

## Chemical Anchor V



Threaded Stud V-A



Chemical Capsule V-P

**Range of loading: 3,0 kN - 60,0 kN**

**Range of concrete quality: C12/15 - C50/60**

**Material: Steel, zinc plated, Steel, hot dip galvanized, Stainless steel A4, HCR**

### Description

The Chemical Anchor V with ETA assessment consists of a glass capsule filled with resin, hardener and filler-material, as well as the Threaded Stud V-A. The components in the capsule are mixed to a fast curing resin-adhesive when the threaded stud is inserted into the drill-hole. This stress free anchoring system has been tried and tested for decades and allows for mounting of heavy loads even with smaller spacings and edge distances in non-cracked concrete. All Sizes of Threaded Stud V-A are also available in grade 8.8 steel on demand.

### Advantages:

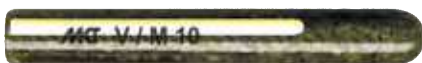
- Anchor-rods with external hexagon for fast and easy installation
- Every package includes an adapter for the drilling machine
- Excellent suitability for high volume fixing
- Sealed drill-hole
- Extensive product range for all uses
- Usable in wet and dry concrete
- Also with large washer for crash-barrier mounting
- Economic special lengths without external hexagon available



### Applications

Anchoring of heavy loads in non-cracked concrete: trusses, foot and headplates, consoles, crash-barriers, noise-protection walls.

### Chemical Capsule V-P



→ Two component glass capsule

→ European Technical Assessment for non-cracked concrete

Description	Ref. No.	Capsule Ø	Capsule length	Content of master box	Weight per master box	Package content	Weight per package
		mm	mm	pcs.	kg	pcs.	kg
V-P 8	25100801	9	80	500	7,02	10	0,13
V-P 10	25101001	11	80	500	8,50	10	0,16
V-P 12	25101201	13	95	500	12,30	10	0,25
V-P 14 <sup>1)</sup>	25101401	15	95	500	15,82	10	0,27
V-P 16	25101601	17	95	500	19,36	10	0,36
V-P 20	25102001	22	175	-	-	10	1,20
V-P 24	25102401	24	210	-	-	5	0,87
V-P 30 <sup>1)</sup>	25103001	33	265	-	-	5	2,64

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

### Threaded Stud V-A



→ For use in structures subject to dry internal conditions

→ Steel, zinc plated 5.8

Description	Ref. No.	Drill hole Ø x depth	Fixture thickness t <sub>fix</sub>	Usable length in concrete <sup>1)</sup>	Package content	Weight per package kg
		mm	mm	mm	pcs.	
V-A 8-20/110	21101101	10 x 80	20	100	10	0,43
V-A 8-60/150	21105101	10 x 80	60	140	10	0,53
V-A 10-15/115	21202101	12 x 90	15	105	10	0,73
V-A 10-30/130	21203101	12 x 90	30	120	10	0,81
V-A 10-65/165	21207101	12 x 90	65	155	10	0,98
V-A 10-90/190	21210101	12 x 90	90	180	10	1,11
V-A 10-150/250	21216101	12 x 90	150	240	10	1,42
V-A 10-200/300	21221101	12 x 90	200	290	10	1,71
V-A 12-10/135	21304101	14 x 110	10	120	10	1,19
V-A 12-35/160	21306101	14 x 110	35	145	10	1,37
V-A 12-85/210	21312101	14 x 110	85	195	10	1,73
V-A 12-95/220	21313101	14 x 110	95	205	10	1,82
V-A 12-125/250	21316101	14 x 110	125	235	10	2,02
V-A 12-175/300	21321101	14 x 110	175	285	10	2,83
V-A 14-35/170	21408101	16 x 120	35	155	10	1,91
V-A 16-20/165	21507101	18 x 125	20	145	10	2,77
V-A 16-45/190	21510101	18 x 125	45	170	10	2,96
V-A 16-85/230	21514101	18 x 125	85	210	10	3,65
V-A 16-105/250	21516101	18 x 125	105	230	10	3,91
V-A 16-155/300	21521101	18 x 125	155	280	10	4,58
V-A 20-20/220	21613101	25 x 170	20	190	10	5,56
V-A 20-60/260	21617101	25 x 170	60	230	10	6,39
V-A 20-100/300	21621101	25 x 170	100	270	10	7,23
V-A 24-15/260	21717101	28 x 210	15	225	5	4,89
V-A 24-55/300	21721101	28 x 210	55	265	5	5,54
V-A 30-70/380 <sup>2)</sup>	21829101	35 x 280	70	350	5	10,00

Other lengths and grade 8.8 on demand.

