

## TECHNICAL DESCRIPTION OF THE **TURNKEY** MODULE

Today, wood is becoming an important construction material, especially in relation to its physical-structural properties and ecological parameters of interior microclimatic comfort.

The modular system design is a closed statically functional system designed to suit low-energy housing with regard to fire protection and, at the same time, to meet thermal and humidity parameters. The world is beginning to see the future of modular living

### ADVANTAGES OF MODULAR HOUSING:

- construction speed
- variability
- low costs of living
- affordable
- mobility
- ground screw foundations
- no need of a steel frame
- minimal ecological footprint

### USE OF MODULAR STRUCTURES:

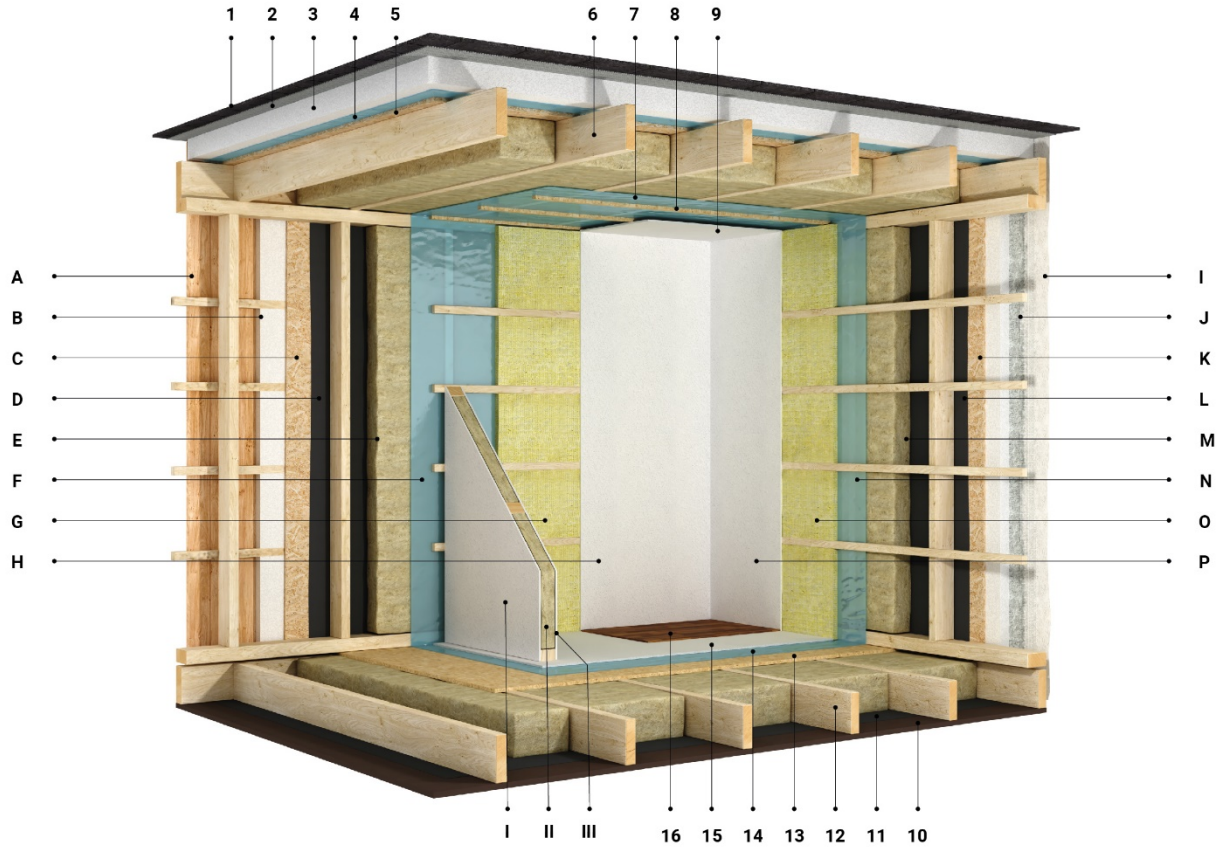
- year-round living
- offices, recreational buildings, kindergartens, public buildings
- garden wellness, fitness



