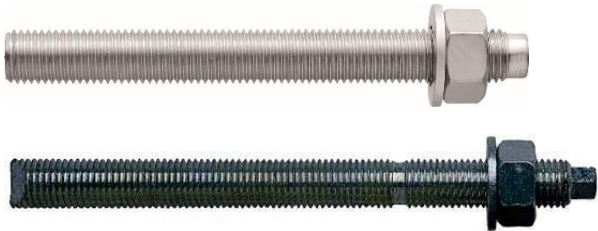
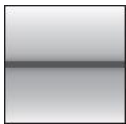
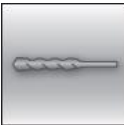
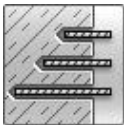
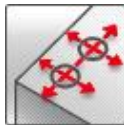




HIT-HY 10 injection mortar

Anchor design (ETAG 001) / Rods and Sleeves / Concrete

Injection mortar system	Benefits	
	Hilti HIT-HY 10 330 ml foil pack (also available as 500 ml foil pack)	- Chemical injection fastening - Two component hybrid mortar - Rapid curing - Suitable for overhead fastenings - Versatile and convenient handling - Clean and simple in use - Small edge distance and anchor spacing - Always correct mixing ratio
	 Threaded rods: HIT-V HIT-V-R HAS-(E) HAS-(E)R	
 Internal threaded sleeve: HIS-N HIS-RN		

Base material	Load conditions	
 Concrete (non-cracked)	 Dry concrete	 Static/ quasi-static
Installation conditions	Other informations	
 Hammer drilling	 Variable embedment depth	 Small edge distance and spacing
	 European Technical Assessment	 CE conformity
		 Corrosion resistance

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

All data in this section applies to

- Non-cracked concrete C20/25, $f_{ck,cube} = 25 \text{ N/mm}^2$
- Load values valid for holes drilled with TE rotary hammers in hammering mode.
- Diamond coring is not permitted.
- Embedment depth, base material and thickness given in table
- Correct anchor setting (see instruction for use, setting details)
- No edge distance and spacing influence
- Base material temperature during installation and curing must be between 0°C through +40°C
- In-service temperature range:
(min. base material temperature -40°C, max. long term/short term base material temperature: +24°C/40°C)

Recommended loads for tension loading: non-cracked concrete C 20/25 ^{a)}

Threaded rods - size			M8	M10	M12	M16
Drill bit diameter	d_0	[mm]	10	12	14	18
Embedment depth	h_{ef}	[mm]	80	90	110	125
Base material thickness	h	[mm]	110	130	150	196
Tensile load	N_{rec}	[mm]	5,0	7,0	10,0	12,0

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

Rebar - size			Ø8	Ø10	Ø12	Ø13	Ø14	Ø16
Drill bit diameter	d_0	[mm]	12	14	16	18	18	20
Embedment depth	h_{ef}	[mm]	80	90	110	125	125	145
Base material thickness	h	[mm]	130	150	170	180	190	210
Tensile load	N_{rec}	[mm]	5,0	7,0	10,0	11,0	11,5	12,0

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

Materials

Material quality

Part		Material
Rebar		Refer to EN 1992-1-1 Annex C Table C.1 and C.2N
Threaded rod HIT-V, HAS-(E)		Strength class 5.8, EN ISO 898-1, A5 > 8% ductile steel galvanized $\geq 5 \mu\text{m}$, EN ISO 4042
Threaded rod HIT-V-R, HAS-(E)R		Stainless steel grade A4, A5 > 8% ductile strength class 70, EN ISO 3506-1, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
HIS-N	Internal threaded sleeve	C-steel 1.0718, EN 10277-3 Steel galvanized $\geq 5 \mu\text{m}$ EN ISO 4042
	Screw	strength class 8.8 EN ISO 898-1, A5 > 8% Ductile steel galvanized $\geq 5 \mu\text{m}$ EN ISO 4042
HIS-RN	Internal threaded sleeve	Stainless steel 1.4401 and 1.4571 EN 10088
	Screw	strength class 70 EN ISO 3506-1, A5 > 8% Ductile stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088
Washer ISO 7089		Steel galvanized, EN ISO 4042;
		Stainless steel, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
Nut EN ISO 4032		Strength class 8, ISO 898-2 steel galvanized $\geq 5 \mu\text{m}$, EN ISO 4042
		Strength class 70, EN ISO 3506-2, stainless steel grade A4, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362

Setting information

Installation temperature range:

0 °C to +40 °C

In service temperature range

Hilti HIT-HY 10 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	Max. long term base material temperature	Max. short term base material temperature
Temperature range I	0 °C to + 40 °C	+ 24 °C	+ 40 °C

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.

