



RECEIVED 27 APR 2020  
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18.04.2020

ElectroGas Malta Ltd

Unit Reference : CP 6 – Inert Gas Generator

Thermal Input Calculation-

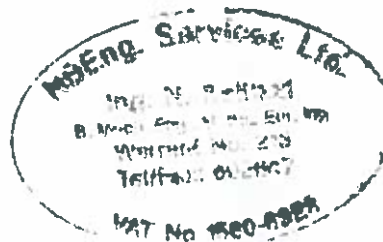
Maximum fuel consumption = 600.0 kg/hr = 0.167kg/sec  
( 50% capacity as suggested in technical document)

Heating value = 43 MJ/kg

Power Thermal input = 43MJ/kg x 0.167kg/sec = 7.2MWth

Power = 7.2MWth

  
Ing. Nicholas Bellizzi



# SPECIFICATION

FOR

SK-MOSS

INERT GAS GENERATING PLANT

TYPE:LPI-12500

CAPA:13,000Nm<sup>3</sup>/hr

				MITSUI ENGINEERING & SHIPBUILDING CO., LTD.			
				SHIP NO. 1250			
				SASAKURA ENGINEERING CO., LTD. OSAKA, JAPAN			
				CODE NK, IMO, USCG		NO. REQ'D 1	
				SCALE -		JOB NO. 058-0026	
				DRAWN			
				PREP'D			
				CHECK'D			
				APPR'D			
				APPR'D			
				DWG NO.		A 0 3 0 2 6	
				DWG NO.		0 0 1	
						2	

SPECIFICATION FOR  
INERT GAS GENERATING PLANT  
TYPE LPI-12500

1. GENERAL DESCRIPTION

This inert gas plant is designed to generate high purity inert gas by burning fuel oil of good quality and to send forth fresh dry air. This inert gas generator is oil firing packaged type. Combustion chamber combined with cooling tower, blower with motor, fresh water cooler, fresh water recirculating pump with motor, O<sub>2</sub> analyser, dew point meter, control panel, fuel oil pump unit, mist separator and necessary piping shall be mounted on each base.

Refrigerating dryer unit and adsorption dryer unit shall be mounted on each separated base.

The generated inert gas is led into the cargo tanks and replaces with the natural gas or air.

And this plant can be used to supply dried air into cargo tanks and hold spaces for aerating.

1-1. RULES AND STANDARD

- |             |                |
|-------------|----------------|
| a) Rules    | NK, IMCO, USCG |
| b) Standard | JIS            |

1-2. PARTICULARS

- |                      |   |
|----------------------|---|
| a) No. of set        | 1 plant/1 ship  |
| b) Inert gas         |   |
| Capacity             | 13,000 Nm <sup>3</sup> /hr (Possible to operate at 50% load ) |
| Outlet pressure      | 0.3 kg/cm <sup>2</sup> g                                      |
| Gas outlet dew point | -50 °C at 1 ata   |

Gas composition by vol.

O <sub>2</sub>	: max.	1.0	%
CO	: max.	0.1	%
H <sub>2</sub>	: max.	500	ppm
SO <sub>2</sub>	: max.	30	ppm
No <sub>x</sub>	: max.	150	ppm
CO <sub>2</sub>	: abt.	14	%
N <sub>2</sub>	: balance		

Gas outlet temp. nor. abt. 20°C, max. abt. 55°C

c) Fresh dried air

Capacity	13,000	Nm <sup>3</sup> /hr
Outlet pressure	0.3	kg/cm <sup>2</sup> g
Outlet dew point	-50 °C	at 1 ata
Outlet temperature	nor. abt. 20°C, max. abt. 55°C	

d) Fuel oil

Kind	Gas oil (JIS K2204 Grade No.1 or No.2)
Consumption	approx. 1,200 kg/hr

e) Sea water

For cooling tower	approx. 720	m <sup>3</sup> /hr
For fresh water cooler	approx. 260	m <sup>3</sup> /hr
For ref. dryer	approx. 150	m <sup>3</sup> /hr
For adsorption dryer	approx. 53	m <sup>3</sup> /hr
Pressure at plant inlet	min. 1.5	kg/cm <sup>2</sup> g
Temperature	max. 32	°C

f) Fresh water (recirculation)

Recirculation quantity approx.  $65 \text{ m}^3/\text{hr}$

f') Fresh water

Consumption approx.  $6 \text{ m}^3/\text{hr}$

g) Electric consumption (motor power) AC 440V 60Hz 3 $\phi$

For combus. air blower approx. 560/330 kw

For fuel oil pump approx. 3.7 kw

For fresh water pump approx. 11 kw

For ref. dryer approx. 160 kw

For adsorption dryer approx. 75 kw

h) Steam

Consumption approx. 770 kg/h + 600 kg/h

Pressure Nor.  $20 \text{ kg/cm}^2\text{g}$  (max.  $23 \text{ kg/cm}^2\text{g}$ )

Temperature  $345^\circ\text{C}$

i) Instrument air

Pressure 5 - 7  $\text{kg/cm}^2\text{g}$

Consumption

Balanced condition I.G.G.  $68 \text{ Nm}^3/\text{hr}$   
(for pilot burner 45 - 50  $\text{Nm}^3/\text{hr}$ )

Adsorption dryer 0.1  $\text{Nm}^3/\text{hr}$

Starting/Changeover I.G.G.

Adsorption dryer 60  $\text{Nm}^3/\text{hr}$

j) Ambient air

Consumption for combus. approx. 14,000 Nm<sup>3</sup>/hr

Temperature 45 °C

Humidity 70% R.H.

1-3. COMPONENTS OF THE PLANT (PER SHIP)

This plant consists of the followings :

- |  |       |
|--|-------|
| a) Combustion chamber (with cooling jacket)                                  | 1 set |
| b) Cooling tower (with mesh demister)  | 1 set |
| c) Blower unit for combustion air  | 1 set |
| d) Fuel oil pump unit  | 1 set |
| e) Fresh water pump unit   | 1 set |
| f) Fresh water cooler  | 1 set |
| g) Starter for c), d), e), i), and j)  | 1 set |
| h) Control panel   | 1 set |
| i) Refrigerating dryer   | 1 set |
| j) Adsorption dryer  | 1 set |
| k) Pressure control system for inert gas                                     | 1 set |
| l) Stream change system for inert gas  | 1 set |
| m) Level control system for sea water  | 1 set |
| n) O <sub>2</sub> analyser   | 1 set |
| o) Each control instrument   | 1 set |
| p) Gauges (thermometers and pressure gauges)                                 | 1 set |
| q) Dew point meter   | 1 set |
| r) Other necessary parts indicated in the drawing of diagramatic arrangement | 1 set |
| S) Mist Separator  | 1 set |

