Big Dutchman®

Fresh air supply systems

Optimum fresh air supply for every type of pig house

Fresh air supply systems – the right solution for every type of pig house!

Big Dutchman offers a wide range of fresh air supply systems to ensure optimal provision of fresh air. Depending on structural conditions and special requirements – high-velocity ventilation, diffuse air, negative or balanced pressure – the following systems can be implemented:

- ✔ fresh air inlets for installation into the wall or ceiling;
- ✔ perforated air channel and DiffAir ceiling;
- ✔ fresh air chimneys.

Let our experts advise you on how to find the best solution for your individual requirements.

FRESH AIR INLETS FOR STABLE HIGH-VELOCITY VENTILATION

CL 1200, CL 1211 F, CL 1200 B/F, CL 1911 F, ZEW Polar

Fresh air inlets for wall installation

The wall inlets of the CL series are made of shock-proof, recyclable, non-deformable, UV-stabilised plastic and can easily be cleaned with a high-pressure cleaner. The insulated inlet flap is kept in a closed position by rustproof steel springs, thus sealing the building airtight. The inlet flap is pulled open. This allows the farmer to regulate the inlet opening very precisely in each season. As an example from the winter season: the cold, outside air enters the building, immediately combining with the warm, inside air. This process helps create a more comfortable climate for the animals and can easily be managed with a control set. This control set opens the fresh air inlets either all at once or individually.

CL 1200 – multi-purpose wall inlet

CL 1211 F – flange inlet for sandwich panels

CL 1200 B/F – economical flange inlet

CL 1911 F – flange inlet for sandwich panels, with high air rate

Due to the patented advanced inlet control (AIC), a single action at each inlet pre-defines which inlets open first and which open later.
If the number of opened inlets is reduced, especially during the cold season or while heating is necessary, the remaining inlets can be opened further, which makes for a more stable airflow.

ZEW Polar 1300 – wall inlet for cold regions

The **ZEW Polar 1300** wall inlet is made of polyurethane rigid foam – a very stable material with good insulating properties. The inlet can be easily cleaned with a high-pressure cleaner.
The inlet flap of the ZEW Polar 1300 stays in line with its frame when open. Thanks to this special feature, the cold fresh air and the warm, humid house air only meet in areas outside the inlet. The flap therefore opens and closes reliably, even at very low temperatures, and less ice forms.

CL 1540 and ZED 5000

Fresh air inlets for the ceiling and combi-diffuse ventilation

CL 1540 – multi-purpose ceiling inlet

The **CL 1540** is a multi-purpose ceiling inlet. The materials of this inlet are made of recyclable, shock-proof, non-deformable and UV-stabilised plastic. Rustproof steel springs keep the insulated inlet flap closed.
The inlet flap opens in a downward motion, helping create a forward-moving airflow in the direction the flap is facing. The air always flows along the ceiling, whether the inlet is opened fully or only sightly. This is done to avoid draughts in the animal area. The corresponding control set opens the ceiling inlets either at once or individually.
If a ceiling has a thickness of more than 110 mm (for example, if mineral wool is used) and/or to enhance the performance of the ceiling inlets, an optional intake funnel is available. The 1540, specifically, can be used for fresh air supply from the attic or for combi-diffuse ventilation.

ZED 5000 with extension – ceiling inlet with high air rate

The **ZED 5000** inlet is made of polyurethane and is equipped with a flange so it can be fastened to the ceiling. This inlet can produce very high air rates and is therefore especially well suited for additional summer ventilation when combined with a DiffAir ceiling (combi-diffuse ventilation).
Another area of application is the so-called aisle ventilation for which the ceiling inlets are installed above the feed aisle. This ensures that fresh air is directed into the feed aisle.

Central aisle placement of the ZED 5000 brings fresh air into the aisle

Combi-diffuse ventilation is a combination of two ventilation systems. In case of low outside temperatures, fresh air is supplied by means of the DiffAir ceiling. This allows the air to flow very evenly and at a low speed along the ceiling. In case of high outside temperatures, ceiling inlets are automatically opened by the 135*pro* or 235*pro* climate computer. This effect causes the air to enter the pen at a much higher speed. The animals then feel much more comfortable with the perceived lower temperatures created with higher air speeds, and productivity increases.

