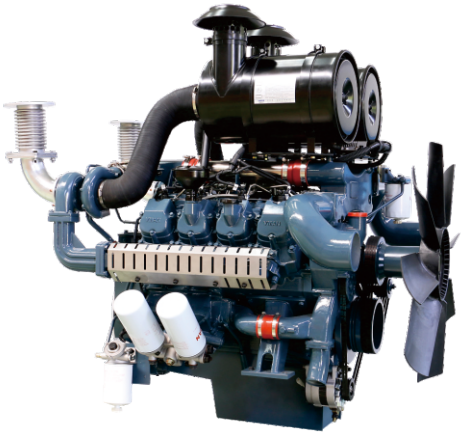

VMAN ENGINE

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D15 (V8) SERIES DIESEL ENGINE

Ratings (kW/PS)	1500rpm/50Hz				1800rpm/60Hz		
	D15	D15A	D15A1	D15A2	D15B	D15B1	D15B2
Prime	-------	405/551	365/496	330/450	440/599	405/551	370/503
Standby	500/680	445/605	415/565	363/494	500/680	460/626	405/551
Continuous	346/470	308/418	277/376	251/341	334/454	308/418	281/382

RATINGS DEFINITIONS

The power ratings of Emergency Standby and Prime are in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046.

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

STANDBY POWER RATING 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 within a 12 hour 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	D15	D15A	D15A1	D15A2	D15B	D15B1	D15B2
	4-Cycle,V-type,8-Cylinder,Turbo charged & intercooled (air to air)						
Bore x stroke	128×142 mm						
Displacement	14.618L						
Compression ratio	14.6:1						
Mean effective pressure(Mpa)	2.44	2.22	2.00	1.81	2.01	1.85	1.69
Piston speed	200m/s @ 1500 rpm				240m/s @ 1800 rpm		
Rotation (Looking at flywheel)	Counter clockwise (CCW)						
Firing order	1-5-7-2-6-3-4-8						
Injection timing	18˚±1˚ BTDC @ 1500 rpm				20˚±1˚ BTDC @ 1800 rpm		
Dry weight (Engine dry, w/o cooling system)	1050kg						
Dimension(L × W × H)	1484×1389×1288						
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	D15	D15A	D15A1	D15A2	D15B	D15B1	D15B2
Max. Intake Restriction (kPa)	5						
Max. Exhaust Back Pressure (kPa)	<10						
Combustion Air Consumption (m^3/h)	3047	2699	2418	2137	3077	2749	2396
Max. Exhaust Temperature (After Turbo)	520	510	493	440	530	500	465
Exhaust Gas Flow (m^3/h)	7447	6512	5709	4695	7615	6548	5449
Cooling fan air flow (m^3/min)	713	713	675	675	810	810	810

ENGINE MOUNTING

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

COOLING SYSTEM

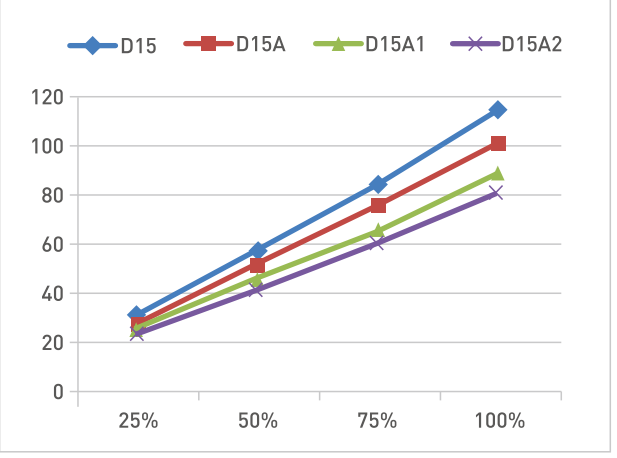
Coolant Capacity for Engine	20 L
Max. Permissible Temperature	90℃
Max. Coolant Warning Temperature	95℃
Max. Coolant Shutdown Temperature	105 ℃
Thermostat Open Temperature	71℃
Max. external coolant system restriction	Not available

