



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 piggery!

To ensure an optimum fresh air supply, Big Dutchman offers a wide product range of different fresh air supply systems. Depending on the existing structure and the essential requirements – high velocity

ventilation, diffuse fresh air supply, negative pressure, positive pressure or equal pressure ventilation – the following systems can be implemented:

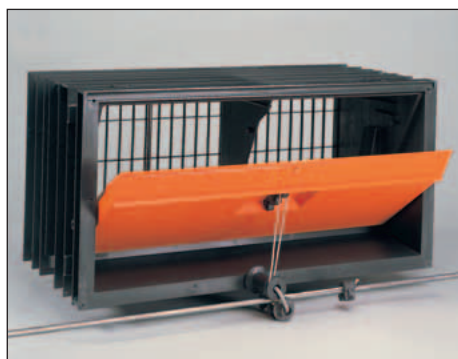
✓ wall or ceiling inlets

✓ spray cooling channel or spray cooling over DiffAir ceiling
✓ FAC – fresh air chimney.
Let our experts advise you in detail.

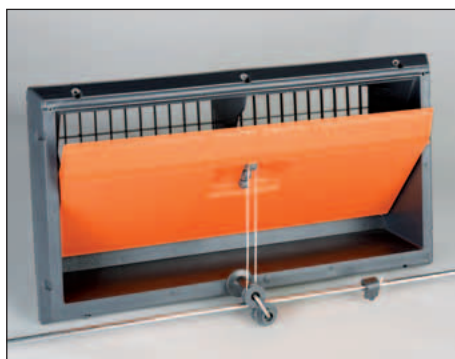
Wall and ceiling inlets for uniform fresh air supply

CL 1200, CL 1211 F and CL 1200 B/F

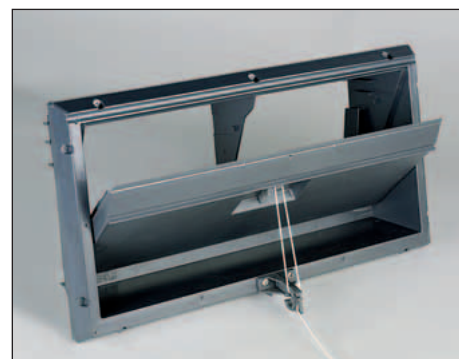
Air inlets for installation in the wall



CL 1200 – multi-purpose wall inlet



CL 1211 F – flange inlet for sandwich panels



CL 1200 B/F – economical flange inlet

Wall inlets are best used in pig houses. The CL 1200 inlet is designed for thick wall structures, such as brick, while the flange inlets CL 1211 F and CL 1200 B/F are especially suited for thin walls.

This type of inlet consists of recyclable, shock-proof, non-deformable, UV-stabilized plastic and can easily be cleaned with a pressure washer. The insulated inlet flap is kept in a closed position by means of rust-proof steel springs which seal the building airtight. The inlet flap can be

opened by a downward pull. This allows the producer precisely to regulate the inlet opening during each season. The cold fresh air enters the barn from above and mixes with warm house air before it reaches the animals.

By means of the corresponding control set, the fresh air inlets can either be opened all at once or individually.

Thanks to the patented differentiation, the producer can select, by means of a simple adjustment on each inlet, which inlets are

to be opened first and which inlets are to be opened later. If the number of opened inlets is reduced, especially during the cold season or during the heating period, the remaining inlets can be opened further which makes for a more stable airflow.

Useful accessories for wall inlets CL 1200, CL 1211 F and CL 1200 B/F

1 Self-supporting net

The plastic net is fastened to the wall inlet from the outside. It keeps birds and other small animals from entering the barn through the inlet.

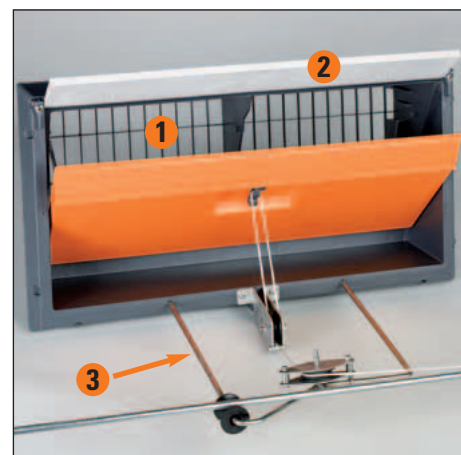
2 Air deflector

The air deflector is mounted to the upper edge of the inlet and enables precise direction of the incoming air flow, especially in cold weather. The direction of the air flow can be adjusted individually for each

building by changing the angle between the deflector and 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).



