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	Genset	Marine	O & G	Rail	C & I
Application	X				
Engine model	20V4000G63L				
Rated power [kW]	2590				
Rated speed [rpm]	1500				
Application Group	3B, 3E, 3F, 3G				
Legislative body	Fuel-consumption optimized				
Test cycle	D2 + 110%				
Data Set No.	XZ54954100444				
Data Set Basis	Fuel-consumption optimized				
Fuel sulphur content [ppm]	5				

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Description of Revision		Frequency	<p>All industrial property rights reserved. Disclosure, reproduction or use for any other purpose is prohibited unless our express permission has been given. Any infringement results in liability to pay damages.</p>	PDF	Name	Project no.	Size
				Configurator	Theiss, Sandro (TVMG)	Order no.	
<p>Data generated by EDS Creator version 1.0 and uniplot. Ref.-dataset: 420_G_020_bearbeitet.nc.nc2 for 1282 in EDS platform.</p>				Approver1	Kneifel, Alexander (TSLE)	EDS-ID	<p>Title Emission data sheet</p>
				Approver2	Koliwer, Michael (TV)	2181-09.01.2023	
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General Disclaimers (valid for Measured and NTE values)

Please note that these data are physical and/or technical values only referring to and representing a normative defined operating condition. Any change in operating time and conditions will have impact on physical values and engine behavior, which must be considered and assessed within the complete propulsion system especially in regard to emission compliance and product safety.

Measurements listed in this EDS are representative of the listed engine rating at the time of testing. These measurements and results can change according to instrumentation, boundary condition, and engine to engine variability. In addition - changes to the engine family hard or software may occur which could result in changes to some of the listed values.

Emissions data measurement procedures are conducted according to applicable rules and standards as per "Emission Stage/Optimization". Potential deviations from these procedures are documented internally.

The listed emission values relate to the corresponding certification data. Seller doesn't take any responsibility or liability neither out or in connection with the contract nor on any other basis

- beyond these specified operating conditions of the engine
- and for any installation/modification of the entire propulsion system by the customer itself or any third party and the customer will indemnify MTU on first demand for any third party claim out or in connection with this.

Seller reserves the right to amend specifications and information without notice and without obligation or liability. No liability for any errors, facts or opinions is accepted. Customers must satisfy themselves as to the suitability of this product for their application. No responsibility for any loss as a result of any person placing reliance on any material contained in this data sheet will be accepted.

Seller reserves all rights in the information contained in this data sheet. It shall not be reproduced, made available to a third party or otherwise used in any way whatsoever.

When applicable, emission values are measured after combined exhaust streams.

Measured Emissions data is based on single operating points and thus cannot be used to compare to regulations which use values based on a weighted cycle.

Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures, and instrumentation. Over time deterioration may occur which may have an impact on emission levels.

The SO2 emission rates comprehend exclusively the SO2 content as found in the fuel source, oil consumption effects are not included. Variation of sulfur content in the fuel changes only the stated SO2 emissions, cross sensitivity to other emissions (e.g. particulates) is not possible.

All values based on metric units, inaccuracies for non metric values can occur, values are not binding.

Specific to gas engines: The listed emission values are based on gas composition at the time of certification measurement. Gas composition is as displayed in the EDS-document. Carbon dioxide and methane concentrations have direct influence on the corresponding displayed carbon dioxide and methane emissions.

EAT Specific Disclaimers (valid for EDS values)

NH3 emissions levels measured with AVL SESAM i60/ 4 FT Multi Component Exhaust Measurement System (FTIR) including EPA 40 CFR 1065 legislation compliant automated checks for linearity.

Generators or engines with exhaust after-treatment systems require a stabilization period of approximately 1 hour to ensure stable temperatures across SCR prior to performing an emissions test. Performing emissions measurements before a stable temperature has been achieved can result in inconsistent emission values. NOx Values only applicable if temperatures across SCR reached for DEF Dosing.

NTE Disclaimers (valid for NTE calculated values)

Calculated not to exceed values (NTE) are not proven by tests and therefore the accuracy is not guaranteed.

All emission data shown in chapters Emission Data Sheet, Not to Exceed Values, and Type Approval were gathered from a corresponding certification engine under test conditions shown above and complying to corresponding TEN data.

