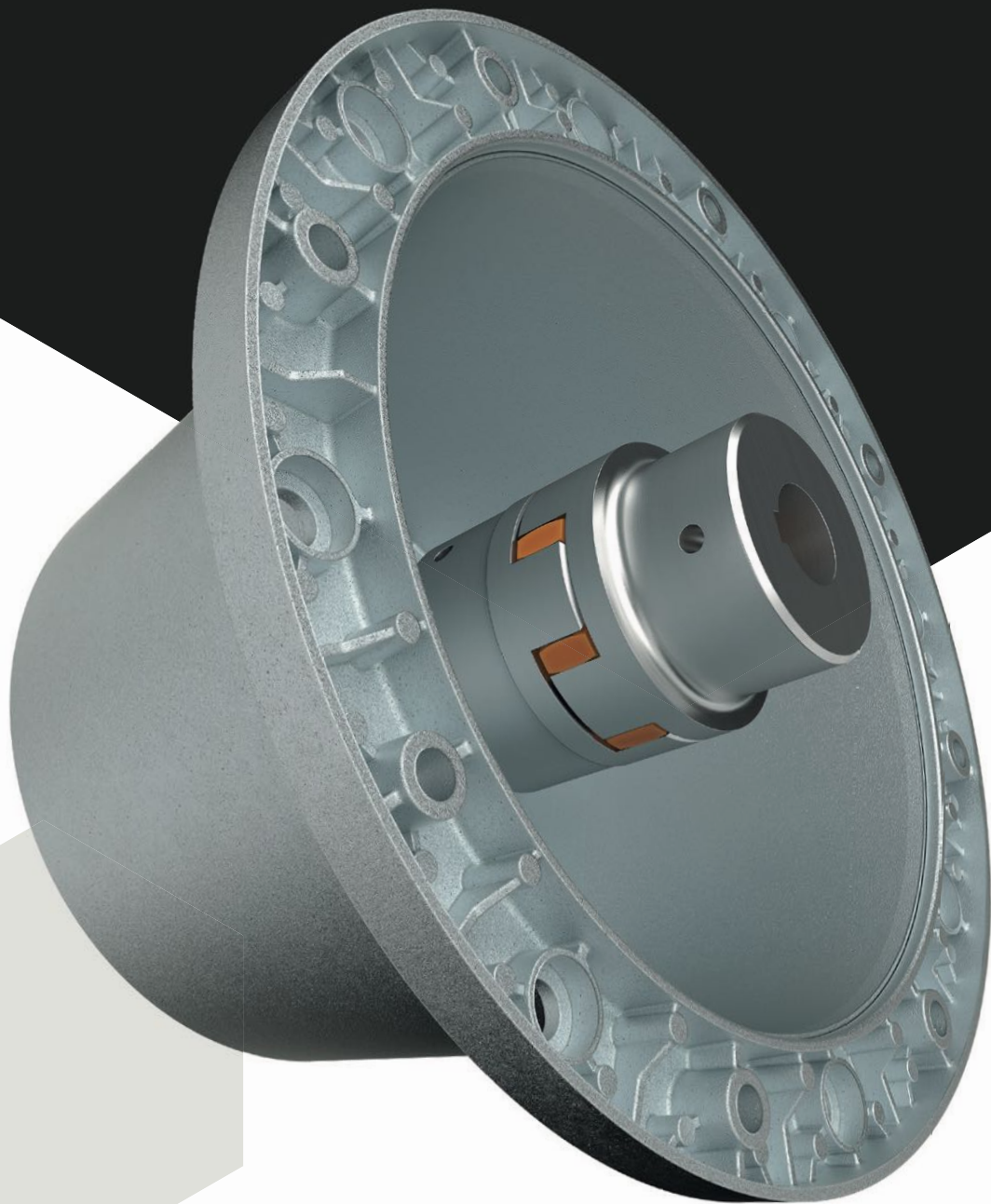


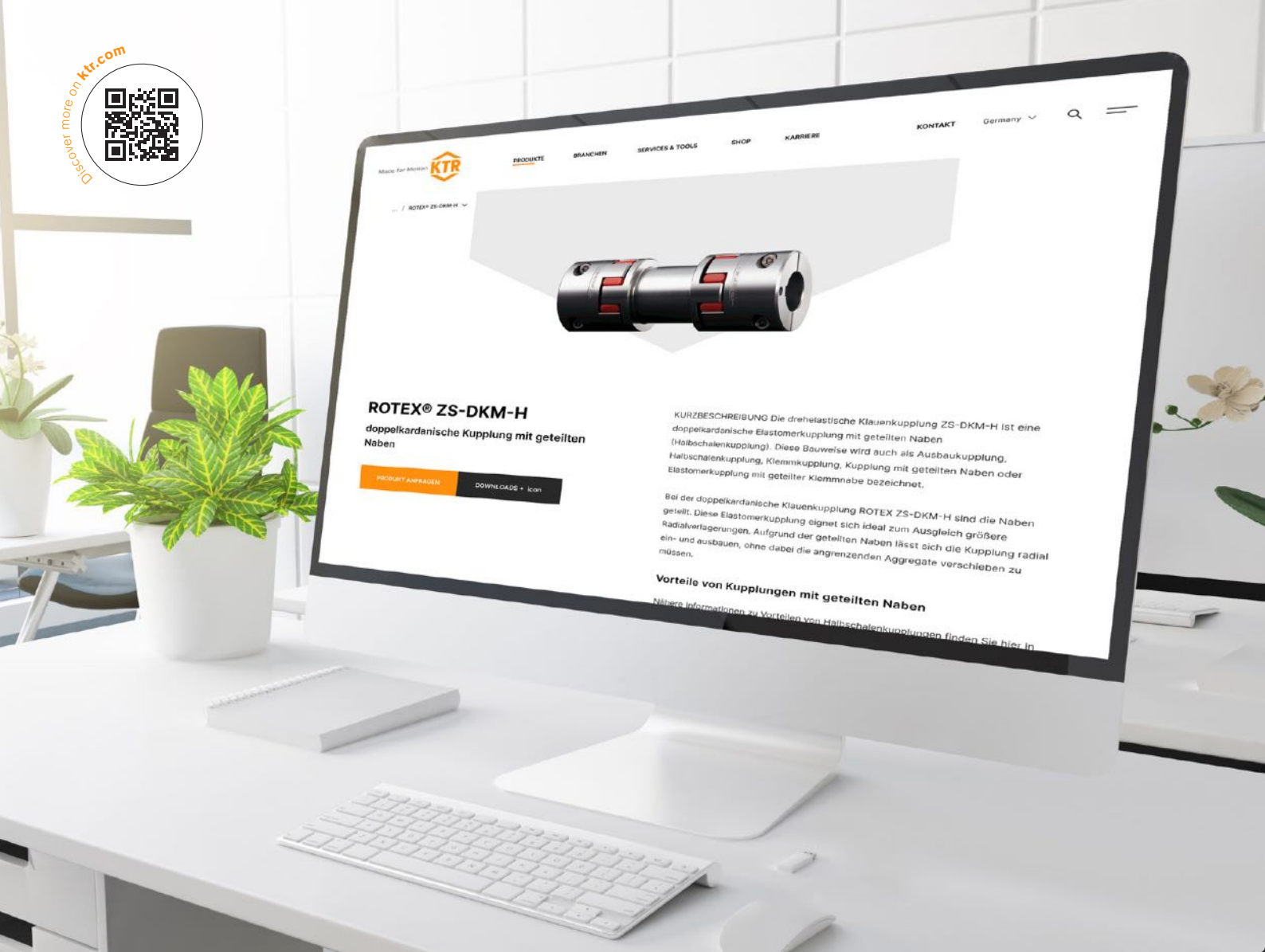
Made for Motion



Hydraulic components

Bellhousings
Damping elements
Cooling systems
Oil tanks

2023/24
www.ktr.com



One for all and everybody

The new website will soon go online

There will be no alteration, no revision, nor merely a facelift: There will rather be a comprehensive relaunch of our website making our company, our products and our services digitally accessible in a more detailed and convenient way than ever before.

The conception stage of the relaunch project managed by Melanie Gunka and Julian Birich already started in September 2021. Initially numerous international specifications of requirements as well as in-house and external surveys were executed. The target was to provide only one digital platform for all in the future - accordingly for example integrate the platforms ktr360.com and ktr-events.com completely in the new website.

„The focus is definitely on improving the services and usability of the website for visitors“, Melanie Gunka underlines. „All contents are concentrated in one place and the performance is significantly increased. The objective is to raise the user experience to a new level.“ For that purpose a new, comfortable and quick search func-

tion is integrated, as an example. The streamlined structure as well as links to products and services facilitate navigation and consequently locating the numerous offers of KTR. Besides, its responsive design makes the new website equally easy to access for all terminal devices. The login area is significantly facilitated as well: In the future customers only have to log in once to have access to all contents and applications, from miscellaneous downloads and services to 3D-CAD drawings.

After launching both the KTR configuration tools are to be natively embedded in the website and all national versions of the website are to be adapted in the course of 2023 - to make sure all customers are able to benefit from the advantages of our retreated website in the respective national language step by step worldwide.

DID YOU KNOW ...

that couplings, brakes and cooling systems are part of our scope of supply, too?
Details are available at ktr.com.

Made for Motion 



Drive Technology

- Couplings
- Torque limiters
- Clamping elements
- Torque measuring systems

www.ktr.com



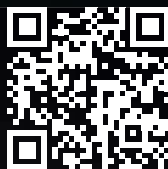
Made for Motion 



Brake systems

- KTR-STOP®
- EMS-STOP
- SBT Systems

www.ktr.com



Made for Motion 



Cooling systems

- For mobile machines and stationary hydraulics
- Customized solutions or standard design

www.ktr.com



POSSIBLE COMBINATIONS

Our hydraulic components can be combined with our drive components.
Please pay attention to the following reference:

Perfect in Combination with our
COUPLINGS

Made for Motion 



Drive Technology

- Couplings
- Torque limiters
- Clamping elements
- Torque measuring systems

www.ktr.com

Those who value KTR as a manufacturer will love us as a partner.

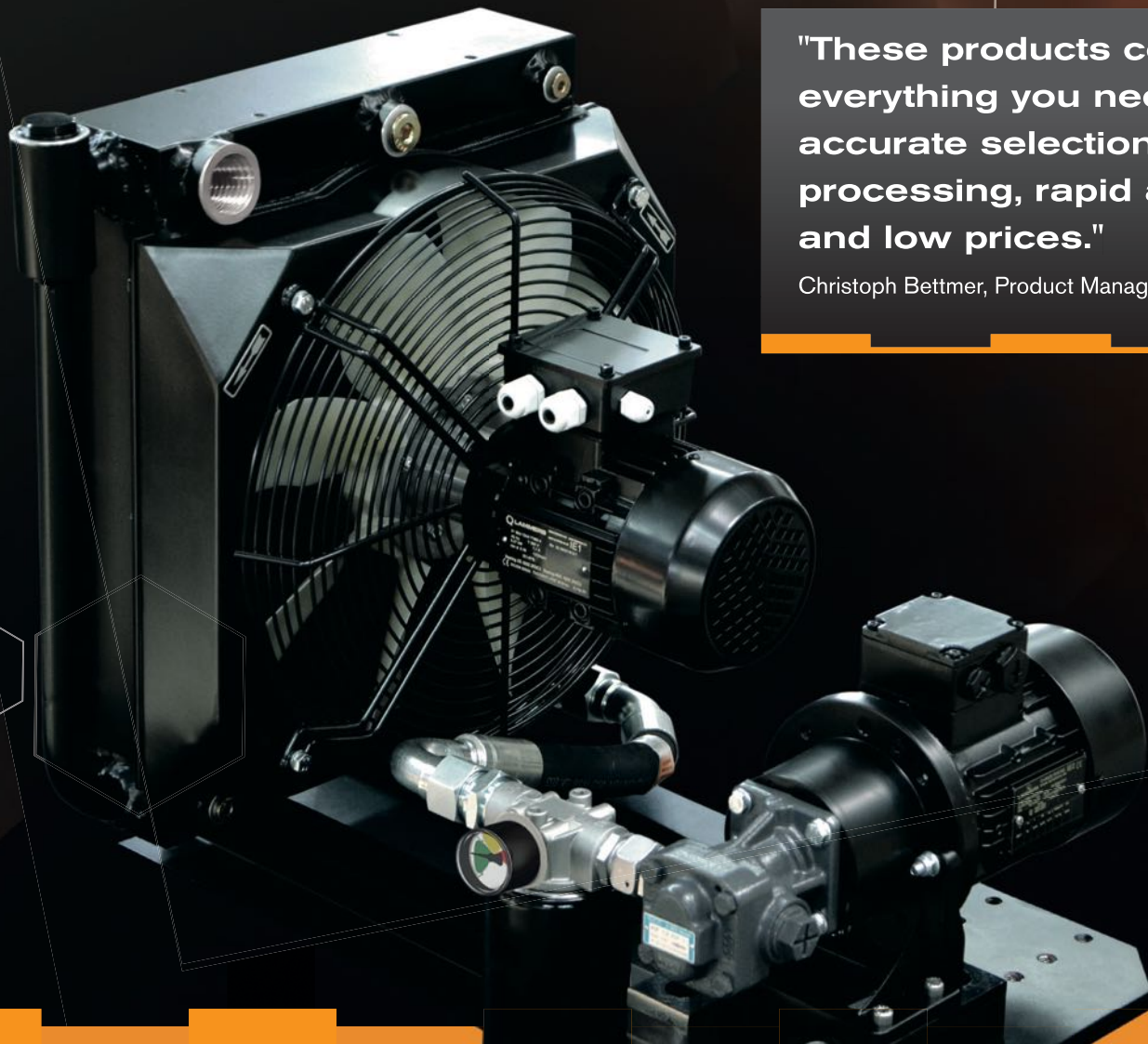
KTR provides the mechanical and plant engineering with an extensive portfolio of high-quality drive and hydraulic components and cooling systems. We are pleased to be at your service during the designing stage and develop tailor-made solutions for you. Perfectly organized logistics, global presence via 24 subsidiary companies and more than 90 distribution partners along with an international network consisting of 8 production sites are the prerequisite for quick delivery. When it comes to service we ensure short distances along with competent and personal support.





"These products combine everything you need: accurate selection, top processing, rapid availability and low prices."

Christoph Bettmer, Product Manager Hydraulics

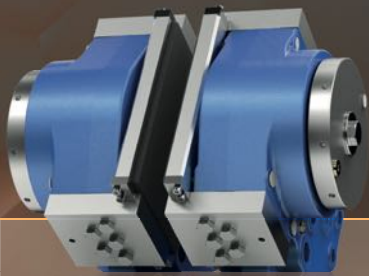


Wherever motion is essential,
we have the right answer.



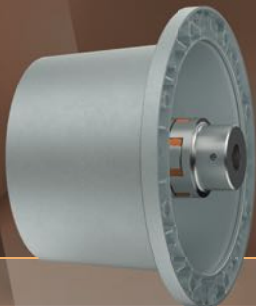
Drive Technology

Mechanical components are and will remain essential in drive technology. The industry's demands on components grow continuously: energy efficiency, power density, ease of servicing and electronification. Our portfolio includes couplings and torque limiters, clamping sets and universal joints as well as torque measuring shafts.



Brake systems

Our hydraulic and electromechanical brake systems are globally used in various industries. Customer preference and parameters of the application decide upon the selection of the right brake.



Hydraulic components

For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house development and manufacturing: accurate selection, high-quality processing, quick availability.



Cooling systems

As a customised product or standard solution, multimediuim or oil/air cooler, for mobile machines or stationary hydraulics, optionally available as a marine or ATEX version, powerful and efficient.

OUR INDUSTRIES



Wind power



Construction and agricultural machines



Pumps and compressors



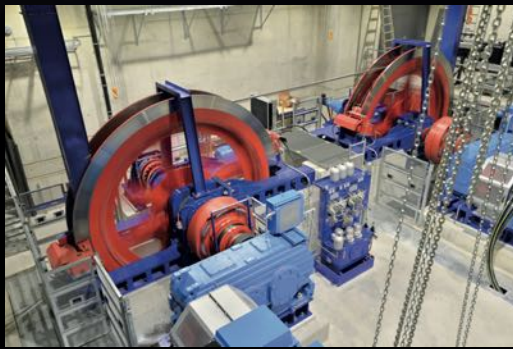
Indoor materials handling



Machine tools



Hydraulics



General drive technology



Marine / shipbuilding

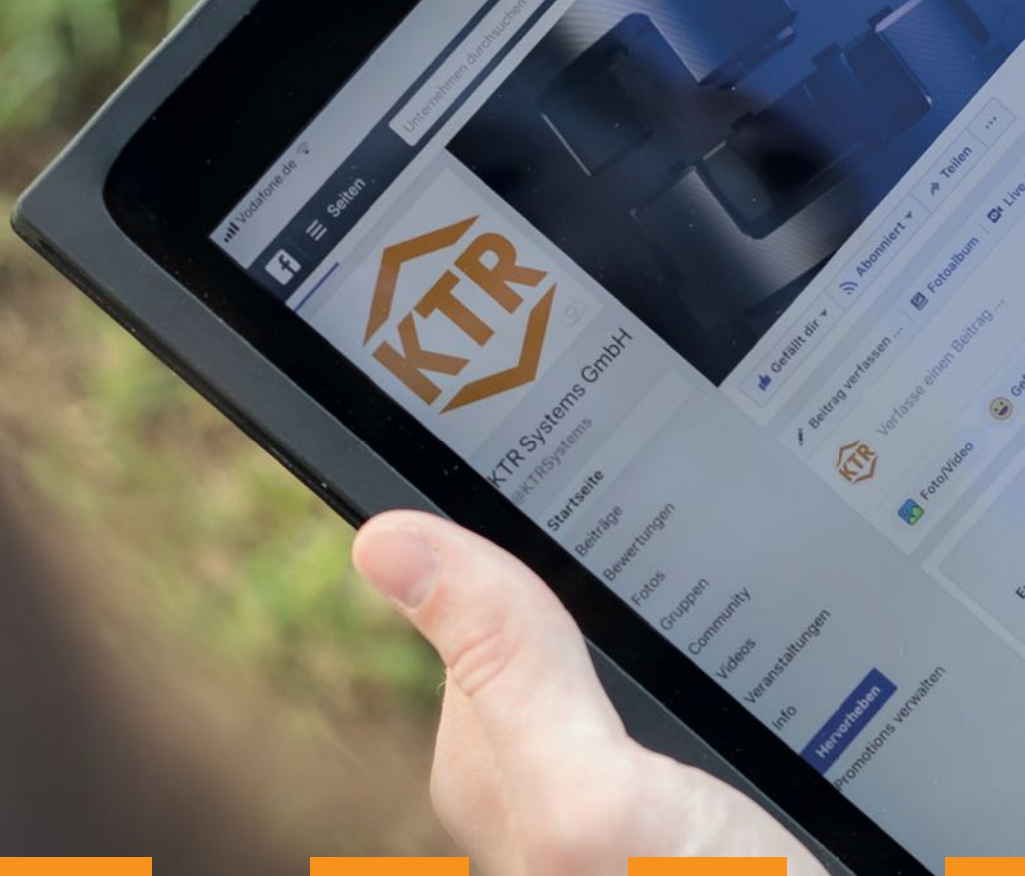


Stationary power generation

SUMMARY OF PRODUCTS/INDUSTRIES

WIND POWER	CONSTRUCTION AND AGRICULTURAL MACHINERY	PUMPS AND COMPRESSORS	INDOOR MATERIALS HANDLING
Gearless wind turbines	Excavators	Compressors	Conveying and storage
Wind turbines	Road rollers	Pumps	Food processing machinery
Local power grids	Crushers	Cooling towers	Packaging machinery
	Combine harvesters		
	Tank spreaders		

HYDRAULICS															
Bell housings and accessories															
Bell housings	■	■									■	■			
Damping rings	■	■										■			
Foot flanges	■	■													
Mounting flange and gaskets	■	■													
Damping element	■	■													
Elastic flange	■	■													
Damping ring	■	■													
Damping rods	■	■													
COOLING SYSTEMS															
Oil/air cooler															
OAC	■	■	■												
OPC															
Oil/water cooler															
PHE															
TAK/TP															
Accessories															
TSC Temperature switch															
Oil thermostat valve OTV															
Combined coolers															
MMC					■	■	■	■	■		■	■		■	■
TANKS AND ACCESSORIES															
Aluminium tank BAK	■	■	■												
Oil collecting groove RS-O NBR	■	■	■												
Steel tanks BSK/BNK/BEK/SBK/ Oil sumps	■	■			■		■	■			■	■		■	■
TEMPERATURE CONTROL AND MONITORING															
Temperature switch / controller	■	■	■												
Level and temperature switch	■	■	■												
El. level and temperature controller	■	■	■												
Tank heater	■	■	■												

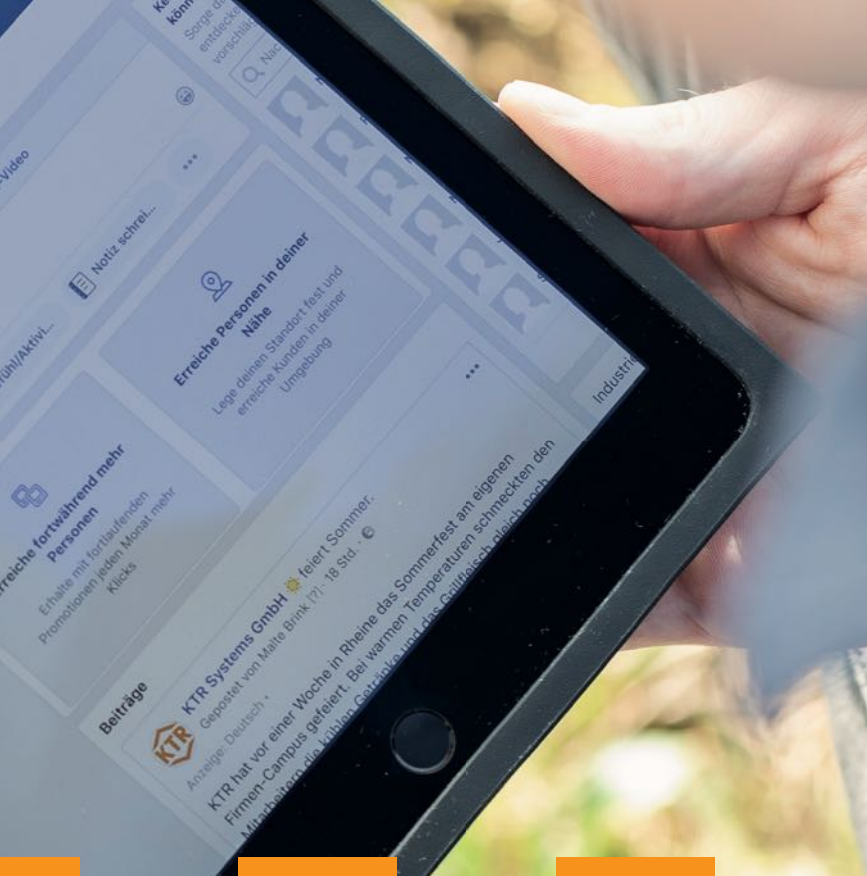


A short touch of a button assists you when you are pressed for time.

All of us are familiar with this: During the selection stage the importance of hydraulic components is sometimes undervalued. Then you suddenly realize that the basis of power supply for the machine was left out of consideration - now a prompt reaction is essential. But even if you are pressed for time KTR is the right partner. Since with KTR many solutions require a touch of a button only.

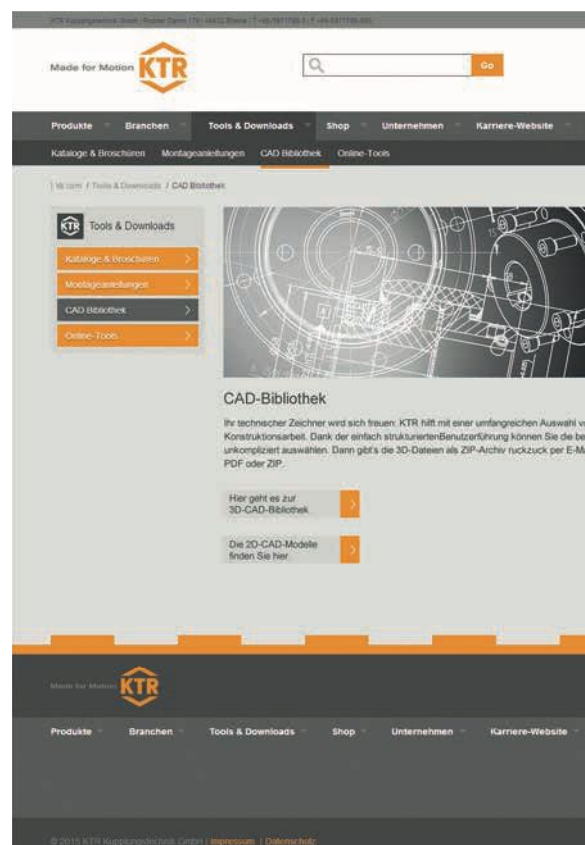
Support with designing: the 3D-SpaceCenter

Those who have no time to waste primarily have no time for errors. Since drawings are often made under deadline pressure, you should play safe. The best is to visit the KTR 3D-SpaceCenter. The Internet provides for an extensive choice of couplings and hydraulic components supporting you optimally with your designing work. A user guidance with a simple structure allows for a quick selection of the models required. The 3D files are sent to you by e-mail by return and free of charge. It is no longer necessary to revise a component. This will save a lot of time and efforts - and above all those errors that are unnecessary.

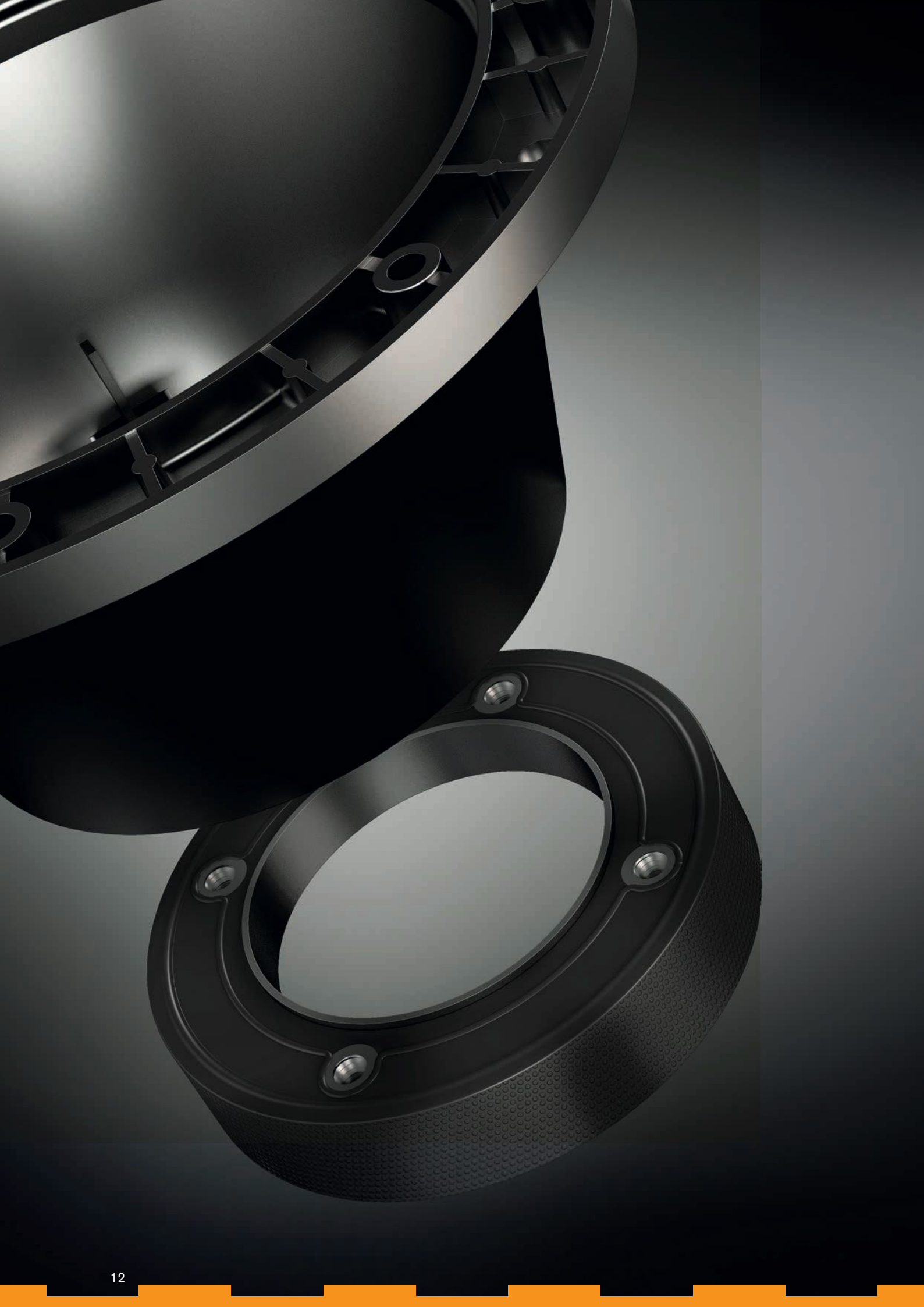


A matter of selection: the functional online configuration

A few clicks only will guide you to the aim: KTR is the only manufacturer of couplings providing for an extensive online selection program for hydraulic components. The operation is quite simple: First you define the pump manufacturer, type of pump and electric motor. In a matter of seconds the program provides a selection of suitable couplings and bellhousings. Depending on the application you can select extra components such as damping ring or foot flange. Afterwards the components selected can be displayed true to scale via Webviewer or as a PDF file. Having completed the selection you can order your individual online offer or order the components required directly in the KTR shop. This is functional – taking pressure off the timetable.



www.ktr.com



Summary of Products

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Bellhousings	14
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Oil/air cooler

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-------------------------	----

Oil/water cooler

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Tanks and accessories

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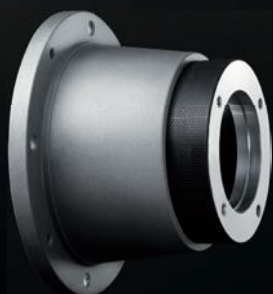
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Bellhousings



Coolers



Tanks

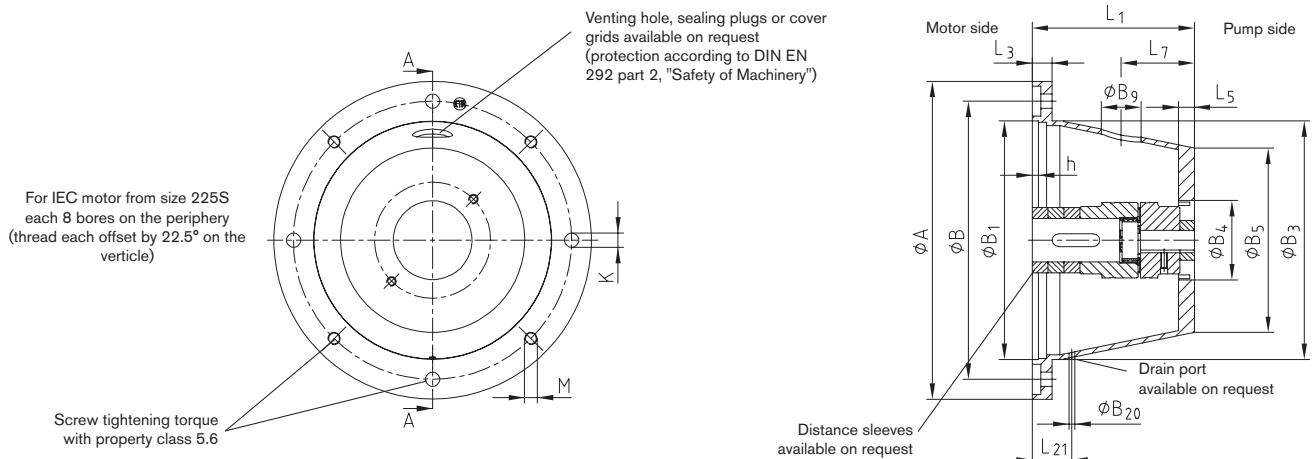
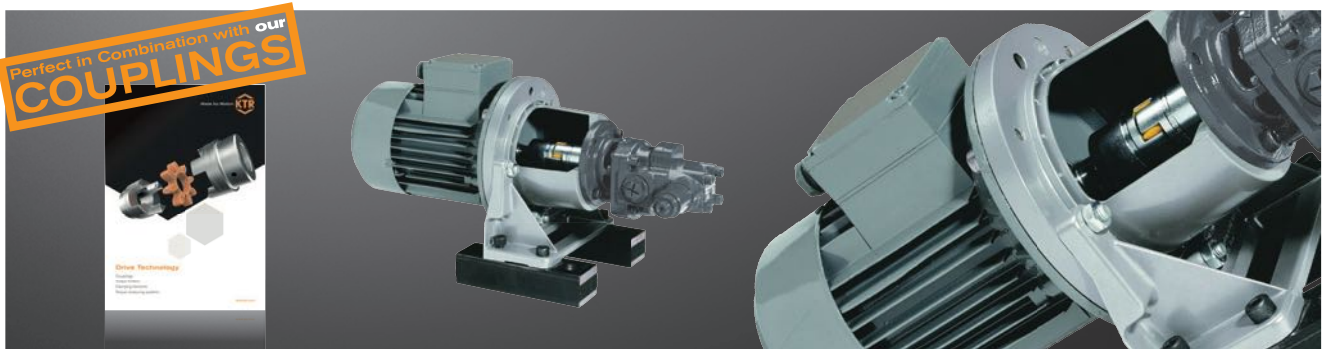


Tank heaters



BELLOUSINGS HYDRAULIC COMPONENTS

Bellousings made of aluminium



Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

Bellousings according to VDMA 24561 type A																				
IEC motor size (shaft end) d ₁ x l ₃	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]											Venting hole		Drain port		
					A	B	B ₁	B ₃	h	K	M	L ₁	L ₃	L ₅ ¹⁾	B ₅	B ₄	B ₉	L ₇	B ₂₀	L ₂₁
71 (14 x 30)	0.25	PK 160/5/..	160	160	160	130	110	110	4	9	M8	80	13	8	105	29	25	33	7.5	28
	0.37	PL 160/5/..										90			102	29		38		
80 (19 x 40)	0.55	PK 200/3/..	200	200	200	165	130	145	4	11	M10	100	16	12	124	40	36	43	7.5	36
	0.75	PL 200/3/..										110			140	37		47		
90S/90L (24 x 50)	1.1	PL 200/8/..	200	200	200	165	130	145	4	11	M10	124	16	12	143	40	36	60	7.5	36
	1.5	PFL 200/6/..										140			180	47		62		
100L/112M (28 x 60)	2.2	PK 250/6/..	250	250	250	215	180	190	5	14	M12	120	19	12	177	49	40	54	7.5	43
	3	PL 250/3/..										124			126	42		52		
	3	PL 250/6/..										135			180	58		57		
	4	PL 250/4/..										148			180	56		64		
132S/132M (38 x 80)	3	PFL 250/18/..	250	250	250	215	180	190	5	14	M12	175	19	12	250	75	40	77	7.5	43
	5.5	PK 300/5/..										144			205	57		63		
	5.5	PL 300/15/..										150			221	78		66		
	7.5	PL 300/4/..										168			205	56		74		
160M/160L (42 x 110)	5.5	PK 300/7/..	300	300	300	265	230	234	5	14	M12	196	20	15	220	57	50	84	7.5	45
	7.5	PL 300/4/..										188			225	59		82		
	11	PK 350/4/..										204			225	56		87		
	15	PK 350/6/..										228			248	97		102		
180M/180L (48 x 110)	18.5	PK 350/10/..	350	350	350	300	250	260	6	17	M16	256	26	15	255	88	50	115	7.5	51
	22	PL 350/7/..										204			230	75		92		
	30	PK 400/4/..										228			255	88		115		
	30	PK 400/5/..										256			230	75		92		
200L (55 x 110)	30	PL 400/5/..	400	400	400	350	300	300	6	17	M16	228	26	20	279	95	50	104	7.5	51
	37	PK 450/2/..										256			290	97		118		
	37	PK 450/3/..										234			280	97		107		
	45	PL 450/3/..										262			315	97		121		
225S/225M (60 x 140)	45	PK 450/3/..	450	450	450	400	350	350	6	17	M16	285	25	20	325	97	50	133	7.5	51
	55	PL 550/8/..										248			340	97		116		
	75	PK 550/3/..										265			360	120		125		
	90	PL 550/3/..										275			340	97		130		
250M (65 x 140)	75	PK 550/3/..	550	550	550	500	450	450 ²⁾	6	17	M16	295	26	25	360	123	50	140	7.5	51
	90	PL 550/3/..										315			400	150		135		
	110	PK 660/2/..										310			410	120		147		
	132	PL 660/5/..										330			400	120		157		
280S/280M (75 x 140)	160	PK 660/2/..	660	660	660	600	550	550 ²⁾	7	22	M20	343	32	30	490	174	50	163	7.5	60
	200	PL 660/4/..										395			500	197		190		
	355L/400M (100 x 210)	355										PK 800/1/..			880	800		800		
710	PK 800/3/..	395	487	160	160															

Other types of bellhousings

IEC motor size (shaft end) d ₁ x l ₃	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS *)	Dimensions [mm]																	
					A	B	B ₁	B ₃	h	K	M	L ₁	L ₃	L ₅ ¹⁾	B ₅	Min.	Venting hole		Drain port			
																		B ₄	B ₉	L ₇	B ₂₀	L ₂₁
71 (14 x 30)	0.25	PFK 160/6/..	160	160	160	130	110	110	4	9	M8	79	13	13	140	30	25	35	7.5	28		
	0.37	PFL 160/6/..										101				60		46				
80 (19 x 40)	0.55	PK 200/11/..	200	200	200	165	130	145	4	11	M10	45	16	12	144	97	10	15	7.5	36		
	0.75	PL 200/11/..										55				18		18				
90S/90L (24 x 50)	1.1	PK 200/13/..	200	200	200	165	130	145	4	11	M10	152	16	12	175	30	36	71	7.5	36		
	1.5	PFK 200/24/..										148				142		37			25	30
100L/112M (28 x 60)	2.2	PK 200/30/..	250	250	250	215	180	190	5	14	M12	79	18	12	187	97	10	20	7.5	43		
		PK 250/13/..										159				186		77			40	69
	PK 250/15/..	61										186				74	40	39				
	3	PL 250/15/..																			79	20
4	PK 250/17/..	100	186	74	40	39																
132S/132M (38 x 80)	5.5	PK 300/8/..	300	300	300	265	230	234	5	14	M12	110	20	15	231	97	30	32	7.5	45		
		PK 300/9/..										85				50		37				
	PL 300/9/..	99										221				56	50	57			95	57
	7.5	PL 300/13/..																				
PK 300/15/..	138	221	56	50	57	95	57															
160M/160L (42 x 110)	11	PK 350/8/..	350	350	350	300	250	260	6	17	M16	204	25	15	252	53	50	90	7.5	51		
	15	PK 350/11/..										130				97		52				
180M/180L (48 x 110)	18.5	PL 350/11/..	350	350	350	300	250	260	6	17	M16	146	26	18	244	89	50	60	7.5	51		
	22	PK 350/18/..										159				26		67				
200L (55 x 110)	30	PL 350/18/..	400	400	400	350	300	300	6	17	M16	184	25	20	290	97	50	73	7.5	51		
		PL 400/3/..										165				75						
	PK 400/12/..	170										260	95	82								
	PL 400/12/..	184										260	95	82								
225S/225M (60 x 140)	37	PL 450/5/..	550	550	550	500	450	450 ²⁾	6	17	M16	185	25	20	325	120	50	83	7.5	51		
		PK 450/6/..										176				259		98			80	
	45	PFL 450/9/..										253	25	370	137	116						
		PK 450/12/..										204	26	260	97	90						
250M (65 x 140)	55	PK 550/4/..	550	550	550	500	450	450 ²⁾	6	17	M16	190/192	26	355	129	50	88	7.5	51			
	75	PL 550/4/..										207			330		124			96		
280S/280M (75 x 140)	90	PK 550/8/..	550	550	550	500	450	450 ²⁾	6	17	M16	217	26	25	340	97	50	100	7.5	51		
315S/315M (80 x 170)	110-	PK 660/3/..	660	660	660	600	550	550 ²⁾	8	22	M20	247	32	30	465	122	50	115	7.5	60		
	160	PL 660/3/..										260				340		156			122	
355L/400M (100 x 210)	355	PK 800/1/..	800	900	800	740	680	680 ²⁾	8	22	M20	335	40	36	520	149	50	140	7.5	70		
	710	P 800/3/..										443				37		38			500	305

Venting hole and sealing plugs available on request.
(Protection according to DIN EN 292 part 2, „Safety of Machinery“)

Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

¹⁾ Bottom of pot does not consist of solid material → ribbed

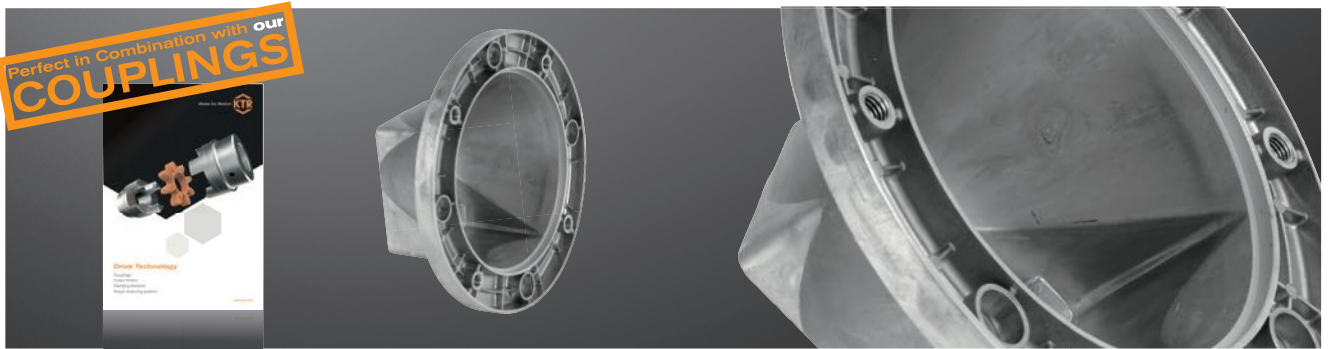
²⁾ Passing from dimension B₃ to flange radius R = 5

*) For vertical resp. lateral mounting on the tank, gaskets (type DP, see page 25) are available. For the detailed order designation refer to our PC/Internet selection program or specify the IEC motor size and detailed pump type for selection. If venting holes resp. drain ports are required, please specify in your order.

