

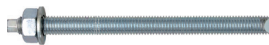
### Accessories for Chemical Anchor VZ



Chemical Anchor	Threaded Stud	Drill hole Ø mm	Blow-out pump / Air gun	Cleaning brush RB
VZ-P 8	M8	10	VM-AP 360 VM-ABP 200	RB 10 M6
VZ-P 10	M10	12	VM-AP 360 VM-ABP 200	RB 12 M6 RB 12 M8
VZ-P 12	M12	14	VM-AP 360 VM-ABP 200	RB 14 M6 RB 14 M8
VZ-P 16	M16	18	VM-AP 360 VM-ABP 200 / 250 / 500	RB 18 M6 RB 18 M8
VZ-P 20	M20	22	VM-AP 360 VM-ABP 250 / 500	RB 22 M6
VZ-P 24	M24	28	VM-ABP 250 / 500	RB 28 M6
<b>See page</b>			<b>178</b>	<b>179</b>

### Threaded Studs for Chemical Anchor VZ

#### Threaded Stud V-A



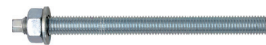
- For use in structures subject to dry internal conditions
- Steel, zinc plated 5.8

Description	Ref. No.	Drill hole Ø x depth mm	Fixture thickness t <sub>fix</sub> mm	Usable Length 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 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	28 x 210	15	225	5	4,89
V-A 24-55/300	21721101	28 x 210	55	265	5	5,54

Other lengths on request.

A setting tool is included with each anchor rod package.

#### 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 mm	Fixture thickness t <sub>fix</sub> mm	Usable Length mm	Package content pcs.	Weight per package kg
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	22 x 170	20	190	10	5,56
V-A 20-60/260 8.8	21617171	22 x 170	60	230	10	6,39
V-A 20-100/300 8.8	21621171	22 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

Other lengths on request.

A setting tool is included with each anchor rod package.



**Extract from Permissible Service Conditions of European Technical Assessment ETA-20/0533 for use in cracked and uncracked concrete (Option 1)**

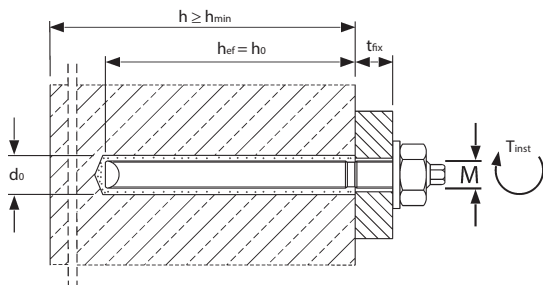
Approved loads according to EN 1992-4 for single anchors without the influence of spacing and edge distances in dry / wet concrete for temperature range I -40°C to +24°C (short term temperature +40°C) and for temperature range II -40°C to +50°C (short term temperature +80°C). The influence of the sustained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

