



# Big Dutchman®



## **Fresh air supply systems**

Optimum fresh air supply for every type of poultry production

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

Big Dutchman offers a wide range of fresh air supply systems to ensure optimal provision of fresh air. Depending on the building conditions and the special requirements of your birds, our product range includes a variety of fresh air

supply systems that can be used for negative or balanced pressure systems, side or CombiTunnel ventilation:  
 ➤ fresh air inlets for installation into the wall or ceiling

- fresh air chimneys for negative and balanced pressure ventilation
- large air inlets for tunnel ventilation

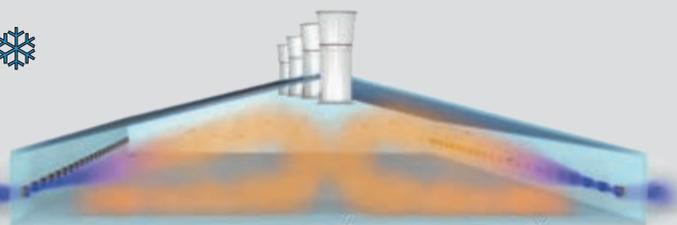
Let our experts advise you about the best fresh air supply system for your barn.

## FRESH AIR INLETS FOR INSTALLATION INTO THE WALL OR CEILING

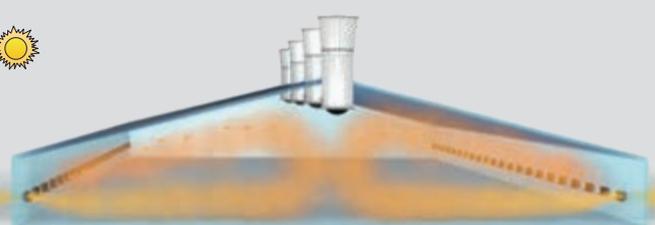
Wall and ceiling inlets are well-suited for non-centralised fresh air supply in poultry houses. Whether the inlet is to be embedded in a wall, used as a flange inlet for walls made of

sandwich panels or installed in the ceiling, Big Dutchman can offer the best solution for every application. For both high and low outside temperatures, the target is creating

stable and circulating air flow so temperature conditions are the same for all birds in the barn.



When outside temperatures are low, the fresh air flows along the ceiling, where it warms up before it slowly enters the bird area.



When outside temperatures are high, the inlets are fully opened and the birds directly benefit from the fresh air.

## CL 1200 and CL 1911 F series

The inlets with the greatest range!



CL 1200 – multi-purpose wall inlet



CL 1200 B/F – economical flange inlet



CL 1211 F – flange inlet for sandwich panels



CL 1211/F Anti-Freeze – flange inlet with the best possible insulation of inlet flap and frame for very cold regions with temperatures below -25 °C: nearly no formation of ice at the inlet

Our well-proven wall inlets are made of a shock-proof, recyclable, non-deformable and UV-stabilised plastic material. The insulated inlet flap is kept in a closed position by rustproof steel springs (not applicable for inlets type B/F), thus sealing the building airtight. The inlet flap opens through downward pull. This allows very precise regulation of the inlet opening in each season.

The corresponding control set opens the fresh air inlets either all at once or individually. With the patented advanced inlet control (not applicable for inlets type B/F), 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 air flow.



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



CL 1911 F Tropical – flange inlet for regions with temperatures never below 10 °C

## Air flow rate with inlet fully open (in m<sup>3</sup>/h)

Type	CL 1211 F	CL 1200 B/F	CL 1220	CL1224	CL 1229	CL 1233	CL 1911 F	with light trap*
Code no.	60-44-3111	60-43-3009	60-44-3140	60-44-3144	60-44-3149	60-44-3153	60-43-4011	60-43-3064
-10 Pa	1 000	1 000	1 200	1 250	1 280	1 350	1 750	990
-20 Pa	1 450	1 450	1 700	1 750	1 800	1 940	2 500	1 420
-30 Pa	1 700	1 700	2 050	2 120	2 170	2 300	3 050	1 680
-40 Pa	2 000	2 000	2 400	2 490	2 550	2 700	3 550	2 000

\* When using the light trap, all wall inlets of the CL 1200 series have the same reduced air flow rate.



Typical broiler house in Northern Europe with fresh air supply through CL 1911 F wall inlets



Aviary house with CombiTunnel ventilation, using CL 1911 F wall inlets and MVT shutters

## The advantages at a glance

- ✓ ideal supply of fresh air with negative pressure ventilation;
- ✓ advanced inlet control creates stable air jets, especially with minimum ventilation;
- ✓ strong tension springs close the insulated and non-deformable inlet flap (integrated profile made of aluminium) so the barn is absolutely airtight;
- ✓ exact control of the inlet opening thanks to strong tension springs: stable air circulation all the way to the centre of the barn, uniform temperatures in the entire barn while heating requirements remain low;
- ✓ the use of high-quality materials ensures a long service life of the inlets;
- ✓ very versatile application;
- ✓ a high-pressure cleaner can be used without any concern.

