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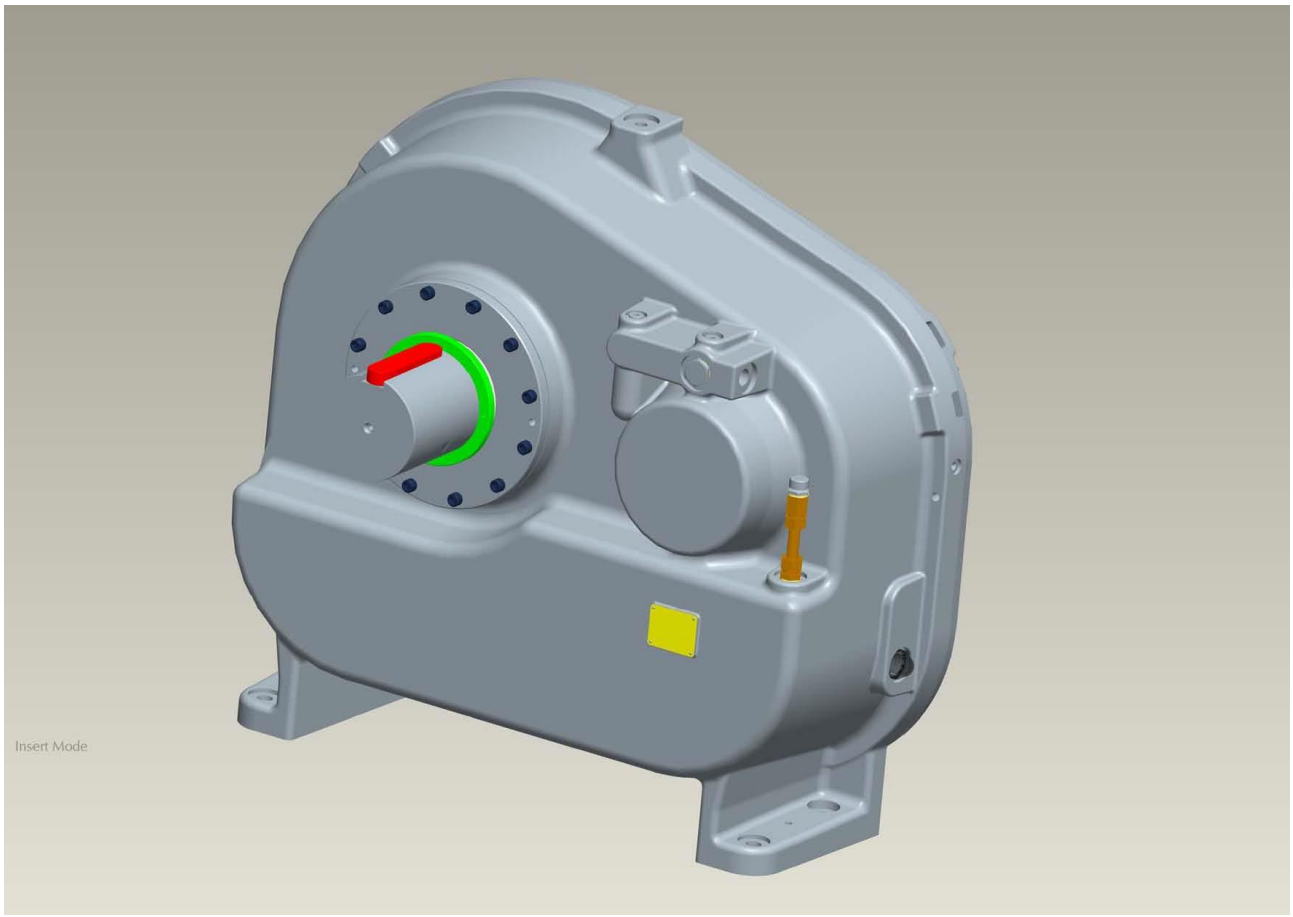
TECHNICAL INFORMATION
DC002051 Gear box



