

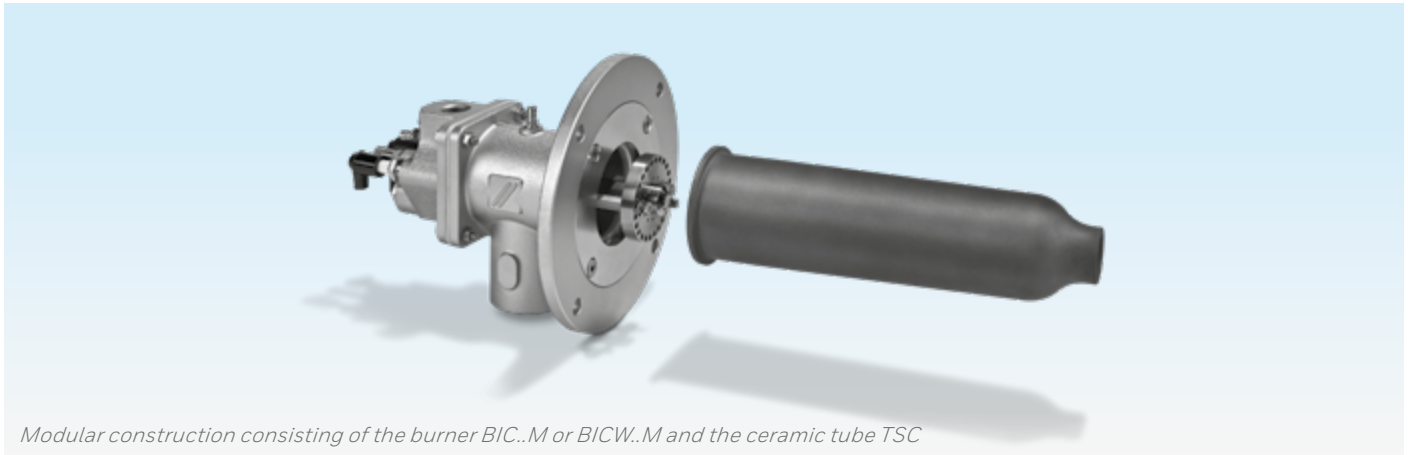
menox®

BIC..M

Low NO_x burner

- Low polluting level in menox low NO_x mode at furnace temperatures from 850°C (1562°F) thanks to flameless combustion
- Safe flame control in flame mode thanks to flame rod and reliable electrical ignition
- Capacity range from 35 to 360 kW (132*10³ to 1360*10³ BTU/h)
- Air preheating to 450°C (842°F)
- Length increments enable individual adjustment to the wall thickness of the system

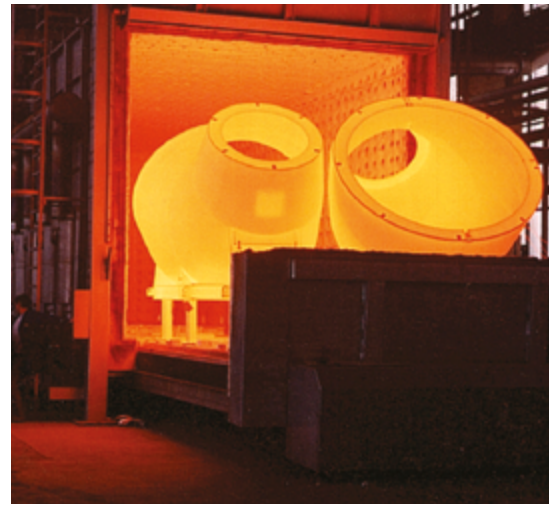
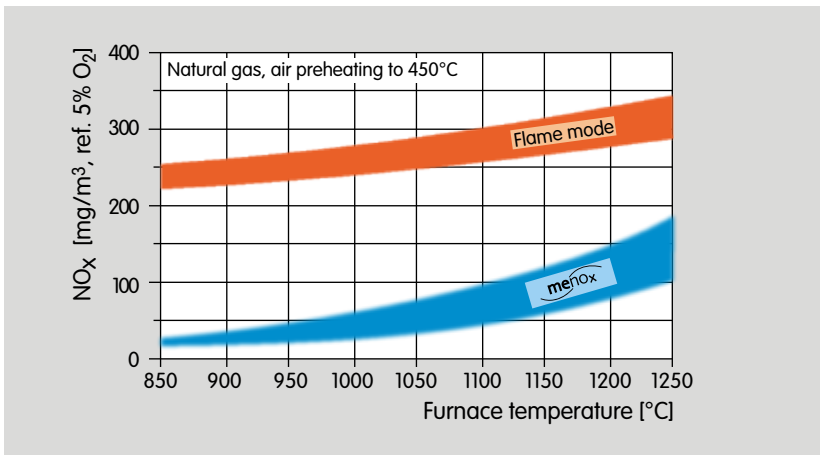
Application



