



PRODUCT TECHNICAL DATASHEET

HIT-RE 100 INJECTION MORTAR

Concrete-to-concrete
Update: June-26



HIT-RE 100 injection mortar

Rebar design (EN 1992-1) / Rebar elements / Concrete

Injection mortar system



Hilti HIT-RE 100
(500 ml foil pack)



Rebar
($\phi 8$ - $\phi 40$)

Benefits

- Suitable for concrete C 12/15 to C 50/60
- Achieves equal to cast-in performance for post-installed rebar designed according to the Eurocode, both for static and seismic load conditions
- Compatible with hollow drill bits for automatic cleaning and electrical dispenser for accurate dosing, enabling faster, simpler and safer installation
- Suitable for dry and water saturated concrete
- ETA Data for 100 years working life
- Non-corrosive to rebar elements
- Long working time allows greater flexibility in installation



Base material

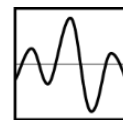


Concrete

Load conditions



Static/
quasi-static

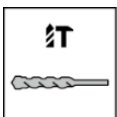


Seismic

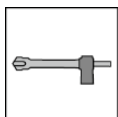


Fire
resistance

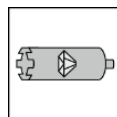
Installation conditions



Hammer
drilling



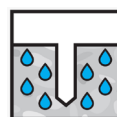
Hollow drill
bit drilling



Diamond
coring



Dry



Water
saturated

100/120
YEARS

ETA
Working life
100 years



[PROFIS
Engineering
software](#)



[Concrete-
to-concrete
Handbook](#)

Other information

Linked Approvals/Certificates and Instructions for use.

Approval no.	Application / Loading condition	Authority / Laboratory	Date of issue
ETA -15/0883	Static and quasi-static / Seismic / Fire 50 and/or 100 years	DIBt, Berlin	21.05.2026

The instructions for use can be viewed using the link in the instructions for use table or the QR code/link in the Hilti webpage table

Instructions for use(IFU)

Material			
Injection mortar/Fasterner	IFU Hilti HIT-RE 100		
Dispenser	IFU HDM	IFU HDE 500-22	IFU HDE 500-A12

Link to Hilti Webpage

Injection mortars / Dispenser / Fastener				
Hilti HIT-RE 100	HDE 500-22	HDE 500-A12	HDM 500	
				

Mechanical properties and dimensions rebar

Mechanical properties and dimensions of the rebars can be taken from the ETA.

Material quality

Part	Material
Rebar EN 1992-1-1:2004	Bars and de-coiled rods class B or C according to NDP or NCL of EN 1992-1-1/NA

Static and quasi-static loading as per ETA-15/0883 . Design according to EN 1992-1-1

All data in this section applies to:

- According to EN 1992-1-1 for good bond conditions. For all other bond conditions multiply the values by 0,7
- Design values of the bond strength for a working life of 50 and 100 years

Design values of the bond strength $f_{bd,PIR}$ and $f_{bd,PIR,100y}$ for hammer drilling (HD) and (HDB), compressed air drilling (CA) and diamond coring dry (PCC) for working life of 50 and 100 years

Rebar-size [mm]	Concrete class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
	$f_{bd,PIR} = f_{bd,PIR,100y}$								
φ8 - φ32	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
φ34	1,6	2,0	2,3	2,6	2,9	3,3	3,6	3,9	4,2
φ36	1,5	1,9	2,2	2,6	2,9	3,3	3,6	3,8	4,1
φ40	1,5	1,8	2,1	2,5	2,8	3,1	3,4	3,7	4,0

Design values of the bond strength $f_{bd,PIR}$ and $f_{bd,PIR,100y}$ for diamond coring wet (DD) for working life of 50 and 100 years

Rebar-size [mm]	Concrete class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
	$f_{bd,PIR} = f_{bd,PIR,100y}$ [N/mm ²]								
φ8 - φ32	1,6	2,0	2,3	2,7					
φ34	1,6	2,0	2,3	2,6					
φ36	1,5	1,9	2,2	2,6					
φ40	1,5	1,8	2,1	2,5					

Minimum anchorage length and minimum lap length

Post-installed rebar applications as per EN 1992-1-1	Typical examples
Lap splice applications	
End anchorage applications – simply supported / compression load-only connections	

The minimum anchorage length $\ell_{b,min}$ and the minimum lap length $\ell_{0,min}$ according for applications designed as per EN 1992-1-1 shall be multiplied by relevant **Amplification factor** α_{ib} in the table below.

