



The oil-water coolers TAK, TAK/T and TEK are tube-bank heat exchangers with a wide range of applications.

### General Hints

Please read through these mounting instructions carefully before you set the cooler into operation. Please pay special attention to the safety instructions!  
The mounting instructions are part of your product. Please keep them carefully and close to the cooler. The copyright for these mounting instructions remains with **KTR Kupplungstechnik GmbH**.

### Safety and Advice Hints



**DANGER!** Danger of injury to persons.



**CAUTION!** Damages on the machine possible.



**ATTENTION!** Pointing to important items.

### General Hints of Danger



**DANGER!**  
With the assembly, operation and maintenance of the cooler it has to be ensured that the entire power train is secured against unintentional connection and the machine is depressurized. Hot or pressurized hydraulic oil or water, respectively, may hurt seriously. For that reason please make absolutely sure to read through and adhere to the following safety hints.

- All operations on and with the cooler have to be performed taking into account "safety first".
- Please cut off the feeding of oil and water as well as the power pack before you perform any maintenance on the cooler.
- Secure the power pack as well as the oil and water feeding against unintentional connection, e. g. by installing information labels at the place of connection, or remove the fuse of the current supply as well as the switch valve lever for oil and water.
- Please protect the cooler against unintentional touch (danger of burning). Please provide for the necessary protection devices and caps.

### Proper Use

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

- carefully read through the mounting instructions and understood them
- had technical training
- are authorized to do so by your company

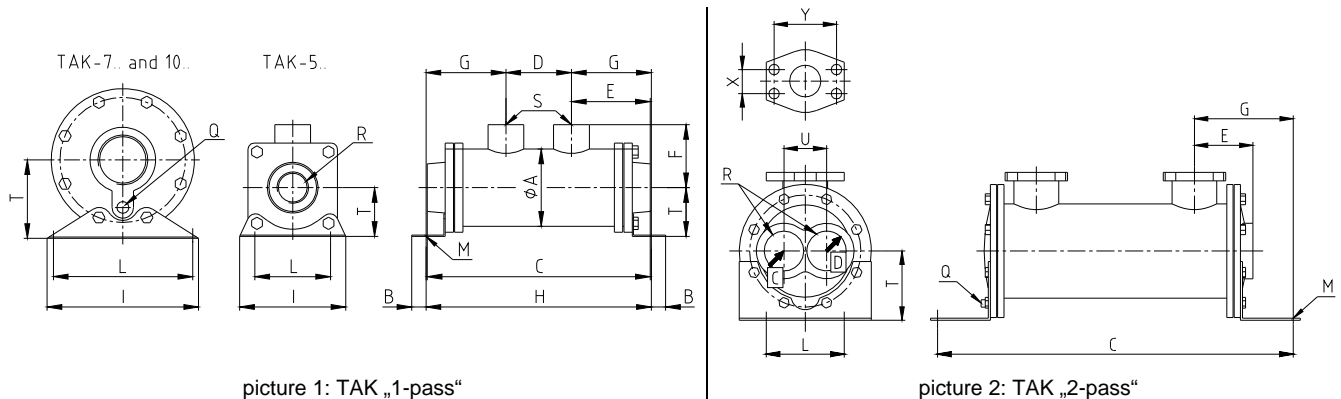
The cooler may only be used in accordance with the technical data. Unauthorized modifications on the cooler design are not admissible. We do not take any warranty for resulting damages. To further develop the product we reserve the right for technical modifications.

The **KTR Oil-water cooler TAK, TAK/T and TEK** described in here corresponds to the technical status at the time of printing of these mounting instructions.

Schutzvermerk ISO 16016 beachten.	Gezeichnet: 16.11.10 Pz /Bet	Ersatz für: KTR-N vom 07.02.06
	Geprüft: 16.11.10 Pz	Ersetzt durch:



**Technical Data**



**Table 1: dimensions – design TAK „1-pass“**

Size	Dimensions [mm]									
	A	B	E	G	I	L	M	Q	R	T
TAK-5..	65	12	66	82*	89	63,5	Ø9x16	-	G 3/4"	41
TAK-7..	90	15	103	103	127	76	Ø11x19	G 1/4"	G 1 1/4"	66
TAK-10..	128	20	116	116	165	102	Ø11x25	G 1/4"	G 1 1/2"	102

\* outsider TAK-505 = 66 mm

**Table 2: dimensions – design TAK „2-pass“**

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 3/8"	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 1/4"	G 1 1/4"	102	60