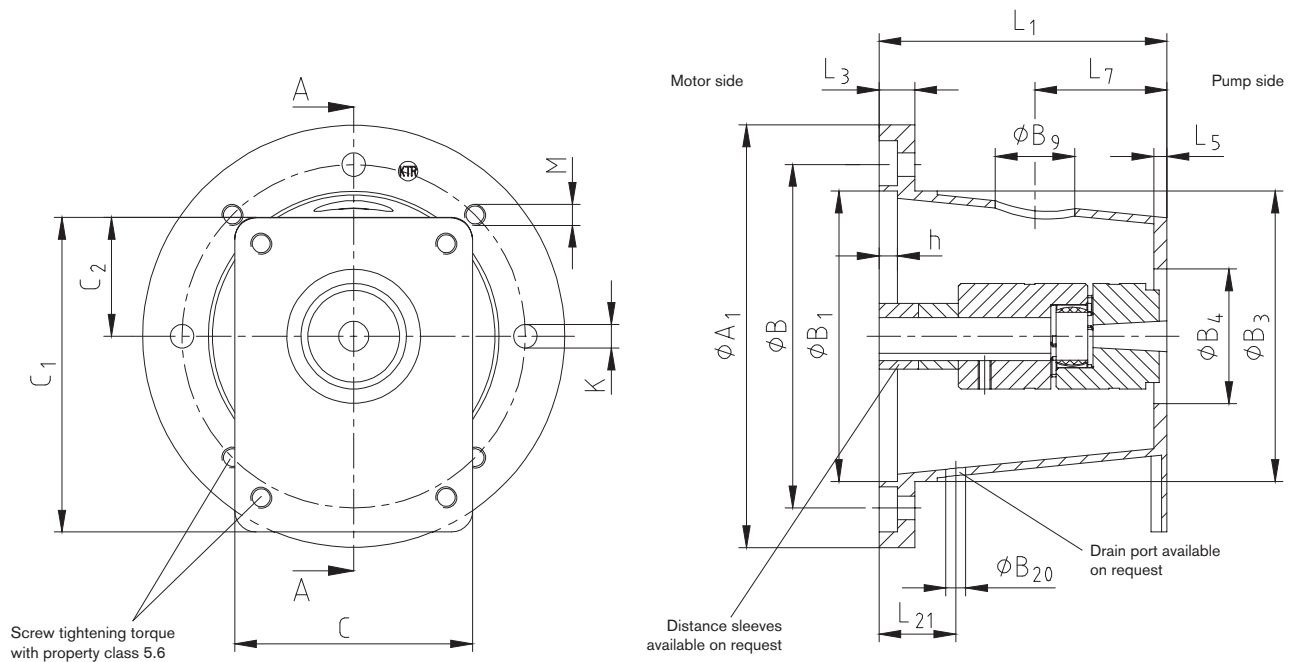
Ordering example:	PL	PK	P	450	3	8
	Bellhousing type, long	Bellhousing type, short	Former bellhousing type	Flange diameter of IEC Motor	Serial model code	In-house modification code

BELLOUSINGS HYDRAULIC COMPONENTS

Bellousings with rectangular flanges



Bellousings with rectangular flanges



Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

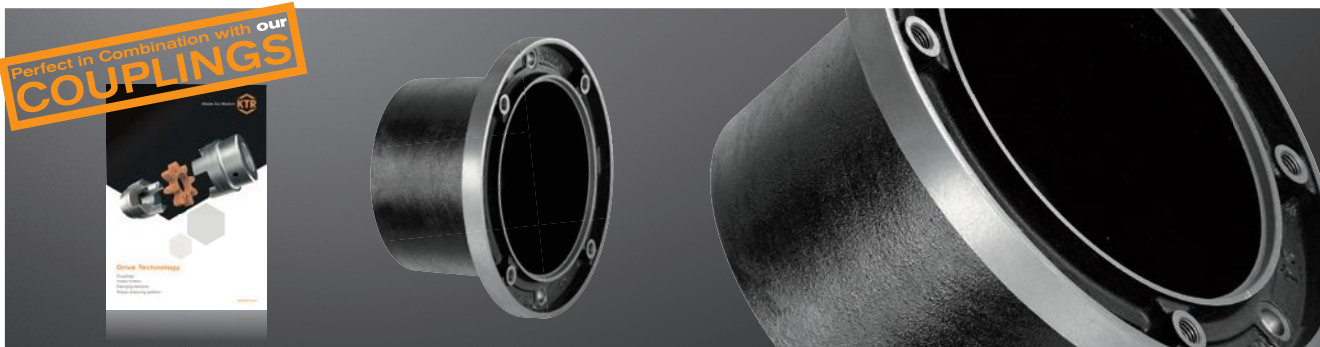
Bellousings made of aluminium with rectangular flanges																								
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]																			
					A ₁	B	B ₁	B ₃	h	K	M	L ₁	L ₃	L ₅	C	C ₁	C ₂	Min.	Venting hole		Drain port			
71	0.25 0.37	PL 160/1/..	160	160	160	130	110	110	4	9	M8	70	13	8	70	91	35	20	16	27	7.5	28		
		PL 160/4/..										110											25	50
		PK 160/4/..										95											12	43
80 90S/90L	0.55 - 1.5	PL 200/1/..	200	200	200	165	130	145	4	11	M10	90	16	12	70	91	35	22	25	37	7.5	36		
		PL 200/2/..										100											45	42
100L/112M	2.2 3	PL 250/1/..	250	250	250	215	180	190	5	14	M12	110	18	12	90	120	45	22	36	47	7.5	43		
		PL 250/2/..										110											45	45
132S/132M	5.5 7.5	PL 300/1/..	300	300	300	265	230	234	5	14	M12	132	20	15	120	150	53	33	50	56	7.5	45		
		PK 300/2/..										137											64	59
160M/160L 180M/180L	11 - 22	PL 350/1/..	350	350	350	300	250	260	6	18	M16	171	26	15	120	156	59	33	50	73	7.5	51		
		PL 350/2/..										181											64	78

If venting holes resp. drain ports are required, please specify in your order.

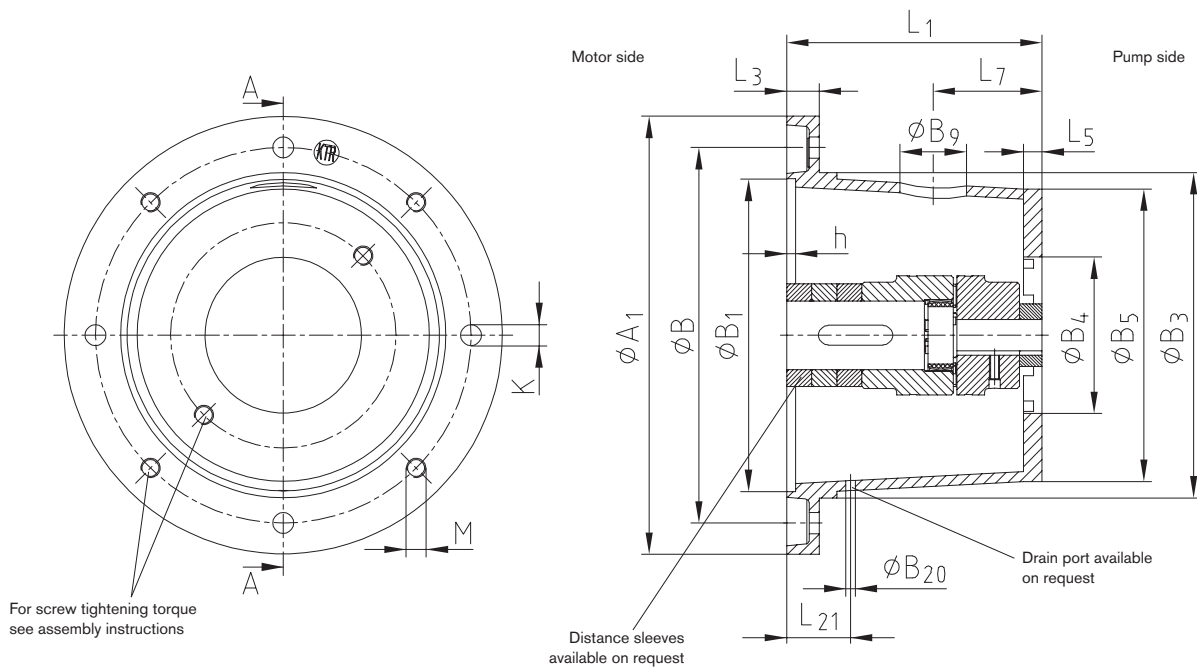
Ordering example:	PL	PK	250	2	8
	Bellhousing type, long	Bellhousing type, short	Flange diameter of IEC motor	Serial model code	In-house modification code

BELLHOUSINGS HYDRAULIC COMPONENTS

Bellhousings type PG made of cast iron



Bellhousings made of cast iron (type PG)



Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

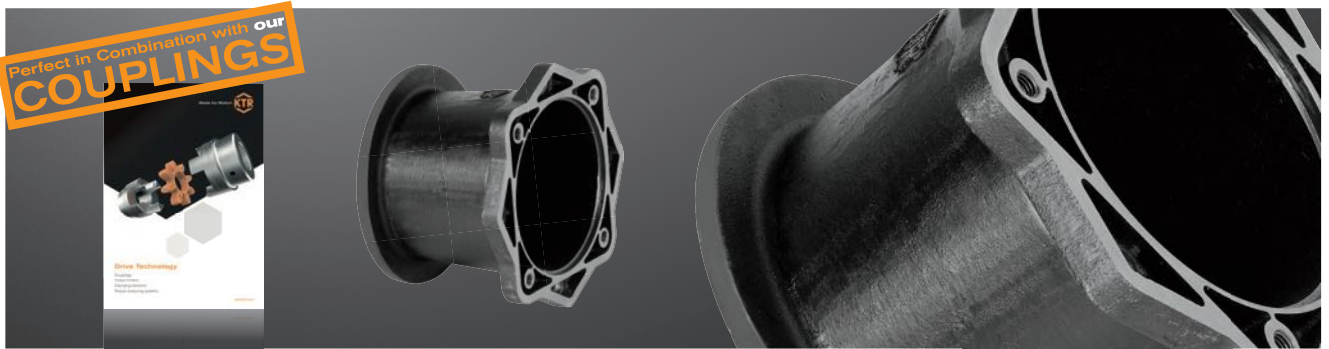
Bellhousings made of cast iron																				
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]															
					A ₁	B	B ₁	B ₃	h	K	M	L ₁	L ₃	L ₅	B ₅	Min.	Venting hole		Drain port	
132S/132M	5,5 7,5	PG 300/5/..	300	300	300	265	230	234	5	14	M12	144	20	15	215	30	50	63	7.5	45
160M/160L 180M/180L	11 - 22	PG 350/4/.. PG 350/6/..	350	350	350	300	250	260	7	17	M16	188 204	26	15	242 235	76	50	82 87	7.5	51
200L	30	PG 400/2/..	400	400	400	350	300	300	7	17	M16	256	26	20	280	97	50	118	7.5	51
		PG 400/4/..										204			260			92		
		PG 400/5/..										228			280			104		
225S/225M	37 45	PG 450/2/.. PG 450/3/..	450	450	450	400	350	350	7	17	M16	234 262	26	24 20	289 315	97 91	50	107 121	7.5	51
250M 280S/280M	55, 75 90	PG 550/1/.. PG 550/8/..	550	550	550	500	450	450	7	17	M16	265 248	26	25	360 349	97	50	125 116	7.5	51
110 - 315S/315M	110 - 160	PG 660/3/.. PG 660/5/..	660	660	660	600	550	550	8	22	M20	279 330	32	33	425	119	50	117 157	7.5	60

If venting holes resp. drain ports are required, please specify in your order.

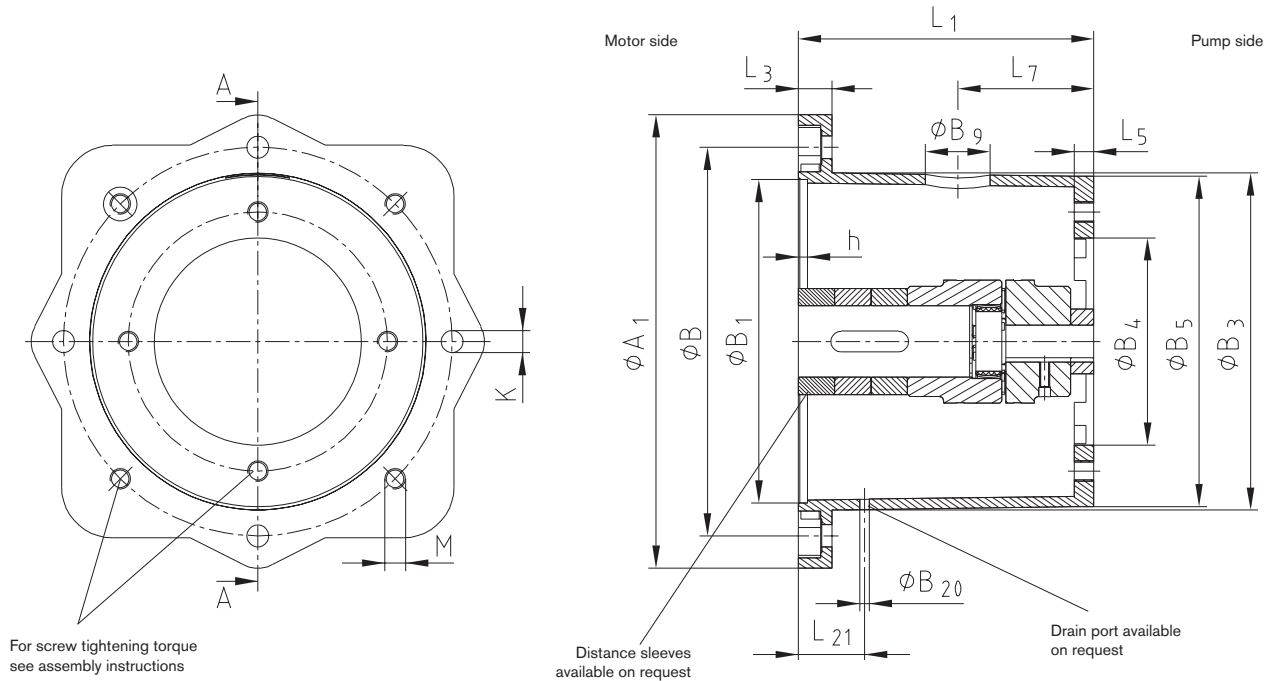
Ordering example:	PG	250	1	4
		Bellhousing type made of cast iron	Flange diameter of IEC motor	Serial model code

BELLHOUSINGS HYDRAULIC COMPONENTS

Bellhousings type PSG made of cast iron for servo motors



Bellhousings made of cast iron for servo motors (type PSG)



Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

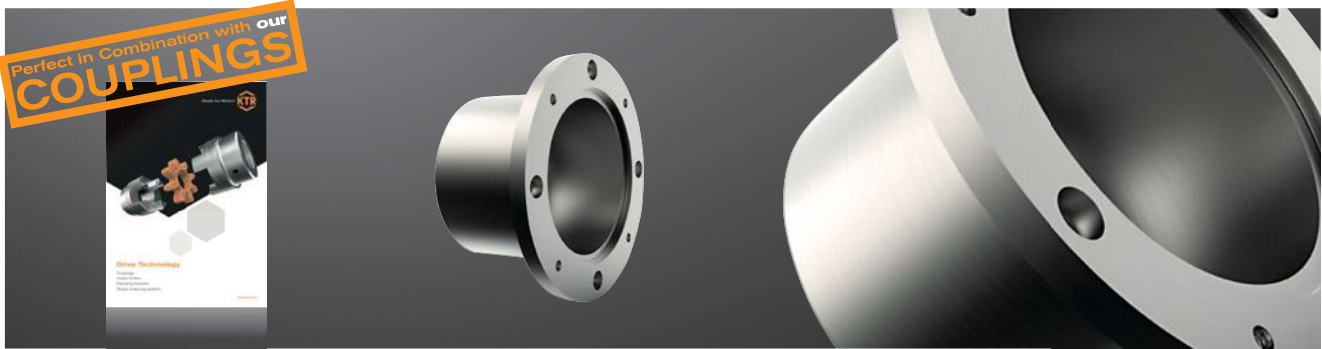
Bellhousings made of cast iron for servo motors																				
Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]													Min.	Venting hole		Drain port	
			A ₁	B	B ₁	B ₃	h	K	M	L ₁	L ₃	L ₅	B ₅	B ₄	B ₉		L ₇	B ₂₀	L ₂₁	
PSG 200/1/..	200	200	200	165	130	145	7	11	M10	124	16	12	170	55	36	60	7.5	36		
PSG 250/1/..	250	250	250	215	180	190	7	13.5	M12	175	19	12	225	70	40	77	7.5	43		
For servo and IEC motors	PSG 250/2/..	250	250	250	215	180	190	7	13.5	M12	155	19	14	180	69	40	65	7.5	43	
	PSG 350/10/..	350	350	350	300	250	260	7	17.5	M16	228	26	17	255	95	50	102	7.5	51	
	PSG 350/16/..	350	350	350	300	250	260	7	17.5	M16	204	26	17	350	139	50	87	7.5	51	

If venting holes resp. drain ports are required, please specify in your order.

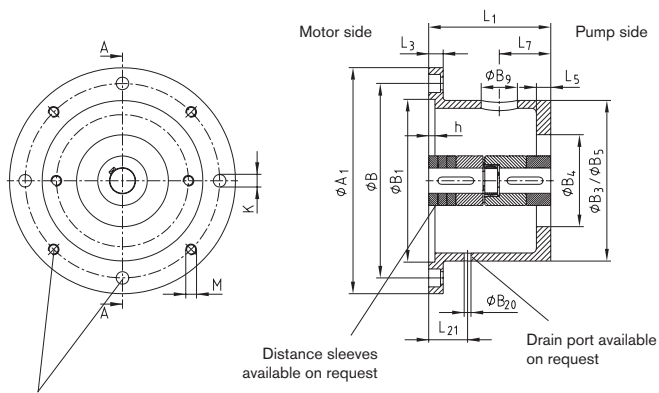
Ordering example:	PSG	250	1	4
	Bellhousing type for servo drives	Flange diameter of IEC motor	Serial model code	In-house modification code

BELLHOUSINGS HYDRAULIC COMPONENTS

Bellhousings type PS made of steel for IEC- and servo motors

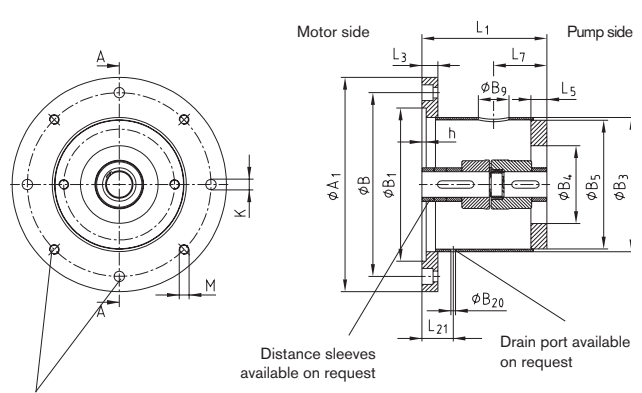


Bellhousings type PS made of steel for IEC- and servo motors



For screw tightening torque see assembly instructions

Bellhousing size 160 - 300



For screw tightening torque see assembly instructions

Bellhousing size 350 - 660

For IEC motor from size 225S/225M each 8 tapped holes and through holes on the periphery (thread each offset by 22.5° on the verticle)

Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)! Other variants on request.

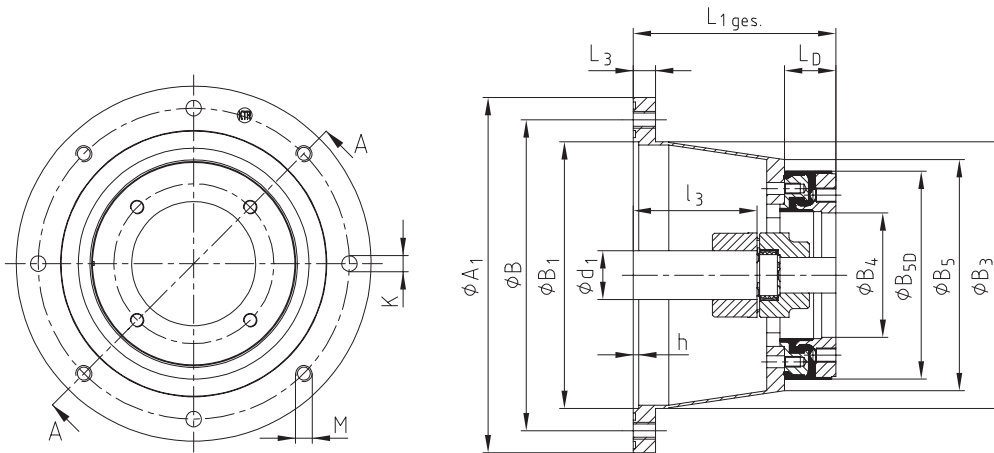
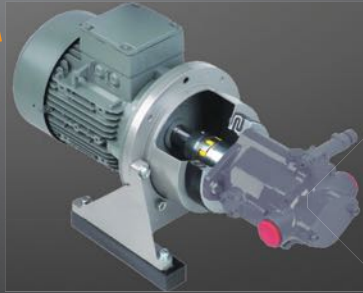
Bellhousings made of steel for IEC motors																				
IEC motor size (shaft end) d1 x l3	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS)*	Dimensions [mm]															
					A1	B	B1	B3	h	K	M	L1	L3	L5	B5	Min. B4	Venting hole		Drain port	
																	B9	L7	B20	L20
80 90S/90L	0.55	PS 200/2/..	200	200	200	165	130	144	4	11	M10	100	16	12	144	-	36	43	64	
	0.75	PS 200/8/..										110						47	74	
100L/112M (28x60)	2.2 3	PS 250/5/..	250	250	250	215	180	189	5	14	M12	120	19	12	179	-	40	54	77	
		PS 250/3/..										124						52	81	
	PS 250/6/..	135										57						92		
	PS 250/10/..	148										64						105		
132S/132M (38x80)	5.5	PS 300/4/..	300	300	300	265	230	233	5	14	M12	155	20	15	233	-	50	68	110	
	7.5	PS 300/3/..										168						74	123	
		PS 300/6/..										196						84	163	
160M/180L	11-22	PS 350/24/..	350	350	350	300	250	220	6	17	M16	256	26	26	255	-	20	115	7.5	206
225S/225M	37-45	PS 450/17/..	450	450	450	400	350	274	6	17	M16	285	26	26	259	-	50	133	7.5	239
250M (65x140)	55	PS 550/3/..	550	550	550	500	450	407	6	17	M16	265	26	26	385	-	50	130	228	
280S/280M (75x140)	75	PS 550/2/..										295						140	248	
	90	PS 550/1/..										315						135	268	
315S/315M (80x170)	110	PS 660/3/..										660						660	660	600
	up to 200	PS 660/2/..	343	163	290															
		PS 660/4/..	395	190	338															
315S/315M	160	PS 660/5/..	660	660	660	600	550	510	8	22	M20	330	32	33	425	119	50	157	7.5	60

If venting holes resp. drain ports are required, please specify in your order.

Ordering example:	PS	250	3	2
	Bellhousing type steel	Flange diameter of IEC motor	Serial model code	In-house modification code

DAMPING RINGS HYDRAULIC COMPONENTS

Damping rings in combination with bellhousings



For IEC motor from size 225S/225M each 8 tapped holes and through holes on the periphery (thread each offset by 22.5° on the verticle)

Please specify in your order if the bellhousing has to be supplied with or without venting hole respectively drain port. For dimensions see page 14 and 15.

Please specify in the order in case if the bellhousing is needed in an oilproof design (extra charge)!

Damping rings D in combination with bellhousings ¹⁾																						
IEC motor size (shaft end) d ₁ x l ₃	kW with n = 1500 rpm	Bellhousing size	Damping ring size	Foot flange size	Dimensions [mm]													Min.	Max.			
					A ₁	B	B ₁	L ₁ total	L ₃	K	M	h	L _D	B ₃	B ₄	B ₅	B _{5D}					
90S/90L (24 x 50)	1.1	PK 200/11/..	D 150/..	PTFL 200	200	165	130	90	16	11	M10	4	45	145	18	83	145	148				
	1.5	PL 200/11/..						100											124	106	124	
100L/112M (28 x 60)	2.2	PK 250/15/..	D 150/..	PTFL 250	250	215	180	145	18	14	M12	5	45	190	18	83	187	190				
		3						PL 250/15/..											106	124	145	145
	5.5	7.5	PK 300/8/..	D 150/..	PTFL 300	300	265	230	155	20	14	M12	5	45	234	30	121	231	190			
			PK 300/9/..						130											144	183	195
			PL 300/9/..						144											183	195	155
			PK 300/15/..						183											195	155	130
132S/132M (38 x 80)	5.5	PK 300/9/..	D 190/..	PTFL 300	300	265	230	144	20	14	M12	5	45	234	30	121	231	190				
		7.5						PL 300/9/..											183	195	168	143
	11	15	PK 300/8/..	D 150/..	PTFL 350/PTFS 350	350	300	250	168	17	M16	6	45	260	30	121	244	252	148			
			PK 300/9/..						143											157	204	26
			PL 300/9/..						157											190	204	26
			PK 300/15/..						196											204	204	26
160M/160L (42 x 110)	11	PK 350/11/..	D 150/..	PTFL 350/PTFS 350	350	300	250	175	25	17	M16	6	45	260	30	121	244	190				
		15						PL 350/11/..											204	229	204	26
	18.5	22	PK 350/18/..	D 190/..	PTFL 350/PTFS 350	350	300	250	204	25	17	M16	6	45	260	30	121	244	190			
			PK 350/18/..						204											229	204	26
			PL 350/18/..						229											204	204	26
			PK 350/15/..						204											229	204	26
180M/180L (48 x 110)	18.5	PK 350/11/..	D 230/..	PTFL 350/PTFS 350	350	300	250	188	25	17	M16	6	45	260	30	121	244	190				
		22						PL 350/11/..											217	204	204	26
	18.5	22	PK 350/18/..	D 230/..	PTFL 350/PTFS 350	350	300	250	217	25	17	M16	6	45	260	30	121	244	190			
			22						PL 350/18/..											242	204	204

DAMPING RINGS

HYDRAULIC COMPONENTS

Damping rings in combination with bellhousings

Damping rings D in combination with bellhousings ¹⁾																				
IEC motor size (shaft end) d ₁ x l ₃	kW with n = 1500 rpm	Bellhousing size	Damping ring size	Foot flange size	Dimensions [mm]												Min.	Max.	B ₅	B _{5D}
					A ₁	B	B ₁	L _{1 total}	L ₃	K	M	h	L _D	B ₃	B ₄					
160M/160L (42 x 110)	11	PK 350/11/..	D 260/..	PTFL 350/ PTFS 350	350	300	250	188	25	17	M16	6	58	260	97	143	252	264		
	15	PL 350/11/..						204	26											
	18.5	PK 350/18/..						217	26											
200L (55 x 110)	30	PL 350/18/..	D 230/..	PTFS 400	400	350	300	242	25	17	M16	6	58	300	97	143	260	264		
		PL 400/3/..						210												
		PK 400/12/..						215												
		PL 400/12/..						229												
		PK 400/12/..						228	25											
		PL 400/12/..						242												
225S/225M (60 x 140)	37	PK 400/12/..	D 260/..	PTFS 450	450	400	350	228	25	17	M16	6	58	300	97	143	260	264		
		PL 400/12/..						242												
		PK 400/12/..						228												
		PL 400/12/..						242												
		PL 450/5/94						230												
		PK 450/12/94						249												
250M (65 x 140)	55	PL 450/5/96	D 230/..	PTFS 550	550	500	450	243	26	17	M16	6	58	450	97	143	330	234		
		PK 450/6/96						234												
		PK 450/12/96						262												
		PK 450/6/98						234												
		PK 450/12/98						262												
		PL 450/5/..						268												
280S/280M (75 x 140)	75	PK 550/4/94	D 190/..	PTFS 660	660	600	550	237		22	M20	8	83	550	120	208	330	330		
		PL 550/4/94						252												
		PK 550/8/94						262												
		PK 550/4/96						248												
		PL 550/4/96						265												
		PK 550/8/96						275												
315S/315M (80 x 170)	110	PK 550/4/98	D 260/..	PTFS 660	660	600	550	248	26	22	M20	8	83	550	120	208	330	330		
		PL 550/4/98						265												
		PK 550/8/98						275												
		PL 550/4/..						275												
		PL 550/4/..						290												
		PK 550/8/..						300												
315L (80 x 170)	160	PK 660/3/98	D 330/..	PTFS 660	660	600	550	310		22	M20	8	83	550	120	208	330	330		
		PL 660/3/98						318												
		PK 660/3/..						330	32											
		PL 660/3/..						343												
200 (85 x 170)	200	PK 660/3/..	D 125/..	PTFS 660	660	600	550	372		22	M20	8	125	260	320	500	484			
		PL 660/3/..						372												

¹⁾ Preferred combinations with short bellhousings, other combinations on request (see page 15). Phone: +49 5971 798-0

* Passing from dimension B₃ to flange radius R = 5

● Make sure your power pack provides for a separation of piping, e. g. by hoses or elastic flanges (see page 27).

● As another measure of noise reduction we recommend to use damping rods (from page 30) or DT/DTV rings (see page 29).

For the detailed order designation refer to our PC/Internet selection program or specify the IEC motor size and detailed pump type for selection.

