HIT-MM PLUS INJECTION MORTAR

Technical Datasheet

Update: Jan-23

HIT-MM Plus injection mortar

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

Injection mortar system

Hilti HIT-MM Plus
300 ml foil pack

(also available as
500 ml foil pack)

Anchor rods:
HAS-U
HAS-U HDG
HAS-U A4
HAS-U HCR
(M8-M16)

Internally threaded
sleeves:
HIS-N
(M8-M16)

Benefits

- Chemical injection fastening
- Two component hybrid mortar
- Rapid curing
- Suitable for overhead fastenings
- Versatile and conventional handling
- Clean and simple in use
- Small edge distance and anchor spacing
- Always correct mixing ratio

Base material

Concrete
(non-cracked)

Dry concrete

Wet concrete

Load conditions

Static/
quasi-static

Installation conditions

Hammer
drilling

Other information

A4
316

Corrosion
resistance

European
Technical
Assessment

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European Technical Assessment [a)]	DIBt, Berlin	ETA-17/0199 / 2019-08-30
Hilti Technical Data [b)]	Hilti	2019-09-23

a) All data given in this section according to ETA 17/0199 (issued 2019-08-30).
b) All data given in this section according to Hilti Technical Data.

Static and quasi-static loading (for a single anchor)

Data in this section applies to:
- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Steel failure
- Base material thickness, as specified in the table
- Embedment depth, as specified in the table
- Concrete C 20/25, $f_{ck,cube}$ = 25 N/mm²
- In-service temperate range I
  (min. base material temperature -40°C, max. long term/short term base material temperature: +24°C/40°C)

Embedment depth [a] and base material thickness

Anchor size				M8			M10			M12			M16		
Embedment depth [b]		h_{ef}	[mm]	60	80	160	60	100	200	70	120	240	80	160	320
Base material thickness		h	[mm]	100	110	190	100	130	210	100	150	270	116	196	356

a) The allowed range of embedment depth is shown in the setting details
b) Recommended loads calculated for embedment depths $h_{ef} = h_{ef,min}$; h_{ef} = 10d ; $h_{ef} = h_{ef,max}$ = 20d

Recommended loads [a]

Anchor size				M8			M10			M12			M16		
Non-cracked concrete															
Tension	HAS-U 5.8	N_{rec}	[kN]	5,4	7,2	8,7	6,7	11,2	13,8	9,4	16,1	20,1	14,4	28,7	37,4
Shear	HAS-U 5.8	V_{rec}	[kN]		5,2			8,3			12,0			22,4	

a) The data provided in the table is intended for product comparison only and not suitable for the complete design of an anchorage.

Watch out! Data for M20 and M24 was excluded from the table
Watch out! Data for HIS-N was not in FTM

Materials

Mechanical properties for HAS-U

Anchor size				M8	M10	M12	M16
Nominal tensile strength	HAS-U 5.8	f_{uk}	[N/mm²]	500	500	500	500
	HAS-U 8.8			800	800	800	800
	HAS-U-R			700	700	700	700
	HAS-U-HCR			800	800	800	800
Yield strength	HAS-U 5.8	f_{yk}	[N/mm²]	400	400	400	400
	HAS-U 8.8			640	640	640	640
	HAS-U-R			450	450	450	450
	HAS-U-HCR			640	640	640	640
Stressed cross-section	HAS-U	A_s	[mm²]	36,6	58,0	84,3	157
Moment of resistance	HAS-U	W	[mm³]	31,2	62,3	109	277

Material quality for HAS-U

Part	Material
Zinc coated steel	
Threaded rod, HAS-U 5.8 (HDG)	Strength class 5.8; Elongation at fracture A5 > 8% ductile Electroplated zinc coated ≥ 5μm; (HDG) hot dip galvanized ≥ 45 μm
Threaded rod, HAS-U 8.8 (HDG)	Strength class 8.8; Elongation at fracture A5 > 12% ductile Electroplated zinc coated ≥ 5μm; (HDG) hot dip galvanized ≥ 45 μm
Washer	Electroplated zinc coated ≥ 5 μm, hot dip galvanized ≥ 45 μm
Nut	Strength class of nut adapted to strength class of threaded rod. Electroplated zinc coated ≥ 5μm, hot dip galvanized ≥ 45 μm
Stainless Steel	
Threaded rod, HAS-U A4	Strength class 70 for M8-M16 Elongation at fracture A5 > 8% ductile Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
Washer	Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014
Nut	Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014
High corrosion resistant steel	
Threaded rod, HAS-U HCR	Strength class 80 for M8-M16 Elongation at fracture A5 > 8% ductile High corrosion resistance steel 1.4529; 1.4565;
Washer	High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014
Nut	High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014

Mechanical properties for HIS-N

Anchor size				M8	M10	M12	M16
Nominal tensile strength	HIS-N	f_{uk}	[N/mm²]	490	490	460	460
	Screw 8.8			800	800	800	800
	HIS-RN			700	700	700	700
	Screw A4-70			700	700	700	700
Yield strength	HIS-N	f_{yk}	[N/mm²]	410	410	375	375
	Screw 8.8			640	640	640	640
	HIS-RN			350	350	350	350
	Screw A4-70			450	450	450	450
Stressed cross-section	HIS-(R)N	A_s	[mm²]	51,5	108	169	256
	Screw			36,6	58	84,3	157
Moment of resistance	HIS-(R)N	W	[mm³]	145	430	840	1595
	Screw			31,2	62,3	109	277

Material quality for HIS-N

Part		Material
HIS-N	Internal threaded sleeve	C-steel 1.0718; Steel galvanized ≥ 5 µm
	Screw 8.8	Strength class 8.8, A5 > 8 % Ductile; Steel galvanized ≥ 5 µm
HIS-RN	Internal threaded sleeve	Stainless steel 1.4401,1.4571
	Screw 70	Strength class 70, A5 > 8 % Ductile Stainless steel 1.4401; 1.4404, 1.4578; 1.4571; 1.4439; 1.4362

Setting information

Installation temperature range:
-5°C to +40°C

In service temperature range
Hilti HIT MM Plus injection mortar with anchor rods may be applied in the temperature ranges given below. An elevated base material temperature leads 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	-40 °C to + 40 °C	+ 24 °C	+ 40 °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.