**Table 3: unit dimensions – design TAK „1-pass“ and „2-pass“**

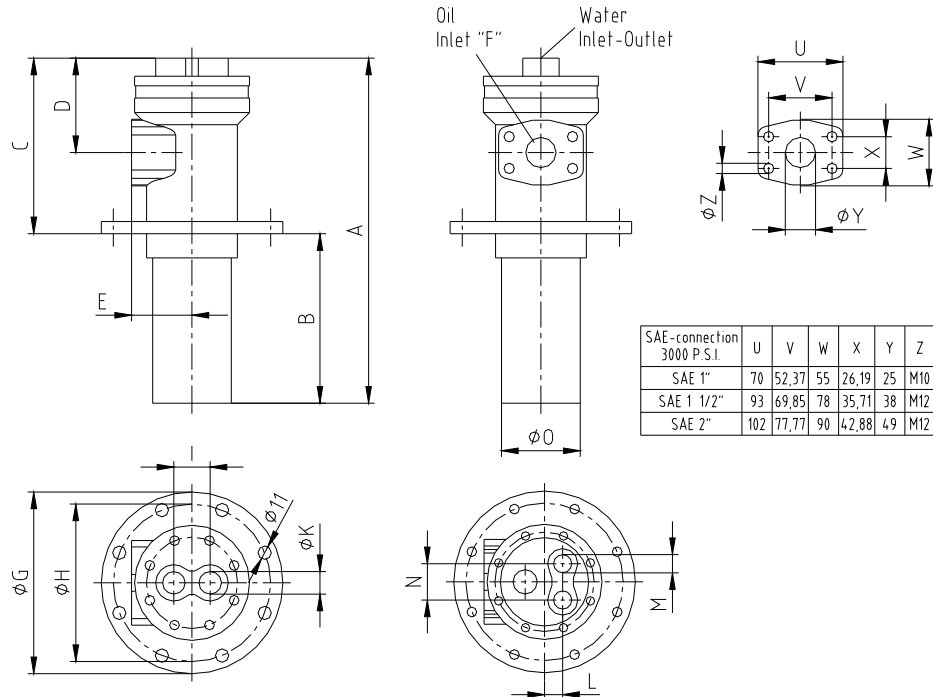
Size	Dimensions [mm]					W <sub>T</sub> <sup>1)</sup> [m <sup>2</sup> ]	Weight [kg]	Oil connection			
	C		D	F	H			Standard S	Optional		
	1-pass	2-pass							SAE-flange	X	V
TAK-505	187	187	55	53	189	0,43	3,15	G 3/4"	-	-	-
TAK-508	263	265	97	57	265	0,73	3,60				
TAK-510	314	314	148	57	316	0,94	3,45				
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 1/2"	SAE 1 1/2"	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<sub>T</sub> = Heat exchange surface [m<sup>2</sup>]

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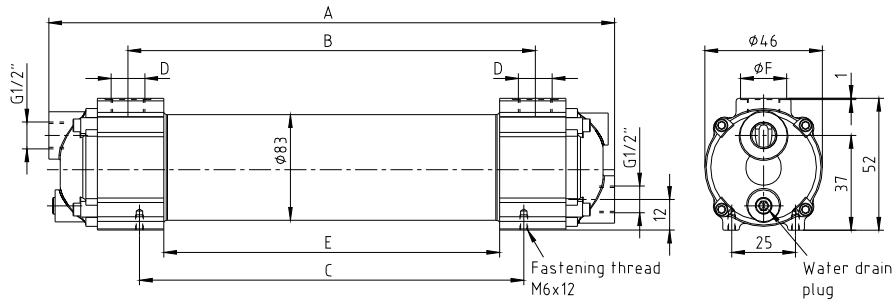
picture 3: TEK

**Table 4: dimensions – design TEK**

Size	Dimensions							Unit dimensions							W <sub>T</sub> <sup>1)</sup> [m <sup>2</sup> ]
								design „2W“				design „4W“			
	A	B	C	D	E	F	O	G	H	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