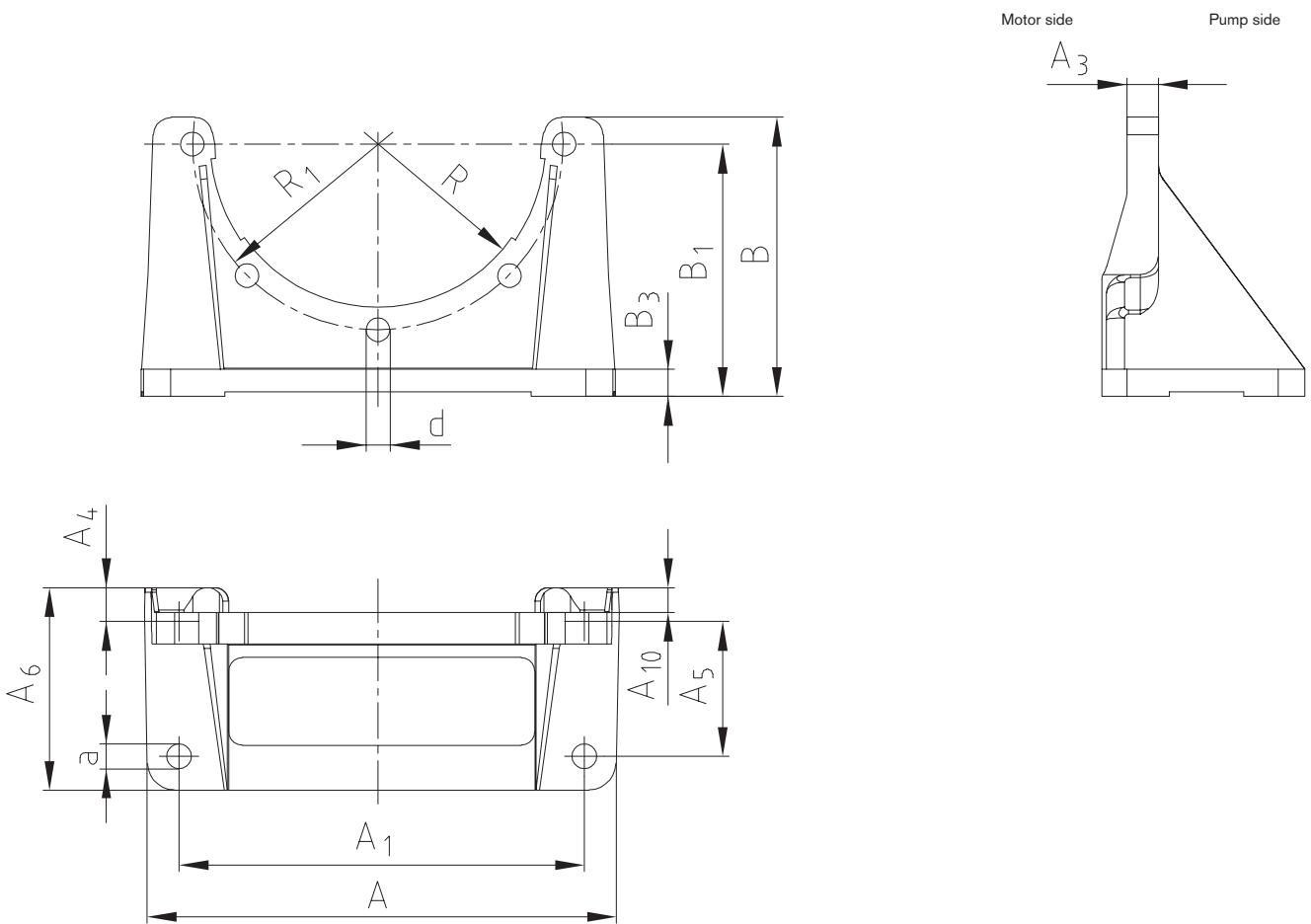
Ordering example:	PL	PK	250	15	92	D	150	23
	Bellhousing type, long	Bellhousing type, short	Flange diameter of IEC motor	Serial model code	In-house modification code	Damping ring	Size	In-house modification code

FOOT FLANGES TYPE PTFL HYDRAULIC COMPONENTS

Foot flange type PTFL



Foot flange type PTFL *



* according to VDMA standard 24561 part 1

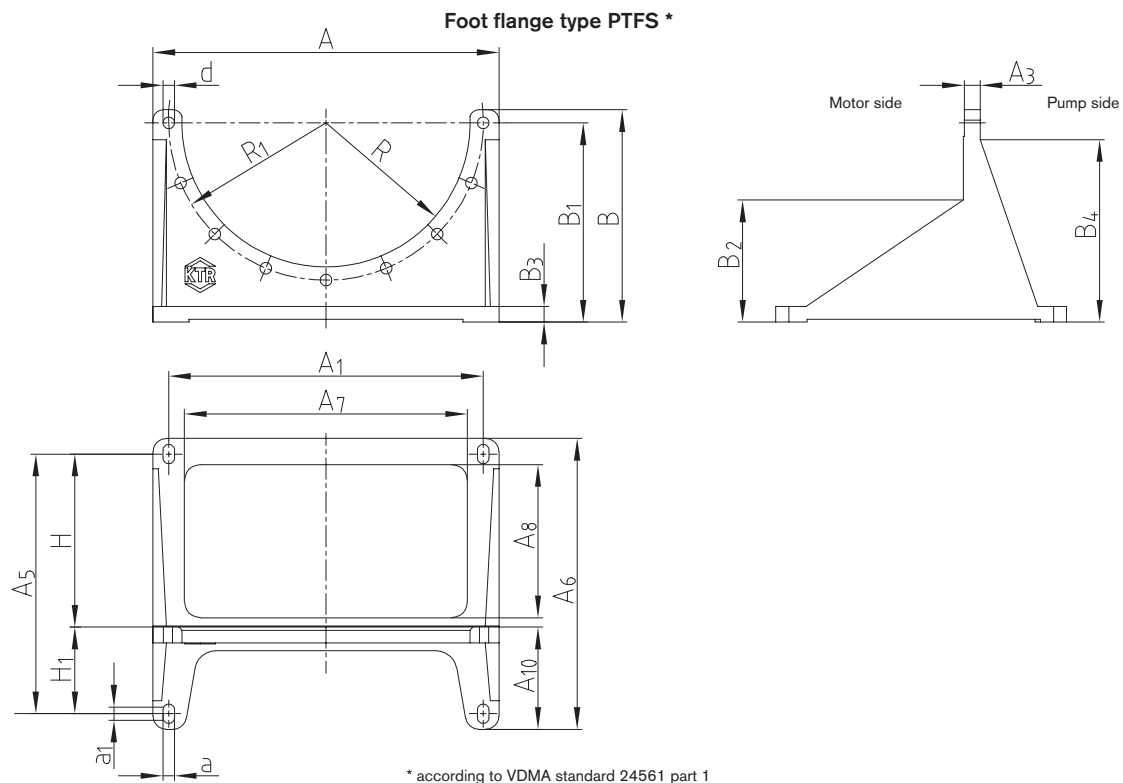
Foot flange type PTFL made of aluminium (Al)															
Foot flange size	For bellhousing size	Dimensions [mm]													
		A	A ₁	A ₃	A ₆	A ₄	A ₅	A ₁₀	B	B ₁	B ₃	R	R ₁	d	a
PTFL 160	160	160	140	12	80	15	50	8	110	100	10	55	65	9	9
PTFL 200	200	210	180	14	90	15	60	11	124	112	12	72.5	82.5	11	11
PTFL 250	250	250	220	16	97	21	60	-	145	132	15	95	107.5	13	13
PTFL 300	300	290	260	18	116	20	80	-	175	160	18	117	132.5	13	13
PTFL 350	350	340	300	20	150	20	110	-	195	180	22	130	150	18	16

In order to reach the full loading capacity of foot flanges, all fastening holes have to be screwed to the bellhousing.

Ordering example:	PTFL	350	Al
	Foot flange type	Size	Material

FOOT FLANGES TYPE PTFS HYDRAULIC COMPONENTS

Foot flange type PTFS



Foot flange type PTFS made of aluminium (Al)

Foot flange size	For bellhousing size	Dimensions [mm]																			
		A	A ₁	A ₃	A ₅	A ₆	A ₇	A ₈	A ₁₀	B	B ₁	B ₂	B ₃	B ₄	R	R ₁	a	a ₁	d	H	H ₁
PTFS 250	250	250	215	18	185	230	190	127	82	165	155	120	16	150	95	107.5	14	10	14	125	60
PTFS 300	300	300	265	20	225	270	240	152	92	200	185	149	19	184	117	132.5	14	10	14	150	75
PTFS 350	350	350	300	25	265	305	260	160	110	252	235	188	18	228	130	150	18	12	18	175	90
PTFS 400	400	400	350	20	300	350	300	185	125	277	260	193	20	241	150	175	18	12	18	200	100
PTFS 450	450	450	400	25	335	385	350	207	138	312	295	232	20	290	175	200	18	12	18	225	110

Foot flange type PTFS made of nodular iron (GJS)

Foot flange size	For bellhousing size	Dimensions [mm]																			
		A	A ₁	A ₃	A ₅	A ₆	A ₇	A ₈	A ₁₀	B	B ₁	B ₂	B ₃	B ₄	R	R ₁	a	a ₁	d	H	H ₁
PTFS 200 GGG	200	200	165	12	150	185	130	85	68	138	125	90	15	120	72.5	82.5	11	8	11.5	100	50
PTFS 250 GGG	250	250	215	17	185	230	190	—	82	165	155	120	15	150	95	107.5	14	10	14	125	60
PTFS 350 GGG	350	350	300	20	265	305	260	160	110	252	235	193	22	232	130	150	18	12	18	175	90
PTFS 400 GGG	400	405	350	20	300	350	300	192	125	277	260	220	22	175	150	175	18	12	18	200	100
PTFS 450 GGG	450	450	400	25	335	385	350	214	138	312	295	234	22	290	175	200	18	12	18	225	110
PTFS 550 GGG	550	550	500	25	415	465	440	240	165	370	350	233	25	318	225	250	18	12	18	275	140
PTFS 660 GGG	660	660	600	30	495	555	540	292	195	405	380	233	30	348	275	300	22	15	22	330	165

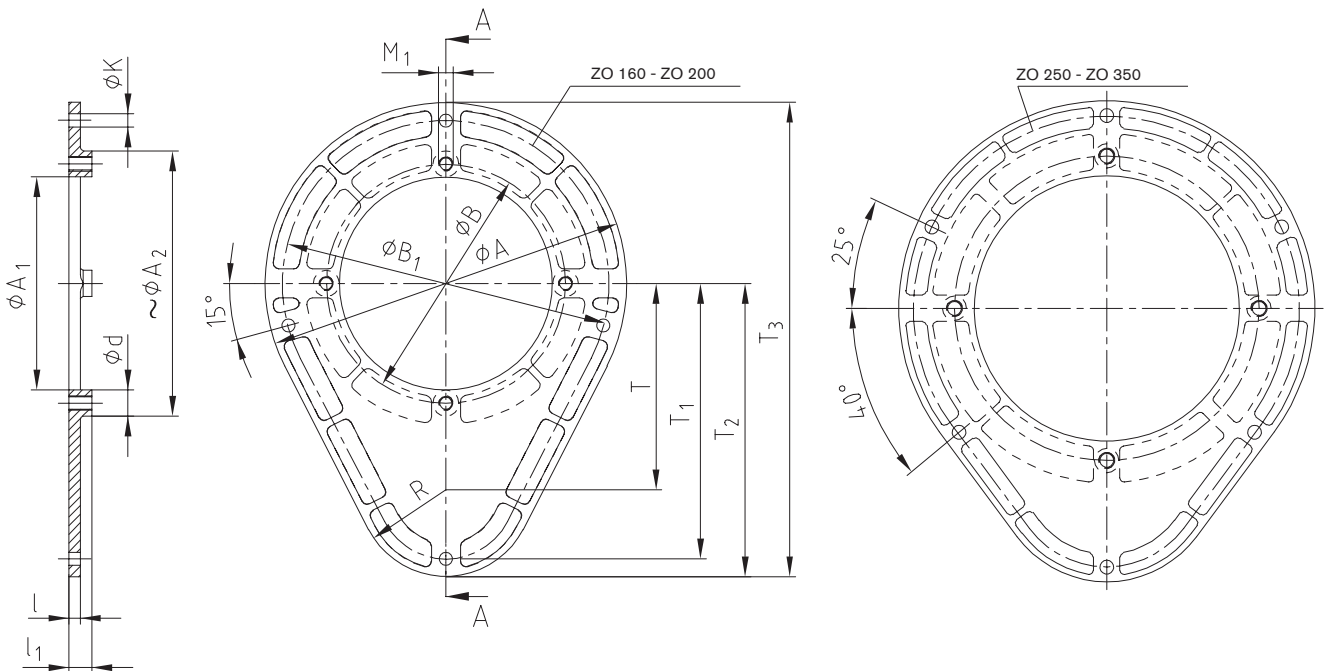
PTFS 800 made of steel on request

In order to reach the full loading capacity of foot flanges, all fastening holes have to be screwed to the bellhousing.

Ordering example:	PTFL	350	Al
	Foot flange type	Size	Material

ACCESSORIES FOR BELLHOUSINGS HYDRAULIC COMPONENTS

Mounting flange type ZO



Mounting flange type ZO																	
Size	Dimensions [mm]															Gasket DZ size	Gasket DP size
	A	A ₁	~A ₂	B	B ₁	K	M ₁	R	T	T ₁	T ₂	T ₃	d	l	l ₁		
ZO 160	210	112	150	130	185	9	M8	60	97.5	145	157.5	262.5	18	7	15	DZ 160	DP 160
ZO 200	250	147	187	165	225	9	M10	60	142.5	190	202.5	327.5	18	8	16	DZ 200	DP 200
ZO 250	300	192	239	215	275	9	M12	60	142.5	190	202.5	352.5	20	8	16	DZ 250	DP 250
ZO 300	360	236	289	265	330	14	M12	60	150	225	240	420	20	10	18	DZ 300	DP 300
ZO 350	410	262	332	300	380	14	M16	110	160	255	270	475	24	12	20	DZ 350	DP 350

Ordering example:

ZO 300
Mounting flange size

ACCESSORIES FOR BELLHOUSINGS HYDRAULIC COMPONENTS

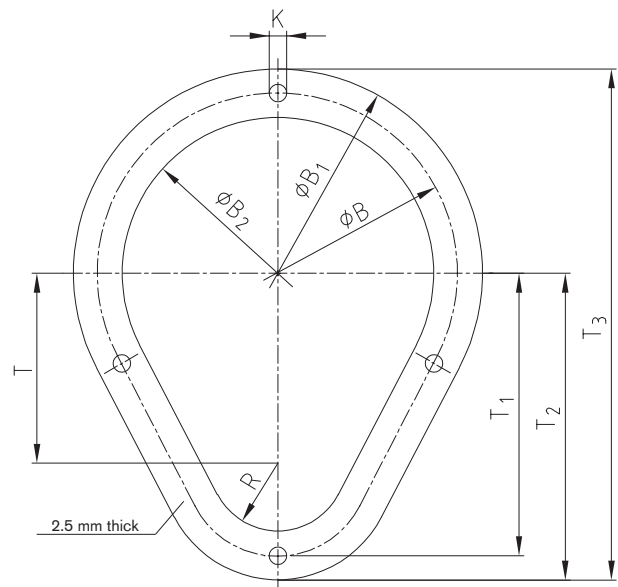
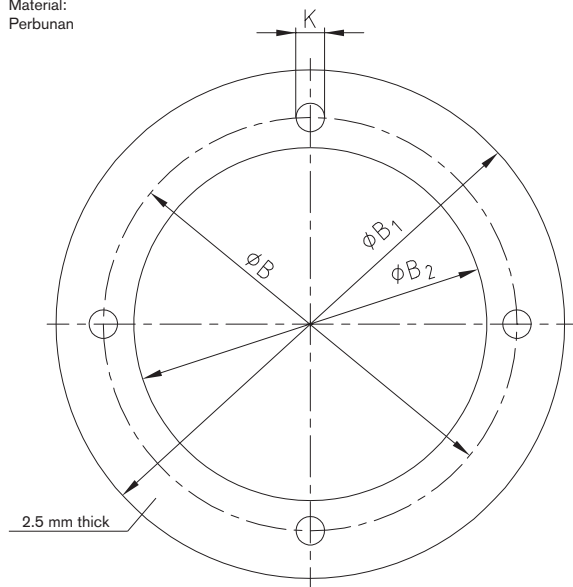
Gaskets type DP and DZ for mounting flange ZO



Gasket type DP

Gasket DZ

Material:
Perbunan



Gaskets for bellhousings and mounting flanges

Size	Dimensions [mm]								
	B	B ₁	B ₂	T	T ₁	T ₂	T ₃	K	R
DP 160	130	160	111	–	–	–	–	4 x 9	–
DP 200	165	200	146	–	–	–	–	4 x 11	–
DP 250	215	250	191	–	–	–	–	4 x 13	–
DP 300	265	300	235	–	–	–	–	4 x 13	–
DP 350	300	350	261	–	–	–	–	4 x 17	–
DP 400	350	400	301	–	–	–	–	4 x 17	–
DP 450	400	450	351	–	–	–	–	4 x 17	–
DP 550	500	550	451	–	–	–	–	4 x 17	–
DZ 160	185	210	160	97.5	145	157.5	262.5	4 x 9	35
DZ 200	225	250	200	142.5	190	202.5	327.5	4 x 9	35
DZ 250	275	300	250	142.5	190	202.5	352.5	6 x 9	35
DZ 300	330	360	300	150	225	240	420	6 x 14	60
DZ 350	380	410	350	160	255	270	475	6 x 14	80

Ordering
example:

DP 300

Type and size of gasket

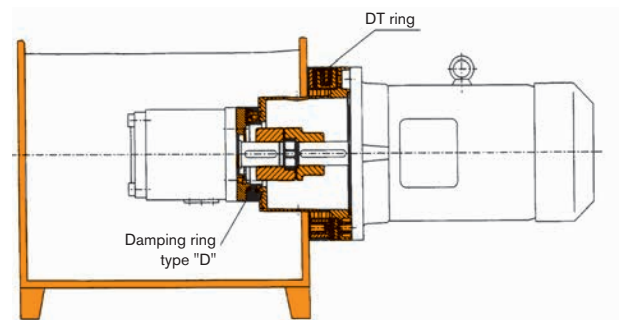
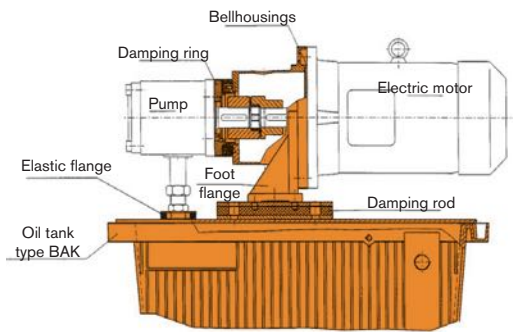
DAMPING ELEMENTS HYDRAULIC COMPONENTS

Damping elements



KTR has a sound measuring room integrated in the R&D test center allowing for low-reflecting testing conditions. Comparative measurements are performed on a realistic hydraulic power pack to test and optimize the efficiency of KTR damping elements. In addition to stationary measuring in the laboratory the efficiency of the damping measures used can be proven locally.

Examples of application:



Potential noise reductions compared to the rigid arrangement:

- | | |
|--|------------|
| a) Damping ring only: | 3 - 6 dBA |
| b) Damping rod only: | 3 - 4 dBA |
| c) Damping ring and damping rod: | 6 - 8 dBA |
| d) Damping ring, damping rod and elastic flange: | 7 - 10 dBA |
| e) Damping ring type DT/DTV: | 3 - 6 dBA |
| f) Damping ring type DT/DTV and damping ring: | 6 - 8 dBA |

Mode of operation:

The efficiency of the KTR damping elements is based on the reflection of structure-borne noise vibrations by means of the vulcanized, non-prestressed rubber layer in the acoustically effective frequency range from about 200 Hz. The reduction of structure-borne noise vibrations causes a reduced radiation of the airborne noise generated by the power pack.

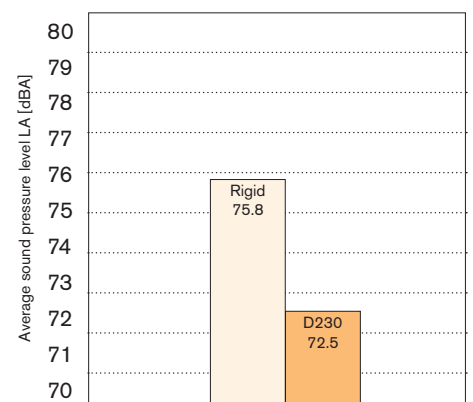
Result of noise measurement:

Test data:

Electric motor: Rotary current asynchronous 180M
18.5 kW, n = 1450 rpm
Type B3/B5

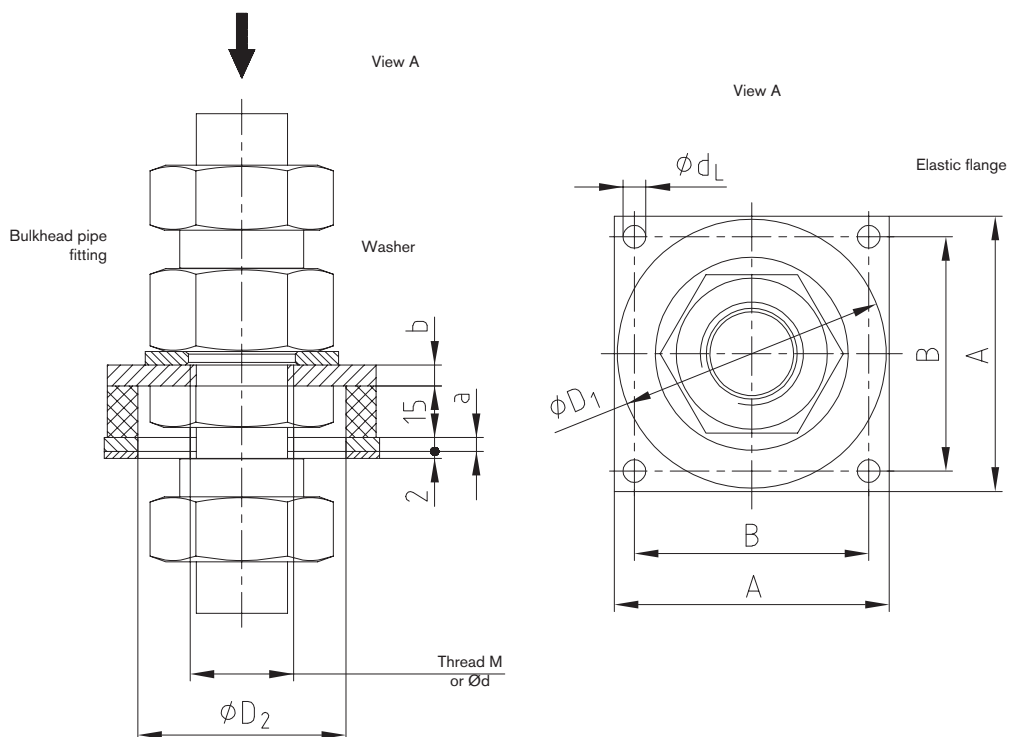
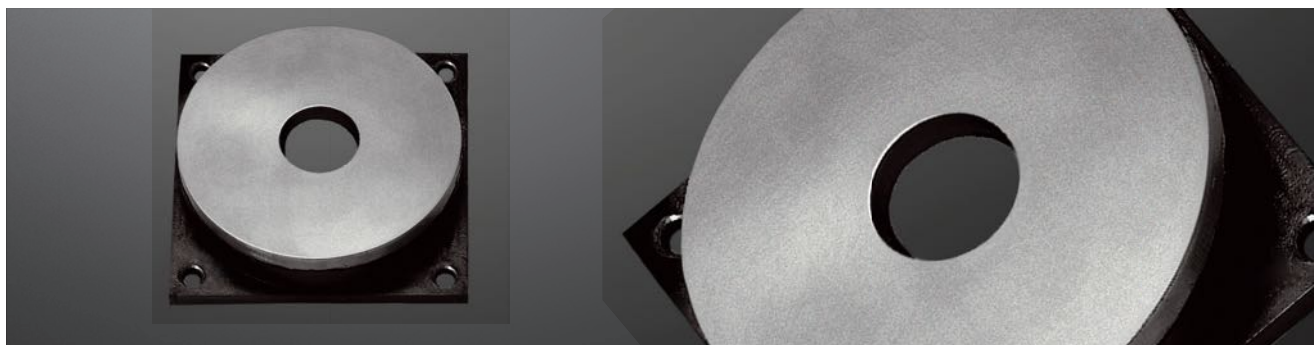
Pump: Axial piston pump

Coupling: ROTEX® 42 - 92 Shore A



DAMPING ELEMENTS HYDRAULIC COMPONENTS

Elastic flange



Elastic flange													
Elastic flange								Bulkhead pipe fitting *)				Note	
Size	A	B	a	b	D ₁	D ₂	d _L	Type L light-weight	Type S heavy-weight	Thread M	Pilot bore for Ød		
80-2.11									SV 28-L	SV 25-S	M36 x 2	Ø34	
80-2.10									SV 22-L	SV 20-S	M30 x 2	Ø28	
80-2.9									SV 18-L	–	M26 x 1.5	Ø24.5	
80-2.8									–	SV 16-S	M24 x 1.5	Ø22.5	
80-2.7									SV 15-L	–	M22 x 1.5	Ø20.5	
80-2.6	80	68	4	6	78	60	6.6	–	SV 12-S	M20 x 1.5	Ø18.5		
80-2.5									SV 12-L	SV 10-S	M18 x 1.5	Ø16.5	
80-2.4									SV 10-L	SV 8-S	M16 x 1.5	Ø14.5	
80-2.3									SV 8-L	SV 6-S	M14 x 1.5	Ø12.5	
80-2.2									SV 6-L	–	M12 x 1.5	Ø10.5	
80-2.1									–	–	–	Ø10	Standard design
100-2.5									SV 42-L **)	SV 38-S **)	M52 x 2	Ø50	
100-2.4									–	SV 30-S	M42 x 2	Ø40	
100-2.3	100	82	5	8	95	65	9	SV 28-L	SV 25-S	M36 x 2	Ø34		
100-2.2								SV 22-L	SV 20-S	M30 x 2	Ø28		
100-2.1								–	–	–	Ø25	Standard design	
130-2.4								SV 42-L	SV 38-S	M52 x 2	Ø50		
130-2.3								SV 35-L	–	M45 x 2	Ø43		
130-2.2	130	110	6	10	125	95	9	–	SV 30-S	M42 x 2	Ø40		
130-2.1								–	–	–	Ø35	Standard design	

■ Available from stock

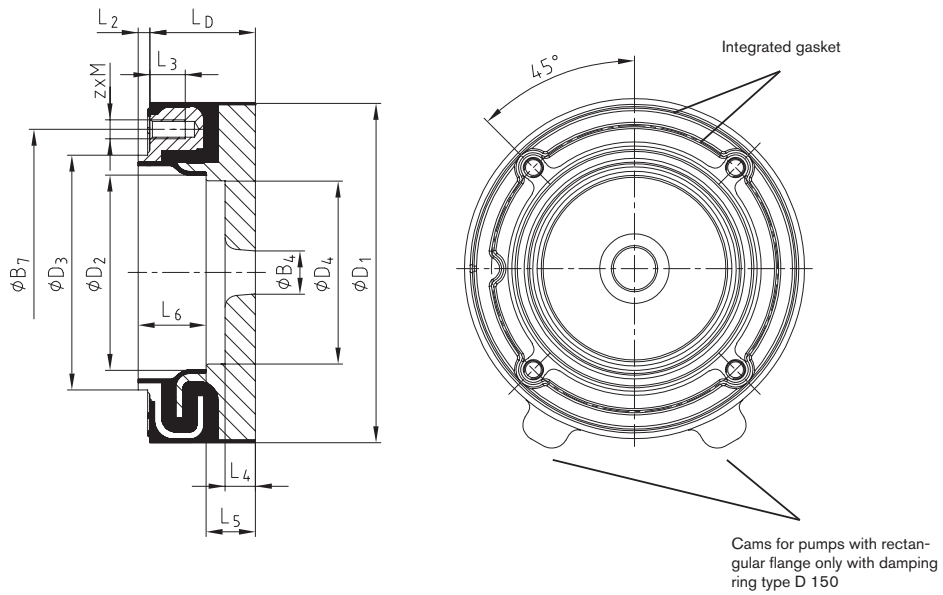
*) Bulkhead pipe fitting and washer do not form part of our scope of delivery.

**) Counter nut cannot be assembled!

Ordering example:	ERD	100 - 2.3	
	Elastic flange	Size	Finish bore with thread M36 x 2

DAMPING ELEMENTS HYDRAULIC COMPONENTS

Damping ring type D



Damping ring type D														
Size	Dimensions [mm]													
	B ₄		B ₇	D ₁	D ₂	D ₃	D ₄	L _D	L ₂	L ₃	L ₄	L ₅	L ₆	z x M ²⁾
	Min.	Max.												
D 150/..	18	83	122	148	83	100	78	45	5	15	13	16	30	4 x M8
D 190/..	30	121	150	190	116	130	100	45	5	15	14	18	33	4 x M10
D 230/..	97	143	195	234	143	160	136	58	5	18	17	23	47	4 x M12
D 260/..	97	164	210	264	164	180	156	58	4	20	18	23	46	4 x M16
D 330/..	120	208	264	350	208	220	201	83	6	35	23	28	64	4 x M20

¹⁾ Pitch circle diameter on request.

²⁾ Tightening torque according to property class 5.6

³⁾ Number of connecting bores on request.

Permissible radial and axial weight load of damping rings based on an ambient temperature of +60 °C					
Size	D 150	D 190	D 230	D 260	D 330
Distance of center of gravity for radial load L [mm]	100	100	100	200	200
Perm. weight load F _{max.} [N]	650	1800	3000	2300	4100

With a modified distance of center of gravity L_X the permissible weight load is converted. If L_X < L, then F_{max.} = F_{perm.}

$$F_{perm.} = F_{max.} \cdot L / L_X \quad [N]$$

The permissible weight load F_{perm.} must not be exceeded by the existing weight load F_G (neither radially nor axially).

Ordering example:	D	230	14
	Damping ring	Size	In-house modification code

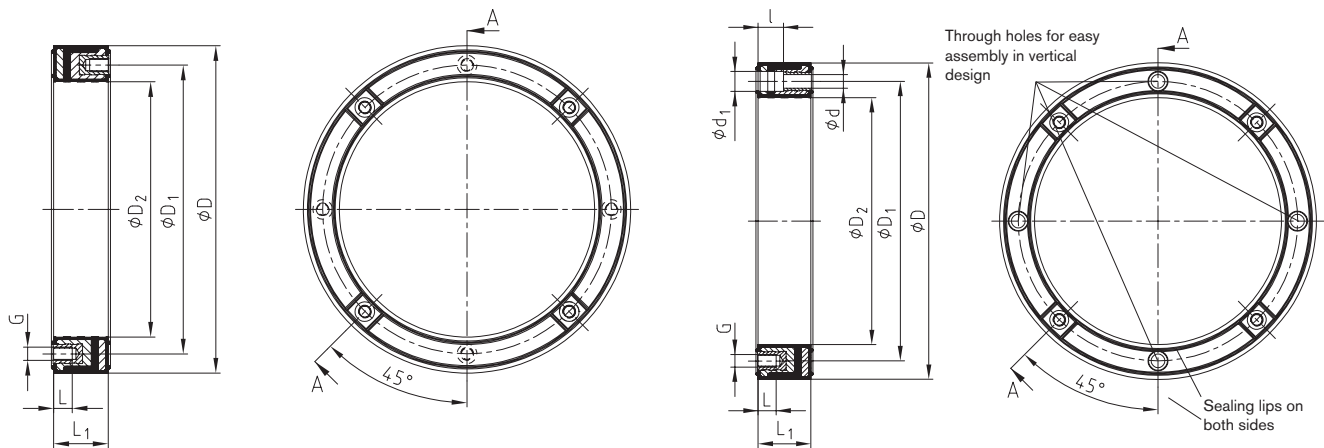
DAMPING ELEMENTS HYDRAULIC COMPONENTS

Damping rings type DT / DT.../2 and DTSV/ DTSV.../2



Damping ring type DT

Damping ring type DT.../2
(not suitable for lateral installation of tank)



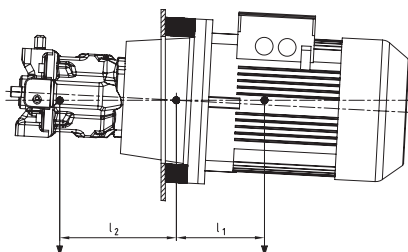
Damping ring type DT and DTV*

IEC motor size	Damping ring size	Dimensions [mm]									Screw tightening torque [Nm]
		D	D ₁	D ₂	z x G	L	L ₁	z x d	z x d ₁	l	
71	DTV* 160	160	130	111	4 x M8	16.5	35	4 x 9	4 x 14.5	18	12
80, 90S/90L	DT 200	200	165	145.2	4 x M10	20	40	4 x 11	4 x 17.5	20	23
100L/112M	DT 250	250	215	191	4 x M12	17.5	45	4 x 13	4 x 19.5	22	40
132S/132M	DT 300	300	265	235	4 x M12	17.5	50	4 x 13	4 x 19.5	24	40
160M/160L, 180M/180L	DT 350	350	300	261	4 x M16	31	60	4 x 17	4 x 25	26	100
200L	DT 400	400	350	301	4 x M16	31	70	4 x 17	4 x 25	31	100
225S/225M	DT 450	450	400	351	8 x M16	31	80	8 x 17	8 x 25	41	100
250M, 280S/280M	DT 550	550	500	451	8 x M16	30	68	8 x 17	8 x 25	23	210
315S/315M	DT 660	660	600	551	8 x M20	30	68	8 x 22	8 x 33	23	410
355	DTV* 800	800	740	681	8 x M20	25	71	-	-	-	410

* Suitable for vertical assembly only!

