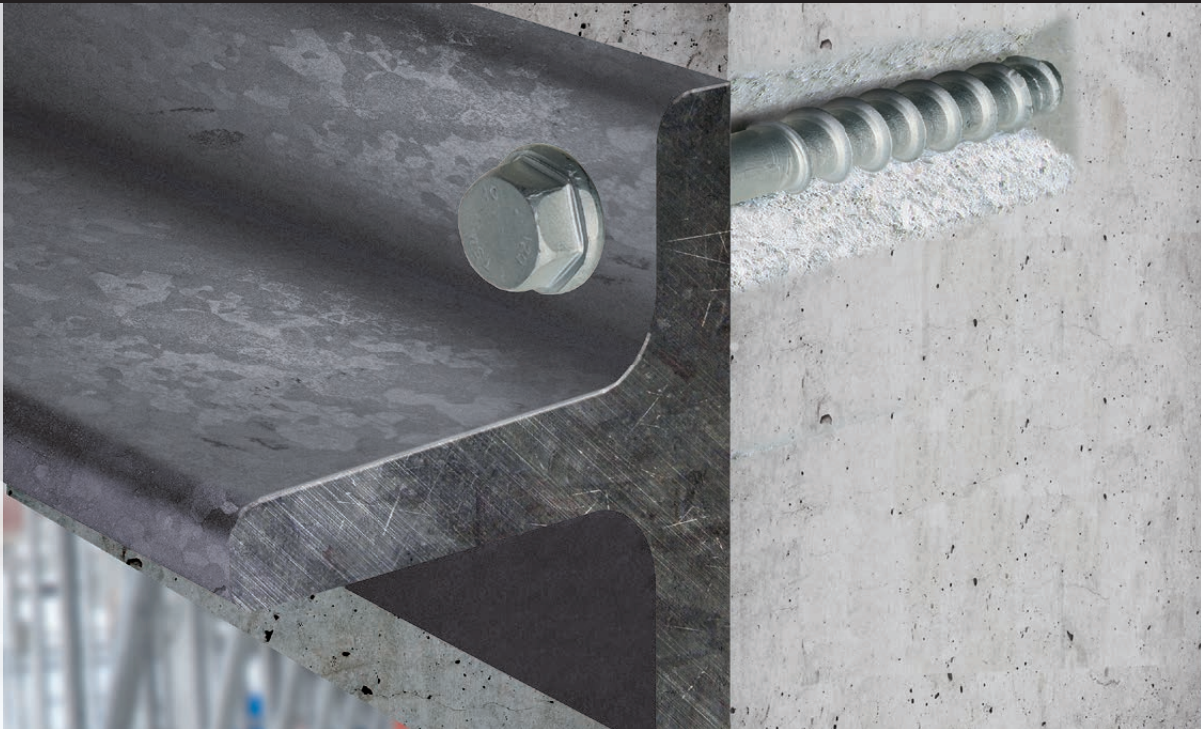


Article code	Thread	Plug and drill $\varnothing$ mm	Usable length mm	Drilling depth mm	Effective anchorage depth mm	Length mm	Head $\varnothing$ mm	Box content
1271502	M10	15	25	95	70	110	24.5	25 <sup>31</sup>
1271503	M10	15	35	95	70	120	24.5	25 <sup>31</sup>
1271802	M12	18	20	105	80	115	29.5	20 <sup>31</sup>
1271804	M12	18	40	105	80	135	29.5	20 <sup>31</sup>

### HL-SK (SZ-SK) Heavy Duty Anchor with countersunk head



# MCS Concrete Screw

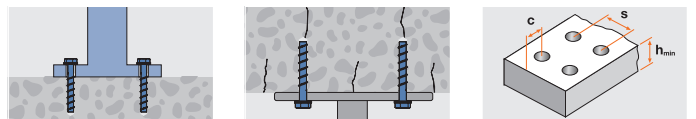


### Features

- European Technical Assessment Option 1 for cracked and non-cracked concrete
- ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1 (hnom3: Ø 8, 10, 12, 14)
- User-friendly, time-saving installation
- 3 Setting depths
- Allows adjustment or dismantling
- All possible head version in range
- Small edge and spacing distances
- High loads
- Guarantees a clean and uniform appearance
- Through fixing
- Indoor applications

### Applications

railings, hand-rails, consoles, profiles, substructures, steel constructions, wooden constructions, ventilation systems, pipes, high-racks



### Technical Data

	Non-cracked concrete C20/25 tension load (kN)		Cracked concrete C20/25 tension load (kN)		Concrete C20/25 shear load (kN)	Min. distance betw. anchors mm		Min. edge distance mm		Minimum thickness of concrete member mm		Clearance hole in fixture mm	Installation torque (Nm)		Wrench size	Drive
	$S_{min}$	$C_{min}$	$S_{min}$	$C_{min}$		$S_{min}$	$C_{min}$	$h_{min}$	$d_f$	$T_{inst}$	SW					
Ø 5	0.6	0.6	2.1	35	35	80	7	8	10	T25 / T30*						
Ø 6	0.6/1.9/4.3	0.6/1.0/1.9	3.3	35/40/40	35/40/40	80/100/100	8	10	13	T30						
Ø 8	3.6/5.7/7.6	2.4/4.3/5.7	8.1	40/50/50	40/50/50	100/100/120	12	20	13	T40						
Ø 10	5.7/9.5/12.0	4.3/8.0/9.6	16.2	50/50/50	50/50/50	100/130/130	14	40	15	T50						
Ø 12	7.6/13.2/17.2	5.7/9.4/12.3	20.0	50/50/70	50/50/70	120/130/150	16	60	17	-						
Ø 14	10.6/17.0/21.2	7.6/12.0/15.1	26.7	50/70/70	50/70/70	130/150/170	18	80	21	-						

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN = 100 kg / European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6 \times 50$ ) / ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications (Ø 5 + 6) / \* Concrete Screw with pan head

### Installation



Article code	Drill $\varnothing$ mm	Length mm	Length of screw in building material mm	Drilling depth mm	Usable length mm	Head $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_0$	L	$h_{nom1} / h_{nom2} / h_{nom3}$	$h_{1/1} / h_{1/2} / h_{1/3}$	$t_{fix1} / t_{fix2} / t_{fix3}$	$d_h$	FSI	SK	
5500504	5	40	35/-	40/-	5/-	12.5	100 21	900 22	54000
5500505	5	50	35/-	40/-	15/-	12.5	100 21	900 22	54000
5500506	5	60	35/-	40/-	25/-	12.5	100 21	900 22	54000
5500604	6	40	35/-	40/-	5/-	15	100 21	900 22	32400
5500605	6	50	35/40/-	40/45/-	15/10/-	15	100 21	600 22	36000
5500606	6	60	35/40/55	40/45/60	25/20/5	15	100 21	600 22	21600
5500608	6	80	35/40/55	40/45/60	45/40/25	15	100 21	600 22	36000
5500610	6	100	35/40/55	40/45/60	65/60/45	15	100 21	600 22	21600
5500805	8	50	45/-	55/-	5/-	16	50 31	300 22	18000
5500806	8	60	45/55/-	55/65/-	15/5/-	16	50 31	300 22	18000
5500807	8	70	45/55/65	55/65/75	25/15/5	16	50 31	300 22	10800
5500808	8	80	45/55/65	55/65/75	35/25/15	16	50 31	300 22	10800
5500809	8	90	45/55/65	55/65/75	45/35/25	16	50 31	300 22	10800
5500810	8	100	45/55/65	55/65/75	55/45/35	16	50 31	150 12	9000
5500812	8	120	45/55/65	55/65/75	75/65/55	16	50 31	150 12	9000
5500814	8	140	45/55/65	55/65/75	95/85/75	16	50 31	150 12	9000
5501006	10	60	55/-	65/-	5/-	20	50 41	150 12	9000
5501007	10	70	55/-	65/-	15/-	20	50 41	150 12	9000
5501008	10	80	55/75/-	65/85/-	25/5/-	20	50 41	150 12	9000
5501009	10	90	55/75/85	65/85/95	35/15/5	20	50 41	150 12	5400
5501010	10	100	55/75/85	65/85/95	45/25/15	20	50 41	150 12	5400
5501012	10	120	55/75/85	65/85/95	65/45/35	20	50 41	150 12	5400
5501014	10	140	55/75/85	65/85/95	85/65/55	20	50 41	150 12	5400
5501015	10	150	55/75/85	65/85/95	95/75/65	20	50 41	150 12	5400
5501016	10	160	55/75/85	65/85/95	105/85/75	20	50 41	150 12	5400
111 5501018	10	180	55/75/85	65/85/95	125/105/95	20	25 51	75 22	2700
111 5501020	10	200	55/75/85	65/85/95	145/125/115	20	25 51	75 22	2700
111 5501024	10	240	55/75/85	65/85/95	185/165/155	20	15	-	-
111 5501028	10	280	55/75/85	65/85/95	225/205/195	20	15	-	-
111 5501032	10	320	55/75/85	65/85/95	265/245/235	20	15	-	-
111 5501036	10	360	55/75/85	65/85/95	305/285/275	20	15	-	-
5501208	12	80	65/-	75/-	15/-	23.5	25 51	150 22	5400
5501211	12	110	65/85/100	75/95/110	45/25/10	23.5	25 51	150 22	5400
5501213	12	130	65/85/100	75/95/110	65/45/30	23.5	25 51	75 12	4500
5501215	12	150	65/85/100	75/95/110	85/65/50	23.5	25 51	75 12	4500
5501408	14	80	75/-	85/-	5/-	28.25	25 41	75 12	4500
5501411	14	110	75/100/-	85/110/-	35/10/-	28.25	25 41	75 12	2700
5501413	14	130	75/100/115	85/110/125	55/30/15	28.25	25 51	75 22	2700
5501415	14	150	75/100/115	85/110/125	75/50/35	28.3	25 51	75 22	2700

111 Washer DIN440

**MCS-S** Concrete Screw with hexagon head with washer, zinc flake-coated steel



**MCS-SK** Concrete Screw with countersunk head



**MCS-P** Concrete Screw with pan head



**MCS-PG** Concrete Screw with large pan head

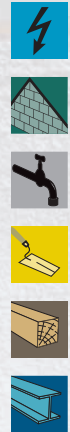


**MCS-I** Concrete Screw with countersunk socket head with metric internal thread, M8-M10



European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6x50$ )  
ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications ( $\varnothing 5 + 6$ )

# MCSr Concrete Screw, stainless steel A4/316



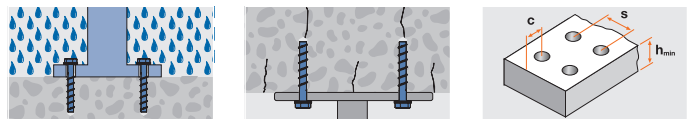
### Features

- European Technical Assessment Option 1 for cracked and non-cracked concrete
- ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1 (h<sub>nom</sub>3: Ø 8, 10, 12, 14)
- User-friendly, time-saving installation
- 3 Setting depths
- Allows adjustment or dismantling
- All possible head version in range
- Small edge and spacing distances
- High loads
- Guarantees a clean and uniform appearance
- Through fixing
- Outdoor applications



### Applications

railings, hand-rails, consoles, profiles, substructures, steel constructions, wooden constructions, ventilation systems, pipes, high-racks



### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Min. distance betw. anchors mm	Min. edge distance mm	Minimum thickness of concrete member mm	Clearance hole in fixture mm	Installation torque (Nm)	Wrench size	Drive
				S <sub>min</sub>	c <sub>min</sub>	h <sub>min</sub>	d <sub>f</sub>	T <sub>inst</sub>	SW	
Ø 6	0.6/1.9/4.3	0.6/1.0/1.9	3.3	35/40/40	35/40/40	100/100/100	8	10	13	T30
Ø 8	3.6/5.7/7.6	2.4/4.3/5.7	8.1	40/50/50	40/50/50	100/100/120	12	20	13	T40
Ø 10	5.7/9.5/12.0	4.3/8.0/9.6	16.2	50/50/50	50/50/50	100/130/130	14	40	15	T50

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / The technical data is only valid for single fixings without consideration of edge and anchor distances / Only valid for setting depths according to approval / 1 kN  $\approx$  100 kg / European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6 \times 50$ ) / ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications ( $\geq 5 + 6$ )

### Installation



Article code	Drill $\varnothing$ mm	Length mm	Length of screw in building material mm	Drilling depth mm	Usable length mm	Head $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_d$	L	$h_{nom1} / h_{nom2} / h_{nom3}$	$h_{1/1} / h_{1/2} / h_{1/3}$	$t_{fs1} / t_{fs2} / t_{fs3}$	$d_k$	FS	SK	
5600605	6	50	35/40/-	40/45/-	15/10/-	15	100 31	600 22	36000
5600606	6	60	35/40/55	40/45/60	25/20/5	15	100 31	600 22	21600
5600807	8	70	45/55/65	55/65/75	25/15/5	16	50 31	300 22	10800
5600808	8	80	45/55/65	55/65/75	35/25/15	16	50 31	300 22	10800
5601009	10	90	55/75/85	65/85/95	35/15/5	20	50 41	150 12	5400
5601010	10	100	55/75/85	65/85/95	45/25/15	20	50 51	150 22	5400
5601012	10	120	55/75/85	65/85/95	65/45/35	20	50 51	150 22	5400

European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6 \times 50$ )  
 ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications ( $\varnothing 5 + 6$ )

**MCSr-S** Concrete Screw with hexagon head with washer, stainless steel A4/316



Article code	Drill $\varnothing$ mm	Length mm	Length of screw in building material mm	Drilling depth mm	Usable length mm	Head $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_d$	L	$h_{nom1} / h_{nom2} / h_{nom3}$	$h_{1/1} / h_{1/2} / h_{1/3}$	$t_{fs1} / t_{fs2} / t_{fs3}$	$d_k$	FS	SK	
5610605	6	50	35/40/-	40/45/-	15/10/-	13	100 31	600 22	36000
5610606	6	65	35/40/55	40/45/60	30/25/10	13	100 31	600 22	36000
5610608	6	85	35/40/55	40/45/60	50/45/30	13	100 31	600 22	36000
5610610	6	105	35/40/55	40/45/60	70/65/50	13	100 31	600 22	21600
5610808	8	80	45/55/65	55/65/75	35/25/15	19	50 31	300 22	10800
5611009	10	90	55/75/85	65/85/95	35/15/5	21.5	50 41	150 12	9000

European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6 \times 50$ )  
 ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications ( $\varnothing 5 + 6$ )

**MCSr-SK** Concrete Screw with countersunk head, stainless steel A4/316



Article code	Drill $\varnothing$ mm	Length mm	Length of screw in building material mm	Drilling depth mm	Usable length mm	Head $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_d$	L	$h_{nom1} / h_{nom2} / h_{nom3}$	$h_{1/1} / h_{1/2} / h_{1/3}$	$t_{fs1} / t_{fs2} / t_{fs3}$	$d_k$	FS	SK	
5620605	6	50	35/40/-	40/45/-	15/10/-	15	100 31	600 22	36000
5620606	6	60	35/40/55	40/45/60	25/20/5	15	100 31	600 22	36000
5620608	6	80	35/40/55	40/45/60	45/40/25	15	100 31	600 22	21600
5620610	6	100	35/40/55	40/45/60	65/60/45	15	100 31	600 22	21600

European Technical Assessment Option 1 for cracked and non-cracked concrete ( $\geq 6 \times 50$ )  
 ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications ( $\varnothing 5 + 6$ )

**MCSr-P** Concrete Screw with pan head, stainless steel A4/316



# MSS Shield Anchor

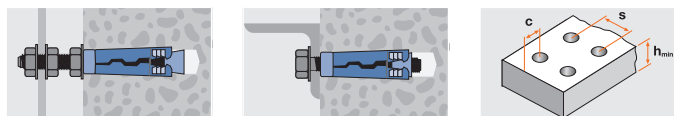


### Features

- Torque controlled expansion
- Zinc plated > 5µm
- Pre installation
- Indoor applications

### Applications

pipes, steel constructions

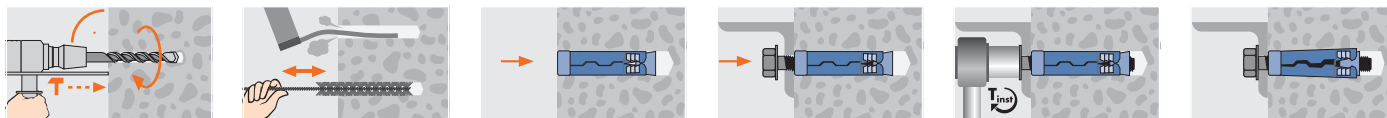


### Technical Data

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Distance betw. anchors mm s	Distance to edge tension load mm c	Distance to edge shear load mm c	Minimum thickness of concrete member mm h <sub>min</sub>	Installation torque concrete (Nm) T <sub>inst</sub>	Wrench size SW
M6	2.7	6.8	9.4	120	80	100	70	6.5	10
M8	4.8	8.7	17.1	150	100	120	80	15	13
M10	6.2	13.7	34.2	180	120	160	100	27	17
M12	9.7	19.9	60	250	160	180	120	50	19
M16	13.0	25.6	113	290	190	260	190	120	24

Safety factor: breakage of concrete of 3 is included / of steel of 2.2 is included / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN ≈ 100 kg

### Installation



### MSS Shield Anchor



Article code	Internal thread	Drill ∅ mm	Clearance hole in fixture mm	Length mm	Drilling depth mm	Box content	Outer carton
1240604	M6	d <sub>g</sub> 11	d <sub>f</sub> 7	L 45	h <sub>g</sub> 50	50 <sup>11</sup>	600 <sup>22</sup>
1240805	M8	d <sub>g</sub> 13	d <sub>f</sub> 9	L 50	h <sub>g</sub> 55	50 <sup>21</sup>	450 <sup>22</sup>
1241006	M10	d <sub>g</sub> 16	d <sub>f</sub> 12	L 60	h <sub>g</sub> 65	50 <sup>31</sup>	300 <sup>22</sup>
1241207	M12	d <sub>g</sub> 18	d <sub>f</sub> 14	L 75	h <sub>g</sub> 80	25 <sup>31</sup>	150 <sup>22</sup>
1241611	M16	d <sub>g</sub> 25	d <sub>f</sub> 18	L 115	h <sub>g</sub> 120	10 <sup>21</sup>	90 <sup>22</sup>



# MHA Sleeve Anchor

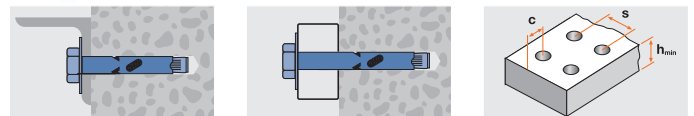


## Features

- Small edge and spacing distances
- Torque controlled expansion
- Zinc plated > 5µm
- Through fixing
- Indoor applications

## Applications

steel constructions, profiles

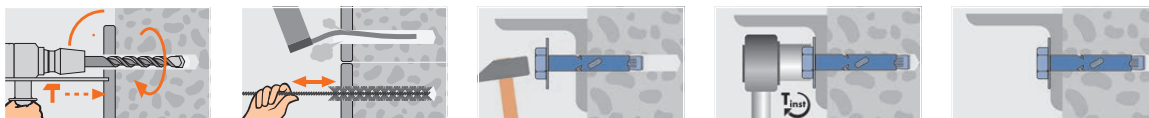


## Technical Data

	Concrete C20/25 tension load (kN)	Concrete C20/25 shear load (kN)	Bending moment (Nm)	Distance betw. anchors mm s	Edge distance mm c	Minimum thickness of concrete member mm h <sub>min</sub>	Installation torque (Nm) T <sub>inst</sub>	Wrench size MHA-S		Wrench size MHA-B	
								SW	SW	SW	SW
M6	2	3.2	4.2	105	55	70	8	10	10	10	
M8	3	3.5	5.3	120	60	80	15	13	13	13	
M10	5	6.0	12.8	150	75	100	30	17	15	15	
M12	7.5	8.5	25	225	115	150	40	-	19	19	

Safety factor of 3 is included / 1 kN ≈ 100 kg

## Installation



**MHA-S** Sleeve Anchor with hexagon screw



Article code	Drill $\varnothing$ mm	Length mm	Thread	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton
	$d_0$	L	d	$h_0$	$t_{fix}$	$h_{ef}$	$f_{ss}$	$f_{sc}$
1590804	8	45	M6	55	5	35	50 <sup>11</sup>	600 <sup>22</sup>
1590806	8	60	M6	55	20	35	100 <sup>21</sup>	900 <sup>22</sup>
1591006	10	60	M8	60	15	40	50 <sup>21</sup>	450 <sup>22</sup>
1591008	10	80	M8	60	35	40	50 <sup>21</sup>	300 <sup>22</sup>
1591207	12	70	M10	70	15	50	50 <sup>21</sup>	300 <sup>22</sup>
1591210	12	100	M10	70	45	50	25 <sup>21</sup>	225 <sup>22</sup>

**MHA-B** Sleeve Anchor with threaded bolt and nut



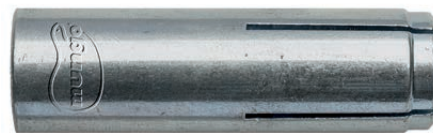
Article code	Drill $\varnothing$ mm	Length mm	Thread	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton
	$d_0$	L	d	$h_0$	$t_{fix}$	$h_{ef}$	$f_{ss}$	$f_{sc}$
1580804	8	40	M6	50	5	30	100 <sup>11</sup>	1200 <sup>22</sup>
1580806	8	65	M6	55	25	35	50 <sup>11</sup>	600 <sup>22</sup>
1581005	10	50	M8	60	5	40	50 <sup>11</sup>	600 <sup>22</sup>
1581007	10	75	M8	60	30	40	50 <sup>21</sup>	450 <sup>22</sup>
1581009	10	95	M8	60	50	40	25 <sup>11</sup>	300 <sup>22</sup>
1581012	10	125	M8	60	80	40	25 <sup>21</sup>	225 <sup>22</sup>
1581014	10	145	M8	60	100	40	25 <sup>21</sup>	150 <sup>22</sup>
1581207	12	75	M10	70	15	50	25 <sup>11</sup>	300 <sup>22</sup>
1581210	12	100	M10	70	40	50	20 <sup>11</sup>	240 <sup>22</sup>
1581213	12	130	M10	70	70	50	20 <sup>21</sup>	180 <sup>22</sup>
1581215	12	150	M10	70	90	50	20 <sup>21</sup>	120 <sup>22</sup>
1581606	16	65	M12	70	5	50	20 <sup>11</sup>	240 <sup>22</sup>
1581611	16	110	M12	95	25	75	10 <sup>11</sup>	120 <sup>22</sup>
1581614	16	145	M12	95	60	75	20 <sup>21</sup>	60 <sup>12</sup>
1581617	16	170	M12	95	85	75	15 <sup>21</sup>	45 <sup>12</sup>

# MEA Drop in Anchor



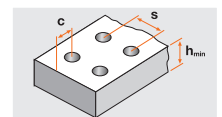
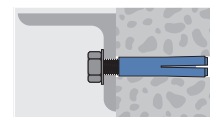
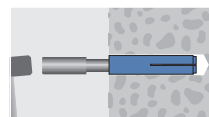
## Features

- European Technical Approval Option 7 for non-cracked concrete
- ETAG 001 - 06 - Approved for multiple use in cracked and non-cracked concrete for non-structural applications
- Fire resistance up to F120 is part of the approval
- Use in reinforced or non reinforced concrete
- Suitable for metric screws and rods
- Quick and simple installation
- Low edge and anchor distances
- Short drilling depth
- Zinc plated > 5µm
- Stainless steel A4/316
- Pre installation



## Applications

pipes, ventilation systems, cable trays

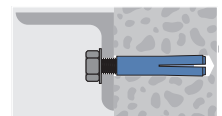
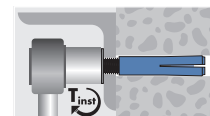
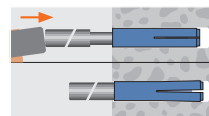
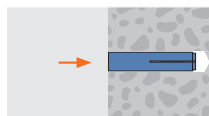
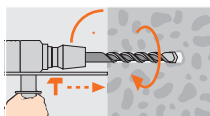


## Technical Data

	Concrete C20/25 tension load (kN) ETA-001/Part 6	Concrete C20/25 tension load (kN) ETA Option 7	Min. distance betw. anchors mm ETA-001/Part 6, s <sub>min</sub>	Min. distance betw. anchors mm ETA Option 7, s <sub>min</sub>	Min. edge distance mm ETA-001/Part 6, c <sub>min</sub>	Min. edge distance mm ETA Option 7, c <sub>min</sub>	Minimum thickness mm ETA-001/Part 6, h <sub>min</sub>	Minimum thickness mm ETA Option 7, h <sub>min</sub>	Installation torque (Nm) T <sub>inst</sub>
MEA M6x25	2	5	120	120	110	90	100	100	4
MEA M8x25	0.9	-	100	-	50	-	100	-	8
MEA M8x30	2	3.5	130	90	140	120	100	100	8
MEA M8x40	-	6	-	120	-	80	-	100	8
MEA M10x25	1.5	-	110	-	55	-	100	-	15
MEA M10x30	3	5.5	150	150	60	90	100	100	15
MEA M10x40	-	7	-	120	-	140	-	120	15
MEA M12x25	2	-	200	-	100	-	100	-	35
MEA M12x50	3.5	10	130	150	140	175	140	140	35
MEA M12x50/D16*	-	9	-	-	-	-	-	-	35
MEA M16x65	-	12	-	200	-	120	-	160	60
MEAr M8x30	5	1)	60	60	95	95	100	100	8
MEAr M10x40	6	1)	100	100	135	135	130	130	15
MEAr M12x50	6	1)	120	120	165	165	140	140	35

Characteristic values according to approval / \*Not part of the approval, Mungo lab tested / 1) see approval / 1 kN = 100 kg

## Installation



**MEA** Drop in Anchor



Article code	ETA-001/Part 6	ETA Option 7	Internal thread	Min. internal thread length mm	Plug and drill $\varnothing$ mm	Drilling depth mm	Box content	Outer carton	Quantity per pallet
			d	L <sub>min</sub>	d <sub>plug</sub> = d <sub>drill</sub>	h <sub>drill</sub>	FS	SK	
1740625	■	■	M6	8	8	25	100 11	1200 22	72000
1740825	■	-	M8	10	10	25	100 11	1200 22	72000
1740830	■	■	M8	10	10	30	100 11	1200 22	72000
1740840	-	■	M8	12	10	40	100 11	1200 22	72000
1741025	■	-	M10	12	12	25	100 11	1200 22	72000
1741030	■	■	M10	12	12	30	100 11	1200 22	72000
1741040	-	■	M10	15	12	40	100 11	600 22	36000
1741225	■	-	M12	11	15	25	50 21	600 22	36000
1741250	■	■	M12	16	15	50	50 21	450 22	27000
1) 1741251	-	-	M12	16	16	50	50 21	450 22	27000
1741665	-	■	M16	22	20	65	25 21	225 22	13500

#1741251 for use with diamond drill rigs and saws

1) Not part of the approval

**MEAr (E A4)** Drop in Anchor, stainless steel A4/316



Article code	Internal thread	Internal thread length mm	Plug and drill $\varnothing$ mm	Drilling depth mm	Box content	Outer carton	Quantity per pallet
	d	L <sub>sk</sub>	d <sub>plug</sub> = d <sub>drill</sub>	h <sub>drill</sub>	FS	SK	
1750830	M8	13	10	30	100 11	1200 22	72000
1751040	M10	15	12	40	50 11	600 22	36000
1751250	M12	18	15	50	50 21	450 22	27000

**MEA-WZ** Setting Tool for MEA with hand guard



Article code	For	Box content
1770625	M6 x 25	1
1770825	M8 x 25	1
1770830	M8 x 30	1
1770840	M8 x 40	1
1771025	M10 x 25	1
1771030	M10 x 30	1
1771040	M10 x 40	1
1771225	M12 x 25	1
1771250	M12 x 50	1
1771665	M16 x 65	1

**MEAr-WZ** Setting Tool for MEAr with hand guard



Article code	For	Box content
1780830	M8 x 30	1
1781040	M10 x 40	1
1781250	M12 x 50	1

**MEA-SDS** Setting Tool for MEA, SDS-Plus



Article code	For	Box content
1772625	M6 x 25	1
1772825	M8 x 25	1
1772830	M8 x 30	1
1772840	M8 x 40	1
1772025	M10 x 25	1
1772030	M10 x 30	1
1772040	M10 x 40	1
1772225	M12 x 25	1
1772250	M12 x 50	1
1772665	M16 x 65	1

**MEA-BB** Stop Drill Bit



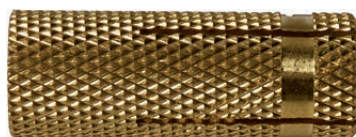
Article code	For	Drilling hole $\varnothing$ mm	Drilling depth mm	Box content
		d <sub>0</sub>	h <sub>0</sub>	
1773625	M6 x 25	8	25	1
1773825	M8 x 25	10	25	1
1773830	M8 x 30	10	30	1
1773840	M8 x 40	10	40	1
1773025	M10 x 25	12	25	1
1773030	M10 x 30	12	30	1
1773040	M10 x 40	12	40	1
1773225	M12 x 25	15	25	1
1773250	M12 x 50	15	50	1
1773665	M16 x 65	20	65	1

# MMD Brass Anchor



## Features

- Corrosion resistant
- Pre installation
- For light applications indoor and outdoor



## Applications

substructures, rails

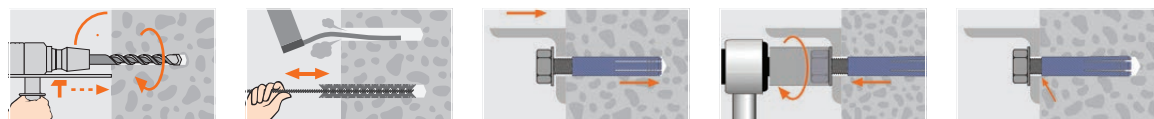


## Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Min. distance betw. anchors mm		Min. edge distance mm		Minimum thickness of concrete member mm	
			$s_{min}$	$c_{min}$	$c_{min}$	$h_{min}$		
M5	0.7	0.55	50	35	30			
M6	0.85	0.7	60	40	35			
M8	1.5	1.2	65	45	40			
M10	2.5	1.6	70	50	45			
M12	3.5	2.0	75	55	50			

Safety factor of 3 is included / 1 kN ≈ 100 kg

## Installation



Article code	Internal thread d	Internal thread length mm $L_{in}$	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Drilling depth mm $h_0$	Box content FS	Outer carton SM
1730005	M5	14	6	25	100 01	2400 22
1730006	M6	15	8	28	100 01	2400 22
1730008	M8	18	10	35	100 11	1200 22
1730010	M10	22	12	40	100 11	1200 22
1730012	M12	21	15	45	50 11	600 22

## MMD Brass Anchor



# MHDA Hollow Ceiling Anchor

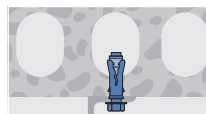


### Features

- Suitable for screws or bolts with metric thread
- Zinc plated > 5µm
- Pre installation
- Indoor applications

### Applications

pipes, ventilation systems, cable trays, substructures, gates



### Technical Data

	Non-cracked concrete C40/50 tension load (kN) thickness of concrete member ≥25mm	Non-cracked concrete C40/50 tension load (kN) thickness of concrete member ≥30mm	Non-cracked concrete C40/50 tension load (kN) thickness of concrete member ≥40mm	Distance betw. anchors mm s	Edge distance mm c	Installation torque (Nm) T <sub>inst</sub>
M6	1.2	1.6	-	300	150	10
M8	1.4	1.9	2.5	300	150	10
M10	2.0	3.0	4.0	300	150	20

Single fixing / Safety factor of 5 is included / 1 kN ≈ 100 kg

### Installation



### MHDA Hollow Ceiling Anchor



Article code	Internal thread d	Thread length mm L <sub>c</sub>	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Drilling depth mm h <sub>0</sub>	Box content Pcs	Outer carton Pcs
1300006	M6	11	10	37	50	100	1200
1300008	M8	14	12	43	60	50	600
1300010	M10	19	16	52	65	25	300

# MAN Ceiling Anchor

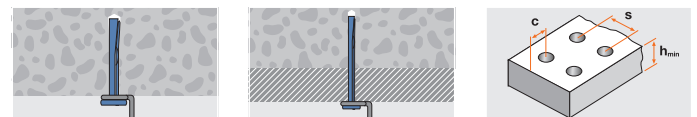
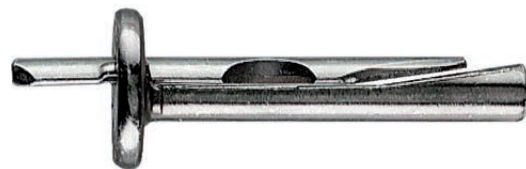


## Features

- Approved for multiple fixings of light weight suspended ceilings according to DIN 18168, also in cracked concrete
- Fire resistance up to F120 is part of the approval
- Suitable for overhead fixings
- Simple setting process by flush hitting of overlaying pin
- For fast to install ceiling systems
- Head of ceiling anchor rests wide and covers neatly
- Top load values
- Zinc plated > 5µm / Stainless steel A4/316
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications

## Applications

suspended ceilings, wire hanger, substructures, profiles, ventilation systems



## Technical Data

	Concrete C20/25 - C50/60 tension load (kN)	Bending moment (Nm)	Min. distance betw. anchors mm	Min. edge distance mm	Minimum thickness of concrete member mm
			$s_{min}$	$c_{min}$	$h_{min}$
MAN	1.4	3.0	200	150	80
MANr	1.43	-	200	100	80

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / 1 kN  $\approx$  100 kg

## Installation



Article code	Drill $\varnothing$ mm	Drilling depth mm	Length mm	Usable length mm	Box content	Outer carton	Quantity per pallet
	$d_0$	$h_0$	L	$t_{fix}$	$\frac{FS}{11}$	$\frac{SK}{22}$	
1127064	6	40	40	5	100	1200	72000
1127067	6	40	70	35	100	600	36000

Available in up to 35 mm usable length for applications with wooden slats

Article code	Drill $\varnothing$ mm	Drilling depth mm	Length mm	Usable length mm	Box content	Outer carton	Quantity per pallet
	$d_0$	$h_0$	L	$t_{fix}$	$\frac{FS}{11}$	$\frac{SK}{22}$	
1127645	6	48	45	5	100	1200	72000

## MAN Ceiling Anchor



## MANr (MND) Ceiling Anchor, stainless steel A4/316



# MMS Metal Frame Anchor, Standard



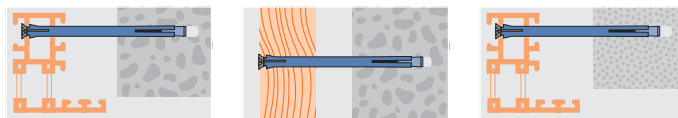
### Features

- Applications in solid materials
- Expansion cone is secured against twist and drop
- Zinc plated > 5µm
- Through fixing
- Indoor applications



### Applications

windows, substructures, frames

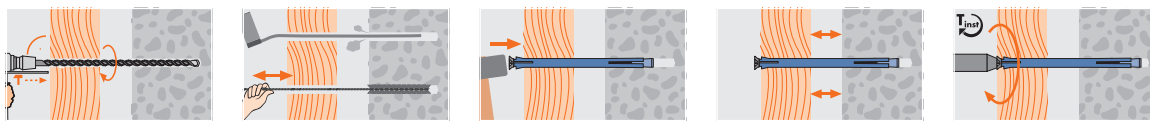


### Technical Data

	Concrete C20/25 - C50/60 tension load (kN)	Brick tension load (kN)	Lightweight Concrete tension load (kN)	Installation torque (Nm) $T_{inst}$
MMS 8	0.75	0.5	-	5
MMS 10	1.0	0.5	0.1	8

Safety factor of 5 is included / 1 kN ≈ 100 kg

### Installation



### MMS Metal Frame Anchor, Standard



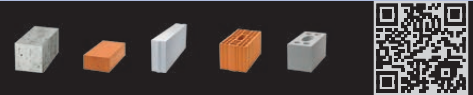
8mm

10mm

Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Drilling depth mm $h_0$	Usable length mm $t_{fix}$	Drive	Box content
1208071	8	70	45	40	PZ2	100
1208091	8	90	45	60	PZ2	100
1208111	8	110	45	80	PZ2	100
1208131	8	130	45	100	PZ2	100
1210071	10	70	55	30	PZ3	100
1210091	10	90	55	50	PZ3	100
1210111	10	110	55	70	PZ3	100
1210131	10	130	55	90	PZ3	100
1210151	10	150	55	110	PZ3	100
1210181	10	180	55	140	PZ3	100
1210201	10	200	55	160	PZ3	100



# MMM Metal Frame Anchor, Multi



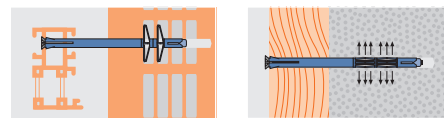
### Features

- Expansion cone is secured against twist and drop
- Rotating drill in perforated brick
- Zinc plated > 5µm
- Through fixing
- Indoor applications



### Applications

windows, profiles, substructures, frames

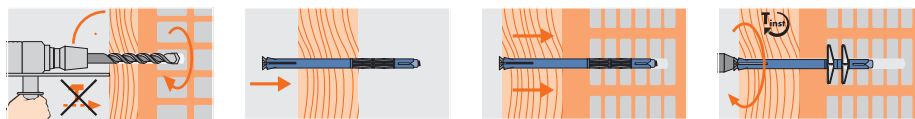


### Technical Data

	Concrete C20/25 - C50/60 tension load (kN)	Brick tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Installation torque (Nm)
MMM	0.5	0.4	0.3	0.2	8

Safety factor of 5 is included / 1 kN ≈ 100 kg

### Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Drive	Box content
	$d_{nom} = d_b$	L	$h_b$	$t_{us}$	$h_{ef}$		
1210112	10	110	80	45	65	PZ3	100
1210132	10	130	80	65	65	PZ3	100
1210152	10	150	80	85	65	PZ3	100
1210182	10	180	80	115	65	PZ3	100

### MMM Metal Frame Anchor, Multi



# MEN Express Nail



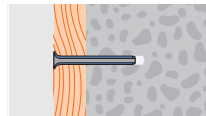
### Features

- Economical installation
- No screw and plug required
- Through fixing with the Metal Disc, the MEN is appropriate for overhead installation of insulation
- Zinc plated > 5µm
- Through fixing
- Indoor applications



### Applications

squared timbers, substructures, profiles

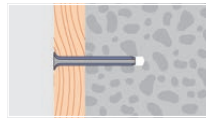
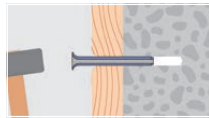
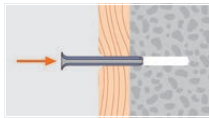
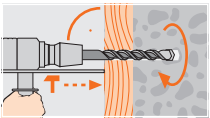


### Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)
MEN 5	0.3	-
MEN 6	0.7	0.5
MEN 8	1.0	0.8

Safety factor of 3 is included / 1 kN ≈ 100 kg / Perforated Brick: The pull-out values should be determined on the bases of the application as they are dependent on the pull-out values in the brick/block

### Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Drilling depth mm	Usable length mm	Effective anchorage depth mm	Box content	Outer carton	Quantity per pallet
	$d_{plug} = d_0$	L	$h_0$	$f_{fix}$	$h_{eff}$	$\frac{FS}{\text{SK}}$	$\frac{SK}{\text{SK}}$	
1125026	5	26	30	3	23	100 $\frac{31}{31}$	2400 $\frac{32}{32}$	57600
1126030	6	30	35	3	27	100 $\frac{31}{31}$	2400 $\frac{32}{32}$	57600
1126060	6	60	40	30	30	100 $\frac{31}{31}$	2400 $\frac{32}{32}$	57600
1126080	6	80	40	50	30	100 $\frac{31}{31}$	1800 $\frac{32}{32}$	43200
1128070	8	70	50	30	40	100 $\frac{31}{31}$	1200 $\frac{32}{32}$	28800
1128090	8	90	50	50	40	100 $\frac{31}{31}$	1200 $\frac{32}{32}$	28800
1128110	8	110	50	70	40	100 $\frac{31}{31}$	900 $\frac{32}{32}$	21600
1128130	8	130	50	90	40	100 $\frac{31}{31}$	900 $\frac{32}{32}$	21600
1128150	8	150	50	110	40	100 $\frac{31}{31}$	900 $\frac{32}{32}$	21600
1128180	8	180	50	140	40	100 $\frac{31}{31}$	900 $\frac{32}{32}$	21600

