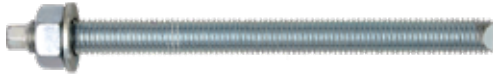


# Chemical Anchor V



**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 uncracked 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 uncracked concrete: trusses, foot and headplates, consoles, crash-barriers, noise-protection walls.



## Chemical Capsule V-P



- Two component glass capsule
- European Technical Assessment for uncracked concrete

Description	Ref. No.	Capsule Ø mm	Capsule length mm	Content of master box pcs.	Weight per master box kg	Package content pcs.	Weight per package 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 European Technical Assessment ETA-05/0231.

## 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 h	10 h
+5°C to +19°C	1 h	2 h
+20°C to +29°C	20 min	40 min
≥ +30°C	10 min	20 min

## Accessories for Chemical Anchor V

Chemical Anchor	Threaded Stud	Drill Bit Ø	Blow-out pump / Air gun	Cleaning brush RB
		mm		
V-P 8	M8	10	VM-AP 270 / 360 VM-ABP 200	RB 10 M6
V-P 10	M10	12	VM-AP 270 / 360 VM-ABP 200	RB 12 M6
V-P 12	M12	14	VM-AP 270 / 360 VM-ABP 200	RB 14 M6
V-P 14	M14	16	VM-AP 270 / 360 VM-ABP 200	RB 16 M6
V-P 16	M16	18	VM-AP 270 / 360 VM-ABP 200 / 250 / 500	RB 18 M6
V-P 20	M20	25	VM-AP 270 / 360 VM-ABP 250 / 500	RB 26 M6
V-P 24	M24	28	VM-AP 270 / 360 VM-ABP 250 / 500	RB 28 M6
V-P 30	M30	35	VM-AP 270 / 360 VM-ABP 250 / 500	RB 35 M6
<b>See page</b>			<b>178</b>	<b>179</b>

## Threaded Studs for Chemical Anchor V

### 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>	Package content	Weight per package
		mm	mm	pcs.	kg
V-A 8-20/110	21101101	10 x 80	20	10	0,43
V-A 8-60/150	21105101	10 x 80	60	10	0,53
V-A 10-15/115	21202101	12 x 90	15	10	0,73
V-A 10-30/130	21203101	12 x 90	30	10	0,81
V-A 10-65/165	21207101	12 x 90	65	10	0,98
V-A 10-90/190	21210101	12 x 90	90	10	1,11
V-A 10-150/250	21216101	12 x 90	150	10	1,42
V-A 10-200/300	21221101	12 x 90	200	10	1,71
V-A 12-10/135	21304101	14 x 110	10	10	1,19
V-A 12-35/160	21306101	14 x 110	35	10	1,37
V-A 12-85/210	21312101	14 x 110	85	10	1,73
V-A 12-95/220	21313101	14 x 110	95	10	1,82
V-A 12-125/250	21316101	14 x 110	125	10	2,02
V-A 12-175/300	21321101	14 x 110	175	10	2,83
V-A 14-35/170 <sup>1)</sup>	21408101	16 x 120	35	10	1,91
V-A 16-20/165	21507101	18 x 125	20	10	2,77
V-A 16-45/190	21510101	18 x 125	45	10	2,96
V-A 16-85/230	21514101	18 x 125	85	10	3,65
V-A 16-105/250	21516101	18 x 125	105	10	3,91
V-A 16-155/300	21521101	18 x 125	155	10	4,58
V-A 20-20/220	21613101	25 x 170	20	10	5,56
V-A 20-60/260	21617101	25 x 170	60	10	6,39
V-A 20-100/300	21621101	25 x 170	100	10	7,23
V-A 24-15/260	21717101	28 x 210	15	5	4,89
V-A 24-55/300	21721101	28 x 210	55	5	5,54
V-A 30-70/380 <sup>1)2)</sup>	21829101	35 x 280	70	5	10,00

Other lengths on request

<sup>1)</sup>Not part of European Technical Assessment ETA-05/0231.

