

## PAROC ZEROfix - Facade system accessories

Facade screws SFS TWIN UD (XFS 002) for wood and HECO MULTI-MONTI (XFS 004) for concrete  
 PAROC ZEROfix Nailing batten (XRB 001),  
 PAROC ZEROfix Angle tool (XTI 001)



PAROC ZEROfix facade system consists of long facade screws and the nailing board needed to attach the facade cladding.

**ZEROfix facade screws, SFS TWIN UD and HECO MULTI-MONTI**, are carbon steel screws with double threads. The special coating of the screw provides high corrosion protection. The TWIN UD screw (XFS 022) is suitable for wooden substrates (e.g. CLT) and the MULTI-MONTI (XFS 004) screw for concrete substrates.

The unique combination of horizontal and diagonal screws of the facade system forms an energy-efficient and simple method for fixing the facade cladding through the insulation layer.

The **PAROC ZEROfix Nailing batten** (XRB 001) is a fire-protection-treated batten (fire class B-s1, d0 and strength class C24), which is installed with facade screws on top of the insulation layer. The actual facade cladding is attached to the nailing batten.

The necessary dimensioning calculation of the ZEROfix system can be done with the PAROC ZEROfix dimensioning tool.

If facade screws are used on the old substrate, the fastening must always be checked with pull-out tests to ensure sufficient adhesion.

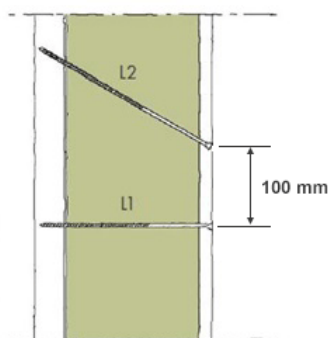
The **PAROC ZEROfix angle tool** (XTI 001) helps to find the right installation angle for facade screws.

<b>APPROVALS:</b>	System: RISE-type approval, Sintef-type approval, façade screws: ETA-12/0038, ETA-15/0784
<b>APPLICATION:</b>	Building envelope; external walls
<b>PACKAGE / STORING:</b>	Screws in carton, battens in bundle

### DIMENSIONS

Product code	diameter	length	packing	installation tool	EAN 64380
SFS Twin UD (XFS 002), for wood	7.5 mm	210 mm	1 carton box = 50 crews	Torx T40	8558341
		230 mm			8558340
		250 mm			8558339
		270 mm			8550572
		300 mm			8550571
		330 mm			8558338
		360 mm			8547941
		400 mm			8547942
		440 mm			8558337
480 mm	8558336				
HECO Multi-Monti (XFS 004) for concrete	7.5 mm	200 mm	1 carton box = 50 screws	Torx, T40	8569883
		250 mm			8564651
		300 mm			8564652
		350 mm			8564653
		400 mm			8569884





### Length of facade screws / ZEROfix system in CLT walls:

facade screws XFS 002 length and their installation depths for different insulation thicknesses:

Paroc Cortex One / WAS 35(t) thickness (mm)	Length (L1) of horizontal screw (mm)	Length (L2) of diagonal screw (mm), screw angle 30°	Length (L2) of diagonal screw (mm), screw angle 45°
100	210 (74)	210 (46)	250 (41)
120	210 (54)	230 (43)	300 (56)
180	270 (54)	300 (44)	400 (67)
205	300 (59)	330 (45)	400 (42)
220	300 (44)	360 (56)	440 (55)

Insulation and nailing batten thickness 36 mm (XRB 001) is included in screw dimensions. Installation depth for CLT is a minimum of 40 mm.

### Length of facade screws / ZEROfix system in concrete and brick wall:

facade screws XFS 004 length and their installation depths for different insulation thicknesses:

PAROC Cortex One / WAS 35 thickness (mm)	Length (L1) of horizontal screw (mm)	Length (L2) of diagonal screw (mm), screw angle 20°
100	200 (64)	200 (52)
120	200 (44)	250 (79)
180	300 (84)	300 (66)
205	300 (59)	300 (41)
220	300 (44)	350 (73)

Insulation and nailing batten thickness 36 mm (XRB 001) is included in screw dimensions. The minimum penetration length of the threaded part of the screw is 35 mm.

### PAROC ZEROfix Nailing batten (XRB 001)



Product code	size	length	packing	EAN 64380
PAROC ZEROfix Nailing batten (XRB 001)	34 x 98 mm	3600 mm	1 batten	8518125

### PAROC ZEROfix Angle tool (XTI 001)



Product code	size	packing	EAN 64380
PAROC ZEROfix Angle tool (XTI 001) for TWIN UD screw installation	for screw angles 30° and 45°	1 pcs / carton	8576001

## INSTALLATION

PAROC ZEROfix is a self-supporting fastening system for façade cladding. It is ideal for attaching the facade to the load-bearing frame through the outer insulation layer. The load-bearing frame of the building can be made of concrete or wood.

