

FIXING ANCHOR W-FA/S & W-FA/F & W-FA/A4



Individual attachment:
Uncracked concrete

W-FA/S
galvanized steel with large washer

W-FA/S
galvanized steel

W-FA/F
hot galvanized steel

W-FA/A4
A4 stainless steel

Areas of Application

- Can be used for medium to heavy loads
- Suitable for fastening: Metal structures, metal profiles, brackets, foot plates, supports, cable conduits, piping, wooden structures, beams, purlins, etc
- With European Technical Approval, the anchor may be used in reinforced or non-reinforced standard concrete of a strength class of at least C20/25 and at most C50/60 in accordance with EN 206-1:2000-12
- Can be used in < C20/25 concrete and pressure-resistant natural stone (without approval)
- The anchor may only be used for anchoring under a predominantly static or quasi-static (e. g. facade, railing) load
- Individual fastening: Anchoring with European Technical Approval in uncracked concrete (concrete pressure zone)
- W-FA/S and W-FA/F may only be used under the conditions of dry inside rooms

Advantages

- High load-bearing capacities, small axial and edge spacing
- Time-saving pass-through mounting
- Two anchoring depths → Versatile in use for medium- and heavy-load applications
- Can be loaded immediately – No wait times
- Mounting reliability ensured through the application of the prescribed torques when anchoring

Features

- Force-controlled/torque-controlled spreading anchor made of electrogalvanized and hot galvanized steel in sizes M6, M8, M10, M12, M16 and M20
- Approvals: ETA-02/0001 for individual fastening Option 7, uncracked concrete, galvanized steel (M6 – M20) and hot galvanized (M8 – M20); Measured as per the "European Technical Approval Guideline (ETAG) of Metal Anchors for use in Concrete", Appendix C, measuring procedure A
- Fire resistance: W-FA/S (M6 – M20) F30, F60, F90 and F120 Fire load in accordance with DIN 4102- 02: 1977- 09 (Standard temperature-time curve) F120: Fire load in accordance with DIN 4102-02: 1977-09 (uniform temperature curve)

Approvals

European
Technical Approval

Option 7 for uncracked
concrete



Test Reports

Fire resistance
Direct flame
effect



W-FA/S Technical Data

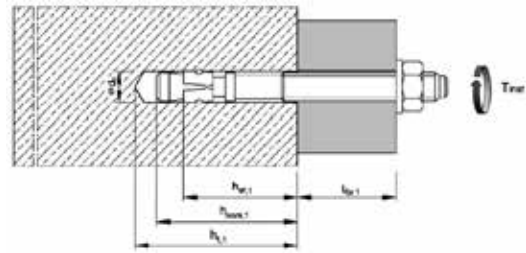
Wurth Anchor Technology

In accordance to EN1992-4:2008 and ETA-02/0001

Concrete Grade **C20/25**

Working life **50 years**

Concrete Type **Uncracked**



Anchor size	M	mm	6	8	10	12	16	20
Nominal Drill Bit Size	d_0	mm	6	8	10	12	16	20
Fixture Clearance Hole Diameter	d_f	mm	7	9	12	14	18	22
Nominal Installation Torque	T_{inst}	Nm	8	15	30	50	100	200

Embedment Depth 1								
Depth of Drill Hole	$h_{1,1}$	mm	45	55	65	75	95	110
Effective Anchorage Depth	$h_{ef,1}$	mm	30	35	42	50	64	78
Overall Embedment Depth in Concrete	$h_{nom,1}$	mm	39	47	56	67	84	99
Minimum Concrete Thickness	$h_{min,1}$	mm	80	80	100	100	130	160
Minimum Allowable Spacing	$s_{min,1}$	mm	35	40	55	100	100	140
Minimum Allowable Distance	$c_{min,1}$	mm	40	45	65	100	100	140
Design Resistance	$N_{Rd,1}$	kN	4.3	6.8	8.9	11.6	16.8	22.6
Shear Resistance	$V_{Rd,1}$	kN	4.0	8.8	13.6	20.0	33.1	51.9

