5.2 Maintenance instructions

A well-maintained machine is always an indication of a meticulous machinist and helps to limit malfunctions and extends the life of the machine.

IMPORTANT! **When performing cleaning and maintenance tasks, always observe the safety instructions in Chapter 2 and the installation/workplace description in Chapter 4.3.**

Keyword	Time interval	Procedure / Action
Oil change	♦ first oil change after 60 hours of operation ♦ second oil change after 300 hours ♦ all further oil changes after 500 hours.	♦ Open oil drain plug, allow oil to drain Remove both covers and clean gear mechanism with a clean cloth **CAUTION!** Do not use steel wool, naphtha or benzene. ♦ Re-insert oil drain plug, using a new sealing ring if necessary ♦ Re-attach both covers ♦ Fill with lubricating oil acc. to lubrication oil list (see Appendix) to upper oil level mark via oil fill screw
Drive mechanism inspection	♦ 500 hours of operation	♦ Remove both covers and check all areas for abnormal bearing play. Close covers. A bearing temperature of up to 80°C is permissible under normal operating conditions.
Cylinder lubrication	♦ first lubrication upon delivery or after 60 hours of operation ♦ second check after 300 hours ♦ all further checks after 500 hours	Visual inspection of the oil supply: ♦ The combined valve of the 1st stage must be coated with oil. ♦ The piston head and the cylinder of the 1st stage must be coated with oil (see Ch. 4.4.3) ♦ during operation at the visual gear device
Pressure gauge	♦ 500 hours of operation	To damp vibrations, the pressure gauges are filled with glycerin, but they must still be protected from shocks and impacts (see Ch. 5.6.1).
Intake air filter	♦ 100 hours of operation, depending on condition of air; use oil bath air cleaner, if necessary	♦ remove filter cap and blow out or replace paper filter
Safety valves	♦ 500 hours of operation ♦ minimum requirement: regulations of the trade associations	Remove safety valves and check for leaks and set pressure (see Ch. 5.6.2).
Non return valve in the compressed air line between compressor and compressed air bottle	♦ 500 hours of operation	Check for perfect seal in order to prevent accidents. Opening the condensation drain valve when the compressor is turn off to depressurizes the compressor-side compressed air line. After closing the valve, pressure should not build up again. If pressure builds up, clean the non return valve or replace it, if necessary

Keyword	Interval	Task
3rd stage valve 2nd stage valve 1st stage valve	♦ 1000 hours of operating	Remove and clean valves. The valve gaskets can be checked by pouring a low viscosity solvent into the recesses of the valves in the direction of air flow. If the valve plates leak, the solvent flows out of the recesses across the valve plates. In case of coking deposits, clean valves thoroughly or replace (see Ch. 5.5.1 - 5.5.3).
Piston rings / oil scraper rings	♦ every 1000 hours of operation or upon obvious decline in output and increased oil consumption	Dismantle cylinder head, dismantle cover and remove the piston. For more detailed description, see “Maintenance” (Ch. 5.5.4).
Connecting rod bearing	♦ every 1000 hours of operating	There should be no noticeable bearing clearance by moving the connecting rod back and forth with opened crankcase.
Oil and water separator	♦ first maintenance after 60 hours of operation ♦ afterwards, after every 100 hours of operation	Remove sinter filter and replace.
Accessories for automatic operation (if supplied)	♦ 500 operating hours	Check for proper function and clean dirty solenoid valves, if necessary. Consult separate description of compressor controls.

Table 4

5.3 Cleaning

Loose dirt is polluted with operating supplies (grease etc) and must therefore be collected and disposed correctly (see chapter. 2).

5.4 Malfunctions and troubleshooting

The malfunctions described below and the measures for locating and eliminating the malfunctions should help you to conduct repairs yourself. Instructions on troubleshooting can be found primarily in Chapters 5.2 and 5.5.

Malfunction	Cause	Troubleshooting
Rapid abrasion of the piston rings	Insufficient lubrication of cylinder	Pressure rise in the crankcase, oil level low
Water in the lubricating oil	Condensation from the air precipitates through the piston rings of the 2nd stage as condensation water	Drain cooler more frequently. If using automatic operation, check the functioning of the condensate drain or of the electric solenoids.
Coupling rattles	Coupling flange is defective	Replace coupling flange