

CELO

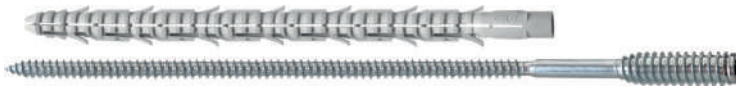
Window fixings



Window-fixing set FB

Extra long plug and screw for hollow bricks with large chambers

Assortment



Suitable building materials

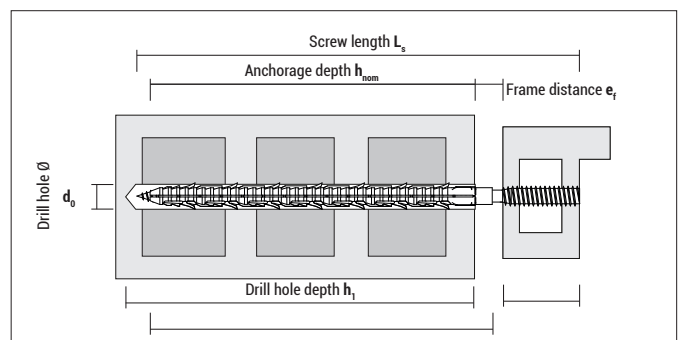
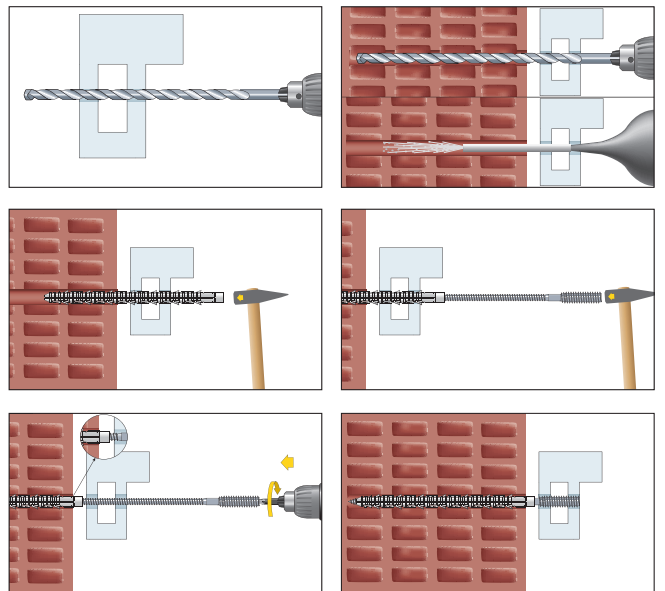


- Aerated concrete
- Hollow brick
- Hollow sand-lime brick
- Lightweight hollow concrete blocks

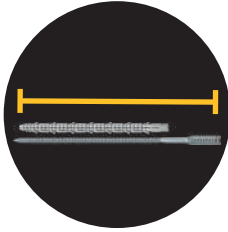
Approvals and certificates



Mounting



Advantages



FB set - consisting of an extra-long plug and a screw - enables **secure and tension-free installation**



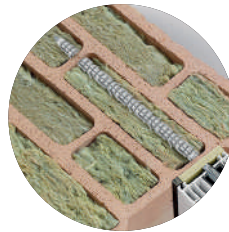
System tested by the **ift Rosenheim** with frame distance 20 mm



Ideally suited for mounting **windows and doors**



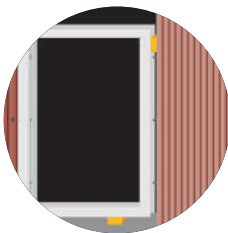
Solution for thin-walled lightweight bricks with large chambers, in which normal window construction screws do not find enough hold



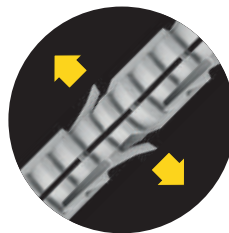
The great length of the set ensures that **the plug is always held in at least two webs of the brick**



