



COLD STARTING TESTS down to minus 40 degrees Celsius

The tests were carried out in the presence of our Notifying Body, Det Norske Veritas.

The engines were cooled down for 24 hours before the starting tests took place. The tests were carried out in accordance with the IMO/SOLAS procedure for testing, and the engines started within 2 minutes after the starter was activated.

Starting at temperatures down to minus 40 degrees Celsius requires the engine to be equipped with:

1. **Ether start aid**
Part No: 032D2213 for DV24-32. Part No: 032D2212 for DV29. Part No: 033D2201 for DV36-48
2. **Cooling water heater**, 350 Watt, 42 Volt
Part No: 022D6613 for DV24-29-32 and 023D6609 for DV36-48
3. **Lubrication heater**, 85 Watt, 42 Volt
Part No: 032D1308 for DV24-29. Part no: 022D1310 for DV32. Part No: 023D1314 for DV36-48
4. **Lubrication oil**: Statoil LAZER 0W-30 fully synthetic or similar type.

Further to the equipment mentioned above, there are other conditions to be taken into consideration:

- a) Special arctic fuel to be used.
- b) Starting batteries to have sufficient capacity to compensate for low temperatures.
- c) Starting battery cables to be 50 sq.mm.

Recommendations for engine versions for cold starting:

- | | |
|---|--|
| 1. Standard down to minus 15 degrees Celsius: | No extras for electrical start,
For spring & hydraulic start see
Service information SI 9201 |
| 2. Standard minus 15 - 25 degrees Celsius: | Cooling water heater |
| 3. Standard minus 25 – 40 degrees Celsius: | Ether start, cooling water heater
and lubrication oil heater |

For details on fuel for all engine versions, please see Service Information SI 0502.