

Technical data sheet

SIMPSON

Strong-Tie

FM-753 CRACK 3DG

Heavy Duty Wedge Anchor with Seismic Certification

Heavy-duty wedge anchor for the medium load range in sizes M8 - M16 for anchoring in cracked and non-cracked concrete C20/25 - C50/60, as well as for seismic actions of the performance category C1/C2.

Features

Material

- Hardened and tempered anchor body grade 9.8
- Special anti-corrosion coating 3DG with glossy finish
- Stainless steel A4 clip

Benefits

- Dynamic and seismic loads
- Seismic performance C1 and C2
- Immediate expansion
- Increased thickness of three expander segments
- Nine gripping dents for greater adhesion to hole wall
- Fire resistance R120

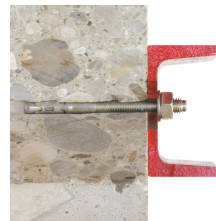
Applications

Applications

- Structural fixings
- Steel constructions
- Seismic applications

Suitable for

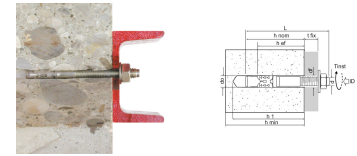
- Cracked concrete
- Non-cracked concrete
- Solid stone



FM-753 CRACK 3DG Heavy Duty Wedge Anchor with Seismic Certification

Technical Data

Product dimensions



References	Product Reference	Dimensions [ØxL] [mm]	Seismic certification	Fixture thickness [t _{fix,max}] with standard setting depth [h _{ef,STD}] [mm]	Fixture thickness [t _{fix,max}] with reduced setting depth [h _{ef,RED}] [mm]	Hole diameter in fixture [d _f] [mm]	Hole diameter [d ₀] x depth [h ₁] in substrate with standard setting depth [h _{ef,STD}] [mm]	Hole diameter [d ₀] x depth [h ₁] in substrate with reduced setting depth [h _{ef,RED}] [mm]	Min. setting depth [h _{ef,STD}] [mm]	Reduce setting depth [h _{ef,RED}] [mm]
75350B0806800	FM-753 CRACK 3DG	M8x68	C1	4	18	9	8x70	8x56	48	34
75350B0807500		M8x75	C1	10	24	9	8x70	8x56	48	34
75350B0809000		M8x90	C1	25	39	9	8x70	8x56	48	34
75350B0811500		M8x115	C1	50	64	9	8x70	8x56	48	34
75350B0813500		M8x135	C1	70	84	9	8x70	8x56	48	34
75350B0816500		M8x165	C1	100	114	9	8x70	8x56	48	34
75350B1009000		M10x90	C1/C2	10	30	12	10x80	10x60	60	40
75350B1010500		M10x105	C1/C2	25	45	12	10x80	10x60	60	40
75350B1011500		M10x115	C1/C2	35	55	12	10x80	10x60	60	40
75350B1013500		M10x135	C1/C2	55	75	12	10x80	10x60	60	40
75350B1015500		M10x155	C1/C2	75	95	12	10x80	10x60	60	40
75350B1018500		M10x185	C1/C2	105	125	12	10x80	10x60	60	40
75350B1211000		M12x110	C1/C2	10	30	14	12x100	12x80	72	52
75350B1212000		M12x120	C1/C2	20	40	14	12x100	12x80	72	52
75350B1214500		M12x145	C1/C2	45	65	14	12x100	12x80	72	52
75350B1217000		M12x170	C1/C2	70	90	14	12x100	12x80	72	52
75350B1220000		M12x200	C1/C2	100	120	14	12x100	12x80	72	52
75350B1613000		M16x130	C1/C2	10	30	18	16x115	16x95	86	66
75350B1615000		M16x150	C1/C2	30	50	18	16x115	16x95	86	66
75350B1618500		M16x185	C1/C2	60	80	18	16x115	16x95	86	66
75350B1622000	M16x220	C1/C2	100	120	18	16x115	16x95	86	66	

FM-753 CRACK 3DG Heavy Duty Wedge Anchor with Seismic Certification

Recommended loads / Non-cracked-concrete / for single anchors / with no edge distances or spacings

