Big Dutchman®

Heating systems

An ideal temperature in every pig house

Heating systems for a comfortable environment

Ideal house temperatures have a substantial influence on the health and performance of pigs. Adequate heating systems are therefore a necessity in many climate zones. The goal is to maximise the heat output and to transfer this heat to the pigs in an optimum way while keeping energy costs as low as possible.
Big Dutchman offers different systems for full-space heating or zone heating. The heaters can be fuelled by gas or oil, or use hot water.
Let our experts advise you to find the ideal heating system for your pig house.

JetMaster

Heaters with 100 % heat output for operation with natural gas or propane gas

JetMaster is a tried and tested heater that has been part of the Big Dutchman product range for many years. JetMaster heaters are available for operation with natural gas or propane gas as well as fuel oil and are controlled thermostatically. Since the flame is monitored, the gas supply is immediately interrupted should the heater not ignite or the flame extinguish. The built-in fan provides a wide throwing range, so distributing the warm air optimally in the house.
The control unit provides information about the heater's operating state.

Advantages include:
- ✔ the generated heat is 100 % beneficial to the pigs: no heat loss;
- ✔ no chimney connection necessary;
- ✔ easy installation;
- ✔ excellent value for money.

JetMaster type DXA 75 for operation with natural gas or propane

JetMaster type GP 70 for operation with natural gas or propane

JetMaster type		DXA 40	DXA 75	DXA 100	DXA 120
Output	kW	40	72	100	120
Gas consumption					
• *Natural gas*	m^3/h	4.2	7.5	10.3	12.3
• *Propane gas*	kg/h	3.8	5.7	7.9	9.5
Gas connection	inches	¾	¾	¾	¾
Air flow rate	m^3/h	4 250	4 250	4 750	4 750
Throwing range	m	43	43	51	51
Sound level	dB(A)	65	65	70	70
Weight	kg	35	35	45	45
Dimensions (L x W x H)	cm	110 x 60 x 51	110 x 60 x 51	125 x 66 x 54	125 x 66 x 54

JetMaster type		GP 14	GP 40	GP 70	GP 95	GP 120
Output	kW	14	40	70	95	120
Gas consumption						
• *Natural gas*	m^3/h	1.3	3.7	6.5	9.2	11.1
• *Propane gas*	kg/h	0.9	2.7	4.5	6.3	7.0
Gas connection	inches	½	½	¾	¾	¾
Air flow rate	m^3/h	1 200	3 900	4 500	6 500	8 000
Throwing range	m	15	40	50	40	40
Sound level	dB(A)	55	68	68	68	68
Weight	kg	14	25	28	38	46
Dimensions (L x W x H)	cm	60 x 47 x 48	120 x 60 x 44	120 x 60 x 44	115 x 66 x 48	145 x 72 x 53

Connection values: 230 V, 50 Hz for all types

Flame monitoring by means of ionisation

Connection pressure: 20 mbar for natural gas and 50 mbar for propane gas

JetMaster

Heaters with 100 % heat output for operation with fuel oil

JetMaster type P 100 for operation with fuel oil

JetMaster type P 80 for operation with fuel oil, mobile

JetMaster type		P 40	P 60	P 80	P 100	P 120
Output	kW	40	60	80	100	120
Fuel oil consumption	L/h	4	6	8	10	12
Air flow rate	m^3/h	4 400	6 200	7 700	7 700	7 700
Throwing range	m	30	30	40	40	50
Weight	kg	48	51	55	55	65
Dimensions (L x W x H)	cm	129 x 52 x 46	129 x 58 x 52	129 x 63 x 57	129 x 63 x 57	129 x 63 x 57

Connection values: 230 V, 50 Hz for all types Flame monitoring by means of a photocell

JetMaster with flue gas exhaust

Heaters with indirect combustion and low energy consumption

JetMaster heaters with flue gas exhaust are available for operation with fuel oil, natural gas or propane gas. Due to the closed combustion chamber, the house air remains free of excess carbon dioxide and other harmful gases, as these leave the building through a chimney. The built-in fan provides a wide throwing range, so distributing the warm air optimally in the house.
With the DXC and RGA models, fresh air required for combustion is drawn in from outside through a double-walled chimney. The fresh air is pre-heated in this manner, which increases efficiency.

Advantages include:
- ✔ no flue gases reach the air in the house;
- ✔ the ventilation rate can be reduced;
- ✔ a double-walled chimney increases efficiency;
- ✔ there is no open flame in the house.

