STACK - 2x 20V4000 DS3100

Technical Specification

and

Scope of Supply

mtu 20V4000 DS3100
DG20V4000A2E

Customer: Techexpo

I. System Description

Product type	DG20V4000A2E mtu 20V4000 DS3100
Application Group	3F - Heavy duty for DCP, unrestricted, ICXN

On-site Power

Power per genset (ISO 8528)	2.820	kVA
Engine speed	1.500	rpm
Intake air temperature	40	°C
Coolant temperature	60	°C
Altitude	100	m
Intake air depression max.	40	mbar
Exhaust back pressure max.	60	mbar

Requirements

Frequency	50 Hz
Generator voltage	11000 V
EngineType	20V4000G24F

II. Selection Criteria for the Scope of Supply

Criteria	*Selection*	*for Product No.*
Customer	Standard	1,
VDE-AR-N 4110	without VDE-AR-N 4110	1,
Generator	Leroy Somer	1,
Genset Control	Basler Controller	1,
Application	Version 3a + V1+	1,
Application group	3F - Intermittent standby unrestricted	1,
Intake air temperature	40°C	1,
Exhaust emissions regulations	Fuel-consumption optimized	1,
Emission cert. authority	not relevant	1,
Frequency	50 Hz	1,
Voltage	11000V	1,
Ship-to party country	EEC	1,
Acceptance Testing	Factory acceptance	1,
Publications	other EC language	1,
Packing	Standard commercial	1,
Shipment	CIP customer	1,
		1,

III. Scope of Supply

		valid for product no.
1	**SYSTEM CONFIGURATION**	1,
1.1	**System Description**	1,
	Note Emission Compliance: **The engines and/or systems, may only be certified to comply with the required country or region specific emission regulations. Where applicable, the engines and/or systems are only certified to those specific emission regulations/standards which are clearly stated in the respective RRPS/MTU defined technical specifications. It is the customer's sole responsibility to ensure that the export/import, installation and use of the engine and/or system complies with the applicable emissions regulations in the country or region where the engine and/or system will be used.**	1,
	Basic Engine	1,
	Liquid-cooled, four-stroke diesel engine, anticlockwise direction of rotation (viewed on driving end) with Common-Rail fuel injection system, water charge air cooling and electronic engine control and monitoring system make MTU, type ECU	
	– fuel consumption-optimized engine version	1,
1.2	**Cooling Package**	1,
	– Set of connecting parts (flanges for welding on a steel pipe) for engine coolant and charge air coolant circuit	1,
	– Coolant level sensors with cable (15 m) (Bedia sensor, magnetic-inductive) for installation in coolant circuit expansion tank	1,
1.4	**Starting Aids**	1,
	Electric Starting System	1,
	– Redundant starting system, consisting of: 2 electric starters (24 VDC / 2 x 15 kW / 2-pole)	
	Battery Charging Alternator, V-belt driven with protection guard	1,
	– on left engine side (A-Side) and on right engine side (B-Side) – 28 VDC / 100 A, 2-pole	
	Electric coolant pre-heating unit	1,
	– 12 kW pre-heating with circulation pump, non-return flap and thermostat (400V, 3ph, 50 Hz) – Genset room valid for ambient temperature >5° C	
1.5	**Base Frame**	1,

		valid for product no.
	Resilient Mounting	1,
	– Set of engine mounting brackets with dampers at the driving and free ends	
	Resilient alternator mounting elements	1,
	– 4 Rubber elements	
2	**ENGINE CONFIGURATION**	1,
2.1	**Oil System**	1,
		1,
	– Lube oil multi-stage filter, without diverter valve	1,
	– Crankcase vent system	1,
	– Closed	
	– Oil separator	1,
	– Centrifugal lube oil filter	1,
	Oil Hand Pump	1,
	– Hand pump for lube oil extraction	
	– Approx. 24 l/min at 88 doublestrokes per minute	
2.2	**Fuel System**	1,
	Fuel pre-filter	1,
	– not switchable, consists of 2 filter cartridges with water separator and water-level sensors. Rated supply flow rate 1200 L/h	
	Booster pump for additional pressure inside the fuel system	
2.3	**Air Intake System**	1,
	Combustion Air System	1,
	– Set of dry-type air filter with contamination indicator and mounting parts	
2.4	**Exhaust System**	1,
	Exhaust bellows (2x 12V/16V; 3x 20V) with gaskets and counter flanges for connection to exhaust elbows	1,
	– Compensation:	
	– Axial: ±25-50mm	
	– Lateral: ±5-10mm	
	– Angular: ±5-10mm	

valid for product no.