Doc no.: TI DC002051

Rev.: 2016-11-15

Contents

1. Technical data

1.1 Specification Gearbox DC002051

Layout:	A Gearbox for 1750 kW power.
Drive configuration:	Drive shaft A, max 3400 rpm, Shaft B 1500 rpm. Ratio: 2.28:1
Dimensions:	LxWxH: 757x1040x936 mm (excl couplings)
Weight:	865 kg (excl couplings)
Ambient temp:	-20ºC to +80ºC
Orientation of Gearbox:	According to layout drawing “DC002051 sheet1”.
Material in housing:	Cast iron SS0125
Material in gears:	Steel

1.2 Description oil system

Lubrication system:	Circulating oil system. Integrated oil pump
Oil blocking system:	Lip sealing package on all shaft ends
Oil pressure:	4.5 Bar abs
Oil flow:	40.6 lit/min
Oil cooler power requirement:	23.5 kW (+64% of B39 power)
Oil reservoir volume:	55 lit + external devices
Lubrication oil type:	Statoil Mereta 68 or similar
Oil temp. injected:	-5ºC to +80ºC; Recommended +40ºC to +60ºC
Oil filter requirement:	15µm (Not necessary if the oil system not contain particle lager than 15 my. The gear box has one magnetic plug).
Max pressure drop in cooler:	0.3 Bar
Pressure gage:	Recommended to indicate pressure below 2 Bar abs at injection point.

2. Installation

2.1 Functional description

The Gearbox DC002 used to connect expander/compressor with generator/motor. Between the units couplings will be used. The DC002 have one internal oil tank and oil pump but not any oil cooler. For that reason DC002 have two connections “Oil out to cooler” and “Oil injection from Cooler” se Drawing DC002051.

2.2 Transportation and handling

Please take the following precautions when transporting and handling the DC002 during installation:

- The DC002 must be transported standing fixed with mounting feet. The Lifting eye shall be used when the DC002 needs to be lifted.

The lifting lugs on the Gearbox can **only** be used to lifting the Gearbox DC002 and not other units or frames.

- Always cover the DC002 connections in order to prevent water, dust and debris to enter the DC002 and cause damage.
- Do NOT remove the protective covers from the connections until the expander is mounted in place and the oil piping will be fitted.

2.3 Lubrication oil system

Please acknowledge the following instructions and warnings to avoid injury.

An external oil cooler system is required in order to ensure proper operation of gears, drive shaft seal and bearings. DC002 have two connections “Oil out to cooler” and “Oil injection from Cooler”. The position of this connections, see picture 3.2.2 and drawing on page 11

The following functions are essential:

- Oil cooler
- Oil pressure guard (recommended)
- Oil temperature guard
- Oil filter (recommended)

The Gearbox DC002 has following components integrated:

- Oil sump being vented to atmosphere
- Oil pump for pressure 4.5 Bar atm
- Over flow valve for specified pressure
- Magnetic plug in sump

2.4 Checklist before initial start up

Please acknowledge the following checklist before attempting to start up the DC002:

1 Check the oil level in the oil sump. A minimum of 55 litres +external pipes and cooler.

2 Check that it is oil in cooler and pipes.

3 Check that the oil connections are correctly and properly secured.
See picture 3.2.2

4 Check that all couplings are correctly and properly mounted and assembled.
See picture 3.2.3

3. Start up and operational instructions

3.1 Start up and shut down procedure

- Prime the pump with oil before start if DC002 have been stationary for > 1 month.
- Oil pressure is to be applied immediately after the DC002 is started.
- The acceleration up to nominal speed should be swift without unnecessary delay.
- Do not run continuously at operating speeds below 1000 rpm on shaft A.
- Check the oil pressure at inlets of the DC002 immediately after start up.
- Please inspect the DC002 and the oil system after the first test run and check for oil leakages.
- When the oil pressure is removed the unit must be stopped without delay.
- **Do not operate DC002 without applied oil pressure!**
- Max allowed operating speed is 3400 rpm for shaft A

3.2 Safety aspects of running the Gearbox DC002

Please acknowledge the following instructions and warnings to avoid injury.