Anchorage length and lap length for characteristic steel strength $f_{yk} = 500 \text{ N/mm}^2$ for good bond conditions

$l_{b,min}$ Minimum anchorage length under tension loading assuming $\sigma_{sd} = f_{yd}$

$l_{0,min}$ Minimum lap length assuming $\sigma_{sd} = f_{yd}$ and $\alpha_6 = 1,5$

$l_{bd,y}$ Anchorage length assuming $\sigma_{sd} = f_{yd}$

$l_{0,PIR,y}$ Lap length assuming $\sigma_{sd} = f_{yd}$

α_2 Coefficient of Concrete Cover

Please note: Anchorage length for values less than the yielding case may be obtained by linear interpolation

For detailed technical contents, refer to [Concrete-to-Concrete connections Handbook](#)

For specific design cases refer to [PROFIS Engineering](#)

Hammer drilling								
Rebar-size	Concrete class	Design Resistance (Yielding) [kN]	$l_{0,min}$ [mm]	$l_{b,min}$ [mm]	$l_{bd,y}$ ($\alpha_2 = 1$) [mm]	$l_{bd,y}$ ($\alpha_2 = 0,7$) [mm]	$l_{0,PIR,y}$ ($\alpha_2 = 1$) [mm]	$l_{0,PIR,y}$ ($\alpha_2 = 0,7$) [mm]
$\phi 8$	C20/25	21,9	200	113	378	265	567	397
	C50/60		200	100	202	142	303	212
$\phi 10$	C20/25	34,1	213	142	473	331	709	496
	C50/60		200	100	253	177	379	265
$\phi 12$	C20/25	49,2	253	169	562	394	843	590
	C50/60		200	120	303	212	455	319
$\phi 13$	C20/25	57,7	276	184	614	430	922	645
	C50/60		200	130	329	230	493	345
$\phi 14$	C20/25	66,9	298	198	662	463	992	695
	C50/60		210	140	354	248	531	372
$\phi 16$	C20/25	87,4	340	227	756	529	1134	794
	C50/60		240	160	404	283	607	425
$\phi 18$	C20/25	110,6	383	255	851	595	1276	893
	C50/60		270	180	455	319	683	478
$\phi 19$	C20/25	123,3	404	269	898	629	1347	943
	C50/60		285	190	480	336	720	504
$\phi 20$	C20/25	136,6	425	284	945	662	1418	992
	C50/60		300	200	506	354	758	531
$\phi 22$	C20/25	165,3	468	312	1040	728	1560	1092
	C50/60		330	220	556	389	834	584
$\phi 24$	C20/25	196,7	510	340	1134	794	1701	1191
	C50/60		360	240	607	425	910	637
$\phi 25$	C20/25	213,4	532	354	1181	827	1772	1241
	C50/60		375	250	632	442	948	664
$\phi 26$	C20/25	230,8	553	369	1229	860	1843	1290
	C50/60		390	260	657	460	986	690

Hammer drilling								
Rebar-size	Concrete class	Design Resistance (Yielding) [kN]	$l_{0,min}$ [mm]	$l_{b,min}$ [mm]	$l_{bd,y}$ ($\alpha_2 = 1$) [mm]	$l_{bd,y}$ ($\alpha_2 = 0,7$) [mm]	$l_{0,PIR,y}$ ($\alpha_2 = 1$) [mm]	$l_{0,PIR,y}$ ($\alpha_2 = 0,7$) [mm]
$\phi 28$	C20/25	267,7	595	397	1323	926	1985	1389
	C50/60		420	280	708	495	1062	743
$\phi 29$	C20/25	287,2	617	411	1371	959	2056	1439
	C50/60		435	290	733	513	1100	770
$\phi 30$	C20/25	307,3	638	425	1418	992	2127	1489
	C50/60		450	300	758	531	1138	796
$\phi 32$	C20/25	349,7	681	454	1512	1059	2268	1588
	C50/60		480	320	809	566	1213	849
$\phi 34$	C20/25	394,7	723	482	1607	1125	2410	1687
	C50/60		510	340	880	616	1320	924
$\phi 36$	C20/25	442,6	800	534	1779	1245	2668	1868
	C50/60		540	360	954	668	1432	1002
$\phi 40$	C20/25	546,4	932	621	2070	1449	3106	2174
	C50/60		600	400	1087	761	1630	1141

