

# Chemical Anchor V plus



NEW



Range of loading: 5,1 kN – 140,3 kN  
 Range of concrete quality: C20/25 - C50/60  
 Material: Steel, zinc plated, Steel, hot dip galvanized, Stainless steel A4, HCR

### Description

The Chemical Anchor V plus with European Technical Assessment (ETA Option 7) is a further development of the proven Chemical Anchor V with higher approved loads. The system consists of the new glass capsule V-P plus, 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 driven into the drill-hole. This stress free anchoring system has been used successfully 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.

### Applications

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



### Advantages:

- Higher load values compared to Chemical Anchor V
- Increase of the approved loads at higher concrete strength
- 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

### Chemical Capsule V-P plus



→ Two component glass capsule

→ Approved 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 plus 8	25300801	9	80	500	6,2	10	0,13
V-P plus 10	25301001	11	80	500	7,7	10	0,16
V-P plus 12	25301201	13	95	200	5,3	10	0,27
V-P plus 14	25301401	15	95	200	6,4	10	0,32
V-P plus 16	25301601	17	95	200	8,1	10	0,41
V-P plus 20	25302001	17	160	150	10,8	10	0,72
V-P plus 24	25302401	22	175	100	12,4	10	1,24
V-P plus 30	25303001	25	230	50	10,2	5	1,02

NEW

Chemical Anchors

### Threaded Stud V-A



- May be used in structures subject to dry internal conditions
- Steel, zinc plated 5.8
- Approved for non-cracked concrete

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	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 <sup>2)</sup>	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	22 x 170	20	190	10	5,56
V-A 20-60/260	21617101	22 x 170	60	230	10	6,39
V-A 20-100/300	21621101	22 x 170	100	270	10	7,23
V-A 24-15/260	21717101	26 x 210	15	225	5	4,89
V-A 24-55/300	21721101	26 x 210	55	265	5	5,54
V-A 30-70/380 <sup>2)3)</sup>	21829101	32 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>Not part of assessment

<sup>3)</sup>Setting tool V-A 30-70/380 ref. no. 27805160 to be ordered separately.

### Threaded Stud V-A A4



- May be used in structures subject to dry internal conditions or external atmospheric exposure
- Stainless Steel A4
- Approved for non-cracked concrete

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 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 <sup>2)</sup>	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	22 x 170	20	190	10	5,56
V-A 20-60/260 A4	21617501	22 x 170	60	230	10	6,39
V-A 20-100/300 A4	21621501	22 x 170	100	270	10	7,23
V-A 24-15/260 A4	21717501	26 x 210	15	225	5	4,89
V-A 24-55/300 A4	21721501	26 x 210	55	265	5	5,54
V-A 30-70/380 A4 <sup>2)3)</sup>	21829501	32 x 280	70	350	5	10,00

Other lengths on demand.

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

<sup>2)</sup>Not part of assessment

<sup>3)</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)
- Approved for non-cracked concrete

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 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	22 x 170	20	190	10	5,56
V-A 20-60/260 fvz	21617201	22 x 170	60	230	10	6,39
V-A 24-15/260 fvz	21717201	26 x 210	15	235	5	4,89
V-A 24-55/300 fvz	21721201	26 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)
- Approved for non-cracked concrete

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

### 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 adapter for SDS plus drills

Description	Ref. No.	Suitable for drill hole Ø mm	Suitable for	Package content pcs.	Weight per piece kg
RB 10 M6	33510101	10	V plus M8	1	0,05
RB 12 M6	33512101	12	V plus M10	1	0,05
RB 14 M6	33514101	14	V plus M12	1	0,05
RB 16 M6	33516101	16	V plus M14	1	0,05
RB 18 M6	33518101	18	V plus M16	1	0,05
RB 22 M6	33522101	22	V plus M20	1	0,06
RB 26 M6	33526101	26	V plus M24	1	0,06
RB 32 M6	33532101	32	V plus 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 pcs.	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-16/0944.**

Approved loads for single anchor without influence of spacing and edge distance for temperature range -40°C to +24°C/+40 °C<sup>1)</sup>. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_P$ ). Temperature range II 80°C/50°C see ETA-16/0944.