- ✓ The best series of fresh air inlets with the best accessories!
- ✓ Practically maintenance-free!
- ✓ A service life of more than 20 years is not uncommon, but the rule!

# CL Flex

## The flange inlet for very large barns

CL Flex is available in different widths, allowing the realisation of different air rates. Using a counterweight of one kilogram, the inlet opens when it is no longer pulled closed. Thanks to the inlet's optimised geometry and the lateral guide plates, stable air jets create

good air circulation in the entire room. During development, special attention was paid to a reliable sealing of the closed inlet. The inlet flap has good aerodynamic properties with a tear-off edge and integrated air guide at the frame, stabilising the air flow further.

The inlet's size is flexible so it can easily be adjusted to many different building requirements.



### Air flow rate with inlet fully open (in m<sup>3</sup>/h)

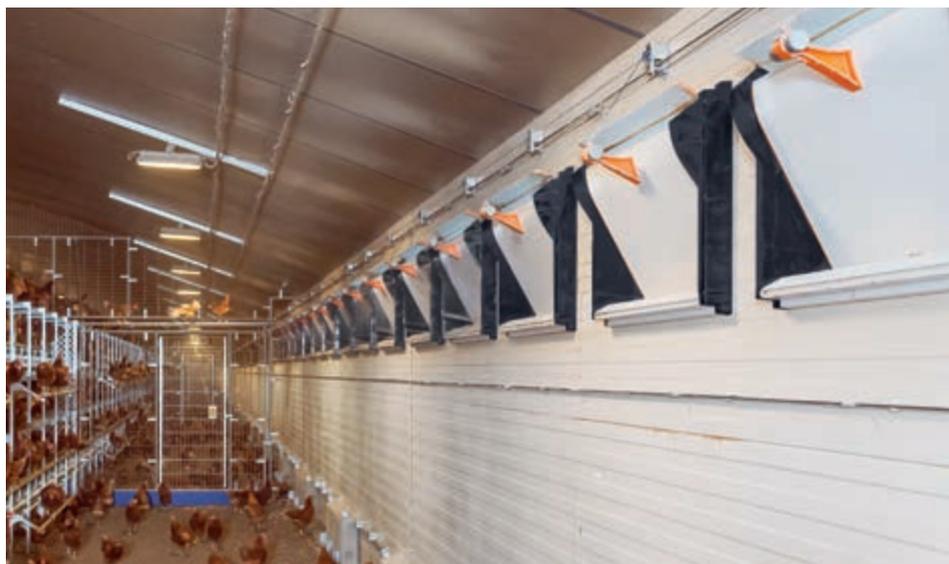
Type Code no.	CL 2400 Flex 60-44-3111	CL 3000 Flex 60-43-3009	CL 3400 Flex 60-44-3140	CL 3800 Flex 60-44-3144
-10 Pa	2 400	3 000	3 400	3 800
-20 Pa	3 350	4 200	4 800	5 350
-30 Pa	4 150	5 250	5 950	6 650
-40 Pa	4 800	6 050	6 900	7 700

### The advantages at a glance

- ✓ ideal supply of fresh air with negative pressure ventilation;
- ✓ available in four different sizes and thus easy to adjust to the building requirements;
- ✓ the inlet is pulled closed to control the inlet opening: stable air circulation all the way to the centre of the barn, uniform temperatures in the entire barn;
- ✓ an air deflector ensures perfect air flow towards the ceiling;
- ✓ a manual advanced inlet control set closes individual inlets;
- ✓ the use of high-quality materials ensures a long service life of the inlets;
- ✓ a high-pressure cleaner can be used without any concern.



AviMax transit: fresh air supply through the CL Flex flange inlet



Aviary house with NATURA Step: fresh air supply through the CL Flex flange inlet

# The perfect accessories for our wall inlets

Useful, effective and sometimes indispensable

## 1 Protective net against birds

This net stops birds and small animals from entering the barn through the inlet.

For the CL 1200 series, we offer a self-supporting plastic net that comes in two different mesh sizes. The net is attached to the outside of the inlet by a simple locking mechanism.

For CL Flex inlets, the net is made of galvanized wire mesh and also attached to the outside of the inlet.

## 2 Air deflector

With the air deflector, the direction of the air flow can be adjusted individually for each building, simply by changing the angle between deflector and wall. This makes for a precise distribution of the fresh air. A too steep angle when the air flow hits the ceiling is also prevented so that the air does not drop into the bird area unintentionally. The air deflector is easy to mount at the upper edge of the inlet. We offer a short version as well as a 15 cm long version for ceilings that are not smooth.

In poultry houses, fresh air inlets should be protected against wind and light. If installing a continuous wind/light plate in front of the inlets is not possible or not requested, we can offer the following accessories:

## 4 Anti-wind cap

The anti-wind/anti-weather cap is recommended especially for barns without eaves. The cap is a reliable protection against the weather.