<sup>1)</sup>For VMH/VMU plus/VM-EA/VME

<sup>2)</sup>Setting tool V-A 30-70/380 ref. no. 27805160 to be ordered separately.

### Threaded Stud V-A 8.8



→ For use in structures subject to dry internal conditions

→ Steel, zinc plated 8.8

Bezeichnung	Artikel- Nummer	Bohrloch Ø x Tiefe	Maximale Klemmstärke t <sub>fix</sub>	Nutzbare Länge in Beton <sup>1)</sup>	Pack- inhalt	Gewicht pro Packung kg
		mm	mm	mm	Stück	
V-A 8-20/110 8.8	21101171	10 x 80	20	100	10	0,43
V-A 8-60/150 8.8	21105171	10 x 80	60	140	10	0,53
V-A 10-15/115 8.8	21202171	12 x 90	15	105	10	0,73
V-A 10-30/130 8.8	21203171	12 x 90	30	120	10	0,81
V-A 10-65/165 8.8	21207171	12 x 90	65	155	10	0,98
V-A 10-90/190 8.8	21210171	12 x 90	90	180	10	1,11
V-A 12-10/135 8.8	21304171	14 x 110	10	120	10	1,19
V-A 12-35/160 8.8	21306171	14 x 110	35	145	10	1,37
V-A 12-85/210 8.8	21312171	14 x 110	85	195	10	1,73
V-A 12-125/250 8.8	21316171	14 x 110	125	235	10	2,02
V-A 12-175/300 8.8	21321171	14 x 110	175	285	10	2,83
V-A 16-20/165 8.8	21507171	18 x 125	20	145	10	2,77
V-A 16-45/190 8.8	21510171	18 x 125	45	170	10	2,96
V-A 16-85/230 8.8	21514171	18 x 125	85	210	10	3,65
V-A 16-105/250 8.8	21516171	18 x 125	105	230	10	3,91
V-A 16-155/300 8.8	21521171	18 x 125	155	280	10	4,58
V-A 20-20/220 8.8	21613171	25 x 170	20	190	10	5,56
V-A 20-60/260 8.8	21617171	25 x 170	60	230	10	6,39
V-A 20-100/300 8.8	21621171	25 x 170	100	270	10	7,23
V-A 24-15/260 8.8	21717171	28 x 210	15	225	5	4,89
V-A 24-55/300 8.8	21721171	28 x 210	55	265	5	5,54

<sup>1)</sup>For VMH/VMU plus/VM-EA/VME

### Threaded Stud V-A A4



→ For use in structures subject to dry internal conditions or external atmospheric exposure

→ Stainless Steel A4

Description	Ref. No.	Drill hole Ø x depth	Fixture thickness t <sub>fix</sub>	Usable length in concrete <sup>1)</sup>	Package content	Weight per package kg
		mm	mm	mm	pcs.	
V-A 8-20/110 A4	21101501	10 x 80	20	100	10	0,43
V-A 8-60/150 A4	21105501	10 x 80	60	140	10	0,53
V-A 10-15/115 A4	21202501	12 x 90	15	105	10	0,73
V-A 10-30/130 A4	21203501	12 x 90	30	120	10	0,81
V-A 10-65/165 A4	21207501	12 x 90	65	155	10	0,98
V-A 10-90/190 A4	21210501	12 x 90	90	180	10	1,11
V-A 10-150/250 A4	21216501	12 x 90	150	240	10	1,42
V-A 10-200/300 A4	21221501	12 x 90	200	290	10	1,71
V-A 12-10/135 A4	21304501	14 x 110	10	120	10	1,19
V-A 12-35/160 A4	21306501	14 x 110	35	145	10	1,37
V-A 12-55/180 A4	21309501	14 x 110	55	165	10	1,51
V-A 12-85/210 A4	21312501	14 x 110	85	195	10	1,73
V-A 12-95/220 A4	21313501	14 x 110	95	205	10	1,82
V-A 12-125/250 A4	21316501	14 x 110	125	235	10	2,02
V-A 12-175/300 A4	21321501	14 x 110	175	285	10	2,83
V-A 14-35/170 A4	21408501	16 x 120	35	155	10	1,91
V-A 16-5/150 A4	21505501	18 x 125	5	130	10	2,38
V-A 16-20/165 A4	21507501	18 x 125	20	145	10	2,77
V-A 16-45/190 A4	21510501	18 x 125	45	170	10	2,96
V-A 16-65/210 A4	21512501	18 x 125	65	190	10	3,20
V-A 16-85/230 A4	21514501	18 x 125	85	210	10	3,65
V-A 16-105/250 A4	21516501	18 x 125	105	230	10	3,91
V-A 16-155/300 A4	21521501	18 x 125	155	280	10	4,58
V-A 20-20/220 A4	21613501	25 x 170	20	190	10	5,56
V-A 20-60/260 A4	21617501	25 x 170	60	230	10	6,39
V-A 20-100/300 A4	21621501	25 x 170	100	270	10	7,23
V-A 24-15/260 A4	21717501	28 x 210	15	225	5	4,89
V-A 24-55/300 A4	21721501	28 x 210	55	265	5	5,54
V-A 30-70/380 A4 <sup>2)</sup>	21829501	35 x 280	70	350	5	10,00