# MODULOS.

MODULAR HOUSES





#### PERIMETER WALL – WOODEN CLADDING

A.	Wooden cladding	th. 19mm
B.	Wooden grate filled with with EPS	th. 60mm
C.	OSB board	th. 18mm
D.	Diffusion foil Guttafol D0135 S Plus 135g/m <sup>2</sup>	th. 0,2mm
E.	KVH prisms filled with mineral wool ( $\lambda$ 0,3)	th. 160mm
F.	Vapour barrier	th. 0,2mm
G.	Wooden grate filled with mineral wool	th. 40-60mm
H.	Fermacell + white painting	th. 12mm

#### PERIMETER WALL – FASADE

I.	Silicone facade plaster (white)	
J.	EPS	th. 80mm
K.	OSB board	th. 18mm
L.	Diffusion foil Guttafol D0135 S Plus 135g/m <sup>2</sup>	th. 0,2mm
M.	KVH prisms filled with mineral wool ( $\lambda$ 0,3)	th. 160mm
N.	Vapour barrier	th. 0,2mm
O.	Wooden grate filled with mineral wool	th. 40-60mm
P.	Fermacell + white painting	th. 12mm

#### CEILING

1.	Multilayer PVC waterproofing covering	
2.	Synthetic geotextile 300g/m <sup>2</sup>	
3.	EPS 100 S	th. 140-100mm
4.	Vapour barrier	th. 0,2mm
5.	OSB board	th. 18mm
6.	KVH prisms filled with mineral wool ( $\lambda$ 0,3)	th. 220mm
7.	Vapour barrier	th. 0,2mm
8.	Wooden grate OSB	th. 22mm
9.	Fermacell + white painting	th. 12mm

#### FLOOR

10.	Waterproof plywood	th. 15mm
11.	Diffusion foil Guttafol D0135 S Plus 135g/m <sup>2</sup>	th. 0,2mm
12.	KVH prisms filled with mineral wool ( $\lambda$ 0,3)	th. 220mm
13.	OSB board	th. 18mm
14.	Vapour barrier	th. 0,2mm
15.	Fermacell	th. 12mm
16.	Laminate flooring	

#### PARTITIONS

I.	Fermacell + white painting	th. 12mm
II.	KVH prisms filled with mineral wool	th. 100mm
III.	Fermacell + white painting	th. 12mm

### DECLARED THERMAL INSULATION PROPERTIES:

Floor structure –	declared heat passage coefficient U	0.150 W/(m <sup>2</sup> .K)
External wall –	declared heat passage coefficient U	0.140 W/(m <sup>2</sup> .K)
Roof structure –	declared heat passage coefficient U	0.110 W/(m <sup>2</sup> .K)

## MATERIALS USED

### FRAME

Wood frame from spruce KVH timber. Diffusion-sealed structure treated by silicone façade plaster or Siberian larch panelling.

### STRUCTURE

The supporting structure comprises spruce KVH beams, which are connected by high-quality carpentry screws into a frame structure filled with mineral wool, provided with a waterproofing layer and clad with appropriate board materials including the final surface layer.

OSB boards made of oriented flat chips and FERMACELL gypsum fibre boards are used as the main construction board materials. In both cases, these are certified materials that provide the construction with high stability and safety, are not harmful to health, have very good thermal insulation properties, acoustic parameters and high fire resistance. The standard ceiling height is 2,500 mm.

### ROOF

A standard flat roof fitted with a Sikaplan 15 G multilayer synthetic waterproofing foil based on high quality polyvinyl chloride. This foil system includes plastic-coated sheets used for all the tinsmith elements required for the roof. Hot air welding of foil strips to these tinsmith elements guarantees the same strength as with the material itself. Laying of foil roofing is performed by an authorised insulating company. The roof cladding is also insulated with polystyrene insulation panels. The roof is prepared for the so-called **green roof**.

### DOWNPIPES, GUTTERS

These are made of galvanised steel with additional corrosion protection in the form of organic surface treatment in a thickness of 25-50 microns in a wide range of colours.

### FAÇADE

The advantages of the standard WEBER white silicone façade plaster include fast and easy application, high resistance to climatic conditions, colour stability, flexibility and, last but not least, washability.



