

GENSET ENGINE

NEF45 SM2

NEF

The 4 and 6 cylinder Diesel engines of the NEF family, are the most versatile and efficient offered by Iveco Motors in genset duty market engines.

Traditional injection systems and full electronic control systems of the fuel feed, allow a wide power range and a low gaseous emission level in accordance with European 2002/88/EC and American EPA CARB directives.



PERFORMANCES

RATINGS ¹⁾	NEF45 SM2-5 1500 rpm		NEF45 SM2-6 1800 rpm	
	PRIME	STAND-BY	PRIME	STAND-BY ³⁾
Rated output ²⁾	66	73	65	72
kWm				

1) Ratings in accordance with ISO 8528 - For duty at temperature over 40°C and/or altitude over 1000 meters must be considered a power derating factor. Contact the Iveco Motors sales organization.

2) Net power at flywheel available after 50 hours running with a $\pm 3\%$ tolerance.

3) EPA / TIER 2 homologated power.

PRIME POWER

The Prime Power is the maximum power available with varying loads for an unlimited number of hours. The average power output during a 24 h period of operation must not exceed 80% of the declared prime power between the prescribed maintenance intervals and at standard environmental conditions.

A 10% overload is permissible for 1 hour every 12 hours of operation.

STAND-BY POWER

This is the maximum power available for a period of 500 hours/year with a mean load factor of 90% of the declared stand-by power. No kind of overload is permissible for this use.

CONTINUOUS POWER

Contact the Iveco Motors sales organization.

TECHNICAL DATA

Engine model	NEF45 SM2		
Diesel 4 stroke - Injection	direct, mechanical		
Nb. of cylinders and arrangement	4, in line		
Speed governor	mechanical		
Total displacement	liters	4.5	
Bore x Stroke	mm	104 x 132	
Aspiration	turbocharged		
Cooling system	liquid (water + 50% Parafllu 11)		
Flywheel housing / Flywheel	SAE3 / 11" ½		
Flywheel rotation	CCW		
Lube oil specifications	ACEA E3 - E5		
Lube oil consumption	< 0,1% of fuel consumption		
Fuel specifications	EN 590		
Oil and filters interval for replacement	hours	600	

	RPM	1500	1800
Fuel consumption at :			
100% load l/h (g/kWh)	17.1 (214.2)	17.3 (215.5)	
80% load l/h (g/kWh)	12.7 (212.1)	13.0 (216.0)	
50% load l/h (g/kWh)	8.6 (214.1)	9.0 (225.9)	

Coolant capacity:			
engine only	liters	~ 8.5	
engine + radiator	liters	~ 18.5	

ATB (without canopy)	°C	50
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No remote cooling radiator allowed.

Lube oil total system capacity including pipes, filters etc. :	liters	~ 12.8
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Electrical system	12 Vcc	
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Starting batteries :			
recommended capacity	Ah	1 x 100	
discharge current (EN 50342)	A	650	

Cold starting :			
without air preheating	°C	-10	
with air preheating	°C	-25	

Engine dry weight	kg	~480
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SCOPE OF SUPPLY

Iveco Motors engine NEF45 SM2 equipped with :

- Mounted radiator .
- Mounted belt driven pusher fan.
- Fan guard.
- Mounted air filter with replaceable cartridges.
- Fuel filter.
- Primary fuel filter/water separator.
- Replaceable oil filter.
- Front engine mounting brackets.
- Flywheel housing SAE 3 and flywheel 11" ½.
- Re-directable exhaust gas elbow.
- Recircled oil breather system.
- Oil dipstick.
- HWT and LOP sensors.
- 12 Vdc electrical system.
- User's handbook.

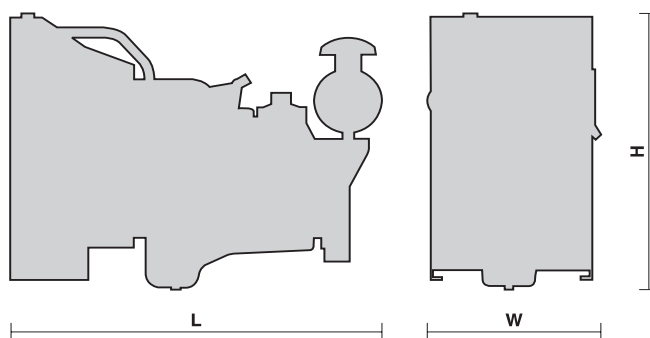
THE ENGINE IS SUPPLIED WITHOUT LIQUIDS.