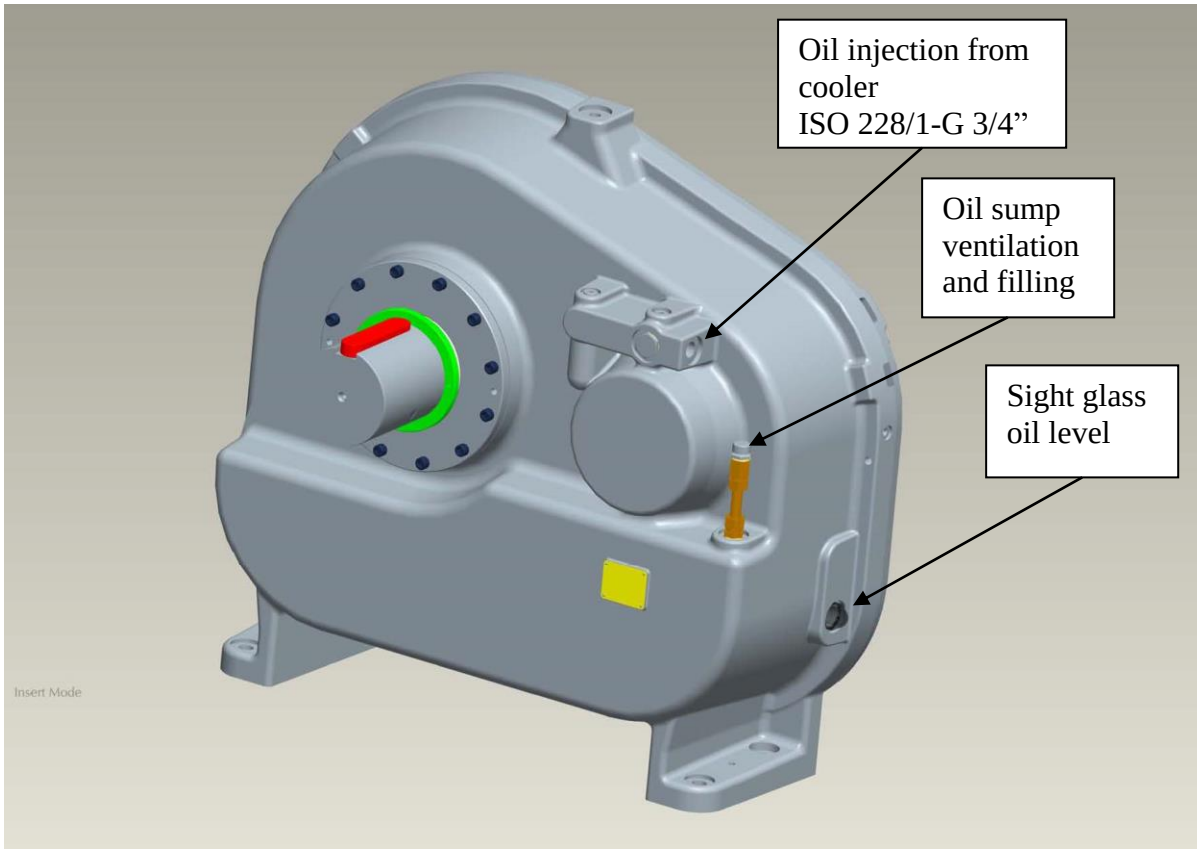
- Hot surfaces: Make sure that appropriate precautions are taken to avoid any kind of injuries related to contact with hot surfaces. The surface temperature of the DC002 stage may exceed 80ºC during operation and will stay warm for a long period after the DC002 has been stopped.

