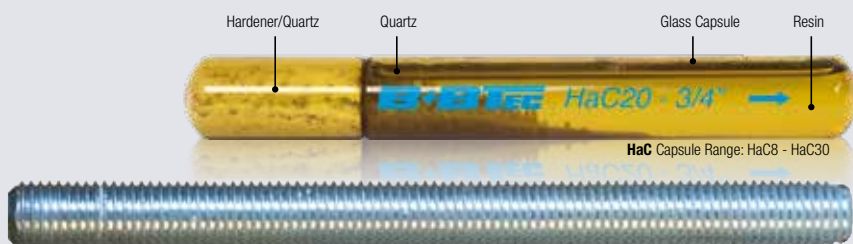


Glass Capsule Anchor for Non-Cracked Concrete



Anchor Components

Glass Capsule Anchor HaC8 - HaC30

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

Anchor Rods ASTA M8 - M30

- Steel 5.8 and 8.8 Zinc Plated and Hot Dip Galvanized
- Stainless Steel A4-70 and A4-80
- High Corrosion Resistant Steel 1.4529

Use Conditions

- Installation in Non-Cracked Concrete C20/25 to C50/60 according to EN 206-1:2000-12
- For Static and quasi static loading
- In Dry or Wet Holes
- Min. Installation Temperature: Mortar +5°C, Concrete -5°C.
- Structures subject to dry internal and permanent damp internal conditions.
- Structures subject to external atmospheric exposure.

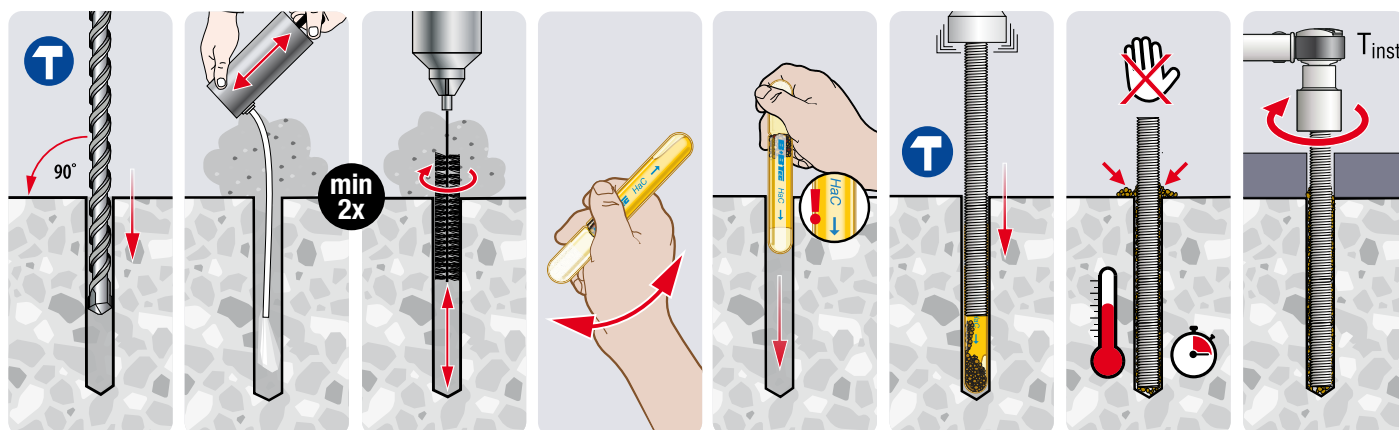
Typical Applications

- Infrastructure Construction (Roads, Viaducts, Sound Barriers, Crash Barriers, Harbours, High Rise Construction, Steel Construction)
- Production Facilities (Installation of Cranes, Robots, Conveyor Lines etc.)

