B-N45 TM5

108 kW (1500 rpm) - 122 kW (1800 rpm)

1/ GENERAL		1500 rpm	1800 rpm
Engine model		B-N45TM5.B501	B-N45TM5.B601
Basic engine type		504369712	504370033
		F4GE0485A*B600	F4GE0485B*B600
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 aftercooled air/air	
Bore	mm	104	
Stroke	mm	132	
Total displacement	liter	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	Kgm^2	0,14	
flywheel only	Kgm^2	0,71	
BMEP gross			
Prime Power	bar/kpa	15,8 / 1583,8	14,8 / 1481,5
Stand By Power	bar/kpa	17,4 / 1742,2	16,3 / 1629,6
Dry weight (including cooling package)	kg	~500	
Energy to coolant	kcal/kWh	417,3	409,3
Energy to charge cooler	kcal/kWh	128,6	133,4
Energy to radiation	kcal/kWh	55	52
Dimensions L x W x H	mm	1367 X 753 X 1086	

2/ PERFORMANCES			1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	80	91
Prime Power	(gross)	kWm	100	113,5
Stand-By Power	(gross)	kWm	109,8	124,8
Fan consumption		kWm	1,8	2,8
Continuous Power	(net)	kWm	78,4	88,8
Prime Power	(net)	kWm	98	111
Stand by Power	(net)	kWm	108	122
Performance condition				
temperature		°C	≤ 40	
altitude a.s.l		m	≤ 1000	
Derating				
temperature > T 40°C		%/5°C	2%	
altitude >1000 <3000 m		%/500m	3%	
altitude >3000 m		%/500m	6%	

FPT POWERTRAIN TECHNOLOGIES

3/ COOLING SYSTEM		1500 rpm	1800 rpm
Type		liquid	
Recommanded coolant		water + 50%paraflu 11	
Coolant capacity			
engine only	liter	8,5	
radiator and hoses	liter	10	
Coolant pump flow	l/min	0	
Pressure cap setting	kpa (bar)	70 (0,7)	
Shutdown switch setting	°C	103	
Maximum additional restriction	Pa	147	
Air To Boil Prime Power	°C	50	
Fan			
diameter	mm	500	
number of blades		10	
drive ratio		1,4 : 1	
speed	rpm	2115	2538
air flow	m^3/s	2,25	3
power consumption	kWm	1,8	2,7

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	100	
max	°C	120	
Engine angularity			
longitudinale	degrees	25°	
transverse	degrees	25°	
Servicing intervall	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)	442 (530)	517 (620)
Air intake restriction, clean filter	kPa (mbar)	2 (20)	
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	580	680
Max temperature at PRP (25°C)	°C	660	700
Max allowable back pressure	kPa (mbar)	5 (50)	
Energy to exhaust	kcal/kWh	750	800

7/ FUEL SYSTEM		1500 rpm	1800 rpm
Fuel consumption at			
Stand-By	gr/kWh (l/h) [kg/h]	209,2 (24,4) [20,5]	221,8 (29,0) [24,4]
Full load	gr/kWh (l/h) [kg/h]	207,7 (22,0) [18,4]	221,0 (26,3) [22,1]
80%	gr/kWh (l/h) [kg/h]	203,5 (16,2) [13,6]	220,0 (19,6) [16,5]
50%	gr/kWh (l/h) [kg/h]	206,5 (11,0) [9,20]	226,0 (13,5) [11,3]
Fuel specifications		ANP 32/07	
Feed pump max suction head	m	---	
Injection pump	type STANADYNE	DB4429-6102	DB4429-6103

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	Amp	1580	
cranking current	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	5,8	5,55
HC	Hydrocarbons	gr/kWh	0,1	0,1
No_x+HC		gr/kWh	5,9	5,5
CO	Carbon monoxide	gr/kWh	0,35	0,35
PT	Particles	gr/kWh	0,125	0,12
	Smoke	Bosch	1,00	1,00

Date of update August 2009
Specifications subject to change without notice
Illustrations may include optional equipment.

FPT POWERTRAIN TECHNOLOGIES

1) Service according ISO-8528 - For use in temperatures above 40ºC and 1000m must be applied a reduction factor of the power. Contact the sales department of FPT.
2) Net power at flywheel available after 50 hours of operation with a tolerance of ±3%.
PRIME POWER: The prime power is the maximum power available at variable load for an unlimited number of hours. The average power can be allowed during a period of 24 hours of operation should not exceed 80% of the prime power stated between intervals required maintenance and environmental standards. Is allowed a 10% overload for 1 hour every 12 hours of operation.
STAND-BY POWER: The stand-by power is the maximum power available for a period of 500 hours per year with an average load factor of 90% of the power stand-by declared. Not allowed any kind of overload for this use.
CONTINUOUS POWER: Contact the sales department of FPT.

N45 TM5 - APPLICATIONS FOR POWER GENERATION

CONSTRUCTION STANDARD:

FPT N45 TM5 engine equipped with:
- Mounted Radiator
- Fan air mounted with a belt tensioner
- Fan protection
- Mounted air filter with Interchangeable cartridges
- Fuel Filter
- Fuel prefilter with water separator
- Oil Filter Interchangeable
- Front mounted engine support
- Flywheel housing SAE3 and (flywheel 11 "1 / 2)
- Adjustable exhaust pipe
- Blow-by recirculation
- Oil dipstick
- HWT and LOP sensors
- Electric system at 12 Vdc
- Engine documentation

OPTIONS:

On request, the engine may be provided by:
- Oil extraction pump
- Oil extract with reservoir
- Resistance to water preheating 120Vca or 230Vac
- WT and OP Transmitters for instruments
- Low water level transmitter
- Protection to the exhaust manifold and turbine
- Flexible exhaust pipe
- Electric system to 24Vdc

STRONG POINTS OF ENGINE:

• BENEFITS: Lay-out functional; temperature cold-start without auxiliary up to -10 °C; performance achieved without external EGR, power up to 40 °C and 1000m a.s.l. before derating; engine convertible from 1500rpm to 1800rpm; good PTO top-level class G2 (ISO 8528-5).
•RELIABLE: by-pass valve on oil and fuel filters.
• COST REDUCTION MANAGEMENT: Elongation at intervals of 600 hours of maintenance (changing oil and filters); reduce oil consumption and fuel; new circulation system blow-by.
• RESPECT THE ENVIRONMENT: Reduction of noise levels.
• FLEXIBILITY CONFIGURATION: Production custom-made; interface standard SAE 3 generator, small engines, complete range of power; compatibility with standard and alternative fuels in accordance with the regulations.