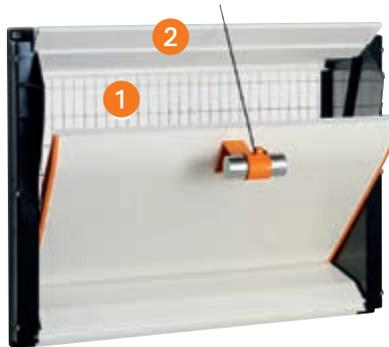
If special lighting programs are used, the light must be kept out entirely or partially during the dark phase, depending on the management type.

## 5 Light trap

In combination with the anti-wind cap, the light trap reduces the incidence of light very well. The air flow rate is hardly affected.

## 6 Light trap for CL 1200

For wall inlets of the CL 1200 series, this light trap is well-suited for rearing and breeder houses. It fully reduces the incidence of light ("dark-out").



## 3 Intake nozzle with protective net against birds for CL 1911 F

This nozzle significantly reduces the turbulence when the air flows into the inlet, thus ensuring more stable air jets, even with a small inlet opening. When the inlet is opened fully, air flow rates will increase by approx. 20 percent! This means that either the number of wall inlets to be installed can be reduced, or the maximum negative pressure is lowered, thus increasing the fans' efficiency. Retrofitting is no problem either.

The protective net stops birds and small animals from entering the barn through the inlet.



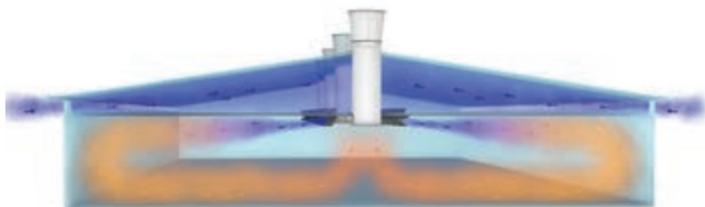
# CL 1540

## Fresh air inlet for installation in a ceiling below the attic

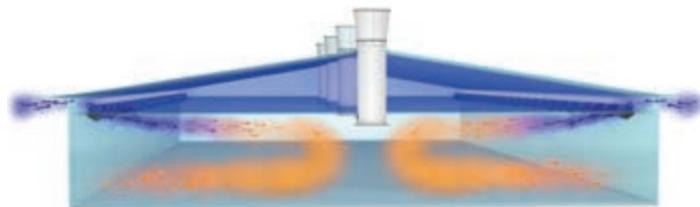
The ceiling inlet CL 1540 is made of a recyclable, shock-proof, non-deformable and UV-stabilised plastic material. It should be installed into a ceiling that has been insulated, if possible. Even with a ceiling inclination of up to 15 degrees, CL 1540 will close reliably. This is guaranteed by rust-proof steel springs that keep the insulated inlet flap closed. Fresh

air enters the barn through the attic. The roof should also be insulated to prevent heat build-up in the summer. The inlet's flap opens through downward pull, which allows controlling the amount of incoming air. The air always flows along the ceiling (which should be as barrier-free as possible), whether the inlet is opened fully or only slightly. With the

corresponding control set, the ceiling inlets are either opened all at once or individually. For laying aviaries, the inlet is often installed in the centre of the barn, where most of the heat is located.



Installation in the ceiling in the centre of the barn for increased air flow near the outer walls of the barn



Installation in the ceiling near the side walls

One of the main characteristics of our CL 1540 inlet is the inlet flap, which is shaped like a large shovel. This unique selling point ensures that even when the inlet flap is completely open, the air flows along the ceiling, where it mixes with the warm house air.



CL 1540 – multi-purpose ceiling inlet

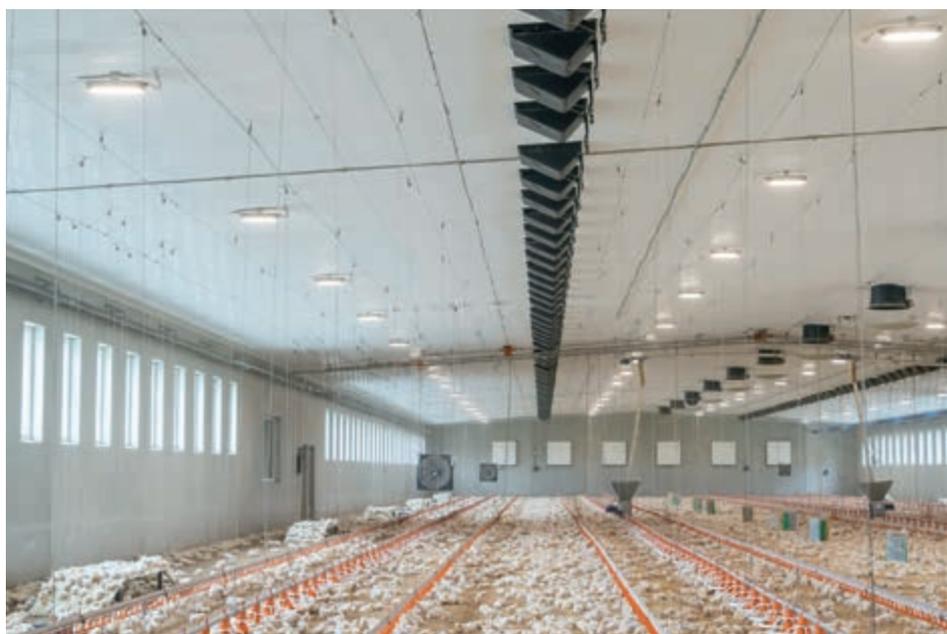
## Air flow rate with inlet fully open (in m<sup>3</sup>/h)