***The façade colour can be changed or installed at an extra cost:***

1. Spruce or larch façade wainscotting system. Ventilated façade mounted on a grate of wooden battens. In combination with oil protection glazing, the wood strips provide a long service life.
2. FUNDERMAX **compact panels** in different colours

## WINDOWS

Plastic windows and entrance doors made by the Czech TERMOLUX company. The windows are made of seven-chamber KVINTERM 2+ plastic profiles with no added recycled material. The width and layout of the seven chambers reduce the heat transfer through the section material to a minimum and, together with the greater embedding of the **insulating triple glazing** in the sash profile, this design exceeds the requirements of existing standards. This minimises the risk of unwanted condensation on the inside of the frames, sash and triple glazing. Choice of many décors and colours.

### *Properties:*

- class A seven-chamber frame with excellent insulating properties  $U_f = 1.08 \text{ W/m}^2\text{K}$
- triple glazing  $U_g = 0.7-0.4 \text{ W/m}^2\text{K}$  that meets demanding requirements for thermal insulation
- embedded insulation glass pane with warm frames reducing window fogging
- EKOPROFIL – WITHOUT RECYCLED MATERIAL AND LEAD



## INSULATING TRIPLE GLAZING

Insulation triple glazing is now a standard and its share is growing. In our climatic conditions, triple glazing is usually the most suitable type of glazing, whether for new buildings or complete reconstructions of the sheathing. The manufacturing technology and structure is based on insulation double glazing, but using a third glass pane provides additional thermal insulating properties and significant noise attenuation of the whole window.

### *Properties:*

- Perfect prevention of heat escape
- Heat transfer coefficient  $U_g = 0.7-0.4 \text{ W}/(\text{m}^2\text{K})$
- Excellent noise attenuation properties
- Condensate reduction on the window inner side (window fogging)

## ENTRANCE DOORS

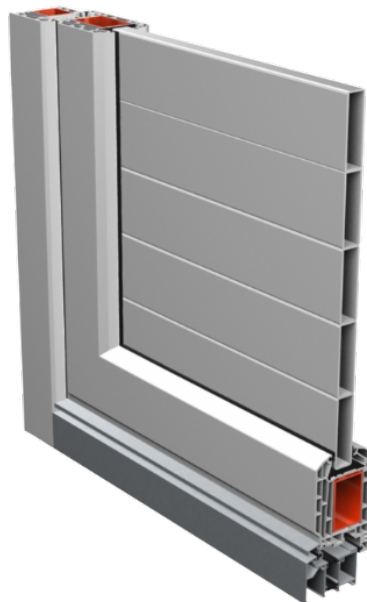
Plastic entrance doors made by the Czech TERMOLUX company excel in thermal properties. They are fitted with three- and multi-point locks and made of a five-chamber KVINTERM profile, which has the following properties:

- The section elements are made of tough PVC stabilised against ultraviolet radiation and weathering.
- The total heat transfer coefficient is  $U_d = 0.74 \text{ W/m}^2\cdot\text{K}$
- The plastic section elements are internally reinforced with steel or aluminium section parts, which guarantee the structural requirements on the door filling the construction opening under the expected wind load.
- EKOPROFIL – WITHOUT RECYCLED MATERIAL AND LEAD.

An aluminium threshold with an interrupted thermal bridge is used as standard for the door, which ensures the required rigidity and significantly reduces heat transfer.



***Aluminium and wooden windows are available at an additional cost.***

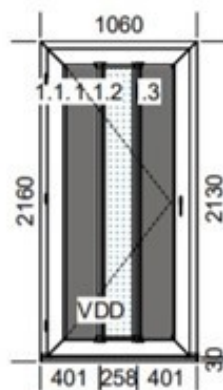


## STANDARD SIZE AND COLOUR OF ENTRANCE DOORS AND WINDOWS

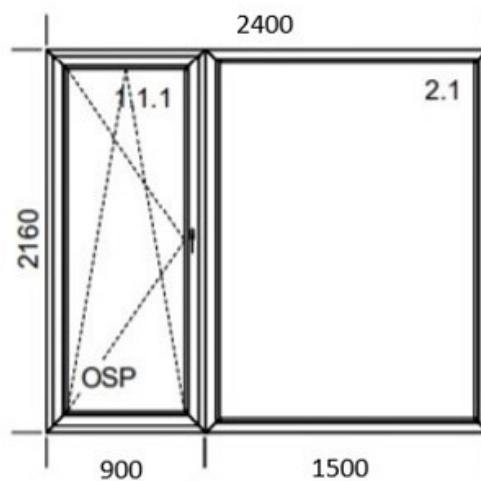
COLOUR: outdoor **ANTHRACITE** / indoor **WHITE**

