

# CELO

**Multifunction  
frame plug  
MFR**



# Multifunction frame plug MFR



## Assortment



SB TX

- zinc plated
- stainless steel A4
- hot-dip galvanized



SB SSKS

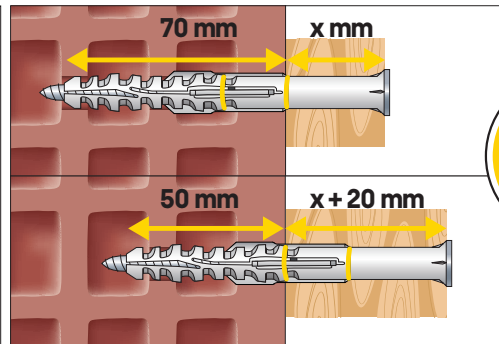
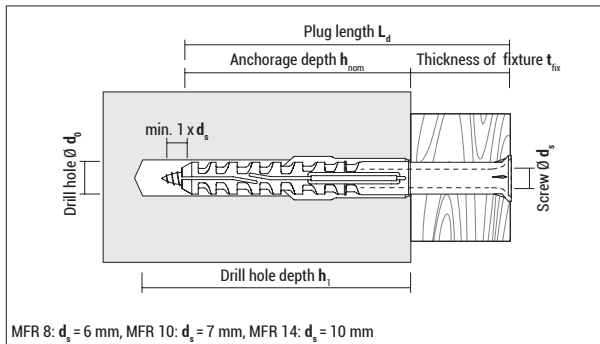
- zinc plated
- stainless steel A4
- hot-dip galvanized



FB SSKS

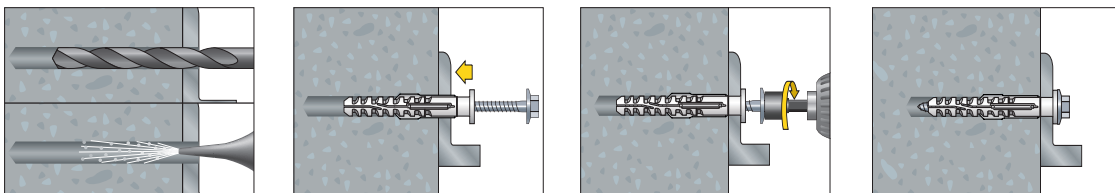
- zinc plated
- stainless steel A4

## Mounting

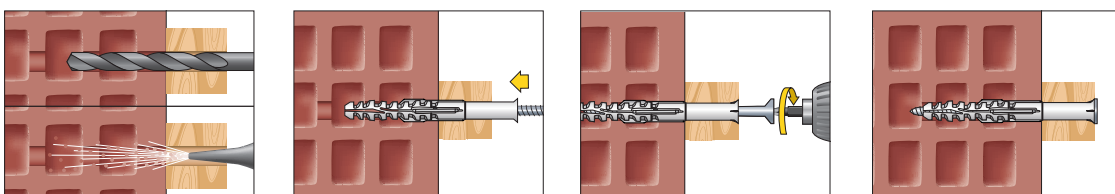


**MFR 10:**  
Now with two  
setting depths

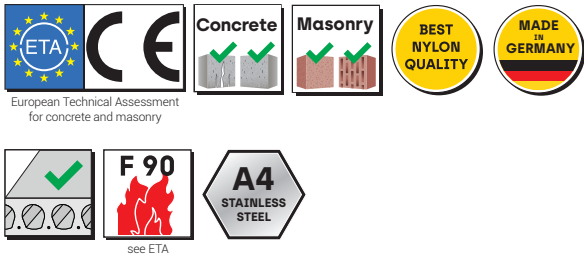
### Mounting flat rim plug with hex-head screw with integral washer



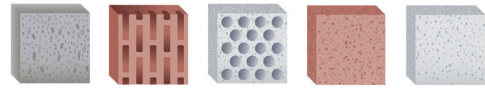
### Mounting countersunk plug with countersunk screw



