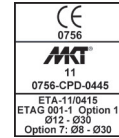


## Assembly instructions - XV Plus injection anchor

### MKT type injection system VMU Plus



### Injection mortar for heavy-duty, splay-free fastenings in concrete (ETA-11/0415), masonry (ETA-13/0909)

Observe the installation instructions and the appropriate approvals during the installation process. Approvals will be sent upon request, or are available for downloading on [www.muepro.com](http://www.muepro.com).

These products may only be used for the purposes specified by the manufacturer or in combination with other products suitable for the purpose. The instructions listed here and the assembly sequences shown must be strictly followed.

MÜPRO GmbH disclaims all liability for damage or losses that may arise due to non-compliance with these instructions, or due to improper installation.

### Safety and hazard information:



**Wear suitable protective clothing, gloves and safety glasses. Observe the safety data sheet.**

**Table 1: Maximum permissible processing time and minimum curing time**

Temperature (° C) in the drill hole	Setting time	Curing time	
		Dry concrete	Wet concrete
≥ +40°C <sup>1)</sup>	1.5 min	15 min	30 min
≥ +35°C <sup>1)</sup>	2 min	20 min	40 min
≥ +30°C <sup>1)</sup>	2.5 min	25 min	50 min
≥ +25°C	4 min	45 min	90 min
≥ +20°C	6 min	45 min	90 min
≥ +10°C	15 min	80 min	160 min
≥ +5°C	25 min	2 h	4 h
≥ +0°C <sup>2)</sup>	45 min	7 h	14 h
≥ -5°C <sup>2)</sup>	90 min	14 h	28 h
≥ -10°C <sup>2) 3)</sup>	90 min	24 h	48 h

**Reference values for mortar quantity per stroke for MÜPRO dispensing guns.**

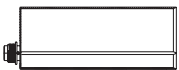
Dispensing gun	Part no.	Cartridge	Volume per stroke
dispensing gun Standard	130594	345 ml	approx. 7,3 ml
dispensing gun Profi	130595	345 ml	approx. 4,2 ml

<sup>1)</sup>The cartridge temperature must be below 20°C.

<sup>2)</sup> Processing in masonry as of +5° only.

<sup>3)</sup>The cartridge temperature must be at least +15°C.

**Applications as per ETA-11/0415 certification for fastening of threaded rods in cracked or uncracked concrete and applications as per ETA-13/0909 certification for fastening threaded rods and internal sleeves in solid and perforated masonry:**



MÜPRO injection mortar for XV plus



MÜPRO mixer



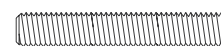
MÜPRO purging pump (drill hole cleaning set)



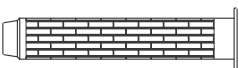
VM-A, VMU-A threaded rod for concrete + solid brick



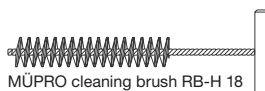
VMU-AMH threaded rod for perforated bricks



VMU-IG internal thread anchor rod for concrete + solid brick



Perforated screen



MÜPRO cleaning brush RB-H 18 (masonry)



MÜPRO cleaning brush RB M6 (concrete)

