

## NO<sub>2</sub>/NO Converter

### THC-NC series

### Applications

- The NO<sub>2</sub>/NO converter is equipped with a MBC (metal based catalyst) which efficiently converts NO<sub>2</sub> to NO.
- The converter is used for gas analyzers measuring NO<sub>x</sub> for flue exhaust.
- Guaranteed long life time unless contaminated.

### Operating Principle



A nearly 100 % conversion of NO<sub>2</sub> and therefore a nearly complete conversion to NO is achieved with a cartridge filled with a metal catalyst within a temperature range of 620 to 680 °C

### Description

In the high temperature combustion processes, the nitrogen contained in the air reacts with the oxygen producing oxides of nitrogen in the forms of monoxide and dioxide. The term "NO<sub>x</sub>" incorporates the total amount of the two components. The reference method of the NO<sub>x</sub> content definition in a gas mixture is based on the NDIR and CLD(chemiluminescent) that can be, however, only applied to the nitric oxide. The NO<sub>2</sub>/NO converter carries out the conversion of the nitrogen dioxide into monoxide through reaction inside the heating catalytic chamber. The conversion takes place in small reactors with electric heating which are filled with various catalyst materials developed specifically for this process. For a long lifetime and high efficiency converting, high temperature heater is applied.

The molybdenum catalyst has high energy efficiency and high conversion rate. Its maximum conversion capacity is around 20,000 ppm per hour and the catalyst is consumable type. So catalyst should be periodically replaced and lifetime depends on the concentration. MBC(Metal Based Catalyst) could be significantly increased lifetime because MBC is not consumed during the conversion of NO<sub>2</sub> back to NO. The converter is composed of stainless steel cylindrical chamber furnace heated by an electrical heater and is covered by a thick layer of ceramic based thermal insulated material. It is possible to get a stable temperature uniformly distributed and a low loss of heat. An electronic PID-controlled thermo-regulator permits to set up and keep the temperature constant, detected through thermocouple with the most appropriate value.



THC-NC-R-C-22

### Heater

The mineral insulated (MI) band heater is a high-performance heater that incorporates exclusive mineral insulation. This material offers much higher thermal conductivity than mica and hard ceramic insulators that are used in conventional heaters.

A thin layer of the "high" thermally conductive MI material electrically insulates the element wire from the inside diameter of the heater sheath. The result is more efficient heat transfer, which lowers element wire temperatures and increases heater life.



THC-NC-W-S-22

### Model Selection

THC	NC	X	X	XX	
		R			19" rack mounting
		W			Wall mounting
			S		Without temperature controller
			C		With temperature controller
				11	100~120VAC
				22	220~240VAC

### Technical data

General	
Operating temp.	650 °C
Warm up time	After approx. 30 min. heat up time
Heater	
Type	Mineral Insulated Band Heater
Size	2" ID X 2" width
Capacity	Max. 1200W
Operating range	0~700 °C
Power supply	100~120VAC or 220~240VAC
Gas inlet condition	
Sample gas pressure	up to 10 bar g
Sample gas temperature	5 ~ 70 °C
Sample flow rate	Max. 5 LPM
Ambient condition	
Ambient temperature	-10 ~ 60 °C
Humidity	< 90% RH
Catalyst	
Cartridge type	Carbon-molybdenum mixture
Size	2" OD X 6" width
Chamber	SS316
Connection Size	Inlet : 1/4" Outlet : 1/4"