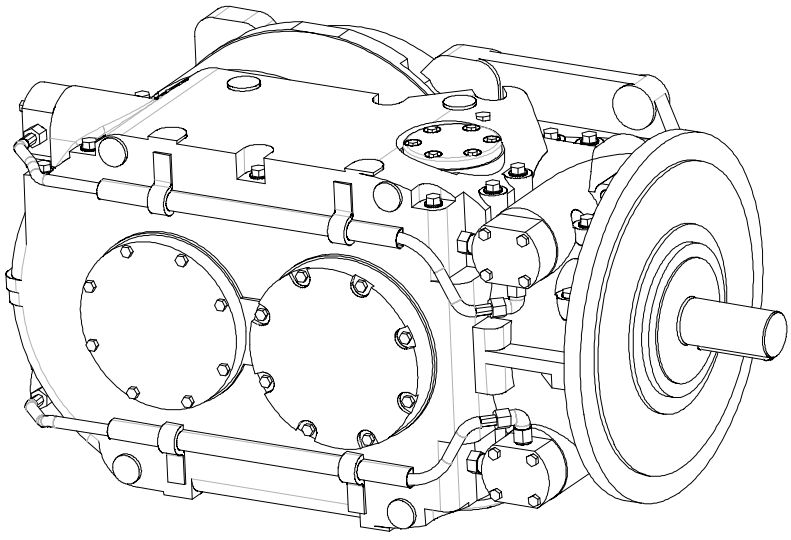
Operating Manual

DBT - Gearbox KP-25/30
Gearbox KP-25/30.1

Doc. no.: 1949 008 000 BA 00



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Your safety

This chapter contains important information for your safety.

Pay special attention to this chapter. The safety instructions and rules of procedure will help you to avoid hazardous situations and to perform the necessary work as safely as possible.

state-of-the-art

The gearbox has been manufactured in accordance with the state of the art and generally recognized safety standards and regulations. You and others can nevertheless be exposed to dangerous situations e.g. as a result of environmental influences, machine damage or operator errors.

Do not make any alterations or modifications which could impair the safety of the gearbox. All modifications and changes must be approved by DBT.

Only use original DBT spare parts. Please note that the guarantee will expire if you install parts from other manufacturers.

The European Directives/Standards referred to in this operating manual have to be observed when using the gearbox in a member state of the European Union (EU). For use outside of the EU the directives and standards applicable in the respective countries must be observed.

In addition to this operating manual be sure to also observe the respective legal provisions and regulations for accident prevention in your country.

Observe the safety and accident prevention regulations:

- of the mine,
- of the Mines Inspectorate and
- of the mining supervisory authorities

further operating manuals

Please read also the operating manuals of the components required for operation, e.g. of face conveyor, electric motors, etc., carefully and thoroughly. Clarify any questions **before** starting work.

Personnel

Installation and repair

In general, installation and repair work shall be performed only by persons who have been adequately trained for the special requirements. Installation and repair of

- the safety devices (pressure relief valves, extinguishers, etc.)
- the electrical equipment (controls units, signalling devices, etc.)
- the hydraulic system

shall only be carried out by DBT service engineers or by specially trained personnel of the mining company.