**MEN Express Nail**



Article code	Disc $\varnothing$ mm	Hole $\varnothing$ mm	Description	For	Box content	Outer carton	Quantity per pallet
	$d_{disc}$	$d_w$			$\frac{FS}{\text{SK}}$	$\frac{SK}{\text{SK}}$	
1120867	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200 $\frac{31}{31}$	3600 $\frac{32}{32}$	86400

**MDB-M Metal Disc,  $\varnothing$  38mm**



Article code	Disc $\varnothing$ mm	Hole $\varnothing$ mm	Description	For	Box content	Outer carton	Quantity per pallet
	$d_{disc}$	$d_w$			$\frac{FS}{\text{SK}}$	$\frac{SK}{\text{SK}}$	
1120875	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200 $\frac{31}{31}$	3600 $\frac{32}{32}$	86400

**MDB-M Metal Disc,  $\varnothing$  38mm, white**



Article code	Disc $\varnothing$ mm	Hole $\varnothing$ mm	Description	For	Box content	Outer carton	Quantity per pallet
	$d_{disc}$	$d_w$			$\frac{FS}{\text{SK}}$	$\frac{SK}{\text{SK}}$	
1120860	70	8.5	metal	MNA-S 8 / MEN 8	100 $\frac{31}{31}$	1200 $\frac{32}{32}$	28800
1120862	70	10.5	metal	MNA-S 10 / MEN 8	100 $\frac{31}{31}$	1200 $\frac{32}{32}$	28800

**MDB-M Metal Disc,  $\varnothing$  70mm**



# MRS Wall Screw

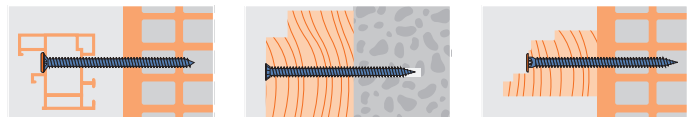


### Features

- Only 6mm pre-drilling required
- User-friendly, time-saving installation
- Small edge and spacing distances
- Stress-free fastening
- Low torque required
- Also suitable for wood-wood connection
- Zinc plated > 5µm
- Through fixing
- Indoor applications

### Applications

wooden constructions, windows, frames



### Technical Data

	Tension load (kN) edge distance > 30mm	Shear load (kN) edge distance > 30mm	Shear load (kN) edge distance > 60mm	Bending moment (Nm)	Installation torque (Nm) $T_{inst}$	Drilling hole $\varnothing$ mm		Drilling depth mm		Setting depth mm
						$d_d$	$h_d$	$h_{rem}$		
MRS Concrete	1.2	0.8	1.6	17	20	6	40	30		
MRS Brick	0.8	0.5	1.2	17	15	6	50	40		
MRS Perforated Brick	0.2	0.2	0.5	17	10	6	70	60		
MRS L'weight concrete	0.2	0.1	0.3	17	5	-	-	60		

1 kN  $\approx$  100 kg / Safety factor of 5 is included / Rotating drill in perforated brick / No pre-drilling in lightweight concrete / Thickness of concrete member; screw length minus setting depth

### Installation



Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_s$	$L$		$\frac{FS}{21}$	$\frac{SK}{22}$	
5137204	7.5	40	T30	100	900	32400
5137205	7.5	50	T30	100	900	32400
5137206	7.5	60	T30	100	900	32400
5137207	7.5	70	T30	100	900	32400
5137208	7.5	80	T30	100	900	32400
5137209	7.5	90	T30	100	900	32400
5137210	7.5	100	T30	100	900	32400
5137211	7.5	110	T30	50	450	16200
5137212	7.5	120	T30	50	450	16200
5137213	7.5	130	T30	50	450	16200
5137214	7.5	140	T30	50	450	16200
5137215	7.5	150	T30	50	450	16200
5137218	7.5	180	T30	50	450	16200
5137221	7.5	210	T30	50	450	16200
5137224	7.5	240	T30	50	450	16200
5137227	7.5	270	T30	50	300	10800
5137232	7.5	320	T30	50	-	5500

**MRS-H** Wall Screw Wood with head Ø 8.3mm, T30



Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_s$	$L$		$\frac{FS}{21}$	$\frac{SK}{22}$	
5137104	7.5	40	T30	100	900	32400
5137105	7.5	50	T30	100	900	32400
5137106	7.5	60	T30	100	900	32400
5137107	7.5	70	T30	100	900	32400
5137108	7.5	80	T30	100	900	32400
5137109	7.5	90	T30	100	900	32400
5137110	7.5	100	T30	100	900	32400
5137111	7.5	110	T30	50	450	16200
5137112	7.5	120	T30	50	450	16200
5137113	7.5	130	T30	50	450	16200
5137114	7.5	140	T30	50	450	16200
5137115	7.5	150	T30	50	450	16200
5137118	7.5	180	T30	50	450	16200
5137121	7.5	210	T30	50	450	16200
5137124	7.5	240	T30	50	450	16200
5137127	7.5	270	T30	50	300	10800
5137132	7.5	320	T30	50	-	5500

**MRS-U** Wall Screw Universal with head Ø 11.5mm, T30



Article code	Shape	Colour	RAL	Box content	Outer carton	Quantity per pallet
				$\frac{FS}{21}$	$\frac{SK}{22}$	
1121046	flat	white	9010	200	7200	172800
1121037	flat	light brown	1001	200	7200	172800
1121047	flat	dark brown	8017	200	7200	172800
1121087	flat	black	9005	200	7200	172800
1121039	flat	grey	7001	200	7200	172800

**AKT** End Cap T30 for MRS-U/MRS-H



Article code	Disc Ø mm	Hole Ø mm	Description	For	Box content	Outer carton	Quantity per pallet
	$d_{disc}$	$d_{hole}$			$\frac{FS}{21}$	$\frac{SK}{22}$	
1120867	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200	3600	86400

**MDB-M** Metal Disc, Ø 38mm

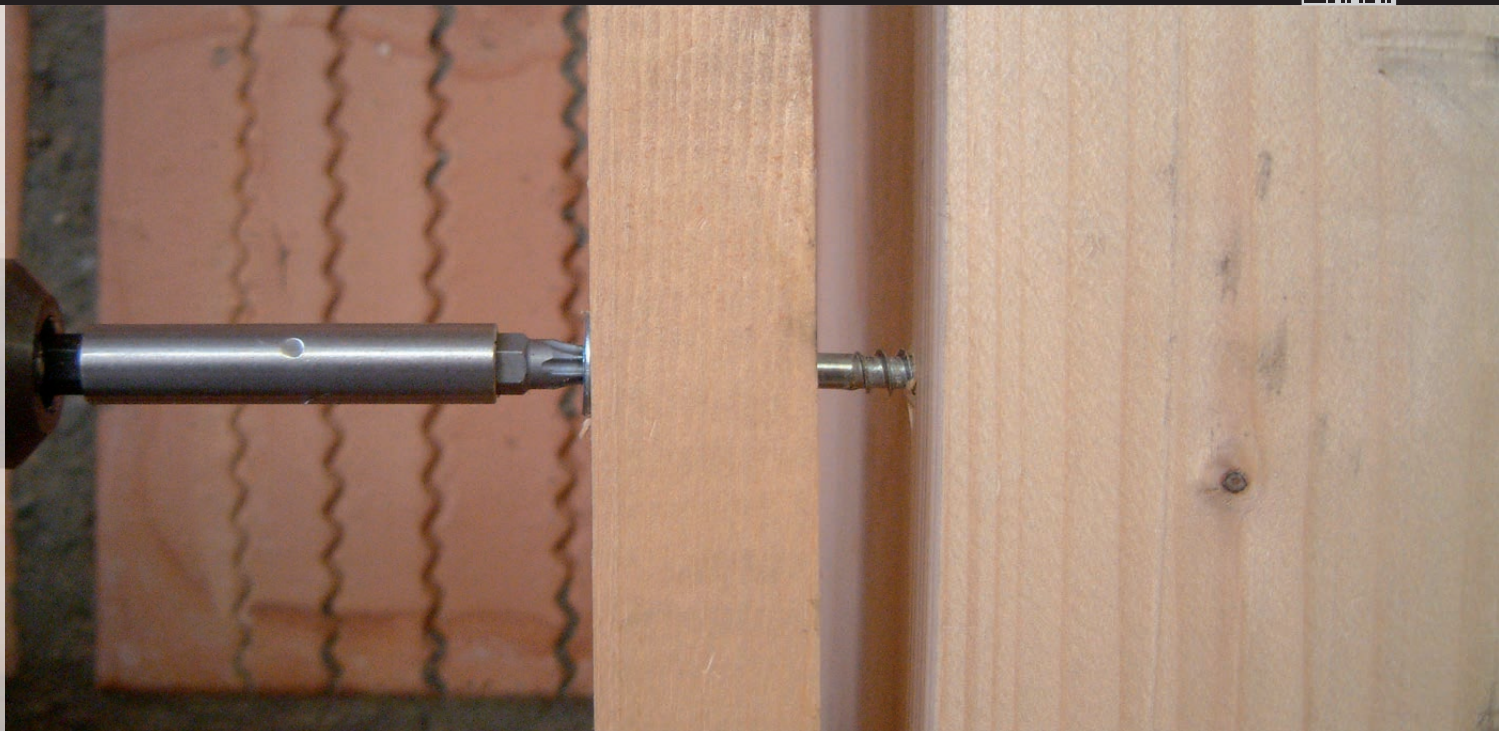


Article code	Disc Ø mm	Hole Ø mm	Description	For	Box content	Outer carton	Quantity per pallet
	$d_{disc}$	$d_{hole}$			$\frac{FS}{21}$	$\frac{SK}{22}$	
1120875	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200	3600	86400

**MDB-M** Metal Disc, Ø 38mm, white



# MJB Adjustable Screw

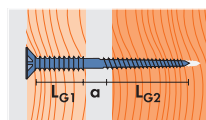


### Features

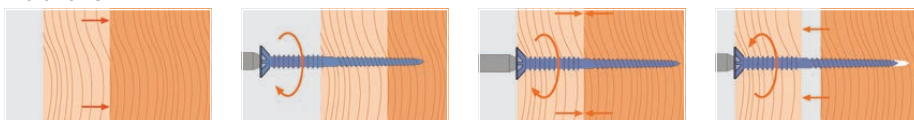
- Continuously adjustable screw for wooden substructures
- Also suitable for wood-wood connection
- Stress-free fastening
- No drilling required
- Incl. 1 Bit per box
- Zinc plated > 5µm
- Through fixing
- Indoor applications

### Applications

substructures



### Installation



### MJB Adjustable Screw T25



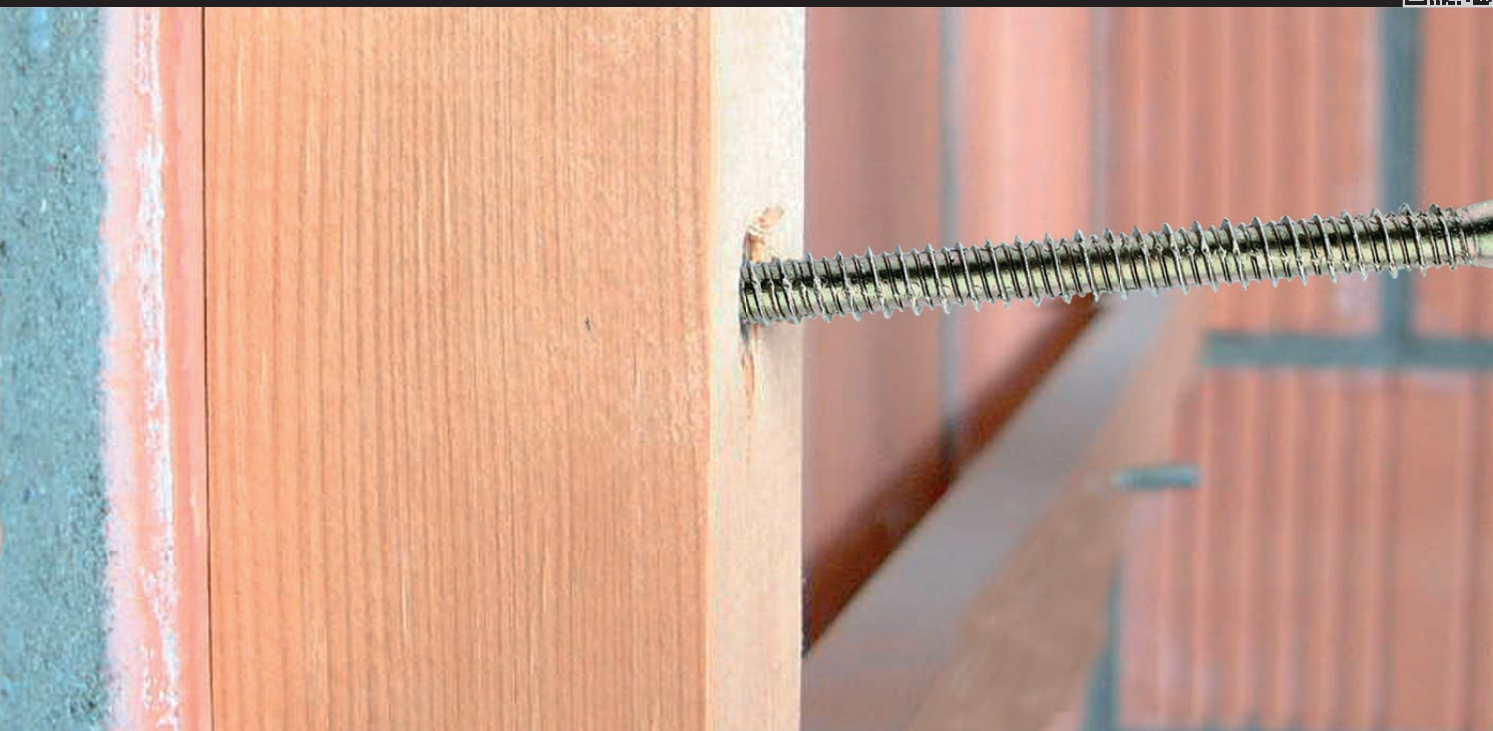
Article code	Screw Ø mm	Screw length mm	Upper thread length mm	Adjustable part mm	Lower thread length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_s$	$L_s$	$L_{G1}$	$a$	$L_{G2}$		$\overline{FS}$	$\overline{SK}$	
5153060	6	60	18	12	30	T25	100 $\overline{11}$	2400 $\overline{32}$	57600
5153070	6	70	18	22	30	T25	100 $\overline{11}$	2400 $\overline{32}$	57600
5153080	6	80	18	12	50	T25	100 $\overline{21}$	1800 $\overline{32}$	43200
5153090	6	90	18	22	50	T25	100 $\overline{21}$	1800 $\overline{32}$	43200
5153100	6	100	18	32	50	T25	100 $\overline{21}$	1800 $\overline{32}$	43200
5153110	6	110	18	42	50	T25	100 $\overline{31}$	1200 $\overline{32}$	28800
5153120	6	120	18	22	80	T25	100 $\overline{41}$	900 $\overline{32}$	21600
5153130	6	130	18	32	80	T25	100 $\overline{41}$	900 $\overline{32}$	21600
5153145	6	145	18	47	80	T25	100 $\overline{41}$	900 $\overline{32}$	21600

### AKT End Cap for MJB, T25



Article code	Shape	Colour	RAL	Box content	Outer carton	Quantity per pallet
				$\overline{FS}$	$\overline{SK}$	
1121048	flat	white	9010	200 $\overline{32}$	7200 $\overline{22}$	172800
1121049	flat	dark brown	8017	200 $\overline{32}$	7200 $\overline{22}$	172800
1121088	flat	black	9005	200 $\overline{32}$	7200 $\overline{22}$	172800

# TR-R Frame Fixing Screw Rafix

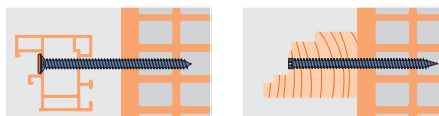


## Features

- Only 6mm pre-drilling required
- Stress-free fastening
- Hexagon socket 4mm
- Zinc plated > 5µm
- Through fixing
- Indoor applications

## Applications

distance fixing, windows, frames, substructures

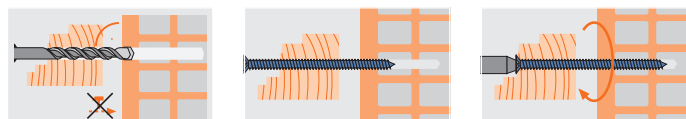


## Technical Data

TR-R/TR-RK	Concrete C20/25 tension load (kN)	Perforated Brick tension load (kN)	Wood tension load (kN)
	1.8	0.9	1.4

1 kN ≈ 100 kg / Safety factor of 3 is included

## Installation



Article code	Screw Ø mm $d_s$	Screw length mm $L_s$	Drilling depth concrete mm $h_0$	Drill Ø concrete mm $d_0$	Effective anchorage depth min. concrete mm $h_{ef}$	Collar Ø mm $d_k$	Usable length concrete mm $t_{fix}$	Box content	Outer carton
5151060	7.5	60	40	6	30	7.3	30	50	1200
5151080	7.5	80	40	6	30	7.3	50	50	1200
5151100	7.5	100	40	6	30	7.3	70	50	800
5151120	7.5	120	40	6	30	7.3	90	50	800
5151150	7.5	150	40	6	30	7.3	120	50	800
5151180	7.5	180	40	6	30	7.3	150	50	600

## TR-R Frame Fixing Screw Rafix

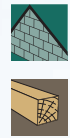


Article code	Screw Ø mm $d_s$	Screw length mm $L_s$	Drilling depth concrete mm $h_0$	Drill Ø concrete mm $d_0$	Effective anchorage depth min. concrete mm $h_{ef}$	Collar Ø mm $d_k$	Usable length concrete mm $t_{fix}$	Box content	Outer carton
5152040	7.5	40	40	6	30	12	10	50	1200
5152060	7.5	60	40	6	30	12	30	50	1200
5152080	7.5	80	40	6	30	12	50	50	1200
5152100	7.5	100	40	6	30	12	70	50	800
5152120	7.5	120	40	6	30	12	90	50	800
5152150	7.5	150	40	6	30	12	120	50	800
5152170	7.5	170	40	6	30	12	140	50	600

## TR-RK Frame Fixing Screw Rafix-K with collar



# TR Spacer Screw Toproc

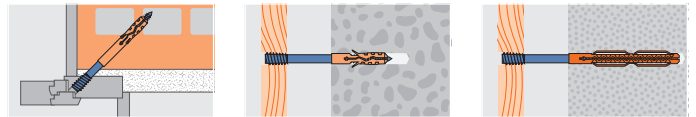


### Features

- In combination with Nylon Plug MN6/MN8 (TR, TR-B)
- Ideal for hidden installations
- Hexagon socket 4mm
- Zinc plated > 5µm
- Through fixing
- Indoor applications

### Applications

substructures, frames



### Technical Data

	Concrete C20/25 tension load (kN)	Perforated Brick tension load (kN)	Wood tension load (kN)
TR	1.67	0.63	1.27
TR-B	1.57	0.63	-
TR-BS	1.57	0.63	-

1 kN ≈ 100 kg / Safety factor of 3 is included

### Installation





Article code	Screw $\varnothing$ mm	Screw length mm	Drill $\varnothing$ mm	Drilling depth concrete mm	Effective anchorage depth min. concrete mm	Usable length concrete mm	Box content	Outer carton
	$d_s$	$L_s$	$d_0$	$h_0$	$h_{ef}$	$f_{iss}$		
5100060	6	60	8	45	40	20	50	1200
5100080	6	80	8	45	40	40	50	1200
5100100	6	100	8	45	40	60	50	800
5100120	6	120	8	45	40	80	50	800
5100150	6	150	8	45	40	110	50	800
5100180	6	180	8	45	40	140	50	600
5100200	6	200	8	45	40	160	50	600
5100250	6	250	8	45	40	210	25	-
5100300	6	300	8	45	40	260	25	-
5100350	6	350	8	45	40	310	25	-
5100400	6	400	8	45	40	360	50	-
5100450	6	450	8	45	40	410	50	-
5100500	6	500	8	45	40	460	25	-
5100600	6	600	8	45	40	560	25	-

**TR Toproc Spacer Screw**

Article code	Screw $\varnothing$ mm	Screw length mm	Drill $\varnothing$ mm	Drilling depth concrete mm	Effective anchorage depth min. concrete mm	Usable length concrete mm	Box content	Outer carton
	$d_s$	$L_s$	$d_0$	$h_0$	$h_{ef}$	$f_{iss}$		
5100061	4.5	60	6	40	35	25	100	2400
5100071	4.5	70	6	40	35	35	100	2400
5100081	4.5	80	6	40	35	45	100	2400
5100091	4.5	90	6	40	35	55	100	2400
5100101	4.5	100	6	40	35	65	100	1600
5100121	4.5	120	6	40	35	85	100	1600

**TR-B Toproc-Baby Spacer Screw**

Article code	Screw $\varnothing$ mm	Screw length mm	Drill $\varnothing$ mm	Drilling depth concrete mm	Effective anchorage depth min. concrete mm	Usable length concrete mm	Box content	Outer carton
	$d_s$	$L_s$	$d_0$	$h_0$	$h_{ef}$	$f_{iss}$		
5100062	4.5	60	6	40	35	25	100	2400
5100082	4.5	80	6	40	35	45	100	2400
5100102	4.5	100	6	40	35	65	100	1600
5100122	4.5	120	6	40	35	85	100	1600

**TR-BS Toproc-Baby-S Spacer Screw, self-drilling - without pre-drilling in wood**

# SBS Drywall Screw



### Features

- Hardened, Philips head screw
- Phosphated
- Incl. 1 Bit per box
- Indoor applications



**SBS-FG** Drywall Screw with fine screw thread for fixing plasterboard to metal stud framing up to 1.0 mm



Article code	Screw Ø mm		Screw length mm		Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	d <sub>t</sub>	L <sub>s</sub>	L <sub>t</sub>				
5220100	3.5	3.5	25	25	PH2	1000	12000	432000
5220101	3.5	3.5	35	35	PH2	1000	8000	288000
5220102	3.5	3.5	45	45	PH2	1000	6000	216000
5220112	3.9	3.9	25	25	PH2	1000	12000	432000
5220113	3.9	3.9	35	35	PH2	1000	8000	288000
5220114	3.9	3.9	45	45	PH2	1000	6000	216000
5220103	3.9	3.9	55	55	PH2	500	4000	144000
5220104	4.2	4.2	65	65	PH2	250	2000	72000
5220105	4.2	4.2	75	75	PH2	250	2000	72000
5220106	4.2	4.2	90	90	PH2	250	2000	72000

**SBS-GG** Drywall Screw with coarse screw thread for fixing plasterboard to wooden stud framing



Article code	Screw Ø mm		Screw length mm		Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	d <sub>t</sub>	L <sub>s</sub>	L <sub>t</sub>				
5220108	3.9	3.9	25	25	PH2	1000	12000	432000
5220115	3.9	3.9	35	35	PH2	1000	8000	288000
5220116	3.9	3.9	45	45	PH2	1000	6000	216000
5220109	4.2	4.2	55	55	PH2	500	4000	144000
5220110	4.2	4.2	75	75	PH2	250	2000	72000
5220111	4.2	4.2	90	90	PH2	250	2000	72000

**SBS-HG** Drywall Screw with Hi-Lo-thread for gypsum fibre boards



Article code	Screw Ø mm		Screw length mm		Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	d <sub>t</sub>	L <sub>s</sub>	L <sub>t</sub>				
5220160	3.9	3.9	19	19	PH2	1000	12000	432000
5220159	3.9	3.9	22	22	PH2	1000	12000	432000
5220161	3.9	3.9	30	30	PH2	1000	12000	432000
5220164	3.9	3.9	39	39	PH2	1000	6000	216000
5220162	3.9	3.9	45	45	PH2	1000	6000	216000
5220163	3.9	3.9	55	55	PH2	500	4000	144000

Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	L <sub>s</sub>				
5220140	3.5	25	PH2	1000	12000	432000
5220141	3.5	35	PH2	1000	8000	288000
5220142	3.5	45	PH2	1000	6000	216000
5220143	3.5	55	PH2	500	4000	144000

**SBS-TE** Drywall Screw with Teks-point for fixing plasterboard to metal stud framing up to 2.25 mm



Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	L <sub>s</sub>				
5220171	4.2	35	PH2	1000	9000	324000

**SBS-FK** Drywall Screw with a flat top for fixing of ceiling eyelets and ceiling wires



Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	L <sub>s</sub>				
5220151	4.2	13	PH2	1000	12000	432000

**SBS-ZK** Metal to metal screw

























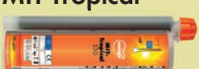


Article code	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
	d <sub>s</sub>	L <sub>s</sub>				
5220121	5.5	38	PH2	500	4500	162000
5220122	5.5	60	PH2	500	4500	162000

**SBS-GS** Screw for gypsum board to gypsum board









































# Chemical Products


MIT-Hybrid	64	MIT-PP-H	80	MPU-P50/B1	89	MRM-PU	96
							
MIT600RE	66	MIT-PP-A	81	MPU-P50	90	MSI-NP	97
							
MIT-SE Plus	69	MIT-PP-P	82	MPU-M50	91	MDA	98
							
MIT-SP	72	MIT-R	83	MPU-P40/AS	92	MMK-U	99
							
MIT-Rock	74	MIT-V	84	MPU-PS50	93		
							
MIT-COOL Plus	76	MIT-GS	85	MPU-PP Perifix	94		
							
MIT-Tropical	78	MVA	87	MPU-P45/B2	95		
							



# MIT Compatibility of Mungo injection technology

MIT-Hybrid	MIT600RE	MIT-SE Plus	MIT-SP	MIT-Rock	MIT-Cool Plus	MIT-Tropical
Mortar for highest performance in concrete	Pure Epoxy for highest loads in concrete	Mortar for use in concrete	Mortar for use in masonry	Mortar for use in natural stone	Mortar for low temperatures	Mortar for high temperatures
280 ml 	385 ml 	165 ml 	300 ml 	400 ml 	300 ml 	350 ml 
350 ml 	585 ml 	280 ml 	350 ml 		400 ml 	
400 ml 	1400 ml 	300 ml 	400 ml 			
825 ml 		350 ml 				
		400 ml 				
		825 ml 				
						
						
						
						
						
						

 recommended

 suitable

# MIT Filling volumes

## Filling volume (ml) for fixings with threaded rods

	Drilling hole $\varnothing$ mm $d_0$	60	64	70	80	90	96	100	108	110	120	128	144	160	192	200	240	288	300	324	360	500
		$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$
M8	10	2.3	2.4	2.7	3.0	3.4	3.6	3.8	4.1	4.2	4.6	4.9	5.5	6.1	7.3	7.6	9.1	10.9	11.4	12.3	-	-
M10	12	2.9	3.1	3.4	3.9	4.4	4.7	4.9	5.3	5.4	5.9	6.3	7.1	7.9	9.4	9.8	11.8	14.1	14.7	15.9	17.7	-
M12	14	-	-	4.3	4.9	5.5	5.9	6.1	6.6	6.7	7.4	7.8	8.8	9.8	11.8	12.3	14.7	17.6	18.4	19.8	22.1	30.6
M16	18	-	-	-	6.8	7.6	8.1	8.5	9.2	9.3	10.2	10.8	12.2	13.6	16.3	16.9	20.3	24.4	25.4	27.5	30.5	42.4
M20	24	-	-	-	-	16.8	18.0	18.7	20.2	20.6	22.5	24.0	27.0	29.9	35.9	37.4	44.9	53.9	56.2	60.6	67.4	93.6
M24	28	-	-	-	-	-	22.5	23.4	25.3	25.7	28.1	29.9	33.7	37.4	44.9	46.8	56.1	67.4	70.2	75.8	84.2	116.9
M27	32	-	-	-	-	-	-	34.7	35.3	38.5	41.1	46.2	51.4	61.6	64.2	77.1	92.5	96.3	104.0	115.6	160.5	-
M30	35	-	-	-	-	-	-	-	-	-	44.4	47.3	53.3	59.2	71.0	74.0	88.8	106.5	110.9	119.8	133.1	184.9

For the change of mixers and cartridges an additional quantity has to be calculated

## Filling volume (ml) for fixings with rebar

	Drilling hole $\varnothing$ mm $d_0$	60	70	75	80	90	96	100	112	120	128	144	150	160	168	192	240	300	336	384	500
		$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$	$h_{ef}$
Ø 8	12	3.8	4.4	4.7	5.0	5.7	6.0	6.3	7.0	7.5	8.0	9.0	9.4	10.1	10.6	12.1	15.1	18.8	21.1	24.1	-
Ø 10	14	4.5	5.3	5.7	6.0	6.8	7.2	7.5	8.4	9.0	9.7	10.9	11.3	12.1	12.7	14.5	18.1	22.6	25.3	29.0	37.7
Ø 12	16	-	6.2	6.6	7.0	7.9	8.4	8.8	9.9	10.6	11.3	12.7	13.2	14.1	14.8	16.9	21.1	26.4	29.6	33.8	44.0
Ø 14	18	-	-	7.5	8.0	9.0	9.7	10.1	11.3	12.1	12.9	14.5	15.1	16.1	16.9	19.3	24.1	30.2	33.8	38.6	50.3
Ø 16	20	-	-	-	9.0	10.2	10.9	11.3	12.7	13.6	14.5	16.3	17.0	18.1	19.0	21.7	27.1	33.9	38.0	43.4	56.5
Ø 20	24	-	-	-	-	12.4	13.3	13.8	15.5	16.6	17.7	19.9	20.7	22.1	23.2	26.5	33.2	41.5	46.4	53.1	69.1
Ø 25	32	-	-	-	-	-	-	31.3	35.1	37.6	40.1	45.1	47.0	50.1	52.6	60.2	75.2	94.0	105.3	120.3	156.7
Ø 28	35	-	-	-	-	-	-	-	38.8	41.6	44.3	49.9	52.0	55.4	58.2	66.5	83.1	103.9	116.4	133.0	173.2
Ø 32	40	-	-	-	-	-	-	-	-	-	57.9	65.1	67.9	72.4	76.0	86.9	108.6	135.7	152.0	173.7	226.2

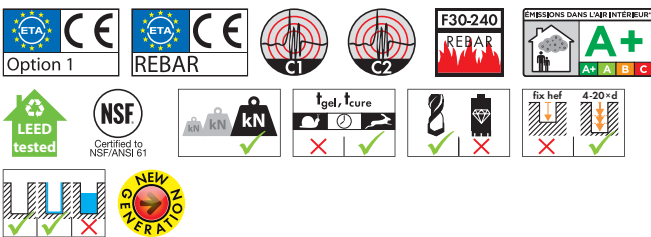
For the change of mixers and cartridges an additional quantity has to be calculated

# MIT-Hybrid Mortar for highest performance in concrete



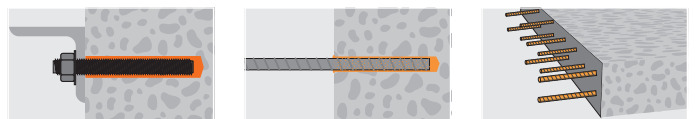
### Features

- European Technical Approval Option 1 for cracked and non-cracked concrete with anchor rod and with rebar used as anchor
- European Technical Approval for post-installed rebar connections
- The anchor may also be used under seismic influence for performance category C1 + C2
- Fire resistance test certification F30-F240 (Rebar)
- VOC free according to Swiss legislation and certified A+ according to DEVL 1101903D / DEVL 1104875A
- LEED - Test Report
- Certification for drinking water systems
- High loads
- Fast curing
- Variable setting depth
- Dry and damp drill holes
- Suitable for overhead fixings
- Styrene free and low odour
- Colour of mortar: grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



### Applications

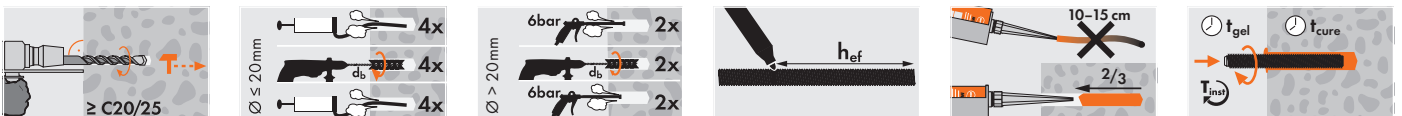
steel constructions, wooden constructions, façades, façade scaffolds, railings, high-racks, machines, staircases, ladders, cable trays, canopies, hand-rails, consoles



### Temperatures

	-5÷-1°C	0÷4°C	5÷9°C	10÷14°C	15÷19°C	20÷29°C	30÷40°C
Working time, in minutes ( $t_{gel}$ )	50	25	15	10	6	3	2
Curing time, dry in minutes ( $t_{cure}$ )	5 h	3.5 h	2 h	1 h	40	30	30
Curing time, wet in minutes ( $t_{cure}$ )	10 h	7 h	4 h	2 h	80	60	60

### Installation





Article code	Description	Languages	Content	Box content	Quantity per pallet
1710091	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	280	12	1152
17100910	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	280	12	1152

Application with silicone gun

**MIT-Hybrid** Vinylester urethane mortar, styrene free, 280 ml cartridge, self opening



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710093	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	350	12	1152

**MIT-Hybrid** Vinylester urethane mortar, styrene free, 350 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710094	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	400	12	840
17100940	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	400	12	840

**MIT-Hybrid** Vinylester urethane mortar, styrene free, 400 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710095	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	825	6	312

Application with pneumatic injection gun only

**MIT-Hybrid** Vinylester urethane mortar, styrene free, 825 ml cartridge



**MIT-Hybrid** with MIT-S(r) and MGS(r) according to European Technical Approval 17/0128



	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Clearance hole in fixture mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$d_f$	$d_b$	$s_{min}$	$c_{min}$	$T_{ref}$ max
M8	10	60	160	= hef	9	10.5-11.5	40	35	10
M10	12	60	200	= hef	12	12.5-13.5	50	40	20
M12	14	70	240	= hef	14	14.5-15.5	60	45	40
M16	18	80	320	= hef	18	18.5-20	75	50	60
M20	22	90	400	= hef	22	22.5-24	95	60	100
M24	28	96	480	= hef	26	28.5-30	115	65	170
M27	30	108	540	= hef	30	30.5-31.8	125	75	250
M30	35	120	600	= hef	33	35.5-37	140	80	300

**MIT-Hybrid** with rebar used as anchor according to European Technical Approval 17/0128



	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$d_b$	$s_{min}$	$c_{min}$
$\varnothing$ 8	12	60	160	= hef	12.5-13.5	40	35
$\varnothing$ 10	14	60	200	= hef	14.5-15.5	50	40
$\varnothing$ 12	16	70	240	= hef	16.5-17.5	60	45
$\varnothing$ 14	18	75	280	= hef	18.5-20	70	50
$\varnothing$ 16	20	80	320	= hef	20.5-22	75	50
$\varnothing$ 20	25	90	400	= hef	25.5-27	95	60
$\varnothing$ 25	32	100	500	= hef	32.5-34	120	70
$\varnothing$ 28	35	112	560	= hef	35.5-37	130	75
$\varnothing$ 32	40	128	640	= hef	40.5-43.5	150	85

**MIT-Hybrid** with MIG-M according to European Technical Approval 17/0128



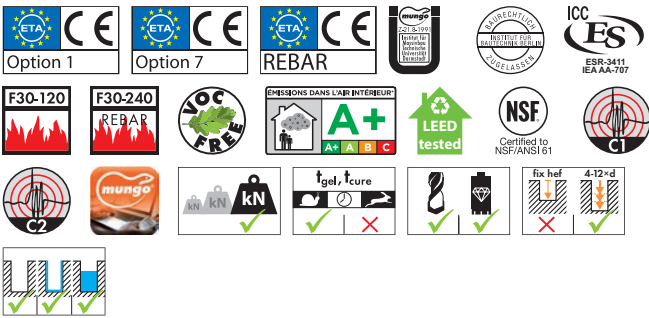
	Inside $\varnothing$ mm	Outside $\varnothing$ mm	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Brush $\varnothing$ mm	Clearance hole in fixture mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_2$	$d_1$	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$d_b$	$d_f$	$s_{min}$	$c_{min}$	$T_{ref}$ max
MIG-M6	6	10	12	60	200	= hef	12.5-13.5	7	50	40	10
MIG-M8	8	12	14	70	240	= hef	14.5-15.5	9	60	45	10
MIG-M10	10	16	18	80	320	= hef	18.5-20	12	75	50	20
MIG-M12	12	20	22	90	400	= hef	22.5-24	14	95	60	40
MIG-M16	16	24	28	96	480	= hef	28.5-30	18	115	65	60
MIG-M20	20	30	35	120	600	= hef	35.5-37	22	125	75	100

# MIT60ORE Pure Epoxy for highest loads in concrete



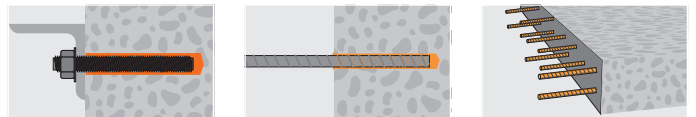
## Features

- European Technical Approval Option 1 for cracked and non-cracked concrete with anchor rod and with rebar used as anchor
- European Technical Approval Option 7 for diamond drilled holes in non-cracked concrete
- European Technical Approval for post-installed rebar connections
- German National Approval for post-installed rebar connections
- ICC-ES Report ESR-3411
- Fire resistance test certification F30-F120
- Fire resistance test certification F30-F240 (Rebar)
- VOC free according to Swiss legislation and certified A+ according to DEVL 1101903D / DEVL 1104875A
- LEED - Test Report
- Certification for drinking water systems
- The anchor may also be used under seismic influence for performance category C1 + C2 (M12-M30)
- High loads
- Long working time for filling of big and deep drill holes
- Variable setting depth
- Application also in damp and water-filled drill holes
- Suitable for overhead fixings
- Shelf life: 24 months
- Colour of mortar: grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

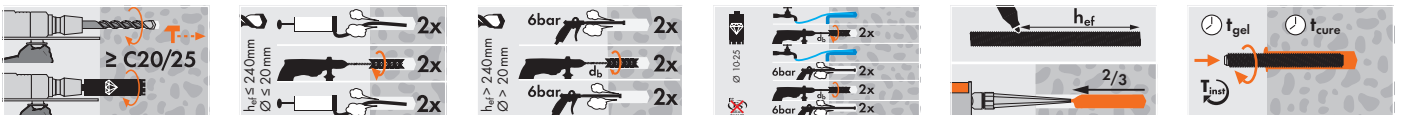
post-installed rebar connections, steel constructions, profiles, closing of ceilings, repair works







## Temperatures

	5+9°C	10+19°C	20+29°C	30+39°C	≥ +40°C
Working time, in minutes ( $t_{gel}$ )	120	90	30	20	12
Curing time, dry in hours ( $t_{cure}$ )	50	30	10	6	4
Curing time, wet in hours ( $t_{cure}$ )	100	60	20	12	8

## Installation



Article code	Description	Languages	Content	Box content	Quantity per pallet	
1710001	Cartridge incl. 1 mixer, in two parts	DE/GB	385	12	480	<b>MIT600RE</b> Pure Epoxy, 385 ml cartridge 
1710010	Cartridge incl. 1 mixer, in two parts	DE/GB	585	12	480	<b>MIT600RE</b> Pure Epoxy, 585 ml cartridge 
1710012	Cartridge incl. 1 mixer, in two parts	DE/GB/FR/IT/PL/NL	1400	5	200	<b>MIT600RE</b> Pure Epoxy, 1400 ml cartridge 
1710110	Drilling aid Piston plugs Infrared thermometer Brushes Brush measure Cleaning accessories	MIT-SE Plus/MIT600RE (REBAR)		1	20	<b>MIT-K</b> System-case 

