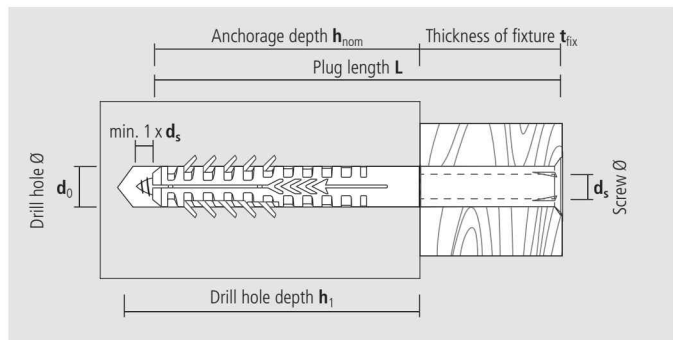


Frame fixings



Hollow block frame plug HBR



Advantages

- ETA approved specialised frame plug for perforated building materials like hollow bricks and blocks
- Setting depth 90 mm: High pull out loads due to long expansion area and high expansion ability in perforated bricks
- The HBR is suitable for facade installations, fixing of doors and windows, wall cabinets and frames in general
- The HBR 10 is approved only in conjunction with the Apolo MEA safety screws

Suitable building materials

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



HBR without screw

Type	Art-No		d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	d _s [mm]	Price €/ 100 pcs	Packing	
	new	old								[pcs]	[pcs]
8-80*	9880HBR	500431	8	80	70	80	10	5-6		50	900
10-100	910100HBR	500433	10	100	90	100	10	6-7		100	800
10-115	910115HBR	500432	10	100	90	115	25	6-7		100	800
10-135	910135HBR	500435	10	100	90	135	45	6-7		50	400
10-160	910160HBR	500437	10	100	90	160	70	6-7		50	400
10-200	910200HBR	500440	10	100	90	200	110	6-7		50	400
10-240	910240HBR	500442	10	100	90	240	150	6-7		50	400

* Not part of the approval; HBR 10 approved only in conjunction with Apolo MEA safety screw



HBR 8 SP, zinc plated with countersunk wood screw (PZ 3)

Type	Art-No		d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	L [mm]	t _{fix} ≤ [mm]	d _s [mm]	Price €/ 100 pcs	Packing	
	new	old								[pcs]	[pcs]
8-80 SP*	9880HBRSZ	500208	8	80	70	80	10	5,5		25	450

* Not part of the approval

Frame fixings



Hollow block frame plug HBR



HBR 10 SP, zinc plated with countersunk screw (PZ 4)									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	d _s	€/100 pcs		
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[pcs]	[pcs]
10-100 SSP	910100HBRSZ	500310	10	100	90	100	10	7		50	400
10-115 SSP	910115HBRSZ	500311	10	100	90	115	25	7		50	400
10-135 SSP	910135HBRSZ	500313	10	100	90	135	45	7		50	400
10-160 SSP	910160HBRSZ	500316	10	100	90	160	70	7		50	400



HBR 10 TX, zinc plated with countersunk screw (TX 40)									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	d _s	€/100 pcs		
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[pcs]	[pcs]
10-100 TX	910100HBRST	501340	10	100	90	100	10	7		50	400
10-115 TX	910115HBRST	501341	10	100	90	115	25	7		50	400
10-135 TX	910135HBRST	501342	10	100	90	135	45	7		50	400
10-160 TX	910160HBRST	501344	10	100	90	160	70	7		50	400
10-200 TX	910200HBRST	501347	10	100	90	200	110	7		25	200
10-240 TX	910240HBRST	501349	10	100	90	240	150	7		25	200



HBR 10 SSK, zinc plated with hex-head screw with integral washer (SW13/TX40)									Price	Packing	
Type	Art-No		d ₀	h ₁ ≥	h _{nom} ≥	L	t _{fix} ≤	d _s	€/100 pcs		
	new	old	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[pcs]	[pcs]
10-100 SSK	910100HBRSB		10	100	90	100	10	7		50	400
10-115 SSK	910115HBRSB		10	100	90	115	25	7		50	400
10-135 SSK	910135HBRSB		10	100	90	135	45	7		50	400
10-160 SSK	910160HBRSB		10	100	90	160	70	7		50	400
10-200 SSK	910200HBRSB		10	100	90	200	110	7		25	200
10-240 SSK	910240HBRSB		10	100	90	240	150	7		25	–

Loads F_{per} and F_{rec}

Type	Solid sandlime brick ≥ KS12		Hollow brick ≥ HLz 12		Hollow sand-lime brick ≥ KSL 12		Hollow concrete blocks Hbl 2		Lightweight solid concrete blocks V2		Permissible bending moment for zinc plated screws [Nm]
	F _{per} [kN]	F _{rec} [kN]	F _{per} [kN]	F _{rec} [kN]	F _{per} [kN]	F _{rec} [kN]	F _{per} [kN]	F _{rec} [kN]	F _{per} [kN]	F _{rec} [kN]	
HBR 8	–	1,30	–	0,40	–	0,50	–	0,37	–	0,37	4,5
HBR 10	0,86	–	0,34	–	0,21	–	0,11	–	–	0,25	13,0

F_{per}: Permissible load in all directions according to ETA approval incl. safety factor

F_{rec}: Recommended load in all directions incl. safety factor

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

pe	Distances	Solid sandlime brick KS		Hollow brick HLz		Hollow sand-lime brick KSL		Hollow concrete blocks Hbl*	
		single plug s	group of plugs s ₁ or s ₂	single plug s	group of plugs s ₁ or s ₂	single plug s	group of plugs	single plug s	group of plugs
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
HBR 10	Axial spacing parallel to edge s or s ₂	250	400	250	320	250	360	250	200
HBR 10	Axial spacing perpendicular to edge s or s ₁	250	200	250	160	250	180	250	100
HBR 10	Min. edge distance c _{min}	100	–	80	–	80	–	50	–
HBR 10	Min. thickness of structural part h _{min}	175	175	175	175	175	175	240	240

* Applies to the installation on the long side of the stone