Type	CL 1540	
Code no.	46-70-0717	
-10 Pa	1 250	1 450*
-20 Pa	1 750	2 100*
-30 Pa	2 100	2 550*
-40 Pa	2 400	2 850*

\* with intake funnel, code no. 60-40-1323

### The advantages at a glance

- ✓ ideal supply of fresh air from the attic with negative pressure ventilation;
- ✓ very versatile;
- ✓ advanced inlet control creates stable air jets, especially with minimum ventilation;
- ✓ strong tension springs close the insulated inlet flap so the barn is absolutely airtight;
- ✓ exact control of the inlet opening thanks to tension springs: stable air circulation all the way to the centre of the barn, uniform temperatures while heating requirements remain low;
- ✓ because the air "sticks" to the ceiling, the negative pressure required even for large throwing ranges is low;
- ✓ the use of high-quality materials ensures a long service life of the inlets;
- ✓ operation is practically maintenance-free;
- ✓ a high-pressure cleaner can be used without any concern.



Use of the CL 1540 ceiling inlet in the ceiling of a broiler house

# Balanced pressure inlet CL 1200 Balance

For installation into the walls of smaller, narrow barns for free range egg production

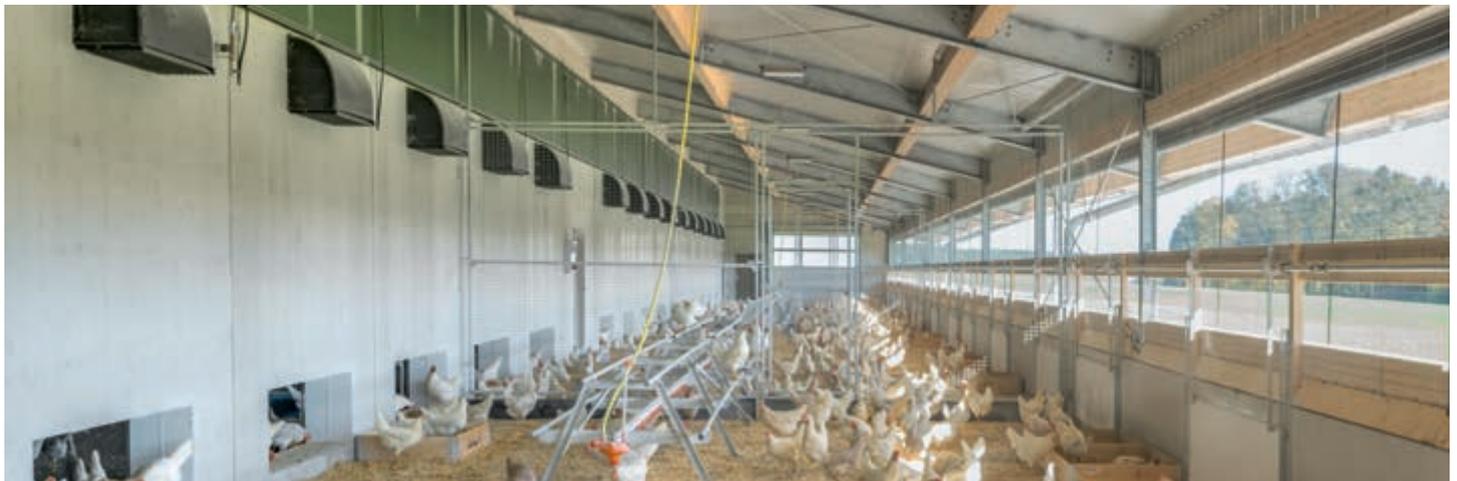
This special fresh air unit consists of a standard CL 1200 wall inlet, a cowl and a small fan. It is mainly used in barns in which constant negative pressure ventilation cannot be guaranteed, generally smaller houses for free range egg production where using fresh air chimneys would not be practical. The large pop holes make it impossible to create a stable air circulation in such barns. The fresh air is therefore pushed into the barn by a fan, i.e. the ventilation system works with balanced pressure. Usually, every third wall inlet is a CL 1200 Balance inlet.