Air performance in m³/h of wall and ceiling inlets when fully opened

Model	**CL 1211 F**	**CL 1200 B/F**	**CL 1220**	**CL1224**	**CL 1229**	**CL 1233**	**CL 1911 F**	**ZEW Polar 1300**
Code no.	60-44-3111	60-43-3009	60-44-3140	60-44-3144	60-44-3149	60-44-3153	60-43-4011	60-47-3791
-10 Pa	1 000	1 000	1 200	1 250	1 280	1 350	1 750	1 300
-20 Pa	1 450	1 450	1 700	1 750	1 800	1 940	2 500	2 000
-30 Pa	1 700	1 700	2 050	2 120	2 170	2 300	3 050	2 400

Model	**CL 1540**		**ZED 5000 o.a.**	**with extension**	**ZED 5000 c.a.**
Code no.	46-70-0717		60-47-3364	83-09-5830	60-47-3365
-10 Pa	1 250	1 450*	3 640	4 000	3 640
-20 Pa	1 750	2 100*	5 480	5 800	5 480
-30 Pa	2 100	2 550*	6 530	7 200	6 530

* with intake funnel, code no. 60-40-1323 (standard) and 60-40-1324 (long);
o.a. – opens automatically, c.a. – closes automatically

Useful accessories to help you

1 Net protection against birds

The CL 1200 series has a self-supporting plastic net which is fastened to the inlet from the outside by means of a simple locking system.

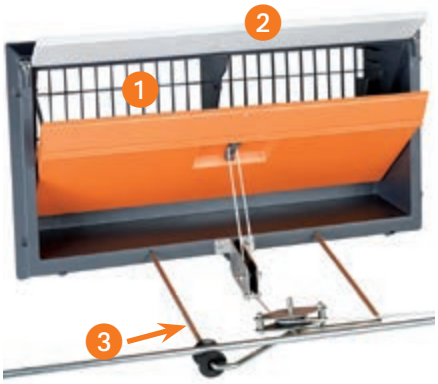
2 Air deflector

The air deflector is mounted at the upper edge of the inlet and enables precise distribution of the incoming airflow, especially in cold weather.

The direction of the airflow can be adjusted individually for each building by changing the angle between the deflector and the wall.

3 Spacer

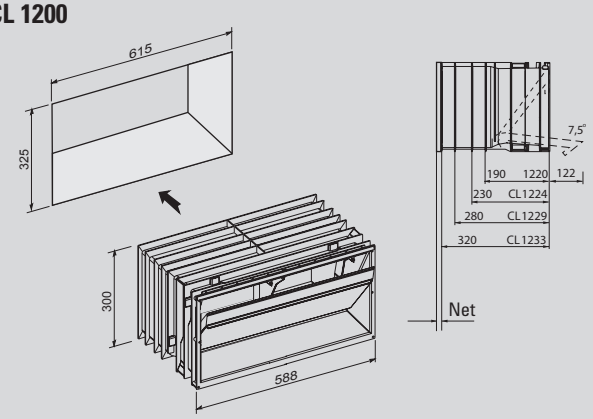
Spacers are used when tension rods have to be guided around posts along the house wall. The maximum distance to the wall is 24 cm (one spacer per inlet).



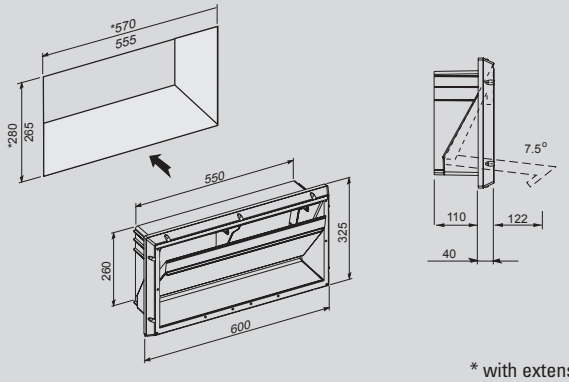
Dimensions and installation of wall and ceiling inlets

The installation height of the wall inlets depends on the type of building and production method, and has to be planned individually for each project. The wall and ceiling inlets are designed to provide customised air rates for individual requirements.