References	Product Reference	Dimensions [ØxL] [mm]	Recommended loads - Non-cracked concrete								Bending moment M_{rec} [Nm]
			Tension - N_{rec}				Shear - V_{rec}				
			C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	
75350B0806800	FM-753 CRACK 3DG	M8x68	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B0807500	FM-753 CRACK 3DG	M8x75	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B0809000	FM-753 CRACK 3DG	M8x90	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B0811500	FM-753 CRACK 3DG	M8x115	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B0813500	FM-753 CRACK 3DG	M8x135	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B0816500	FM-753 CRACK 3DG	M8x165	4.3	5.2	6.1	6.7	6.1	6.1	6.1	6.1	15.9
75350B1009000	FM-753 CRACK 3DG	M10x90	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1010500	FM-753 CRACK 3DG	M10x105	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1011500	FM-753 CRACK 3DG	M10x115	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1013500	FM-753 CRACK 3DG	M10x135	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1015500	FM-753 CRACK 3DG	M10x155	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1018500	FM-753 CRACK 3DG	M10x185	7.6	9.3	10.7	11.8	11.5	11.5	11.5	11.5	31.9
75350B1211000	FM-753 CRACK 3DG	M12x110	9.5	11.6	13.4	14.7	16.1	16.1	16.1	16.1	56.1
75350B1212000	FM-753 CRACK 3DG	M12x120	9.5	11.6	13.4	14.7	16.1	16.1	16.1	16.1	56.1
75350B1214500	FM-753 CRACK 3DG	M12x145	9.5	11.6	13.4	14.7	16.1	16.1	16.1	16.1	56.1
75350B1217000	FM-753 CRACK 3DG	M12x170	9.5	11.6	13.4	14.7	16.1	16.1	16.1	16.1	56.1
75350B1220000	FM-753 CRACK 3DG	M12x200	9.5	11.6	13.4	14.7	16.1	16.1	16.1	16.1	56.1
75350B1613000	FM-753 CRACK 3DG	M16x130	16.7	20.4	23.5	25.9	31.6	31.6	31.6	31.6	142.4
75350B1615000	FM-753 CRACK 3DG	M16x150	16.7	20.4	23.5	25.9	31.6	31.6	31.6	31.6	142.4
75350B1618500	FM-753 CRACK 3DG	M16x185	16.7	20.4	23.5	25.9	31.6	31.6	31.6	31.6	142.4
75350B1622000	FM-753 CRACK 3DG	M16x220	16.7	20.4	23.5	25.9	31.6	31.6	31.6	31.6	142.4

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Heavy Duty Wedge Anchor with Seismic Certification

References	Product Reference	Dimensions [ØxL] [mm]	Recommended loads - Non-cracked concrete								
			Tension - N_{rec}				Shear - V_{rec}				Bending moment M_{rec} [Nm]
			C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	
<p>1) In case of interaction of tension and shear loads (lever arm) as well as in case of anchor groups and/or edge influence, a design according to EN 1992-4 (seismic actions - Annex C / fire action - Annex D) shall be carried out taking into account the entire European Technical Assessment ETA-09/0056.</p> <p>2) The load data take into account the partial safety factors of the resistances given in the European Technical Assessment (ETA) and a partial safety factor of the actions of $\gamma F = 1.4$. The values given assume unreinforced or normally reinforced concrete with a spacing of the reinforcing bars $s \geq 15$ cm or $s \geq 10$ cm at a rebar diameter $d_s \leq 10$ mm is assumed.</p>											