Cowl with W1G200 fan



Side view with CL 1200



## FRESH AIR CHIMNEYS FOR NEGATIVE AND BALANCED PRESSURE VENTILATION

Fresh air chimneys draw fresh air from the roof and distribute it evenly throughout the barn. Using them makes sense especially when:

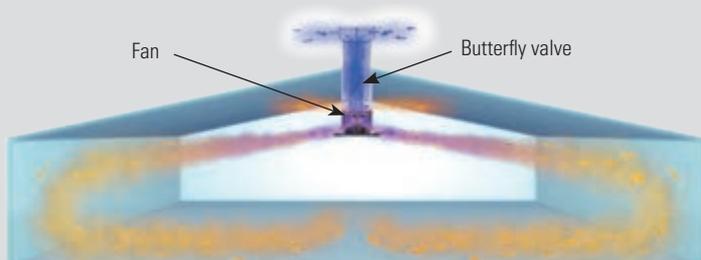
- ✓ the fresh air should flow from the centre to the side wall;
- ✓ fresh air supply via the side walls is not possible due to structural conditions, or not requested;
- ✓ the barn is extremely wide and low so that

good air circulation with only wall inlets is not feasible;

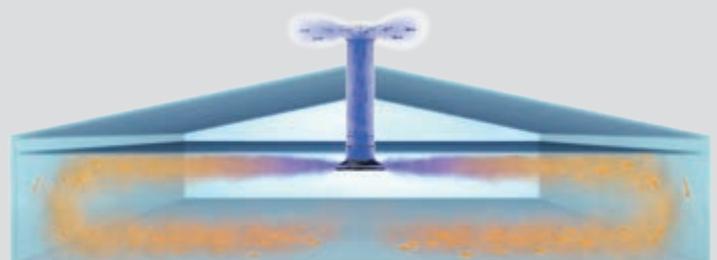
- ✓ balanced or positive pressure ventilation is to be used, e.g. for free range egg production.

Both fresh air chimneys offered by Big Dutchman, Fumus and F.A.C., come with a stable pipe system that is GRP-coated on the inside and the outside. The pipe is also well insulated with 30 mm of polyurethane. This

guarantees a long service life of the chimneys and makes cleaning easier. Both chimneys are available with central and individual control. For individual control, the actuator is installed directly in the chimney. Central control is carried out with only one actuator, via cables and tension rods. The two fresh air chimneys can each be equipped with an optional wire mesh guard to prevent birds and leaves from entering the barn.



Use of Fumus with mixed air for a constant warm breeze



Use of F.A.C. with low ceiling heights

# Fumus

## The fresh air chimney for fresh air, mixed air and recirculated air

Fumus is always equipped with a fan in the lower part of the chimney. This fan pushes the fresh air drawn in by the chimney through the fresh air distributor and into the barn. The amount of air entering the barn is regulated by means of a butterfly valve above the fan. Depending on the position of the butterfly valve, anywhere between 100 percent fresh air (vertical position) and 100 percent recirculated air (horizontal position) enter the barn. Between these positions, a certain amount of fresh air

is mixed with the house air, which is drawn in through the 10 cm wide opening at the chimney. This means that, depending on the ventilation requirements, the barn can be supplied with fresh air, mixed air or recirculated air. For minimum ventilation (in the cold seasons or while heating is necessary), Fumus works with balanced pressure or slightly positive pressure. Fumus is available with the following diameters: 650, 730, 820 or 920 mm.



Fumus – version "S" (with cable)



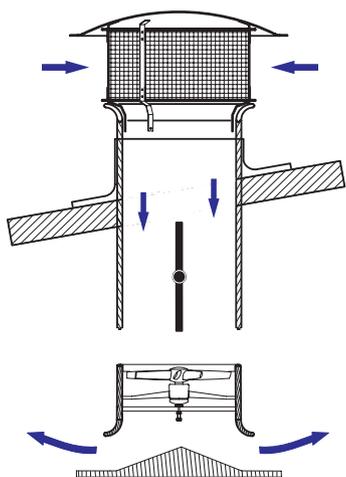
Fumus – version "F" (flat version)



Fumus – version "K" (standard version with hinge)

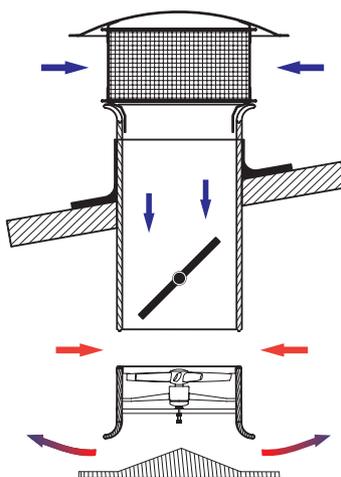
### Fresh air

When the butterfly valve is fully open, the fan draws in 100 percent fresh air and distributes it into the barn.



