

## Endothermic Gas Generators



The **ALMOR ENDOTHERMIC GAS GENERATOR** is based on the well proven **WILD BARFIELD** design and is used for the production of a high quality protective gas. Endothermic gas is produced by passing a sub stoichiometric mixture of a hydrocarbon (natural gas, propane etc.) and air through a heated retort, containing a nickel impregnated catalyst. The reacted gas consists of typically 20-23% CO, 35-40% H<sub>2</sub>, balance N<sub>2</sub> with small amounts of CO<sub>2</sub> and water vapour, which is reducing and carburising to steel.

Generated carrier gas gives the best controllability, reproducibility and high quality end product, compared with alternative methods of controlled atmosphere production (i.e. nitrogen/methanol, 'in furnace' generation) and can be used in a wide variety of heat treatment processes including:

- Gas carburising (+ hydrocarbon)
- Gas carbonitriding (+ hydrocarbon + ammonia)
- Neutral hardening (+ hydrocarbon)
- Gas nitrocarburising (+ ammonia)



### ► DESIGN FEATURES

- Six Standard sizes (7.5 – 90m<sup>3</sup>/hour)
- Electric or Gas heating
- No cooling water requirement
- Compact design, low headroom requirement
- Side hinged heating chamber door to facilitate maintenance
- Low running costs
- Low floor space requirement
- Low maintenance costs
- Conforms to EN 746-3
- Automatic 'regeneration' facility
- Automatic output control over 3:1 turndown (optional)
- Automatic gas quality control using 'Lambda' probe (optional)

### OTHER ALMOR GROUP PRODUCTS:

- 'ENDOCUBE' Catalyst
- Upgrade/refurbishment
- 'Lambda' probe control systems
- Nickel chrome, cast and fabricated retorts

# ➤ Customer Benefits

## ■ MINIMUM SPACE

ALMOR generators occupy less floor space than most units of comparable output. A side hinged door is provided through which the retort may be removed if necessary and headroom requirements are thereby minimised.

## ■ SIMPLE OPERATION

Once the catalyst furnace has attained temperature, operating the equipment consists merely of setting air and gas control valves for the desired flow ratio. An optional quantity control system can be provided to give automatic turndown of gas over a 3:1 range, dependant on demand. This prevents wastage of gas which is normally burned off.

The quality of the output gas can be controlled by an optional automatic control system using a 'lambda' probe and microprocessor based controller.

## ■ RELIABLE OPERATION

The equipment is designed to produce high quality endothermic atmosphere with the catalyst furnace operating at minimum temperatures. This factor, combined with the high quality materials of construction, ensures long life and minimum repairs.

## ■ EASY INSPECTION AND MAINTENANCE

The catalyst furnace has a hinged side door facilitating removal of the retort and inspection of internal brickwork and elements.

Hinged lift-off doors each side of the generator, together with the door on the front panel, provide ready access to mechanical and electrical functions.

The output gas is air cooled and therefore there is no requirement for cooling water.

The automatic 'regeneration' mode is provided to prolong catalyst and retort life and therefore reduce maintenance cost.

## ■ ALTERNATIVE FEEDSTOCK GASES

The standard packaged unit is available for use with any of the following feedstock gases:

Natural Gas, Propane, Butane or Propane/Butane mixes.

# ➤ Technical Data

MODEL (2)	MAX. OUTPUT	MIN. OUTPUT (1)	CATALYST FURNACE RATING (KW)		'ENDOCUBE' CATALYST CAPACITY
	nM <sup>3</sup> /hr	nM <sup>3</sup> /hr	ELECTRIC	GAS	KG
EN 7.5	7.5	2.5	12	30	7
EN 15	15	5	12	30	11
EN 30	30	10	17	45	23
EN 45	45	15	25	65	30
EN 60	60	20	30	75	61
EN 90	90	30	40	100	75

(1): With optional automatic output control

(2): Standard models operate on 400V, 3-phase, 50 Hz supply. Other voltages/frequencies available to order

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