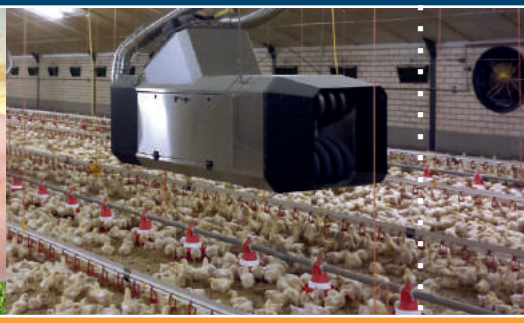
Winterwarm Agri





Winterwarm heating solutions

Looking for an efficient heater for your glass house or your poultry house?
Winterwarm offers various heating solutions for this purpose.

Winterwarm-quality

- More than 80 years of experience
- ISO 9001-2008 certified
- Quick delivery
- Reliable

Winterwarm
heating solutions

About us

Winterwarm, quality all over

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DX heater

A direct fired heater for gas and oil, for poultry houses and glass houses

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DXC heater

An indirect gas fired heater with a closed combustion system, especially designed for inside poultry houses

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Two types of fans

Efficient transport fans to improve heat distribution in poultry houses and glass houses

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DXE heater

An indirect gas fired heater with a closed combustion system, for installation outside the poultry house

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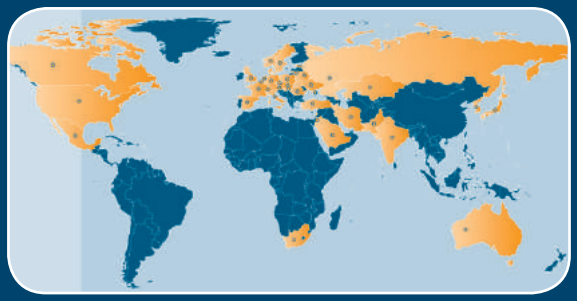
Myronivski poultry houses - Ukraine
398 poultry houses (2 locations) with
3.184 ECO heaters for 20 million chickens

Winterwarm World Wide



Introduction

For more than 80 years Winterwarm has focussed on 3 key philosophies: product innovation, quality and service. This has resulted in the fact that Winterwarm is today one of the leading manufacturers in the industrial heating market throughout Europe. In 2008 we became active in the agricultural heating market. Since then we have developed a whole range of different types of heaters for poultry houses and greenhouses, mainly gas-fired (with one oil-fired model). Meanwhile we have sold our heating systems throughout the whole world and Winterwarm has become a major supplier of gas fired heaters for poultry sheds.

We have our own R&D department which develops new products and improves existing ones. Our goal is to provide our customers with reliable products of high quality for a reasonable price. Before any heater leaves our factory, it is always submitted to an extensive final test.

Over recent years, the market has slowly shifted to heating systems with sealed combustion. As Winterwarm has extensive experience in the field of sealed combustion heating systems for the industrial markets, we developed two heaters specifically for use in poultry houses: the DXC-range (page 4-7) for internal installation and the DXE-range (page 8-9) for external installation. These heaters are more efficient, reduce gas consumption considerably and create a dry and healthy environment for the chickens, resulting in better crop returns (less ammonia). These DXC and DXE heaters have already been installed in many countries.
Another focus of Winterwarm is to fully support our dealers in all countries. This comprises advice on selection of heaters, detailed order information and quick reaction to service requests. Additionally, our webshop provides clear information and allows quick identification & delivery of service parts.

EURO-AIR
European Association of Air Heater Manufacturers

In short, Winterwarm is a successful international organisation which is happy to provide the heating for your poultry house or glasshouse. Our dedicated team is available to help you any way they can, so do not hesitate to contact us.

Bart Looman
Director

Bart Looman

DXC heater

Winterwarm presents the DXC heater: an indirect gas fired heater with a closed combustion system especially designed for poultry houses. High energy prices and government policy force farmers to use efficient heating systems with low energy consumption. The DXC fully meets these requirements.

Indirect fired gas heater

The concept of the DXC intends to improve the durability in poultry farming. The energy consumption is reduced and the air quality is improved leading to lower energy costs and a better bird performance.
These positive results are realized because of the most important feature of the DXC: a closed combustion circuit. This means that the combustion air is taken from the outside, and the combustion gasses are transported back to the outside. As a result no CO_2 and no water vapor are brought into the poultry house. Consequently, the volume of the ventilation air can be strongly reduced.
And less ventilation means less energy consumption. Calculations show that energy savings up to 25% per house per crop can be achieved!

