

## Oil/water cooler - Type TAK/TP

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

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1 Technical data

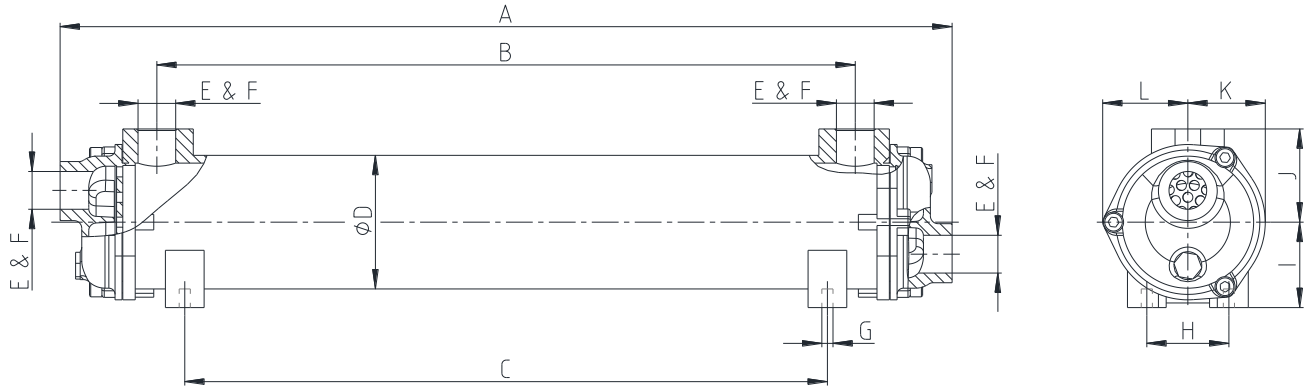


Illustration 1: Oil/water cooler type TAK/TP series A-C

Table 1: Dimensions - TAK/TP series A-C

Type	Dimensions [mm]											Weight [kg]
	A	B	C	D	E & F	G	H	I	J	K	L	
TAK/TP-A1	195	72	38	86	G 3/4"	4xM8	53	55	60	50	55	3
TAK/TP-A2	263	138	103									3.5
TAK/TP-A3	349	225	189									4
TAK/TP-A4	448	326	288									4.7
TAK/TP-A5	576	450	415									5.5
TAK/TP-A6	731	603	557									10
TAK/TP-B1	273	123	109	108	G 1"	4xM8	77	65	70	60	55	5
TAK/TP-B2	355	205	191									6
TAK/TP-B3	452	302	289									7
TAK/TP-B4	587	437	425									8.2
TAK/TP-B5	730	580	466									10
TAK/TP-C1	372	182	93	130	G 1 1/4"	4xM10	78	75	80	70	80	9
TAK/TP-C2	472	287	193									10
TAK/TP-C3	600	415	320									12.5
TAK/TP-C4	744	557	465									14.5
TAK/TP-C5	922	737	643									17.5
TAK/TP-C6	1332	1146	1055									30

Max. perm. oil temperature 120 °C. Max. oil pressure 14 bars. Max. water pressure 10 bars.