3 Storage and transport

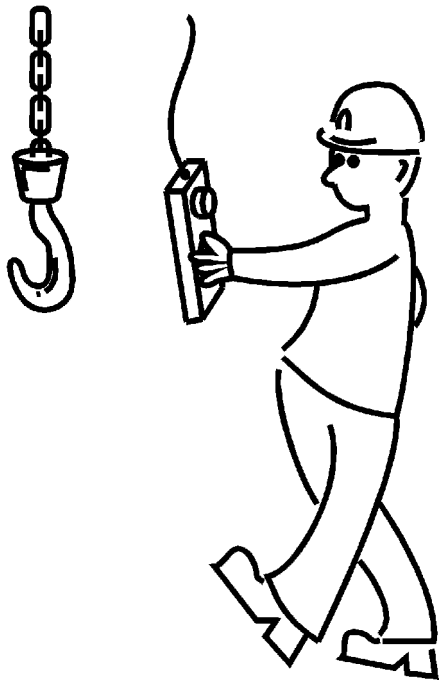
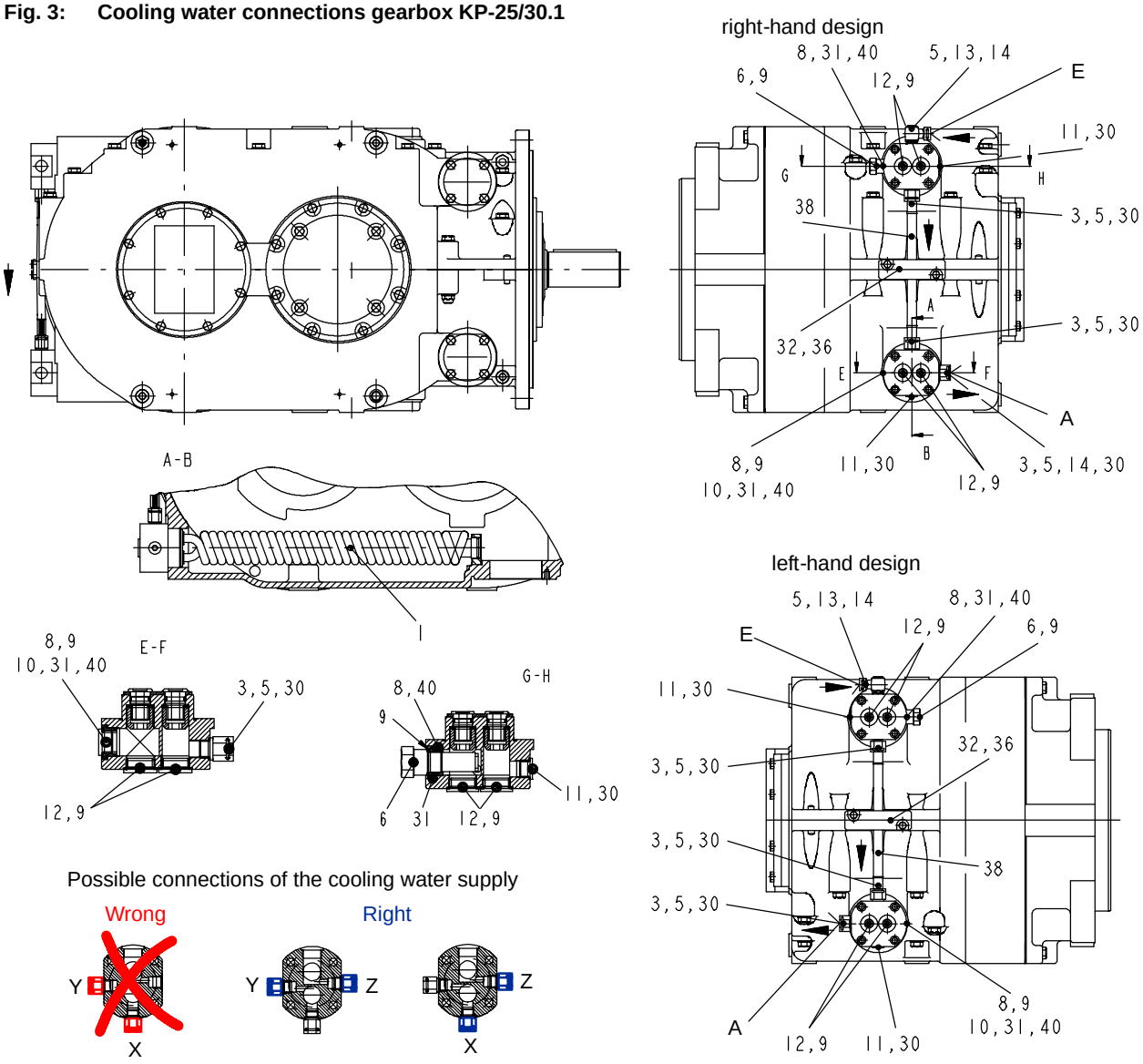