## Assembly instructions - XV Plus injection anchor

### MKT type injection system VMU Plus

#### Installation instructions for concrete:

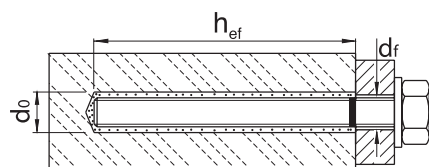
1.		Using a rotation/percussion drill, drill a hole of the required diameter (Table 2 or Table 3a) and hole depth as specified by the planner.
2a		<b>The drill hole must be cleaned directly prior to installation of the anchor. Remove standing water from the hole before cleaning.</b> Completely purge the hole 4 times with compressed air (min. 6 bar) or a manual pump from the hole bottom. Use extensions in deep holes.  Holes up to a diameter of 20 mm can be purged with a hand pump.  Holes larger than 20 mm or deeper than 240 mm <b>must</b> be purged with oil free compressed air at min. 6 bar.
2b		Select a brush to match the hole. Check the diameter of the cleaning brush RB. If the brush can be pushed into the hole without resistance, use a new brush. Clamp the brush in the drill. Switch on the drill and only then, with the brush rotating, brush out the hole to the hole bottom, working with a backwards and forwards motion; do this at least four times. Use extensions in deep holes.
2c		Then again completely purge the hole 4 times with compressed air (min. 6 bar) or a manual pump from the hole bottom. Use extensions in deep holes. Holes up to a diameter of 20 mm can be purged with a hand pump. Holes larger than 20 mm or deeper than 240 mm must be purged with oil free compressed air at min. 6 bar.
3.		Screw the supplied static mixer firmly onto the cartridge and insert the cartridge into a suitable applicator gun. The static mixer must be replaced if work is interrupted for longer than the recommended working time (Table 1) and for each new cartridge. Do not shorten or change the mixer, never use the mixer without the mixing helix.
4.		Before injecting the mortar, mark the installation depth on the anchor rod as specified by the planner.
5.		The mortar preflow is not suitable for fastening the anchor rod. Before applying, press out a bead of about 10 cm length (mortar preflow) until the mortar is uniformly grey in colour; use at least 3 full strokes.

6.		Fill the cleaned hole from the hole bottom up about 2/3 with injection mortar. Slowly retracting the static mixer from the hole prevents the formation of air inclusions. For installation depths greater than 190 mm, use an extension nozzle. Use injection adapters for horizontal or overhead installation of anchors > Ø 20 mm. Observe the temperature dependent processing times (Table 1).
7.		Insert the fastener with a slight twisting motion up to the specified installation depth. The anchor rod must be free of dirt, grease and oil.
8.		After installing the anchor, the annular gap must be completely filled with mortar. If no mortar escapes after reaching the installation depth, this condition is not met, and the application must be repeated before the end of the processing time (starting at step 6). For overhead installation, fix the anchor rod in place (e.g., using wedges).
9.		The specified curing time must be adhered to. Do not move the anchor or expose it to load during curing (see Table 1).
10		After complete curing, remove the mortar that escaped. After this, the hang-on part can be installed with the permissible torque (Table 2). The nut must be tightened with a suitable torque wrench.

Table 2a: Installation data for threaded rods in concrete

Anchor size		M8	M10	M12	M16	M20	M24	M27	M30
Nominal hole diameter	$d_0$ [mm]	10	12	14	18	24	28	32	35
Installation and hole depth range	$h_{ef,min}$ [mm]	60	60	70	80	90	96	108	120
	$h_{ef,max}$ [mm]	160	200	240	320	400	480	540	600
Through hole in the component to be connected	$d_f \leq$ [mm]	9	12	14	18	22	26	30	33
Cleaning brush diameter	$d_B$ [mm]	12	14	16	20	26	30	34	37
Cleaning brush	RB	10	12	14	18	24	28	32	35
Torque	$T_{inst}$ [Nm]	10	20	40	80	120	160	180	200
Injection adapter	VM-	-	-	IA 14	IA 18	IA 24	IA 28	IA 32	IA 35
Min. mortar requirement per 10 mm of drilling depth	[ml]	0.65	0.82	0.98	1.36	2.67	3.23	4.20	4.87