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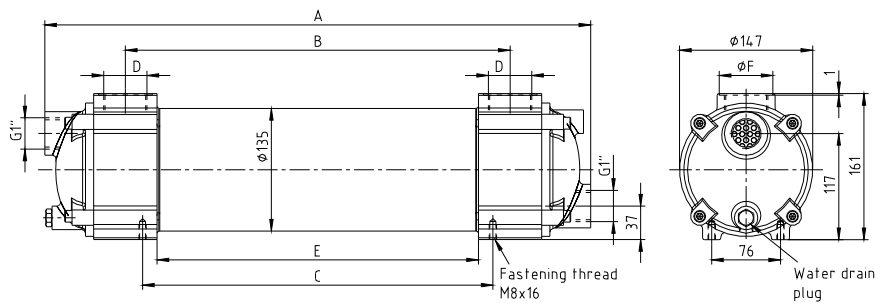
picture 4:  
TAK/T Serie 23

**Table 5: dimensions – TAK/T Serie 23**

Type	Dimensions [mm]						Weight [kg]	Oil vol. [l]	Water vol. [l]
	A	B	C	D [BSP]	E	ØF			
TAK/T 2312	175	59	1)	G 1/2	-	29,1	3	0,3	0,4
TAK/T 2322	259	135	117	G 3/4	-	36	4	0,5	0,5
TAK/T 2332	345	221	203	G 3/4	-	36	5	0,7	0,6
TAK/T 2342	443	319	301	G 3/4	263	36	5	1,0	0,7
TAK/T 2352	571	447	429	G 3/4	391	36	6	1,3	0,9
TAK/T 2362	717	587	575	G1	537	-	7	1,7	1,1
TAK/T 2372	895	765	765	G1	715	-	8	2,2	1,4

1) On Model No 2310 two M6x12 mounting holes are provided on the base midway between the oil port centres.

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



picture 5:  
TAK/T Serie 25

**Table 6: dimensions – TAK/T Serie 25**

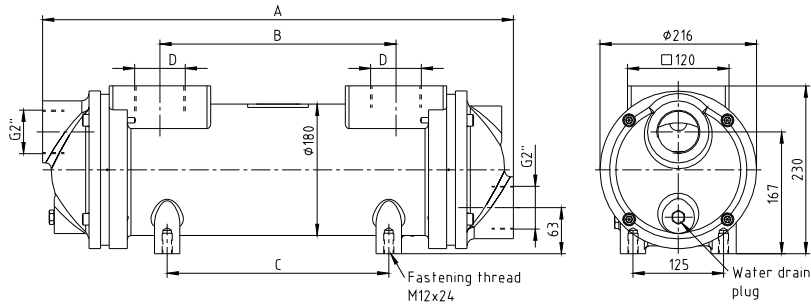
Type	Dimensions [mm]						Weight [kg]	Oil vol. [l]	Water vol. [l]
	A	B	C	D [BSP]	E	ØF			
TAK/T 2512	291	129	75	G1	-	45	10	1,4	1,4
TAK/T 2522	377	199	161	G1 1/4	-	53	12	1,9	1,7
TAK/T 2532	475	297	259	G1 1/4	-	53	13	2,5	2,1
TAK/T 2542	603	425	387	G1 1/4	333	53	14	3,5	2,6
TAK/T 2552	749	571	533	G1 1/2	479	59	17	4,5	3,2
TAK/T 2562	927	749	711	G1 1/2	657	59	20	5,8	3,9
TAK/T 2572	1129	951	913	G1 1/2	859	59	23	7,3	4,8
TAK/T 2582	1381	1203	1165	G1 1/2	1111	59	27	9,0	5,8
TAK/T 2592	1727	1549	1511	G1 1/2	1457	59	32	11,5	7,2

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

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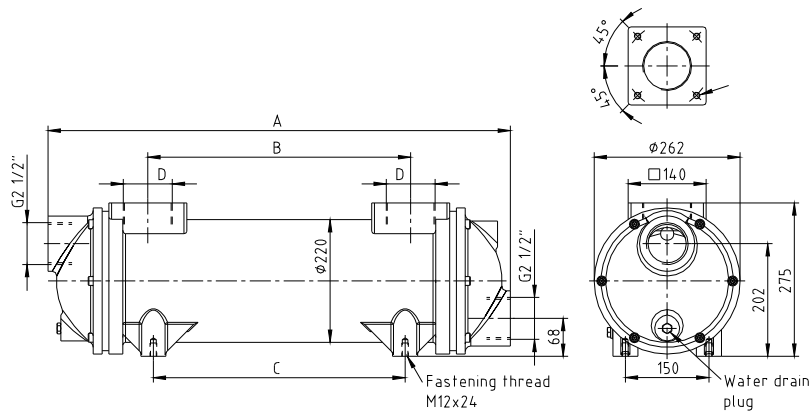