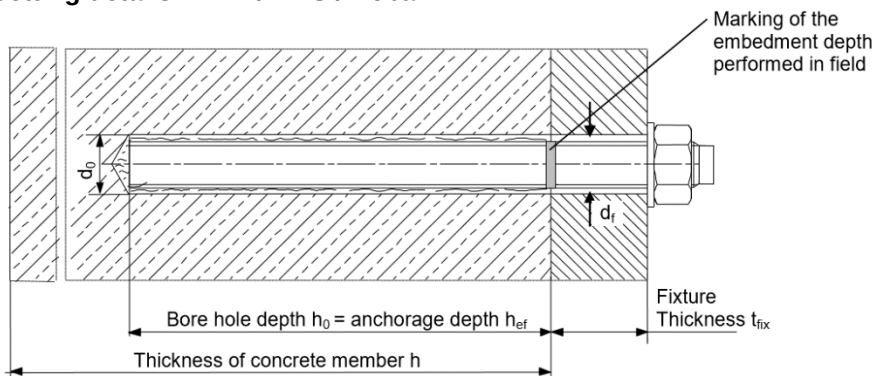
Max. long term base material temperature

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

Working time and curing time

Temperature of the base material	Maximum working time t_{gel}	Minimum curing time t_{cure}
0 °C	10 min	4 h
0 °C < T_{BM} ≤ 5 °C	10 min	2.5 h
5 °C < T_{BM} ≤ 10 °C	8 min	1.5 h
10 °C < T_{BM} ≤ 20 °C	5 min	45 min
20 °C < T_{BM} ≤ 30 °C	3 min	30 min
30 °C < T_{BM} ≤ 40 °C	2 min	20 min

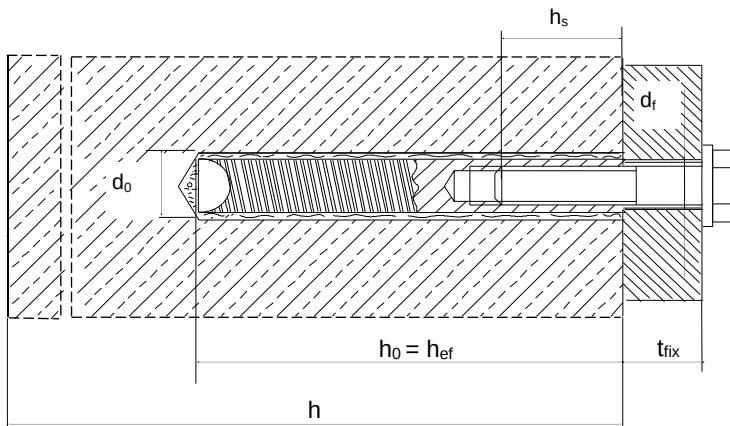
Setting details HIT-V / HAS / Rebar



Setting details: Threaded Rod

Anchor size		M8	M10	M12	M16
Nominal diameter of drill bit	d_0 [mm]	10	12	14	28
Effective anchorage and drill hole depth	h_{ef} [mm]	80	90	110	125
Minimum base material thickness	h_{min} [mm]	110	130	150	196
Diameter of clearance hole in the fixture	d_f [mm]	9	12	14	18
Min. spacing	s_{min} [mm]	40	50	60	80
Min. edge distance	c_{min} [mm]	40	50	60	80
Torque moment ^{c)}	T_{max} [Nm]	10	20	40	80

