

# DIESEL ENGINE

# MODEL 4DSP-75

## Performances

| Ratings      |     | 3000 rpm |          |
|--------------|-----|----------|----------|
|              |     | PRIME    | STAND-BY |
| Rated Output | kWm | 75       | 82.5     |

Note:

**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 24h 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:** The stand-by power 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 overloads is permissible for this use.

## Specifications

### Mechanical system

|   |  |
|---|--|
| Engine model                                | 4DSP-75                                |
| Engine type                                 | In-line, 4 stroke, water cooled        |
| Combustion type                             | Direct Injection                       |
| Cylinder type                               | Dry liner                              |
| Air intake type                             | Turbocharger                           |
| Cylinder No.                                | 4                                      |
| Bore*Stroke(mm)                             | 108*118                                |
| Total displacement(L)                       | 4.325                                  |
| Compression ratio                           | 17.5:1                                 |
| Firing order                                | 1-3-4-2                                |
| Injection timing                            | 15°±1°                                 |
| Speed governor                              | Mechanical ≤8%                         |
| Exhaust temperature (°C)                    | ≤550                                   |
| Mean Effective Pressure (KPa)               | 747                                    |
| Noise Level(dBA)                            | ≤93                                    |
| Exhaust gas back pressure(KPa)              | 7.5                                    |
| Exhaust flow (m <sup>3</sup> /h)            | 1320                                   |
| Cooling air flow (m <sup>3</sup> /h)        | 720                                    |
| Air for combustion flow (m <sup>3</sup> /h) | 547                                    |
| Piston Speed(m/s)                           | 11.8                                   |
| Dry weight (kg)                             | 342                                    |
| Dimension(L*W*H)(mm)                        | 950*600*1150 (with radiator)           |
| Rotation                                    | Counter clockwise viewed from flywheel |
| Flywheel housing/flywheel                   | SAE3/ 11.5"                            |

**Mechanism**

|                        |   |
|------------------------|---|
| Type                   | Over head valve   |
| Valves per cylinder    | 2   |
| Valve lash(cold state) | Air intake valve 0.30-0.40mm<br>Exhaust valve 0.30-0.40mm |

**Valve timing** (crankshaft rotating angel)

|                        |                                |
|------------------------|--------------------------------|
| Air intake valve open  | 24.5° before top dead center   |
| Air intake valve close | 55.5° after bottom dead center |
| Exhaust valve open     | 54° before bottom dead center  |
| Exhaust valve close    | 26° after top dead center      |

**Specific fuel consumption**

|                          |      |
|--------------------------|------|
| rpm                      | 3000 |
| Fuel consumption (g/kWh) | ≤218 |

**Oil consumption**

|                        |       |
|------------------------|-------|
| Oil consumption(g/kWh) | ≤1.63 |
|------------------------|-------|

**Fuel system**

|                    |                     |
|--------------------|---------------------|
| Fuel injector pump | BQ pump             |
| Governor model     | RSV full range type |
| Feed pump          | Mechanical type     |
| Injection nozzle   | multi holes type    |
| Fuel filter        | Spin-on type        |
| Fuel               | Diesel              |

**Lubrication system**

|  |   |
|--|---|
| Type   | Mixed type, pressure and splash lubrication |
| Oil pump Displacement/speed<br>(L/min/r/min) | Inner and outer rotor type<br>50/2000       |
| Oil filter                                   | Spin-on type                                |
| Lube oil total system capacity               | 9L including pipes, filters etc.            |

**Cooling system**

|                               |                                  |
|-------------------------------|----------------------------------|
| Cooling method                | Water cooled, forced circulation |
| Coolant capacity: engine only | 6L                               |
| Engine + radiator             | 14L                              |
| Water pump type               | Centrifugal type driven by belt  |
| Water pump capacity(L/min)    | ≥150                             |
| Thermostat                    | Opening temp.73℃                 |
| Cooling fan                   | Φ450mm, 7blades, PA              |