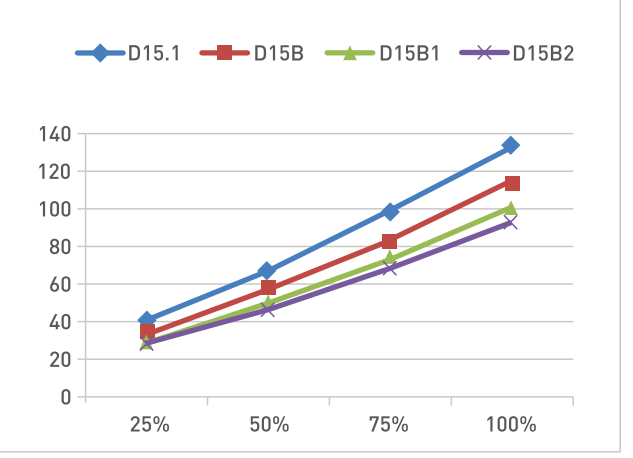
* Two radiator options are provided, based on allowable maximum Air temperature On radiator inlet (Air On) Air On 40°C / Air On 50°C - ATB (Ambient Temperature before Boiling) of generator set varies depending on the engine room ventilation design, even if the same radiator applied. Adequate selection 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	D15	D15A	D15A1	D15A2	D15B	D15B1	D15B2
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 Power Output							
-- 100%(L/h)	126.87	112.91	102.00	88.39	131.39	114.72	101.64
Prime power							
-- 100%(L/h)	113.48	101.01	88.70	80.23	113.66	100.32	90.94
-- 75%(L/h)	84.12	74.88	65.11	59.10	82.70	73.56	67.60
-- 50%(L/h)	57.12	50.84	45.52	40.83	56.96	49.77	45.49
-- 25%(L/h)	30.85	27.46	25.04	22.87	33.00	29.03	26.52
Continuous power							
-- 100%(L/h)	86.25	76.77	67.42	60.98	86.38	76.25	69.12
Lowest Fuel Consumption Ratio (g/kW·h)	205	204	196	198	207	201	199

Fuel Consumption – prime power





LUBRICATION SYSTEM

Engine Type	D15 Series
Force-feed lubrication by gear pump, lubricating oil cooling in cooling water cir cuit of engine.	
Lube oil specification	CF-4
Lub oil pressure	Idle Speed: Min 160 kPa
	Governed Speed: Min 200 kPa
Maximum oil temperature	110 ℃
Max. Permissible Oil Temperature (oil pan)	90℃
Oil Consumption (as % of fuel consumption)	≤0.5
Oil capacity (L)	27

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℃

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

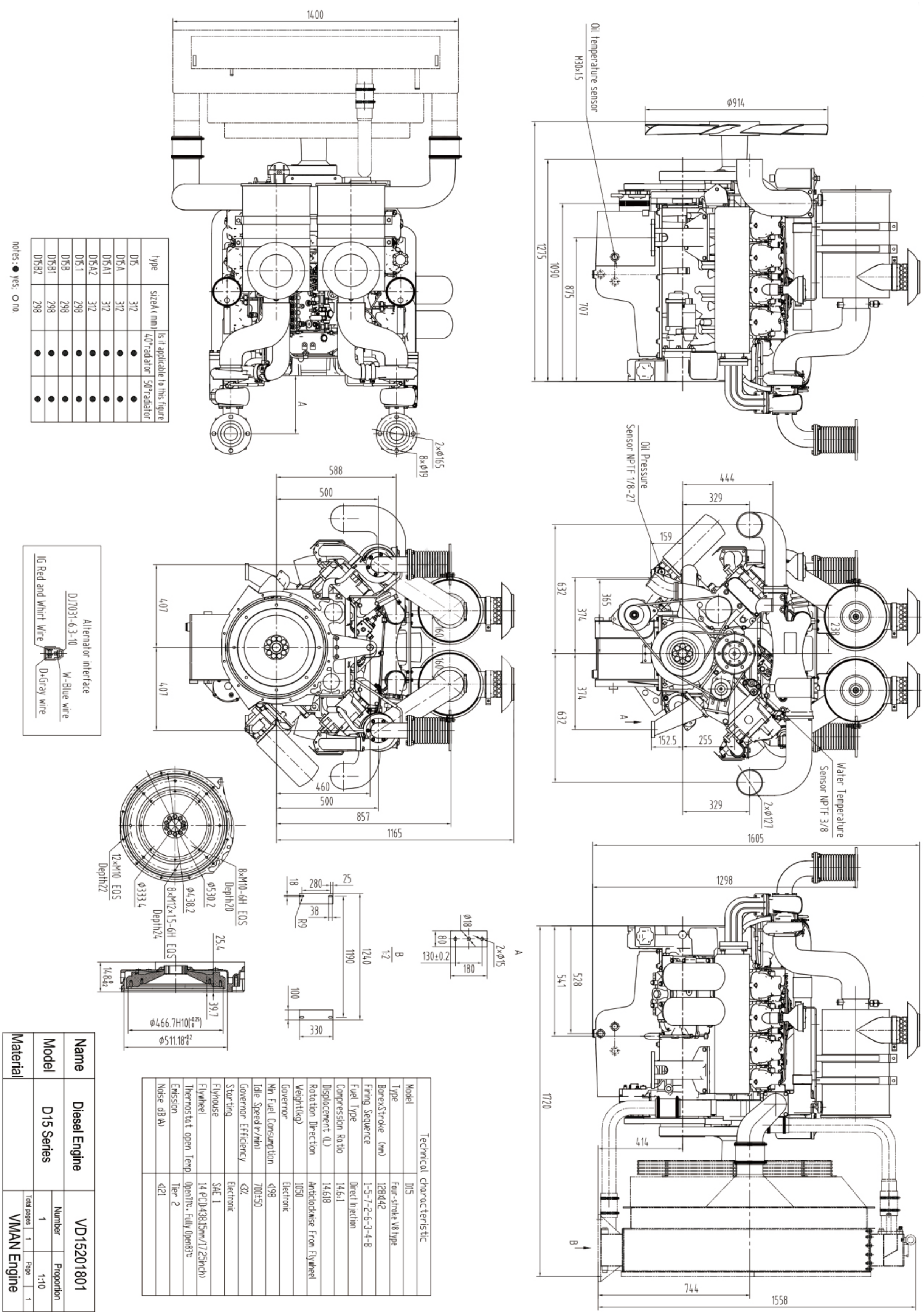
ENGINE DATA WITH DRY TYPE EXHAUST MANIFOLD(Standby Power)