Damping ring DTSV for servo-hydraulic drives (for V1 design only)

IEC motor size	Damping ring size	Dimensions [mm]									Screw tightening torque [Nm]
		D	D ₁	D ₂	z x G	L	L ₁	z x d	z x d ₁	l	
100L/112M	DTSV 250	250	215	191	4 x M12	17.5	45	4 x 13	4 x 19.5	22	79
132S/M	DTSV 300	300	265	235	4 x M12	17.5	50	4 x 13	4 x 19.5	24	79
160M/L - 180M/L	DTSV 350	350	300	261	4 x M16	31	60	4 x 17	4 x 25	26	195



Permissible weight and bending load of damping rings
considering an ambient temperature of +60 °C

Size	DT 200	DT 250	DT 300	DT 350	DT 400	DT 450	DT 550	DT 660
F _{perm.} [N]	370	720	1450	3600	4800	6600	13000	24000
M _{b perm.} [Nm]	30	65	175	740	1100	1600	4400	9000

$$F_{perm.} \geq F_P + F_M$$

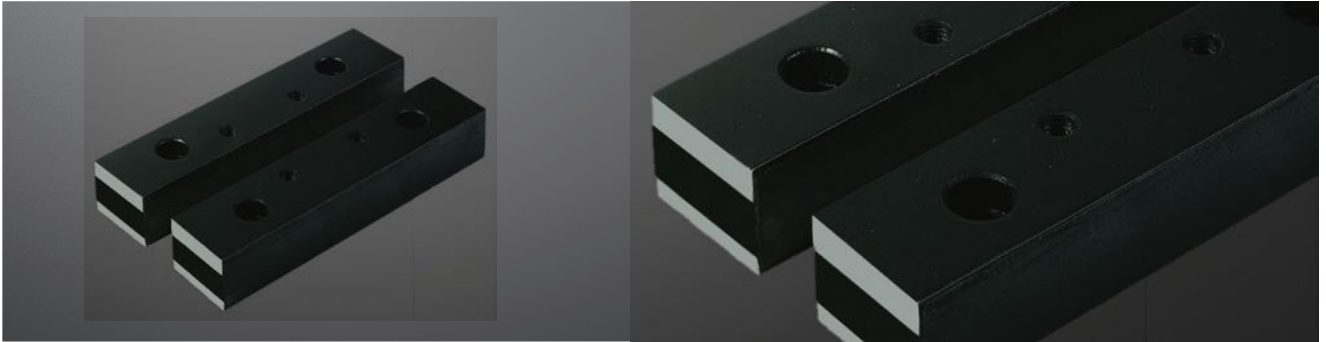
$$M_{b perm.} \geq F_M \cdot l_1 - F_P \cdot l_2$$

Ordering
example:

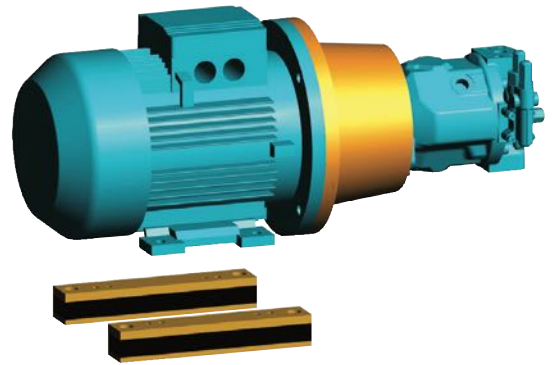
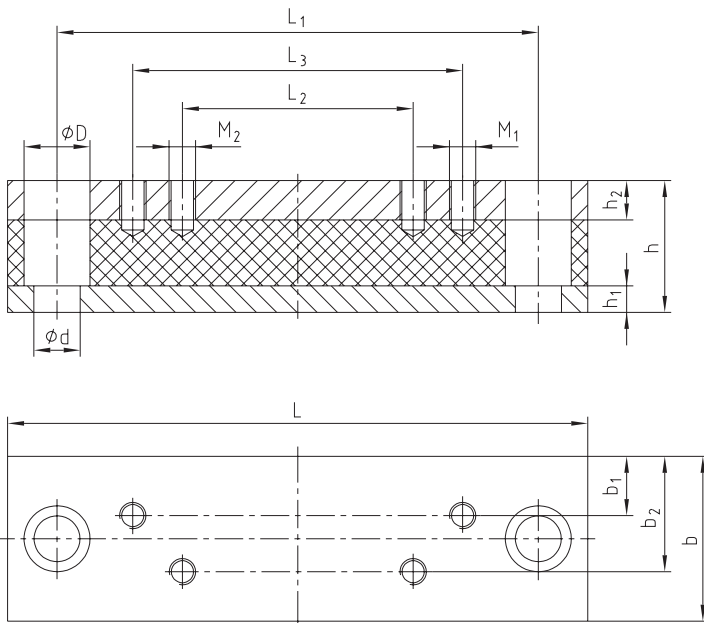
DT	250
Damping ring	Size

DAMPING ELEMENTS HYDRAULIC COMPONENTS

Damping rods type DSM



Type DSM



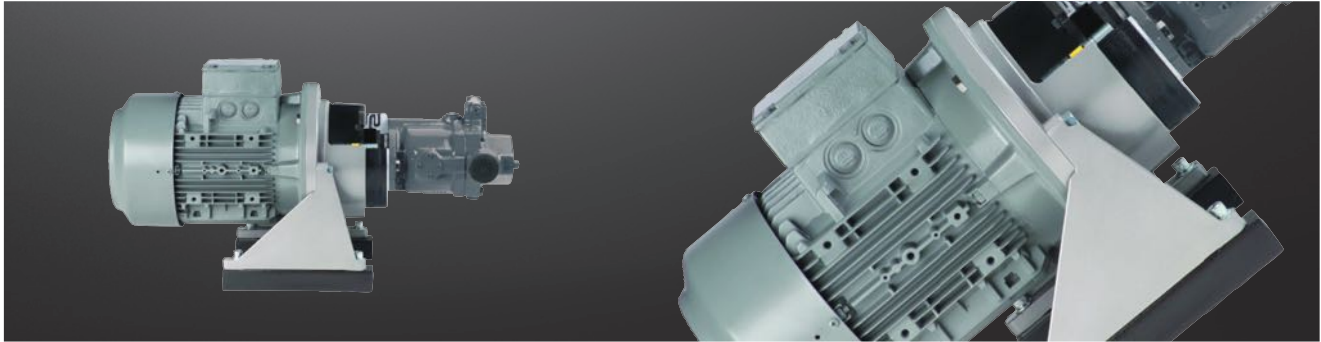
Damping rods type DSM for electric motors type IMB 35, protection class IP54															
Damping rod size	For motor size	Dimensions [mm]													
		L	L ₁	L ₂	L ₃	h	h ₁	h ₂	b	b ₁	b ₂	d	D	M ₁	M ₂
DSM 71	71	196	156	90		40	8	12	50	21		14	20	M6	
DSM 80	80	176	146	100		40	8	12	50	22		14	20	M8	
DSM 90 S	90S	196	156	100		40	8	12	50	24.5	-	14	20	M8	
DSM 90 L	90L	240	205	125		40	8	12	50	24		14	20	M8	
DSM 100 L/112 M	100L/112M	240	205	140		40	8	12	50	22		14	20	M10	
DSM 132 S/132 M	132S/132M	280	245	140	178	45	8	12	50	20	20	14	20	M10	M10
DSM 160 M	160M	340	300	210		60	15	15	70	28		18	26	M12	
DSM 160 L	160L	416	370	254		60	15	15	70	28		18	26	M12	
DSM 180 M	180M	416	370	241		60	15	15	70	35		18	26	M12	
DSM 180 L	180L	446	400	279		60	15	15	70	35		18	26	M12	
DSM 200 L	200L	492	430	305		60	15	15	70	35		22	33	M16	
DSM 225 S	225S	492	430	286		60	15	15	70	35		22	33	M16	
DSM 225 M	225M	492	445	311		60	15	15	70	35		22	33	M16	
DSM 250 M	250M	492	445	349		60	15	15	100	50		22	33	M20	
DSM 280 S/280 M	280S/280M	614	570	368	419	60	15	15	100	50	50	22	33	M20	M20
DSM 315 S/315 M	315S/315M	614	570	406	457	60	15	15	120	60	60	22	33	M24	M24
DSM 315 L	315L	704	660	508		60	15	15	120	60	-	22	33	M24	

Other sizes on request

Ordering example:	DSM	100 L/112 M
	Damping rod	Size

DAMPING ELEMENTS HYDRAULIC COMPONENTS

Damping rods type DSFL, DSFS and DSK



Damping rods type DSFL for foot flange type PTFL

Damping rod size	For foot flange	Dimensions [mm]										
		L	L ₁	L ₂	h	h ₁	h ₂	b	b ₁	d	D	M
DSFL 160	PTFL 160	176	130	50	40	8	12	50	10	14	20	M8
DSFL 200	PTFL 200	176	130	60	40	8	12	50	15	14	20	M10
DSFL 250	PTFL 250	230	140	60	40	8	12	50	15	14	20	M12
DSFL 300	PTFL 300	270	170	80	40	8	12	50	15	14	20	M12
DSFL 350	PTFL 350	305	200	110	60	15	15	70	25	18	26	M16

Damping rods type DSFS for foot flange type PTFS

Damping rod size	For foot flange	Dimensions [mm]												
		L	L ₁	L ₂	L ₃	h	h ₁	h ₂	b	b ₁	b ₂	d	D	M _{1, M2}
DSFS 200L	PTFS 200	245	205	150	-	40	8	12	50	19	-	13	20	M10
DSFS 250	PTFS 250	240	140	185	-	40	8	12	50	17.5	-	13	20	M12
DSFS 250/300L	PTFS 250/300	340	300	185	225	40	8	12	50	17.5	32.5	13	20	M12
DSFS 300	PTFS 300	280	180	225	-	40	8	12	50	17.5	-	13	20	M12
DSFS 350	PTFS 350	325	200	265	-	60	15	15	70	25	-	17	26	M16
DSFS 350/400L	PTFS 350/400	430	390	265	300	60	15	15	70	25	45	18	26	M16
DSFS 400	PTFS 400	350	234	300	-	60	15	15	70	25	-	17	26	M16
DSFS 450	PTFS 450	385	270	335	-	60	15	15	70	25	-	17	26	M16
DSFS 450L	PTFS 450	465	425	335	-	60	15	15	70	25	-	18	26	M16
DSFS 550	PTFS 550	490	350	415	-	60	15	15	100	25	-	18	26	M16
DSFS 550L	PTFS 550	655	605	415	-	60	15	15	100	25	-	18	26	M16
DSFS 660	PTFS 660	635	415	495	-	60	15	15	100	30	-	22	33	M20

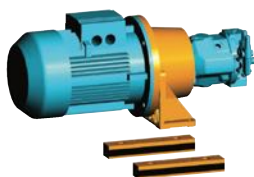
Damping rods type DSK for bellhousings type PIK with integrated oil cooler with feet

Damping rod size	For cooler size	Dimensions [mm]										
		L	L ₁	L ₂	h	h ₁	h ₂	b	b ₁	d	D	M
DSK 200	PIK 200	240	210	154.5	40	8	12	50	25	14	20	M12
DSK 250	PIK 250	270	240	175.5	40	8	12	50	25	14	20	M12
DSK 300	PIK 300	280	250	199.5	40	8	12	50	25	14	20	M12
DSK 350	PIK 350	325	295	243.5	60	15	15	70	35	14	20	M12

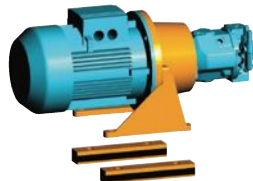


- Damping rods reduce the noise level and dampen vibrations
- Special lengths or types available on request
- Damping rods made of natural rubber (NR)
- Shear load (V1) not permissible
- Available from stock

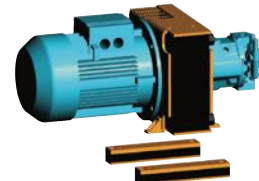
Type DSFL



Type DSFS



type DSK



Ordering
example:

DSFS	300
Damping rod	Size

Oil/air cooler type OAC

Cooling systems

High-performance cooling of hydraulic and lubricating oils



A compact and high-performance cooler series comprising twelve sizes was developed for high-performance cooling of hydraulic and lubricating oils.

Applications:

- Construction machines
- Agricultural machines
- Rail technology
- Machine tools
- Hydraulic power packs
- Wind power
- Hydraulic presses
- Iron and steel industry etc.

Applicable for cooling of:

- Hydraulic oil
- Gear oil
- Lubricating oil
- Water glycol (min. 40 % glycol)

Structure:

- Cooler core (plate and bar) made of aluminium with industrial laminae in black (RAL 9005)
- Fan cover made of steel in black (RAL 9005)
- Fan made of nylon PAG
- Protective grid made of steel in black (RAL 9005)
- Fan 12/24V IP68, 230/400V, 400/690V, IP55
- Fan with hydraulic drive

Marine design:

- Cooler core, frame, fan cover with double-component paint
- Electric motor with special paint and protection class IP56

ATEX design:

- Gas sector: Ex II 2G Ex h IIC T6...T3 Gb X
- Dust sector: Ex II 3D Ex h IIIC T68 °C...110 °C Gb X
- Ambient temperature $-40\text{ °C} < T_a < +55\text{ °C}$
- Motor and fan as an adequate ATEX design

Accessories (see page 51 et seqq.):

- Thermal bypass valves
- Oil thermostat valve (OTV)
- Protective grid
- Temperature switch (TSC)
- Speed-controlled operation

The OAC coolers have to be protected from direct solar radiation.

Selection system

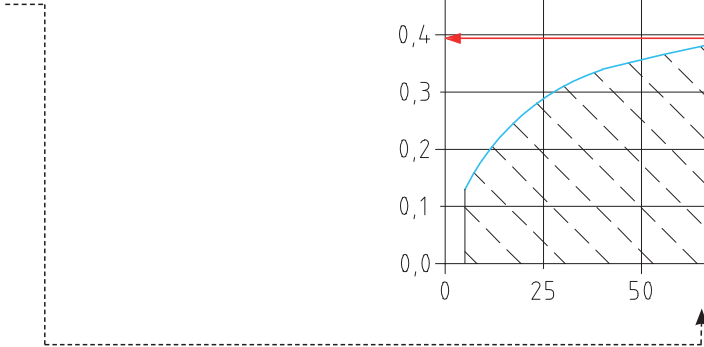
To select the suitable cooler you need to know the following details:

Q [kW]	Heat to be dissipated
V [l/min]	Oil flow
T _{oil} [°C]	Inlet temperature of oil into cooler
T _L [°C]	Inlet temperature of ambient air into cooler

Example of calculation

Details given:

Q = 12 kW
V = 75 l/min
T _{oil} = 65 °C
T _L = 30 °C



Calculation of specific cooling capacity

Difference of inlet temperature ETD [°C] = T_{oil} - T_L

Specific cooling capacity required P_{requ.} = Q/ETD

The specific cooling capacity required must fall below the performance curve! → 12 kW/(65 °C - 30 °C) = 0.34 kW/°C

The following was selected: OAC400

The actual cooling capacity of the cooler is 0.39 kW/°C x 35 °C = 13.65 kW

Calculation of pressure loss

The pressure loss in the curves of the different data sheets is based on a viscosity of 30 cSt.

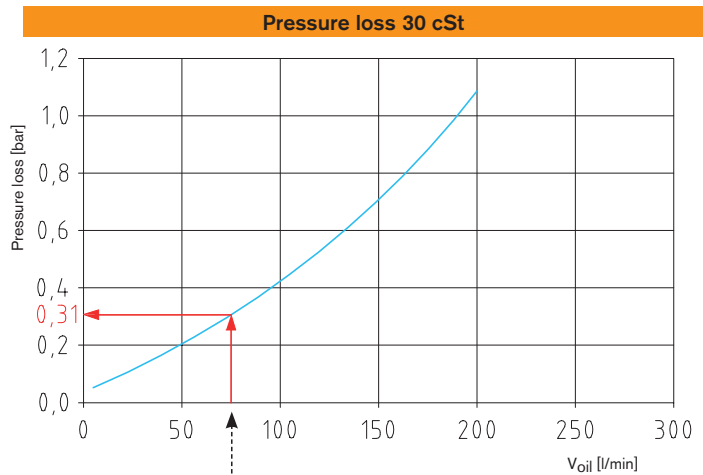
The effective pressure loss is calculated as follows:

Pressure loss (from curve) x factor = effective pressure loss

Example

V _{oil} : 75 l/min
Viscosity: 20 cSt

→ 0.31 bar x 0.75 = 0.233 bar



Conversion factor of pressure loss

cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	1	1.2	1.4	1.6	2.1	2.8

Oil/air cooler type OAC

Cooling systems

Type code of industrial cooler oil/air

OAC 200 M 03 - B - 4 - A - 0 - 0

Size of cooler	Type	Motor	Effective direction	Number of poles or displacement	Voltage	Bypass	Protective grid against stones
100	No specification = Standard	00 = Without motor	Standard = Sucking (no specification required)	0 = Not applicable	To be omitted if not applicable	0 = Without bypass	0 = No
200		01 = Direct current 12V		2 = Number of poles			
250	M = Marine (seawater resistance)	02 = Direct current 24V	B = Pressing	4 = Number of poles	A = 230/400V 50 Hz 460V 60 Hz	TB6 = Thermal bypass (6 bars/50 °C)	1 = Yes
300		03 = AC current		6 = Number of poles	B = 400/690V 50 Hz		
400	ExG = ATEX (gas-protected area)	04 = Hydraulics		8 = Number of poles	C = 230V 50/60 Hz (single-phase)	DB6 = Pressure bypass (2, 4, 6 bars)	
500		09 = Special		6 = Displacement			
600	ExD = ATEX (dust-protected area)			8 = Displacement	Z = Special voltage*	DB4F = Pressure bypass (4 bars)	
700				11 = Displacement			
800	M-ExG = Marine & ATEX (gas)			14 = Displacement			
850				19 = Displacement			
900	M-ExD = Marine & ATEX (dust)						
1000							
2000							

Oil/air cooler type OAC

Cooling systems

Technical data

12V and 24V fan drive										
Type of cooler ³⁾	Voltage [V]	Drive [kW]	Speed [rpm]	Amperage [A]	Protection class	Fan Ø [mm]	Perm. pressure [bar]		Max. volume flow [l/min]	Weight [kg]
							Static	Dynamic		
OAC100-01	12	0.09	3950	7.2	IP68	190			50	6
OAC100-02	24	0.06	3625	2.6	IP68	190			50	6
OAC200-01	12	0.10	2838	8.2	IP68	280			100	11
OAC200-02	24	0.11	2925	4.4	IP68	280			100	11
OAC250-01	12	0.10	2838	8.2	IP68	280			120	13
OAC250-02	24	0.11	2925	4.4	IP68	280			120	13
OAC300-01	12	0.22	3080	18.4	IP68	350			120	16
OAC300-02	24	0.23	2730	9.4	IP68	350			120	16
OAC400-01	12	0.22	3080	18.4	IP68	350	26	14	200	22
OAC400-02	24	0.23	2730	9.4	IP68	350			200	22
OAC500-01	12	0.24	2600	20.2	IP68	385			200	30
OAC500-02	24	0.24	2700	9.8	IP68	385			200	30
OAC600-01	12	2 x 0.10	2838	2 x 8.2	IP68	280			250	43
OAC600-02	24	2 x 0.11	2925	2 x 4.4	IP68	280			250	43
OAC700-01	12	2 x 0.24	2600	2 x 20.2	IP68	385			350	53
OAC700-02	24	2 x 0.24	2700	2 x 9.8	IP68	385			350	53
OAC800-01	12	2 x 0.24	2600	2 x 20.2	IP68	385			350	81
OAC800-02	24	2 x 0.24	2700	2 x 9.8	IP68	385			350	81

³⁾ Max. medium temperature: 110 °C (higher temperatures on request)/Max. ambient temperature: 60 °C

Other motors on request

230/400V with 50 Hz; 460V with 60 Hz fan drive														
Type of cooler ²⁾	Driving power [kW]		Speed [rpm]		Amperage [A]		Protection class		Fan Ø [mm]	Noise ¹⁾ [dB(A)]	Perm. pressure [bar]		Max. volume flow [l/min]	Weight [kg]
	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	Standard	Marine			Static	Dynamic		
OAC100-03 C	0.07	0.08	2500	2700	0.29	0.33	IP54	-	200	64			50	16
OAC200-03 C	0.12	0.16	2450	2650	0.55	0.72	IP54	-	250	69			100	16
OAC200-03	0.18	0.21	1350	1650	0.58	0.57	IP55	IP56	280	66			100	16
OAC250-03	0.18	0.21	1350	1650	0.58	0.57	IP55	IP56	280	66			120	20
OAC300-03-4	0.37	0.43	1370	1670	1.04	1.02	IP55	IP56	380	76			160	24
OAC300-03-6	0.18	0.21	850	1020	0.87	0.88	IP55	IP56	380	63			160	24
OAC300-03 D	0.14	0.17	1400	1600	0.35	0.32	IP44	-	350	72			160	21
OAC400-03-4	0.37	0.43	1370	1670	1.04	1.02	IP55	IP56	380	76	26	14	200	29
OAC400-03-6	0.18	0.21	850	1020	0.87	0.88	IP55	IP56	380	63			200	29
OAC400-03 D	0.14	0.17	1400	1600	0.35	0.32	IP44	-	350	72			200	26
OAC500-03-4	0.37	0.43	1370	1670	1.04	1.02	IP55	IP56	380	78			200	37
OAC500-03-6	0.18	0.21	850	1020	0.87	0.88	IP55	IP56	380	63			200	37
OAC600-03	0.75	0.86	1440	1740	1.79	1.72	IP55	IP56	520	78			250	57
OAC700-03	0.75	0.86	1440	1740	1.79	1.72	IP55	IP56	520	78			350	70
OAC800-03	1.5	1.75	1435	1730	3.3	3.3	IP55	IP56	630	78			350	97
OAC850-03	2.2	2.55	965	1165	5.2	4.75	IP55	IP56	750	79			350	130
OAC900-03-6	2.2	-	965	-	5.2	-	IP55	IP56	900	85			450	173
OAC900-03-4	7.5	-	1465	-	14.3	-	IP55	IP56	900	97			450	205
OAC1000-03-8	1.5	-	700	-	4.65	-	IP55	IP56	900	81			530	154
OAC1000-03-6	2.2	-	965	-	5.2	-	IP55	IP56	900	87	21	14	530	187
OAC1000-03-4	7.5	-	1465	-	14.3	-	IP55	IP56	900	97			530	212
OAC2000-03-8	4	-	720	-	10.9	-	IP55	IP56	1000	86			700	329
OAC2000-03-6	7.5	-	980	-	16	-	IP55	IP56	1000	92			700	357
OAC2000-03-4	18.5	-	1470	-	35	-	IP55	IP56	1000	100			700	429

¹⁾ Measurement based on 50Hz operation

²⁾ Max. medium temperature: 110 °C (higher temperatures on request)/Max. ambient temperature: 40 °C

Hydraulic fan drive										
Type of cooler ³⁾	Displacement [cm]	Speed [rpm]	Fan Ø [mm]	Noise [dB(A)]	Perm. pressure [bar]		Max. volume flow [l/min]	Weight [kg]	Volume flow [l/min]	Pressure [bar]
					Static	Dynamic				
OAC200-04-06	6.3		280	66			100	15	10	4
OAC250-04-06	6.3		280	66				15	10	4
OAC300-04-06	6.3		380	75				21	10	18
OAC300-04-08	7.9		380	75			160	21	13	15
OAC400-04-06	6.3		380	74				25	10	18
OAC400-04-08	7.9		380	74			200	25	13	15
OAC500-04-06	6.3	1500	380	74	26	14	200	34	10	18
OAC500-04-08	7.9		380	74				34	13	15
OAC600-04-08	7.9		520	78				50	13	27
OAC600-04-11	10.9		520	78			250	50	20	17
OAC700-04-08	7.9		520	78				60	13	27
OAC700-04-11	10.9		520	78			250	60	20	17
OAC800-04-11	10.9		630	78			350	88	18	34
OAC800-04-14	13.9		630	78				88	22	27
OAC850-04-14	13.9		750	79				110	15	45
OAC900-04-19	18.8	1000	900	85			450	155	20	82
OAC900-04-19	18.8	1500	900	95				155	46	132
OAC1000-04-19	18.8	1000	900	85	21	14		188	20	82
OAC1000-04-19	18.8	1500	900	97			530	188	46	132
OAC2000-04-44	44.1	1000	1000	92				295	48	87
OAC2000-04-44	44.1	1500	1000	100			700	295	107	126

³⁾ Max. medium temperature: 110 °C (higher temperatures on request)/Max. ambient temperature: 60 °C

Other motors on request

Oil/air cooler type OAC

Cooling systems

Diagrammes of performance and pressure loss

Performance diagramme

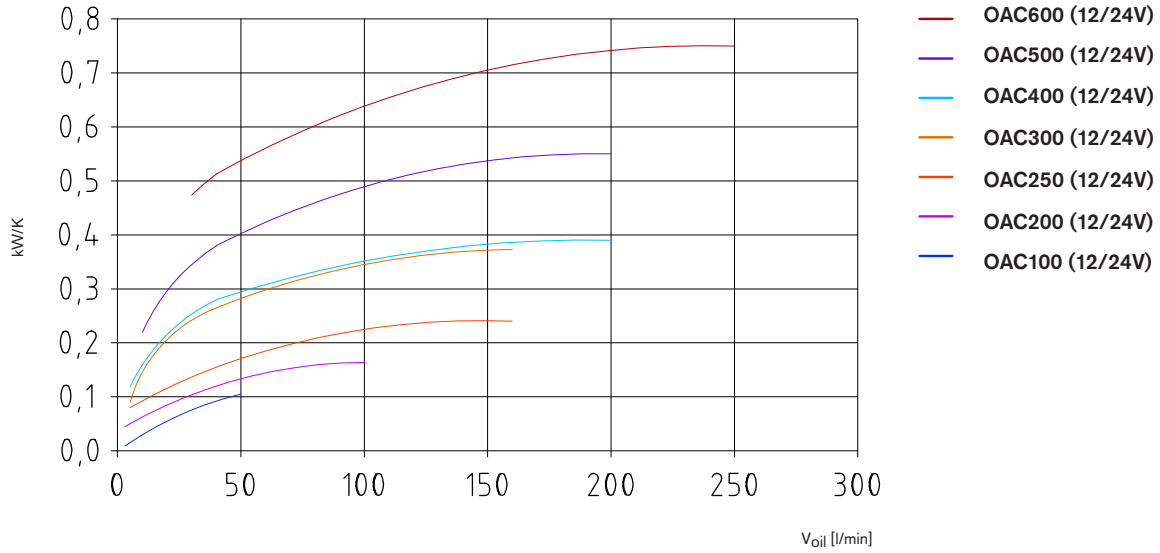
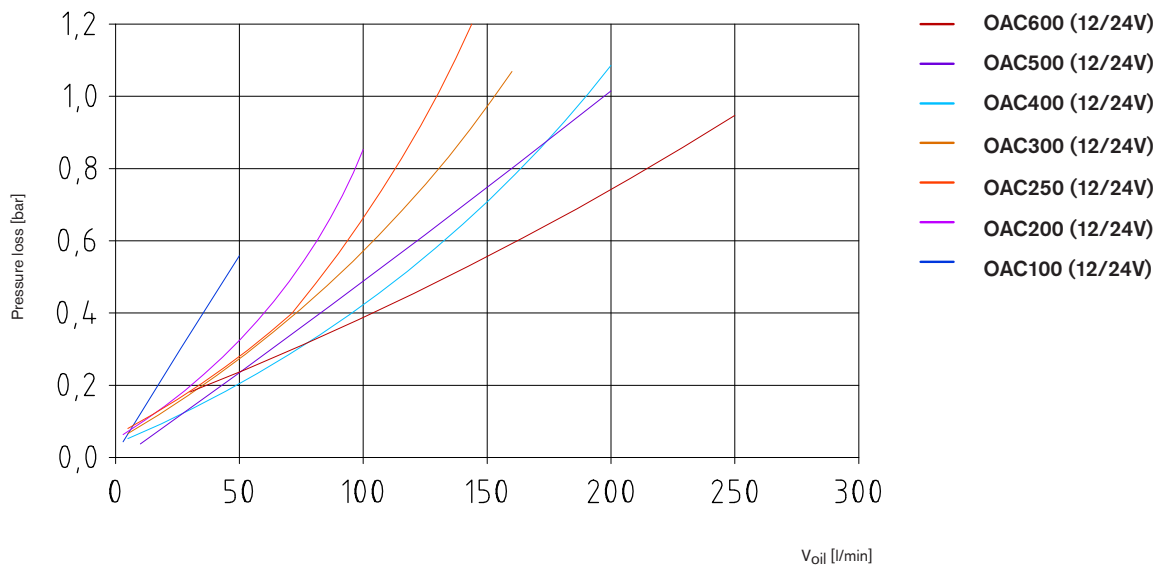


Diagramme of pressure loss



Conversion factor of pressure loss									
cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	1	1.2	1.4	1.6	2.1	2.8

Performance diagramme

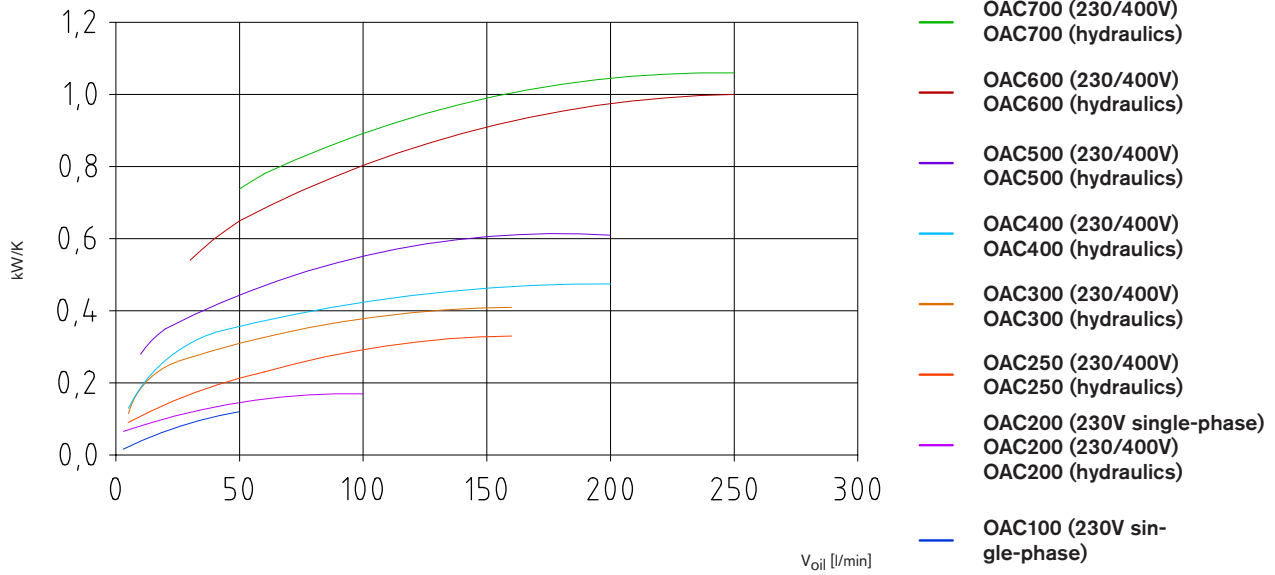
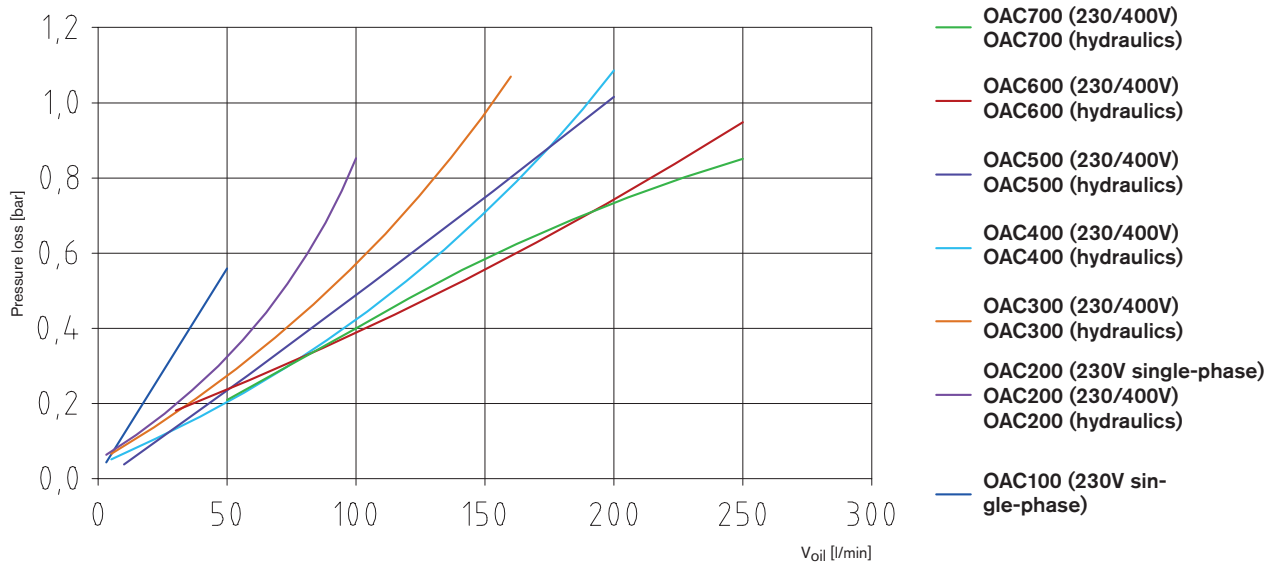


Diagramme of pressure loss



Conversion factor of pressure loss									
cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	1	1.2	1.4	1.6	2.1	2.8

Oil/air cooler type OAC

Cooling systems

Diagrammes of performance and pressure loss

Performance diagramme

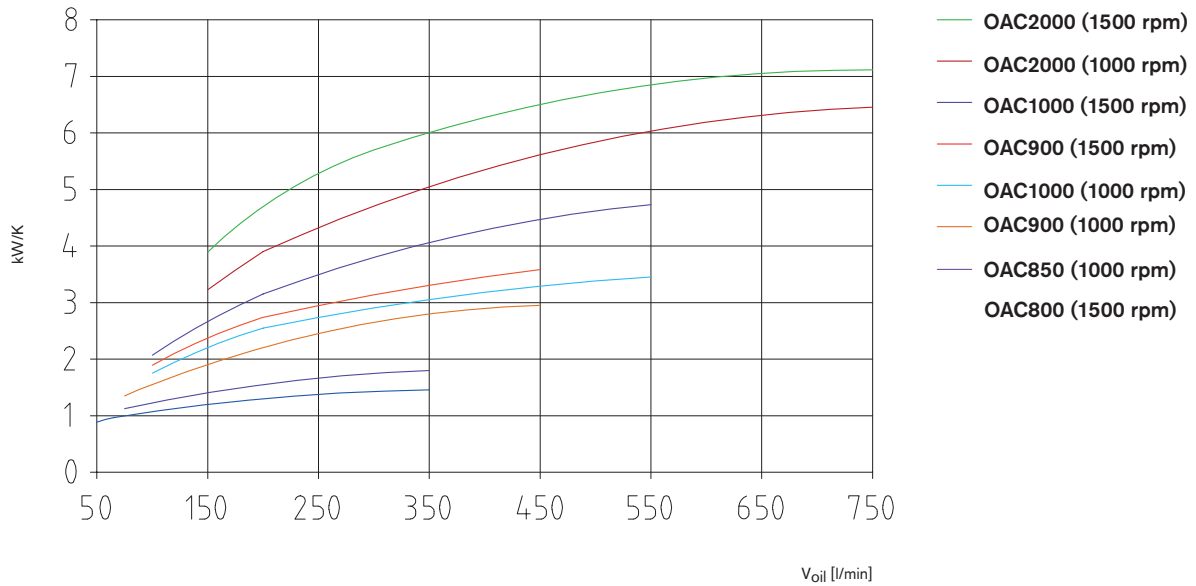
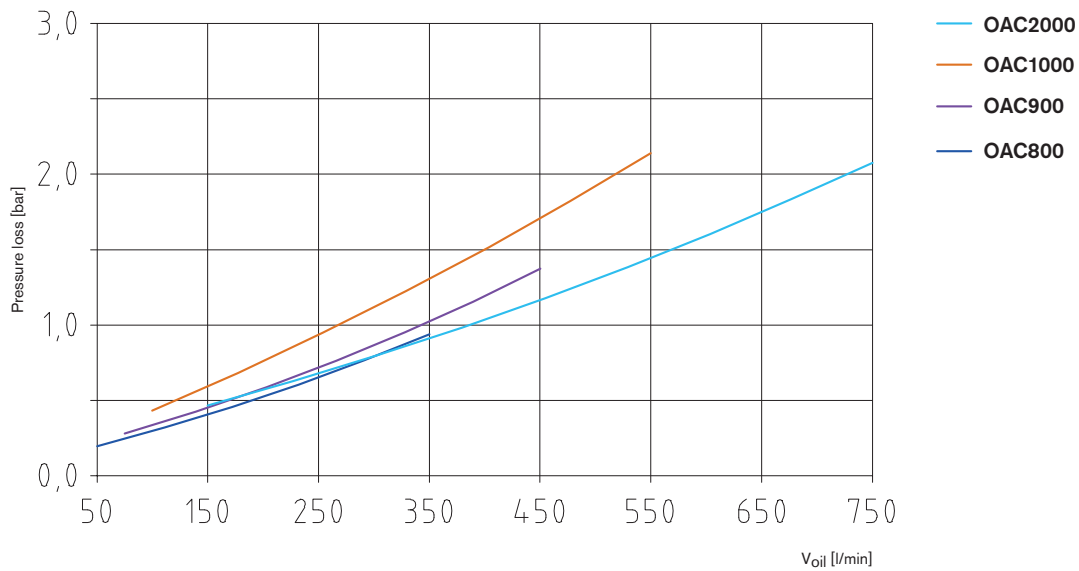


Diagramme of pressure loss

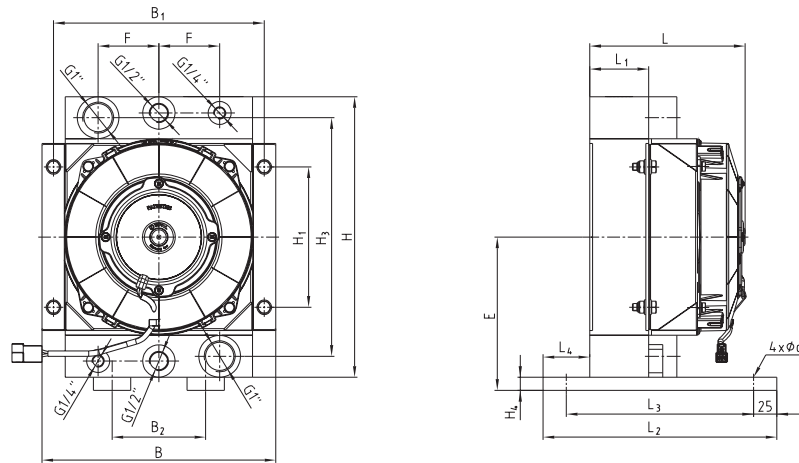


Conversion factor of pressure loss									
cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	1	1.2	1.4	1.6	2.1	2.8

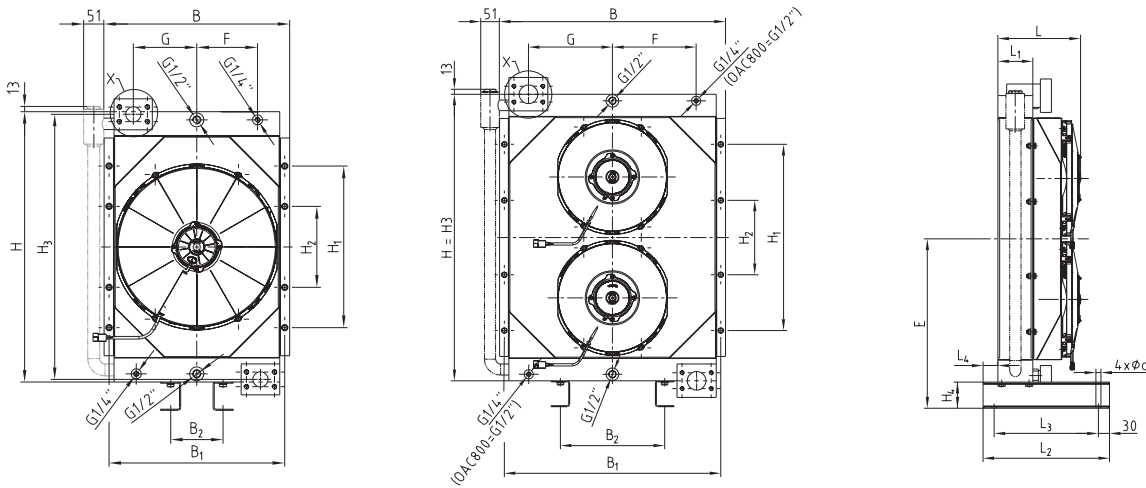
Oil/air cooler type OAC

Cooling systems

Dimensions of OAC100 - 800 (12/24V)

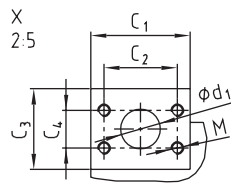


OAC100 - OAC400 12/24V



OAC500 12/24V

OAC600 - OAC800 12/24V

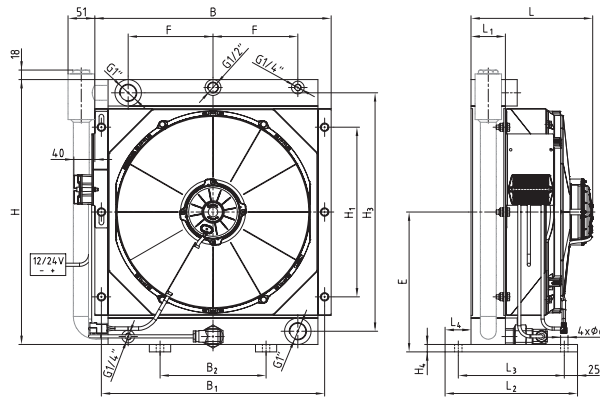


Oil/air cooler type OAC 12/24V																										
Type of cooler	Dimensions [mm]																									
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄	SAE flange	M	F	G	E	
OAC100-01	167	64	250	200	50	250	225	100	300	150	-	255	14	-	14	-	-	-	-	-	-	-	-	75	-	164
OAC100-02	167	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	-	115	-	219
OAC200-01	167	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	-	115	-	219
OAC200-02	197	95	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	-	115	-	219
OAC250-01	230	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC250-02	230	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC300-01	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC300-02	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC400-01	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405	
OAC400-02	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405	
OAC500-01	223	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	455	
OAC500-02	223	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	455	
OAC600-01	242	94	340	280	40	607	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530	
OAC600-02	242	94	340	280	40	607	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530	
OAC700-01	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	
OAC700-02	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	
OAC800-01	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	
OAC800-02	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	

