

OUR GOAL - A POLLUTION-FREE ENVIRONMENT



Neutralizer model IN-150

Highly recommended for gas nitriding / nitrocarburizing furnaces, the Nitrex line of high temperature neutralizers is designed to eliminate residual ammonia and/or other pollutant gases and minimize NO_x emissions.

Nitrex Neutralizing System offers

- High efficiency
- Low operating costs
- Low NO_x
- Compliance with environmental regulations
- Improved furnace and process reliability
- Connectivity to furnace controls

DESIGN & OPERATION

The pollution control equipment is comprised of a neutralization chamber, burner, fuel gas train, air blower, and adaptive control system.

As effluent gases enter into the neutralizing chamber, the burner injects a metered mixture of natural gas and air and initiates combustion. The optimum temperature necessary to neutralize emitted gases is maintained automatically by the control system.

Depending on the composition of the effluent gas, the reaction may be either endothermic or exothermic. When the content of exothermally reacting gases (e.g. H₂) in the effluent atmosphere is low (e.g. in nitriding atmospheres diluted by N₂), a fuel gas is added to help maintain the adequate reaction temperature, typically in the 1652-2012°F range (900-1100°C).

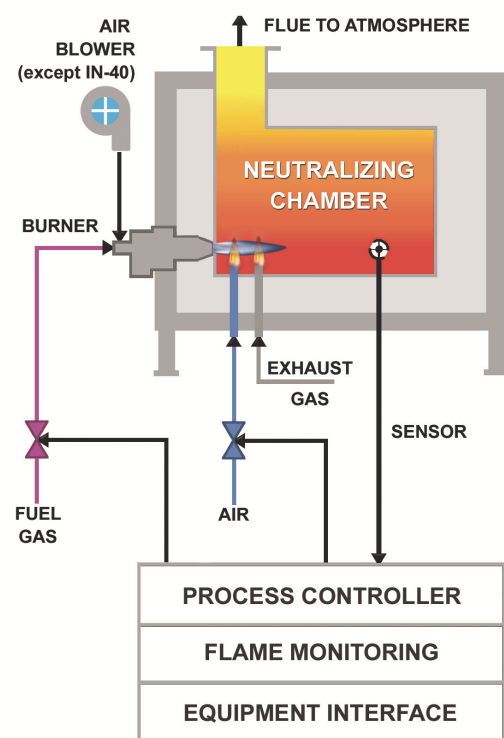
In the case of effluent gases containing a higher amount of H₂, the temperature of combustion rises. This reaction produces harmful NO_x. The unique advantage of Nitrex neutralizers is the adaptive control system which automatically adjusts the amount of air and fuel gas to the type of effluent gas, and thus prevents excessive NO_x emissions.

The control system is also equipped with an automatic flame monitoring system. Any malfunction of the neutralizer, like overheating or extinguishing of flame, automatically triggers an alarm signal which is relayed to the control system of the furnace equipment generating the effluent gases.

DIFFERENT SIZES FOR DIFFERENT FLOWS

Neutralizers are available in seven sizes (tied to nominal effluent atmosphere flows): 85, 160, 320, 635, 1060, 1590 and 2120 cfh.

The equipment can handle a wide range of atmospheres of diverse chemical compositions. For example, in a nitriding furnace, this would mean from lean (low ammonia) mixtures to 100% NH₃ at nominal flows of up to 2120 cfh.



Schematic of the neutralizing system

MODELS & SPECIFICATIONS

Nitrex's line of gas neutralizers for eliminating pollutant effluent gases promotes environmental friendliness and is highly recommended for gas nitriding and nitrocarburizing furnaces using ammonia gas. These neutralizers can be coupled to any other equipment which emits polluting gases that crack at elevated temperatures. The line of gas neutralizers is available in the following sizes:

OPERATING CHARACTERISTICS*	IN-40	IN-75	IN-150	IN-300
Maximum process gas flow	85 cfh	160 cfh	320 cfh	635 cfh
Maximum thermal output	48,000 btu/hr	75,000 btu/hr	154,000 btu/hr	280,000 btu/hr
Fuel gas rated input	20,500 btu/hr	55,000 btu/hr	89,000 btu/hr	143,500 btu/hr
- idle input (average)	17,100 btu/hr	41,000 btu/hr	54,500 btu/hr	89,000 btu/hr
- minimum input	13,500 btu/hr	13,500 btu/hr	20,500 btu/hr	34,000 btu/hr
Maximum air draw	920 cfh	1,310 cfh	2,540 cfh	4,940 cfh
Operating temperature	1650–2000°F	1650–2000°F	1650–2000°F	1650–2000°F
Maximum temperature	2300°F	2300°F	2300°F	2300°F
Control voltage/frequency	120 VAC/60Hz	120 VAC/60Hz	120 VAC/60Hz	120 VAC/60Hz
Control power	500 VA	500 VA	500 VA	750 VA
Overall dimension (L x H x W) [inch]	35 x 40 x 18	69 x 60 x 34	80 x 60 x 34	82 x 74 x 39

OPERATING CHARACTERISTICS*	IN-500	IN-750	IN-1000
Maximum process gas flow	1060 cfh	1590 cfh	2120 cfh
Maximum thermal output	451,000 btu/hr	676,000 btu/hr	900,000 btu/hr
Fuel gas rated input	171,000 btu/hr	290,000 btu/hr	375,500 btu/hr
- idle input (average)	102,500 btu/hr	171,000 btu/hr	222,000 btu/hr
- minimum input	41,000 btu/hr	61,500 btu/hr	82,000 btu/hr
Maximum air draw	8,550 cfh	12,900 cfh	17,700 cfh
Operating temperature	1650–2000°F	1650–2000°F	1650–2000°F
Maximum temperature	2300°F	2300°F	2300°F
Control voltage/frequency	120 VAC/60Hz	120 VAC/60Hz	120 VAC/60Hz
Control power	750 VA	1000 VA	1000 VA
Overall dimension (L x H x W) [inch]	80 x 64 x 41	86 x 73 x 41	97 x 73 x 45

EMISSION	NH ₃	NO _x
Maximum	< 35 ppm	< 200 ppm

* Data for information purposes and subject to change.

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