Approvals & Test Reports



Installation Procedures

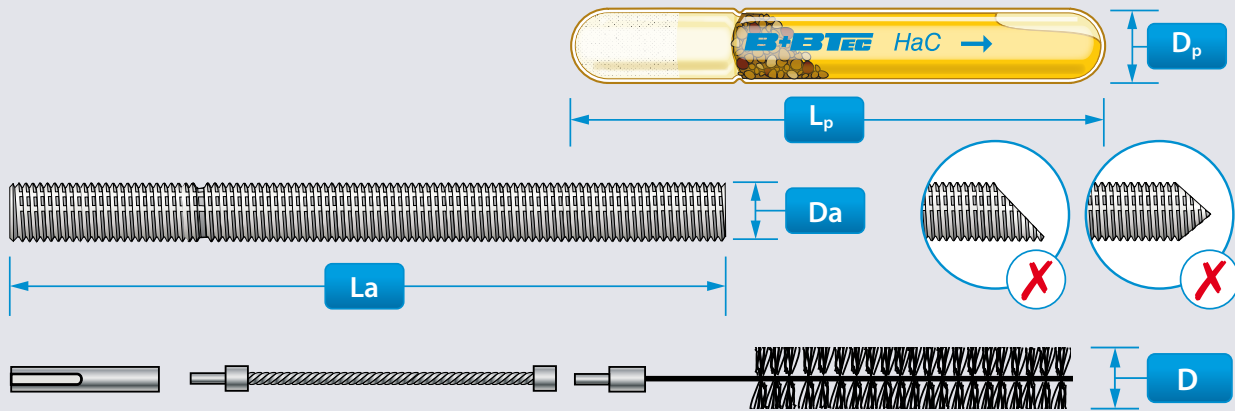


Curing Times

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

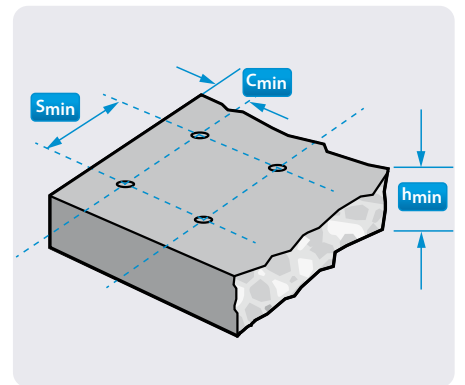
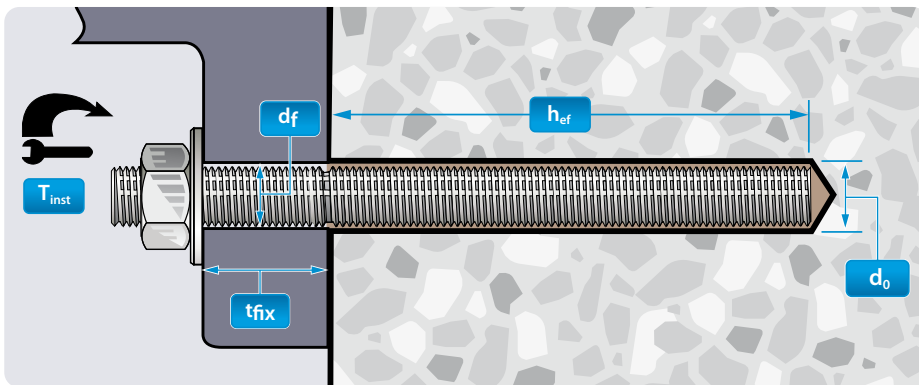
1) Concrete Temperature

Hammer Capsules



Product Dimensions

Anchor Size ¹⁾	D _a		m8	m10	m12	m16	m20	m24	m30
Rod Length	L _a	[mm]	110	130	160	190	260	300	360
Capsule Type	HaC	--	8	10	12	16	20	24	30
Capsule Diameter	D _p	[mm]	9	11	13	17	22	24	33
Capsule Length	L _p	[mm]	80	90	110	125	175	210	265
Capsule Volume	V _p	[cc]	4,0	6,4	11,0	22,0	52,0	75,0	190,0
Required Volume per cm Embedment Depth	V _s	[cc/cm]	0,44	0,59	0,75	1,09	2,64	2,87	4,37
Brush Diameter	D	[mm]	11	13	16	20	27	30	38
Min. Brush Diameter	D _{min}	[mm]	10,5	11,5	14,5	18,5	25,5	28,5	35,5



Installation Dimensions

Anchor Size ¹⁾	D _a	m8	m10	m12	m16	m20	m24	m30
Hole Diameter	d ₀ [mm]	10	12	14	18	25	28	35
Embedment Depth	h ₀ =h _{ef} [mm]	80	100	120	160	200	240	300
Diameter Fixture Hole	d _f [mm]	9	12	14	18	22	26	33
Fixture Thickness	t _{fix} ≤ [mm]	20	30	37	49	71	67	52
Recommended Torque	T _{inst} [Nm]	10	20	40	80	120	180	300

Member Thickness, Edge Distance & Spacing

Anchor Size ¹⁾	D _a		m8	m10	m12	m16	m20	m24	m30
Min. Member Thickness	h_{min}	[mm]	110	130	150	195	250	300	370
Min. Edge Distance	C_{min}	[mm]	40	50	60	80	100	120	150
Min. Spacing	S_{min}	[mm]	40	50	60	80	100	120	150

Performance Data Concrete C20/25¹⁾

Steel Failure

Design Resistance

Anchor Size ¹⁾		D _a		m8	m10	m12	m16	m20	m24	m30
Steel 5.8	Tensile	N_{Rd}	[kN]	8,4	12,6	17,6	30,2	52,4	70,4	104,1
	Shear ²⁾	V_{Rd}	[kN]	7,2	11,2	16,8	31,2	48,8	70,4	112,0
Steel 8.8	Tensile	N_{Rd}	[kN]	8,4	12,6	17,6	30,2	52,4	70,4	104,1
	Shear ²⁾	V_{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	179,2
A4-70	Tensile	N_{Rd}	[kN]	8,4	12,6	17,6	30,2	52,4	70,4	104,1
	Shear ²⁾	V_{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	125,6
A4-80	Tensile	N_{Rd}	[kN]	8,4	12,6	17,6	30,2	52,4	70,4	104,1
	Shear ²⁾	V_{Rd}	[kN]	11,3	17,3	25,6	47,4	73,7	106,0	168,4