Setting details HIT-V / HAS



Setting details: Threaded Rod

Anchor size			M8	M10	M12
Nominal diameter of drill bit	d_0	[mm]	14	18	22
Diameter of element	d	[mm]	12.5	16.5	20.5
Effective anchorage and drill hole depth	h_{ef}	[mm]	90	110	125
Minimum base material thickness	h_{min}	[mm]	120	150	170
Diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Thread engagement length; min – max	h_s	[mm]	8-20	10-25	12-30
Min. spacing	s_{min}	[mm]	40	45	55
Min. edge distance	c_{min}	[mm]	40	45	55
Torque moment ^{c)}	T_{max}	[Nm]	10	20	40

Installation Equipment

Anchor size	M6	M8	M10	M12
Rotary hammer	TE 2 – TE 16			
Other tools	compressed air gun or blow out pump, set of cleaning brushes, dispenser			



Setting instructions

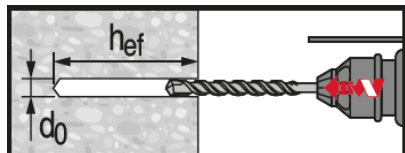
***For detailed information on installation see instruction for use given with the package of the product.**



Safety regulations.

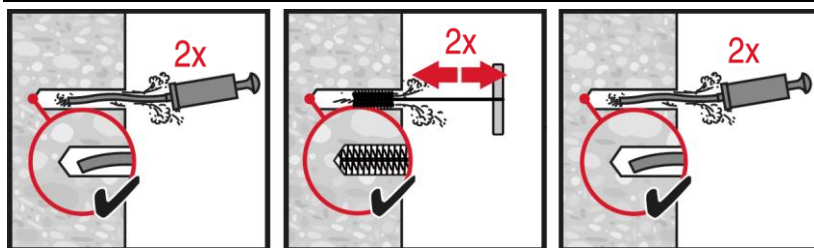
Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-HY 10.

Drilling



Hammer drilled hole (HD)

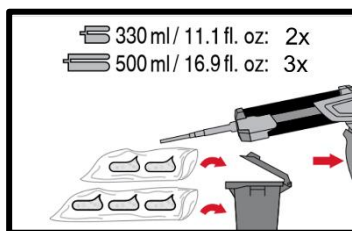
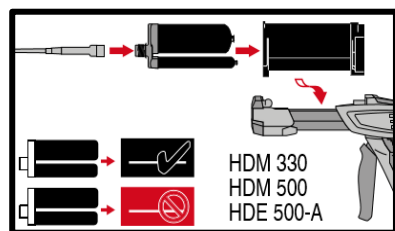
Cleaning



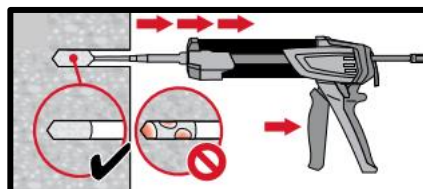
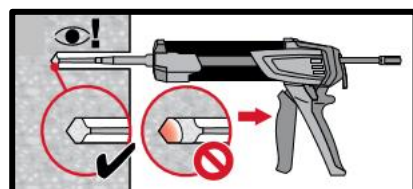
Manual cleaning (MC)

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

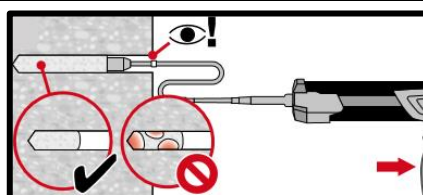
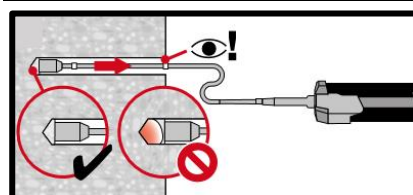
Injection system



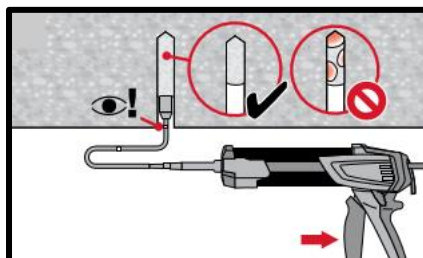
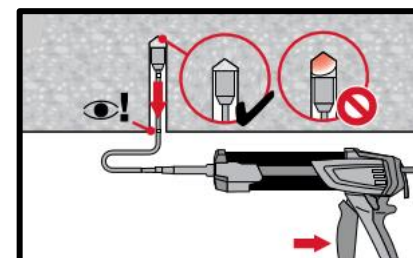
Injection system preparation.