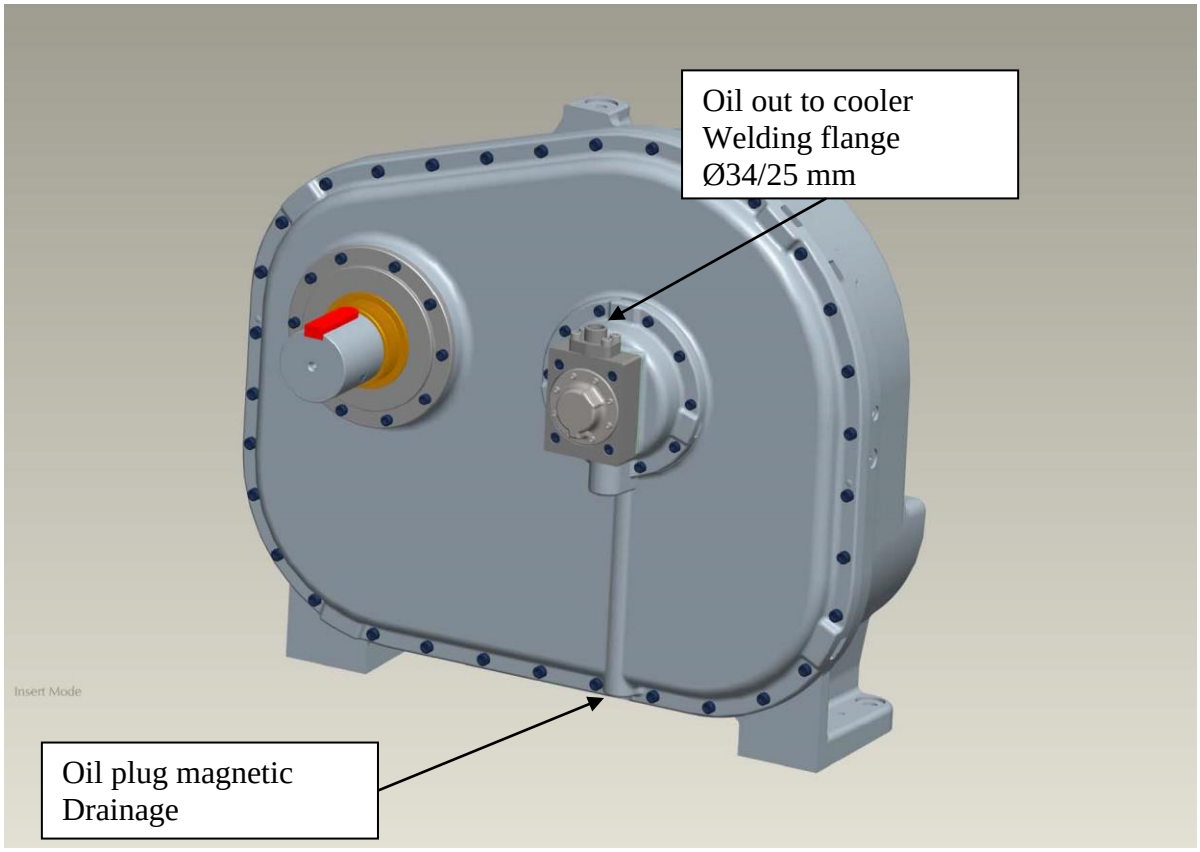
- Noise: Make sure that appropriate precautions are taken to avoid any kind of injuries related to the noise generated by the DC002. Exposure to the noise levels from the DC002 without wearing noise protection will result in permanent hearing dysfunction.

- Damage: Always make sure to mount protection covers around the couplings to prevent personal injury.

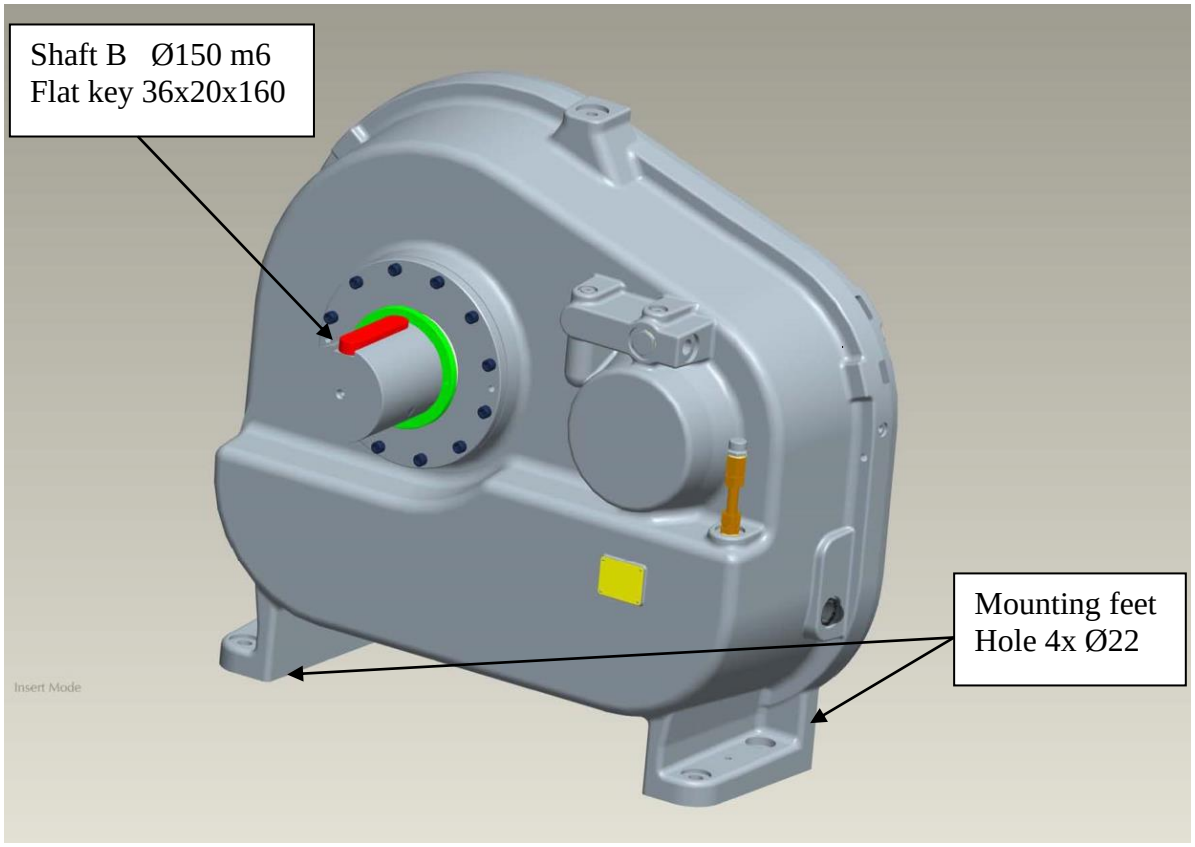
- Toxic oil: Make sure that appropriate precautions are taken to avoid any unnecessary contact with any oil traces on the DC002 or the lubrication oil system. Use protective gloves at all time.