The highlighted values exceed the maximum length given in ETA-15/0883 and IFU.

Seismic loading based on ETA-15/0883. Seismic design according to EN 1998-1 and TR 86

All data in this section applies to:

- According to EN 1992-1-1 for good bond conditions. For all other bond conditions multiply the values by 0,7
- Design values of the bond strength for a working life of 50/ 100 years

For detailed technical contents, refer to [Concrete-to-Concrete connections Handbook](#)

For specific design cases refer to [PROFIS Engineering](#)

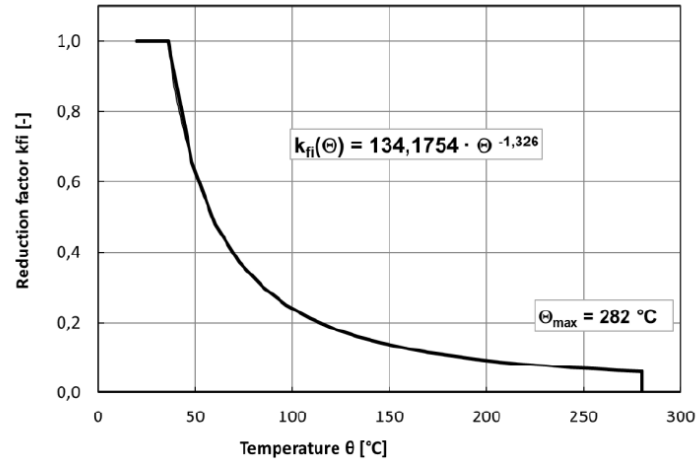
Design values of the bond strength $f_{bd,PIR,seis}$ and $f_{bd,PIR,seis,100y}$ for hammer drilling (HD) and (HDB), compressed air drilling (CA) and diamond coring dry (PCC) for working life of 50 and 100 years

Rebar - size	Concrete class							
	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
[mm]	$f_{bd,PIR} = f_{bd,PIR,100y}$ [N/mm ²]							
$\phi 8 - \phi 32$	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
$\phi 34$	2,0	2,3	2,6	2,9	3,3	3,6	3,9	4,2
$\phi 36$	1,9	2,2	2,6	2,9	3,3	3,6	3,8	4,1
$\phi 40$	1,8	2,1	2,5	2,8	3,1	3,4	3,7	4,0

Fire resistance based on ETA-15/0883. Design according to EN 1992-1-2 and TR 086

For evidence under fire exposure the anchorage length shall be calculated according to EN 1992-1:2004+AC:2010 Equation 8.3 using the temperature-dependent bond resistance $f_{bd,fi}$ for a working life of 50 and 100 years

Temperature reduction factor $k_{fi}(\theta) = k_{fi,100y}(\theta)$ for concrete class C20/25 for good bond conditions



The design value of the bond strength $f_{bd,fi}$ under fire exposure have to be calculated by the following equation:

$$f_{bd,fi} = k_{fi}(\theta) \cdot f_{bd,PIR} \cdot \gamma_c / \gamma_{M,fi} \quad \text{for a working life of 50 years}$$

$$f_{bd,fi,100y} = k_{fi,100y}(\theta) \cdot f_{bd,PIR,100y} \cdot \gamma_c / \gamma_{M,fi} \quad \text{for a working life of 100 years}$$

with: $\theta \leq \theta_{max}$: $k_{fi}(\theta) = 1329,53 \cdot \theta^{-1,326} / (f_{bd,PIR} \cdot 4,3) \leq 1,0$ 50 years