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

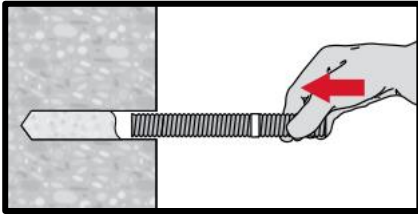


Injection method for drill hole depth $h_{ef} > 250$ mm.

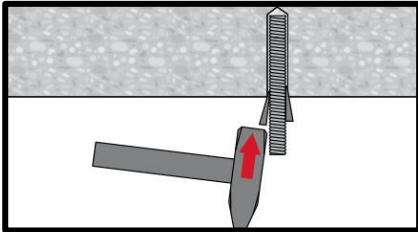


Injection method for overhead application.

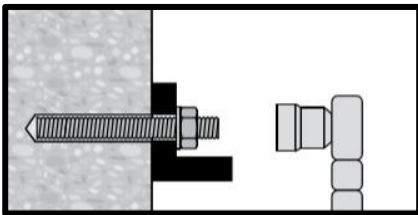
Setting the element



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



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

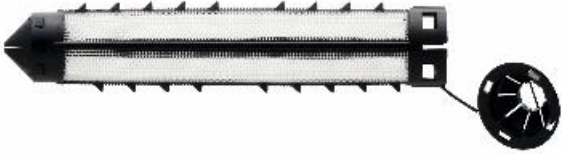


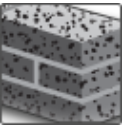
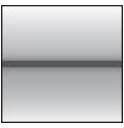
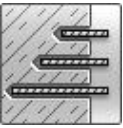
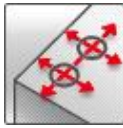
Loading the anchor: After required curing time t_{cure} the anchor can be loaded.



HIT-HY 10 injection mortar

Anchor design (ETAG 029) / Rods and Sleeves / Masonry

Injection mortar system		Benefits
	Hilti HIT-HY 10 330 ml foil pack (also available as 500 ml foil pack)	- Chemical injection fastening for all type of base materials, hollow and solid: - Clay bricks, sand-lime bricks, normal and light weight concrete blocks, aerated light weight concrete, natural stones - Two component hybrid mortar - Rapid curing - Suitable for overhead fastenings - Versatile and convenient handling - Flexible setting depth and fastening thickness- Small edge distance and anchor spacing - Small edge distance and anchor spacing - Mortar filling control with HIT-SC sleeves
	HIT-V (M8-M12)	
	HAS HAS-E (M8-M12)	
	HIT-IC (M8-M12)	
	HIS-N HIS-RN (M8-M12)	
	HIT-SC	

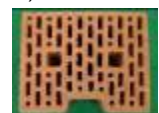
Base material		Load conditions
		
Solid brick	Hollow brick	Static/ quasi-static
Installation conditions		Other informations
		
Hammer drilling	Variable embedment depth	Small edge distance and spacing
		
		European Technical Assessment
		
		CE conformity
		
		Corrosion resistance

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

All data in this section applies to

- Load values valid for holes drilled with TE rotary hammers in hammering mode.
- Correct anchor setting (see instruction for use, setting details)
- Steel quality of fastening elements: see data below
- Steel quality for screws for HIT-IC and HIS-N: min. grade 5.8 / IS-RN: A4-70
- Threaded rods of appropriate size (diameter and length) and a minimum steel quality of 5.6 can be used
- Base material temperature during installation and curing must be between 0°C through +40°C
(Exception: solid clay bricks (e.g. Mz12): +5°C till +40°C)

Recommended loads $F_{rec}^{b)}$ for pull-out failure in [kN]

Anchor size		HAS / HAS-E / HIT-V				HIT-IC			
		M8	M10	M12		M8	M10	M12	
Solid Masonry									
Solid clay brick Mz12/2,0 DIN 105/ EN 771-1 f_{b a)} ≥ 29 N/mm² 	Setting depth	[mm]	80	80	80		80	80	
	F _{rec}	[kN]	0.9	1.5	1.5		0.9	1.5	1.5
Hollow Masonry									
Hlz 12 DIN 105/ EN 771-1 f_{b a)} ≥ 12 N/mm² 	Sieve Sleeve HIT-SC		16x...	16x...	18x...	22x...	16x...	18x...	22x...
	Setting depth	[mm]	80	80	80		80	80	80
	F _{rec}	[kN]	0.8	0.8	0.8		0.8	0.8	0.8

a) f_b = brick strength

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

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.