OPTIONAL EQUIPMENT

On request the engine can be supplied with :

- Oil drain pump.
- Oil drain valve.
- 120/230 Volt water jacket heater.
- WT and OP sensors for gauges.
- Low water level sensor.
- Turbo and exhaust gas guards.
- Exhaust gas flexible joint.
- 24 Vdc electrical system.

OVERALL DIMENSIONS



L = 1259 mm

W = 657 mm

H = 1016 mm

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Local distributor

NEF45 SM2

73 kW (1500 rpm) - 72 kW (1800 rpm)

Engine NEF 45 SM2

1/ GENERAL				1500 rpm	1800 rpm
Engine model				NEF 45SM2-5	NEF 45SM2-6
Basic engine type	F4GE0455A*F600 - 504103291XY			F4GE0455B*F600 - 504115291XY	
Number cylinders				4	
Firing order (N° 1 nearest to fan)				1-3-4-2	
Cylinder arrangement				in line	
Valves per cylinder				2	
Cycle				diesel 4 stroke	
Injection system				direct	
Induction System				Turbocharged	
Bore	mm			104	
Stroke	mm			132	
Total displacement	lit			4,5	
Mean piston speed	m/s		6,6		7,9
Compression ratio				17,5 : 1	
Flywheel rotation				anti clockwise viewed on flywheel	
Housing flywheel				SAE 3	
Flywheel				11" _{1/2}	
Moment of inertia					
	without flywheel	Nm ²		1,86	
	flywheel only	Nm ²		6,96	
BMEP gross					
	Prime Power	bar/kPa	12,0 / 1196,0		10,0 / 996,6
	Stand-by Power	bar/kPa	13,2 / 1315,6		11,0 / 1096,3
Dry weight (including cooling package)	kg			~450	
Energy to coolant	kcal/kWh		510,8		532,5
Energy to radiation	kcal/kWh		172		141
Dimensions L x W x H	mm		1259 x 657 x 1016		

2/ PERFORMANCES				1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	54,2		54,4
Prime Power	(gross)	kWm	67,4		67,4
Stand-By Power	(gross)	kWm	74,0		74,0
Fan consumption		kWm	1,3		2,2
Continuous Power	(net)	kWm	52,9		52,2
Prime Power	(net)	kWm	66,1		65,2
Stand-By Power	(net)	kWm	72,7		71,8
Performance condition					
	temperature	°C		≤ 40	
	altitude a.s.l	m		≤ 1000	
Derating					
	temperature > T 40°C	%/5°C			
	altitude >1000 m	%/500m			

NEF45 SM2

73 kW (1500 rpm) - 72 kW (1800 rpm)

3/ COOLING SYSTEM			1500 rpm	1800 rpm
Type			liquid	
Recommended coolant			water + paraflu 50%	
Coolant capacity				
engine only	liter		8,5	
radiator and hoses	liter		10	
Coolant pump flow	l/min		103,26	123,91
Pressure cap setting	kPa (bar)		70 (0,7)	
Shutdown switch setting	°C		103	
Maximum additional restriction	Pa		147	
Air To Boil	Prime Power	°C	55	56
Fan				
diameter	mm		500	
number of blades			5	
drive ratio			1,4 : 1	
speed	rpm		2115,0	2538,0
air flow	m ³ /s		2,76	3,37
power consumption	kWm		1,3	2,2

4/ LUBRICATION SYSTEM			1500 rpm	1800 rpm
Oil sump capacity				
max	liter		8,5	
min	liter		5,5	
Oil system capacity including filter	liter		12,8	
Oil pressure at rated speed	kPa		300 - 500	
Oil temperature				
normal	°C		---	
max	°C		120	
Engine angularity				
longitudinal	degrees		25°	
transverse	degrees		25°	
Servicing interval	hours		600	
Oil specification			ACEA E3 / E5	
Oil consumption	%fuel		< 0,1	