$k_{fi,100y}(\theta) = 1329,53 \cdot \theta^{-1,326} / (f_{bd,PIR,100y} \cdot 4,3) \leq 1,0$ 100 years

and $\theta > \theta_{max}$: $k_{fi}(\theta) = k_{fi,100y}(\theta) = 0,0$

$$\theta_{max} = 282 \text{ °C}$$

$f_{bd,fi}$ = Design value of the bond resistance in case of fire in N/mm²

θ = Temperature in °C in the mortar layer

$k_{b,fi}(\theta)$ = Reduction factor under fire exposure

$f_{bd,PIR}$ = Design value of the bond resistance in N/mm² in cold condition considering the concrete classes, rebar diameter, the drilling method, and the bond conditions according to EN 1992-1-1

γ_c = Partial safety factor according to EN 1992-1-1

$\gamma_{M,fi}$ = Partial safety factor according to EN 1992-1-2

Bond strength $f_{bd,fi}$ in N/mm² for fire design for concrete classes C20/25 to C50/60 up to diameter $\phi 32$

Rebar Temperature	Concrete class	50 °C	100 °C	150 °C	200 °C	282°C (θ_{max})
$f_{bd,fi}$ [N/mm ²]	C12/15	1,60	0,69	0,40	0,27	0,17
	C20/25	1,73	0,69	0,40	0,27	0,17
	C50/60	1,73	0,69	0,40	0,27	0,17

Setting information

Installation temperature range:

+5 °C to +40 °C

Service temperature range

Hilti HIT-RE 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 +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^{a)}

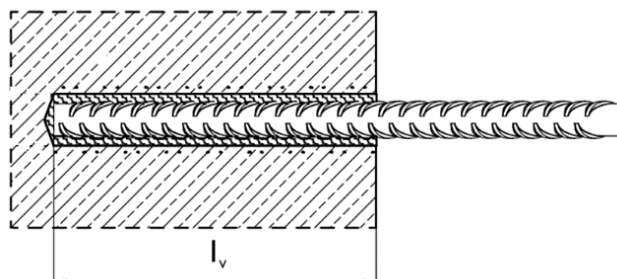
Temperature of the base material	Maximum working time	Initial curing time	Minimum curing time
T	t _{work}	t _{cure,ini} ^{b)}	t _{cure}
5 °C to 9 °C	2 h	18 h	72 h
10 °C to 14 °C	1,5 h	12 h	48 h
15 °C to 19 °C	30 min	8 h	24 h
20 °C to 24 °C	25 min	6 h	12 h
25 °C to 29 °C	20 min	5 h	10 h
30 °C to 39 °C	12 min	4 h	8 h
40 °C	12 min	2 h	4 h

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

b) After t_{cure,ini} has elapsed preparation work may continue

Dispenser and corresponding maximum embedment depth $\ell_{v,max}$

Rebar	Dispenser	
	HDM 330, HDM 500	HDE 500, HIT-P 3000 F
	$\ell_{v,max}$ [mm]	
$\phi 8$ to $\phi 10$	1000	1000
$\phi 12$ to $\phi 14$		1200
$\phi 16$		1500
$\phi 18$ to $\phi 20$	700	1300
$\phi 22$ to $\phi 25$		1000
$\phi 26$ to $\phi 28$	500	700
$\phi 29$ to $\phi 32$	-	
$\phi 34$ to $\phi 40$		500



For detailed setting information on installation see instructions for use given with the product.

