Data sheet steel and chemical anchors — choice, hole, anchorage depth, fitting

Steel anchors carry in concrete by expansion (wedge, through bolt, sleeve, drop-in anchors), form fit (undercut anchor Zykon, concrete screw) or both; chemical anchors carry by bond of the mortar and are expansion-free. The choice depends on the substrate (cracked or non-cracked concrete, solid or hollow brick), the load and the edge distance. Hole, hole depth, torque and edge/axial distances are given in the anchor's European Technical Assessment (ETA); this sheet gives the selection rules and the size tables of the most used fischer anchors.

Choice per application

application	anchor type	note
heavy fixing in concrete, safety	through bolt FAZ II, safety anchor FH II	ETA option 1 (cracked concrete), seismic C1/C2
fast fixing in non-cracked concrete	bolt anchor FBN II, wedge anchor SBZ/STB	ETA option 7; not in the tension zone of slabs
ceiling, sprinkler, threaded rod	drop-in anchor EA II, internal thread anchor	flush finish, bolt fitted later
brackets, rails, cable trays	nail anchor FNA II, express anchor	hammer in, no nut; one-time
small edge distance, cracked concrete	concrete screw FBS II, Zykon FZA, chemical anchor	expansion-free or form fit
solid brick, natural stone	sleeve anchor, chemical anchor	long sleeve or mortar spreads the pressure
hollow brick, perforated blocks	chemical anchor with sieve sleeve	mortar forms a plug behind the wall
aerated concrete	aerated concrete anchor FPX-I, FTP, aerated concrete screw	see plug data sheet
hollow-core slab	hollow-core anchor FHY, FH II-NL	flange 25–35 mm

fischer FAZ II / FBN II: hole and length

anchor	hole Ø (mm)	min. hole depth (mm)	anchor length (mm)	useful length (mm)
FAZ II 8/30	8	85	95	30
FAZ II 10/30	10	105	115	30
FAZ II 12/50	12	140	150	50
FBN II 8/30	8	86	90	30
FBN II 10/20	10	88	93	20

fischer drop-in anchor EA II: hole and bolt engagement

anchor	hole Ø (mm)	bolt engagement (mm)
EA II M6	8	6 – 14
EA II M8	10	8 – 14
EA II M10	12	10 – 17
EA II M12	15	12 – 22
EA II M16	20	16 – 28
EA II M20	25	20 – 34

fischer safety anchor FH II: hole, hole depth, clamping thickness

anchor	hole Ø (mm)	min. hole depth (mm)	max. clamping thickness (mm)	thread

FH II 10/50 B	10	105	50	M6
FH II 12/100 B	12	180	100	M8
FH II 24/50 B	24	175	50	M16
FH II 28/60 B	28	215	60	M20

Fitting rules

topic	rule
hole	diameter = nominal anchor size; hammer drill to the standard; blow out and brush the hole
hole depth	anchorage depth + anchor length below the part + 10 mm clearance; for push-through fitting the value h2 from the table
torque	with a torque wrench to the torque from the ETA; too low = no expansion, too high = anchor or concrete failure
edge and axial distance	at least the values from the ETA (rule of thumb: edge ≥ 1.5 × h_ef, axial ≥ 3 × h_ef for expansion anchors; smaller for chemical and form-fit anchors)
cracked concrete	underside of slabs and beams and walls in tension: only anchors with ETA option 1 or chemical anchors with the right assessment
chemical anchor	blow out and brush twice; mortar from the bottom; insert the rod turning; curing time per temperature table; sieve sleeve in hollow brick
material	zinc plated indoors (C1–C2); hot-dip galvanised outdoors under cover; stainless A4 outdoors, coast and pools; HCR with chlorides