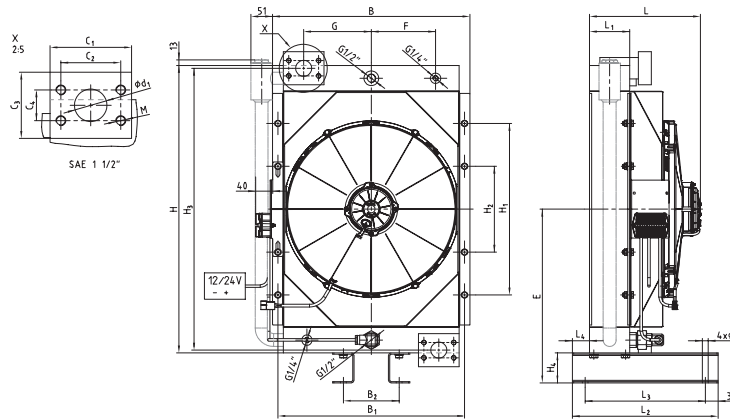
Oil/air cooler type OAC

Cooling systems

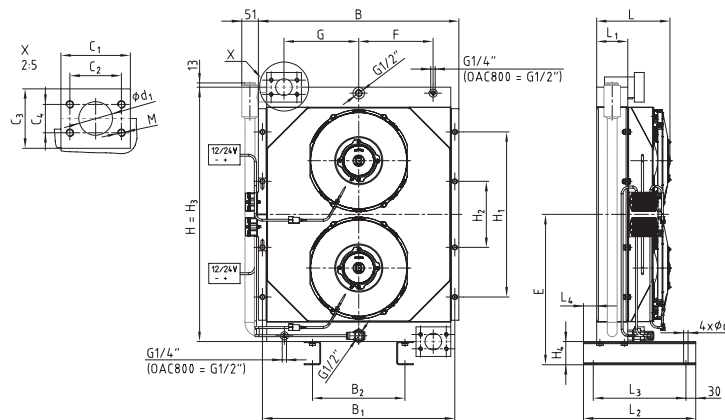
Dimensions of OAC 300 - 800 (12/24V) speed controlled



OAC300 - 400 12/24V



OAC500 12/24V



OAC600 - 800 12/24V

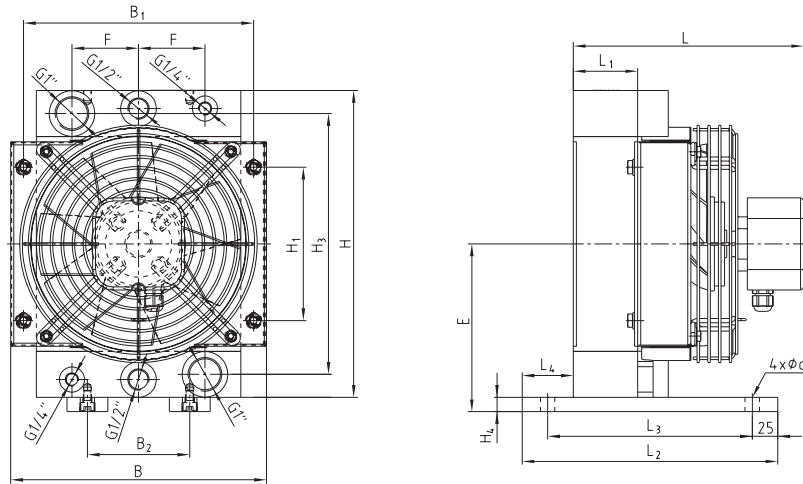
Oil/air cooler type OAC 12/24V speed controlled

Type of cooler	Dimensions [mm]																									
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄	SAE flange	M	F	G	E	
OAC300-01	230	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC300-02	230	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC400-01	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC400-02	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	160	-	264
OAC500-01	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405	
OAC500-02	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405	
OAC600-01	223	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	455	
OAC600-02	223	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	455	
OAC700-01	242	94	340	280	40	607	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530	
OAC700-02	242	94	340	280	40	607	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530	
OAC800-01	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	
OAC800-02	388	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	

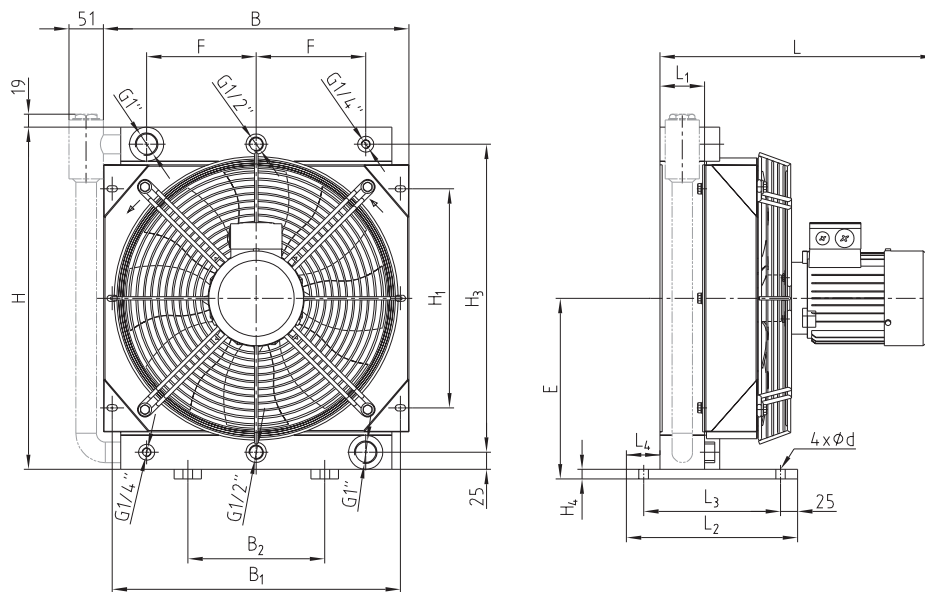
Oil/air cooler type OAC

Cooling systems

Dimensions of OAC100 - 400 (230/400V)



OAC100 - OAC400 230/400V (Compact fan)

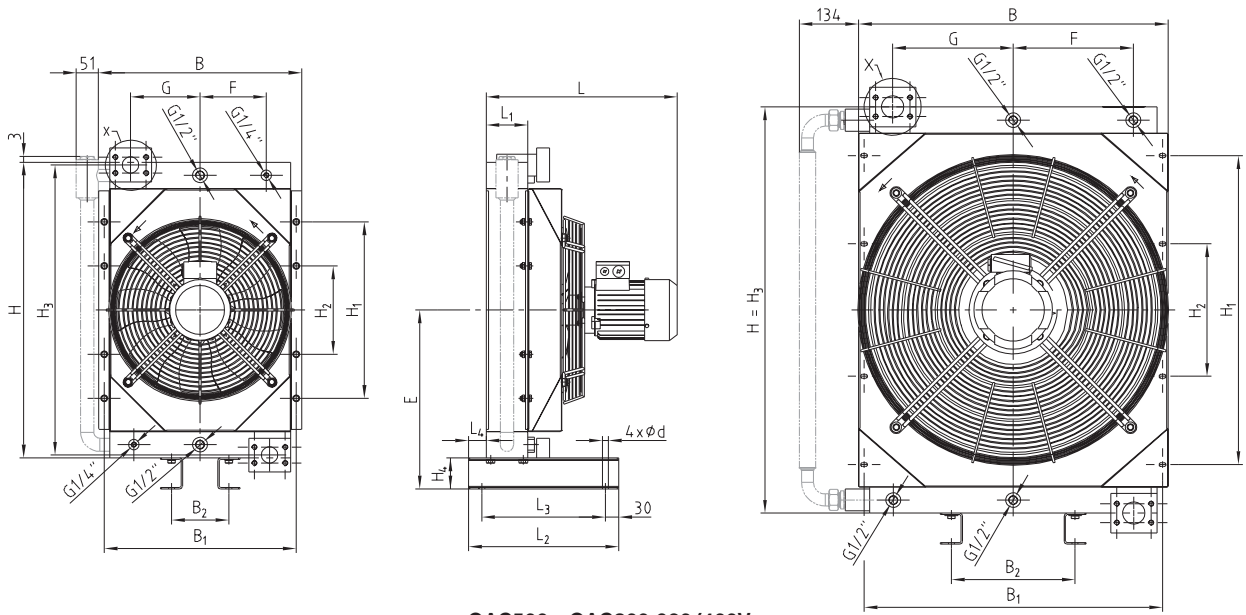


OAC200 - OAC400 230/400V

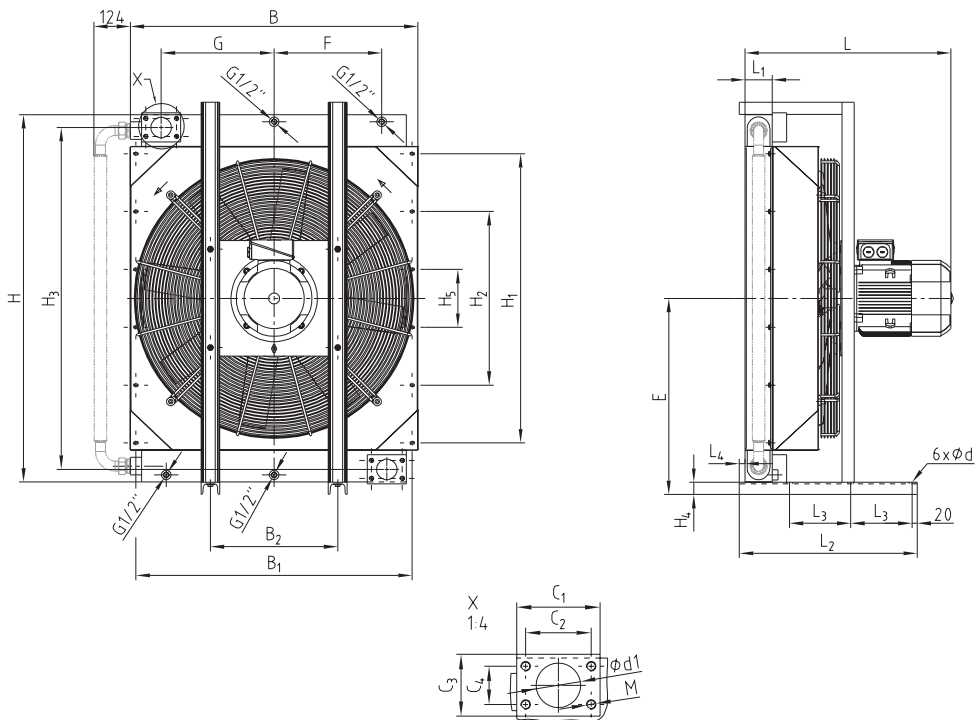
Oil/air cooler type OAC 230/400V																									
Type of cooler	Dimensions [mm]																								
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄	M	F	G	E	
OAC100-03 C	216	64	250	200	50	250	225	100	300	150	-	255	14	-	14	-	-	-	-	-	-	-	75	-	164
OAC200-03 C	279	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	115	-	219
OAC200-03	360	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	115	-	219
OAC250-03	390	95	280	230	56	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	115	-	219
OAC300-03-D	268	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC300-03	402	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC400-03-D	298	94	280	230	56	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC400-03	432	94	280	230	56	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264

Oil/air cooler type OAC Cooling systems

Dimensions of OAC500 - 2000 (230/400/690V)



OAC500 - OAC800 230/400V

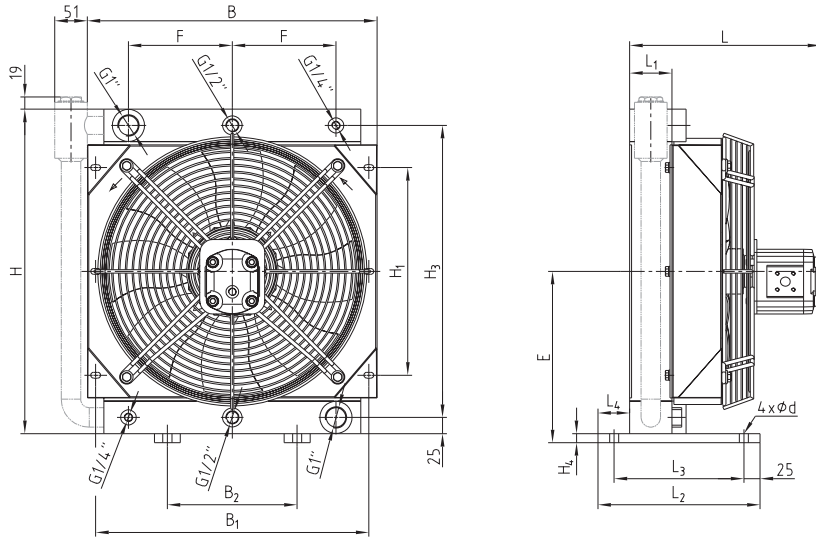


OAC850 - OAC2000 230/400V (400/690V)

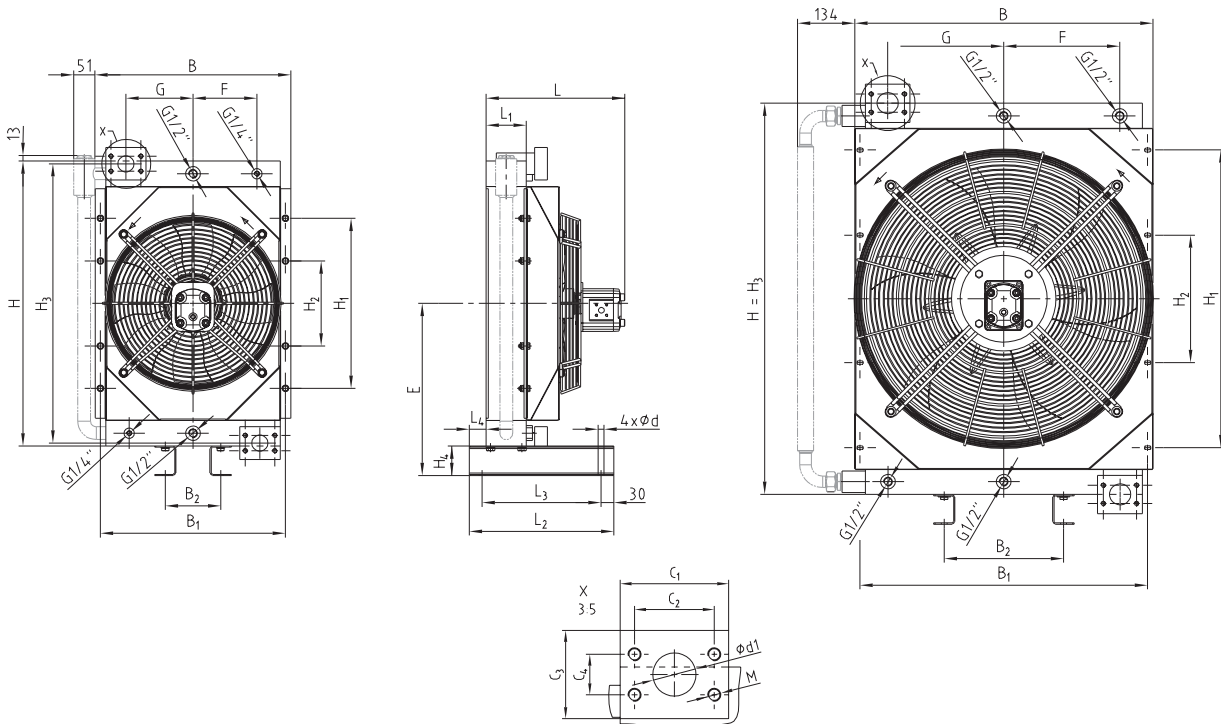
Oil/air cooler type OAC 230/400V																										
Type of cooler	Dimensions [mm]																									
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄	SAE flange	M	F	G	E	
OAC500-03	431	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405	
OAC600-03	555	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	455	
OAC700-03	565	94	340	280	40	608	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530	
OAC800-03	737	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	272	273	530	
OAC850-03	734	94	500	180	-	870	835	350	960	690	230	910	42	-	14	51	105	77.8	90	42.9	2"	M12	350	340	523	
OAC900-03	670	95	590	210	-	995	955	440	1270	1000	600	1182	42	200	14	73	135	106.5	100	62	3"	M16	372.5	390	678	
OAC1000-03-06	690	113	615	210	-	995	955	440	1270	1000	600	1182	42	200	14	73	135	106.5	100	62	3"	M16	372.5	390	678	
OAC1000-03-04	729	113	615	210	-	995	955	440	1270	1000	600	1182	42	200	14	73	135	106.5	100	62	3"	M16	372.5	390	678	
OAC2000-03-06	968	140	750	210	-	1286	1246	525	1420	1000	600	1332	45	200	14	73	135	106.5	100	62	3"	M16	532	532	756	
OAC2000-03-04	980	140	750	210	-	1286	1246	525	1420	1000	600	1332	45	200	14	73	135	106.5	100	62	3"	M16	532	532	756	

Oil/air cooler type OAC Cooling systems

Dimensions of OAC200 - 800 (hydraulic)



OAC200 - OAC400



OAC500 - OAC700

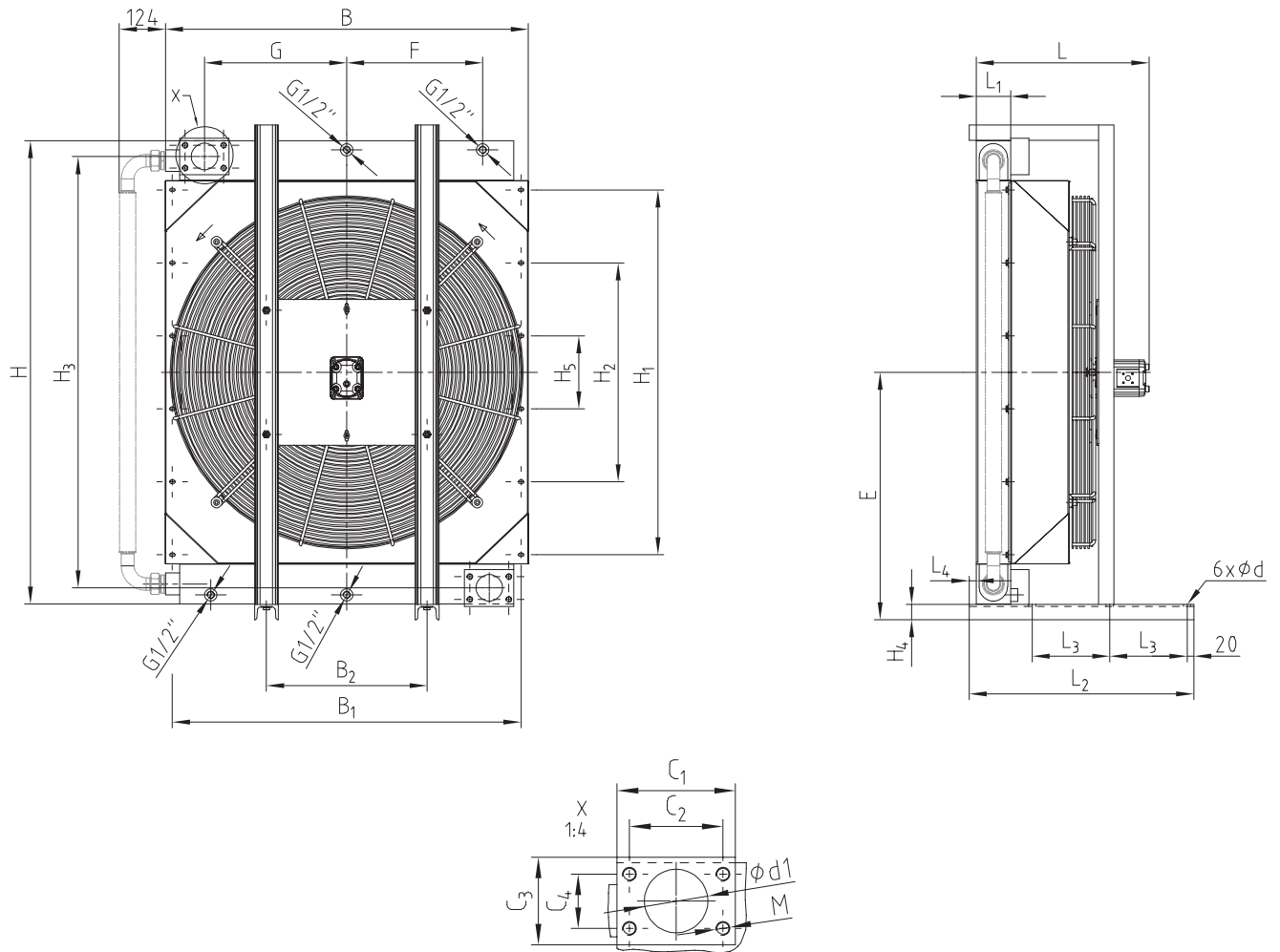
OAC800

Oil/air cooler type OAC hydraulic																											
Type of cooler	Dimensions [mm]																				SAE flange	M	F	G	E		
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄							
OAC200-04	245	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	-	-	115	-	219
OAC250-04	275	95	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	-	-	115	-	219
OAC300-04	295	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	-	160	-	264
OAC400-04	325	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	-	-	160	-	264
OAC500-04	323	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1 1/2"	M12	150	157.5	405		
OAC600-04	400	94	340	280	40	607	582	280	770	500	200	770	70	-	13.5	51	105	77.8	90	42.9	-	M12	225	226	455		
OAC700-04	411	94	340	280	40	608	582	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	2"	M12	225	226	530		
OAC800-04	546	140	450	390	40	701	676	280	920	700	300	920	70	-	13.5	51	105	77.8	90	42.9	-	M12	272	273	530		

Oil/air cooler type OAC

Cooling systems

Dimensions of OAC850 - 2000 (hydraulic)



OAC850 - OAC2000

Oil/air cooler type OAC hydraulic																										
Type of cooler	Dimensions [mm]																									
	L	L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	H	H ₁	H ₂	H ₃	H ₄	H ₅	d	d ₁	C ₁	C ₂	C ₃	C ₄	SAE flange	M	F	G	E	
OAC850-04	475	94	590	210	-	870	835	350	960	690	230	910	42	-	14	51	105	77.8	90	42.9	2"	M12	350	340	523	
OAC900-04	475	95	615	210	19.5	995	955	440	1270	1000	600	1182	42	200	14	73	135	106.5	100	62		M16	372.5	390	678	
OAC1000-04	505	113	615	210	-	995	955	440	1270	1000	600	1182	42	200	14	73	135	106.5	100	62	3"	M16	372.5	390	678	
OAC2000-04	620	140	750	210	-	1286	1246	525	1420	1000	600	1332	45	200	14	73	135	106.5	100	62		M16	532	532	756	

Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Bypass flow cooling with integrated pump



The OPC oil cooler unit is a system specifically developed for cooling in the bypass flow as an independent unit. The unit consists of a cooler, fan, electric motor, pump and may be supplemented by a filter on request of the customer.

Applications:

- Machine tools
- Elevators
- Test benches
- Add-on coolers
- Bypass flow cooling

Applicable for cooling of:

- Hydraulic oil
- Gear oil
- Lubricating oil
- Water glycol (min. 50 % glycol)

Structure:

- Cooler core (plate and bar) made of aluminium with industrial laminae in black (RAL 9005)
- Fan cover made of steel in black (RAL 9005)
- Fan made of nylon PAG
- Protective grid made of steel in black (RAL 9005)
- Electric motor 230/400V, IP55
- Bellhousing and coupling
- Gear feed pump with pressure relief valve 0 - 15 bars, recommended setting 5 bars,
 - max. medium temperature 90 °C (higher temperature on request),
 - low-noise pump, also for high viscosities
- Filter with visual maintenance display, as an option

Marine design:

- Cooler core, frame, fan cover with double-component paint
- Electric motor with special paint and protection class IP56

ATEX design:

- Gas sector: Ex II 2G Ex h IIC T6...T3 Gb X
- Dust sector: Ex II 3D Ex h IIIC T68 °C...110 °C Gb X
- Ambient temperature -40 °C < Ta < +55 °C
- Motor and fan as an adequate ATEX design

Accessories (see page 51 et seqq.):

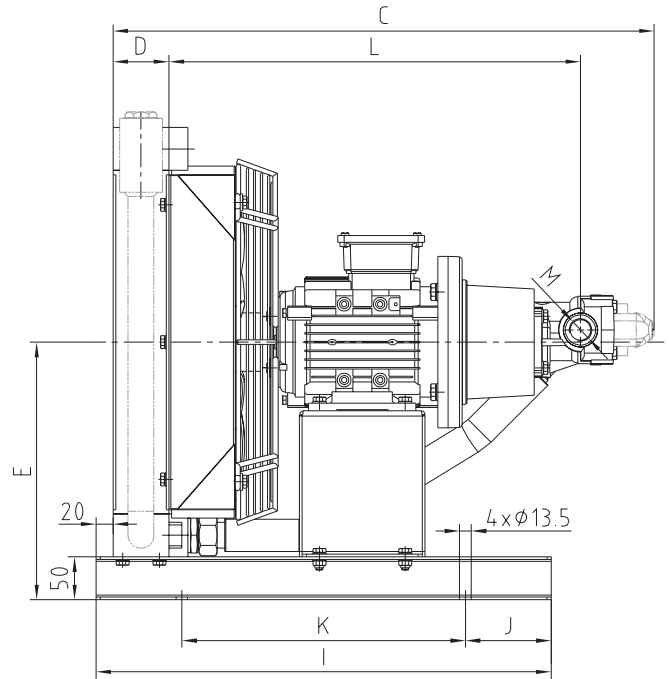
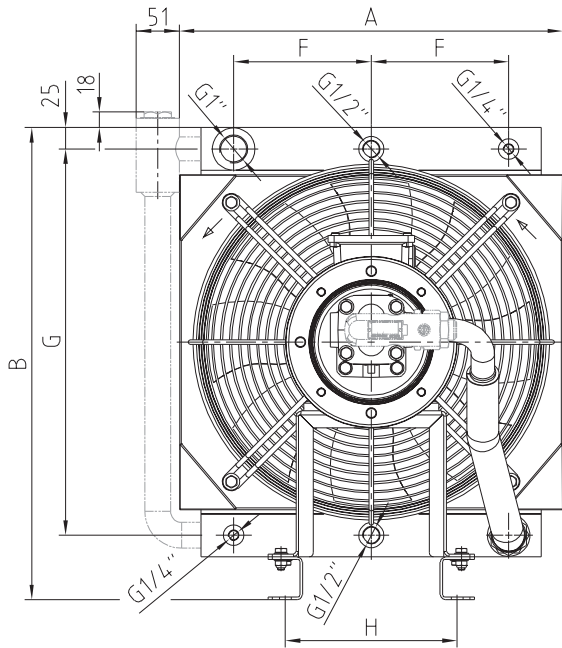
- Thermal bypass valves
- Oil thermostat valve (OTV)
- Protective grid
- Temperature switch (TSC)

The OPC coolers have to be protected from direct solar radiation.

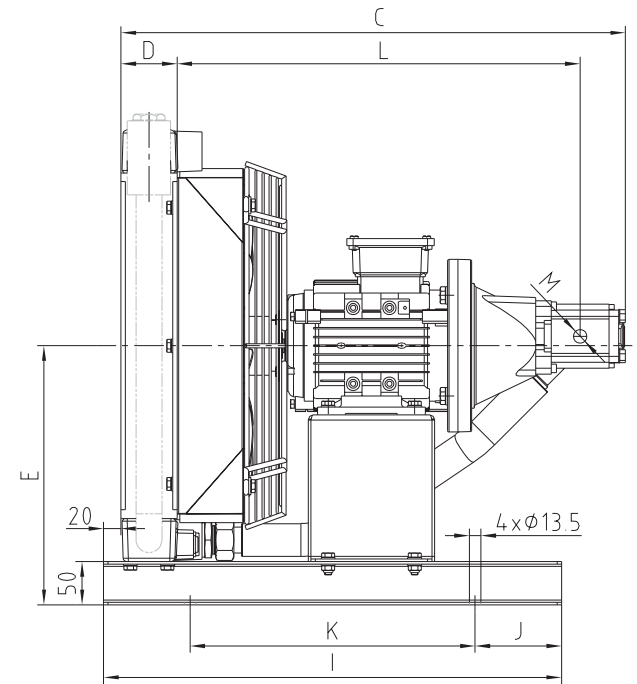
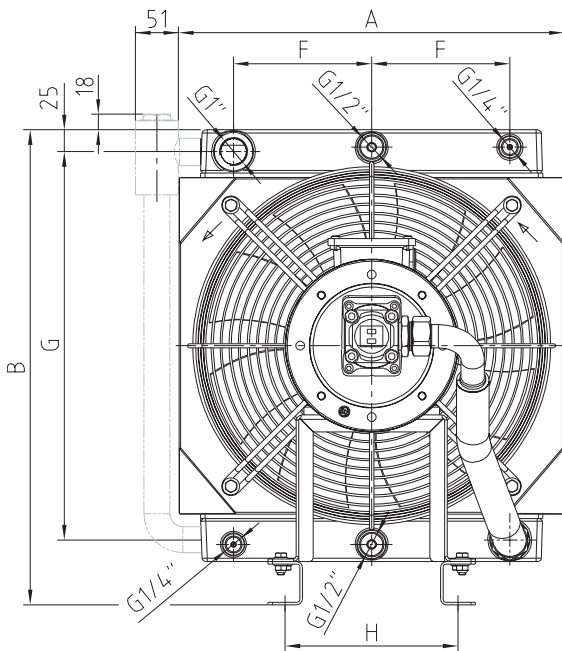
Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Dimensions of OPC200 - 400 (230/400V)



OPC200 - OPC400 for hydraulic applications (ISO VG32-68)

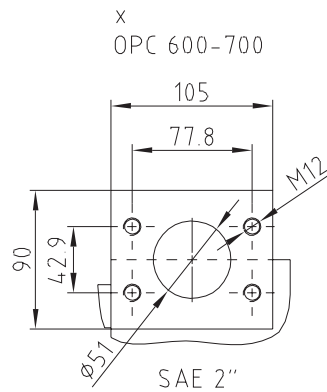
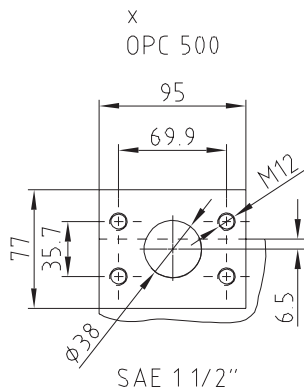
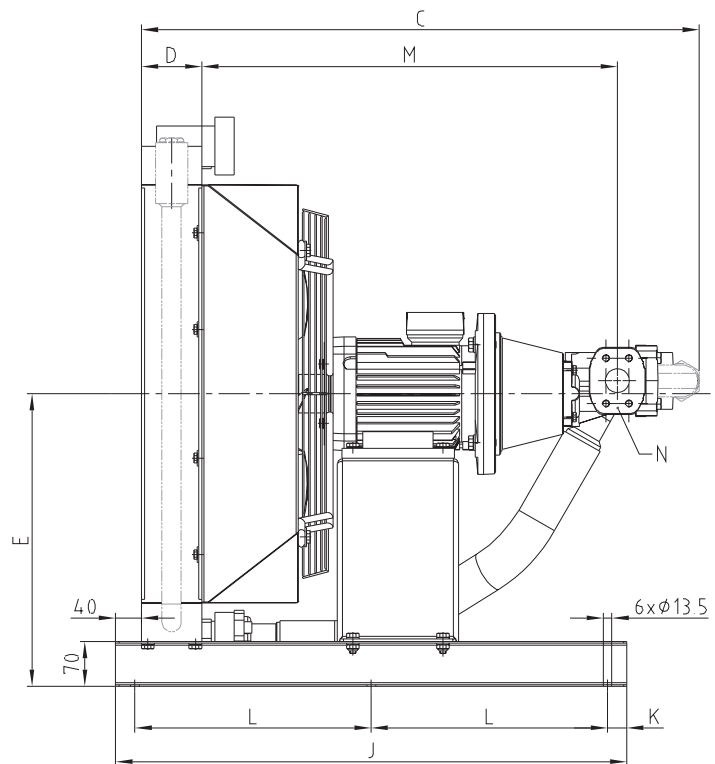
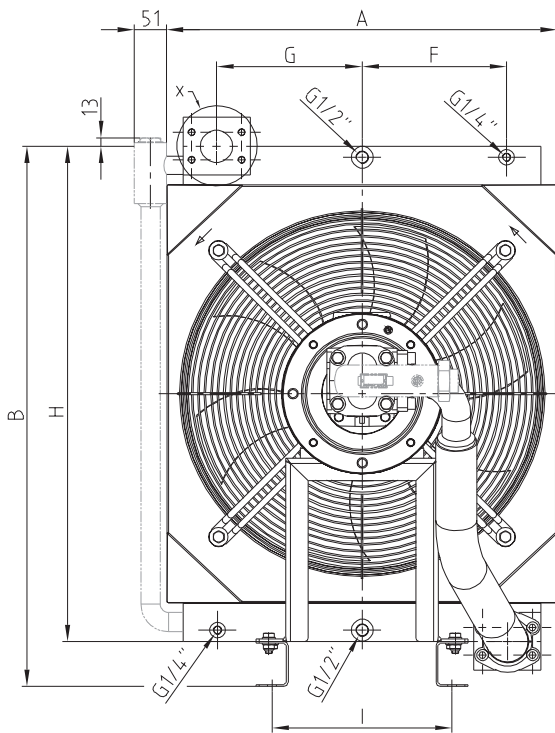


Technical data																			
Type of cooler	Voltage	Current [A]	Speed [rpm]	l/min	kW/°C	Dimensions [mm]											Weight [kg]		
						A	B	C	D	E	F	G	H	I	J	K		L	M
OPC200-14-0.75kW	230/400V 50 Hz	1.8	1400	5.7	0.07	350	460	547	64	255	115	360	174	530	100	330	436	G 3/4"	35
OPC200-18-0.75kW				11.5	0.09			572									426	G 3/4"	
OPC200-4D-0.75kW				5.5	0.07	596	435	G 1"											
OPC200-12D-0.75kW				16.7	0.09				572	426	G 3/4"								
OPC200-16D-0.75kW				21.4	0.10	446	550	638	300	160	450	200	530	100	330	467	G 3/4"		
OPC300-18-0.75kW				11.5	0.18											476	G 1"		
OPC300-114-0.75kW				20.1	0.23	622	464	G 3/4"											
OPC300-4D-0.75kW				5.5	0.12				65	530	100	330	473	G 1"					
OPC300-12D-0.75kW				16.7	0.23	668	94	476	G 1"										
OPC300-16D-0.75kW				21.4	0.25					300	160	450	200	473	G 1"				
OPC400-114-0.75kW				20.1	0.26	668	476	G 1"											
OPC400-12D-0.75kW				16.7	0.24				550	75	400	476	G 1"						
OPC400-16D-0.75kW				21.4	0.27	668	474	SAE	45										

Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Dimensions of OPC500 - 600 (230/400V)