CL 1200

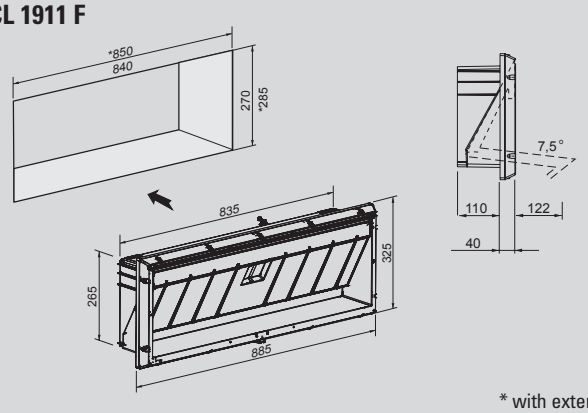


CL 1211 and CL 1200 B/F



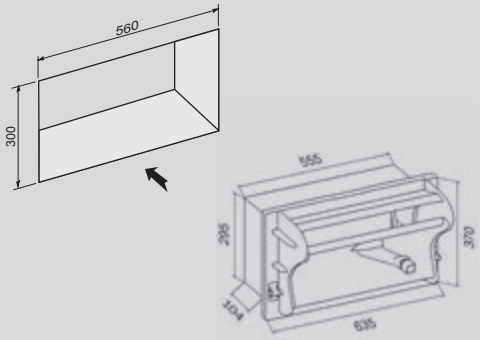
* with extension

CL 1911 F

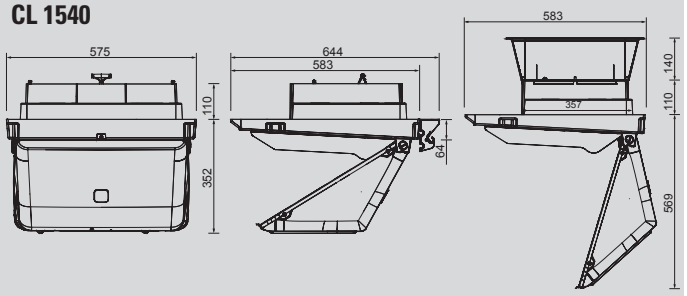


* with extension

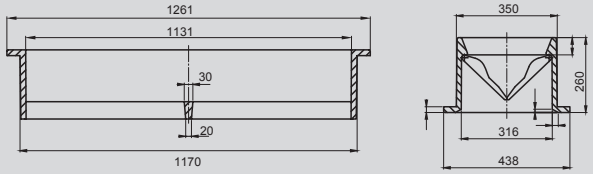
ZEW Polar 1300



CL 1540



ZED 5000



All dimensions in mm

Perforated air channel

A universal method for supplying fresh air

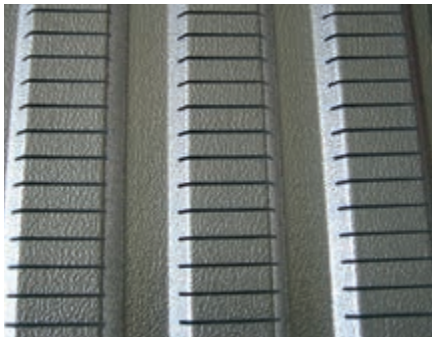
Due to their modular design, perforated air channels are suitable for nearly every house type with an inserted ceiling below the attic. They are available in five different widths and consist of heat-insulated polyurethane (PU) plates. The individual hole pattern of the perforated plate ensures optimum fresh air ventilation throughout the house. Furthermore, this system guarantees an ideal adaptation to maximum summer air temperatures or conditions. The PU plates can also be used as partially or completely perforated ventilation ceilings.

