

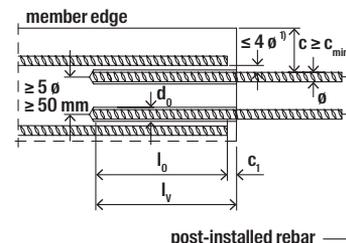
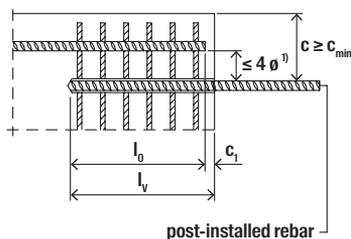
Injection systems FIS EM Plus, FIS V Plus, FIS VS Plus Low Speed or FIS RC II Low Speed with reinforcing steel B500B⁵⁾ in accordance with rebar theory

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	Basic value for the anchorage length for FIS EM Plus	Basic value for the anchorage length for FIS V Plus FIS VS Plus Low Speed	Basic value for the anchorage length for FIS RC II Low Speed	Maximum embedment depth	Maximum design resistance for axial tensile load	Maximum permissible tensile load
f_{yk} / f_{uk}						
500 / 540 N/mm ²						
Type	$l_{b,req}^{4)}$ [mm]	$l_{b,req}^{4)}$ [mm]	$l_{b,req}^{4)}$ [mm]	$l_{v,max}$ [mm]	$N_{Rd,s}^{3)}$ [kN]	$N_{perm,s}^{3)}$ [kN]
Ø 8 mm	378	378	378	1800	21.9	15.6
Ø 10 mm	473	473	473	1800	34.1	24.4
Ø 12 mm	567	567	567	1800	49.2	35.1
Ø 14 mm	662	662	662	1800	66.9	47.8
Ø 16 mm	756	756	756	1800	87.4	62.4
Ø 18 mm	–	–	851	1800	110.6	79.0
Ø 20 mm	945	945	945	1800	136.6	97.6
Ø 22 mm	1040	–	1040	2000 (1800) ⁷⁾	165.3	118.1
Ø 24 mm	1134	–	1134	2000 (1800) ⁷⁾	196.7	140.5
Ø 25 mm	1181	1181	1181	2000	213.4	152.4
Ø 26 mm	1229	–	–	2000	230.8	164.9
Ø 28 mm	1323	1323	1323	2000	267.7	191.2
Ø 30 mm	1418	–	1418	2000 (1500) ⁸⁾	307.3	219.5
Ø 32 mm	1512	–	1512	2000 (1500) ⁸⁾	349.7	249.8
Ø 34 mm	1607	–	–	2000	394.7	282.0
Ø 36 mm	1779	–	–	2000	442.6	316.1
Ø 40 mm	2070	–	2070	2000 (1300) ⁷⁾	546.4	390.3

For planning and design the complete European Technical Assessments ETA-17/1056 (FIS EM Plus), ETA-20/0728 (FIS V Plus and FIS VS Plus Low Speed) or ETA-22/0502 (FIS RC II 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 $\gamma_c = 1.4$ are considered.
- ²⁾ The ETAs for FIS EM Plus, FIS V Plus, FIS VS Plus Low Speed and FIS RC II 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⁾ When utilising the full steel load 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⁾ Reinforcing steel with characteristic yield strength $f_{yk} = 400 - 600$ N/mm² in accordance with EN 1992-1-1 Annex C, Table C.1 and C.2N is approved. 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 V Plus, FIS VS Plus Low Speed or FIS RC II 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⁾ Values in brackets apply only for FIS RC II Low Speed.
- ⁸⁾ Values in brackets apply for FIS RC II Low Speed at installation temperature $T_i > 0^\circ\text{C}$.



¹⁾ If the clear distance of the lapped bars is larger than $4 \times \phi$, EC2 must be applied.