Commercial offer

Diesel/HFO 18V32/40 Gensets STX MAN

Gross electrical output approx. 9,0 MW

TO:

Whom it may concern

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1 INTRODUCTION

Dear Sirs,

We are pleased to been given the opportunity to submit this budgetary proposal for power generation equipment and services for a compact modular power plant according to the scope of supply described in this proposal.

The general compilation consists of 20 units of STX-MAN Diesel engines 18V32/40. The gross electrical output of this plant is approximately 9 MW each specified at the generator terminals. Other compilations are of course possible. **In this offer the auxiliary is listed for 20 units, so the descriptions refer to 20 units only.**

Based on the limited information available the price is of budgetary nature. Price is based on several assumptions that need to be confirmed/updated before a firm offer can be made.

2 PERFORMANCES

Preliminary performance data

Gross Electrical Power: 9 kWe, specified at the generator terminals *

Gross Heatrate: 7,832 kJ/kWh, specified at the generator terminals *

* Given at +25°C, 30% RH and 100masl ambient conditions with ±0% tolerance, 11kV generator voltage, Gas Methane Number >80, LHV >30MJ/Nm³, Gas pressure min 5 bar(g), Power Factor 0,8

Refer to Exhibit D for detailed performance figures. Kindly note that we provide performance figures with 0% tolerance.

3 SCOPE OF SUPPLY

Based on the limited information available the scope of supply offered is given at a general level as described below. Refer to the scope off supply list attached.

Scope typically including:	Scope typically excluding:
• Basic engineering of the plant • Detailed design of all MAN supplied equipment • Generating sets & automation/control system • Auxiliary equipment needed for the power generation • Medium voltage & Low voltage switchgears • Technical advisors for assistance during installation • Technical advisors for assistance during commission • Training on site • Plant operating manuals	• All civil material & work • Installation and supervision • All site management and site offices • Piping material, cables & tanks • Exhaust gas emission cleaning equipment (if required) • Switchyard and step-up transformers • Any other work or services not mentioned here

4 PRICE

The sales price for equipment and services according to the enclosed scope of supply is consisting of equipment supply, documentations, spare parts, and related services by MAN.

EUR 2,200,000 /each)

5 PAYMENT TERMS

- 10 % Escrow equipment can be inspected
- 40 % Signature of the contract (down payment) or before converting to GAS supply
- 50 % At notification of readiness of dispatch (approx. 1 month)

6 DELIVERY TERMS

INSTANT DELIVERY !! FOB Harbour Brazil, sea-packed, no freight insurance!

7 DELIVERY TIME

Delivery time will be conditional to equipment available in stock or production capacity.
The equipment is to prior sale and at availability the equipment will be ready for shipment from location approx.10 days after the date of receipt of advance payment.

8 INSPECTION AND RESERVATION

INSPECTION The equipment can be inspected after signing of the IPO, proof of financing required! 10 % Escrow equipment can be inspected

RESERVATION

A reservation for 1 month is possible against payment of 1,000,000.00 EURO per unit. Should the customer decide against the purchase during this period, the payment is completely lost and will not be refunded; at purchase it will be offset.

9 WARRANTY PERIOD

The warranty period with respect to the Equipment begins at the delivery of the engines and ends twelve (12) months from the date of the performance test certificate or eighteen (18) months from the date of the delivery of the engines, whichever first occurs.

10 VALIDITY

This Budgetary proposal is valid for twenty (20) days from the document creation date.

Offer with reservation of error – subjects to prior sale!

11 ATTACHMENTS

1 unit **9 MW Generator Set**

Manufacturer MAN Diesel & Turbo, type 18V32/40 – 4 stroke, unused
Each unit consists of motor, generator, rack / base-frame

Motor:

Speed		750 rpm
Power at crankshaft		9,000 kWm
Emission		WB 1998
Power-to-weight ratio (MCR)		
In-line engine		11.3 – 12.7 kg/kW
V-engine		9.4 – 10.2 kg/kW
Cylinder output (MCR)		
at 750/720*) rpm		500 kW
Cooling		
Cylinder cooling		Fresh water
Charge-air cooler (two-stage)		Fresh water
Fuel injector cooling		Fresh water, only when running on HFO
Starting method		Compressed air