CL 30 S, CL 1500 and ZED 5000

Ceiling inlets for fresh air supply from the attic space and for combi-diffuse ventilation

The **CL 30 S** is made of polyurethane and is equipped with a flange for fastening to the ceiling. The inlet flap opens downwards and controls the fresh air supply precisely. In cold weather, the inlet opening is small, which means the air is directed into the house in a horizontal direction close to the ceiling and can mix with the house air uniformly. In warm weather, the inlet flap

opens diagonally downwards and the air is led directly into the animal area. Since there is only a limited opening, there is no direct vertical air jet, which means that there is no draught in the animal area. The corresponding control setting ensures the ceiling inlets may be opened all together or individually. The CL 30 S is mainly used for fresh air supply from the attic space.



CL 30 S – the economical ceiling inlet

The **CL 1500** is a multi-purpose ceiling inlet made of recyclable, shock-proof, non-deformable, UV-stabilized plastic material. The insulated inlet flap is kept in closed position by means of rust-proof steel springs.

The inlet flap opens and steers the flow of the incoming fresh air by a downward pull.



CL 1500 – multi-purpose ceiling inlet

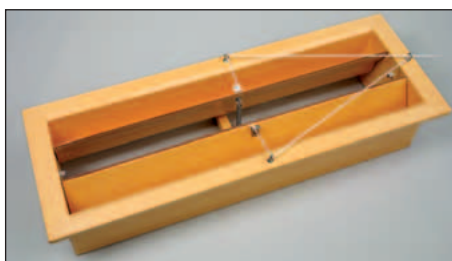


The airflow is always guided along the ceiling, no matter if the inlet is only slightly or fully open. This is done to avoid draught in the animal area. The corresponding control setting ensures the fresh air inlets may be opened all together or individually.

If a ceiling has a certain thickness > 110 mm (for example if mineral wool is used) and/or to enhance the performance of the ceiling inlets, an optional inlet funnel is available. The CL 1500 can be used for fresh air supply from the attic space or for combi-diffuse ventilation.

The **ZED 5000** inlet is made of polyurethane and is equipped with a flange for fastening to the ceiling. It is characterised by very high air rates and especially suitable for additional summer ventilation in combination with a DiffAir ceiling (combi-diffuse ventilation).

An additional area of application is the so-called aisle ventilation for which the ceiling inlets are installed in the ceiling above the feed aisle. This ensures that fresh air is directed into the feed aisle.



ZED 5000 – the ceiling inlet with high air rate

Furthermore they can be used as fresh air inlets for central aisles.



Use of the ZED 5000 in a central aisle



Combi-diffuse ventilation is a combination of two different ventilation systems. In case of low outside temperatures, diffuse fresh air is supplied over the DiffAir ceiling. It ensures an even supply of air at a slow air speed across the entire ceiling.

In case of high outside temperatures, the ZED 5000 ceiling inlets are automatically added to the ventilation by the MC 135 / MC 235 climate computer. This causes the air to enter the barn at a much higher speed which reduces the temperature

perceived by the animals, thus increasing animal comfort by keeping the animals cool. This cooling effect makes for better well-being and thus a higher production yield.

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

Type	CL 1211 F	CL 1200 B/F	CL 1220	CL1224	CL 1229	CL 1233
Code No.	60-44-3111	60-44-3112	60-44-3140	60-44-3144	60-44-3149	60-44-3153
-10 Pa	1 000	1 000	1 200	1 250	1 280	1 350
-20 Pa	1 450	1 450	1 700	1 750	1 800	1 940
-30 Pa	1 700	1 700	2 050	2 120	2 170	2 300
-40 Pa	2 000	2 000	2 400	2 490	2 550	2 700