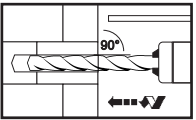
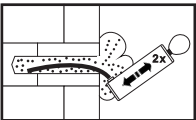
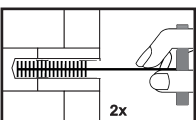
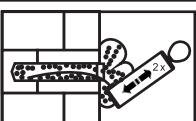
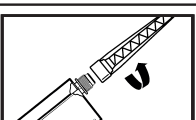
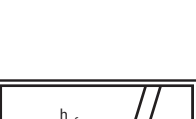
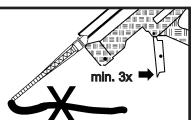
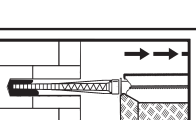
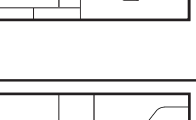
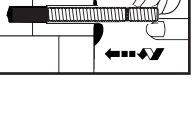
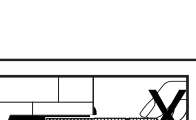
#### Installation drawing VMU plus



## Assembly instructions - XV Plus injection anchor

### MKT type injection system VMU Plus

#### Installation instructions in solid brick without perforated sleeve:

1.		Using a rotation drill, drill a hole of the specified diameter (Table 2b) and depth.
2a		<b>The drill hole must be cleaned directly prior to installation of the anchor.</b> Completely purge the hole from the hole bottom 2x using a purging pump.
2b		Brush out the hole 2 times with a cleaning brush.
2c		Then again completely purge the hole from the hole bottom 2x using a purging pump.
3.		Screw the supplied static mixer firmly onto the cartridge and insert the cartridge into a suitable applicator gun. The static mixer must be replaced if work is interrupted for longer than the recommended working time (Table 1) and for each new cartridge. Do not shorten or change the mixer, never use the mixer without the mixing helix.
4.		Before injecting the mortar, mark the installation depth on the anchor rod.
5.		The mortar preflow is not suitable for fastening the anchor rod. Before applying, press out a bead of about 10 cm length (mortar preflow) until the mortar is uniformly grey in colour; use at least 3 full strokes.
6		Fill the cleaned hole from the hole bottom up about 2/3 with compound mortar. Slowly retracting the static mixer from the hole prevents the formation of air inclusions. Observe the temperature dependent processing times (Table 1).
7		Insert the fastener with a slight twisting motion up to the specified installation depth. The anchor rod is correctly installed if mortar escapes from the mouth of the hole around the anchor rod. If there is no mortar visible at the surface, pull out anchor rod, let the mortar cure, drill out a hole, and start again from step 2. The anchor rod must free of dirt, grease and oil.
8		The specified curing time must be adhered to. Do not move the anchor or expose it to load during curing (see Table 1). After the curing has expired, remove the mortar that escaped.
9		After complete curing, the hang-on part can be installed with the permissible torque (Table 2b). The nut must be tightened with a suitable torque wrench.

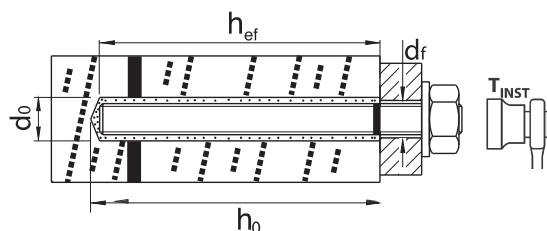


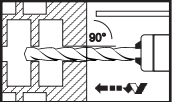
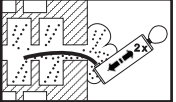
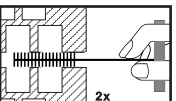
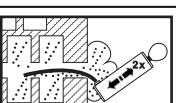
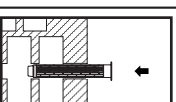
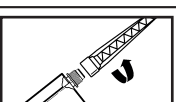
Table 2b: Installation data for solid brick without perforated sleeve

