Big Dutchman®

Heating systems

Ideal temperatures in every pig house

Heating systems: creating a comfortable climate in your barn

The correct indoor temperature has a substantial influence on the health and performance of your pigs. Adequate heating systems are therefore a necessity in many climate zones. The overall goal is to maximise the thermal yield and to transfer it to the pigs in the best possible way to keep energy costs low.
Big Dutchman offers several different heating systems for full-space or zone heating. The heaters can be fuelled by gas, oil or hot water.
Please let our experts advise you to find the ideal heating system for your barn!

JetMaster

Heaters with 100 % heat output

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 as well as fuel oil and are thermostat-controlled. Since the flame is monitored, the gas supply is immediately interrupted should the heater not ignite or the flame extinguish. The built-in fan propels the warm air over a large throwing distance, so distributing it optimally in the barn.
The Automatic Control Unit (ACU) provides information about the heater's operating state.

Advantages of JetMaster include:
- ✔ the generated heat is 100 % beneficial to the pigs: no heat loss;
- ✔ no chimney connection necessary;
- ✔ easy installation;
- ✔ attractive price : performance ratio.

ERA 33


JetMaster type GP 70

JetMaster type P 80

Type		ERA 33*	GP 14	GP 40	GP 70	GP 95
Output	kW	33	14	40	70	95
Gas consumption						
• *Natural gas*	m³/h	3.0	1.3	3.7	6.5	9.2
• *Propane gas*	kg/h	2.4	0.9	2.7	4.5	6.3
Burner pressure						
• *Natural gas*	mbar	11.2	8	8.1	9.1	13.3
• *Propane gas*	mbar	29	28	49	46	24.8
Gas connection	Inches	½	½	½	¾	¾
Air flow rate	m³/h	1700	1 200	3 900	4 500	6 500
Air pressure monitoring		MS	-	MS	MS	MS
Flame monitoring		Thermoelectric	Ionisation	Ionisation	Ionisation	Ionisation
Throwing range	m	30	15	40	50	40
Weight	kg	17	14	25	28	38
Dimensions (L x W x H)	cm	100 x 35 x 58	60 x 47 x 48	120 x 60 x 44	120 x 60 x 44	115 x 66 x 48

Connection values: 220-230 V, 50 Hz for all types. Connection pressure: 20 mbar for natural gas and 50 mbar for propane gas
* Atmospheric burner – should not be used in barns with high dust levels
MS = microswitch

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

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

JetMaster heaters fuelled by oil have a new Parker solenoid valve. Oil for combustion only flows when this valve opens.

Gas radiators

For a targeted supply of heat

Gas radiators 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 gas radiators do not require a 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 radiator 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 barn, which reduces CO_2 concentration in the air 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 producing the hot water. Boilers fired by gas or fuel oil can also be used, of course.
Especially efficient is the use of waste heat produced by a CHP 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 maximising growth.

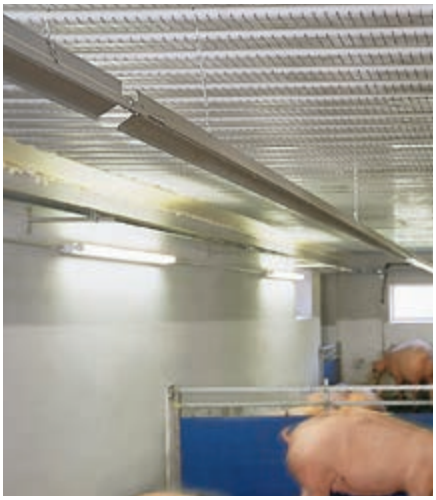
The 310*pro* climate computer with its 10-inch display works together with the three-way heating control to ensure a constant temperature level

Three-way heating control

1. Delta pipe and Twin pipe

Ideally suited for diffuse fresh air systems

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



Delta pipe – ideal for installation below the DiffAir ceiling

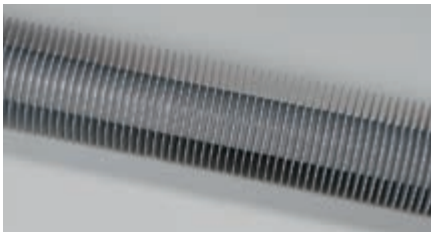
Twin pipe – less dust on pipes

2. Fin heater

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

The fin heater offered by Big Dutchman is made of galvanized or aluminium piping 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 emerges from 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:

- ✔ high heat output: up to 600 watts per running metre;
- ✔ low space requirements;
- ✔ low weight (aluminium);
- ✔ simple, time-saving installation by special coupling.