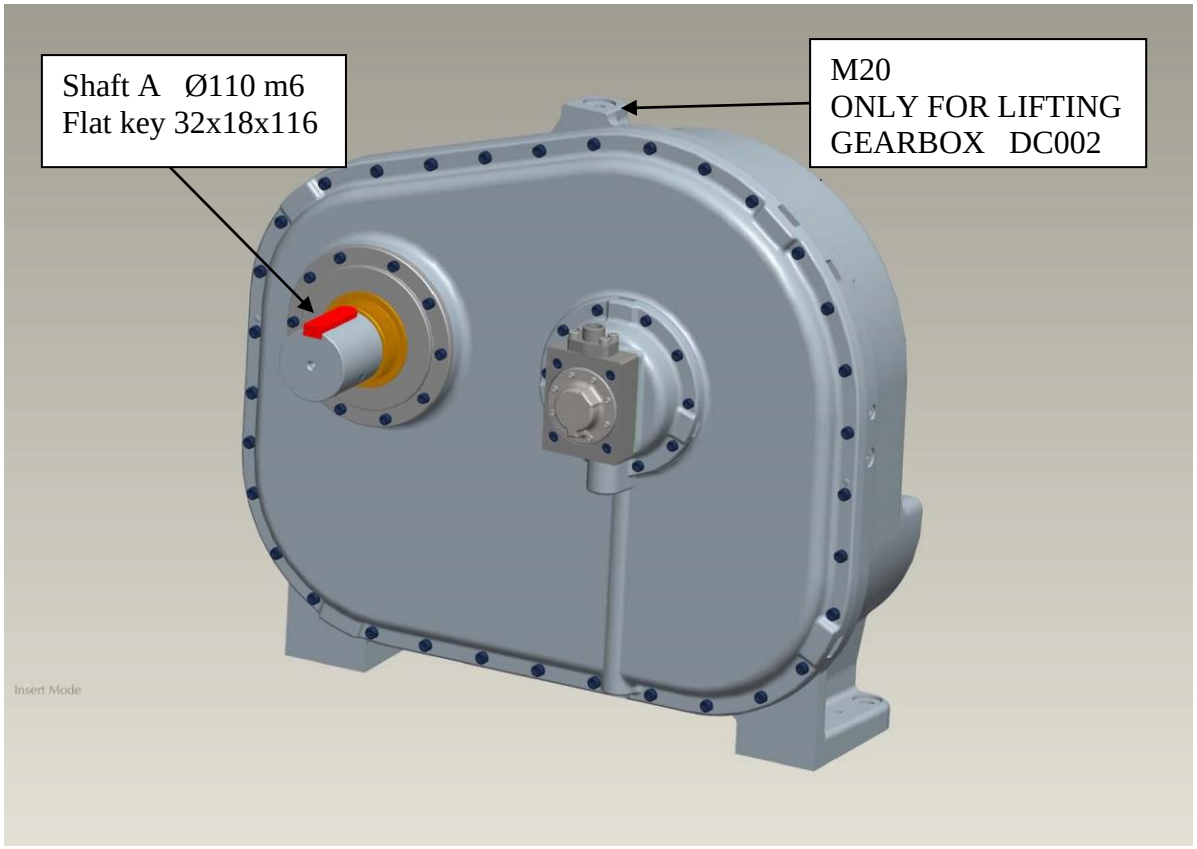
Picture 3.2.2 Oil connections and information





Picture 3.2.3 Gearbox with shafts information





4. Maintenance

4.1 Service general

Please follow the recommendations below:

Service interval:	Gearbox	DC002:	Every 17.500 hours or 3 years witch ever comes first *

For service of DC002 change the oil and clean the oil plug (or change oil filter).
* For other service please contact SRM for authorized service personal.

4.2 External oil system

Oil change interval:	OES Responsibility
Filter change interval:	OES Responsibility