FM-753 CRACK 3DG Heavy Duty Wedge Anchor with Seismic Certification

Design capacities - single anchor - no edge distances - Uncracked concrete

References	Product Reference	Dimensions [ØxL] [mm]	Design capacity - Non-cracked concrete (3)								Bending moment MRd [Nm]
			Tension - N _{Rd} (1)				Shear - V _{Rd} (2)				
			C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	
75350B0806800	FM-753 CRACK 3DG	M8x68	6	-	-	-	8.6	-	-	-	-
75350B0807500	FM-753 CRACK 3DG	M8x75	6	-	-	-	8.6	-	-	-	-
75350B0809000	FM-753 CRACK 3DG	M8x90	6	-	-	-	8.6	-	-	-	-
75350B0811500	FM-753 CRACK 3DG	M8x115	6	-	-	-	8.6	-	-	-	-
75350B0813500	FM-753 CRACK 3DG	M8x135	6	-	-	-	8.6	-	-	-	-
75350B0816500	FM-753 CRACK 3DG	M8x165	6	-	-	-	8.6	-	-	-	-
75350B1009000	FM-753 CRACK 3DG	M10x90	10.7	-	-	-	16.1	-	-	-	-
75350B1010500	FM-753 CRACK 3DG	M10x105	10.7	-	-	-	16.1	-	-	-	-
75350B1011500	FM-753 CRACK 3DG	M10x115	10.7	-	-	-	16.1	-	-	-	-
75350B1013500	FM-753 CRACK 3DG	M10x135	10.7	-	-	-	16.1	-	-	-	-
75350B1015500	FM-753 CRACK 3DG	M10x155	10.7	-	-	-	16.1	-	-	-	-
75350B1018500	FM-753 CRACK 3DG	M10x185	10.7	-	-	-	16.1	-	-	-	-
75350B1211000	FM-753 CRACK 3DG	M12x110	13.3	-	-	-	22.5	-	-	-	-
75350B1212000	FM-753 CRACK 3DG	M12x120	13.3	-	-	-	22.5	-	-	-	-
75350B1214500	FM-753 CRACK 3DG	M12x145	13.3	-	-	-	22.5	-	-	-	-
75350B1217000	FM-753 CRACK 3DG	M12x170	13.3	-	-	-	22.5	-	-	-	-
75350B1220000	FM-753 CRACK 3DG	M12x200	13.3	-	-	-	22.5	-	-	-	-
75350B1613000	FM-753 CRACK 3DG	M16x130	23.3	-	-	-	44.3	-	-	-	-
75350B1615000	FM-753 CRACK 3DG	M16x150	23.3	-	-	-	44.3	-	-	-	-
75350B1618500	FM-753 CRACK 3DG	M16x185	23.3	-	-	-	44.3	-	-	-	-
75350B1622000	FM-753 CRACK 3DG	M16x220	23.3	-	-	-	44.3	-	-	-	-

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Heavy Duty Wedge Anchor with Seismic Certification

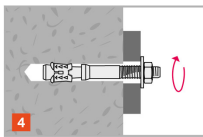
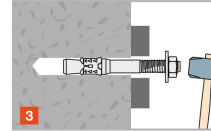
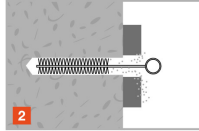
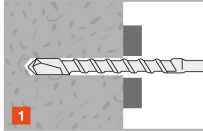
References	Product Reference	Dimensions [ØxL] [mm]	Design capacity - Non-cracked concrete (3)								
			Tension - N_{Rd} (1)				Shear - V_{Rd} (2)				Bending moment M_{Rd} [Nm]
			C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	

1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing $s \geq 15$ cm (any diameter) or with a rebar spacing $s \geq 10$ cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges ($c \leq \max [10 \text{ hef}; 60d]$) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

*Not covered by ETA-11/0080

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Heavy Duty Wedge Anchor with Seismic Certification

