

N45 SM2A

73 kW (1500 rpm)

Engine N45 SM2A

1/ GENERAL

1500 rpm

| | | |
|--|-----------------------------------|-------------------|
| Engine model | N45SM2A-5 | |
| Basic engine type | F4GE0485A*F650 - 504253543 | |
| 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 |
| 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 | 12,0 / 1196,0 |
| Stand-by Power | bar/kPa | 13,2 / 1315,6 |
| Dry weight (including cooling package) | kg | ~450 |
| Energy to coolant | kcal/kWh | 510,8 |
| Energy to radiation | kcal/kWh | 172 |
| Dimensions L x W x H | mm | 1259 x 657 x 1016 |

2/ PERFORMANCES

1500 rpm

| | | | |
|------------------------|---------|-----|--------|
| Continuous Power | (gross) | kWm | 54,2 |
| Prime Power | (gross) | kWm | 67,4 |
| Stand-By Power | (gross) | kWm | 74 |
| Fan consumption | | kWm | 1,3 |
| Continuous Power | (net) | kWm | 52,9 |
| Prime Power | (net) | kWm | 66,1 |
| Stand-By Power | (net) | kWm | 72,7 |
| Performance condition | | | |
| temperature | °C | | ≤ 40 |
| altitude a.s.l | m | | ≤ 1000 |
| Derating | | | |
| temperature > T 40°C | %/5°C | | 3% |
| altitude >1000 <3000 m | %/500m | | 3% |
| altitude >3000 m | %/500m | | 6% |

| 3/ COOLING SYSTEM | | | 1500 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 | | 103,3 |
| 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 |
| Fan | | | |
| diameter | mm | | 500 |
| number of blades | | | 8 |
| drive ratio | | | 1,41 : 1 |
| speed | rpm | | 2115 |
| air flow | m ³ /s | | 2,2 |
| power consumption | kWm | | 1,3 |

| 4/ LUBRICATION SYSTEM | | | 1500 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 |
|--------------------------------------|--------------------------|--|-----------|
| Air consumption at 100 % of load | m ³ /h (Kg/h) | | 295 (354) |
| 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 |
|-------------------------------|------------|--|----------|
| Gas flow at stand-by Power | kg/h | | 370 |
| Max temperature at PRP (25°C) | °C | | 525 |
| Max allowable back pressure | kPa (mbar) | | 5 (50) |
| Energy to exhaust | kcal/kWh | | 662,6 |

7/ FUEL SYSTEM

1500 rpm

| | | | |
|----------------------------|---------------------|--|---------------------|
| Fuel consumption at | | | |
| Stand-By | gr/kWh (l/h) [kg/h] | | 216,2 (19,0) [16,0] |
| Full load | gr/kWh (l/h) [kg/h] | | 214,1 (17,1) [14,4] |
| 80% | gr/kWh (l/h) [kg/h] | | 212,1 (12,7) [10,7] |
| 50% | gr/kWh (l/h) [kg/h] | | 214,1 (8,60) [7,20] |
| Fuel specifications | | | EN 590 |
| Feed pump max suction head | m | | --- |
| Injection pump | type STANADYNE | | DB4429-5952 |

8/ ELECTRIC SYSTEM

1500 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 | | 0 |
| 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 | | 0 |
| Alternator | | | |
| voltage | V | | 14 |
| charge | Amp | | 90 |

9/ COLD STARTING

1500 rpm

| | | | |
|------------------------|----|--|-----|
| Without air preheating | °C | | -10 |
| With air preheating | °C | | -25 |

10/ EMISSION GASEOUS AND PARTICLES

1500 rpm

| | | | |
|---------------------|--------------------|--------|-------|
| No _x | Oxides of nitrogen | gr/kWh | 5,73 |
| HC | Hydrocarbons | gr/kWh | 0,51 |
| No _x +HC | | gr/kWh | 6,24 |
| CO | Carbon monoxide | gr/kWh | 0,69 |
| PT | Particles | gr/kWh | 0,145 |