

VDP-Quartz

TDS | 2034.1

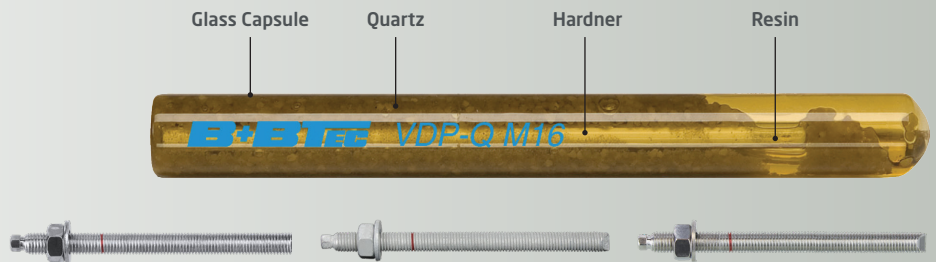
GLASS CAPSULE ANCHOR WITH
ETA ASSESSMENT OPTION 1
FOR CRACKED AND NON-CRACKED CONCRETE



Glass Capsule Anchor with ETA Assessment Option 1 for Cracked and Non-Cracked Concrete

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 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 or wet Bore Holes
- Min. Installation Temperature: Mortar +5°C, Concrete +0°C
- Installation in Concrete C20/25 to C50/60
- Overhead installations are permitted

Approvals & Test Reports



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.

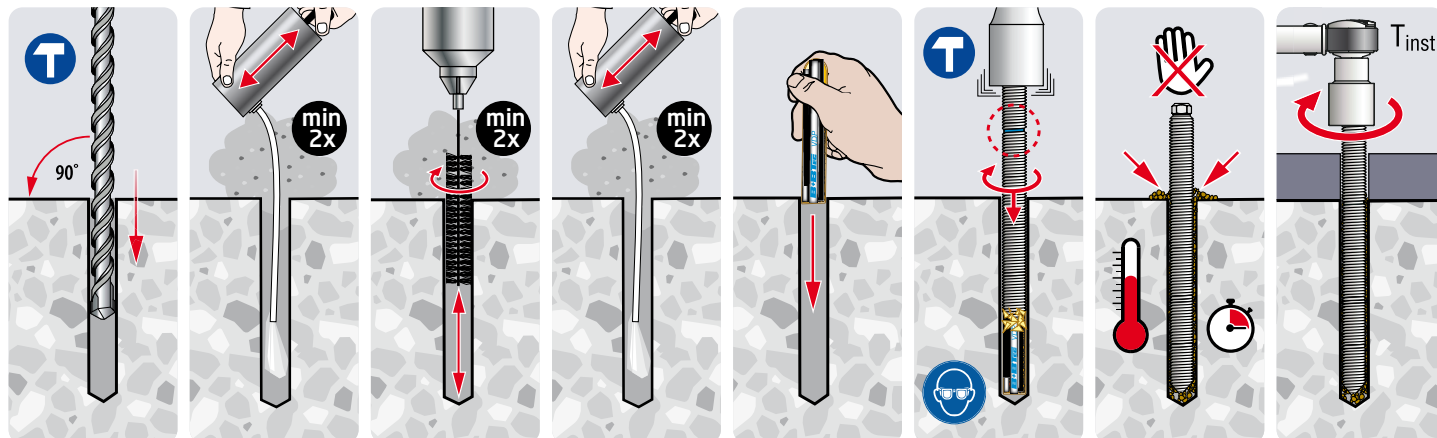
Temperature Range	Temperature Base Material	Mox. Long Term Base Material Temp.	Max. Short Term Base Material Temp.
Temp. Range I	-40°C to +40°C	+24°C	+40°C
Temp. Range II	-40°C to +80°C	+50°C	+80°C

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.

Glass Capsule Anchor with ETA Assessment Option 1 for Cracked and Non-Cracked Concrete

Installation Procedures Hammer/Air Drilled Holes

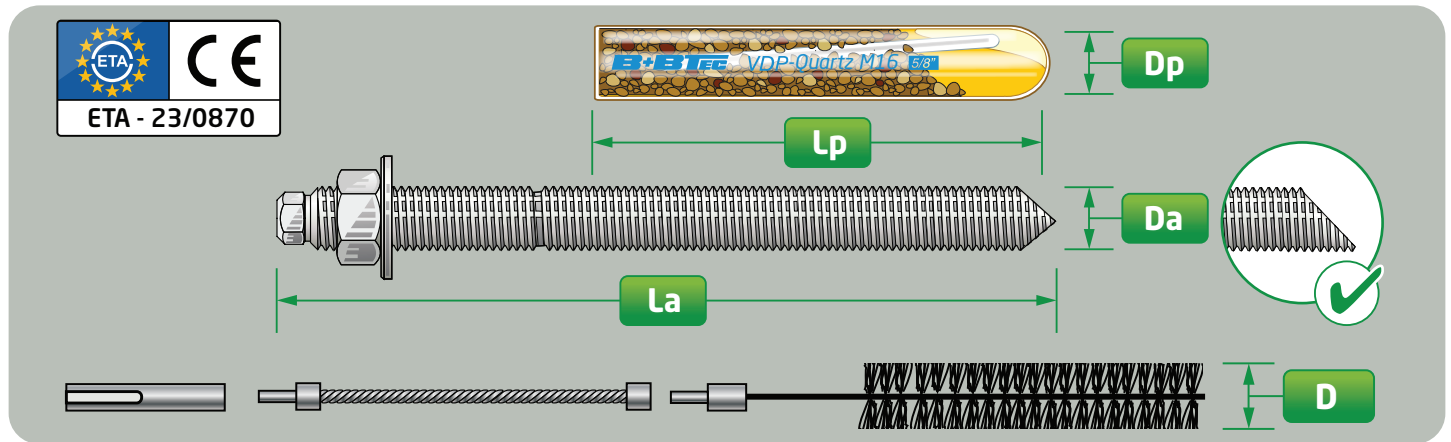


Minimum Curing Times

Temperature ¹⁾	°C	≥ +0	≥ +5	≥ +20	≥ +30	
Min. Curing Time Dry Holes			5h	1h	20min	10min
Min. Curing Time Wet Holes			10h	2h	40min	20min