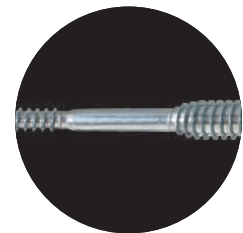
Absorbs the thermal movements of the window, especially with large window elements - **therefore no subsequent adjustment of the sash is necessary**



When fastening the window using the FB-set, **there's no need for lateral spacers in the fastening area**



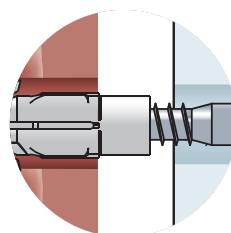
Outstanding twist resistance of the plug thanks to pronounced anti-rotation wings and optimum expansion



Distance screw with enlarged shank diameter for increased bending moment

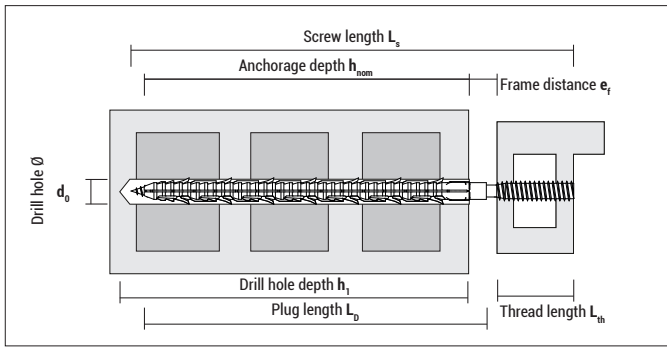


45 mm (Ø11 mm) retaining thread - for secure fixing of timber, aluminium and PVC-U windows as well as framed doors



Setting depth marking on the plug for quick installation

Window-fixings set FB



FB

Type	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} [mm]	L _p [mm]	L _s [mm]	L _{th} [mm]	Screw drive	€ / 100 pcs	[pcs]	[pcs]
Set FB	910190280FB50	10	220	190	200	280	45	TX30		50	200

Loads for window fastening in the reveal with Set FB for various base materials

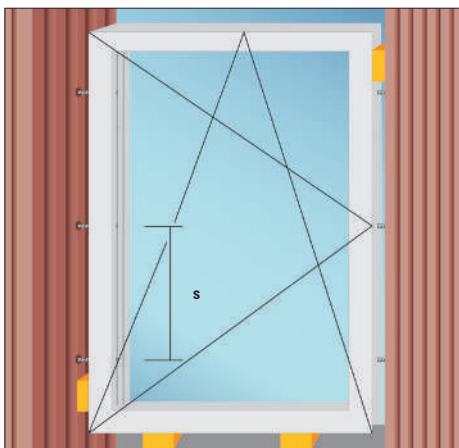
		Stone type					
		Schlagmann Poroton S8	Wienerberger Poroton T8	Schlagmann Poroton S7	Wienerberger Poroton S9	Schlagmann Poroton T7	Porenbeton Ytong PP2-0,35
Compressive strength class	N/mm ²	10	6	8	10	6	2
Tension load	F _{rec} [kN]	0,38	0,31	0,30	0,28	0,06	0,54
Shear load Maximum deflection 3 mm	V _{rec} [kN]	0,39	0,29	0,38	0,37	0,19	0,22

The recommended loads include the following safety factors: $\gamma_M = 2,5$ for brick, $\gamma_M = 2$ for aerated concrete. In addition, the partial safety factor of the impact of $\gamma_F = 1,4$ is taken into account.

Spacing and edge distance

Type	min. edge distance [mm]	Frame distance e _f ≤ [mm]	Plug distance in masonry s [mm]
Set FB	130	20	depending on static requirements mind. 250 mm

The windows must be installed in accordance with the applicable regulations of the EnEV and the installation guidelines of the RAL Quality Association for Windows and Front Doors.