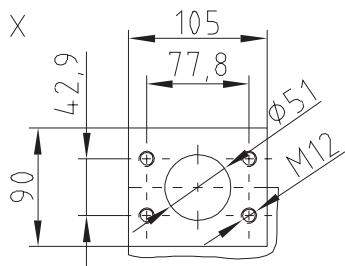
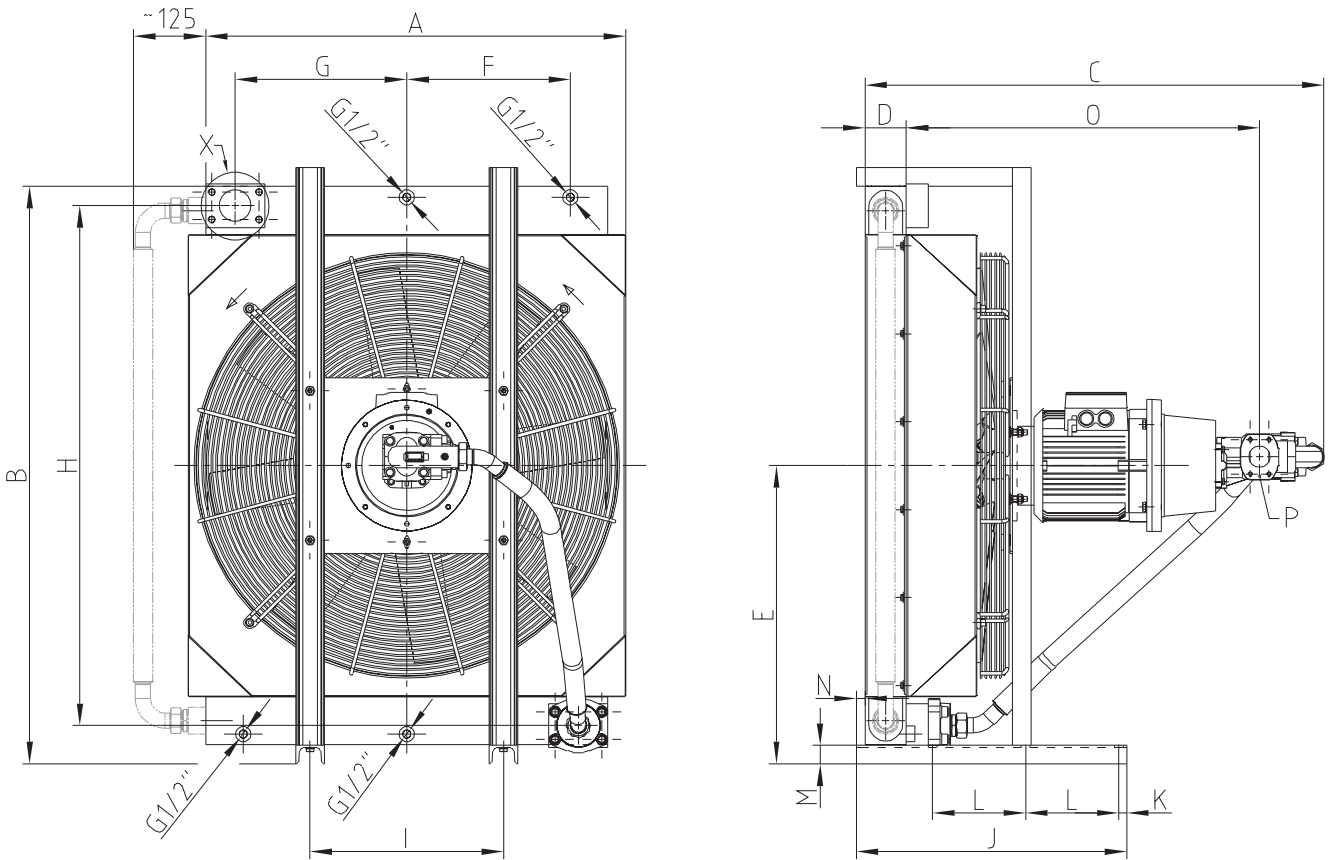
OPC500 - OPC600

Technical data																						
Type of cooler	Voltage	Current [A]	Speed [rpm]	l/min	kW/°C	Dimensions [mm]													Weight [kg]			
						A	B	C	D	E	F	G	H	I	J	K	L	M		N		
OPC500-16D-2.2kW	230/400V 50 Hz	4.9	1410	21.4	0.35			740										547	G 1"	75		
OPC500-25D-2.2kW				33.4	0.40	460	740		94	405	150	157.5	657	130	720	30	330.0		SAE 1 1/2"	77		
OPC500-32D-2.2kW				42.7	0.42			790														
OPC500-40D-2.2kW				53.5	0.45																	
OPC600-16D-2.2kW				21.4	0.47						819									626	G 1"	96
OPC600-25D-2.2kW				33.4	0.56			607	840		94	455	225	226.0	770	280	795	30	367.5		SAE 1 1/2"	98
OPC600-32D-2.2kW				42.7	0.61					868												
OPC600-40D-2.2kW				53.5	0.66																	

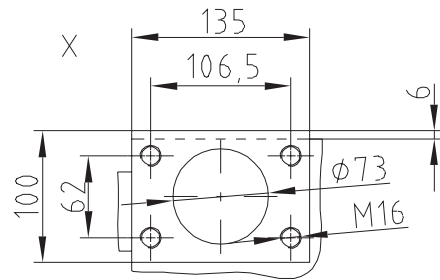
Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Dimensions of OPC800 - 1000 (400/690V)



SAE 2"
(OPC800)



SAE 3"
(OPC850 - OPC1000)

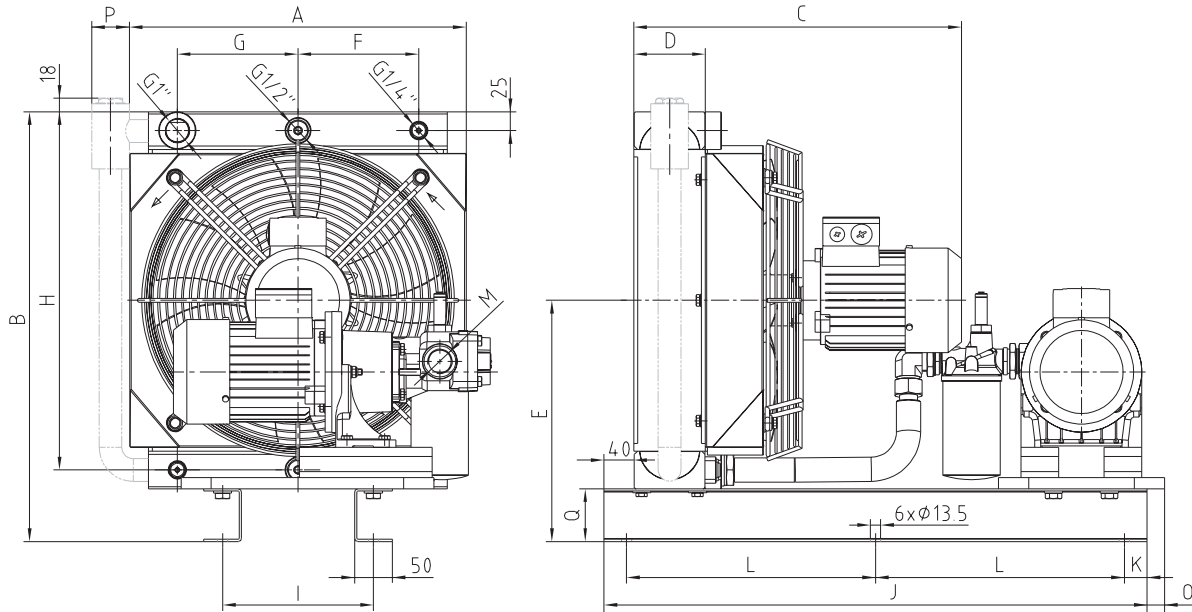
OPC800 - OPC1000 (400/690V)

Technical data																			
Type of cooler	Voltage	Current [A]	Speed [rpm]	l/min	kW/°C	Dimensions [mm]													Weight [kg]
						A	B	C	D	E	F	G	H	I	J	K	L	M	
OPC800-50D-4kW	400/690V 50 Hz	8.2	1460	69	1.00	701	981	1096	140	521	350	340	920	280	670	292	829	38.0	112
OPC800-80D-4kW				112	1.15	1130	1081	845											
OPC850-80D-5.5kW				72	1.12	1046	94	523	910	350	590	180	804						
OPC850-125D-5.5kW		113	1.32	1081	824	63.5							160						
OPC900-80D-5.5kW		12	970	72	1.34	995	1312	1046	678	373	390	1182	440	615	210	804	38.0	189	
OPC900-125D-5.5kW				113	1.71			1081								824	63.5	203	
OPC1000-125D-5.5kW				113	1.88	1119	113	678	373	390	1182	440	615	210	844	76.2	220		
OPC1000-180D-5.5kW				167	2.33	1136									854				

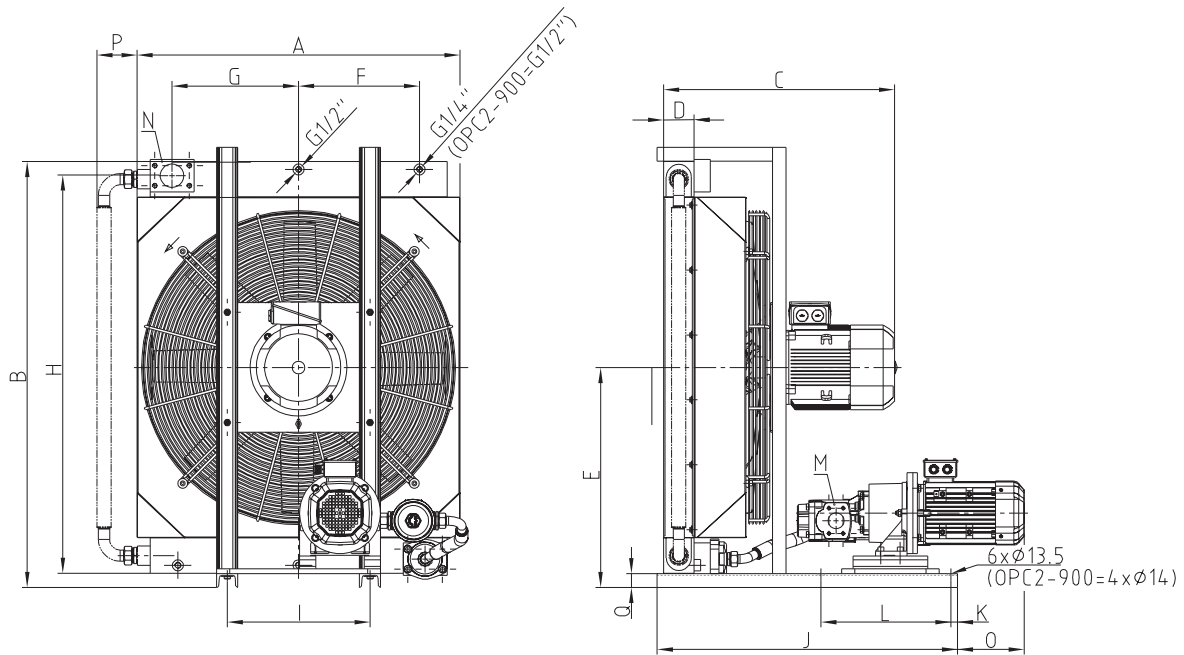
Oil/air cooler / cooling-pumping unit type OPC2

Cooling systems

Dimensions of OPC2-300 - 900 (230/400V)



OPC2-300 - OPC2-400



OPC2-500 - OPC2-900

Technical data																												
Type of cooler	Voltage	Motor Coolers		Motor Pump		Flow rate		Dimensions													Weight [kg]							
		Current* [A]	Speed [rpm]	Current* [A]	Speed [rpm]	[l/min]	kW/°C	A	B	C	D	E	F	G	H	I	J	K	L	M		N	O	P	Q			
OPC2-300-4	230/400V 50Hz (460V 60Hz)	1.03	1385	1.03	1385	5.5	0.13												G ^{3/4"}						53			
OPC2-300-12								17	0.21	446	570	417									G ^{1"}	G ^{1"}					63	
OPC2-400-16								21.6	0.27																			66
OPC2-400-32								44	0.36																			74
OPC2-500-32								44	0.46	460	740	448													23	51	70	81
OPC2-500-63								3.43	1445	88	0.54											SAE 1 1/2"	SAE 1 1/2"					117
OPC2-700-40						1.77	1420	53.5	0.76	607	990	563	94	530	225	226	920	280	795		SAE 2"	SAE 2"				139		
OPC2-700-100						4.83	1440	141	0.98												SAE 2"	SAE 2"	340			235		
OPC2-900-63						3.43	1445	88	1.50	995	1313	712		678	372.5	390	1270	440	925	20	SAE 1 1/2"	SAE 3"	227	125	42	275		
OPC2-900-100						4.83	1440	141	1.91												SAE 2"	SAE 3"	206					

x basis 400V

Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Type code of industrial cooler oil/air

OPC - **200** - **M** - **4D** - **0,75 kW** - **A** - **F10** - **0** - **0**

Size of cooler	Type	Nominal size of pump incl. type	Motor power	Voltage	Filter	Bypass	Protective grid against stones
100	No specification = Standard	e. g.: 4D	0.75 kW	A = 230/400V 50 Hz or 460V 60 Hz (up to OPC600)	To be omitted if not applicable	0 = Without bypass	0 = No 1 = Yes
200			2.2 kW				
300	M = Marine (seawater resistance)		4 kW	B = 400/690V 50 Hz	F10 = Filter (permeability up to 10µ) with visual display	TB6 = Thermal bypass (6 bars/50 °C)	
400			5.5 kW				
500	ExG = ATEX (gas-protected area)			Z = Special voltage*	F25 = Filter (permeability up to 25µ) with visual display	DB6(F) = Pressure bypass (2, 4, 6 bars)	
600							
700	ExD = ATEX (dust-protected area)						
800							
900	M-ExG = Marine & ATEX (gas)						
1000							
	M-ExD = Marine & ATEX (dust)						

* Special voltage in plain language

OPC2 - **400** - **M** - **16** - **0,75-4 / 0,37-4** - **Z** - **F10** - **DB4** - **1**

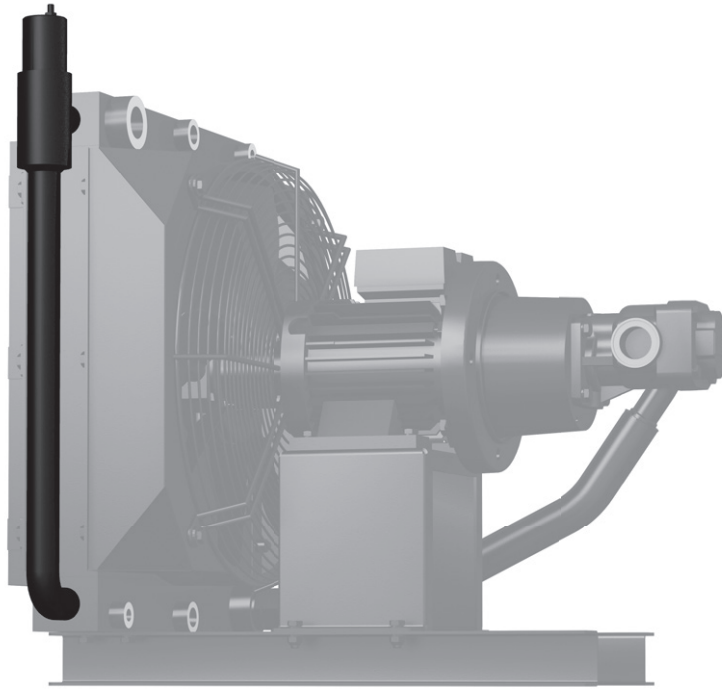
Size of cooler	Type	Nominal size of pump incl. type	Motor power - pole number of pump	Motor power - pole number of cooler	Voltage	Filter	Bypass	Protective grid against stones
200	No specification = Standard	e. g.: 16	e. g.: 0.75 kW	e. g.: 0.37 kW	A = 230/400V 50 Hz or 460V 60 Hz	To be omitted if not applicable	0 = Without bypass	0 = No 1 = Yes
300								
400	M = Marine (seawater resistance)				B = 400/690V 50 Hz or 460V 60 Hz	F10 = Filter (permeability up to 10µ) with visual display	TB6 = Thermal bypass (6 bars/50 °C)	
500								
600					Z = Special voltage*	F25 = Filter (permeability up to 25µ) with visual display	DB6 = Pressure bypass (2, 4, 6 bars)	
700								
800								
850								
900								
1000								
2000								

* Special voltage in plain language

Oil/air cooler OAC / cooling-pumping unit type OPC

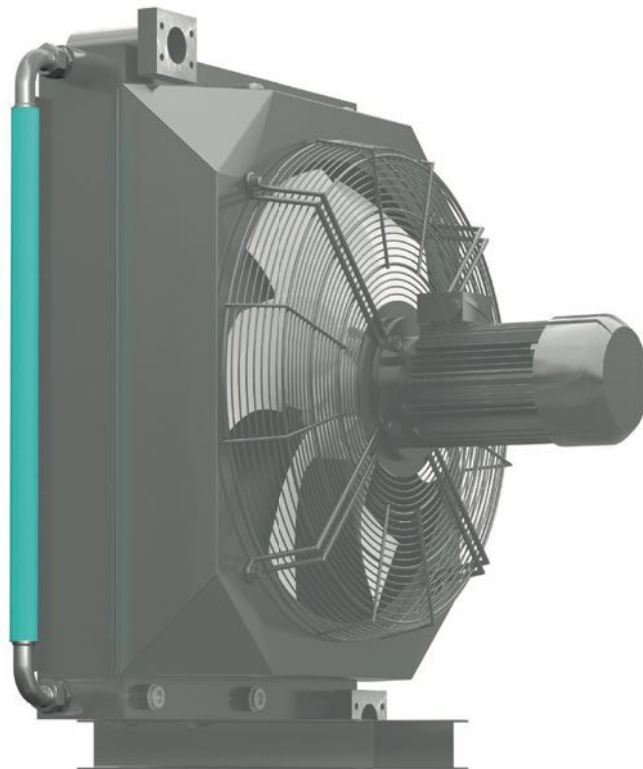
Cooling systems

Cooler accessories



Thermal & pressure bypass (TB)

The integrated thermal and pressure bypass additionally provides for faster return of the oil passing the cooler core to efficiently reach the operating temperature through the load. Safeguarding the pressure is assured in parallel.



Pressure bypass (DB)

Integrated pressure bypass protecting the cooler core against excess pressure. A share of the volume flow is bypassed along the cooler core depending on the opening pressure.

Oil/air cooler type OAC

Cooling systems

Cooler accessories



Soft start-up control and variable-speed operation for coolers with direct current motors (12 & 24V)

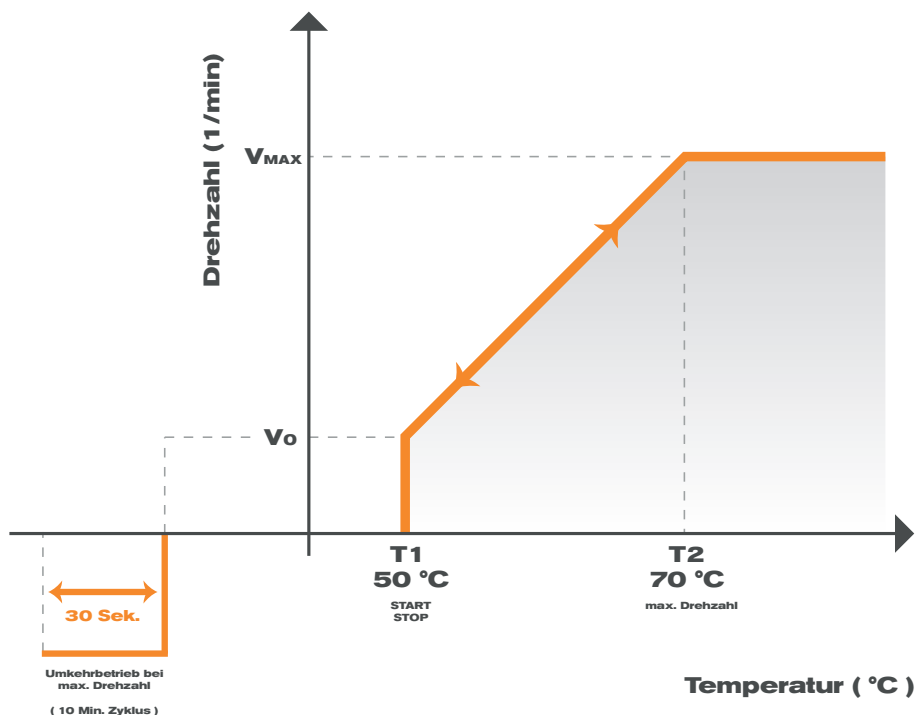
The soft start-up makes sure the motor exceeds the nominal current consumption by a maximum of 10 %, the motor accelerates slowly with increasing temperatures not overloading the current supply. Depending on temperature the motor makes sure that only as much cooling capacity as actually needed is provided. The motor starts from an oil inlet temperature of 40 °C reaching its max. speed with 60 °C.

An automatic reverse operation can be integrated in the control unit to purge the cooler core.

An existing cooler can be retrofitted or provided with the control unit immediately ex works.

Frequency converter operation for coolers with three-phase motors

All coolers can be supplied with frequency converter ex works to reduce the noise emissions. The oil inlet temperature is used as a signal for the frequency converter via PT100 to reduce or increase the speed, if necessary. Appropriate ramps are pre-installed or can be defined by the customer. This allows the motor to run a frequency band from 35 - 50 Hz or run up to 60 Hz with an adequate motor dimensioning to provide for sufficient reserve with temperature peaks.



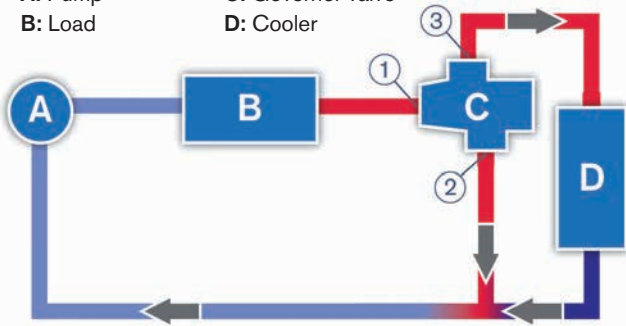
Oil/air cooler accessories

Cooling systems

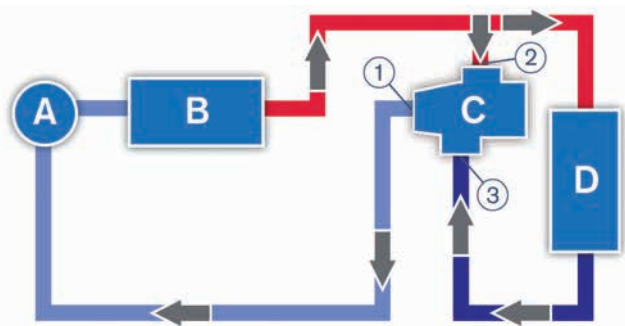
Oil thermostat valve

A: Pump
B: Load

C: Governor valve
D: Cooler



Use as a short circuit control:
Constant temperature on load outlet



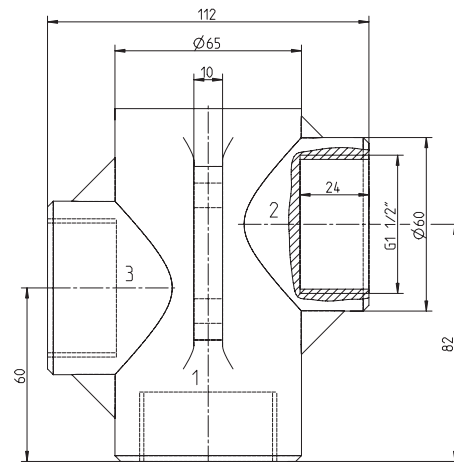
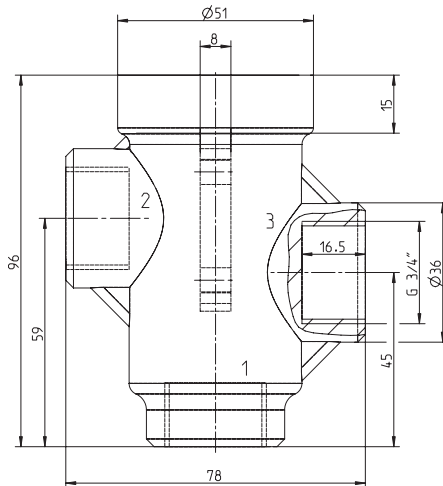
Use as a mixing valve:
Constant temperature on load inlet

Main applications of oil thermostat valves

- Agricultural machines
- Construction machines
- Compressors
- Coolers
- Special applications, e. g. wind turbines, gearboxes, hydraulics, general engineering

Particular characteristics

- non-adjustable temperature figures
- high control accuracy
- control operation regardless of static and dynamic oil pressure
- low pressure loss
- sound design
- insensitive to vibrations
- insensitive to shocks
- operation independent of the mounting situation
- maintenance-free
- long service life



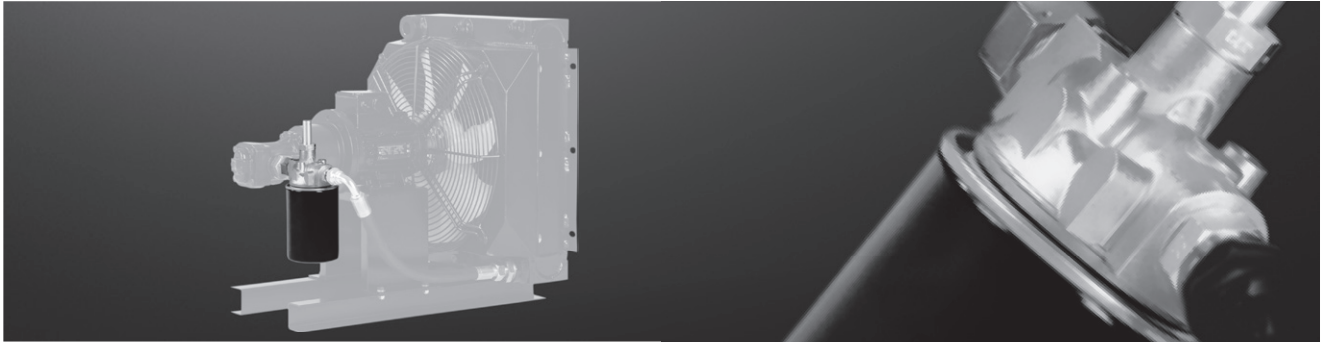
OTV Oil thermostat valve				
Description	Max. volume flow [m³/h]	Connection thread	Inlet temperature [°C]	Max. inflow to the cooler obtained with °C
OTV1-45	4	G 3/4"	45	60
OTV1-55	4	G 3/4"	55	70
OTV1-70	4	G 3/4"	70	85
OTV2-45	10	G 1 1/2"	45	60
OTV2-55	10	G 1 1/2"	55	70
OTV2-70	10	G 1 1/2"	70	85

Max. operating pressure 16 bars

Ordering example:	OTV	1	55
	Oil thermostat valve	Size	Inlet temperature

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

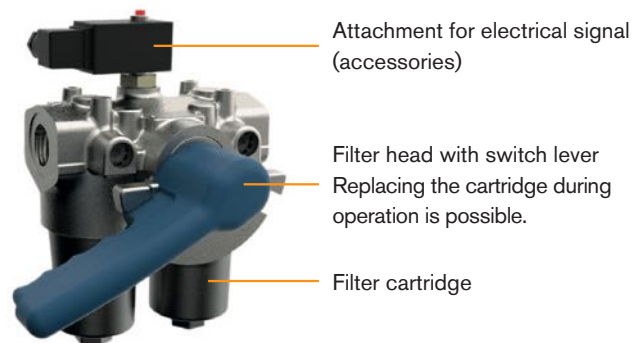
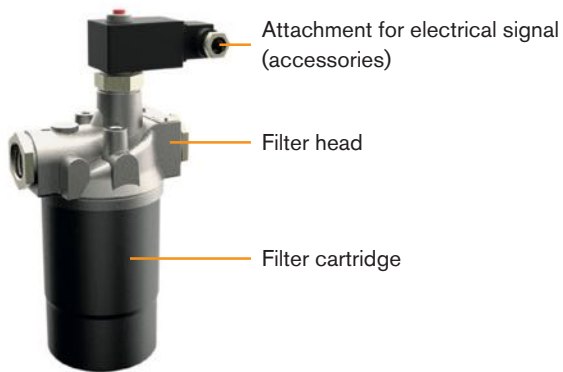
Cooler accessories - filters



Single or double filter with mounting cartridge and visual display for separating dirt particles.

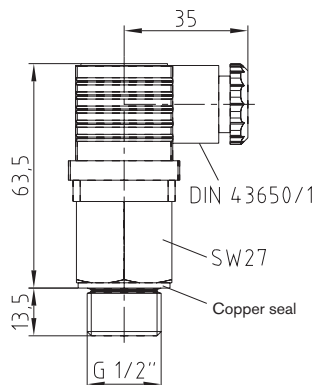
Options:

- 10 µm or 25 µm depending on volume flow, oil type and temperature
- Filter attachment for electrical signals available
- Protective coating for use with salty ambient air



Cooler accessories - temperature switch TSC

Technical data		
Switching element:	Bi metal	Switching point:
Switching operation:	NO = make contact	TSC 40 = 40 °C
Switching temperature:	+25 °C to +80 °C	TSC 50 = 50 °C
Material of probe:	Brass	TSC 60 = 60 °C
Max. operating pressure:	26 bars	TSC 70 = 70 °C
Operating temperature:	20 °C to +100 °C	
Plug:	According to DIN 43650 - 3 poles + PE, protection class IP65, cable gland PG11	



- Simple, solid design
- Electrical insert easy to disassemble
- With plug acc. to DIN 43650 straight cable outlet direction rotatable by 360°
- Copper seal
- Protection class IP65

Temperature contacts:	Max. operating voltage:	250V AC - 8 A 24V DC - 5A
	Max. switching current:	2 A
	Tolerance:	±5 K
	Switch-back difference:	15 K ±3 K

Ordering example:

TSC	50
Temperature switch	Switching point 50 °C

Oil/air cooler / cooling-pumping unit type OPC

Cooling systems

Cooler accessories



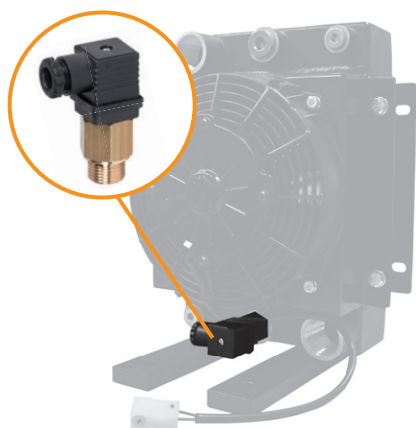
Flow switch

- Measuring range 1 - 50 l/min (other on request)
- G 1" connection thread
- Supply voltage 10 - 30 V DC



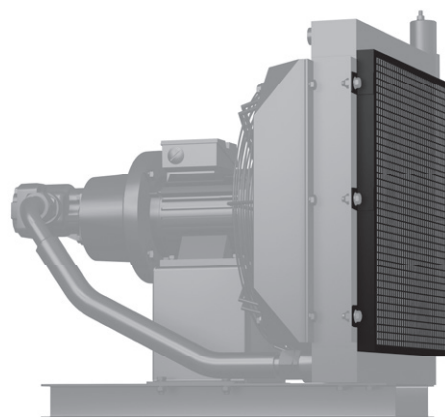
Pressure display

- Manometer for inspecting the current operating pressure



Pressure switch

- Adjustable from 1 - 16 bars
- G1/4" connection thread
- Applicable on cooler inlet or outlet



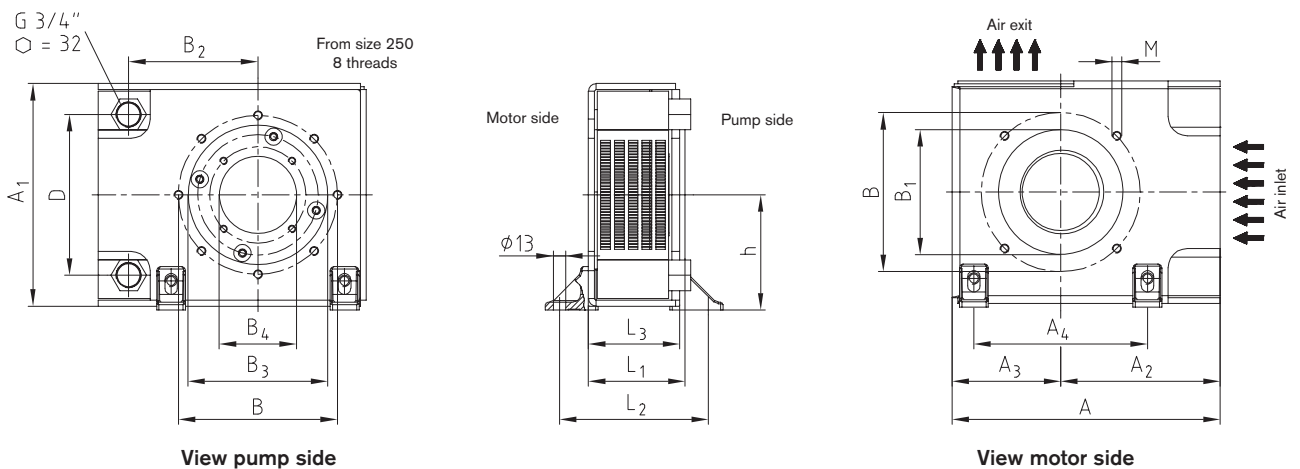
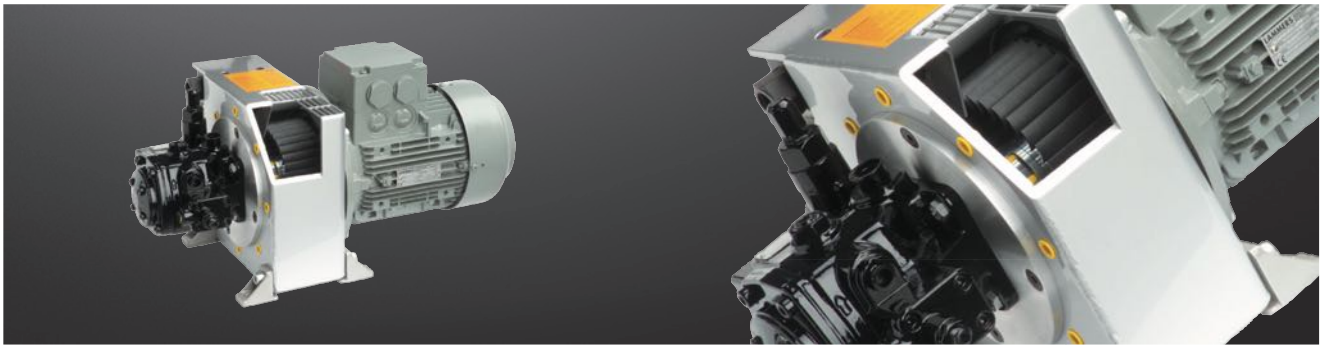
Protective grid

Protection against rough damages of cooling laminas via corrugated wire mesh (10 x 10 mm). Optionally a filter pad is available protecting against smaller particles (dust, sand). Please consider a reduction of performance depending on load.

Oil/air cooler type PIK

Cooling systems

Bellhousing with integrated oil/air cooler



View pump side

View motor side

Bellhousing with integrated oil/air cooler type PIK (German utility model)																		
IEC motor		PIK oil cooler type	Dimensions [mm] *															
Size (shaft)	kW with 1500 rpm		L ₁	L ₂	L ₃	A	A ₁	A ₂	A ₃	A ₄	B	B ₁	B ₂	B ₃	Min. B ₄	D	M	h
80	0.55	PIK 200/1/...	100	154.5	94.5	275	225	163	112.5	180	165	130	130	145	20	167	M10	116.5
(19 x 40)	0.75	PIK 200/2/...	110	154.5	94.5	275	225	163	112.5	180	165	130	130	145	20	167	M10	116.5
90S/90L	1.1	PIK 200/4/...	124	154.5	94.5	275	225	163	112.5	180	165	130	130	145	20	167	M10	116.5
(24 x 50)	1.5																	
100L/112M	2.2	PIK 250/2/... **	124	175.5	115.5	308	250	180	125	220	215	180	150	190	20	192	M12	129
(28 x 60)	3, 4	PIK 250/4/... **	135	175.5	115.5	305	250	180	125	220	215	180	150	190	20	192	M12	129
132S/132M	5.5	PIK 300/1/...	144	199.5	139.5	359	300	205	154	260	265	230	175	234	30	242	M12	154
(38 x 80)	7.5	PIK 300/3/...	155	199.5	139.5	359	300	205	154	260	265	230	175	234	30	242	M12	154
		PIK 300/4/...	168	199.5	139.5	359	300	205	154	260	265	230	175	234	30	242	M12	154
160M/160L	11	PIK 350/1/...	188	243.5	183.5	405	360	230	175	310	300	250	200	260	50	292	M16	184
(42 x 110)	15	PIK 350/2/...	204	243.5	183.5	405	360	230	175	310	300	250	200	260	50	292	M16	184
180M/180L	18.5																	
(48 x 110)	22																	

* Dimensions following the VDMA standard 24561

** With a motor speed of ≥ 1900 rpm a steel fan must be used.

Assembly

With assembly and disassembly of the oil connection lines hold up with a hexagon key (max. tightening torque 40 Nm). No reduction of the cross section behind the cooler. Return filters to be installed in front of the cooler (dynamic pressure, danger of bursting). Tensions inside the connection pipes have to be avoided! Vibration of the piping has to be avoided (should possibly be intercepted in front of the connector). Supply and discharge to be chosen alternatively. Please note that not a few hydraulic systems generate pressure peaks of more than 12 bars in the return flow (danger of bursting)! Please observe our assembly instructions at www.ktr.com.

For PIK sizes 200 and 350 specify the IEC motor sizes in your order.

