

Technical Sheet

**FRUL
SIDER**

**SIMPSON
StrongTie**

FM 753 evo

Pasador de anclaje opción 7

Los pasadores de anclaje FM 753 son fijaciones por expansión sobre soporte de hormigón.

Features

Materia

- Acero electrocincado.

Ventajas

- Distancia al borde y entre centros mínima
- Instalación rápida y sencilla: tuerca y arandela premontadas y profundidad de anclaje reducida;
- Ø de rosca = Ø de perforación
- Protección de la rosca durante el montaje: punto de impacto reforzado
- Marcado en la cabeza: identificación de las dimensiones del pasador tras la instalación

Applications

Applications

- Railings
- Metal and wood carpentry
- Facades

Support

- Hormigón no fisurado
- Piedra natural densa



Fixation de structure bois

Zoom de la punta



Steel frame structure anchoring

FM 753 evo

Pasador de anclaje opción 7

Datos técnicos

Dimensions

Referencia	Dimensiones de las fijaciones metálicas				Característicos[mm]	Prof. mín. [h1]
NOI	Dimensions See full table online → 				Longitud de rosca [Lv] [mm]	Llave SW[mm]

FM 753 evo

Pasador de anclaje opción 7

Design capacities - single anchor - no edge distances

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads									
	Dimensiones y Valores Característicos[mm]	Capacidad de cálculo - hormigón no fisurado (3)[kN]								Capacidad de cálculo - hormigón fisurado	
		Dimensiones[mm]	Tracción - NRd (1)				Cizallamiento - VRd (1-2)[kN]				Momento de flexión - 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]	
75340B0604800	M6x48*/**	4	4	4	4.1	5.1	5.1	5.1	5.1	7.3	
75340B0606500	M6x65	4	4	4	4.1	5.1	5.1	5.1	5.1	7.3	
75340B0608500	M6x85	4	4	4	4.1	5.1	5.1	5.1	5.1	7.3	
75340B0806800	M8x68	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0807300	M8x73	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0808300	M8x83	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0809300	M8x93	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0810300	M8x103	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0811300	M8x113	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0813300	M8x133	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B0816300	M8x163	8	8.3	8.5	8.7	7.9	7.9	7.9	7.9	21.5	
75340B1007800	M10x78	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1008300	M10x83	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1009300	M10x93	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1010300	M10x103	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1011300	M10x113	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1012300	M10x123	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1014300	M10x143	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1017300	M10x173	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1021300	M10x213	11.6	14.2	16.4	18.3	11.6	11.6	11.6	11.6	37.3	
75340B1210400	M12x104	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1210900	M12x109	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1211900	M12x119	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1212900	M12x129	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1213900	M12x139	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1214900	M12x149	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1217900	M12x179	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1219900	M12x199	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1221900	M12x219	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1223900	M12x239	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	
75340B1225900	M12x259	17.2	20.8	23.9	26.7	20.1	20.1	20.1	20.1	65.3	

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).

FM 753 evo

Pasador de anclaje opción 7

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads									
	Dimensiones y Valores Característicos[mm]	Capacidad de cálculo - hormigón no fisurado (3)[kN]								Capacidad de cálculo - hormigón fisurado	
		Dimensiones[mm]	Tracción - NRd (1)				Cizallamiento - VRd (1-2)[kN]				Momento de flexión - M _d [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]	
75340B1611000	M16x110*/**	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	
75340B1615100	M16x151	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	
75340B1617100	M16x171	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	
75340B1620100	M16x201	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	
75340B1622100	M16x221	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	
75340B1626100	M16x261	23.5	27	29.8	32.4	37.5	37.5	37.5	37.5	155.3	

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).

FM 753 evo

Pasador de anclaje opción 7

Recommended capacities - single anchor - no edge distances

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads									
	Dimensiones y Valores Característicos[mm]	Recommended loads - Non-cracked concrete								Capacidad de cálculo - hormigón no fisurado (3)[kN]	
		Dimensiones[mm]	Tracción - N _{reC} [kN]				Cizallamiento - V _{reC} [kN]				Momento de flexión - M _{r-d} [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]	
75340B0604800	M6x48*/**	2.2	2.9	2.9	2.9	2.9	3.6	3.6	3.6	3.6	
75340B0606500	M6x65	2.2	2.9	2.9	2.9	2.9	3.6	3.6	3.6	3.6	
75340B0608500	M6x85	2.2	2.9	2.9	2.9	2.9	3.6	3.6	3.6	3.6	
75340B0806800	M8x68	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0807300	M8x73	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0808300	M8x83	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0809300	M8x93	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0810300	M8x103	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0811300	M8x113	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0813300	M8x133	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B0816300	M8x163	2.4	5.7	5.9	6.1	6.2	5.6	5.6	5.6	5.6	
75340B1007800	M10x78	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1008300	M10x83	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1009300	M10x93	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1010300	M10x103	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1011300	M10x113	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1012300	M10x123	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1014300	M10x143	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1017300	M10x173	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1021300	M10x213	4.7	8.3	10.1	11.7	13.1	8.3	8.3	8.3	8.3	
75340B1210400	M12x104	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1210900	M12x109	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1211900	M12x119	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1212900	M12x129	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1213900	M12x139	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1214900	M12x149	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1217900	M12x179	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1219900	M12x199	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	
75340B1221900	M12x219	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4	