Secondly, the closed combustion circuit also decreases the humidity level. This results in drier litter which is favourable for preventing typical diseases like podo, etc. The sickness rate decreases as does the mortality rate, so the output per bird flock increases.

Return on investment

In a poultry house equipped with DXC heaters the volume of the ventilated air can be much lower compared with conventional heating. This leads to considerable energy savings.
As the ventilation volume is reduced, also the total installed heating capacity can be lower compared with conventional systems. Although the initial investment for installing one DXC heater is higher, it has been calculated that the return on investment rate lies between 2 to 3 years! (depending on national gas prices).

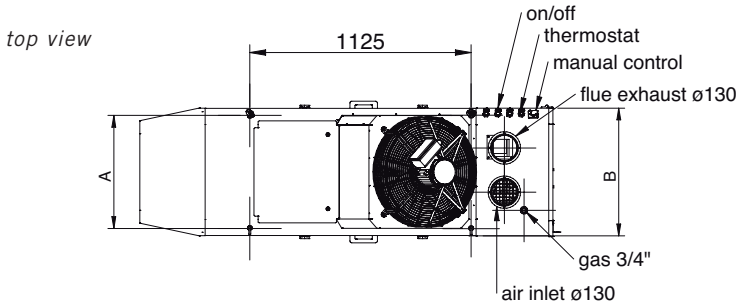
Safety and reliability

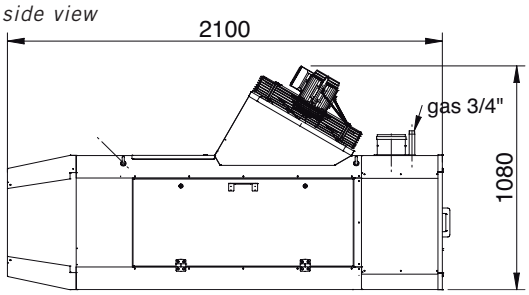
The technology of the DXC has already proven itself in the well-known industrial TR-heaters from Winterwarm, which are sold successfully all through Europe. With a closed combustion concept there is no open flame in the space which is safer. This also has a positive effect on the insurance costs!

As clean air is taken from the outside, the burning process is very stable. There is no risk of pollution of the burner head like in conventional gas heaters. The heater is provided with an automatic electronic ignition. A display on the heater gives feed-back on the status of the heater.
On the outside of the heater a ventilation switch is mounted with which the heater can be switched to ventilation mode.

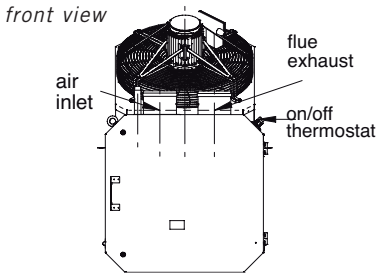
Characteristics:

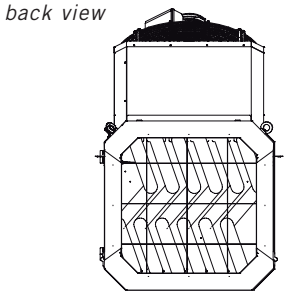
- Tubular heat exchanger
- Stainless steel casing
- Closed combustion = no combustion gasses in the house
- Combustion air taken from outside through flexible duct system
- Zero CO_2 = less ventilation = less energy = less costs
- Low sound level
- Extensive control possibilities
- Reliable, well-proven technology
- CE-approved
- Easy to service





Type	A	B
DXC60/80	575	650
DXC100	740	815





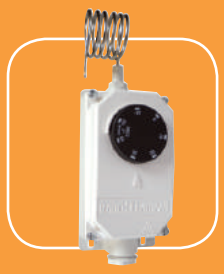
The robust stainless steel housing of the DXC is especially engineered for application in poultry houses.
As a gas heater of course the DXC is CE-approved. Each heater is subjected to a final control test at the factory during which electrical safety, correct emission values and general operation are checked.
Also, Winterwarm is ISO 9001-2015 certified, therefore, the overall quality and safety is guaranteed.

Controls

The DXC is provided with an on/off contact for simple control. Also the heater can operate in high/low modus (100%-60%) by means of an Interface Unit. This unit can be connected to a climate control system. With a 0-10 V. signal current functions like burner modulation, ventilation, operation signal, failure signalization and remote reset can be controled.