Generator: 50 Hz or 60 Hz

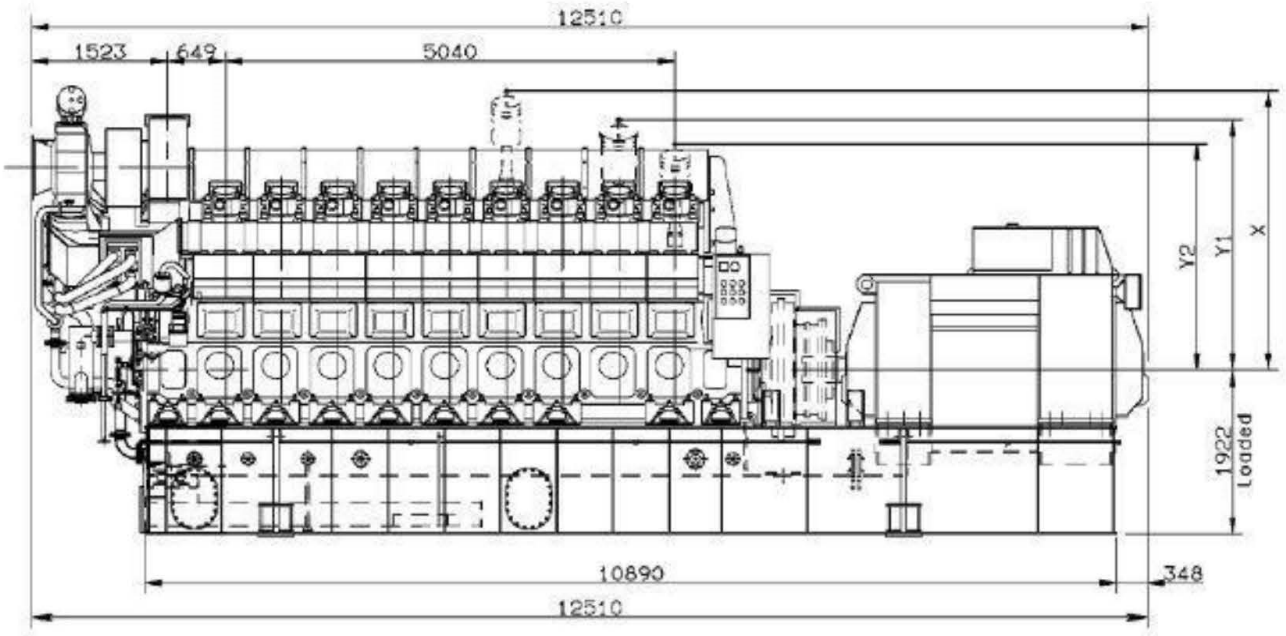
Voltage		11 kV
Output approx.		10,940 kVA
Alternator efficiency		97,24%

Generator-Unit:

Continuous power output		8,752 kWel
Specific fuel consumption	at 100% load	190,35 g/kWel
lube oil consumption	(+ 20% tolerance)	4,5 kg/h
Weight	per Unit	151 ton
Parameters according to		ISO condition

