

Issue Date : _____
 Meeting Date : _____
 STX PJT No. : _____
 Configuration No. : _____

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EXTENT OF DELIVERY

FOR STX - MDT

STATIONARY D/G V32/40

Plant builder : _____
 Customer : _____
 Number of plant(s) : 1 site
 Type of plant : HFO Power Plant

Engine model, output & Q'ty
 Model : 18V32/40 (MCR : 9080kW / 750 rpm) X 12 set(s) / plant
 (Based on Generator efficiency : Min. 96%)

Fuel oil consumption based on ISO 1046/1 conditions without engine driven pump
 : 183 g / kW.h + 5 % at MCR
185 g / kW.h + 5 % at MCR, at MGO operation

Capacity of generator : 8700 kW / 750 rpm, AC 11kV, 50Hz, 3ph

Time of delivery : _____

 Seller

 Purchaser

*** CONTENTS ***

Chapter 1. General specification

Chapter 2. Scope of supply

ABBREVIATION

- STD : Standard parts
- OPT : Optional parts with extra price
- B : Built - on engine (Q'ty per engine)
- E : Equipments separately delivered (Q'ty per engine)
- S : Equipments separately delivered and installed on plant (Q'ty per plant)

To be used for filling in :

- : Included in scope of supply
- : Excluded in scope of supply
- : Alternatives, only one of them may be

Chapter 1. General specification

| <u>Std</u> | <u>Opt</u> | <u>Qty/plant</u> | <u>Description</u> | <u>Specification</u> |
|-------------------------------------|------------|------------------|---|--|
| <input checked="" type="checkbox"/> | | | Standard | <u>KS, JIS, DIN and maker's standard</u> |
| <input checked="" type="checkbox"/> | | | Regulations | <u>Acc. to yard's P.O.S</u> |
| <input checked="" type="checkbox"/> | | | Unit | |
| | | | - Engine output | <input type="checkbox"/> bhp <input checked="" type="checkbox"/> kW |
| | | | - Pressure | <input checked="" type="checkbox"/> bar <input type="checkbox"/> kg/cm2 <input type="checkbox"/> Mpa |
| | | | - Temperature | <input checked="" type="checkbox"/> °C <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | | | Final paint color | |
| | | | - Diesel generating set | <u>RAL 9006</u> |
| | | | - Electrical equipment | <u>RAL 9006</u> |
| | | | - Loosely supply items | <u>Acc. To maker's standard</u> |
| <input checked="" type="checkbox"/> | | | Calculation of torsional vibration for D/G set & approval from classification | |
| <input checked="" type="checkbox"/> | | | Name plates on engine in English | <u>All gauges, sensors, valves, connection</u> |
| | | | Name plates on engine in other language | _____ |
| <input checked="" type="checkbox"/> | | | Caution plates on engine in English | _____ |
| | | | Caution plates on engine in other language | _____ |
| <input checked="" type="checkbox"/> | | <u>1</u> | Working drawings in English | _____ |
| <input checked="" type="checkbox"/> | | <u>1</u> | Final drawings in English per ship | _____ |
| | | | Extra CD-rom instruction books and final drawings | _____ |
| <input checked="" type="checkbox"/> | | <u>1</u> | Instruction book in English per ship | _____ |
| <input checked="" type="checkbox"/> | | | Copy of shop test record including in final drawing | _____ |
| | | | Shop test on diesel oil with generator | _____ |
| | | | Shop test on diesel oil with water brake (Additional short bed is required) | _____ |
| | | | Measurement of mech. vibration level for D/G set at 100 % load by portable vibrometer | _____ |