**Electronic system**

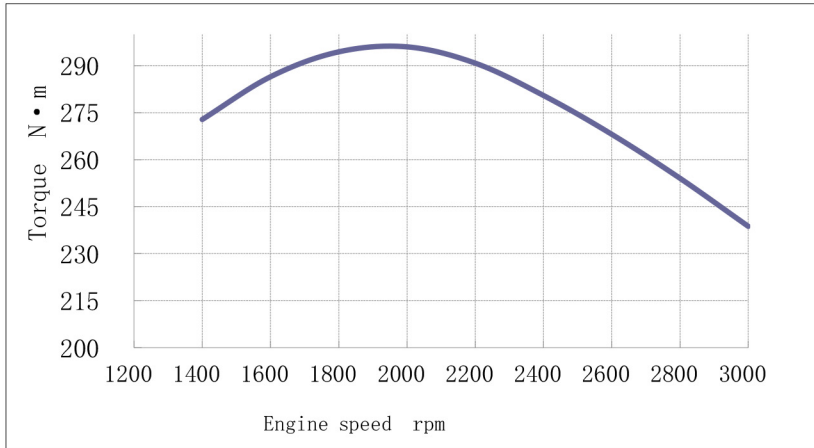
|                     |               |
|---------------------|---------------|
| Charging alternator | 14v/500w      |
| AVR                 | Built-in type |
| Starting motor      | 12v/3.7kW     |
| Battery capacity    | 12v/100Ah     |

# DESSUN DIESEL ENGINE CURVE PERFORMANCE

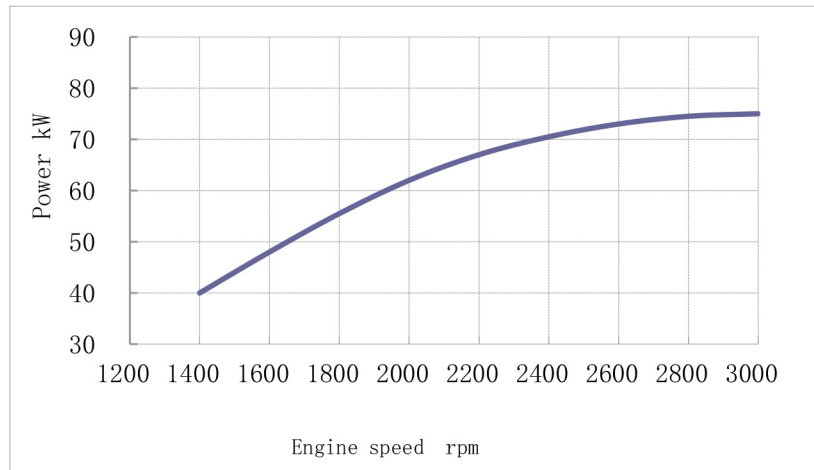
|                |     |                       |         |
|----------------|-----|-----------------------|---------|
| Power @ rpm    |     | 100HP(75KW) @ 3000RPM |         |
| Max Torque@rpm |     | 296N.m @2000RPM       |         |
| Series         | DSP | Engine Model          | 4DSP-75 |

Intake Way: Natural Aspirated      Compression ratio: 17.5:1      engine number:  
 Bore(mm): 108      Stroke(mm): 118      Displacement(L): 4.325      Cylinder: 4  
 Fuel System      Direct injection      Speed Rate: 3%

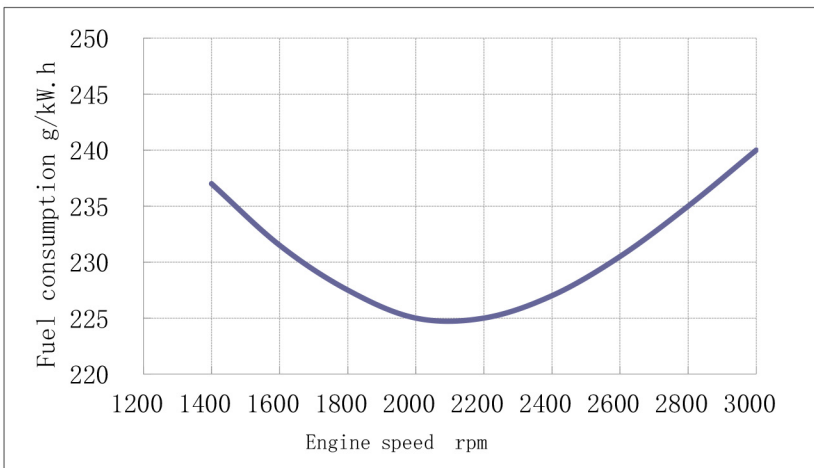
All data is based on the engine operating with fuel system, water pump, and 10 in H2O (2.488 kPa) inlet air restriction with 5.98 in(152mm) inner diameter, and with 2.01 in Hg(7 kpa) exhaust restriction with 4.02 in(108mm) inner diameter, not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.