Example: Turn-tilt window left

Window protection

ProtectFIX®

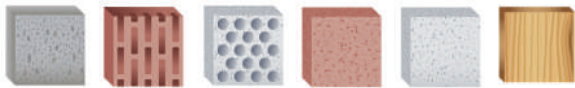
for fall protection and burglary resistance



Assortment



Suitable building materials



- Concrete
- Natural stone
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Hollow brick
- Hollow sand-lime brick
- Wood

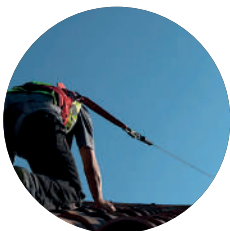
Approvals and certificates



Test report about burglary resistance class RC2



Test report according to DIN 18008-4 Cat.A



Tested window installation system for **fall protection according to ETB guideline**



Tested according to **burglary resistance class RC2**
[even for base materials with a compressive strength < 12, min. Poroton brick T8 or aerated concrete AAC2]



First retrofittable system on the market



Quick and easy installation saves costs



Tested system with an **edge distance of only 35 mm**



Only 3 mm material thickness ensures an easy installation with multifunctional sealing tapes

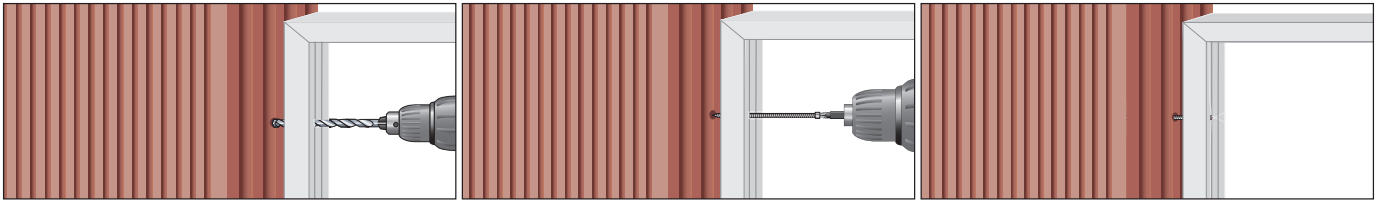


Four different positioning options for more flexibility during the installation

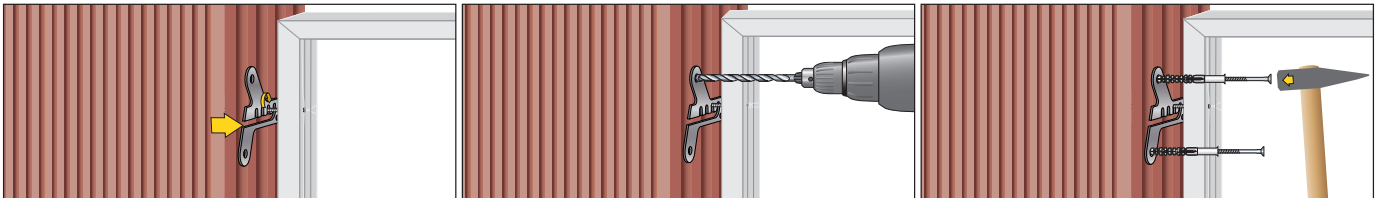


No pressure-resistant backfilling necessary

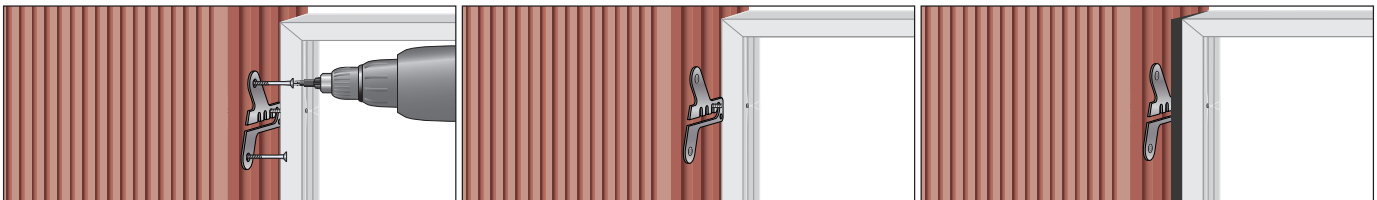
Mounting in hollow brick



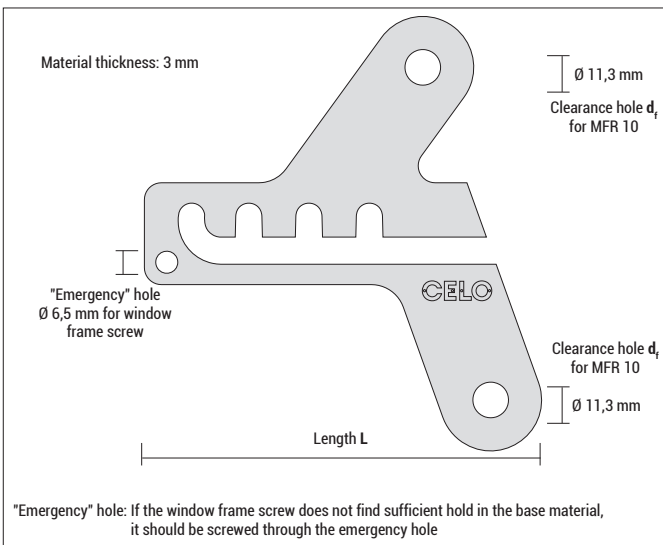
1. Place the window in the wall opening, adjust and drill holes. (for hollow brick and aerated concrete without impact).
2. Fix the window with window frame screws FBS-Z (distance between the window frame screws max. 400 mm, edge distance to the outer wall ≥ 35 mm)
3. Common window installation is finished.



4. Hang ProtectFIX® on the window frame screw FBS-Z from the inside or outside. Position the screw in one of the four grooves and align the ProtectFIX horizontally.
