

## FM-753 CRACK 3DG Kotwa mechaniczna

Kotwy FM-735 crack charakteryzuje się szybkością montażu i wysoką nośnością przy niewielkich odległościach pomiędzy kotwiami i niewielkich odległościach krawędziowych. Stosowane są głównie do mocowania w podłożach gładkich i twardych tj. beton, żelbet itp. Kotwa przeznaczona jest do mocowania w zakresie średnich obciążeń elementów konstrukcji budowlanych, elewacji, barier, poręczy itd. Kotwa certyfikowana do zastosowań sejsmicznych C1 i C2 przetestowana w warunkach pożarowych R120.

Nadaje się do zastosowań w betonie zarysowanym i niezarysowanym (opcja 1).



## Właściwości

### Materiał

**Stal cynkowana elektrolitycznie zgodnie z EN ISO 4042; pasywowana**

### Zalety

- Szybkiego montażu w zarysowanym i niezarysowanym betonie (opcj 1).
- Zoptymalizowany klips rozporowy gwarantuje równomierny rozkład naprężeń umożliwiając stosowanie przy dużych obciążeniach dopuszczalnych
- Małe odstępki osiowe do krawędzi w przypadku niewielkich elementów budowlanych.
- Zwiększona wytrzymałość na rozciąganie i ścinanie.

## Zastosowanie

### Obszar zastosowań

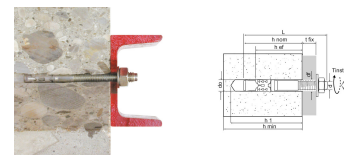
**Stosowane są głównie do mocowania w podłożach gładkich i twardych tj. beton, żelbet itp. Kotwa przeznaczona jest do mocowania w zakresie średnich obciążeń elementów konstrukcji budowlanych:**

- Zamocowania konstrukcyjne
- Konstrukcje stalowe
- Zastosowania sejsmiczne

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## Dane techniczne

Wymiary produktu



Referencje	Product Reference	Wymiary [ØxL] [mm]	Seismic certification	Grubość mocowanego elementu [t <sub>fix,max</sub> ] przy standardowej głębokości kotwienia [h <sub>ef,STD</sub> ] [mm]	Grubość mocowanego elementu [t <sub>fix,max</sub> ] przy zredukowanej głębokości kotwienia [h <sub>ef,RED</sub> ] [mm]	Średnica otworu przelotowego [d <sub>f</sub> ] [mm]	Średnica otworu [d <sub>0</sub> ] x głębokość [h <sub>1</sub> ] w podłożu o zmniejszonej standardowej głębokości kotwienia [h <sub>ef,RED</sub> ] [mm]	Średnica otworu [d <sub>0</sub> ] x głębokość [h <sub>1</sub> ] w podłożu o zmniejszonej głębokości kotwienia [h <sub>ef,RED</sub> ] [mm]	Min. głębokość kotwienia [h <sub>ef,STD</sub> ] [mm]	Zredukowana głębokość kotwienia [h <sub>ef,RED</sub> ]
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	

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

Referencje	Product Reference	Wymiary [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

Referencje	Product Reference	Wymiary [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]	
<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 <math>\gamma_F = 1.4</math>. The values given assume unreinforced or normally reinforced concrete with a spacing of the reinforcing bars <math>s \geq 15</math> cm or <math>s \geq 10</math> cm at a rebar diameter <math>d_s \leq 10</math> mm is assumed.</p>											

## FM-753 CRACK 3DG Kotwa mechaniczna

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

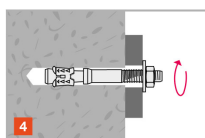
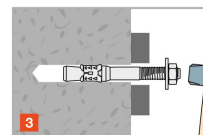
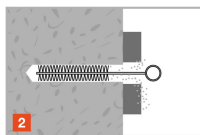
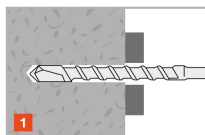
Referencje	Product Reference	Wymiary [ØxL] [mm]	Design capacity - Non-cracked concrete (3)								Bending moment MRd [Nm]
			Tension - N <sub>Rd</sub> (1)				Shear - V <sub>Rd</sub> (2)				
			C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	C20/25 [kN]	C30/37 [kN]	C40/50 [kN]	C50/60 [kN]	
75350B0806800	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	-	-	-	-

Referencje	Product Reference	Wymiary [ØxL] [mm]	Design capacity - Non-cracked concrete (3)								Bending moment MRd [Nm]
			Tension - N <sub>Rd</sub> (1)				Shear - V <sub>Rd</sub> (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]	

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 ( $\sigma_L$  equals the tensile stress within the concrete induced by external loads, anchors loads included).

\*Not covered by ETA-11/0080

## Montaż



### Spacings and edge distances

Referencje	Product Reference	Wymiary [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



### Installation data

Referencje	Product Reference	Wymiary [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

# Karta techniczna

**SIMPSON**

**Strong-Tie**

FM-753 CRACK 3DG  
**Kotwa mechaniczna**

Referencje	Product Reference	Wymiary [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

FM-753 CRACK 3DG  
**Kotwa mechaniczna**



**SIMPSON**  
**Strong-Tie**