

# NEF

## N45 MSA

**FOR INDUSTRIAL APPLICATIONS**  
4 CYLINDER IN-LINE - DIESEL CYCLE  
**NARROW VALVE TRAIN**  
60 kW (80 hp) @ 2300 rpm  
320 Nm (236 lb.ft) @ 1400 rpm



T E C H N O L O G I C A L E X C E L L E N C E

**IVECO**  
**MOTORS**

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Technical code		<b>F4GE0404A *D6..</b>
Thermodynamic cycle		Diesel 4 stroke - D.I.
Aspiration		NA
Configuration		4L
Bore x Stroke	mm (in.)	104 X 132 (4.10 X 5.20)
Total displacement	liters (cu. in.)	4.5 (274)
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> (lbf <sup>2</sup> )	0.19 (4.51)
Standard flywheel inertia	kgm <sup>2</sup> (lbf <sup>2</sup> )	0.69 (16.37)

### Air induction

Max suggested intake restriction with clean air filter	kPa (in. H <sub>2</sub> O)	3.5 (14)
Max allowable restriction with dirty air filter	kPa (in. H <sub>2</sub> O)	6.5 (26)
Air requirement for combustion at 100% load/rated speed	kg/h (lb/h)	328 (723)
Turbocharging pressure at full load/rated speed	kPa (psi)	-
Turbocharging air max temperature (engine inlet)	°C (°F)	-
Heat rejected to intercooler at maximum power	kW (BTU/min)	-
Intercooler system max pressure drop	kPa (in. H <sub>2</sub> O)	-

### Exhaust system

Max allowable backpressure	kPa (in. Hg)	10 (2.95)
Max exhaust temperature at full load/rated speed	°C (°F)	625 (1157)
Exhaust flow at max output	kg/h (lb/h)	345(761)

### Lubrication system

Minimum oil pressure at idle	kPa (psi)	70 (10.15)
Max oil temperature at full load/rated speed	°C (°F)	120 (248)
Engine angularity limits continuous operation: max front up and front down	degrees	35
max left hand and right hand	degrees	35
Total system capacity including pipes, filters etc.	liters (quarts)	12.8 (13.5)

### Cooling system

Coolant capacity (engine only)	liters (quarts)	8.5 (9)
Water pump flow at rated speed	m <sup>3</sup> /h (gal/min)	9.5 (41.8)
Heat rejected to coolant at max power	kW (BTU/min)	38.5 (2191)
Thermostat (operating range)	°C (°F)	83 to 95 (181 to 203)
Cooling liquid max temperature	°C (°F)	103 (217)
Min/max pressure in the cooling circuit system	kPa (psi)	30/100 (4.35/14.5)
Radiator max pressure drop	kPa (psi)	35 (5)

### Fuel system

Injection system		Mechanical
Fuel inlet max restriction	kPa (in. H <sub>2</sub> O)	15 (60.2)
Fuel inlet max temperature	°C (°F)	60 (140) @ 77°F amb.