The system consists of a fire-retardant nailing batten and facade screws. The wind load of the facade is handled by horizontal facade screws and the vertical load by diagonally mounted facade screws. This combination of facade screws provides a very durable structure, where the number and size of cold bridges is minimized.

The number of facade screws, as well as the length and location of the screws, shall be determined based on the wind speed of the construction site, the height of the building, the type of load-bearing wall structure, and the weight of the cladding material. The required dimensioning calculation can be performed with the PAROC ZEROfix-dimensioning tool. If the strength properties of the load-bearing construction are not known, the structure should be tested by pull-out tests.

### Wood and concrete as load-bearing structure:

The number of facade screws shall always be calculated. Normally, three horizontal facade screws and one or two diagonally mounted facade screws per story are used, both in wood and concrete structures. The vertical nailing batten is installed c / c 600 mm. The spacing between the screws shall not be more than 1.75 m.

If the wind load is bigger, the number of horizontally mounted screws increases, and if the load on the facade materials is higher, the number of diagonally mounted screws increases. In concrete structures, the installation of facade screws requires a pre-drilled hole (6.4 mm) to be made. Holes are drilled by hammer-drilling only. Anchor installation shall be carried out by appropriately qualified personnel under the supervision of the person responsible for the technical matters on site.

When using a fastening system in connection with a timber frame wall, we recommend first installing a layer of plywood at least 15 mm thick on the outside of the frame to provide a stable base for fastening the facade.

- Suitable substrates for TWIN UD screws are solid timber, glued laminated and solid timber, LVL, and CLT.
- Suitable substrates for Multi Monti screws are compacted reinforced or non-reinforced normal weight concrete without fibers (strength classes C20/25 – C50/60, cracked and uncracked concrete).

If using a different batten than ZEROfix nailing batten XRB 001:

The nailing battens must be made from solid wood (C24) according to EN 14081-1. The minimum dimensions for the batten are 40 mm for thickness and 60 mm for width.

### Brick as load-bearing structure:

The load-bearing capacity of the load-bearing structure must always be ensured by pull-out tests, especially in connection with renovation, as the quality and strength properties of the material may have changed over time. The number of test points depends on the building and its condition. The quantity must be large enough for the dimensioning to be carried out reliably. There should be at least 10 measuring points per facade surface, and measurements should be made on all insulated walls.

Pull-out tests must be carried out by qualified and trained personnel. The equipment used must be calibrated according to the manufacturer's instructions. For measurement, we recommend, for example, Hydrajaws Limited, model 2000, equipped with a telescopic bridge that fits the length of the screw.

You could use a PAROC Drill Bit concrete L 6.3 (XFD 001) -concrete drill with a diameter of 6.3 mm for testing. Pre-drilling must be performed to a drilling depth of more than 40 mm. A Multi Monti (XFS 004) facade screw for concrete is screwed directly into the base. The minimum penetration length of the threaded part of the screw is 35 mm. The test results and measurement points shall be accurately documented in the measurement report. Measurement reports and drawings must be archived on the construction site. Once the necessary tests have been performed, the length of the screws and the design loads can be calculated with our dimensioning tool. The measurement results must be considered when calculating the wind and vertical load design.

**Thermal insulation:**

The PAROC ZEROfix -system ensures excellent energy efficiency, as the entire insulation layer with seals can be installed before installing the facade system fasteners. First, the thick wind protection insulation layer, PAROC WAS 35 (t) or PAROC Cortex One, is installed on the outer surface of the load-bearing structure; a nailing batten is installed on top of the rigid insulation layer with horizontal screws according to the dimensioning program instructions. Finally, the diagonal screws are added at the specified distances.

The porous insulation slabs and the breathable coating in Cortex-products do not prevent the building moisture from drying out. The wind tightness of the building envelope is ensured by taping the seams and cutting surfaces to the associated structures.

There must always be a ventilation gap behind the facade cladding. The use of wood cladding on the facade may require the installation of fire barriers in the ventilation gap. This is a good thing to keep in mind when dimensioning the ventilation opening and choosing the wind protection insulation. We recommend the use of PAROC Cortex products in constructions with fire barriers, as obstacles in the ventilation gap increase local convection around them.

The nailing batten serves as a mounting base for the selected facade cladding. The facade cladding is installed on the nailing batten according to the facade supplier's instructions.

**TECHNICAL PARAMETERS for ZEROfix facade screws made of carbon steel**

Property	value	according to
<b>Screws</b>		<b>RISE SC1384-17, Sintef TG 20620, EAD 130118-00-0603: ETA-12/0038 and ETA-15/0784</b>
Reaction to fire, screws	A1 (steel)	
Reaction to fire, nailing batten	B-s1, d0	
Other parameters can be found from the approvals.		

**ACCESSORIES**

- PAROC Cortex-membrane (XMW 068)
- Wind protection membrane WALKI Wall Breath 65 or 97 (XMW 065 or XMW 095)

