

Injection System VMZ **dynamic**



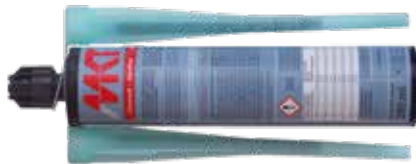
**Conical Stud VMZ-A
dynamic**
Through Fastening



**Conical Stud VMZ-AV
dynamic**
Pre-Installation



Cartridge VMZ 150
Coaxial Cartridge
for silicone guns
Content: 150ml



Cartridge VMZ 280
Coaxial Cartridge
for silicone guns
Content: 280ml, incl. 2 Static
mixer on Cartridge



Cartridge VMZ 345
Side-by-side Cartridge
Content: 345ml



Cartridge VMZ 420
Coaxial Cartridge
Content: 420ml

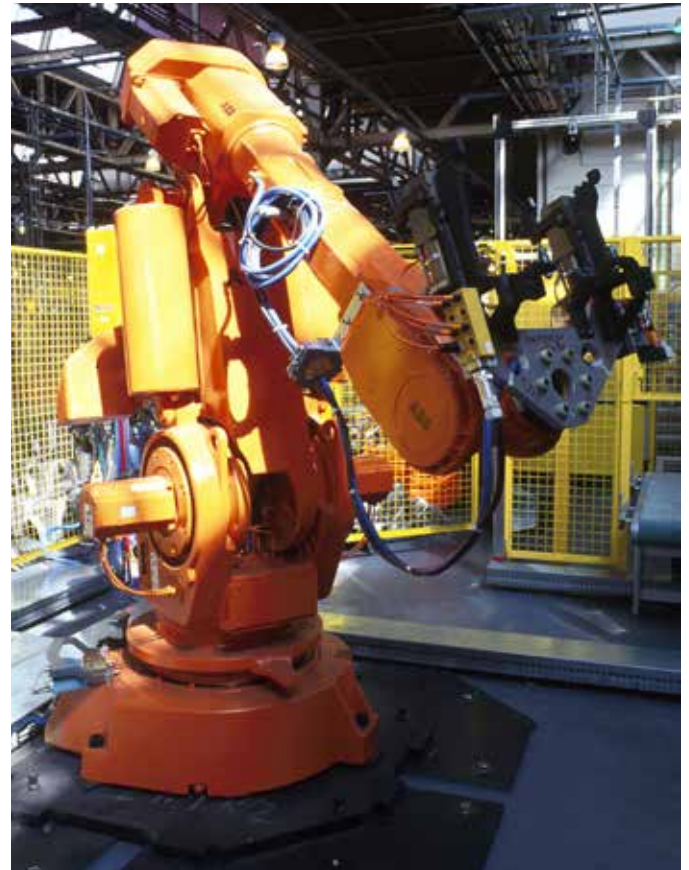
Range of loading: 4,9 kN–32,2 kN
Range of concrete quality: C20/25–C50/60
Material: Steel, zinc plated, Stainless steel HCR

Description

The Injection System VMZ **dynamic** consists of an anchor rod with conical expansion elements and a 2 component injection adhesive. This combination provides extremely high load bearing capacity even at minimum edge distance and spacing. The VMZ system combines the benefits of bonded anchors and expansion anchors in an approved fastening system for both cracked and non-cracked concrete. There are threaded studs available for the various applications for through fastening (pre-assembled) and for pre-installation in galvanized steel, A4 stainless steel and HCR high corrosion resistant stainless steel. The drill holes can also be created with the hollow drill bit SB, the use of which reduces contamination and fine dust exposure of the respiratory tract to a minimum.

Advantages

– Approved in cracked and non-cracked concrete under fatigue cyclic loading



- Low anchorage depths and component thicknesses
- Very high loads in axial and oblique tension
- Higher loads, if the number of load cycles is limited
- The design can distinguish between static and non-static loads
- No load reduction for wet or water-filled drill holes
- Approved processing from 0°C substrate temperature
- Two different versions for optimum adaptation to the application conditions:
 - VMZ-A **dynamic**: pre-assembled for quick through fastening
 - VMZ-AV **dynamic**: flexible, suitable for pre-installation and through fastening
- Special nut and washer to account for angular misalignment
- Fire test report for all dimensions
- Fire test report according to ZTV tunnel temperature curve for threaded studs of HCR high corrosion resistant stainless steel
- Standard and fast-curing express adhesive made of styrene-free, 2 component adhesive on vinyl ester basis
- Opened cartridges can be re-used with a new mixer nozzle
- Drill hole creation with hammer drill or hollow drill bit

Applications

Heavy duty fastenings with alternating loads and unlimited load cycles in cracked and non-cracked concrete:

Cranes, industrial robots, antenna towers, noise barriers, elevators

Injection Cartridge VMZ



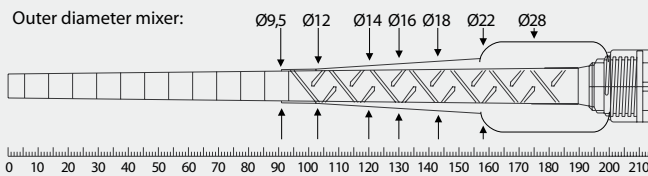
- Two component cartridge, styrene-free
- Various cartridge systems
- Approved for cracked and non-cracked concrete

Description	Ref. No.	Content ml	Content of master box pcs.	Weight per master box kg	Weight per piece kg
Cartridge VMZ 150	28999301	150	12	4,32	0,36
Cartridge VMZ 280 ¹⁾	28252601	280	12	6,70	0,56
Cartridge VMZ 345	28255310	345	12	8,28	0,69
Cartridge VMZ 420	28254701	420	12	9,84	0,83
Cartridge VMZ 345 express	28254201	345	12	8,00	0,65
Static mixer VM-X (for all cartridge)	28305111	-	12	0,12	0,01
Mixer extension VM-XE 10/200 (200mm)	28306011	-	12	-	0,01
Installation wedge VMZ-MK	33300103	-	10	-	0,01

One static mixer comes with each cartridge.
¹⁾Cartridge VMZ 280 comes with 2 mixers.