Air distributed by a perforated air channel in the ceiling of a dry sow house with ESF system

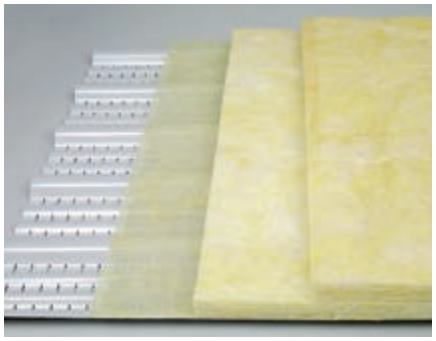
DiffAir ceiling

Fresh air provided throughout the entire ceiling

DiffAir ceilings consist of glass-reinforced plastic (GRP) trapezoidal or aluminium sheets. Aluminium sheets have the advantage of being incombustible. DiffAir ceilings are installed at a height of 2.40 to 3 m. They serve both as a diffuse air supply system and economical ceiling insulation, consisting of specially treated glass wool. Two layers of the glass wool are provided, permeable to airflow. An additional layer of fleece between the glass wool and the DiffAir plate acts as a water repellent. Fresh air enters uniformly along the entire ceiling for an even distribution while ensuring the maximum permitted air speed in the animal area.



DiffAir plate made of aluminium



Structure of a DiffAir ceiling

DiffAir ceiling in combination with the CL 600 exhaust air chimney

Technical data

	DiffAir plate made of GRP	DiffAir plate made of aluminium
Standard dimensions:	5.10 m x 1.05 m (customised lengths upon request)	5.10 m x 1.05 m (customised lengths upon request)
Plate thickness:	0.9 mm or 1.5 mm	0.35 mm
Weight:	approx. 3 kg/m² (incl. glass wool)	approx. 2.7 kg/m² (incl. glass wool)
Perforation:	approx. 7 %	approx. 7 %
Insulating material:	2 glass wool layers of 4 cm each and glass fibre non-woven	
Fastening material:	Plumber sealing screws V2A; 4.5 x 35 mm	
Max. span:	1.20 m for a plate thickness of 0.9 mm 2.40 m for a plate thickness of 1.5 mm	1.20 m for a plate thickness of 0.35 mm

FAC 2 (Fresh Air Chimney)

Supplying fresh air directly from the roof

The **FAC 2 fresh air chimney** draws fresh air from the rooftop and distributes it evenly throughout the barn.
The stable pipe system is GRP coated on both the inside and the outside, and is insulated with 30 mm of polyurethane. This gives the chimney a long service life and makes cleaning easier. FAC 2 is available in four diameters (650, 730, 820 and 920 mm).
The fresh air distributor at the lower end of the chimney ensures that the entering air is distributed evenly inside the house. This creates a stable airflow even with minimum ventilation.
FAC 2 is available with central or individual control. For individual control, the actuator is installed directly in the chimney. Central control of multiple chimneys is carried out with only one actuator via cables and tension rods.
As pigs are very sensitive to draughts, a recirculation unit including a fan is a standard feature of FAC 2. This unit distributes cold incoming air more evenly in the house, especially in winter.
As an option, FAC 2 can be equipped with a fan inside the chimney. This fan pushes the fresh air drawn in by the chimney through the fresh air distributor and into the house to create a balanced pressure system.

FAC 2 is especially suitable where

- ✔ fresh air distribution along the side walls or an inserted ceiling is not possible or not wanted;
- ✔ the barn is extremely wide and very low so that good air circulation with only wall inlets is not feasible;
- ✔ a balanced-pressure ventilation should be used, e.g. to compensate for air leakages in the building.

FAC 2 with actuator for individual control

FAC 2 with wire mesh guard and recirculation unit with fan for even distribution of the fresh air

Air performance in m³/h of FAC 2 when fully opened

Pa / Ø	650 mm	730 mm	820 mm	920 mm
-10 Pa	4 900	6 100	6 700	9 500
-20 Pa	7 000	8 900	11 000	13 700
-30 Pa	8 600	11 000	13 500	16 900
Balanced pressure:	13 600	17 900	24 700	24 600

The recirculation fan creates a mixture of fresh air and warm house air. A temperature sensor installed in one of the fresh air chimneys allows the recirculation fans to switch on or off at a specific temperature.

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Technical details subject to change. en 10/2015