Hilti HIT-HY 110 with rebar

Injection Mortar System

Hilti-HY 110 available in 330ml and 500ml foil packs.

Static mixer HIT M1

Rebar BSt 500 S

Benefits

- suitable for non-cracked concrete C 20/25 to C 50/60
- suitable for dry and water saturated concrete
- small edge distance and anchor spacing possible
- large diameter applications
- high corrosion resistant
- in service temperature range up to 120°C short term/72°C long term
- manual cleaning for drill hole sizes ≤ 18 mm and embedment depth hef ≤ 10d


Concrete


Small edge distance & spacing


Variable embedment depth


European Technical Approval


CE conformity


Suitable for drilled holes


Suitable for dry holes


Suitable for water saturated holes

Low VOC meets Greenstar requirements

Basic loading data (for a single anchor)

All data in this section applies to

- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Base material thickness, as specified in the table
- One typical embedment depth, as specified in the table below
- Non cracked concrete $f_{c,cyl}$ = 32 MPa
- Temperate range I (min. base material temperature -40°C, max. long term/short term base material temperature: +24°C/40°C)
- Installation temperature range -10°C to +40°C

Embedment depth and base material thickness for the basic loading data

Recommended loads

Rebar size	Ø8	Ø10	Ø12	Ø16	Ø20	Ø24
Typical embedment depth h_{ef} [mm]	80	90	110	125	170	210
Base material thickness h [mm]	110	120	140	165	220	275

Recommended loads

Rebar size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø24
Tensile N_{rec}	[kN]	8.7	10.2	15.0	17.2	29.2	45.1
Shear V_{rec}	[kN]	6.6	10.5	14.8	26.2	40.9	64.3

Note: For varied embedment depths please contact your local Hilti engineer for further details.

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical approval a)	DIBt, Berlin	ETA-08/0341 / 2013-03-18

a) All data given in this section according ETA-08/0341 issue 2013-03-18.

Working time, Curing time

Temperature of the base material T_{BM}	Working time t_{gel}	Curing time t_{cure}
-5 °C to -1 °C	90 min	9 h
0 °C to 4 °C	45 min	4.5 h
5 °C to 9 °C	20 min	2 h
10 °C to 19 °C	6 min	90 min
20 °C to 29 °C	4 min	50 min
30 °C to 39 °C	2 min	40 min

a) The curing time data are valid for dry anchorage base only. For water saturated anchorage bases the curing times must be doubled.

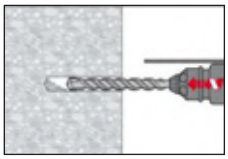
Setting details

Anchor size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø24
Nominal diameter of drill bit	d_0	[mm]	12	14	16	20	25	32
Effective anchorage and drill hole depth range a)	$h_{ef,min}$	[mm]	60	60	70	80	90	100
	$h_{ef,max}$	[mm]	160	200	240	320	400	500
Minimum base material thickness	h_{min}	[mm]	h_{ef} + 30 mm ≥ 100 mm		h_{ef} + 2 d_0			
Minimum spacing	s_{min}	[mm]	40	50	60	80	100	125
Minimum edge distance	c_{min}	[mm]	40	50	60	80	100	125

a) hef,min ≤ hef ≤ hef,max (hef: embedment depth)

Setting instructions

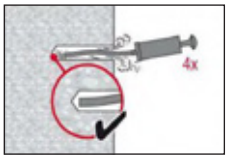
Bore hole drilling



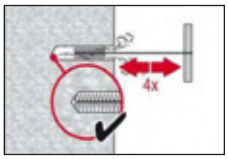
Drill Hole to the required embedment depth with a hammer drill set in rotation-hammer mode using an appropriately sized carbide drill bit.

Bore hole cleaning **Just before setting an anchor, the bore hole must be free of dust and debris.**

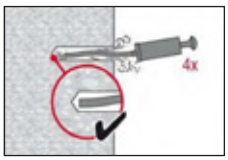
a) Manual Cleaning (MC) for bore hole diameters d_0 ≤ 18mm and bore hole depth h_0 ≤ 10d



The Hilti manual pump may be used for blowing out bore holes up to diameters d_0 ≤ 18 mm and embedment depths up to h_0 ≤ 10d or h_0 ≤ 160 mm. Blow out at least 4 times from the back of the bore hole until return air stream is free of noticeable dust

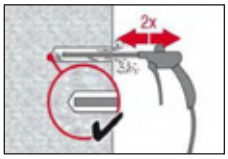


Brush 4 times with the specified brush size (brush Ø ≥ bore hole Ø) by inserting the steel brush Hilti HIT-RB to the back of the hole (if needed with extension) in a twisting motion and removing it.
The brush must produce natural resistance as it enters the bore hole -- if not the brush is too small and must be replaced with the proper brush diameter.