Installation



FM-753 CRACK 3DG Heavy Duty Wedge Anchor with Seismic Certification

Spacings and edge distances

References	Product Reference	Dimensions [ØxL] [mm]	Min. edge distance [cmin] [mm]	Min. spacing [smin] [mm]	Characteristic edge distance [ccr,N] [mm]	Characteristic spacing(5) - Scr,N [scr,N] [mm]
75350B0806800	FM-753 CRACK 3DG	M8x68	50	50	72	144
75350B0807500	FM-753 CRACK 3DG	M8x75	50	50	72	144
75350B0809000	FM-753 CRACK 3DG	M8x90	50	50	72	144
75350B0811500	FM-753 CRACK 3DG	M8x115	50	50	72	144
75350B0813500	FM-753 CRACK 3DG	M8x135	50	50	72	144
75350B0816500	FM-753 CRACK 3DG	M8x165	50	50	72	144
75350B1009000	FM-753 CRACK 3DG	M10x90	60	60	90	180
75350B1010500	FM-753 CRACK 3DG	M10x105	60	60	90	180
75350B1011500	FM-753 CRACK 3DG	M10x115	60	60	90	180
75350B1013500	FM-753 CRACK 3DG	M10x135	60	60	90	180
75350B1015500	FM-753 CRACK 3DG	M10x155	60	60	90	180
75350B1018500	FM-753 CRACK 3DG	M10x185	60	60	90	180
75350B1211000	FM-753 CRACK 3DG	M12x110	70	70	110	220
75350B1212000	FM-753 CRACK 3DG	M12x120	70	70	110	220
75350B1214500	FM-753 CRACK 3DG	M12x145	70	70	110	220
75350B1217000	FM-753 CRACK 3DG	M12x170	70	70	110	220
75350B1220000	FM-753 CRACK 3DG	M12x200	70	70	110	220
75350B1613000	FM-753 CRACK 3DG	M16x130	85	80	120	258
75350B1615000	FM-753 CRACK 3DG	M16x150	85	80	120	258
75350B1618500	FM-753 CRACK 3DG	M16x185	85	80	120	258
75350B1622000	FM-753 CRACK 3DG	M16x220	85	80	120	258

FM-753 CRACK 3DG Heavy Duty Wedge Anchor with Seismic Certification

Installation data

References	Product Reference	Dimensions [ØxL] [mm]	Ø drilling hole [d0] [mm]	Min. drill depth [h1] [mm]	Ø drilling fixture [df] [mm]	Wrench size [SW] [mm]	Installation torque [Tinst] [Nm]	Embedment depth [hef] [mm]	Min. support thickness [hmin] [mm]
75350B0806800	FM-753 CRACK 3DG	M8x68	8	70	9	13	20	48	100
75350B0807500	FM-753 CRACK 3DG	M8x75	8	70	9	13	20	48	100
75350B0809000	FM-753 CRACK 3DG	M8x90	8	70	9	13	20	48	100
75350B0811500	FM-753 CRACK 3DG	M8x115	8	70	9	13	20	48	100
75350B0813500	FM-753 CRACK 3DG	M8x135	8	70	9	13	20	48	100
75350B0816500	FM-753 CRACK 3DG	M8x165	8	70	9	13	20	48	100
75350B1009000	FM-753 CRACK 3DG	M10x90	10	80	12	17	40	60	120
75350B1010500	FM-753 CRACK 3DG	M10x105	10	80	12	17	40	60	120
75350B1011500	FM-753 CRACK 3DG	M10x115	10	80	12	17	40	60	120
75350B1013500	FM-753 CRACK 3DG	M10x135	10	80	12	17	40	60	120
75350B1015500	FM-753 CRACK 3DG	M10x155	10	80	12	17	40	60	120
75350B1018500	FM-753 CRACK 3DG	M10x185	10	80	12	17	40	60	120
75350B1211000	FM-753 CRACK 3DG	M12x110	12	100	14	19	60	72	150
75350B1212000	FM-753 CRACK 3DG	M12x120	12	100	14	19	60	72	150
75350B1214500	FM-753 CRACK 3DG	M12x145	12	100	14	19	60	72	150
75350B1217000	FM-753 CRACK 3DG	M12x170	12	100	14	19	60	72	150
75350B1220000	FM-753 CRACK 3DG	M12x200	12	100	14	19	60	72	150
75350B1613000	FM-753 CRACK 3DG	M16x130	16	115	18	24	120	86	170
75350B1615000	FM-753 CRACK 3DG	M16x150	16	115	18	24	120	86	170

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Heavy Duty Wedge Anchor with Seismic Certification

References	Product Reference	Dimensions [ØxL] [mm]	Ø drilling hole [d0] [mm]	Min. drill depth [h1] [mm]	Ø drilling fixture [df] [mm]	Wrench size [SW] [mm]	Installation torque [Tinst] [Nm]	Embedment depth [hef] [mm]	Min. support thickness [hmin] [mm]
75350B1618500	FM-753 CRACK 3DG	M16x185	16	115	18	24	120	86	170
75350B1622000	FM-753 CRACK 3DG	M16x220	16	115	18	24	120	86	170

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