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## TURBINE OIL FILTRATION AND DEHYDRATION UNIT

- technical documentation -

*MODEL T1250*



## TURBINE OIL FILTRATION AND DEHYDRATION UNIT

### MODEL T1250

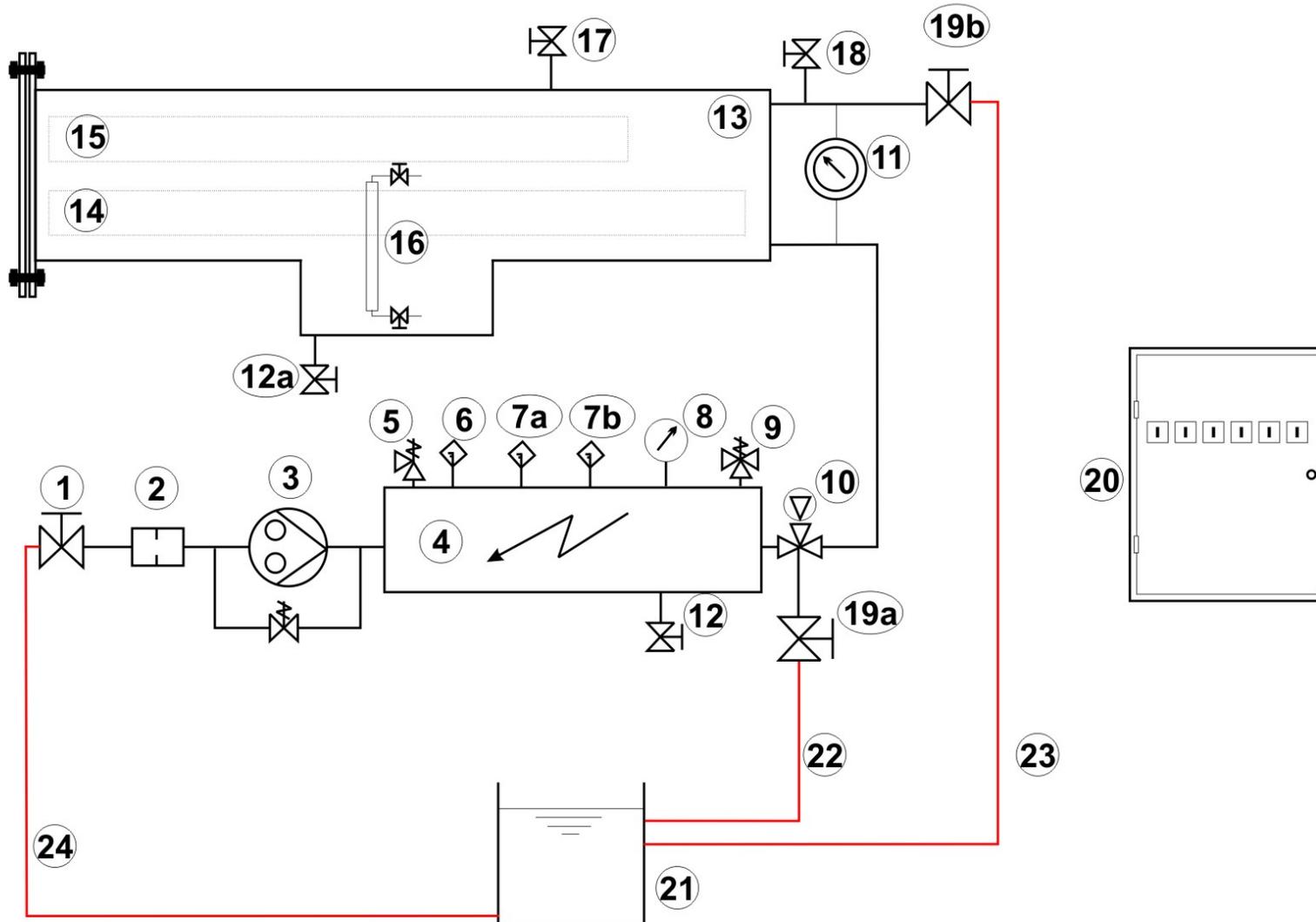
#### SPECIFICATION

Oil type	Turbine oil ISO VG 32
Oil flow rate	1250 l/h
Heating capacity	9,6 kW
Working temperature	42 °C – 48 °C
Nominal filter finness	1 µm
Working pressure	2 bar
Pressure loss at clean filter	0,1 bar
Max. diferentijal pressure	1 bar
Water separation	<20 ppm @ oil temp. >50°C
Coalescer element type	I-656C5
Separator element type	SO-640C
Unit, size	approx. 2000x800x1440 mm
Unit, weight	approx. 300 kg

The Unit is delivered ready for operation, together with:

- control panel, wiring and safety devices which provides maximum operating security;

Schematic construction of the **T1250** Unit is presented in the following drawing:



The details on the particular stages of operation are given with each part of the Unit in the following text.

