

TBD 620. The Genset Engine.



1045-2510 kVA at 1500/1800 min⁻¹



These are the characteristics of the TBD 620:

Modern 8-, 12- and 16-cylinder 90° V-engines.

Turbocharging and charge air cooling.

Exhaust ducting via single-line PEARL® system (Pulse Energy Advanced Recovery Line).

Single cylinder heads with four-valve technology.

Electronic governor included in standard scope of supply.

Swirl optimized for high and low load with HALLO® swirl system (High and Low Load Swirl).

Application-specific cooling system.

Crankshaft with bolted counterweights and external torsional vibration damper.

Compact dimensions.

Your benefits:

- ▶ High compression ratio and high ignition pressure ensure extremely low fuel consumption. PEARL® guarantees an improved efficiency.
- ▶ High reliability and a long life of all components further enhance operating economy. Maintenance work is only required after long intervals and can be performed quickly and easily without extended downtimes.
- ▶ Compact dimensions offer optimum prerequisites for low installation costs.
- ▶ The engines are environmentally compatible and laid out for maximized operating economy. They fulfill easily the stringent exhaust emission regulations of TA-Luft NO_x < 2000.

► Technical data

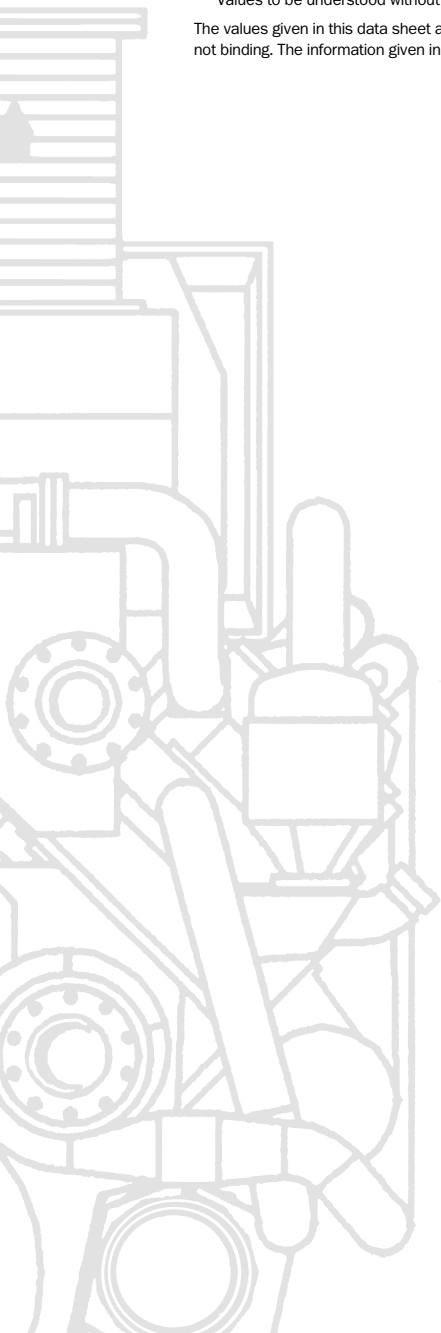
Engine type		TBD 620 V8		TBD 620 V12		TBD 620 V16	
Speed	min ⁻¹	1500	1800	1500	1800	1500	1800
Frequency	Hz	50	60	50	60	50	60
Engine/ genset ratings⁴⁾							
Continuous power, ICN (COP) ²⁾	kW	880	960	1320	1440	1760	1920
Prime power, IN (PRP) ³⁾	kW	922	1008	1384	1512	1844	2016
Limited-time running power, IFN (LTP) ⁴⁾	kW	968	1056	1452	1584	1936	2112
Typical generator power output (COP) ⁵⁾	kVA	1045	1140	1568	1710	2090	2280
Typical generator power output (PRP) ⁵⁾	kVA	1095	1197	1645	1795	2190	2394
Typical generator power output (LTP) ⁵⁾	kVA	1150	1255	1725	1880	2300	2510
Basic engine data							
Inertia moment J							
– Engine without flywheel	kg/m ²	6.2	6.2	10.75	10.75	7.42	7.42
– Flywheel	kg/m ²	9.5	9.5	4.9	4.9	9.4	9.4
Weight, engine w/o cooling system	kg	3500	3500	4900	4900	6600	6600
Governing							
Governor		electronic		electronic		electronic	
– Speed droop (static, option)	%	adjustable ≤ 5%		adjustable ≤ 5%		adjustable ≤ 5%	
Control quality ⁶⁾		G2	G2	G2	G2	G2	G2
Load acceptance⁷⁾							
Recovery time	approx. sec.	2,2	1,2	2	1,2	2,2	1,1
Speed drop	approx. %	9	5	8	4	8	4
Inertia moment generator	kg/m ²	18.7	18.7	35	35	65	65
Fuel system							
Spec. fuel consumption at COP ⁸⁾							
100 % load	g/kWh	193	199	193	199	194	200
75 % load	g/kWh	194	200	193	200	194	202
50 % load	g/kWh	199	204	199	206	200	208
Cooling system/cooling capacity							
Cooling water volume engine	l	70	70	100	100	140	140
Cooling air flow rate	m ³ /h	86 832	77 160	127 180	124 420	155 520	136 857
Heat in engine cooling water	kW	232	288	414	432	498	602
Heat in charge air cooler	kW	176	213	264	320	352	427
Circulating water flow rate (Δt 10 K)	m ³ /h	43	51	49	59	46	56
Permissible resistance in circulating water at Δt 10 K	bar	0,9	1,35	0,9	1,3	0,9	1,3
Max. permissible installation resistance for radiator fan	mbar	1.9	2.9	1.3	1.9	1.3	1.9
Max. cooling water temperature							
– Engine outlet	°C	82	82	82	82	82	82
– (Alarm)	°C	85	85	85	85	85	85
Heat radiation	kW	50	57	76	85	101	114

► Technical data

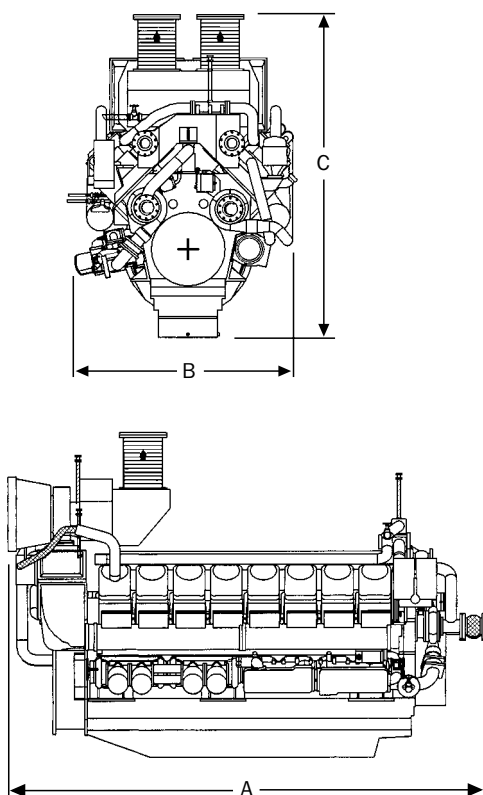
Engine type		TBD 620V8		TBD 620V12		TBD 620V16	
Speed	min ⁻¹	1500	1800	1500	1800	1500	1800
Frequency	Hz	50	60	50	60	50	60
Lubrication system							
Lube oil consumption at full load	g/kWh	1.0+0.3	1.0+0.3	1.0+0.3	1.0+0.3	1.0+0.3	1.0+0.3
Lube oil specification		API class CD or CE or CF4 and CCMC class D4/D5 (SHPD oil)					
Lube oil volume							
- Oil pan top	l	70	70	110	110	150	150
- Oil pan bottom	l	95	95	150	150	200	200
Oil temperature max.	°C	90	90	90	90	90	90
Full-flow filter	pcs./l	2/3	2/3	4/3	4/3	4/3	4/3
Min. oil pressure (shutdown)	bar	2	2	2	2	2	2
Combustion air system							
Combustion air flow rate (COP)	m ³ /h	4435	4896	6920	7531	8870	9792
Max. vacuum (filter clean)	mbar	20	25	20	25	20	25
Exhaust system							
Exhaust mass flow rate at full load (COP)	kg/h	5245	5789	8210	8943	10490	11578
Exhaust temperature at full load and 25°C ambient temperature	°C	480	530	420	450	480	530
Max. permissible exhaust backpressure	mbar	20	25	20	25	20	25
Exhaust flange	mm	1x250	1x250	2x250	2x250	2x250	2x250
TA-Luft (4000)	mg/nm ³	4000	-	4000	-	4000	-
Engine electrics							
Electrical equipment:							
- Starter motor	kW	9	9	9	9	15	15
- Alternator	A/V	55/28	55/28	55/28	55/28	55/28	55/28
- Battery (min. capacity)	Ah	300	300	400	400	475	475
- Coolant preheating unit	W	3	3	6	6	6	6
- Voltage	V	24	24	24	24	24	24
Cold-start capability							
Cold-start limit temperature:							
- without starting aid	°C	-15	-15	-15	-15	-15	-15
Noise emissions⁹⁾							
Sound power level	dB(A)/1pW	119	120	119	120	121	123
Sound pressure level at full load, 1 m distance	dB(A)	106	107	105	108	109	110