5/ INTAKE SYSTEM			1500 rpm	1800 rpm
Air consumption at 100 % of load	m ³ /h (Kg/h)		426 (354)	480 (399)
Air intake restriction, clean filter	kPa (mbar)		---	
Air intake restriction, dirty filter	kPa (mbar)		5 (50)	
Air filter type			dry	

6/ EXHAUST SYSTEM			1500 rpm	1800 rpm
Gas flow at stand-by Power	kg/h		370	416
Max temperature at PRP (25°C)	°C		525	399
Max allowable back pressure	kPa (mbar)		6 (60)	
Exhaust gas temperature	kcal/kWh		662,6	741,2

NEF45 SM2

73 kW (1500 rpm) - 72 kW (1800 rpm)

Engine NEF 45 SM2

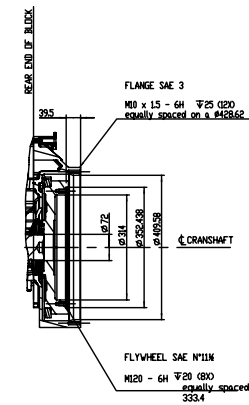
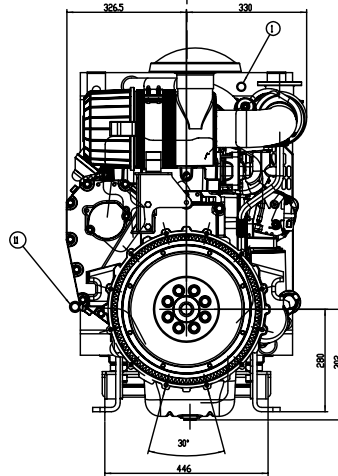
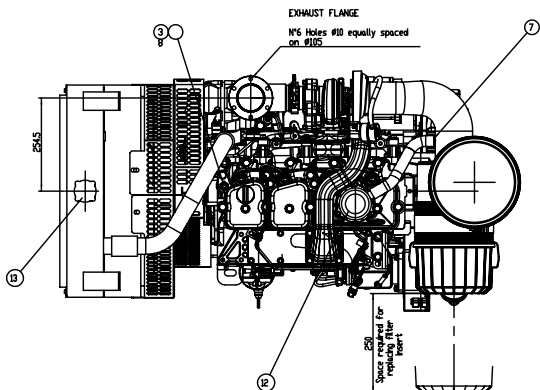
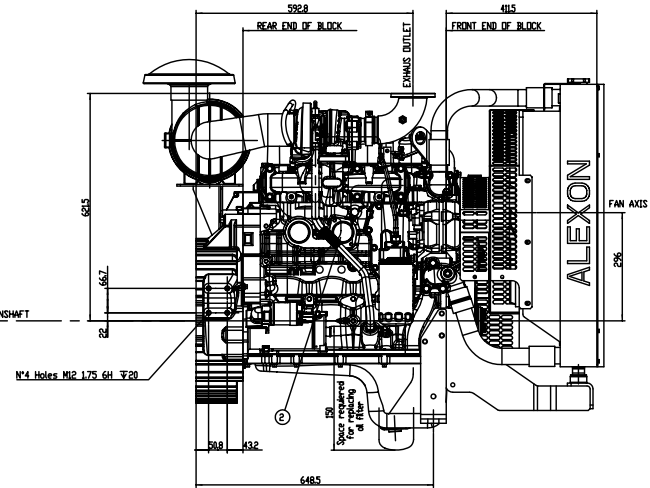
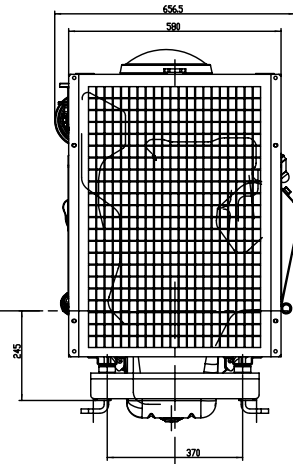
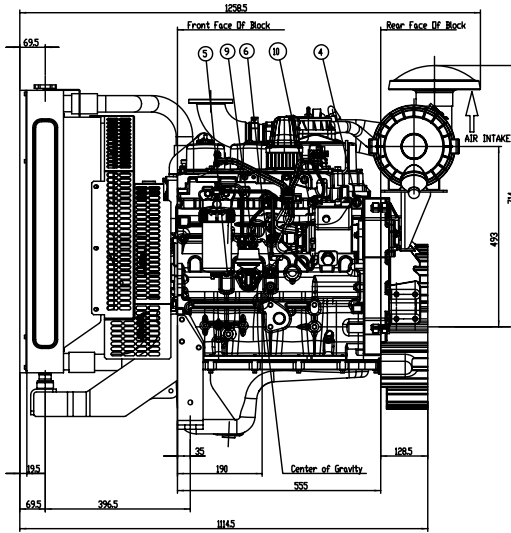
7/ FUEL SYSTEM			1500 rpm	1800 rpm
Fuel consumption at				
Stand-By	gr/kWh (l/h) [kg/h]		216,2 (19,0) [16,0]	223,0 (19,6) [16,5]
Full load	gr/kWh (l/h) [kg/h]		214,1 (17,1) [14,4]	215,5 (17,3) [14,50]
80%	gr/kWh (l/h) [kg/h]		212,1 (12,7) [10,7]	216,0 (13,0) [10,90]
50%	gr/kWh (l/h) [kg/h]		214,1 (8,60) [7,20]	225,90 (9,00) [7,60]
Fuel specifications			EN 590	
Feed pump max suction head		m		
Injection pump	type STANADYNE		DB4429-5952	DB4429-5953