5. Drill holes with $\varnothing 10$ mm.
6. Secure ProtectFIX® with two CELO multifunction frame plugs MFR SB 10-80 TX in the base material. To do this, hammer-in the MFR lightly into the drill hole up to the sleeve of the plug.



7. After hammer-in, screw in the MFR screws flush onto the ProtectFIX®.
 8. Installation with ProtectFIX® is finished and the fixing point is secured.
- Note:** ProtectFIX® can easily be used in combination with multifunctional sealing tapes, because the thickness of the ProtectFIX is only 3 mm



ProtectFIX®, zinc plated

Type	Art-No	Box contains	Length L [mm]	Material thickness [mm]	[pcs]	[pcs]
PFIX, bulk	G117PF	100x ProtectFIX® window support metal bracket 117	117	3	100	-



6x ProtectFIX®

Window support metal bracket



12x MFR

6x FBS-Z

Set ProtectFIX®, zinc plated

Type	Art-No	Set contains (packed in bag)	Length L [mm]	Material thickness [mm]	[pcs]	[pcs]
PFIX, Set, FBSZ152	117PF152FBSZ6	6x ProtectFIX® Window support metal bracket 117 12x Multifunction frame plug MFR SB 10x80 TX 6x Window frame screw FBS-Z 7,5x152	117	3	1	10
PFIX, Set, FBSZ212*	117PF212FBSZ6	6x ProtectFIX® Window support metal bracket 117 12x Multifunction frame plug MFR SB 10x80 TX 6x Window frame screw FBS-Z 7,5x212	117	3	1	10

1. Set with FBS-Z 7,5x152: for base materials with a compressive strength ≥ 12 , e.g. sand-lime brick, perforated bricks according DIN 1053-1 and concrete with a minimum strength class C10/15.
2. Set with FBS-Z 7,5x212: for base materials with a compressive strength < 12 , min. perforated brick Poroton T8, aerated concrete AAC2.

* The window frame screw FBS-Z must penetrate min. 2 brick walls.