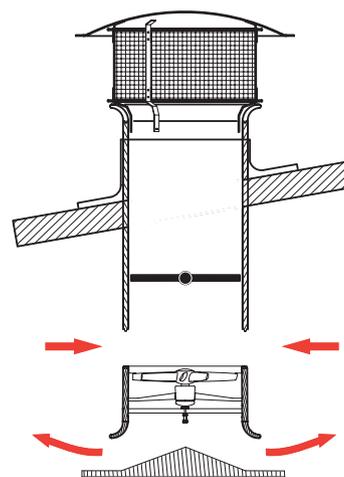
### Mixed air

When the butterfly valve is neither fully open nor fully closed, the fan sucks in fresh air and inside air. This pre-heated air is then pushed into the barn.



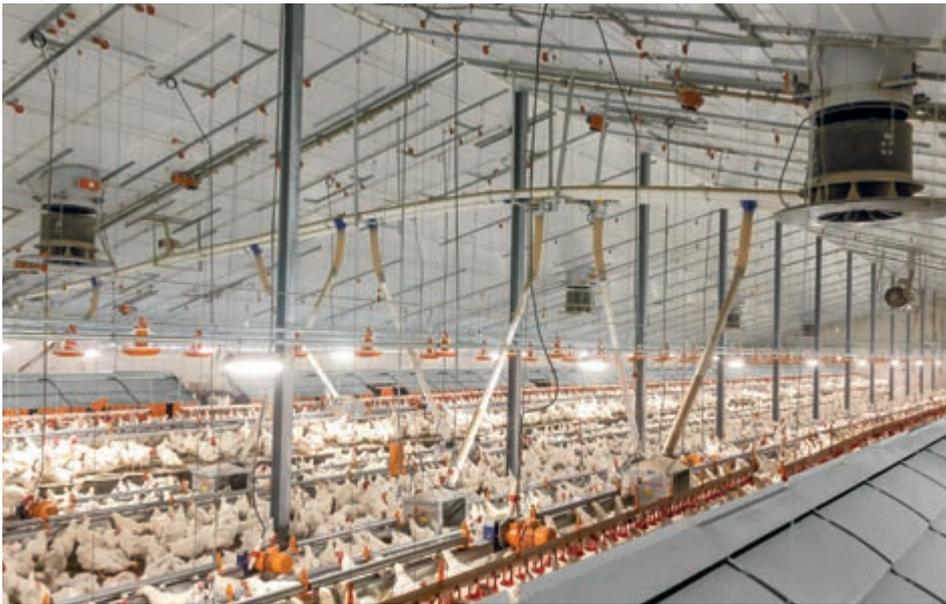
### Recirculated air

The fan continuously circulates the air inside the barn, using the fresh air distributor. The butterfly valve inside the fresh air chimney is closed.



## Air flow rate with chimney fully open and 0 Pa (in m<sup>3</sup>/h)

Diameter mm	Fan	Total air flow rate m <sup>3</sup> /h	Share of fresh air m <sup>3</sup> /h	Power watts
650	FN 063-6DT rev.	10 300	7 300	510
730	FN 071-8DT rev.	10 200	7 200	370
820	FN 080-8DT rev.	16 600	11 200	790
920	FN 091-8DT rev.	18 700	12 200	730



Use of Fumus in a broiler breeder house

## The advantages at a glance

- ✓ good ventilation of the barn thanks to the large throwing range, ideal to dry the litter;
- ✓ the mixed air creates a constant warm breeze;
- ✓ perfect for cold weather because the air flow always guarantees an ideal throwing range, irrespective of the ventilation level (mixed air);
- ✓ the fan ensures constant air movement – the CL 74 actuator controls the position of the butterfly valve and creates fresh air, mixed air or recirculated air as required (recommendation: individual control).

## F.A.C.

### Fresh air chimney for fresh air supply from the roof

F.A.C. supplies fresh air from the roof with a high air rate. The fresh air distributor at the lower end of the chimney ensures that the incoming air is distributed evenly inside the barn. This creates a stable air flow even with minimum ventilation.

Optionally, F.A.C. can also be equipped with a fan. This fan pushes the fresh air drawn in by

the chimney through the fresh air distributor and into the barn to create a balanced pressure system. Such a system is especially recommended where no negative pressure can be created due to constantly open pop holes. F.A.C. is available in four different diameters of 650, 730, 820 and 920 mm.



### Air flow rate with chimney fully open (in m<sup>3</sup>/h)

Pa / dia	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
-40 Pa	10 000	12 700	16 000	19 500



Use of F.A.C. in an aviary house for layers

## The advantages at a glance

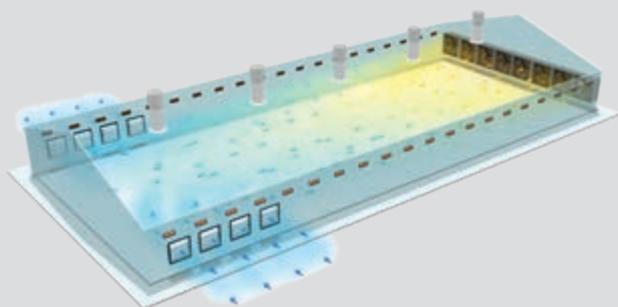
- ✓ supply of fresh air from the roof into the centre of the barn for an ideal mixing with the warm air in the barn;
- ✓ ideally suited for flat barns;
- ✓ good price : performance ratio.