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1 Technical data

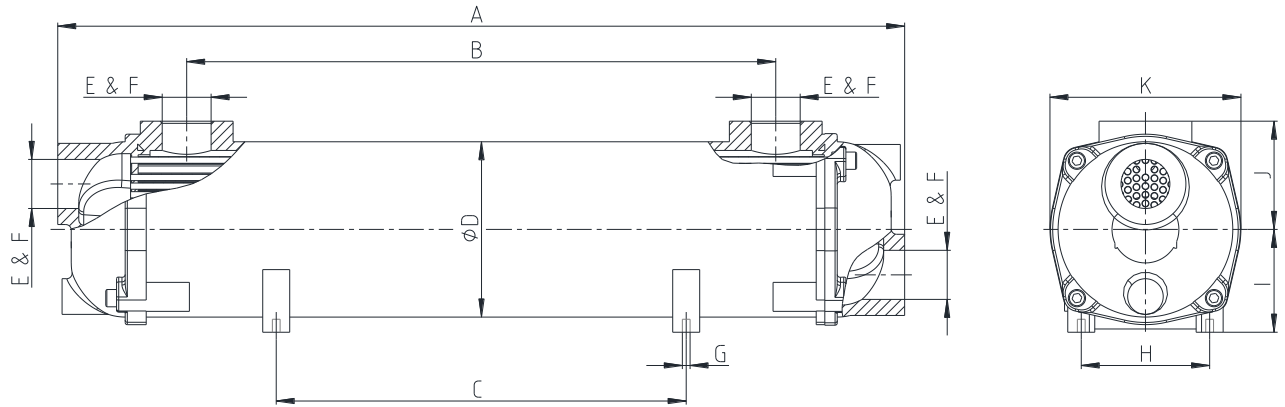


Illustration 2: Oil/water cooler type TAK/TP series D-F

Table 2: Dimensions - TAK/TP series D-F

Type	Dimensions [mm]											Weight [kg]
	A	B	C	D	E & F	G	H	I	J	K	L	
TAK/TP-D1	505	270	109	162	G 1 1/2"	4xM10	119	95	100	177	-	20
TAK/TP-D2	634	402	238									24
TAK/TP-D3	780	546	384									27
TAK/TP-D4	954	722	558									32
TAK/TP-D5	1160	928	764									38
TAK/TP-D6	1364	1132	968									45
TAK/TP-E1	675	372	239	198	G 2"	4xM12	120	110	120	206	-	33
TAK/TP-E2	816	513	380									39
TAK/TP-E3	998	696	560									45
TAK/TP-E4	1204	901	766									54
TAK/TP-E5	1408	1102	968									64
TAK/TP-E6	1712	1406	1272									74
TAK/TP-F1	754	330	236	278	G 3"	4xM16	180	155	170	288	-	47
TAK/TP-F2	900	476	382									47
TAK/TP-F3	1077	654	560									68
TAK/TP-F4	1280	856	762									79
TAK/TP-F5	1484	1060	966									91
TAK/TP-F6	1790	1364	1270									105

Max. perm. oil temperature 120 °C. Max. oil pressure 14 bars. Max. water pressure 10 bars.

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**2 Advice**

**2.1 General advice**

Please read through these operating/assembly instructions carefully before you start up the oil/water cooler. 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.

**2.2 Safety and advice symbols**



**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. 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".
- 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 and lock the oil and water valves.
- Do not reach into the operation area of the machine as long as it is in operation.
- Secure the oil/water cooler against accidental contact (risk of burns). Provide for the necessary protection devices and covers.

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**2 Advice**

**2.4 Proper 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/TP** 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 affect the heat exchanger.**

- The oil/water cooler needs to be connected in the respective locations by means of pipework resp. tubes (see illustration 3 or 4).



Illustration 3: Oil/water cooler type TAK/TP series A-C

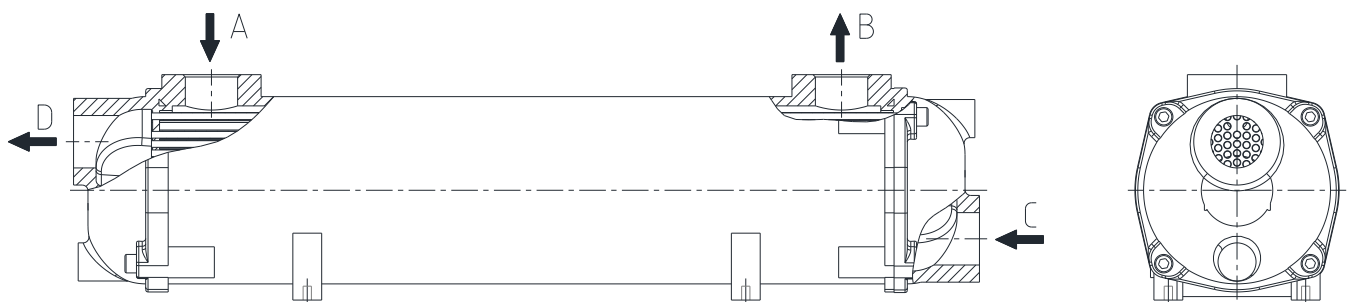


Illustration 4: Oil/water cooler type TAK/TP series D-F

<b>A</b> - medium to be cooled	<b>C</b> - cooling water „IN“
<b>B</b> - medium cooled	<b>D</b> - cooling water „OUT“

- 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.

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**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 deposited 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 clogging of the water-bearing pipes of the heat exchanger preventing sufficient cooling.

**3.3 Pressure peaks**

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

If volume flow peaks arise, 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 resp. standards that apply.

- **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.

 <b>KTR-Group</b>	<b>Oil/water cooler TAK/TP</b> <b>Operating/Assembly instructions</b>	KTR-N 41413 EN Sheet: 7 of 7 Edition: 1
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## 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 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 regularly performed by the user.

The maintenance intervals mainly depend on the operating period and the water speed reached. In case of frequent standstill and low volume of water 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](http://www.ktr.com).



**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.**

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