



ETA 23/0870



TDS | 2034.2

VDP-QUARTZ





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VDP-QUARTZ

GLASS CAPSULE ANCHOR WITH ETA ASSESSMENT OPTION 1 FOR CRACKED AND NON-CRACKED CONCRETE.

ANCHOR COMPONENTS

GLASS CAPSULE ANCHOR VDP-QUARTZ M8 - M24

- Glass capsule containing Quartz Aggregate, Hardener and Resin
- Components are mixed by driving in Anchor Rod

ANCHOR RODS M8 - M24

- Steel 5.8 and 8.8 Zinc Plated and Hot Dip Galvanized
- Stainless Steel A4-70
- High Corrosion Resistant Steel 1.4529

FEATURES

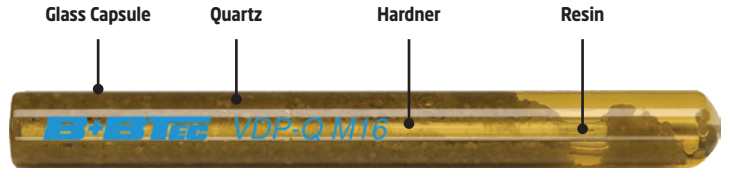
- ETA Option 1 for Cracked and Non-Cracked Concrete
- High Load Bearing Capacity
- Simplified Cleaning Procedures
- Easy Installation
- Fast Curing
- F120 Fire Rating
- VOC Assessment A+
- Absolutely NO Chemical or Plastic Waste, just a cardboard box, ready to be recycled.
- ICCONS DesignPRO Software Support

USE CONDITIONS

- Installation Hammer/Air and Diamond Drilled holes.
- Static and quasi static loading, in non-cracked concrete M8 - M30
- Static and quasi static loading, in cracked concrete M10 - M24
- Installation in dry, wet or flooded Bore Holes
- Min. Installation Temperature: Mortar +5°C, Concrete -20°C
- Installation in Concrete C20/25 to C50/60
- Overhead installations are permitted

APPROVALS & TEST REPORTS

- ✓ ETA OPTION 1
- ✓ Cracked Concrete Approved
- ✓ Fire Rated F120
- ✓ A+ VOC (Green Building)
- ✓ National Code Compliant (NCC)
- ✓ Core Drilled Holes - Diamond Drilling



TEMPERATURE RANGE

B+BTec VDP-Quartz Glass Capsule Anchors may be applied in the temperature ranges given below. An elevated base material temperature leads to a reduction of the bond resistance.

Max. long term base material temperature: Long term elevated base material temperatures are roughly constant over significant periods of time.

Max. short term base material temperature: Short term elevated base material temperatures are those that occur over brief intervals, e.g. as a result of diurnal cycling.

Temperature Range	Temperature Base Material	Max. Long Term Base Material Temp.	Max. Short Term Base Material Temp.
Temp. Range I	-40°C to +40°C	+24°C	+40°C
Temp. Range II	-40°C to +80°C	+50°C	+80°C