Other lengths on demand.

<sup>1)</sup>For VMH/VMU plus/VM-EA/VME

<sup>2)</sup>Setting tool V-A 30-70/380 ref. no. 27805160 to be ordered separately.

### Threaded Stud V-A fvz



→ Improved corrosion protection

→ Steel, hot dip galvanized 5.8 (≥ 40µm, EN ISO 1461)

Description	Ref. No.	Drill hole Ø x depth	Fixture thickness t <sub>fix</sub>	Usable length in concrete <sup>1)</sup>	Package content	Weight per package kg
		mm	mm	mm	pcs.	kg
V-A 8-20/110 fvz	21101201	10 x 80	20	100	10	0,43
V-A 10-30/130 fvz	21203201	12 x 90	30	120	10	0,81
V-A 10-90/190 fvz	21210201	12 x 90	90	180	10	1,11
V-A 12-35/160 fvz	21306201	14 x 110	35	145	10	1,37
V-A 12-95/220 fvz	21313201	14 x 110	95	205	10	1,82
V-A 16-20/165 fvz	21507201	18 x 125	20	145	10	2,77
V-A 16-45/190 fvz	21510201	18 x 125	45	170	10	2,96
V-A 16-65/210 fvz	21512201	18 x 125	65	190	10	3,20
V-A 20-20/220 fvz	21613201	25 x 170	20	190	10	5,56
V-A 20-60/260 fvz	21617201	25 x 170	60	230	10	6,39
V-A 24-15/260 fvz	21717201	28 x 210	15	235	5	4,89
V-A 24-55/300 fvz	21721201	28 x 210	55	265	5	5,54

Other lengths and grade 8.8 on demand.

<sup>1)</sup>For VMH/VMU plus/VM-EA/VME

### Threaded Stud V-A HCR



→ For use in particularly corrosive environments

→ High corrosion resistant steel 1.4529 (HCR)

Description	Ref. No.	Drill hole Ø x depth mm	Fixture thickness t <sub>fix</sub> mm	Usable length in concrete <sup>1)</sup> mm	Package content pcs.	Weight per package kg
V-A 8-20/110 HCR	21101651	10 x 80	20	100	10	0,43
V-A 10-30/130 HCR	21203651	12 x 90	30	120	10	0,81
V-A 12-35/160 HCR	21306651	14 x 110	35	145	10	1,37
V-A 16-45/190 HCR	21510651	18 x 125	45	170	10	2,96

Other lengths on demand.

