



Technical description

CONTAINEX BASIC Line

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1 General

The following description refers to the design and specification of new portable cabins in the "CONTAINEX-BASIC Line" series.

The external dimensions of our cabins are adapted to the ISO-standard and therefore have many advantages of that system. They consist of a robust frame construction and have interchangeable wall elements.

1.1 Dimensions [mm] and weights [kg]

BASIC Line								
		External dimensions [mm]			Internal dimensions [mm]			Weight [kg]
	Type	Length	Width	Height	Length	Width	Height	BB
	20'	6,055	2,435	2,591	5,860	2,240	2,340	1,600 kg

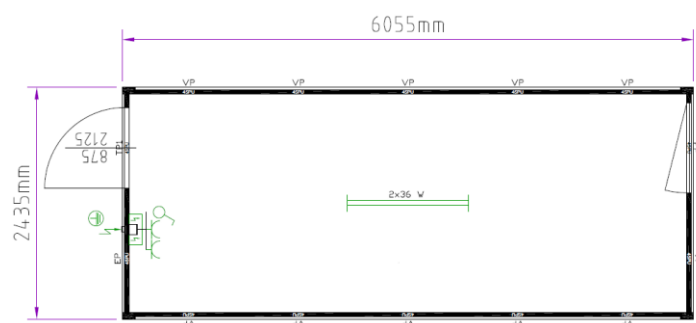
1.2 Abbreviations

The following abbreviations are used in this document:

Portable cabin BASIC Line	BB
Mineral wool	MW
Polyurethane	PU
Polystyrene	PS
Internal height	RIH
External height	CAH
Finished floor level	FOK
Transpack (BB in package)	TP

1.3 Standard configuration

Portable cabin 20'



1.4 Floor, snow and wind loads

1.4.1 Basic principles of the structural calculations

Exposed side

EN 1990 (Eurocode 0; basics of structural engineering)

EN 1991-1-1 (Eurocode 1; tare weights and payloads)

EN 1991-1-3 (Eurocode 1; snow loads)

EN 1991-1-4 (Eurocode 1; wind loads)

Non-exposed side

EN 1993-1-1 (Eurocode 3; steel construction – general rules for building construction)

EN 1995-1-1 (Eurocode 5; timber construction – general rules for building construction)

National application documents and other special load events (e.g. earthquake effects, impact loads, etc.) were not taken into account!

1.4.2 Floor, snow and wind loads

Standard frame		
Floor loads on the ground floor		
Maximum permissible distributed load	$q_k = 2.0 \text{ kN/m}^2$ (200 kg/m²)	
Maximum permissible point load	$Q_k = 2.0 \text{ kN}$ (200 kg)	
Floor loads on upper floors		
Maximum permissible distributed load	$q_k = 1.5 \text{ kN/m}^2$ (150 kg/m²)	
Maximum permissible point load	$Q_k = 2.0 \text{ kN}$ (200 kg)	
Snow load s_k		
Ground floor and 2-storey arrangement		
Characteristic snow load on the ground	$s_k = 1.50 \text{ kN/m}^2$ (150 kg/m ²)	
Shape parameters for a flat roof: $\mu =$		
0.8 (effective snow load on the roof = 120 kg/m ²)		
3-storey arrangement		
Characteristic snow load on the ground	$s_k = 1.25 \text{ kN/m}^2$ (125 kg/m ²)	
Shape parameters for a flat roof:		
$\mu = 0.8$ (effective snow load on the roof = 100 kg/m ²)		
Wind load $v_{b,0}$		
Ground floor and 2-storey arrangement		
Wind load	$v_{b,0} = 27 \text{ m/s}$, terrain category III (equates to 97.2 km/h)	
3-storey arrangement		
Wind load	$v_{b,0} = 25 \text{ m/s}$, terrain category III (equates to 90 km/h)	

2 Cabin design

2.1 Frame construction

Standard frame	
Design of floor frame	
Frame consisting of cold-rolled, welded steel profiles; 4 corners welded	
Longitudinal floor beam	3 mm
Short end floor beam	3 mm
Floor cross member (single)	2.5 mm (Ω profiles)
Fork lift pockets on the long side	distance 2,050 mm (optional 950mm)
Design of corner posts	
made of cold-rolled, welded steel profiles bolted to floor and roof frame	
Thickness of corner posts	4 mm
Design of roof frame	
made of cold-rolled, welded steel profiles, 4 corners welded	
Longitudinal roof beam	3 mm
Short end roof beam	3 mm
Roof cross members made of timber	Depending on the roof design
Cover (galvanised sheet metal)	0.60 mm