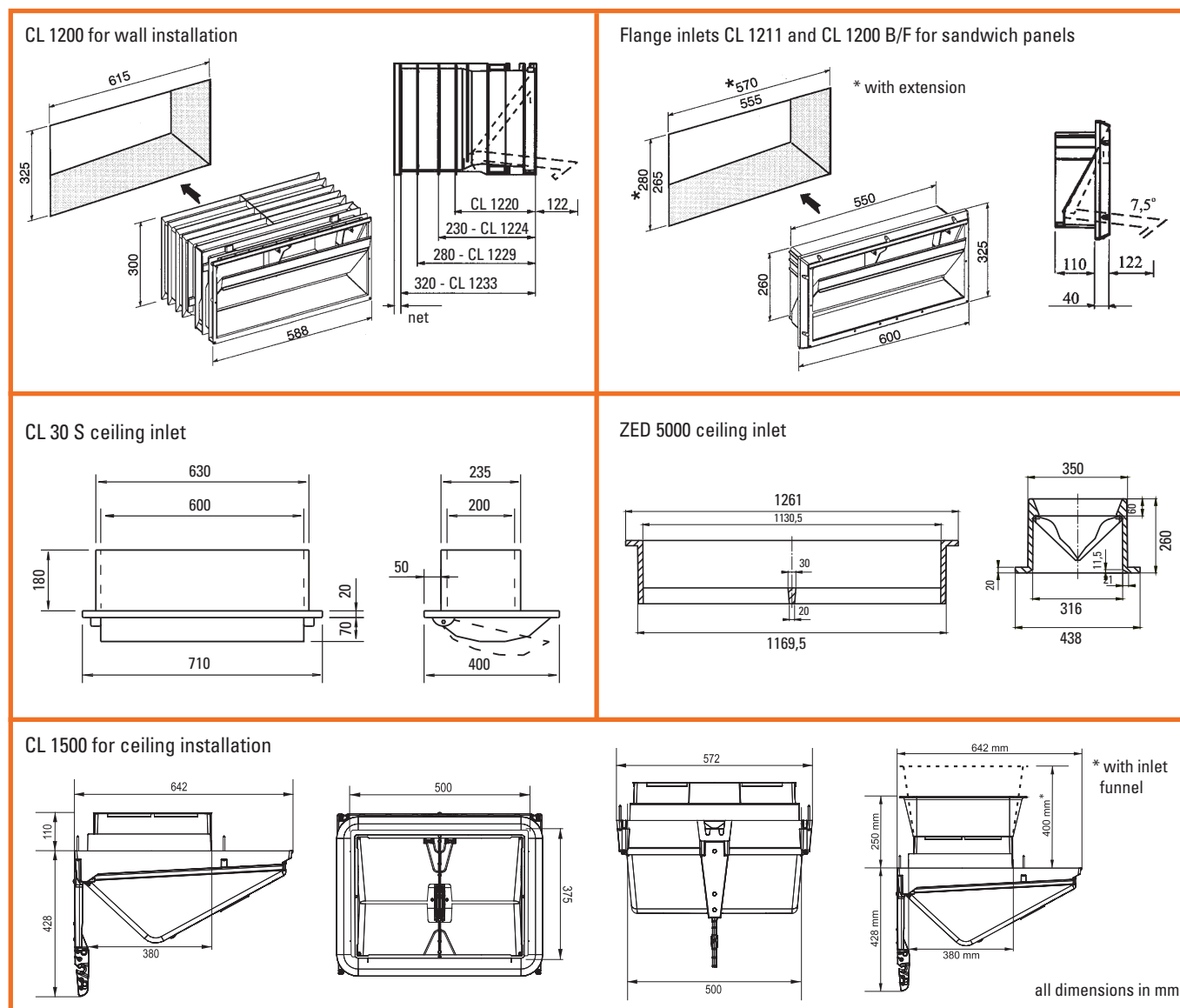
Type	CL 30 S	CL 1500	ZED 5000 s.o.	ZED 5000 s.c.
Code No.	60-40-1305	60-40-1321	60-47-3364	60-47-3365
-10 Pa	1 080	1 200	1 400*	3 640
-20 Pa	1 450	1 700	2 000*	5 480
-30 Pa	1 770	2 100	2 450*	6 530
-40 Pa	2 100	2 400	2 850*	7 680

* with inlet funnel; Code No. 60-40-1323 (regular); 60-40-1324 (long); s.o. - self-acting opening, s.c. - self-acting closing

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 customized air rates for individual requirements.



Diffuse fresh air supply systems

Spray-cooling channel

Uniform air supply in the animal area

Due to their modular design, spray-cooling channels are suitable for nearly every house type with an inserted ceiling. They are available in five different widths and consist of heat-insulated polyurethane plates. The individual hole pattern of the spray-cooling plate ensures optimum fresh air ventilation throughout the barn. Furthermore, this system ensures in ideal adaptation to maximum summer air rates. The PU plates are used as partial or completely perforated spray-cooling ceiling.



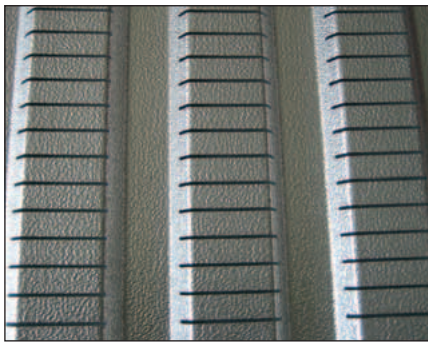
Fresh air supply over spray-cooling channel in the waiting area

DiffAir

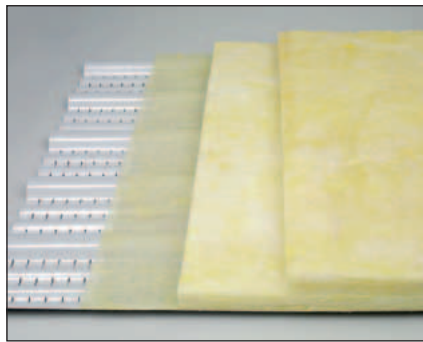
Uniform fresh air supply over the entire ceiling

The DiffAir spray-cooling ceiling consists of glass fibre-reinforced plastic (GRP) trapezoid sheets that are installed in the barn at a height of 2.40 to 3 m. We additionally offer these sheets made of aluminium, with the advantage that they are incombustible.