Embedment Depth 2								
Depth of Drill Hole	$h_{1,2}$	mm	55	65	70	90	110	130
Effective Anchorage Depth	$h_{ef,2}$	mm	40	44	48	65	82	100
Overall Embedment Depth in Concrete	$h_{nom,2}$	mm	49	56	62	82	102	121
Minimum Concrete Thickness	$h_{min,2}$	mm	100	100	100	130	170	200
Minimum Allowable Spacing	$s_{min,2}$	mm	35	40	55	75	90	105
Minimum Allowable Distance	$c_{min,2}$	mm	40	45	65	90	105	125
Design Resistance	$N_{Rd,2}$	kN	5.8	8.7	10.9	17.2	24.3	32.8
Shear Resistance	$V_{Rd,2}$	kN	4.0	8.8	13.6	20.0	33.1	51.9

Embedment Depth 3								
Depth of Drill Hole	$h_{1,3}$	mm	75	91	102	125	148	145
Effective Anchorage Depth	$h_{ef,3}$	mm	60	70	80	100	120	115
Overall Embedment Depth in Concrete	$h_{nom,3}$	mm	69	82	94	117	140	136
Minimum Concrete Thickness	$h_{min,3}$	mm	120	126	132	165	208	215
Minimum Allowable Spacing	$s_{min,3}$	mm	35	40	55	75	90	105
Minimum Allowable Distance	$c_{min,3}$	mm	40	45	65	90	105	125
Design Resistance	$N_{Rd,3}$	kN	5.8	8.7	10.9	17.3	26.7	36.7
Shear Resistance	$V_{Rd,3}$	kN	4.0	8.8	13.6	20.0	33.1	51.9

*The data is applicable for W-FAZ/F & W-FAZ/SH

*Concrete increasing factor: C25/30(1.12); C30/37(1.22); C35/45(1.32); C40/50(1.41); C45/55(1.50); C50/60(1.58)

Anchor Dimensions



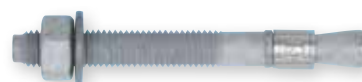
W-FA/S Fixing Anchor, galvanized steel (with small washer)

Anchor dia. [mm]	Total length l [mm]	Thread [dia. x length]	Art. No.
M6	40	M6 x 16	5932 006 040
M6	67	M6 x 30	5932 006 067
M6	82	M6 x 35	5932 006 082
M6	97	M6 x 35	5932 006 097
M8	50	M8 x 22	5932 008 050
M8	75	M8 x 40	5932 008 075
M8	80	M8 x 45	5932 008 080
M8	90	M8 x 55	5932 008 090
M8	95	M8 x 60	5932 008 095
M8	110	M8 x 75	5932 008 110
M8	120	M8 x 85	5932 008 120
M10	60	M10 x 25	5932 010 060
M10	85	M10 x 40	5932 010 085
M10	90	M10 x 45	5932 010 090
M10	95	M10 x 50	5932 010 095
M10	105	M10 x 60	5932 010 105
M10	120	M10 x 75	5932 010 120
M10	145	M10 x 80	5932 010 145
M10	175	M10 x 80	5932 010 175
M10	215	M10 x 80	5932 010 215
M12	75	M12 x 30	5932 012 075
M12	105	M12 x 60	5932 012 105
M12	110	M12 x 65	5932 012 110
M12	115	M12 x 70	5932 012 115
M12	125	M12 x 80	5932 012 125
M12	145	M12 x 100	5932 012 145
M12	160	M12 x 100	5932 012 160
M12	180	M12 x 100	5932 012 180
M12	200	M12 x 100	5932 012 200
M12	220	M12 x 80	5932 012 220
M12	240	M12 x 80	5932 012 240
M12	255	M12 x 80	5932 012 255
M16	115	M16 x 60	5932 016 115
M16	130	M16 x 70	5932 016 130
M16	150	M16 x 90	5932 016 150
M16	180	M16 x 110	5932 016 180
M16	200	M16 x 110	5932 016 200
M16	220	M16 x 80	5932 016 220
M16	250	M16 x 80	5932 016 250
M16	285	M16 x 80	5932 016 285
M16	320	M16 x 80	5932 016 320
M16	340	M16 x 80	5932 016 340
M20	150	M20 x 70	5932 020 150
M20	180	M20 x 70	5932 020 180
M20	205	M20 x 70	5932 020 205
M20	240	M20 x 70	5932 020 240