picture 6:  
TAK/T Serie 27

**Table 7: dimensions – TAK/T Serie 27**

Type	Dimensions [mm]				Weight [kg]	Oil vol. [l]	Water vol. [l]
	A	B	C	D [BSP]			
TAK/T 2712	650	326	306	G2	38	5,5	5,0
TAK/T 2722	796	472	452	G2	43	7,0	6,0
TAK/T 2732	974	650	630	G2	48	9,0	7,5
TAK/T 2742	1176	852	832	G2	55	11,0	9,0
TAK/T 2752	1428	1104	1084	G2	63	14,0	10,5
TAK/T 2762	1777	1453	1433	G2	74	17,5	13,0

Max. permissible oil temperature 100 °C. Max. oil pressure 20 bar. Max. water pressure 10 bar.



picture 7:  
TAK/T Serie 28

**Table 8: dimensions – TAK/T Serie 28**

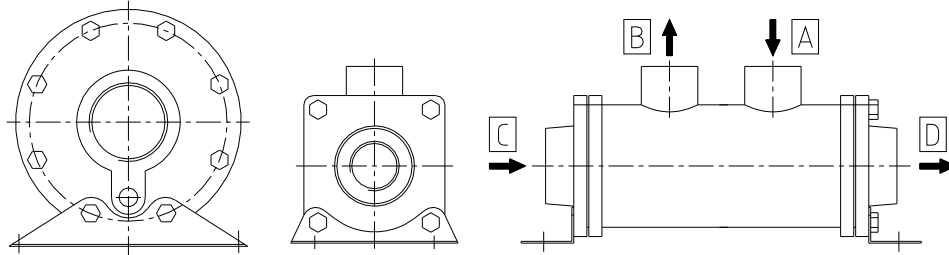
Type	Dimensions [mm]				Weight [kg]	Oil vol. [l]	Water vol. [l]
	A	B	C	D [BSP]			
TAK/T 2812	684	326	306	G3	48	9,0	7,5
TAK/T 2822	830	472	452	G3	54	11,5	9,0
TAK/T 2832	1008	650	630	G3	62	15,0	10,5
TAK/T 2842	1210	852	832	G3	71	18,5	13,0
TAK/T 2852	1462	1104	1084	G3	82	23,0	15,5
TAK/T 2862	1811	1453	1433	G3	97	29,5	19,0

Max. permissible oil temperature 100 °C. Max. oil pressure 20 bar. Max. water pressure 10 bar.

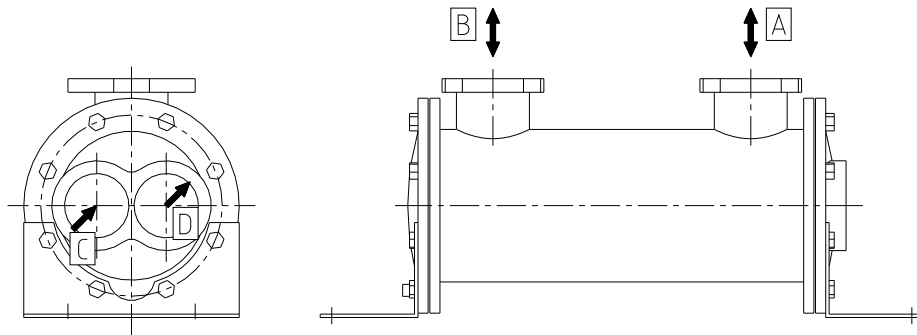
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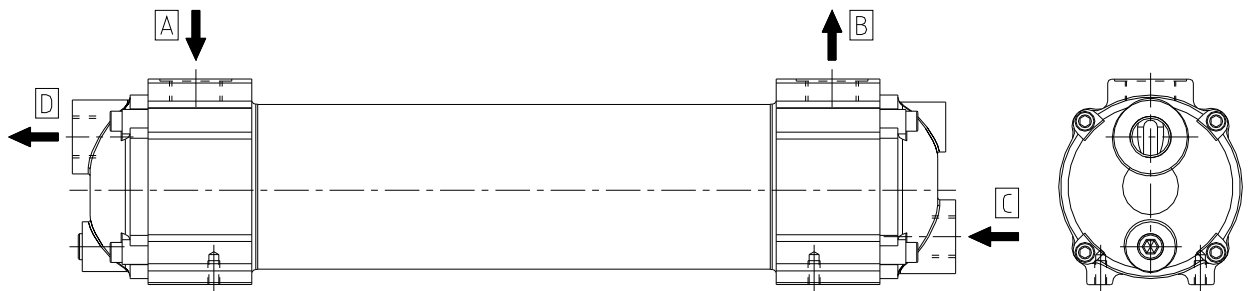
**Power supplies**