The standard variant features the following windows and entrance doors:

- ENTRANCE DOOR 900x2100 1/3 opal glass

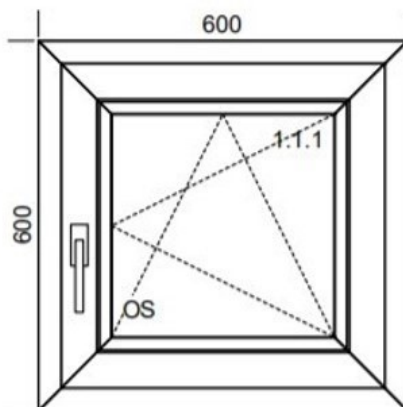


- "OUR COMPOSITION" – 1500x2100 fixed + 900x2100 balcony door



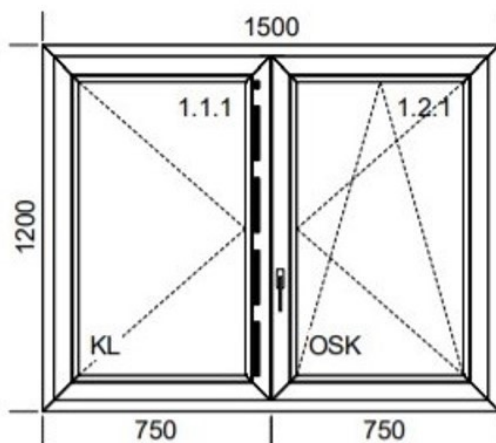
- SIDE-HUNG WINDOW 600x600

Gealan S 8000 IQ standard

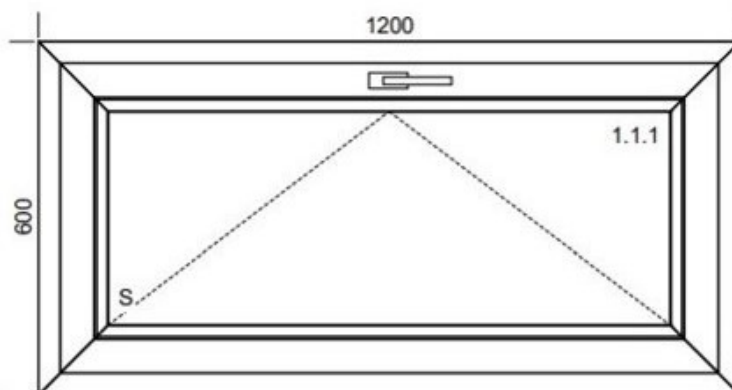


- SIDE-HUNG WINDOW 1500x1200

Gealan S 8000 IQ standard



- TILT WINDOW 1200x600





### WINDOW SILLS AND METAL PLATING

Exterior window sills and metal plating are made of galvanised sheet metal in RAL shades. COIL COATING technology is used throughout ensuring a permanent and solid coating with a long service life.



#### ***Outdoor electric shutters or blinds***

- It is possible to have a complete installation for an additional fee, including electrical installation, control, mounting in the façade and a separate circuit breaker



#### ***Pleated blinds or classic aluminium Venetian blinds can be installed for an extra charge***



### INTERIOR DOORS

Doors made by the Czech EUROWOOD company. The door frame is made of MDF material clad on both sides with CPL Plus surface treatment with selected design. It is a 0.2 mm thick laminate with high resistance to damage. The door panel is a lightweight DTD (hardened, laminated paper). ROSTEX VIGO door fittings with pins, stainless steel finish. Possible variants: handle-handle, handle-knob. Versions: a hole for an ordinary key, a hole for a cylinder lock or a toilet set. Panel doors are provided in standard delivery. Partial door glazing is provided at an additional cost. The standard height is 197 cm.

### JAMB

Architrave with rabbet made of high-quality chipboard. Door frames are supplied for both single-leaf and double-leaf doors, they are regularly equipped with three hinges, a seal and a counter plate.



## FLOOR

The standard variant features Eurowood Prima 10 mm laminate floor. The design can be selected from the supplier's sample book.



***A vinyl MODULEO Select floor is available for an additional charge***

## INTERIOR WINDOW SILLS

Chipboard window sills with a top CPL laminate layer designed for all types of interiors. Standard white colour, choice of designs at an additional cost. Window sills provide excellent characteristics such as colour fastness, high strength and rigidity of the supporting material, mechanical resistance of the top laminate, moisture resistance, low thermal expansion.

## PAINTING

The walls and ceilings in all rooms are white, smooth, matte.

## HEATING

Electric ATLANTIC F129-D convectors manufactured by FENIX. The convector is equipped as standard with an electronic thermostat (accuracy 0.1°C) without a pilot wire.

The convector is all white, including the exhaust grille.

As standard, there is one convector in each room, and an electric heating ladder in the bathroom.

### *Properties:*

Supply voltage: 230 V / 50 Hz

Location: on base material with flammability class C, D

Input: 500-2500 W

Operation indicator: LED



***A certified non-flammable passage for wood burning stove can be made for an extra charge***



***A FUJITSU heating/cooling unit can be installed for an extra charge upon customer request.***



***It is possible to install floor heating at an additional cost.***



***A wall recovery unit can be installed at an additional cost.***



## SANITARY EQUIPMENT



- The standard bathroom size is 4 m<sup>2</sup>
- The supplier of our bathrooms is the Koupelny Ptáček company, where the client can choose the tiles and the plumbing fixtures
- All standard equipment is on display in the Koupelny Ptáček store.
- The standard tiling height is 2.1 m

## FLOOR TILING 30 x 60 cm



BEIGE



DARK GREY



GREY



BLACK



WHITE

## FLOOR TILING 60 x 60 cm



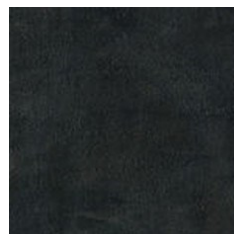
BEIGE



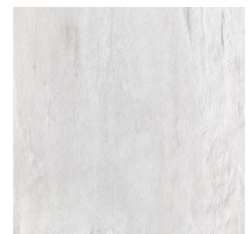
DARK GREY



GREY

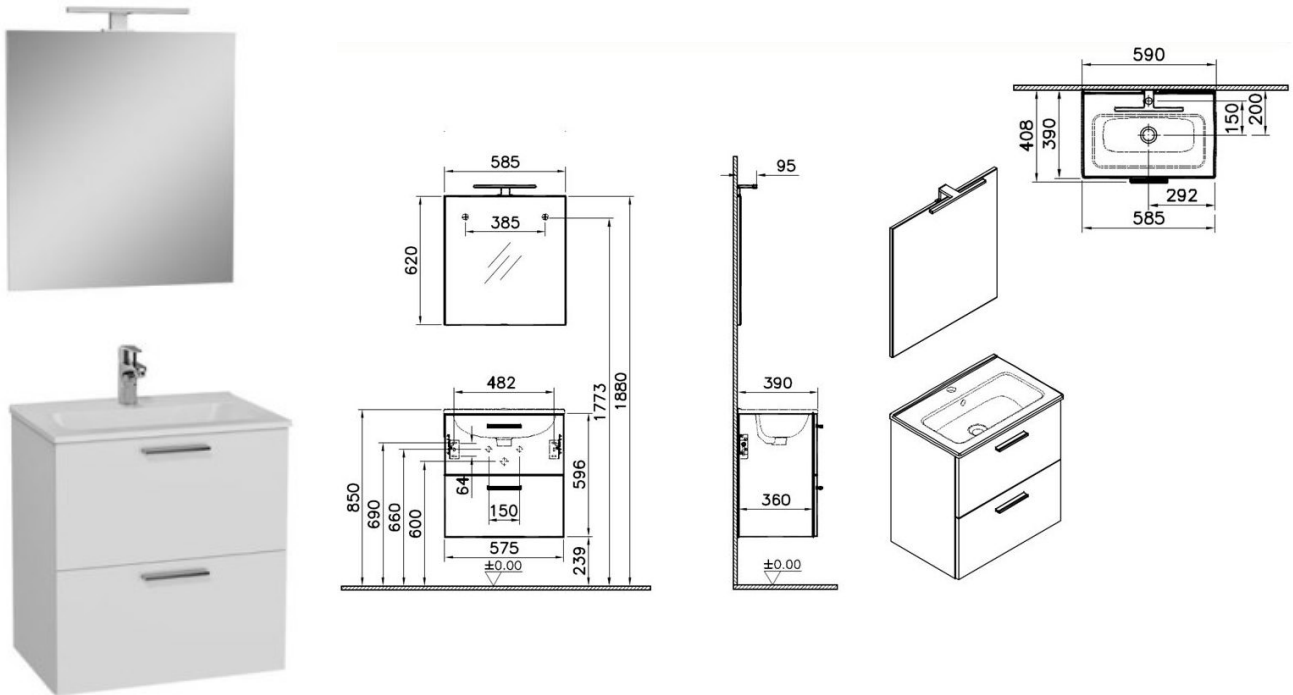


BLACK



WHITE

EASY PLUS (white) furniture set – a cabinet with 2 drawers, a washbasin, mirror and LED light



### MIXER TAPS

- GROHE BAUFLOW lever-operated tap in chrome
- Wall-mounted lever-operated GROHE BAUFLOW shower tap in chrome
- GROHE NEW TEMPESTA shower set in chrome



## TOILET

- Wall mounted toilet 54 x 33.5 cm, white
- Toilet seat, white



## SHOWER ENCLOSURES AND TRAYS

- CONCEPT NEW shower tray, square, cast marble, 90 x 90 cm, white
- CONCEPT 100 NEW 6-piece shower enclosure, 90 x 90 cm



## BATHTUB



*A bathtub can be installed for an extra charge*



## TOWEL WARMER

- Heating element 45 x 98 cm, straight, white
- Heating rod with thermostat 300 W, white



## ELECTRIC HEATER

ARISTON VELIS VLS EVO 80, capacity 80 litres, flat, depth 27 cm, width 50 cm, height 106 cm, heating time from 15-65°C 135 min.



## LIGHTING

EMOS LED panel 300 x 300, square white applied on surface, 24 W neutral white



## WIRING

Living room – 1 double socket for TV, 1 UTP socket, 1 TV socket, 2 sockets, 2 switches, 1 light outlet

Kitchen – 4 sockets under the kitchen unit (oven, refrigerator, dishwasher, hob), 4 sockets on the kitchen unit, 2 switches, 2 light outlets, 1 socket in the upper cabinets

