

W-FA/S, W-FA/F FIXING ANCHORS

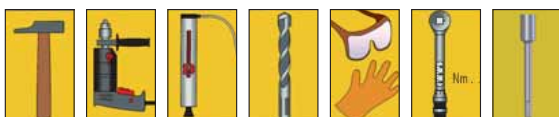
11.1

Performance data															
Anchor diameter [in mm]		M6		M8		M10		M12		M16		M20			
Standard anchoring depth/ Reduced anchoring depth		h _{ef} /h _{ef,red} [in mm]		40	30	44	35	48	42	65	50	82	64	100	78
Perm. centered tensile load ¹⁾ on a single anchor without edge influence	Pressure zone (uncracked concrete C20/25 ²⁾ , s ≥ 3 h _{ef} , c ≥ 1.5 h _{ef})	N _{perm.} [kN] = C20/25 ²⁾		4.1	2.9	5.7	5.0	7.6	6.5	12.6	8.5	17.8	12.3	24	16.5
	Pressure zone (uncracked concrete C20/25 ²⁾ , c ≥ 10 h _{ef})	V _{perm.} [kN] = C20/25 ²⁾		2.9	2.9	6.3	5.0	8.0	6.5	14.3	8.5	23.6	23.6	37.1	33.1
Permissible bending torque		M _{perm.} [Nm]		5.1	5.1	13.1	13.1	25.7	25.7	44.6	44.6	99.9	99.9	195	195
Fire resistance duration (W-FA/S)		F30 [in kN]		0.9	-	1.4	-	2.2	-	3.2	-	6.0	-	10.0	-
		F60 [in kN]		0.5	-	0.8	-	1.2	-	1.8	-	3.4	-	5.25	-
		F90 [in kN]		0.3	-	0.5	-	0.8	-	1.2	-	2.2	-	3.6	-
		F120 [in kN]		0.25	-	0.4	-	0.6	-	0.9	-	1.7	-	2.75	-

Characteristic values													
Setting depth	h _{nom} /h _{nom,red} [in mm]	49	39	56	47	62	56	82	67	102	84	121	99
Nom. drill dia.	d ₀ [in mm]	6	6	8	8	10	10	12	12	16	16	20	20
Drill cutting dia.	d _{cut} ≤ [in mm]	6.4	6.4	8.45	8.45	10.45	10.45	12.5	12.5	16.5	16.5	20.55	20.55
Drill hole depth	h ₁ /h _{1,red} ≥ [in mm]	55	45	65	55	70	65	90	75	110	95	130	110
Through-hole in the component being connected	d _f ≤ [in mm]	7	7	9	9	12	12	14	14	18	18	22	22
Torque while installing anchor (W-FA/S, galvanized steel)	T _{inst} = [Nm]	8	8	15	15	30	30	50	50	100	100	200	200
Torque while installing anchor (W-FA/S, hot galvanized steel)	T _{inst} = [Nm]	-	-	15	15	30	30	40	40	90	90	120	120

Individual attachment: Uncracked concrete, Option 7 (ETA-02/0001 - Galvanized steel and hot galvanized steel)													
Axial spacing	s _{cr,N} [in mm]	120	90	132	105	144	126	195	150	246	192	300	234
Edge spacing	c _{cr,N} [in mm]	60	45	66	53	72	63	98	75	123	96	150	117
Minimum axial spacing	s _{min} [in mm]	35	35	40	40	55	55	75	100	90	100	105	140
Minimum edge spacing	c _{min} [in mm]	40	40	45	45	65	65	90	100	105	100	125	140
Minimum component thickness	h _{min} [in mm]	100	80	100	80	100	100	130	100	170	130	200	160

Würth system components



¹⁾ The part safety coefficients of the resistances regulated in the approval and a part safety coefficient of the effects of γ_F = 1.4 have been taken into account. For the combination of tensile and transverse loads, for edge influence and anchor groups, please refer to the Directive for European Technical Approval (ETAG) Appendix C.
²⁾ The concrete has normal reinforcement. Higher values are possible for higher concrete strengths.