### Electrical system

Voltage	V	12
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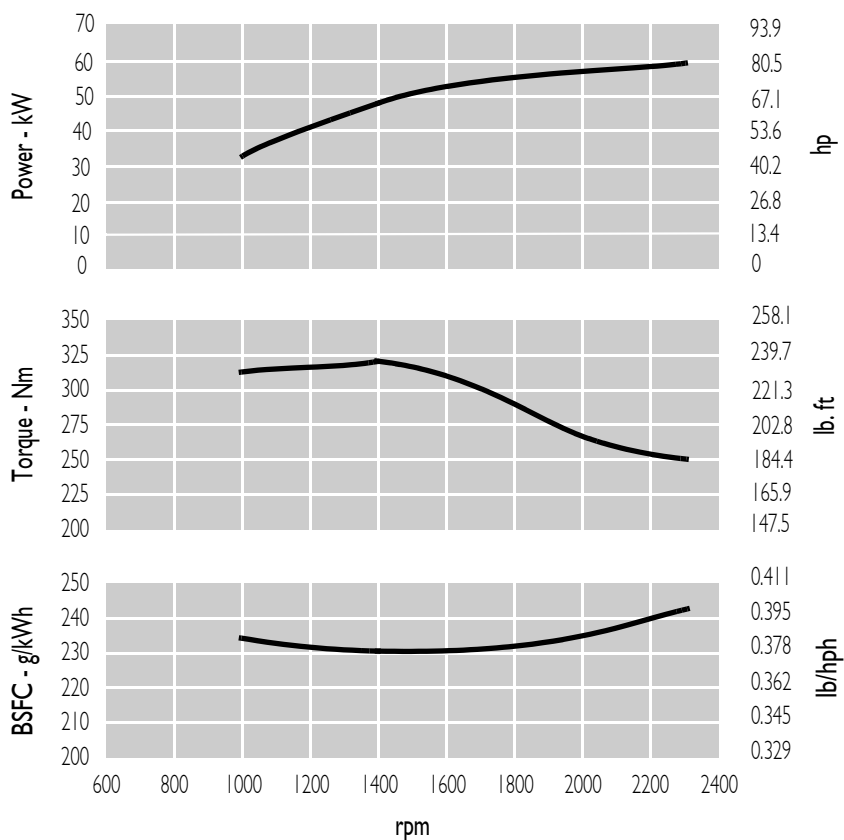
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Maximum rating *	kW(hp)	60 (80)
At speed	rpm	2300
Maximum torque	Nm (lb. ft)	320 (236)
At speed	rpm	1400
Maximum no load governed speed	rpm	2480
Minimum idle speed	rpm	650
Mean piston speed at rated rpm	m/s (ft./s)	10.1 (33.1)
BMEP at max torque	kg/cm <sup>2</sup> (psi)	9.10 (129.53)
Available certifications		EPA Tier 2 - EC 97/68 Phase 2
BSFC	g/kWh (lb/hp h) @ rpm	230 (0.378) @ 1400
Oil consumption at max rating	(% of fuel consumption)	0.1
Noise at rated power (ISO 3744)	dBA	92
Minimum starting temperature without aids	°C (°F)	-15 (5)
Oil and oil filter maintenance interval for replacement	hours	500
Dry weight (standard configuration)	kg (lb)	380 (838)

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

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

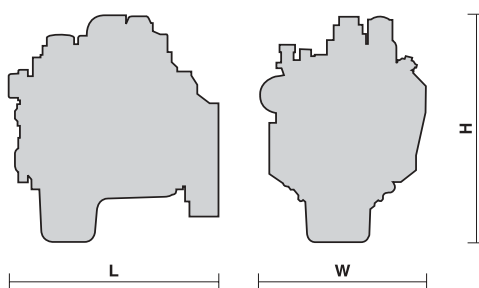
**Test conditions** : ISO 3046/1, 25 °C air temperature, 100 kPa atmospheric pressure, 30 % relative humidity - Applicable also to DIN 6271, BS 5514, SAE J1349 Standards.



L = 807 mm (31.8 in)

W = 575 mm (22.6 in)

H = 920 mm (36.2 in)



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### Standard configuration

Flywheel housing	SAE	3
Flywheel diameter	in.	10
Intake manifold location		left side / backward inlet
Exhaust manifold / turbocharger orientation		right side / upward outlet
Turbocharger		-
Turbocharger location		-
Fan drive ratio		1.41 : 1
Distance from fan to crankshaft center	mm (in.)	296 (11.66)
Fuel filter		l - left side
Fuel prefilter		-
Fuel pump		included
Oil filter		l - right side
Oil sump		sheet steel / front sump
Oil vapors blow-by circuit		on valve cover
Oil heat exchanger		built in the crankcase
Oil filler		on valve cover 1st cylinder
Exhaust mounting flange		included
Starter motor		12 V - 3 kW
Alternator		12 V - 90 A with W contact
Engine shut-off		electrical excitation
Wiring harness		-
Power take off (PTO)		optional
PTO transmission ratio		1.03 : 1
PTO maximum available torque		240 Nm (177.0 lb ft) - (SAE B 13 teeth)
Painting	color	grey

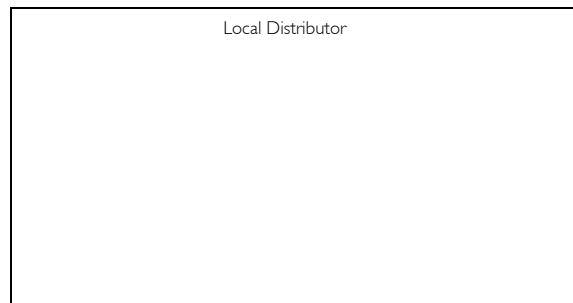
### Not included in the standard configuration

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

**IVECO MOTORS 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 IVECO MOTORS SALES NETWORK.**

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