GLASS CAPSULE ANCHORS & THE ENVIRONMENT



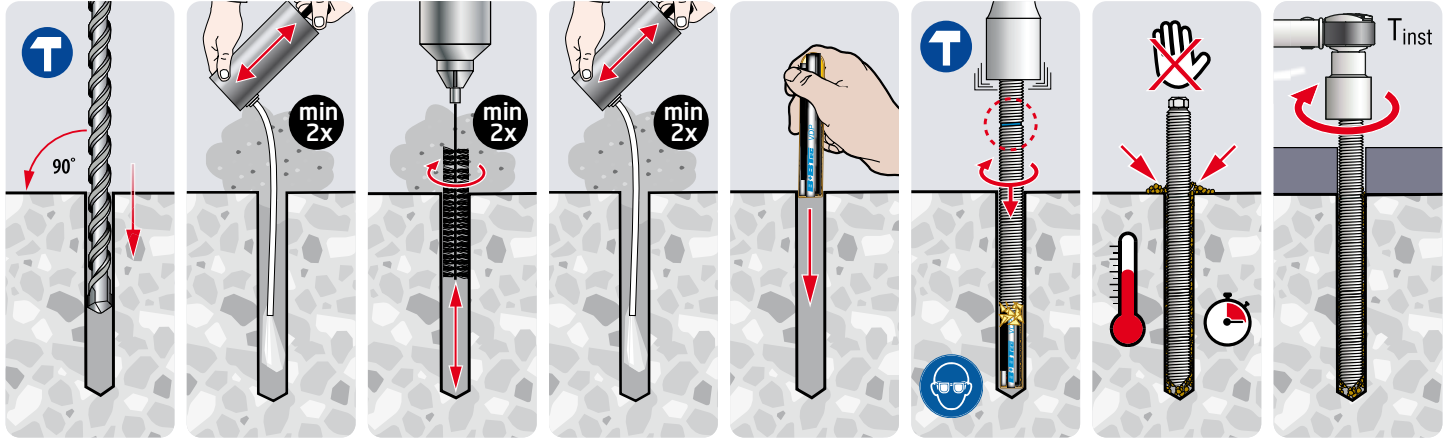
Because the total volume of these Glass Capsules is engineered to completely fill the Anchor Bore Hole, absolutely **NO CHEMICAL OR PLASTIC WASTE** remains after Installation. All that is left is a cardboard box ready to be recycled.



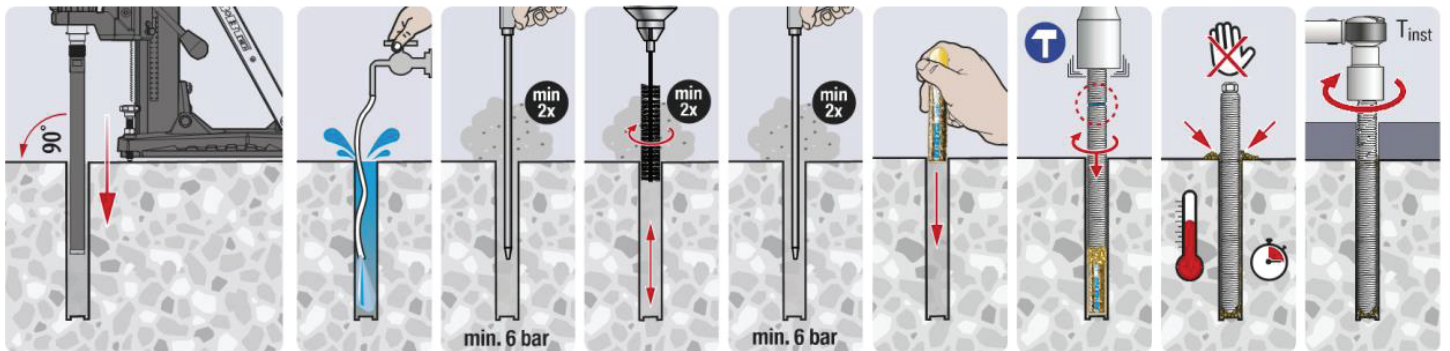
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INSTALLATION PROCEDURES HAMMER/AIR DRILLED HOLES



