



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

Table of contents

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



1 Technical data

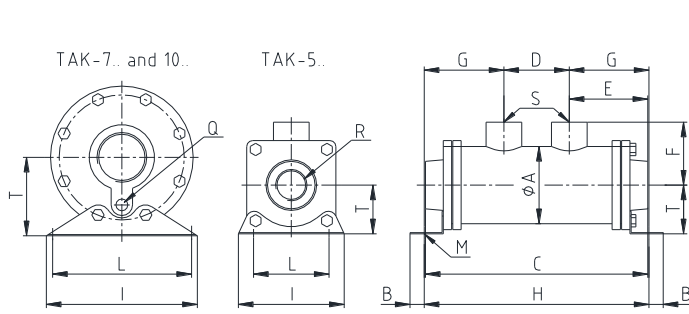


Illustration 1: Oil/water cooler type TAK „one-way“

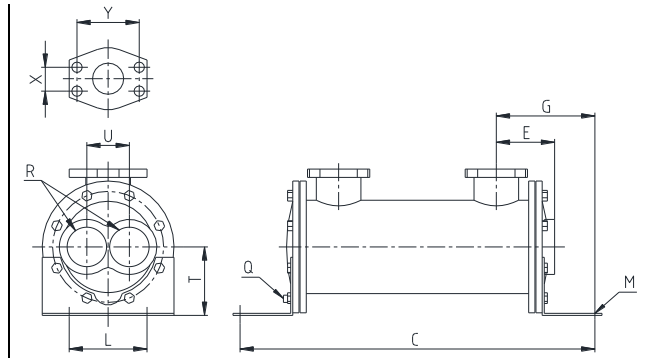


Illustration 2: Oil/water cooler type TAK „two-way“

Table 1: Dimensions - type TAK „one-way“

Size	Dimensions [mm]									
	A	B	E	G	I	L	M	Q	R	T
TAK-5..	65	12	66	82*	89	63.5	Ø9x16	-	G ¾"	41
TAK-7..	90	15	103	103	127	76	Ø11x19	G ¼"	G 1 ¼"	66
TAK-10..	128	20	116	116	165	102	Ø11x25	G ¼"	G 1 ½"	102

* except for TAK-505 = 66 mm

Table 2: Dimensions - type TAK „two-way“

Size	Dimensions [mm]										
	A	B	E	G	I	L	M	Q	R	T	U
TAK-5..	65	12	83	85	89	63.5	Ø9x16	-	G ⅜"	41	28
TAK-7..	90	15	91	95	127	76	Ø11x19	-	G 1"	66	41
TAK-10..	128	20	113	110	165	102	Ø11x25	G ¼"	G 1 ¼"	102	60

Table 3: Dimensions of equipment - type TAK „one-way“ and „two-way“

Size	Dimensions [mm]					W _T ¹⁾ [m ²]	Weight [kg]	Oil connection			
	C		D	F	H			standard S	Optionally		
	One- way	Two- way							SAE flange	X	V
TAK-505	187	187	55	53	189	0.43	3.15	G ¾"	-	-	-
TAK-508	263	265	97	57	265	0.73	3.60				
TAK-510	314	314	148	57	316	0.94	3.45				
TAK-512	365	365	199	57	367	1.13	4.05				
TAK-514	416	416	250	57	418	1.43	4.50				
TAK-518	517	517	351	57	519	1.74	5.10				
TAK-524	670	672	504	57	672	2.35	6.00				
TAK-536	975	976	809	57	976	3.57	7.80				
TAK-708	283	258	76	73	272	1.38	7.30				
TAK-712	385	360	177	73	373	2.18	8.40				
TAK-714	435	411	228	73	424	2.53	8.80	G 1 ½"	SAE 1 ½"	35.8	69.9
TAK-718	537	513	330	73	526	3.29	10.20				
TAK-724	689	665	482	73	678	4.44	11.60				
TAK-736	994	995	787	73	983	6.73	15.50				
TAK-1012	389	369	157	92	392	4.38	15.40				
TAK-1014	440	420	207	92	443	5.17	16.90				
TAK-1018	541	522	309	92	544	6.73	19.80				
TAK-1024	694	674	461	92	697	9.06	21.80				
TAK-1036	999	979	766	92	1002	13.74	30.50				
TAK-1048	1303	1284	1071	92	1306	18.41	39.80				