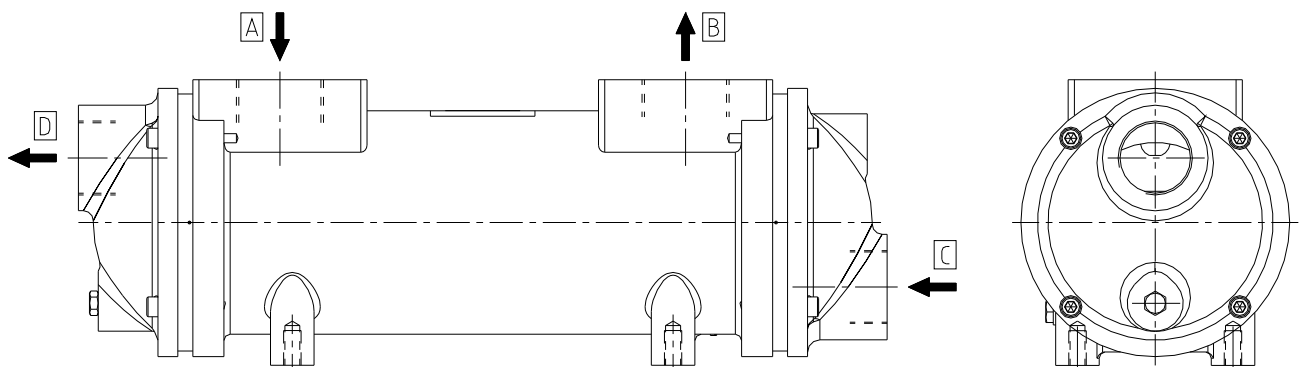
picture 8: TAK „1W“



picture 9: TAK „2W“



picture 10: TAK/T Serie 23 and 25



picture 11: TAK/T Serie 27 and 28

**A** - medium to be cooled

**B** - cooled medium

**C** - cooling water „ON“

**D** - cooling water „OFF“



### Pipework

The pipework of the cooler has to be designed in a way that no external forces may affect the heat exchanger.

### Control



#### **ATTENTION!**

An on-off control of the cooling water by means of a magnetic valve should be preferred to a proportioning control.

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

If dirty cooling water is used, a dirt pan with a mesh size of approx. 0,5 mm has to be installed into the supply line. Dirt in the cooling water quickly causes blocking up of the water bearing pipes of the heat exchanger resulting in a non-sufficient cooling effect.

### Pressure peaks



#### **CAUTION!**

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

If volume flow peaks arise, please protect the cooler by means of a fast opening bypass valve or make use of the cooler type TAK/TEK-R with integrated bypass clack valve.

### Maintenance

A heat exchanger has to be maintained from time to time, too.

Iron particles which may be produced when the piping is installed have to be removed and the heat exchanger has to be scoured carefully.

After an operating period of approx. half a year the condition of the internal surfaces of the pipes should be inspected. Depending on the degree of dirt accumulation, the cleaning intervals should be determined. Cleaning should be effected either chemically or by means of brushes with a nylon handle – no wire brushes. A remaining lime layer is recommended. The maintenance intervals mainly depend on the operating period and the water speed achieved, i. e. with frequent standstill and low water quantity short maintenance intervals are necessary.

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### Water quality

- Requirement 1: The water has to be clean, i. e. containing no dirt.
- Requirement 2: The content of hardness producers should be low. Higher amounts of furring reduce the thermal output of cooling systems considerably. However, a slight amount of furring protects the material against corrosion.
- Requirement 3: If possible, the content of free carbon dioxide should correspond to zero, since such waters (rain water, surface water) is aggressive against nonferrous heavy metals and do not produce any protective layer.
- Requirement 4: The water must not include any ammonia. The content of chloride should be lower than 100 mg/l. River water, salt water and stream water, but also certain fountain waters are rejected.  
The safest way to avoid a bigger degree of furring or corrosion is to use demineralized water or a condensation product having the following characteristics:
- Carbon hardness 4°dH
  - Contents of chloride < 100 mg/l