Fig. 3: Cooling water connections gearbox KP-25/30.1



Possible connections of the cooling water supply

1	Heat exchanger	11	Screw plug G ¾ A-5.8	32	Protective plate
3	Adapter G ¾-DN 12	12	Screw plug M 42x1.5-5.8	36	Hex. head bolt M 12x25-8.8
5	Coupling clamp DN 12	13	Fitting R 3/4'' - DN 12	38	Hose line 12x450
6	Pressure relief valve	14	Plug DN 12	40	Loctide No. 270
8	Reducer	21	O-ring 13,3x2,4		
9	Sealing ring A 42 x 49	30	Sealing ring A 27x32	E	Cooling water inlet DN 12
10	Screw plug G 1 A-5.8	31	Sealing ring A 33x39	A	Cooling water outlet DN 12

CAUTION!
A sufficient heat exchange is only guaranteed if the cooling water supply is connected correctly. Insufficient cooling leads to significant damages of the gearbox!
The cooling water supply must not be connected via the connections X and Y as you create a "short circuit" in the cooling water circuit and no heat can flow in the heat exchanger.
Only connect the cooling water supply via the connections Y and Z or X and Z an!

Drive connection protective cover

The protective cover houses the high-speed Voith coupling as well as the flexible coupling and connects the gearbox to the electric motor.

After removal of the cover, a chain tensioner can be attached.

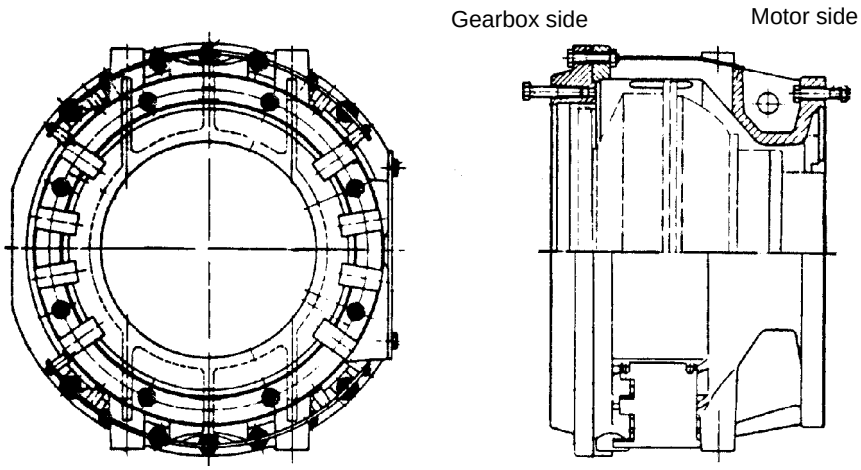
Protective cover with fluid coupling

It further gives protection against fluid spouting out of the Voith coupling when the fusible plug melts.

WARNING!
Be careful when opening the coupling, as hot fluid may spout out.

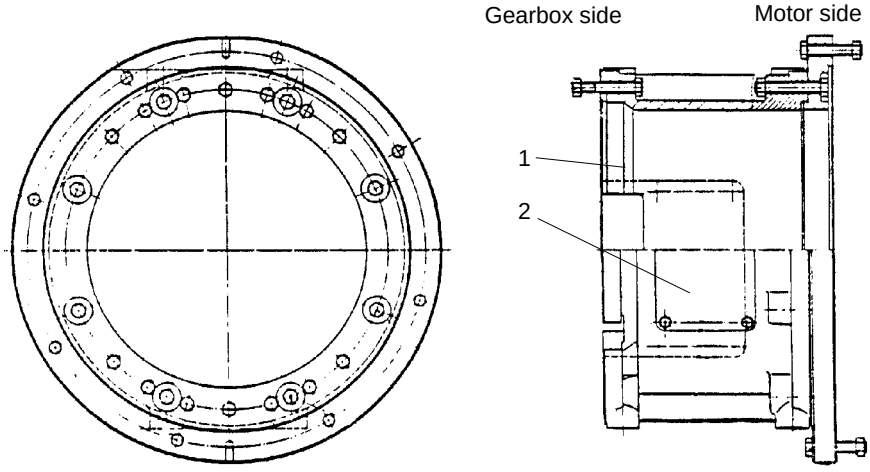
Handholes covered with plates are provided for filling the Voith coupling with fluid and for exchanging the fusible plug. The other openings provided are to prevent an overheating of the running coupling. It is essential that these holes always be kept free.

