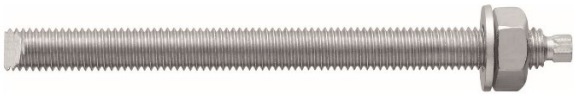
HIT-CT 100
INJECTION MORTAR

Product Technical Datasheet
Steel-to-concrete
Update: Jun 24

HIT-CT 100 injection mortar

Anchor design (EN 1992-4) / Rods / Concrete

Injection mortar system		Benefits
	Hilti HIT-CT 100 330 ml foil pack (also available as 500 ml foil pack)	- safe set technology: Makes installation steps faster, simpler and safer. Automatic borehole cleaning with hollow drill bits, accurate dosing with HDE and fast and safe torquing with the adaptive torque (AT) system. - Optimized for environmental safety to meet high health and safety requirements (no hazard symbols) - High performing mortar with a fast-curing time, suitable in base material temperatures between -5°C and 40°C - Compliant with several environmental databases including BASTA, BVB, SUNDA HUS, SGBC and Nordic Swan - Approved according to NSF / ANSI 61 “Drinking water system component-health effects”. - Suitable for uncracked and cracked concrete C20/25 to C50/60. - Suitable for dry and water saturated concrete
	Anchor rods (M8-M24): HAS HAS HDG HAS A4	
	HAS-U HAS-U HDG HAS-U A4 HAS-U HCR	

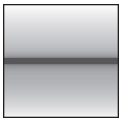
Application condition

Base material

Concrete (uncracked)

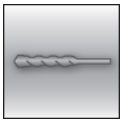
Concrete (cracked)

Load condition

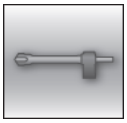


Static/ quasi-static

Installation conditions



Hammer drilling



Hollow drill bit drilled holes

Other information

PROFIS Engineering Design Software

Linked Approvals/Certificates

Approval no	Application / loading condition	Authority / Laboratory	Date of issue
ETA-23/0705	Static and quasi-static	CSTB Champs-Sur-Marne	16-01-2024

Linked Instructions for use

Material			
Injection mortar	IFU Hilti HIT-CT 100	-	-
Fastener	IFU HAS-U	IFU HAS	-
Dispenser	IFU HDM	IFU HDE 500-22	IFU HDE 500-A12

Links/QR codes to Hilti Webpage

Injection mortars / Dispenser / Fastener (Threaded rod)					
Hilti HIT-CT 100	HDE 500-22	HDE 500-A12	HDM 500	HAS-U 8.8	HAS 8.8

Mechanical properties and dimensions HAS and HAS-U

Mechanical properties and dimensions of the threaded rods are standardized and can be taken from the ETA listed in the table Approvals / Certificates.

Static and quasi-static design according to EN 1992-4 based on ETA-23/0705

All data in this section applies to

- Correct setting (see setting instructions)
- For a single anchor
- No edge distance and spacing influence (see setting detail tables with characteristic distances)
- Minimum base material thickness, as specified in the table
- Embedment depth, as specified in the table of this section
- Anchor material, as specified in the tables of this section
- Concrete C20/25
- In-service temperate range I
  (min. base material temperature -40°C, max. long term/short term base material temperature: +24°C/40°C)
- The following data are valid for short term loads only. For long term loading apply ψ_{sus} acc. to EN 1992-4
- Hammer drilled holes and hammer drilled holes with hollow drill bit: $\psi^0_{sus} = 0{,}60$

For specific design cases involving permanent actions refer to PROFIS Engineering.

For hammer drilled holes, hammer drilled holes with Hilti hollow drill bit [a] :

Embedment depth and base material thickness

Anchor- size			M8	M10	M12	M16	M20	M24
Embedment depth [b]	h_{ef}	[mm]	80	90	110	130	170	210
Base material thickness	h_{min}	[mm]	110	120	140	160	220	270

a) Hilti hollow drill bit available for anchor rods and threaded rods with diameters M10-M24.
b) The allowed range of embedment depth is shown in the setting details