Usable length Static mixer VM-X

Drill holes must always be filled from the bottom of the hole to ensure no air pockets are trapped in the adhesive. This is only possible when the tip of the mixing nozzle reaches the very bottom of the drill hole before injecting the adhesive. If the mixing nozzle does not reach the bottom of the drill hole, a mixer extension tube must be used.



Curing Time Injection Adhesive VMZ when used according ETA-17/0194

→ Cartridge- and outside temperature when installing min. +5°C

Temperature (°C) of the base material	Gel time	Curing time	
		dry base material	wet base material
0°C to +4°C	20 min	3:00 h	6:00 h
+5°C to +9°C	12 min	2:00 h	4:00 h
+10°C to +19°C	6 min	1:20 h	2:40 h
+20°C to +29°C	4 min	45 min	1:30 h
+30°C to +34°C	2 min	25 min	50 min
+35°C to +39°C	1,4 min	20 min	40 min
+40°C	1,4 min	15 min	30 min

Curing Time Injection Adhesive VMZ express when used according ETA-17/0194

→ Cartridge- and outside temperature when installing min. +5°C

Temperature (°C) of the base material	Gel time	Curing time	
		dry base material	wet base material
0°C to +4°C	10 min	2:00 h	4:00 h
+5°C to +9°C	6 min	1:00 h	2:00 h
+10°C to +19°C	3 min	40 min	80 min
+20°C to +29°C	1 min	20 min	40 min
+30°C	1 min	10 min	20 min

Accessories for injektions system VMZ dynamic

VMZ-A Dynamic-, VMZ-AV Dynamic-Threaded stud	Drill bit Ø mm	Blow-out pump / Air gun	Cleaning brush RB	Extension tube	Dispenser
VMZ-A 100 M12 dyn VMZ-AV 100 M12 dyn	14	VM-AP 360 VM-ABP 200	RB 14 M6 / RB 14 M8	VM-XE 10	VM-P 345 Standard, VM-P 345 Profi, VM-P 380 Standard, VM-P 380 Profi, VM-P 345 Akku, VM-P 380 Akku,
VMZ-A 125 M16 dyn VMZ-AV 125 M16 dyn	18	VM-AP 360 VM-ABP 200 / 250 / 500	RB 18 M6 / RB 18 M8	VM-XE 10	VM-P 345 Pneumatic Eco, VM-P 345 Pneumatic, VM-P 380 Pneumatic
VMZ-A 170 M20 dyn VMZ-AV 170 M20 dyn	24	VM-ABP 250 / 500	RB 24 M6	VM-XE 10	
See page		169	170	171	172 / 173

Through-setting installation

Conical Stud VMZ-A dynamic

Steel zinc plated, Through-setting installation



→ Through-setting installation: Pre-assembled set of conical Stud, concave washer, ball nut, lock nut and a plastic sleeve as a thread protector.

→ For use in structures subject to dry internal conditions

Description	Ref. No.	Drill hole Ø d _o mm	Drill hole depth h _o mm		Fixture thickness t _{fix} mm		Drill hole depth through fixture h _d mm	Concave washer ¹⁾ d ₁ x h ₁ mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max	min	max							150 ml	280 ml	345 ml	420ml
VMZ-A 100 M12-25/160 dyn	36375101	14	105	118	12	25	130	36 x 6	160	10	2,22	12,2	9	19	25	31
VMZ-A 100 M12-50/185 dyn	36385101	14	105	143	12	50	155	36 x 6	185	10	2,46	15,2	7	15	20	25
VMZ-A 125 M16-30/200 dyn	36520101	18	133	147	16	30	163	44 x 7	200	10	4,20	19,3	5	12	15	19
VMZ-A 125 M16-50/220 dyn	36525101	18	133	167	16	50	183	44 x 7	220	10	4,54	22,5	4	10	13	16
VMZ-A 170 M20-50/280 dyn	36610101	24	180	210	20	50	230	50 x 8	280	5	4,64	44,6	2	5	6	8

Conical Stud VMZ-A dynamic A4

Stainless steel A4, Through-setting installation



→ Through-setting installation: Pre-assembled set of conical Stud, concave washer, ball nut, lock nut and a plastic sleeve as a thread protector.