Next to the Interface Unit usually a Remote Status reader is installed to read out the various functions.

Remote Status Reader GD3202



On/off thermostat IP794209

Interface Unit - IB5902

- Zone control for 1-8 heaters
- 0-10 V. analogue input
- Connection for burner on/off
- Connection for ventilation on/off
- Reset function
- Output failure signal
- Output “in operation” signal

Technical data DXC-series

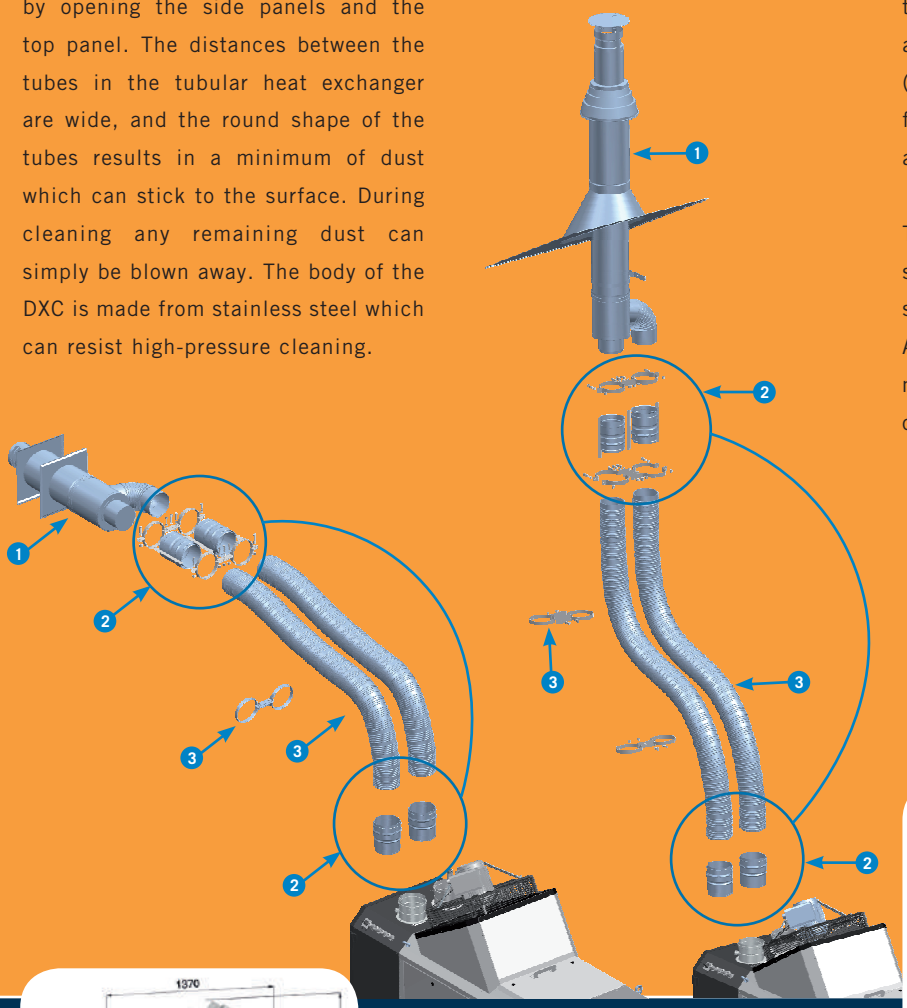
Type	Unit	DXC 60	DXC 80	DXC 100
Nominal heat input	kW	65.5	83.0	108.0
Nominal heat output	kW	60	76	99
Efficiency maximum power	%	91.5	91.5	91.5
Air output	m^3/h	6000	8000	10000
Throw	m	40	45	45
Electrical capacity	W	800	900	1400
Power consumption	A	3.5	3.9	6.1
Electrical connection	V	230	230	230
Maximum gas consumption G25	m^3/h	7.8	9.9	12.8
Maximum gas consumption G20	m^3/h	6.9	8.8	11.4
Maximum gas consumption G31	kg/h	5.2	6.6	8.6
Gas connection	G”	3/4	3/4	3/4
Noise level	dBA	68	68	68
Weight	kg	140	150	175
Flue diameters	mm	130	130	130

DXC heater

Maintenance and service

The heatexchanger of the DXC is accessible for cleaning from 3 sides of the heater. The access is very easy by opening the side panels and the top panel. The distances between the tubes in the tubular heat exchanger are wide, and the round shape of the tubes results in a minimum of dust which can stick to the surface. During cleaning any remaining dust can simply be blown away. The body of the DXC is made from stainless steel which can resist high-pressure cleaning.

