

Mini - FLOX®

Thermal oxidizer or small purge gas streams

Applications:

You have a limited amount of gas emission to be burned. A central thermal oxidiser equipment is too expensive or inflexible for your process? Then the Mini-Recuperative-FLOX® is what you need. It is ready for operation in half an hour and provides a safe and clean oxidation of purge gases.

References:

Post-combustion of:

- purge-gases from ceramic sinter furnaces
- purge gas from industrial systems
- product gases from e.g. pyrolysis systems

Example: Mini-TO ready for delivery:



Operation:

The Mini-FLOX® is made up of a flame/FLOX® – burner and a combustion chamber. The combustion chamber is heated up with natural gas or LPG in flame mode. At 850°C the burner is switched to FLOX® mode. This means that flow velocity is increased and the flame front is blown off. Oxidation goes on but no flame is visible or detectable (flame-

less oxidation). NO_x formation rapidly decreases. In FLOX® mode the thermal oxidizer is ready for thermal treatment of the purge gas. Complete combustion of a wide range of gases is possible.

There are two limiting factors. First, the maximum gas flow-rate depends on the allowable pressure of the purge gas. Second, overheating of the Mini-FLOX®- must be prevented by limiting the thermal input.

The burner integrated recuperator preheats the combustion air and hereby lowers fuel consumption. A O₂-probe is used to control the amount of combustion air and to keep the optimum stoichiometry. Supplementary fuel or cooling air is controlled to adopt to different heating values of the purge gas.

Plant control:

A modular built-in PLC is used for automation. The burner controller keeps the plant at the best operating point with a minimum of natural gas consumption. The system is able to communicate via digital input / output signals or via the optional ProfiNet interface. A touch screen allows to visualize the plant operation, to adjust control parameters and to do a diagnosis if problems arise. The system can be operated locally, by digital contacts or via the ProfiNet interface.

Modular set-up:

The basic Mini-FLOX® is able to burn cold purge gas with up to 100 kW fuel power. If necessary special valves and materials are used for hot purge gas (see Item 3). An optional flue gas cooling system allows to add a flue gas fan in order to suck the purge gas into the TO without any pre-pressure or even with negative pressure (see Item 2).

Customized designs:

This modular set-up allows to choose an economic and powerful solution for each customer. Max gas stream and power demand can vary. Plants for larger gas amounts and energy input are possible. Visualisation and interfaces can be adapted to the specific requirements of the customer.

Price adjustment clause:

Due to the current situation on the supply market carbon and stainless steel supply reached peak prices. Furthermore prices for fireproof insulation material increased. We assume that this is a temporary problem and added a surplus price. This price will be recalculated for your project.

®: FLOX is a registered trademark of the company WS Wärmeprozessstechnik, Renningen

Technical Data

Plant type:	Mini-FLOX 100
Start-up time:	0,5 h (cold start); 5-10 min (from stand-by)
ca. Width x length x height [mm]:	1000 x 2000 x 2500
Natural gas consumption standby:	1 m ³ /h (10 kW)
Maximum gas flow-drate:	120 m ³ /h
Maximum thermal input:	100 kW
Electric connection:	1,5-5 kW (400V)
Natural gas inlet pressure:	50-100 mbar
Upstream pressure of purge gas:	-5 – +80 ,mbar

Budgetary price list

Prices for the base module and some common add-on modules are summarized below. These prices are calculated on the base date September 2021.

Item	Description	Price
1.1	Mini FLOX TNV 100	97.800 €
1.2	Material surcharge due to peak prices in steel and insulation material	28.900 €
2	Flue gas cooling and dilution system with flue gas fan	28.900 €
3	High temp. Shut of flaps with N2 sealing air for hot waste gas of max 600°C	2.600 €
4	Profinet Interface for remote control	1.800 €

Terms and conditions: EXW Incoterms 2020
 Travel, mounting and commissioning: Charged on effort

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