→ For use in structures subject to dry internal conditions or external atmospheric exposure (Conical Stud: Stainless Steel HCR; concave washer, ball nut, lock nut: Stainless Steel A4)

Description	Ref. No.	Drill hole Ø d _o mm	Drill hole depth h _o mm		Fixture thickness t _{fix} mm		Drill hole depth through fixture h _d mm	Concave washer ¹⁾ d ₁ x h ₁ mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max	min	max							150 ml	280 ml	345 ml	420ml
VMZ-A 100 M12-25/153 dyn A4	36375501	14	105	118	12	25	130	30 x 6	153	10	2,22	12,2	9	19	25	31
VMZ-A 100 M12-50/178 dyn A4	36385501	14	105	143	12	50	155	30 x 6	178	10	2,46	15,2	7	15	20	25
VMZ-A 125 M16-25/185 dyn A4	36520501	18	133	142	16	25	158	40 x 7	185	10	3,02	18,5	6	12	16	20
VMZ-A 125 M16-50/210 dyn A4	36525501	18	133	167	16	50	183	40 x 7	210	10	3,44	22,5	4	10	13	16

Conical Stud VMZ-A dynamic HCR

Stainless steel HCR, Through-setting installation



→ Through-setting installation: Pre-assembled set of conical Stud, concave washer, ball nut, lock nut and a plastic sleeve as a thread protector.

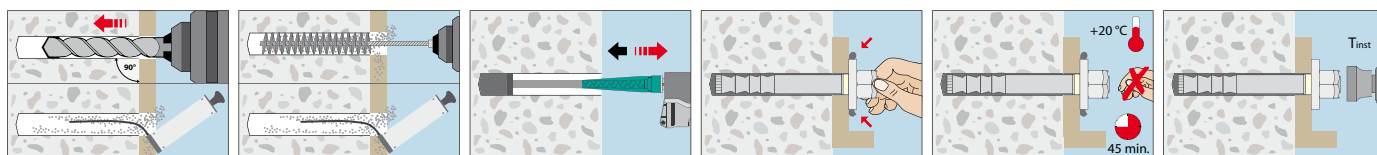
→ Highly corrosion resistant stainless steel 1.4529 for use in structures subject to external atmospheric exposure and in particularly corrosive environments

Description	Ref. No.	Drill hole Ø d _o mm	Drill hole depth h _o mm		Fixture thickness t _{fix} mm		Drill hole depth through fixture h _d mm	Concave washer ¹⁾ d ₁ x h ₁ mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max	min	max							150 ml	280 ml	345 ml	420ml
VMZ-A 100 M12-25/153 dyn HCR	36375651	14	105	118	12	25	130	30 x 6	153	10	2,22	12,2	9	19	25	31
VMZ-A 100 M12-50/178 dyn HCR	36385651	14	105	143	12	50	155	30 x 6	178	10	2,46	15,2	7	15	20	25
VMZ-A 125 M16-25/185 dyn HCR	36520651	18	133	142	16	25	158	40 x 7	185	10	3,02	18,5	6	12	16	20
VMZ-A 125 M16-50/210 dyn HCR	36525651	18	133	167	16	50	183	40 x 7	210	10	3,44	22,5	4	10	13	16

Other lengths on demand.

¹⁾Outer diameter d₁ x thickness h₁

Installation



Pre- and through-setting installation

Conical Stud VMZ-AV dynamic

Steel zinc plated, Pre- and through-setting installation



→ Pre- and through-setting installation: Set conical stud, concave washer with diagonal fill hole, ball nut, lock nut and plastic sleeve as thread protection (through-setting installation) and mixer tip to fill the annular gap in the fixture (pre-setting installation). There are 5 mixer tips per 10-pack and 3 tips per 5-pack in each assembly package

→ For use in structures subject to dry internal conditions

Description	Ref. No.	Drill hole Ø do mm	Fixture thickness tfix mm		Drill hole depth ¹⁾ ho mm	Concave washer ²⁾ d1 x h1 mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max							150 ml	280 ml	345 ml	420 ml
VMZ-AV 100 M12-25/160 dyn	36390101	14	12	25	130-tfix	35 x 6	160	10	2,22	12,2	9	19	25	31
VMZ-AV 100 M12-50/185 dyn	36395101	14	12	50	155-tfix	35 x 6	185	10	2,46	15,2	7	15	20	25
VMZ-AV 125 M16-30/200 dyn	36570101	18	16	30	163-tfix	40 x 7	200	10	4,20	19,3	5	12	15	19
VMZ-AV 125 M16-50/220 dyn	36575101	18	16	50	183-tfix	40 x 7	220	10	4,54	22,5	4	10	13	16
VMZ-AV 170 M20-50/280 dyn	36670101	24	20	50	230-tfix	50 x 8	280	5	4,64	44,6	2	5	6	8

Conical Stud VMZ-AV dynamic A4

Stainless steel A4, Pre- and through-setting installation



→ Pre- and through-setting installation: Set conical stud, concave washer with diagonal fill hole, ball nut, lock nut and plastic sleeve as thread protection (through-setting installation) and mixer tip to fill the annular gap in the fixture (pre-setting installation). There are 5 mixer tips per 10-pack and 3 tips per 5-pack in each assembly package

→ For use in structures subject to dry internal conditions or external atmospheric exposure (Conical Stud: Stainless Steel HCR; Nut, lock nut, washer: Stainless Steel A4)

Description	Ref. No.	Drill hole Ø do mm	Fixture thickness tfix mm		Drill hole depth ¹⁾ ho mm	Concave washer ²⁾ d1 x h1 mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max							150 ml	280 ml	345 ml	420 ml
VMZ-AV 100 M12-25/153 dyn A4	36390501	14	12	25	130-tfix	35 x 6	153	10	2,22	12,2	9	19	25	31
VMZ-AV 100 M12-50/178 dyn A4	36395501	14	12	50	155-tfix	35 x 6	178	10	2,46	15,2	7	15	20	25
VMZ-AV 125 M16-25/185 dyn A4	36570501	18	16	25	158-tfix	40 x 7	185	10	3,02	18,5	6	12	16	20
VMZ-AV 125 M16-50/210 dyn A4	36575501	18	16	50	183-tfix	40 x 7	210	10	3,44	22,5	4	10	13	16