Window frame screw

FBS & FBS-Z

Specialised screw for mounting window frames

Assortment



FBS with countersunk head



FBS-Z with socket head



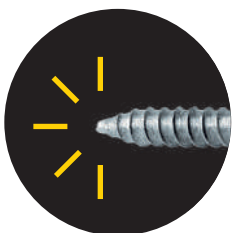
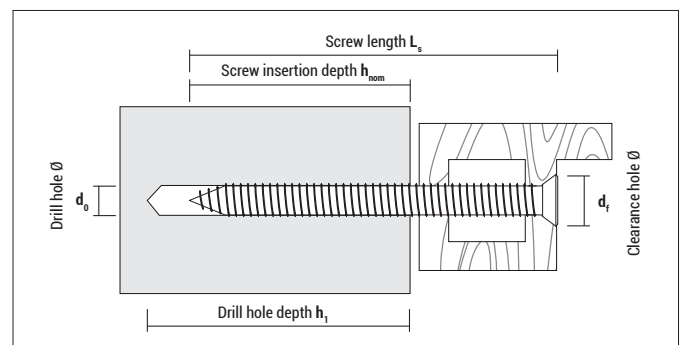
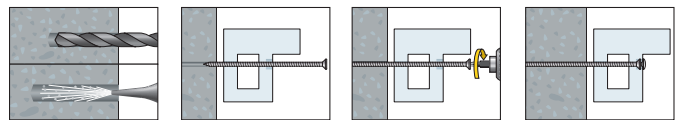
Suitable building materials

Very suitable



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

Mounting



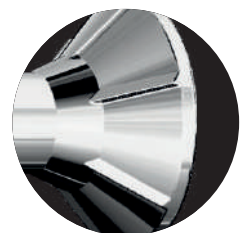
Special thread with reduced diameter at the screw tip reduces setting torque and therefore allows a **longer battery life of your battery screwdriver**



Quick and easy installation



Suitable for **many different window types** and a large number of **base materials**



Both types with **underhead milling ribs**



FBS, zinc plated with countersunk head (ø 11 mm, TX 30), for metal and plastic window frames

Type Ø - L _s	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	d _i * [mm]	€ / 100 pcs	[pcs]	[pcs]
FBS 7,5 x 72	97572FBS	6	depends on building material, h _{nom} + 10 mm	depends on building material, see table „Loads“	6,2		100	600
FBS 7,5 x 92	97592FBS	6			6,2	100	600	
FBS 7,5 x 112	975112FBS	6			6,2	100	600	
FBS 7,5 x 132	975132FBS	6			6,2	100	600	
FBS 7,5 x 152	975152FBS	6			6,2	100	600	
FBS 7,5 x 182	975182FBS	6			6,2	100	600	
FBS 7,5 x 212	975212FBS	6			6,2	100	400	

* d_i: drill hole Ø in window frame



FBS-Z, zinc plated with socket head (ø 8,3 mm, TX 30), for wooden window frames

Type Ø - L _s	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	d _i * [mm]	€ / 100 pcs	[pcs]	[pcs]
FBS-Z 7,5 x 72	97572FBSZ	6	depends on building material, h _{nom} + 10 mm	depends on building material, see table „Loads“	6,2		100	600
FBS-Z 7,5 x 92	97592FBSZ	6			6,2	100	600	
FBS-Z 7,5 x 112	975112FBSZ	6			6,2	100	600	
FBS-Z 7,5 x 132	975132FBSZ	6			6,2	100	600	
FBS-Z 7,5 x 152	975152FBSZ	6			6,2	100	600	
FBS-Z 7,5 x 182	975182FBSZ	6			6,2	100	600	
FBS-Z 7,5 x 212	975212FBSZ	6			6,2	100	400	

* d_i: drill hole Ø in window frame



Blister FBS, zinc plated with countersunk head (ø 11 mm, TX 30), for metal and plastic window frames



Type Ø - L _s	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{nom} ≥ [mm]	d _i * [mm]	€ / Blister	[pcs]	[Blister]
FBS 7,5 x 112	575112FBS6	6	depends on building material, h _{nom} + 10 mm	depends on building material, see table „Loads“	6,2		6	10
FBS 7,5 x 132	575132FBS6	6			6,2	6	10	
FBS 7,5 x 152	575152FBS6	6			6,2	6	10	