**MIT600RE** with MIT-S(r) and MGS(r) according to European Technical Approval 09/0340



	Drilling hole $\varnothing$ mm $d_0$	Effective anchorage depth min. mm $h_{ef}$ min	Effective anchorage depth max. mm $h_{ef}$ max	Drilling depth mm $h_0$	Clearance hole in fixture mm $d_f$	Brush $\varnothing$ mm $d_b$	Min. distance betw. anchors mm $s_{min}$	Min. edge distance mm $c_{min}$	Installation torque (Nm) $T_{inst}$ max
Hammer drilling, M8	10	60	96	= hef	$\leq 9$	10.5-12	40	40	10
Hammer drilling, M10	12	60	120	= hef	$\leq 12$	12.5-14	50	50	20
Hammer drilling, M12	14	70	144	= hef	$\leq 14$	14.5-16	60	60	40
Hammer drilling, M16	18	80	192	= hef	$\leq 18$	18.5-20	80	80	80
Hammer drilling, M20	24	90	240	= hef	$\leq 22$	24.5-26	100	100	120
Hammer drilling, M24	28	96	288	= hef	$\leq 26$	28.5-30	120	120	160
Hammer drilling, M27	32	108	324	= hef	$\leq 30$	32.5-34	135	135	180
Hammer drilling, M30	35	120	360	= hef	$\leq 33$	35.5-37	150	150	200

**MIT600RE** with rebar used as anchor according to European Technical Approval 09/0340



	Drilling hole $\varnothing$ mm $d_0$	Effective anchorage depth min. mm $h_{ef}$ min	Effective anchorage depth max. mm $h_{ef}$ max	Drilling depth mm $h_0$	Brush $\varnothing$ mm $d_b$	Min. distance betw. anchors mm $s_{min}$	Min. edge distance mm $c_{min}$
Hammer drilling, $\varnothing$ 8	12	60	96	= hef	12.5-14	40	40
Hammer drilling, $\varnothing$ 10	14	60	120	= hef	14.5-16	50	50
Hammer drilling, $\varnothing$ 12	16	70	144	= hef	16.5-18	60	60
Hammer drilling, $\varnothing$ 14	18	75	168	= hef	18.5-20	70	70
Hammer drilling, $\varnothing$ 16	20	80	192	= hef	20.5-22	80	80
Hammer drilling, $\varnothing$ 20	24	90	240	= hef	24.5-26	100	100
Hammer drilling, $\varnothing$ 25	32	100	300	= hef	32.5-34	125	125
Hammer drilling, $\varnothing$ 28	35	112	336	= hef	35.5-37	140	140
Hammer drilling, $\varnothing$ 32	40	128	384	= hef	40.5-41.5	160	160

**MIT600RE** with MIG-M according to European Technical Approval 09/0340



	Inside $\varnothing$ mm $d_i$	Outside $\varnothing$ mm $d_o$	Drilling hole $\varnothing$ mm $d_0$	Effective anchorage depth min. mm $h_{ef}$ min	Effective anchorage depth max. mm $h_{ef}$ max	Drilling depth mm $h_0$	Brush $\varnothing$ mm $d_b$	Clearance hole in fixture mm $d_f$	Min. distance betw. anchors mm $s_{min}$	Min. edge distance mm $c_{min}$	Installation torque (Nm) $T_{inst}$ max
Hammer drilling, MIG-M6	6	10	12	70	200	= hef	12.5-14	7	50	50	10
Hammer drilling, MIG-M8	8	12	14	70	240	= hef	14.5-16	9	60	60	10
Hammer drilling, MIG-M10	10	16	18	80	320	= hef	18.5-20	12	80	80	20
Hammer drilling, MIG-M12	12	20	24	90	400	= hef	24.5-26	14	100	100	40
Hammer drilling, MIG-M16	16	24	28	96	480	= hef	28.5-30	18	120	120	60
Hammer drilling, MIG-M20	20	30	35	120	600	= hef	35.5-37	22	135	135	100

**MIT60ORE** with MIT-S(r) and MGS(r) according to European Technical Approval 12/0178



	Drilling hole $\varnothing$ mm $d_b$	Effective anchorage depth min. mm $h_{ef}$ min	Effective anchorage depth max. mm $h_{ef}$ max	Drilling depth mm $h_d$	Usable length mm $h_{fix}$	Clearance hole in fixture mm $d_f$	Brush $\varnothing$ mm $d_b$	Min. distance betw. anchors mm $s_{min}$	Min. edge distance mm $c_{min}$	Installation torque (Nm) $T_{ref}$ max
Diamond drilling, M10	12	60	200	= hef	0 - 1500	$\leq 12$	12.5-14	50	50	20
Diamond drilling, M12	14	70	240	= hef	0 - 1500	$\leq 14$	14.5-16	60	60	40
Diamond drilling, M16	18	80	320	= hef	0 - 1500	$\leq 18$	18.5-20	80	80	80
Diamond drilling, M20	24	90	400	= hef	0 - 1500	$\leq 22$	24.5-26	100	100	120
Diamond drilling, M24	28	96	480	= hef	0 - 1500	$\leq 26$	28.5-30	120	120	160

**MIT60ORE** with rebar used as anchor according to European Technical Approval 12/0178



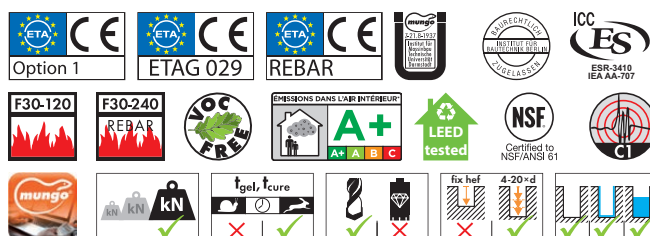
	Drilling hole $\varnothing$ mm $d_b$	Effective anchorage depth min. mm $h_{ef}$ min	Effective anchorage depth max. mm $h_{ef}$ max	Drilling depth mm $h_d$	Brush $\varnothing$ mm $d_b$	Min. distance betw. anchors mm $s_{min}$	Min. edge distance mm $c_{min}$
Diamond drilling, $\varnothing$ 10	14	60	200	= hef	14.5-16	50	50
Diamond drilling, $\varnothing$ 12	16	70	240	= hef	16.5-18	60	60
Diamond drilling, $\varnothing$ 14	18	75	280	= hef	18.5-20	70	70
Diamond drilling, $\varnothing$ 16	20	80	320	= hef	20.5-22	80	80
Diamond drilling, $\varnothing$ 20	24	90	400	= hef	24.5-26	100	100
Diamond drilling, $\varnothing$ 25	32	100	500	= hef	32.5-34	125	125

# MIT-SE Plus Mortar for use in concrete



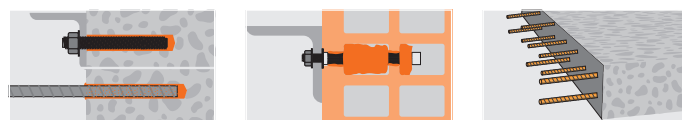
## Features

- European Technical Approval Option 1 for cracked and non-cracked concrete with anchor rod and with rebar used as anchor
- European Technical Approval according to ETAG 029 for use in masonry
- European Technical Approval for post-installed rebar connections
- German National Approval for post-installed rebar connections
- ICC-ES Report ESR-3410
- Fire resistance test certification F30-F120
- Fire resistance test certification F30-F240 (Rebar)
- VOC free according to Swiss legislation and certified A+ according to DEVL 1101903D / DEVL 1104875A
- LEED - Test Report
- Certification for drinking water systems
- The anchor may also be used under seismic influence for performance category C1
- Universal mortar for highest loads in almost all building materials
- Fast curing
- Variable setting depth
- Application also in damp and water-filled drill holes
- Suitable for overhead fixings
- Styrene free and low odour
- Colour of mortar: grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

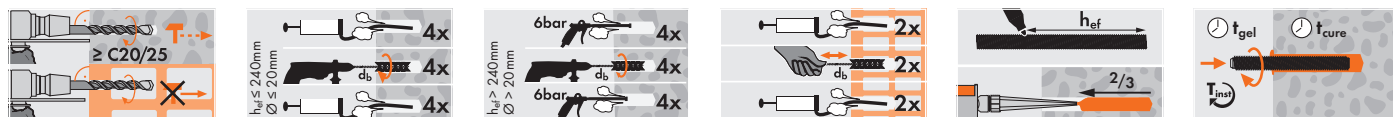
post-installed rebar connections, steel constructions, wooden constructions, façades, façade scaffolds, railings, high-racks, machines, staircases, ladders, cable trays, canopies, hand-rails, consoles



## Temperatures

	-10+6°C	-5+1°C	0+4°C	5+9°C	10+19°C	20+29°C	30+34°C	35+39°C	>40°C
Working time, in minutes ( $t_{gel}$ )	90	90	45	25	15	6	4	2	1.5
Curing time, dry in minutes ( $t_{cure}$ )	24 h	14 h	7 h	2 h	80	45	25	20	15
Curing time, wet in minutes ( $t_{cure}$ )	48 h	28 h	14 h	4 h	160	90	50	40	30

## Installation



**MIT-SE Plus** Vinylester mortar, styrene free,  
165 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710024	Cartridge incl. 2 mixers Not part of the rebar approval Application with silicone gun	DE/GB	165	12	1260

**MIT-SE Plus** Vinylester mortar, styrene free,  
280 ml cartridge, self opening



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710015	Cartridge incl. 2 mixers Application with silicone gun	DE/GB/FR/IT/PL/NL	280	12	1152

**MIT-SE Plus** Vinylester mortar, styrene free,  
300 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710017	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	300	12	1152
17100170	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	300	12	1152

Not part of the rebar approval  
Application with silicone gun

**MIT-KE** System-case MIT-SE Plus 300 ml



Article code	Content	Languages	Content	Box content	Quantity per pallet
1710102	22 x Cartridge incl. 2 mixers 1 x System-case IV with cartridge insert	DE/GB/FR/IT/PL/NL	300	1	16



40 x 30 x 32 cm

**MIT-SE Plus** Vinylester mortar, styrene free,  
350 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710025	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	350	12	1152

**MIT-BE** Maxi-Box MIT-SE Plus 350 ml



Article code	Content	Languages	Content	Box content	Quantity per pallet
1710118	20 x MIT-SE Plus 350 ml Cartridge incl. 2 mixers 1 x Maxi-Box	DE/GB/FR/IT/PL/NL	350	1	24

40 x 30 x 23.5 cm

**MIT-SE Plus** Vinylester mortar, styrene free,  
400 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710026	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	400	12	840
17100260	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	400	12	840

**MIT-SE Plus** Vinylester mortar, styrene free,  
825 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710022	Cartridge incl. 2 mixers Application with pneumatic injection gun only	DE/GB/FR/IT/PL/NL	825	6	312

**MIT-K** System-case



Article code	Content	For	Box content	Quantity per pallet
1710110	Drilling aid Piston plugs Infrared thermometer Brushes Brush measure Cleaning accessories	MIT-SE Plus/MIT600RE (REBAR)	1	20

**MIT-SE Plus** with MIT-S(r) and MGS(r) according to European Technical Approval 10/0130

	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Usable length mm	Clearance hole in fixture mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$l_{fix}$	$d_f$	$d_b$	$s_{min}$	$c_{min}$	$T_{ref}$ max
M8	10	60	160	= hef	0 - 1500	$\leq 9$	10.5-12	40	40	10
M10	12	60	200	= hef	0 - 1500	$\leq 12$	12.5-14	50	50	20
M12	14	70	240	= hef	0 - 1500	$\leq 14$	14.5-16	60	60	40
M16	18	80	320	= hef	0 - 1500	$\leq 18$	18.5-20	80	80	80
M20	24	90	400	= hef	0 - 1500	$\leq 22$	24.5-26	100	100	120
M24	28	96	480	= hef	0 - 1500	$\leq 26$	28.5-30	120	120	160
M27	32	108	540	= hef	0 - 1500	$\leq 30$	32.5-34	135	135	180
M30	35	120	600	= hef	0 - 1500	$\leq 33$	35.5-37	150	150	200

**MIT-SE Plus** with rebar used as anchor according to European Technical Approval 10/0130

	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$d_b$	$s_{min}$	$c_{min}$
$\varnothing 8$	12	60	160	= hef	12.5-14	40	40
$\varnothing 10$	14	60	200	= hef	14.5-16	50	50
$\varnothing 12$	16	70	240	= hef	16.5-18	60	60
$\varnothing 14$	18	75	280	= hef	18.5-20	70	70
$\varnothing 16$	20	80	320	= hef	20.5-22	80	80
$\varnothing 20$	24	90	400	= hef	24.5-26	100	100
$\varnothing 25$	32	100	480	= hef	32.5-34	125	125
$\varnothing 28$	35	112	540	= hef	35.5-37	140	140
$\varnothing 32$	40	128	640	= hef	40.5-41.5	160	160

**MIT-SE Plus** with MIT-S(r) and MGS(r) according to European Technical Approval 12/0544

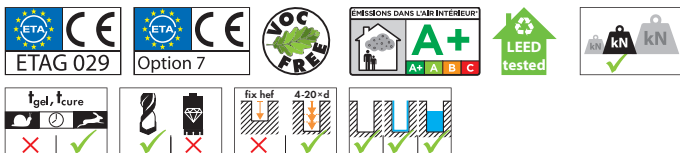
	Sleeve mm	Drilling hole $\varnothing$ mm	Effective anchorage depth mm	Drilling depth mm	Clearance hole in fixture mm	Installation torque (Nm)
		$d_0$	$h_{ef}$	$h_0$	$d_f$	$T_{ref}$ max
Without sleeve, M8	-	10	80	80	$\leq 9$	2 (MZ DF = 14)
Without sleeve, M10	-	12	90	90	$\leq 12$	2 (MZ DF = 14)
Without sleeve, M12	-	14	100	100	$\leq 14$	2 (MZ DF = 14)
Without sleeve, M16	-	18	100	100	$\leq 18$	2 (MZ DF = 14)
Without sleeve, MIG-M6	-	12	90	90	$\leq 7$	2 (MZ DF = 14)
Without sleeve, MIG-M8	-	14	100	100	$\leq 9$	2 (MZ DF = 14)
Without sleeve, MIG-M10	-	18	100	100	$\leq 12$	2 (MZ DF = 14)
With sleeve, M8	12x80	12	80	85	$\leq 9$	2 (MZ DF = 14)
With sleeve, M8/M10/MIG-M6	16x85	16	85	90	$\leq 7$ (MIG-M6) / $\leq 9$ (M8) / $\leq 12$ (M10)	2 (MZ DF = 14)
With sleeve, M8/M10/MIG-M6	16x130	16	130	135	$\leq 7$ (MIG-M6) / $\leq 9$ (M8) / $\leq 12$ (M10)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x85	20	85	90	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x130	20	130	135	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x200	20	200	205	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)

# MIT-SP Mortar for use in masonry



## Features

- European Technical Approval according to ETAG 029 for use in masonry
- European Technical Approval Option 7 for non-cracked concrete with anchor rod and with rebar used as anchor
- VOC free according to Swiss legislation and certified A+ according to DEVL 1101903D / DEVL 1104875A
- LEED - Test Report
- Suitable for assemblies in perforated brick with sleeve
- Medium duty fastening
- Fast curing
- Variable setting depth in concrete
- Dry, damp and water-filled drill holes
- Styrene free and low odour
- Colour of mortar: grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

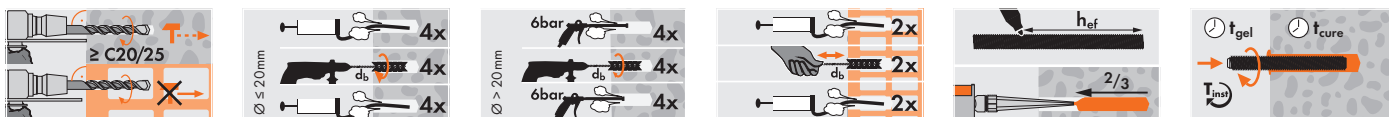
light steel constructions, frames, gates, light duty applications, façades, consoles



## Temperatures

	-5÷-1°C	0÷4°C	5÷9°C	10÷14°C	15÷19°C	20÷29°C	30÷34°C	35÷39°C
Working time, in minutes ( $t_{gel}$ )	90	45	25	20	15	6	4	2
Curing time, in minutes ( $t_{cure}$ )	360	180	120	100	80	45	25	20

## Installation





Article code	Description	Languages	Content	Box content	Quantity per pallet
1710050	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	300	12	1152
17100500	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	300	12	1152

Application with silicone gun

**MIT-SP** Polyester mortar, styrene free, 300 ml cartridge



Article code	Content	Languages	Content	Box content	Quantity per pallet
1710108	22 x Cartridge incl. 2 mixers 1 x System-case IV with cartridge insert	DE/GB/FR/IT/PL/NL	300	1	16

**MIT-KP** System-case MIT-SP 300 ml



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710057	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	350	12	1152

**MIT-SP** Polyester mortar, styrene free, 350 ml cartridge



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710052	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	400	12	840
17100520	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	400	12	840

**MIT-SP** Polyester mortar, styrene free, 400 ml cartridge



**MIT-SP** with MIT-S(r) and MGS(r) according to European Technical Approval 13/0032



	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Usable length mm	Clearance hole in fixture mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$l_{fix}$	$d_f$	$d_b$	$s_{mm}$	$c_{mm}$	$T_{inst}$ max
M8	10	60	160	= hef	0 - 1500	$\leq 9$	10.5-12	40	40	10
M10	12	60	200	= hef	0 - 1500	$\leq 12$	12.5-14	50	50	20
M12	14	70	240	= hef	0 - 1500	$\leq 14$	14.5-16	60	60	40
M16	18	80	320	= hef	0 - 1500	$\leq 18$	18.5-20	80	80	80
M20	24	90	400	= hef	0 - 1500	$\leq 22$	24.5-26	100	100	120
M24	28	96	480	= hef	0 - 1500	$\leq 26$	28.5-30	120	120	160

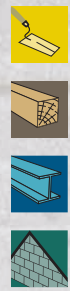
**MIT-SP** with MIT-S(r) and MGS(r) according to European Technical Approval 13/0033



	Sleeve mm	Drilling hole $\varnothing$ mm	Effective anchorage depth mm	Drilling depth mm	Clearance hole in fixture mm	Installation torque (Nm)
		$d_0$	$h_{ef}$	$h_0$	$d_f$	$T_{inst}$
Without sleeve, M8	-	10	80	80	$\leq 9$	1)
Without sleeve, M10	-	12	90	90	$\leq 12$	1)
Without sleeve, M12	-	14	100	100	$\leq 14$	1)
Without sleeve, M16	-	18	100	100	$\leq 18$	1)
With sleeve, M8	12x80	12	80	85	$\leq 9$	1)
With sleeve, M8/M10	16x85	16	85	90	$\leq 9$ (M8) / $\leq 12$ (M10)	1)
With sleeve, M8/M10	16x130	16	130	135	$\leq 9$ (M8) / $\leq 12$ (M10)	1)
With sleeve, M8/M10	16x130/330	16	130	135+ $t_{fix}$ <200 mm	$\leq 9$ (M8) / $\leq 12$ (M10)	1)
With sleeve, M12/M16	20x85	20	85	90	$\leq 14$ (M12) / $\leq 18$ (M16)	1)
With sleeve, M12/M16	20x130	20	130	135	$\leq 14$ (M12) / $\leq 18$ (M16)	1)
With sleeve, M12/M16	20x200	20	200	205	$\leq 14$ (M12) / $\leq 18$ (M16)	1)

1) acc. to ETA-13/0033

# MIT-Rock Mortar for use in natural stone



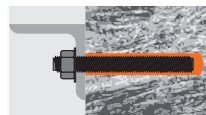
### Features

- Optimum long term behaviour
- For use in natural stone
- Resistant against acid and solvents
- Stress-free fastening
- Low edge and anchor distances
- Medium duty fastening
- Fast curing
- Fixed setting depth
- Application also in damp drill holes
- Colour of mortar: dark grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



### Applications

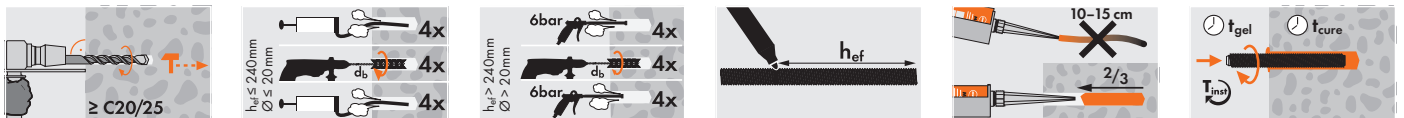
steel constructions, wooden constructions, façades, façade scaffolds



### Temperatures

	≥ +5°C	≥ +10°C	≥ +20°C	≥ +30°C	≥ +35°C
Working time, in minutes ( $t_{gel}$ )	25	15	6	4	2
Curing time, dry in minutes ( $t_{cure}$ )	120	80	45	25	20
Curing time, wet in minutes ( $t_{cure}$ )	240	160	90	50	40

### Installation



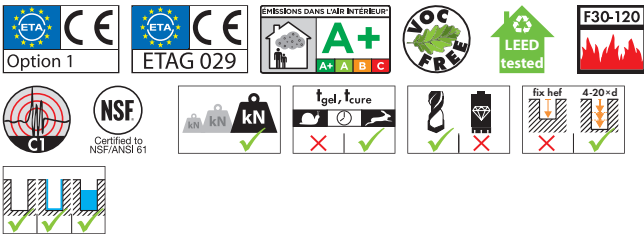
Article code	Description	Languages	Content	Box content	Quantity per pallet
1710005	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	400	12	840
17100050	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	400	12	840

**MIT-Rock** Epoxy-Acrylate mortar, 400 ml cartridge

**MIT-Rock** with MIT-S(r) and MGS(r)


	Drilling hole $\varnothing$ mm $d_0$	Effective anchorage depth mm $h_{ef}$	Drilling depth mm $h_0$	Brush $\varnothing$ mm $d_b$	Min. distance betw. anchors mm $s_{min} (h_{ef} = 5d)$	Min. edge distance mm $c_{min} (h_{ef} = 5d)$	Installation torque (Nm) $T_{inst}$
M8	10	80	= hef	10.5-12	40	40	10
M10	12	90	= hef	12.5-14	50	50	20
M12	14	110	= hef	14.5-16	60	60	40
M16	18	125	= hef	18.5-20	80	80	60
M20	24	170	= hef	24.5-26	100	100	120

# MIT-COOL Plus Mortar for low temperatures

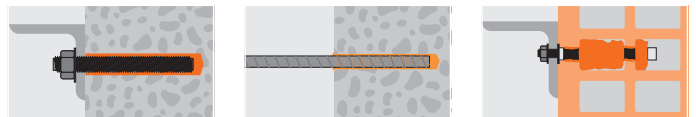


## Features

- European Technical Approval Option 1 for cracked and non-cracked concrete with anchor rod and with rebar used as anchor (-20°C - +10°C)
- European Technical Approval according to ETAG 029 for use in masonry
- VOC free according to Swiss legislation and certified A+ according to DEVL 1101903D / DEVL 1104875A
- LEED - Test Report
- Fire resistance up to F120 is part of the approval
- The anchor may also be used under seismic influence for performance category C1
- Certification for drinking water systems
- Stress-free fastening
- High loads
- Fast curing
- Variable setting depth
- Application also in damp and water-filled drill holes
- Suitable for overhead fixings
- Styrene free and low odour
- Colour of mortar: dark grey
- Indoor (zinc plated) and outdoor (stainless steel) applications

## Applications

steel constructions, wooden constructions, façades, railings



## Temperatures

	-20÷-16°C	-15÷-11°C	-10÷-6°C	-5÷-1°C	0÷4°C	5÷9°C	+10°C
Working time, in minutes ( $t_{gel}$ )	75	55	35	20	10	6	6
Curing time, dry in minutes ( $t_{cure}$ )	24 h	16 h	10 h	5 h	2.5 h	80	60
Curing time, wet in minutes ( $t_{cure}$ )	48 h	32 h	20 h	10 h	5 h	160	120

## Installation



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710002	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	300	12	1152
17100020	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	300	12	1152

Application with silicone gun

**MIT-COOL Plus** Vinylester mortar, styrene free, 300 ml cartridge

Article code	Description	Languages	Content	Box content	Quantity per pallet
1710004	Cartridge incl. 2 mixers	DE/GB/FR/IT/PL/NL	400	12	840
17100040	Cartridge incl. 2 mixers	GB/RU/SLO/HR/HU/BG/RO	400	12	840

**MIT-COOL Plus** Vinylester mortar, styrene free, 400 ml cartridge**MIT-COOL Plus** with MIT-S(r) and MGS(r) according to European Technical Approval 10/0130

	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Usable length mm	Clearance hole in fixture mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$l_{fix}$	$d_f$	$d_b$	$s_{min}$	$c_{min}$	$T_{inst. max}$
M8	10	60	160	= hef	0 - 1500	$\leq 9$	10.5-12	40	40	10
M10	12	60	200	= hef	0 - 1500	$\leq 12$	12.5-14	50	50	20
M12	14	70	240	= hef	0 - 1500	$\leq 14$	14.5-16	60	60	40
M16	18	80	320	= hef	0 - 1500	$\leq 18$	18.5-20	80	80	80
M20	24	90	400	= hef	0 - 1500	$\leq 22$	24.5-26	100	100	120
M24	28	96	480	= hef	0 - 1500	$\leq 26$	28.5-30	120	120	160
M27	32	108	540	= hef	0 - 1500	$\leq 30$	32.5-34	135	135	180
M30	35	120	600	= hef	0 - 1500	$\leq 33$	35.5-37	150	150	200

**MIT-COOL Plus** with rebar used as anchor according to European Technical Approval 10/0130

	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$d_b$	$s_{min}$	$c_{min}$
$\varnothing$ 8	12	60	160	= hef	12.5-14	40	40
$\varnothing$ 10	14	60	200	= hef	14.5-16	50	50
$\varnothing$ 12	16	70	240	= hef	16.5-18	60	60
$\varnothing$ 14	18	75	280	= hef	18.5-20	70	70
$\varnothing$ 16	20	80	320	= hef	20.5-22	80	80
$\varnothing$ 20	24	90	400	= hef	24.5-26	100	100
$\varnothing$ 25	32	100	480	= hef	32.5-34	125	125
$\varnothing$ 28	35	112	540	= hef	35.5-37	140	140
$\varnothing$ 32	40	128	640	= hef	40.5-41.5	160	160

**MIT-COOL Plus** with MIT-S(r) and MGS(r) according to European Technical Approval 12/0544

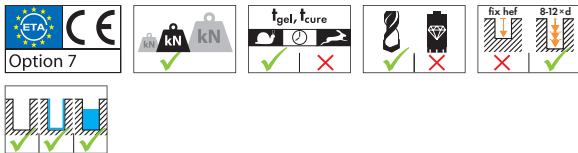
	Sleeve mm	Drilling hole $\varnothing$ mm	Effective anchorage depth mm	Drilling depth mm	Clearance hole in fixture mm	Installation torque (Nm)
		$d_0$	$h_{ef}$	$h_0$	$d_f$	$T_{inst. max}$
Without sleeve, M8	-	10	80	80	$\leq 9$	2 (MZ DF = 14)
Without sleeve, M10	-	12	90	90	$\leq 12$	2 (MZ DF = 14)
Without sleeve, M12	-	14	100	100	$\leq 14$	2 (MZ DF = 14)
Without sleeve, M16	-	18	100	100	$\leq 18$	2 (MZ DF = 14)
Without sleeve, MIG-M6	-	12	90	90	$\leq 7$	2 (MZ DF = 14)
Without sleeve, MIG-M8	-	14	100	100	$\leq 9$	2 (MZ DF = 14)
Without sleeve, MIG-M10	-	18	100	100	$\leq 12$	2 (MZ DF = 14)
With sleeve, M8	12x80	12	80	85	$\leq 9$	2 (MZ DF = 14)
With sleeve, M8/M10/MIG-M6	16x85	16	85	90	$\leq 7$ (MIG-M6) / $\leq 9$ (M8) / $\leq 12$ (M10)	2 (MZ DF = 14)
With sleeve, M8/M10/MIG-M6	16x130	16	130	135	$\leq 7$ (MIG-M6) / $\leq 9$ (M8) / $\leq 12$ (M10)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x85	20	85	90	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x130	20	130	135	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)
With sleeve, M12/M16/MIG-M8/MIG-M10	20x200	20	200	205	$\leq 9$ (MIG-M8) / $\leq 12$ (MIG-M10) / $\leq 14$ (M12) / $\leq 18$ (M16)	2 (MZ DF = 14)

# MIT-Tropical Mortar for high temperatures



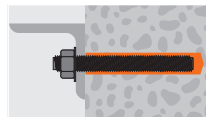
### Features

- European Technical Approval Option 7 for non-cracked concrete (10°C - ≥+45°C)
- Medium duty fastening
- Slow curing
- Variable setting depth
- Application also in damp and water-filled drill holes
- Styrene free and low odour
- Colour of mortar: grey
- Indoor (zinc plated) and outdoor (stainless steel) applications



### Applications

steel constructions, wooden constructions, façades, façade scaffolds, railings, high-racks, machines, staircases, ladders, cable trays, canopies, hand-rails, consoles



### Temperatures

	10+14°C	15+19°C	20+29°C	30+34°C	35+39°C	40+44°C	>45°C
Working time, in minutes (t <sub>gel</sub> )	30	20	15	10	6	4	2
Curing time, in minutes (t <sub>cure</sub> )	300	210	145	80	45	25	20

### Installation



Article code	Description	Languages	Content	Box content	Quantity per pallet
1710007	Cartridge incl. 2 mixers	DE/GB/IT	350	12	1152

**MIT-Tropical** Vinylester mortar, styrene free,  
350 ml cartridge



**MIT-Tropical** with MIT-S(r) and MGS(r) according to European Technical Approval 17/0138



Option 7




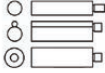
	Drilling hole $\varnothing$ mm	Effective anchorage depth min. mm	Effective anchorage depth max. mm	Drilling depth mm	Usable length mm	Clearance hole in fixture mm	Brush $\varnothing$ mm	Min. distance betw. anchors mm	Min. edge distance mm	Installation torque (Nm)
	$d_0$	$h_{ef}$ min	$h_{ef}$ max	$h_0$	$l_{fix}$	$d_f$	$d_b$	$s_{min}$	$c_{min}$	$T_{inst}$ max
M8	10	60	160	= hef	0 - 1500	$\leq 9$	10.5-12	40	40	10
M10	12	60	200	= hef	0 - 1500	$\leq 12$	12.5-14	50	50	20
M12	14	70	240	= hef	0 - 1500	$\leq 14$	14.5-16	60	60	40
M16	18	80	320	= hef	0 - 1500	$\leq 18$	18.5-20	80	80	80
M20	24	90	400	= hef	0 - 1500	$\leq 22$	24.5-26	100	100	120
M24	28	96	480	= hef	0 - 1500	$\leq 26$	28.5-30	120	120	160



# MIT-PP-H Manual Injection Gun




### Easy-Press



- Sporadic and frequent applications
- Easy and smooth grout injection
- Effortless application
- Automatic release
- Ergonomic, lightweight and robust
- Comfortable grip even when wearing gloves



MIT-PP-HO Injection Gun 11 in 1 for MIT		Article code	For	Box content
		1710047	MIT 150/165/280/300/330/380/385/400/410/420/585	1
Suitable for use with silicone cartridge				



MIT-PP-H1 Easy-Press for MIT 165/280/300		Article code	For	Box content
		1710034	MIT 165/280/300	1
Suitable for use with silicone cartridge				


MIT-PP-H1 Easy-Press for MIT 350		Article code	For	Box content
		1710035	MIT 350	1
Suitable for use with silicone cartridge				

MIT-PP-H1 Easy-Press for MIT 400		Article code	For	Box content
		1710036	MIT 400	1
Suitable for use with silicone cartridge				


MIT-PP-HK System-case Easy-Press for MIT 165/280/300		Article code	Content	For	Box content	Quantity per pallet
		1710201	1 x Easy-Press 1 x Purging Pump 1 x Steel Brush 10/80/300 1 x Steel Brush 16/80/300 1 x Steel Brush 20/80/300 1 x System-case II with insert	MIT 165/280/300	1	16
40 x 30 x 16 cm						

MIT-PP-HK System-case Easy-Press for MIT 350		Article code	Content	For	Box content	Quantity per pallet
		1710202	1 x Easy-Press 1 x Purging Pump 1 x Steel Brush 10/80/300 1 x Steel Brush 16/80/300 1 x Steel Brush 20/80/300 1 x System-case II with insert	MIT 350	1	16
40 x 30 x 16 cm						



MIT-PP-HK System-case Easy-Press for MIT 400		Article code	Content	For	Box content	Quantity per pallet
		1710203	1 x Easy-Press 1 x Purging Pump 1 x Steel Brush 10/80/300 1 x Steel Brush 16/80/300 1 x Steel Brush 20/80/300 1 x System-case II with insert	MIT 400	1	16
40 x 30 x 16 cm						

MIT-PP-H2 Injection Gun for MIT 165/280/300		Article code	Description	For	Box content
		1710029	Metal	MIT 165/280/300	1
Suitable for use with silicone cartridge					

MIT-PP-H2 Injection Gun for MIT 350		Article code	Description	For	Box content
		1710033	Metal	MIT 350	1
Suitable for use with silicone cartridge					




MIT-PP-H2 Injection Gun for MIT 385/585		Article code	Description	For	Box content
		1710019	Metal	MIT 385/585	1



Article code	Description	For	Box content	
1710009	Metal	MIT 400	1	 

**MIT-PP-H2** Injection Gun for MIT 400**MIT-PP-A** Cordless Injection Gun**Features**




- Frequent and repetitive applications
- Effortless injecting even at low temperatures or deep anchor holes
- Automatic pressure release to avoid chemical material dropping out
- Lithium ion battery 14.4 V / 3.0 Ah lasts up to 50 cartridges
- Recharges in 40 minutes

Article code	Content	For	Box content	
1710046	2 x Batteries 1 x Charger 1 x Case	MIT 165/280/300	1	  

Suitable for use with silicone cartridge




**MIT-PP-A** Cordless Injection Gun for MIT 165/280/300

55 × 31 × 15 cm

Article code	Content	For	Box content	
1710221	2 x Batteries 1 x Charger 1 x Case	MIT 350	1	  

**MIT-PP-A** Cordless Injection Gun for MIT 350

46 × 42 × 16 cm

Article code	Content	For	Box content	
1710021	1 x Batteries 1 x Charger 1 x Case	MIT 400	1	  

**MIT-PP-A** Cordless Injection Gun for MIT 400

46 × 42 × 16 cm

# MIT-PP-P Pneumatic Injection Gun



### Features

- Repetitive applications
- For increased productivity on large sites
- Effortless application
- Lightweight and easy to use
- Automatic release
- Low air consumption

MIT-PP-P Pneumatic Injection Gun for MIT 165/280/300/350		Article code	For	Box content
		1710040	MIT 165/280/300/350	1



Suitable for use with silicone cartridge

MIT-PP-P Pneumatic Injection Gun for MIT 385/585		Article code	For	Box content
		1710048	MIT 385/585	1



MIT-PP-P Pneumatic Injection Gun for MIT 400		Article code	For	Box content
		1710020	MIT 400	1



MIT-PP-P Pneumatic Injection Gun for MIT 825		Article code	For	Box content
		1710031	MIT 825	1



MIT-PP-P Pneumatic Injection Gun for MIT 1400		Article code	For	Box content
		1710049	MIT 1400	1



# MIT-R Accessories for cleaning drill holes



Article code	Anchor rod mm	Rebar BST500 Ø mm	Drilling hole Ø mm	Brush Ø mm	Length mm							Box content		
						MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus		MIT-Tropical	MVA
1690018	M6	-	8	10	300	-	□	□	□	□	□	-	□	1
1690014	M8	-	10	12	300	-	□	□	□	□	□	-	□	1
1690023	M10	8	12	14	300	-	□	□	□	□	■	-	□	1
1690015	M12	10	14	16	300	-	□	□	□	□	□	-	■	1
1690016	M16	14	18	20	300	-	□	□	□	□	■	-	■	1
1690017	M20	-	24	26	300	-	□	□	□	□	□	-	□	1
1690019	M24	-	28	30	300	-	□	□	□	□	□	-	■	1

Brush extension on request  
 ■ Part of the approval  
 □ Not part of the approval

## MIT-BS-HO Universal Steel Brush



Article code	Anchor rod mm	Rebar BST500 Ø mm	Drilling hole Ø mm	Brush Ø mm	Length mm							Box content		
						MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus		MIT-Tropical	MVA
1690020	M8-M10	8/10	10-12	14	300	□	■	□	□	□	□	-	□	1
1690021	M12-M16	12/16	14-18	20	300	□	■	□	□	□	□	-	□	1
1690022	M20-M24	20/24	22-26	29	300	-	■	□	□	□	□	-	□	1

■ Part of the approval  
 □ Not part of the approval

## MIT-BS-H1 Steel Brush



Article code	Anchor rod mm	Rebar BST500 Ø mm	Anchor Sleeve with internal thread	Drill Ø mm	Brush Ø mm	Length mm							Box content	
							MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus		MIT-Tropical
1690040	M8	-	-	10	12	170	■	■	■	□	■	■	■	1
1690041	M10	8	MIG-M6	12	14	170	■	■	■	□	■	■	■	1
1690042	M12	10	MIG-M8	14	16	170	■	■	■	□	■	■	■	1
1690043	-	12	-	16	18	200	■	■	■	-	■	-	-	1
1690044	M16	14	MIG-M10	18	20	200	■	■	■	□	■	■	■	1
1690045	-	16	-	20	22	250	■	■	■	-	■	-	-	1
1690046	M20	20	MIG-M12	22*/24/25**	26	250	■	■	■	□	■	■	■	1
1690047	M24	22	MIG-M16	28	30	300	■	■	■	□	■	■	■	1
1690048	M27	24/25	-	30*/32	34	300	■	■	■	-	■	-	-	1
1690049	M30	28	MIG-M20	35	37	300	■	■	■	-	■	-	□	1
1690050	-	32/34	-	40	41	300	■	■	■	-	■	-	-	1
1690053	-	36	-	45	47	300	-	■	-	-	-	-	-	1
1690054	-	40	-	52	54	300	-	■	-	-	-	-	-	1
1690055	-	40	-	55***	58	300	-	■	-	-	-	-	-	1

■ Part of the approval  
 □ Not part of the approval  
 \* MIT-Hybrid M200 & M27 & MIG-M12 / \*\* MIT-Hybrid Ø20 / \*\*\* REBAR for diamond drilled holes

## MIT-BS-M1 Steel Brush



Article code	Length mm	For	Box content
1690051	300	MIT-BS-M1	1

## MIT-BS-MV Brush Extension



Article code	Description	For	Box content
1690052	M6	MIT-BS-M1	1

## MIT-BS-MA SDS-Plus Adapter M6



Article code	Volume ml							Box content	
		MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus		MIT-Tropical
1690011	840	■	■	■	□	■	■	■	1

■ Part of the approval  
 □ Not part of the approval

## MIT-AP-HG1 Purging Pump



Article code	Volume ml							Box content	
		MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus		MIT-Tropical
1690002	320	□	□	□	□	□	□	□	1

□ Not part of the approval

## MIT-AP-HKO Purging Pump



Article code	Description							Box content
		MIT-Hybrid	MIT-ROCK	MIT-ROCK Plus	MIT-SP	MIT-ROCK	MIT-COOL Plus	
1690008	1/4" internal thread, til 16 bar	■	■	■	□	■	■	1

■ Part of the approval  
 □ Not part of the approval

## MIT-AP-D1 Compressed air tool, metal



# MIT-V Accessories for filling drill holes



## MIT-VS Piston plugs



Article code	Anchor rod mm	Rebar BST500 $\varnothing$ mm	Drill $\varnothing$ mm							Box content	
				MIT-Hybrid	MIT-GORE	MIT-SE Plus	MIT-SP	MIT-Rock	MIT-COOL Plus		MIT-Tropical
1710075	M12	10	14	-	■	■	□	□	□	□	1
1710076	-	12	16	-	■	■	-	-	-	-	1
1710077	M16	14	18	■	■	■	-	-	-	-	1
1710078	-	16	20	■	■	■	-	-	-	-	1
1710084	M20	-	24	■	■	■	□	□	□	□	1
1710079	-	20	25	■	■	■	-	-	-	-	1
1710080	M24	22	28	■	■	■	-	-	-	-	1
1710081	M27	24/25	32	■	■	■	□	□	□	□	1
1710085	M30	28	35	■	■	■	-	-	-	-	1
1710086	-	32/34	40	■	■	■	-	-	-	-	1
1710087	-	36	45	-	■	-	-	-	-	-	1
1710088	-	40	52	-	■	-	-	-	-	-	1
1710089	-	40	55	-	■	-	-	-	-	-	1