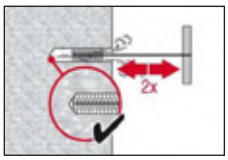


Blow out again with manual pump at least 4 times until return air stream is free of noticeable dust.

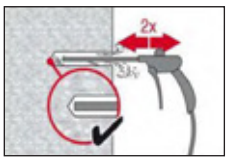
b) Compressed air cleaning (CAC) for all bore hole diameters d_0 and all bore hole depth h_0



Blow 2 times from the back of the hole (if needed with nozzle extension) over the hole length with oil-free compressed air (min. 6 bar at 6 m^3/h) until return air stream is free of noticeable dust.



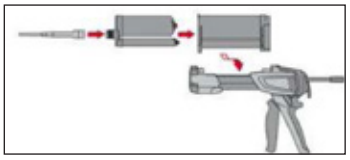
Brush 2 times with the specified brush size (brush Ø ≥ bore hole Ø) by inserting the steel brush Hilti HIT-RB to the back of the hole (if needed with extension) in a twisting motion and removing it.
The brush must produce natural resistance as it enters the bore hole -- if not the brush is too small and must be replaced with the proper brush diameter.



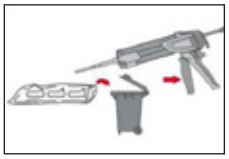
Blow again with compressed air 2 times until return air stream is free of noticeable dust.

Setting instructions

Injection preparation

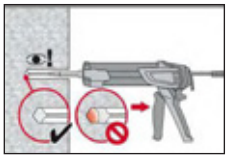


Tightly attach new Hilti mixing nozzle HIT-M1 to foil pack manifold (snug fit). Do not modify the mixing nozzle. Observe the instruction for use of the dispenser and the mortar. Check foil pack holder for proper function. Do not use damaged foil packs / holders. Insert foil pack into foil pack holder and put holder into HIT dispenser.

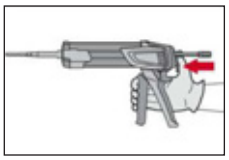


The foil pack opens automatically as dispensing is initiated. Discard initial adhesive. Depending on the size of the foil pack an initial amount of adhesive has to be discarded.
Discard quantities are:
2 strokes for 330 ml foil pack,
3 strokes for 500 ml foil pack,
45 ml for 1400 ml foil pack

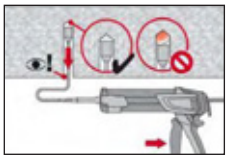
Inject adhesive from the back of the borehole without forming air voids



Inject the adhesive starting at the back of the hole, slowly withdrawing the mixer with each trigger pull. Fill holes approximately 2/3 full. It is required that the annular gap between the anchor and the concrete is completely filled with adhesive along the embedment length.

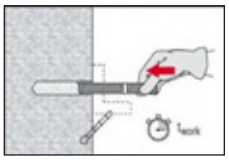


After injection is completed, depressurise the dispenser by pressing the release trigger. This will prevent further adhesive discharge from the mixer.

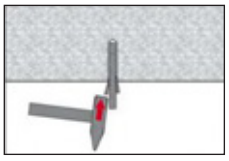


Overhead installation and/or installation with embedment depth h_{ef} > 250mm.
For overhead installation the injection is only possible with the aid of extensions and piston plugs. Assemble HIT-M1 mixer, extension(s) and appropriately sized piston plug HIT-SZ. Insert piston plug to back of the hole and inject adhesive. During injection the piston plug will be naturally extruded out of the bore hole by the adhesive pressure.

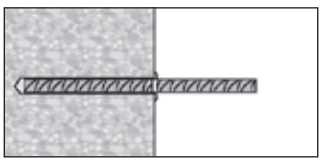
Setting the element



Before use, verify that the element is dry and free of oil and other contaminants.
Mark and set element to the required embedment depth untill working time t_{work} has elapsed



For overhead installation use piston plugs and fix embedded parts with e.g. wedges Hilti HIT-OHW



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

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