JetMaster type DXC with double-walled chimney

JetMaster type RGA 100 with double-walled chimney

JetMaster type BH 100 with chimney and fresh air hose

Type		DXC 60	DXC 80	DXC 100
Output	kW	60	76	99
Fuel source		Natural gas or propane	Natural gas or propane	Natural gas or propane
Consumption	m^3/h / kg/h	6.9 / 5.2	8.8 / 6.6	11.4 / 8.6
Air flow rate	m^3/h	6000	8000	10000
Throwing range	m	40	45	50
Weight	kg	140	150	175
Dimensions (L x W x H)	cm	210 x 74 x 108	210 x 74 x 108	210 x 82 x 108

Connection values: 230 V, 50 Hz for all types Gas connection: ¾ inches

Type		RGA 95	RGA 100	BH 50	BH 100
Output	kW	95	100	50	100
Fuel source		Fuel oil	Natural gas or propane	Fuel oil, natural gas or propane	Fuel oil, natural gas or propane
Air flow rate	m^3/h	7000	7000	4100	7500
Throwing range	m	50	40	40	50
Weight	kg	132	130	75	135
Dimensions (L x W x H)	cm	218 x 73 x 71	215 x 91 x 65	138 x 69 x 63	178 x 83 x 78

Connection values: 230 V, 50 Hz for all types Gas connection: ¾ inches

Gas heaters

For a targeted supply of heat

Gas heaters are especially well-suited if it is necessary to supply pigs with intensive heat in a specific area and for a defined amount of time. The fact that these heaters do not require an electrical power supply is a great advantage.

Type		M 8
Output	kW	5
Connection pressure • *Natural gas* • *Propane gas*	mbar mbar	20 – 50 20 – 1400
Installation height	cm	90 – 150
Weight	kg	1.5

Gas heater type M8

Convection heaters

Hot water heating, future-proof and sustainable

Hot water heaters continue to be very popular: they work without open combustion inside the house, which reduces CO_2 concentration in the house and improves air quality. The objective is to maximise heat output.

This is achieved by a radiator with a large surface area. The heaters should be mounted directly below the air inlets to heat incoming air.

Renewable energy sources such as wood chips or straw pellets are an ideal solution for heating the water. Boilers fired by gas or fuel oil are also an option, of course. Especially efficient is the use of waste heat produced by a combined heat and power plant or biogas plant.

In piglet rearing houses with two-climate systems, the Big Dutchman Twin pipe system is often installed directly in the resting area. This saves energy costs because temperatures in the rest of the pen can be lowered significantly.

The 307*pro* and 310*pro* climate computers regulate the entire house climate, including the stepless three-way control of the hot water heaters from 0 % to 100 %. The pigs thus do not have to be subjected to fluctuating temperatures, an important benefit for maximising growth.

The 310*pro* climate computer with its 10-inch display works together with the three-way heating control to ensure a constant temperature level

1. Delta pipe and Twin pipe

Ideally suited for diffuse fresh air systems

Delta pipes and Twin pipes are especially well-suited for perforated air channels and DiffAir ceilings. They are made from aluminium and are operated with hot water, of which they require only a small amount, however. Thanks to their good thermal conductivity (heat output of 180 to 200 watts/m), they ensure constant room temperatures inside the house. These heating systems can also be used for pre-heating in the central aisle. The pipes are anodised for improved protection against ammonia. They are of comparatively low weight and can be delivered in different sizes up to a length of 6 m. Installation is very easy.

Delta pipe: ideal for installation below the DiffAir ceiling

Twin pipe: less dust on pipes

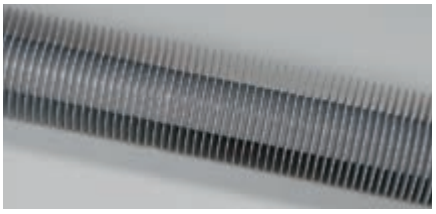
2. Fin heater

Hot water heating with a large surface area for high heat output

The fin heater offered by Big Dutchman is either galvanised or made from aluminium with an epoxy powder coating. Hot water is pumped through the pipes. The fins have a large surface area of 1 m² per running metre. Heat percolates between the fins, giving a strong thermal flow. The spacing between the fins is large enough to ensure that dust does not accumulate. The pipes are attached to the wall with angles or suspended from the ceiling, if possible directly below the fresh air inlets, thus heating the incoming fresh air.

Automatic aeration (for Delta and Twin pipes as well) ensures a high functional reliability of the heating system. Advantages include:

- ✔ heat output of up to 600 watts/running metre;
- ✔ low space requirements;
- ✔ low weight (aluminium);
- ✔ simple, time-saving installation.