<sup>1)</sup>For VMH/VMU plus/VM-EA/VME

### Chemical Anchor V-L



→ Steel, hot dip galvanized; Stainless steel

→ Set, specially designed for crash barriers

Description	Ref. No.	Drill hole Ø x depth mm	Stud Ø x length mm	Fixture thickness t <sub>fix</sub> mm	Package content pcs.	Weight per set kg
V-L 16-20/165 hot dip galvanized washer DIN125 (Ø=30 mm)	23507201	18x125	M16x165	20	10	3,13
V-L 16-20/165 hot dip galvanized washer DIN9021 (Ø=50 mm)	23507791	18x125	M16x165	20	10	3,32
V-L 16-20/165 stainless steel A4/316 washer DIN125 (Ø=30 mm)	23507501	18x125	M16x165	20	10	3,13

### Cleaning Brush RB M6



→ With connection thread M6 – extension for large depths of drill hole and/or for through-setting installation

→ For drilling machines with keyed chuck or with SDS plus adaptor for SDS plus drill holder

Description	Ref. No.	Suitable for drill hole Ø mm	Suitable for	Package content pcs.	Weight per piece kg
RB 10 M6	33510101	10	V M8	1	0,05
RB 12 M6	33512101	12	V M10	1	0,05
RB 14 M6	33514101	14	V M12/V-IG M8	1	0,05
RB 16 M6	33516101	16	V M14/V-IG M10	1	0,05
RB 18 M6	33518101	18	V M16/V-IG M12	1	0,05
RB 26 M6	33526101	25, 26	V M20/V-IG M16	1	0,06
RB 28 M6	33528101	28	V M24	1	0,06
RB 35 M6	33535101	35	V M30	1	0,08
RBL M6	33968101	Brush extension 150 mm with connection thread M6		1	0,09
RBL M6 SDS	33350101	SDS Plus adapter for cleaning brush (M6)		1	0,06

### Blow-out pump VM-AP



→ Drill hole cleaning

Description	Ref. No.	Suitable for drill hole Ø mm	Length mm	max. depth drill hole mm	Package content pcs.	Weight per piece kg
VM-AP 270	29990002	12-35	270	200	1	0,22
VM-AP 360	33200101	10-35	360	330	1	0,27

### Setting Tool V-M



→ Only needed for special length and studs without external Hexagon

Description	Ref. No.	Suitable for threaded stud	Package content pes.	Weight per piece kg
V-M 8	27105160	M8	1	0,02
V-M 10	27205160	M10	1	0,03
V-M 12	27305160	M12	1	0,05
V-M 14	27405160	M14	1	0,05
V-M 16	27505160	M16	1	0,06
V-M 20	27605160	M20	1	0,20
V-M 24	27705160	M24	1	0,33
V-M 30	27805160	M30	1	0,63



**Extract from Permissible Service Conditions of ETA-05/0231**

Approved loads for single anchor without influence of spacing and edge distance for temperature range -40 °C to +50°C/+80 °C<sup>1</sup>. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_P$ ). Load capacities under fire exposure see page 168.

Loads and performance data			non-cracked concrete								
Chemical Anchor V, steel, zinc plated / hot dip galvanized			M8	M10	M12	M14 <sup>2)</sup>	M16	M20	M24	M30 <sup>2)</sup>	
Mean ultimate loads, tension (steel 5.8) C25/30	Num	[kN]	18,3	29,0	42,1	57,7	78,3	123,0	177,0	280,3	
Mean ultimate loads, shear (steel 5.8) C25/30	V <sub>um</sub>	[kN]	11,0	17,4	25,3	34,6	47,0	73,8	106,2	168,2	
Mean ultimate loads, tension (steel 8.8) C25/30	Num	[kN]	27,0	38,6	58,2	73,5	104,3	169,8	250,2	442,9	
Mean ultimate loads, shear (steel 8.8) C25/30	V <sub>um</sub>	[kN]	15,0	23,2	33,7	46,2	63,0	98,0	141,0	224,3	
Recommended loads, tension	C12/15 <sup>2)</sup> rec. N	[kN]	3,0	5,0	7,0	8,0	10,0	19,0	26,0	42,0	
<b>Approved loads, tension</b>											
Range of temperature	24°C/40°C <sup>1)</sup>	≥ C20/25 appr. N	[kN]	8,0	12,3	15,6	12,0	23,7	36,0	47,1	60,0
	50°C/80°C <sup>1)</sup>	≥ C20/25 appr. N	[kN]	8,0	12,3	15,6	12,0	19,9	29,7	34,6	60,0
<b>Approved loads, shear</b>											
Range of temperature	24°C/40°C <sup>1)</sup>	≥ C20/25 appr. V	[kN]	5,1	8,0	12,0	12,0	22,3	34,9	50,3	60,0
	50°C/80°C <sup>1)</sup>	≥ C20/25 appr. V	[kN]	5,1	8,0	12,0	12,0	22,3	34,9	50,3	60,0
Chemical Anchor V, stainless steel A4 / HCR			M8	M10	M12	M14 <sup>2)</sup>	M16	M20	M24	M30 <sup>2)</sup>	
Mean ultimate loads, tension C25/30	Num	[kN]	26,0	38,6	58,2	73,5	104,3	169,8	247,0	280,3	
Mean ultimate loads, shear C25/30	V <sub>um</sub>	[kN]	13,0	20,3	29,5	40,4	55,0	86,0	124,0	140,2	
Recommended loads, tension	C12/15 <sup>2)</sup> rec. N	[kN]	3,0	5,0	7,0	8,0	10,0	19,0	26,0	42,0	
<b>Approved loads, tension</b>											
Range of temperature	24°C/40°C <sup>1)</sup>	≥ C20/25 appr. N	[kN]	8,0	12,3	15,6	12,0	23,7	36,0	47,1	60,0
	50°C/80°C <sup>1)</sup>	≥ C20/25 appr. N	[kN]	8,0	12,3	15,6	12,0	19,9	29,7	34,6	60,0
<b>Approved loads, shear</b>											
Range of temperature	24°C/40°C <sup>1)</sup>	≥ C20/25 appr. V	[kN]	6,0	9,2	13,3	12,0	25,2	39,4	56,8	60,0
	50°C/80°C <sup>1)</sup>	≥ C20/25 appr. V	[kN]	6,0	9,2	13,3	12,0	25,2	39,4	56,8	60,0