Design resistance

Anchor size				M8	M10	M12	M16	M20	M24
Uncracked concrete									
Tension	HAS 5.8, HAS-U 5.8	N_{Rd}	[kN]	8,6	12,1	19,7	31,1	50,8	71,3
	HAS 8.8, HAS-U 8.8			8,6	12,1	19,7	31,1	50,8	71,3
	HAS A4, HAS-U A4			8,6	12,1	19,7	31,1	50,8	71,3
	HAS-U HCR			8,6	12,1	19,7	31,1	50,8	71,3
Shear	HAS 5.8, HAS-U 5.8	V_{Rd}	[kN]	7,3	11,6	16,9	31,4	49,0	70,6
	HAS 8.8, HAS-U 8.8			11,7	18,6	27,0	50,2	78,4	113,0
	HAS A4, HAS-U A4			8,2	13,0	18,9	35,2	55,0	79,2
	HAS-U HCR			11,7	18,6	27,0	50,2	78,4	70,6
Cracked concrete									
Tension	HAS 5.8, HAS-U 5.8	N_{Rd}	[kN]	3,8	6,1	8,9	14,0	20,3	30,1
	HAS 8.8, HAS-U 8.8			3,8	6,1	8,9	14,0	20,3	30,1
	HAS A4, HAS-U A4			3,8	6,1	8,9	14,0	20,3	30,1
	HAS-U HCR			3,8	6,1	8,9	14,0	20,3	30,1
Shear	HAS 5.8, HAS-U 5.8	V_{Rd}	[kN]	7,3	11,6	16,9	31,4	49,0	70,6
	HAS 8.8, HAS-U 8.8			10,7	17,0	24,9	39,2	56,9	84,4
	HAS A4, HAS-U A4			8,2	13,0	18,9	35,2	55,0	79,2
	HAS-U HCR			10,7	17,0	24,9	39,2	56,9	70,6

Recommended loads [c)]

Anchor size				M8	M10	M12	M16	M20	M24
Uncracked concrete									
Tension	HAS 5.8, HAS-U 5.8	N_{rec}	[kN]	6,2	8,7	14,1	22,2	36,3	50,9
	HAS 8.8, HAS-U 8.8			6,2	8,7	14,1	22,2	36,3	50,9
	HAS A4, HAS-U A4			6,2	8,7	14,1	22,2	36,3	50,9
	HAS-U HCR			6,2	8,7	14,1	22,2	36,3	50,9
Shear	HAS 5.8, HAS-U 5.8	V_{rec}	[kN]	5,2	8,3	12,0	22,4	35,0	50,4
	HAS 8.8, HAS-U 8.8			8,4	13,3	19,3	35,9	56,0	80,7
	HAS A4, HAS-U A4			5,9	9,3	13,5	25,2	39,3	56,6
	HAS-U HCR			8,4	13,3	19,3	35,9	56,0	50,4
Cracked concrete									
Tension	HAS 5.8, HAS-U 5.8	N_{rec}	[kN]	2,7	4,3	6,3	10,0	14,5	21,5
	HAS 8.8, HAS-U 8.8			2,7	4,3	6,3	10,0	14,5	21,5
	HAS A4, HAS-U A4			2,7	4,3	6,3	10,0	14,5	21,5
	HAS-U HCR			2,7	4,3	6,3	10,0	14,5	21,5
Shear	HAS 5.8, HAS-U 5.8	V_{rec}	[kN]	5,2	8,3	12,0	22,4	35,0	50,4
	HAS 8.8, HAS-U 8.8			7,7	12,1	17,8	28,0	40,7	60,3
	HAS A4, HAS-U A4			5,9	9,3	13,5	25,2	39,3	56,6
	HAS-U HCR			7,7	12,1	17,8	28,0	40,7	50,4

c) With overall partial safety factor for action γ=1,4. The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

Setting information

Base Material temperature during Installation:
-5°C to +40°C

In-service temperature range:
Hilti HIT-CT 100 injection mortar may be applied in the temperature ranges given below. An elevated base material temperature may lead to a reduction of the design bond resistance.

Temperature range	Base material temperature	Maximum long term base material temperature	Maximum short term base material temperature
Temperature range I	-40 °C to +40 °C	+24 °C	+40 °C
Temperature range II	-40 °C to +80 °C	+50 °C	+80 °C

Maximum 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.

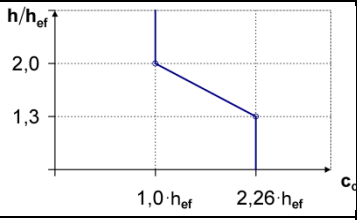
Maximum long term base material temperature
Long term elevated base material temperatures are roughly constant over significant periods of time.