Modular construction consisting of the burner BIC..M or BICW..M and the ceramic tube TSC

Suitable for use in industrial furnaces and firing systems in the iron and steel industries in the precious, non-ferrous and light metal sector.

The burner can be used in conjunction with the ceramic tube set TSC in brick-lined or fibre-lined furnaces. No burner quarl is necessary.



Heat treatment

The burners are ignited by the ignition electrodes and heat up the furnace in traditional flame mode. To reduce NO_x emissions, the burner can be switched to menox low NO_x mode with flameless combustion from a furnace temperature of > 850°C (1562°F).

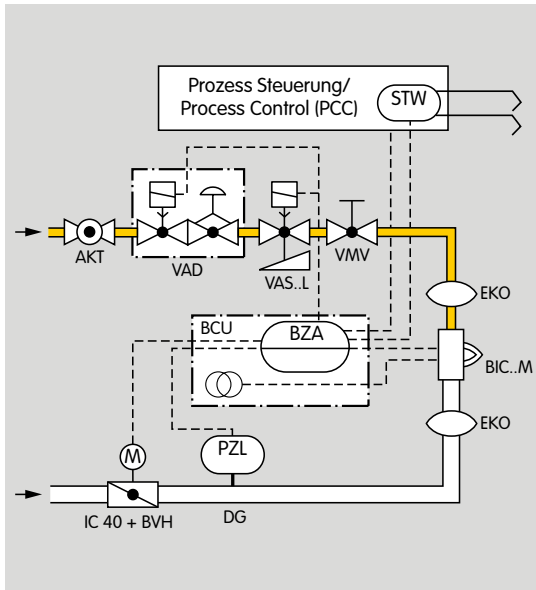
menox low NO_x mode is only possible in conjunction with (ON/OFF) cyclical control. In order to switch to menox low NO_x mode, a special burner control unit BCU 465..MENOX with (ON/OFF) cyclical control is required. The high outlet velocity of burners BIC..M and BICW..M thereby ensures uniform temperature distribution in the furnace.



Roller hearth furnace

Examples of application

Staged ON/OFF control



Burners BIC..M are switched ON/OFF by the burner control unit. Burners BIC..M and BIC..M are controlled without pneumatic air/gas ratio control system. The gas supply pressure is controlled by a gas pressure regulator VAD; the required burner capacity is set using the fine-adjusting valve VMV. The air volume is set via the opening angle of the air valve. An air pressure switch upstream of the burner monitors the functioning of the air valve. In addition, air/gas ratio monitoring for the zone or the furnace is required.

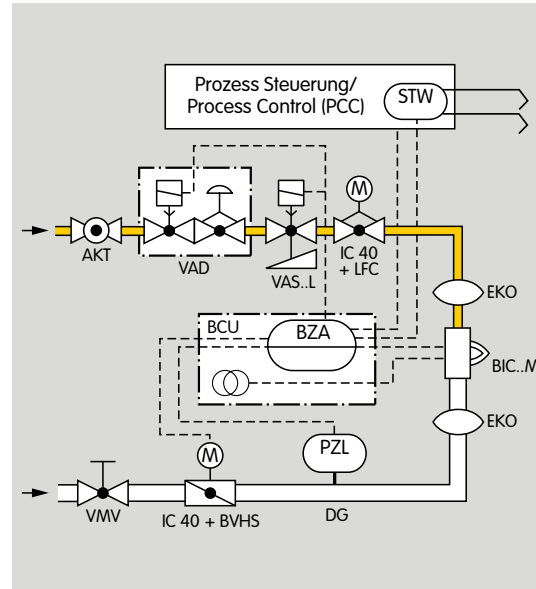
As soon as the safety temperature monitor STM signals a furnace temperature of $\geq 850^{\circ}\text{C}$ (1562°F), the burner can be switched to flameless combustion (menox low NO_x mode) to significantly reduce NO_x emissions.