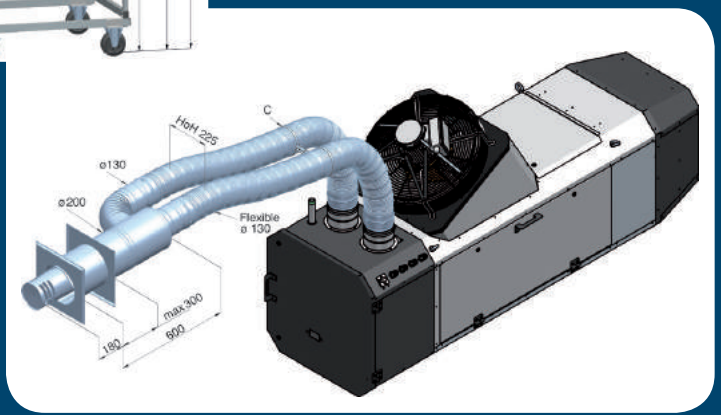
1. *Flue terminal 130/210 mm*
2. *Flue mounting kit: 2x male and female adapters & 2x safety clamps*
3. *Flexible pipe & spacer bracket (1 per m.)*

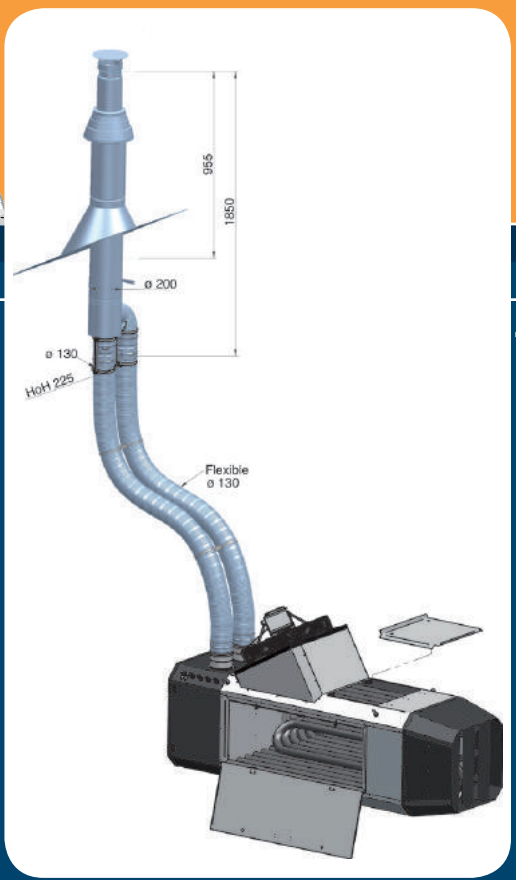


Accessories

When installing a heater with a closed combustion circuit, of course a fresh air inlet and a combustion outlet have to be installed. Winterwarm offers a complete range of flue terminals (vertical and horizontal) with flexible ducting, extension pipes and accessories.

The DXC is provided with 4 suspension screws which can be used to suspend the heater on chains.
As an accessory Winterwarm offers a mobile heater stand on which the DXC can be suspended.






Winterwarm
DXC

DXE heater

The DXE is a unique heating concept for poultry houses as it combines the advantages of a closed combustion circuit with the advantage that the heater is installed outside the house.

Indirect fired gas heaters

The DXE is an indirect fired heater. This means that the combustion gasses remain outside the poultry house, eliminating the need to extract CO_2 and water vapour from inside. The ventilation volume is considerably reduced thus preventing the need to warm up large volumes of cold outside air, resulting in lower gas consumption. Research shows that energy savings of up to 25% are possible when compared to direct fired heaters.

Better bird performance

Due to the closed combustion circuit, the level of humidity is significantly reduced in comparison to a direct fired heat source. Humidity related diseases such as Podo etc. are favourably reduced as a result drier litter. Bird sickness and mortality rates are reduced, resulting in an improved yield. As outside air is used for the combustion, the DXE does not reduce the oxygen levels for the bird.