1. The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_F=1.4$. 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 10 mm 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).

FM 753 evo

Pasador de anclaje opción 7

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads								
	Dimensiones y Valores Característicos[mm]	Recommended loads - Non-cracked concrete								Capacidad de cálculo - hormigón no fisurado (3)[kN]
	Dimensiones[mm]	Tracción - N _{reC} [kN]				Cizallamiento - V _{reC} [kN]				Momento de flexión - 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]	
75340B1223900	M12x239	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4
75340B1225900	M12x259	7.2	12.3	14.9	17.1	19.1	14.4	14.4	14.4	14.4
75340B1611000	M16x110*/**	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8
75340B1615100	M16x151	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8
75340B1617100	M16x171	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8
75340B1620100	M16x201	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8
75340B1622100	M16x221	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8
75340B1626100	M16x261	9.2	16.8	19.3	21.3	23.1	26.8	26.8	26.8	26.8

1. The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_F=1.4$. 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 10 mm 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).

FM 753 evo

Pasador de anclaje opción 7

Design capacities - single anchor - no edge distances - reduced embedment depth

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads	Datos de instalación				
	Dimensiones y Valores Característicos[mm]	Design loads - Tension & Shear - N,d[kN]	Datos de instalación	Separaciones y distancias al borde			
	Dimensiones[mm]		Profundidad de anclaje reducida[mm]	Characteristic spacing for $h_{ef,r}^{(5)}$ [mm]	Profundidad de anclaje mínima [hef]. [mm]	Min. spacing for $h_{ef,r}$ [mm]	Min. edge distance for $h_{ef,r}$
75340B0604800	M6x48*/**	5.2	30	90	45	30	40
75340B0606500	M6x65	5.2	30	90	45	30	40
75340B0608500	M6x85	5.2	30	90	45	30	40
75340B0806800	M8x68	13.4	30	90	45	40	40
75340B0807300	M8x73	13.4	30	90	45	40	40
75340B0808300	M8x83	13.4	30	90	45	40	40
75340B0809300	M8x93	13.4	30	90	45	40	40
75340B0810300	M8x103	13.4	30	90	45	40	40
75340B0811300	M8x113	13.4	30	90	45	40	40
75340B0813300	M8x133	13.4	30	90	45	40	40
75340B0816300	M8x163	13.4	30	90	45	40	40
75340B1007800	M10x78	26.6	35	105	55	50	50
75340B1008300	M10x83	26.6	35	105	55	50	50
75340B1009300	M10x93	26.6	35	105	55	50	50
75340B1010300	M10x103	26.6	35	105	55	50	50
75340B1011300	M10x113	26.6	35	105	55	50	50
75340B1012300	M10x123	26.6	35	105	55	50	50
75340B1014300	M10x143	26.6	35	105	55	50	50
75340B1017300	M10x173	26.6	35	105	55	50	50
75340B1021300	M10x213	26.6	35	105	55	50	50
75340B1210400	M12x104	46.6	50	150	75	70	70
75340B1210900	M12x109	46.6	50	150	75	70	70
75340B1211900	M12x119	46.6	50	150	75	70	70
75340B1212900	M12x129	46.6	50	150	75	70	70
75340B1213900	M12x139	46.6	50	150	75	70	70
75340B1214900	M12x149	46.6	50	150	75	70	70
75340B1217900	M12x179	46.6	50	150	75	70	70
75340B1219900	M12x199	46.6	50	150	75	70	70
75340B1221900	M12x219	46.6	50	150	75	70	70
75340B1223900	M12x239	46.6	50	150	75	70	70
75340B1225900	M12x259	46.6	50	150	75	70	70
75340B1611000	M16x110*/**	110.9	59	180	90	90	90
75340B1615100	M16x151	110.9	59	180	90	90	90
75340B1617100	M16x171	110.9	59	180	90	90	90
75340B1620100	M16x201	110.9	59	180	90	90	90
75340B1622100	M16x221	110.9	59	180	90	90	90
75340B1626100	M16x261	110.9	59	180	90	90	90