Loads and performance data					M8	M10	M12	M16	M20	M24
Anchorage depth	$h_{ef}$	[mm]			80	90	110	125	170	210
<b>Chemical Anchor VZ, Threaded Stud V-A Steel 5.8</b>										
Mean ultimate loads (Range of temperature: 24°C/40°C <sup>1)</sup>					cracked concrete / uncracked concrete					
Mean ultimate loads tension	C20/25	$N_{um}$	[kN]		18,8 / 19,2	30,5	44,3	64,2 / 82,3	101,8 / 128,5	139,7 / 185,1
Mean ultimate loads, shear	C20/25	$V_{um}$	[kN]		11,5	18,3	26,6	49,4	77,1	111,0
<b>Approved loads, tension</b>										
Range of temperature					cracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	4,0	7,3	11,5	18,7	30,3	41,6
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	3,6	6,2	9,9	15,0	25,4	40,8
<b>Approved loads, tension</b>										
Range of temperature					uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	8,0	13,8	20,0	27,3	43,3	59,4
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	6,8	12,3	18,1	27,3	43,3	59,4
<b>Approved loads, shear</b>										
Range of temperature					cracked and uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. V	[kN]	6,3	9,7	14,3	26,9	41,7	60,6
	50°C/80°C <sup>1)</sup>	C20/25	rec. V	[kN]	6,3	9,7	14,3	26,9	41,7	60,6
<b>Chemical Anchor VZ, Threaded Stud V-A Steel 8.8</b>										
Mean ultimate loads (Range of temperature: 24°C/40°C <sup>1)</sup>					cracked concrete / uncracked concrete					
Mean ultimate loads tension	C20/25	$N_{um}$	[kN]		18,8 / 30,7	30,5 / 47,7	44,3 / 70,8	64,2 / 91,7	101,8 / 145,4	139,7 / 199,6
Mean ultimate loads, shear	C20/25	$V_{um}$	[kN]		15,4	24,4	35,4	65,8	102,8	148,1
<b>Approved loads, tension</b>										
Range of temperature					cracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	4,0	7,3	11,5	18,7	30,3	41,6
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	3,6	6,2	9,9	15,0	25,4	40,8
<b>Approved loads, tension</b>										
Range of temperature					uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	8,0	14,6	21,4	27,3	43,3	59,4
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	6,8	12,3	18,1	27,3	43,3	59,4
<b>Approved loads, shear</b>										
Range of temperature					cracked and uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. V	[kN]	8,6	13,1	19,4	36,0	56,0	80,6
	50°C/80°C <sup>1)</sup>	C20/25	rec. V	[kN]	8,6	13,1	19,4	35,9 <sup>2)</sup>	56,0	80,6
<b>Chemical Anchor VZ, Threaded Stud V-A Stainless Steel ≥ A4-70, ≥ HCR-70</b>										
Mean ultimate loads (Range of temperature: 24°C/40°C <sup>1)</sup>					cracked concrete / uncracked concrete					
Mean ultimate loads tension	C20/25	$N_{um}$	[kN]		18,8 / 26,9	32,1 / 42,6	49,9 / 62,0	64,2 / 91,7	101,8 / 145,4	139,7 / 199,6
Mean ultimate loads, shear	C20/25	$V_{um}$	[kN]		13,5	21,3	31,0	57,6	90,0	129,5
<b>Approved loads, tension</b>										
Range of temperature					cracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	4,0	7,3	11,5	18,7	30,3	41,6
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	3,6	6,2	9,9	15,0	25,4	40,8
<b>Approved loads, tension</b>										
Range of temperature					uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. N	[kN]	8,0	14,6	21,4	27,3	43,3	59,4
	50°C/80°C <sup>1)</sup>	C20/25	rec. N	[kN]	6,8	12,3	18,1	27,3	43,3	59,4
<b>Approved loads, shear</b>										
Range of temperature					cracked and uncracked concrete					
	24°C/40°C <sup>1)</sup>	C20/25	rec. V	[kN]	7,4	11,4	17,1	31,4	49,1	70,3
	50°C/80°C <sup>1)</sup>	C20/25	rec. V	[kN]	7,4	11,4	17,1	31,4	49,1	70,3
<b>Minimum thickness of concrete slab, spacing and edge distance</b>										
Minimum thickness of concrete slab	$h_{min}$	[mm]			110	120	140	160	220	270
Minimum spacing	$s_{min}$	[mm]			40	50	60	75	90	115
Minimum edge distance	$c_{min}$	[mm]			40	45	45	50	55	60
<b>Installation parameters</b>										
Drill hole diameter	$d_o$	[mm]			10	12	14	18	22	28
Diameter of clearance hole in the fixture	$d_{r \leq}$	[mm]			9	12	14	18	22	26
Depth of drill hole	$h_o$	[mm]			80	90	110	125	170	210
Installation torque	$T_{inst \leq}$	[Nm]			10	20	40	80	150	200
Width across nut (Nut)	SW	[mm]			13	17	19	24	30	36
Width across nut (Threaded Stud)	SW	[mm]			5	6	8	12	14	17

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

<sup>2)</sup>36,0 kN in uncracked concrete

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**