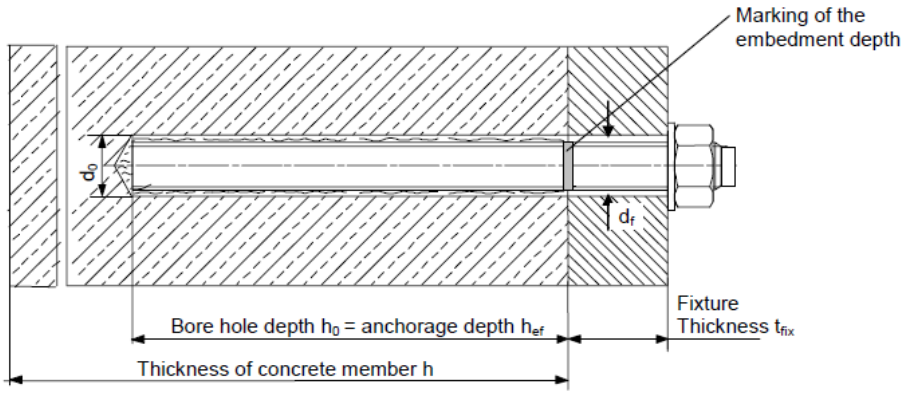
Working time and curing time [a)]

Temperature of the base material	Maximum working time	Minimum curing time
T_{BM}	t_{work}	t_{cure} [a)]
-5 °C < T_{BM} ≤ 0 °C	10 min	12 h
0 °C < T_{BM} ≤ 5 °C	10 min	5 h
5 °C < T_{BM} ≤ 10 °C	8 min	2,5 h
10 °C < T_{BM} ≤ 20 °C	5 min	1,5 h
20 °C < T_{BM} ≤ 30 °C	3 min	45 min
30 °C < T_{BM} ≤ 40 °C	2 min	30 min

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

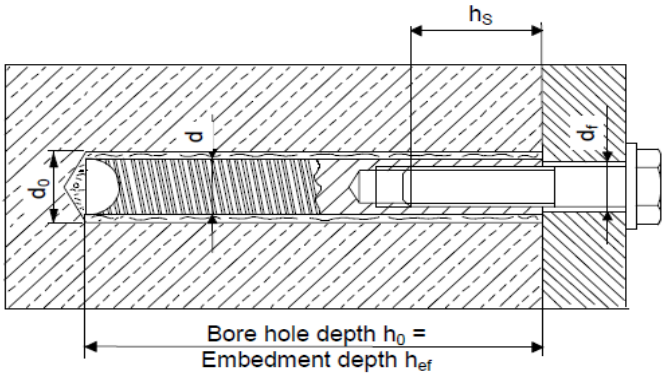
Setting details for HAS-U

Anchor size			M8	M10	M12	M16
Nominal diameter of element	d	[mm]	8	10	12	16
Nominal diameter of drill bit	d_0	[mm]	10	12	14	18
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14	18
Effective anchorage depth (= drill hole depth)	$h_{ef,min} = h_0$	[mm]	60	60	70	80
	$h_{ef,max} = h_0$	[mm]	160	200	240	320
Minimum base material thickness	h_{min}	[mm]	h_{ef} + 30 mm ≥ 100 mm			h_{ef} + 2d_0
Maximum torque moment	T_{max}		10	20	40	80
Minimum spacing	s_{min}	[mm]	40	50	60	80
Minimum edge distance	c_{min}	[mm]	40	50	60	80



Setting details for HIS-N

Anchor size			M8	M10	M12	M16
Diameter of element	d	[mm]	12,5	16,5	20,5	25,4
Nominal diameter of drill bit	d_0	[mm]	14	18	22	28
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14	18
Effective anchorage depth	h_{ef}	[mm]	90	110	125	170
Minimum base material thickness	h_{min}	[mm]	120	146	169	226
Thread engagement length; min – max	h_s	[mm]	8-20	10-25	12-30	16-40
Maximum torque moment	T_{max}	[Nm]	10	20	40	80
Minimum spacing	s_{min}	[mm]	60	75	90	115
Minimum edge distance	c_{min}	[mm]	40	45	55	65



Installation equipment

Anchor size	M8	M10	M12	M16
Rotary hammer	TE2 – TE16			
Other tools	blow out pump ($h_{ef} \leq 10 \cdot d$), Compressed air gun, set of cleaning brushes, dispenser			

Parameters of cleaning and setting tools

HAS-U	HIS-N	Drilling and cleaning		Installation
		Hammer drill	Brush HIT-RB	Piston plug HIT-SZ
		d_0 [mm]	size [mm]	
				
M8	**-**	10	10	-
M10	**-**	12	12	12
M12	**M8**	14	14	14
M16	**M10**	18	18	18
-	**M12**	22	22	22
-	**M16**	28	28	28

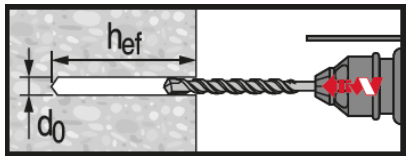
Setting instructions

***For detailed information on installation see instruction for use given with the package of the product.**

Safety regulations.