Conical Stud VMZ-AV dynamic HCR

Stainless steel HCR, Pre- and through-setting installation



→ Pre- and through-setting installation: Set conical stud, concave washer with diagonal fill hole, ball nut, lock nut and plastic sleeve as thread protection (through-setting installation) and mixer tip to fill the annular gap in the fixture (pre-setting installation). There are 5 mixer tips per 10-pack and 3 tips per 5-pack in each assembly package

→ Highly corrosion resistant stainless steel 1.4529 for use in structures subject to external atmospheric exposure and in particularly corrosive environments

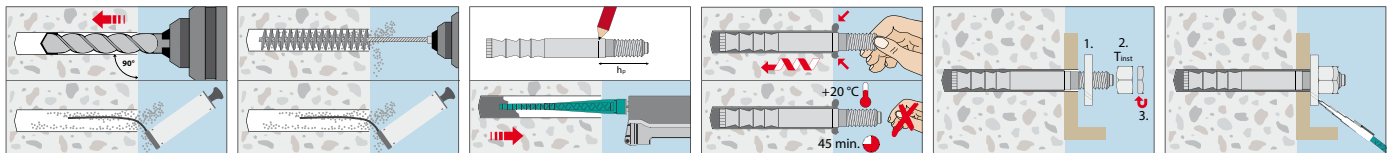
Description	Ref. No.	Drill hole Ø do mm	Fixture thickness tfix mm		Drill hole depth ¹⁾ ho mm	Concave washer ²⁾ d1 x h1 mm	Anchor length mm	Pkg. cont. pcs.	Weight per pkg. kg	Amount of adhesive per anchor ml	Anchors per cartridge			
			min	max							150 ml	280 ml	345 ml	420 ml
VMZ-AV 100 M12-25/153 dyn HCR	36390651	14	12	25	130-tfix	35 x 6	153	10	2,22	12,2	9	19	25	31
VMZ-AV 100 M12-50/178 dyn HCR	36395651	14	12	50	155-tfix	35 x 6	178	10	2,46	15,2	7	15	20	25
VMZ-AV 125 M16-25/185 dyn HCR	36570651	18	16	25	158-tfix	40 x 7	185	10	3,02	18,5	6	12	16	20
VMZ-AV 125 M16-50/210 dyn HCR	36575651	18	16	50	183-tfix	40 x 7	210	10	3,44	22,5	4	10	13	16

¹⁾The optimum drill hole depth must be calculated with the actual fixture thickness (tfix)

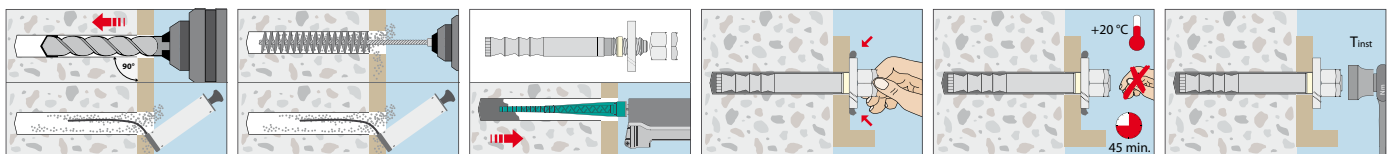
Other lengths on demand.

²⁾Outer diameter d1 x thickness h1

Through-fastening installation



Pre-fastening installation





Extract from Permissible Service Conditions of European Technical Assessment ETA-17/0194.

Approved loads from not static loading for single anchor without influence of spacing and edge distance for temperature range -40°C to +80°C¹⁾ Total safety factor as per ETAG 001 included (γ_M and γ_P).

Loads and performance data

Injection System VMZ dynamic



				100 M 12 steel zinc plated	125 M 16 steel zinc plated	170 M 20 steel zinc plated	100 M 12 A4/HCR	125 M 16 A4/HCR
Effective anchorage depth	$h_{ef} \geq$	[mm]		100	125	170	100	125
Single fixing				cracked and non-cracked concrete				
Approved loads, tension	C20/25	$\Delta N_{appr.}$	[kN]	14,8	23,2	31,9	15,7	23,2
Approved loads, shear	C20/25	$\Delta V_{appr.}$	[kN]	6,1	11,1	15,6	6,1	11,1
Multiple use (per anchor)				cracked and non-cracked concrete				
Approved loads, tension	C20/25	$\Delta N_{appr.}$	[kN]	11,7	19,9	25,2	12,4	21,7
Approved loads, shear	C20/25	$\Delta V_{appr.}$	[kN]	4,9	9,0	12,6	4,9	9,0
Spacing and edge distance								
Characteristic spacing	$s_{cr,N}$	[mm]		300	375	510	300	375
Characteristic edge distance	$c_{cr,N}$	[mm]		150	187,5	255	150	187,5
Minimum spacing	s_{min}	[mm]		50 (80) ²⁾	60	80	50 (80) ²⁾	60
Minimum edge distance	c_{min}	[mm]		70 (75) ²⁾	80	110	70 (75) ²⁾	80
Minimum thickness of concrete slab	h_{min}	[mm]		130	170	230	130	170
Installation parameters								
Drill hole diameter	d_o	[mm]		14	18	24	14	18
Depth of drill hole ³⁾	h_o	[mm]		105	133	180	105	133
Diameter of clearance hole in the fixture	d_f	[mm]		15	19	25	15	19
Installation torque	T_{inst}	[Nm]		30	50	80	30	50
Width across nut	SW	[mm]		19	24	30	19	24
Minimum thickness of fixture	$t_{fix} \geq$	[mm]		12	16	20	12	16

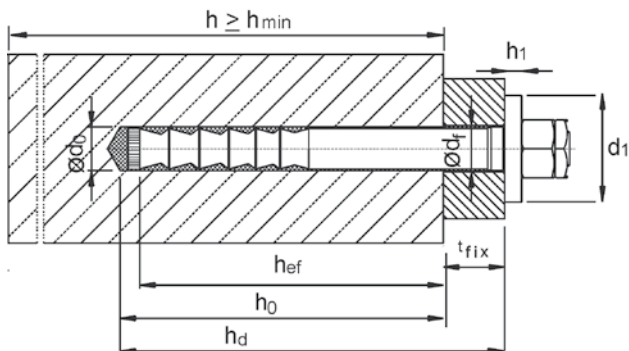
¹⁾ Max. long term temperature +50 °C / max. short term temperature +80 °C .

²⁾ Values in brackets are for non-cracked concrete.

³⁾ If the maximum fixture thickness t_{fix} is not completely used, the depth of drill hole and the setting depth of the anchor have to be increased accordingly.

For anchor designing, an easy to operate Software is available on request or can be downloaded at www.mkt.de

Amount of adhesive per anchor see 99/100.



Hollow drill bit SB



Description

The hollow drill bit SB combines two steps in one: it drills and at the same time removes the drilling dust from the hole. As a result, it significantly reduces the dust created, resulting in a cleaner work space and reduces air contamination. Contamination in the work area is also avoided, making it the ideal hammer drill for indoors. Many MKT injection systems eliminate the need for additional cleaning, increasing efficiency and installation safety. Thanks to its SDS shank and its 38mm suction pipe connection, it can be used universally and flexibly with any SDS hammer drill and industrial vacuum cleaners.

Advantages

- 98% less air borne dust than during conventional drilling processes
- Permitted for use with approved anchors
- The separate cleaning of the drill hole can be omitted if this is permitted in the ETA
- Easy handling, insert in a hammer drill and connect to an industrial vacuum cleaner
- Efficient dust extraction and drilling thanks to extra large vacuum holes
- Optimum health and safety at the workplace, reduce respiratory complaints of dust particles by using an industrial vacuum cleaner of the M-Class
- Save money and time: there is no dirt generated, so no need to clean up afterwards
- Can be used with all standard SDS-max and SDS-plus hammer drills in conjunction with commercial industrial vacuum cleaners

Applications

For dust-free drilling in concrete, solid brick, solid lime and stone and natural stone indoors and outdoors.

Hollow drill bit with SDS-plus shank

→ 2-cutter with big vacuum holes for a fast drilling

Description	Ref.No.	Ø mm	Drilling depth mm	Total length mm	Adaptor	Type	Pkg. Content pcs.	Weight per pcs. kg
Hollow drill bit SB plus 8x270	50235501	8	150	270	SDS-plus	2-cutter	1	0,21
Hollow drill bit SB plus 10x270	50245501	10	150	270	SDS-plus	2-cutter	1	0,24
Hollow drill bit SB plus 12x320	50256001	12	200	320	SDS-plus	2-cutter	1	0,31
Hollow drill bit SB plus 14x370	50266501	14	250	370	SDS-plus	2-cutter	1	0,39
Hollow drill bit SB plus 16x370	50286501	16	250	370	SDS-plus	2-cutter	1	0,43
Hollow drill bit SB plus 18x370	50296501	18	250	370	SDS-plus	2-cutter	1	0,53
Hollow drill bit SB plus 20x370	50306501	20	250	370	SDS-plus	2-cutter	1	0,64
Hollow drill bit SB plus 24x370	50326501	24	250	370	SDS-plus	2-cutter	1	0,81

Hollow drill bit with SDS-max shank

→ Y-Cutter for more stable drilling

Description	Ref.No.	Ø mm	Drilling depth mm	Total length mm	Adaptor	Type	Pkg. Content pcs.	Weight per pcs. kg
Hollow drill bit SB max 18x600	50698001	18	400	600	SDS-max	Y-cutter	1	0,99
Hollow drill bit SB max 24x600	50728001	24	400	600	SDS-max	Y-cutter	1	1,21
Hollow drill bit SB max 25x600	50738001	25	400	600	SDS-max	Y-cutter	1	1,23
NEW Hollow drill bit SB max 26x600	50748001	26	400	600	SDS-max	Y-cutter	1	1,25

Suction bell ASG



Description	Ref.No.	Connection diameter to a vacuum cleaner Ø [mm]	Suitable for drill hole Ø [mm]	Pkg. Content pcs.	Weight per pc. kg
Suction bell ASG	29980001	30-38	6-32	1	0,06

Description

For removing drilling dust when drilling or cleaning holes.

Advantages

- Easy handling, connection to a vacuum cleaner is sufficient
- No mounting is necessary, because the suction bell sticks tight to floor, wall and ceiling by a strong vacuum
- Prevents contamination and provides a clear visibility due to almost dust-free drilling
- Reduce respiratory complaints due to tiny dust particles by using a vacuum cleaner of the M-Class

Accessories for MKT Injection Systems

Blow-out pump VM-AP



- For assessment-compliant drill hole cleaning of many anchor systems
- For best drill hole cleaning, the hose must reach the bottom of the drill hole

Description	Ref. No.	For drill hole Ø mm	Max. drill hole depth ¹⁾ mm	Length mm	Pkg. cont. pcs.	Weight per piece kg
Blow-out pump VM-AP 270	29990002	12 - 20	200	270	1	0,22
Blow-out pump VM-AP 360	33200101	8 ²⁾ - 20	330	360	1	0,27

¹⁾For through fastening: Maximum drill hole depth through fixture

²⁾With extension tube Ø6 x 100mm

Air gun VM-ABP



- For assessment-compliant drill hole cleaning with compressed air for drill holes with a diameter larger than 6 mm
- For best drill hole cleaning, the nozzle of the air gun must reach the bottom of the drill hole

Description	Ref. No.	Nozzle-ø mm	For drill hole Ø mm	Max. drill hole depth ¹⁾ mm	Pkg. cont. pcs.	Weight per piece kg
VM-ABP 200	33090101	5	6-20	240	1	0,55
VM-ABP 250	33100101	16	18-40	240	1	1,00
VM-ABP 500	33106101	16	18-40	480	1	1,30

¹⁾For through fastening: Maximum drill hole depth through fixture

Air gun VM-ABP 1000



- For assessment-compliant drill hole cleaning with compressed air for drill holes with a diameter larger than 16 mm
- For best drill hole cleaning, the nozzle of the air gun must reach the bottom of the drill hole

Description	Ref. No.	Nozzle-ø mm	For drill hole Ø mm	Max. drill hole depth ¹⁾ mm	Pkg. cont. pcs.	Weight per piece kg
VM-ABP 1000	85806101	14	16-40	1000	1	0,32

¹⁾For through fastening: Maximum drill hole depth through fixture

Compressed Air System DLS

- For blowing out drill holes up to 3 m deep
- The connection set RS for connection to a compressor, an air hose RS and, for the injection system VME, the corresponding blow-out nozzle RD are required

Air Valve RS



- Connection set RS with manual slide valve with air valve and connector for connection to a compressor

Air hose RS



- Air hose RS, pre-assembled with connectors for connection between connection set RS and blow-out nozzle RD

Blow-out nozzle RD



- Blow-out nozzles RD for optimum cleaning of the drill hole and the drill hole walls
- Fits on the air hose RS

Description	Ref. No.	For drill hole Ø mm	Max. drill hole depth ¹⁾ mm	Length mm	Pkg. cont. pcs.	Weight per piece kg
Air hose RS	85890101	12 - 35	-	-	1	0,42
Air Valve RS 25	85802101	12 - 28	2000	2000	1	0,11
Air Valve RS 35	85804101	30 - 35	3000	3000	1	0,44
Blow-out nozzle RD 12/14	85852101	12 - 14	-	-	1	0,01
Blow-out nozzle RD 16/18	85854101	16 - 18	-	-	1	0,02
Blow-out nozzle RD 20/25	85856101	20 - 25	-	-	1	0,03
Blow-out nozzle RD 30/35	85858101	30 - 35	-	-	1	0,05

¹⁾For through fastening: Maximum drill hole depth through fixture

Cleaning Brush RB M6

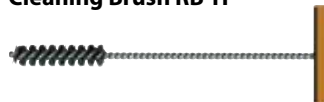

- For machine cleaning of drill holes
- Stainless steel trim for a long service life
- With connection thread M6
- For drilling machines with keyed chuck
- SDS plus adapter for use in a hammer drill
- Use brush extensions according to the drilling depth. Several brush extensions can be screwed together for further extension.

Description	Ref. No.	Suitable for drill hole Ø mm	Length mm	Filling length mm	Pkg. cont. pcs.	Weight per piece kg
RB 10 M6	33510101	10	130	80	1	0,03
RB 12 M6	33512101	12	140	80	1	0,03
RB 14 M6	33514101	14	180	80	1	0,04
RB 16 M6	33516101	16	200	100	1	0,05
RB 18 M6	33518101	18	200	100	1	0,06
RB 20 M6	33520101	20	220	100	1	0,10
RB 22 M6	33522101	22	220	100	1	0,10
RB 24 M6	33524101	24	250	100	1	0,11
RB 26 M6	33526101	25 / 26	290	100	1	0,12
RB 28 M6	33528101	28	260	100	1	0,11
RB 30 M6	33530101	30	350	100	1	0,12
RB 32 M6	33532101	32	350	100	1	0,13
RB 35 M6	33535101	35	350	100	1	0,14
RB 40 M6	33537101	40	350	100	1	0,15
RB 45 M6	on request	45	-	-	1	-
RB 55 M6	on request	55	-	-	1	-
Brush extention RBL M6	33968101	-	150	-	1	0,09
SDS Plus adapter RBL M6 SDS	33350101	-	110	-	1	0,06

Cleaning Brush RB M8


- Extra sturdy construction for machine cleaning of particularly deep drill holes
- Stainless steel trim for a long service life
- With connection thread M8
- For drilling machines with keyed chuck
- SDS plus adapter for use in a hammer drill
- Use brush extensions according to the drilling depth. Several brush extensions can be screwed together for further extension.