W-FA/S Fixing Anchor, galvanized steel (with large washer)

Anchor dia. [mm]	Total length l [mm]	Thread [dia. x length]	Art. No.
M12	160	M12 x 100	5932 112 160
M12	180	M12 x 100	5932 112 180
M12	200	M12 x 100	5932 112 200
M12	220	M12 x 80	5932 112 220
M12	240	M12 x 80	5932 112 240
M12	255	M12 x 80	5932 112 255
M12	285	M12 x 80	5932 112 285
M12	325	M12 x 80	5932 112 325
M12	355	M12 x 80	5932 112 355
M16	220	M16 x 80	5932 116 220
M16	250	M16 x 80	5932 116 250
M16	285	M16 x 80	5932 116 285
M16	320	M16 x 80	5932 116 320



W-FA/F Fixing Anchor, hot galvanized steel ($\geq 40 \mu\text{m}$)

Anchor dia. [mm]	Total length l [mm]	Thread [dia. x length]	Art. No.
M6	40	M6 x 16	5932 906 040
M8	80	M8 x 45	5932 908 080
M8	95	M8 x 60	5932 908 095
M8	120	M8 x 85	5932 908 120
M10	90	M10 x 45	5932 910 090
M10	105	M10 x 60	5932 910 105
M10	120	M10 x 75	5932 910 120
M12	110	M12 x 65	5932 912 110
M12	125	M12 x 80	5932 912 125
M12	145	M12 x 100	5932 912 145
M12	180	M12 x 100	5932 912 180
M16	150	M16 x 90	5932 916 150

W-FA/A4 Technical Data

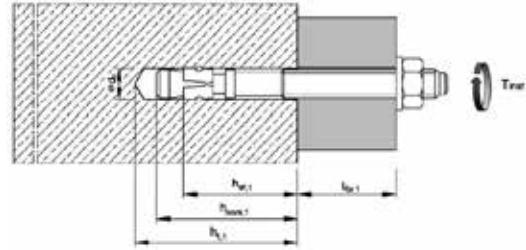
Wurth Anchor Technology

In accordance to EN1992-4:2008 and ETA-02/0001

Concrete Grade **C20/25**

Working life **50 years**

Concrete Type **Uncracked**



Anchor size	M	mm	6	8	10	12	16	20
Nominal Drill Bit Size	d_0	mm	6	8	10	12	16	20
Fixture Clearance Hole Diameter	d_f	mm	7	9	12	14	18	22
Nominal Installation Torque	T_{inst}	Nm	6	15	25	50	100	160

Embedment Depth 1								
Depth of Drill Hole	$h_{1,1}$	mm	45	55	65	75	95	110
Effective Anchorage Depth	$h_{ef,1}$	mm	30	35	42	50	64	78
Overall Embedment Depth in Concrete	$h_{nom,1}$	mm	39	47	56	67	84	99
Minimum Concrete Thickness	$h_{min,1}$	mm	80	80	100	100	130	160
Minimum Allowable Spacing	$s_{min,1}$	mm	35	60	55	100	100	140
Minimum Allowable Distance	$c_{min,1}$	mm	40	60	65	100	100	140
Design Resistance	$N_{Rd,1}$	kN	4.3	6.0	8.0	11.6	16.8	22.6
Shear Resistance	$V_{Rd,1}$	kN	5.4	9.6	15.2	21.6	40.0	61.4

Embedment Depth 2								
Depth of Drill Hole	$h_{1,2}$	mm	55	65	70	90	110	130
Effective Anchorage Depth	$h_{ef,2}$	mm	40	44	48	65	80	100
Overall Embedment Depth in Concrete	$h_{nom,2}$	mm	49	56	62	82	102	121
Minimum Concrete Thickness	$h_{min,2}$	mm	100	100	100	130	160	200
Minimum Allowable Spacing	$s_{min,2}$	mm	35	35	45	60	80	100
	for $c \geq$	mm	40	65	70	100	120	150
Minimum Allowable Distance	$c_{min,2}$	mm	40	65	70	100	120	150
	for $s \geq$	mm	60	110	80	100	140	180
Design Resistance	$N_{Rd,2}$	kN	5.3	9.6	10.9	16.7	23.5	32.8
Shear Resistance	$V_{Rd,2}$	kN	5.6	9.6	15.2	21.6	40.0	61.4