DiffAir serves both as a diffuse air supply system and economical ceiling insulation consisting of specially treated glass wool that is installed in two breathing layers. An additional layer of fleece between the glass wool and DiffAir plate acts as a water-repellent.



DiffAir plate made of aluminium



Structure of the DiffAir ceiling



DiffAir ceiling in combination with CL 600 exhaust air chimney

Air enters uniformly over the entire ceiling thus ensuring a uniform distribution of fresh air under observance of the maximum permitted air speed in the animal area.

Technical specifications

	DiffAir plate made of GRP	DiffAir plate made of aluminium
Standard dimensions:	5.10 m x 1.05 m (customised length available upon request)	5.10 m x 1.05 m (customised length available upon request)
Plate thickness:	0.9 mm or 1.5 mm	0.35 mm
Weight:	approx. 3 kg/m ² (incl. glass wool)	approx. 2.7 kg/m ² (incl. glass wool)
Perforation:	approx. 7 %	approx. 7 %
Insulating material:	2 glass wool layers of 4 cm each and glass fibre fleece	
Fixing material:	stainless steel screws, 4.5 x 35 mm	stainless steel screws, 4.5 x 35 mm
Max. bearing distance:	1.20 m with a plate thickness of 0.9 mm 2.40 m with a plate thickness of 1.5 mm	1.20 m with a plate thickness of 0.35 mm

Fresh air chimney for uniform fresh air supply through the ceiling

FAC

Fresh air chimney for negative pressure, positive pressure or equal pressure ventilation

With the fresh air chimney (FAC) fresh air is guided into the house over the ceiling.

The stable pipe system is GRP coated on the inside and on the outside and is insulated with 30 mm of polyurethane for a long service life and better cleanability. FAC is available in four diameters (650, 730, 820, 920 mm).

The fresh air distributor has an 8-pocket structure which creates a stable air jet even in the case of minimum ventilation. In winter individual pockets can optionally be closed by means of flaps.

The FAC is available with central or individual control. For individual control, the servomotor is installed directly in the fresh air chimney. Central control is carried out with only one servomotor via cables and tension rods.

If the FAC is equipped with a fan (optional) inside the chimney, it can also be used for equal or positive pressure ventilation. The fan pushes the negatively-pressured incoming fresh air into the house through the fresh air distributor.

FAC is especially suitable:

- ✓ if fresh air supply over the side walls or the intermediate ceiling is not possible ("monobloc-design") or not wanted;
- ✓ if the building is extremely wide and

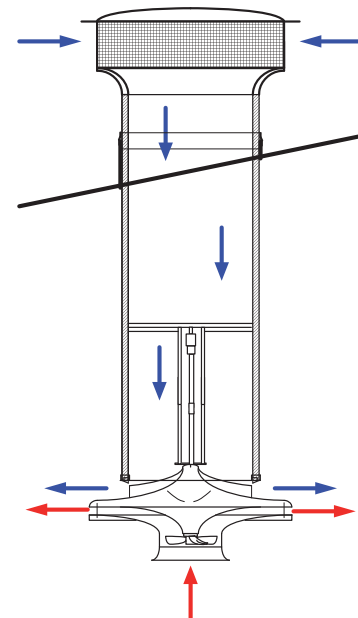
very low so that an all-encompassing air flow via wall inlets is not possible;
 ✓ if equal or positive pressure ventilation is to be used, for example due to leakages at the building.

Because pigs are very sensitive to draughts, the FAC is equipped with a recirculation unit in order to distribute cold incoming fresh air more evenly in the barn, especially in the winter.

The recirculation fan creates a supporting layer of air which then carries the fresh air



FAC fresh air chimney with protection screen (option) and recirculation unit



The recirculation unit provides a very uniform distribution of fresh air

Air performance (m³/h) of the FAC when maximally open

Pa / Ø	650 mm	730 mm	820 mm	920 mm
-10 Pa	4 500	5 800	6 800	7 800
-20 Pa	6 400	8 600	10 000	11 800
-30 Pa	7 800	10 100	11 400	14 200
-40 Pa	9 100	11 700	13 400	16 500
equal pressure:	12 300	14 200	17 500	22 900



Big Dutchman®

Big Dutchman Pig Equipment GmbH
 P.O.Box 1163 • 49360 Vechta • Germany
 Tel. +49(0)4447-801-0 • Fax +49(0)4447-801-237
 www.bigdutchman.de • E-Mail: big@bigdutchman.de