# LARGE AIR INLETS FOR TUNNEL VENTILATION

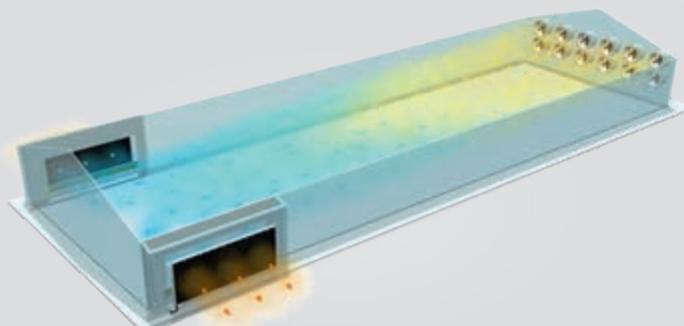
Using a tunnel or CombiTunnel ventilation system requires large air inlets near the gable on both sides of the barn, or directly in the

gable. These inlets allow the fresh air to enter the barn on a large surface, displacing the stale air without mixing with it. Constant and

high air speeds at bird level (aim: 2 to 3 m/s) lower the temperature perceived by the birds (windchill factor).



Fresh air supply over a large surface with the MultiVent inlet



Roller curtain reliably closing a tunnel door, here in connection with RainMaker

## MultiVent 10 M & 17 M, MultiVent 3, 4 & 5 and SOB 50 Inlets for fresh air supply over a large surface

Our MultiVent inlets are characterised by a very high air flow rate. They can be used as air inlets for tunnel ventilation or for additional summer ventilation. Air flow and air direction can be controlled easily. In the winter, the

inlet flaps close reliably. The flaps are insulated so temperature losses are minimised. Depending on the required dark-out strength, we can offer different types of light traps. The

light trap segments are made of plastic, which makes them extremely durable and easy to clean. The Performacs light trap reduces the air flow rate by as little as 10 percent.



MultiVent 17 M in the gable wall for tunnel ventilation



MultiVent 4 in a broiler breeder house



Example: Performacs light trap for MultiVent



SOB 50 – galvanized, motor-driven shutter

MultiVent and SOB 50 have the advantage of being very flexible. They also allow controlling

the amount of incoming air very well, using our actuators CL 175 and EWA.

### Air flow rate with inlet fully open (in m<sup>3</sup>/h)

Pa / dia	MultiVent M10	MultiVent M17	MultiVent 3	MultiVent 4	MultiVent 5	SOB 50
-10 Pa	9 530	19 450	10 100	13 400	17 000	17 000
-20 Pa	13 480	27 300	13 900	18 800	23 800	24 300
-30 Pa	16 520	34 250	17 100	23 000	29 000	29 300
-40 Pa	19 170	39 550	20 200	26 800	34 000	33 800

The air flow rate is reduced by approx. 10 percent where the light trap is used.

# Tunnel door with rack and pinion drive (TD-L)

## For large tunnel openings – robust, well-insulated and airtight

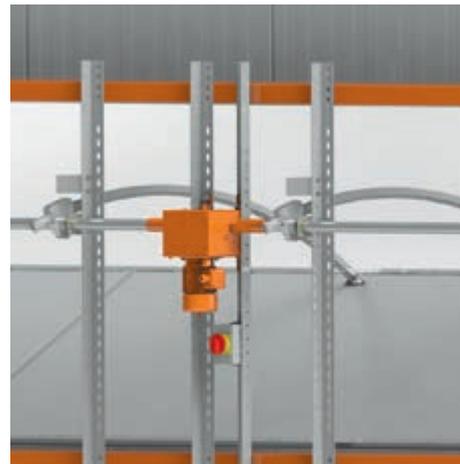
Our Big Dutchman tunnel door TD-L consists of either 40 mm or 50 mm thick composite boards with a robust plastic coating. The frame and the rack and pinion are made of corrosion-resistant aluminium. With the EWA actuator, the tunnel doors can be opened and

closed steplessly, allowing very exact distribution of the air. The flexible lip seal ensures tight closing with very little closing force. Total door lengths of up to 40 m are possible! TD-L is available with heights of 750, 1000, 1200 and 1500 mm and for

installation in brick walls or sandwich panels. The maximum opening angle (towards the inside or the outside) is 60 degrees.



Broiler house with tunnel door, opening into the barn



EWA rack and pinion drive

# Roller curtain

## Efficient, cost-effective closing system

Roller curtains are a good alternative to close tunnel doors airtight. They fit closely to the tunnel opening because of the negative pressure in the barn. Since roller curtains are not insulated, they are mostly used in regions without frost, or as closing system for winter gardens. Rodents cannot get into the roller curtain because of the winding system, and the curtain remains clean.