Materials

Material quality

Part	Material	
Threaded rod HIT-V, HAS-(E)	Strength class 5.8, EN ISO 898-1, A5 > 8% ductile steel galvanized ≥ 5 µm, EN ISO 4042	
Threaded rod HIT-V-R, HAS-(E)R	Stainless steel grade A4, A5 > 8% ductile, strength class 70,EN ISO 3506-1, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362	
HIT-IC sleeve	Carbon steel; galvanized to min. 5 µm	
HIS-N	Internal threaded sleeve	C-steel 1.0718, EN 10277-3 Steel galvanized ≥ 5µm EN ISO 4042
	Screw	strength class 8.8 EN ISO 898-1, A5 > 8% Ductile steel galvanized ≥ 5µm EN ISO 4042
HIS-RN	Internal threaded sleeve	Stainless steel 1.4401 and 1.4571 EN 10088
	Screw	strength class 70 EN ISO 3506-1, A5 > 8% Ductile stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088
Washer ISO 7089		Steel galvanized, EN ISO 4042;
		Stainless steel, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
Nut EN ISO 4032		Strength class 8, ISO 898-2 steel galvanized ≥ 5 µm, EN ISO 4042
		Strength class 70, EN ISO 3506-2, stainless steel grade A4, EN 10088: 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362
HIT-SC sleeve	PA/PP	

Setting information

Installation temperature range:

0 °C to +40 °C

In service temperature range

Hilti HIT-HY 10 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	Max. long term base material temperature	Max. short term base material temperature
Temperature range I	0 °C to + 40 °C	+ 24 °C	+ 40 °C

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.

Max. long term base material temperature

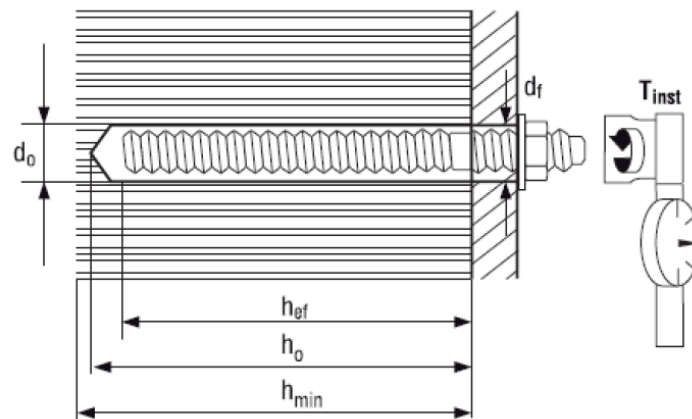
Long term elevated base material temperatures are roughly constant over significant periods of time.

Working time and curing time

Temperature of the base material	Maximum working time t_{gel}		Minimum curing time t_{cure}	
	Solid bricks	Hollow Bricks	Solid bricks	Hollow Bricks
0 °C	-	10 min	-	4 h
0 °C < $T_{\text{BM}} \leq 5 \text{ °C}$	10 min	10 min	2.5 h	2.5 h
5 °C < $T_{\text{BM}} \leq 10 \text{ °C}$	8 min	8 min	1.5 h	1.5 h
10 °C < $T_{\text{BM}} \leq 20 \text{ °C}$	5 min	5 min	45 min	45 min
20 °C < $T_{\text{BM}} \leq 30 \text{ °C}$	3 min	3 min	30 min	30 min
30 °C < $T_{\text{BM}} \leq 40 \text{ °C}$	2 min	2 min	20 min	20 min

Setting details:

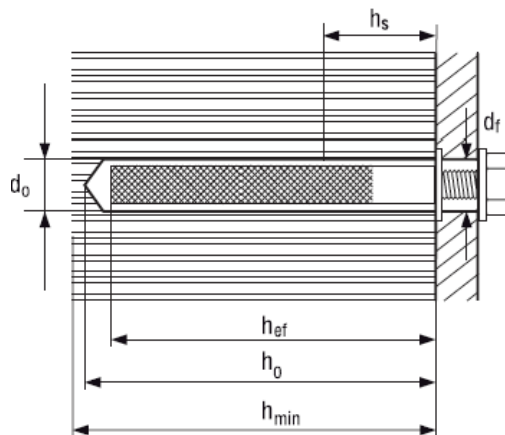
Hole depth h_0 and effective anchorage depth in solid base materials



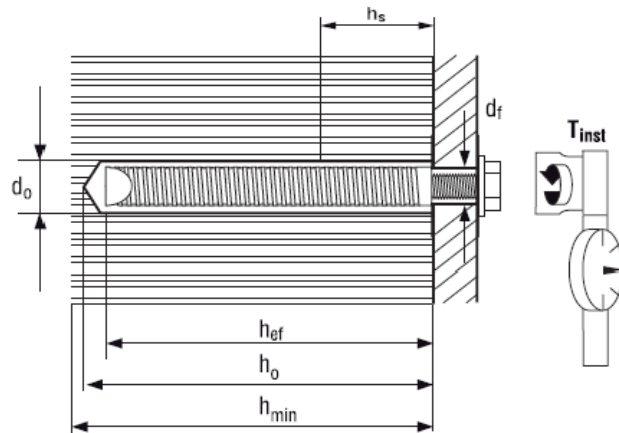
Setting details: HIT-V / HAS / HAS-E / HAS-R with sieve sleeve

Anchor size			HIT-V			HAS / HAS-E / HAS-R			
			M8	M10	M12	M8	M10	M12	M16
Nominal diameter of drill bit	d_0	[mm]	10	12	14	10	12	14	18
Effective anchorage and drill hole depth	h_{ef}	[mm]	80	80	80	80	90	110	125
Hole depth	h_0	[mm]	85	85	85	85	95	115	130
Minimum base material thickness	h_{min}	[mm]	115	115	115	110	120	140	170
Diameter of clearance hole in the fixture	d_f	[mm]	9	12	14	9	12	14	18
Min. spacing	s_{min}	[mm]	100	100	100	100	100	100	100
Min. edge distance	c_{min}	[mm]	100	100	100	100	100	100	100
Torque moment	T_{max}	[Nm]	5	8	10	5	8	10	10
Filling volume		[ml]	4	5	7	4	6	10	15