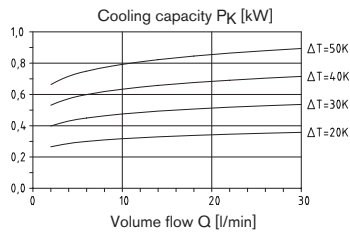
Ordering example:	PIK	300	3	5	15
	Bellhousing with integrated oil cooler	Flange diameter of IEC motor	Serial model code (code referring to length)	In-house modification code	Standard type 15 - V1 design

Oil/air cooler type PIK Cooling systems

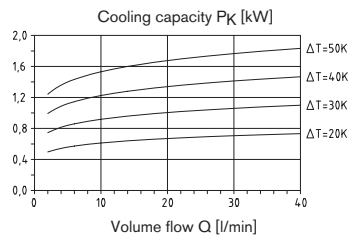
Oil/air cooler type PIK 200 - 350

1. Cooling capacity for a speed of 1500 rpm depending on the temperature difference between oil intake and air intake and oil volume

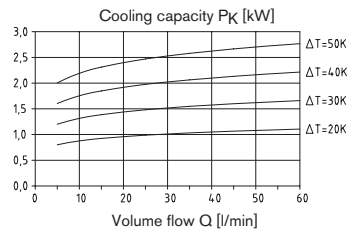
PIK 200



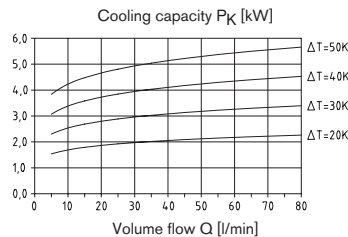
PIK 250



PIK 300



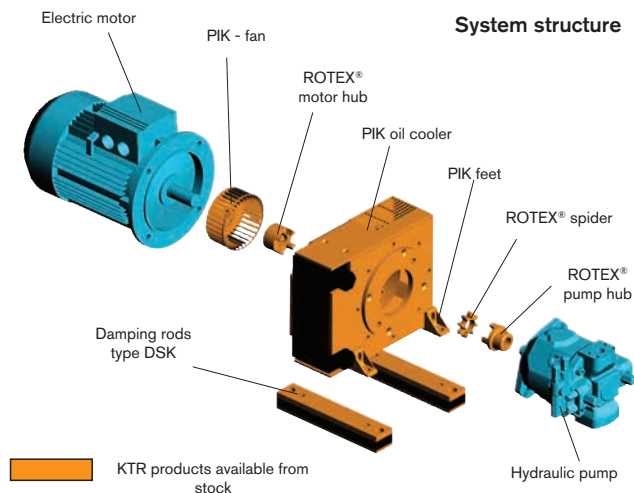
PIK 350



The diagrams shown are based on actual measurements of the PIK oil cooler performed in KTR's in-house R&D test center. With 3000 rpm the cooling capacity is increased by approx. 50 %.

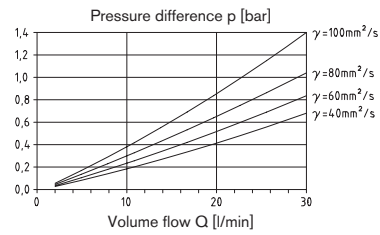
2. Operating pressure

The permissible operating pressure of the oil cooler is 12 bars dynamically. Max. operating pressure with static load of 20 bars (all values apply for the average pressure cooler).

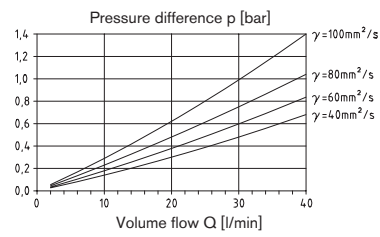


3. Pressure loss depending on oil flow and oil viscosity

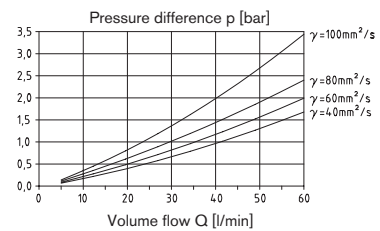
PIK 200



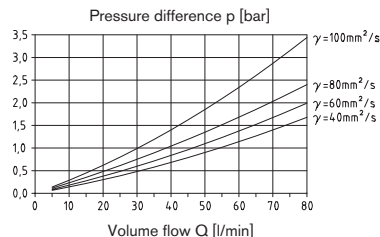
PIK 250



PIK 300



PIK 350



Viscosity measured up to 100 mm²/s.
Higher viscosity on request.

4. Fan

Torsional direction view on the pump – right – standard type.

Performance requirement of the fan with 1500 rpm

PIK 200 = 25 W

PIK 250 = 40 W

PIK 300 = 125 W

PIK 350 = 230 W

Air pressure rate in m³/h with 1500 rpm

PIK 200 = approx. 90 m³/h

PIK 250 = approx. 200 m³/h

PIK 300 = approx. 400 m³/h

PIK 350 = approx. 860 m³/h

5. Cooler connection

R 3/4" internal thread

6. Oil flow

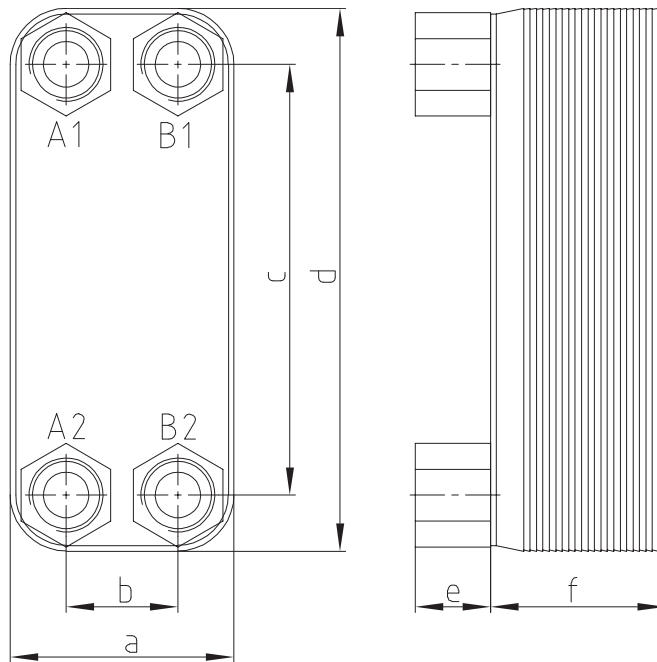
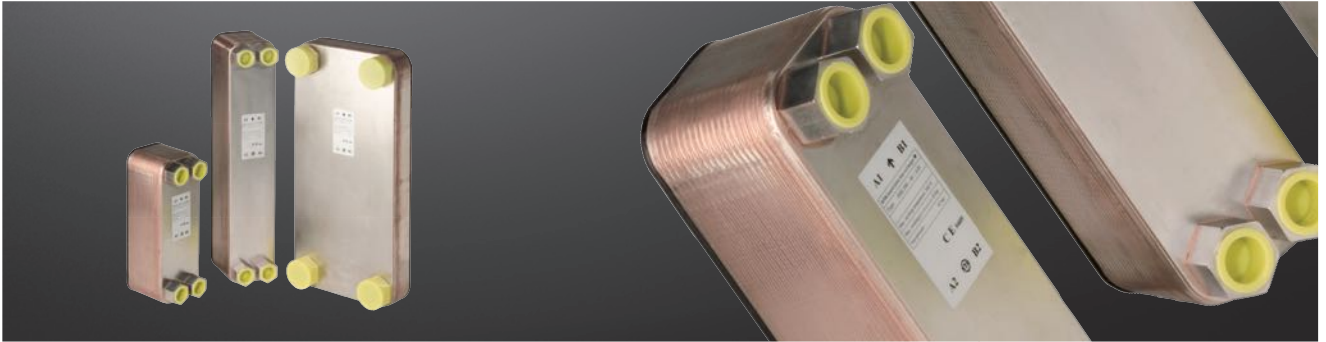
With an oil flow exceeding the figures stated in the above diagramme, please consult with our engineering department.

Phone: +49 5971 798-0

Oil/water cooler type PHE

Cooling systems

High power density in a tight space



Technical data

Plate heat exchanger made of stainless steel 1.4401 soldered with copper. The stamped plates generate a high power density in a tight space. Compared to a tube bundle heat exchanger, the plate heat exchanger only requires approx. 25 % - 30 % of mounting space with less weight. Applications are, as an example, machine tools, test benches, moulding machines, pump units, waste heat utilization, etc. It is possible to use other media like, for example, oil, water glycol, water, refrigerating agents, air, etc.

Operating temperature: -10 °C to +200 °C.

Please observe boiling point and freezing point!

Maximum permissible operating pressure: PHE 100: 10 bars / PHE 200 - 500: 30 bars

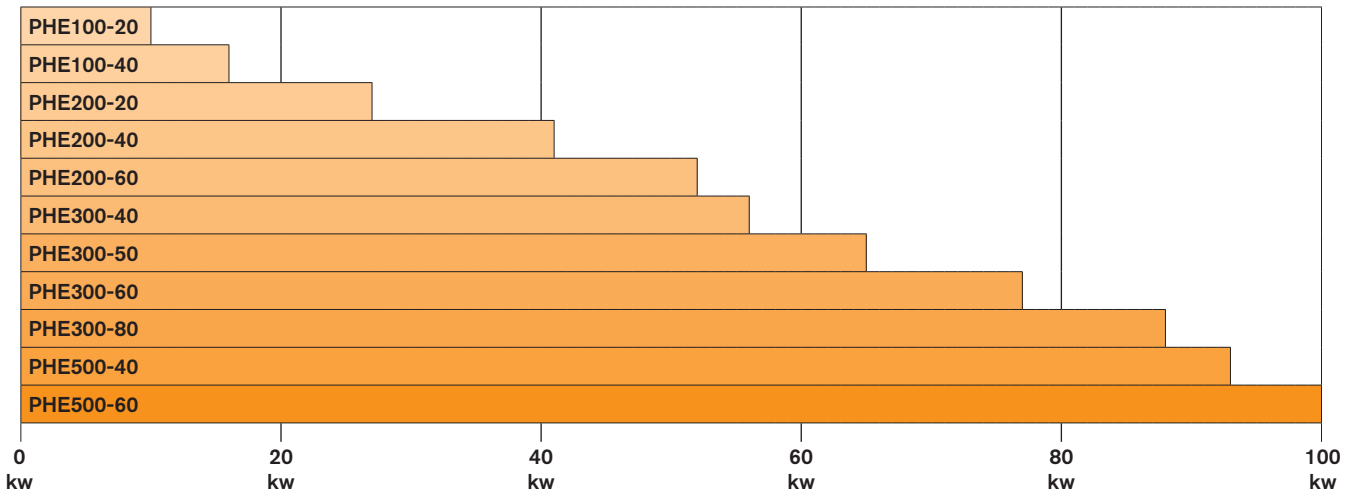
Plate heat exchanger									
Series	Size	Thread	Plates	a	b	c	d	e	f
PHE	100	4 x 3/4"	20	73	40	154	191	24	52
PHE	100	4 x 3/4"	40						97
PHE	200	4 x 1"	20						55
PHE	200	4 x 1"	40	116	72	243	286	24	103
PHE	200	4 x 1"	60						151
PHE	300	A1/A2: G1 1/4" B1/B2: G1"	40	119	72	479	526	27	100
PHE	300	4 x 1"	50	107	50	466	523	24	128
PHE	300	A1/A2: G1 1/4" B1/B2: G1"	60	119	72	479	526	27	145
PHE	300	A1/A2: G1 1/4" B1/B2: G1"	80	119	72	479	526	27	190
PHE	500	4 x 1 1/2"	40						103
PHE	500	4 x 1 1/2"	60	191	92	519	616	30	151

Ordering example:	PHE	100	20
	PHE = Plate heat exchanger	Size	Number of plates

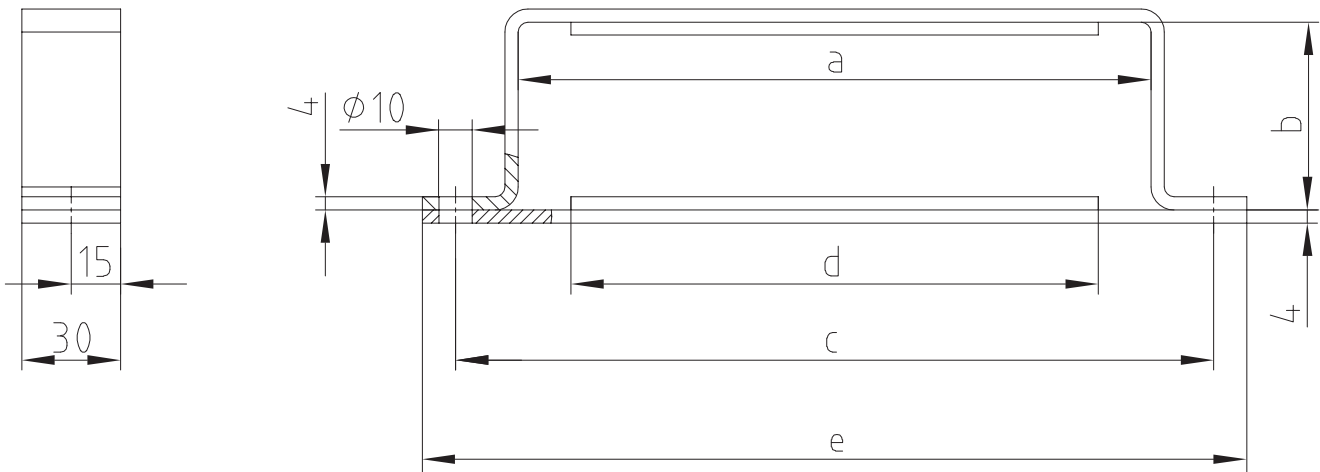
Oil/air cooler

Cooling systems

Cooling capacity



Type	Oil temperature switched on [°C]	Water temperature switched on [°C]	Oil flow [l/min]	Water flow [l/min]	Max. volume flow [l/min]
PHE100-20			60	30	66
PHE100-40			70	40	80
PHE200-20			120	60	
PHE200-40			160	80	
PHE200-60			180	90	
PHE300-40	60	20	120	60	200
PHE300-50			140	70	
PHE300-60			160	80	
PHE300-80			160	100	
PHE500-40			180	100	
PHE500-60			180	120	580



From size PHE 200 we recommend 2 retainers per cooler.

Fastening retainer					
Type	a	b	c	d	e
BH100-20	80	56	114	75	134
BH100-20HP	92	65	126	85	146
BH100-40HP	92	113	126	85	146
BH200/300-20	120	59	150	115	170
BH200/300-40	125	100	155	120	175
BH200/300-50	120	132	150	115	170
BH200/300-60	125	148	155	120	175
BH200/300-80	125	193	155	120	175
BH500-40		107			
BH500-60	200	155	235	193	260

Oil/water cooler TAK/TP

Cooling systems

Cooling of lubricating oil, heat recovery



The TAK/TP cooler ranges were originally designed for hydraulic systems, but based on their design they are equally suitable for cooling lubricating oils, heat recovery, etc.

The tube bundle is designed in that it may expand to both sides, consequently minimizing thermal stresses.

The unique tube-to-tube plate joint ensures high reliability.



Materials used:

These coolers are available in both industrial and marine versions. (Tube bundles made of stainless steel on request)

Industrial version (standard)	
Tubes	Brass (EN CW614N)
Tube retainer	Brass
Housing	Aluminium
Headers	Brass (EN CW614N)
Gaskets	Nitrile

Marine version	
Tubes	90/10 copper/nickel

Oil/water cooler TAK/TP

Cooling systems

Cooling capacities, diagramme of performance, diagramme of pressure loss

Tubular heat cooler							
Coolers	Cooling capacity [kW]	Volume flow of oil [l/min]	Volume flow of water [l/min]	Pressure loss of oil [bar]	Pressure loss of water [bar]	Surface [m ²]	Maximum volume flow of water/sea water [l/min]
TAK/TP-A1	3	30	15	0.1	0.02	0.13	
TAK/TP-A2	6	46	23	0.19	0.05	0.22	
TAK/TP-A3	9	56	28	0.36	0.09	0.32	50/35
TAK/TP-A4	13	64	32	0.6	0.13	0.46	
TAK/TP-A5	16	56	28	0.56	0.12	0.68	
TAK/TP-B1	8	66	33	0.16	0.02	0.33	
TAK/TP-B2	12	80	40	0.32	0.03	0.48	
TAK/TP-B3	18	104	52	0.96	0.07	0.66	80/50
TAK/TP-B4	25	106	53	1	0.11	0.9	
TAK/TP-B5	29	98	49	1.04	0.14	1.16	
TAK/TP-C1	16	100	50	0.28	0.04	0.64	
TAK/TP-C2	26	120	60	0.55	0.07	0.9	
TAK/TP-C3	36	140	70	0.74	0.13	1.23	140/90
TAK/TP-C4	48	160	80	1.06	0.17	1.6	
TAK/TP-C5	56	140	70	0.95	0.16	2.07	
TAK/TP-C6	70	160	80	0.84	0.26	3.02	
TAK/TP-D1	40	180	90	0.4	0.07	1.58	
TAK/TP-D2	52	200	100	0.55	0.09	2.14	
TAK/TP-D3	66	220	110	0.62	0.12	2.79	190/110
TAK/TP-D4	84	240	120	0.8	0.16	3.57	
TAK/TP-D5	108	260	130	1	0.19	4.48	
TAK/TP-D6	120	240	120	0.96	0.21	5.38	
TAK/TP-E1	76	320	160	0.44	0.09	3.27	
TAK/TP-E2	106	360	180	0.64	0.13	4.24	
TAK/TP-E3	134	400	200	0.9	0.2	5.45	340/215
TAK/TP-E4	175	420	210	1.1	0.25	6.82	
TAK/TP-E5	205	400	200	1.15	0.28	8.22	
TAK/TP-E6	240	360	180	1.1	0.28	10.27	
TAK/TP-F1	133	720	360	0.36	0.09	7.2	
TAK/TP-F2	180	780	390	0.5	0.13	9.14	
TAK/TP-F3	250	840	420	0.62	0.17	11.81	800/500
TAK/TP-F4	325	900	450	0.76	0.25	14.6	
TAK/TP-F5	410	960	480	1	0.32	17.3	
TAK/TP-F6	500	900	450	1.16	0.52	21.54	

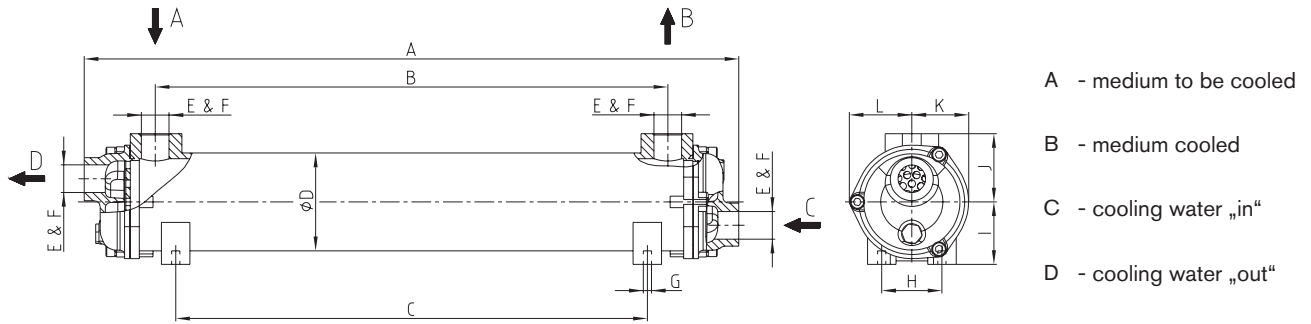
The table shows the performance assigned to the cooler with usual process data:

Oil outlet temperature: 50 °C; water inlet temperature: 25 °C, oil viscosity: 38 Cst and 50 °C. Any change of the parameters selected may result in a different selection of oil cooler.

Oil/water cooler TAK/TP

Cooling systems

Series A-C



TAK/TP Series A-C												
Coolers	A	B	C	D	E & F	G	H	I	J	K	L	Weight
TAK/TP-A1	195	72	38									3
TAK/TP-A2	263	138	103									3.5
TAK/TP-A3	349	225	189									4
TAK/TP-A4	448	326	288	Ø86	G 3/4"	4xM8	53	55	60	50	55	4.7
TAK/TP-A5	576	450	415									5.5
TAK/TP-A6	731	603	557									10
TAK/TP-B1	273	123	109									5
TAK/TP-B2	355	205	191									6
TAK/TP-B3	452	302	289	Ø108	G 1"	4xM8	77	65	70	60	55	7
TAK/TP-B4	587	437	425									8.2
TAK/TP-B5	730	580	566									10
TAK/TP-C1	372	182	93									9
TAK/TP-C2	472	287	193									10
TAK/TP-C3	600	415	320	Ø130	G 1 1/4"	4xM10	78	75	80	70	80	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.

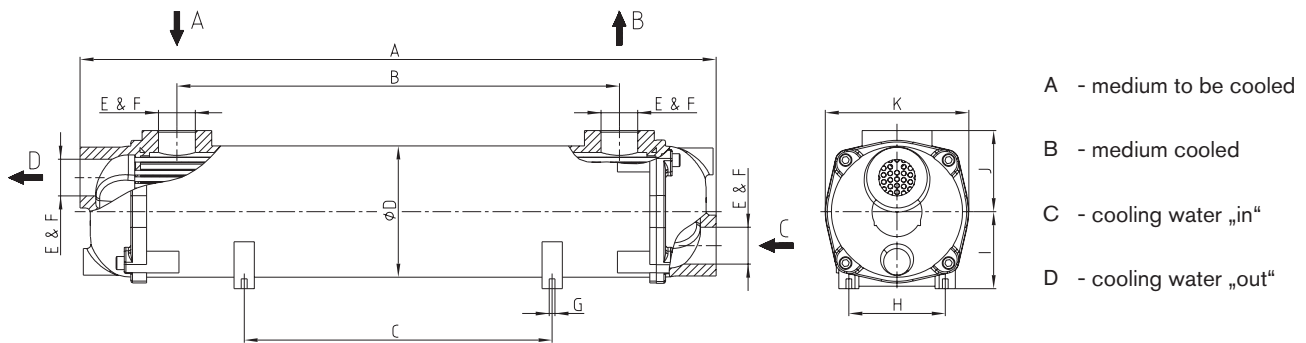
Ordering example:	TAK/TP	A	1	M
	Type	Series	Size	Seawater version ¹⁾

¹⁾ Code letter can be omitted with industrial design.

Oil/water cooler TAK/TP

Cooling systems

Series D-F



TAK/TP Series D-F												
Coolers	A	B	C	D	E & F	G	H	I	J	K	L	Weight
TAK/TP-D1	505	270	109									20
TAK/TP-D2	634	402	238									24
TAK/TP-D3	780	546	384									27
TAK/TP-D4	954	722	558	Ø162	G 1 1/2"	4xM10	119	95	100	177	-	32
TAK/TP-D5	1,160	928	764									38
TAK/TP-D6	1,364	1,132	968									45
TAK/TP-E1	675	372	239									33
TAK/TP-E2	816	513	380									39
TAK/TP-E3	998	696	560									45
TAK/TP-E4	1,204	901	766	Ø198	G 2"	4xM12	120	110	120	206	-	54
TAK/TP-E5	1,408	1,102	968									64
TAK/TP-E6	1,712	1,406	1,272									74
TAK/TP-F1	754	330	236									47
TAK/TP-F2	900	476	382									57
TAK/TP-F3	1,077	654	560									68
TAK/TP-F4	1,280	856	762	Ø278	G 3"	4xM16	180	155	170	288	-	79
TAK/TP-F5	1,484	1,060	966									91
TAK/TP-F6	1,790	1,364	1,270									105

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

Ordering example:

TAK/TP	D	1	M
Type	Series	Size	Seawater version ¹⁾

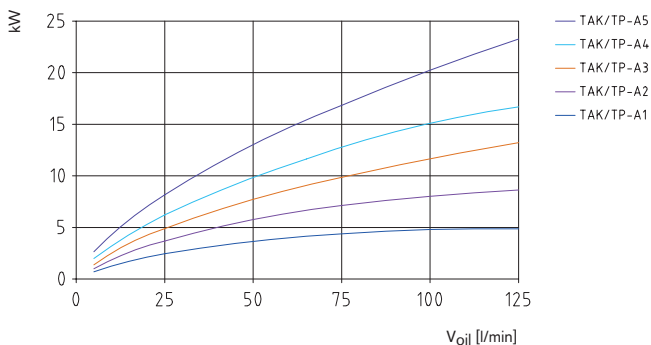
¹⁾ Code letter can be omitted with industrial design.

Oil/water cooler TAK/TP

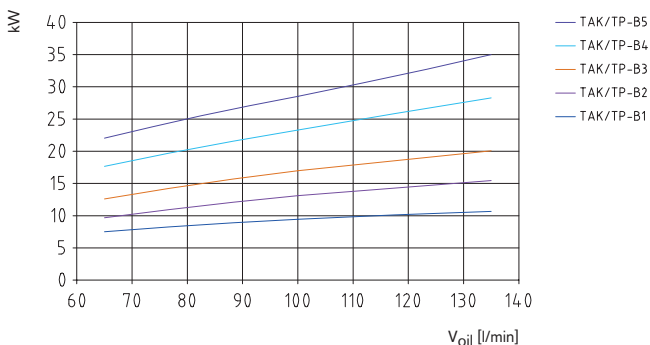
Cooling systems

Performance diagrammes

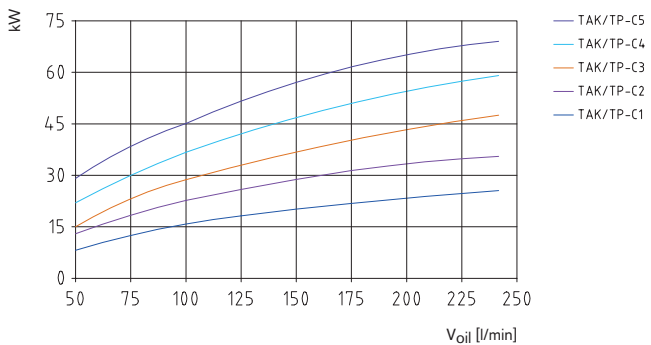
Performance diagramme of A series



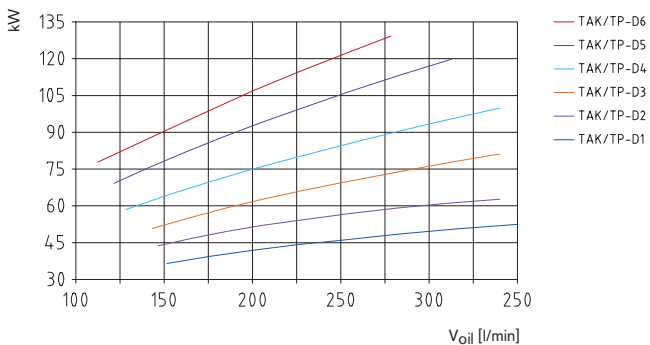
Performance diagramme of B series



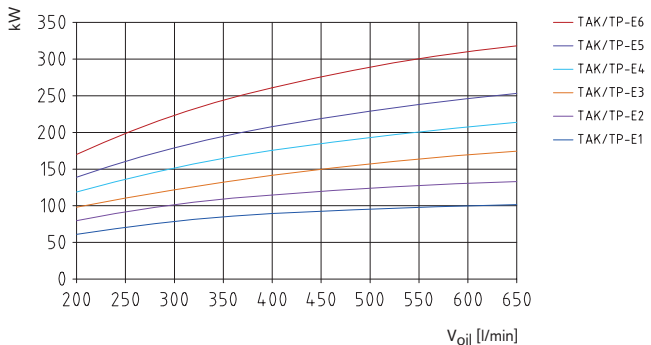
Performance diagramme of C series



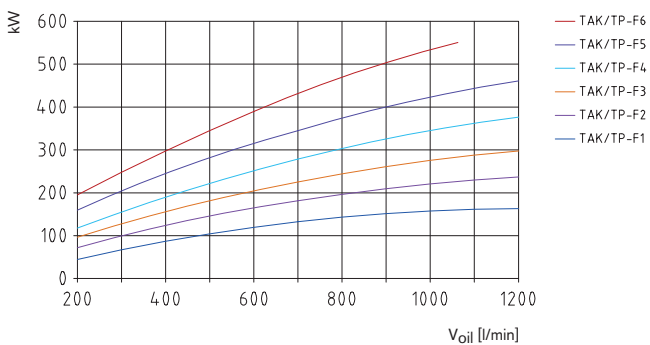
Performance diagramme of D series



Performance diagramme of E series



Performance diagramme of F series



Combined coolers type MMC

Cooling systems

Mobile Machinery Cooler MMC



Depending on the application features, our multiple-circuit coolers series MMC (Mobile Machinery Cooler) combine different media such as oil, water, fuel and air in one single cooling system. Main applications are engine cooling in agricultural and construction machinery as well as stationary I. C.-engines. Tailor-made coolers for hydraulic applications as well as cooling of compressors supplement the MMC portfolio. Every MMC cooler is a project-specific version that is calculated and developed by our engineers for the very special application.

Other types



MMC motor system coolers



MMC hydraulic coolers



MMC compressor coolers

Applications



Construction machines



Diesel engines



Special hydraulics



Compressors

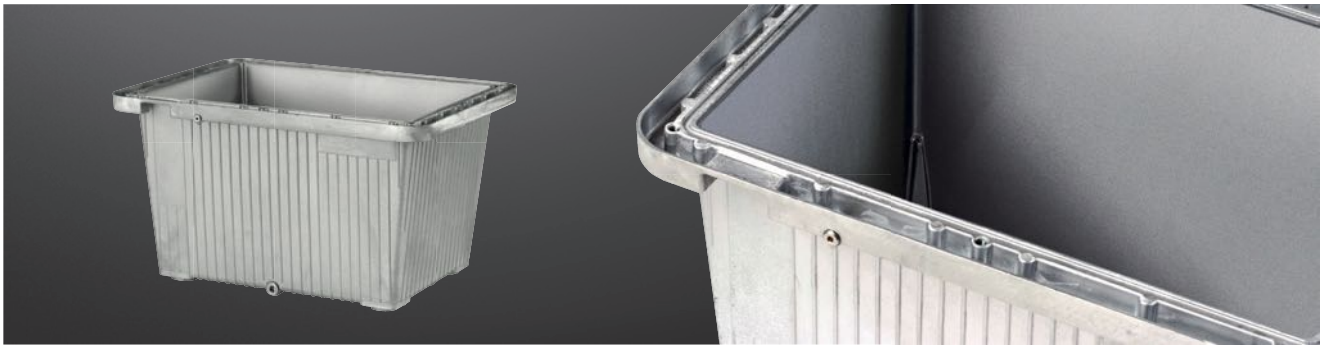
For further details about our customised system development, the new cooler production plant in Jiaxing, China and the versatile applications of our MMC coolers see our new catalogue "**cooling systems**".

For further details scan the QR code or visit www.ktr.com.

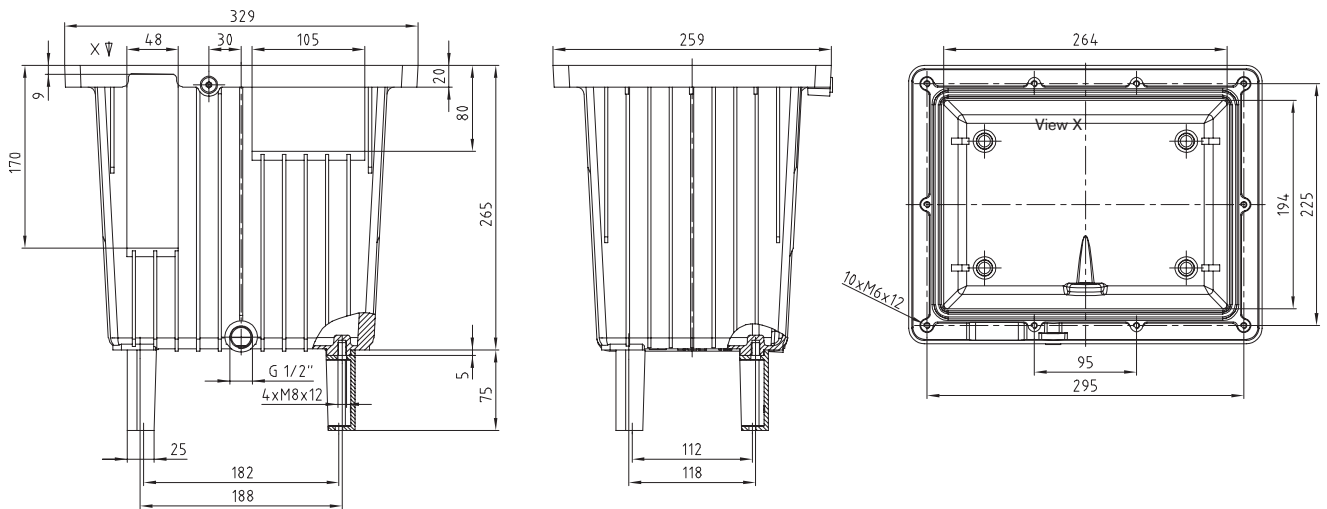


ALUMINIUM TANK BAK HYDRAULIC COMPONENTS

Tank with oil collecting groove



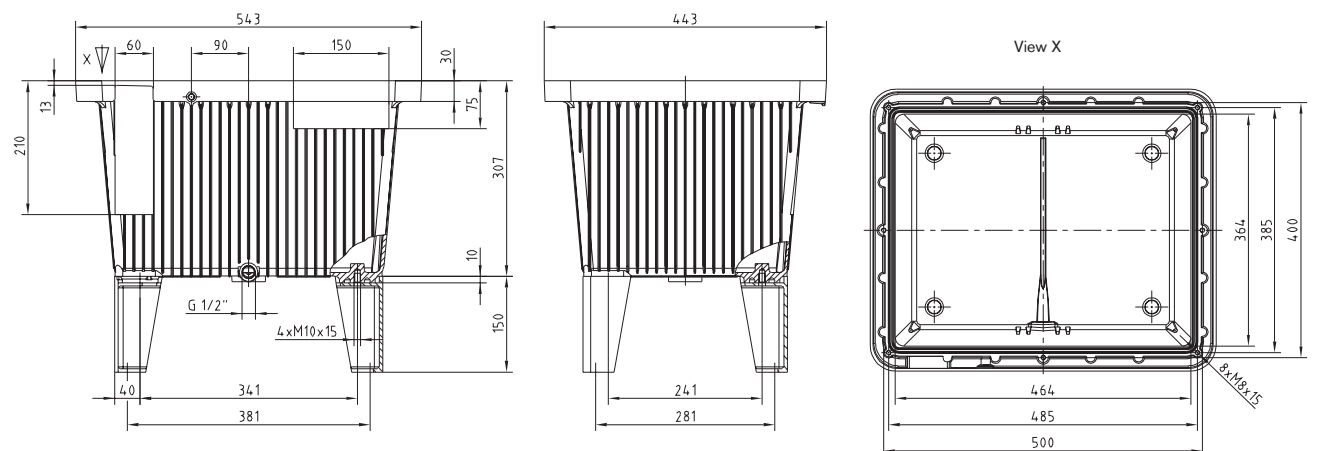
Tank with oil collecting groove BAK 13



The tank is available with bores for oil level indicator KO 01 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
11.5 L	RS 13 NBR	G 1/2" = 55 Nm	100 °C	0.5 bar	M6 = 6 Nm

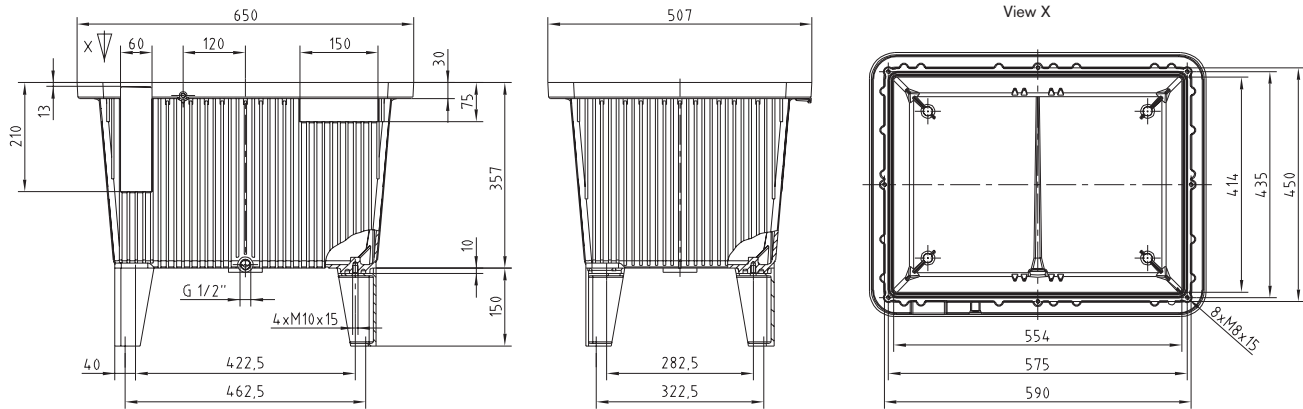
Tank with oil collecting groove BAK 44



The tank is available with bores for oil level indicator KO 02 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
40 L	RS 40/44 NBR	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