INSTALLATION PROCEDURES DIAMOND CORE DRILLED HOLES



MINIMUM CURING TIMES

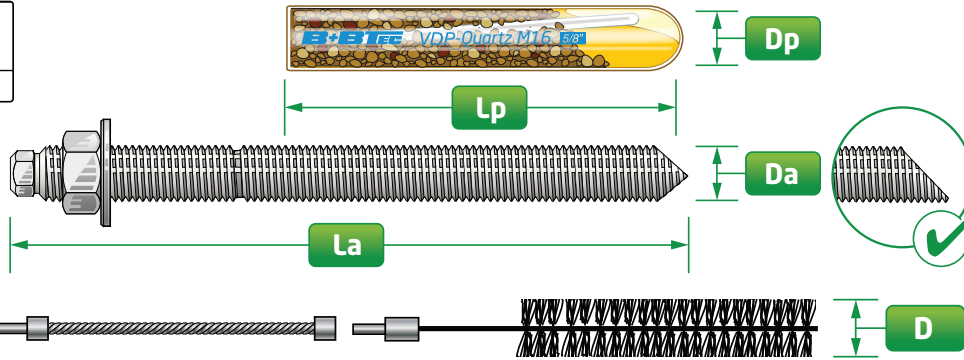
Temperature ¹⁾	°C	≥ -20	≥ -10	≥ -5	≥ +5	≥ +20	≥ +30
Min. Curing Time Dry Holes		30h	10h	5h	1h	20min	10min
Min. Curing Time Wet Holes		60h	20h	10h	2h	40min	20min

1) Concrete Temperature



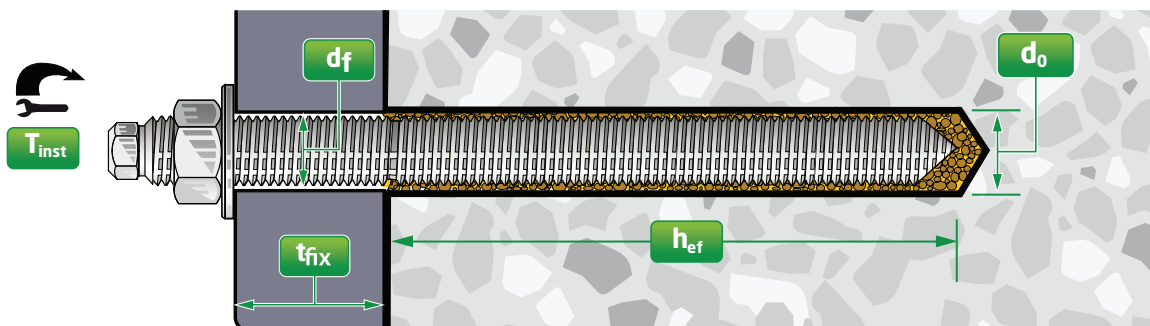
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PRODUCT INFORMATION FOR THE INSTALLATION OF THREADED RODS IN CRACKED & NON-CRACKED CONCRETE.



PRODUCT DIMENSIONS

Anchor Size	D_a		M8	M10	M12	M16	M20	M24
Rod Length	L_a	[mm]	110	130	160	190	260	300
Capsule Type	VDP-Q	--	M8	M10	M12	M16	M20	M24
Capsule Diameter	D_p	[mm]	9	11	13	17	17	22
Capsule Length	L_p	[mm]	80	80	95	95	160	175
Capsule Volume	V_p	[cc]	4.4	5.7	9.4	16.5	29.5	52.6
Required Volume per cm Embedment Depth	V_s	[cc/cm]	0.44	0.59	0.75	1.09	1.52	2.01
Brush Diameter	D	[mm]	11	13	16	20	24	28
Min. Brush Diameter	D_{min}	[mm]	10.5	12.5	14.5	18.5	22.5	26.5



INSTALLATION DIMENSIONS

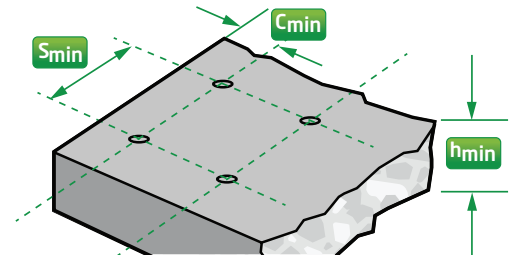
Anchor Size	D_a		M8	M10	M12	M16	M20	M24
Hole Diameter	d_0	[mm]	10	12	14	18	22	26
Embedment Depth	$h_0 = h_{ef}$	[mm]	80	90	110	125	170	210
Diameter Fixture Hole	d_f	[mm]	9	12	14	18	22	26
Fixture Thickness	$t_{fix} \leq$	[mm]	15	20	30	40	55	55
Recommended Torque	T_{inst}	[Nm]	10	20	40	80	120	180