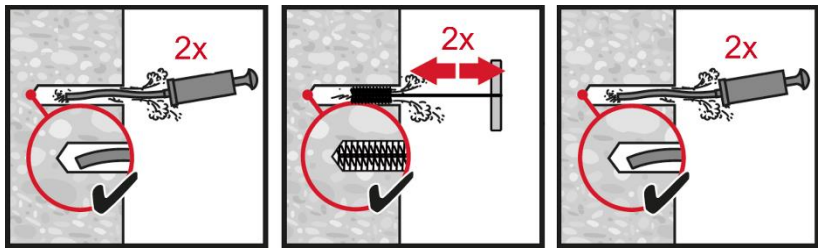
Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-MM Plus.

Drilling



Hammer drilled hole (HD)

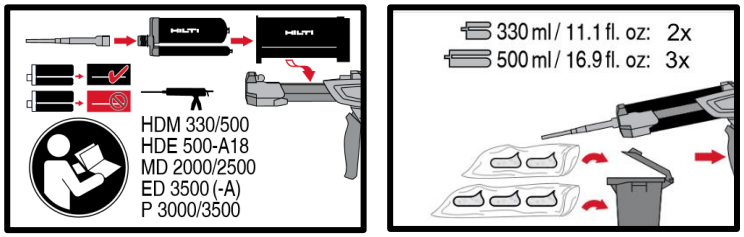
Cleaning



Manual cleaning (MC)
Non-cracked concrete only

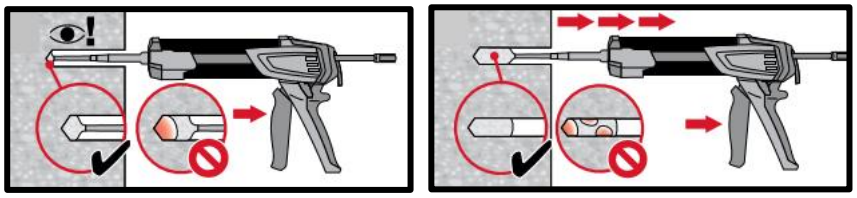
for drill diameters $d_0 \leq 18$ mm and drill hole depth $h_0 \leq 10 \cdot d$.

Injection system

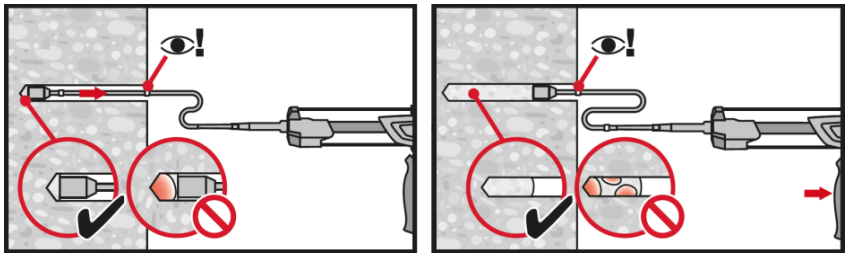


Injection system preparation.

Injection system

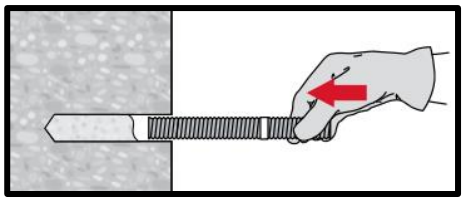


Injection method for drill hole depth $h_{ef} \leq 250$ mm.

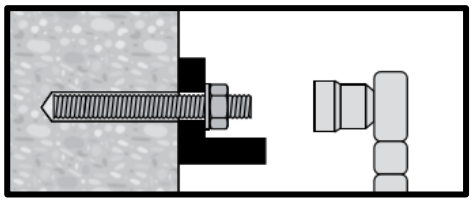


Injection method for drill hole depth $h_{ef} > 250$mm.

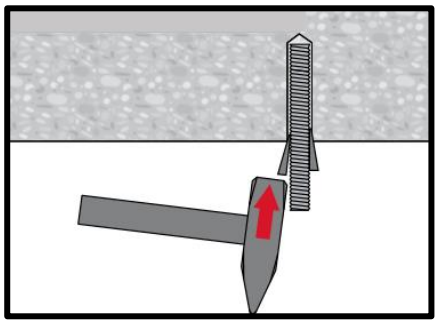
Setting the element



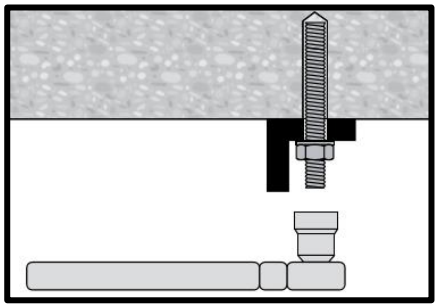
Setting element, observe working time "t_{work}",



Loading the anchor after required curing time t_{cure} the anchor can be loaded. The applied installation torque shall not exceed $T_{max.}$



Setting element for overhead applications, observe working time "t_{work}"



Loading the anchor after required curing time t_{cure} the anchor can be loaded. The applied installation torque shall not exceed $T_{max.}$

HIT-MM Plus injection mortar

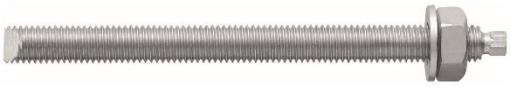
Anchor design (EOTA TR 054) / Rods and Sleeves / Masonry