■ Part of the approval  
□ Not part of the approval

## MIT-MI-1 Mixer, in two parts



Article code							Box content
1710064							1

■ Part of the approval  
MIT-SE PLUS: if  $h_0 > 1000$ mm with MIT-MI-V1

## MIT-MI-2 Mixer



Article code							Box content
1710014							1

■ Part of the approval  
□ Not part of the approval

## MIT-MI-V1 Mixer Extension



Article code	Anchor rod mm	Rebar BST500 $\varnothing$ mm	Length mm							Box content	
1710065	M8-M24	8-25	500	-	■	■	□	□	□	-	1

■ Part of the approval  
□ Not part of the approval

## MIT-MI-V2 Extension (PVC), 1m



Article code	Anchor rod mm	Rebar BST500 $\varnothing$ mm	Length mm							Box content	
1690037	M8-M24	8-25	1000	-	■	■	□	□	□	-	1

■ Part of the approval  
□ Not part of the approval

## MIT-SH-K2 Sleeve



Article code	For	Outside $\varnothing$ mm	Drill $\varnothing$ mm	Length mm				Box content
					MIT-SE Plus	MIT-SP	MIT-COOL Plus	
1710141	M8	12	12	50	□	□	□	20
1710145	M8	12	12	80	■	■	■	20
1710146	M8/M10	16	16	85	■	■	■	20
1710150	M8/M10	16	16	130	■	■	■	20
1710154	M8/M10	16	16	130/330	□	□	□	20
1710147	M12/M16	20	20	85	■	■	■	20
1710148	M12/M16	20	20	130	■	■	■	20
1710149	M12/M16	20	20	200	■	■	■	20

■ Part of the approval  
□ Not part of the approval

## MIT-SH-SO Metal Sleeve, 1m



Article code	For	$\varnothing$ mm	Drill $\varnothing$ mm	Length mm			Box content
1710151	M8	11	12	1000	□	□	1
1710152	M10-M12	15	16	1000	□	□	1
1710153	M16	20	22	1000	□	□	1

□ Not part of the approval

# MIT-GS Threaded rod, Anchor rod, Anchor Sleeve with internal thread



Article code	Thread d	Length mm L	Box content
7460510	M5	1000	1
7460610	M6	1000	1
7460810	M8	1000	1
7461010	M10	1000	1
7461210	M12	1000	1
7461610	M16	1000	1

**MGS 4.6** Threaded Rod, zinc plated, steel quality 4.6, 1m



4.6

Article code	Thread d	Length mm L	Box content
7880510	M5	1000	1
7880610	M6	1000	1
7880810	M8	1000	1
7881010	M10	1000	1
7881210	M12	1000	1
7881610	M16	1000	1
7882010	M20	1000	1
7882410	M24	1000	1
7883010	M30	1000	1

**MGS 8.8** Threaded Rod, zinc plated, steel quality 8.8, 1m



8.8

Article code	Thread d	Length mm L	Box content
7040510	M5	1000	1
7040610	M6	1000	1
7040810	M8	1000	1
7041010	M10	1000	1
7041210	M12	1000	1
7041610	M16	1000	1
7042010	M20	1000	1
7042410	M24	1000	1
7043010	M30	1000	1

**MGSr A4** Threaded Rod, stainless steel A4-70/316, 1m



A4-70

Article code	Thread $\varnothing$ mm d <sub>nom</sub>	Length mm L	Drill $\varnothing$ concrete mm d <sub>g</sub>	Box content
1) 1720607	M6	70	8	10
1720811	M8	110	10	10
1720813	M8	130	10	10
1720815	M8	150	10	10
1720817	M8	170	10	10
1721011	M10	110	12	10
1721013	M10	130	12	10
1721015	M10	150	12	10
1721017	M10	170	12	10
1721213	M12	130	14	10
1721217	M12	170	14	10
1721221	M12	210	14	10
1721226	M12	260	14	10
1721618	M16	180	18	10
1721622	M16	220	18	10
1721626	M16	260	18	10
1721633	M16	330	18	10
1722027	M20	270	22/24	5
1722030	M20	300	22/24	5
1722432	M24	320	28	5
1722436	M24	360	28	5

**MIT-S** Anchor Rod, zinc plated, steel quality 5.8 with hex-nut and washer DIN 125A



1) Not part of the approval

Article code	Thread $\varnothing$ mm d <sub>nom</sub>	Length mm L	Drill $\varnothing$ concrete mm d <sub>g</sub>	Box content
1730811	M8	110	10	10
1730813	M8	130	10	10
1730815	M8	150	10	10
1730817	M8	170	10	10
1731011	M10	110	12	10
1731013	M10	130	12	10
1731015	M10	150	12	10
1731017	M10	170	12	10
1731213	M12	130	14	10
1731217	M12	170	14	10
1731221	M12	210	14	10
1731226	M12	260	14	10
1731618	M16	180	18	10
1731622	M16	220	18	10
1731626	M16	260	18	10
1731633	M16	330	18	10
1732027	M20	270	22/24	5
1732030	M20	300	22/24	5
1732432	M24	320	28	5
1732436	M24	360	28	5

**MIT-Sr** Anchor Rod, stainless steel A4-70/316 with hex-nut and washer DIN 125A



Article code	Internal thread d	Outside $\varnothing$ mm d <sub>nom</sub>	Length mm L	Drill $\varnothing$ concrete mm d <sub>g</sub>	Box content
1710060	M6	8	48	10	10
1710061	M8	12	80	14	10
1710062	M10	14	80	16	10
1710063	M12	16	80	18	10

**MIT-IGH** Anchor Sleeve with internal thread



**MIG-M** Anchor Sleeve with internal thread



Article code	Internal thread	Outside Ø mm	Drill Ø mm	Sleeve Ø mm	Length mm						Box content	
						MIT600RE	MIT-SE Plus Concrete	MIT-SE Plus Masonry	MIT-SP	MIT-COOL Plus Concrete		MIT-COOL Plus Masonry
1711101	M6	10	12	16	80	■	■	■	■	■	10	01
1711102	M6	10	12	16	90	■	■	■	■	■	10	01
1711103	M8	12	14	20	80	■	■	■	■	■	10	01
1711104	M8	12	14	20	100	■	■	■	■	■	10	11
1711105	M10	16	18	20	80	■	■	■	■	■	10	01
1711106	M10	16	18	20	100	■	■	■	■	■	10	11

■ Part of the approval  
□ Not part of the approval

**MIGr-M** Anchor Sleeve with internal thread, stainless steel A4/316



Article code	Internal thread	Outside Ø mm	Drill Ø mm	Sleeve Ø mm	Length mm						Box content	
						MIT600RE	MIT-SE Plus Concrete	MIT-SE Plus Masonry	MIT-SP	MIT-COOL Plus Concrete		MIT-COOL Plus Masonry
1711201	M6	10	12	16	80	■	■	■	■	■	10	01
1711202	M6	10	12	16	90	■	■	■	■	■	10	01
1711203	M8	12	14	20	80	■	■	■	■	■	10	01
1711204	M8	12	14	20	100	■	■	■	■	■	10	11
1711205	M10	16	18	20	80	■	■	■	■	■	10	01
1711206	M10	16	18	20	100	■	■	■	■	■	10	11

■ Part of the approval  
□ Not part of the approval

**MIT-AKH** Anchor Sleeve, stainless steel A2/304



Article code	For	Ø mm	Length mm	Box content
1710041	DW15	22	125	100

**MIT-ESH** Insert Anchor, stainless steel A2/304



Article code	For	Ø mm	Drilling hole Ø mm	Drilling depth mm	Length mm	Thread length mm	Box content
1710045	DW15	22	25	160	155	65	100

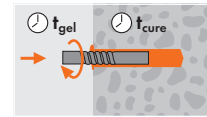
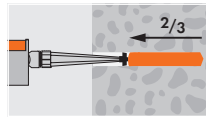
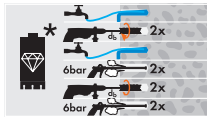
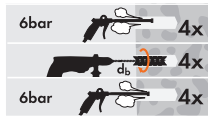
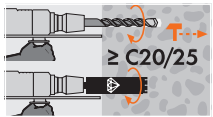
DW20 on request  
Related products:  
Piston plugs, # 1710079  
Extension (PVC), 1m, # 1690037  
Steel Brush, # 1690046/1690052

**Technical Data**

Product	Concrete C20/25 tension load (kN)
MIT-ESH	5.0

with MIT-SE Plus / \* For applications with MIT600RE please consult your local Mungo application engineer / Safety factor of 2.5 is included / 1 kN ≈ 100 kg

**Installation**



# MVA Resin Capsule



## Features

- European Technical Approval Option 8 for non-cracked concrete
- Quick and simple installation
- Small edge and spacing distances
- Temperature range short term: -40°C - +80°C
- Temperature range long term: -40°C - +50°C
- Anchor rod with 45° end
- Setting depth mark for correct installation
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

steel constructions, cable trays, guard rails, substructures, machines



## Technical Data

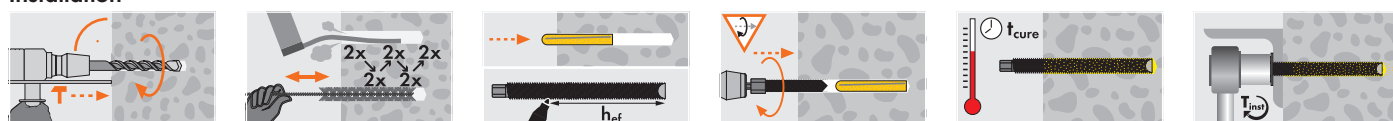
	Concrete C20/25 tension load (kN) galv. 5.8	Concrete C20/25 tension load (kN) A4-70	Non-cracked concrete C20/25 tension load (kN) MVA-I/MVA-Ir	Concrete C20/25 shear load (kN) galv. 5.8	Concrete C20/25 shear load (kN) A4-70	Bending moment (Nm) galv. 5.8	Bending moment (Nm) A4-70	Distance betw. anchors mm	Edge distance mm	Min. distance betw. anchors mm	Min. edge distance mm	Minimum thickness of concrete member mm	Installation torque (Nm)	Wrench size
	s	c	s <sub>min</sub>	c <sub>min</sub>	h <sub>min</sub>	T <sub>inst</sub>	SW							
M8	8	8	6.2	5	6	10.8	11.9	240	120	40	40	110	10	13
M10	12	12	8.2	8	9	21.1	23.8	180	90	45	45	120	20	17
M12	16	16	10.3	12	13	37.1	42.1	220	110	55	55	140	40	19
M14	18	18	-	16	18	51.8	58.1	240	120	60	60	150	60	22
M16	20	20	17.9	22	25	94.9	106.7	250	125	65	65	160	80	24
M20/135	24	24	-	35	39	185.7	207.9	280	140	85	85	220	120	30
M20/175	30	30	30	35	39	185.7	207.9	340	170	85	85	220	120	30
M24	36	36	-	50	57	320.6	359.4	420	210	105	105	260	180	36
M30	60	60	-	80	80	642	720	560	280	140	140	340	300	46

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / M14 + M20/135 + M30 + MVA-I/MVA-Ir; Not part of the approval / The technical data is only valid for single fixings without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

## Temperatures

	$\geq -5^\circ\text{C}$	$\geq +0^\circ\text{C}$	$\geq +5^\circ\text{C}$	$\geq +10^\circ\text{C}$	$\geq +20^\circ\text{C}$	$\geq +30^\circ\text{C}$	$\geq +35^\circ\text{C}$
Curing time, dry in minutes ( $t_{\text{cure}}$ )	5 h	5 h	1 h	1 h	20	10	10
Curing time, wet in minutes ( $t_{\text{cure}}$ )	10 h	10 h	2 h	2 h	40	20	20

## Installation



**MVA Resin Capsule, Epoxy-Acrylate**



Article code	For MVA-S(r)	Capsule length mm L	Drilling hole $\varnothing$ mm $d_0$	Drilling depth mm $h_0$	Box content	Outer carton
e) 1610008	M8	80	10	80	10	500
e) 1610010	M10	80	12	90	10	500
e) 1610012	M12	95	14	110	10	200
1610014	M14	95	16	120	10	200
e) 1610016	M16	95	18	125	10	200
1602211	M20	135	24	140	6	60
e) 1610020	M20	175	25	170	6	60
e) 1610024	M24	210	28	210	6	60
1610030	M30	270	35	280	6	30

e) European Technical Approval with MVA-S, MVA-Sr

**MVA-S Anchor Rod, zinc plated, steel quality 5.8 with hex-nut and washer DIN 125A**



Article code	Thread d	Thread length mm $L_c$	Usable length mm $L_{tr}$	Hex-nut SW	Drive SW	Box content
1650008	M8	110	15	13	5	10
1651508	M8	150	55	13	5	10
1650010	M10	130	20	17	6	10
1651710	M10	170	65	17	6	10
1650012	M12	160	30	19	8	10
1652212	M12	220	90	19	8	10
1652612	M12	260	130	19	8	10
1653012	M12	300	170	19	8	10
1650014	M14	170	40	22	10	10
1650016	M16	190	40	24	10/12	10
1652316	M16	230	80	24	10/12	10
1652616	M16	260	110	24	10/12	10
1653016	M16	300	150	24	10/12	10
1652020	M20	230	40	30	-	6
1652026	M20	260	70	30	-	6
1652430	M24	300	65	36	-	6
1653038	M30	380	70	46	-	1

Each box of Anchor Rods incl. a setting tool (M8-M16) M8 to M16 with external hexagon socket

**MVA-Sr Anchor Rod, stainless steel A4-70/316 with hex-nut and washer DIN 125A**



Article code	Thread d	Thread length mm $L_c$	Usable length mm $L_{tr}$	Hex-nut SW	Drive SW	Box content
1660008	M8	110	15	13	5	10
1661508	M8	150	55	13	5	10
1660010	M10	130	20	17	6	10
1661710	M10	170	65	17	6	10
1660012	M12	160	30	19	8	10
1662212	M12	220	90	19	8	10
1662612	M12	260	130	19	8	10
1663012	M12	300	170	19	8	10
1660016	M16	190	40	24	10/12	10
1662316	M16	230	80	24	10/12	10
1662616	M16	260	110	24	10/12	10
1663016	M16	300	150	24	10/12	10
1662020	M20	230	40	30	-	5
1662026	M20	260	70	30	-	5
1662430	M24	300	65	36	-	5
1663038	M30	380	70	46	-	1

Each box of Anchor Rods incl. a setting tool (M8-M16) M8 to M16 with external hexagon socket

**MVA-WZ Setting Tool for rods without drive**



Article code	For	Box content
1665008	M8	1
1665010	M10	1
1665012	M12	1
1665014	M14	1
1665016	M16	1
1665020	M20	1
1665024	M24	1
1665030	M30	1

**MVA-I Anchor Sleeve with internal thread, steel quality 5.8**



Article code	Internal thread d	Capsule $d_{int}$	Drilling hole $\varnothing$ mm $d_0$	Drilling depth mm $h_0$	Min. screw in mm $h_{s_{min}}$	Max. screw in mm $h_{s_{max}}$	Installation torque (Nm) $T_{trd}$ max	Box content
1670008	M8	M12	15	90	12	30	6	10 <sup>01</sup>
1670010	M10	M16	18	90	15	35	12	10 <sup>01</sup>
1670012	M12	M16	22	90	18	40	20	10 <sup>21</sup>
1670016	M16	M20/135	28	125	24	40	45	10 <sup>21</sup>
1670020	M20	M24	35	180	40	60	100	10 <sup>51</sup>

**MVA-Ir Anchor Sleeve with internal thread, stainless steel A4/316**



Article code	Internal thread d	Capsule $d_{int}$	Drilling hole $\varnothing$ mm $d_0$	Drilling depth mm $h_0$	Min. screw in mm $h_{s_{min}}$	Max. screw in mm $h_{s_{max}}$	Installation torque (Nm) $T_{trd}$ max	Box content
1670108	M8	M12	15	90	12	30	6	10 <sup>01</sup>
1670110	M10	M16	18	90	15	35	12	10 <sup>01</sup>
1670112	M12	M16	22	90	18	40	20	10 <sup>21</sup>
1670116	M16	M20/135	28	125	24	40	45	10 <sup>21</sup>
1670120	M20	M24	35	180	40	60	100	10 <sup>51</sup>



# MPU-P50/B1 Fire Rated Dispenser Foam, up to 50 litres yield



### Features

- Class B1 according to DIN 4102-1
- Fire resistance up to 240 minutes; EI240 according to EN 13501-2
- Flame resistant B1 (DIN 4102)
- Emission EC1<sup>Plus</sup> - very low emission
- Special formula for high fire resistance
- Application in environments where high fire resistance is required, such as public buildings, hospitals, industrial buildings, etc.
- Rapid curing, reduces the processing time
- High yield up to 50 litres



### Applications

filling and sealing of cavities, air spaces and joints, fixing of fireproof door frames, sealing of pipe crossings in plumbing, cooling and air conditioning, sealing and insulation of pipes penetrating walls

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-P50/B1	6-9	25-35	24

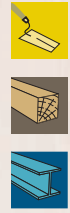
At a temperature +20°C and humidity of 50% (30mm line)

Article code	Description	Content	Box content	Quantity per pallet
1713504	B1/for dispenser	750	12	780

**MPU-P50/B1** Fire Rated Dispenser Foam, up to 50 litres yield



# MPU-P50 Dispenser Foam, up to 50 litres yield



### Features

- Universal use
- Fast curing
- Strong adhesion and no shrinkage once hardened
- High thermal and acoustic insulation values
- High yield up to 50 litres

LITER  
LITRE  
**50l**

### Applications

backfilling, filling and sealing of cavities, air spaces and joints, sealing of concrete shutter boxes, fixing of window and door frames, installation of roof panels, tile laying, sealing of pipe crossings in plumbing, cooling and air conditioning, sealing and insulation of pipes penetrating walls, sealing gaps between prefabricated elements, sealing around manhole covers

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-P50	6-9	40-45	24

At a temperature +20° C and humidity of 50% (30mm line)

### MPU-P50 Dispenser Foam, up to 50 litres yield



Article code	Description	Content	Box content	Quantity per pallet
1713511	for dispenser	750	12	780

# MPU-M50 Hand Held PU Foam, up to 50 litres yield



### Features

- Universal use
- Fast curing
- Strong adhesion and no shrinkage once hardened
- High thermal and acoustic insulation values
- High yield up to 50 litres



LITER  
LITRE  
**50l**

### Applications

backfilling, filling and sealing of cavities, air spaces and joints, sealing of concrete shutter boxes, fixing of window and door frames, installation of roof panels, tile laying, sealing of pipe crossings in plumbing, cooling and air conditioning, sealing and insulation of pipes penetrating walls, sealing gaps between prefabricated elements, sealing around manhole covers

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-M50	6-9	40-45	24

At a temperature +20°C and humidity of 50% (30mm line)

Article code	Description	Content	Box content	Quantity per pallet
1713510	manual	750	12	780

**MPU-M50** Hand Held PU Foam, up to 50 litres yield



# MPU-P40/AS Gun Soft Foam, 45 litres



### Features

- Class B2 according to DIN 4102
- Class E according to EN 13501-1
- Emission EC1<sup>plus</sup> - very low emission
- Premium quality gun soft foam is a special soft cell foam which due to its elasticity, can permanently accommodate significant component movements, e.g. due to temperature fluctuations
- All seasons
- Optimum results at low temperatures down to - 10°C
- Permanent high elasticity
- Fast curing
- High yield up to 45 litres

### Applications

window installation (clean, controlled back-filling, insulating and sealing joints in window and external roller blinds)

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-P40/AS	6-9	40-45	24

At a temperature +20°C and humidity of 50% (30mm line)

### MPU-P40/AS Gun Soft Foam, 45 litres



Article code	Description	Content	Box content	Quantity per pallet
1713512	B2/for dispenser	750	12	780

# MPU-PS50 Dispenser Foam for concrete formwork, up to 50 litres yield



### Features

- Is suitable for sealing of joints and connectors in concrete formwork as well as for integrating recesses into areas to be filled with concrete
- Simple and speedy working
- Resistant to decay
- High yield up to 50 litres



LITER  
LITRE  
**50l**

### Applications

use for sealing leaks in concrete formwork, integration of recesses into areas not to be covered with concrete, fixation of loose parts prior to pouring concrete

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-PS50	6-9	40-45	24

At a temperature +20 °C and humidity of 50% (30mm line)

Article code	Description	Content	Box content	Quantity per pallet
1713513	for dispenser	750	12	780

**MPU-PS50** Dispenser Foam for concrete formwork, up to 50 litres yield



# MPU-PP Perifix Gun Grade Perimeter Adhesive



40m  
↕  
12m<sup>2</sup>

### Features

- MPU-PP Perifix is a ready to use one component polyurethane adhesive for bonding of perimeter insulation panels
- Simple and speedy working
- Strong initial tack
- High level of adhesion
- Excellent adhesion to many common building substrates; such as concrete, masonry, stone, plaster, wood, fibre cement, metal and many plastics
- Resistant to decay
- Excellent insulating properties
- Class F according to EN 13501-1 (B3)
- High yield (up to 12 m<sup>2</sup> panels)

### Applications

bonding of perimeter panels in the outdoor environment for insulation and structural protection, filling and patching of voids between panels

### Technical Data

	Adhesive open time, in minutes	Curing time in h	Full cure time in h
MPU-PP Perifix	6	3-5	24

At a temperature +20° C and humidity of 50% (30mm line)

### MPU-PP Perifix Gun Grade Perimeter Adhesive



Article code	Description	Content	Box content	Quantity per pallet
1712581	for dispenser	750	12	780

# MPU-P45/B2 Dispenser Foam, up to 45 litres yield



### Features

- Small can for easier handling and storage
- Universal use
- Class E according to EN 13501-1
- Fast curing
- Simple and speedy working
- High yield up to 45 litres



### Applications

backfilling, filling and sealing of cavities, air spaces and joints, sealing of concrete shutter boxes, fixing of window and door frames, installation of roof panels, tile laying, sealing of pipe crossings in plumbing, cooling and air conditioning, sealing and insulation of pipes penetrating walls, sealing gaps between prefabricated elements, sealing around manhole covers

### Technical Data

	Tack-free time in min.	Cutting time in min.	Full cure time in h
MPU-P45/B2	8-10	20-25	1.5-5

At a temperature +20°C and humidity of 50% (30mm line)

Article code	Description	Content	Box content	Quantity per pallet
1713514	B2/for dispenser	560	12	780

**MPU-P45/B2 Dispenser Foam, up to 45 litres yield**



# MRM-PU Cleaner for PU-Foam and dispenser



**Features**

- Suitable for cleaning objects stained with polyurethane foam, tools, foam dispenser and foam cans



**MRM-PU Cleaner for PU-Foam and dispenser**

Article code	Description	Content	Box content	Quantity per pallet
1713521	for PU-Foam/dispenser	500	12	780



**MPP-M Metal dispenser**

Article code	Description	Box content
1713522	for PU-Foam	1



**MPP-K Nylon/Metal dispenser**

Article code	Description	Box content
1713523	for PU-Foam	1





# MSI-NP Silicone



### Features

- Universal use
- Non-corrosive
- Fungus-inhibiting
- UV resistant, weather proof and non-ageing
- With adhesion promoter
- Polysiloxane base
- Indoor and outdoor applications



### Applications

sanitary places, joints around windows, connection joints

Article code	Colour	Content	Box content	Quantity per pallet
1712531	transparent	310	24	1440
1712532	white	310	24	1440

**MSI-NP** Neutral Silicone, fungus-inhibiting



# MDA Acrylic Sealant



### Features

- The sealant hardens by means of water evaporation
- Acrylic dispersion base
- Low odour, suitable for indoor applications
- Paintable
- UV resistant, weather proof and non-ageing



### Applications

joints in interior and exterior areas, joints with little movement

### MDA Acrylic Sealant



Article code	Colour	Content	Box content	Quantity per pallet
1712562	white	310	24	1440



**Features**

- Very high initial tack
- Class B2 according to DIN 4102
- High level of adhesion
- Permanently elastic
- Fungus-inhibiting
- UV resistant, weather proof and non-ageing
- With adhesion promoter



**Applications**

universal use, structural elastic bonding in the building and metal working industry, bonding of window sills and panels, suitable for sanitary applications







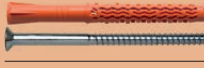


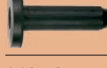






Article code	Colour	Content	Box content	Quantity per pallet
1712536	grey	290	12	1560
1712538	transparent	290	12	1560

**MMK-U** Universal Adhesive



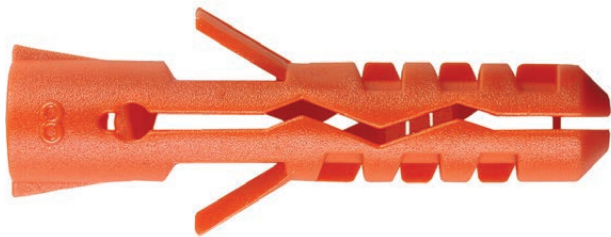
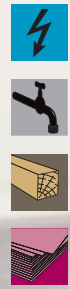


# Nylon Products

<b>MN</b>	102	<b>MU</b>	108	<b>MNAF</b>	115	<b>MBR</b>	121
							
<b>MNK</b>	104	<b>ML</b>	110	<b>MQL</b>	116	<b>MBR-SK</b>	123
							
<b>MNL</b>	105	<b>SD</b>	111	<b>MB</b>	118	<b>MBR-X</b>	124
							
<b>MQ</b>	106	<b>MNA</b>	112	<b>MB-SK</b>	120	<b>MGD</b>	126
							



# MN Nylon Plug

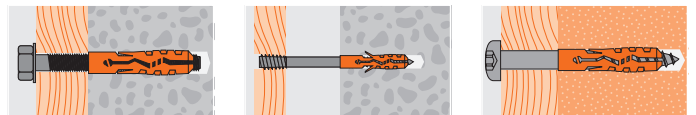


## Applications

pictures, lamps, holders, profiles, substructures, electric switches, rails

## Features

- Can be used with wood screws, chipboard screws and metric screws
- Suitable for use in most kinds of building materials, especially in solid building materials
- Knock-in protection prevents premature expansion while installing
- Holds the plug firm in the hole against rotation; guarantees immediate grip as the plug expands
- M-Teeth ensuring a complete radial expansion during screw insertion
- Prevent the plug from breaking open while inserting into the hole
- Made from high-quality polyamide PA6
- Pre installation or through fixing
- Indoor and outdoor applications

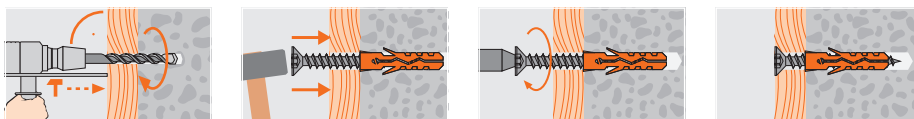


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Lightweight Concrete tension load (kN)
MN 4	0.25	0.1	0.02
MN 5	0.35	0.2	0.04
MN 6	0.6	0.4	0.06
MN 7	0.7	0.55	0.07
MN 8	0.85	0.6	0.09
MN 10	1.4	0.8	0.2
MN 12	1.8	1.0	0.4
MN 14	2.6	1.3	0.5
MN 15	2.9	1.5	0.6
MN 16	3.2	1.7	0.6
MN 20	5.2	1.9	1.0

Reached with max. diameter wood screw / Safety factor of 5 is included / 1 kN ≈ 100 kg

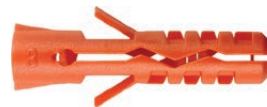
## Installation



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Outer carton	Quantity per pallet
1000040	4	20	2.2-3	-	100	3600	216000
1000050	5	25	2.6-4	M3	100	3600	216000
3) 1000060	6	30	3.5-5	M4	100	3600	216000
1000070	7	35	4.5-5	M4	100	3600	216000
3) 1000080	8	40	4.5-6	M5	100	3600	216000
1000100	10	50	6-8	M6	50	1800	108000
1000120	12	60	8-10	M8	25	900	54000
1000140	14	70	10-12	M10	20	720	43200
1000150	15	75	10-12	M10	10	360	21600
1000160	16	80	12-14	M12	10	360	21600
1000200	20	90	14-16	M14	5	180	10800

3) For use with TR Toproc Spacer Screw

### MN Nylon Plug



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Unit content	Quantity per pallet
1380032	5	25	2.6-4	M3	4000	320000
1380033	6	30	3.5-5	M4	3000	240000
1380034	8	40	4.5-6	M5	1300	104000
1380035	10	50	6-8	M6	700	56000

### MN Nylon Plug in Mini-Box, bulk packed



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Unit content	Quantity per pallet
1000041	4	20	2.2-3	-	100	5600	134400
1000051	5	25	2.6-4	M3	100	5600	134400
1000061	6	30	3.5-5	M4	100	5600	134400
1000071	7	35	4.5-5	M4	100	2800	67200
1000081	8	40	4.5-6	M5	100	2800	67200
1000101	10	50	6-8	M6	50	1400	33600
1000121	12	60	8-10	M8	25	700	16800
1000141	14	70	10-12	M10	20	560	13440
1000151	15	75	10-12	M10	10	280	6720
1000161	16	80	12-14	M12	10	280	6720
1000201	20	90	14-16	M14	5	140	3360

### MN Nylon Plug in Maxi-Box

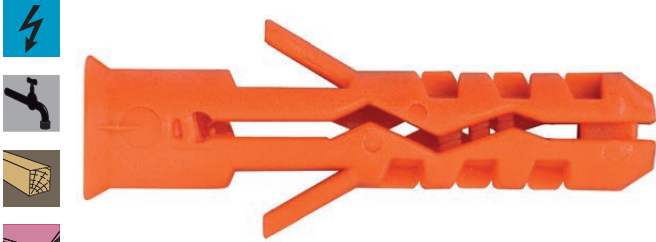


Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Outer carton	Quantity per pallet
1000055	5	25	2.6-4	M3	20000	1200000
1000065	6	30	3.5-5	M4	15000	900000
1000085	8	40	4.5-6	M5	5000	300000
1000105	10	50	6-8	M6	2500	150000
1000125	12	60	8-10	M8	2000	120000
1000145	14	70	10-12	M10	1000	60000

### MN Nylon Plug in outer carton, bulk packed



# MNK Nylon Plug with collar

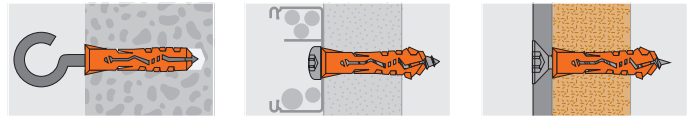


### Features

- Collar prevents the plug from being pushed into deeper holes
- Clean cover of the drill hole
- Knock-in protection prevents premature expansion while installing
- Holds the plug firm in the hole against rotation; guarantees immediate grip as the plug expands
- M-Teeth ensuring a complete radial expansion during screw insertion
- Prevent the plug from breaking open while inserting into the hole
- Made from high-quality polyamide PA6
- Pre installation
- Indoor and outdoor applications

### Applications

pictures, lamps, holders, profiles, substructures, electric switches, rails

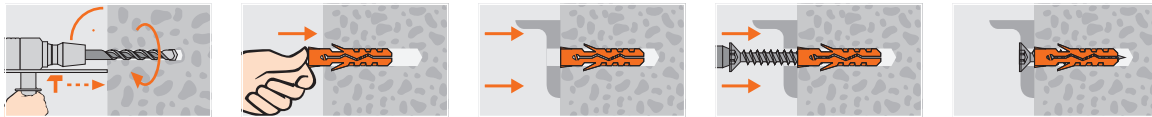


### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Lightweight Concrete tension load (kN)
MNK 5	0.35	0.2	0.04
MNK 6	0.6	0.4	0.06
MNK 8	0.85	0.6	0.09
MNK 10	1.4	0.8	0.2
MNK 12	1.8	1.0	0.4

Reached with max. diameter wood screw / Safety factor of 5 is included / 1 kN ≈ 100 kg

### Installation



### MNK Nylon Plug with collar



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content FS	Outer carton SK	Quantity per pallet
1040520	5	25	2.6-4	M3	100	3600	86400
1040630	6	30	3.5-5	M4	100	3600	86400
1040840	8	40	4.5-6	M5	100	3600	86400
1041050	10	50	6-8	M6	50	1800	43200
1041250	12	60	8-10	M8	25	900	21600



# MNL Nylon Plug long

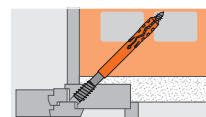
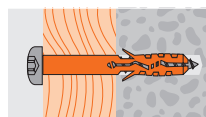


## Features

- Long shank reduces lateral movements
- Knock-in protection prevents premature expansion while installing
- Holds the plug firm in the hole against rotation; guarantees immediate grip as the plug expands
- M-Teeth ensuring a complete radial expansion during screw insertion
- Prevent the plug from breaking open while inserting into the hole
- For bridging of thick layers of plaster
- Made from high-quality polyamide PA6
- Through fixing
- Indoor and outdoor applications

## Applications

frames, for use with TR Toproc Spacer Screw

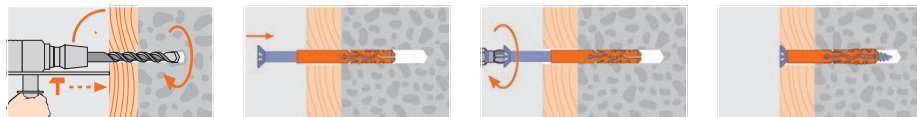


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Lightweight Concrete tension load (kN)
MNL 6	0.6	0.4	0.06
MNL 8	0.85	0.6	0.09

Reached with max. diameter wood screw / Safety factor of 5 is included / 1 kN ≈ 100 kg

## Installation

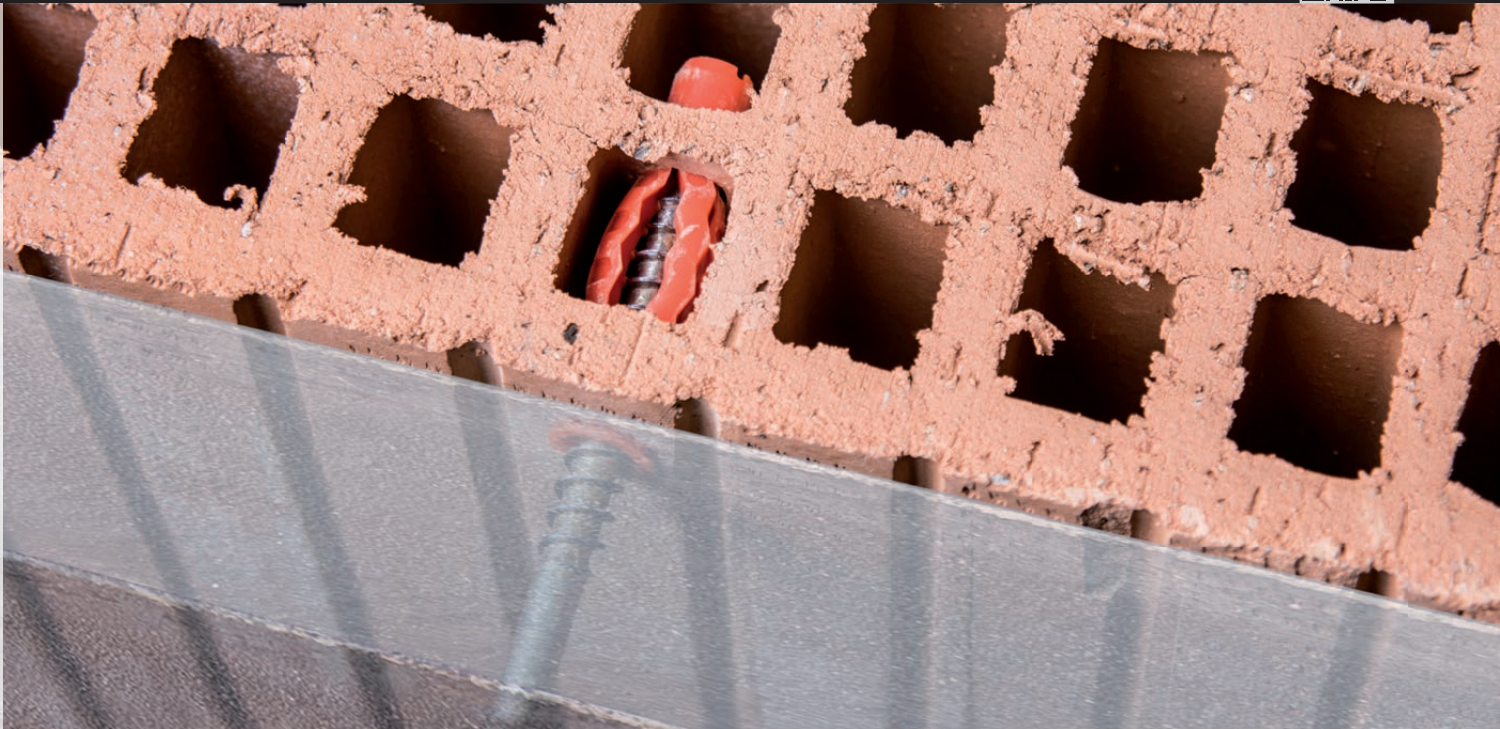


Article code	Plug and drill $\varnothing$ mm	Length mm	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Outer carton	Quantity per pallet
1000600	$d_{nom} = d_d$ 6	L	3.5-5	M4	100	1800	43200
1000800	8	65	4.5-6	M5	50	900	21600

## MNL Nylon Plug long



# MQ Quattro® Nylon Plug

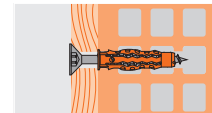


## Applications

holders, electric switches, pictures, lamps, profiles, substructures, rails

## Features

- Quattro® Technology
- Highest possible retaining values in the lower and middle load area, particularly suitable for applications with chipboard screws
- For use in all kinds of building materials
- Collar prevents the plug from being pushed into deeper holes
- Knock-in protection prevents premature expansion while installing
- Rotation resistance stops the plug rotating in the drill hole
- Special plug geometry allows ease of entry into the drill hole
- Made from high-quality polyamide PA6
- Pre installation
- Indoor and outdoor applications

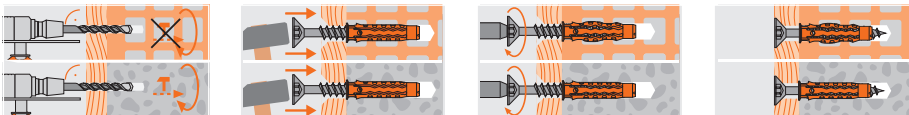














## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Aerated Concrete tension load (kN)	Sandstone tension load (kN)	Perforated Brick tension load (kN)
MQ 5	0.45	0.45	0.12	0.45	1) 0.15
MQ 6	1.1	0.90	0.12	0.70	1) 0.20
MQ 8	1.2	1.00	0.19	1.00	1) 0.40
MQ 10	1.9	1.10	0.30	1.80	1) 0.45
MQ 12	2.7	1.50	0.40	2.10	0.50
MQ 14	3.0	1.80	0.55	2.30	0.60

Reached with max. diameter wood screw / Safety factor of 5 is included / 1 kN ≈ 100 kg / 1) Chipboard screw

## Installation









Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Outer carton	Quantity per pallet
1050050	5	25	2.6-4	M3	100 	3600 	216000
1050060	6	30	3.5-5	M4	100 	3600 	216000
1050080	8	40	4.5-6	M5	100 	3600 	216000
1050100	10	50	6-8	M6	50 	1800 	108000
1050120	12	60	8-10	M8	25 	900 	54000
1050140	14	70	10-12	M10	10 	360 	21600

**MQ Quattro® Nylon Plug**

Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Unit content	Quantity per pallet
1380532	5	25	2.6-4	M3	3500	280000
1380533	6	30	3.5-5	M4	2000	160000
1380534	8	40	4.5-6	M5	1000	80000
1380535	10	50	6-8	M6	500	40000







**MQ Quattro® Nylon Plug in Mini-Box, bulk packed**

30 × 20 × 12.5 cm

Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Unit content	Quantity per pallet
1050051	5	25	2.6-4	M3	100 	5600	134400
1050061	6	30	3.5-5	M4	100 	5600	134400
1050081	8	40	4.5-6	M5	100 	2800	67200
1050101	10	50	6-8	M6	50 	1400	33600
1050121	12	60	8-10	M8	25 	700	16800
1050141	14	70	10-12	M10	10 	280	6720

**MQ Quattro® Nylon Plug in Maxi-Box**

40 × 30 × 23.5 cm

Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Outer carton	Quantity per pallet
1050055	5	25	2.6-4	M3	20000 	1200000
1050065	6	30	3.5-5	M4	12000 	720000
1050085	8	40	4.5-6	M5	5000 	300000
1050105	10	50	6-8	M6	2500 	150000
1050125	12	60	8-10	M8	1500 	90000
1050145	14	70	10-12	M10	1000 	60000