Loads and performance data				Chemical anchor V plus with threaded stud V-A steel, zinc plated / hot dip galvanized in concrete							
				M8	M10	M12	M14	M16	M20	M24	M30
non-cracked concrete											
Mean ultimate loads, tension (steel 5.8)	C25/30	Num	[kN]	19,2	30,5	44,3	60,6	82,3	128,5	185,1	294,3
Mean ultimate loads, shear (steel 5.8)	C25/30	Vum	[kN]	11,0	17,4	25,3	34,6	47,0	73,4	105,8	168,2
Mean ultimate loads, tension (steel 8.8)	C25/30	Num	[kN]	30,7	48,0	70,3	88,5	94,1	149,2	204,9	315,5
Mean ultimate loads, shear (steel 8.8)	C25/30	Vum	[kN]	17,6	27,8	40,5	55,4	75,2	117,5	169,2	269,1
Approved loads, tension (steel 5.8)	C20/25	appr. N	[kN]	8,6	13,8	20,0	27,6	33,6	53,3	73,2	93,9
	C25/30	appr. N	[kN]	8,6	13,8	20,0	27,6	36,8	58,4	80,2	102,9
	C30/37	appr. N	[kN]	8,6	13,8	20,0	27,6	37,1	58,6	84,3	114,2
	C40/50	appr. N	[kN]	8,6	13,8	20,0	27,6	37,1	58,6	84,3	131,9
Approved loads, shear (steel 5.8)	C50/60	appr. N	[kN]	8,6	13,8	20,0	27,6	37,1	58,6	84,3	133,8
	≥ C20/25	appr. V	[kN]	5,1	8,0	12,0	16,6	22,3	34,9	50,3	80,0
Appr. bending moments (steel 5.8)		appr. M	[Nm]	10,9	21,1	37,7	60,0	94,9	185,7	320,6	642,9
Approved loads, tension (steel 8.8)	C20/25	appr. N	[kN]	11,5	16,2	23,7	30,2	33,6	53,3	73,2	93,9
	C25/30	appr. N	[kN]	12,2	17,1	25,1	32,0	36,8	58,4	80,2	102,9
	C30/37	appr. N	[kN]	13,1	18,4	27,0	34,4	40,9	63,8	89,0	114,2
	C40/50	appr. N	[kN]	13,8	20,4	29,9	38,0	45,2	70,5	103,5	131,9
	C50/60	appr. N	[kN]	13,8	21,7	31,8	40,4	48,1	75,0	111,1	140,3
Approved loads, shear (steel 8.8)	≥ C20/25	appr. V	[kN]	8,6	13,1	19,4	26,3	36,0	56,0	80,6	128,0
Appr. bending moments (steel 8.8)		appr. M	[Nm]	17,1	34,3	60,0	96,0	152,0	296,6	512,0	1028,0

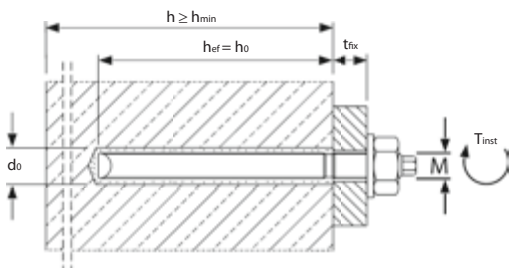
Loads and performance data				Chemical anchor V plus with threaded stud V-A stainless steel A4 and HCR in concrete							
				M8	M 10	M 12	M 14	M 16	M20	M24	M30
non-cracked concrete											
Mean ultimate loads, tension	C25/30	Num	[kN]	26,9	42,6	62,0	84,8	94,1	149,2	204,9	318,5
Mean ultimate loads, shear	C25/30	Vum	[kN]	15,4	24,4	35,4	48,5	65,8	102,8	148,1	235,5
Approved loads, tension	C20/25	appr. N	[kN]	9,9	15,3	22,5	30,2	33,6	53,3	73,2	93,9
	C25/30	appr. N	[kN]	9,9	15,3	22,5	30,9	36,8	58,4	80,2	102,9
	C30/37	appr. N	[kN]	9,9	15,3	22,5	30,9	40,9	63,8	89,0	114,2
	C40/50	appr. N	[kN]	9,9	15,3	22,5	30,9	42,0	65,7	94,3	131,3
	C50/60	appr. N	[kN]	9,9	15,3	22,5	30,9	42,0	65,7	94,3	140,3
Approved loads, shear	≥ C20/25	appr. V	[kN]	6,0	9,2	13,7	18,3	25,2	39,4	56,8	89,7
Appr. bending moments		appr. M	[Nm]	11,9	23,8	42,1	66,8	106,7	207,9	359,9	720,7

Spacing and edge distance										
Effective anchorage depth	$h_{ef}$	[mm]	80	90	110	120	125	170	210	280
Characteristic spacing	$s_{cr,N}$	[mm]	240	270	330	360	375	510	630	840
Characteristic edge distance	$c_{cr,N}$	[mm]	120	135	165	180	187,5	255	315	420
Minimum thickness of concrete slab	≥ $h_{min}$	[mm]	110	120	140	150	160	220	260	340
Minimum spacing	$s_{min}$	[mm]	40	45	55	60	65	85	105	140
Minimum edge distance	$c_{min}$	[mm]	40	45	55	60	65	85	105	140

Installation parameters										
Drill hole diameter	$d_o$	[mm]	10	12	14	16	18	22	26	32
Clearance hole in the fixture	$d_f$	[mm]	9	12	14	16	18	22	26	33
Depth of drill hole	$h_o$	[mm]	80	90	110	120	125	170	210	280
Installation torque	≤ $T_{inst}$	[Nm]	10	20	40	60	80	120	180	300
Width across nut	SW	[mm]	13	17	19	22	24	30	36	46

<sup>1)</sup> Max long term temperature +24 °C / max short term temperature +40 °C .

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



**Curing time V plus**

→ Capsule temperature when installing min. +5°C

Temperature (°C) of base material	curing time	
	dry base material	wet base material
-5°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**

