

# C13 TE7

459 kW (1500 rpm) - 474 kW (1800 rpm)

Engine C13 TE7

| 1/ GENERAL                               |                  |                  | 1500 rpm                          | 1800 rpm      |
|--|------------------|------------------|-----------------------------------|---------------|
| Engine model                             |                  |                  | CR13TE7W                          |               |
| Basic engine type                        |                  |                  | F3HFA615A*D001 - 5801906969       |               |
| Number of cylinders                      |                  |                  | 6                                 |               |
| Firing order (cylinder 1 nearest to fan) |                  |                  | 1-4-2-6-3-5                       |               |
| Cylinder arrangement                     |                  |                  | in line                           |               |
| Valves per cylinder                      |                  |                  | 4                                 |               |
| Cycle                                    |                  |                  | diesel 4 stroke                   |               |
| Injection system                         |                  |                  | Direct - Electronic Common Rail   |               |
| Electronic engine control unit           |                  |                  | BOSCH EDC17 CV41                  |               |
| Induction System                         |                  |                  | turbo aftercooler air/air         |               |
| Bore                                     | mm               |                  | 135                               |               |
| Stroke                                   | mm               |                  | 150                               |               |
| Total displacement                       | lit              |                  | 12,88                             |               |
| Mean piston speed                        | m/s              |                  | 7,5                               | 9             |
| Compression ratio                        |                  |                  | 16,5:1                            |               |
| Flywheel rotation                        |                  |                  | anti clockwise viewed on flywheel |               |
| Housing flywheel                         |                  |                  | SAE 1                             |               |
| Flywheel                                 |                  |                  | 14"                               |               |
| Moment of inertia                        |                  |                  |                                   |               |
|  | without flywheel | kgm <sup>2</sup> | 1,05                              |               |
|  | flywheel only    | kgm <sup>2</sup> | 1,44                              |               |
| BMEP gross                               |                  |                  |                                   |               |
|  | Prime Power      | bar/kPa          | 26,8 / 2682,7                     | 23,8 / 2380,4 |
|  | Stand-by Power   | bar/kPa          | 29,8 / 2980,7                     | 26,4 / 2639,2 |
| Dry weight (including cooling package)   |                  |                  | ~ 1360                            |               |
| Energy to coolant                        |                  |                  | 374                               | 390           |
| Energy to charge cooler                  |                  |                  | 145                               | 162           |
| Energy to radiation                      |                  |                  | 35                                | 36            |
| Dimensions L x W x H                     |                  |                  | 2300 x 1105 x 1410                |               |

| 2/ PERFORMANCES       |                        |        | 1500 rpm | 1800 rpm |
|-----------------------|------------------------|--------|----------|----------|
| Continuous Power      | (gross)                | kWm    | 349      | 371      |
| Prime Power           | (gross)                | kWm    | 436      | 464      |
| Stand-By Power        | (gross)                | kWm    | 480      | 510      |
| Fan consumption       |                        |        | 21       | 36       |
| Continuous Power      | (net)                  | kWm    | 328      | 335      |
| Prime Power           | (net)                  | kWm    | 415      | 428      |
| Stand-By Power        | (net)                  | kWm    | 459      | 474      |
| Performance condition |                        |        |          |          |
|                       | temperature            | °C     | ≤ 40     |          |
|                       | altitude a.s.l         | m      | ≤ 1000   |          |
| Derating              |                        |        |          |          |
|                       | temperature > T 40°C   | %/5°C  | 4%       |          |
|                       | altitude >1000 <3000 m | %/500m | 3%       |          |
|                       | altitude >3000 m       | %/500m | 6%       |          |

| <b>3/ COOLING SYSTEM</b>       |                   |    | <b>1500 rpm</b>         | <b>1800 rpm</b> |
|--------------------------------|-------------------|----|-------------------------|-----------------|
| Type                           |                   |    | liquid                  |                 |
| Recommended coolant            |                   |    | water + 50 % paraflu 11 |                 |
| Coolant capacity               |                   |    |                         |                 |
| engine only                    | liter             |    | 19,5                    |                 |
| radiator and hoses             | liter             |    | 18,6                    |                 |
| Coolant pump flow              | l/min             |    | 460,525                 | 552,63          |
| Pressure cap setting           | kPa (bar)         |    | 70 (0,7)                |                 |
| Shutdown switch setting        | °C                |    | 103                     |                 |
| Maximum additional restriction | Pa                |    | 196                     |                 |
| Air To Boil                    | Prime Power       | °C | 51                      | 53              |
| Fan                            |                   |    |                         |                 |
| diameter                       | mm                |    | 800                     |                 |
| number of blades               |                   |    | 12                      |                 |
| drive ratio                    |                   |    | 1,37 : 1                |                 |
| speed                          | rpm               |    | 2055                    | 2466            |
| air flow                       | m <sup>3</sup> /s |    | 6,8                     | 8,5             |
| power consumption              | kWm               |    | 21                      | 36              |