**MQ Quattro® Nylon Plug in outer carton, bulk packed**

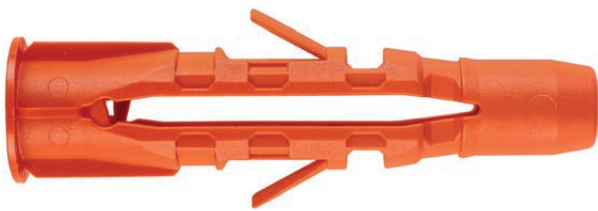
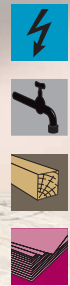
26.5 × 31.5 × 30 cm

Article code	Content	Description	Pieces per set	Box content
1000001	40x MQ5x25 50x MQ6x30 40x MQ8x40 16x MQ10x50 30x MU6x35 40x MU8x50 10x MU10x60 4x MU12x70	MQ/MU	230	1

**MOB Orange Box**

29.0 × 19.5 × 3.5 cm

# MU Multi Plug Nylon

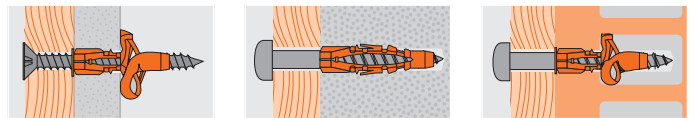


## Applications

holders, electric switches, rails, pictures, lamps, substructures, profiles

## Features

- The knot leads to high performance in hollow walls
- Can be used with wood screws, chipboard screws and metric screws
- Automatic collar detachment makes the plug multifunctional
- Knock-in protection prevents premature expansion while installing
- Self tensioning stops the plug rotating in the drill hole
- Made from high-quality polyamide PA6
- Pre installation or through fixing
- Indoor and outdoor applications

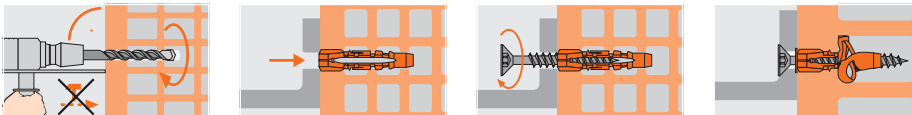


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Plasterboard tension load (kN)	Chipboard tension load (kN)
MU 6	0.6	0.2	0.05	1) 0.15	1) 0.4
MU 8	0.8	0.3	0.1	1) 0.18	1) 0.45
MU 10	1.2	0.4	0.2	1) 0.2	1) 0.6
MU 12	1.7	0.6	0.3	-	-
MU 14	2.1	0.8	0.45	-	-

Reached with max. diameter wood screw / Safety factor of 5 is included / 1 kN ≈ 100 kg / 1) Chipboard screw

## Installation



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Outer carton	Quantity per pallet
1010630	6	35	3-4	M4	100	3600	216000
1010640	6	45	3-4	M4	100	3600	216000
1010850	8	50	4.5-6	M6	50	1800	108000
1011060	10	60	6-8	M8	25	900	54000
1011270	12	70	8-10	M10	20	720	43200
1011470	14	75	10-12	M12	10	360	21600

**MU Multi Plug Nylon**



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Unit content	Quantity per pallet
13800330	6	35	3-4	M4	1800	144000
13800331	6	45	3-4	M4	1200	96000
13800341	8	50	4.5-6	M6	750	60000

**MU Multi Plug Nylon in Mini-Box, bulk packed**



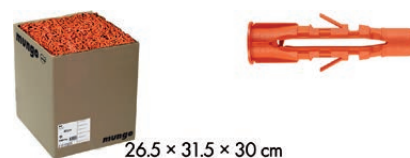
Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Box content	Unit content	Quantity per pallet
1010631	6	35	3-4	M4	100	2800	67200
1010641	6	45	3-4	M4	100	2800	67200
1010851	8	50	4.5-6	M6	50	1400	33600
1011061	10	60	6-8	M8	25	700	16800
1011271	12	70	8-10	M10	20	560	13440
1011471	14	75	10-12	M12	10	280	6720

**MU Multi Plug Nylon in Maxi-Box**



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Screwtype wood/chipboard $\varnothing$ mm $d_s$	Screwtype metric $\varnothing$ mm $d_s$	Outer carton	Quantity per pallet
1010635	6	35	3-4	M4	7500	450000
1010645	6	45	3-4	M4	6000	360000
1010855	8	50	4.5-6	M6	3500	210000
1011065	10	60	6-8	M8	1800	108000
1011275	12	70	8-10	M10	1000	60000
1011475	14	75	10-12	M12	500	30000

**MU Multi Plug Nylon in outer carton, bulk packed**



Article code	Content	Description	Pieces per set	Box content
1000001	40x MQ5x25 50x MQ6x30 40x MQ8x40 16x MQ10x50 30x MU6x35 40x MU8x50 10x MU10x60 4x MU12x70	MQ/MU	230	1

**MOB Orange Box**



# ML Hollow Brick Plug



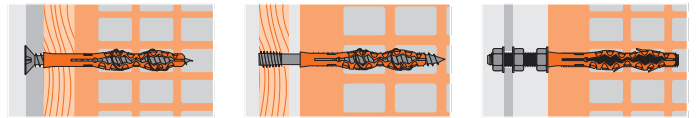
## Features

- Ideal for use in brickwork
- Can be used with wood screws, chipboard screws and metric screws
- For use with anchor rod M10 (ML14)
- Special plug end geometry, ML6 and ML8, causes a knotting of the plug shanks
- Rotation resistance stops the plug rotating in the drill hole
- Knock-in protection prevents premature expansion while installing
- Collar prevents the plug from being pushed into deeper holes (MLK)
- Made from high-quality polyamide PA6
- Pre installation or through fixing
- Indoor and outdoor applications



## Applications

facings, squared timbers, roller blinds (only MLK), frames, distance fixing

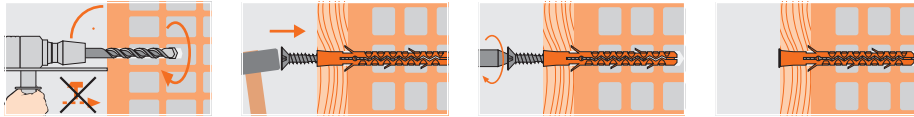


## Technical Data

	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)
ML 6	0.4	0.15
ML/MLK 8	0.6	0.25
ML 10	0.8	0.4
ML 14	1.0	0.6

without hammer drilling in perforated brick and lightweight concrete / Safety factor of 5 is included / Reached with max. diameter wood screw / 1 kN = 100 kg

## Installation



### ML Hollow Brick Plug Ø 6/8



Article code	Plug and drill Ø mm	Length mm	Screwtype wood/chipboard Ø mm	Screwtype metric Ø mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_s$	$d_s$	FS	SK	
1100606	6	60	3.5-5	M4	100 <sup>11</sup>	2400 <sup>32</sup>	57600
1100808	8	80	5-6	M5	100 <sup>31</sup>	1200 <sup>32</sup>	28800

### ML Hollow Brick Plug Ø 10/14



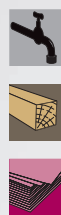
Article code	Plug and drill Ø mm	Length mm	Screwtype wood/chipboard Ø mm	Screwtype metric Ø mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_s$	$d_s$	FS	SK	
1101009	10	90	7	M6	100 <sup>51</sup>	600 <sup>32</sup>	14400
1101012	10	120	7	M6	50 <sup>41</sup>	450 <sup>32</sup>	10800
1101409	14	90	10	M10	50 <sup>41</sup>	450 <sup>32</sup>	10800
1101412	14	120	10	M10	50 <sup>51</sup>	300 <sup>32</sup>	7200

### MLK Hollow Brick Plug with collar Ø 8



Article code	Plug and drill Ø mm	Length mm	Collar Ø mm	Screwtype wood/chipboard Ø mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_c$	$d_s$	FS	SK	
1100808K	8	80	12.5	5-6	100 <sup>31</sup>	1200 <sup>32</sup>	28800

# SD Sound Insulation Plug



## Features

- Greatly reduced sound transmission once installed, due to integrated plug
- Sound reduction up to 15.5 dB (structure-borne noise), tested by IFB, Mülheim
- Can be used with most types of wood screws
- Integrated MN Nylon Plug made from polyamide 6
- Pre installation or through fixing (SD)
- Pre installation (SDK)
- Indoor and outdoor applications



## Applications

substructures, sound insulation constructions, cable clips, pipe clips

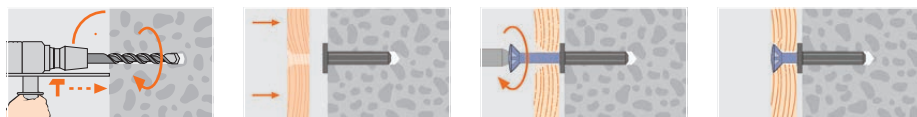



## Technical Data


	Non-cracked concrete C20/25 tension load (N)	Brick tension load (N)	Lightweight Concrete tension load (N)	Value of sound insulation dB	Drilling depth mm $h_0$	Screw $\varnothing$ mm $d_s$	MN Nylon Plug
SD/SDK 6	220	170	60	12.5	40	3.5-5.0	6
SD/SDK 8	420	330	80	10.5	50	4.5-6.0	8
SD/SDK 10	700	560	150	13.5	60	6.0-8.0	10
SD/SDK 12	1100	880	250	15	75	8.0-10.0	12
SD/SDK 14	1600	1280	300	15.5	80	10.0-12.0	14

Safety factor of 5 is included / Reached with max. diameter wood screw / 10 N  $\approx$  1 kg / Screw in depth: In order to avoid solid-borne-sound-bridges the screw must not be screwed-in further than the plug depth

## Installation



Article code	Description	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Box content FS	Outer carton SK	Quantity per pallet	<b>SD Sound Insulation Plug</b>
1880006	SD6	10	30	100 <sup>11</sup>	2400 <sup>32</sup>	57600	
1880008	SD8	12	40	100 <sup>21</sup>	1800 <sup>32</sup>	43200	
1880010	SD10	14	50	50 <sup>21</sup>	900 <sup>32</sup>	21600	
1880012	SD12	16	60	50 <sup>31</sup>	600 <sup>32</sup>	14400	
1880014	SD14	18	70	50 <sup>51</sup>	300 <sup>32</sup>	7200	

Article code	Description	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Effective anchorage depth mm $h_{ef}$	Collar $\varnothing$ mm $d_c$	Collar thickness mm $L_c$	Box content FS	Outer carton SK	Quantity per pallet	<b>SDK Sound Insulation Plug with collar</b>
1880106	SDK6	10	34	30	22	4	100 <sup>31</sup>	1200 <sup>32</sup>	28800	
1880108	SDK8	12	44	40	30	4	100 <sup>51</sup>	600 <sup>32</sup>	14400	
1880110	SDK10	14	56	50	34	6	50 <sup>51</sup>	300 <sup>32</sup>	7200	
1880112	SDK12	16	67	60	42	7	25 <sup>51</sup>	150 <sup>32</sup>	3600	
1880114	SDK14	18	77	70	42	7	25 <sup>51</sup>	150 <sup>32</sup>	3600	

# MNA Hammer Screw



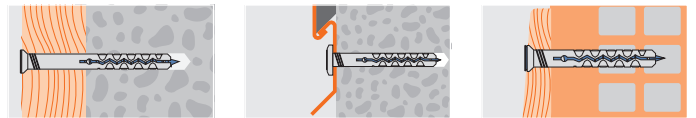
## Features

- Quick and simple installation
- Available with 3 different styles of head
- The long expansion zone guarantees optimum stability
- Easy and reliable installation
- The buttress thread allows adjustment or dismantling
- Plug made from high-quality polyamide PA6
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

wooden constructions, skirtings, profiles, frames

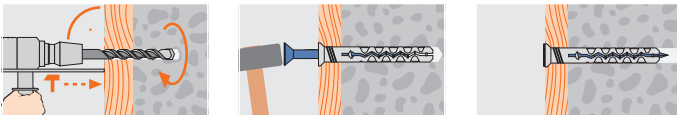


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Sandstone tension load (kN)
MNA 5	0.25	0.2	0.15
MNA 6	0.3	0.25	0.2
MNA 8	0.4	0.3	0.25
MNA 10	0.5	0.4	0.3

Safety factor of 5 is included / 1 kN ≈ 100 kg

## Installation





Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
1122502S	5	25	7	2	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122503S	5	30	7	5	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122504S	5	40	7	15	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122505S	5	50	7	25	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122603S	6	35	9	5	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122604S	6	40	9	10	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122605S	6	50	9	20	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122606S	6	60	9	30	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122607S	6	70	9	40	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122608S	6	80	9	50	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122805S	8	50	12	10	PZ3	100 $f_{S1}$	900 $S2$	54000
1122806S	8	60	12	20	PZ3	100 $f_{S1}$	900 $S2$	54000
1122808S	8	80	12	40	PZ3	100 $f_{S1}$	600 $S2$	36000
1122810S	8	100	12	60	PZ3	100 $f_{S1}$	600 $S2$	36000
1122812S	8	120	12	80	PZ3	100 $f_{S1}$	600 $S2$	36000
1122814S	8	140	12	100	PZ3	100 $f_{S1}$	600 $S2$	36000

**MNA-S Hammer Screw with countersunk collar**



Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
11229081S	10	80	13	30	PZ3	50 $f_{S1}$	600 $S2$	36000
11229101S	10	100	13	50	PZ3	50 $f_{S1}$	300 $S2$	18000
11229121S	10	120	13	70	PZ3	50 $f_{S1}$	300 $S2$	18000
11229141S	10	140	13	90	PZ3	50 $f_{S1}$	300 $S2$	18000
11229161S	10	160	13	110	PZ3	50 $f_{S1}$	300 $S2$	18000

Not pre-assembled

**MNA-S Hammer Screw with countersunk collar, not pre-assembled**



Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
1122502Z	5	25	8	2	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122503Z	5	30	8	5	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122504Z	5	40	8	15	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122505Z	5	50	8	25	PZ2	100 $f_{S1}$	2400 $S2$	144000
1122603Z	6	35	12	5	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122604Z	6	40	12	10	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122605Z	6	50	12	20	PZ2	100 $f_{S1}$	1800 $S2$	108000
1122606Z	6	60	12	30	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122607Z	6	70	12	40	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122608Z	6	80	12	50	PZ2	100 $f_{S1}$	1200 $S2$	72000
1122805Z	8	50	15	10	PZ3	100 $f_{S1}$	900 $S2$	54000
1122806Z	8	60	15	20	PZ3	100 $f_{S1}$	900 $S2$	54000
1122808Z	8	80	15	40	PZ3	100 $f_{S1}$	600 $S2$	36000
1122810Z	8	100	15	60	PZ3	100 $f_{S1}$	600 $S2$	36000
1122812Z	8	120	15	80	PZ3	100 $f_{S1}$	600 $S2$	36000
1122814Z	8	140	15	100	PZ3	100 $f_{S1}$	600 $S2$	36000

**MNA-Z Hammer Screw with cylindrical collar**



Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
1122502G	5	25	11	2	PZ2	100 $f_{S1}$	2400 $S2$	57600
1122503G	5	30	11	5	PZ2	100 $f_{S1}$	2400 $S2$	57600
1122504G	5	40	11	15	PZ2	100 $f_{S1}$	2400 $S2$	57600
1122604G	6	40	13	10	PZ2	100 $f_{S1}$	1800 $S2$	43200

**MNA-G Hammer Screw with large collar PZ2**



Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
1122805G	8	50	17	10	T25	100 $f_{S1}$	900 $S2$	21600
1122806G	8	60	17	20	T25	100 $f_{S1}$	900 $S2$	21600
1122808G	8	80	17	40	T25	100 $f_{S1}$	600 $S2$	14400
1122810G	8	100	17	60	T25	100 $f_{S1}$	600 $S2$	14400

**MNA-G Hammer Screw with large collar T25**



Article code	Plug and drill $\varnothing$ mm	Length mm	Collar $\varnothing$ mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$d_k$	$t_{fix}$		$f_{S1}$	$S2$	
1125503S	5	30	7	5	PZ2	100 $f_{S1}$	2400 $S2$	57600
1125505S	5	50	7	25	PZ2	100 $f_{S1}$	2400 $S2$	57600
1125603S	6	35	9	5	PZ2	100 $f_{S1}$	1800 $S2$	43200
1125604S	6	40	9	10	PZ2	100 $f_{S1}$	1800 $S2$	43200
1125605S	6	50	9	20	PZ2	100 $f_{S1}$	1800 $S2$	43200
1125606S	6	60	9	30	PZ2	100 $f_{S1}$	1200 $S2$	28800
1125607S	6	70	9	40	PZ2	100 $f_{S1}$	1200 $S2$	28800
1125805S	8	50	12	10	PZ3	100 $f_{S1}$	900 $S2$	21600
1125806S	8	60	12	20	PZ3	100 $f_{S1}$	900 $S2$	21600
1125808S	8	80	12	40	PZ3	100 $f_{S1}$	600 $S2$	14400
1125810S	8	100	12	60	PZ3	100 $f_{S1}$	600 $S2$	14400
1125812S	8	120	12	80	PZ3	100 $f_{S1}$	600 $S2$	14400
1125814S	8	140	12	100	PZ3	100 $f_{S1}$	600 $S2$	14400

**MNAr-S Hammer Screw with countersunk collar, stainless steel A2/304**



**MNAr-Z** Hammer Screw with cylindrical collar, stainless steel A2/304



Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Collar Ø mm $d_k$	Usable length mm $f_{in}$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1125503Z	5	30	8	5	PZ2	100 11	2400 32	57600
1125505Z	5	50	8	25	PZ2	100 11	2400 32	57600
1125603Z	6	35	12	5	PZ2	100 21	1800 32	43200
1125604Z	6	40	12	10	PZ2	100 21	1800 32	43200
1125605Z	6	50	12	20	PZ2	100 21	1800 32	43200
1125606Z	6	60	12	30	PZ2	100 31	1200 32	28800
1125607Z	6	70	12	40	PZ2	100 31	1200 32	28800
1125805Z	8	50	15	10	PZ3	100 41	900 32	21600
1125806Z	8	60	15	20	PZ3	100 41	900 32	21600
1125808Z	8	80	15	40	PZ3	100 51	600 32	14400
1125810Z	8	100	15	60	PZ3	100 51	600 32	14400
1125812Z	8	120	15	80	PZ3	100 51	600 32	14400
1125814Z	8	140	15	100	PZ3	100 51	600 32	14400

**MDB** Nylon Disc, white



Article code	Disc Ø mm $d_{nom}$	Hole Ø mm $d_w$	Description	For	Box content FS	Outer carton SK	Quantity per pallet
1120864	45	5.1	Nylon	MNA-S 5	100 31	1200 32	28800
1120865	45	8.5	Nylon	MNA-S 6/8	100 31	1200 32	28800
1120877	60	8.5	Nylon	MNA-S 6/8	100 51	600 32	14400
1120878	60	10.5	Nylon	MNA-S 10	100 51	600 32	14400

**MDB-M** Metal Disc, white



Article code	Disc Ø mm $d_{nom}$	Hole Ø mm $d_w$	Description	For	Box content FS	Outer carton SK	Quantity per pallet
1120875	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200 21	3600 32	86400

**MDB-M** Metal Disc, Ø 38mm



Article code	Disc Ø mm $d_{nom}$	Hole Ø mm $d_w$	Description	For	Box content FS	Outer carton SK	Quantity per pallet
1120867	38	9.0	metal	MNA-S 8 / MEN 8 / MRS	200 21	3600 32	86400

# MNAF Hammer Screw for skirting board fixing



## Features

- Coloured nails are resistant to chipping when hammered
- Detachable pozi-drive-nailhead
- The long expansion zone guarantees optimum stability
- Easy and reliable installation
- The buttress thread allows adjustment or dismantling
- Plug made from high-quality polyamide PA6
- Through fixing
- Indoor applications



## Applications

skirtings, profiles

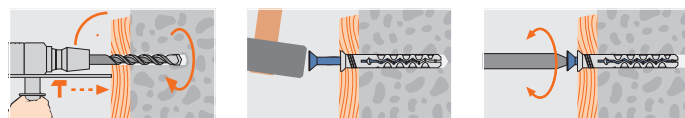


## Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Sandstone tension load (kN)
MNAF	0.25	0.2	0.15

Safety factor of 5 is included / 1 kN ≈ 100 kg

## Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
11225135	$d_{nom} = d_0$ 5	L 30	$t_{fix}$ 5	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225145	5	40	15	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225155	5	50	25	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600

### MNAF Hammer Screw for skirting board fixing, white



Article code	Plug and drill $\varnothing$ mm	Length mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
11225139	$d_{nom} = d_0$ 5	L 30	$t_{fix}$ 5	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225149	5	40	15	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225159	5	50	25	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600

### MNAF Hammer Screw for skirting board fixing, yellow

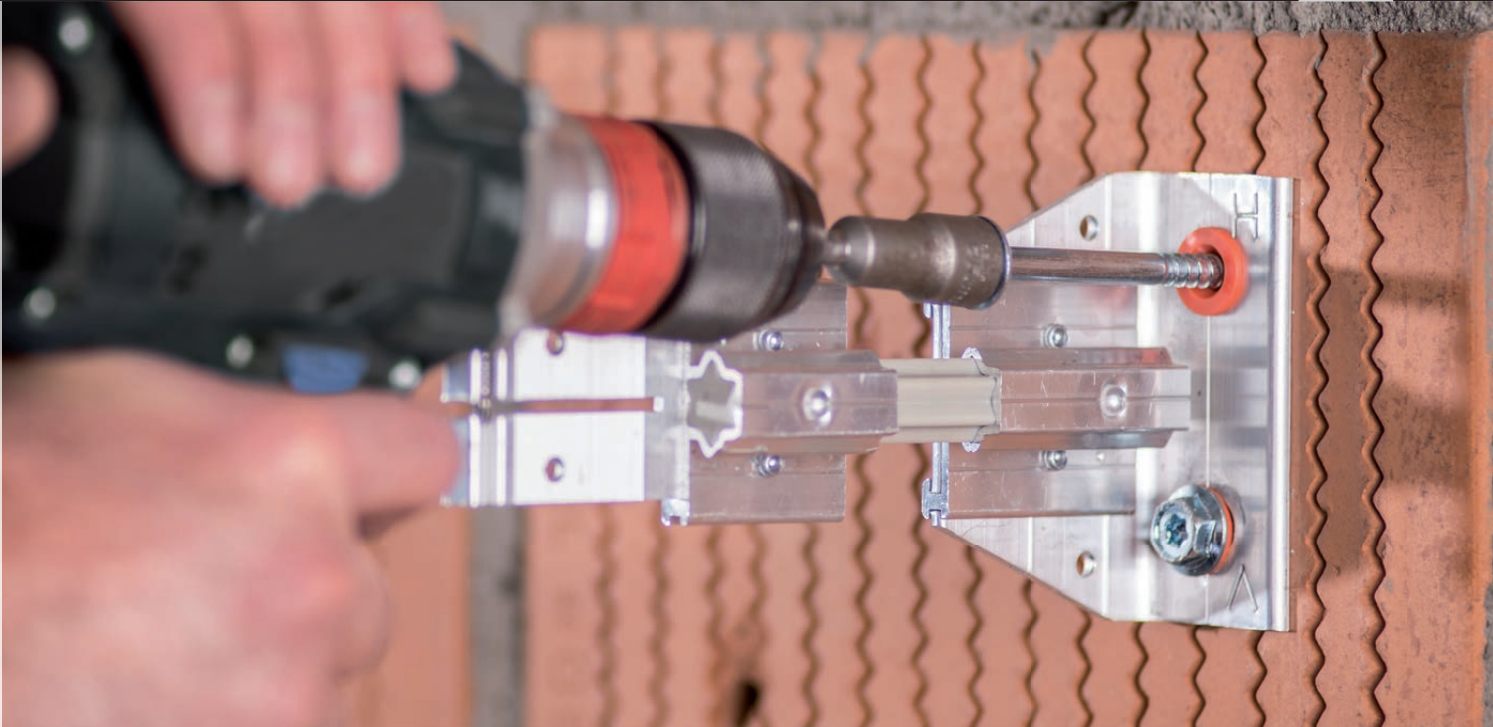


Article code	Plug and drill $\varnothing$ mm	Length mm	Usable length mm	Drive	Box content	Outer carton	Quantity per pallet
11225138	$d_{nom} = d_0$ 5	L 30	$t_{fix}$ 5	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225148	5	40	15	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600
11225158	5	50	25	PZ2	100 <sup>ES</sup> 11	2400 <sup>SK</sup> 32	57600

### MNAF Hammer Screw for skirting board fixing, dark brown



# MQL Universal Nylon Frame Plug



### Features

- ETAG 020 - Approved for multiple use in concrete and masonry for non-structural applications
- Fire resistance test certification F90 for fastening of façade systems
- Quattro® Technology
- Increased load capacity due to 4 expansion zones
- Universal use
- Setting depth of 70mm results in higher loadings
- Knot forming leads to high resistance in cavities
- Longer plugs with reinforced shank
- 3-times rotation resistance stops the plug rotating in the drill hole (especially in softer materials)
- Knock-in protection prevents premature expansion while installing
- Oversize plugs moulded in one-piece up to the overall length of 300mm
- Made from high-quality polyamide PA6
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications

### Applications

façade and roof substructures, ventilated façades, fixing for insulation, substructures, profiles

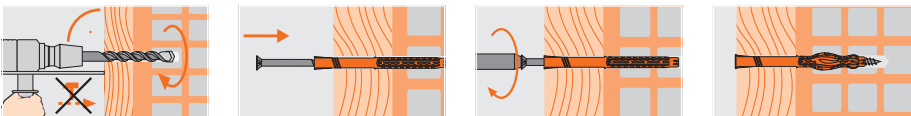


### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Sandstone tension load (kN)	Perforated Brick tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Aerated Concrete tension load (kN)	Bending moment (Nm) galv. steel	Bending moment (Nm) stainl. steel
MQL 8	1) 6) 1.8	-	-	-	2) 6) 0.9	-	2) 6) 0.3	2) 6) 0.4	-	-
MQL 10	1) 6) 2.0	5) 1.0	5) 0.9	5) 0.7	2) 6) 1.2	5) 0.6	2) 6) 0.4	2) 6) 0.5	5) 9.2	5) 8.6

Values only valid when using Mungo safety screws / 1 kN = 100 kg / 1) Safety factor of 3 is included / 2) Safety factor of 3.5 is included / 5) ETA / 6) Mungo lab tested

### Installation



Article code	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Usable length mm L <sub>fix</sub>	Screw ∅ mm d <sub>s</sub>	Screw length mm L <sub>s</sub>	Drive	Box content [FS]	Outer carton [SK]	Quantity per pallet
1) 1060100	8	80	10	6	85	T30	100 [51]	600 [32]	14400
1) 1060101	8	100	30	6	105	T30	100 [51]	600 [32]	14400
1) 1060102	8	120	50	6	125	T30	100 [51]	600 [32]	14400
1) 1060104	8	140	70	6	145	T30	100 [51]	600 [32]	14400
1) 1060106	8	160	90	6	165	T30	50 [51]	300 [32]	7200
1060108	10	80	10	7	85	T40	100 [51]	600 [32]	14400
1060110	10	100	30	7	105	T40	50 [51]	300 [32]	7200
1060112	10	120	50	7	125	T40	50 [51]	300 [32]	7200
1060114	10	140	70	7	145	T40	50 [51]	300 [32]	7200
1060116	10	160	90	7	165	T40	50 [51]	300 [32]	7200
1060118	10	180	110	7	185	T40	50 [51]	300 [32]	7200
1060120	10	200	130	7	205	T40	50 [51]	300 [32]	7200
1060124	10	240	170	7	245	T40	25 [51]	50 [12]	3000
1060128	10	280	210	7	285	T40	25	-	-
1060130	10	300	230	7	305	T40	25	-	-

Setting depth of 70mm  
1) Not part of the approval

Article code	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Usable length mm L <sub>fix</sub>	Screw ∅ mm d <sub>s</sub>	Screw length mm L <sub>s</sub>	Wrench size SW	Box content [FS]	Outer carton [SK]	Quantity per pallet
1060208	10	80	10	7	85	13	100 [51]	600 [32]	14400
1060210	10	100	30	7	105	13	50 [51]	300 [32]	7200
1060212	10	120	50	7	125	13	50 [51]	300 [32]	7200
1060214	10	140	70	7	145	13	50 [51]	300 [32]	7200
1060216	10	160	90	7	165	13	50 [51]	300 [32]	7200
1060218	10	180	110	7	185	13	50 [51]	300 [32]	7200
1060220	10	200	130	7	205	13	50 [51]	300 [32]	7200
1060224	10	240	170	7	245	13	25 [51]	50 [12]	3000
1060228	10	280	210	7	285	13	25	-	-
1060230	10	300	230	7	305	13	25	-	-

Stainless steel A4 on request  
Setting depth of 70mm

Article code	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Usable length mm L <sub>fix</sub>	Screw ∅ mm d <sub>s</sub>	Screw length mm L <sub>s</sub>	Wrench size SW	Box content [FS]	Outer carton [SK]	Quantity per pallet
1060308	10	80	10	7	85	13	50 [41]	450 [32]	10800
1060310	10	100	30	7	105	13	50 [51]	300 [32]	7200
1060312	10	120	50	7	125	13	50 [51]	300 [32]	7200

Setting depth of 70mm

Article code	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Usable length mm L <sub>fix</sub>	Screw ∅ mm d <sub>s</sub>	Screw length mm L <sub>s</sub>	Drive	Box content [FS]	Outer carton [SK]	Quantity per pallet
1) 1070100	8	80	10	6	85	T30	100 [51]	600 [32]	14400
1) 1070101	8	100	30	6	105	T30	100 [51]	600 [32]	14400
1) 1070102	8	120	50	6	125	T30	100 [51]	600 [32]	14400
1) 1070104	8	140	70	6	145	T30	100 [51]	600 [32]	14400
1) 1070106	8	160	90	6	165	T30	50 [51]	300 [32]	7200
1070108	10	80	10	7	85	T40	100 [51]	600 [32]	14400
1070110	10	100	30	7	105	T40	50 [51]	300 [32]	7200
1070112	10	120	50	7	125	T40	50 [51]	300 [32]	7200
1070114	10	140	70	7	145	T40	50 [51]	300 [32]	7200
1070116	10	160	90	7	165	T40	50 [51]	300 [32]	7200
1070118	10	180	110	7	185	T40	50 [51]	300 [32]	7200
1070120	10	200	130	7	205	T40	50 [51]	300 [32]	7200
1070124	10	240	170	7	245	T40	25 [51]	50 [12]	3000
1070128	10	280	210	7	285	T40	25	-	-
1070130	10	300	230	7	305	T40	25	-	-

Setting depth of 70mm  
1) Not part of the approval

Article code	Plug and drill ∅ mm d <sub>nom</sub> = d <sub>0</sub>	Length mm L	Usable length mm L <sub>fix</sub>	Screw ∅ mm d <sub>s</sub>	Screw length mm L <sub>s</sub>	Wrench size SW	Box content [FS]	Outer carton [SK]	Quantity per pallet
1070308	10	80	10	7	85	13	50 [41]	450 [32]	10800
1070310	10	100	30	7	105	13	50 [51]	300 [32]	7200

Setting depth of 70mm

**MQL-ST** Universal Nylon Frame Plug with screw T30/T40



**MQL-SS** Universal Nylon Frame Plug with hexagon screw



**MQLK-STB** Universal Nylon Frame Plug with collar and hexagon screw, T40, collar



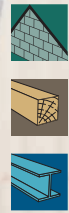
**MQL-STr** Universal Nylon Frame Plug with screw T30/T40, stainless steel A4/316



**MQLK-STBr** Universal Nylon Frame Plug with collar and hexagon screw, T40, collar, stainless steel A4/316



# MB Nylon Frame Plug for softer materials



### Features

- ETAG 020 - Approved for multiple use in concrete and masonry for non-structural applications
- Fire resistance test certification F90 for fastening of façade systems
- Approved and suitable for applications in perforated brick, masonry and aerated concrete
- Aerated Concrete: Drill-Ø 9mm, setting depth 90mm
- MB with extended expansion zone for optimum applications in low density materials and hollow brick
- Knock-in protection prevents premature expansion while installing
- Wings stop the plug rotating in the drill hole
- Oversize plugs moulded in one-piece up to the overall length of 300mm
- Plug made from high-quality polyamide PA6
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications

### Applications

façade fixings, profiles, substructures, frames

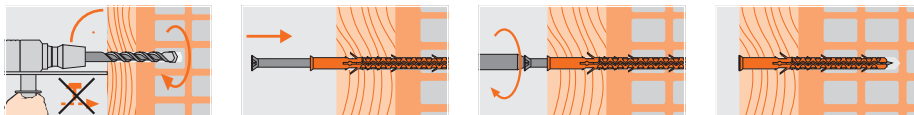


### Technical Data

	Perforated Brick app. load (kN)	Lightweight Concrete app. load (kN)	Aerated Concrete app. load (kN)	Bending moment (Nm) galv. steel	Bending moment (Nm) stainl. steel
MB 8	1) 0.3	1) 0.4	1) 0.3	1) 3.4	1) 3.2
MB 10	0.3	0.5	1) 0.3	1) 11.1	1) 10.4

Important: Recommended loads / The approved loads and detailed specifications of stones can be found in the approval ETA-15/0068 / Approved loads: Tension, shear and combined loads / without hammer drilling in perforated brick and lightweight concrete / 1 kN ≈ 100 kg / Safety factor of 2.5 is included / Values only valid when using Mungo safety screws / 1) Mungo lab tested

### Installation



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1122100	8	80	10	6	85	T30	100	600	14400
1) 1122101	8	100	30	6	105	T30	100	600	14400
1) 1122102	8	120	50	6	125	T30	100	600	14400
1) 1122104	8	140	70	6	145	T30	100	600	14400
1122108	10	80	10	7	85	T40	100	600	14400
1122110	10	100	30	7	105	T40	50	300	7200
1122112	10	120	50	7	125	T40	50	300	7200
1122114	10	140	70	7	145	T40	50	300	7200
1122116	10	160	90	7	165	T40	50	300	7200
1122120	10	200	130	7	205	T40	50	300	7200
1122124	10	240	170	7	245	T40	25	50	3000
1122128	10	280	210	7	285	T40	25	-	-
1122130	10	300	230	7	305	T40	25	-	-

1) Not part of the approval

**MB-ST** Nylon Frame Plug with screw T30/T40



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1121908	10	80	10	7	85	13	100	600	14400
1121910	10	100	30	7	105	13	50	300	7200
1121912	10	120	50	7	125	13	50	300	7200
1121914	10	140	70	7	145	13	50	300	7200
1121916	10	160	90	7	165	13	50	300	7200
1121920	10	200	130	7	205	13	50	300	7200
1121924	10	240	170	7	245	13	25	50	3000
1121928	10	280	210	7	285	13	25	-	-
1121930	10	300	230	7	305	13	25	-	-

**MB-SS** Nylon Frame Plug with hexagon screw



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1122300	8	80	10	6	85	PZ3	100	600	14400
1) 1122301	8	100	30	6	105	PZ3	100	600	14400
1) 1122302	8	120	50	6	125	PZ3	100	600	14400
1) 1122304	8	140	70	6	145	PZ3	100	600	14400
1122308	10	80	10	7	85	PZ3	100	600	14400
1122310	10	100	30	7	105	PZ3	50	300	7200
1122312	10	120	50	7	125	PZ3	50	300	7200
1122314	10	140	70	7	145	PZ3	50	300	7200
1122316	10	160	90	7	165	PZ3	50	300	7200
1122320	10	200	130	7	205	PZ3	50	300	7200

1) Not part of the approval

**MB-S** Nylon Frame Plug with screw Pozi 3



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1120608	10	80	10	7	85	13	50	450	10800
1120610	10	100	30	7	105	13	50	300	7200
1120612	10	120	50	7	125	13	50	300	7200

**MBK-STB** Nylon Frame Plug with collar and hexagon screw, T40, collar



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1136908	8	80	10	6	85	T30	100	600	14400
1) 1136910	8	100	30	6	105	T30	100	600	14400
1) 1136912	8	120	50	6	125	T30	100	600	14400
1) 1136914	8	140	70	6	145	T30	100	600	14400
1137208	10	80	10	7	85	T40	100	600	14400
1137210	10	100	30	7	105	T40	50	300	7200
1137212	10	120	50	7	125	T40	50	300	7200
1137214	10	140	70	7	145	T40	50	300	7200
1137216	10	160	90	7	165	T40	50	300	7200
1137220	10	200	130	7	205	T40	50	300	7200
1137224	10	240	170	7	245	T40	25	50	3000
1137228	10	280	210	7	285	T40	25	-	-
1137230	10	300	230	7	305	T40	25	-	-

1) Not part of the approval

**MB-STr** Nylon Frame Plug with screw T30/T40, stainless steel A4/316



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1135208	10	80	10	7	85	13	100	600	14400
1135210	10	100	30	7	105	13	50	300	7200
1135212	10	120	50	7	125	13	50	300	7200
1135214	10	140	70	7	145	13	50	300	7200
1135216	10	160	90	7	165	13	50	300	7200
1135220	10	200	130	7	205	13	50	300	7200
1135224	10	240	170	7	245	13	25	50	3000
1135228	10	280	210	7	285	13	25	-	-
1135230	10	300	230	7	305	13	25	-	-

**MB-SSr** Nylon Frame Plug with hexagon screw, stainless steel A4/316



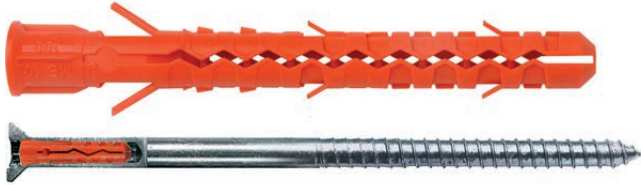
**MBK-STB** Nylon Frame Plug with collar and hexagon screw, T40, collar, stainless steel A4/316



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm		Usable length mm		Screw $\varnothing$ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
		L	$t_{fix}$	$t_{fix}$	$t_{fix}$						
1136208	10	80	10	7	85	13	50	41	450	32	10800
1136210	10	100	30	7	105	13	50	51	300	32	7200



**MB-SK** Nylon Frame Plug with head hole



**Applications**

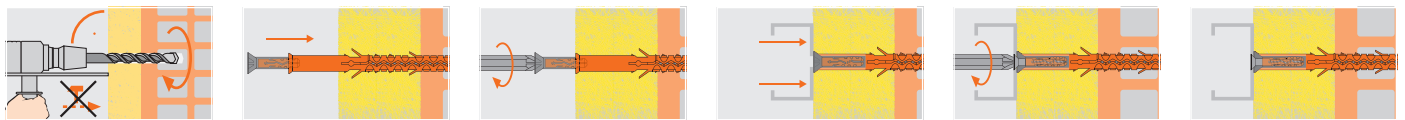
thermal insulation on façades, lamps, roller blinds, rails, wardrobes, letter boxes

**Technical Data**

	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Aerated Concrete tension load (kN)	Head hole tension load (kN) screw $\varnothing$ 4mm	Head hole shear load (kN) screw: steel quality 4.6
MB-SK 10	0.25	0.25	0.25	0.1	-
MB-SKm 10	0.25	0.25	0.25	-	1.68

without hammer drilling in perforated brick and lightweight concrete / Safety factor (ground) of 5 is included / Safety factor (head hole) of 2 is included / Shear load: without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

**Installation**



**MB-SK** Nylon Frame Plug incl. screw with head hole/MN5/T40



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm		Usable length mm $t_{fix}$	Drive	Box content FS	Outer carton SK	Quantity per pallet
		L	$t_{fix}$					
1121808	10	80	10	T40	100	600	32	14400
1121810	10	100	30	T40	50	300	32	7200
1121812	10	120	50	T40	50	300	32	7200
1121814	10	140	70	T40	50	300	32	7200
1121816	10	160	90	T40	50	300	32	7200
1121820	10	200	130	T40	50	300	32	7200
1121824	10	240	170	T40	25	50	12	3000
1121828	10	280	210	T40	25	-	-	-
1121830	10	300	230	T40	25	-	-	-