### Approvals and certificates



### Suitable building materials



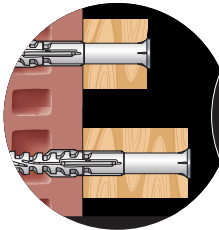
- Concrete
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Hollow brick
- Hollow sand-lime brick



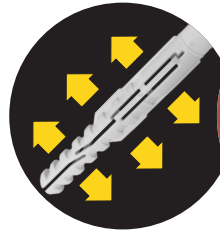
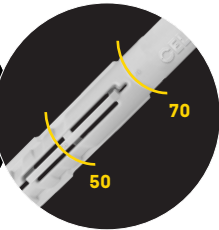
- Precast prestressed hollow core slabs
- Lightweight hollow concrete blocks
- Natural stone
- Lightweight solid concrete blocks

Approved for **all** base material groups (see ETA)!

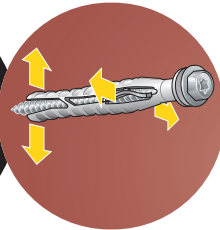
## MFR 10 Advantages



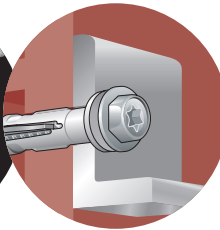
Setting depth 50 mm and 70 mm for a big variety of applications



Long expansion area and early expansion achieved by **lateral bars** ensure **secure hold**



Flat rim plug prevents **contact corrosion**

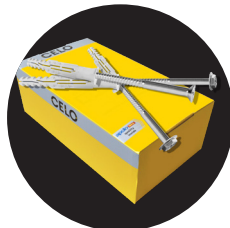


Countersunk plug for **smooth mounting** in fixture



**Wide range:**

- zinc plated
- stainless steel A4
- hot-dip galvanized



All lengths **pre-assembled**



**European Technical Assessment** for concrete and masonry [see ETA]



## MFR 10 Application examples



Suitable for metal façade substructures



Suitable for wooden façade substructures



Approved for precast prestressed hollow core slabs



Approved by company Hörmann for **fire protection doors** in solid building materials

# MFR Assortment



Countersunk plug  
TX-Countersunk screw

SB  
TX



**MFR SB TX, zinc plated** countersunk plug with countersunk screw

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	ETA	[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
10-60	91060MFRST	10	60	50	60	10	TX 40	●	50	400
10-80	91080MFRST	10	60/80	50/70	80	30/10	TX 40	●	50	400
10-100	910100MFRST	10	60/80	50/70	100	50/30	TX 40	●	50	400
10-115	910115MFRST	10	60/80	50/70	115	65/45	TX 40	●	50	400
10-135	910135MFRST	10	60/80	50/70	135	85/65	TX 40	●	50	400
10-160	910160MFRST	10	60/80	50/70	160	110/90	TX 40	●	50	400
10-200	910200MFRST50	10	60/80	50/70	200	150/130	TX 40	●	50	-
10-240	910240MFRST50	10	60/80	50/70	240	190/170	TX 40	●	50	-
10-280	910280MFRST50	10	60/80	50/70	280	230/210	TX 40	●	50	-
10-320	910320MFRST50	10	60/80	50/70	320	270/250	TX 40	●	50	-
14-80	91480MFRST	14	85	70	80	10	TX 50	●	25	200
14-110	914110MFRST	14	85	70	110	40	TX 50	●	25	200
14-140	914140MFRST	14	85	70	140	70	TX 50	●	25	200
14-170*	914170MFRST	14	85	70	170	100	TX 50	●	25	200
14-200*	914200MFRST	14	85	70	200	130	TX 50	●	25	200
14-230*	914230MFRST	14	85	70	230	160	TX 50	●	25	200
14-270*	914270MFRST	14	85	70	270	200	TX 50	●	25	-

