

# N45 MSA

60 kW (2300 rpm) - 320 Nm (1400 rpm)

Technical code		F4GE0404A *D6
Thermodynamic cycle		Diesel 4 stroke -D.I.
Air intake		NA
Arrangement		4L
Bore x Stroke	mm	104 X 132
Total displacement	L	4.5
Valves per cylinder		2
Cooling		liquid
Direction of rotation (viewed facing flywheel)		CCW
Compression ratio		17.5:1
Rotation mass moment of inertia (without flywheel)	kgm <sup>2</sup>	0.19
Standard flywheel inertia	kgm <sup>2</sup>	0.69

## AIR INDUCTION

Max suggested intake restriction with clean air filter	kPa(bar)	3.5 (0.035)
Max allowable restriction with dirty air filter	kPa(bar)	6.5 (0.065)
Air requirement for combustion at 100% load/rated speed	kg/h(m <sup>3</sup> /h)	328 (280)
Turbocharging pressure at full load/rated speed	kPa(bar)	-
Turbocharging air max temperature (engine inlet)	°C	-
Heat rejected to intercooler at maximum power	kJ/s(kcal/h)	-
Intercooler system max pressure drop	kPa(bar)	-

## EXHAUST SYSTEM

Max allowable backpressure	kPa(bar)	10 (0.1)
Max exhaust temperature at full load/rated speed	°C	625
Exhaust flow at max output	kg/h	345

## LUBRICATION SYSTEM

Minimum oil pressure at idle	kPa(bar)	70 (0.7)
Max oil temperature at full load/rated speed	°C	120
Engine angularity limits continuous operation:		
max front up and front down	0/360	35
max left hand and right hand	0/360	35
Total system capacity including pipes, filters etc.	liters	12.8

## COOLING SYSTEM

Coolant capacity (engine only)	liters	8.5
Water pump flow at rated speed	m <sup>3</sup> /h	9.5
Heat to reject by heat exchanger at max power	kJ/s(kcal/h)	38.5 (33 000)
Thermostat (modulating range)	°C	83 ÷ 95
Cooling liquid max temperature	°C	103
Min/max inner pressure in the cooling circuit	kPa(bar)	30/100 (0.3/1)
External cooling system max pressure drop	kPa(bar)	35 (0.35)

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## FUEL SYSTEM

Injection system		Rotary pump
Gas oil max intake restriction	kPa(bar)	15 (0.15)
Gas oil max intake temperature	°C	60 (at 25°C amb.)

## ELECTRICAL SYSTEM

Voltage	V	12
Maximum rating	kW(CV)	60 (81)
At speed	rpm	2300
Maximum torque	Nm(kgm)	320 (33)
At speed	rpm	1400
Maximum no load governed speed at max rating	rpm	2480
Minimum idling speed	rpm	650
Mean piston speed at rated speed	m/s	10.1
BMEP at max torque	kg/cm <sup>2</sup>	9.1
Available certifications		EC 97/68 Phase 2 - EPA Tier2
Specific fuel consumption at full load (best value)	g/kWh @ rpm	230 @ 1400
Oil consumption at max rating	(% of fuel consumption)	0.1
Noise at max rating (ISO 3744)	dBA	92
Minimum starting temperature without auxiliaries	°C	-15
Oil and oil filter maintenance interval for replacement	hours	500
Dry weight (standard configuration)	kg	380

**FOR INFORMATION ON THE AVAILABLE RATINGS NOT LISTED IN THIS DOCUMENT PLEASE CONTACT THE FPT SALES NETWORK.**

\* **Power** at flywheel according to 97/68 EC (without fan), after 50 hours running, 3% tolerance, fuel Diese EN 590

**Test conditions** : ISO 3046/1, 25 °C air temperature, 100 kPa atmospheric pressure, 30 % relative humidity - Applicable also to DIN 6271, BS 5514, SAE J1349 Standards.

## STANDARD CONFIGURATION

Flywheel housing	type	3
Flywheel size	inch	10
Intake manifold location		left side / backward inlet
Exhaust manifold location		right side / upward outlet
Turbocharger		-
Turbocharger location		-
Fan transmission ratio		1.41 : 1
Distance between fan - crankshaft centers	mm	296
Fuel filter	n°	1 - left side
Fuel prefilter		-
Fuel pump		included
Oil filter	n°	1 - right side
Oil sump		sheet steel / front well
Oil vapours blow-by circuit		on timing cover
Oil heat exchanger		built in the crankcase

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Oil filler		on timing cover 1st cylinder
Exhaust counter flange		included
Starting motor		12V - 3kW
Alternator		12V - 90A with W contact
Engine stop device		electrical excitation
Wiring harness		-
Power take off		optional
transmission ratio		1.03 :1
PTO maximum available torque	SAE A	100Nm (9 teeth)
Painting	colour	grey

## NOT INCLUDED IN THE STANDARD CONFIGURATION

Battery - minimum capacity recommended		180 Ah (12V)
Battery - minimum cold cranking capacity recommended		950 A (12V)

**FPT OFFERS THE WIDEST AVAILABILITY OF ENGINE BUILD OPTIONS TO CUSTOMER SPECIFIC REQUIREMENTS WITHIN THE ENGINE SUPPLY.**

**TO FIND OUT MORE ABOUT THE CONFIGURATIONS AND ACCESSORIES WHICH ARE AVAILABLE, CONTACT THE FPT SALES NETWORK.**