Big Dutchman offers two winding systems:

### 1 Opening from the top

We recommend this system especially if the tunnel door should not open fully from the start. With this system, the cooler fresh air will enter the barn at the top first, without reaching the birds. There is no stress on the curtain thanks to the compensation mechanism of the telescopic coupling. Re-adjustments are not necessary.

### 2 Opening from the bottom

With this system, the roller tube is not loaded with weight thanks to the special winch motor. This guarantees a reliable winding process and thus preserves the fabric. Winding systems that open from the bottom are available with a fixed drive or a climbing drive. In case of very high curtains, this allows foregoing a long telescopic tube.



Roller curtain opening from the top



Roller curtain in a doghouse with RainMaker



Roller curtain opening from the bottom

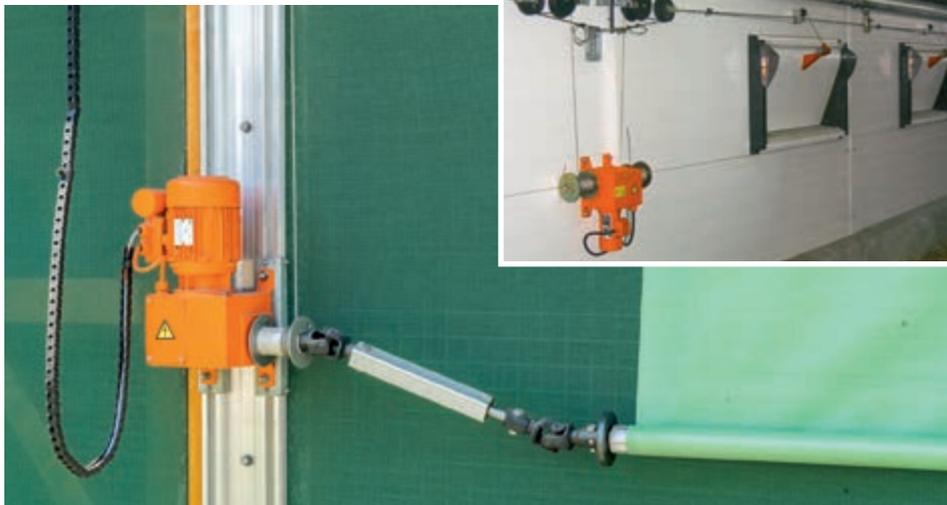
# Actuators

## Automatic opening and closing of any fresh air inlet

Actuators of a high quality are absolutely necessary for reliable fresh air distribution. They control the flap position of any fresh air

inlet, whether these are wall or ceiling inlets, fresh air chimneys, tunnel doors or roller curtains. Essential requirements such as

functional reliability and robustness are met perfectly by the CL 175 and EWA actuators offered by Big Dutchman.



### CL 175 – the linear motor with a tractive force of up to 6000 N

- ✓ regulates the flap position of wall and ceiling inlets;
- ✓ compact design, robust and maintenance-free;
- ✓ variable travel range between 60 and 600 mm;
- ✓ available for 24 V DC and all alternating current networks;
- ✓ electronic position feedback for highest operational reliability;
- ✓ buttons for manual operation directly on the motor;
- ✓ protection rating IP 65;
- ✓ easy installation without winding of the cable;
- ✓ speed: 1.2 mm/s.

### EWA – the winch motor that meets the highest standards

- ✓ controls wall and ceiling inlets, tunnel doors and curtain systems;
- ✓ robust winch, compact shape;
- ✓ available for 24 V DC and all alternating current networks as well as for 3 phases;
- ✓ high speed, perfect for pulse-pause applications;
- ✓ emergency operation possible with cordless screwdriver (without emergency opening);
- ✓ automatic operation even after manual emergency operation for a high operational reliability;
- ✓ 10-year guarantee for EWA winches with electronic limit switch.



# Big Dutchman

**Europe, Middle East & Africa:**  
Big Dutchman International GmbH  
P.O. Box 1163 - 49360 Vechta, Germany  
Tel. +49(0)4447 801-0 · Fax -237  
big@bigdutchman.de  
www.bigdutchman.de

**USA: Big Dutchman, Inc.**  
Tel. +1 616 392 5981 · bigd@bigdutchmanusa.com  
www.bigdutchmanusa.com

**Brazil: Big Dutchman (Brasil) Ltda.**  
Tel. +55 16 2108 5310 · bdb@bigdutchman.com.br  
www.bigdutchman.com.br

**Russia: 000 "Big Dutchman"**  
Tel. +7 495 229 5161 · big@bigdutchman.ru · www.bigdutchman.ru

**Asia/Pacific: BD Agriculture (Malaysia) Sdn. Bhd.**  
Tel. +60 33 34 83 555 · bdasia@bigdutchman.com · www.bigdutchman.com

**China: Big Dutchman (Tianjin) Livestock Equipment Co., Ltd.**  
Tel. +86 10 6476 1888 · bdcnsales@bigdutchman.com  
www.bigdutchmanchina.com