**MB-SKm** Nylon Frame Plug incl. screw with head hole/M5/T40



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm		Drive	Internal thread $d$	Internal thread length mm $L_{in}$	Box content FS	Outer carton SK	Quantity per pallet	
		L	$t_{fix}$							
1123010	10	100	30	T40	M5	18	50	300	32	7200
1123012	10	120	50	T40	M5	18	50	300	32	7200
1123014	10	140	70	T40	M5	18	50	300	32	7200
1123016	10	160	90	T40	M5	18	50	300	32	7200
1123020	10	200	130	T40	M5	18	50	300	32	7200



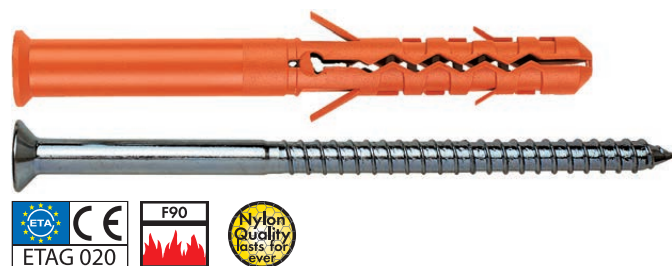


# MBR Nylon Frame Plug for solid materials



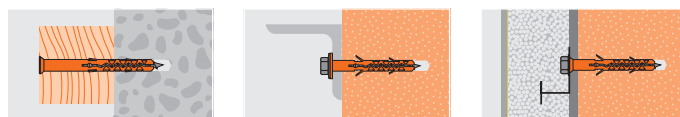
## Features

- ETAG 020 - Approved for multiple use in concrete and masonry for non-structural applications
- Fire resistance test certification F90 for fastening of façade systems
- Approved and particularly suitable for applications in solid materials
- Knock-in protection prevents premature expansion while installing
- Less drilling - faster installation
- MBR with an expansion zone of 50mm for a faster installation
- Helps to avoid cold transmission and contact corrosion between different materials
- Wings stop the plug rotating in the drill hole
- Plug made from high-quality polyamide PA6
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications



## Applications

façade fixings, profiles, substructures, frames

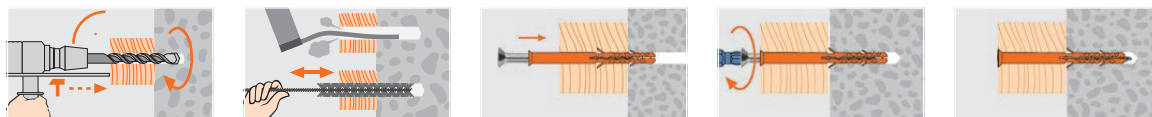


## Technical Data

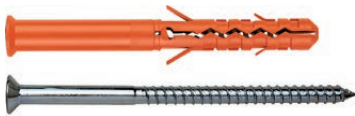
	Concrete $\geq$ C12/15 app. load (kN)	Sandstone app. load (kN)	Brick app. load (kN)	Bending moment (Nm) galv. steel	Bending moment (Nm) stainl. steel
MBR 6	1) 0.3	1) 0.25	1) 0.25	-	-
MBR 8	1) 0.5	1) 0.4	1) 0.4	1) 3.4	1) 3.2
MBR 10	1) 2) 0.8	0.6	1) 0.5	1) 9.2	1) 8.6
MBR 10x60	1) 2) 0.8	0.6	1) 0.5	1) 7.9	1) 7.4

Important: Recommended loads / The approved loads and detailed specifications of stones can be found in the approval ETA-15/0068 / Approved loads: Tension, shear and combined loads / 1 kN  $\approx$  100 kg / Safety factor of 2.5 is included / Values only valid when using Mungo safety screws / 1) Mungo lab tested / 2) Partial safety factor 1.8

## Installation



**MBR-ST** Nylon Frame Plug with screw T30/  
T40



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1122000	8	80	30	6	85	T30	100 51	600 32	14400
1) 1122001	8	100	50	6	105	T30	100 51	600 32	14400
1) 1122002	8	120	70	6	125	T30	100 51	600 32	14400
1) 1122004	8	140	90	6	145	T30	100 51	600 32	14400
1122006	10	60	10	7	65	T40	100 51	600 32	14400
1122008	10	80	30	7	85	T40	100 51	600 32	14400
1122010	10	100	50	7	105	T40	50 51	300 32	7200
1122012	10	120	70	7	125	T40	50 51	300 32	7200
1122014	10	140	90	7	145	T40	50 51	300 32	7200
1122016	10	160	110	7	165	T40	50 51	300 32	7200
1122020	10	200	150	7	205	T40	50 51	300 32	7200
1122024	10	240	190	7	245	T40	25 51	50 12	3000

1) Not part of the approval

**MBR-SS** Nylon Frame Plug with hexagon  
screw



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1121506	10	60	10	7	65	13	100 51	600 32	14400
1121508	10	80	30	7	85	13	100 51	600 32	14400
1121510	10	100	50	7	105	13	50 51	300 32	7200
1121512	10	120	70	7	125	13	50 51	300 32	7200
1121514	10	140	90	7	145	13	50 51	300 32	7200
1121516	10	160	110	7	165	13	50 51	300 32	7200
1121520	10	200	150	7	205	13	50 51	300 32	7200
1121524	10	240	190	7	245	13	25 51	50 12	3000

**MBR-S** Nylon Frame Plug with screw Pozi



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1120906	6	55	25	4	60	PZ2	100 21	1800 32	43200
1) 1120907	8	60	10	6	65	PZ3	100 31	1200 32	28800
1) 1120908	8	80	30	6	85	PZ3	100 51	600 32	14400
1) 1120910	8	100	50	6	105	PZ3	100 51	600 32	14400
1) 1120912	8	120	70	6	125	PZ3	100 51	600 32	14400
1) 1120914	8	140	90	6	145	PZ3	100 51	600 32	14400
1121006	10	60	10	7	65	PZ3	100 51	600 32	14400
1121008	10	80	30	7	85	PZ3	100 51	600 32	14400
1121010	10	100	50	7	105	PZ3	50 51	300 32	7200
1121012	10	120	70	7	125	PZ3	50 51	300 32	7200
1121014	10	140	90	7	145	PZ3	50 51	300 32	7200
1121016	10	160	110	7	165	PZ3	50 51	300 32	7200
1121018	10	200	150	7	205	PZ3	50 51	300 32	7200

1) Not part of the approval

**MBRK-STB** Nylon Frame Plug with collar and  
hexagon screw, T40, collar



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1120706	10	60	10	7	65	13	100 51	600 32	14400
1120708	10	80	30	7	85	13	50 51	300 32	7200
1120710	10	100	50	7	105	13	50 51	300 32	7200

**MBR-STr** Nylon Frame Plug with screw T30/  
T40, stainless steel A4/316



Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Drive	Box content FS	Outer carton SK	Quantity per pallet
1) 1125908	8	80	30	6	85	T30	100 51	600 32	14400
1) 1125910	8	100	50	6	105	T30	100 51	600 32	14400
1) 1125912	8	120	70	6	125	T30	100 51	600 32	14400
1) 1125914	8	140	90	6	145	T30	100 51	600 32	14400
1137106	10	60	10	7	65	T40	100 51	600 32	14400
1137108	10	80	30	7	85	T40	100 51	600 32	14400
1137110	10	100	50	7	105	T40	50 51	300 32	7200
1137112	10	120	70	7	125	T40	50 51	300 32	7200
1137114	10	140	90	7	145	T40	50 51	300 32	7200
1137116	10	160	110	7	165	T40	50 51	300 32	7200
1137120	10	200	150	7	205	T40	50 51	300 32	7200
1137124	10	240	190	7	245	T40	25 51	50 12	3000

1) Not part of the approval

**MBR-SSr** Nylon Frame Plug with hexagon  
screw, stainless steel A4/316



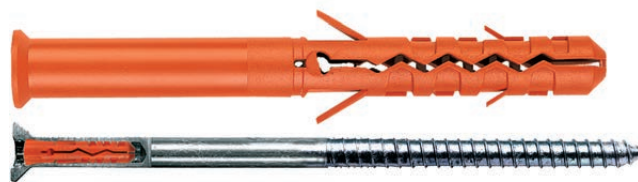
Article code	Plug and drill ∅ mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw ∅ mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content FS	Outer carton SK	Quantity per pallet
1135106	10	60	10	7	65	13	100 51	600 32	14400
1135108	10	80	30	7	85	13	100 51	600 32	14400
1135110	10	100	50	7	105	13	50 51	300 32	7200
1135112	10	120	70	7	125	13	50 51	300 32	7200
1135114	10	140	90	7	145	13	50 51	300 32	7200
1135116	10	160	110	7	165	13	50 51	300 32	7200
1135120	10	200	150	7	205	13	50 51	300 32	7200
1135124	10	240	190	7	245	13	25 51	50 12	3000

# MBR-SK Nylon Frame Plug with head hole



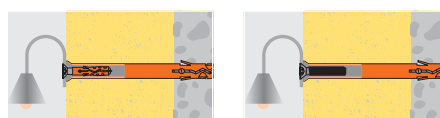
## Features

- With head hole MN5 (screwtype wood/chipboard) or M5 (screwtype metric)
- Suitable for light duty insulation applications
- Knock-in protection prevents premature expansion while installing
- Less drilling - faster installation
- MBR with an expansion zone of 50mm for a faster installation
- Wings stop the plug rotating in the drill hole
- Universal use
- Plug made from high-quality polyamide PA6
- Through fixing



## Applications

thermal insulation on façades, lamps, roller blinds, rails, wardrobes, letter boxes

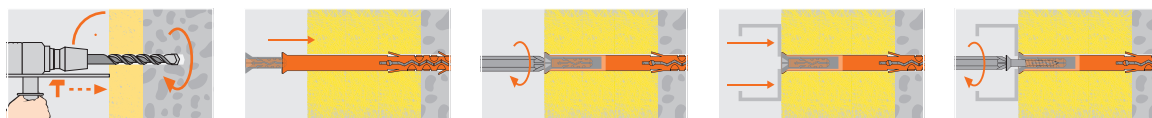


## Technical Data

	Concrete C20/25 tension load (kN)	Sandstone tension load (kN)	Brick tension load (kN)	Head hole tension load (kN) screw $\varnothing$ 4mm	Head hole shear load (kN) screw: steel quality 4.6
MBR-SK 10	0.25	0.25	0.25	0.1	-
MBR-SKm 10	0.25	0.25	0.25	-	1.68

Safety factor (ground) of 5 is included / Safety factor (head hole) of 2 is included / Shear load: without consideration of edge and anchor distances / 1 kN  $\approx$  100 kg

## Installation



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Usable length mm $t_{fix}$	Drive	Box content	Outer carton	Quantity per pallet
1121208	10	80	30	T40	100 <sup>61</sup>	600 <sup>32</sup>	14400
1121210	10	100	50	T40	50 <sup>61</sup>	300 <sup>32</sup>	7200
1121220	10	120	70	T40	50 <sup>61</sup>	300 <sup>32</sup>	7200
1121240	10	140	90	T40	50 <sup>61</sup>	300 <sup>32</sup>	7200
1121260	10	160	110	T40	50 <sup>61</sup>	300 <sup>32</sup>	7200
1121290	10	200	150	T40	50 <sup>61</sup>	300 <sup>32</sup>	7200
1121294	10	240	190	T40	25 <sup>61</sup>	50 <sup>12</sup>	3000

**MBR-SK** Nylon Frame Plug incl. screw with head hole/MN5/T40

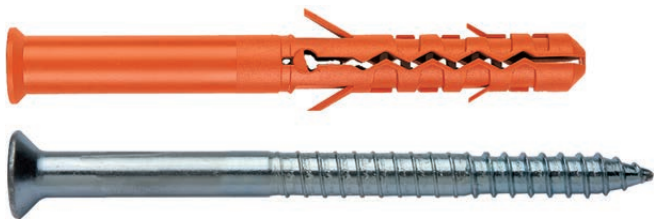


Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_d$	Length mm L	Usable length mm $t_{fix}$	Drive	Internal thread	Internal thread length mm $L_{th}$	Box content	Outer carton	Quantity per pallet
1123110	10	100	50	T40	M5	18	50 <sup>61</sup>	300 <sup>32</sup>	7200
1123112	10	120	70	T40	M5	18	50 <sup>61</sup>	300 <sup>32</sup>	7200
1123114	10	140	90	T40	M5	18	50 <sup>61</sup>	300 <sup>32</sup>	7200
1123116	10	160	110	T40	M5	18	50 <sup>61</sup>	300 <sup>32</sup>	7200
1123120	10	200	150	T40	M5	18	50 <sup>61</sup>	300 <sup>32</sup>	7200

**MBR-SKm** Nylon Frame Plug incl. screw with head hole/M5/T40



# MBR-X High Performance Frame Plug



## Features

- Particularly suitable for applications in solid materials and perforated brick
- Knock-in protection prevents premature expansion while installing
- High loads
- Less drilling - faster installation
- MBR-X with an expansion zone of 50mm for a faster installation
- Increased bending moment due to HT-screw with a larger screw diameter
- Wings stop the plug rotating in the drill hole
- Helps to avoid cold transmission and contact corrosion between different materials
- Plug made from high-quality polyamide PA6
- Through fixing
- Indoor (zinc plated) and outdoor (stainless steel) applications

## Applications

façade fixings, profiles, substructures, frames

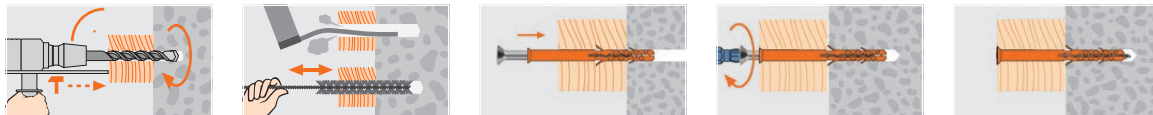


## Technical Data

	Concrete $\geq$ C12/15 tension load (kN)	Sandstone tension load (kN)	Brick tension load (kN)	Bending moment (Nm) galv. steel Fz = 0 kN	Bending moment (Nm) galv. steel Fz = 0.4 kN	Bending moment (Nm) galv. steel Fz = 0.6 kN	Bending moment (Nm) galv. steel Fz = 1.6 kN	Bending moment (Nm) stainl. steel Fz = 0 kN	Bending moment (Nm) stainl. steel Fz = 0.4 kN	Bending moment (Nm) stainl. steel Fz = 0.6 kN	Bending moment (Nm) stainl. steel Fz = 1.6 kN
MBR-X 10	1.6	0.6	0.6	12.7	12.2	12.0	11.2	11.9	11.4	11.3	10.4

Values only valid when using Mungo safety screws / Safety factor of 5 is included / 1 kN  $\approx$  100 kg / Fz = existing central traction

## Installation



Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw Ø mm $d_s$	Screw length mm $L_s$	Drive	Box content ES	Outer carton SK	Quantity per pallet
1122007	10	60	10	7.3	65	T40	100 51	600 32	14400
1122009	10	80	30	7.3	85	T40	100 51	600 32	14400
1122011	10	100	50	7.3	105	T40	50 51	300 32	7200
1122013	10	120	70	7.3	125	T40	50 51	300 32	7200
1122015	10	140	90	7.3	145	T40	50 51	300 32	7200
1122017	10	160	110	7.3	165	T40	50 51	300 32	7200
1122021	10	200	150	7.3	205	T40	50 51	300 32	7200
1122025	10	240	190	7.3	245	T40	25 51	50 12	3000

**MBR-XT** Nylon Frame Plug with screw T40



Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw Ø mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content ES	Outer carton SK	Quantity per pallet
1120806	10	60	10	7.3	65	13	100 51	600 32	14400
1120808	10	80	30	7.3	85	13	50 51	300 32	7200

**MBRK-XTB** Nylon Frame Plug with collar and hexagon screw, T40, collar



Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw Ø mm $d_s$	Screw length mm $L_s$	Drive	Box content ES	Outer carton SK	Quantity per pallet
1137107	10	60	10	7.3	65	T40	100 51	600 32	14400
1137109	10	80	30	7.3	85	T40	100 51	600 32	14400
1137111	10	100	50	7.3	105	T40	50 51	300 32	7200
1137113	10	120	70	7.3	125	T40	50 51	300 32	7200
1137115	10	140	90	7.3	145	T40	50 51	300 32	7200
1137117	10	160	110	7.3	165	T40	50 51	300 32	7200
1137121	10	200	150	7.3	205	T40	50 51	300 32	7200
1137125	10	240	190	7.3	245	T40	25 51	50 12	3000

**MBR-XT<sub>r</sub>** Nylon Frame Plug with screw T40, stainless steel A4/316

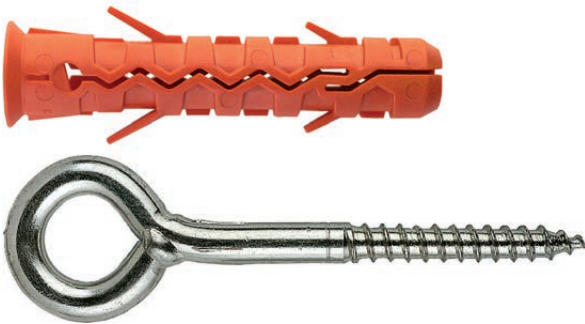
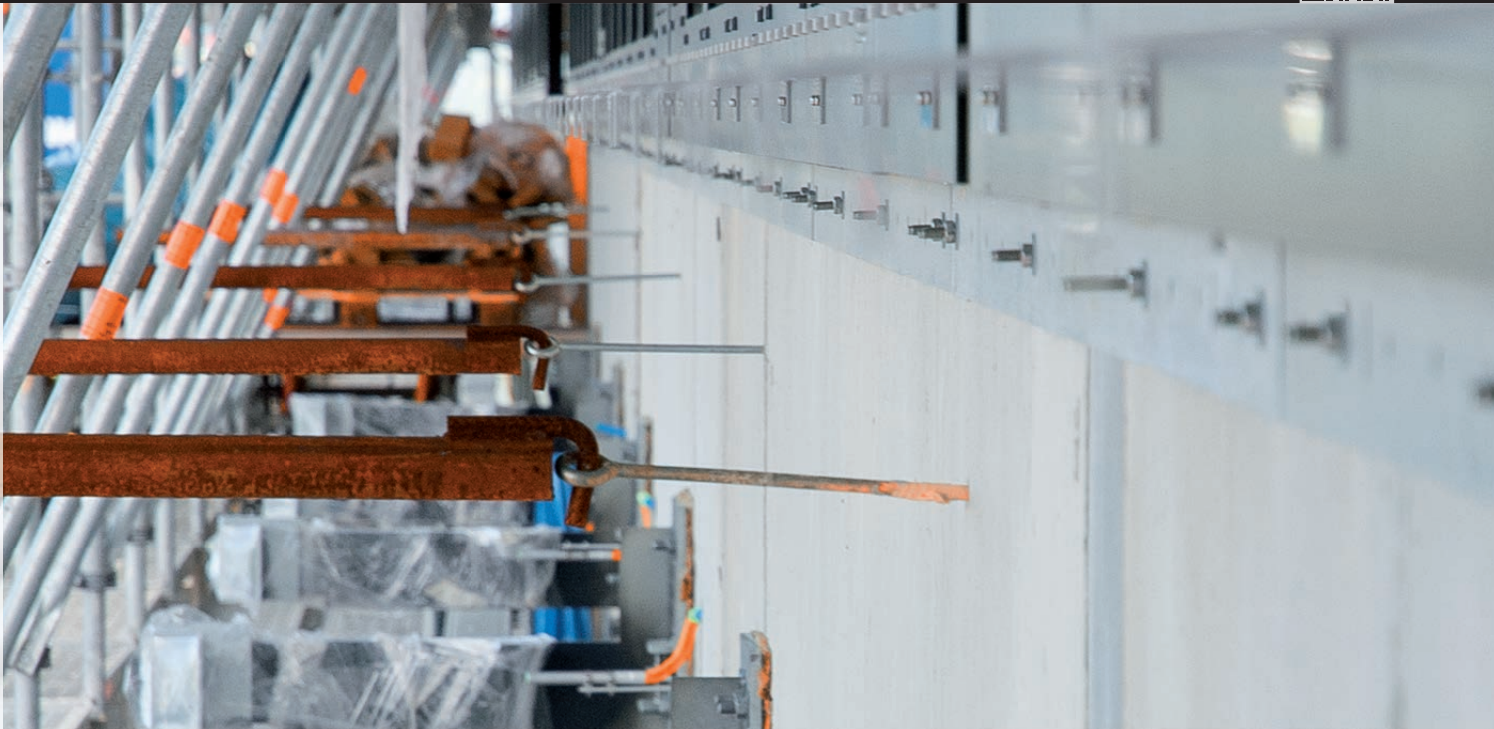


Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Usable length mm $t_{fix}$	Screw Ø mm $d_s$	Screw length mm $L_s$	Wrench size SW	Box content ES	Outer carton SK	Quantity per pallet
1131106	10	60	10	7.3	65	13	100 51	600 32	14400
1131108	10	80	30	7.3	85	13	50 51	300 32	7200

**MBRK-XTB<sub>r</sub>** Nylon Frame Plug with collar and hexagon screw, T40, collar, stainless steel A4/316



# MGD Scaffold Plug



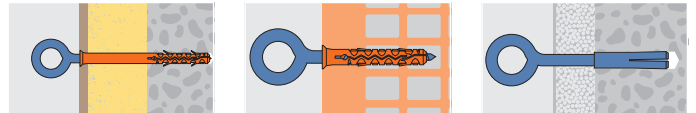
### Features

- Economical solution for light scaffolds
- Welded screw for safe fixing according to DIN 4420
- Tension force of eyelet: 26 kN (DIN EN 10002-1: 1991-04)
- Setting depth mark for correct installation
- Easy installation due to knock-in protection and plug collar
- End Cap for clean closure after dismantling
- Plug made from high-quality polyamide PA6
- Temporary outdoor applications



### Applications

façade scaffolds, climbing scaffolds, tensioning ropes



### Technical Data

	Non-cracked concrete C20/25 tension load (kN)	Brick tension load (kN)	Perforated Brick tension load (kN)
MGD	5	4.5	1.6
MGVm (with MEA)	5.3	-	-

without hammer drilling in perforated brick and lightweight concrete / Safety factor of 3 is included / 1 kN = 100 kg

### Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Fit to MGV Scaffold Screw in mm	Box content	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$L_1$	$f_{FS}$	$s_{SK}$	
1131407	14	70	90-550	50 $f_{41}$	450 $s_{32}$	27000
1131410	14	100	120-550	50 $f_{41}$	300 $s_{32}$	18000
1131414	14	140	160-550	25 $f_{41}$	150 $s_{32}$	9000

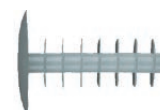
**MGD Scaffold Plug**

Article code	Shank $\varnothing$ mm	Length mm	Usable length mm	Hole $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_1$	$L_1$	$f_{fix}$	$d_w$	$f_{FS}$	$s_{SK}$	
1131209	12	90	15	25	25 $f_{41}$	75 $s_{12}$	4500
1131212	12	120	45	25	25 $f_{41}$	75 $s_{12}$	4500
1131216	12	160	85	25	25 $f_{41}$	75 $s_{22}$	4500
1131219	12	190	115	25	20 $f_{41}$	60 $s_{22}$	3600
1131223	12	230	155	25	10 $f_{41}$	20 $s_{12}$	1200
1131227	12	270	195	25	10	-	-
1131230	12	300	225	25	10	-	-
1131235	12	350	275	25	10	-	-
1131240	12	400	325	25	10	-	-
1131245	12	450	375	25	10	-	-
1131250	12	500	425	25	10	-	-
1131255	12	550	475	25	10	-	-

**MGV Scaffold Screw**

Further dimensions on request

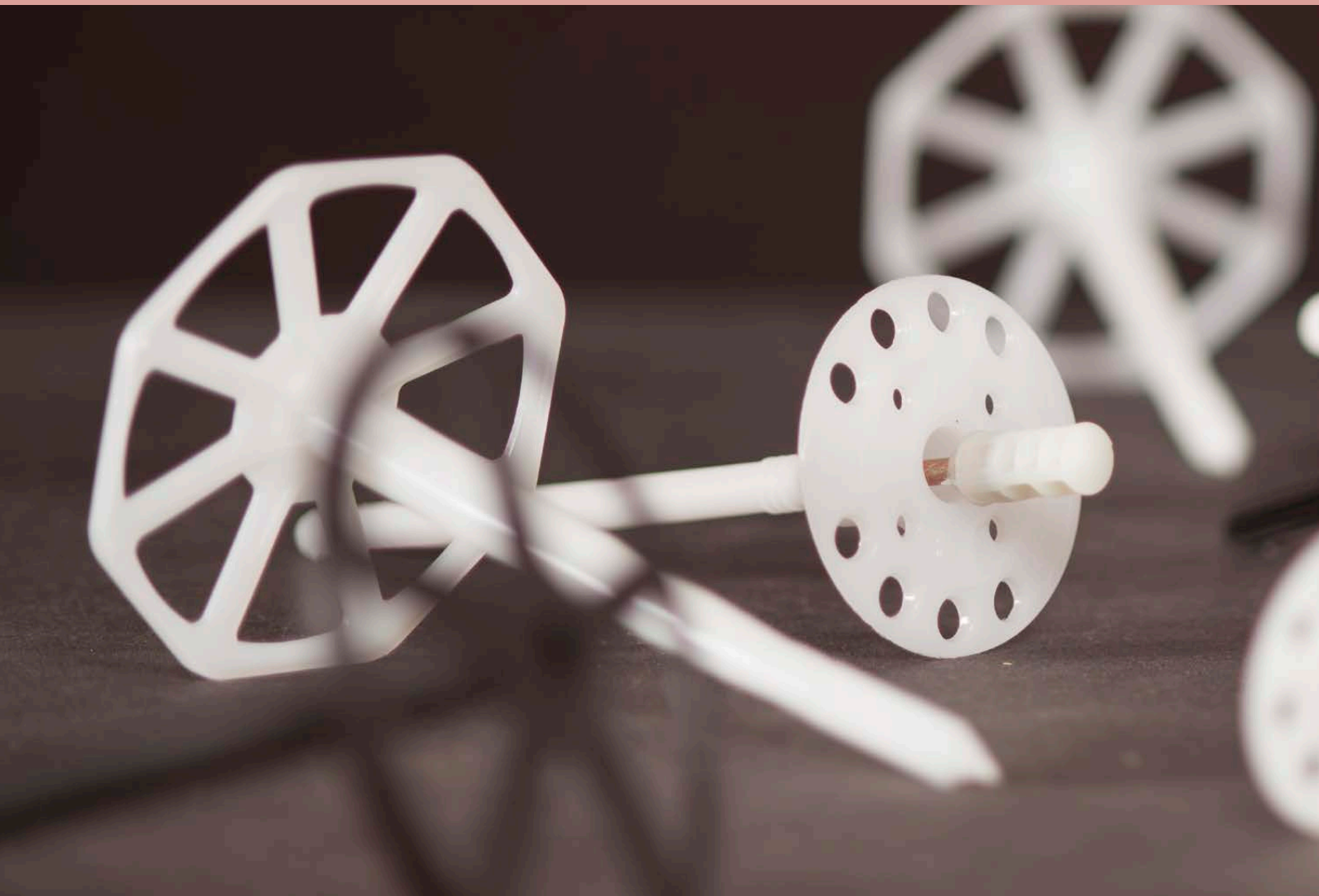
Article code	Inner plug $\varnothing$ of the installed plug mm	Length mm	Box content	Outer carton	Quantity per pallet
		L	$f_{FS}$	$s_{SK}$	
1121090	10-12	40	100 $f_{41}$	900 $s_{32}$	54000

**MVS End Cap for Scaffold Plug**

Article code	Shank $\varnothing$ mm	Length mm	Usable length with MEA mm	Hole $\varnothing$ mm	Box content	Outer carton	Quantity per pallet
	$d_1$	$L_1$	$f_{fix}$	$d_w$	$f_{FS}$	$s_{SK}$	
1131508	12	80	65	23	25 $s_{31}$	150 $s_{22}$	3600
1131510	12	100	85	23	25 $f_{41}$	75 $s_{12}$	1800
1131512	12	120	105	23	25 $f_{41}$	75 $s_{12}$	1800
1131522	12	220	205	23	10 $f_{41}$	20 $s_{12}$	1200






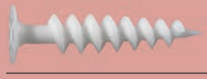

**MGVm Scaffold Screw with metric thread, steel quality 5.8**

In connection with Drop in Anchor MEA M12, corresponding DIN 4420



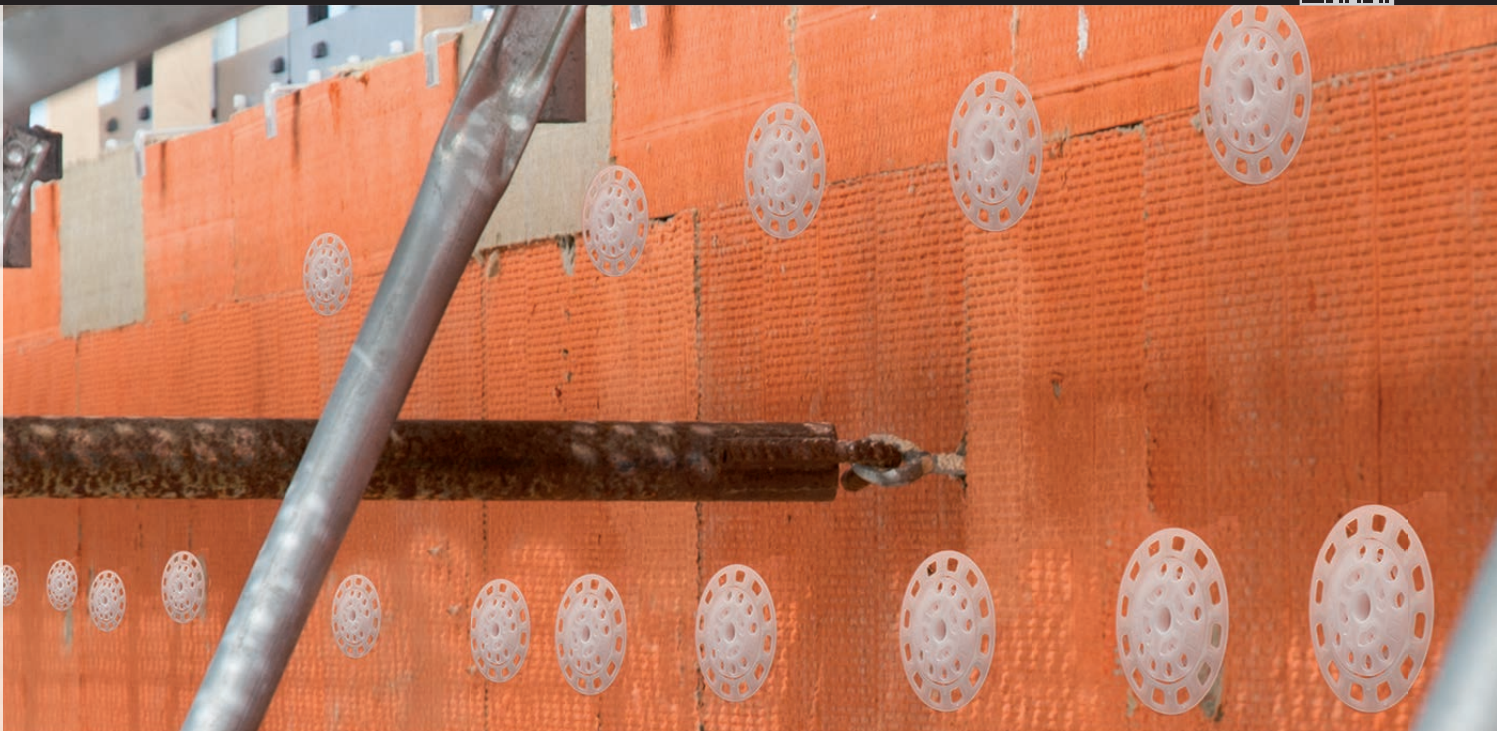


# Insulation Fixings

<b>MDD-S</b>	130	<b>MIP</b>	136
			
<b>MDD-CE</b>	132	<b>MIDS</b>	137
			
<b>MDS</b>	133	<b>MDI</b>	139
			
<b>MIS</b>	134		
			



# MDD-S Insulation Fixing, steel nail

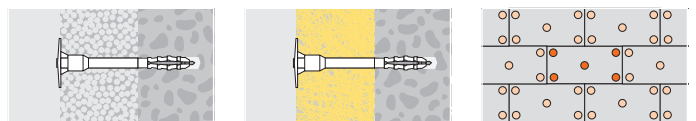


### Features

- European Technical Approval according to ETAG 014 - A, B, C
- Examined according to ÖNORM B6124 and fulfills all requirements for the use in categories A, C
- For the fixings of ETICS
- Fixing system consisting of expansion plug with retaining disc (Ø 60mm) and expansion nail with special head
- In combination with MDD-VZ discs for soft insulating material
- Special head type prevents unnecessary leakage of heat and offers additional corrosion protection
- The special disc profile allows optimum adhesion of plaster
- Suitable for insulation thicknesses up to 270 mm
- Short setting depth
- Shock resistant material
- For overhead applications please consult your local Mungo application engineer
- Through fixing

### Applications

pressure-resistant insulating materials, soft insulating materials, thermal insulation composite systems with rendering



### Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Sandstone tension load (kN)	Vertically perforated brick (Hz 12) tension load (kN)	Drilling depth mm $h_b$	Setting depth mm $h_{dom}$	Effective anchorage depth mm $h_{ef}$
MDD-S (L < 195mm)	0.43	0.43	0.43	0.21	35	25	25
MDD-S (L ≥ 195mm)	0.32	0.32	0.32	0.21	35	25	25

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / 1 kN ≈ 100 kg

### Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Insulation thickness mm	Tolerance mm	Head $\varnothing$ mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{tol}$	$d_h$		
1190809	8	95	60-70	10	60	200	9600
1190811	8	115	80-90	10	60	200	6400
1190813	8	135	100-110	10	60	200	6400
1190815	8	155	120-130	10	60	200	4800
1190817	8	175	140-150	10	60	200	4800
1190819	8	195	160-170	10	60	200	4800
1190821	8	215	180-190	10	60	100	3200
1190824	8	235	200-210	10	60	100	3200
1190826	8	255	220-230	10	60	100	3200
1190828	8	275	240-250	10	60	100	3200
1190830	8	295	260-270	10	60	100	3200

**MDD-S** Insulation Fixing, steel nail,  $\varnothing$  60mm



Article code	Outside $\varnothing$ mm	Box content
	$d_{nom}$	
1180701	90	200

**MDD-VZ** Disc for MDD-S, MDD-CE



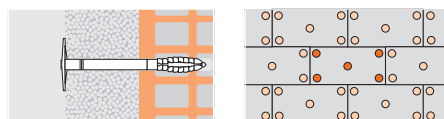
# MDD-CE Insulation Fixing, plastic nail



### Features

- European Technical Approval according to ETAG 014 - A, B, C, D, E
- For the fixings of ETICS
- Fixing system consisting of expansion plug with retaining disc (Ø 60mm) and expansion nail with special head
- In combination with MDD-VZ discs for soft insulating material
- Shock resistant material
- With glass-fibre reinforced plastic pin
- Stable against influences of the weather
- Resistant to cold and heat
- For overhead applications please consult your local Mungo application engineer
- Through fixing

**Applications**  
pressure-resistant insulating materials, polyurethane rigid foam panels, polystyrenes, mineral wools

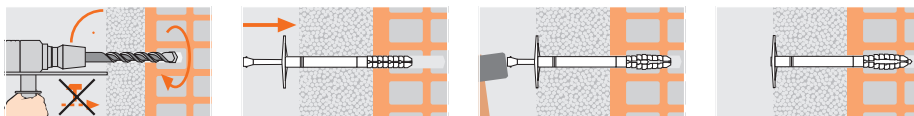


### Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Sandstone tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Aerated Concrete tension load (kN)	Drilling depth mm	Drilling depth mm	Drilling depth mm	Setting depth mm	Setting depth mm	Setting depth mm	Effective anchorage depth mm	Effective anchorage depth mm	Effective anchorage depth mm
							$h_0$ A, B, C	$h_0$ D	$h_0$ E	$h_{nom}$ A, B, C	$h_{nom}$ D	$h_{nom}$ E	$h_{ef}$ A, B, C	$h_{ef}$ D	$h_{ef}$ E
MDD-CE	0.18	0.18	0.14	0.14	0.18	0.04	35	50	70	25	40	60	25	40	60

The partial safety factors of the resistances as well as a partial safety factor of the load of  $\gamma_F = 1.4$  are considered / 1 kN  $\approx$  100 kg

### Installation



### MDD-CE Insulation Fixing, plastic nail,

Ø 60mm



Article code	Plug and drill Ø mm $d_{nom} = d_0$	Length mm L	Insulation thickness mm $t_{fix}$ A, B, C	Insulation thickness mm $t_{fix}$ D	Insulation thickness mm $t_{fix}$ E	Tolerance mm $t_{tol}$	Head Ø mm $d_k$	Outer carton	Quantity per pallet
1191009	10	90	55-65	40-50	20-30	10	60	250	12000
1191012	10	120	85-95	70-80	50-60	10	60	250	8000
1191014	10	140	105-115	90-100	70-80	10	60	250	6000
1191016	10	160	125-135	110-120	90-100	10	60	250	6000
1191018	10	180	145-155	130-140	110-120	10	60	250	4500
1191020	10	200	165-175	150-160	130-140	10	60	250	4500
1191022	10	220	185-195	170-180	150-160	10	60	250	4500

### MDD-VZ Disc for MDD-S, MDD-CE



Article code	Outside Ø mm $d_{nom}$	Box content
1180701	90	200



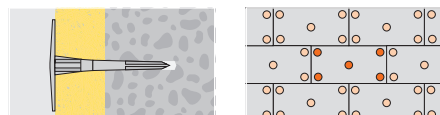
### Features

- Reduced installation time, without screws and nails
- Low reduction of insulation level
- Shock resistant material
- For overhead applications please consult your local Mungo application engineer
- Through fixing



### Applications

soft insulating materials, glass wools, wood-wool building slabs, mineral wools, ventilated façades

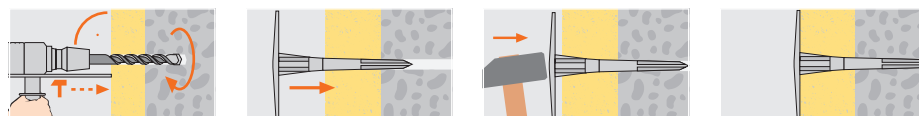


### Technical Data

MDS	Concrete C20/25 tension load (kN)	Perforated Brick tension load (kN)	Sandstone tension load (kN)	Drilling depth mm $h_0$	Setting depth mm $h_{nom}$	Effective anchorage depth mm $h_{ef}$
MDS	0.15	0.13	0.12	25	20	20

Safety factor of 3 is included / 1 kN ≈ 100 kg

### Installation



Article code	Plug and drill $\varnothing$ mm $d_{nom} = d_0$	Length mm L	Insulation thickness mm $t_{ins}$	Head $\varnothing$ mm $d_h$	Outer carton SQ	Quantity per pallet
1180211	8	60	40	90	250	7500
1180212	8	80	60	90	250	7500
1180213	8	100	80	90	200	6000
1180214	8	120	100	90	200	6000
1180215	8	140	120	90	150	4500
1180216	8	160	140	90	150	4500

### MDS Insulation Fixing, $\varnothing$ 90mm

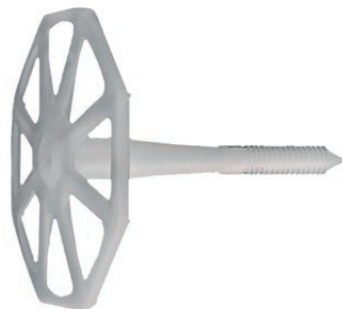


# MIS Insulation Fixing for lightweight panel



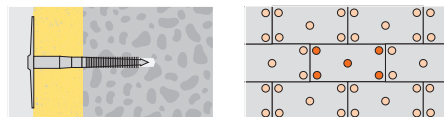
### Features

- Large star shaped plug head for soft insulation boards
- Low reduction of insulation level
- Shock resistant material
- Reduced installation time, without screws and nails
- For overhead applications please consult your local Mungo application engineer
- Through fixing



### Applications

soft insulating materials, glass wools, wood-wool building slabs, mineral wools








### Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Drilling depth concrete mm	Drilling depth perforated brick mm	Setting depth concrete mm	Setting depth perforated brick mm	Effective anchorage depth min. concrete mm	Effective anchorage depth min. perforated brick mm
	$h_0$	$h_0$	$h_{200}$	$h_{200}$	$h_0$	$h_0$	$h_{200}$	$h_{200}$	$h_{ef}$	$h_{ef}$
MIS	0.15	0.15	0.13	0.12	40	50	30	40	30	40