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MEMBER THICKNESS, EDGE DISTANCE AND SPACING



Anchor Size	D_a		M8	M10	M12	M16	M20	M24
Min. Member Thickness	h_{min}	[mm]	110	120	140	160	220	260
Min. Edge Distance	C_{min}	[mm]	40	45	55	65	85	105
Min. Spacing	S_{min}	[mm]	40	45	55	65	85	105

PERFORMANCE DATA

STATIC AND QUASI-STATIC RESISTANCE FOR A SERVICE LIFE OF 50 YEARS (FOR A SINGLE ANCHOR) ALL DATA IN THIS SECTION SUBJECT TO:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Standard embedment depth ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range II: (max. long/short term temperature +50°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $\Psi_{sus} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021; eq 6.2.5.2.
- Recommended loads are with overall partial safety factor for action $Y_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

DESIGN RESISTANCE DRY/WET HOLES (HAMMER DRILLED HOLE)

Steel Failure

Non-Cracked Concrete		D_a		M8	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{Rd}	[kN]	12.0	18.8	27.6	41.9	67.6	99.8
	Shear	V_{Rd}	[kN]	8.8	13.6	20.0	37.6	59.2	84.8
Steel 8.8	Tensile	N_{Rd}	[kN]	13.4	18.8	27.6	41.9	67.6	99.8
	Shear	V_{Rd}	[kN]	12.0	18.4	27.2	50.4	78.4	112.8
A4-70	Tensile	N_{Rd}	[kN]	13.4	18.8	27.6	41.9	67.6	99.8
	Shear	V_{Rd}	[kN]	8.3	12.8	19.2	35.3	55.1	79.5
Cracked Concrete		D_a		M10	M12	M16	M20	M24	
Steel 5.8	Tensile	N_{Rd}	[kN]	9.4	13.8	20.9	42.7	68.5	
	Shear	V_{Rd}	[kN]	13.6	20.0	37.6	59.2	84.8	
Steel 8.8	Tensile	N_{Rd}	[kN]	9.4	13.8	20.9	42.7	68.5	
	Shear	V_{Rd}	[kN]	18.4	27.2	41.9	78.4	112.8	
A4-70	Tensile	N_{Rd}	[kN]	9.4	13.8	20.9	42.7	68.5	
	Shear	V_{Rd}	[kN]	12.8	19.2	35.3	55.1	79.5	



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RECOMMENDED LOADS DRY/WET HOLES (HAMMER DRILLED HOLE)

Steel Failure

Non-Cracked Concrete		D _a		M8	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N _{rec}	[kN]	8.6	13.5	19.7	29.9	48.3	71.3
	Shear	V _{rec}	[kN]	6.3	9.7	14.3	26.9	42.3	60.6
Steel 8.8	Tensile	N _{rec}	[kN]	9.6	13.5	19.7	29.9	48.3	71.3
	Shear	V _{rec}	[kN]	8.6	13.1	19.4	36.0	56.0	80.6
A4-70	Tensile	N _{rec}	[kN]	9.6	13.5	19.7	29.9	48.3	71.3
	Shear	V _{rec}	[kN]	6.0	9.2	13.7	25.2	39.4	56.8
Cracked Concrete		D _a		M10	M12	M16	M20	M24	
Steel 5.8	Tensile	N _{rec}	[kN]	6.7	9.9	14.9	30.5	48.9	
	Shear	V _{rec}	[kN]	9.7	14.3	26.9	42.3	60.6	
Steel 8.8	Tensile	N _{rec}	[kN]	6.7	9.9	14.9	30.5	48.9	
	Shear	V _{rec}	[kN]	13.1	19.4	29.9	56.0	80.6	
A4-70	Tensile	N _{rec}	[kN]	6.7	9.9	14.9	30.5	48.9	
	Shear	V _{rec}	[kN]	9.1	13.7	25.2	39.4	56.8	