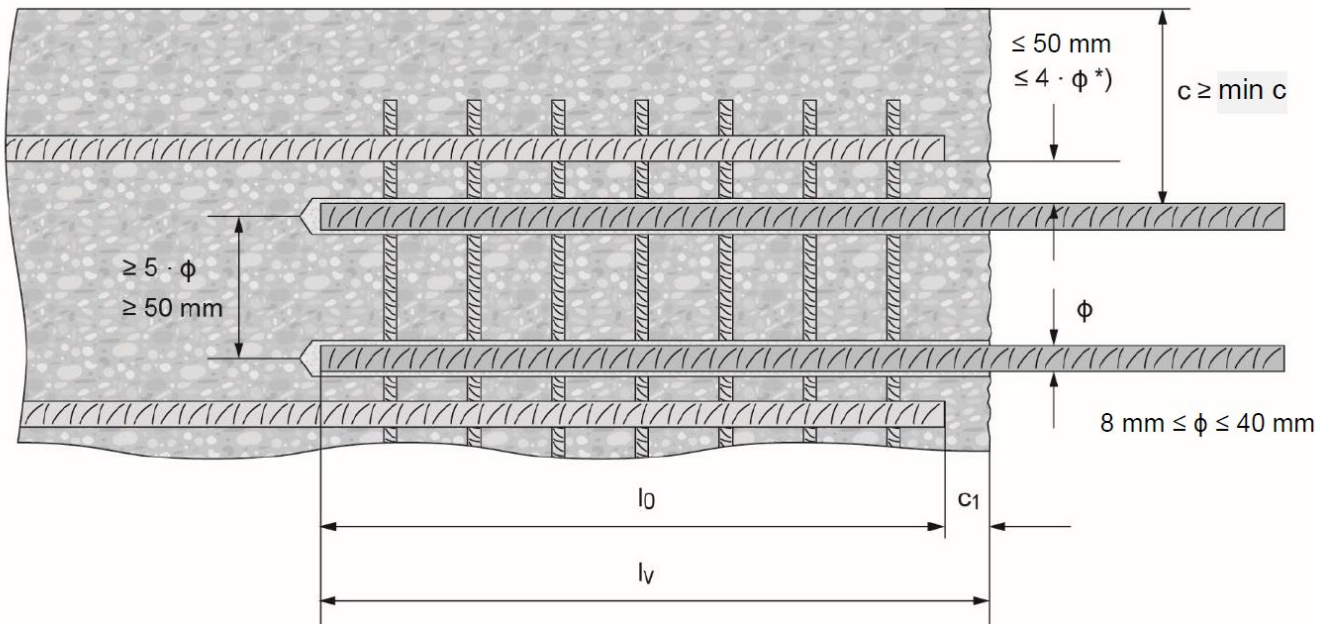
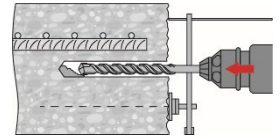
Approved installation methods can be found in the specific ETA/Certificate definitions.

Drilling and Installation equipment

Rotary Hammers (Corded and Cordless)		TE 2 - TE 70
Diamond Coring Machines		DD EC-1, DD 100 ... DD 160
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
		Diamond core bit SP-L, SP-HX, SP-H, P-U
		Roughening tools TE-YRT
		Piston plug

Minimum concrete cover c_{min} of the post-installed rebar

Drilling method	Rebar – size [mm]	Minimum concrete cover c_{min} [mm]	
		Without drilling aid	With drilling aid
Hammer drilling (HD)	$\phi < 25$	$30 + 0,06 \cdot l_v \geq 2 \cdot \phi$	$30 + 0,02 \cdot l_v \geq 2 \cdot \phi$
	$\phi \geq 25$	$40 + 0,06 \cdot l_v \geq 2 \cdot \phi$	$40 + 0,02 \cdot l_v \geq 2 \cdot \phi$
Compressed air drilling (CA)	$\phi < 25$	$50 + 0,08 \cdot l_v$	$50 + 0,02 \cdot l_v$
	$\phi \geq 25$	$60 + 0,08 \cdot l_v \geq 2 \cdot \phi$	$60 + 0,02 \cdot l_v \geq 2 \cdot \phi$
Diamont coring dry (PCC) or wet (DD)	$\phi < 25$	Drill stand is used as drilling aid	$30 + 0,02 \cdot l_v \geq 2 \cdot \phi$
	$\phi \geq 25$		$40 + 0,02 \cdot l_v \geq 2 \cdot \phi$



Where, c is concrete cover of post-installed rebar

$c_1 = c_f$ is the end-cover of existing rebar

d_o is the nominal drill bit diameter

ϕ diameter of reinforcement bar

l_0 is the lap length

l_v is the installation length