

FRIGOBLOCK DK 23/25

FRIGOBLOCK DK 23/25, super-flat and extremely powerful refrigeration unit fully integrated in the roof with Euro2 diesel engine for large-volume truck-trailer combinations and interchangeable bodies

FRIGOBLOCK is exhibiting for the first time at IAA 1998 a refrigeration unit fully integrated in the roof and specially developed for interchangeable bodies and large-volume as well as through-loading truck-trailer combinations, which sets new standards with regard to overall height, overall length, refrigerating and air capacity. Whereas in the past it was possible to use for this purpose only underfloor units susceptible to trouble or front wall refrigeration units, which required an approx. 800 to 900 mm long and approx. 650 to 750 mm high recess in the body, FRIGOBLOCK succeeded in reducing the **total overall height** of all components to max. **450 mm** and thus acquiring up to 300 mm more loading height despite integration of a soundproof diesel generator set with 12 kVA output.

As the purely electrically operated FRIGOBLOCK refrigeration unit is installed on the right in the travelling direction over a **length of 1180 mm** and the diesel generator set with horizontal 4-cylinder in-line diesel engine is arranged on the left in the travelling direction over a length of 1180 mm a space of 1220 mm remains in the centre between the refrigeration unit and the independent diesel generator set for a super-flat, likewise newly developed **extremely powerful roof evaporator**. This evaporator is connected directly to the front wall and for the first time also permits **forced air circulation in the front wall area** in the case of interchangeable bodies and large-volume vehicles.

In the interchangeable bodies currently on the market the roof evaporators are installed behind the recess extending far into the loading space which restricts the storage space for the second pallet row. When the new FRIGOBLOCK refrigeration unit is installed, however, not only the **first pallet row can be fully used for pallets of standard height**, but also the **second row can be fully utilised for the double-deck loading**. 3 to 6 pallet storage spaces more per body are thus available. Hence the new FRIGOBLOCK refrigeration unit ensures that the operator has 10 to 20 % more transport volume and also permits clearly simpler and quicker loading of the sensitive chilled goods.

The special roof recess with a self-supporting sandwich construction developed by FRIGOBLOCK, which houses all FRIGOBLOCK components, extends over the full vehicle body width of 2580 mm, but over only 1 pallet length. It consists of high-strength, glass-fibre reinforced plastics and replaces the roof recess otherwise required by the body-builder. With 125 mm roof thickness it minimises, for example, the **load height loss** in the two outer front corners to only **360 mm**, which already corresponds to the height of conventional flat evaporators, whereas under the new FRIGOBLOCK evaporator connected directly to the front wall only **120 mm overall height on 1220 mm width** are lost, so that unaffected through-loading is possible if required.

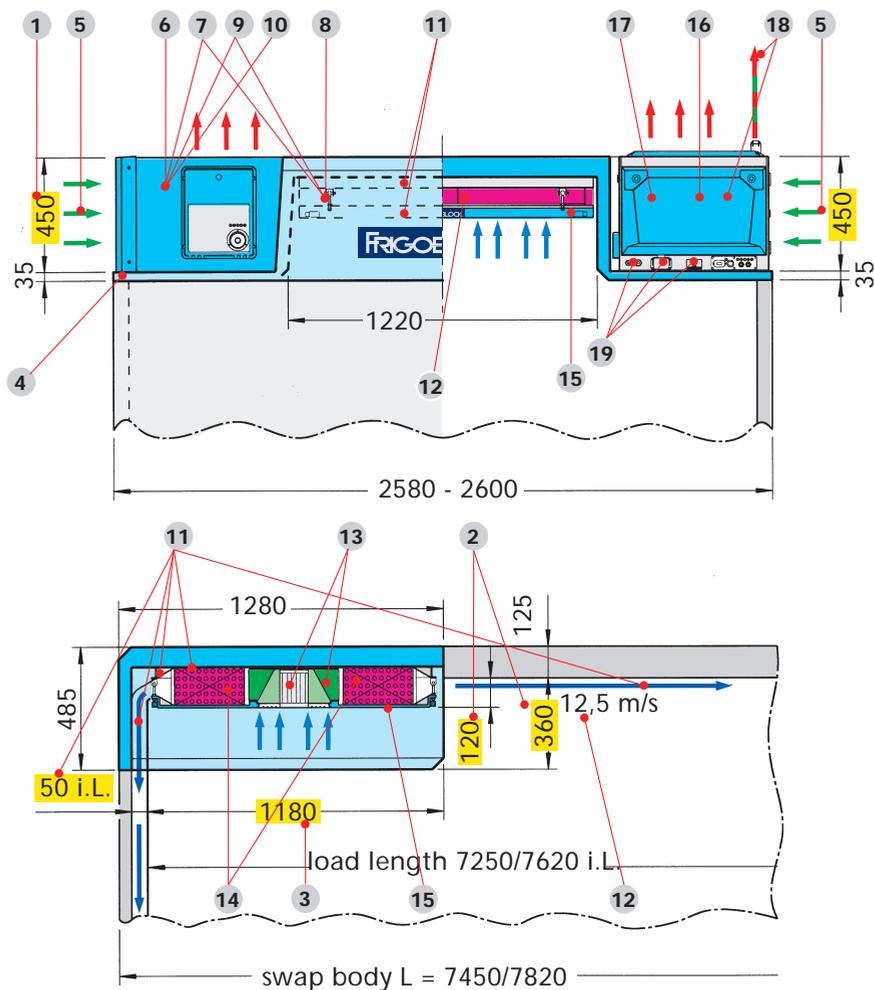
However, FRIGOBLOCK also sets new standards with regard to the noise and exhaust gas emission of the super-soundproof 12 kVA diesel generator set, which as the **first diesel-operated refrigeration machine on the market worldwide** even complies with the **stringent Euro2 exhaust gas regulations**, whereas conventional diesel-operated systems still have exhaust gas emissions increased by more than a factor of 4, which strictly speaking are permissible only for construction machinery and stationary industrial diesel engines.

