



Cool solution for saturated gases

The SILOXA PowerDryer is the efficient, economical solution for drying saturated gases. Developed from the proven GK series, it comprises the experience and successful components developed in more than 1,000 successful SILOXA installations.

- **Completely pre-assembled on a frame, merely the supply lines need be connected and, presto, the gas drying can begin**
- **Low space requirements and economical operation including low operating and maintenance costs**
- **An ideal solution for professional users who want to effectively supplement their standard programmes**

Designed for gas flow rates of 180, 260, 320, 420, 500 and 600 Nm³/h, the PowerDryer from SILOXA can be used for biogas, sewage gas or landfill gas. The cooling performance is from 40 °C to 4 °C or alternatively from 40 °C to 20 °C.

„Take out what doesn't belong.“

Based on the PowerDryer as an example, a gas drying system in industrial series production has been proven feasible. SILOXA impressively demonstrates that innovative engineering solutions have made reasonable production costs and high quality standards virtually synonymous.





Cool solution for saturated gases
SILOXA PowerDryer /36 and /20
Gas Drying System.
Pre-assembled on a frame
for outdoor installation.

Technical documentation

Features

- compact frame-mounted design, modular structure
- high availability, operational reliability, low maintenance
- potential upgrading with further modules/options
- defined interfaces to fermenters and gas utilisation system

Frame

- made of square galvanised tubes
- dimensions in accordance with structural requirements

Gas cooler

- tube bundle heat exchanger
- max. permitted operating pressure: approx. 0.5 bar on the tube side, approx. 6 bar on the jacket side
- low specific pressure loss on the gas side

Water cooler

- equipped with an air-cooled condenser for outdoor installation and all-year operation
- compact and industrially manufactured standard unit

Liquid coolant circuit

- pipework material steel, incl. flanges, bolts, seals
- required manual and safety valves

Condensate separator

- moulded piece, material 1.4571
- demister, material 1.4571
- condensate outlet via condensate shaft provided by the customer

Factory assembly

- all components supplied ready for use, with pipework and cabling
- external interfaces
- filled with glycol
- prepared for commissioning at the factory

Technical documentation

- operating instructions, installation and shop drawings
- piping and instrumentation diagram, circuit diagram, list of assemblies
- spare parts lists and individual documentation for the installed components
- acceptance/testing reports and certificates
- the products from SILOXA comply with the EC declaration of incorporation for the purpose of the EC Machinery Directive 2006/42/EC





SILOXA - a recognised brand
for efficient and economical
solutions for drying gases.
Made in Germany.

Possible options

Condensate separator with water barrier

- moulded piece, material 1.4571
- water barrier (max. gas pressure at the gas inlet -5 to 10 mbarg)
- demister, material 1.4571
- condensate outlet via liquid shut-off valve

Condensate separator with water barrier and fill level monitor

- additional monitoring of the liquid shut-off valve via rod probe
with two switching contacts
- water barrier (max. gas pressure at the gas inlet -5 to 10 mbarg)

Insulation against cold with trace heating

- vapour diffusion proof insulation for gas drying system,
condensate outlet and liquid coolant circuit
- aluminium-sheet sheathing
- trace heating



Technical Data: SILOXA PowerDryer /36

Design parameters	PD 180/36	PD 260/36	PD 320/36	PD 420/36	PD 500/36	PD 600/36
Gas medium	Biogas					
Gas flow rate	180 Nm ³ /h	260 Nm ³ /h	320 Nm ³ /h	420 Nm ³ /h	500 Nm ³ /h	600 Nm ³ /h
Gas inlet temperature	max. 40 °C					
Gas outlet temperature	4 °C					
Moisture saturation	approx. 40 °C					
Gas pressure at gas inlet	- 5 to 500 mbar					
Pressure loss Δp	6 mbar	11 mbar	16 mbar	5 mbar	10 mbar	14 mbar
Quantity of condensate, approx.	9,4 l/h	13,6 l/h	16,8 l/h	22,0 l/h	26,2 l/h	31,5 l/h

