

Changeover from mineral oil / polyalphaolefin to polyalkylene glycol

How to proceed with an oil change

Every changeover from mineral oil to synthetic oil should be performed with great care.

It may not be enough to simply drain the used mineral oil and fill in the new synthetic oil.

Older gears, in particular, can be assumed to contain oil residues in the casing, the oil lines etc., which might be dissolved by synthetic oils.

If such residues are not removed, they may cause problems during operation. Oil lines and filters may be clogged, seals, pumps and teeth damaged.

To prevent such damage, the gears or lubricant circulation system should be flushed with the new synthetic oil after the old oil has been drained (ideally at operating temperature).

The synthetic oil that was used for flushing must not be used for lubrication afterwards, however it can be kept for further flushing operations. Prior to filling the fresh synthetic oil, oil filters or filter elements should be replaced.

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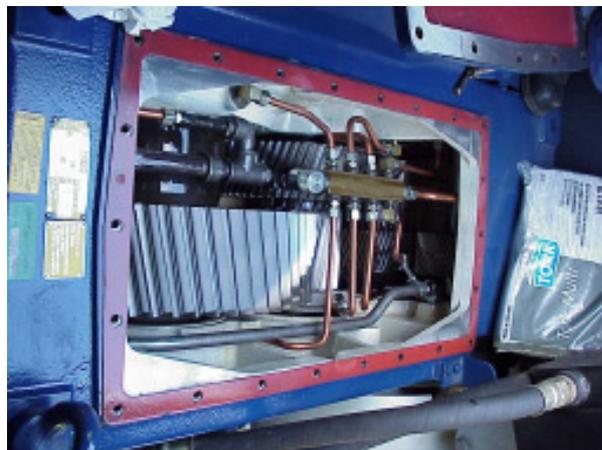
Polyalkylene glycol oils (PAG), e.g. Klübersynth GH 6, SYNTHESO D / EP, Klübersynth UH 1 6 are not miscible with mineral oil or polyalphaolefin under any circumstances.

The following should therefore be observed during oil change:

1. Drain old oil fill while still warm. Flushing or mechanical cleaning may considerably reduce oil residues. A residual oil content of 1 to 3 % is permissible. As mineral oils and polyalphaolefins have a lower density than PAG, they float on top and can be siphoned off.
2. If a large oil container is connected to the gears, it should definitely be cleaned mechanically. Do not use cleaning wool as its fluff affects filtration.
3. Fill gears with oil according to manufacturer's instructions. For self-priming pumps, the speed may have to be adjusted to the higher density of the new oil.
4. If dynamic loads act on contact surfaces made of aluminium or aluminium alloy, increasing wear may be caused, i.e. the degree of wear should be examined.

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5. Compatibility with the inside paint of the gearbox should be checked. Normal machine paints dissolve in contact with PAG. However, almost all reaction-hardening two-component epoxy resin paints are resistant to PAG.
6. Seals on the basis of NBR, HNBR and FKM are normally resistant up to the operating temperatures stated by the manufacturer for the elastomer or the PAG oil, e.g. up to 100 °C for SYNTHESO D/EP. Positive results have been attained with 72 NBR 902 and 75 FKM 585. For other materials, compatibility should be tested, especially when they are to be used in dynamically loaded seals.
7. Oil gauge glass should preferably be made of natural glass or polyamide materials. Other transparent plastic materials such as plexiglass tend to stress-cracking.
8. The filter elements should be replaced after oil change and flushing. The filters used should be made of glass fibre or metal fleece. Paper filters tend to swell and clog rapidly.



Clean gears after flushing

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