Chapter 2. Scope of supply

| <u>Std</u> | <u>Opt</u> | <u>Q'ty/plant</u> | <u>Ins</u> | <u>Description</u> | <u>Specification</u> |
|-------------------------------------|------------|-------------------|------------|---|-------------------------------|
| Basic Diesel Engine | | | | | |
| <input checked="" type="checkbox"/> | | 12 | B | Standard diesel engine | 18V32/40 |
| <input checked="" type="checkbox"/> | | 12 | B | Rigid mounting by resin chock of common base frame | |
| <input type="checkbox"/> | | | E | Holding down bolts, nuts and side chock for rigid mounting | |
| | | | | Common bed + engine : resilient mounting Common bed + generator : rigid mounting Common bed + ship : resin chock mounting | |
| <input checked="" type="checkbox"/> | | 12 | B | Flexible coupling between flywheel and generator | |
| <input checked="" type="checkbox"/> | | 12 | B | Protection cover for flywheel | |
| <input type="checkbox"/> | | | B | Gallery with hand rail | |
| <input checked="" type="checkbox"/> | | 12 | B | Torsional vibration damper | According to T.V. calculation |
| <input checked="" type="checkbox"/> | | 12 | B | Engine rotation clockwise, seen from flywheel | |
| <input type="checkbox"/> | | | B | External flanges without counter flanges, gaskets, bolts. | |
| <input type="checkbox"/> | | | E | External flanges with counter flanges, gaskets, bolts. | |
| <input checked="" type="checkbox"/> | | 12 | B | All external flanges connections acc. to standard DIN or JIS * Exhaust gas outlet acc. to standard DIN 86044 | |
| <input type="checkbox"/> | | | E | Counter flange for exhaust gas outlet incl. gasket and flange acc. to standard DIN 86044 | |

Fuel Oil System

| | | | |
|-------------------------------------|---------|---|---|
| <input type="checkbox"/> | B | FO system complete for MGO (low sulphur fuel oil) operation *According to : ISO 8217, class DMA (2~6 cSt/40 ℃) | |
| <input type="checkbox"/> | B | FO system complete for MDO operation *According to : ISO 8217, class DMC (12~12 cSt/40 ℃) | |
| <input checked="" type="checkbox"/> | B | FO system complete for HFO operation - start/stop at cold(initial) condition & low load running : - start/stop at normal condition & normal operation : | <u>MDO (12 cSt / 40 ℃)</u> <u>HFO (700 cSt / 50 ℃)</u> |
| <input checked="" type="checkbox"/> | 12 x 18 | B Injection pump for each cylinder | |
| <input type="checkbox"/> | S | Nozzle cooling water unit with starter panel | <u>for HFO operation</u> |
| <input type="checkbox"/> | E | FO duplex filter (for safety) - FO duplex filter differential press. switch (1PDSH5068) | <u>remote alarm, incl. filter</u> |
| <input type="checkbox"/> | E | Leakage alarm box for waste oil (LAH 42) - FO leakage tank level switch (1LSH5080) | <u>remote alarm, incl. tank</u> |
| <input checked="" type="checkbox"/> | 12 | B Protection cover of FO inlet/outlet pipe connection where flange joint | |
| <input checked="" type="checkbox"/> | 12 | B Thermal insulation of fuel oil in/outlet pipe | |
| <input type="checkbox"/> | S | MDO or MGO feed pump by motor driven - pump with el-motor | <u>m3h X 5 bar , To be confirmed later</u> <u>AC 690 V, 50Hz</u> |
| <input type="checkbox"/> | S | Emergency MDO pump unit - pump with air motor - solenoid valve - air conditioning unit - suction filter (fineness : 100 μ m) | <u>m3h X 6 bar, To be confirmed later</u> <u>air cons: m3/h, air source : 6~7 bar</u> <u>DC 24V</u> <u>incl. air filter, lubricator & press. gauge</u> type : <input type="checkbox"/> simplex <input checked="" type="checkbox"/> duplex |
| <input type="checkbox"/> | S | Only emergency MDO pump with air motor | <u>0.8 m3h X 6 bar, 1900 rpm</u> <u>air cons : m3h, air source : 6~7 bar</u> |
| <input type="checkbox"/> | E | HFO/MDO 3-way ball valve (size : A) incl. limit switches, manually operated | <u>Low load limitation : 20% MCR</u> |
| <input type="checkbox"/> | E | HFO/MDO 3-way ball valve (size : A) incl. solenoid valve & limit switches, pneumatically activated | <u>DC 24V energized open type solenoid</u> <u>airless : MDO position &</u> <u>air supply : HFO position</u> |
| <input type="checkbox"/> | S | HFO supply press regulating valve for press control at engine outlet | <u>type : direct sensing type</u> <u>set point : 5 bar, size :</u> |
| <input type="checkbox"/> | S | HFO press regulating valve, for press control at engine inlet | <u>type : direct sensing type</u> <u>set point : 7 bar, size :</u> |
| <input type="checkbox"/> | S | MDO press regulating valve, for press control at engine inlet | <u>type : direct sensing type</u> <u>set point : 6 bar, size :</u> |
| <input type="checkbox"/> | S | MDO press regulating valve, for press control at engine outlet | <u>type : direct sensing type</u> <u>set point : bar, size :</u> |
| <input type="checkbox"/> | S | Fuel oil cooler (for MDO running) | |