¹⁾ W_T = Heat exchanging surface

Please observe protection note ISO 16016.	Drawn:	2017-01-02 Sho/Pz	Replacing:	KTR-N dated 2014-09-26
	Verified:	2017-01-02 Pz	Replaced by:	



1 Technical data

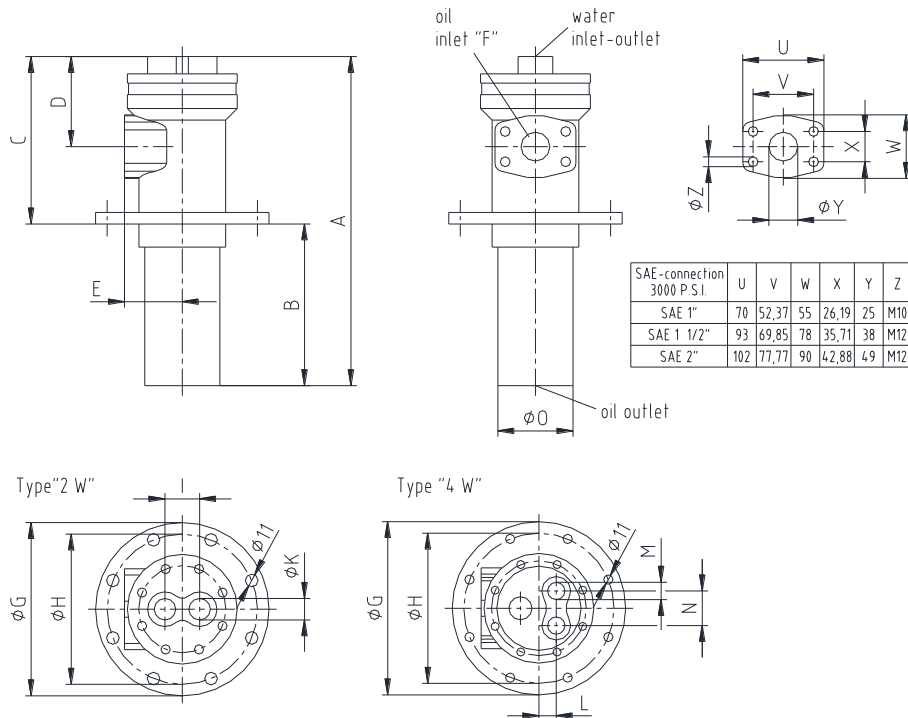


Illustration 3: Oil/water cooler type TEK

Table 4: Dimensions - type TEK

Size	Dimensions [mm]							Dimensions of equipment [mm]							W _T ¹⁾ [m ²]
								G	H	Type „2W“		Type „4W“			
	A	B	C	D	E	F	O			I	K	L	M	N	
TEK-M-508	285	140	145	78	50	G 1"	65	150	130	30	R 1/2"	-	-	-	0.73
TEK-M-512	386	241	145	78	50		65	150	130	30	R 1/2"	-	-	-	1.13
TEK-M-514	437	292	145	78	50		65	150	130	30	R 1/2"	-	-	-	1.43
TEK-M-518	539	394	145	78	50		65	150	130	30	R 1/2"	-	-	-	1.74
TEK-M-524	691	546	145	78	50		65	150	130	30	R 1/2"	-	-	-	2.35
TEK-M-536	996	851	145	78	50		65	150	130	30	R 1/2"	-	-	-	3.57
TEK-M-708	296	141	155	95	65	SAE 1 1/2"	89	185	165	47	R 1"	18	R 1/2"	48	1.38
TEK-M-712	397	242	155	95	65		89	185	165	47	R 1"	18	R 1/2"	48	2.18
TEK-M-714	448	293	155	95	65		89	185	165	47	R 1"	18	R 1/2"	48	2.53
TEK-M-718	550	395	155	95	65		89	185	165	47	R 1"	18	R 1/2"	48	3.29
TEK-M-724	702	547	155	95	65		89	185	165	47	R 1"	18	R 1/2"	48	4.44
TEK-M-736	1007	852	155	95	65		89	185	165	47	R 1"	18	R 1/2"	48	6.73
TEK-M-1012	425	220	205	120	84	SAE 2"	128	230	205	62	R 1 1/4"	22	R 3/4"	63	4.38
TEK-M-1014	476	271	205	120	84		128	230	205	62	R 1 1/4"	22	R 3/4"	63	5.17
TEK-M-1018	578	373	205	120	84		128	230	205	62	R 1 1/4"	22	R 3/4"	63	6.73
