Injections System VMH

for post-installed rebar connection

Reinforcement Bars B500

Tension Anchor ZA

Cartridge VMH 280
Coaxial cartridge suitable for silicone guns
Content: 280ml
including 2 mixers

Cartridge VMH 345
Side-by-side cartridge
Content: 345ml

Cartridge VMH 420
Coaxial cartridge
Content: 420ml

R30-R120

Injection Cartridge VMH

- Hybrid injection adhesive, styrene free
- for post-installed rebar

Description	Ref. No.	Content ml	Content of master box	Weight per master box kg	Weight per piece kg
Cartridge VMH 280[1)]	28251501	280	12	6,70	0,56
Cartridge VMH 345	28253501	345	12	8,00	0,65
Cartridge VMH 420	28257501	420	12	10,1	0,83
Static mixer VM-XHP	28305301	-	12	0,18	0,01

One static mixer comes with each cartridge.

[1)]Cartridge VMH 280 comes with 2 mixers.

Curing Time Injection Adhesive VMH

- Cartridge temperature when installing + 5°C to + 40°C

Temperature (°C) of the base material	Gel time	Curing time	
		Dry base material	Wet base material
-5°C to - 1°C	50 min	5 h	10 h
0°C to + 4°C	25 min	3,5 h	7 h
+ 5°C to + 9°C	15 min	2 h	4 h
+ 10°C to + 14°C	10 min	1 h	2 h
+ 15°C to + 19°C	6 min	40 min	80 min
+ 20°C to + 29°C	3 min	30 min	60 min
+ 30°C to + 40°C	2 min	30 min	60 min

Description

The Injection System VMH also has the European Technical Assessment for post-installed rebar connection. Reinforcement bars with diameters from 8mm to 32mm as well as tension anchors from M12 to M24 with a setting depth up to 2m[1)] can be fixed. Due to the short processing and curing times, the VMH is particularly suitable for low temperatures.

Advantages

- Short processing and curing times, therefore ideal for low temperatures
- Wide range of application, as up to 35mm rebar diameter allowed
- Drill hole creation with hammer drill, compressed air drill or hollow drill bit
- Approved for installation in dry and wet concrete
- Opened cartridges can be reused with a new static mixer
- Approved for use under fire exposure
- Tie rods ZA with connecting thread M12 - M24 can be supplied in individual lengths on request

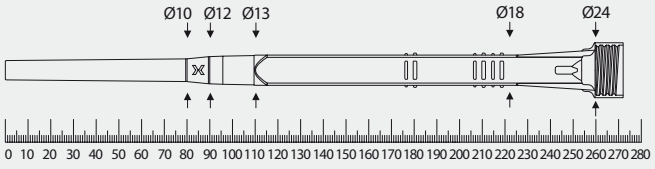
Application examples for post-installed rebar connection:
Subsequent connection of stairs, balconies, walls or columns, closing of wall and ceiling openings

Application examples for tension anchors:
Anchoring of railing posts and of supports subject to bending loads, anchoring of cantilevered components

Usable length static mixer VM-XHP

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.

Outer diameter mixer:



[1)]See table accessories for Injection system VMH

Accessories for Injection System VMH for post-installed rebar connection

Rebar Ø	Tension Anchor	Drill Bit Ø	Blow-out pump / Air gun[1]	Cleaning brush RB[1]	Retaining washer VM-IA[1]	Extension tube[1]	Maximum permissible drilling depth for dispenser: VM-P 345 Standard, VM-P 345 Profi, VM-P 380 Standard, VM-P 380 Profi, VM-P 345 Akku, VM-P 380 Akku, VM-P 825 Akku[3]	Maximum permissible drilling depth for dispenser: VM-P 345 Pneumatic Eco, VM-P 380 Pneumatic Eco, VM-P 380 Pneumatic	Maximum permissible drilling depth for dispenser: VM-P 825 Pneumatic[3]
mm	mm	mm					mm	mm	mm
8		12	VM-ABP 200 DLS with RS, RS25	RB 12 M6 RB 12 M8	-	VM-XE 10	700	800	800
10		14	VM-ABP 200 DLS with RS, RS25	RB 14 M6 RB 14 M8	VM-IA 14[1]	VM-XE 10	700	1000	1000
12	ZA-M12	16	VM-ABP 200 / 1000 DLS with RS, RS25	RB 16 M6 RB 16 M8	VM-IA 16[1]	VM-XE 10	700	1000	1200
14		18	VM-ABP 200 / 250 / 500 / 1000 DLS with RS, RS25	RB 18 M6 RB 18 M8	VM-IA 18[1]	VM-XE 10[2], VM-XLE 16	700	1000	1400
16	ZA-M16	20	VM-ABP 200 / 250/ 500 / 1000 DLS with RS, RS25	RB 20 M6 RB 20 M8	VM-IA 20[1]	VM-XE 10[2], VM-XLE 16	700	1000	1600
20	ZA-M20	25	VM-ABP 250 / 500 / 1000 DLS with RS, RS25	RB 25 M8 RB 26 M6	VM-IA 25[1]	VM-XE 10[2], VM-XLE 16	500	700	2000
22		28	VM-ABP 250 / 500 / 1000 DLS with RS, RS25	RB 28 M6	VM-IA 28[1]	VM-XE 10[2], VM-XLE 16	500	700	2000
24 / 25	ZA-M24	32	VM-ABP 250 / 500 /1000 DLS with RS, RS35	RB 32 M6 RB 32 M8	VM-IA 32[1]	VM-XE 10[2], VM-XLE 16	500	500	2000
28		35	VM-ABP 250 / 500 /1000 DLS with RS, RS35	RB 35 M6 RB 35 M8	VM-IA 35[1]	VM-XE 10[2], VM-XLE 16	500	500	2000
32		40	VM-ABP 250 / 500 / 1000	RB 40 M6	VM-IA 40[1]	VM-XE 10[2], VM-XLE 16	500	500	2000
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[1]If the static mixer does not reach the bottom of the borehole (see usable length of static mixer), a extension tube must be used. From a drill-Ø $d_0 \geq 14$ mm, retaining washer and extension tube must be used for horizontal and overhead installation and for drill hole depths > 240 mm.

[2]Not in combination with the dispenser VM-P 825 Pneumatic

[3]Cartridge VMH 825 available on request

Extract from Permissible Service Conditions of European Technical Assessment ETA-17/0715 for post-installed rebar connection with the Injekton System VMH

Concrete Strength		C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Design value of bond strength fbd,PIR[1] [N/mm²]	Hammer-, suction- and pneumatic drilling	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3

[1]The values fbd,PIR are valid for "good" bond conditions according to EN 1992-1-1:2004.

Installation parameters and Amount of adhesive Injection System VMH for post-installed rebar connection

Rebar-Ø	[mm]	8	10	12	14	16	20	22	24	25	28	32
Drill hole-Ø	d_0 [mm]	12	14	16	18	20	25	28	32	32	35	40
Amount of adhesive / 100 mm setting depth	[ml]	8,46	10,12	11,78	13,44	15,09	23,11	30,4	44,65	40,03	44,22	57,32

Installation parameters Injection System VMH with Tension Anchor

Tension Anchor ZA			**ZA M12**	**ZA M16**	**ZA M20**	**ZA M24**
Rebar		[mm]	12	16	20	25
Drill hole diameter	do	[mm]	16	20	25	32
Diameter of clearance hole	$d_f \leq$	[mm]	14	18	22	26
Effective setting depth	lv	[mm]	according to static calculation			
Installation torque	Tinst ≤	[Nm]	50	100	150	150
Width across nut	SW	[mm]	19	24	30	36
Amount of adhesive / 100 mm setting depth		[ml]	11,78	15,09	23,11	40,03
Tension Anchor ZA see page			**176**	**176**	**176**	**on request**

Installation