Room – 3 sockets, 1 switch, 1 light outlet, 1 electric heater

Bathroom and toilet – 1 socket, 2 switches, 2 light outlets, 1 washing machine socket, 1 boiler socket, 1 towel warmer socket

Entrance into the house – 1 light switch, 1 light outlet

Terrace – 1 IP44 socket, 1 switch, 1 light outlet



***Preparation for a photovoltaic system can be made for an extra charge***

## NETWORK CONNECTIONS

We always try to concentrate utility line connections into a single nest and the connection is always provided by the client.

- Drain pipe with internal 100 mm diameter
- Water connection with AL-PEX pipe, 3/4 in diameter.
- Power supply cable CYKY-J 5 x 10

## INSTALLATION AND ASSEMBLY

The loading, unloading and installation of the module is always done by means of a truck crane, which is ordered individually during each installation, depending on the weight of the house, the required reach of the arm and the handling space. The truck crane is always ordered from the nearest place, depending on the location of the unloading site. Access routes to the plot, power line isolation and tree pruning are always provided by the client. The time required for unloading, including the installation of one module, is about 2-3 hours. If two or three modules are fitted, the installation time may vary.



***Transport, crane and ground screws (foundation elements) are not included in the house price; they are always dealt with individually.***



***Foundation elements different from ground screws provided by the investor will be charged***



## PROJECT DOCUMENTATION

Project documentation is not part of the house price. The project documentation can be obtained via our partner office, with which we cooperate throughout the country. Price list on request. If needed, we can provide the composition of the structure for the materials used.

## CERTIFICATION OF MATERIALS ARE AVAILABLE ON REQUEST:

- KVH structural timber
- OSB boards
- fibre-reinforced gypsum boards – FERMACELL
- polystyrene
- façade polystyrene
- diffusion membrane
- wiring
- damp proof membranes
- geotextiles
- waterproof cover
- windows and entrance doors

## THE FOLLOWING REPORTS ARE INCLUDED IN THE HANDOVER DOCUMENTATION:

- Declaration of the supporting and auxiliary material supplied and incorporated in the product
- Waste disposal declaration
- Sewerage leak test report
- Water system pressure test report
- Report on the implementation of the inspection report of electrical installations
- Instructions for use

## CONTACT DETAILS:

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