2.2 Floor

2.2.1 Thermal insulation

Insulation material

- PU or PU/PS Fire behaviour E according to EN 13501-1
- MW Fire behaviour A1 (non flammable) according to EN 13501-1

Insulation thickness

- 60 mm (PU, PU/PS or MW)
- 100 mm (MW; exclusively cabin designs for the French market)

2.2.2 Underfloor lining

- Coated sheet metal, thickness 0.60 mm
(RAL tone variations are possible depending on production)

2.2.3 Floorboards

Standard floorboards

- **P5-chipboard - thickness 22 mm**
According to product standard EN 312
E1 according to EN 13986
Fire behaviour D-s2, d0 according to EN 13501-1
- **OSB board - thickness 22 mm**
According to product standard EN 300
E1 according to EN 13986
Fire behaviour D-s2, d0 according to EN 13501-1

2.2.4 Floor cover

- **Vinyl floor cover, welded in sheets – thickness 1.5 mm**
Classification usage class 23 / 31
Fire behaviour B_{fl}-s1 according to EN 13501-1

2.3 Roof

2.3.1 Thermal insulation

Insulation material

- MW Fire behaviour A1 (non flammable) according to EN 13501-1

Insulation thickness

- 100 mm

2.3.2 Ceiling boards

- **Coated chipboard**
According to product standard EN 312
Thickness 10 mm, finish: white
E1 according to EN 13986
Fire behaviour D-s2, d0 according to EN 13501-1

2.4 Wall panels

Wall thickness

- 45 mm

Available items

- Blank full panel
- Door panel
- Window panel
- Electrical panel

External cladding

- Corrugated, galvanised and coated sheet metal, thickness 0.40 mm

Insulation material:

- PU Fire behaviour B-s3, d0 according to EN 13501-1
(sheet metal composite / sandwich panel)

Internal cladding

- **Galvanised and coated sheet metal**
Thickness 0.5 mm, finish: white (similar to RAL 9010)
Fire behaviour A1 (non flammable) according to EN 13501-1

2.5 Türen

Specification

- Design according to DIN standards
- Hinged on the right
- Outward opening
- Steel frame with triangular wrap-around seal
- Door leaf made of galvanised and coated sheet metal on both sides

Dimensions

- Standard dimension 875 x 2.125 mm
- Clear opening 811 x 2.065 mm

2.6 Windows

Specification office window

- Plastic frame with insulated double glazing, colour: white
- One hand tilt & turn mechanism

Window options:		External dimension
Standard window	Office window (float) with insulated double glazing	945 x 1,200 mm

Window parapet height

(vertical distance between FFL and upper edge of the lower window profile)

- Office window 870 mm

3 Electrical panel

- Design: surface-mounted
- Protection rating: IP20
- Socket inserts according to national standards
 - VDE
 - CH
 - IE
 - FR
 - IT
- Country specific design / variations possible

3.1 Technical data

	VDE / IT	FR	IE	CH
Connection :	External via a distribution box (to be installed separately during commissioning)			
Voltage :	230 V / 3-pin / 32 A (3x6 mm ² H07 RN-F) Country-specific with cable type RO2V or H07 ZZ-F			400 V / 5-pin / 32 A (5x6 mm ² H07 RN-F)
Frequency:	50 Hz			
Protection :	RCD 63 A / 0.03 A, 2-pin (230 V) Type A RCD 40 A / 0.03 A, 4-poles (400 V) Type A X			
Distribution box:	Distribution box, surface-mounted, single-row (fitted on the wall)			
Cable:	H05 VV-F	RO2V	H07 ZZ-F	H05 VV-F
Lighting circuit:	MCB C10A, 2-pole, 3x1.5 mm ² Country-specific with cable dimension 5x1.5 mm ²			
Sockets :	MCB C13A, 2-pole, 3x2.5 mm ²			MCB C10A, 2-pole, 3x2,5 mm ²
Socket :	2 nos. single sockets			
Lighting:	1 no. light fitting including light switch			

3.2 Earthing

After the electrical panel has been installed, the PE rail of the distribution box must be correctly connected to the earthing bolt (centre of short end) on the inside of the roof section (torque 10-15 Nm) by a qualified electrician using the 1x6mm² PE cable supplied.

Earthing by means of a universally usable earthing terminal. A drill hole with a diameter of 9.4 mm is prepared on both short ends in the floor beam of each corner for the fixture of the earthing clamp.

The earthing clamp is fitted with an M10 screw with self-cutting thread (torque 25-30 Nm). The positioning of the screw is carried out in the factory at a determined place on the cabin.

An earthing clamp is delivered with the cabin and must be installed on site by the customer.

- The protective earthing of the cabin must be carried out by the customer at the installation site.
- The effectiveness of the cabin's earthing connection and the measurement of the earthing resistance or the loop resistance must be verified by a qualified electrician on site, during the course of the electrical inspection, prior to commissioning.

3.3 Lightning and surge protection

Any measures required with regards to internal and external lightning protection (earthing, surge protection devices) due to the installation site and the sensitivity of devices used in the cabin must be observed and carried out if necessary.

3.4 Wiring

- Fixed-wired electrical panel

3.5 Safety information

The instructions for the assembly, commissioning, use and maintenance of the electrical installations are delivered in the distribution box and must be observed!

Before connecting the cabin to the supplying low voltage grid all appliances (consumer loads) need to be switched off and earthing needs to be established (earthing feed cable and earthing connecting lines between cabins need to be checked with regards to potential equity and low Ohm level).

ATTENTION: The supply lines are designed for a max. current rating of max. 32 amperes. These are not protected by with an overcurrent protection device. The connection of the cabins to the external electrical power supply may only be undertaken by a certified specialist company.

Before the cabin (modular building) is put into service for the first time, the effectiveness of the protective measures for fault protection must be verified by an authorised specialist in the form of an initial electrical test.

Cleaning with a high-pressure cleaner is FORBIDDEN. The electrical equipment of the cabin must not be cleaned by a direct water jet under any circumstances..

If the cabins are used in areas with increased lightning activity technical measures for external and internal lightning protection must be provided for a cabin (or an arrangement of several cabins) at the installation site due to national regulations or other special requirements; a lightning protection specialist must be contracted.

When cabins are placed near the ocean it is necessary to consider the special atmospheric conditions (salt content and humidity of the air) when the intervals for the periodic inspections by the operator are determined.

In case of the use of machines or appliances with high starting current peaks are used (according to the manual of the respective appliances) adequate RCD/MCBs must be used.

The electrical fittings in the cabin are designed for minimal vibration exposure. If the exposure is higher, appropriate measures (and plug/screw contact checks) must be taken depending on the national technical regulations.

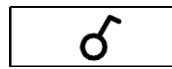
If the cabins are used in areas with earthquake risks, the national regulations must be applied and the equipment must be adapted accordingly.

The cabins have to be protected against thermal overload with a type gL fuse or gG with max. $I_N = 32A$.

3.6 Labelling of electrics (symbols)



general light



single light switch



single socket

4 Miscellaneous

4.1 Transport

Cabins must be transported on suitable trucks. Local laws for securing loads must be observed.

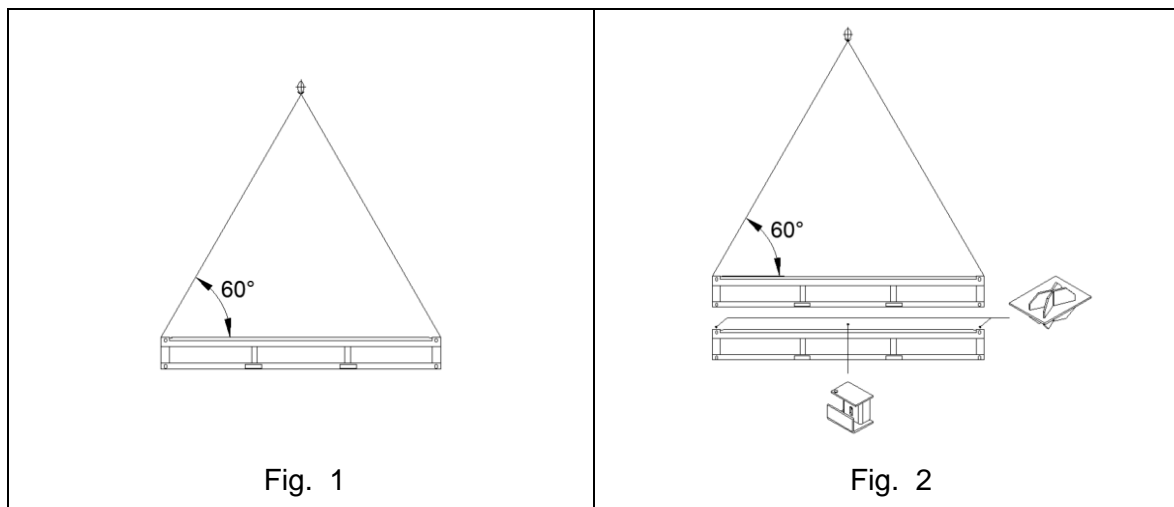
Cabins are not suitable for rail transport. Cabins must be transported empty.