\* not pre-assembled



**MFR SB TX, stainless steel A4** countersunk plug with countersunk screw



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	ETA	[pcs]	[pcs]
8-80 A4	9X880MFRST	8	60	50	80	30	TX 30	●	100	800
8-100 A4	9X8100MFRST	8	60	50	100	50	TX 30	●	50	400
10-60 A4	9X1060MFRST	10	60	50	60	10	TX40	●	50	400
10-80 A4	9X1080MFRST	10	60/80	50/70	80	30/10	TX 40	●	50	400
10-100 A4	9X10100MFRST	10	60/80	50/70	100	50/30	TX 40	●	50	400
10-115 A4	9X10115MFRST	10	60/80	50/70	115	65/45	TX 40	●	50	400
10-135 A4	9X10135MFRST	10	60/80	50/70	135	85/65	TX 40	●	50	400
10-160 A4	9X10160MFRST	10	60/80	50/70	160	110/90	TX 40	●	50	400
10-200 A4	9X10200MFRST	10	60/80	50/70	200	150/130	TX 40	●	50	-



**MFR SB TX, hot-dip galvanized** countersunk plug with countersunk screw

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	[pcs]	[pcs]
10-100 HD	9HD10100MFRST	10	60/80	50/70	100	50/30	TX 40	50	400
10-135 HD	9HD10135MFRST	10	60/80	50/70	135	85/65	TX 40	50	400
10-160 HD	9HD10160MFRST	10	60/80	50/70	160	110/90	TX 40	50	400

Hot-dip galvanized is not part of the ETA assessment

# MFR Assortment



**Countersunk plug  
Hex-head screw**  
with integral washer and TX recess

**SB  
SSKS**



washer-Ø MFR 8: 17 mm; MFR 10: 19 mm; MFR 14: 22 mm

**MFR SB SSKS, zinc plated** countersunk plug, hex-head screw with integral washer

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	ETA	[pcs]	[pcs]
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
10-60	91060MFRSB	10	60	50	60	10	SW13/TX 40	●	50	400
10-80	91080MFRSB	10	60 / 80	50 / 70	80	30 / 10	SW13/TX 40	●	50	400
10-100	910100MFRSB	10	60 / 80	50 / 70	100	50 / 30	SW13/TX 40	●	50	400
10-115	910115MFRSB	10	60 / 80	50 / 70	115	65 / 45	SW13/TX 40	●	50	400
10-135	910135MFRSB	10	60 / 80	50 / 70	135	85 / 65	SW13/TX 40	●	50	400
10-160	910160MFRSB	10	60 / 80	50 / 70	160	110 / 90	SW13/TX 40	●	50	400
10-200	910200MFRSB50	10	60 / 80	50 / 70	200	150 / 130	SW13/TX 40	●	50	-
10-240	910240MFRSB50	10	60 / 80	50 / 70	240	190 / 170	SW13/TX 40	●	50	-
14-80	91480MFRSB	14	85	70	80	10	SW17/TX 50	●	25	200
14-110	914110MFRSB	14	85	70	110	40	SW17/TX 50	●	25	200
14-140	914140MFRSB	14	85	70	140	70	SW17/TX 50	●	25	200
14-170*	914170MFRSB	14	85	70	170	100	SW17/TX 50	●	25	200
14-200*	914200MFRSB	14	85	70	200	130	SW17/TX 50	●	25	200
14-230*	914230MFRSB	14	85	70	230	160	SW17/TX 50	●	25	-
14-270*	914270MFRSB	14	85	70	270	200	SW17/TX 50	●	25	-

\* not pre-assembled



washer-Ø MFR 10: 19 mm



**MFR SB SSKS, stainless steel A4** countersunk plug, hex-head screw with integral washer

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	ETA	[pcs]	[pcs]
10-60 A4	9X1060MFRSB	10	60	50	60	10	SW13/TX 40	●	50	400
10-80 A4	9X1080MFRSB	10	60 / 80	50 / 70	80	30 / 10	SW13/TX 40	●	50	400
10-100 A4	9X10100MFRSB	10	60 / 80	50 / 70	100	50 / 30	SW13/TX 40	●	50	400
10-115 A4	9X10115MFRSB	10	60 / 80	50 / 70	115	65 / 45	SW13/TX 40	●	50	400
10-135 A4	9X10135MFRSB	10	60 / 80	50 / 70	135	85 / 65	SW13/TX 40	●	50	400
10-160 A4	9X10160MFRSB	10	60 / 80	50 / 70	160	110 / 90	SW13/TX 40	●	50	400
10-200 A4	9X10200MFRSB	10	60 / 80	50 / 70	200	150 / 130	SW13/TX 40	●	50	-