In addition the diesel generator set is provided with quick-acting locks, quick-acting fuel couplings as well as plug-in connectors, so that **replacement within minutes** is possible for all maintenance and repair work. This minimises the standing times, **reduces the repair costs** and significantly increases the availability of the interchangeable bodies and truck-trailer combinations.

FRIGOBLOCK is also adopting **completely new methods** for the **outer air circulation** of the diesel generator set and the refrigeration unit. The required cooling air quantities for the condenser, water cooler and diesel engine are **drawn in** unimpeded **from the side** at the top, the air flowing through all components at right-angles to the direction of travel, so that the new FRIGOBLOCK roof refrigeration units can be used without problems with **high-roof drivers' cabs**, in all **close-coupled articulated vehicles** and in **rail transport** with its invariably undefined travelling and wind directions. As a result of the opposite direction of travel for the refrigeration unit static air with corresponding consequential damage to the refrigeration unit and diesel engine, as is the case with conventional refrigeration machines with longitudinal air throughflow, can no longer occur at specific reversing speeds of railway wagons. This means that interchangeable refrigerated containers can in future also be transported by rail without problem, in an environmentally friendly manner and particularly economically on specific routes.

FRIGOBLOCK is also setting new standards with regard to the refrigeration and air capacity. The FRIGOBLOCK **DK 23** with a **refrigeration capacity of 7500 W at -20/+30°C or 14000 W at 0/+30°C** and **air circulation of 4600 m³/h** already exceeds all capacities so far available on the market by more than 40 %. The FRIGOBLOCK **DK 25** with a **refrigeration capacity of 13200 W at -20/+30°C and 23600 W at 0/+30°C** is specially designed for the distribution of ice cream and frozen food with interchangeable bodies or with large-volume truck-trailer combinations and even ensures over 50 % **more capacity than all standard semi-trailer refrigeration units in the market**. With these unprecedented refrigeration, air and heating capacities FRIGOBLOCK also offers adequate capacities for the modern multi-compartment vehicles, in which temperature control is extremely difficult, even with the highest requirements.

FRIGOBLOCK DK 23/25



Step body refrigeration unit DK 23/25

refrigeration capacity AZ20 (R410)

-20°C 7.500 / 13.200 W

0°C 14.000 / 23.600 W

weight 142 / 172 kg

Flat evaporator RE 22, dual discharge

air flow 4.600 m³/h

forced air circulation at a distance of 50 mm

2 radial fans ø 360x120 mm, à 370 W

weight 60 kg

Diesel gen-set DS 12

Euro2 diesel, horizontal mounting, 4 cyl., 1.4 l

capacity 12 kVA at 2.000 rpm

sound proof, 60/64 dB(A) at 7 m

weight 264 kg

- 1 Total height only max. 450 mm = up to 300 mm more loading height
- 2 With 125 mm roof thickness only 120 mm less load height under the evaporator and only 360 mm under the diesel generator set or roof refrigeration unit
- 3 Total inside length including evaporator = 1180 mm = shorter than a pallet length
- 4 No front projection even with bevelled bodies = no danger of damage
- 5 Lateral fresh air intake for different travelling direction in the case of rail transport
- 6 Purely electrically operated FRIGOBLOCK refrigeration unit, fully separate from heat generation and vibrations of the diesel engine
- 7 50-100 % higher refrigeration, heating and air capacity
- 8 4-way heat pump system for efficient heating and extremely fast defrosting
- 9 Well-proven, long-life FRIGOBLOCK components for use of the high-capacity refrigerant AZ20/R410 as the only non-combustible refrigerant accepted by environmental policy also in the long term
- 10 2-speed control for further reduction of the noise level in the case of mains operation
- 11 New two-flow special evaporator with doubled air throughput and forced air circulation at the front wall with a distance of only 50 mm
- 12 12.5 m/s discharge rate, 4600 m³/h throughput (= 90 times air circulation) for optimum temperature distribution in the body even without air duct
- 13 Two special radial fans, 360 mm (with robust, powerful 3-phase AC motors, each 0.37 kW (1/2 h.p.))
- 14 Double distance between fins, unparallelled large icing air inflow and heat exchange area
- 15 Impact-resistant, insulated glass fibre-reinforced sandwich casing, can be folded down for easy maintenance
- 16 Independant super-soundproof 12 kVA diesel generator set
- 17 Horizontal 4-cylinder diesel engine with 1.4 l swept volume
- 18 First refrigeration unit in the world with Euro2 diesel engine
- 19 Quick-release locks, plug-in connectors and fuel couplings for rapid exchange, accessibility on all sides, low repair costs, high availability