TEK-M-1024	730	525	205	120	84		128	230	205	62	R 1 1/4"	22	R 3/4"	63	9.06
TEK-M-1036	1035	830	205	120	84		128	230	205	62	R 1 1/4"	22	R 3/4"	63	13.74
TEK-M-1048	1340	1135	205	120	84		128	230	205	62	R 1 1/4"	22	R 3/4"	63	18.41

¹⁾ W_T = Heat exchanging surface



2 Advice

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!
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. 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 and TEK** 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 4 or 5).

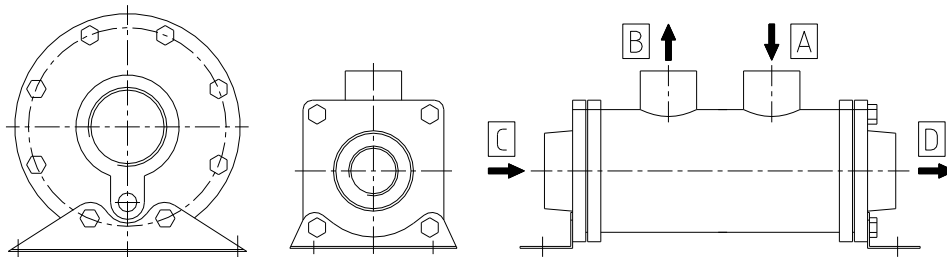


Illustration 4: Oil/water cooler type TAK „one way“

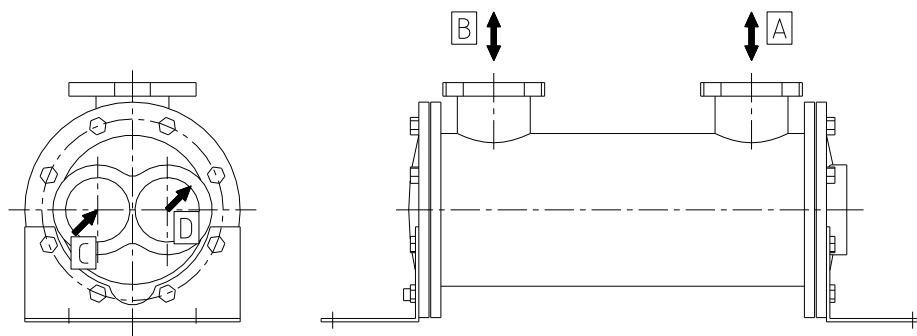


Illustration 5: Oil/water cooler type TAK „two-way“

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.

Please observe protection note ISO 16016.	Drawn: 2017-01-02 Sho/Pz	Replacing: KTR-N dated 2014-09-26
	Verified: 2017-01-02 Pz	Replaced by:

**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 or use the coolers type TAK/TEK-R with integrated bypass clack 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.

	Oil/water cooler TAK and TEK	KTR-N 41411 EN
	Operating/Assembly instructions	Sheet: 7 of 7
		Edition: 2

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.



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.

Please observe protection note ISO 16016.	Drawn: 2017-01-02 Sho/Pz	Replacing: KTR-N dated 2014-09-26
	Verified: 2017-01-02 Pz	Replaced by: