

VMAN ENGINE

Head office: Room 1216, No.275-8, East Guoding Road, Shanghai

Factory: No.125, Zhenyuan Road, Shanghai, P.R. China

Website: <http://www.vman-engine.com>

E-mail: info@vman-engine.com

Tel: +86 21 65186706 Fax: +86 21 65187011

D11 (V6) SERIES DIESEL ENGINE

Ratings (kW/PS)	1500rpm/50Hz				1800rpm/60Hz		
	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
Prime	-----	285/388	265/360	240/326	342/465	318/432	288/392
Standby	360/490	314/427	292/397	264/359	390/530	340/462	317/431
Continuous	249/338	217/295	201/273	182/247	260/353	242/329	219/297

RATINGS DEFINITIONS

The power ratings of Emergency Standby and Prime are in accordance with ISO8528. Fuel Stop power in accordance with ISO3046.

Electric power (kW) should be estimated by considering generator efficiency, cooling fan power loss and power derating due to altitude and temperature.

STANDBY POWERRATING is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. A standby rated engine should be sized for a maximum of a 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating.

PRIME POWER RATING is available for an unlimited of hours per year in variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 24 hours. The Total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour with in a 12 hours period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

CONTINUOUS POWER RATING is the power that the engine can continue to use under the prescribed speed and the specified environment condition in the normal maintenance period stipulated in the manufacturing plant. And continuous power applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

GENERAL DATA

Engine Type	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
	4-Cycle, V-type, 6-Cylinder, Turbo charged & intercooled (air to air)						
Bore x stroke	128×142 mm						
Displacement	10.964 L						
Compression ratio	14.6:1						
Mean effective pressure(Mpa)	2.39	2.08	1.93	1.75	2.08	1.93	1.75
Piston speed	200m/s @1500rpm				240m/s @1800rpm		
Rotation (Looking at flywheel)	Counter clockwise (CCW)						
Firing order	1-4-2-5-3-6						
Injection timing	18°±1° BTDC @ 1500 rpm				20°±1° BTDC @ 1800 rpm		
Dry weight	904 kg						
Dimension(L × W × H)	1251 × 1389 × 1288 mm						
Fly wheel housing	SAE 1						
Fly wheel	14(PCD : 438.15 mm/17.25 inch)						
Number of teeth on flywheel	160						

INTAKE & EXHAUST SYSTEM

Engine Type	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
Max. Intake Restriction (kPa)	5						
Max. Exhaust Back Pressure (kPa)	<10						
Combustion Air Consumption (m³/h)	2119	1820	1675	1507	2365	2042	1857
Max. Exhaust Temperature (After Turbo)	475	460	445	435	535	510	480
Exhaust Gas Flow (m³/h)	4885	4112	3707	3288	5890	5890	5890
Cooling fan air flow (m³/min)	675	675	675	675	810	810	810

ENGINE MOUNTING

Maximum Bending Moment at Rear Face to Block	1325 N·m
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COOLING SYSTEM

Coolant Capacity for Engine	19 L
Max. Permissible Temperature	90°C
Max. Coolant Warning Temperature	95°C
Max. Coolant Shutdown Temperature	105°C
Thermostat Open Temperature	71°C
Max. external coolant system restriction	Not available

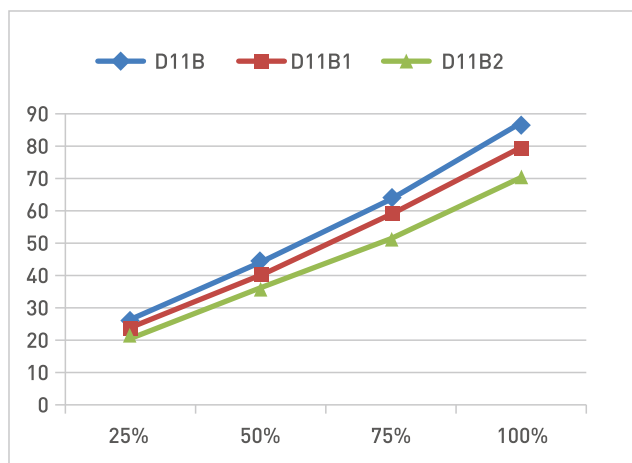
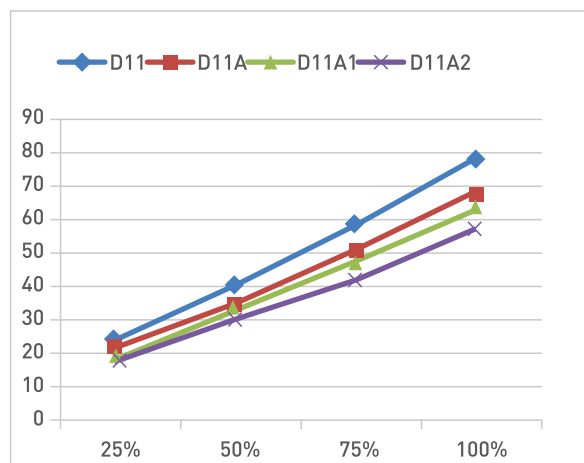
*Two radiator options are provided, based on allowable maximum Air temperature On radiator inlet (Air On) Air On 40°C / Air On 50°C

- ATB (Ambient Temperature before Boiling) of generator set varies depending on the engine room ventilation design, even if the same radiator applied. Adequate selection of radiator options by means of the cooling test is highly recommended, and generator set makers are responsible for the selection.

FUEL SYSTEM

Engine Type	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
Fuel Pump	In-line pump type with integrated, electromagnetic actuator						
Governor	Electric type						
Fuel	Diesel fuel						
Lowest Fuel Consumption Ratio	192-204 g/kw.h						
Fuel Consumption Of Generator Set Prime Output							
-- 100%(L/h)	88.83	77.48	70.08	63.17	100.60	85.25	78.72
Prime power							
-- 100%(L/h)	77.81	67.82	63.38	57.05	86.53	79.23	70.89
-- 75%(L/h)	57.97	50.53	46.69	41.73	63.66	59.22	51.40
-- 50%(L/h)	39.42	34.35	33.05	29.96	43.74	40.29	36.19
-- 25%(L/h)	23.70	20.65	19.32	17.60	25.44	23.43	20.92
Continuous power							
-- 100%(L/h)	59.14	51.55	41.17	43.36	65.76	60.22	53.88
Lowest Fuel Consumption Ratio (g/kW·h)	198	195	193	192	204	202	197

Fuel Consumption – prime power



LUBRICATION SYSTEM

Engine Type	D11 Series
Force-feed lubrication by gear pump, lubricating oil cooling in cooling water circuit of engine.	
Lube oil specification	CF-4
Lub oil pressure	Idle Speed: Min 160 kPa Governed Speed: Min 200 kPa
Maximum oil temperature	110 °C
Max. Permissible Oil Temperature (oil pan)	90°C
Oil Consumption (as % of fuel consumption)	≤0.5
Oil capacity (L)	25

ELECTRICAL SYSTEM

Charging Alternator Voltage	28 V
Charging Alternator Capacity	45 A
Starting Voltage	24 V
Starting Motor Capacity	7 kW
Minimum Battery Capacity	2×150 Ah
Minimum Temperature for Unaided Cold Start	-10°C