Bio security

One of the important features of the DXE is the installation being on the exterior of the poultry house, enabling easy access during a crop cycle for any necessary maintenance or repairs, thus eliminating a potential contamination source, Bio Security being even more imperative for the breeder grower. Removal or winching of heaters for cleaning is unnecessary as the heaters are installed in the side wall of the shed. There is a large hatch situated at the side of this heater where the heat exchanger and the fan can be cleaned in between crops.

Characteristics:

- Indirect fired gas heater
- Situated outside the poultry house
- High air output
- 100% circulation of return air
- No combustion gasses in the house
- No CO_2 in the house → less ventilation less energy consumption
- Reliable burner technology
- Robust construction
- Extensive control possibilities
- CE-approved
- Easy to service which is carried out externally

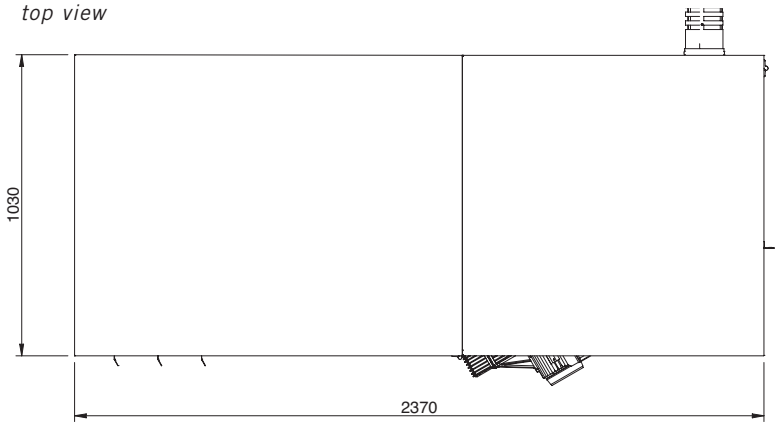
Robust quality

The housing of the DXE is made from a specially coated steel which encapsulates insulation reducing heat loss. The burner technology originates from well established Winterwarm heaters. Risk of the burner head getting polluted is extremely low as clean outside air is used in the combustion process.

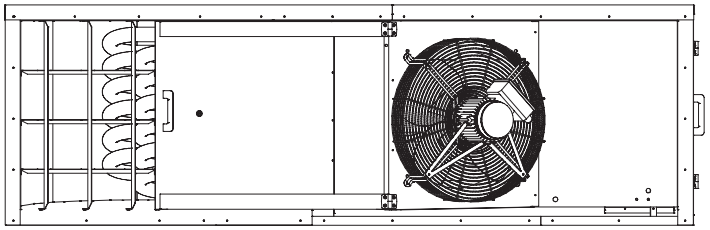
Controls

The DXE is provided with an on/off contact for simple control. Also the heater can operate in high/low modus (100%-60%) by means of an Interface Unit. This unit can be connected to a climate control system. With a 0-10 V. signal current functions like burner modulation, ventilation, operation signal, failure signalization and remote reset can be controled.

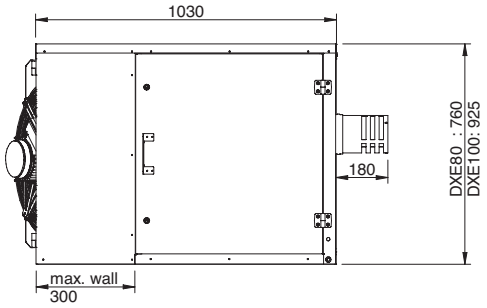
top view



front view



side view



Furthermore a Remote Status reader is available to read out the various functions.

Technical data DXE-series

Type	Unit	DXE 80	DXE 100
Nominal heat input	kW	83	108
Nominal heat output	kW	76	99.1
Efficiency maximum power	%	91.5	91.8
Air output	m^3/h	8000	10000
Throw	m	45	50
Electrical capacity	W	900	1400
Power consumption	A	3.9	6.1
Electrical connection	V	230	230
Maximum gas consumption G20	m^3/h	8.8	11.4
Maximum gas consumption G31	kg/h	6.6	8.6
Gas connection	G”	3/4	3/4
Sound level	dB(A)	68	68
Weight	kg	150	175
Flue diameters	mm	130	130

DX heater

The DX-range meets the demand in the agricultural and horticultural markets for durable and efficient heaters based on a well-known concept.