Std Opt Qty/plant Ins Description

Specification

Lubricating Oil System

| | | | | |
|-------------------------------------|-----------|---|--|--|
| <input checked="" type="checkbox"/> | <u>12</u> | B | Lub. oil viscosity | <u>SAE 40</u> |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Common frame wet system | |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Oil pan with horizontal L.O outlet at stern and fore side each | |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Lub. oil pump, engine driven | <u>at free end</u> |
| <input type="checkbox"/> | | E | Lubricating oil cooler, plate type | <u>Stainless steel plate</u> |
| <input type="checkbox"/> | | E | Prelubricating pump, elec-motor driven Voltage : <u>AC V</u> | |
| <input checked="" type="checkbox"/> | | E | Lube oil filter | |
| <input type="checkbox"/> | | E | Lube oil temp. control valve, wax type (TCV-001) | <u>Wax type</u> |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Connection for LO to/from purifier at sump tank | |
| <input type="checkbox"/> | | B | Connection for LO to/from alternator | |
| <input type="checkbox"/> | | B | Pressure lubricating to alternator bearing(s) * Reference - Engine LO temp. : 70 °C - Engine LO pressure : 3~5 bar | <u>Accessories such as orifices, pressure gauge, thermometer, etc to be supplied by Gen. Maker</u> |
| <input type="checkbox"/> | | B | Installation on base frame and piping arrangement of Lub. oil cooler for alternator bearing(s) | <u>Supplied by Gen. Maker. If necessary</u> |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Cylinder lub. oil system, incl. el-motor driven pump Voltage : <u>AC 400 V</u> | |
| <input checked="" type="checkbox"/> | <u>12</u> | B | Protection cover of LO inlet/outlet pipe connection where flange joint | |
| <input type="checkbox"/> | | B | Lube oil sealing system for fuel injection pumps | <u>For MDO/MGO operation</u> |

Std Opt Q'ty/plant Ins Description

Specification

Cooling Water System

| | | | | |
|-------------------------------------|-------------|---|--|---|
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Lub. oil and charge air cooler cooled by fresh water (Stainless steel plates in lub. oil cooler) | _____ |
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Two string central cooling water system (LT and HT cooling water : fresh water) | _____ |
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Engine-driven pump for HT system | _____ |
| <input type="checkbox"/> | _____ | E | Temperature control valve for HT water (MOV-002) | <u>Electrically activated</u> |
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Engine-driven pump for LT system | _____ |
| <input type="checkbox"/> | _____ | E | Charge air temperature control valve | <u>Electrically activated</u> |
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Branches for external preheating | <u>F5 / F6 connection</u> |
| <input type="checkbox"/> | _____ | S | Jacket FW preheating unit - <input type="checkbox"/> Electric heater <input type="checkbox"/> Steam - 2 Circulating pump by motor - Pressure gauge & thermometer - Control panel | <u>To be confirmed later</u> <u>kW, AC 690V, 3Φ, 50Hz</u> <u>m³/h, 2 bar,</u> <u>inlet/outlet conn. : A / A</u> |
| <input type="checkbox"/> | _____ | E | Cooling LT auto shut-off valve, (loose supply) | <u>Electric type (normal close : engine stop</u> |
| <input type="checkbox"/> | _____ | E | Cooling HT auto shut-off valve, (loose supply) | <u>Electric type (normal close : engine stop</u> |
| <input type="checkbox"/> | _____ | E | Jacket water preheater auto shut-off valve, (loose supply) | <u>Electric type (normal open : engine stop</u> |

Compressed Air System

| | | | | |
|-------------------------------------|-------------|---|--|--|
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Starting piston valve, local/remote start and stop | _____ |
| <input checked="" type="checkbox"/> | <u> 12</u> | B | Turning device, el-motor driven | <u>400VAC/50HZ</u> |
| <input type="checkbox"/> | _____ | B | Slow turning device | <u>Standard for electrical propulsion</u> |
| <input type="checkbox"/> | _____ | S | Starting air tank - Painting color : white | <u>liter X 30 bar X bottle(s)</u> valve mounting : <input type="checkbox"/> on top <input type="checkbox"/> front type : <input type="checkbox"/> vertical <input type="checkbox"/> horizontal |

