

Tolerance values given in the specification is subject to internal regulation TEDOM: 61-0-0284.

Description:

Engine type	TB 30 G5V NX 88 (Dwg. No. KB 7000 100/xx)		
Fuel	biogas (according to TEDOM: 61-0-0282.1 regulation)		
Engine design	stationary		
Engine working cycle	four-stroke, spark ignited		
Design	in-line, vertical		
Number of cylinder	4		
Valve train	OHV		
Number of valves per cylinder	4		
Turbocharging	no		
Intercooler	no		
Mixture	stoichiometric		
Cooling	liquid		
Operation (looking at flywheel)	anticlockwise		
Displacement	3,769		[dm ³]
Bore	100		[mm]
Stroke	120		[mm]
Compression ratio	13:1		[-]
Firing order	1-3-4-2		[-]

Rated parameters at reference conditions:

Rated speed	1500	[rpm]
Rated power output (continuous)	32,3	[kW]
Peak torque	206	[Nm]

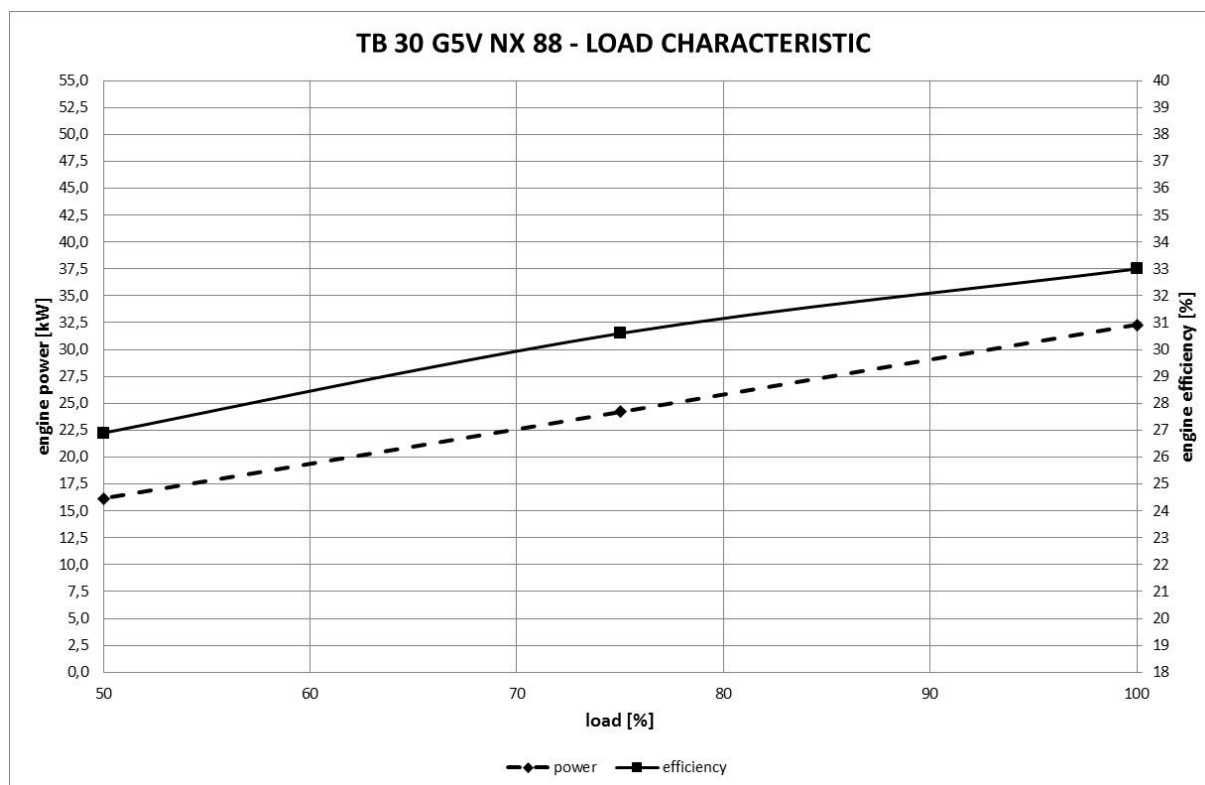
Engine heat output:

Coolant heat output	42,6	[kW]
Exhaust gas heat output (cooled to 120 °C)	15,8	[kW]
Radiation heat power	3,5	[kW]

Parameters under load:

Load	100	75	50	[%]
Fuel input power	97,9	79,2	60,0	[kW]
Efficiency	33,0	30,6	26,9	[%]
Fuel consumption	15,1	12,2	9,3	[m ³ .h ⁻¹]

Load Characteristics:



Engine parameters and settings:

Ignition advance	20	[°]
Coefficient of excess air λ	1	[-]
Exhaust gas temperature at the outlet from the engine	538	[°C]
Combustion air flow	116	[kg.h ⁻¹]
Exhaust gas flow	126	[kg.h ⁻¹]
Max. exhaust back pressure for rated parameters (at output of the engine)	2	[kPa]
Recommended exhaust gas temperature for warning signal	570	[°C]
Recommended exhaust gas temperature for stop signal	590	[°C]

Technical and build-up parameters:

REGIME OF THE ENGINE REVOLUTION		
Overrun speed max. - gas cut-off	2100	[rpm]
Overrun speed max. - ignition deactivation	2100	[rpm]
ENGINE LUBRICATION		
Lubricating oil - total	25	[dm ³]
Oil consumption	0,6	[g.kW ⁻¹ .h ⁻¹]
ENGINE COOLING		
Volume of coolant in engine	9	[dm ³]
Coolant temperature at the outlet from the engine	85	[°C]
Max. coolant temperature short time (1 hour)	100	[°C]
Min. coolant temperature for 100 % load	60	[°C]
Maximum load for the coolant temperature below 60 °C	25	[%]
Minimum coolant temperature for start	10	[°C]
Required engine coolant flow	125	[dm ³ .min ⁻¹]
Maximum cooling circuit pressure	140	[kPa]
OPERATING LIMITATIONS		
Min. intake air temperature for start	10	[°C]
Intake air (mixture) temperature input into the engine for the nominal parameters	25	[°C]
Maximum temperature of the engine compartment during operation	60	[°C]
Allowed crankcase pressure range	-1,5/+1	[kPa]
OPERATING CLEARANCE		
Cold valve clearance - intake valve	0,25	[mm]
Cold valve clearance - exhaust valve	0,25	[mm]

Emissions:

Nitrogen oxides - NO _x	<250*	[mg.m _n ⁻³]
Carbon monoxide - CO	<300*	[mg.m _n ⁻³]
Total hydrocarbons - HC	-	[mg.m _n ⁻³]
Particulate - PM ^b	-	[mg.m _n ⁻³]
Formaldehyde - HCHO	-	[mg.m _n ⁻³]

* with basic 3W catalyst

Engine noise - 100% load:

Sound power level	96	[dB(A)]
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Reference ambient conditions:

Barometric pressure	100	[kPa]
Ambient temperature	25	[°C]
Relative air humidity	30	[%]

Fuel characteristic:

Fuel pressure - reference	101,325	[kPa]
Fuel temperature - reference	0	[°C]
Fuel relative humidity	0	[%]
LHV	23,323	[MJ.m ⁻³]
CH ₄ concentration (biogas engines)	65	[%]
CO ₂ concentration (biogas engines)	35	[%]

Allowed fuel characteristic:

Fuel efficiency (biogas engines)	14,4 – 23,3	[MJ.m ⁻³]
Minimum CH ₄ concentration	40	[%]
Minimum methane number fuel	123	[-]
Maximum fuel humidity	35	[%]
Maximum fuel temperature	35	[°C]

Correction of power depending on the altitude:

Altitude	500	750	1000	1250	1500	[m a.s.l.]
Correction factor	1	0,96	0,93	0,89	0,85	[-]

Correction of power depending on the temperature of inlet air:

Inlet air temperature	0	5	10	15	20	25	30	35	40	45	50	[°C]
Correction factor	1,10	1,08	1,06	1,04	1,02	1,00	0,98	0,96	0,94	0,92	0,90	[-]

Time limits for low load operation:

Engine power [%]	Runtime [min]
0 – 30	30*
31 - 50	120*
51 - 100	Continuous

* After allowed running time under 51 % of nominal power must follow min. 2 hours recovery run above 70 % of nominal engine power.