- 1) Power reduction caused by altitude and temperature without deduction of fan power consumption.
For details refer to DEUTZ.
- 2) Net continuous power 100 % available at flywheel, no time limitation, plus 10 % extra power for governing purposes.
- 3) Prime power 100 %, average power output 80 % within 24 hours, plus 5 % extra power for governing purposes.
- 4) Limited-time running power 100 % which must be available 500 hours/year (thereof max. 300 hours/year continuously, no overload permissible; the required extra power for governing purposes must be taken into account however.
- 5) Taking into account typical generator efficiency, power factor $\cos(\varphi) = 0.8$. generator efficiency: 0.95.
- 6) Performance acc. to ISO 8528.
- 7) Load application from 0 to 50 % of the rated power starting from the idling speed of 1560 or 1872 min^{-1} (speed droop 4 %).
- 8) For fuel specification see operation manual.
- 9) Cumulative noise level weighted according to dB (A) with a tolerance of ± 1.5 dB (A).
Values to be understood without cooling system.

The values given in this data sheet are for information purposes only and not binding. The information given in the offer is decisive.



► Dimensions



Engine type		A	B	C
TBD 620 V8	mm	1950	1500	2150
TBD 620 V12	mm	2700	1500	2180
TBD 620 V16	mm	3200	1500	2180

► Standard Spezifikation

- Standard engine:** Basic parts
- Cooling systems:** Dual-circuit cooling system (air-to-water charge air cooling), with LT thermostat loose, mechanical engine cooling water pump, mechanical pump for charge air cooler coolant, cooling water preheating unit, loose.
- Exhaust system:** Exhaust manifolds and elbow, two exhaust turbochargers (with V8: one turbocharger), insulated exhaust pipes.
- Filters:** Paper air cleaner, fuel twin filter, lube oil single filter.
- Governor:** Electronic governor.
- Flywheel:** Flywheel with 18" connection. With 21" connection for V16.
- Adapter housing:** SAE o housing.
- Engine electrics:** Starter motor 24 V, 9 kW (with V 16: 15 kW), analog sensor for cooling water and charge air temperature, lube oil and crankcase overpressure, electr. priming pump set, solenoid shutdown, wiring to engine switchbox.
- Miscellaneous:** Painting in diamond grey, operation manual, spare parts catalogue.



Knowing it's DEUTZ.

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