Std Opt Qty/plant Ins Description

Specification

Combustion Air System

| | | | | |
|-------------------------------------|--------|---|---|-------------------|
| <input checked="" type="checkbox"/> | 12 x 2 | B | Turbocharger | NR34/S type |
| <input checked="" type="checkbox"/> | 12 x 2 | B | Two stage charge air cooler | |
| <input checked="" type="checkbox"/> | 12 x 2 | B | Container for water washing of turbocharger compressor side | Mounted on engine |
| <input type="checkbox"/> | | B | Jet assistance system | |
| <input type="checkbox"/> | | B | Charge air shut off flap device (Rig-saver) - Gas detector shall be provided by shipyard | |

Exhaust Gas System

| | | | | |
|-------------------------------------|--------|---|--|--|
| <input type="checkbox"/> | | B | Water washing connection of turbocharger turbine | |
| <input type="checkbox"/> | | B | Dry cleaning connection of turbocharger turbine with blow gun | |
| <input type="checkbox"/> | | S | Water washing device with flexible hose(20 m), quick coupling, reducing valve and pressure gauge | Yard connction type : JIS M42 male |
| <input checked="" type="checkbox"/> | 12 x 2 | B | Exh. gas outlet for pipe connection away from engine | <input checked="" type="checkbox"/> 22.5° <input type="checkbox"/> 30° <input type="checkbox"/> 45° <input type="checkbox"/> 60° |
| <input type="checkbox"/> | | E | Expansion bellows after turbocharger | <input type="checkbox"/> DN 600 <input checked="" type="checkbox"/> DN 700 |
| <input type="checkbox"/> | | E | Transition socket after turbocharger | |
| <input type="checkbox"/> | | E | Intermediate plate after turbocharger outlet flange | <input type="checkbox"/> DN 600 <input checked="" type="checkbox"/> DN 700 |

Speed Control System

| | | | | |
|-------------------------------------|----|---|-----------------------------|----------------------|
| <input checked="" type="checkbox"/> | 12 | B | Heinzmann governor actuator | STG180 |
| <input type="checkbox"/> | | E | Governor Controller | PRIAMOS III DC 180.1 |
| <input type="checkbox"/> | | S | Governor programmer | |

Std Opt Q'ty/ship Ins Description

Specification

Monitoring Equipment

| | | | | |
|-------------------------------------|----|---|---|---|
| <input checked="" type="checkbox"/> | 12 | B | Standard thermometers - HT fresh water, engine inlet (TI 3170) - Lub. oil, engine inlet (TI 2170) - Charge air, air cooler outlet (TI 6180) | Bar type Bar type Bar type |
| <input checked="" type="checkbox"/> | 12 | B | Standard instrument panel incl. pressure gauge - Lub. oil, engine inlet (PI 2170) - Lub. oil, T/C inlet (PI 2570) - HT fresh water, engine inlet (PI 3170) - LT fresh water, engine inlet (PI 4170) - Fuel oil, engine inlet (PI 5070) - Charge air after cooler (PI 6180) - Starting air engine inlet (PI 7170) - Control air engine inlet (PI 7400) - Engine tachometer (1SI1000) - Temp. monitor for exh. gas(1TI6570) - Select switch for speed setting(1HS1010) - P/B for engine start/stop(1HS1011/1HS1012) - P/B for engine emergency stop(1HOZ1012) - Change-over s/w for control position(1HS1012) | 0~10 bar 0~ 6 bar 0~ 6 bar 0~ 6 bar 0~10 bar 0~ 6 bar 0~40 bar 0~10 bar 0 ~ 1200 rpm cyl. outlet, T/C in/outlet local-remote |
| <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> * Nozzle cooling water, engine inlet (PI3470) | oil filled type, only for HFO operation |
| <input checked="" type="checkbox"/> | 12 | B | Pressure transmitters & switches(standard) for : - Lub. oil, engine inlet(1PT2170) - Lub. oil, turbocharger inlet(1PT2570) - HT cooling water, engine inlet(1PT3170) - LT cooling water, air cooler inlet(1PT4170) - Fuel oil, engine inlet(1PT5070) - Charge air, engine inlet(1PT6180) - Starting air, engine inlet(1PT7170) - Control air, engine inlet(1PT7400) - Emergency air, engine inlet(1PT7180) <input checked="" type="checkbox"/> - Nozzle cooling water, engine inlet (1PT3470) | remote ind. & alarm remote ind. & alarm remote ind. & alarm remote ind. & alarm remote ind. & alarm digital governor system remote ind. & alarm remote ind. & alarm remote ind. & alarm remote indication, only for HFO operatio |
| | | | Extra pressure transmitters & switches for : | |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil, engine inlet(2PT2170) | reduce or shutdown |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil, engine inlet(2PSZLT2170), switch | shutdown |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil, turbocharger inlet(2PT2570) | reduce or shutdown |
| <input checked="" type="checkbox"/> | 12 | B | - HT cooling water, engine inlet(2PT3170) | reduce or shutdown |
| <input type="checkbox"/> | | B | - Charge air, engine inlet(2PT6180) | remote indication |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil , in lube oil sump tank (1PT2310) | alarm |
| <input checked="" type="checkbox"/> | 12 | B | Exh. gas thermocouples(standard) for : - Exh. gas cylinder outlet(TE6570) - Exh. gas turbocharger inlet(TE6575) - Exh. gas turbocharger outlet(TE6580) | remote ind. & alarm/reduce remote indication & alarm remote indication & alarm |