3 GENERATOR CONFIGURATION 1,

3.1 Generator Specification 1,

Generator for medium voltage (Leroy Somer) 1,

Three-phase Alternator Leroy Somer 1,

- 4 pole three-phase synchronous generator, with damping equipment. Generators are designed for easy paralleling with utilities or with other generators. Brushless, self-excited, self-regulating, self-ventilated.
- Digital voltage regulator with Diode failure monitoring
- 3 phase voltage /potential transformers for medium voltage
- Stator winding Y-connected, accessible neutral (brought out)
- Voltage setpoint adjustment ±5%
- 3x 2-core current transformers for measurement and protection.
- Winding pitch 5/6 for medium voltage
- Protection class IP 23
- Insulation class H, utilization acc. to H
- Excitation by PMG
- Radio suppression EN55011, group 1, cl. B
- Short circuit capability 3x FLC for 10sec
- Brushless excitation systems
- 2 bearing Generators
- Winding- and bearing temperature sensors (monitoring is not in standard)
- Anti-condensation heating
- Meets NEMA MG-1, BS 5000, IEC 60034-1, VDE 0530, DIN EN 12601, AS1359 and ISO 8528-3 requirements

- Generator type: Leroy Somer LSA 53.2 ZL14 1,

4 CONTROL PANEL CONFIGURATION 1,

4.1 Control panel 1,

Controller: Basler 1,

Island mode - Stand alone with ATS (Version3a) 1,

- Unit monitoring with automatic start stop signal from ATS (ATS: Customer supplied) with power failure monitoring. In case of main failure an emergency start of the genset is possible. The switchover from genset operation to mains is made with an open transition of the supply.
  (Scope of supply: control panel, controller, battery charger, harness, system cable)
  Additional V1+ panel, mounted at the position form the control cabinet, connected with harness to the control panel.

- Redundant power supply in combination with redundant starting system, consisting of: 2 battery chargers (960 W, 24 VDC), redundant module 1,

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CEM2020 Module 1,

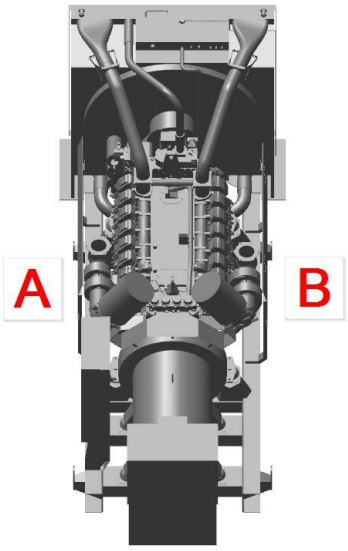
– Digital in- and outputs (potential free)
  Basler CEM (Contact Expansion Module)
  Deif controller includes CEM.

Battery charger 1,

– Battery charger for supplying genset controls and recharging batteries
– Output current: 35 A
– Output voltage: adjustable 25 ... 28 V DC ±1%

ModBus converter kit CAN to TCP/IP 1,

Mounted on A-Side 1,



Temperature Monitoring 1,

– Each phase has PT100 sensors built into the generator stator windings to warn of serious damage to the winding system due to thermal overload.
– Furthermore, a PT100 sensor is installed in each generator bearing in order to measure the bearing temperature and to prematurely warn against overheating the respective bearing.
– The PT100 elements are routed to a terminal block in the generator terminal box.
– In order to be able to monitor these values to a controller, a suitable cable set and, if necessary, an expansion module are installed.

5 MISCELLANEOUS 1,

5.1 Documentation 1,

		valid for product no.
	– MTU Value Care Flyer in English-Language	1,
5.2	**Painting**	1,
	Standard Paintwork, 3 color concept (Engine/Plant)	1,
	Standard paintwork 3 color concept (silver, blue, black) Grey = RAL 7001 silver grey (Engine, Generator) Blue = RAL 5002 ultramarine blue (Baseframe) Black = RAL 9005 black (Cooler)	
5.3	**Packing**	1,
	Packing	1,
	– Standard packing	
5.4	**Additional Options**	1,
	An EC Declaration of Conformity (Machinery), as well as CE conformity marking per the Machinery Directive will be provided.	1,
7	**FUNCTIONAL TESTING**	1,
7.1	**Acceptance Testing**	1,
	Genset standard factory acceptance testing	1,
8	**SHIPPING CONDITIONS**	1,
8.1	**Freight**	1,
	CIP customer (Incoterms 2010)	1,