Galvanised fin heater

Special coupling for time-saving installation

Aluminium fin heater: ideal in combination with CL 1200 fresh air inlets

Ideal for use in combination with ceiling inlets

3. HeatMaster

Energy-saving air-to-water heat exchangers

The H series HeatMaster models are either suspended along the side of the building at the height of the fresh air inlets or mounted by wall brackets. The main components are a fan and a system of stainless steel fins. The heaters are easy to clean with a high-pressure washer and resistant to corrosion.

The built-in fan provides a wide throwing range, so distributing the warm air optimally in the house. Advantages include:

- ✔ no flue gases reach the air in the house;
- ✔ a great variety of fuels can be used;
- ✔ there is no open flame in the house.

HeatMaster type		2 H	3 H	4 H
Output at 30 °C inside temperature	kW	25*	40*	75*
Air flow rate	m³/h	3000	5000	7500
Power consumption	M	300	530	690
Throwing range	m	30	45	55
Pipe thread connection	inches	¾	¾	1
Weight with water	kg	56	74	118
Dimensions (H x W x D)	mm	700 x 700 x 896	800 x 900 x 976	1000 x 1100 x 1075

* at a flow temperature of 80 °C and a return temperature of 60 °C

Connection values: 3-phase 400 V, 50 Hz

Zone heating

Ideal for use in piglet rearing houses

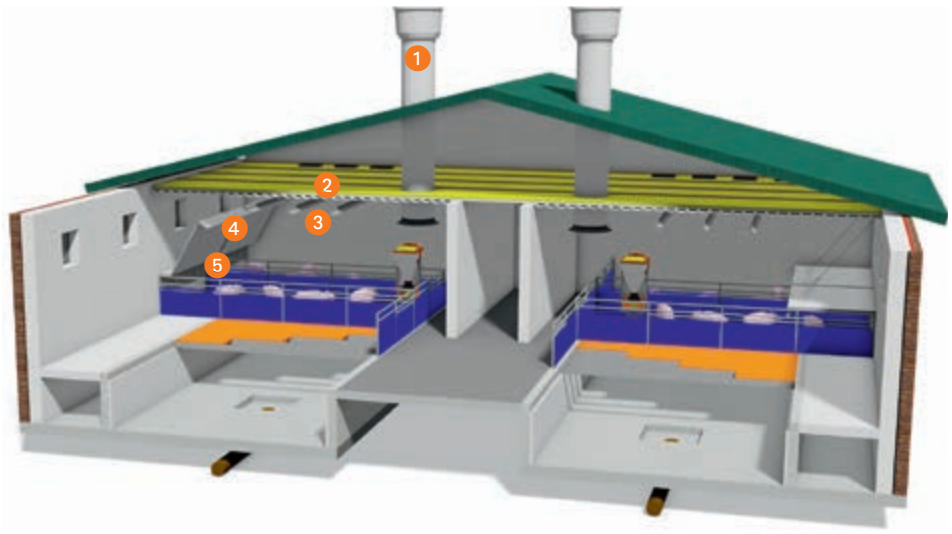
Piglets need much warmth, especially in the first days after their move to the nursery, so they adapt well during the critical post-weaning period. Ideally, the resting area should have a temperature of approximately 32 °C.
In addition to traditional full-space heating, hot water zone heating is becoming increasingly popular for nurseries. The zones are created using a covering plate that is fixed at 70 cm to 80 cm above the slatted floor. The required dimensions of the cover depend on the number of piglets and the pen depth. A deep lip of approx. 20 cm at the front of the cover helps create an insulating blanket of warm air. The heating system (Twin pipe) is installed directly below the cover. The main purpose of this system is to heat the resting area of the piglets.

Temperatures can be lower in the rest of the pen, allowing a significant reduction of overall heating costs.

Twin pipes ensure optimal temperatures in the piglets' resting area; the plastic slats have a solid-to-void ratio of only 10 %

Two-climate system

Big Dutchman recommends linking the target temperature values of full-space heating and zone heating. As a result, the heat demand of the pigs can be met in an ideal manner and in accordance with their age.
The illustration on the right-hand side shows a DiffAir ceiling in combination with Delta pipes that heat the incoming air (full-space heating), and a zone heating system that provides the required higher temperatures in the piglets' resting area. The 307*pro* / 310*pro* climate computer controls full-space and zone heating using two different temperature sensors.



1. Exhaust air chimney
2. DiffAir ceiling
3. Delta pipe
4. Zone heating
5. Twin pipe

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