Shear value valid with distance from the edge $c > 10 \times h_{ef,r}$

FM 753 evo

Pasador de anclaje opción 7

Recommended capacities - single anchor - no edge distances - reduced embedment depth

Referencia	Dimensiones de las fijaciones metálicas	Metallic fixings loads	Datos de instalación				
	Dimensiones y Valores Característicos[mm]	carga de tracción / cizallamiento Rrec[kN]	Datos de instalación	Separaciones y distancias al borde			
	Dimensiones[mm]		Profundidad de anclaje reducida[mm]	Characteristic spacing for $h_{ef,r}^{(5)}$ [mm]	Profundidad de anclaje mínima [h_{ef}] [mm]	Min. spacing for $h_{ef,r}$ [mm]	Min. edge distance for $h_{ef,r}$
75340B0604800	M6x48*/**	1.6	30	90	45	30	40
75340B0606500	M6x65	1.6	30	90	45	30	40
75340B0608500	M6x85	1.6	30	90	45	30	40
75340B0806800	M8x68	1.7	30	90	45	40	40
75340B0807300	M8x73	1.7	30	90	45	40	40
75340B0808300	M8x83	1.7	30	90	45	40	40
75340B0809300	M8x93	1.7	30	90	45	40	40
75340B0810300	M8x103	1.7	30	90	45	40	40
75340B0811300	M8x113	1.7	30	90	45	40	40
75340B0813300	M8x133	1.7	30	90	45	40	40
75340B0816300	M8x163	1.7	30	90	45	40	40
75340B1007800	M10x78	3.4	35	105	55	50	50
75340B1008300	M10x83	3.4	35	105	55	50	50
75340B1009300	M10x93	3.4	35	105	55	50	50
75340B1010300	M10x103	3.4	35	105	55	50	50
75340B1011300	M10x113	3.4	35	105	55	50	50
75340B1012300	M10x123	3.4	35	105	55	50	50
75340B1014300	M10x143	3.4	35	105	55	50	50
75340B1017300	M10x173	3.4	35	105	55	50	50
75340B1021300	M10x213	3.4	35	105	55	50	50
75340B1210400	M12x104	5.2	50	150	75	70	70
75340B1210900	M12x109	5.2	50	150	75	70	70
75340B1211900	M12x119	5.2	50	150	75	70	70
75340B1212900	M12x129	5.2	50	150	75	70	70
75340B1213900	M12x139	5.2	50	150	75	70	70
75340B1214900	M12x149	5.2	50	150	75	70	70
75340B1217900	M12x179	5.2	50	150	75	70	70
75340B1219900	M12x199	5.2	50	150	75	70	70
75340B1221900	M12x219	5.2	50	150	75	70	70
75340B1223900	M12x239	5.2	50	150	75	70	70
75340B1225900	M12x259	5.2	50	150	75	70	70
75340B1611000	M16x110*/**	6.5	59	180	90	90	90
75340B1615100	M16x151	6.5	59	180	90	90	90
75340B1617100	M16x171	6.5	59	180	90	90	90
75340B1620100	M16x201	6.5	59	180	90	90	90
75340B1622100	M16x221	6.5	59	180	90	90	90
75340B1626100	M16x261	6.5	59	180	90	90	90

The recommended loads N,V and F derive from the mean ultimate loads and are inclusive of the total safety factor $\gamma=4$ (shear $\gamma=3$).

Shear value valid with distance from the edge $c>10 \times h_{ef,r}$

Technical Sheet

FM 753 evo

Pasador de anclaje opción 7

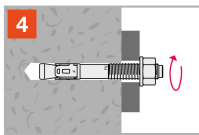
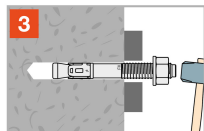
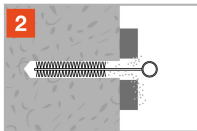
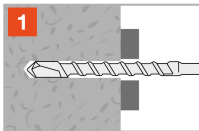
**FRÍUL
SIDER**

SIMPSON
StrongTie

FM 753 evo

Pasador de anclaje opción 7

Instalación



Spacing, Edge Distance and Member Thickness

Referencia	Dimensiones de las fijaciones metálicas				Datos de instalación						
	Dimensiones y Valores Características[mm]		Otro		Datos de instalación			Spacing and edge distances - Behar		Separaciones y dist	
	Dim									Separación característica(5) - Scr,N[mm]	Di cara bor
75340B0604800										120	
75340B0606500	M6x65	10	6	7	55	8	40	100	40	120	

Spacing, Edge Distance and
Member Thickness
See full table online →