Engine Type	**D15**	**D15A**	**D15A1**	**D15A2**	**D15B**	**D15B1**	**D15B2**
Cooling water circulation (kW)	590 L/min (1500 rpm)				660 L/min (1800 rpm)		
Heat Rejection to Exhaust (kW)	396	353	319	276	411	358	318
Heat Rejection to Coolant (kW)	173	154	139	120	179	156	138
Heat Rejection to Intercooler (kW)	115	102	93	80	119	104	92
Radiated Heat to Ambient (kW)	63	56	51	44	66	57	51

ENGINE DATA WITH DRY TYPE EXHAUST MANIFOLD(Prime Power)

Engine Type	**D15**	**D15A**	**D15A1**	**D15A2**	**D15B**	**D15B1**	**D15B2**
Cooling water circulation (kW)	5980 L/min (1500 rpm)				660 L/min (1800 rpm)		
Heat Rejection to Exhaust (kW)	361	321	280	251	361	316	290
Heat Rejection to Coolant (kW)	157	140	122	109	157	138	126
Heat Rejection to Intercooler (kW)	105	93	81	73	105	92	84
Radiated Heat to Ambient (kW)	58	51	45	40	58	50	46

D15 SERIES ENGINE DRAWINGS



type	sizeA (mm)	Is it applicable to this figure: 40°radiator	Is it applicable to this figure: 50°radiator
D15	312	●	●
D15A	312	●	●
D15A1	312	●	●
D15A2	312	●	●
D15.1	298	●	●
D15B	298	●	●
D15B1	298	●	●
D15B2	298	●	●

notes: ● yes; ○ no.

Technical characteristic	
Model	D15
Type	Four-stroke V8 type
BorexStroke (mm)	128x142
Firing Sequence	1-5-7-2-6-3-4-8
Fuel Type	Direct Injection
Compression Ratio	14.6:1
Displacement (L)	14.618
Rotation Direction	Anticlockwise From Flywheel
Weight(kg)	1050
Governor	Electronic
Min Fuel Consumption	≤198
Idle Speed(r/min)	700±50
Governor Efficiency	≤3%
Starting	Electronic
Flyhouse	SAE 1
Flywheel	14 PCD:438.15mm/17.25inch)
Thermostat open Temp	Open71℃, Fully Open83℃
Emission	Tier 2
Noise dB(A)	≤121

Name	Diesel Engine	VD15201801	
Model	D15 Series	Number: 1	Proportion: 1:10
		Total pages: 1	Page: 1
Material		VMAN Engine	