CONTAINEX cabins are delivered as flatpacks (Transpacks). Standard flatpack height 460 mm.

4.2 Handling

The following handling instructions must be observed for 20' cabins (assembled or flatpacked):

- 20' cabins assembled or flatpacked can be lifted by forklift (min. fork length 2,450 mm, min. fork width 200 mm) or by crane. The ropes/chains need to be fastened to the upper cabin corners. The angle between the rope/chain and the horizontal line must be a minimum of 60° (fig. 1). The necessary rope/chain length for a 20' cabin is at least 6.5 m.
- Due to the construction and design, handling with a spreader is not possible!
- Cabins must not be handled when loaded.
- Only single cabins or flatpacks may be lifted.
- 4 nos. of stacking cones (1 in each corner) and 2 nos. supporting wedges (1 on each of the longitudinal roof beams) must be put between each flatpack (fig. 2).
- No extra weight must be put onto the top flatpack!
- A maximum of 6 flatpacks can be stacked on top of each other.



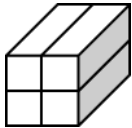
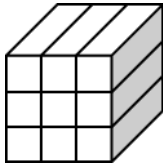
4.3 Installation / Assembly / Structural information

General

Each individual cabin must be placed onto foundations provided by site with at least 6 support points. The dimensions of the foundation have to be designed to local circumstances, norms and frost depths, taking into consideration local ground condition and maximum possible loads. The levelness of the foundations is a condition for a smooth assembly and the failure-free standing of the entire construction. Should the foundation points not be level, these must be levelled by using shims with minimum width of the floor frame profile. The design of the foundations must ensure a free drainage of rain water and sufficient ventilation underneath. When setting up or arranging the cabin (modular building), the payload and the regional conditions (e.g. snowload, wind load) must be taken into account. After removing the transport covers, the holes in the floor frame must be sealed with silicone. Packaging and transport covers must be disposed of by the customer.

Possible combinations of several cabins

Individual cabins with 14 panels fitted can be placed next to, behind, or on top of each other, while bearing in mind the assembly instructions and the max. permitted loads. When stacking the following minimum configuration sizes must be observed.

2-storey arrangement	3-storey arrangement
 2x1x2	 3x1x3

The cabin roof is not suitable for storage of any kind.

The CONTAINEX assembly and maintenance instructions must be adhered to and can be sent upon request. Operating manuals can be found inside the cabin and must be adhered to.

Before starting work, a risk assessment must be carried out in accordance with local requirements and applicable regulations. Required measures must be carried out by the assembly staff. Particularly when working on the cabin roof, safeguards must be put in place to stop anyone from falling.

4.4 Paint

Paint system with high weather and aging durability, suitable for city and industry atmosphere.

Wall panels

25 µm coating thickness

Frame

75-120 µm coating thickness

The above-mentioned parts are painted by different production methods. Thus, tones similar to RAL are achieved. We accept no liability for colour variations in comparison with RAL tones.

Further technical information upon request.

Regulatory and legal requirements regarding storage, installation and use of cabins must be observed by the customer.

The suitability of the cabin (modular building) and any supplied accessories (e.g. stairs, air conditioning etc.) for the planned application must be checked by the customer.

Technical changes, printing errors, typographical errors, and mistakes reserved.

5 Appendix

5.1 Generic foundation plan

Foundations must be designed to local conditions, standards and frost depths, taking into account the nature of the ground and the maximum loads that may occur. The customer must carry out the relevant measures.