Injection mortar system

Hilti HIT-MM Plus

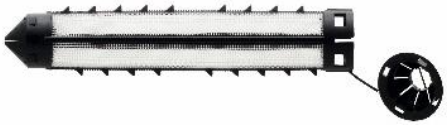
300 ml foil pack

(also available as 500 ml foil pack)



Anchor rods:
HAS-U
HAS-U HDG
HAS-U A4
HAS-U HCR
(M8-M12)

Anchor rods:
HIT-IC
(M8-M12)

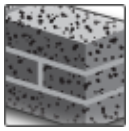


Sieve sleeves:
HIT-SC
(16-22)

Benefits

- Chemical injection fastening for all type of base materials:
- Hollos and solid clay bricks, sand-lime bricks, normal and light weight concrete blocks, aereated light weight concrete, natural stones
- Two component hybrid mortar
- Rapid curing
- Flexible setting depth and fastening thickness
- Suitable for overhead fastenings
- Versatile and conventional handling
- Clean and simple in use
- Small edge distance and anchor spacing
- Always correct mixing ratio

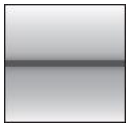
Base material



Solid brick

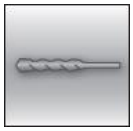
Hollow brick

Load conditions



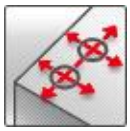
Static/ quasi-static

Installation conditions



Hammer / rotary drilling

Variable embedment depth



Small edge distance and spacing

Other information

Corrosion resistance

European Technical Approval

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European Technical Assessment [a)]	DIBt, Berlin	ETA-16/0239 / 2019-08-30

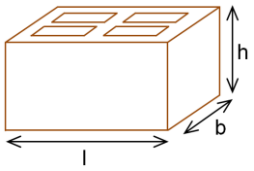
c) All data given in this section according to ETA-16/0239 (issued 2019-08-30).

Brick types and properties

Instruction to this technical data

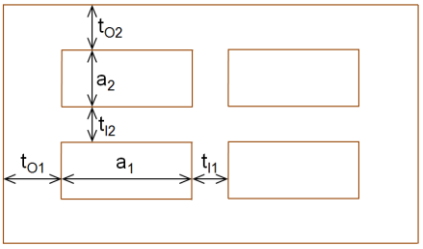
- Identify/choose your brick (or brick type) and its geometrical/physical properties on the following tables. Information about edge and spacing criteria is available on the following pages.
  - The pages reffered on the last column of the table below contain the design resistance loads for pull-out failure of the anchor, brick breakout failure and local brick failure for each respective brick. Notice that the data displayed on these tables is only valid for single anchors with distance to edge such that loading capacity is not influenced by it – for other cases not covered, consult ETA-16/0239 or contact Hilti Engineering Team.
- The resistance loads provided by this technical data manual are valid only for exact same masonry unit (hollow bricks) or for units made of the same base material with equal or higher size and compressive strength (solid bricks). For other cases, on-site tests must be performed

Exterior brick dimensions



Generic bricks

Interior dimensions of the majority of the holes

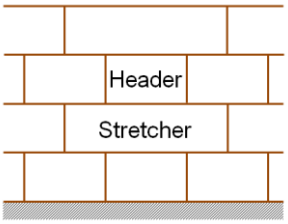


Brick types and properties

Brick code	Data	Brick name	Image	Size [mm]	t_O [mm]	t_I [mm]	a [mm]	f_b [N/mm²]	ρ [kg/dm³]
Solid clay									
SC3	ETA	Solid clay brick Mz, 2DF		l: ≥ 240 b: ≥ 115 h: ≥ 113	-	-	-	12	2,0
Solid Calcium Silicate									
SCS1	ETA	Solid silica brick KS, 2DF		l: ≥ 240 b: ≥ 115 h: ≥ 113	-	-	-	12 28	2,0
Hollow clay									
HC1	ETA	Hollow clay brick Hlz, 10DF		l: 300 b: 240 h: 238	t_{01}: 12 t_{02}: 15	t_{I1}: 11 t_{I2}: 15	a_1: 10 a_2: 25	12 20	1,4
Hollow Calcium Silicate									
HCS1	ETA	Hollow silica brick KSL, 8DF		l: 248 b: 240 h: 238	t_{01}: 34 t_{02}: 22	t_{I1}: 11 t_{I2}: 20	a_1: 52 a_2: 52	12 20	1,4

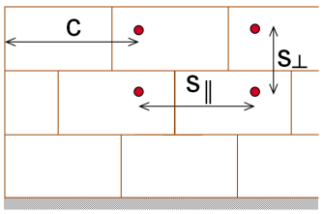
Anchor installation parameters

Brick position:



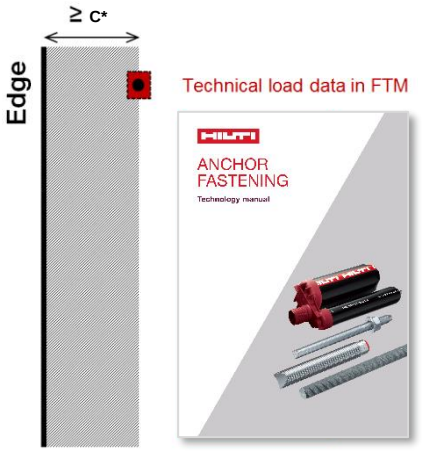
- **Header (H):** The longest dimension of the brick represents the width of the wall
- **Stretcher (S):** The longest dimension of the brick represents the length of the wall

Spacing and edge distance:

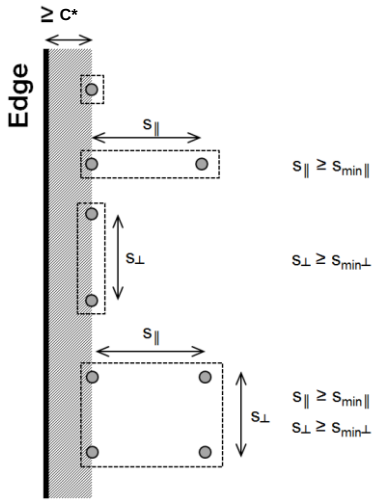


- c - Distance to the edge
- $s_{\parallel}$ - Spacing parallel to the bed joint
- $s_{\perp}$ - Spacing perpendicular to the bed joint

Allowed anchor positions:



- This FTM includes the load data for single anchors in masonry with a distance to edge equal to or greater than **c***.
- **c*** is the distance from the anchor to the edge of the wall, such that the loading capacity of the anchor is not influenced by the edge.
- Minimum spacing between anchors = MAX (3 x h_{ef} ; size of brick in respective direction). This applies for a (conservative) manual design/calculation of a baseplate using the load tables in this manual.
- For an optimized design or cases not covered in this technical data, including anchor groups, please consult ETA-16/0239.



Static and quasi-static loading (for a single anchor)

All data in this section applies to:
- Correct anchor setting (see instruction for use, setting details)
- Steel quality for screws for HIT-IC: minimum grade 5.8
- Anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to supports, etc.).
- Anchorages under static or quasi-static loading are designed in accordance with: EOTA TR054, Design method A

Basic loading data (for a single anchor)
The load tables provide the design resistance values for a single loaded anchor.

All data in this section applies to
– Edge distance c ≥ c*. For other applications, please consult ETA-16/0239.
– Correct anchor setting (see instruction for use, setting details)

Anchorages subject to:		**Hilti HIT-MM Plus with HAS-U or HIT-IC**	
		in solid bricks	**in hollow bricks**
Hole drilling		hammer mode	rotary mode
Use category: dry or wet structure		Category **d/d** - **Installation and use** in structures subject to **dry**, internal conditions, Category **w/d** - **Installation in** dry or **wet** substrate and **use** in structures subject to **dry**, internal conditions (except calcium silicate bricks), Category **w/w** - **Installation and use** in structures subject to dry or **wet** environmental conditions (except calcium silicate bricks).	
Installation direction	Masonry	horizontal	
Temperature in the base material at installation		+5° C to +40° C	0° C to +40° C
In-service temperature	Temperature range Ta:	-40 °C to +40 °C	(max. long term temperature +24 °C and max. short term temperature +40 °C)
	Temperature range Tb:	-40 °C to +80 °C	(max. long term temperature +50 °C and max. short term temperature +80 °C)

Due to the wide variety of bricks site tests have to be performed for determination of load values for all applications outside of the above mentioned base materials and / or setting conditions.

Design tension resistances – Pull-out failure of the anchor, brick breakout failure and local brick failure at edge distance (c ≥ c*) for single anchor applications

Load type	Anchor size		h_{ef} [mm]	f_b [N/mm²]	w/w and w/d		d/d	
					Ta	Tb	Ta	Tb
					Loads [kN]			
	**SC3 – Solid clay brick Mz, 1DF (ETA data)**							
$N_{Rd,p} = N_{Rd,b}$ (c ≥ 115 mm)	HAS-U	M8, M10, M12	80	12	1,0	0,8	1,0	0,8
	HIT-IC	M8	80	12	1,0	0,8	1,0	0,8
		M10, M12	80	12	1,4	1,2	1,4	1,2
	HAS-U + HIT-SC	M8, M10, M12	80	12	1,4	1,2	1,4	1,2
	HIT-IC + HIT-SC	M8, M10, M12	80	12	1,4	1,2	1,4	1,2
	**SCS1 - Solid silica brick KS, 2DF (ETA data)**							
$N_{Rd,p} = N_{Rd,b}$ (c ≥ 115 mm)	HAS-U, HIT-IC	M8, M10, M12	80	12	1,8	1,6	2,0	1,6
				28	2,8	2,4	2,8	2,4
	HAS-U + HIT-SC, HIT-ICE + HIT-SC	M8, M10, M12	80	12	1,4	1,0	1,8	1,6
				28	2,0	1,8	2,6	2,4
	**HC1 - Hollow clay brick Hlz, 10DF (ETA data)**							
$N_{Rd,p} = N_{Rd,b}$ (c ≥ 150 mm)	HAS-U + HIT-SC, HIT-IC + HIT-SC	M8, M10, M12	80	12	1,0	0,8	1,0	0,8
				20	1,2	1,0	1,2	1,0
	**HCS1 - Hollow silica brick KSL, 8DF (ETA data)**							
$N_{Rd,p} = N_{Rd,b}$ (c ≥ 125 mm)	HAS-U + HIT-SC, HIT-IC + HIT-SC	M8, M10, M12	80	12	1,0	0,8	1,0	0,8
				20	1,4	1,2	1,4	1,2

On-site tests

For other bricks in solid or hollow masonry, not covered by the Hilti HIT-MM Plus ETA or this technical data manual, the characteristic resistance may be determined by on-site tension tests (pull-out tests or proof-load tests), according to EOTA TR053.

For the evaluation of test results, the characteristic resistance may be obtained taking into account the β factor, which considers the different influences of the product.

