

Injection System **VMU plus**



Threaded Stud VMU-A
for concrete and brickwork



Threaded Stud VM-A
1 meter length, to be cut to the required length for concrete and brickwork



Threaded Stud VMU-AMH
for perforated brick with perfo sleeve



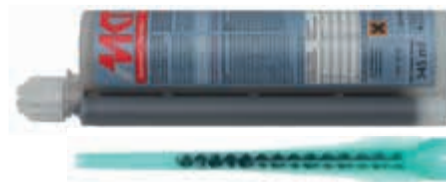
Perfo Sleeve VMU-SH
for perforated brick



Cartridge VMU plus 150
suitable for silicone guns
Content: 150ml



Cartridge VMU plus 280
suitable for silicone guns
Content: 280ml, including 2 mixers, attached to the cartridge



Cartridge VMU plus 345
Side-by-side cartridge
Content: 345ml



Cartridge VMU plus 410
Coaxial cartridge
Content: 410ml



Cartridge VMU plus 825
Side-by-side cartridge
Content: 825 ml
With big mixer VM-XL and reducers / extension tube for drill holes from 12mm diameter



LEED tested

Range of loading: 0,3 kN – 202,0 kN

Concrete quality: C20/25 - C50/60

Brickwork: Solid and perforated brick

Material: Steel zinc plated, hot dip galvanized, Stainless steel A4/316

On request: Stainless steel HCR

Description

The injection system VMU plus is a new universal injection system for almost all applications and materials. Besides the use in non-cracked concrete and masonry, VMU plus is also approved for fixings in cracked concrete and for post installed rebar connections. To complete the fastening, various anchor rods or internal sleeves can be used from the existing MKT-range (VMU-A, VM-A and VA), as well as standard threaded rods or reinforcing bars. In perforated brick, a perfo sleeve is required.

Advantages

- Only one mortar for almost all applications, more flexibility, less inventory, greater application security
- approved for cracked (M12-M30) and non-cracked concrete (M8-M30)
- approved for post-installed rebar connections (Ø8-Ø32)
- approved for solid and perforated brickwork
- approved with standard threaded studs (strength test required)
- base material temperature during installation -10°C (concrete) to +40°C
- environmental temperature when completely cured -40°C to +120°C (concrete)
- variable anchorage depth for less drilling efforts
- fire test report
- opened cartridges can be re-used with a new mixer nozzle
- styrene-free vinyl ester resin
- Approved application in wet or water-filled drill holes (M8-M16)
- Approved to use under seismic action according to the performance category C1

NEW



Auszug aus den Anwendungsbedingungen der Zulassung ETA-13/0909

Approved loads for single anchor without influence of spacing and edge distance.

Total safety factor as per ETAG included (γ_m und γ_p).

Loads and performance data	Injection system VMU plus with threaded stud VMU-A/AMH/IG, VM-A steel z.p. / s.S. A4 / s.S. HCR in masonry	Solid brick		Hollow block		Hollow block	
		KSV-NF	Mz-NF	KSL-R-12-1,2-16DF	KSL-12-1,2-16DF	HLz-12-0,8-xxDF	HLz-12-0,9-16DF
Dimension	ρ [kg/dm ³]	1,8	1,8	1,2	1,2	0,8	0,9
Compressive strength	f_b [N/mm ²]	8	12	12	1,2	12	12
Range of temperature 24°C/40°C²⁾ - use category dry/dry²⁾							
without perfo sleeve:							
M8	appr. N/V ¹⁾ [kN]	1,1	1,1	-	-	-	-
M10, M12	appr. N/V ¹⁾ [kN]	1,2	1,4	-	-	-	-
IG M6, IG M8	appr. N/V ¹⁾ [kN]	1,2	1,4	-	-	-	-
with perfo sleeve:							
M8	appr. N/V ¹⁾ [kN]	1,2	1,0	1/0,7	0,7/0,6	0,6	0,9/0,6
M10, AMH M12	appr. N/V ¹⁾ [kN]	1,2	1,3	-	0,9/0,7	0,6/0,7	-
Temperaturbereich 50°C/80°C¹⁾ - Nutzungskategorie trocken/trocken²⁾							
without perfo sleeve:							
M8	appr. N/V ¹⁾ [kN]	0,9	0,9	-	-	-	-
M10, M12	appr. N/V ¹⁾ [kN]	1,2	1,3	-	-	-	-
IG M6, IG M8	appr. N/V ¹⁾ [kN]	1,2	1,3	-	-	-	-
with perfo sleeve:							
M8	appr. N/V ¹⁾ [kN]	1,2	0,9	1/0,7	0,7/0,6	0,6	0,9/0,6
M10, AMH M12	appr. N/V ¹⁾ [kN]	1,2	1	-	0,9/0,7	0,6/0,7	-
Min. spacing parallel to bearing joint	$S_{min, }$ [mm]	240	240	498	498	373	498
Min. spacing perpendicular to bearing joint	$S_{min,\perp}$ [mm]	71	71	248	238	238	238
Min. edge distance without perfo sleeve	C_{min} [mm]	135 (120) ³⁾	135 (120) ³⁾	100	100	100	100
Min. edge distance with perfo sleeve	C_{min} [mm]	150	150	100	100	100	100

			VMU-A / V-A			VMU-AMH	VMU-IG	
			M8	M10	M12	M12	M6	M8
Appr. bending moments (Steel, zinc plated 5.8)	appr. M	[Nm]	10,9	21,1	37,1	21,1	4,0	10,9
Appr. bending moments (Stainless steel A4/316)	appr. M	[Nm]	11,9	23,8	41,7	23,8	5,0	11,9

¹⁾ long term temperature/ short term temperature

²⁾ Installation / use

³⁾ Value in brackets with perfo sleeve

The installation in wet brickwork (at installation and in service) is also possible and approved. The capacities in wet brickwork are slightly lower than in dry brickwork. For load capacities refer to the approval ETA-13/0909.

Installation parameters in solid brickwork (without a perfo sleeve)

Type of Threaded Stud			VMU-A, VM-A, V-A			VMU-IG	
			M8	M10	M12	IG M6	IG M8
Thread			M8	M10	M12	IG M6	IG M8
Drill hole diameter	d_o	[mm]	10	12	14	12	14
Setting depth / anchorage depth	h_{ef}	[mm]	80	90	≥ 93	93	93
Depth of drill hole	$h_o \geq$	[mm]	85	95	98	98	98
Clearance hole in the fixture	$d_f \leq$	[mm]	9	12	14	7	9
Diameter cleaning brush	$d_B \geq$	[mm]	20	20	20	20	20
Installation torque	$\leq T_{inst}$	[Nm]	2	2	2	2	2
Amount of mortar per drill hole		[ml]	5,2	7,3	9,8	7,3	9,8

Installation parameters in solid and hollow base material (with a perfo sleeve)

			VMU-A, VM-A, V-A		VMU-AMH
			M8	M10	M12
Thread			M8	M10	M12
Drill hole diameter	d_o	[mm]	14	16	16
Setting depth/anchorage depth perfo sleeve	h_{nom}	[mm]	100	100	100
Setting depth/anchorage depth stud	h_{ef}	[mm]	80	90	93
Depth of drill hole	$h_o \geq$	[mm]	105	105	105
Clearance hole in the fixture	$d_f \leq$	[mm]	9	12	14
Diameter cleaning brush	$d_B \geq$	[mm]	20	20	20
Installation torque	$\leq T_{inst}$	[kN]	2	2	2
Amount of mortar per drill hole		[ml]	15,0	21,0	21,0

Installation