4.3 Spare parts

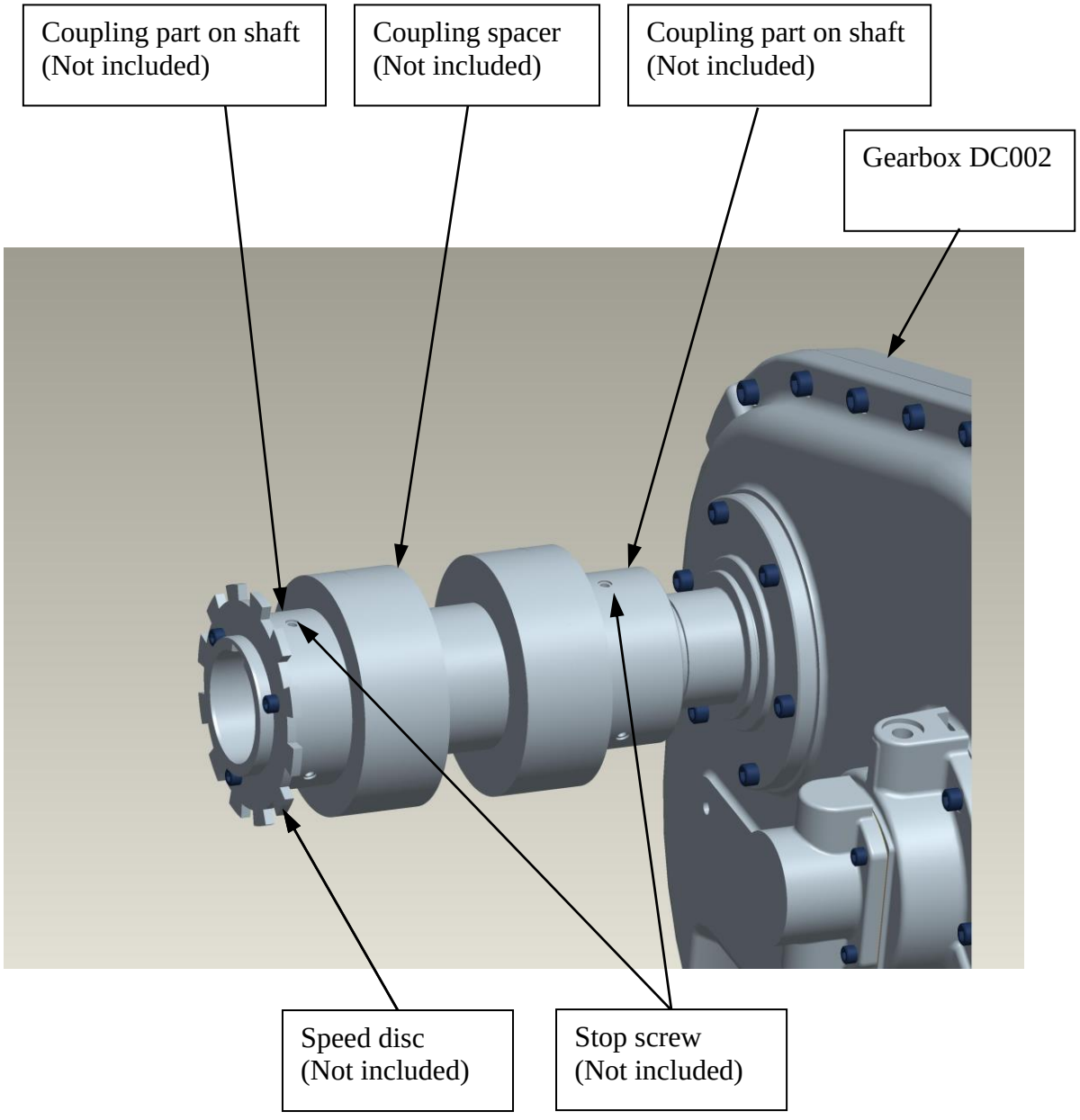
Original spare parts will be provided by SRM's authorized service personal.

5. Documentation

5.1 Installation of coupling

The couplings for Gearbox DC002 are designed for key shaft and locking screws.
Move the unit (Expander/Generator) to line the shaft, see separate document for the coupling.
The distance between the two coupling parts on shafts shall have (140 mm) enough space for mounting the spacer.
There is not any place reserved for speed sensor on gearbox.
Line the shafts before mounting the couplings.

NOTE! Positions marked as "*Not included*" are not included in DC002 package.
The couplings must be order separately.



5.2 Drawing DC002051