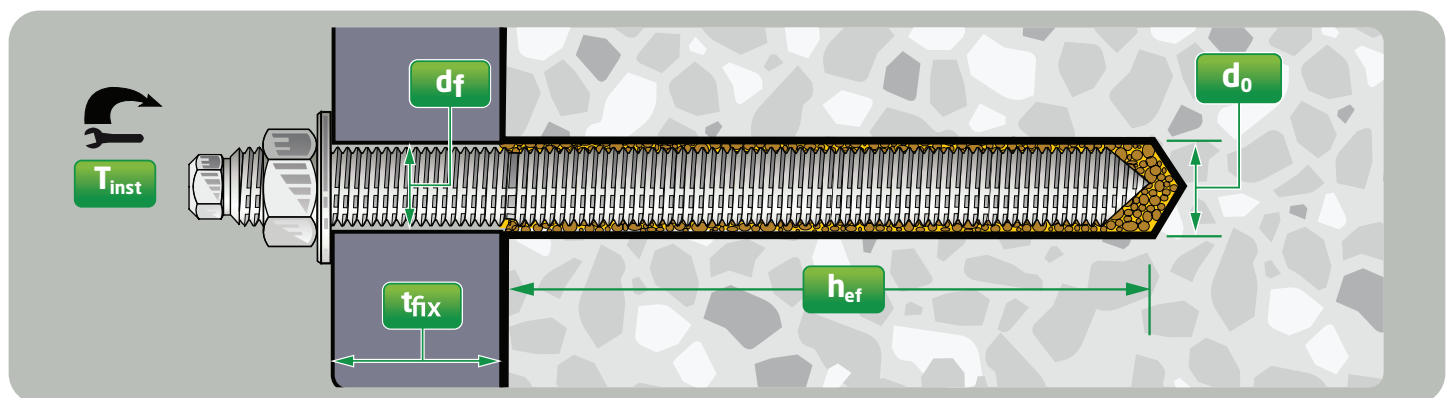
1) Concrete Temperature

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	11.5	14.5	18.5	18.5	26.5

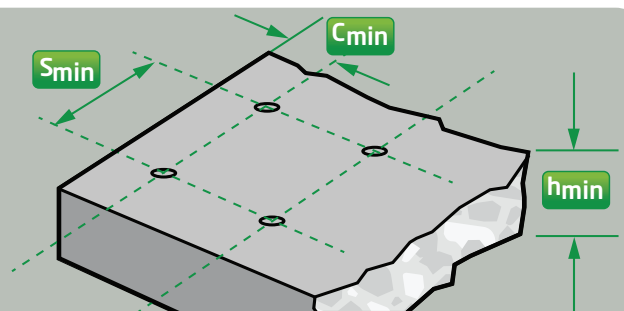


Installation Dimensions

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

Glass Capsule Anchor with ETA Assessment Option 1 for Cracked and Non-Cracked Concrete

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 Data¹⁾

Steel Failure

Design Resistance

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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	V_{Rd}	[kN]	12.8	19.2	35.3	55.1	79.5

Glass Capsule Anchor with ETA Assessment Option 1 for Cracked and Non-Cracked Concrete

Recommended Loads³⁾

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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	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 ²⁾	V _{rec}	[kN]	9.1	13.7	25.2	39.4	56.8

- 1) All Loads in kN for a Single anchor in Dry/Wet, Non-Cracked/Cracked Concrete C20/25 without edge or spacing influences. Temperature Range 50°C/80°C for long/short term.
- 2) Steel strength in kN without bending moment.
- 3) Incl. Safety factor $\gamma_G = 1.4$

Glass Capsule Anchor with ETA Assessment Option 1 for Cracked and Non-Cracked Concrete

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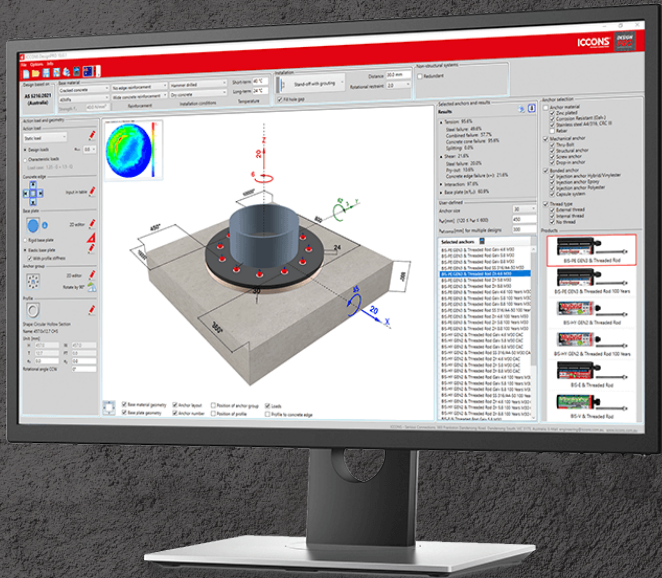
Cracked and Non-Cracked Concrete

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