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D22 Series for 513kVA – 575kVA – 625kVA – 700kVA generator

Ratings (kW/PS)	1500rpm/50Hz				
	D22Z	D22	D22A	D22A2	D22A3
Prime		640/870	560/761	520/707	455/619
Standby	735/1000	710/966	620/843	570/775	505/687

Ratings (kW/PS)	1800rpm/60Hz					
	D22.1	D22.2	D22B	D22B1	D22B2	D22B3
Prime	756/1028	718/976	671/912	620/843	565/768	525/714
Standby	832/1131	790/1075	739/1005	682/927	627/853	577/785

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 ambient 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.

◆ GENERAL ENGINE DATA

● Engine Type	4-Cycle, V-type, 12-Cylinder, Turbo charged & intercooled (air to air)
● Bore x stroke	128x142 mm
● Displacement	21.927 L
● Compression ratio	14.6:1
● Rotation	Counter clockwise viewed from Flywheel
● Firing order	1-12-5-8-3-10-6-7-2-11-4-9
● Injection timing	18°±1° BTDC @ 1500 rpm, 20°±1° BTDC @ 1800 rpm
● Dry weight	1575 kg
● Dimension(L x W x H)	1717 x 1389 x 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

● Combustion Air Consumption	2958-5170 m ³ /h
● Max. Intake Restriction	5 kPa
● Max. Exhaust Temperature After Turbo)	435-535°C
● Max. Exhaust Back Pressure	5 kPa
● Exhaust Gas Flow	7064-10662 m ³ /h
● Cooling fan air flow	720 m ³ /min (D22A2/D22A3); 750 m ³ /min (D22A) ; 863 m ³ /min (D22/D22Z); 950(D22B1/D22B2/D22B3); 1100(D22.1/D22.2)

◆ ENGINE MOUNTING

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

● Coolant Capacity for Engine	23 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

In-line pump type with integrated, electromagnetic actuator.

● Governor	Electric type			
● Used fuel	Diesel fuel oil			
● Fuel Consumption of generator set prime output	25%(L/h)	50%(L/h)	75%(L/h)	100%(L/h)
--D22Z	51.80	91.65	135.49	185.08
--D22	44.4	78.56	116.13	157.27
--D22A	39.28	66.07	97.79	133.07
--D22A2	38.47	62.82	92.14	123.54
--D22A3	34.40	56.08	82.39	109.42
--D22.1	62.17	104.29	144.69	196.74
--D22.2	58.61	97.75	136.90	186.33
--D22B	54.77	91.35	127.93	174.14
--D22B1	47.99	82.92	115.63	157.91
--D22B2	42.89	73.89	104.61	140.30
--D22B3	39.53	68.19	96.78	130.11
● Lowest Fuel Consumption Ratio	192-204 g/kW · h			

◆ LUBRICATION SYSTEM

Force-feed lubrication by gear pump, lubricating oil cooling in cooling water circuit of engine.

● Oil capacity	41-57 L
● 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	90 °C
● Oil Consumption (as % of fuel consumption)	≤0.5

◆ ELECTRICAL SYSTEM

● Charging Alternator Voltage	28 V
● Charging Alternator Capacity	45 A
● Starting Voltage	24 V
● Starting Motor Capacity	9 kW
● Minimum Battery Capacity	2×200 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

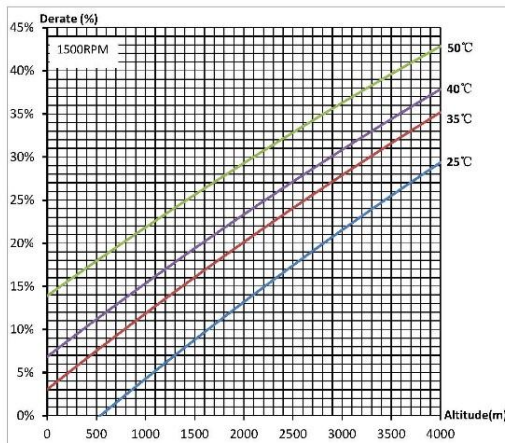
◆ Engine Data with Dry Type Exhaust Manifold

● Heat Rejection to Exhaust	449-812 kW
● Heat Rejection to Coolant	213-386 kW
● Heat Rejection to Intercooler	109-197 kW
● Radiated Heat to Ambient	46-83 kW
● Cooling water circulation	590 L/min (1500 rpm), 660 L/min (1800 rpm)

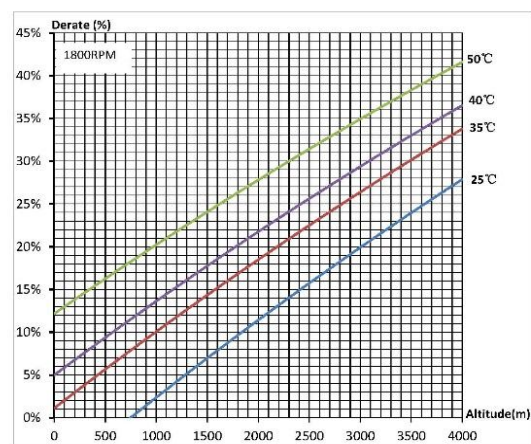
◆ DERATING FROM ISO 3046 STANDARD CONDITIONS

The maximum power is the STANDBY rating when assessing derate parameters.
Ambient temperature is air cleaner inlet temperature.

1500rpm



1800rpm



◆ ENGINE DIMENSION