Curing and working time [a)]

Temperature of the base material	Maximum working time	Minimum curing time
T	t_{work}	t_{cure} [a)]
-5°C to 0°C	30 min	6 h
> 0°C to 5°C	20 min	5 h
> 5°C to 10°C	15 min	4 h
> 10°C to 20°C	8 min	4 h
> 20°C to 30°C	4 min	3,5 h
> 30°C to 40°C	1,5 min	3 h

a) The curing time data are valid for dry base material only. In wet material the curing times must be doubled.

Setting details for HAS and HAS-U

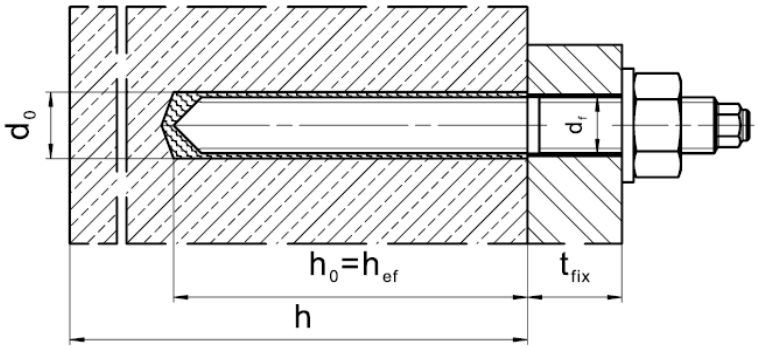
Anchor size			M8	M10	M12	M16	M20	M24
Nominal diameter of element	d	[mm]	8	10	12	16	20	24
Nominal diameter of drill bit	d_0	[mm]	10	12	14	18	22	28
Effective anchorage and drill hole depth range [a]	$h_{ef,min} = h_0$	[mm]	64	80	96	128	160	192
	$h_{ef,max} = h_0$	[mm]	160	200	240	320	400	480
Minimum thickness of concrete member [a]	h_{min}	[mm]	h_{ef} + 30 mm ≥ 100 mm			h_{ef} + 2 d_0		
Minimum spacing	s_{min}	[mm]	40	50	60	80	100	120
Minimum edge distance	c_{min}	[mm]	40	45	45	50	55	60
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14	18	22	26
Maximum torque moment [b]	T_{max}	[Nm]	10	20	40	80	150	200
Characteristic distances								
Spacing for splitting failure	$s_{cr,sp}$	[mm]	2 $c_{cr,sp}$					
Edge distance for splitting failure [c]	$c_{cr,sp}$	[mm]	**1,0 · h_{ef}** for h / h_{ef} ≥ 2,0 **4,6 h_{ef} - 1,8 h** for 2,0 > h / h_{ef} > 1,3 **2,26 h_{ef}** for h / h_{ef} ≤ 1,3					
Spacing for concrete cone failure	$s_{cr,N}$	[mm]	2 $c_{cr,N}$					
Edge distance for concrete cone failure [c]	$c_{cr,N}$	[mm]	1,5 h_{ef}					

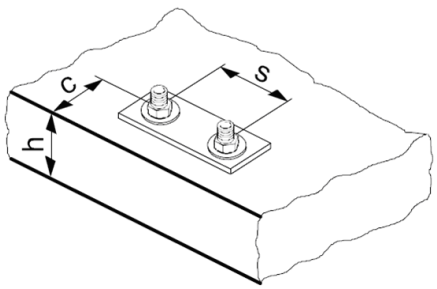
For spacing (edge distance) smaller than characteristic spacing (characteristic edge distance) the design loads must be reduced.

a) $h_{ef,min} \le h_{ef} \le h_{ef,max}$ (h_{ef}: embedment depth)

b) Maximum recommended torque moment to avoid splitting failure during installation with min. spacing and/or edge distance

c) h: base material thickness ($h \ge h_{min}$)





For detailed setting information on installation see instructions for use (IFU) given with the product. Approved installation methods can be found in the specific ETA/Certificate definitions.

Drilling and Installation equipment

Rotary Hammers (Corded and Cordless)		TE 2 - TE 80
Dispenser		HDE HDM
Other tools		Blow out pump, Compressed air gun, Set of cleaning brushes
		Hammer drill bit TE-CX, TE-YX, TE-C, TE-Y
		Hollow drill bit TE-CD, TE-YD
		Piston plug