| <u>Std</u> | <u>Qty/ship</u> | <u>Ins</u> | <u>Description</u> | <u>Specification</u> |
|-------------------------------------|-----------------|------------|---|--|
| <input checked="" type="checkbox"/> | 12 | B | Resistance bulbs(standard) for : | |
| | | | - Lub. oil, engine inlet(1TE2170) | <u>remote indication & alarm</u> |
| | | | - Lub. oil, turbocharger outlet(1TE2580) | <u>remote indication & alarm</u> |
| | | | - HT cooling water, engine inlet(1TE3170) | <u>remote indication & alarm</u> |
| | | | - H.T cooling water, engine outlet(1TE3180) | <u>remote indication & alarm</u> |
| | | | - HT cooling water, air cooler inlet(1TE3168) | <u>remote indication</u> |
| | | | - LT cooling water, air cooler inlet(1TE4170) | <u>remote indication & alarm</u> |
| | | | - Fuel, engine inlet(1TE5070) | <u>remote indication & alarm</u> |
| | | | - Intake air(1TE6100) | <u>remote indication</u> |
| | | | - Charge air, compressor outlet(1TE6170) | <u>remote indication</u> |
| | | | - Charge air, engine inlet(1TE6180) | <u>remote indication & alarm</u> |
| <input checked="" type="checkbox"/> | | | - Nozzle cooling water, engine inlet(1TE3470) | <u>remote indication, only for HFO operatio</u> |
| | | | Extra resistance bulbs for : | |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil, engine inlet(2TE2170) | <u>reduce or shutdown</u> |
| <input checked="" type="checkbox"/> | 12 | B | - Lub. oil, turbocharger outlet(2TE2580) | <u>reduce or shutdown</u> |
| <input checked="" type="checkbox"/> | 12 | B | - HT cooling water, engine outlet(2TE3180) | <u>reduce or shutdown</u> |
| | | | Extra resistance bulbs for temp control : | |
| <input type="checkbox"/> | | S | - HT cooling water, control valve outlet(1TE3165) | <u>HT temp. control</u> |
| <input checked="" type="checkbox"/> | 12 | B | - Charge air, engine inlet(2TE6180) | <u>charge air temp. control</u> |
| <input type="checkbox"/> | | S | - Ambient air(1TE6000) | <u>charge air temp. control (loosely supply)</u> |
| | | | limiter switches for : | |
| <input checked="" type="checkbox"/> | 24 | B | - Cylinder lub. oil flow switch(1FE2470) | <u>remote alarm</u> |
| | | | Engine speed transmitters for : | |
| <input checked="" type="checkbox"/> | 12 | B | - Control system(1SE1000) | <u>_____</u> |
| <input checked="" type="checkbox"/> | 12 | B | - Safety system(2SE1000) | <u>_____</u> |
| <input checked="" type="checkbox"/> | 12 | B | - Digital governor system(3/4SE1000) | <u>_____</u> |
| <input type="checkbox"/> | | B | - Slowturning(5SE1000) | <u>_____</u> |
| | | | Turbocharger transmitter for : | |
| <input checked="" type="checkbox"/> | 12 | B | - Speed monitoring(1SE1004) | <u>_____</u> |
| <input checked="" type="checkbox"/> | 12 | B | - Fuel rack transmitter (2GT1022) | <u>_____</u> |
| <input checked="" type="checkbox"/> | 12 | B | Oil mist detector | <u>Type : VN115/87 PLUS</u> |