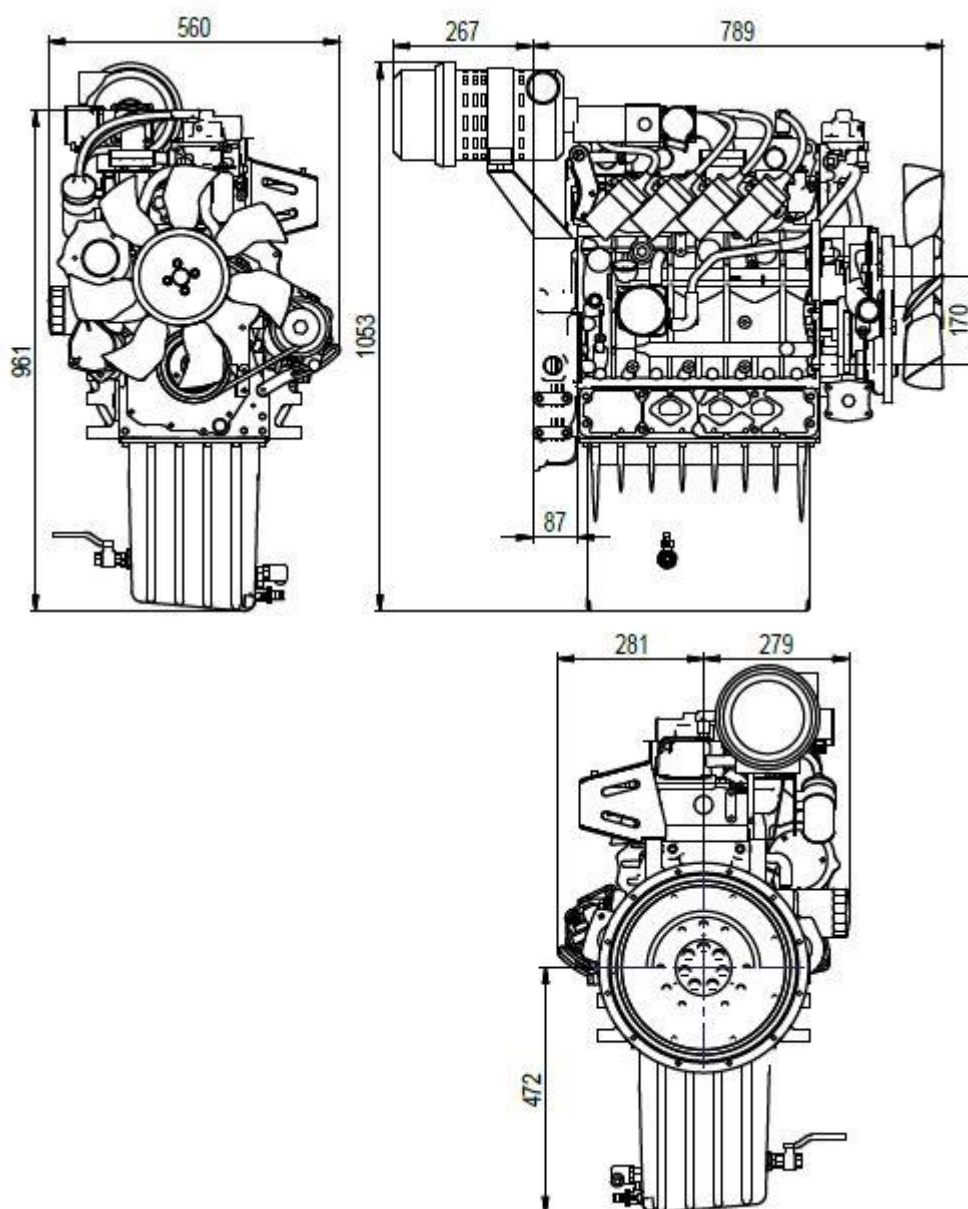
Total engine weight:

Total engine weight	315	[kg]
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Fitting dimensions of the engine:

Flywheel housing	SAE 4
Other dimensions	see engine installation drawing

Outline dimensions of the engine:



Publication specification:

Date of specification:	Specification version:	Elaborated by:	Note:
16.6.2016	1st. edition	T. Hampl	