Fig. 15: Protective cover with fluid coupling



Protective cover without fluid coupling

Fig. 16: Protective cover without fluid coupling



1 protective cover

2 cover

Intermediate flanges for the protective covers

For adaptation of different centerings at drive unit and protective cover intermediate flanges will be fitted.

As soon as the bearings have reached their maximum service life they must be replaced. Forward the gearbox to the repair and maintenance shop.

IMPORTANT!
If the bearings reach their maximum service life while a panel section is worked they should be exchanged as a precaution. The bearing running times are given in chapter 6 ”technical data”.

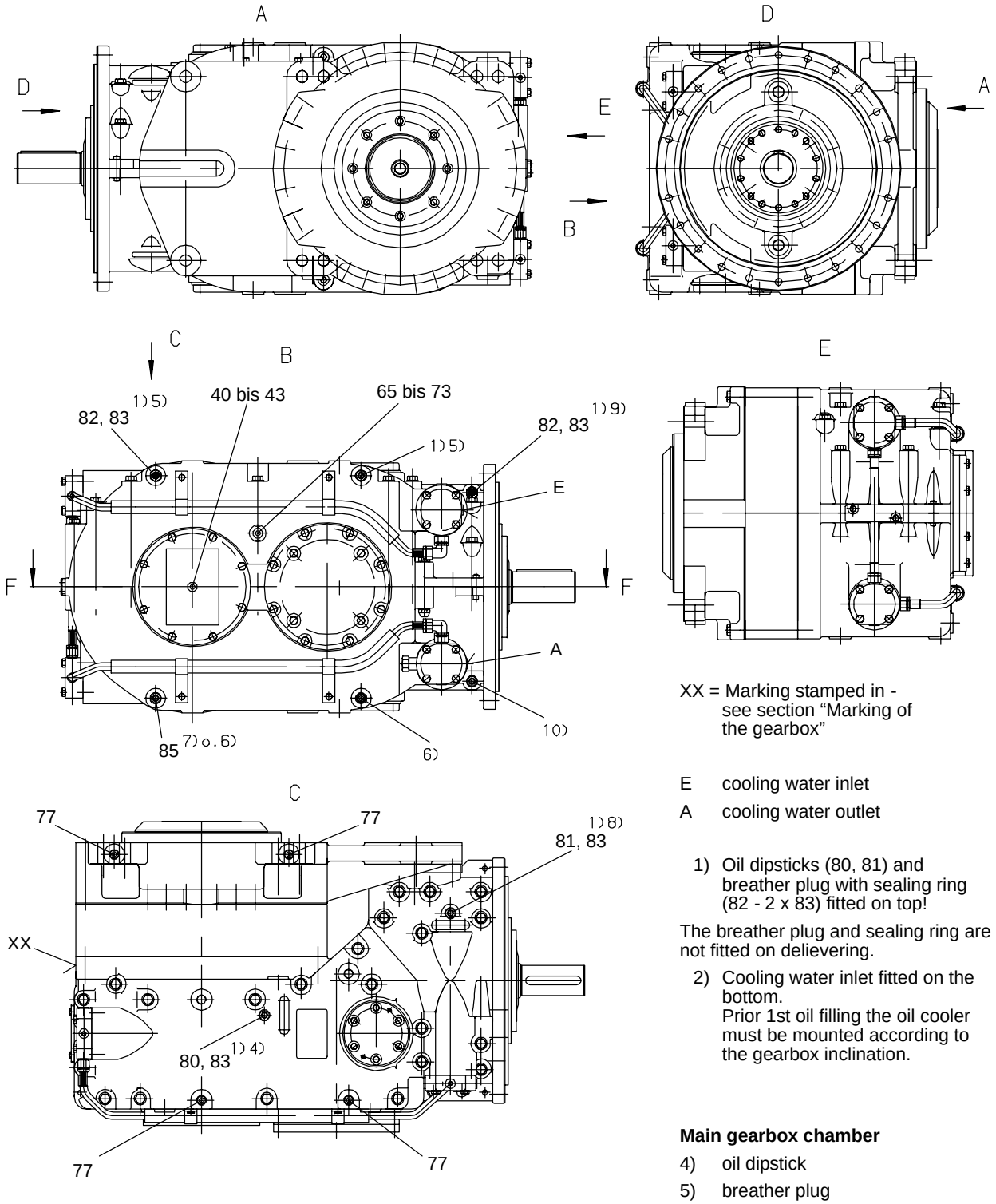
structure-born noise monitoring

In order to detect bearing damage at an early stage a continuous structure-born noise monitoring system can be used.