Description	Ref. No.	Suitable for drill hole Ø mm	Length mm	Filling length mm	Pkg. cont. pcs.	Weight per piece kg
RB 12 M8	85812101	12	180	140	1	0,05
RB 14 M8	85814101	14	180	140	1	0,05
RB 16 M8	85816101	16	180	140	1	0,05
RB 18 M8	85818101	18	180	140	1	0,05
RB 20 M8	85820101	20	180	140	1	0,05
RB 25 M8	85825101	25	180	140	1	0,06
RB 32 M8	85832101	32	180	140	1	0,08
RB 35 M8	85835101	35	180	140	1	0,08
Brush extention RBL M8	85871101	-	550	-	1	0,32
SDS Plus adapter RBL M8 SDS	85881101	-	110	9	1	0,07

Cleaning Brush RB-H


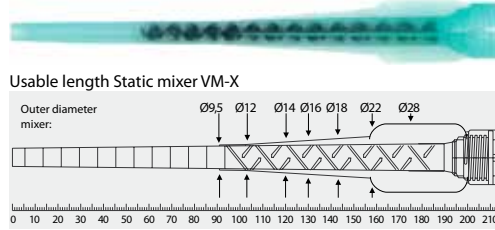
- For manual drill hole cleaning of non-approved systems in solid and perforated masonry
- Nylon trim
- With wooden handle

Description	Ref. No.	Suitable for drill hole Ø mm	Length mm	Pkg. cont. pcs.	Weight per piece kg
RB-H 12/250	29914501	8-12	250	1	0,04
RB-H 18/250	29918501	10-18	250	1	0,04
RB-H 18/400	33618101	10-18	400	1	0,05
RB-H 28/280	29928501	20-28	280	1	0,05
RB-H 28/400	33628101	20-28	400	1	0,06

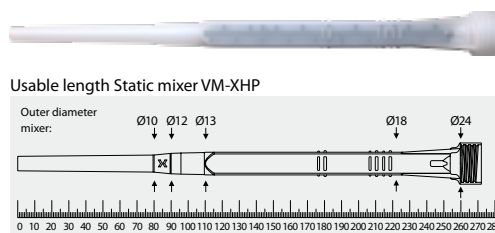
Static mixer

- ➔ To mix the two components of the injection adhesive
- ➔ Before each application, squeeze out an approx. 10cm long strand (initial strand). The initial strand is not suitable for fastening. (See European Technical Assessment and Installation Instructions)
- ➔ Usable length static mixer: Drill holes must always be filled from the bottom of the hole to ensure no air pockets are trapped in the adhesive. This is only possible when the tip of the mixing nozzle reaches the very bottom of the drill hole before injecting the adhesive. If the mixing nozzle does not reach the bottom of the drill hole, a mixer extension tube must be used.

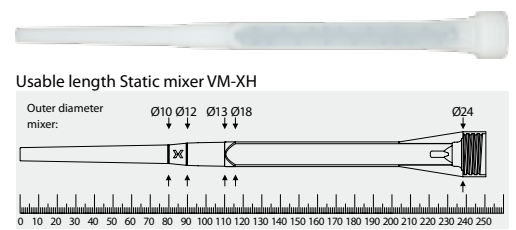
VM-X



VM-XHP



VM-XH



VM-XL



Description	Ref. No.	Suitable for Injection Systems / Cartridges	Length mm	Package content pcs.	Weight per pkg. kg
VM-X	28305111	VMZ: all Cartridges, VMU plus: 150ml, 280ml, 300ml, 345ml, 410ml VM-EA: all Cartridges VM-PY: all Cartridges	215	12	0,12
VM-XH	28304801	VMH: all Cartridges	250	12	0,16
NEW VM-XHP	28305301	VME plus: all Cartridges VMH: all Cartridges	272	12	0,18
VM-XL ¹⁾	28305201	VMU plus: all Cartridges VME: all Cartridges	245	10	0,28

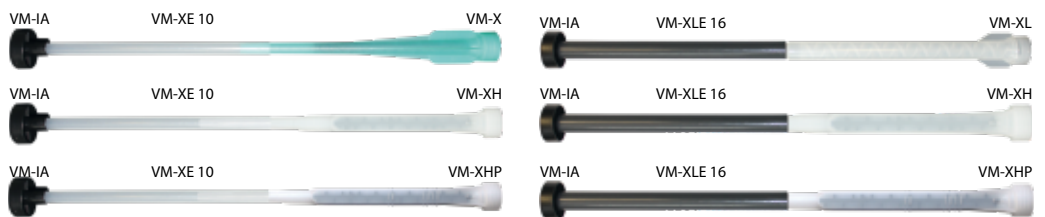
¹⁾Static mixer VM-XL comes with a reducers / extension tube. Suitable for drill holes from 12mm diameter.

