
Operating and Maintenance Instructions

VM-No.: 460.0008–2 GB

Edition: 02.01

Ident-No.: 550 129

Volute–Casing Centrifugal Pumps

Series NTT and CTT

SUPPLEMENT

**Retain
for future
use!**

Design: Drive side with regreasable groove ball bearing

Job–No.:

Pump Ident No.:

Machine–No.:

Pump type:

**Operating data of the pump according to order data sheet
For dimensions see order–specific installation drawing**

ATTENTION

These instructions are to be used only together with the following operating and maintenance instructions:

Series NTT/CTT VM 460.0008/... Ident–Nr. 550 102

These Operating and Maintenance Instructions relate to a non–standard design version. The sections are divided such that they can be allocated to the (standard) Instructions.

1 General

For specific applications, volute casing centrifugal pumps of series NTT and CTT may be designed with a regreasable bearing instead of the lifetime grease-lubricated bearing on the drive side.

7.1.2 Maintenance of components

7.1.2.1 Bearing

The nominal service life of the bearing is designed for a minimum of 2 years continuous operation, in accordance with DIN ISO 281. The actual usable life may be lower, due to intermittent operation, high temperature, low viscosity or the like.

The running noises and the temperature in the bearing area must be checked at regular intervals. We recommend monitoring bearings by means of shock pulse measurements. If damage to a bearing is detected, the groove ball bearing must be replaced.

The bearing area can become very hot.



Risk of burning if touched!

At the factory, the groove ball bearing was provided with a sufficient grease filling.

Rolling bearing grease:

For the lubrication of the drive-side groove ball bearing, the below-listed rolling bearing grease or an equivalent special grease with molybdenum disulfite portion and the following characteristics must be used.

Quality:

The rolling bearing grease must be free from resin and acid and anti-corrosive.

Characteristics:

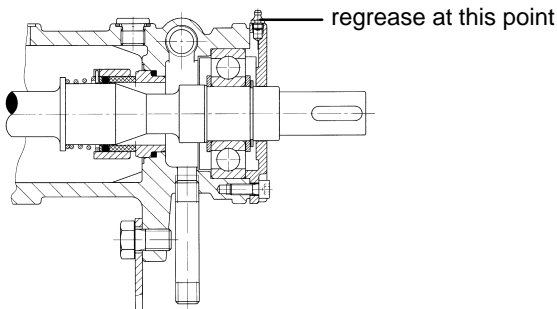
Worked penetration 265–295 mm/10
 Dropping point > 200 °C
 Range of temperature application: –10 bis 150 °C

Manufacturer	Brand
Total ①	LUBRIPLATE N° 3000

① Sole distributor in the Federal Republic of Germany: Deutsche Total GmbH

Relubrication / Grease quantities

Relubrication is effected with a grease gun, via the grease nipple screwed in the bearing cover.



ATTENTION For relubrication, the pump must be stopped. The instructions in the table are valid for new and replaced bearings.

	every ... operating hours	Grease quantity in grams for pumps with bearing bracket size			
		360	470	530	650
Relubricate	2000	17	30	75	160
Relubricate	4000	6	12	30	65
Relubricate	6000	6	12	30	65
Relubricate	8000	6	12	30	65
Relubricate	10000	6	12	30	65
Relubricate	12000	6	12	30	65
Relubricate	14000	6	12	30	65
Replace bearing ①	16000	–	–	–	–

① **Replace bearing**

For operational safety reasons the groove ball bearing must be replaced every 16000 operating hours.

The grease filling for a new groove ball bearing must be effected as described hereinafter.

- Carefully clean the groove ball bearing.
- Fill hollow spaces between the rolling bodies up to approx. 40% with grease. Depending upon the bearing bracket size, this corresponds to the following grease quantities.

Bearing bracket size	Grease quantity
360	6 Gramm
470	12 Gramm
530	30 Gramm
650	65 Gramm

- Scrape off excessive grease (most suitably with your fingers, do not use any metallic object).

Relubrication / grease quality as above mentioned.

7.2.1 Dismounting the centrifugal pump

Before dismounting, the following work must be carried out:



- Electrical danger must be eliminated! The motor must be secured against being switched on. If necessary, the power supply cable must be disconnected from the motor by an authorized electrician.
- Close all stop devices in the inlet and delivery pipeline, and in the auxiliary pipelines.
- Allow the pump housing to cool to ambient temperature.
- Drain the fluid in flowable condition from the pump.
Note: Use a collecting tank.
- The pump must be depressurized and drained.



- Hazardous substances and/or environmentally harmful media must be drained off and collected such that no danger to life and limb is created. Environmentally compatible disposal must be ensured.
- Remove auxiliary pipelines, if fitted.
- Dismount manometer lines, manometers and holding devices.
- Dismount protection against accidental contact.



The pump must be dismantled by a qualified technician using the pertaining drawings.

To prevent damage, it is especially important to ensure that the components are dismantled concentrically and that they are not tilted.

Dismounting instructions:

- The pumps are produced as standard in process design. This means that the insert unit can be dismantled without the need to remove the volute housing and the pipes.
- If a coupling with a distance piece is used, the motor can remain on the base plate during this process.
- The fitting position of all components must be accurately marked before dismantling.

7.2.2 Mounting the centrifugal pump

ATTENTION Before remounting check all parts for wear and aging and, as necessary, replace with **original replacement parts.**

Clean all parts before mounting. Always fit new gaskets.



The pump must be mounted by a qualified technician using the pertaining drawings. The prescribed tightening torque must be observed.

To prevent damage, it is especially important to ensure that the components are mounted concentrically and that they are not tilted.

Mounting instructions:

- The markings applied when dismantling must be observed. The components must be put back in their original fitting position.
- When assembling, screws and nuts must be painted with a suitable high-temperature screw paste (e.g. Molykote P37).
- After fitting the insert unit, the pump shaft must lie exactly flush with the motor shaft.
- After tightening the screws, it must be possible to turn the pump and drive manually without straining points.

7.2.3 Tightening torque

Note: With poor and lightly greased surfaces, the values must be increased by 10–15%, in order to reach the required performance.

Part no.	Thread	Quality	Tightening torque [Nm]
902.1 920.1 901.01 902.01 920.01	M 10 M 12 M 16	8.8 GA-T2	35 60 146
901.02 902.02	M 12 M 16	8.8 GA-T2	60 146
901.03 901.14	M 10	8.8	35
901.13	M 12 M 16	8.8	31 146
903.1 903.2 903.02 903.06 903.07 903.18 903.19	G 1/4 G 3/8 G 1/2	St	10 15 30
914.4 914.08	M 6 M 8 M 10	8.8	9 22 35
922.2 922.01	M 20 x 1,5 M 24 x 1,5 M 30 x 1,5 M 36 x 1,5	1.7139	112 188 340 700

Following the mounting the centrifugal pump, the following operations are to be performed.

- Fill groove ball bearing with grease.
- Align coupling (please refer to Section 5.4 above).
- Attach protection against accidental contact and supporting foot, if any.
- Attach manometer pipelines, manometer and holding devices to the pump.



- Electrical danger must be eliminated! Power supply cables must only be connected by qualified electricians. Pay attention to sense of rotation.

Start up pump as per instructions in Section 6.

Subject to technical changes.

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