Oil/water cooler - Type TAK/T

The oil/water coolers TAK/T are tube bundle coolers with high efficiency.

### Table of contents

1 Technical data  
2 Advice  
   2.1 General advice  
   2.2 Safety and advice symbols  
   2.3 General hazard warnings  
   2.4 Intended use  
3 Assembly  
   3.1 Connection of oil/water cooler  
   3.2 Control  
   3.3 Pressure peaks  
   3.4 Water quality  
4 Disposal  
5 Cleaning  
6 Maintenance  
7 Spares inventory, customer service addresses
1 Technical data

Table 1: Dimensions – TAK/T series 23

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
<th>Oil capacity [l]</th>
<th>Water capacity [l]</th>
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<tr>
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</table>

1) With model range 2310 only 2 fastening threads M6 x 12 are located centrally below the oil connections.

Max. perm. oil temperature 100 °C. Max. oil pressure 30 bar. Max. water pressure 10 bar.

Table 2: Dimensions – TAK/T series 25

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
<th>Oil capacity [l]</th>
<th>Water capacity [l]</th>
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Max. perm. oil temperature 100 °C. Max. oil pressure 30 bar. Max. water pressure 10 bar.
1 Technical data

Table 3: Dimensions – TAK/T series 27

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
<th>Oil capacity [l]</th>
<th>Water capacity [l]</th>
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Max. perm. oil temperature 100 °C. Max. oil pressure 20 bar. Max. water pressure 10 bar.

Table 4: Dimensions – TAK/T series 28

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
<th>Oil capacity [l]</th>
<th>Water capacity [l]</th>
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<td>TAK/T 2832</td>
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<td>A 1811 B 1453 C 1433 G3</td>
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<td>29.5</td>
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</table>

Max. perm. oil temperature 100 °C. Max. oil pressure 20 bar. Max. water pressure 10 bar.
Please read through these operating/assembly instructions carefully before you start up the oil/water cooler. Please pay special attention to the safety instructions! The operating/assembly instructions are part of your product. Please store them carefully and close to the oil/water cooler. The copyright for these operating/assembly instructions remains with KTR.

2.1 General advice

Please read through these operating/assembly instructions carefully before you start up the oil/water cooler. Please pay special attention to the safety instructions!

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2.2 Safety and advice symbols

STOP

Warning of personal injury

This symbol indicates notes which may contribute to preventing bodily injuries or serious bodily injuries that may result in death.

! Warning of product damages

This symbol indicates notes which may contribute to preventing material or machine damage.

General advice

This symbol indicates notes which may contribute to preventing adverse results or conditions.

Warning of hot surfaces

This symbol indicates notes which may contribute to preventing burns with hot surfaces resulting in light to serious bodily injuries.

2.3 General hazard warnings

With assembly, operation and maintenance of the oil/water cooler it has to be made sure that the entire drive train is secured against accidental switch-on and the plant is unpressurized. You may be seriously hurt by hot or pressurized hydraulic oil or water. Please make absolutely sure to read through and observe the following safety indications.

- All operations on and with the oil/water cooler have to be performed taking into account "safety first".
- Please make sure to switch off the oil supply and water supply as well as the power pack before you perform your work on the oil/water cooler.
- Secure the power pack, oil and water supply against accidental switch-on, e. g. by providing warning signs at the place of switch-on or removing the fuse for current supply as well as the switch-on valve levers for oil and water.
- Do not reach into the operation area of the machine as long as it is in operation.
- Please secure the oil/water cooler against accidental contact (risk of burns). Please provide for the necessary protection devices and covers.
2 Advice

2.4 Intended use

You may only assemble, operate and maintain the oil/water cooler if you

- have carefully read through the operating/assembly instructions and understood them
- had technical training
- are authorized by your company

The oil/water cooler may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the cooler are not admissible. We will not assume liability for any damage that may arise. In the interest of further development we reserve the right for technical modifications.

The oil/water coolers TAK/T described in here correspond to the technical status at the time of printing of these assembly/operating instructions.

3 Assembly

3.1 Connection of oil/water cooler

The pipework of the cooler has to be designed such that any external forces cannot apply on the heat exchanger.

- The oil/water cooler needs to be connected in the respective locations by means of pipework or tubes, respectively (see illustration 5 or 6).

| A | medium to be cooled | C | cooling water „ON“ |
| B | medium cooled        | D | cooling water „OFF“ |

- Iron particles which may be generated with the assembly of pipework have to be removed. Before start-up the heat exchanger needs to be flushed carefully.
3 Assembly

3.2 Control

On/off control of the cooling water via magnetic valve should be preferred to proportional control.

If dirty water is controlled proportionally, floating particles are stored in the partial load range due to low water speeds causing corrosion.

If dirty cooling water is used, a dirt trap having a mesh width of about 0.5 mm has to be installed in the pipework. Dirt in the cooling water may result in plugging of the water-bearing pipes of the heat exchanger preventing sufficient cooling.

3.3 Pressure peaks

Pressure peaks in the return pipe should be avoided, since they may result in destruction of the heat exchanger.

If volume flow peaks arise, please protect the oil/water cooler by means of a fast opening bypass valve.

3.4 Water quality

Requirement 1: The water needs to be clean, i.e. without any pollutions.

Requirement 2: The content of hardness producers should be low. Higher amounts of furring reduce the thermal output of cooling systems considerably.

A light amount of furring protects the material against corrosion.

Requirement 3: The content of free carbon dioxide should correspond to zero, since such waters (rainwater, surface water) are aggressive against nonferrous heavy metals and do not produce any protective layer.

Requirement 4: The water must not contain any ammonia. The chloride content should be less than 100 mg/l. River waters, sea waters and stream waters along with some well waters are excluded.

The safest way how to prevent larger amounts of furring or corrosion is to use desalinated water or condensate having the following properties:

- Carbonate hardness 4°dH
- Chloride content < 100 mg/l

4 Disposal

In respect of environmental protection we would ask you to dispose of the packaging or products on termination of their service life in accordance with the legal regulations and standards that apply, respectively.

- **Metal**
  Any metal components have to be cleaned and disposed of by scrap metal.

- **Gaskets**
  Gaskets can be disposed of by residual waste.

- **Nylon materials**
  Nylon materials have to be collected and disposed of by a waste disposal company.
5 Cleaning

After an operating period of about half a year the condition of the inner surfaces of the pipes should be inspected. The future cleaning intervals have to be specified depending on the degree of dirt.

⚠️ Before cleaning please make sure that the oil/water cooler has cooled down. Touching the heated components causes burns.

Cleaning is effected either chemically or by means of brushes with nylon handle, do not use any wire brushes. A residual layer of furring is welcome.

6 Maintenance

Preventive maintenance operations have to be performed by the user regularly.

The maintenance intervals mainly depend on the operating period and the water speed reached. In case of frequent standstill and low water quality short maintenance intervals are necessary.

- Inspect the oil/water cooler for leakages.

⚠️ Leakages have to be eliminated immediately. Oil which has escaped has to be removed properly, since oil residues may vaporize on hot components and ignite.

7 Spares inventory, customer service addresses

A basic requirement to ensure the operational readiness of the oil/water cooler is a stock of the most important spare parts on site.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage at www.ktr.com.

ɛ KTR does not assume any liability or warranty for the use of spare parts and accessories which are not provided by KTR and for the damages which may incur as a result.