Techn. data for cooling device

Power Supply	400 V / 3Ph + PE / 50 Hz					
Coolant Compressor	1 scroll compressor					
Number of Coolant Circuits	1					
Condensers	air-cooled					
Rated cooling capacity ^{1*}	14,5 kW	18,7 kW	22,5 kW	29,7 kW	38,7 kW	44,2 kW
Rated power consumption ^{1*}	5,5 kW	7,0 kW	7,8 kW	10,0 kW	12,9 kW	14,0 kW
Mean elec. power consumption with design parameters and 15 °C ambient temperature ^{2*}	2,7 kW	3,8 kW	4,3 kW	5,3 kW	6,7 kW	7,8 kW
Rated current	13,0 A	19,0 A	19,4 A	24,2 A	32,7 A	38,1 A
Starting current	73,0 A	76,0 A	101,0 A	132,0 A	161,0 A	163,0 A

Gas composition

Methane CH ₄	approx. 60 Vol.-% v/v
Carbon dioxide CO ₂	approx. 40 Vol.-% v/v
Hydrocarbons > C ₅	< 100 mg/m ³

Physical properties

Gas density	approx. 1,2 kg/Nm ³
Specific heat capacity C _p	approx. 1,6 kJ/Nm ³ K

Installation conditions

Installation site	outdoor					
Permitted temperature	- 15 °C to + 35 °C					
Danger zone	outside Ex-zones					
Electrical connection	400 V / 3Ph + N + PE / 50 Hz					
Connected load	6,5 kW	10,1 kW	10,5 kW	13,3 kW	17,8 kW	19,7 kW

^{1*} Rating according to Eurovent: Coolant 12 °C to 7 °C at 35 °C ambient temperature.
The annual mean temperature at our latitudes is 11 °C.

^{2*} This value is to be used for calculating the energy requirement of the gas cooler.

Options: In accordance with Page 3.

Higher gas inlet pressures can also be implemented on request.



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Technical Data: SILOXA PowerDryer /20

Design parameters	PD 180/20	PD 260/20	PD 320/20	PD 420/20	PD 500/20	PD 600/20
Gas medium	Biogas					
Gas flow rate	180 Nm ³ /h	260 Nm ³ /h	320 Nm ³ /h	420 Nm ³ /h	500 Nm ³ /h	600 Nm ³ /h
Gas inlet temperature	max. 40 °C					
Gas outlet temperature	20 °C					
Moisture saturation	approx. 40 °C					
Gas pressure at gas inlet	- 5 to 500 mbar					
Pressure loss Δp	2 mbar	2 mbar	5 mbar	1 mbar	2 mbar	3 mbar
Quantity of condensate, approx.	7,4 l/h	10,6 l/h	13,1 l/h	17,2 l/h	20,4 l/h	24,5 l/h

Techn. data for cooling device

Power Supply	400 V / 3Ph + PE / 50 Hz					
Coolant Compressor	1 scroll compressor					
Number of Coolant Circuits	1					
Condensers	air-cooled					
Rated cooling capacity ^{1*}	10,1 kW	14,5 kW	14,5 kW	22,5 kW	29,7 kW	29,7 kW
Rated power consumption ^{1*}	3,0 kW	5,5 kW	5,5 kW	7,8 kW	10,0 kW	10,0 kW
Mean elec. power consumption with design parameters and 15 °C ambient temperature ^{2*}	1,6 kW	2,3 kW	2,8 kW	3,6 kW	4,2 kW	4,9 kW
Rated current	12,1 A	13,0 A	13,0 A	19,4 A	24,2 A	24,2 A
Starting current	49,0 A	73,0 A	73,0 A	101,0 A	132,0 A	132,0 A

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Connected load	5,9 kW	6,5 kW	6,5 kW	10,5 kW	13,3 kW	13,3 kW

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