HIT-IC



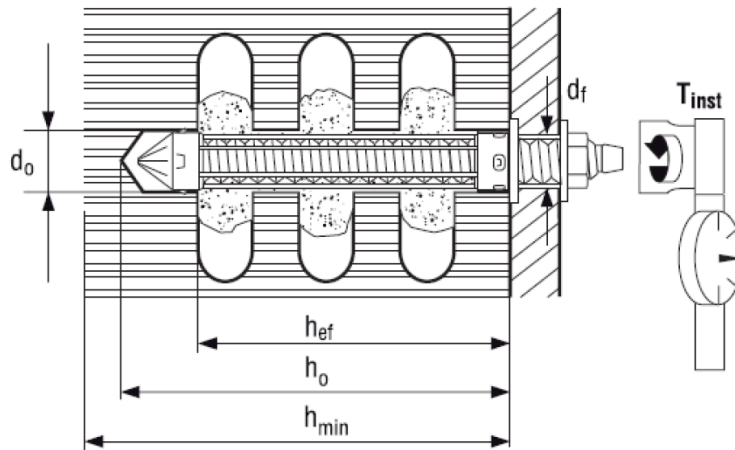
HIS-N/RN



Setting details: HIT-IC with sieve sleeve

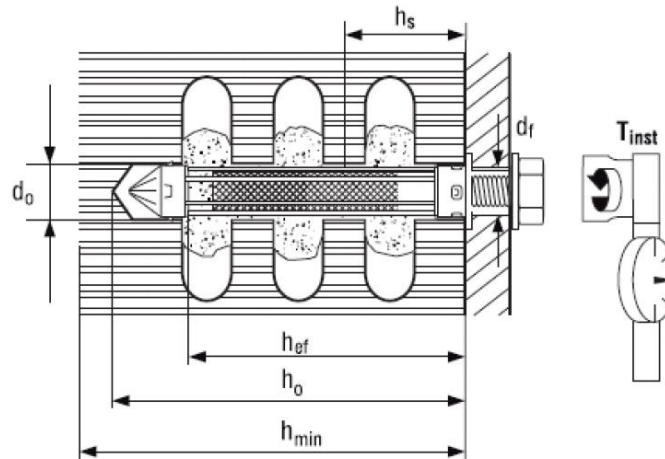
Anchor size			HIT-IC			HIS-(R)N		
			M8	M10	M12	M8	M10	M12
Nominal diameter of drill bit	d_0	[mm]	14	16	18	14	18	22
Effective anchorage and drill hole depth	h_{ef}	[mm]	80	80	80	90	110	125
Hole depth	h_0	[mm]	85	85	85	95	115	130
Minimum base material thickness	h_{min}	[mm]	115	115	115	120	150	170
Diameter of clearance hole in the fixture	d_f	[mm]	9	12	14	9	12	14
Length of bolt engagement	h_s	[mm]	min. 10 – max. 75			min. 8 max. 20	min. 10 max. 25	min. 12 max. 30
Min. spacing ^{a)}	s_{min}	[mm]	100	100	100	100	100	100
Min. edge distance ^{a)}	c_{min}	[mm]	100	100	100	100	100	100
Torque moment	T_{max}	[Nm]	5	8	10	5	8	10
Filling volume		[ml]	6	6	6	6	10	16

Hole depth h_0 and effective anchorage depth in hollow base materials



Setting details: HAS / HIT-V with sieve sleeve

Anchor size			M6		M8		M10		M12			
Sieve sleeve HIT-SC			12x50	12x85	16x50	16x85	16x50	16x85	18x50	18x85	22x50	22x85
Nominal diameter of drill bit	d_0	[mm]	12	12	16	16	16	16	18	18	22	22
Effective anchorage and drill hole depth	h_{ef}	[mm]	50	80	50	80	50	80	50	80	50	80
Hole depth	h_0	[mm]	60	95	60	95	60	95	60	95	60	95
Minimum base material thickness	h_{min}	[mm]	80	115	80	115	80	115	80	115	80	115
Diameter of clearance hole in the fixture	d_f	[mm]	7	7	9	9	12	12	14	14	14	14
Min. spacing ^{a)}	s_{min}	[mm]	100	100	100	100	100	100	100	100	100	100
Min. edge distance ^{a)}	c_{min}	[mm]	100	100	100	100	100	100	100	100	100	100
Torque moment	T_{max}	[Nm]	3	3	3	3	4	4	6	6	6	6
Filling volume		[ml]	12	24	18	30	18	30	18	36	30	55



Setting details: HIT-IC with sieve sleeve

Anchor size			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
Hole depth	h_0	[mm]	95	95	95
Minimum base material thickness	h_{min}	[mm]	115	115	115
Diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Length of bolt engagement	h_s	[mm]	min. 10 – max. 75		
Min. spacing ^{a)}	s_{min}	[mm]	100	100	100
Min. edge distance ^{a)}	c_{min}	[mm]	100	100	100
Torque moment	T_{max}	[Nm]	3	4	6
Filling volume		[ml]	30	36	45

Installation Equipment

Anchor size	M6	M8	M10	M12
Rotary hammer	TE 2 – TE 16			
Other tools	blow out pump, set of cleaning brushes, dispenser			

Drilling and cleaning parameters

Threaded rod, HIT-V (-R) HAS (-E) HIT-IC	Internal threaded rod, HIS-N	Hammer drill	Brush HIT-RB	Piston plug HIT-SZ
		d_0 [mm]	size [mm]	
M8	M8	10	10	-
M10	M10	12	12	12
M12	M12	14	14	14
M16	M16	18	18	18
M20	-	22	22	22
M24	-	28	28	28
M27	-	30	30	30
M30	-	35	35	35

Setting instructions

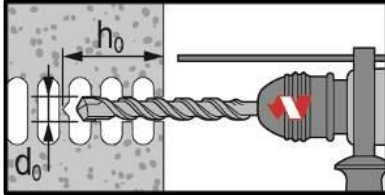
*For detailed information on installation see instruction for use given with the package of the product.