Spacing and edge distance										
Effective anchorage depth	h <sub>ef</sub>	[mm]	80	90	110	120	125	170	210	280
Spacing	s <sub>cr,N</sub>	[mm]	240	270	330	300	375	510	630	700
Edge distance	c <sub>cr,N</sub>	[mm]	120	135	165	150	187,5	255	315	350
Minimum thickness of concrete slab	h <sub>min</sub>	[mm]	110	120	140	170	160	220	260	330
Minimum spacing	s <sub>min</sub>	[mm]	40	45	55	120	65	85	105	280
Minimum edge distance	c <sub>min</sub>	[mm]	40	45	55	60	65	85	105	140

Installation parameters										
Drill hole diameter	d <sub>o</sub>	[mm]	10	12	14	16	18	25	28	35
Clearance hole in the fixture	d <sub>f ≤</sub>	[mm]	9	12	14	16	18	22	26	33
Depth of drill hole	h <sub>o</sub>	[mm]	80	90	110	120	125	170	210	280
Installation torque	T <sub>inst ≤</sub>	[Nm]	10	20	40	60	80	120	180	400
Width across nut	SW	[mm]	13	17	19	22	24	30	36	46
Width across nut (Threaded Stud)	SW	[mm]	5	6	8	10	12	14	17	-

<sup>1)</sup>max long term temperature / max short term temperature

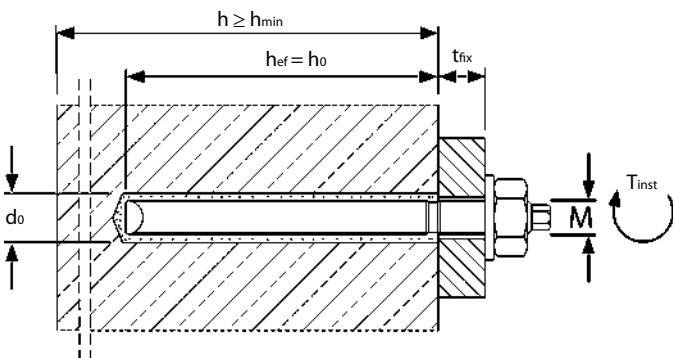
<sup>2)</sup>Not part of assessment, Recommended loads for size M14 and M30 and in concrete C12/15.

For anchor designing an easy to operate CD-ROM is available on request or can be downloaded at [www.mkt.de](http://www.mkt.de).

**Curing time V**

→ Capsule temperature when installing min. +5°C

Temperature (°C) of base material	curing time	
	dry base material	wet base material
0°C to +4°C	5:00 h	10:00 h
+5°C to +19°C	1:00 h	2:00 h
+ 20°C to +29°C	20 min	40 min
≥ +30°C	10 min	20 min



**Installation**

