

Notes

Frame fixings



Multifunction frame plug MFR



SB TX, zinc plated / A4 / HD



SB SSKS, zinc plated / A4 / HD

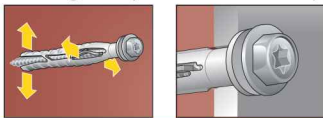


FB SSKS, zinc plated / A4



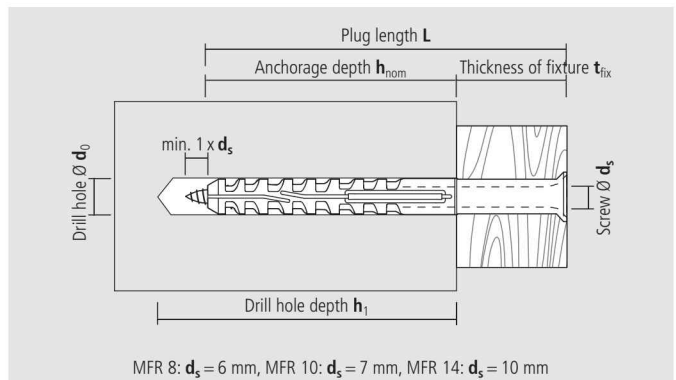
Advantages

- The multifunction frame plug MFR enables universal mounting of facade substructures as well as wood and metal parts in all common base materials
- The long expansion area and early expansion achieved by lateral bars ensure reliable and secure hold
- Approved by company Hörmann for fire protection doors
- MFR 10, MFR 14: setting depth 70 mm, MFR 8: 50 mm
- The flat rim version prevents contact corrosion
- All lengths up to 160 mm are pre-assembled

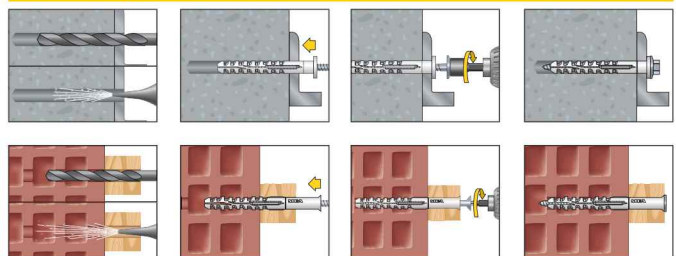


Suitable building materials

- ✓ Concrete
- ✓ Natural stone
- ✓ Solid brick
- ✓ Solid sand-lime brick
- ✓ Lightweight solid concrete blocks
- ✓ Aerated concrete
- ✓ Hollow brick
- ✓ Hollow sand-lime brick
- ✓ Lightweight hollow concrete blocks



Mounting



Watch video at www.celo-apollo.de/en

MFR 8 / 10 SB TX, zinc plated countersunk plug with countersunk screw

Type	Art-No		d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	Recess	Price	Packing	
	new	old							€/100 pcs	[pcs]	[pcs]
8-60*	9860MFRST	—	8	60	50	60	10	TX 30		100	800
8-80*	9880MFRST	—	8	60	50	80	30	TX 30		100	800
8-100*	98100MFRST	—	8	60	50	100	50	TX 30		50	400
8-120*	98120MFRST	—	8	60	50	120	70	TX 30		50	400
10-80*	91080MFRST	500638	10	80	70	80	10	TX 40		50	400
10-100*	910100MFRST	500640	10	80	70	100	30	TX 40		50	400
10-115*	910115MFRST	500642	10	80	70	115	45	TX 40		50	400
10-135*	910135MFRST	500644	10	80	70	135	65	TX 40		50	400
10-160*	910160MFRST	500646	10	80	70	160	90	TX 40		50	400
10-200	910200MFRST	500648	10	80	70	200	130	TX 40		25	200
10-240	910240MFRST	500650	10	80	70	240	170	TX 40		25	200
10-280	910280MFRST	—	10	80	70	280	210	TX 40		25	—
10-320	910320MFRST	—	10	80	70	320	250	TX 40		25	—

MFR 8 is not part of the ETA approval

* Pre-assembled

Frame fixings



Multifunction frame plug MFR



MFR 14 SB TX, zinc plated countersunk plug with countersunk screw									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
14-80*	91480MFRST	500652	14	85	70	80	10	TX 50		25	200
14-110*	914110MFRST	500654	14	85	70	110	40	TX 50		25	200
14-140*	914140MFRST	500656	14	85	70	140	70	TX 50		25	200
14-170	914170MFRST	500658	14	85	70	170	100	TX 50		25	200
14-200	914200MFRST	500660	14	85	70	200	130	TX 50		25	200
14-230	914230MFRST	500662	14	85	70	230	160	TX 50		25	200
14-270	914270MFRST	500664	14	85	70	270	200	TX 50		25	–

* Pre-assembled



MFR SB TX, stainless steel A4 countersunk plug with countersunk screw									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
8-80 A4*	9X880MFRST	–	8	60	50	80	30	TX 30		100	800
10-80 A4*	9X1080MFRST	–	10	80	70	80	10	TX 40		50	400
10-100 A4*	9X10100MFRST	–	10	80	70	100	30	TX 40		50	400
10-115 A4*	9X10115MFRST	–	10	80	70	115	45	TX 40		50	400
10-135 A4*	9X10135MFRST	–	10	80	70	135	65	TX 40		50	400
10-160 A4*	9X10160MFRST	–	10	80	70	160	90	TX 40		50	400

MFR 8 is not part of the ETA approval

* Pre-assembled



MFR SB TX, hot-dip galvanized countersunk plug with countersunk screw									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
10-100 HD*	9HD10100MFRST	–	10	80	70	100	30	TX 40		50	400
10-135 HD*	9HD10135MFRST	–	10	80	70	135	65	TX 40		50	400
10-160 HD*	9HD10160MFRST	–	10	80	70	160	90	TX 40		50	400

Hot-dip galvanized is not part of the ETA approval

* Pre-assembled

Frame fixings



Multifunction frame plug MFR



MFR SB SSKS, zinc plated countersunk plug, hex-head screw with integral washer									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Drive/ Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
8-60*	9860MFRSB	—	8	60	50	60	10	SW10/TX 30		100	800
8-80*	9880MFRSB	—	8	60	50	80	30	SW10/TX 30		100	800
8-100*	98100MFRSB	—	8	60	50	100	50	SW10/TX 30		50	400
8-120*	98120MFRSB	—	8	60	50	120	70	SW10/TX 30		50	400
10-80*	91080MFRSB	500666	10	80	70	80	10	SW13/TX 40		50	400
10-100*	910100MFRSB	500668	10	80	70	100	30	SW13/TX 40		50	400
10-115*	910115MFRSB	500670	10	80	70	115	45	SW13/TX 40		50	400
10-135*	910135MFRSB	500672	10	80	70	135	65	SW13/TX 40		50	400
10-160*	910160MFRSB	500674	10	80	70	160	90	SW13/TX 40		50	400
10-200	910200MFRSB	500676	10	80	70	200	130	SW13/TX 40		25	200
10-240	910240MFRSB	500678	10	80	70	240	170	SW13/TX 40		25	200
14-80*	91480MFRSB	500680	14	85	70	80	10	SW17/TX 50		25	200
14-110*	914110MFRSB	500694	14	85	70	110	40	SW17/TX 50		25	200
14-140*	914140MFRSB	500692	14	85	70	140	70	SW17/TX 50		25	200
14-170	914170MFRSB	500686	14	85	70	170	100	SW17/TX 50		25	200
14-200	914200MFRSB	500688	14	85	70	200	130	SW17/TX 50		25	200
14-230	914230MFRSB	500690	14	85	70	230	160	SW17/TX 50		25	200
14-270	914270MFRSB	500800	14	85	70	270	200	SW17/TX 50		25	—

MFR 8 is not part of the ETA approval

* Pre-assembled



MFR SB SSKS, stainless steel A4 countersunk plug, hex-head screw with integral washer									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Drive/ Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
10-80 A4*	9X1080MFRSB	—	10	80	70	80	10	SW13/TX 40		50	400
10-100 A4*	9X10100MFRSB	—	10	80	70	100	30	SW13/TX 40		50	400
10-115 A4*	9X10115MFRSB	—	10	80	70	115	45	SW13/TX 40		50	400
10-135 A4*	9X10135MFRSB	—	10	80	70	135	65	SW13/TX 40		50	400
10-160 A4*	9X10160MFRSB	—	10	80	70	160	90	SW13/TX 40		50	400

* Pre-assembled



MFR SB SSKS, hot-dip galvanized countersunk plug, hex-head screw with integral washer									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Drive/ Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
10-100 HD*	9HD10100MFRSB	—	10	80	70	100	30	SW13/TX 40		50	400
10-135 HD*	9HD10135MFRSB	—	10	80	70	135	65	SW13/TX 40		50	400
10-160 HD*	9HD10160MFRSB	—	10	80	70	160	90	SW13/TX 40		50	400

Hot-dip galvanized is not part of the ETA approval

* Pre-assembled

Frame fixings



Multifunction frame plug MFR



MFR FB SSKS, zinc plated flat rim plug, hex-head screw with integral washer									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Drive/Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
8-60*	9860MFRFB	—	8	60	50	60	10	SW10/TX 30		100	800
8-80*	9880MFRFB	—	8	60	50	80	30	SW10/TX 30		100	800
10-80*	91080MFRFB	500684	10	80	70	80	10	SW13/TX 40		50	400
10-100*	910100MFRFB	500682	10	80	70	100	30	SW13/TX 40		50	400
14-80*	91480MFRFB	500696	14	85	70	80	10	SW17/TX 50		25	200
14-110*	914110MFRFB	500698	14	85	70	110	40	SW17/TX 50		25	200
14-140*	914140MFRFB	500700	14	85	70	140	70	SW17/TX 50		25	200

MFR 8 is not part of the ETA approval

* Pre-assembled



MFR FB SSKS, stainless steel A4 flat rim plug, hex-head screw with integral washer									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	Drive/Recess	€/100 pcs	[pcs]	[pcs]
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]				
10-80 A4*	9X1080MFRFB	—	10	80	70	80	10	SW13/TX 40		50	400
10-100 A4*	9X10100MFRFB	—	10	80	70	100	30	SW13/TX 40		50	400

* Pre-assembled

Loads MFR 8 F _{rec}							
Type	Concrete ≥ C16/20 F _{rec} [kN]	Solid brick MZ 12 F _{rec} [kN]	Solid sand-lime brick KS 12 F _{rec} [kN]	Aerated concrete		Hollow brick HLZ 12 F _{rec} [kN]	Hollow sand-lime brick KSL 12 F _{rec} [kN]
				P2 F _{rec} [kN]	P4 F _{rec} [kN]		
MFR 8	1,60	0,70	1,20	0,15	0,30	0,24	0,40

MFR 8 is not part of the ETA approval

F_{rec}: Recommended loads incl. safety factor of 7

Loads MFR 10/14 F _{per}											
Type	Concrete		Solid brick		Solid sand-lime brick		Hollow brick	Hollow sand-lime brick	Aerated concrete		
	≥ C16/20		MZ 10	MZ 20	KS 10	KS 20	HLz 12	KSL 12	AAC2	AAC4	AAC6
	N _{per} [kN]	V _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]	F _{per} [kN]
MFR 10	1,59	4,05	0,57	0,86	0,57	0,86	0,21	0,26	0,14	0,43	0,71
MFR 14	1,79	7,24	0,86	1,29	0,86	1,29	0,21	0,34	0,11	0,43	0,71

F_{per} resp. N_{per}, V_{per}: F_{per} = permissible load in all directions, N_{per} = permissible tension load, V_{per} = permissible shear load for galvanized screws according to ETA approval
Values apply to an average temperature range in the wall of max. + 24° C (temporarily + 40° C).

If the sustained average temperature is +50° C (temporarily +80° C) load capacities are reduced. In this case, refer to the approval.

For further information regarding masonry (brick types and sizes) please refer to the approval.

Spacing and edge distance												
Type	Distances	Concrete ≥ C16/20	Solid brick MZ/ Solid brick KS		Hollow brick HLZ/ Hollow sand-lime brick KSL		AAC2		AAC4		AAC6	
		[mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]
MFR 10	Axial spacing s/s _{2,min} parallel to edge	50	250	400	250	400	250	200	250	300	250	400
MFR 14		100	250	400	250	480*/400	250	200	250	300	250	400
MFR 10	Axial spacing s/s _{1,min} perpendicular to edge	50	250	400	250	200	250	100	250	150	250	200
MFR 14		100	250	400	250	240*/200	250	100	250	150	250	200
MFR 10	Min. edge distance c _{min}	60	100	100	100	100	50	50	75	75	100	100
MFR 14		100	100	100	120*/100	120*/100	50	50	75	75	100	100
MFR 10	Min. thickness of structural part h _{min}	110	115	115	115	115	100	100	100	100	100	100
MFR 14		120	115	115	240	240	100	100	100	100	100	100

* Value applies to HLZ