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STATIC AND QUASI-STATIC RESISTANCE FOR A SERVICE LIFE OF 50 YEARS (FOR A SINGLE ANCHOR)

ALL DATA IN THIS SECTION SUBJECT TO:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Standard embedment depth ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range II: (max. long/short term temperature +50°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $\Psi_{sus} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021; eq 6.2.5.2.
- Recommended loads are with overall partial safety factor for action $Y_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

DESIGN RESISTANCE DRY/WET HOLES (DIAMOND DRILLED)

Steel Failure

Cracked Concrete		Da		M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{Rd}	(kN)	10.4	15.2	25.1	42.7	63.3
	Shear	V_{Rd}	(kN)	12.0	16.8	31.2	48.8	70.4
Steel 8.8	Tensile	N_{Rd}	(kN)	10.4	15.2	25.1	42.7	63.3
	Shear	V_{Rd}	(kN)	18.4	27.2	50.4	78.4	112.8
A4-70	Tensile	N_{Rd}	(kN)	10.4	15.2	25.1	42.7	63.3
	Shear	V_{Rd}	(kN)	12.8	19.2	35.3	55.1	79.5

DESIGN RESISTANCE FLOODED HOLES (DIAMOND DRILLED)

Steel Failure

Cracked Concrete		Da		M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{Rd}	(kN)	7.4	10.9	18.0	30.5	45.2
	Shear	V_{Rd}	(kN)	12.0	16.8	31.2	48.8	70.4
Steel 8.8	Tensile	N_{Rd}	(kN)	7.4	10.9	18.0	30.5	45.2
	Shear	V_{Rd}	(kN)	18.4	27.2	50.3	78.4	112.8
A4-70	Tensile	N_{Rd}	(kN)	7.4	10.9	18.0	30.5	45.2
	Shear	V_{Rd}	(kN)	12.8	19.2	35.3	55.1	79.5



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RECOMMENDED LOADS DRY/WET HOLES (DIAMOND DRILLED)

Cracked Concrete		Da		M10	M12	M16	M20	M24
Steel 5.8	Tensile	N _{rec}	(kN)	7.4	10.9	17.9	30.5	45.2
	Shear	V _{rec}	(kN)	8.6	12.0	22.3	34.9	50.3
Steel 8.8	Tensile	N _{rec}	(kN)	7.4	10.9	17.9	30.5	45.2
	Shear	V _{rec}	(kN)	13.1	19.4	36.0	56.0	80.6
A4-70	Tensile	N _{rec}	(kN)	7.4	10.9	17.9	30.5	45.2
	Shear	V _{rec}	(kN)	9.1	13.7	25.2	39.4	56.8

RECOMMENDED LOADS FLOODED HOLES (DIAMOND DRILLED)

Cracked Concrete		Da		M10	M12	M16	M20	M24
Steel 5.8	Tensile	N _{rec}	(kN)	5.3	7.8	12.9	21.8	32.3
	Shear	V _{rec}	(kN)	8.6	12.0	22.3	34.9	50.3
Steel 8.8	Tensile	N _{rec}	(kN)	5.3	7.8	12.9	21.8	32.3
	Shear	V _{rec}	(kN)	13.1	19.4	35.9	56.0	80.6
A4-70	Tensile	N _{rec}	(kN)	5.3	7.8	12.9	21.8	32.3
	Shear	V _{rec}	(kN)	9.1	13.7	25.2	39.4	56.8

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