12DWV-645

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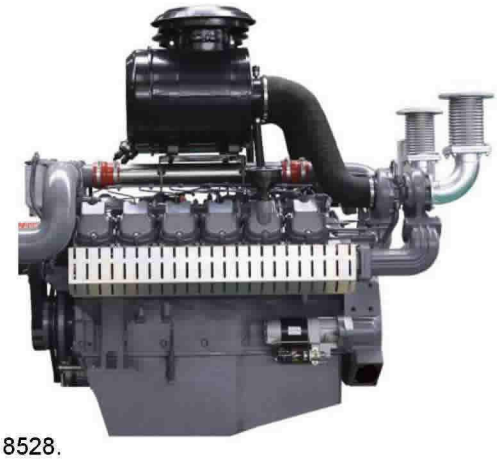

POWER RATING

Engine Speed	Type of Operation	Engine Gross Power	
		kW	PS
1500 rpm	Prime Power	515	700
	Standby Power	565	768
1800 rpm	Prime Power	565	768
	Standby Power	627	852

- The engine performance is as per ISO 3046. Type of operation is based on ISO 8528.
- Prime power is available for an unlimited number of hours per year in a variable load application.
- The permissible average power output over 24 hours of operation shall not exceed 80% of the prime power rating.

Engine Specifications

○ Engine Type	V-type, 4 strokes, water-cooled, Turbocharged air-to-air intercooled
○ Combustion type	Direct injection
○ Cylinder Type	Wet liner
○ No. of Cylinders	12
○ Bore × stroke	128 ×142 mm
○ Displacement	21.93 liter
○ Compression ratio	14.6 : 1
○ Firing order	1-12-5-8-3-10-6-7-2-11-4-9
○ Injection timing	16 °BTDC
○ Dry weight	Approx. 2100 kg
○ Dimension(LxWxH)	1950 × 1389 × 1288 mm
○ Rotation	Anti-clockwise (Face to the flywheel)
○ Fly wheel housing	SAE NO. 1
○ Fly wheel	SAE NO. 14
○ Ring Gear Tooth	160 EA

Fuel Consumption Data

(Liter/ Hour)

Speed	1500 rpm		1800 rpm	
Rating	Prime 515 kW	Standby 565 kW	Prime 565 kW	Standby 627 kW
100% Load	129.1	141.6	144.4	160.2
75% Load	92.2	101.2	103.1	114.4
50% Load	67.8	74.3	75.6	83.8
25% Load	43.1	47.4	48.1	53.3

Fuel System

○ Injection pump	Direct Injection type
○ Governor	Electronic type
○ Feed pump	Mechanical type
○ Injection nozzle	Multi-hole type
○ Injection pressure	27 MPa (270 kg/cm^2)
○ Fuel filter	Full Flow, Cartridge Type
○ Used fuel	Diesel fuel oil

Mechanism

○ Type	Overhead valve
○ Number of valve	Intake 1, exhaust 1 per Cylinder
○ Valve lashes at cold	Intake. 0.3 mm Exhaust 0.4 mm

Lubrication System

○ Lub. Oil Grade	AFI - CF-4 oil
○ Lub. Oil Pan Capacity	Min 41, Max 57 liter
○ Max. allowable Oil Temp	120 degree C.
○ Oil pressure	Min. 300 kPa (3.0 kg/cm^2) Max. 650 kPa (6.5 kg/cm^2)
○ Oil Consumption Rate	≤ 1.2 g/kWh

Cooling System

○ Cooling method	Fresh water forced type
○ Water Pump	Centrifugal, belt driven
○ Water capacity	23 liter (engine only)
○ Max. Water Temp	99 degree C.
○ Thermostat	Open 71°C / Full 83°C
○ Water Pump flow	650 liter/min
○ Cooling Fan	Blade 7, Dia 915 mm

Engineering Data

○ Media Flow		1500 rpm Prime	1500 rpm S/B	1800 rpm Prime	1800 rpm S/B
Combustion Air	m3/min	40.6	44.6	45.7	50.6
Exhaust Gas	m3/min	105.8	116.3	118.6	131.6
Cooling Fan	m3/min				
○ Heat Rejection					
to Exhaust	kW	427	468	469	520
to Coolant	kW	170	185	187	207
to Intercooler	kW	129	141	142	157
to radiation	kW	52	56	57	63

Electric System

○ Charging generator	28 V × 45 A (1260 W)
○ Voltage regulator	Build-in type
○ Starting motor	24 V × 7 kW
○ Battery Voltage	24 V
○ Battery Capacity	200 Ah

Conversion Table

in. = mm × 0.0394	lb/ft = N.m × 0.737
PS = kW × 1.3596	U.S. gal = lit. × 0.264
psi = kg/cm2 × 14.2233	kW = 0.2388 kcal/sec
in^3 = lit. × 61.02	lb/PS.h = g/kW.h × 0.00162
HP= PS x 0.98635	Cfm = m3/min x 35.336
lb = kg x 2.20462	

Engine Layout & Dimension