Incl. cover caps: 6 x white, 6 x brown

* d_i: drill hole Ø in window frame

Loads F_{rec} and installation parameters for FBS and FBS-Z

Type	Concrete	Solid brick ≥ Mz20	Solid sand-lime brick ≥ KS 12	Aerated concrete AAC6 ¹⁾	Hollow brick ¹⁾
Tension load F _{rec} [kN]	1,0	0,7	1,0	0,2	0,2
Shear load F _{rec} [kN]	0,5	-	-	-	-
Drill hole Ø [mm]	6	6	6	6	6
Screw insertion depth h _{nom} [mm]	≥ 30	≥ 40	≥ 40	≥ 60	≥ 60 min. 2 brick walls
Min. drill hole depth h ₁ [mm]	≥ 40	≥ 50	≥ 50	≥ 70	-
Min. edge distance c _{min} [mm]	50	60	60	60	60

F_{rec} = Recommended loads in all directions incl. safety factors

¹⁾ Hole must be made with a rotary drill (hammer switched off)

Metal frame plug

MR

Specialised plug for window mounting

Assortment



Suitable building materials

Very suitable



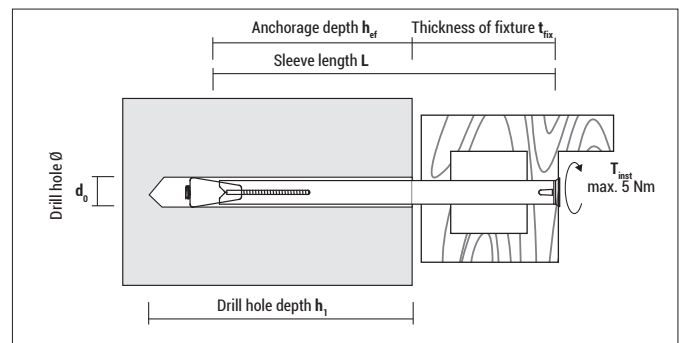
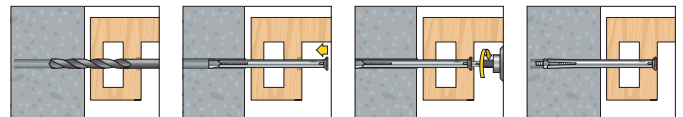
- Concrete
- Natural stone
- Solid brick
- Solid sand-lime brick
- Lightweight solid concrete blocks

Suitable to a limited extent

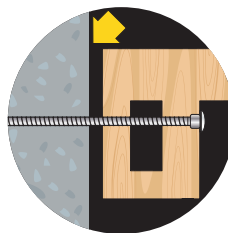


- Hollow brick
- Hollow sand-lime brick
- Aerated concrete

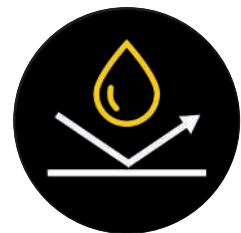
Mounting



Window and door frame installation **free of constraint forces**



Stable metal design for distance installation



Sendzimir zinc plated anchor sleeve for **good protection against corrosion**



MR with countersunk screw (PZ 3)

Type	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{ef} ≥ [mm]	L ¹ [mm]	t _{fix} ≤ [mm]	€ / 100 pcs	[pcs]	[pcs]
MR 10x72	91072MR	10	50	30	72	42		100	600
MR 10x92	91092MR	10	50	30	92	62		100	400
MR 10x112	910112MR	10	50	30	112	82		100	400
MR 10x132	910132MR	10	50	30	132	102		100	400
MR 10x152	910152MR	10	50	30	152	122		100	400
MR 10x182	910182MR	10	50	30	182	152		100	400
MR 10x202	910202MR	10	50	30	202	172		100	400

¹ Sleeve length



Blister MR with countersunk screw (PZ 3)