| Torque |     |
|--------|-----|
| rpm    | N.m |
| 3000   | 239 |
| 2800   | 254 |
| 2600   | 268 |
| 2400   | 281 |
| 2200   | 291 |
| 2000   | 296 |
| 1800   | 294 |
| 1600   | 286 |
| 1400   | 273 |

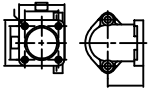
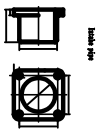
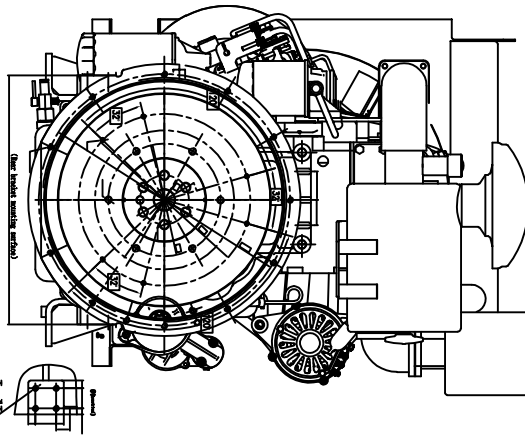
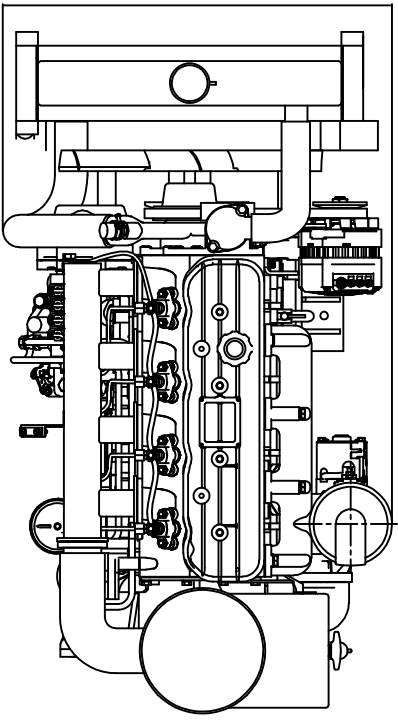
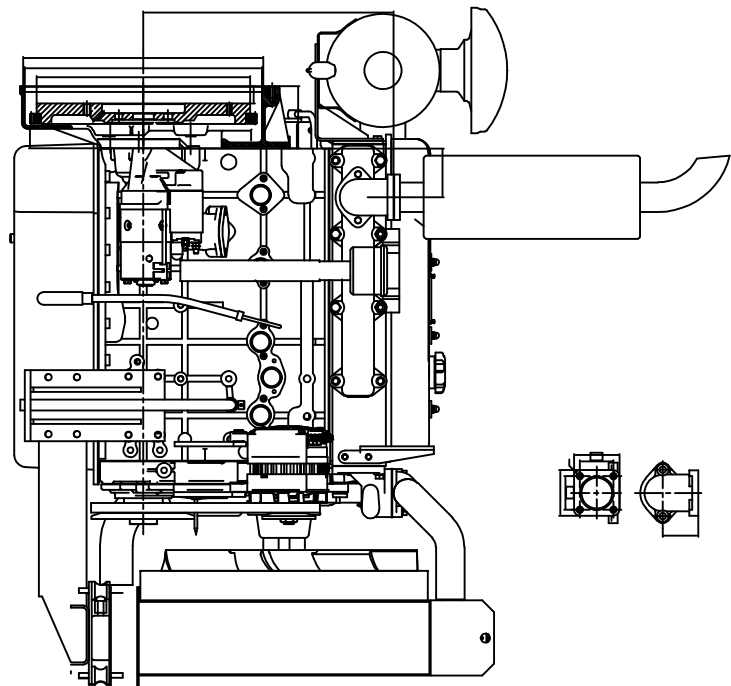
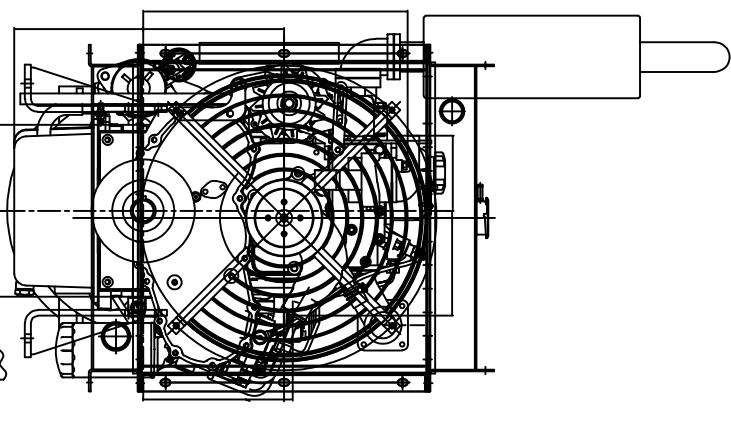
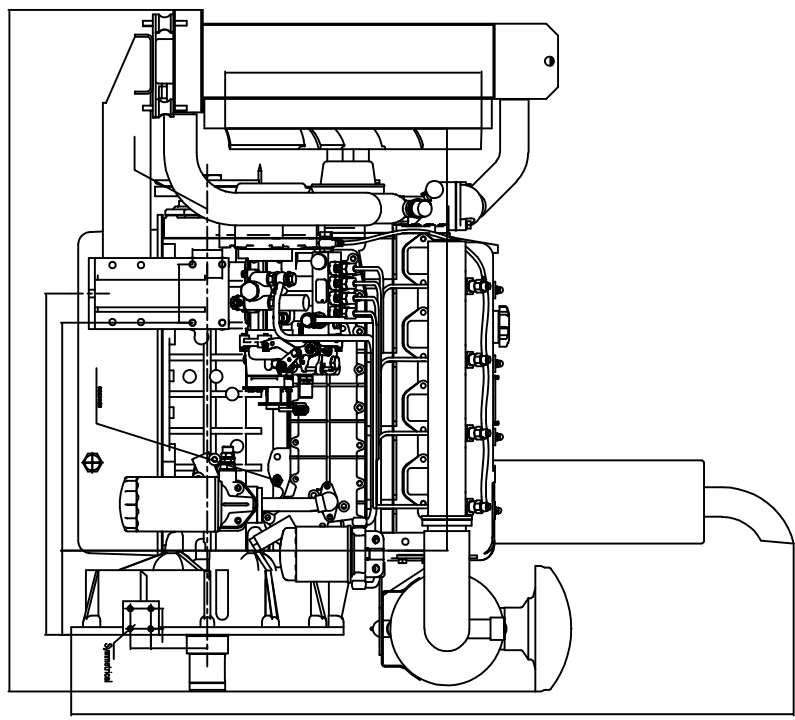