Cleaning the gearbox housing

Excessive dust deposits cause a heat build-up which may cause the gearbox housing to get very hot. In the extreme, this may lead to a spontaneous ignition of the coal dust.
Therefore, clean the gearbox housing every day to remove dust deposits or the like.

Fig. 21: Attachment parts KP-25/30



XX = Marking stamped in - see section “Marking of the gearbox”

E cooling water inlet

A cooling water outlet

1) Oil dipsticks (80, 81) and breather plug with sealing ring (82 - 2 x 83) fitted on top!

The breather plug and sealing ring are not fitted on delievering.

2) Cooling water inlet fitted on the bottom.
Prior 1st oil filling the oil cooler must be mounted according to the gearbox inclination.

Main gearbox chamber

4) oil dipstick
5) breather plug
6) oil drain
7) magnetic rod

Input shaft chamber

8) oil dipstick
9) breather plug
10) oil drain

40 - 43 plate, oil level
65 - 73 plate, reduction ratio
77 lifting eye TAWGK 5
80 oil dipstick 685 lg.
81 oil dipstick 419 lg.
82 breather plug
83 sealing ring A 30x36
85 magnetic rod

Requirements for gear oils for DBT-gearboxes

The correct choice of transmission oils and close monitoring of the lubrication are major prerequisites for trouble-free operation and contribute to a longer service life of the gearbox.

Load-bearing capacity

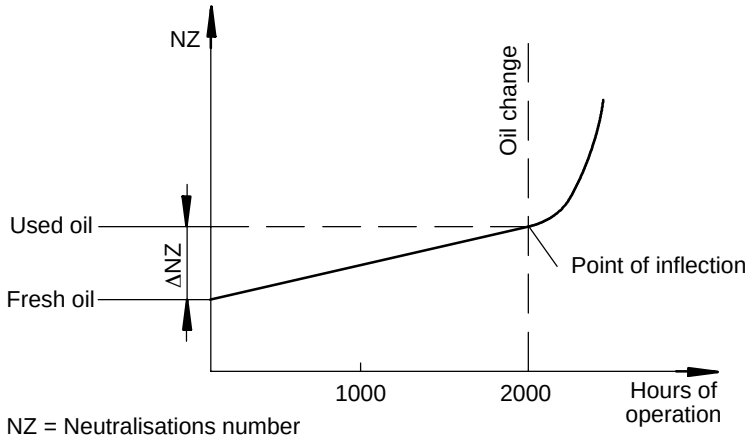
During the mechanical test of transmission oils in accordance with DIN 51354, there must be no increase in wear on the gears in any of the 12 load ranges, either in the FZG standard test A/8, 3/90 or in the FZG special test A/16.6/120, i.e. the load range causing damage must be higher than 12.

Furthermore, the ”specific change in weight” of the test gears m_S (specific wear) must not exceed 0.27 mg/kWh.

Ageing resistance

The transmission oils must exhibit an excellent ”thermostability” and ”ageing resistance” at the prescribed oil change intervals, i.e. after 2000 operating hours.

Fig. 32: Curve of the neutralisation number



NZ = Neutralisations number

During normal operation, the curve of the neutralisation number (NZ number) of mineral oils must on no account reach the point of inflection after 2000 hours of operation and at the permanent temperatures stated (see figure).

Kinematic viscosity

The transmission oils should lie within the viscosity range 210 to 320 mm^2/s at 40 °C with a high viscosity index.

Additives

- against wear (EP grade)
- against corrosion
- against foaming

Suitability

- Compatibility with commercially available sealing elements