The β factor for the brick types covered by the Hilti HIT-MM Plus ETA is provided on the following table:

Use categories		**w/w and w/d**		**d/d**	
Temperature range		**Ta***	**Tb***	**Ta***	**Tb***
Base material	**Elements**				
Solid clay brick EN 771-2	HAS-U or HIT-IC	0,94	0,81	0,94	0,81
	HAS-U + HIT-SC				
	HIT-IC + HIT-SC				
Solid calcium silicate brick EN 771-2	HAS-U or HIT-IC	0,93	0,82	0,94	0,82
	HAS-U + HIT-SC	0,66	0,60	0,88	0,80
	HIT-IC + HIT-SC				
Hollow clay brick EN 771-1	HAS-U + HIT-SC	0,94	0,81	0,94	0,81
	HIT-IC + HIT-SC				
Hollow calcium silicate brick EN 771-2	HAS-U + HIT-SC	0,66	0,60	0,99	0,80
	HIT-IC + HIT-SC				

*Ta / Tb, w/w and d/d anchorage parameters, as defined on previous pages

Applying the β factor from the table above, the characteristic tension resistance N_{Rk} can be obtained. Characteristic shear resistance V_{Rk} can also be directly derived from N_{Rk}. For detailed procedure consult EOTA TR053.

Materials

Mechanical properties for HAS-U

Anchor size				M8	M10	M12
Nominal tensile strength	HAS-U 5.8	f_{uk}	[N/mm²]	500	500	500
	HAS-U A4			700	700	700
Yield strength	HAS-U 5.8	f_{yk}	[N/mm²]	400	400	400
	HAS-U A4			450	450	450
Stressed cross-section	HAS-U	A_s	[mm²]	36,6	58,0	84,3
Moment of resistance	HAS-U	W	[mm³]	31,2	62,3	109

Material quality

Part	Material
Zinc coated steel	
Threaded rod, HAS-U 5.8 (HDG)	Strength class 5.8; Elongation at fracture A5 > 8% ductile Electroplated zinc coated ≥ 5μm; (HDG) hot dip galvanized ≥ 45 μm
Threaded rod, HAS-U 8.8 (HDG)	Strength class 8.8; Elongation at fracture A5 > 12% ductile Electroplated zinc coated ≥ 5μm; (HDG) hot dip galvanized ≥ 45 μm
Washer	Electroplated zinc coated ≥ 5 μm, hot dip galvanized ≥ 45 μm
Nut	Strength class of nut adapted to strength class of threaded rod. Electroplated zinc coated ≥ 5μm, hot dip galvanized ≥ 45 μm
HIT-IC sleeve	Carbon steel; galvanized to min. 5 μm
Stainless Steel	
Threaded rod, HAS-U A4	Strength class 70 for M8-M12 Elongation at fracture A5 > 8% ductile Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
Washer	Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014
Nut	Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014
High corrosion resistant steel	
Threaded rod, HAS-U HCR	Strength class 80 for M8-M12 Elongation at fracture A5 > 8% ductile High corrosion resistance steel 1.4529; 1.4565;
Washer	High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014
Nut	High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014
Sieve sleeve	
HIT-SC sleeve	Frame: FPP 20T, Sieve: PA6,6 N500/200

Setting information

Installation temperature range:
Solid masonry: 5°C to +40°C
Hollow masonry: 0°C to +40°C

In service temperature range
Hilti HIT-HY MM+ injection mortar with anchor rods may be applied in the temperature ranges given below. An elevated base material temperature leads 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
Temerature 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.

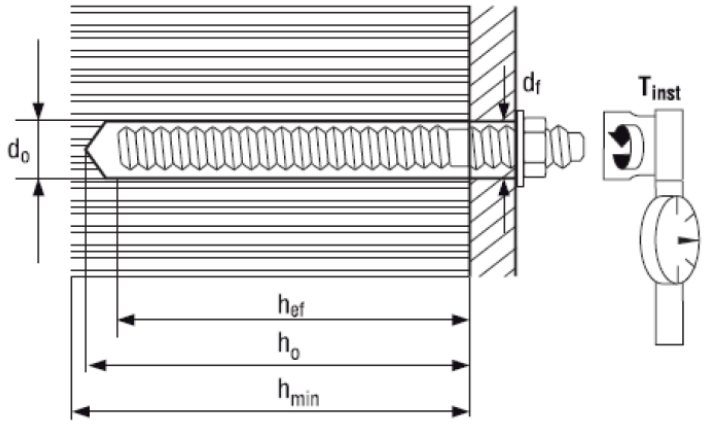
Working time and curing time [b)]

Temperature of the base material	Maximum working time	Minimum curing time
TBM	t_{work}	t_{cure} [b)]
0 °C < T_{BM} ≤ 5 °C [a)]	10 min [a)]	6 h [a)]
5 °C < T_{BM} ≤ 10 °C	8 min	3 h
10 °C < T_{BM} ≤ 20 °C	5 min	2 h
20°C < T_{BM} ≤ 30 °C	3 min	60 min
30 °C < T_{BM} ≤ 40 °C	2 min	45 min

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

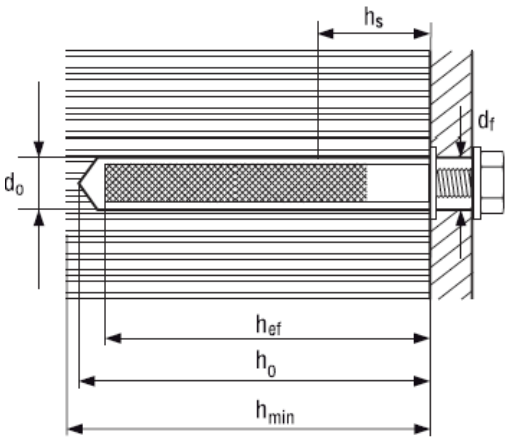
Setting details for solid bricks with HAS-U