washer-Ø MFR 10: 19 mm

**MFR SB SSKS, hot-dip galvanized** countersunk plug, hex-head screw with integral washer

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	[pcs]	[pcs]
10-100 HD	9HD10100MFRSB	10	60 / 80	50 / 70	100	50 / 30	SW13/TX 40	50	400
10-135 HD	9HD10135MFRSB	10	60 / 80	50 / 70	135	85 / 65	SW13/TX 40	50	400
10-160 HD	9HD10160MFRSB	10	60 / 80	50 / 70	160	110 / 90	SW13/TX 40	50	400

Hot-dip galvanized is not part of the ETA assessment

# MFR Assortment



**Flat rim plug  
Hex-head screw**  
with integral washer and TX recess

**FB  
SSKS**



washer-Ø MFR 8: 17 mm; MFR 10: 19 mm; MFR 14: 22 mm

**MFR FB SSKS, zinc plated** flat rim plug, hex-head screw with integral washer

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess		 [pcs]	 [pcs]
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
10-60	91060MFRFB	10	60	50	60	10	SW13/TX 40	●	50	400
10-80	91080MFRFB	10	60 / 80	50 / 70	80	30 / 10	SW13/TX 40	●	50	400
10-100	910100MFRFB	10	60 / 80	50 / 70	100	50 / 30	SW13/TX 40	●	50	400
14-80	91480MFRFB	14	85	70	80	10	SW17/TX 50	●	25	200
14-110	914110MFRFB	14	85	70	110	40	SW17/TX 50	●	25	200
14-140	914140MFRFB	14	85	70	140	70	SW17/TX 50	●	25	200



washer-Ø MFR 10: 19 mm

**MFR FB SSKS, stainless steel A4** flat rim plug, hex-head screw with integral washer



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess		 [pcs]	 [pcs]
10-60 A4	9X1060MFRFB	10	60	50	60	10	SW13/TX 40	●	50	400
10-80 A4	9X1080MFRFB	10	60 / 80	50 / 70	80	30 / 10	SW13/TX 40	●	50	400
10-100 A4	9X10100MFRFB	10	60 / 80	50 / 70	100	50 / 30	SW13/TX 40	●	50	400

# MFR Blisters



**Blister MFR SB TX, zinc plated** Countersunk plug with countersunk screw



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	Type of screw		 [pcs]	 [Blister]
8-60	5860MFRST4	8	60	50	60	10	TX 30		●	4	10
8-80	5880MFRST4	8	60	50	80	30	TX 30		●	4	10
10-60	51060MFRST4	10	60	50	60	10	TX 40		●	4	10
10-80	51080MFRST4	10	60 / 80	50 / 70	80	30 / 10	TX 40		●	4	10
10-100	510100MFRST4	10	60 / 80	50 / 70	100	50 / 30	TX 40		●	4	10
10-115	510115MFRST4	10	60 / 80	50 / 70	115	65 / 45	TX 40		●	4	10
10-135	510135MFRST4	10	60 / 80	50 / 70	135	85 / 65	TX 40		●	4	10
10-160	510160MFRST4	10	60 / 80	50 / 70	160	110 / 90	TX 40		●	4	10



**Blister MFR SB SSKS, zinc plated** Countersunk plug, hex-head screw with integral washer



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	Type of screw	ETA	[pcs]	[Blister]
8-60	5860MFRSB4	8	60	50	60	10	SW10/TX 30			4	10
10-80	51080MFRSB4	10	60/80	50/70	80	30/10	SW13/TX 40			4	10
10-100	510100MFRSB4	10	60/80	50/70	100	50/30	SW13/TX 40			4	10
10-115	510115MFRSB4	10	60/80	50/70	115	65/45	SW13/TX 40			4	10
10-135	510135MFRSB4	10	60/80	50/70	135	85/65	SW13/TX 40			4	10
10-160	510160MFRSB4	10	60/80	50/70	160	110/90	SW13/TX 40			4	10