Embedment Depth 3								
Depth of Drill Hole	$h_{1,3}$	mm	75	91	102	125	148	145
Effective Anchorage Depth	$h_{ef,3}$	mm	60	70	80	100	120	115
Overall Embedment Depth in Concrete	$h_{nom,3}$	mm	69	82	94	117	140	136
Minimum Concrete Thickness	$h_{min,3}$	mm	120	126	132	165	200	215
Minimum Allowable Spacing	$s_{min,3}$	mm	35	35	45	60	80	100
	for $c \geq$	mm	40	65	70	100	120	150
Minimum Allowable Distance	$c_{min,3}$	mm	35	45	55	70	80	100
	for $s \geq$	mm	60	110	80	100	140	180
Design Resistance	$N_{Rd,3}$	kN	5.3	10.0	10.9	16.7	28.0	40.0
Shear Resistance	$V_{Rd,3}$	kN	5.6	9.6	15.2	21.6	40.0	61.4

*The data is applicable for W-FAZ/A2 & W-FAZ/HCR

*Concrete increasing factor: C25/30(1.12); C30/37(1.22); C35/45(1.32); C40/50(1.41); C45/55(1.50); C50/60(1.58)

Anchor Dimensions



Individual attachment (M6 – M20):

Uncracked concrete (ETA-02/0001)

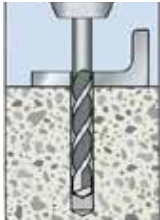
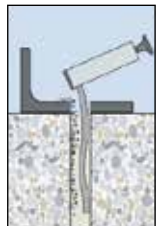
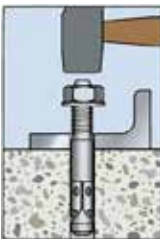
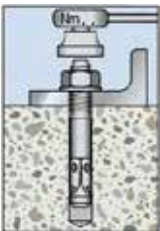
Multiple attachment:

Cracked and uncracked concrete

(M6: ETA-06/0162)

W-FA/A4 Fixing Anchor, A4 stainless steel			
Anchor dia. [mm]	Total length l [mm]	Thread [dia. x length]	Art. No.
M6	40	M6 x 16	0904 411 061
	67	M6 x 30	0904 411 065
	82	M6 x 35	0904 411 066
	97	M6 x 35	0904 411 067
M8	75	M8 x 40	0904 411 083
	80	M8 x 45	0904 411 084
	95	M8 x 60	0904 411 087
	120	M8 x 85	0904 411 089
M10	85	M10 x 40	0904 411 002
	90	M10 x 45	0904 411 003
	95	M10 x 50	0904 411 004
	105	M10 x 60	0904 411 005
	120	M10 x 75	0904 411 006
M12	110	M12 x 65	0904 411 204
	125	M12 x 80	0904 411 206
	180	M12 x 80	0904 411 209
	200	M12 x 80	0904 411 210
M16	150	M16 x 90	0904 411 604
	220	M16 x 80	0904 411 607
M20	180	M20 x 70	0904 412 002

Installation instructions

A) Bore hole drilling		
	1a.	Hammer drilling (HD)
		Drill the hole with a hammer drill. Drill bit diameter and its working length are determined by the diameter and depth of the drill hole of the selected anchor. (see table anchor characteristics). Positioning of drill holes without damaging the reinforcement.
B) Bore hole cleaning		
	2.	Clean the bore hole from the bottom until the return air stream is without dust.
C) Setting the screw		
	3a.	Drive the anchor with some hammer impacts or with the machine setting tool into the drill hole. Anchor installation ensuring the specified embedment depth.
	3b.	Application of the required torque moment using a calibrated torque wrench.