Inert Gas Generator...

Coldharbour Sea Guardian™ IGG.
Third generation inert gas technology. Smaller, cleaner, greener.
Sea Guardian™ is available from 500Nm³/hr. to 20,000Nm³/hr...

Coldharbour’s IGG engineers have more than 60 years combined experience in the marine inert gas sector.

As a result Sea Guardian™ incorporates a number of innovative, patented elements, aimed at achieving cleaner more stable operation, whilst reducing maintenance costs and downtime.

A primary focus of the new design was that the units should be smaller and able to adapt to all current and foreseeable legislation regarding inert gas specifications in a range of applications.

Variants are available for both high and low pressure LNG/LPG type applications, whilst the burner can be configured for use with a variety of fuels, including low sulphur MDO and boil off gas.

Sea Guardian™ advantages

- Compact, no vertical scrubbing section
- Inherently reliable
- Stable operation at 0.2% residual oxygen
- Low NOx and SOx emissions
- Zero soot
- No demister pads to block
- Significantly reduced maintenance costs
- Duplex stainless steel construction

Cleaner...

A specially developed venturi type burner is used. This new burner incorporates axial flow staged fuel and low NOx atomisation.

The venturi burner ensures controlled, accurate, clean combustion across not only the full range of IGG sizes but also the turn down regimes that they may be operated under.

Although new to the marine IGG sector, the burner is a Coldharbour development of a type originally designed for use in the power generation sector. As such, long in service life, lower emissions and reliable operation are inherent in the design.

“Smaller, Cleaner, Greener”
Sea Guardian™
advantages...

Stable...
Older type burner technologies frequently struggle to achieve stable, low residual oxygen outputs whilst simultaneously generating zero soot.

Sea Guardian™ gas outlet content is typically 0.2% oxygen with zero soot as measured on the Bacharach scale.

Robust, stable zero soot operation is available with oxygen levels as low as 0.1% across the entire range of sizes from 500Nm³/hr up to 20,000Nm³/hr gas capacity, making Sea Guardian™ suitable for chemical, LNG/LPG carriers and product tankers.

Reduced maintenance...
In the design of Sea Guardian™, Coldharbour has applied the lessons that marine IGG operators know only too well from using systems on board.

The new unit was engineered from the outset with all the typical operating issues designed out. As a result, the unit has no burner cone, no demister pads and no scrubber tower. There is nothing to clog and far less to corrode, so unexpected downtime is all but eliminated.

Smaller, no scrubber tower!
Hot gas from the burner is passed through an entirely new patented quench scrubber design which is based upon an inclined water curtain system incorporating a high temperature, corrosion resistant expanded metal mesh screen matrix.

The cooled gas then enters a swirl vane separator for the removal of any liquid droplets. The design is compact and elegantly simple.

‘In addition to inert gas generation for cargo blanketing, Sea Guardian™ IGG can also be used to treat ballast water in conjunction with the unique Coldharbour GLD™ in-tank, in-voyage, inert gas based ballast water treatment system’

VLCC retrofit installation, showing deck house equipment location fit option.

*The unit has no burner cone, no demister pads and no scrubber tower*
Combustion air blower...
Coldharbour IGG systems use a Roots type blower of compact design. The blowers are selected for their low noise and low maintenance characteristics. The blowers also feature in-built safety relief valves.

Control system...
The Coldharbour IGG uses a programmable logic controller to give the required functions of control along with the designated selective acceptance of alarms. The instrumentation and control panels are generally located in the engine room, cargo room and bridge. Special requirements can be incorporated into the system.

Deck water seal...
The Coldharbour deck water seal is a wet type design with an external seal pipe for added safety. Water is displaced during normal gas flow forming a semi wet seal. Entrained water is expelled by swirling the gas in the vessel and passing it through an integral demister. Alternatively, where appropriate, double block & bleed valves can be supplied.

Pressure/vacuum breaker...
The Coldharbour pressure/vacuum breaker provides the final protection within the system by releasing excessive pressure or vacuum from the cargo tanks. This ensures that the tank design conditions cannot be exceeded. The PV breaker is designed to be fail safe in operation.

Valves...
Coldharbour gas delivery and control valves are of the butterfly type with bonded rubber linings and corrosion resistant discs and shafts. Where remotely controlled, the valves use double acting actuators.

Coldharbour SeaGuardian™ is available as a stand-alone inert gas generator or as a complete inert gas system by adding the following components.

PVB
DWS

“Sea Guardian™ has been comprehensively tested over a number of years with no failures, blockages or operating issues and currently holds a Lloyd’s register certificate which confirms our performance claims for the unit.”

“Sea Guardian™ simplicity makes it inherently reliable”