Type	Art-No	d ₀ [mm]	h ₁ ≥ [mm]	h _{ef} ≥ [mm]	L ¹ [mm]	t _{fix} ≤ [mm]	€ / Blister	[pcs]	[Blister]
MR 10x92	51092MR6	10	50	30	92	62		6	10
MR 10x112	510112MR6	10	50	30	112	82		6	10
MR 10x132	510132MR6	10	50	30	132	102		6	10
MR 10x152	510152MR6	10	50	30	152	122		6	10

Incl. cover caps: 6 x white, 6 x brown

¹ Sleeve length

Loads F_{rec}

Type	Concrete F _{rec} [kN]	Solid sand-lime brick KS 12 F _{rec} [kN]	Solid brick Mz 12 F _{rec} [kN]	Lightweight solid concrete blocks V 12 F _{rec} [kN]	Hollow sand-lime brick KSL 6 F _{rec} [kN]
MR 10	1,35	1,25	1,25	0,45	0,5

F_{rec}: Recommended loads incl. safety factor of 4

Distance plate DP

Perfect for equalising uneven surfaces when installing windows



Assortment

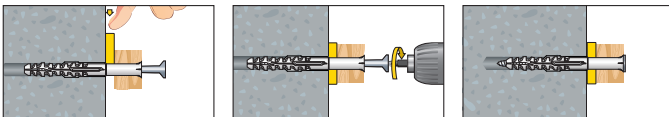


- Distance plate DP 3 mm, red
- Distance plate DP 5 mm, yellow
- Distance plate DP 8 mm, blue
- Distance plate DP 10 mm, black
- Distance plate DP 15 mm, transparent

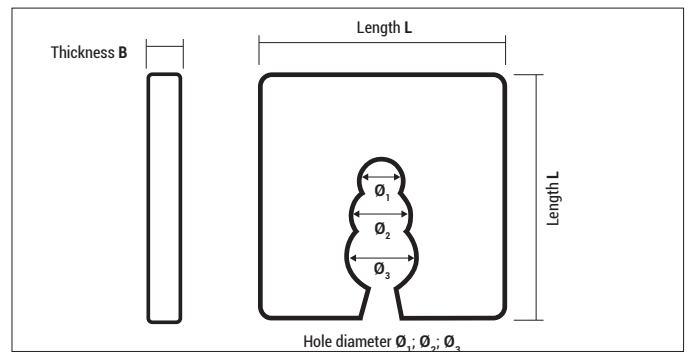
Approvals and certificates

HALOGEN
FREE

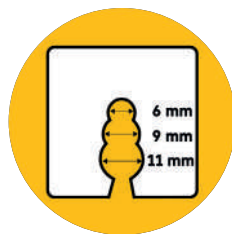
Mounting



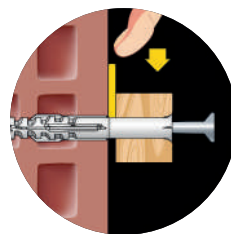
Advantages



Perfectly suited for **equalising uneven surfaces** when installing façade substructures, ETICS base profiles or similar



Universal usage; for all plugs and screws up to diameter 10 mm



Quick and easy installation: Only push the plate between the surface and the mounting part with your hand



Common colours, so the thickness can be seen at a glance



DP

Type	Art-No	Colour	B [mm]	L [mm]	Ø ₁ [mm]	Ø ₂ [mm]	Ø ₃ [mm]	suitable for Type	€/100 pcs	[pcs]	[pcs]
DP 3	3DP50	red	3	50	6	9	11	Nail plug NP Quick-fix nail BN 6, 8 Frame plug MFR 8, 10 Frame plug HBR 8, 10 Screws		50	1.200
DP 5	5DP50	yellow	5	50	6	9	11			50	800
DP 8	8DP50	blue	8	50	6	9	11			50	600
DP 10	10DP50	black	10	50	6	9	11			50	500
DP 15	15DP50	transparent	15	50	6	9	11			50	500



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Small Things Matter

Presented by:

EN 12/24

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