Extension tubes



- ➔ Extension tubes for deeper drill holes
- ➔ Extension tubes VM-XE and VM-XLE can be cut to the required length

Possible combinations static mixer / Extension tube / Retaining Washer:



Description	Ref. No.	Diameter mm	Length mm	Drill hole-Ø mm	Suitable for static mixer	Package content pcs.	Weight per pkg. kg
VM-XE 10/200	28306011	10	200	12 - 40		12	0,12
VM-XE 10/500	85951101	10	500	12 - 40	VM-X	10	0,20
VM-XE 10/1000	85952101	10	1000	12 - 40	VM-XHP VM-XL	10	0,30
VM-XE 10/2000	85954101	10	2000	12 - 40		10	0,65
VM-XLE 16/250	85959101	16	250	18 - 55	VM-XHP	10	0,30
VM-XLE 16/1000	85956101	16	1000	18 - 55	VM-XH	10	1,15
VM-XLE 16/2000	85958101	16	2000	18 - 55	VM-XL	10	3,50

Retaining Washer VM-IA


→ For bubble-free filling of the drill hole

→ Suitable for extension tubes VM-XE 10 and VM-XLE 16

Description	Ref. No.	Suitable for drill hole Ø mm	Pkg. cont. pcs.	Weight per pkg. kg
VM-IA 14	85914201	14	20	0,04
VM-IA 16	85916201	16	20	0,04
VM-IA 18	85918201	18	20	0,04
VM-IA 20	85920201	20	20	0,06
VM-IA 22	85922201	22	20	0,06
VM-IA 24	85924101	24	20	0,06
VM-IA 25	85925201	25 / 26	20	0,06
VM-IA 28	85928101	28	20	0,06
VM-IA 30	on request	30	-	-
VM-IA 32	85932201	32	20	0,08
VM-IA 35	85935201	35	20	0,10
VM-IA 40	85938201	40	20	0,10
VM-IA 45	on request	45	-	-
VM-IA 55	on request	55	-	-

Dispenser VM-P Standard


→ For occasional use, metal version

→ Piston rod with adjusting screw

Description	Ref. No.	Suitable for cartridge	Pkg. cont.	Weight per piece kg
VM-P 345 Standard	28350505	150ml, 280ml, 300ml, 345ml also suitable for silicone cartridges	1	1,00
VM-P 380 Standard	28353005	380ml, 410ml, 420ml	1	1,15
VM-P 385 Standard	28353010	385ml	1	1,33
VM-P 585 Standard	28352151	385ml, 440ml, 585ml	1	1,60

Dispenser VM-P Profi


→ Professional dispenser with an ideal center of gravity for more comfortable working

→ Automatic pressure release for minimum adhesive overrun

Description	Ref. No.	Suitable for cartridge	Pkg. cont.	Weight per piece kg
VM-P 345 Profi	28350511	150ml, 280ml, 300ml, 345ml also suitable for silicone cartridges	1	1,00
VM-P 380 Profi	28351001	380ml, 410ml, 420ml	1	1,10
VM-P 385 Profi	28353015	385ml	1	1,20

Dispenser VM-P 585 Profi


→ Professional dispenser with an ideal center of gravity for more comfortable working

→ Combi-tool for many different types of cartridges

→ Automatic pressure release for minimum adhesive overrun

Description	Ref. No.	Suitable for cartridge	Pkg. cont.	Weight per piece kg
VM-P 585 Profi	28353201	280ml, 300ml, 330ml, 380ml, 385ml, 410ml, 420ml, 440ml, 585ml also suitable for silicone cartridges	1	1,67

Dispenser VM-P Akku



- Professional, solid battery cartridge dispenser
- Repeat function, for retrieving the last fill quantity
- Stepless variable pressing speed
- Overrun-quantity-stop by automatic return after release of the dispensing switch

Description	Ref. No.	Suitable for cartridge	Press-out force kN	Weight ¹⁾ kg	Dimensions ¹⁾ L x B x H mm	Pkg. cont.	Weight pro pcs. kg
VM-P 345 Akku	28350801	345ml	5,0	3,53	395 x 180 x 285	1	7,72
VM-P 380 Akku	28352601	380ml, 410ml, 420ml	3,95	3,62	375 x 180 x 285	1	7,80
VM-P 585 Akku	28353301	385ml, 440ml, 585ml	5,0	3,86	440 x 180 x 285	1	8,05
VM-P 825 Akku	28353501	825 ml	5,0	4,14	410 x 180 x 285	1	8,34
Accessories (for all models)							
Replacement battery	28352411		18 V/2,0 Ah			1	1,00
Shoulder strap	28359991		adjustable			1	0,18

¹⁾ with Akku 18V/2,0 Ah

Dispenser VM-P Pneumatic



VM-P 345
Pneumatic Eco



VM-P 380 /
585 Pneumatic



VM-P 1400
Pneumatic

- Professional air tool with an optimum center of gravity and quick cartridge exchange
- Automatic pressure release system reduces adhesive overrun to a minimum
- Single-hand pressure regulation to adjust the piston speed
- With compressed air connection nipple
- VM-P 825 Pneumatic and VM-P 1400 Pneumatic with additional handle

Description	Ref. No.	Suitable for cartridge	Maximum working pressure bar	Maximum Luftverbrauch l/min	Maximum Press-out force kN	Pkg. cont. pcs	Weight per piece kg
VM-P 345 Pneumatic Eco	28351601	280ml, 300ml, 345ml	6,8	40	2,2	1	2,55
VM-P 380 Pneumatic	28352002	380ml, 410ml, 420ml	8	40	4,0	1	2,80
VM-P 585 Pneumatic	28352101	385ml, 440ml, 585ml	8	40	4,0	1	3,20
VM-P 825 Pneumatic	28352110	825ml	8	40	4,0	1	5,00
VM-P 1400 Pneumatic	28352201	1400ml	8	40	8,3	1	7,00