| Power |      |
|-------|------|
| rpm   | kW   |
| 3000  | 75.0 |
| 2800  | 74.5 |
| 2600  | 73.0 |
| 2400  | 70.5 |
| 2200  | 67.0 |
| 2000  | 62.0 |
| 1800  | 55.5 |
| 1600  | 48.0 |
| 1400  | 40.0 |



| Fuel consumption |        |
|------------------|--------|
| rpm              | g/kW.h |
| 3000             | 240    |
| 2800             | 235    |
| 2600             | 231    |
| 2400             | 227    |
| 2200             | 225    |
| 2000             | 225    |
| 1800             | 228    |
| 1600             | 232    |
| 1400             | 237    |

Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in.Hg) barometric pressure [80m (263ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa(0.30 in. Hg) water vapor pressure with NO.2 diesel fuel. The engine may be operated without changing the fuel setting up to 4000m(13,123ft.) altitude. For sustained operation at high altitudes, the fuel rate of the engine will be adjusted to limit performance by 4% per 305m(1,000ft.) above 2255m(7,400ft.) altitude and 2% per 11°C above 38°C(1% per 10°F above 100°F)



|                 |  |                        |  |
|-----------------|--|------------------------|--|
| CUSTOMER        |  | -                      |  |
| TITLE           |  | DESSIN ENGINE ASSEMBLY |  |
| SCALE           |  | 1/5                    |  |
| DATE            |  | 18/09/20               |  |
| DRAWN BY        |  | -                      |  |
| CHECKED BY      |  | -                      |  |
| APPROVAL        |  | -                      |  |
| CLIENT APPROVAL |  | -                      |  |
| CONTRACT NO.    |  | 40SP-75                |  |
| SPEL. NO.       |  | -                      |  |
| JOB NO.         |  | 2018090-20             |  |
| REVISION        |  | -                      |  |