Direct fired heaters for gas and oil

A correct temperature and an even air distribution are important factors for the growing environment in both agriculture and horticulture. The DX-series is especially designed to control these factors optimally. The large air flow capacity (6000 - 7000 m^3/h) and the special round shape of the heater ensure optimum air distribution, which guarantees an even heat distribution and consistent climate throughout.

The DX heaters have a guaranteed efficiency of 100% as all generated heat is supplied directly into the room. The burner with its stabilized flame provides a clean, complete combustion in combination with a relatively low energy consumption. The DX can be supplied suitable for various fuels: type DXA - natural gas (high- or low calorific value), butane, propane or LPG; type DXB - diesel or paraffin. The heaters are adjusted and tested for the right fuel type in the factory. For the DXA conversion kits are available to change the gas type on site.

Safety and reliability

Above all the DX offers reliability. The gas fired DXA range is CE approved. All DX-heaters are subjected to a final inspection during which electrical safety, correct emission values and general operation are checked. Besides, as Winterwarm is ISO 9001-2008 certified the overall quality and safety are guaranteed. The heater is provided with the latest technology for optimum control. The ignition process is fully controlled by a digital circuit board. In case of flame failure 3 automatic re-starts are carried out. The status of the heater can be monitored on the PCB-board in the control box. To minimise the risk on failures, the DX carries out a self-check each hour.

The DX is a very robust heater as it is completely manufactured from stainless steel. This characteristic ensures a long and maintenance free life cycle. The PCB control board and associated components are placed in a spray-proof box so that the DX can easily be cleaned after each crop. The heater is developed in such a way that the susceptibility to interferences is limited to a minimum and that the safety is maximized in order to allow your animals or plants to grow without problems.

DXA 75-100-120

DXB 100-120

Characteristics:

- SS body + burning chamber
- IP 54
- Available for gas and oil application
- Modern technology
- Substantial product
- Reliable
- High air output
- 100% efficiency
- Connection of 8 heaters to 1 thermostat possible
- CE-approved

Controls

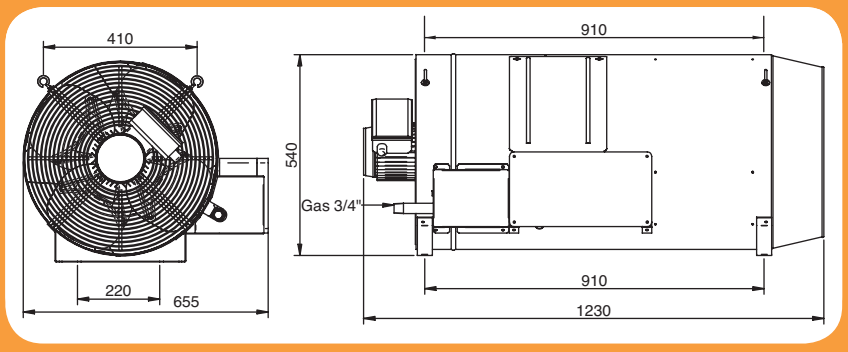
As standard the DX can be switched on by an on/off contact through a signal of the climate control system or a common room thermostat (low voltage current - connection for max. 8 heaters).
The circuit board is provided with a facility to switch the DX to ventilation position.

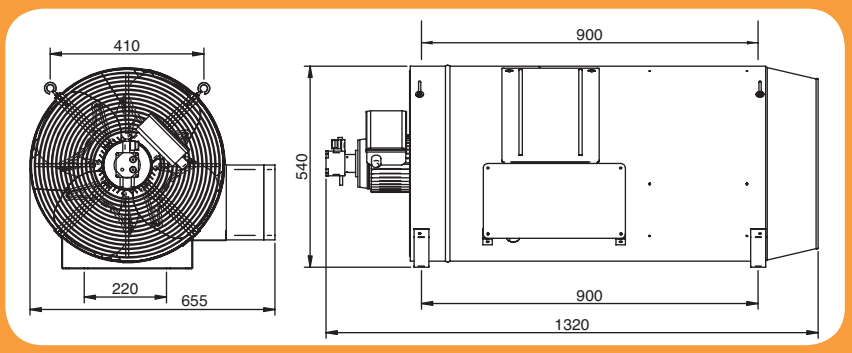
Options:

- Connection for external fans to switch simultaneously
- Interface Unit - connection to climate control system to be able to send and receive various signals
- Remote status reader.