Safety factor of 3 is included / 1 kN ≈ 100 kg

### Installation



Article code	Plug and drill $\varnothing$ mm	Length mm	Insulation thickness concrete mm	Insulation thickness perforated brick mm	Head $\varnothing$ mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$d_h$		
1150001	8	75	45	35	88	250 	7500
1150002	8	95	65	55	88	250 	7500
1150003	8	115	85	75	88	250 	7500
1150004	8	135	105	95	88	200 	6000
1150005	8	155	125	115	88	200 	6000

**MIS** Insulation Fixing for lightweight panel,  $\varnothing$  88mm



Article code	Plug and drill $\varnothing$ mm	Length mm	Insulation thickness concrete mm	Insulation thickness perforated brick mm	Head $\varnothing$ mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$d_h$		
1150018	8	180	150	140	60	100	6000
1150020	8	200	170	160	60	100	6000
1150022	8	220	190	180	60	100	6000
1150024	8	240	210	200	60	100	6000

**MIS** Insulation Fixing for lightweight panel in black,  $\varnothing$  60mm



Article code	Plug and drill $\varnothing$ mm	Length mm	Insulation thickness concrete mm	Insulation thickness perforated brick mm	Head $\varnothing$ mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$d_h$		
1150101	8	75	45	35	88	700	8400
1150102	8	95	65	55	88	650	7800
1150103	8	115	85	75	88	600	7200
1150104	8	135	105	95	88	550	6600
1150105	8	155	125	115	88	500	6000

**MIS-GP** Insulation Fixing for lightweight panel,  $\varnothing$  88mm, in industrial carton



# MIP Insulation Fixing for mineral wool

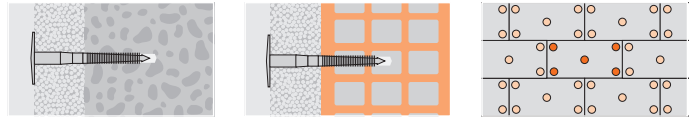


### Features

- Provides optimal bonding conditions for plaster
- Low reduction of insulation level
- Shock resistant material
- Reduced installation time, without screws and nails
- For overhead applications please consult your local Mungo application engineer
- Through fixing

### Applications

pressure-resistant insulating materials, polyurethane rigid foam panels, polystyrenes



### Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Drilling depth concrete mm	Drilling depth perforated brick mm	Setting depth concrete mm	Setting depth perforated brick mm	Effective anchorage depth min. concrete mm	Effective anchorage depth min. perforated brick mm
	$t_{con}$	$t_{br}$	$t_{pb}$	$t_{lc}$	$h_c$	$h_b$	$h_{con}$	$h_{pb}$	$h_{ef}$	$h_{ef}$
MIP	0.15	0.15	0.13	0.12	40	50	30	40	30	40

Safety factor of 3 is included / 1 kN ≈ 100 kg

### Installation



### MIP Insulation Fixing for mineral wool, Ø 45mm



Article code	Plug and drill Ø mm	Length mm	Insulation thickness concrete mm	Insulation thickness perforated brick mm	Head Ø mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$d_k$	$SC$	
1180001	8	70	40	30	45	250	15000
1180002	8	90	60	50	45	250	15000
1180003	8	105	75	65	45	250	15000
1180004	8	125	95	85	45	250	15000
1180005	8	155	125	115	45	250	15000

### MIP-GP Insulation Fixing for mineral wool, Ø 45mm, in industrial carton



Article code	Plug and drill Ø mm	Length mm	Insulation thickness concrete mm	Insulation thickness perforated brick mm	Head Ø mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$d_k$		
1180101	8	70	40	30	45	3000	36000
1180102	8	90	60	50	45	2500	30000
1180103	8	105	75	65	45	2000	24000
1180104	8	125	95	85	45	1600	19200
1180105	8	155	125	115	45	1300	15600



# MIDS Insulation Nail



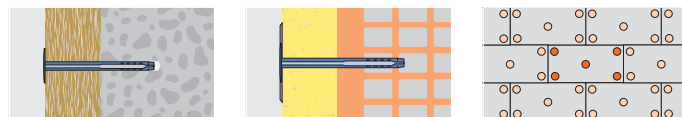
## Features

- MIDS: Fire resistance test certification F120
- Cap reduces thermal transmission
- In combination with MDB discs for soft insulating material
- Stainless steel for outdoor applications
- Suitable for overhead fixings
- Through fixing



## Applications

soft insulating materials, pressure-resistant insulating materials, mineral wools, glass wools, wood-wool building slabs



## Technical Data

	Concrete C20/25 tension load (kN)	Brick tension load (kN)	Perforated Brick tension load (kN)	Lightweight Concrete tension load (kN)	Drilling depth concrete mm	Drilling depth concrete mm (F120)	Drilling depth perforated brick mm	Setting depth concrete mm	Setting depth concrete mm (F120)	Setting depth perforated brick mm	Effective anchorage depth min. concrete mm	Effective anchorage depth min. concrete mm (F120)	Effective anchorage depth min. perforated brick mm
					$h_0$	$h_0$	$h_0$	$h_{nom}$	$h_{nom}$	$h_{nom}$	$h_{ef}$	$h_{ef}$	$h_{ef}$
MIDS 8x50	0.3	0.3	0.1	0.1	35	-	45	30	-	40	25	-	35
MIDS 8x80	0.3	0.3	0.1	0.1	35	45	45	30	40	40	25	35	35
MIDS 8x90-8x300	0.3	0.3	0.1	0.1	40	50	50	30	40	40	25	35	35
MIDSr 8x90-8x300	0.3	0.3	0.1	0.1	40	-	50	30	-	40	25	-	35
MIDS-K 8x80	0.3	0.3	0.1	0.1	35	-	45	30	-	40	25	-	35
MIDS-K 8x90-8x300	0.3	0.3	0.1	0.1	40	-	50	30	-	40	25	-	35

Safety factor of 3 is included / 1 kN ≈ 100 kg

## Installation



**MIDS** Metal Insulation Nail, Ø 30/35mm



Article code	Plug and drill Ø mm	Length mm	Insulation thickness concrete mm	Insulation thickness concrete mm (F120)	Insulation thickness perforated brick mm	Head Ø mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$t_{fix}$	$d_h$		
1) 1180508	8	50	20	-	10	35	500	18000
1180509	8	80	50	40	40	35	250	9000
1180501	8	90	60	50	50	30	250	12000
1180502	8	110	80	70	70	30	250	12000
1180503	8	140	110	100	100	35	250	9000
1180504	8	170	140	130	130	35	250	9000
1180505	8	200	170	160	160	35	250	9000
1180506	8	250	220	210	210	35	125	6000
1180507	8	300	270	260	260	35	125	6000

1) Not part of the approval

**MDB** Metal Disc for soft insulation



Article code	Disc Ø mm	Hole Ø mm	Description	Outer carton	Quantity per pallet
	$d_{nom}$	$d_h$		$SC$	
1120874	80	14.5	zinc plated	250 22	12000

**MIDSr** Metal Insulation Nail, Ø 30/35mm, stainless steel A2/304



Article code	Plug and drill Ø mm	Length mm	Insulation thickness concrete mm	Insulation thickness concrete mm (F120)	Insulation thickness perforated brick mm	Head Ø mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$t_{fix}$	$d_h$		
1180511	8	90	60	-	50	30	250	12000
1180512	8	110	80	-	70	30	250	12000
1180513	8	140	110	-	100	35	250	9000
1180514	8	170	140	-	130	35	250	9000
1180515	8	200	170	-	160	35	250	9000
1180516	8	250	220	-	210	35	125	6000
1180517	8	300	270	-	260	35	125	6000

**MDBr** Metal Disc for soft insulation, stainless steel A2/304



Article code	Disc Ø mm	Hole Ø mm	Description	Outer carton	Quantity per pallet
	$d_{nom}$	$d_h$		$SC$	
1120876	80	14.5	stainless steel A2	250 22	6000

**MIDS-K** Metal Insulation Nail with insulated head cap, Ø 54mm, can be plastered over



Article code	Plug and drill Ø mm	Length mm	Insulation thickness concrete mm	Insulation thickness concrete mm (F120)	Insulation thickness perforated brick mm	Head Ø mm	Outer carton	Quantity per pallet
	$d_{nom} = d_0$	L	$t_{fix}$	$t_{fix}$	$t_{fix}$	$d_h$		
1180528	8	80	50	-	40	54	250	6000
1180521	8	90	60	-	50	54	125	6000
1180522	8	110	80	-	70	54	125	6000
1180523	8	140	110	-	100	54	125	4500
1180524	8	170	140	-	130	54	125	4500
1180525	8	200	170	-	160	54	125	4500
1180526	8	250	220	-	210	54	80	3840
1180527	8	300	270	-	260	54	80	3840

# MDI Insulation Plug



## Features

- Fixing in ETICS, polystyrene boards and polyurethane foam panels
- Top load values
- Quick and simple installation
- No pressure load on the façade
- Usually without pre-drilling
- Low reduction of insulation level
- Made from high-quality polyamide PA6
- Pre installation
- Indoor and outdoor applications

## Applications

lamps, electric switches, letter boxes, rails, pictures, holders

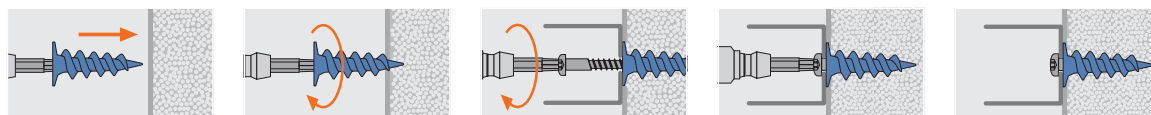


## Technical Data

		EPS 20	XPS 20	PUR	Effective anchorage depth mm		Screw in mm
		tension load (N)	tension load (N)	tension load (N)	$h_{ef}$		
MDI 50		20	30	40	50		≤ 30
MDI 85		40	40	60	85		≤ 40
MDIm 50		30	60	-	50		≤ 50
MDIm 85		80	10	-	85		≤ 50

Use certified fixings for safety-relevant fastenings / 10 N ≈ 1 kg

## Installation



Article code	Plug-∅ mm	Length mm	Screwtype wood/chipboard ∅ mm	Hanger bolt	Drive	Box content	Outer carton	Quantity per pallet
1182550	$d_{nom}$ 25	L 50	$d_s$ 4.5-5.0	-	T40	100 <sup>ES</sup> 51	300 <sup>SK</sup> 22	18000
1182585	25	85	4.5-5.0	-	T40	50 <sup>ES</sup> 51	150 <sup>SK</sup> 22	9000

## MDI Insulation Plug









Article code	Plug-∅ mm	Length mm	Screwtype wood/chipboard ∅ mm	Hanger bolt	Wrench size	Box content	Outer carton	Quantity per pallet
1183350	$d_{nom}$ 33	L 50	$d_s$ 8.0-10.0	M8-M10	12	50 <sup>ES</sup> 51	150 <sup>SK</sup> 22	9000
1183385	33	85	8.0-10.0	M8-M10	12	50 <sup>ES</sup> 51	150 <sup>SK</sup> 22	9000

## MDIm Insulation Plug for hanger bolt M8-M10





# Special Products

<b>MJP</b>	142	<b>MEF</b>	149
			
<b>MFJ</b>	144	<b>MF</b>	150
			
<b>MHD</b>	146	<b>MK</b>	151
			



# MJP Jet Plug metal

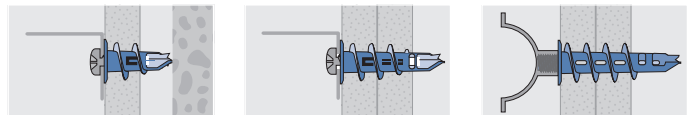


### Features

- MJP39 - For single, double drywall, plasterboard and gypsum fibre board
- MJP32 - For single, double drywall, plasterboard, gypsum fibre board and reduced cavities
- MJP25 - For single plasterboard and reduced cavities where the point breaks off
- Thin cutting thread; easy and reliable installation in drywall
- Back twist lock permits the disassembly of screws without the movement of the plug
- Center point ensures an easy setting and drilling in the plate
- Metric thread for use with pipe clips
- Pre installation
- Indoor applications

### Applications

lamps, pictures, rails, skirtings, small wall-mounted shelves

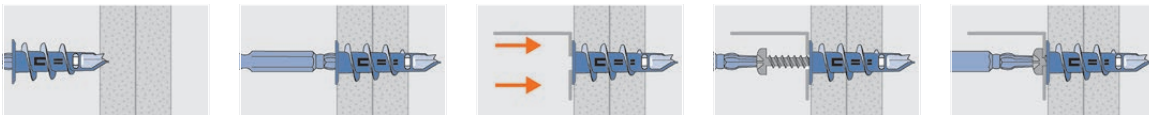


### Technical Data

	Plasterboard d = 12.5mm tension load (N)	Lightweight Concrete tension load (N)	Gypsum 6mm pre-drilling tension load (N)	Gypsum fibre board tension load (N)	Chipboard 6mm pre-drilling tension load (N)
MJP	100	100	1) 220	150	450

Safety factor of 3 is included / 10 N ≈ 1 kg / 1) Only MJP39

### Installation



Article code	Length mm	Screw	Screwtype metric $\varnothing$ mm	Description	Box content	Outer carton	Quantity per pallet
1801012	39	4.0-4.5	M4	-	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600
1801012	39	4.0-4.5	M4	bulk packed	-	2000	96000

**MJP39** Jet Plug metal 39mm



Article code	Length mm	Screw	Screwtype metric $\varnothing$ mm	Collar $\varnothing$ mm	Description	Box content	Outer carton	Quantity per pallet
1801022	32	4.0-4.5	M4	-	-	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600
1801022	32	4.0-4.5	M4	14	bulk packed	-	3000	72000

**MJP32** Jet Plug metal 32mm



Article code	Length mm	Screw	Screwtype metric $\varnothing$ mm	Description	Box content	Outer carton	Quantity per pallet
1801042	25	4.0-4.5	M4	-	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600

**MJP25** Jet Plug metal 25mm



Article code	Length mm	Screw $\varnothing$ mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
18010124	39	4.5	30	PZ2	100 <sup>FS</sup> <sub>11</sub>	1800 <sup>SK</sup> <sub>32</sub>	43200

**MJP39-S** Jet Plug metal 39mm with pan head screw Pozi 2



Article code	Length mm	Screw $\varnothing$ mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet
18010224	32	4.5	30	PZ2	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600

**MJP32-S** Jet Plug metal 32mm with pan head screw Pozi 2



Article code	Length mm	Thread	Box content	Outer carton	Quantity per pallet
1801312	39	M6	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600
1801314	39	M8	100 <sup>FS</sup> <sub>11</sub>	2400 <sup>SK</sup> <sub>32</sub>	57600

**MJPM** Jet Plug metal with metric thread



Incl. 1 Bit per box on request

Article code	For	Drive	Box content
4001201L	MJP/MFJ	PZ2	1

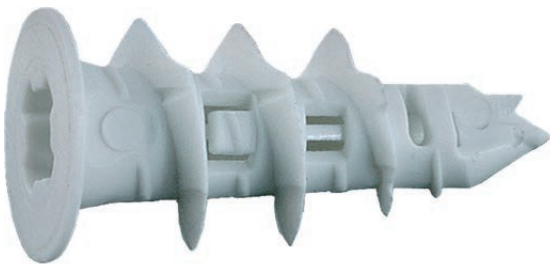
**BIT** Duo-bit for MJP/MFJ



Article code	For	Box content
4001202L	MJPM	1

**BIT** SQ-bit for MJPM



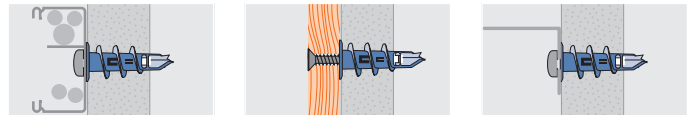


**Features**

- Glass-fibre reinforced
- Electrically insulated
- For single and double plasterboards
- For reduced cavities (Fiber Jet 32 or 25mm)
- Thin cutting thread; easy and reliable installation in drywall
- Back twist lock permits the disassembly of screws without the movement of the plug
- Center point ensures an easy setting and drilling in the plate
- Pre installation
- Indoor and outdoor applications

**Applications**

electric switches, pictures, lamps, rails

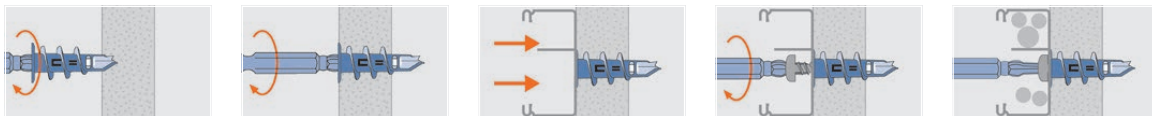


**Technical Data**




















		Plasterboard d = 12.5mm tension load (N)
MFJ		90

Safety factor of 3 is included / 10 N ≈ 1 kg

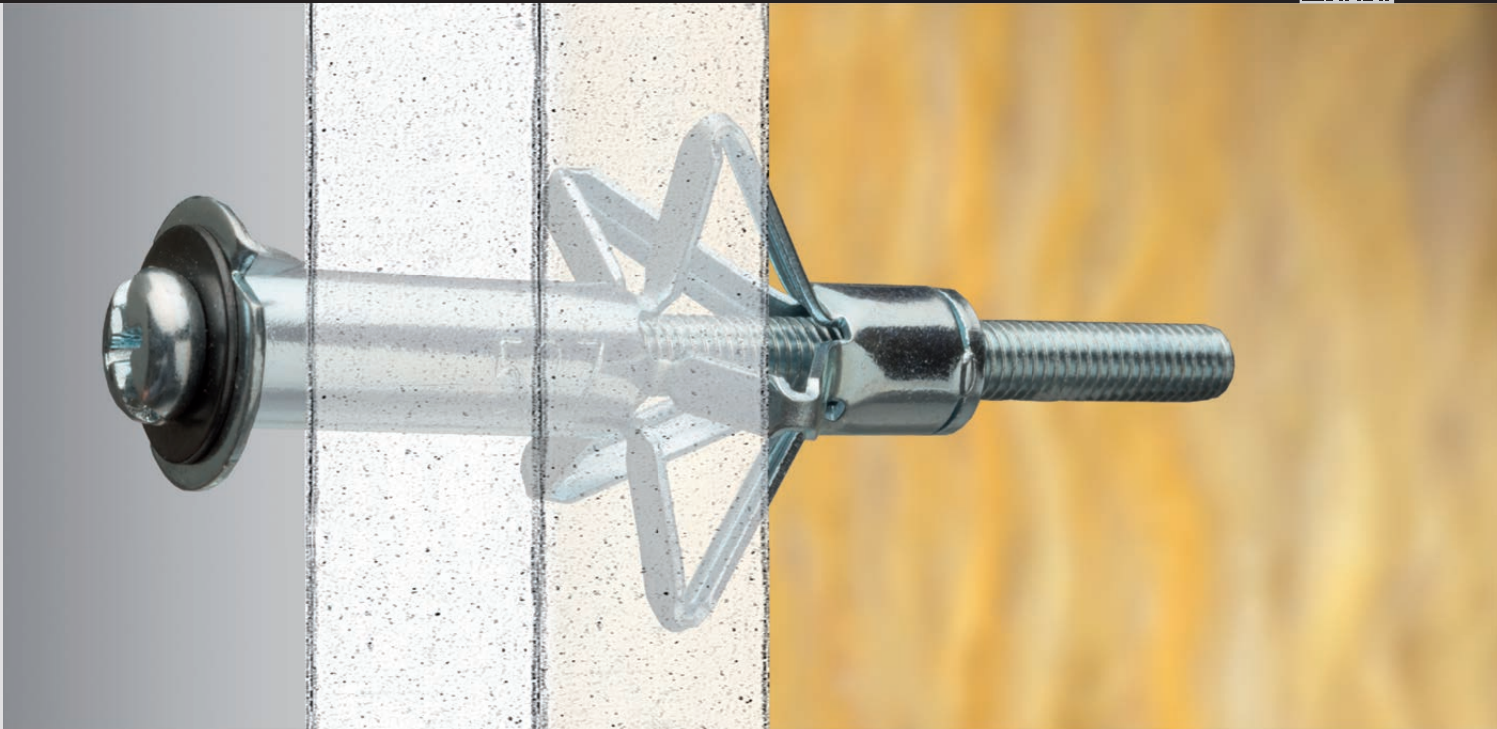
**Installation**





Article code	Length mm	Screw	Screw type metric Ø mm d <sub>s</sub>	Box content	Outer carton	Quantity per pallet		
1801112	32	4.0-4.5	M4	100  	3600 	86400	<b>MFJ32</b> Fibre Jet polyamide 32mm 	
18011127	32	4.0-4.5	M4	100  	2800	67200	<b>MFJ32</b> Fibre Jet polyamide 32mm in Maxi-Box  40 × 30 × 23.5 cm 	
Article code	Length mm	Screw Ø mm	Screw length mm	Drive	Box content	Outer carton	Quantity per pallet	
18011124	32	4.5	30	PZ2	100  	2400 	57600	<b>MFJ32-S</b> Fibre Jet polyamide 32mm with pan head screw Pozi 2   
Article code	Length mm	Screw	Screw type metric Ø mm d <sub>s</sub>	Box content	Outer carton	Quantity per pallet		
1801142	25	4.0-4.5	M4	100  	3600 	86400	<b>MFJ25</b> Fibre Jet polyamide 25mm 	
Article code	For	Drive	Box content					
4001201L	MJP/MFJ	PZ2	1	<b>BIT</b> Duo-bit for MJP/MFJ 				

# MHD Cavity Wall Anchor

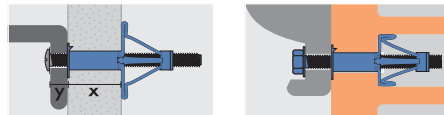


## Features

- Controlled, quick and simple installation with the setting tool
- Anchor fully assembled
- Combined screw setting recess to accept all types of screw bits
- Increased load-bearing capability and security
- Through fixing
- Indoor applications

## Applications

lamps, pictures, small wall-mounted shelves, lightweight mirror cabinets, rails

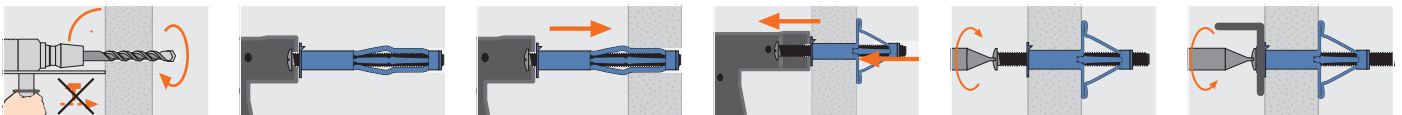


## Technical Data

	Plasterboard d = 12.5mm tension load (kN)	Chipboard d = 13mm tension load (kN)	Cement fiber board d = 12mm tension load (kN)	Vertically perforated brick (Hz 12) tension load (kN)
M4	0.15	0.20	0.35	-
M5	0.18	0.25	0.40	-
M6	0.20	0.28	0.42	0.70
M8	0.20	0.30	0.45	0.70

Safety factor of 2 is included / 1 kN ≈ 100 kg

## Installation



Article code	Type	Screw type metric Ø mm d <sub>s</sub>	Sleeve length mm h <sub>s</sub>	Drilling hole Ø mm d <sub>0</sub>	Panel thickness (x) mm d <sub>p</sub>	Max. fixture thickness (y) mm t <sub>fix</sub>	Box content FS	Outer carton SK	Quantity per pallet
1870140	4x23/4	M4	23.5	8	0-4	12	100 01	2400 22	57600
1870141	4x35/9	M4	35	8	4-9	16	100 11	1200 22	28800
1870142	4x46/20	M4	46	8	3-20	21	100 11	1200 22	28800
1870143	4x46/21	M4	46	8	15-21	16	100 11	1200 22	28800
1870144	4x60/38	M4	60	8	30-38	16	100 21	900 22	21600
1870161	5x37/13	M5	37	10	5-13	20	100 11	1200 22	28800
1870162	5x50/18	M5	50	10	5-18	26	100 21	900 22	21600
1870163	5x63/32	M5	63	10	18-32	26	100 31	600 22	14400
1870164	5x80/49	M5	80	10	35-49	22	100 41	300 12	7200
1870181	6x37/13	M6	37	12	4-13	19	100 21	900 22	21600
<sup>18)</sup> 1870182	6x50/18	M6	50	12	5-18	27	100 31	600 22	14400
1870183	6x63/32	M6	63	12	16-32	28	100 41	300 12	7200
1870184	6x80/49	M6	80	12	33-49	24	100 51	300 22	7200
1870191	8x37/12	M8	37	14	4-12	19	100 31	600 22	14400
<sup>18)</sup> 1870192	8x53/18	M8	53	14	5-18	23	100 41	300 12	7200
1870193	8x66/32	M8	66	14	18-32	24	100 51	300 22	7200

<sup>18)</sup> For use in vertically perforated brick (Hz 12)

### MHD-S Cavity Wall Anchor



M4 – M6

M8

Article code	Description	Box content
1870502	M4-M6	1

### MHD-WZ Setting tool M4-M6, with ratchet action



Article code	Description	Box content
1870503	M4-M6 strong	1

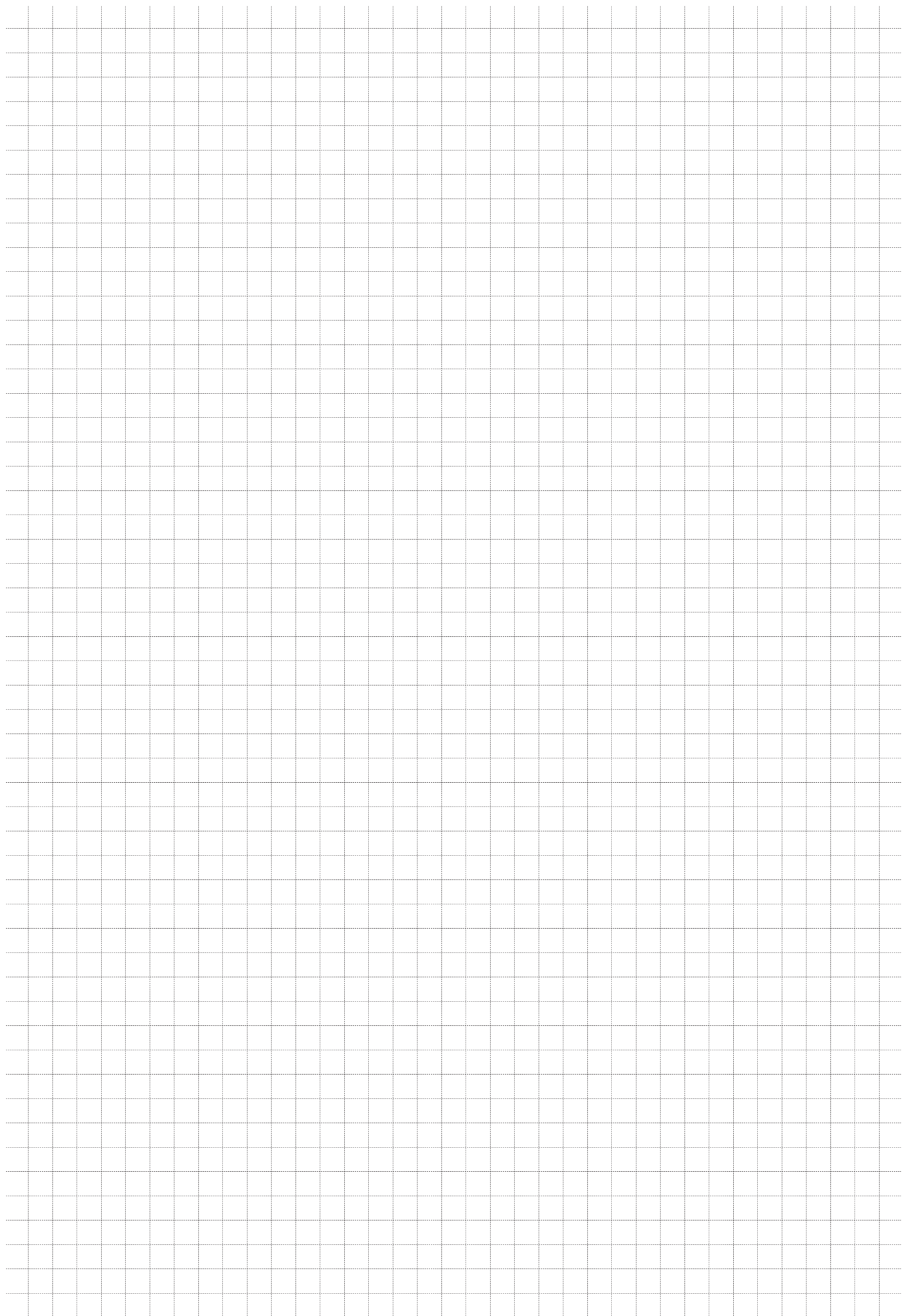
### MHD-WZ Setting tool M4-M6 strong, for use in confined areas

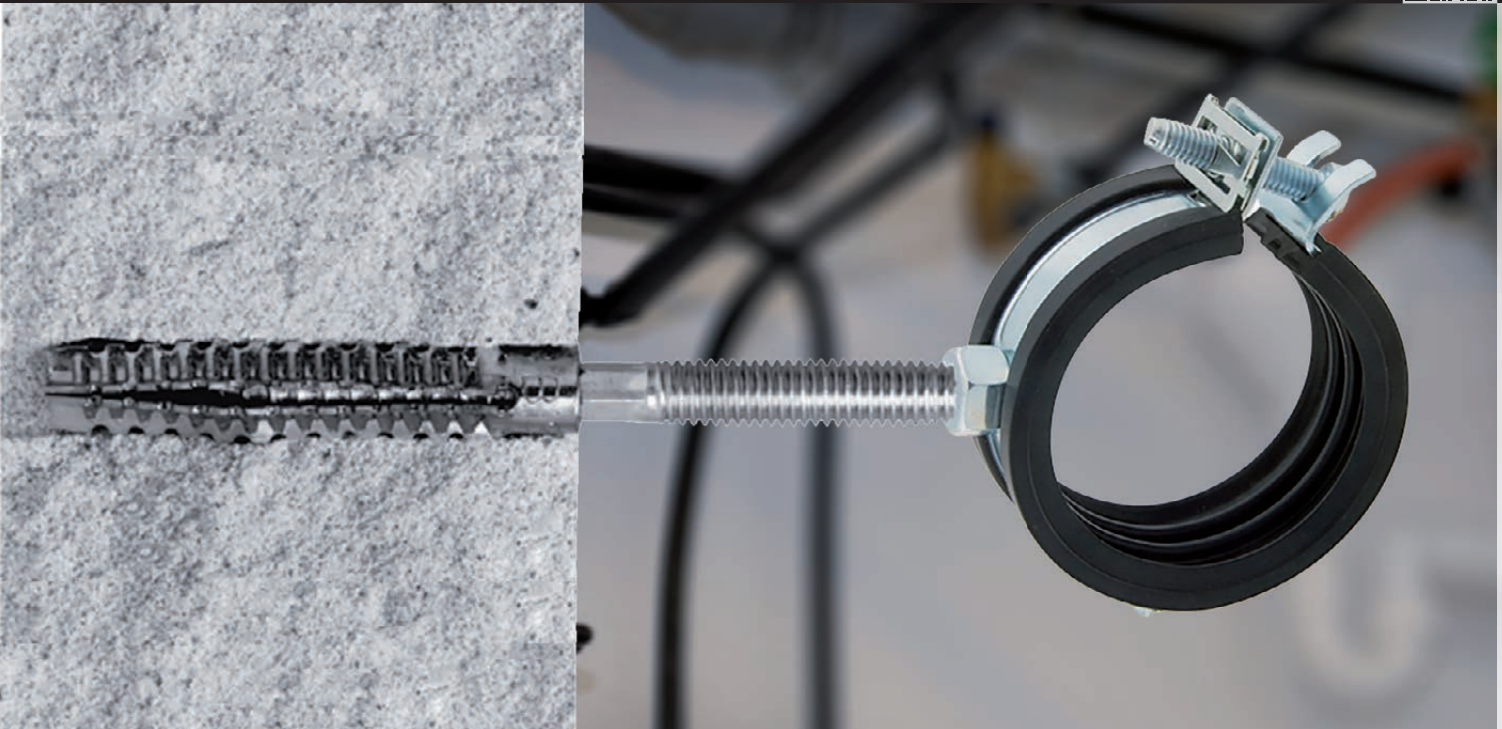


Article code	Description	Box content
1870504	M4-M8	1

### MHD-WZ Setting tool M4-M8, in-line version, especially for overhead application







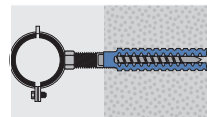
**Features**

- No pre-drilling in aerated concrete
- For use with wood, self-tapping and hexagon screws
- Pre installation
- Indoor applications



**Applications**

pipes, water conduits, gas conduits

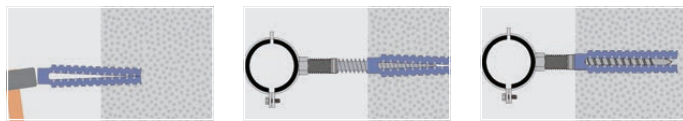


**Technical Data**

Article code	Aerated Concrete tension load (N)
MEF 6/32	220
MEF 8/38	400
MEF 8/60	470
MEF 10/60	520

Safety factor of 3 is included / 10 N ≈ 1 kg / Separate drill Ø needed to overcome the resistance in the various building materials. The harder the material, the larger the drill Ø.

**Installation**

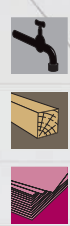


Article code	Plug-Ø mm	Length mm	Screw	Drilling hole Ø mm	Box content	Outer carton	Quantity per pallet
	$d_{nom}$	L	$d_s$	$d_o$	FS	SK	
1127074	6	32	5-6	7-9	100 01	2400 22	57600
1127075	8	38	6-8	10-12	100 11	1200 22	28800
1127076	8	60	6-8	10-12	100 31	600 22	14400
1127077	10	60	8-10	12-14	100 31	600 22	14400

**MEF Easy-Fix**



# MF Cavity Toggle



### Features

- Quick and simple installation
- With threaded rod (-M) or hook (-H)
- Small hollow wall thickness
- Through fixing
- Indoor applications

### Applications

suspended ceilings, cable trays, lightweight mirror cabinets, rails



### Technical Data

	Plasterboard d = 12.5mm tension load (N)	Chipboard d = 13mm tension load (N)	Cement fiber board d = 12mm tension load (N)	MF-H (Hook deformation) (N)
MF M3	160	300	330	25
MF M4	200	350	570	75
MF M5	210	360	600	150
MF M6	220	380	620	200
MF M10	240	410	680	250

Safety factor of 3 is included / 10 N ≈ 1 kg / Values are dependent on base materials

### Installation



Article code	Thread d	Drill $\varnothing$ mm $d_0$	Panel thickness mm $d_p$	Cavity depth min. mm $h_b$	Thread length mm $L_t$	Box content FS	Outer carton SK
1825320	M3	11	50	35	85	100 <sup>31</sup>	600 <sup>22</sup>
1825410	M4	14	50	35	90	50 <sup>31</sup>	300 <sup>22</sup>
1825510	M5	16	60	46	100	25 <sup>31</sup>	150 <sup>22</sup>
1825610	M6	16	60	46	100	25 <sup>31</sup>	150 <sup>22</sup>
1825910	M10	30	150	90	180	10 <sup>31</sup>	30 <sup>22</sup>

**MF-M** Cavity Toggle with threaded rod



Article code	Thread d	Drill $\varnothing$ mm $d_0$	Panel thickness mm $d_p$	Cavity depth min. mm $h_b$	Thread length mm $L_t$	Box content FS	Outer carton SK
1825340	M3	11	30	35	70	50 <sup>31</sup>	300 <sup>22</sup>
1825430	M4	14	30	35	70	50 <sup>31</sup>	300 <sup>22</sup>
1825530	M5	16	30	46	70	25 <sup>31</sup>	150 <sup>22</sup>
1825630	M6	16	50	46	90	25 <sup>31</sup>	150 <sup>22</sup>

**MF-H** Cavity Toggle with hook



# MK Cavity Toggle



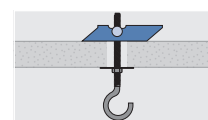
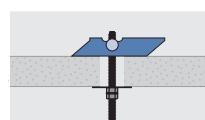
**Features**

- With threaded rod (-M) or hook (-H)
- A large contact area for soft base materials
- Through fixing
- Indoor applications



**Applications**

suspended ceilings, cable trays, lightweight mirror cabinets, rails



**Technical Data**

	Plasterboard d = 12.5mm tension load (N)	Chipboard d = 13mm tension load (N)	Cement fiber board d = 12mm tension load (N)	MK-H (Hook deformation) (N)
MK M5	230	400	650	200
MK M6	250	450	700	250
MK M8	300	500	750	350
MK M10	330	770	920	-

Safety factor of 3 is included / 10 N  $\approx$  1 kg / Values are dependent on base materials

**Installation**



Article code	Thread d	Drill $\varnothing$ mm $d_0$	Panel thickness mm $d_p$	Cavity depth min. mm $h_b$	Thread length mm $L_t$	Box content FS	Outer carton SK
1826510	M5	15	50	70	100	50 <sup>31</sup>	150 <sup>22</sup>
1826610	M6	18	60	70	100	50 <sup>31</sup>	150 <sup>22</sup>
1826810	M8	20	50	70	100	50 <sup>31</sup>	150 <sup>22</sup>
1826910	M10	30	100	100	200	10 <sup>31</sup>	30 <sup>22</sup>

**MK-M** Cavity Toggle with threaded rod



Article code	Thread d	Drill $\varnothing$ mm $d_0$	Panel thickness mm $d_p$	Cavity depth min. mm $h_b$	Thread length mm $L_t$	Box content FS	Outer carton SK
1826520	M5	15	30	70	70	50 <sup>31</sup>	150 <sup>22</sup>
1826620	M6	18	50	70	90	50 <sup>31</sup>	150 <sup>22</sup>
1826820	M8	20	25	70	90	25 <sup>31</sup>	75 <sup>22</sup>