VALVE SYSTEM

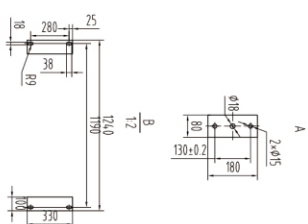
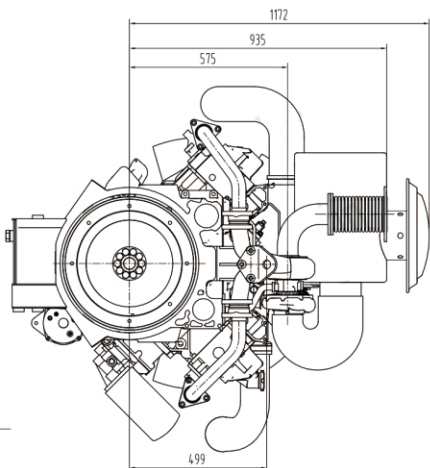
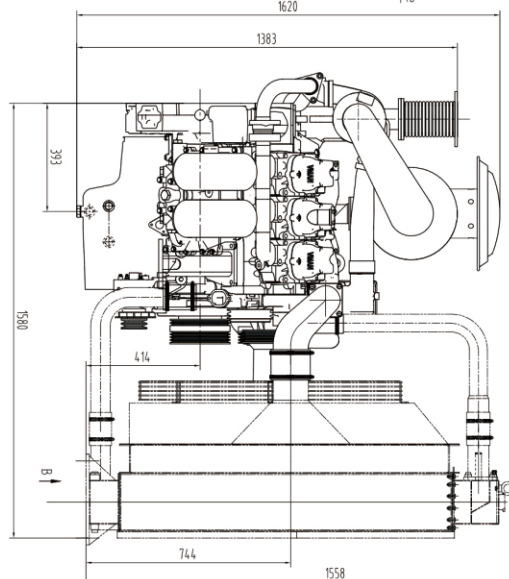
Type	Overhead valve type	
Number of valve	Intake 1, exhaust 1 per cylinder	
Valve lashes at cold	Intake 0.3 mm , Exhaust 0.4 mm	
Valve timing		
	Opening	Close
-.Intake valve	24 deg.BTDC	36 deg.ABDC
-.Exhaust valve	63 deg.BBDC	27 deg.ATDC

ENGINE DATA WITH DRY TYPE EXHAUST MANIFOLD(STANDBY POWER)

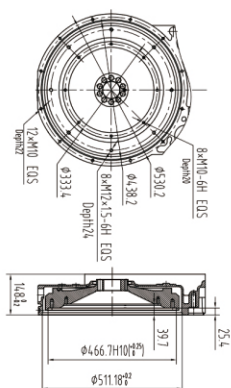
Engine Type	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
Cooling water circulation (kW)	320 L/min (1500 rpm)				390 L/min (1800 rpm)		
Heat Rejection to Exhaust (kW)	278	242	219	197	314	266	246
Heat Rejection to Coolant (kW)	121	106	95	86	137	116	107
Heat Rejection to Intercooler (kW)	81	70	64	57	91	77	71
Radiated Heat to Ambient (kW)	37	32	21	18	60	41	35

ENGINE DATA WITH DRY TYPE EXHAUST MANIFOLD(PRIME POWER)

Engine Type	D11	D11A	D11A1	D11A2	D11B	D11B1	D11B2
Cooling water circulation (kW)	320 L/min (1500 rpm)				390 L/min (1800 rpm)		
Heat Rejection to Exhaust (kW)	252	220	199	179	276	249	223
Heat Rejection to Coolant (kW)	110	96	87	78	120	109	97
Heat Rejection to Intercooler (kW)	73	64	58	52	80	72	65
Radiated Heat to Ambient (kW)	34	29	19	17	52	38	32



Alternator interface
D7031-6-3-10
W-Blue wire
D-Gray wire
IG Red and White wire



Technical Characteristics	
Model	III Series
Type	Four-stroke V8 type
Bore&Stroke (mm)	120x142
Firing Sequence	1-4-2-3-5-6
Fuel Type	Direct Injection
Compression Ratio	14.6:1
Displacement (L)	10.564
Rotation Direction	Anticlockwise From Flywheel
Weight(kg)	904
Governor	Electronic
Min Fuel Consumption	q25
Idle Speed (r/min)	700±5
Governor Efficiency	≥70
Starting	Electronic
Flywheel	SAE 1
Flywheel	14 DCL43815mm/17.25inch
Thermostat open Temp	Open71m, Full Open83°
Emission	Tier 2
Noise dB(A)	41/9

Name	Diesel Engine		VD11201801
Model	D11 Series	Number	Proportion
		1	1:10
Material		Total pages	1 Page 1
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