Recommended Loads³⁾

Anchor Size ¹⁾		D _a		m8	m10	m12	m16	m20	m24	m30
Steel 5.8	Tensile	N_{rec}	[kN]	6,0	9,0	12,6	21,5	37,4	50,3	74,4
	Shear ²⁾	V_{rec}	[kN]	5,1	8,0	12,0	22,3	34,9	50,3	80,0
Steel 8.8	Tensile	N_{rec}	[kN]	6,0	9,0	12,6	21,5	37,4	50,3	74,4
	Shear ²⁾	V_{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	128,0
A4-70	Tensile	N_{rec}	[kN]	6,0	9,0	12,6	21,5	37,4	50,3	74,4
	Shear ²⁾	V_{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	89,7
A4-80	Tensile	N_{rec}	[kN]	6,0	9,0	12,6	21,5	37,4	50,3	74,4
	Shear ²⁾	V_{rec}	[kN]	8,1	12,4	18,3	33,8	52,6	75,7	120,3

1) All Loads in kN for a Single anchor in Dry/Wet, Non-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 γ_G = 1,4

Free Anchor Design Software for Structural Safety!



B+BTEC DesignFiX® Anchor Design made Easy!

Input Freedom & 3D User Interface

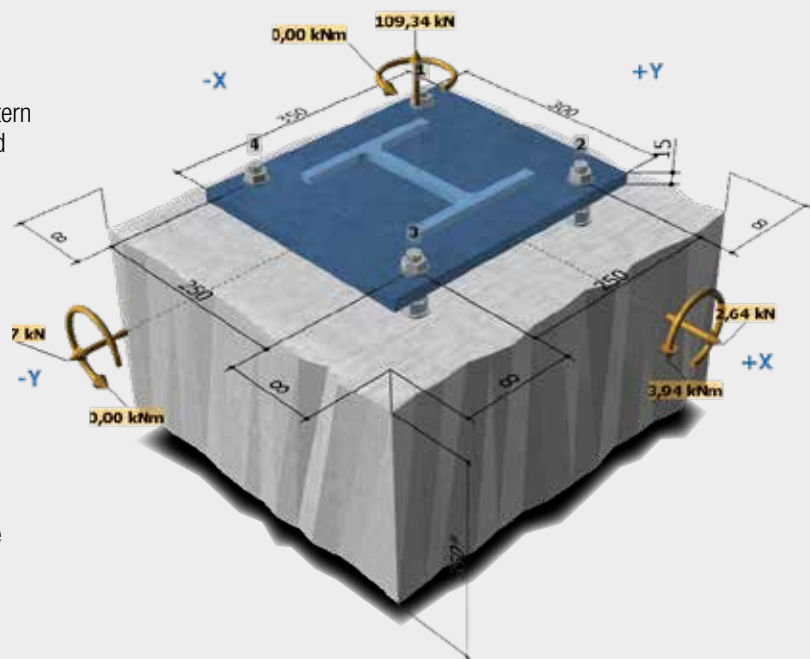
B+BTEC DesignFiX® offers complete freedom to select an anchor pattern and base plate configuration, as well as the position and direction of load combinations. Changes are made directly into the 3D user interface.

Anchor Type Comparison

B+BTEC DesignFiX® displays the usability of the various anchor types (according to European directive ETAG 001 and EN 1992-4), including the values for static loads and under seismic influence. This allows you to compare the calculation results of the different anchor types in a single easy to read panel.

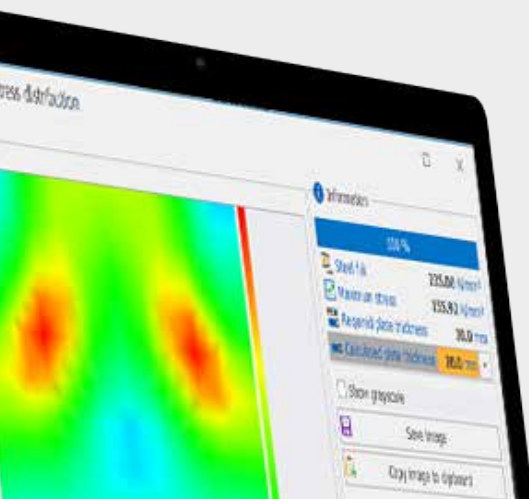
Calculation Effective Anchorage Depth

When selecting an Injection Mortar **B+BTEC DesignFiX®** allows for the automatic calculation of the most effective anchorage depth, taking in consideration the minimal and maximum values of the ETA.



Calculation Base Plate Thickness

The integrated FEM-Calculation Method (Finite Element Method) in **B+BTEC DesignFiX®** allows you to calculate the base plate thickness based upon the stresses in the base plate in combination with the base plate configuration.



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