8/ ELECTRIC SYSTEM			1500 rpm	1800 rpm
Voltage (negative to ground)		V		12
Starter motor				
make				Bosch
power		kW		3
pull current		Amp		60
hold current		Amp		12
break away current ^{+20°C}		Amp		1580
cranking current ^{+20°C}		Amp		
Number of teeth on starter motor				10
Number of teeth on flywheel				125
Starting batteries				
recommended capacity Ah		1x		100
discharge current		Amp		650
(EN 50342)				
Stop solenoid energized to run		Amp		
Alternator				
voltage		V		14
charge		Amp		90

9/ COLD STARTING			1500 rpm	1800 rpm
Without air preheating		°C		-10
With air preheating		°C		-25

10/ EMISSION GASEOUS AND PARTICLES			1500 rpm	1800 rpm
No _x	Oxides of nitrogen	gr/kWh	6,55	5,93
HC	Hydrocarbons	gr/kWh	0,6	0,63
No _x +HC		gr/kWh	7,15	6,56
CO	Carbon monoxide	gr/kWh	0,9	0,98
PT	Particles	gr/kWh	0,16	0,13
	Smoke	Bosch	1,4	0,9

Date of update: 06.30.2006
Specifications subject to change without notice
Illustrations may include optional equipment.



13	Water Filter cap
12	Oil Filter cap
11	Oil Dipstick
10	Fuel return
9	Fuel inlet
8	Hgt water temperature + Water temperature
7	Dust load indicator
6	Oil pressure
5	Oil pressure
4	Water heater resistor switch
3	Hgt water temperature
2	Water heater resistor
1	Low water level sensor
Pos.	Denotation

NOTE:
Dry Weight 480 Kg

CAD DRAWING
HANDLING ON CAD SYSTEM ONLY

Approved for Issue Date: 15/07/95
 Drawn by: [Signature]
 Checked by: [Signature]
 Date: 15/07/95

Title: 503112725 D A 62-9710		Drawing Code: 504420	
Scale: 1:1		Date: 15/07/95	
Author: [Name]		Project: [Name]	
Description: NEF 45SM1/SM2		Customer: Schema Ingombro Engine for Genset	
Material: [Material]		Quantity: [Quantity]	
Weight: [Weight]		Volume: [Volume]	
Manufacturer: IVECO		Part No: 503112725 D A 62-9710	