**THE UNIT CONSISTS OF:**

- 1. Inlet valve** a spherical valve 1" with special "Teflon" gaskets. It presents an oil inlet line
  
- 2. Coarse filter** as oil is often very polluted, the Unit is fitted with a large sized, easy to open and clean, coarse filter. Oil is conveyed at a reduced flow rate around a strong permanent magnet which retains steel particles and protects the gear pump from damages
  
- 3. Gear pump with Overflow valve** with maximum of 1250 l/h capacity. Overflow valve protects the Unit from an excessive rise of pressure in case outlet valve is negligently closed or because of some other reason
  
- 4. Oil heater** Is of 9,6 kW power. Oil is heated indirectly by means of electric heating elements insulated from oil by pipes and air. The heating process is thereby gradually accomplished and, with the sufficiently large heating surface, any damage of oil is excluded. Together with the thermal control (details of which are given in the following text) this allows heating of oil in individual stages, e.g. at higher temperatures quite "tenderly".
  
- 5. Safety valve** prevents increase of pressure in case oil is overheated
  
- 7. Safety thermostat** the Unit is equipped with a precise thermostat, acting as a safety thermostat. By means of other (control) thermostat, both heating stages can be controlled. This safety thermostat is designed to allow max. temperature of 60<sup>0</sup>C, with a construction that allows it both safety and control role.

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<b>7a. Control thermostat No. 1</b>	Is fitted onto the same housing with safety thermostat. It has an external button for the temperature range from 0 <sup>o</sup> C up to 90 <sup>o</sup> C;... Control thermostat should be adjusted to cca. 42 <sup>o</sup> C which represents an optimal temperature for oil processing. By means of this thermostat, three-way electromagnetic valve is opened and heated oil is diverted into filter part of the Unit.
<b>7b. Control thermostat No.2</b>	Is fitted onto the same housing with safety thermostat. It has an external button for the temperature range from 0 <sup>o</sup> C up to 90 <sup>o</sup> C;... Control thermostat should be adjusted to cca. 48 <sup>o</sup> C . This thermostat is used for turning on and off the oil heater.
<b>7. Thermometer</b>	Measures the temperature at the outlet of the oil heater
<b>9. Automatic aeration valve</b>	Special valve for automatic release of eventually trapped air in the oil heater.
<b>10. Three-way electromagnetic valve</b>	Represents three-way 1" ball valve with teflon gaskets. It is connected with Control thermostat No 1. When the oil temperature inside of the oil tank (return line No 1 – <b>heating mode</b> ) reaches 42 <sup>o</sup> C, the electromagnetic valve is turned into position that allows oil to pass through filtration vessel of the Unit (return line No 1 – <b>filtration mode</b> ).
<b>11. Differential manometer</b>	Differential manometer serves for reading of filters dirtiness, through oil pressure rise. Filters should be replaced when the pressure rises up to 1.0 bar.
<b>12. Drainage valve</b>	a spherical valve 1/2"for drainage of the oil from oil heater
<b>12a. Drainage valve</b>	a spherical valve 1/2"for drainage of the oil from oil filter vessel. In addition, this valve is used for drainage of collected water in the filtration vessel.

- 13. Filtration vessel** of a welded construction. It serves as a holding place for both coalescer and separator filter elements.
- 14. Coalescer element** Serves for separation of water from oil. This element is positioned in the lower part of the filtration vessel.
- 15. Separator element** Separator element is used for separation of impurities  $>1 \mu\text{m}$  from oil. It fsluži za izdvajanje nečistoća i čvrstih čestica iz ulja. This element is shorter and is positioned in the upper part of the filtration vessel.
- 16. Glass level gauge** It is installed at a filter vessel and it serves as visual indicator of separated water. When the water level reaches the level gauge, it is necessary to drain the water with valve 12a.
- 17. Aeration valve** a spherical valve installed on the filtration vessel for elimination of trapped air
- 18. Sampling valve** a spherical, closing valve for turbine oil sampling
- 19a. Outlet valve** a spherical 1" valve with special "Teflon" gaskets. It represents outlet from the Unit during heating mode (return line No. 1)
- 19b. Outlet valve** a spherical 1" valve with special "Teflon" gaskets. It represents outlet from the Unit during filtration mode (return line No. 2)
- 20. Control panel** it consists of fuses, contactors, electric motors electrical protection, protection relays, transformer, main switch, internal wiring etc., for an automatic operation of the Unit. In addition on the front of control panel, there are three green indicator lights (L1, L2 and L3) for voltage presence. Beside this, above every cam switch, there is also an green light, that serves as an indicator of the current state (on / off) of the respective components.

- 21. Oil tank (not delivered)** Represents the holding tank for oil that has to be treated.
- 22. Return line No. 1 (not delivered)** Represents pipeline or hose line for returning of oil (in heating mode) into the oil tank until it reaches required temperature for oil processing.
- 23. Return line No. 2 (not delivered)** Represents pipeline or hose line for returning of oil (in filtration mode) into the oil tank after passing through the filters.
- 24. Inlet line (not delivered)** Represents pipeline or hose line for connection of oil tank with the filtration unit.
- 25. Framework** a welded, sectional steel construction, which represents foundation for all described components of the Unit. It is equipped with 4 swivelling rollers, 2 of which are equipped with locking device
- 26. Electric equipment** consisting of driving motors for the gear pump and electromagnetic valve and of internal wiring of the Unit. Suitable for three-phase, 50 Hz power supply

FILTER TYPE	DESIGNATION
Coalescer element	I-656C5
Separator element	SO-640C

**ANNOTATION:**

***During replacement of filter elements, it is advised to avoid contact with them by unprotected hands***