<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

Description	Ref. No.	Drill hole Ø x depth	Fixture thickness t <sub>fix</sub>	Package content	Weight per package
		mm	mm	pcs.	kg
V-A 8-20/110 8.8	21101171	10 x 80	20	10	0,43
V-A 8-60/150 8.8	21105171	10 x 80	60	10	0,53
V-A 10-15/115 8.8	21202171	12 x 90	15	10	0,73
V-A 10-30/130 8.8	21203171	12 x 90	30	10	0,81
V-A 10-65/165 8.8	21207171	12 x 90	65	10	0,98
V-A 10-90/190 8.8	21210171	12 x 90	90	10	1,11
V-A 12-10/135 8.8	21304171	14 x 110	10	10	1,19
V-A 12-35/160 8.8	21306171	14 x 110	35	10	1,37
V-A 12-85/210 8.8	21312171	14 x 110	85	10	1,73
V-A 12-125/250 8.8	21316171	14 x 110	125	10	2,02
V-A 12-175/300 8.8	21321171	14 x 110	175	10	2,83
V-A 16-20/165 8.8	21507171	18 x 125	20	10	2,77
V-A 16-45/190 8.8	21510171	18 x 125	45	10	2,96
V-A 16-85/230 8.8	21514171	18 x 125	85	10	3,65
V-A 16-105/250 8.8	21516171	18 x 125	105	10	3,91
V-A 16-155/300 8.8	21521171	18 x 125	155	10	4,58
V-A 20-20/220 8.8	21613171	25 x 170	20	10	5,56
V-A 20-60/260 8.8	21617171	25 x 170	60	10	6,39
V-A 20-100/300 8.8	21621171	25 x 170	100	10	7,23
V-A 24-15/260 8.8	21717171	28 x 210	15	5	4,89
V-A 24-55/300 8.8	21721171	28 x 210	55	5	5,54

### Threaded Stud V-A A4



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

→ Stainless Steel A4-70

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

Other lengths on demand. A setting tool is included with each anchor rod package.

<sup>1)</sup>Not part of European Technical Assessment ETA-05/0231

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

<sup>3)</sup>Stainless Steel A4-50

### 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

### Threaded Stud V-A fvz



→ Improved corrosion protection

→ Steel 5.8, hot dip galvanized ≥ 50 µm (average plating thickness according to EN ISO 10684)

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

Other lengths and grade 8.8 on demand.

A setting tool is included with each anchor rod package.

### Threaded Stud V-A HCR



→ For use in particularly corrosive environments

→ High corrosion resistant steel 1.4529 (HCR)

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

Other lengths on demand. A setting tool is included with each anchor rod package.



**Extract from Permissible Service Conditions of European Technical Assessment ETA-05/0231 for use in uncracked concrete (Option 8)**

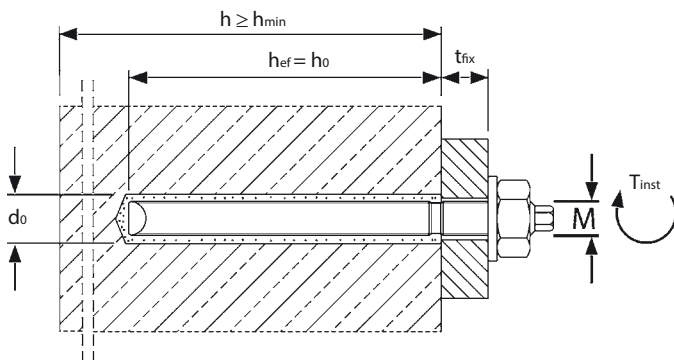
Approved loads according to EN 1992-4 for single anchors without the influence of spacing and edge distances in dry and wet concrete for temperature range I -40°C to +24°C (short term temperature +40°C) and for temperature range II -40°C to +50°C (short term temperature +80°C). The influence of the sustained load has been taken into account by the factor  $\Psi_{sus} = 1,0$  and the total safety factor ( $\gamma_M$  and  $\gamma_p$ ) is included. For further details and temperature ranges see ETA. Load capacities under fire exposure see page 199.

Loads and performance data				uncracked concrete							
<b>Chemical Anchor V, steel, zinc plated / hot dip galvanized</b>				<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14<sup>2)</sup></b>	<b>M16</b>	<b>M20</b>	<b>M24</b>	<b>M30<sup>2)</sup></b>
Mean ultimate loads, tension (steel 5.8) C25/30	N <sub>um</sub>	[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	N <sub>um</sub>	[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
<b>Chemical Anchor V, stainless steel A4 / HCR</b>				<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14<sup>2)</sup></b>	<b>M16</b>	<b>M20</b>	<b>M24</b>	<b>M30<sup>2)</sup></b>
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
<b>Spacing and edge distance</b>											
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
<b>Installation parameters</b>											
Drill hole diameter	d <sub>0</sub>	[mm]		10	12	14	16	18	25	28	35
Clearance hole in the fixture	d <sub>r ≤</sub>	[mm]		9	12	14	16	18	22	26	33
Depth of drill hole	h <sub>0</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).



**Installation**