Anchor size			HAS-U		
			M8	M10	M12
Sieve sleeve		HIT-SC	-	-	-
Nominal diameter of drill bit	d_0	[mm]	10	12	14
Effective anchorage and drill hole depth	$h_{ef} = h_0$	[mm]	80	80	80
Minimum base material thickness	h_{min}	[mm]	115	115	115
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Minimum spacing	s_{min}	[mm]	100	100	100
Minimum edge distance	c_{min}	[mm]	100	100	100
Maximum torque moment	T_{max}	[Nm]	5	8	10
Filing volume		[ml]	4	5	7



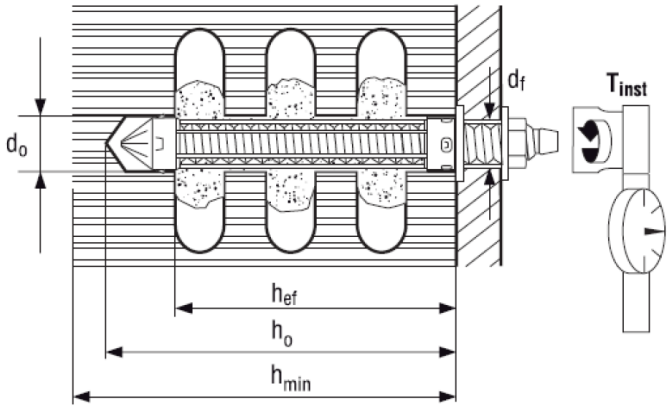
Setting details for solid bricks with HIT-IC

Anchor size			HIT-IC		
			M8	M10	M12
Sieve sleeve		HIT-SC	-	-	-
Nominal diameter of drill bit	d_0	[mm]	14	16	18
Effective anchorage and drill hole depth	$h_{ef} = h_0$	[mm]	80	80	80
Minimum base material thickness	h_{min}	[mm]	115	115	115
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Length of bolt engagement	h_s	[mm]	8…75	10…75	12…75
Maximum torque moment	T_{max}	[Nm]	5	8	10
Filing volume		[ml]	6	6	6



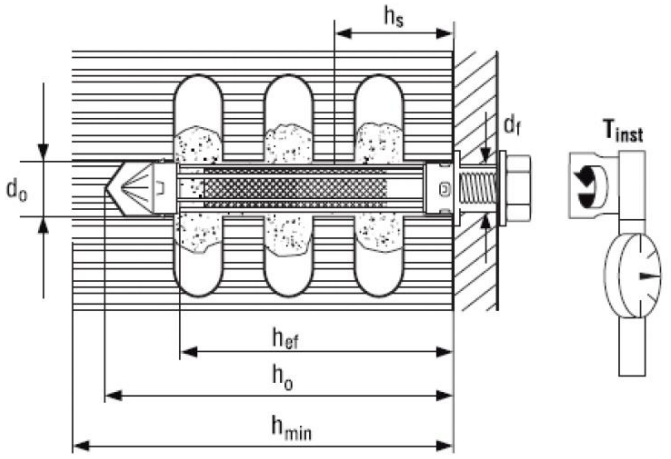
Setting details for hollow bricks for HAS-U

Anchor size			HAS-U + HIT-SC		
			M8	M10	M12
Sieve sleeve		HIT-SC	16x85	16x85	18x85
Nominal diameter of drill bit	d_0	[mm]	16	16	18
Effective anchorage depth	h_{ef}	[mm]	80	80	80
Drill hole depth	h_0	[mm]	95	95	95
Minimum base material thickness	h_{min}	[mm]	115	115	115
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Torque moment	T_{max}	[Nm]	3	4	6
Filing volume		[ml]	30	30	36



Setting details for hollow bricks for HIT-IC

Anchor size			HIT-IC + HIT-SC		
			M8	M10	M12
Sieve sleeve		HIT-SC	16x85	18x85	22x85
Nominal diameter of drill bit	d_0	[mm]	16	18	22
Effective anchorage and drill hole depth	h_{ef}	[mm]	80	80	80
Drill hole depth	h_0	[mm]	95	95	95
Minimum base material thickness	h_{min}	[mm]	115	115	115
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Length of bolt engagement	h_s	[mm]	8…75	10…75	12…75
Torque moment	T_{max}	[Nm]	3	4	6
Filing volume		[ml]	30	36	45



Drilling and cleaning parameters for solid bricks

HAS-U	HIT-IC	Drilling and cleaning	
		Hammer drill	Brush HIT-RB
		d_0 [mm]	size [mm]
			
M8	**-**	10	10
M10	**-**	12	12
M12	**M8**	14	14
-	**M10**	16	16
-	**M12**	18	18

Drilling and cleaning parameters for hollow bricks

HAS-U + sieve sleeve	HIT-IC + sieve sleeve	Drilling and cleaning	
		Hammer drill	Brush HIT-RB
		d_0 [mm]	size [mm]
			
M8	**-**	16	16
M10	**M8**	16	16
M12	**M10**	18	18
-	**M12**	-	22

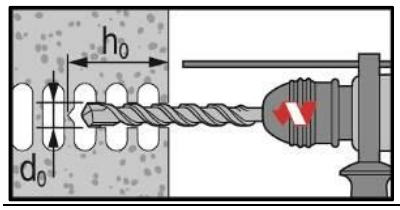
Setting instructions

***For detailed information on installation see instruction for use given with the package of the product.**

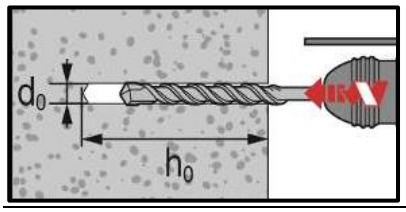
Safety regulations.

Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-MM Plus.

Drilling

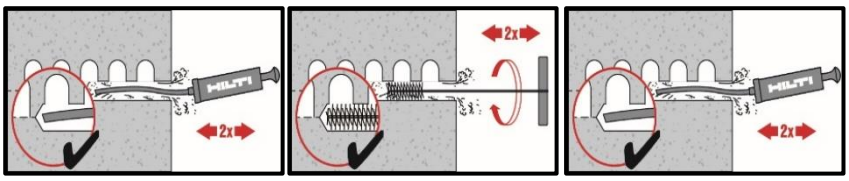


In hollow bricks: rotary mode



In solid bricks: hammer mode

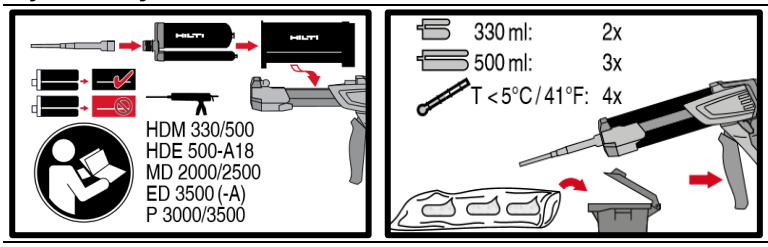
Cleaning



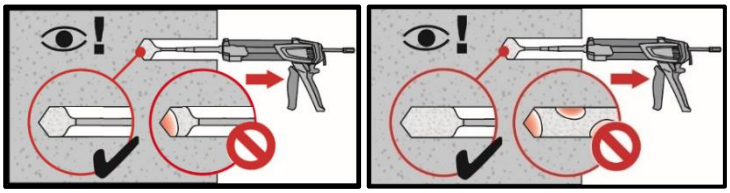
Manual cleaning (MC)

Instructions for solid bricks without sieve sleeve

Injection system

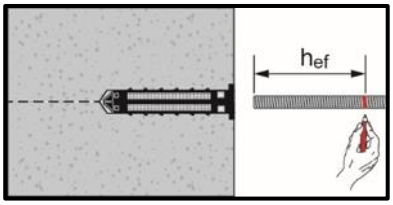


Injection system preparation.

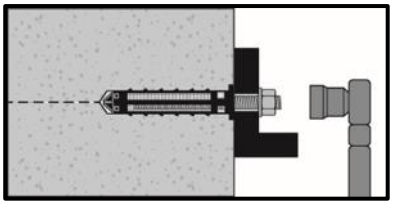


Injection method

Setting the element



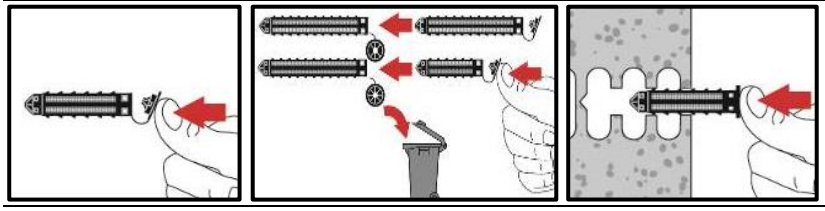
Presetting element, observe working time “t_{work}”,



Loading the anchor: After required curing time t_{cure} the anchor can be loaded.

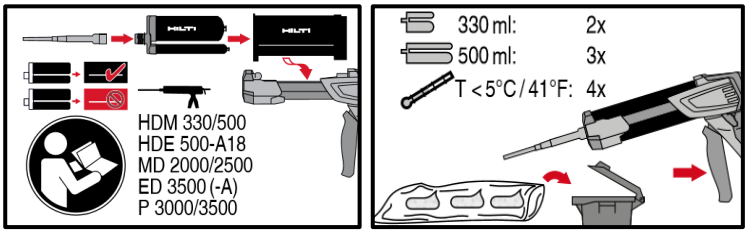
Instructions for hollow and solid bricks with sieve sleeve

Praparation of the sieve sleeve



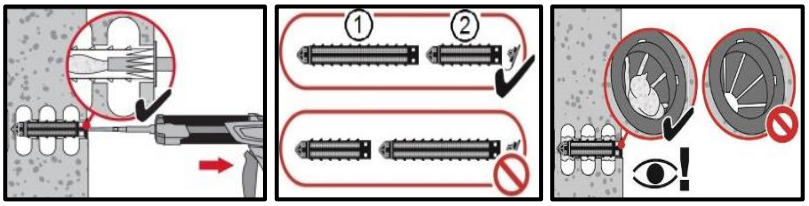
Close lid and insert sieve sleeve manually

Injection system



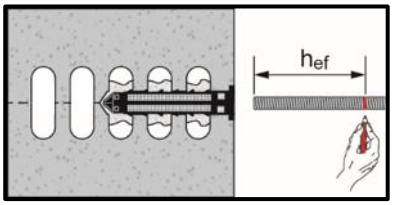
Injection system preparation.

Injection system: hollow bricks

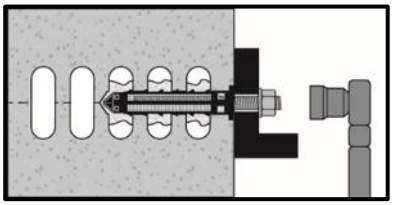


Installation with sieve sleeve HIT-SC

Setting the element



Presetting element, observe working time “t_{work}”,



Loading the anchor: After required curing time t_{cure} the anchor can be loaded.