

# Technical Engine Data

## 12V4000G23

Water charge air cooling (external);

50 Hz - 1.500/min

fuel consumption optimized



<b>Operating method</b>	Four stroke Diesel	<b>Flywheel housing flange</b>	SAE 00
<b>Combustion system</b>	Direct Injection	<b>Flywheel interface</b>	21
<b>Charging method</b>	Exhaust turbo charger and Water charge air cooling (external);	<b>Starter ring-gear teeth no.</b>	182
<b>Bore / Stroke</b>	170 / 210 mm	<b>Injection system</b>	Common Rail System with electronically controlled high-pressure injection through single injection pumps
<b>Displacement, total</b>	57.2 Liter	<b>Control / Monitoring</b>	Electronic engine management system "ADEC"
<b>Number of cylinders</b>	12	<b>Number of turbo chargers</b>	4
<b>Cylinder configuration</b>	V - 90°	<b>Number of intercooler</b>	1
<b>Compression ratio</b>	16.5 : 1		
<b>Direction of rotation</b> (viewed from flywheel side)	left		

MTU-Application group				3D (ICFN)	3B (ICXN)
Power (ISO 3046)		kW	A	1575	1420
Mean piston speed		m/s	A	10.5	10.5
Mean effective pressure		bar	A	22.0	19.9
Engine weight (Engine in basic execution)	dry	kg	R	6200*	6200*
	wet	kg	R	-	-
Dimensions (Engine only)	length	mm	R	2531	2531
	height	mm	R	1660	1660
	width	mm	R	2160	2160
<b>Consumption</b>					
Specific fuel consumption (be)	100% CP	g/kWh	G	193	192
(Tolerance +5% according to ISO 3046/1)	75% CP	g/kWh	R	194	195
	50% CP	g/kWh	R	201	203
Lube oil consumption (after run-in)			R	-	-
<b>Capacity</b>					
Engine oil capacity, initial filling (standard oil system)	total	Liter	R	260	260
	Oil pan capacity, dipstick mark min.	Liter	L	160	160
	Oil pan capacity, dipstick mark max.	Liter	L	200	200
Engine coolant capacity (without cooling equipment)		Liter	R	160	160
Intercooler coolant capacity		Liter	R	40	40
<b>Heat dissipation</b>					
Engine coolant dissipation	100% load	kW	R	580	540
Charge-air heat dissipation	100% load	kW	R	260	200
Radiation and convection heat, engine		kW	R	75	75
<b>Starter system</b>					
Electrical Starter (make Delco)					
Starter, rated voltage		V	R	24	24
Starter, rated power		kW	R	-	-
Starter, power requirement max.		A	R	-	-
Starter, power requirement at firing speed		A	R	-	-
Recommended battery capacity	Lead-acid	Ah/20h	R	450	450
	NiCd	Ah/5h	R	240	240
Firing speed		1/min	R	80 - 120	80 - 120
<b>Coolant pre-heating</b>					
Preheating temperature (min.)		°C	R	32	32
Heater performance		kW	R	9	9

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<b>Coolant system, Engine coolant circuit</b>				
Coolant temperature (at engine outlet to cooling equipment)	°C	A	100	100
Coolant temperature after engine, alarm	°C	R	102	102
Coolant temperature after engine, shutdown	°C	L	104	104
Coolant antifreeze content, max. permissible	%	L	50	50
Cooling equipment: coolant flow rate	m <sup>3</sup> /h	A	56	56
Coolant pump: inlet pressure, min.	bar	L	0.5	0.5
Coolant pump: inlet pressure, max.	bar	L	1.5	1.5
Pressure loss in off-engine cooling system, max. permissible	bar	L	0.7	0.7
Cooling equipment: height above engine max. permissible	m	L	15	15
Cooling equipment: design pressure	bar	A	2.5	2.5
<b>Coolant system, Charge-air coolant circuit</b>				
Coolant temperature before intercooler (engine inlet)	°C	A	55	55
Coolant antifreeze content, max. permissible	%	L	50	50
Cooling equipment: coolant flow rate	m <sup>3</sup> /h	A	30	30
Pressure loss in off-engine cooling system max. permissible	bar	L	0.7	0.7
Cooling equipment: height above engine max. permissible	m	L	15	15
Cooling equipment: design pressure max. permissible	bar	A	2.5	2.5
<b>Combustion air</b>				
Combustion air volume flow	m <sup>3</sup> /s	R	1.8	1.6
Intake air depression	mbar	A	15	15
new filter limit value	mbar	L	50	50
<b>Fuel system</b>				
Fuel supply flow, max.	l/min	R	12	12
Fuel temperature, max.	°C	L	55	55
Fuel pressure at supply connection on engine, max. admissible	bar	L	1.5	1.5
Fuel pressure at supply connection on engine, min. admissible	bar	L	-0.1	-0.1
<b>Exhaust system</b>				
Exhaust volume flow	m <sup>3</sup> /s	R	4.5	4.0
Exhaust temperature after turbocharger	°C	R	440	430
Exhaust backpressure limit value	mbar	L	85	85
<b>General operating data</b>				
Recommended minimum continuous load	%	R	20	20
Engine mass moment of inertia, with standard flywheel	kgm <sup>2</sup>	R	19.95	19.95
<b>Noise emission</b>				
(Free-field sound pressure level, 1m distance)				
Engine surface noise	dB(A)	R	103	102
Exhaust noise, unsilenced	dB(A)	R	113	111

A = Design value; G = Guaranteed value; R = Guideline value

L = Limit value, up to which the engine can be operated w/o change

- = Data not available; \* = Estimated or projected values

#### Reference conditions

	Standard	Power available up to
Intake air temperature	25°C	40°C
Site altitude above sea level	100 m	400 m

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