

Steel reinforcement fixings for concrete

CHARACTERISTICS

- Vinylester resin
- Fast cure time
- Storage time 18 mois
- Usable in wet environments
- Styrene free
- Volatile Organic Compounds free (VOCs)
- Cartridge compatible with standard injection gun



MECHANICAL CHARACTERISTICS OF REBARS

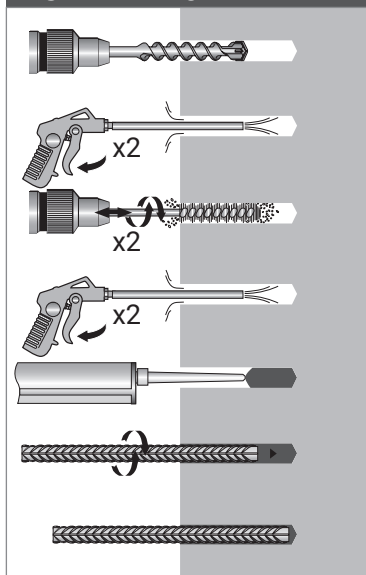
NOMINAL DIAMETER		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32	
Sections	[cm ²]	0,503	0,785	1,13	1,54	2,01	3,14	4,91	8,04	
Min. resistance to failure	[kN]	Fe E400	21,13	32,97	47,46	64,68	84,42	131,88	206,22	337,68
	[kN]	Fe E500	25,90	40,43	58,20	79,31	103,52	161,71	252,87	414,06
Ultimate limit load N _{Rd}	[kN]	Fe E500	21,85	34,15	49,17	66,93	87,42	136,59	213,43	349,56

The mechanical characteristics of the high adhesion rebars are defined in the NFA 35-016 and NFA 35-017 standards.

SETTING TIME

TEMPERATURE	MAX. TIME FOR INSTALLATION	CURING TIME
5°C ▶ 10°C	10 min.	145 min.
11°C ▶ 20°C	6 min.	85 min.
21°C ▶ 30°C	4 min.	50 min.

INSTALLATION*



* PREMIUM CLEANING:

- 2 blowing with compressed air
- 2 brushing with brushed fitted on a drilling machine
- 2 blowing with compressed air

SIZING RULES FOR STEEL REINFORCEMENT FIXINGS FOR CONCRETE ACCORDING TO EUROCODE 2 REGULATIONS AND ETA 22/0823

The basic anchorage length $L_{b,rd}$ [mm] for the ultimate limit load for rebar F_{Rd} [N] is given by following equation:

$$L_{b,rd} = \frac{F_{Rd}}{\pi \cdot \varnothing \cdot \eta_1 \cdot \eta_2 \cdot f_{bd}}$$

The design anchorage length L_{bd} [mm] is determined as follow:

$$L_{bd} = L_{b,rd} \cdot \alpha_2 \cdot \alpha_5$$

- F_{Rd} : Design ultimate load [N]
- f_{bd} : Design value of the bond strength [N/mm²]
- \varnothing : Rebar diameter [mm]
- η_1 : depends on bond conditions - $\eta_1 = 1$ ("good bond" conditions). See § 8.4.2 (EN 1992-1-1)
- η_2 : depends on rebar diameter - $\eta_2 = 1$ for rebar $\varnothing \leq 20$ mm

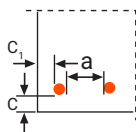
Design value of the bond strength f_{bd} according to EN 1992-1-1

Ø rebar	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø10	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø12	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø14	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø16	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø20	1,6	2,0	2,3	2,7	3,0	3,4	3,7	3,7	3,7
Ø25	1,6	2,0	2,3	2,7	3,0	3,0	3,0	3,0	3,0
Ø32	1,6	2,0	2,3	2,3	2,3	2,3	2,3	2,3	2,3

with α_2 : Influence of concrete minimum cover

$$\alpha_2 = 1 - 0,15 [C_d - \varnothing_{rebar}] / \varnothing_{rebar} \geq 0,7$$

$$C_d = \min[C; C_1; \frac{a}{2}]$$



with α_5 : Influence of the confinement by transverse pressure

The factor α_5 take into account of the effect of the pressure transverse to the plane of splitting along the design length.

$$\alpha_5 = 1 - 0,04 \cdot p \geq 0,7$$

where p is the transverse pressure at the ultimate limit state along L_{bd} in MPa.

p [MPa]	α_5
3	0,88
5	0,80
7	0,72

MULTI-MAX XTREM

EUROCODE 2 TABLE FOR STRAIGHT REBAR ANCHORING

CONCRETE C25/30 - HAMMER DRILLING



Rebar diameter [mm]	Drilling diameter d ₀ [mm]	Length of fixing L _{bd} [mm]	Ultimate limit load without influence of center distance and/or edge ⁽¹⁾ [α ₂ = 0,7] [daN]	Ultimate limit load with influence of center distance and/or edge ⁽²⁾ [α ₂ = 1] [daN]	Number of sealings per SPIT MULTI-MAX XTREM cartridge ⁽³⁾ 300 ml
8	10	100	969	679	83,1
		190	1842	1289	43,7
		226	2185	1534	36,8
		322	-	2185	25,8
10	12	121	1464	1025	56,3
		230	2787	1951	29,6
		285	3415	2417	23,9
		403	-	3415	16,9
12	16	145	2107	1475	18,4
		280	4072	2850	9,5
		340	4917	3461	7,9
		484	-	4917	5,5
14	18	169	2868	2008	13,8
		330	5598	3919	7,1
		395	6693	4691	5,9
		564	-	6693	4,1
16	20	193	3747	2623	10,8
		370	7174	5022	5,6
		451	8742	6121	4,6
		645	-	8742	3,2
20	25	242	5854	4098	5,5
		470	11391	7973	2,8
		564	13659	9568	2,4
		805	-	13659	1,7
25	32	302	9147	6403	2,5
		550	16662	11663	1,4
		705	21342	14950	1,1
		1000	-	21206	0,7
32	40	386	12762	8933	1,3
		690	22792	15954	0,8
		750	24774	17342	0,7
		1000	33032	23223	0,5

(1) Absence of edge distances greater than or equal to 7.∅

(2) Presence of edge distances and/or centre distances less than 7.∅

(3) The number of fixings per cartridge is calculated taking into account an increasing by 20% the real volume of sealing.

$$1,2 \times [d_0^2 - \varnothing_{\text{rebar}}^2] \times \Pi \times L_{bd} / 4$$