**Blister MFR FB SSKS, zinc plated** flat rim plug, hex-head screw with integral washer



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>nom</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Recess	Type of screw	ETA	[pcs]	[Blister]
8-80	5880MFRFB4	8	60	50	80	30	SW10/TX 30			4	10
10-60	51060MFRFB4	10	60	50	60	10	SW13/TX 40			4	10

**Loads MFR F<sub>per</sub>**

Type	Anchorage depth h <sub>nom</sub> [mm]	Concrete		Solid brick		Solid sand-lime brick		Hollow brick	Hollow sand-lime brick	Hollow concrete block	Aerated concrete			Precast pre-stressed hollow core slabs C45/55	Permissible bending moment for zinc plated screws
		≥ C16/20 N <sub>per</sub> [kN] V <sub>per</sub> [kN]		Mz 10 F <sub>per</sub> [kN]	Mz 20 F <sub>per</sub> [kN]	KS 10 F <sub>per</sub> [kN]	KS 20 F <sub>per</sub> [kN]	HLz 12 F <sub>per</sub> [kN]	KSL 12 F <sub>per</sub> [kN]	Hbn 25 F <sub>per</sub> [kN]	AAC2 F <sub>per</sub> [kN]	AAC4 F <sub>per</sub> [kN]	AAC6 F <sub>per</sub> [kN]	N <sub>per</sub> [kN]	M <sub>per</sub> [Nm]
MFR 8	50	0,99	3,31	0,26	0,43	0,57	0,86	0,14	0,21	0,34	-	-	-	1,39	5,03
MFR 10	50	0,99	4,86	0,57	0,86	0,71	1,14	0,34	0,43	0,71	-	-	-	0,79	8,74
MFR 10	70	1,59	4,86	0,57	0,86	0,57	0,86	0,21	0,26	0,21	0,14	0,43	0,71	0,48	8,74
MFR 14	70	1,79	8,69	0,86	1,29	0,86	1,29	0,21	0,34	-	0,11	0,43	0,71	-	20,97

Permissible load in all directions, N<sub>per</sub> = permissible tension load, V<sub>per</sub> = permissible shear load according to ETA assessment for zinc plated screws (For MFR with hot-dip galvanized screw. These values can be used as recommended loads). 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 assessment.

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

**Spacing and edge distance**

Type	Anchorage depth h <sub>nom</sub> [mm]	Distances	Concrete ≥ C16/20	Solid brick Mz/ Solid brick KS		Hollow brick HLz/ Hollow sand-lime brick KSL		Aerated concrete					
			[mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]	AAC2		AAC4		AAC6	
								single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]	single plug [mm]	group of plugs [mm]
MFR 8	50	Spacing a / s <sub>2min</sub> parallel to edge	50	250	400	250	400	-	-	-	-	-	-
MFR 10	50		50	250	400	250	200	-	-	-	-	-	-
MFR 10	70		50	250	400	250	400	250	200	250	300	250	400
MFR 14	70		100	250	400	250	480*/400	250	200	250	300	250	400
MFR 8	50	Spacing a / s <sub>1min</sub> perpendicular to edge	50	250	200	250	200	-	-	-	-	-	-
MFR 10	50		50	250	200	250	200	-	-	-	-	-	-
MFR 10	70		50	250	200	250	200	250	100	250	150	250	200
MFR 14	70		100	250	200	250	240*/200	250	100	250	150	250	200
MFR 8	50	Min. edge distance c <sub>min</sub>	60	100	100	100	100	-	-	-	-	-	-
MFR 10	50		50	100	100	100	100	-	-	-	-	-	-
MFR 10	70		60	100	100	100	100	50	50	75	75	100	100
MFR 14	70		100	100	100	120*/100	120*/100	50	50	75	75	100	100
MFR 8	50	Min. thickness of structural part h <sub>min</sub>	100					-	-	-	-	-	-
MFR 10	50		100	depending on brick format	depending on brick format			-	-	-	-	-	-
MFR 10	70		110					100	100	100	100	100	100
MFR 14	70		120					100	100	100	100	100	100

\* Value applies to HLz



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## Small Things Matter

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