Generator zu MAN 18V32-40 Diesel Generatorsets

Manufacturer	ABB
Type	AMG1120LT08DSE
Phases	3
Duty	S1
Connection	Y
Insul cl.	F (Temp. cl. F.)
Weight	34,000 kg
Protection class	IP 23
IC	0A1
M	1101
Output	10,947 kVA
Voltage	11,000 Volts
Frequency	50 Hz
Speed	< 750 (nr 900) rpm
Current	575 A
Power factor	0.8
Ambient	+43°C
Excit	58 Vdc 8,0 Adc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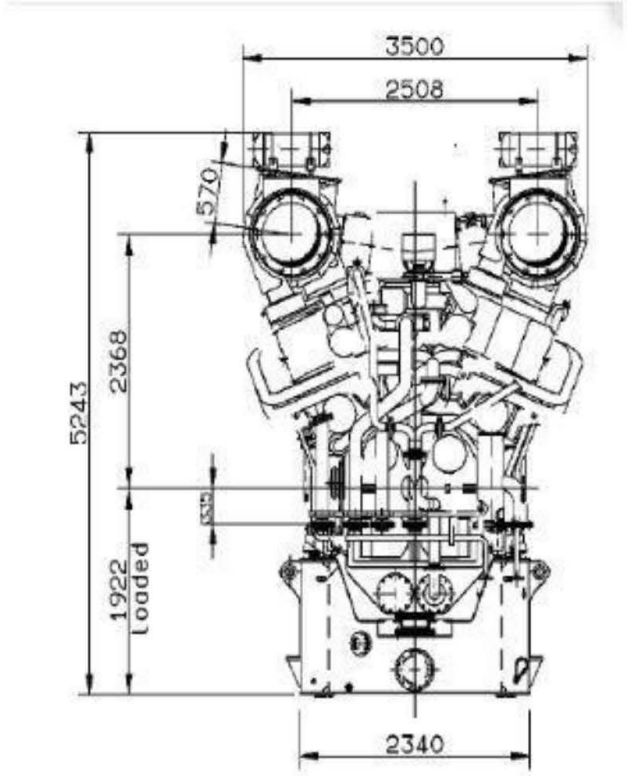
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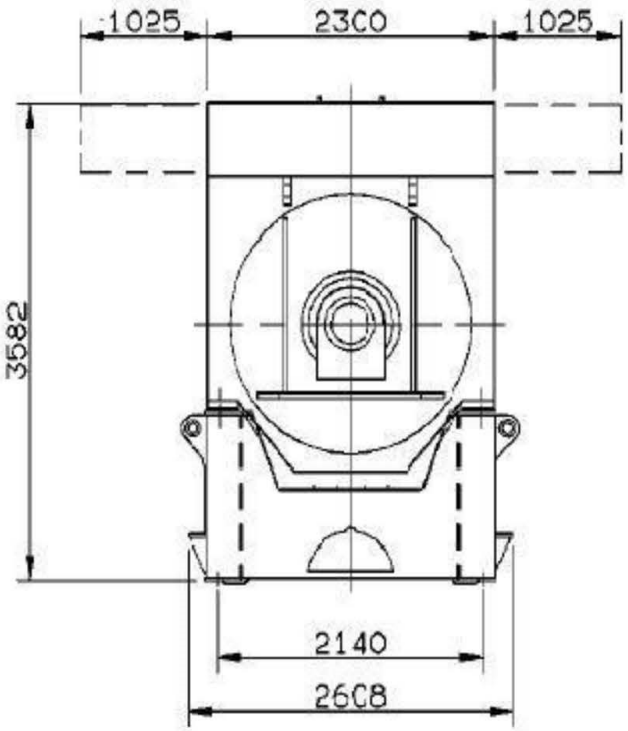
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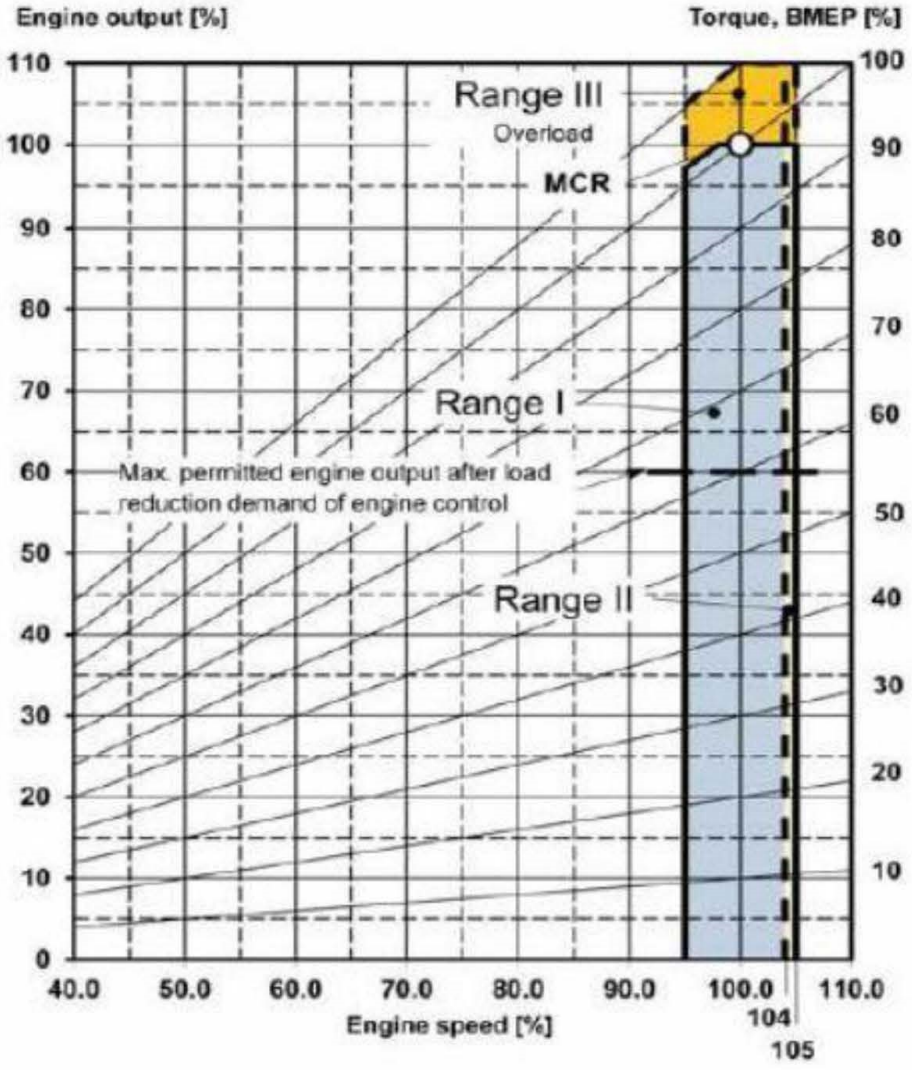
GenSet operation

Operating range for GenSet/electric propulsion



MAN 18V32/40

Fuel consumption	MCR	According to ISO 3046/I (reference conditions)	According to ISO 3046/I (on the site)	
Heavy fuel oil			183+5%	g/kWh
Diesel oil/MDO			185+5%	g/kWh
Lubricating oil consumption				g/kWh
			5.4	Kg/h