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		Configurator	Theiss, Sandro (TVMG)	Order no.	A4
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		Engine model	20V4000G63L	Title	Emission data sheet
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Engine data

	Genset	Marine	O & G	Rail	C & I
Application	X				
Engine model	20V4000G63L				
Application Group	3B, 3E, 3F, 3G				
Legislative body	Fuel-consumption optimized				
Test cycle	D2 + 110%				
Fuel sulphur content [ppm]	5				
mg/mN ³ values base on residual oxygen value of [%]	5				

Engine raw emissions*

Cycle point	[-]	n1	n2	n3	n4	n5	n6
Power	kW	2848	2590	1942	1295	647	259
Power relative	[-]	1.1	1	0.75	0.5	0.25	0.1
Engine speed	1/min	1499	1500	1500	1500	1500	1500
Engine speed relative	[-]	1	1	1	1	1	1
Filter smoke number	Bosch	0.18	0.23	0.2	0.3	0.69	0.19
Exhaust temperature after ETC	grdC	515.1	503.6	483.3	438.5	344.9	222.5
Exhaust back pressure after ETC (static)	mbar	31	30	17	8	3	2
Exhaust mass flow wet	kg/h	13698	12175	9590	7515	5647	4778
NOX-Emissions specific	g/kWh	9.19	11.25	11.53	8.58	6.39	10.2
SO2-Emissions specific	g/kWh	0.002	0.002	0.002	0.002	0.002	0.003
CO-Emissions specific	g/kWh	0.69	0.56	0.33	0.41	1.21	3.87
HC1-Emissions specific	g/kWh	0.1	0.13	0.14	0.17	0.36	1.1
CO2-Emissions specific	g/kWh	610.4	599.9	603.6	628.6	702.9	901.7
PM-Emissions specific (Meas.)	g/kWh	0.024	0.038	0.029	0.054	0.204	0.5
NOX-Emissions (based on 5% O2)	mg/m3N	3484	4237	4323	3105	2028	2499

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CO2-Emissions (based on 5% O2)	mg/m3N	223577	222807	222816	222342	220545	216101
CO-Emissions (based on 5% O2)	mg/m3N	251.7	207.3	120.3	146.1	379.3	926.6
HC1-Emissions (based on 5% O2)	mg/m3N	37.7	46.6	50.3	60.1	113.1	264.4
SO2-Emissions (based on 5% O2)	mg/m3N	0.7	0.7	0.7	0.7	0.7	0.7
PM-Emissions (based on 5% O2)	mg/m3N	8.8	13.9	10.6	19.3	64	119.8
Oxygen (O2)	%	8.2	8.1	8.7	10.1	13	16.2

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Engine data

	Genset	Marine	O & G	Rail	C & I
Application	X				
Engine model	20V4000G63L				
Application Group	3B, 3E, 3F, 3G				
Legislative body	Fuel-consumption optimized				
Test cycle	D2 + 110%				
Fuel sulphur content [ppm]	5				
mg/mN ³ values base on residual oxygen value of [%]	5				

Not to exceed emission values*

Cycle point	[-]	n1	n2	n3	n4	n5	n6
Power	kW	2848	2590	1942	1295	647	259
Power relative	[-]	1.1	1	0.75	0.5	0.25	0.1
Engine speed	1/min	1499	1500	1500	1500	1500	1500
Engine speed relative	[-]	1	1	1	1	1	1
NOX+HC1 mass flow	kg/h		38.42	29.55	14.85	6.67	5.85
NOX-Emissions specific	g/kWh		14.62	14.98	11.15	9.58	19.39
CO-Emissions specific	g/kWh		0.95	0.55	0.79	2.42	7.74
HC1-Emissions specific	g/kWh		0.21	0.23	0.32	0.72	3.2
NOX+HC1-Emissions specific	g/kWh		14.84	15.21	11.47	10.3	22.59
PM-Emissions specific (Meas.)	g/kWh		0.056	0.046	0.082	0.306	1.849
NOX-Emissions (based on 5% O2)	mg/m3N		5508	5620	4036	3042	4747
NOX+HC1-Emissions (based on 5% O2)	mg/m3N		5587	5706	4150	3268	5514
CO-Emissions (based on 5% O2)	mg/m3N		352.4	204.5	277.7	758.6	1853
HC1-Emissions (based on 5% O2)	mg/m3N		79.3	85.4	114.1	226.3	766.7
PM-Emissions (based on 5% O2)	mg/m3N		20.9	17	28.9	96	443.1

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