

5.21 Fluids and lubricants

| Component/application | Fluid/lubricant | Specification | Season/temperature | Capacities ¹ | |
|-----------------------|--|---|---|---|----------------------|
| | | | | 50Z3 | 6003 |
| Diesel engine | Engine oil ² | SAE10W-40 | -20 °C (-4 °F) +40 °C (+104 °F) | 7.8 l (2.06 gal) | 10.2 l (2.69 gal) |
| Travelling drive | Gearbox oil ³ | SAE80W-90 ⁴ | Year-round | About 1.3 l each (0.34 gal) | |
| Hydraulic oil tank | Hydraulic oil | HVLP 46 ⁵ | Year-round ⁶ | 73 l (19.3 gal) | |
| | | HV 46 ⁷ | | | |
| | Biodegradable oil ⁸ | HLP Synth 46 | | | |
| | | BIOHYD SE-S 46 | | | |
| Grease | Roller and friction bearings | KPF 2 K-20 ⁹ ISO-L-X-BCEB 2 ¹⁰ | Grease | As required | |
| | Open transmissions live ring: ball bearing | | | | |
| | Live ring gears | | | | |
| | Grease nipples | | | | |
| Grease nipples | Multipurpose grease | KPF 2 K-20 ¹¹ | Year-round | As required | |
| Battery terminals | Acid-proof grease ¹² | FINA Marson L2 | Year-round | As required | |
| Fuel tank | Diesel fuel ¹³ | ASTM D975-94: 1D, 2D (USA) | Summer or winter diesel depending on outside temperatures | 78 l (20.6 gal) | |
| | | EN 590 : 96 (EU) | | | |
| | | ISO 8217 DMX (International) | | | |
| | | BS 2869-A1, A2 (GB) | | | |
| | | JIS K2204 (Japan) | | | |
| | | KSM-2610 (Korea) | | | |
| | | GB252 (China) | | | |
| | Biodegradable diesel fuel | EN 14214 ASTM D-6751 | | | |
| Engine cooling system | Coolant | Soft water + antifreeze SF D12 Plus | Year-round | 7 l (1.85 gal) | |
| Air conditioning | Refrigerant | R134a ¹⁴ | Year-round | 750 g (1.65 lbs.) | |
| | Compressor oil | Sanden SP10 | Year-round | 116.5 cm ³ (7.11 in ³) | |
| Washer system | Cleaning agent | Water + antifreeze | Year-round | 2 l (0.53 gal) | |
| Control lever base | Adhesive fluid grease | Förch S401 | Year-round | As required | |

1. The capacities indicated are approximate values; the oil level check alone is relevant for the correct oil level
Capacities indicated are no system fills

2. According to DIN 51511 (API CF, CF-4, CI-4; ACEA E3, E4, E5; JASO DH-1).

3. Hypoid gearbox oil based on basic mineral oil (SAE80W-90 according to DIN 51502), API GL5.

4. According to DIN 51502 on a mineral oil basis. Do not mix gearbox oils.

5. According to DIN 51524 section 3, ISO-VG 46.

6. Depending on local conditions — see **Hydraulics oil grade** on page 5-56.

7. According to ISO 6743/4.

8. Biodegradable hydraulic oil based on saturated synthetic esters with an iodine value of < 10, according to DIN 51524, section 3, HVLP, HEES.

9. KPF 2 K-20 according to DIN 51502 multipurpose lithium grease.

10. ISO-L-X-BCEB 2 according to DIN ISO 6743-9.

11. KPF 2 K-20 according to DIN 51502 multipurpose lithium grease.

12. Standard acid-proof grease NGLI category 2.

13. Sulphur content below 0.05 %, cetane number over 45

14. According to DIN 8960.


Oil grades for the diesel engine, depending on temperature

| Engine oil grade | Ambient temperature (°C) | | | | | | | | | | | | | |
|--|--------------------------|-----|-----|-----|----|----|----|----|----|----|----|----|----|-----|
| | °C | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| API CF, CF-4, CI-4; ACEA E3, E4, E5; JASO DH-1 | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | °F | -4 | 5 | 14 | 23 | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 | 104 |

Additional oil change and filter replacement (hydraulic system)

Caution!

An additional oil change and filter replacement can be required depending on how the machine is used. Failure to observe these replacement intervals can cause damage to hydraulic components.

☞ *Observe the following intervals*

| Application | | Hydraulic oil | Hydraulic oil filter insert |
|-------------------------------|-----------|----------------|---|
| Normal work (excavation work) | | Every 1000 s/h | Replace the first time after 50 s/h, then every 500 s/h |
| Percentage of hammer work | 20 % | Every 800 s/h | 300 s/h |
| | 40 % | Every 400 s/h | |
| | 60 % | Every 300 s/h | 100 s/h |
| | Over 80 % | Every 200 s/h | |


Notice!

Please refer to the maintenance plan on page [5-57](#) for additional maintenance work.

Oil grades for the hydraulic system, depending on temperature

| Hydraulic oil grade | Ambient temperature | | | | | | | | | | | | | | |
|--|---------------------|----------|-----|-----|----|----|----|----|----|----|----|----|----|-----|-----|
| | °C | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
| HVLP 46 ¹ HV 46 ² | | ISO VG32 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | °F | -4 | 5 | 14 | 23 | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 | 104 | 122 |

1. According to DIN 51524 section 3, ISO-VG 46.

2. According to ISO 6743/4.