Galvanized fin heater

Special coupling for time-saving installation

Aluminium fin heater as a full-space heating system – ideal in combination with CL 1200 fresh air inlets

Fin heater as a full-space heating system – ideal in combination with ceiling inlets

3. HeatMaster

Energy-saving air-to-water heat exchangers

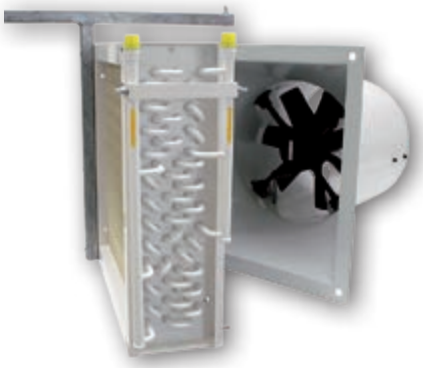
The H series HeatMaster models are either suspended along the side of the building at the height of the fresh air inlets or mounted by wall brackets. The main components of our HeatMaster heaters are a fan and a system of stainless steel fins.

The heaters are easy to clean with a high-pressure cleaner and resistant to corrosion. The built-in fan provides a wide throwing range and distributes the warm air ideally in the barn.

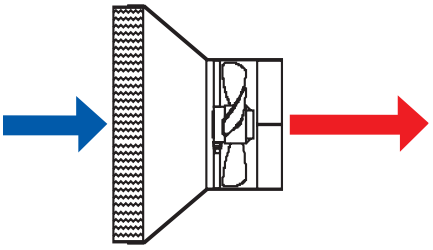
The advantages:

- ✔ the throwing ranges are very wide;
- ✔ no flue gases reach the air in the barn;
- ✔ a great variety of fuels can be used;
- ✔ there is no open flame in the barn.

HeatMaster – high energy efficiency thanks to its aerodynamic shape



The built-in fan distributes the warm air ideally



The fan sucks the air through the fins

The practical quick couplings for HeatMaster allow for very flexible use in different compartments.
There are two quick couplings available. Both are made of stainless steel and have connections for a 1-inch female thread.

1. Manually closing coupling*

This coupling consists of a ball valve and the manual Camloc fastener. Attention is required when opening the coupling: the ball valve must be closed or hot water may escape.

* Please observe national occupational safety and health regulations when using this coupling.

2. Automatically closing coupling

This coupling consists of two parts (male and female). It unlocks when the closing ring is pulled back and closes automatically when the female part is removed. Hot water therefore cannot escape.

Manual quick coupling

Automatic quick coupling

Type		2 H	3 H	4 H
Output at 30 °C inside temperature	kW	25*	40*	75*
Air flow rate	m^3/h	3000	5000	7500
Power consumption	W	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 an inlet flow temperature of 80 °C and a return temperature of 60 °C
Connection values: 3-phase 400 V, 50 Hz

Zone heating

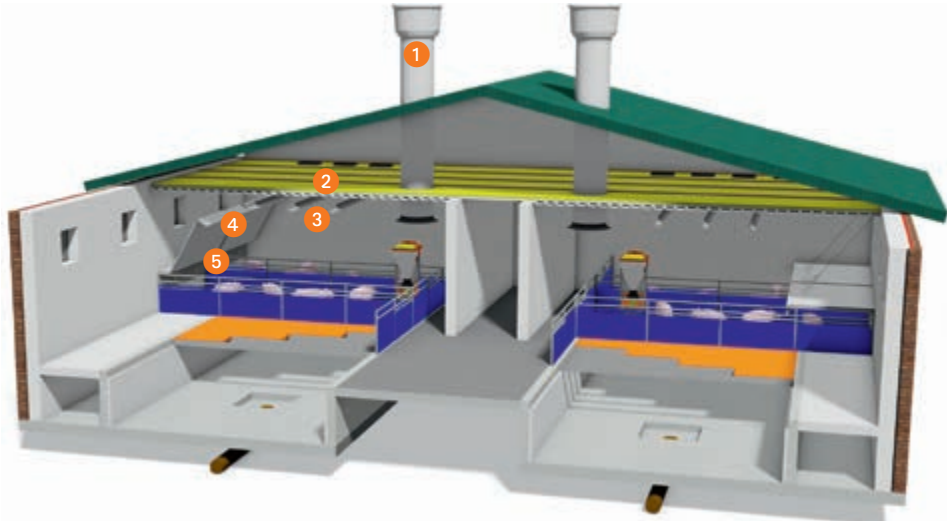
Ideal for use in piglet rearing houses

Piglets need much warmth, especially in the first days after their move to the nursery, so they adapt well during the critical 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 to 80 cm above the slatted floor. The required dimensions of the cover depend on the number of piglets and the depth of the pen. 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.

Plastic flooring with only 10 % slatted area is used beneath the covering plate; Twin pipes ensure optimal temperatures in the piglets' resting area

Two-climate system

We recommend linking the target temperature values of full-space and zone heating. As a result, the heat requirements of the pigs can be met in an ideal manner, being adjusted according to 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* or 310*pro* climate computer controls full-space and zone heaters based on two temperature sensors.



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

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