

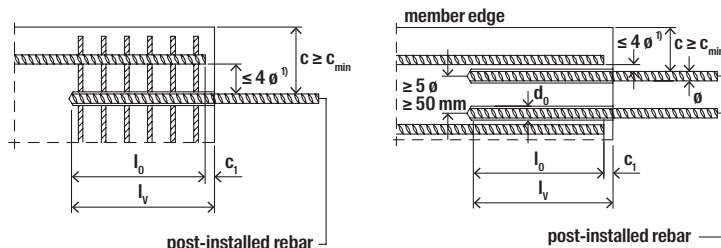
Injection systems FIS EM Plus, FIS SB, FIS V Plus or FIS VS Plus LOW SPEED with reinforcing steel B500B³⁾ in accordance with rebar theory

Design resistances and permissible loads¹⁾⁶⁾ of single, post-installed rebars in cracked or non-cracked normal concrete of the strength class C20/25²⁾.

Reinforcing steel B500B f _{yk} / f _{uk} = 500 / 540 N/mm ²	Basic value for the anchorage length for FIS EM Plus	Basic value for the anchorage length for FIS SB	Basic value for the anchorage length for FIS V Plus FIS VS Plus LOW SPEED	Maximum anchorage depth	Maximum design resistance for axial tensile load	Maximum permissible tensile load
Type	$l_{b,reqd}^{4)}$ [mm]	$l_{b,reqd}^{4)}$ [mm]	$l_{b,reqd}^{4)}$ [mm]	$l_{v,max}$ [mm]	$N_{Rd,s}^{3)}$ [kN]	$N_{zul,s}^{3)}$ [kN]
Ø 8 mm	378	378	378	1800 (3000) ⁸⁾	21.9	15.6
Ø 10 mm	473	473	473	1800 (3000) ⁸⁾	34.1	24.4
Ø 12 mm	567	567	567	1800 (3000) ⁸⁾	49.2	35.1
Ø 14 mm	662	662	662	1800 (3000) ⁸⁾	66.9	47.8
Ø 16 mm	756	756	756	1800 (3000) ⁸⁾	87.4	62.4
Ø 20 mm	945	945	945	1800 (3000) ⁸⁾	136.6	97.6
Ø 22 mm ⁷⁾	1040	–	–	2000	165.3	118.1
Ø 24 mm ⁷⁾	1134	–	–	2000	196.7	140.5
Ø 25 mm	1181	1181	1181	2000 (3000) ⁸⁾	213.4	152.4
Ø 26 mm ⁷⁾	1229	–	–	2000	230.8	164.9
Ø 28 mm	1323	1323	1323	2000 (3000) ⁸⁾	267.7	191.2
Ø 30 mm ⁷⁾	1418	–	–	2000	307.3	219.5
Ø 32 mm ⁸⁾	1512	1512	–	2000 (3000) ⁸⁾	349.7	249.8
Ø 34 mm ⁷⁾	1607	–	–	2000	394.7	282.0
Ø 36 mm ⁷⁾	1701	–	–	2000	442.6	316.1
Ø 40 mm ⁷⁾	1890	–	–	2000	546.4	390.3

For planning and design the complete European Technical Assessments ETA-17/1056 (FIS EM Plus), ETA-13/0651 (FIS SB) or resp. ETA-20/0728 (FIS V Plus und FIS VS Plus LOW SPEED) have to be considered. For determination of the installation parameters (minimum concrete cover distances, etc.) as well as required transverse reinforcement see EN 1992-1-1 and general installation rules of the assessments.

- ¹⁾ The partial safety factors for resistance taken from the European standard EN 1992-1-1 as well as a partial safety factor for action of $\gamma_L = 1.4$ are considered.
- ²⁾ The ETAs for FIS EM Plus, FIS SB, FIS V Plus and FIS V Plus LOW SPEED permit post-installed rebar connections in concrete C12/15 up to C50/60. The above mentioned basic value for anchorage length changes depending on the relevant concrete strength class.
- ³⁾ For utilisation of the full steel capacity.
- ⁴⁾ Basic value of the anchorage length in accordance with EN 1992-1-1, section 8.4.3 for concrete strength class C20/25 and good bond conditions.
- ⁵⁾ All reinforcing steels with characteristic yield strength $f_{yk} = 400 - 600 \text{ N/mm}^2$ in accordance with EN 1992-1-1 Annex C, Table C.1 and C.2N. The above-mentioned basic value for the anchorage length as well as maximum steel resistance (see footnote 3) will change accordingly.
- ⁶⁾ With FIS EM Plus, FIS SB, FIS V Plus or FIS VS Plus LOW SPEED post-installed rebars are approved in dry or wet concrete with temperatures up to +50 °C (resp. short term up to +80 °C) and drill hole cleaning in accordance with ETA.
- ⁷⁾ Only FIS EM Plus.
- ⁸⁾ Values in brackets apply for FIS SB.
- ⁹⁾ Only FIS EM Plus or FIS SB.



⁹⁾ If the clear distance of the lapped bars is larger than $4 \times \phi$, EC2 must be applied.