Switching to menox low NO_x mode eliminates the counterpressure by the flame in the ceramic tube TSC. At a constant gas supply pressure, the gas volume increases by approximately 15%. In menox low NO_x mode, the air valve moves to a smaller open position which has been adapted to the pressure ratios.

We recommend providing for hot air compensation by an increase in air pressure depending on the hot air temperature for applications with air preheating via a central recuperator.

Staged ON/OFF control with pressure compensation

The change in the pressure ratios when switching to menox low NO_x mode can be compensated for using an additional linear flow control (LFC with IC 40). With the switchover, the LFC moves to a smaller open position and thus maintains the gas flow rate, i.e. the burner capacity, constant. In menox low NO_x mode, the air valves moves to an open position which has been adapted to the pressure ratios.



Legend

	Safety interlocks (Limits)
	Start-up signal
	Controlled air flow
	Ignition transformer
	Purge
	Flame signal
	Operating signal
	Fault signal
	Reset
	menox input
	Min. pressure switch
	Safety temperature monitor
	B = flame control Z = binary control function (safety-related) A = alarm, message
	Pressure regulator with solenoid valve
	Solenoid valve for gas, slow-opening
	Fine-adjusting valve
	Butterfly valve BVH with actuator IC 40

Technical data

Gas supply pressure and air supply pressure each depend on the use and gas type (gas and air pressures):

Operating characteristic diagrams and flow rate curves see www.docuthek.com

Registration in the Docuthek required.

Overall lengths:

0 to 400 mm (0 to 15.7"),
100 mm (3.94") length increments
(other lengths available on request).

Gas types: natural gas; other types of gas on request.

Control type:
staged: On/Off.

Operating range in menox low NO_x mode, see www.docuthek.com, Kind of document: Operating characteristic diagram.

Registration in the Docuthek required.

Flame control: with ionization electrode (UV control as an option).

Ignition: direct spark ignition.

Burner housing:

BIC..M: cast steel,

BICW..M: ST + internal insulation.

Most of the burner components are made of corrosion-resistant stainless steel.

Maximum furnace temperature: 1250°C (2282°F); higher temperatures on request.

Maximum air temperature:
up to 450°C (842°F).

The flame diameter is one to two times that of the burner tube outlet.

REACH Regulation

applies to BICW only

Information pursuant to REACH Regulation No. 1907/2006, Article 33.

Insulation contains fireproof ceramic fibres (RCF)/aluminium silicate wool (ASW).

RCF/ASW are listed in the Candidate List of the European REACH Regulation No. 1907/2006.

Technical Information bulletin for this product

www.docuthek.com

Search term: BIC..M

Contact

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Burner type code

Code	Description
BIC	Burner for gas
BICW	Burner for gas with internal insulation
65 - 140	Burner size
M	For menox low NO _x operation
B G D	Gas type: natural gas butane, propane, propane/butane town gas, coke oven gas
-0 -100 -200 ...	Length of burner extension (L1) [mm]
/35- /135- /235- ...	Position of burner head (L2) [mm]
(1) - (99)	Burner head identifier
A - F	Construction stage

Ceramic tube set TSC type code

Code	Description
TSC	Ceramic tube set
65 - 140	Designed for burner size
M	Shape: for menox
035, 075, 110, 180, 260, 360	Capacity in kW
-300	Tube length (L8) [mm]
/35-	Position of burner head (L9) [mm]
Si-1500	Ceramic tube material

Maintenance cycles

Twice per year, but if the media are highly contaminated, this interval should be reduced.