| <b>4/ LUBRICATION SYSTEM</b>         |         |  | <b>1500 rpm</b> | <b>1800 rpm</b> |
|--------------------------------------|---------|--|-----------------|-----------------|
| Oil sump capacity                    |         |  |                 |                 |
| max                                  | liter   |  | 28              |                 |
| min                                  | liter   |  | 20              |                 |
| Oil system capacity including filter | liter   |  | 32              |                 |
| Oil pressure at rated speed          | kPa     |  | 250-500         |                 |
| Oil temperature                      |         |  |                 |                 |
| normal                               | °C      |  | ---             |                 |
| max                                  | °C      |  | 120             |                 |
| Engine Angularity                    |         |  |                 |                 |
| longitudinal                         | degrees |  | 17°             |                 |
| transverse                           | degrees |  | 17°             |                 |
| Servicing interval                   | hours   |  | 600             |                 |
| Oil specification                    |         |  | ACEA E3/E5      |                 |
| Oil consumption                      | %fuel   |  | < 0,2           |                 |

| <b>5/ INTAKE SYSTEM</b>              |                          |  | <b>1500 rpm</b> | <b>1800 rpm</b> |
|--------------------------------------|--------------------------|--|-----------------|-----------------|
| Air consumption at 100 % of load     | m <sup>3</sup> /h (Kg/h) |  | 1576 (1812)     | 1860 (2142)     |
| Air intake restriction, clean filter | kPa (mbar)               |  | 2 (20)          |                 |
| Air intake restriction, dirty filter | kPa (mbar)               |  | 5 (50)          |                 |
| Air filter type                      |                          |  | dry             |                 |

| <b>6/ EXHAUST SYSTEM</b>      |            |  | <b>1500 rpm</b> | <b>1800 rpm</b> |
|-------------------------------|------------|--|-----------------|-----------------|
| Gas flow at stand-by Power    | kg/h       |  | 2027            | 2359            |
| Max temperature at PRP (25°C) | °C         |  | 520             | 510             |
| Max allowable back pressure   | kPa (mbar) |  | 5 (50)          |                 |
| Energy to exhaust             | kcal/kWh   |  | 581             | 604             |

| <b>7/ FUEL SYSTEM</b>      |                     |   | <b>1500 rpm</b>    | <b>1800 rpm</b>      |
|----------------------------|---------------------|---|--------------------|----------------------|
| Fuel consumption at        |                     |   |                    |                      |
| Stand-By                   | gr/kWh (l/h) [kg/h] |   | 195,8 (112,6) [94] | 202 (123,3) [103]    |
| Full load                  | gr/kWh (l/h) [kg/h] |   | 192,7 (100,6) [84] | 199,6 (110,9) [92,6] |
| 80%                        | gr/kWh (l/h) [kg/h] |   | 191,7 (80,2) [67]  | 196,9 (87,7) [73,2]  |
| 50%                        | gr/kWh (l/h) [kg/h] |   | 197,7 (51,5) [43]  | 204,3 (57) [47,6]    |
| Fuel specifications        |                     |   | EN 590             |                      |
| Feed pump max suction head |                     | m | ---                |                      |

| <b>8/ ELECTRIC SYSTEM</b>        |  |       | <b>1500 rpm</b> | <b>1800 rpm</b> |
|----------------------------------|--|-------|-----------------|-----------------|
| Voltage (negative to ground)     |  | V     | 24              |                 |
| Starter motor                    |  |       |                 |                 |
| make                             |  | DENSO |                 |                 |
| power                            |  | kW    | 7,8             |                 |
| pull current                     |  | Amp   | 12              |                 |
| hold current                     |  | Amp   | 12              |                 |
| break away current +20°C         |  | Amp   | 1260            |                 |
| cranking current +20°C           |  | Amp   |                 |                 |
| Number of teeth on starter motor |  |       | 10              |                 |
| Number of teeth on flywheel      |  |       | 155             |                 |
| Starting batteries               |  |       |                 |                 |
| recommended capacity             |  | Ah    | 2x              | 180             |
| discharge current                |  | Amp   | 1200            |                 |
| (EN 50342)                       |  |       |                 |                 |
| Alternator                       |  |       |                 |                 |
| voltage                          |  | V     | 28              |                 |
| charge                           |  | Amp   | 90              |                 |

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

| <b>10/ EMISSION GASEOUS AND PARTICLES</b> |                    |        | <b>1500 rpm</b> | <b>1800 rpm</b> |
|---|--------------------|--------|-----------------|-----------------|
| No <sub>x</sub>                           | Oxides of nitrogen | gr/kWh | -               | -               |
| HC  | Hydrocarbons       | gr/kWh | -               | -               |
| No <sub>x</sub> +HC                       |                    | gr/kWh | -               | -               |
| CO  | Carbon monoxide    | gr/kWh | -               | -               |
| PT  | Particles          | gr/kWh | -               | -               |