**MK-H** Cavity Toggle with hook

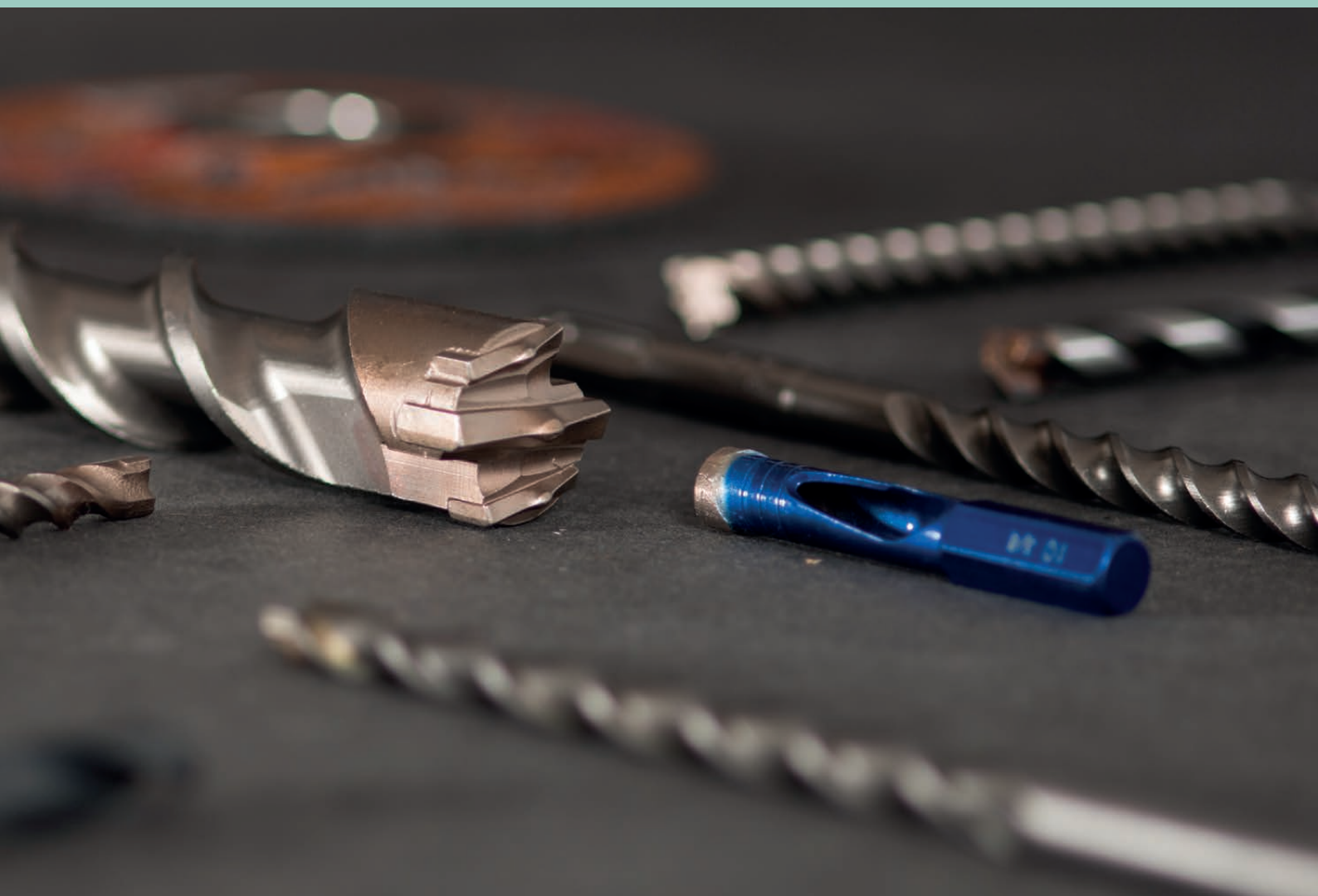






# Drill Bits, Abrasive Discs, Accessories

jet-trac triplo	154	MXM	163	MPC Pro Cut	166	MDC Viper	172
							
jet-trac turbo	156	HSS	164	MPG Pro Grind	168	MDG GC-Hard	173
							
SDS-Max	158	BIT	165	MDC Laser Beton	170	MAS	174
							
Profi	160			MDC Performer	171	MFB	175
							
MAB	161			MDC Power M	171		
							
MPM	162			MDC Cobra	172		
							



# jet-trac triplo Drill Bit, SDS-Plus, 3-cutter



### Features

- Hammer drilling
- Reliable - Long Life - Robust
- Monobloc tip with 3 cutting edges for drilling in all types of concrete
- No jamming with reinforcement hits
- Drill holes suitable for plugs and anchors throughout the life of the drill bit
- 3 simultaneous contact points provide consistently high drilling performance
- The self-centering tip gives higher drill precision
- The 135° angle carbide tip achieves clean and perfect holes without cracking the concrete
- The square flute accelerates dust extraction and improves the drill bit lifetime
- High durability even in the hardest materials

### jet-trac triplo Drill Bit, SDS-Plus, 3-cutter in Quadro-Box



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Unit content
2090505	5	110	50	12
2090510	5	160	100	12
2090605	6	110	50	12
2090610	6	160	100	12
2090615	6	210	150	12
2090652	6.5	210	150	12
2090805	8	110	50	12
2090810	8	160	100	12
2090815	8	210	150	12
2090820	8	260	200	12
2091010	10	160	100	12
2091015	10	210	150	12
2091020	10	260	200	12
2091210	12	160	100	12
2091215	12	210	150	12
2091220	12	260	200	12
2091410	14	160	100	12
2091415	14	210	150	12
2091425	14	310	250	12
2091620	16	260	200	12

**jet-trac tripro** Drill Bit, SDS-Plus, 3-cutter

Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2080505	5	110	50	1
2080510	5	160	100	1
2080605	6	110	50	1
2080610	6	160	100	1
2080615	6	210	150	1
2080620	6	260	200	1
2080625	6	310	250	1
2080655	6.5	110	50	1
2080651	6.5	160	100	1
2080652	6.5	210	150	1
2080653	6.5	260	200	1
2080654	6.5	310	250	1
2080656	6.5	460	400	1
2080710	7	160	100	1
2080715	7	210	150	1
2080805	8	110	50	1
2080810	8	160	100	1
2080815	8	210	150	1
2080820	8	260	200	1
2080825	8	310	250	1
2080840	8	460	400	1
2081005	10	110	50	1
2081010	10	160	100	1
2081015	10	210	150	1
2081020	10	260	200	1
2081025	10	310	250	1
2081040	10	460	400	1
2081055	10	610	550	1
2081210	12	160	100	1
2081215	12	210	150	1
2081220	12	260	200	1
2081225	12	310	250	1
2081240	12	460	400	1
2081255	12	610	550	1
2081410	14	160	100	1
2081415	14	210	150	1
2081420	14	260	200	1
2081425	14	310	250	1
2081440	14	460	400	1
2081455	14	610	550	1
2081510	15	160	100	1
2081515	15	210	150	1
2081525	15	310	250	1
2081610	16	160	100	1
2081615	16	210	150	1
2081620	16	260	200	1
2081625	16	310	250	1
2081640	16	460	400	1
2081655	16	610	550	1
2081815	18	210	150	1
2081820	18	260	200	1
2081825	18	310	250	1
2081840	18	460	400	1
2081855	18	610	550	1
2082015	20	210	150	1
2082020	20	260	200	1
2082025	20	310	250	1
2082040	20	460	400	1
2082055	20	610	550	1

# jet-trac turbo Drill Bit, SDS-Plus, 2-cutter



### Features

- Hammer drilling
- Use in non reinforced building materials
- Aggressive rake and varying relief angle for high speed drilling
- Flat and fully supported head for long life and to maximise support and speed
- Optimised helix angle flute maximises both volume and energy
- Optimum extraction of drill dust promotes high drilling performance



## jet-trac turbo Drill Bit, SDS-Plus, 2-cutter in Quadro-Box



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Unit content
2018801	5	110	55	10
2018803	5	160	105	10
2018809	6	110	55	10
2018810	6	160	105	10
2018819	8	110	55	10
2018820	8	160	105	10
2018821	8	210	155	10
2018829	10	160	105	10
2018830	10	210	155	10
2018831	10	260	205	10
2018839	12	160	105	10
2018840	12	210	155	10
2018841	12	260	205	10
2018850	14	160	105	5
2018851	14	210	155	5
2018852	14	260	205	5
2018861	16	160	105	5
2018862	16	210	155	5
2018863	16	260	205	5

## jet-trac turbo Drill Bit, SDS-Plus, 2-cutter in Multi Package



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content FS
2018902	5	110	55	50 11
2018903	5	160	105	50 41
2018905	6	110	55	50 11
2018906	6	160	105	50 41
2018907	6	210	155	50 41
2018909	8	110	55	50 11
2018910	8	160	105	50 41
2018911	8	210	155	50 41
2018922	8	260	205	50 61
2018915	10	160	105	50 41
2018916	10	210	155	50 41
2018917	10	260	205	50 61
2018926	12	160	105	25 41
2018920	12	210	155	25 41

**jet-trac turbo** Drill Bit, SDS-Plus, 2-cutter

Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2018041	4	110	55	1
2018051	5	110	55	1
2018053	5	160	105	1
2018054	5	210	155	1
2018056	5	310	255	1
2018058	5.5	160	105	1
2018061	6	110	55	1
2018062	6	160	105	1
2018063	6	210	155	1
2018064	6	260	205	1
2018569	6	310	255	1
2018066	6.5	160	105	1
2018067	6.5	210	155	1
2018068	6.5	260	205	1
2018069	6.5	310	255	1
2018071	7	160	105	1
2018072	7	210	155	1
2018081	8	110	55	1
2018082	8	160	105	1
2018083	8	210	155	1
2018084	8	260	205	1
2018085	8	310	255	1
2018087	8	460	405	1
2018091	9	160	105	1
2018092	9	210	155	1
2018101	10	110	55	1
2018102	10	160	105	1
2018103	10	210	155	1
2018104	10	260	205	1
2018105	10	310	255	1
2018106	10	460	405	1
2018107	10	610	555	1
2018110	11	160	105	1
2018111	11	210	155	1
2018121	12	160	105	1
2018122	12	210	155	1
2018123	12	260	205	1
2018124	12	310	255	1
2018126	12	460	405	1
2018127	12	610	555	1
2018129	12	1000	945	1
2018132	13	160	105	1
2018141	14	160	105	1
2018142	14	210	155	1
2018143	14	260	205	1
2018144	14	310	255	1
2018146	14	460	405	1
2018147	14	610	555	1
2018149	14	1000	945	1
2018151	15	160	105	1
2018154	15	260	205	1
2018161	16	160	105	1
2018162	16	210	155	1
2018163	16	260	205	1
2018166	16	310	255	1
2018164	16	460	405	1
2018165	16	610	555	1
2018168	16	1000	945	1
2018180	18	210	155	1
2018181	18	260	205	1
2018183	18	310	255	1
2018185	18	460	405	1
2018187	18	610	555	1
2018189	18	1000	945	1
2018200	20	210	155	1
2018202	20	310	255	1
2018203	20	460	405	1
2018206	20	610	555	1
2018208	20	1000	945	1
2018221	22	260	205	1
2018222	22	460	405	1
2018226	22	610	555	1
2018228	22	1000	945	1
2018241	24	260	205	1
2018245	24	460	405	1
2018251	25	260	205	1
2018252	25	460	405	1
2018262	26	460	405	1

# SDS-Max Drill Bit, SDS-Max, 6-cutter



## Features

- Hammer drilling
- Robust - Long Life - Precision - Speed
- 6 asymmetric cutting edges reduce the risk of blockage
- No jamming with reinforcement hits
- Drill holes suitable for plugs and anchors throughout the life of the drill bit
- The self-centering tip gives higher drill precision
- High flexural resistance due to the progressively increasing core diameter of the drill bit
- Optimum extraction of drill dust promotes high drilling performance
- Long lifespan



## SDS-Max Drill Bit, SDS-Max, 6-cutter



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
9) 2061220	12	340	200	1
9) 2061240	12	540	400	1
9) 2061420	14	340	200	1
9) 2061440	14	540	400	1
2061520	15	340	200	1
2061540	15	540	400	1
2061620	16	340	200	1
2061640	16	540	400	1
2061655	16	690	550	1
2061678	16	920	780	1
2061820	18	340	200	1
2061840	18	540	400	1
2061855	18	690	550	1
2061878	18	920	780	1
2062020	20	340	200	1
2062040	20	540	400	1
2062055	20	690	550	1
2062078	20	920	780	1
20620116	20	1300	1160	1
20620136	20	1500	1360	1
2062220	22	340	200	1
2062240	22	540	400	1
2062255	22	690	550	1
2062278	22	920	780	1
20622116	22	1300	1160	1
2062420	24	340	200	1
2062440	24	540	400	1
2062455	24	690	550	1
2062478	24	920	780	1
20624136	24	1500	1360	1
2062520	25	340	200	1
2062540	25	540	400	1
2062555	25	690	550	1
2062578	25	920	780	1
20625116	25	1300	1160	1
20625136	25	1500	1360	1
2062620	26	340	200	1
2062640	26	540	400	1
2062655	26	690	550	1
2062678	26	920	780	1
2062820	28	340	200	1
2062840	28	540	400	1
2062855	28	690	550	1
2063040	30	540	400	1
2063078	30	920	780	1
2063220	32	340	200	1
2063240	32	540	400	1
2063278	32	920	780	1
2063520	35	340	200	1
2063540	35	540	400	1
2063578	35	920	780	1
2063620	36	340	200	1
2063820	38	340	200	1
2063840	38	540	400	1
2064020	40	340	200	1
2064220	42	340	200	1
2064520	45	340	200	1

9) 2-cutter

# Profi Drill Bit



### Features

- Impact drilling
- For intensive use
- Cylindrical
- Ground
- Carbide tip with semi-positive shape
- Long lifespan
- Optimum extraction of drill dust promotes high drilling performance

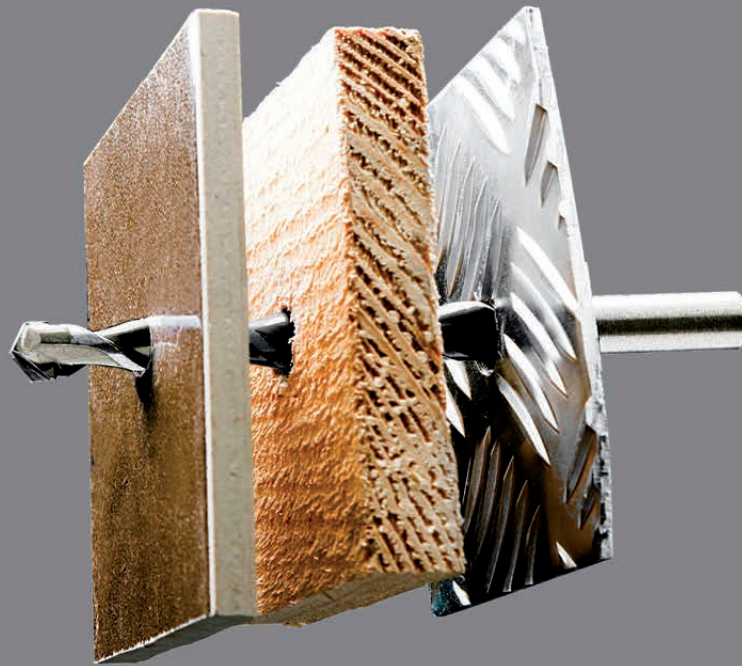
### Profi Drill Bit



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2030301	3	70	40	1
2030401	4	75	40	1
2030501	5	85	50	1
2030502	5	150	90	1
2030551	5.5	85	50	1
2030552	5.5	150	90	1
2030601	6	100	60	1
2030602	6	150	90	1
2030651	6.5	100	60	1
2030652	6.5	150	90	1
2030653	6.5	400	350	1
2030701	7	100	60	1
2030702	7	150	90	1
2030801	8	120	80	1
2030802	8	200	150	1
2030803	8	400	350	1
2030901	9	120	80	1
2031001	10	120	80	1
2031002	10	200	150	1
2031003	10	300	250	1
2031004	10	400	350	1
2031101	11	150	90	1
2031201	12	150	90	1
2031202	12	200	150	1
2031301	13	150	90	1
2031401	14	150	90	1
2031402	14	300	250	1
2031501	15	160	100	1
2031601	16	160	100	1
2031801	18	160	100	1
2032001	20	160	100	1
2032002	20	400	350	1
2032201	22	400	350	1



# MAB Allmat Drill Bit



## Features

- Rotary drilling
- Performant, resistant and accurate
- Carbide tip 118°
- The self-centering tip gives higher drill precision
- 4 sharpened edges, S-shaped
- Cylindrical
- Universal use
- Clean and accurate holes
- Optimum extraction of drill dust promotes high drilling performance



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2110508	5	85	45	1
2110610	6	100	60	1
2110625	6	250	210	1
2110630	6	300	260	1
2116510	6.5	100	60	1
2116525	6.5	250	210	1
2110812	8	120	80	1
2110825	8	250	210	1
2110830	8	300	260	1
2110835	8	350	310	1
2111012	10	120	80	1
2111020	10	200	160	1
2111025	10	250	210	1
2111030	10	300	260	1
2111035	10	350	310	1
2111215	12	150	110	1
2111230	12	300	260	1
2111425	14	250	210	1
2111615	16	150	110	1

## MAB Allmat Drill Bit



# MPM SDS-Plus Chisel



### Features

- Long life
- Anti-lock
- Effortless chiseling and faster penetration
- All possible head version in range
- 100% Powerful
- Due to its helical head, the pointed chisel penetrates and easily exposes most materials

### MPM SDS-Plus Chisel



Article code	Description	Length mm L	Width mm B	Box content
4210001	Pointed Chisel	250	-	1
4210002	Flat Chisel	240	20	1
4210003	Spade Chisel, straight	200	40	1
4210004	Hollow Chisel	240	22	1
4210005	Tile Chisel, cranked	200	40	1

# MXM SDS-Max Chisel



## Features

- Long life
- Anti-lock
- Effortless chiseling and faster penetration
- All possible head version in range
- 100% Powerful
- Due to its helical head, the pointed chisel penetrates and easily exposes most materials



Article code	Description	Length mm L	Width mm B	Box content
4210011	Pointed Chisel	280	18	1
4210012	Pointed Chisel	400	18	1
4210013	Pointed Chisel	600	18	1
4210014	Flat Chisel, straight	280	24	1
4210015	Flat Chisel, straight	400	24	1
4210016	Flat Chisel, straight	600	24	1
4210017	Spade Chisel, straight	360	50	1
4210018	Spade Chisel, straight	300	80	1
4210019	Spade Chisel, straight	350	115	1
4210020	Channel Chisel	300	32 x 23	1
4210021	Wing Chisel	380	35 x 36	1
4210022	Slotting Chisel	280	38	1
4210023	Seam Tool	300	-	1
4210024	Hollow Chisel	300	26	1
4210025	Bushing Tool	240	45	1

## MXM SDS-Max Chisel



# HSS Drill Bit



## HSS Drill Bit DIN 338, cold rolled



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2070202	2.0	49	24	10
2070252	2.5	57	30	10
2070302	3.0	61	33	10
2070322	3.2	65	36	10
2070352	3.5	70	39	10
2070402	4.0	75	43	10
2070422	4.2	75	43	10
2070452	4.5	80	47	10
2070502	5.0	86	52	10
2070522	5.2	86	52	10
2070552	5.5	93	57	10
2070602	6.0	93	57	10
2070652	6.5	101	63	10
2070702	7.0	109	69	10
2070752	7.5	109	69	10
2070802	8.0	117	75	10
2070852	8.5	117	75	10
2070902	9.0	125	81	10
2070952	9.5	125	81	10
2071002	10.0	133	87	10
2071102	11.0	142	94	5
2071202	12.0	151	101	5
2071302	13.0	151	101	5
2071402	14.0	160	108	2
2071502	15.0	169	114	2
2071602	16.0	178	120	2

## HSS-D Drill Bit, double sided, ground



Article code	Ø mm d	Length mm L	Working length mm L <sub>1</sub>	Box content
2022632	3.2	49	12	10
2022633	3.3	49	12	10
2022635	3.5	52	13	10
2022641	4.1	55	14	10
2022642	4.2	55	14	10
2022650	5.0	62	17	10
2022652	5.2	62	17	10

## HSS-BX Drill Bit DIN 338 in metal box



Article code	Ø mm d	Pieces per set	Box content
2079001	1-10 x 0.5	19	1
2079002	1-13 x 0.5	25	1

# BIT Screwdriver



Article code	Description	Length mm	Box content
4001006	PZ2	25	25
4001056	PZ2	50	10
4001106	PZ2	70	5
4001007	PZ3	25	25
4001057	PZ3	50	10
4001107	PZ3	70	5

## BIT Screwdriver Pozidriv



Article code	Description	Length mm	Box content
4001002	PH2	25	25
4001052	PH2	50	10
4001102	PH2	70	5
4001004	PH4	25	25

## BIT Screwdriver Phillips



Article code	Description	Length mm	Box content
4001133	T15	70	5
4001034	T20	25	25
4001044	T20	50	10
4001134	T20	70	5
4001035	T25	25	25
4001045	T25	50	10
4001135	T25	70	5
4001037	T30	25	25
4001047	T30	50	10
4001137	T30	70	5
4001038	T40	25	25
4001048	T40	50	10
4001138	T40	70	5

## BIT Screwdriver T15-T40



Article code	Description	Box content
4001013	Adapter 1/4" / 1/4"	1

## MMH Bitholder



Article code	Description	Box content
4001016	Adapter SDS-Plus 1/4"	1

## MMH Bitholder



Article code	Description	Pieces per set	Box content
4001900	Ph1-3, Pz1-3, T10-40, Hex3-5, SL4.5-6,5, Fox1/4"	19	1

## BIT-SET Set (19 pcs)



# MPC Pro Cut Cutting Disc, 1.0 - 1.9



### Features

- Cutting
- Profi cutting discs for fast and comfortable operations
- Discs fulfill highest requirements of work safety
- High performance and long life
- Burr free cutting reduces post-cut operation
- Latest developments of grain and bonding technology
- Free of iron, sulphur and chlorine (prevents contamination of stainless steel material)

### Applications

for cutting sheets, small diameter profiles and bars, optimised for cutting steel and stainless steel

### MPC Pro Cut Cutting Disc, 1.0 - 1.9



Article code	Ø mm d	Thickness mm H	Inside Ø mm d <sub>i</sub>	Box content
2311510	115	1.0	22.23	25
2312510	125	1.0	22.23	25
2313019	230	1.9	22.23	25

# MPC Pro Cut Cutting Disc, 2.5 - 3.0



## Features

- Cutting
- Profi cutting discs for fast and comfortable operations
- Discs fulfill highest requirements of work safety
- High performance and long life
- Burr free cutting reduces post-cut operation
- Latest developments of grain and bonding technology
- Free of iron, sulphur and chlorine (prevents contamination of stainless steel material)



## Applications

for cutting profiles, solid materials, thicker sheets

Article code	Ø mm d	Thickness mm H	Inside Ø mm d <sub>i</sub>	Box content
2311525	115	2.5	22.23	25
2312525	125	2.5	22.23	25
2313030	230	3.0	22.23	25

## MPC Pro Cut Cutting Disc, 2.5 - 3.0



# MPG Pro Grind Grinding Disc, 6.5



### Features

- Grinding
- Easy way of handling, high workplace convenience
- No signs of fatigue due to a low surface pressure
- Aggressive and controlled bite with fast removal rate
- Free of iron, sulphur and chlorine (prevents contamination of stainless steel material)

### Applications

for deburring, weld cleaning, surface cleaning, angle and corner dressing
























### MPG Pro Grind Grinding Disc, 6.5




Article code	Ø mm d	Thickness mm H	Inside Ø mm d <sub>i</sub>	Box content
2312570	125	6.5	22.23	10
2313070	230	6.5	22.23	10




# MDC Compatibility of Diamond Blades

	<b>MDC Laser Beton</b>	<b>MDC Performer</b>	<b>MDC Power M</b>	<b>MDC Cobra</b>	<b>MDC Viper</b>
	Laser welded diamond segments for a long durability	Laser welded diamond segments for a long durability and a fast cutting speed	Laser welded diamond segments with M-shape for an extra long durability and an ultrafast cutting speed	Persistent diamond blade for a long durability, a high cutting speed and silent working	Superfine diamond blades for a high cutting speed and silent working
	Ø 125 mm  Ø 230 mm 	Ø 125 mm  Ø 230 mm 	Ø 125 mm  Ø 230 mm 	Ø 125 mm  Ø 230 mm 	Ø 125 mm 
Reinforced concrete	✓✓	✓✓	 ✓	✓	-
Clinker brick	✓✓	✓✓	 ✓	✓✓	-
Pebble stone plates	✓	✓	✓✓	✓✓	-
Cement fibre board	✓✓	✓✓	✓	✓	-
Brick	✓✓	✓✓	 ✓	✓✓	-
Vertically perforated brick	✓✓	✓✓	 ✓	✓✓	-
Concrete agglomerate	✓✓	✓✓	✓✓	✓✓	-
Aerated concrete Ytong	✓	✓	✓	-	-
Façade element	-	✓	-	✓	-
Quartz, basalt, porphyry	✓	✓	 ✓	 ✓	 ✓
Granite	✓	✓	✓	 ✓	✓✓
Marble	✓	✓	-	 ✓	✓✓
Sand-lime brick	✓	✓	-	✓✓	-
Sandstone	✓	✓	-	✓	-
Sandware	-	-	-	✓✓	 ✓
Ceramic tile	-	-	-	✓✓	 ✓
Terracotta tile	✓	✓	✓	✓	✓✓
Ceramic product	✓	✓✓	✓✓	 ✓	✓
Concrete tile	✓	✓✓	✓✓	 ✓	✓
Clay tile	✓	✓	✓	 ✓	✓

 recommended

 well suitable

 suitable

# MDC Laser Beton Diamond Blade



### Features

- Laser welded diamond segments for a long durability
- For use with grinding machine and wall chaser
- Use without water cooling
- oSa certified, complying EN13236 safety standards



EN 13236



### Applications

concrete, masonry, natural stone, rock, red bricks

### MDC Laser Beton Diamond Blade



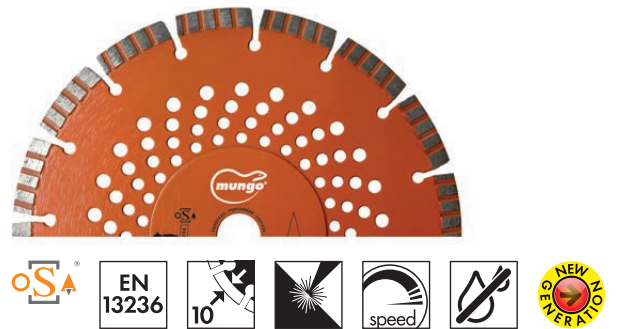
Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content
2320125	125x22.2	2.2	10	1
2320230	230x22.2	2.6	10	1

# MDC Performer Diamond Blade



## Features

- Laser welded diamond segments for a long durability and a fast cutting speed
- For use with grinding machine and wall chaser
- Use without water cooling
- oSa certified, complying EN13236 safety standards



## Applications

concrete and reinforced concrete, masonry, natural stone, rock, red bricks

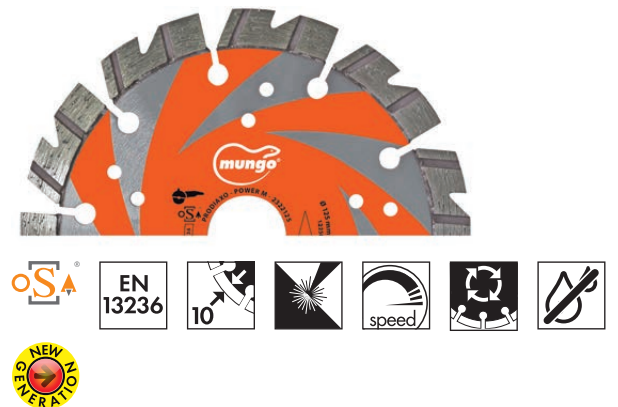
Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content	MDC Performer Diamond Blade
2321125	125x22.2	2.4	10	1	
2321230	230x22.2	2.8	10	1	

# MDC Power M Diamond Blade



## Features

- Laser welded diamond segments with M-shape for an extra long durability and an ultrafast cutting speed
- For use with grinding machine and wall chaser
- Use without water cooling
- oSa certified, complying EN13236 safety standards



## Applications

concrete and reinforced concrete, masonry, natural stone, rock, red bricks

Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content	MDC Power M Diamond Blade
2322125	125x22.2	2.6	10	1	
2322230	230x22.2	2.6	10	1	

## MDC Cobra Diamond Blade



### Applications

natural stone, rock, tiles, roof tiles

### Features

- Persistent diamond blade for a long durability, a high cutting speed and silent working
- For use with grinding machine and wall chaser
- Use without water cooling
- oSa certified, complying EN13236 safety standards

### MDC Cobra Diamond Blade



Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content
2324125	125x22.2	2.5	10	1
2324230	230x22.2	2.8	12	1

## MDC Viper Diamond Blade



### Applications

sandware, ceramic products

### Features

- Superfine diamond blades for a high cutting speed and silent working
- For use with grinding machine
- Use without water cooling
- oSa certified, complying EN13236 safety standards

### MDC Viper Diamond Blade



Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content
2323125	125x22.2	1.4	10	1

# MDG GC-Hard Diamond Grinding Disc



## Features

- Diamond segments for fast grinding and a long durability
- For use with grinding machine
- Use without water cooling
- One disc for fine and rough finishing
- oSa certified, complying EN13236 safety standards



## Applications

concrete, hard materials

Article code	Dimension mm	Width of layer in mm	Height of layer in mm	Box content	MDG GC-Hard Diamond Grinding Disc
2420125	125x22.2	4.5	8.3	1	



# MAS Safety Glasses



## MAS Safety Glasses, clear



Article code	Type	Box content
2302013	G35	1

## MAS Safety Glasses, dark



Article code	Type	Box content
2302014	G36	1

# MFB Diamond Drill Bit



## Features

- Head with 2 diamond segments
- Diamond core drilling for ceramic and sandstone
- Shank Ø 10 mm for optimal force transmission
- Core extraction
- Clean and accurate holes
- Orbital movement accelerates dust extraction
- Do not press strongly on the tool - let it work
- Increased lifespan with wet drilling
- Grinding tool: dry drilling, Drilling tool: wet drilling



## Applications

glaze, sandstone, sandware, marble, tiles up to 5th class

Article code	Ø mm d	Length mm L	Box content
2302016	6	52	1
2302017	8	52	1
2302018	10	62	1
2302022	12	62	1
2302019	15	68	1
2302020	20	68	1

## MFB Diamond Drill Bit



Article code	Content	Pieces per set	Box content
2302021	2 x Ø 6 2 x Ø 8 1 x Ø 10 1 x Ø 15 1 x Ø 20 1 x Chuck 1 x Sharpening stone	9	1

## MFB Diamond Drill Bit set in plastic box with chuck and sharpening stone



Article code	Using range mm	Internal thread d	Box content
2302023	1.5 - 13	M14	1

## MFB-B Chuck for grinding machine



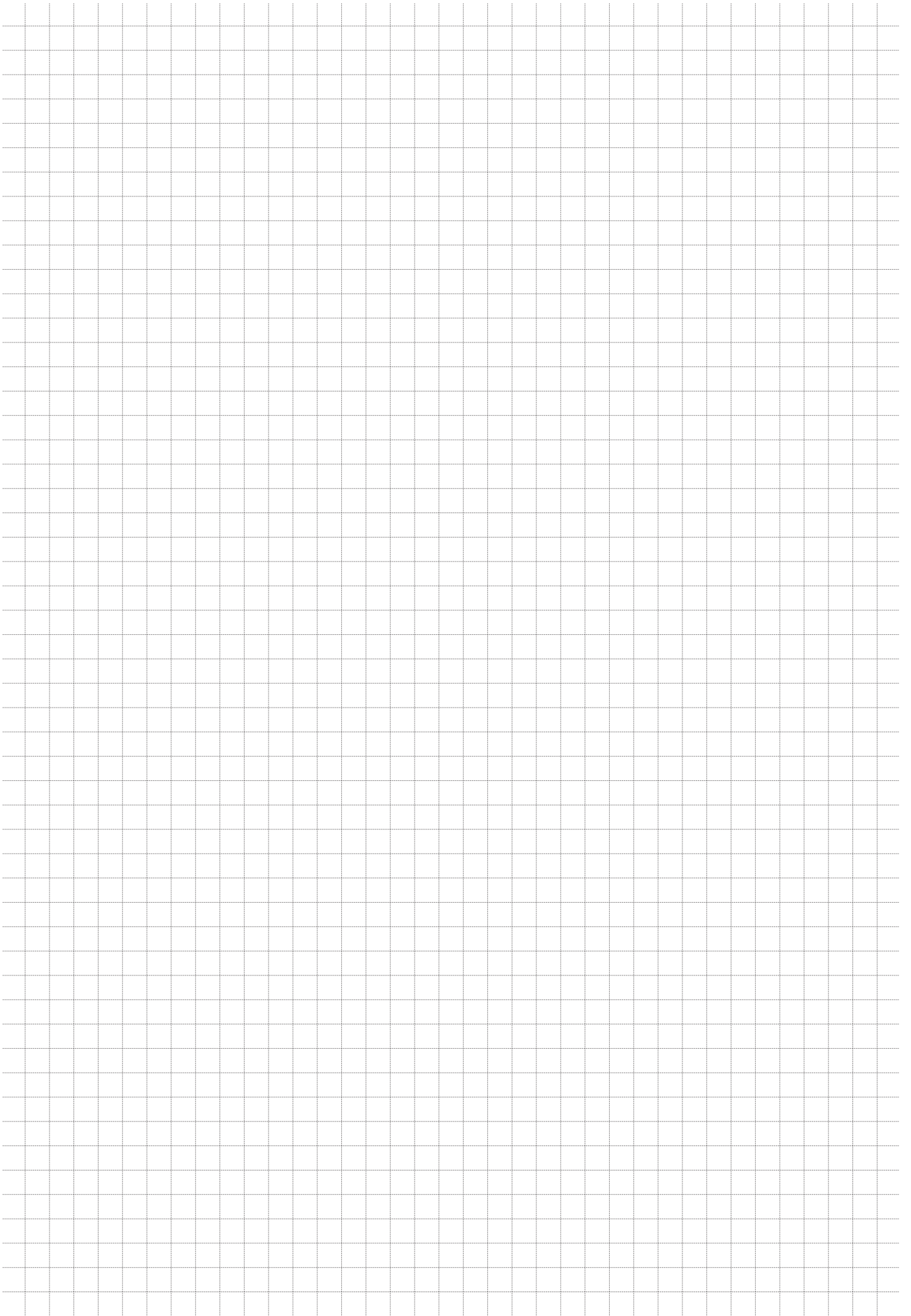
# Index abbreviations and article codes

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MAB	161	MDC Performer	171	MGD	126	MIT-PP-P	82	MMM	49	MPU-P50	90	SBS	58		

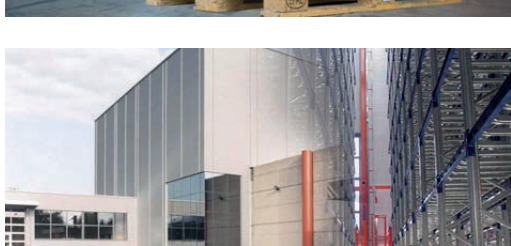
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1000080	103	1060116	117	1121006	122	1122101	119	1131508	127	1180005	136	1210151	48	1300010	46	1652212	88	1690054	83	1710150	84
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1000085	103	1060120	117	1121010	122	1122104	119	1131512	127	1180102	136	1210181	48	1380033	103	1652430	88	1710001	67	1710152	84
1000100	103	1060124	117	1121012	122	1122108	119	1131522	127	1180103	136	1210182	49	1380034	103	1652612	88	1710002	77	1710153	84
1000101	103	1060128	117	1121014	122	1122110	119	1135106	122	1180104	136	1210201	48	1380035	103	1652616	88	1710004	77	1710154	84
1000105	103	1060130	117	1121016	122	1122112	119	1135108	122	1180105	136	1221000	35	1380532	107	1653012	88	1710005	75	1710201	80
1000120	103	1060208	117	1121018	122	1122114	119	1135110	122	1180211	133	1221001	35	1380533	107	1653016	88	1710007	79	1710202	80
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# Modular packing system

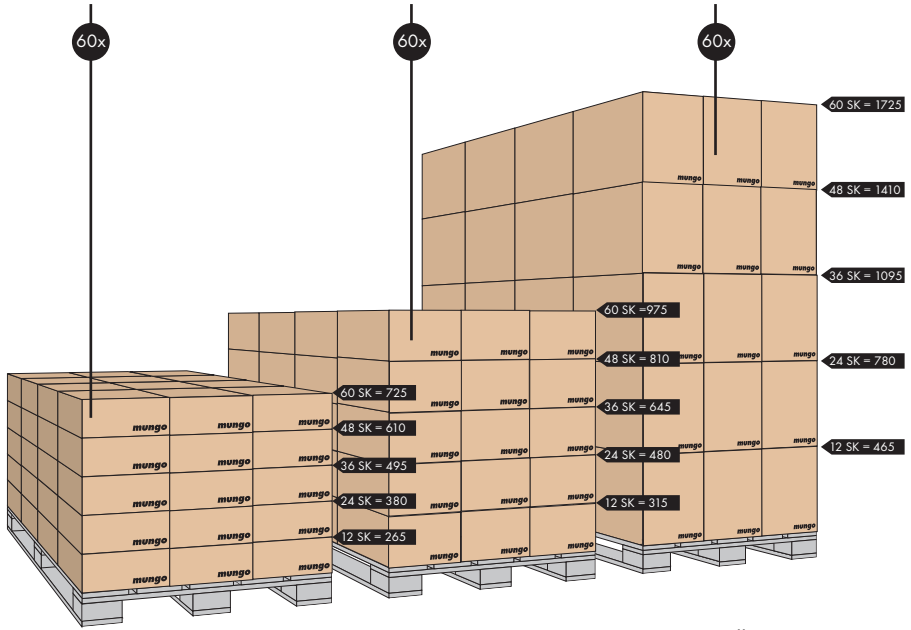
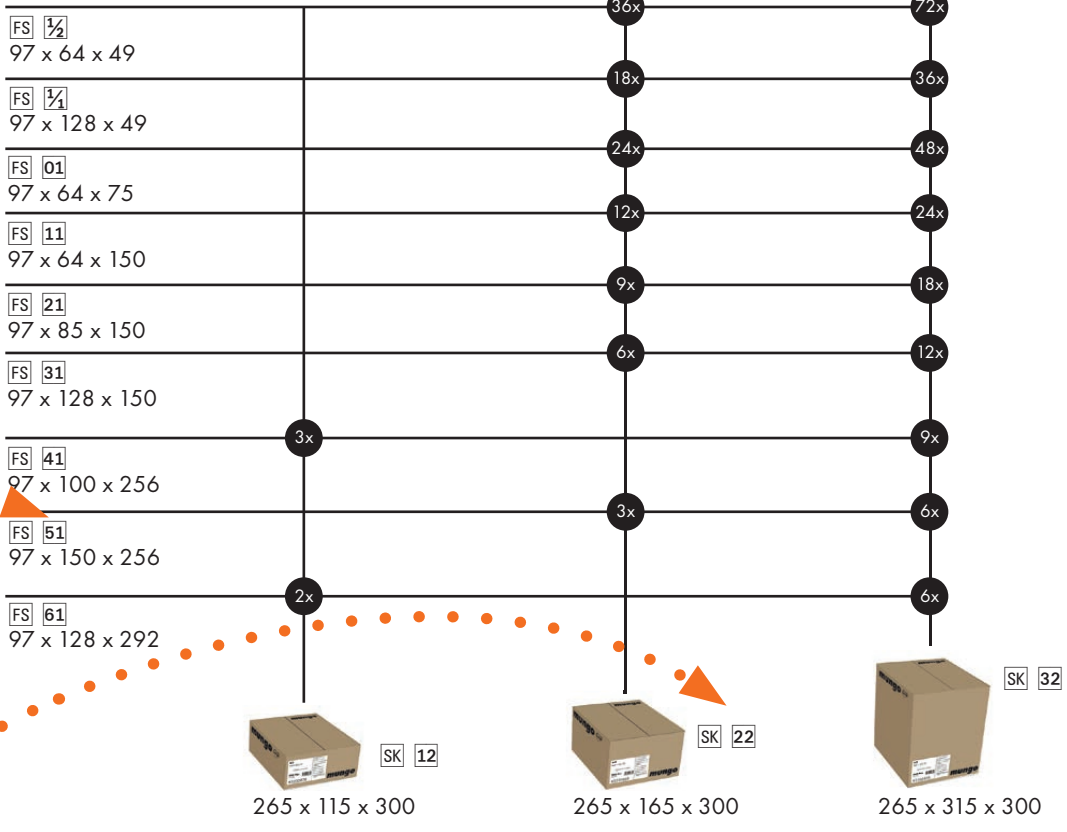


The majority of our products are packed in only 9 different folding boxes. You can find an overview of the possible combinations on the folding page in the back of the catalogue. All packing quantities are coded so that the dimensions and quantities can easily be determined.

The advantages are:

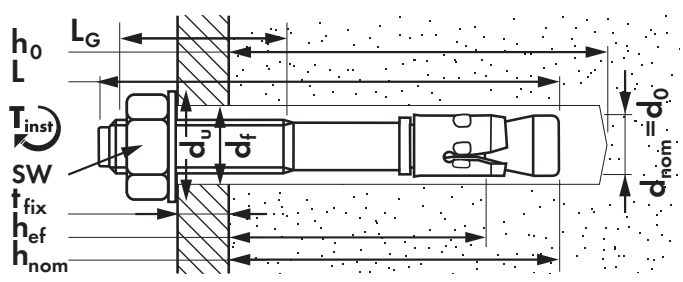
- Optimised appearance in uniform boxes
- Increased stability due to smart and reinforced box design
- Co-ordinated packing of all products
- Folding boxes are always compatible with at least two larger outer cartons

			12	18000
		41	300	18000
50	100	51	300	18000
50	100	51	300	18000
50	50	51	150	9000
33	100	41	300	18000
35	100	51	300	18000
58	100	51	300	18000
$u_0$	L	$h_0$	$t_{fix}$	
5	50	50	5	3
	65	60	10	
	80	60		
	50			



Euro pallet 800 x 1200

All dimensions are external dimensions in mm



# Tailored solutions for every situation



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