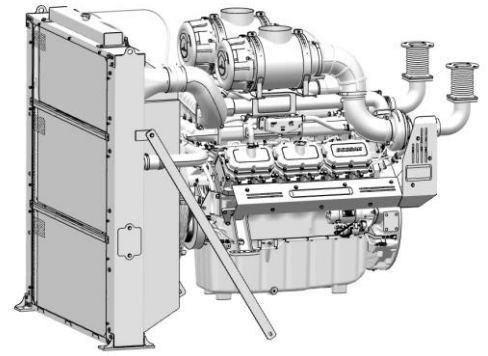


# DOOSAN INFRACORE GENERATOR ENGINE

# DP222CC



Ratings ( kWm/PS)	Gross Engine Output			Net Engine Output		
	Standby	Prime	COP	Standby	Prime	COP
1500rpm(50Hz)	875/1190	790/1074	560/761	854/1161	769/1045	539/733
1800rpm(60Hz)	995/1353	900/1224	641/872	958/1303	863/1174	604/822

### 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 (kWe) must be considered cooling fan loss, alternator efficiency, altitude derating 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 an 80% 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 number 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 a constant electrical 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** is defined as being the maximum power which the generating set is capable of delivering continuously whilst supplying load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer

### ◎ GENERAL ENGINE DATA

○ Engine Model	DP222CC
○ Engine Type	4-Cycle, V-Type, 12-Cylinder Diesel, water cooled, Turbo charged & intercooled
○ Bore x stroke	128 x 142 mm
○ Displacement	21.927 liters
○ 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
○ Speed drop	G3 Class ( KS R ISO 8528-5 )
○ Injection timing	Controlled by ECU
○ Dry weight	1,676 Kg (W/O Fan)
○ Dimension (LxWxH)	1,658 x 1,593 x 1,701 mm
○ Fly wheel housing	SAE NO.0 (18 Inch.)
○ Fly wheel	Clutch NO.18M
○ Number of teeth on flywheel	117

### ◎ ENGINE MOUNTING

Maximum Bending Moment at Rear Face to Block 1290 N · M

### ◎ EXHAUST SYSTEM

Maximum Back Pressure 5.9 kPa

### ◎ AIR INDUCTION SYSTEM

Maximum Intake Air Restriction

. With Clean Filter Element 2.2 kPa

. With Dirty Filter Element 6.2 kPa

○ Max. static pressure after Radiator 0.13 kPa

## ◎ COOLING SYSTEM

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Water circulation by centrifugal pump on engine.

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○ Cooling method	Fresh water forced circulation
○ Coolant capacity	Engine Only : Approx. 24 lit., With Radiator : Approx.66 lit.(standard)
○ Coolant flow rate	737 liters / min @1800 rpm, 623 liters / min @1500
○ Pressure Cap	90 kPa
○ Water Temperature	
- Maximum for standby and Prime	103°C
- Before start of full load	40.0°C
○ Water pump	Centrifugal type driven by Pulley
○ Thermostat Type and Range	Wax – pellet type, Opening temp. 71°C , Full open temp. 85°C
○ Cooling fan	Blower type, Plastic, 1,150 mm diameter, 8 blade

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## ◎ LUBRICATION SYSTEM

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

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○ Lub. Method	Fully forced pressure feed type
○ Oil pump	Gear type driven by crank-shaft gear
○ Oil filter	Full flow, cartridge type
○ Oil capacity	Max. 75 liters , Min. 23 liters
○ Lub oil pressure	Idle Speed : Min 100 kPa Governed Speed : Min 300 kPa
○ Maximum oil temperature	120°C
○ Angularity limit	Front down 10 deg , Front up 10 deg , Side to side 15 deg
○ Lubrication oil	SAE 10W40(API CI-4 Grade)

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## ◎ FUEL SYSTEM

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Bosch electronic high pressure fuel pump and controlled by ECU

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○ Injection pump	Bosch C/Rail Pump
○ Feed pump	Gear type
○ Injection nozzle	Multi hole type
□ Max. Injection pressure	Max. 1800bar
○ Fuel filter	Main (On Engine) : Full flow, High efficiency dust in fuel filter, cartridge type Pre(Loosed Part) : Full flow, cartridge type with water drain valve
○ Fuel Inlet Pressure Requirement	0.5~1bar(Abs.)
○ Fuel Outlet Pressure Requirement	0~1.2bar(Abs.)
○ Fuel feed pump Capacity	386 liters / hr @ 1500 rpm(engine), 464 liters / hr @ 1800 rpm(engine)
□ Allowable fuel	Domestic : Korean Ultra Low Sulfur Diesel, Europe : EN590: 2013/AC:2014 North America : ASTM D975C-15 Grades 1D or 2D, Japan : JIS K2204:2007

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## ◎ ELECTRICAL SYSTEM

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○ Battery Charging Alternator	24V x 45A Alternator
○ Voltage regulator	Built-in type IC regulator
○ Starting motor	24V x 7.0 kW
○ Battery Voltage	24V
○ Battery Capacity	4 x 200 Ah (Minimum specification, 12V 4ea Series-parallel connection)
○ Starting aid (Option)	Block heater, Air heater

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## ◎ VALVE SYSTEM

○ Type	Overhead valve type	
○ Number of valve	Intake 2, exhaust 2 per cylinder	
○ Valve lash at cold	Intake 0.4mm , Exhaust 0.7mm	
○ Valve timing	Opening	Close
- Intake valve	35° BTDC	31° ABDC
- Exhaust valve	62° BBDC	25° ATDC

## ◎ PERFORMANCE DATA

		Prime		Standby		COP		
○ Governed Engine speed	rpm	1,500	1,800	1,500	1,800	1,500	1,800	
○ Engine Idle Speed	rpm	750	750	750	750	750	750	
○ Over speed limit	rpm	1,650	1,980	1,650	1,980	1,650	1,980	
○ Gross Engine Power Output	kW	790	900	875	995	560	641	
	ps	1074	1224	1190	1353	761	872	
○ Break Mean effective pressure	Mpa	2.9	2.7	3.2	3.0	2.0	1.9	
○ Mean Piston Speed	m/s	7.1	8.5	7.1	8.5	7.1	8.5	
□ Friction Power	kW	52	75	52	75	52	75	
	ps	71	102	71	102	71	102	
○ Specific fuel consumption	25% load	liters/hr	62	72	62	72	38	47
	50% load	liters/hr	102	117	108	126	84	96
	75% load	liters/hr	147	167	157	178	108	126
	100% load	liters/hr	190	216	212	241	138	156
○ Fan Power	kW	21	37	21	37	21	37	
○ Sound Pressure at 1m from the each side of Cylinder Block (with Fan)	dB(A)	98	102	99	102	98	102	

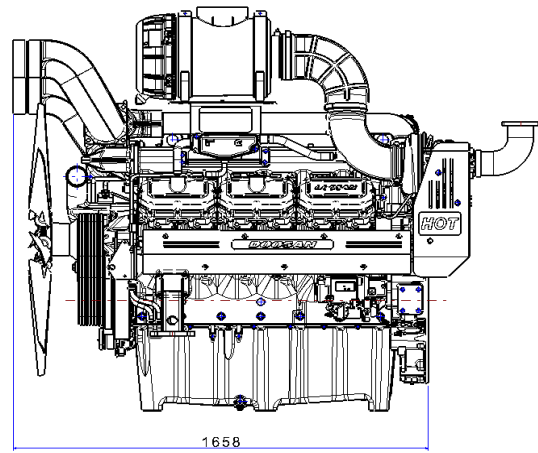
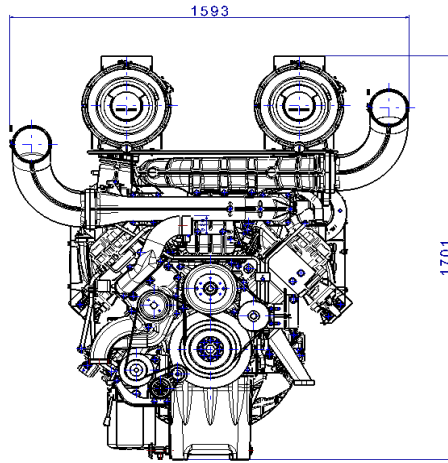
The all data and the specific fuel consumption are based on ISO 3046/1, Standard reference conditions are in accordance with 298 K(25° Celsius) air temperature, 100kPa(1000mbar) air pressure, 60% relative humidity, 110m(361ft) altitude.

The sound pressure evaluation method follows ISO3744

## Engine Data with Dry Type Exhaust Manifold

○ Intake Air Flow	m3/min	48	62	53	67	36	49
○ Exhaust gas temp. after turbo.	°C	530	470	535	500	520	440
○ Exhaust Gas Flow	m3/min	134	155	147	165	103	122
○ Heat Rejection to Exhaust	kW	553	637	618	710	414	477
○ Heat Rejection to Coolant	kW	334	363	372	405	257	277
○ Heat Rejection to Intercooler	kW	147	211	177	242	79	126
○ Radiated Heat to Ambient	kW	68	58	67	69	25	23
○ Cooling water circulation	liters/min	623	737	623	737	623	737
○ Cooling fan air flow	m3/min	1266	1510	1266	1510	1266	1510

◆ ENGINE DIMENSION



◆ CONVERSION TABLE

in. = mm x 0.0394	lb/ft = N.m x 0.737
PS = kW x 1.3596	U.S. gal = lit. x 0.264
psi = kg/cm <sup>2</sup> x 14.2233	kW = 0.2388 kcal/s
in <sup>3</sup> = lit. x 61.02	lb/PS.h = g/kW.h x 0.00162
hp = PS x 0.98635	cfm = m <sup>3</sup> /min x 35.336
lb = kg x 2.20462	Mpa = Pa x 1000 = bar x 10
kW = Kcal/sec x 0.239	

**Doosan Infracore Co., Ltd.**

21st Floor, Doosan Tower, 18-12, Euljiro 6-ga,  
Jung-gu, Seoul, Korea.

TEL : +82-2-3398-8400 / FAX : +82-2-3398-8509

E-mail : [enginesales@doosan.com](mailto:enginesales@doosan.com)

Web site : [www.doosaninfracore.com](http://www.doosaninfracore.com)

※ Specifications are subject to change without prior notice