| <u>Std</u> | <u>Qty/plant</u> | <u>Ins</u> | <u>Description</u> | <u>Specification</u> |
|-------------------------------------|------------------|--------------------------|---|-----------------------------------|
| <input checked="" type="checkbox"/> | 12x11 | B | PT-100 (R/B) for main bearing temperature with indication and alarm (TE1064) | _____ |
| <input checked="" type="checkbox"/> | 12x9 | B | PT-100 (R/B) for splash oil temperature with indication and alarm (TE2880) | _____ |
| Flexible hoses | | | | |
| <input type="checkbox"/> | _____ | B | flexible hoses for water, lube oil, fuel oil, compressed air | _____ |
| Spare parts | | | | |
| <input type="checkbox"/> | _____ | E | Standard spare parts in accordance with requirement maker's standard | _____ |
| <input type="checkbox"/> | _____ | S | One(1) set of each type thermometer <i>* to be submitted separately and incl. In the drawing</i> | _____ |
| <input type="checkbox"/> | _____ | S | One(1) set of each type sensors <i>* to be submitted separately and incl. In the drawing</i> | _____ |
| <input type="checkbox"/> | _____ | S | Spare parts for flexible hose | _____ |
| <input type="checkbox"/> | _____ | S | Additional wearing parts for _____ years operation | _____ |
| <input type="checkbox"/> | _____ | S | Additional spare parts on request | _____ |
| Tools for maintenance | | | | |
| <input type="checkbox"/> | _____ | S | Standard tools for normal maintenance | incl. Inj. Nozzle tester _____ |
| <input type="checkbox"/> | _____ | S | Additional tools on request | |
| | | <input type="checkbox"/> | P-max indicator | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Inter piece for pressure test | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Valve cone grinding machine | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Valve seat refacing device | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Cylinder liner honing machine | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Cylinder head mounting device | : _____ EA / ship _____ |
| | | <input type="checkbox"/> | Air cooler removal & fitting device | : _____ EA / ship _____ |
| <input type="checkbox"/> | _____ | S | Lifting tools for genset | _____ |

Std Opt Q'ty/plant Ins Description

Specification

Generator

_____ B Generator supplied by customer

12 B Generator

- Manufacturer

- Capacity

- Bearing type

- Rotation

- Enclosure

- Insulation class

- Temp. rise class

- Ambient temp

- Cooling method

- Bearing lubrication

- Position of terminal box (seen from flange/shaft end)

- AVR

- VR (voltage regulator)

- Local thermometer for bearing

- Space heater voltage

Temp sensor (PT-100) for bearing

Temp sensor for windings

Air intake filter

Parallel running

Efficiency : Min 97.3%

ZFC7 637-85E

CM-HYUNDAI

10875 KVA 750 rpm, AC 11kV

50 Hz, 3 phase, 8 poles

sleeve

double bearing(IM1101/B20)

End bracket type

Maker's standard :

COUNTER CLOCK WISE

SEEN FROM ENGINE TO GENERATOR

IP 23 IP 43 IP 44

H F

B F

40 °C 50 °C

ODP(Open Drip Proof),Air cooled

water cooled

self lubrication + oil cooler

forced lubrication from engine

on right side

on left side

pending

Digital voltage regulator

None

AC 230V, 1Φ AC 110V, 1Φ

PT-100 X 3

PT-100 X 6

Std Opt Q'ty/plant Ins Description

Specification

Electrical control panels

- _____ B Control station
 - Engine-rpm
 - Push button for start/stop
 - Exh. Gas temp. monitor
 - Speed setting

- 12 B Main terminal box

- _____ E Engine Safety and Control System
 - Engine safety
 - Engine control
 - HMI

- _____ E Heinzmann governor panel
 - Protection grade
 - Mounting type
 - Others

- _____ S LO priming pump starter
 - Composition
 - Protection grade
 - Mounting type
 - Others

- _____ S Cylinder LO pump starter
 - Composition
 - Protection grade
 - Mounting type
 - Others

- 12 B Turning device starter
 - Composition
 - Protection grade
 - Mounting type
 - Others

IP 23 IP 44
 wall mounting self standing
maker's standard

one panel/eng group panel
 IP 23 IP 44
 wall mounting self standing
maker's standard

Incorporated into LO piming pump starte

one panel/eng group panel
 IP 23 IP 44
 wall mounting self standing
maker's standard

one panel/eng
 IP 23 IP 44
 Baseframe self standing
 mounting
maker's standard