Interface Unit - IB5902

- Zone control for 1-8 heaters
- 0-10 V. analogue input
- Connection for burner on/off
- Connection for ventilation on/off
- Reset function
- Output failure signal
- Output “in operation” signal





Technical data DX-series

Type	Unit	DXA 75	DXA 100	DXA 120	DXB 100	DXB 120
Nominal heat input/output	kW	75	100	120	100	120
Air output	m^3/h	6000	6000	7000	6000	7000
Throw	m^3/h	40	40	45	45	45
Electrical capacity	W	550	550	800	900	1000
Power consumption 50 Hz	A	2.8	2.8	3.8	4.6	4.8
Required main frequency*	Hz	50	50	50	50	50
Sound level	dB(A)	79	79	81	79	79
Weight	kg	40	40	45	45	45
Nom. gas consumption G20	m^3/h	7.9	10.5	12.6	-	-
Nominal gas consumption G31	kg/h	5.9	7.9	9.5	-	-
Nominal consumption parafin	l/h - kg/h	-	-	-	10.1-8.7	12.1-9.7
Nominal consumption diesel	l/h - kg/h	-	-	-	9.8-8.3	11.7-10.0
Dimension oil connection	mm	-	-	-	6	6

*) 60Hz also available

DX fan and ECO fan+

An optimal growth climate is essential in poultry houses and greenhouses. Distribution fans provide an even distribution of the warm air, and therefore contribute considerably to a good climate in the house.

Winterwarm has two energy efficient fans for air recirculation available: the Winterwarm DXF and the ECO Fan+. Both fans have some important features in common, as high air output and their contribution to the savings of energy. They differ in material and design. The DXF is often applied in combination with the DX heaters, and the ECO fan with the ECO heaters.

Less energy consumption

In order to realise a constant, controllable temperature in your poultry- or greenhouse, distribution fans are essential. Especially greenhouses can be very airtight nowadays. Less heaters are installed in order to decrease the energy consumption as much as possible. The fans then take care of an even distribution of the generated heat. Also condensation on the crops is reduced.

In poultry houses the same arguments are valid but there the installation of the distribution fans is particulary advisable when DXC heaters are installed (see page 4). After all, in houses with DXC heaters less air is introduced (and lost again to the outside) but the heat present still has to be well distributed in the house in order to create an optimal climate for the chickens. Applying DXF or ECO fans is an effective and financially attractive way to realise that.

As the purchase price of a DXF or ECO fan is relatively low, the return on investment period for these fans is fairly short. With continuously increasing energy prices the installation of distribution fans is financially becoming more interesting every day! But most important, they are vital for an optimal growth climate.

Characteristics DX fan:

- high air output (5000m^3)
- energy-saving
- robust SS-body
- light and easy to install
- IP54
- air inlet/outlet opening 460

Characteristics ECO fan:

- high air output (5450m^3)
- energy-saving
- synthetic body (no corrosion)
- light and easy to install
- tapered body form (air inlet opening 537, outlet 504)

	Unit	DX fan
Inlet side diameter	mm	460
Outlet side diameter	mm	460
Body length	mm	300
Air output	m^3/h	5000
Throw	m	30
Mains voltage	V	230
	Hz	50/60
Electrical current	A	1.9
Electrical capacity	W	365
Maximum noise level at a 4m distance	dBA	57

	Unit	ECO fan+
Inlet side diameter	mm	537
Outlet side diameter	mm	504
Body length	mm	275
Air output (warm)	m^3/h	5450
Throw	m	48
Power consumption nominal	A	0.8
Electrical capacity	W	160
Weight (excl. grills)	kg	10.4
Maximum noise level at a 2m distance	dB(A)	63

Notes

Winterwarm: leading

Winterwarm has been engaged in the development, production and sales of heating equipment in Europe since 1936. The company not only specialises in indirect fired unit air heaters, but also sells radiant tubes, rooftops, water heaters, destratification fans and direct fired heaters for the agricultural and horticultural industry.

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Winterwarm
heating solutions

Winterwarm Heating Solutions BV
Industrieweg 8 Winterswijk The Netherlands
P.O.Box 36 NL-7100 AA Winterswijk The Netherlands
Tel. +31 (0)543 54 63 00 Fax +31 (0)543 54 63 10
www.winterwarm.com info@winterwarm.nl

CE

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