Safety regulations.

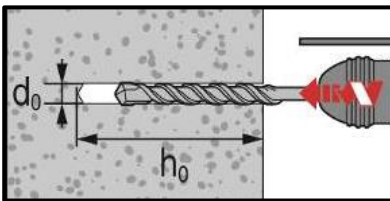
Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-HY 10.

Drilling



In hollow bricks: rotary mode

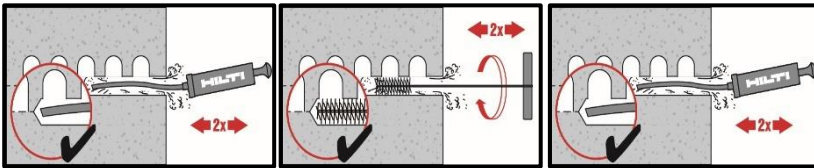
Drill hole to the required embedment depth with a hammer drill set in rotation mode using an appropriately sized carbide drill bit.



In solid bricks: hammer mode

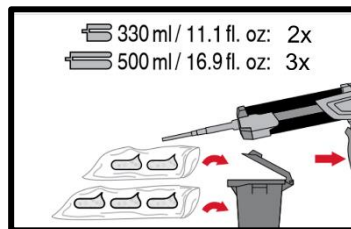
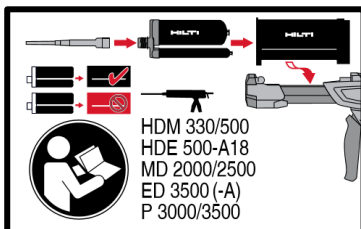
Drill hole to the required embedment depth with a hammer drill set in hammer mode using an appropriately sized carbide drill bit.

Cleaning



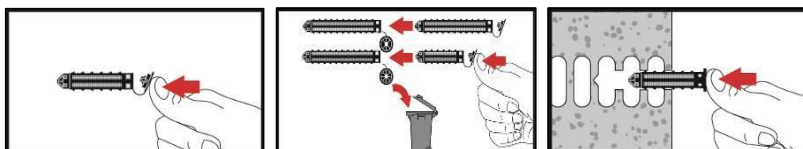
Manual cleaning (MC)

Injection system

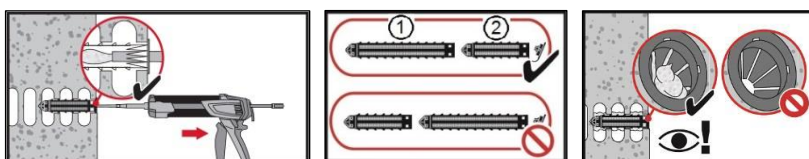


Injection system preparation.

Injection system: hollow bricks

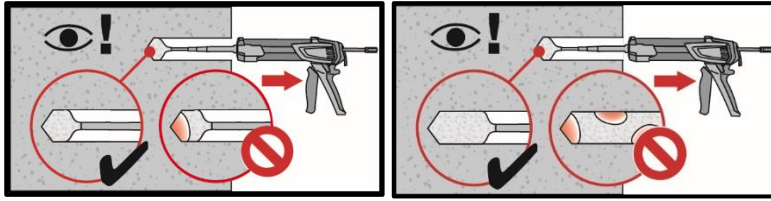


Injection preparation in masonry with holes or voids: installation with sieve sleeve HIT-SC



Installation with sieve sleeve HIT-SC

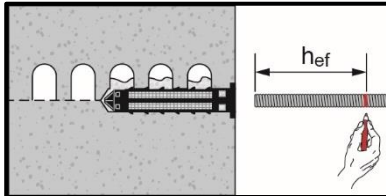
Injection system: solid bricks



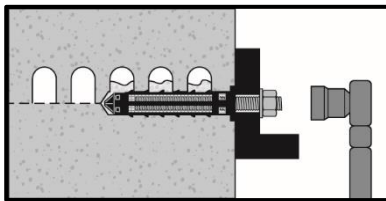
Injection method for drill hole depth

$h_{ef} \leq 250 \text{ mm}$.

Setting the element



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



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