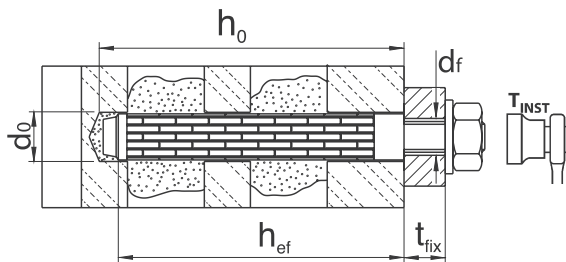
Anchor rod type		VMU-A, V-A			VMU-IG	
Anchor rod size		M8	M10	M12	M6	M8
Nominal hole diameter	$d_0 =$ [mm]	10	12	14	12	14
Installation depth	$h_{ef} =$ [mm]	80	90	≥ 93	93	93
Hole depth	$h_0 =$ [mm]	85	95	98	98	98
Through hole in the component to be connected	$d_f \leq$ [mm]	9	12	14	7	9
Brush diameter	$d_B$ [mm]	20				
Torque	$\max. T_{inst}$ [Nm]	2				
Minimum mortar requirement per hole	[ml]	5.2	7.3	9.8	7.3	9.8

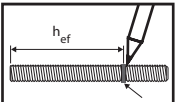
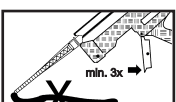
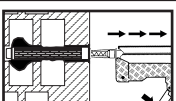
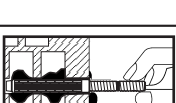


## Assembly instructions - XV Plus injection anchor

### MKT type injection system VMU Plus

#### Installation instructions in solid and perforated brick with perforated sleeve:

1.		Drill a hole of the specified diameter (Table 3a) and depth (do not use an impact drill).
2a		The drill hole must be cleaned directly prior to installation of the anchor. Completely purge the hole from the hole bottom 2 times using a manual pump.
2b		Brush out the hole 2 times with a cleaning brush.
2c		Then again completely purge the hole from the hole bottom 2x using a manual pump.
3.		Insert the perforated sleeve into the hole. Make sure that the perforated sleeve fits perfectly in the hole. Never shorten the perforated sleeve. Only use perforated sleeves of the correct length.
4.		Screw the supplied static mixer firmly onto the cartridge and insert the cartridge into a suitable applicator gun. The static mixer must be replaced if work is interrupted for longer than the recommended working time (Table 1) and for each new cartridge. Do not shorten or change the mixer, never use the mixer without the mixing helix.



5.		Before injecting the mortar, mark the installation depth on the anchor rod.
6		The mortar preflow is not suitable for fastening the anchor rod. Before applying, press out a bead of about 10 cm length (mortar preflow) until the mortar is uniformly grey in colour; use at least 3 full strokes.
7		Fill the perforated sleeve with mortar. To do so, insert the mixer up to the end of the perforated sleeve. Then slowly retract the mixer; while doing so inject at least 41 full strokes for VMU-SH 14x100 or 61 full strokes for VMU-SH 16x100 into the perforated sleeve.
8		Insert the fastener with slight twisting movements up to the specified installation depth for optimal distribution of the mortar. The anchor rod must be free of dirt, grease and oil.
9		The specified curing time must be adhered to. Do not move the anchor or expose it to load during curing (see Table 1). After the curing has expired, remove the mortar that escaped.
10		After complete curing, the hang-on part can be installed with the permissible torque (Table 3a). The nut must be tightened with a suitable torque wrench.

**Table 3a: Installation instructions in solid and perforated brick with perforated sleeve**

Anchor rod type		VMU-A, V-A		VMU-AMH
		M8	M10	M12
Perforated sleeve		SH 14x100	SH 16x100	SH 16x100
Nominal hole diameter	$d_0 =$ [mm]	14	16	16
Sleeve installation depth	$h_{nom} =$ [mm]	100	100	100
Rod installation depth	$h_{ef} =$ [mm]	80	90	93
Hole depth	$h_0 =$ [mm]	105	105	105
Through hole in the component to be connected	$d_f \leq$ [mm]	9	12	14
Brush diameter	$d_B \geq$ [mm]	20		
Torque	$max. T_{inst}$ [Nm]	2		
Minimum mortar requirement per hole	[ml]	15.0	21.0	21.0

<sup>1)</sup>Specifications apply for dispensing gun Profi and Standard.