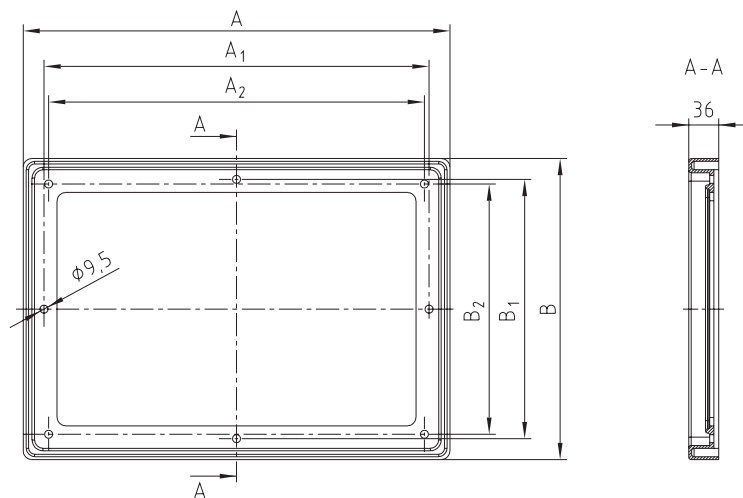
Tank with oil collecting groove BAK 70



The tank is available with bores for oil level indicator KO 02 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
63 L	RS 63/70 NBR	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

Gasket with oil collecting groove RS-O (as an alternative to BAK with oil collecting groove)

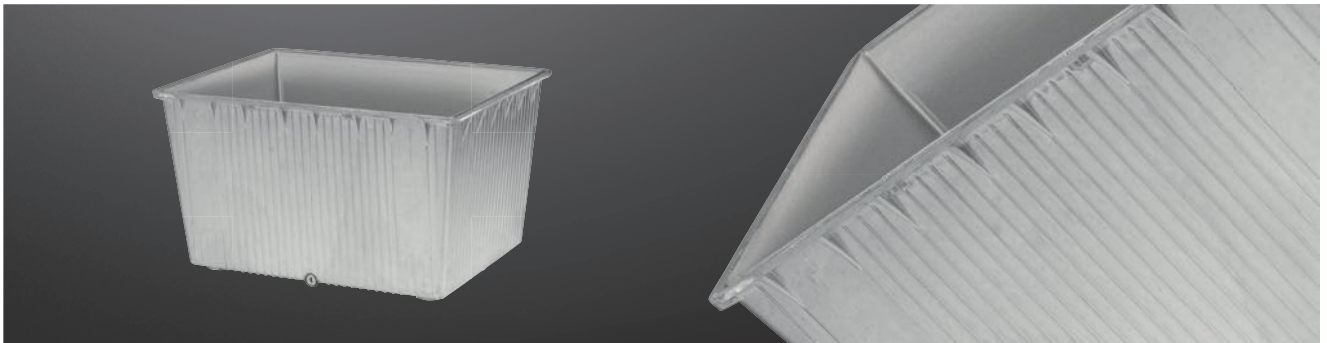


Type	For tank*	A	A1	A2	B	B1	B2
RS-O 27	BAK 27	510	460	449	360	310	299
RS-O 40	BAK 40	550	500	485	451	400	385
RS-O 63	BAK 63	655	590	575	518	450	435

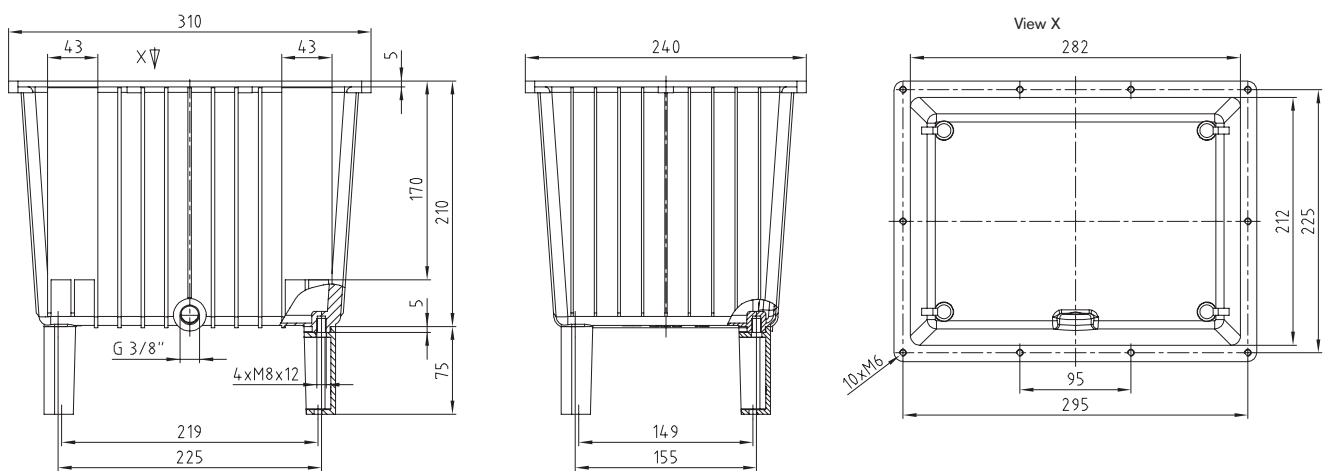
* see page 69 et seqq.
Max. perm. temperature 90 °C

ALUMINIUM TANK BAK HYDRAULIC COMPONENTS

Tank without oil collecting groove



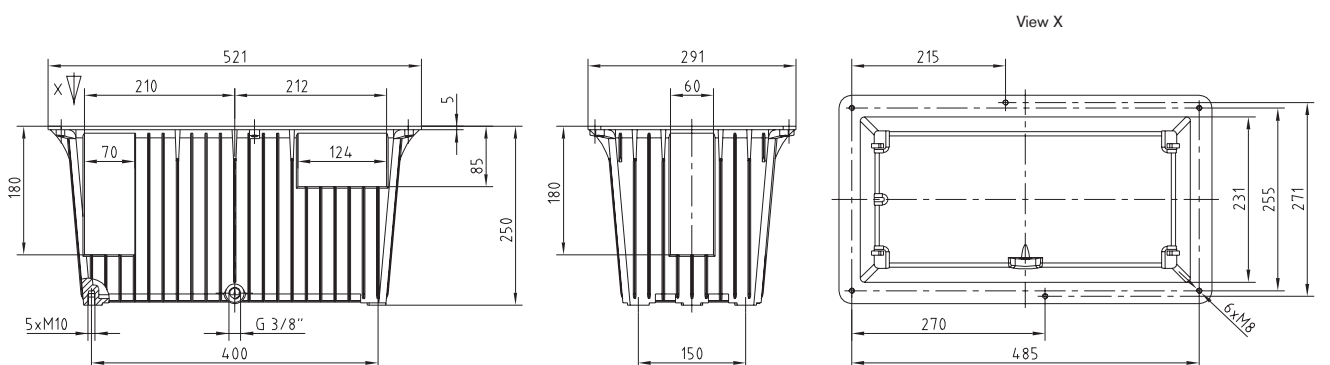
Tank without oil collecting groove BAK 12



The tank is available with bores for oil level indicator KO 01 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
9.5 L	FD 12	$G \frac{3}{8}'' = 40 \text{ Nm}$	100 °C	0.5 bar	M6 = 6 Nm

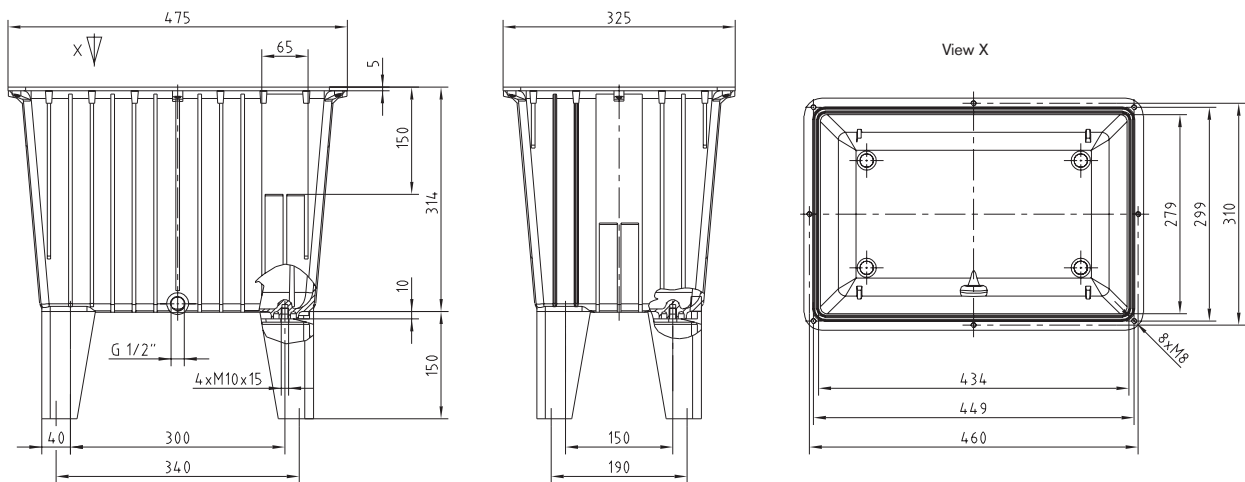
Tank without oil collecting groove BAK 20



The tank is available with bores for oil level indicator KO 01 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
18 L	FD 20	$G \frac{3}{8}'' = 40 \text{ Nm}$	100 °C	0.5 bar	M8 = 12 Nm

Tank without oil collecting groove BAK 27

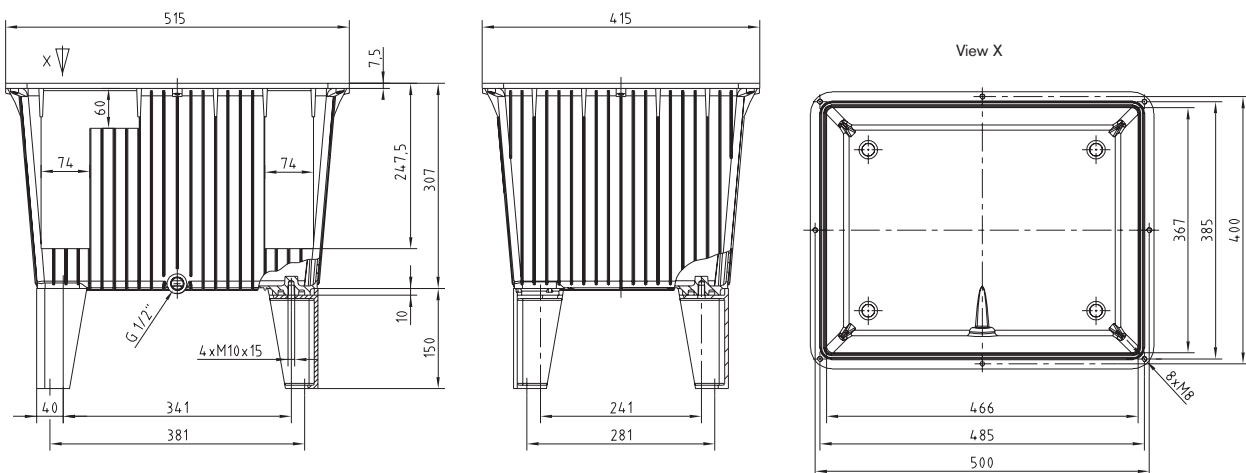


The tank is available with bores for oil level indicator KO 01 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
27 L	RS-O 30 NBR*	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

* see page 67 et seqq.

Tank without oil collecting groove BAK 40



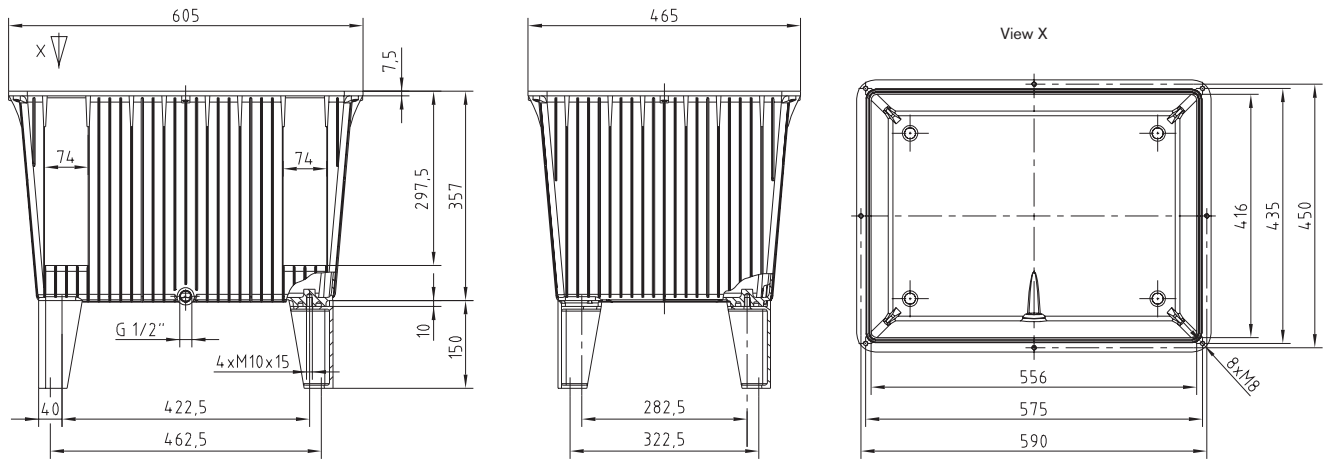
The tank is available with bores for oil level indicator KO 02 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
40 L	RS-O 40/44 NBR*	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

ALUMINIUM TANK BAK HYDRAULIC COMPONENTS

Tank without oil collecting groove

BAK 63

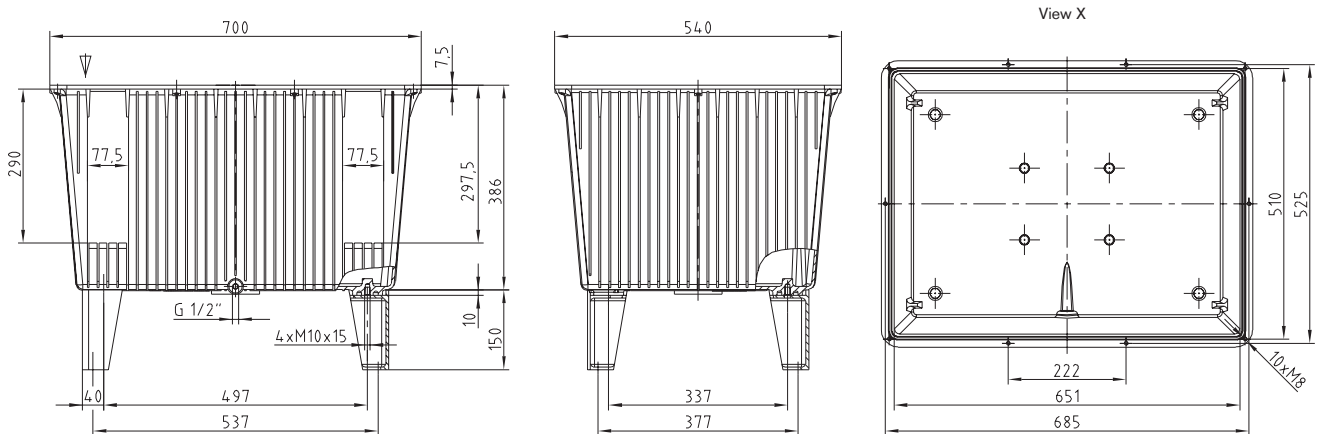


The tank is available with bores for oil level indicator KO 02 on request.

Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
63 L	RS-O 63/70 NBR*RS-O 63/70 NBR*	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

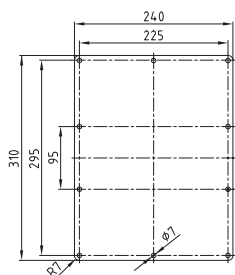
* see page 67 et seq.

BAK 100

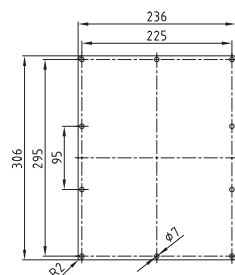


The tank is available with bores for oil level indicator KO 03 on request.

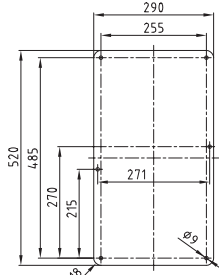
Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
95 L	RS 100 NBR	G 1/2" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm



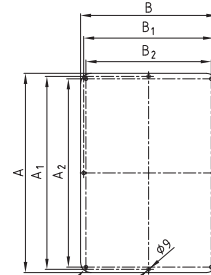
BAK 12 - ST 12 / AL 12
St: 3 mm thick; 1.7 kg



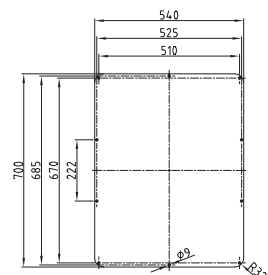
BAK 13 - ST 13 / AL 13
St: 4 mm thick; 2.2 kg
Al: 5 mm thick; 1.0 kg



BAK 20 - ST 20 / AL 20
St: 5 mm thick; 5.8 kg
Al: 5 mm thick; 2.0 kg



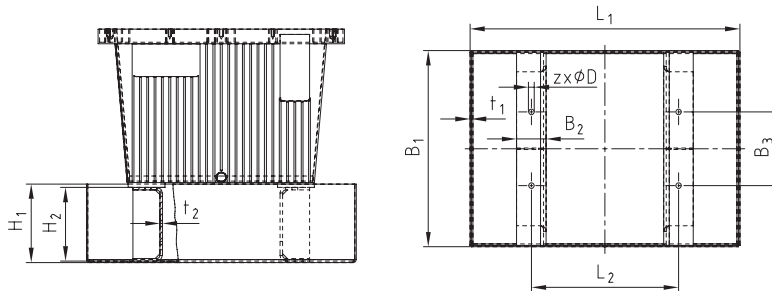
BAK 30-70
ST 30-70
AL 30-70



BAK 100 - ST 100 / AL 100
St: 6 mm thick; 17.8 kg
Al: 8 mm thick; 8.2 kg

Tank cover made of steel and aluminium, accessories for aluminium tank

Cover		For tank	Dimensions [mm]							Cover thickness		Weight [kg]	
Steel	Aluminium		A	A ₁	A ₂	B	B ₁	B ₂	R	St	Al	St	Al
ST 30	AL 30	BAK 30	475	460	449	325	310	299	25	5	5	6	2.1
ST 44	AL 44	BAK 40/BAK 44	515	500	485	415	400	385	32	5	8	8.5	4.6
ST 70	AL 70	BAK 63/BAK 70	605	590	575	465	450	435	32	5	8	10.5	6.1

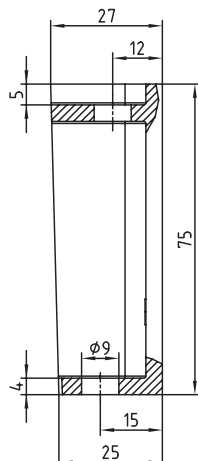


Oil sump pan BAKW made of steel for KTR aluminium tank BAK/available acc. to WHG (Water Resources Act)

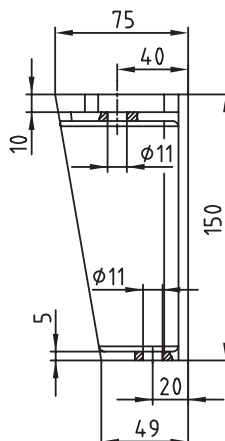
Oil sump pan	For tank	Volume of oil sump pan	Dimensions [mm]											Available from stock	
			L ₁	L ₂	B ₁	B ₂	B ₃	H ₁	H ₂	t ₁	t ₂	z	D	Standard	WHG (Water Resources Act)
BAKW 13	BAK 13	11.8 l	380	188	310	60	118	110	100	3	3	4	9	●	-
BAKW 20	BAK 20	20 l	570	400	350	60	150	110	100	3	3	4	12	●	●
BAKW 27	BAK 27	33 l	550	300	400	60	150	160	150	3	5	4	12	●	●
BAKW 44	BAK40/BAK 44	45 l	600	341	500	60	241	160	150	3	5	4	12	●	●
BAKW 70	BAK 63/BAK 70	63.5 l	730	422.5	580	60	282.5	160	150	3	5	4	12	●	●
BAKW 100	BAK 100	104 l	920	497	770	60	337	160	150	3	5	4	12	●	-

Tank feet and wheels:

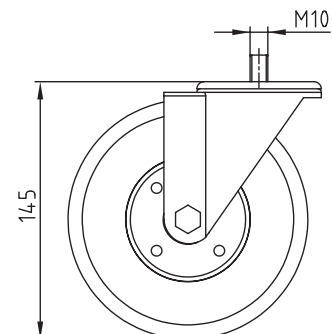
BF 75 for BAK 12 and BAK 13



BF 150 for BAK 27 to BAK 100

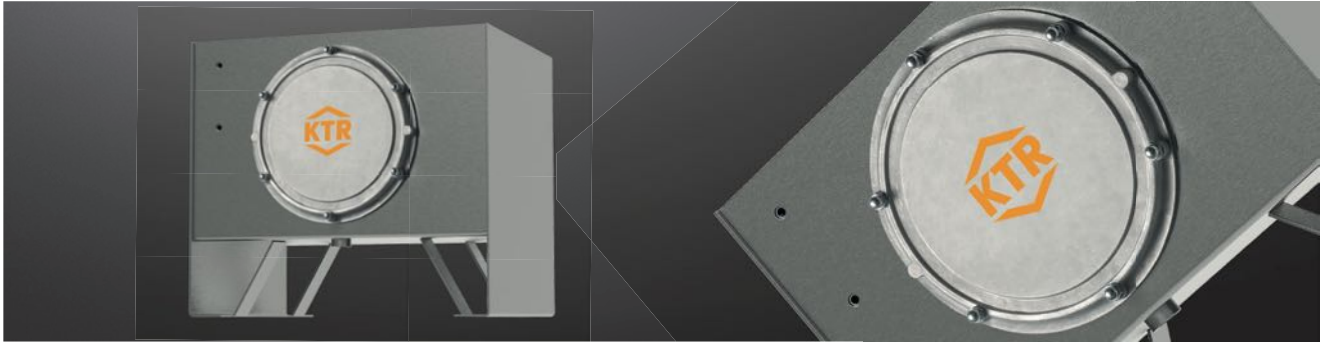


Wheels LR 150 and LR 150 F with lock

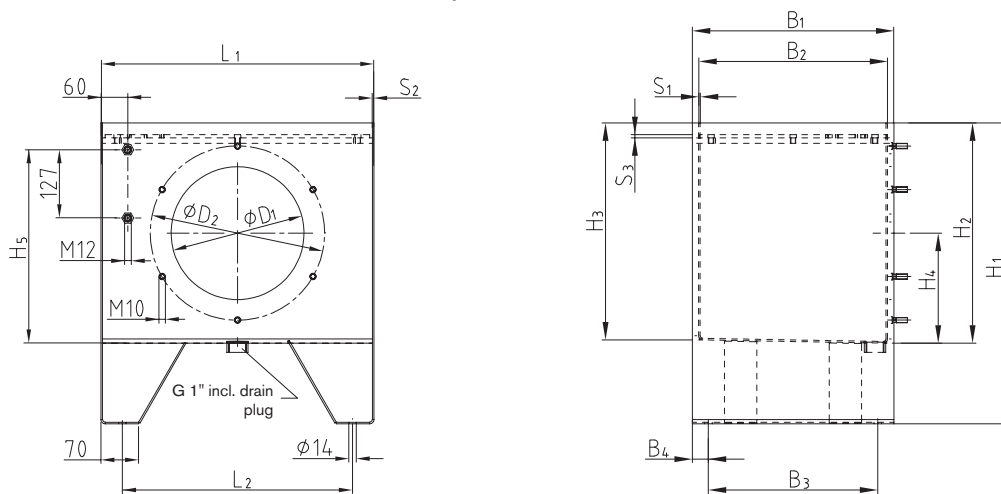


BSK STEEL TANK HYDRAULIC COMPONENTS

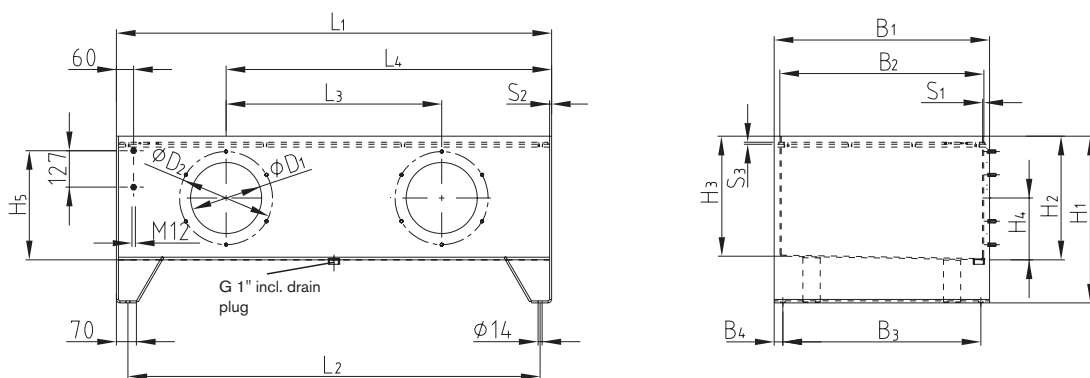
Series BSK



up to NG 200



from NG 250



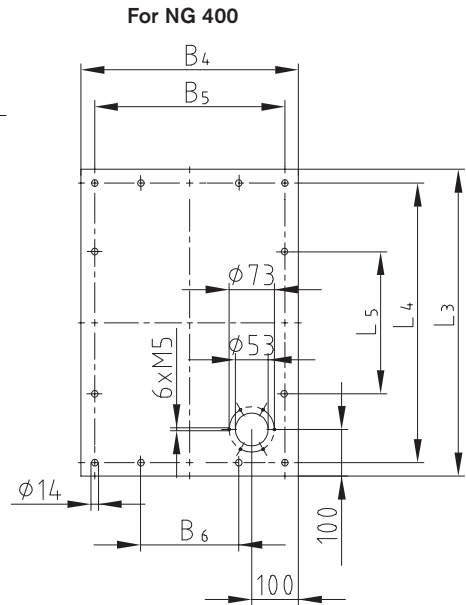
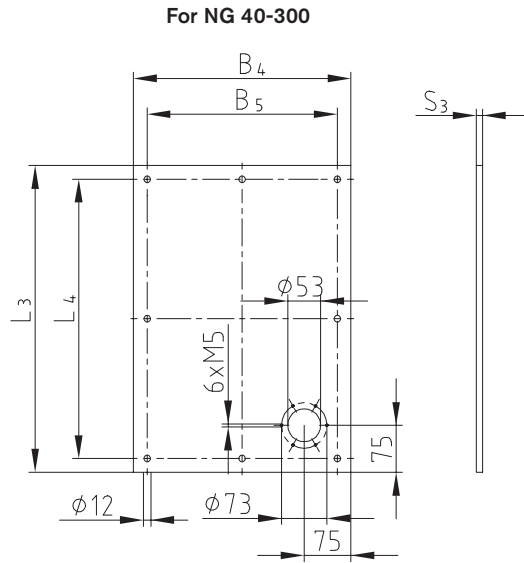
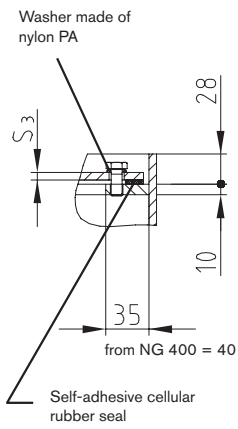
Series BSK, NG 40 - 400

Order description NG	Part number	Effective vol. [Litre]	Weight [kg]	Tank dimensions [mm]																Cleaning cover			Bore pattern for oil level indicator			
				L ₁	L ₂	L ₃	L ₄	B ₁	B ₂	B ₃	B ₄	H ₁	H ₂	H ₃	H ₄	H ₅	D ₁	D ₂	S ₁	S ₂	S ₃	No.	Type	No.		
BSK 40	270405000000	38	34	508	428	-	-	375	365	315	30	430	280	273	140	230	195	250	3	3	6	1	V 250-4	1		
BSK 63	270635000000	59	38	508	428	-	-	375	365	315	30	560	410	403	205	360			3	3	6	1		1		
BSK 100	271005000000	92	70	633	553	-	-	474	460	414	30	560	407	399	205	357			4	4	6	1		1		
BSK 160	271605000000	152	86	810	730	-	-	604	590	544	30	560	410	400	205	360			4	4	6	1	V 324-6	1	KO02	
BSK 200	272005000000	184	101	900	820	-	-	654	640	594	30	560	410	399	205	360	248	324	4	4	6	1		1		
BSK 250	272505000000	235	138	1010	930	410	710	704	690	644	30	580	430	418	215	380			4	4	7	2		1		
BSK 300	273005000000	272	144	1208	1128	410	809	714	700	654	30	580	412	400	206	362			4	4	7	2		1		
BSK 400	274005000000	375	201	1514	1434	750	1132	749	735	689	30	580	430	417	215	380			4	7	7	2		1		

All tanks are available in short term - please contact us.

Ordering example:	BSK	250	E
		KTR standard tank	Nominal size of tank

Tank cover
Cover type E



Cover type "E"								
NG	Dimensions [mm]							Number of bores
	L3	L4	L5	B4	B5	B6	S3	
40	492	448	-	349	305	-	6	8x
63	492	448	-	349	305	-	6	8x
100	615	571	-	442	398	-	6	8x
160	792	748	-	572	528	-	6	8x
200	882	838	-	622	578	-	6	8x
250	992	948	-	672	628	-	7	8x
300	1190	1146	-	682	638	-	7	8x
400	1490	1440	480	717	667	222	7	12x

Scope of delivery:

- Bore pattern for filler filter KE02
- Bore pattern for oil level indicator
- Cleaning cover incl. cap nut and gasket
- Cover gasket NBR 15 x 5 self-adhesive
- Cover fastening screws
- Oil drain plug G 1"

request

- We will be pleased to paint your tanks as specified by you
- We will be pleased to do remachining for you (e. g. additional sleeves, drilling holes, etc.)
- Accessories such as fillers, oil level indicators, heaters, etc. can be additionally ordered from the KTR scope of delivery
- We are able to produce all tanks made of stainless steel

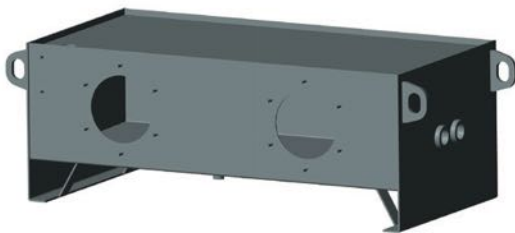
Coating:

- Our tanks are primed with mineral oil-resistant 2K-EP paint as a standard

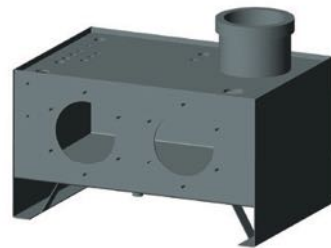
Please contact us:

- Tanks are available without tank cover on

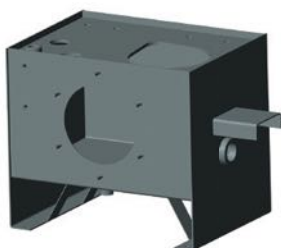
BSK tank with remachining



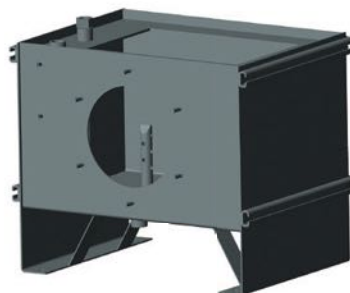
BSK 400



BSK 250



BSK 63



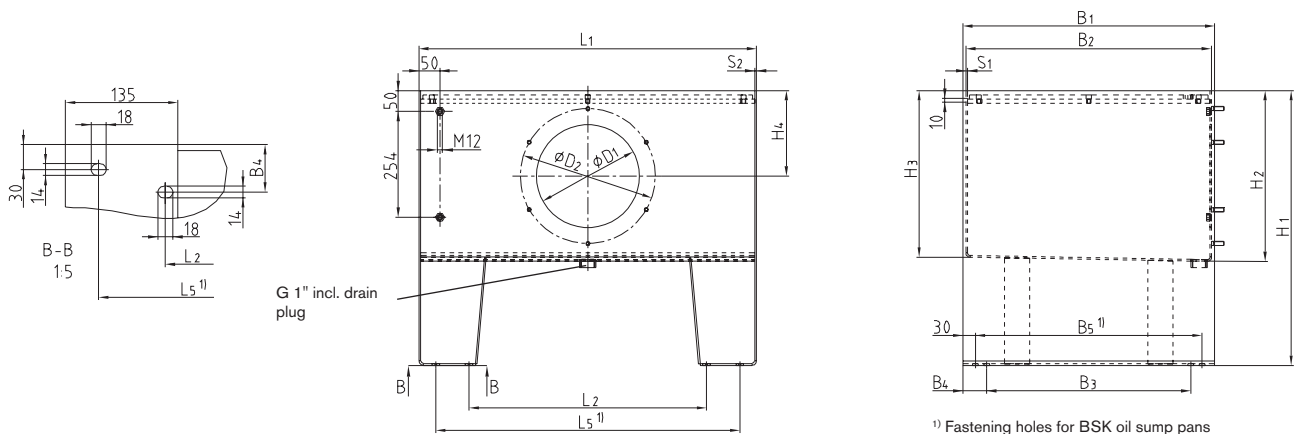
BSK 160

BNK STEEL TANK HYDRAULIC COMPONENTS

Series BNK type A (new) DIN24339

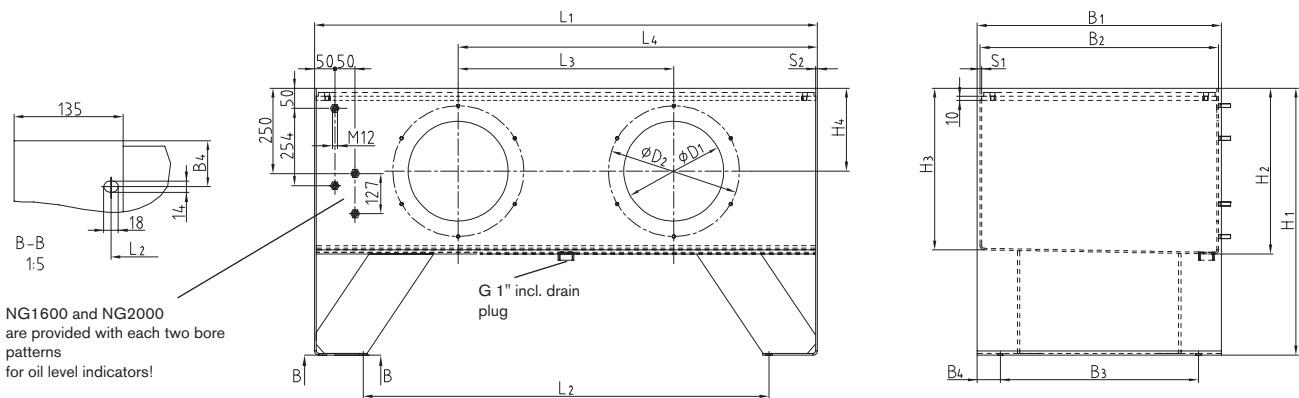


up to NG 250



¹⁾ Fastening holes for BSK oil sump pans

from NG 400



NG1600 and NG2000 are provided with each two bore patterns for oil level indicators!

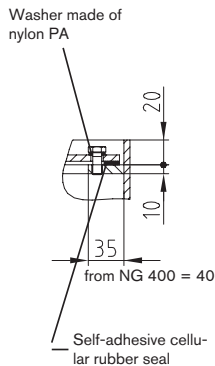
Series BNK design A, NG 63 - 2000

Order description	Material number	Effective vol. [Litre]	Weight [kg]	Tank dimensions [mm]																Cleaning cover		Bore pattern for oil level indicator			
				L ₁	L ₂	L ₃	L ₄	L ₅	B ₁	B ₂	B ₃	B ₄	B ₅	H ₁	H ₂	H ₃	H ₄	D ₁	D ₂	S ₁	S ₂	No.	Type	No.	
BNK 63 A/E	270635109000	59	47	508	308	-	-	428	375	365	285	45	315	660	410	404	205			3	3	1		1	KO03
BNK 100 A/E	271005109000	92	77	633	393	-	-	553	474	460	360	57	414	660	410	402	205			4	4	1		1	KO03
BNK 160 A/E	271605109000	152	109	810	570	-	-	730	604	590	490	57	544	660	410	400	205	248	324	4	4	1	V 324-6	1	KO03
BNK 250 A/E	272505109000	235	149	1010	770	-	-	930	704	690	590	57	644	680	430	418	215			4	4	1		1	KO03
BNK 400 A/E	274005109000	375	230	1512	1274	750	1131	1434	749	735	635	57	689	680	430	417	215			4	6	2		1	KO03
BNK 630 A/E	276305109000	595	300	1512	1274	750	1131	-	959	945	845	57	-	770	520	504	255			4	6	2		1	KO03
BNK 800 A/E	278005109000	752	382	2012	1774	1000	1506	-	914	900	800	57	-	770	520	504	255			5	6	2		1	KO03
BNK 1000 A/E	271015109000	945	445	2012	1774	1000	1506	-	1079	1065	965	57	-	800	550	531	265			5	6	2		1	KO03
BNK 1250 A/E	271255109000	1180	532	2012	1774	1000	1506	-	1349	1335	1235	57	-	800	550	527	265	383	449	5	6	2	V 449-6	1	KO03
BNK 1600 A/E	271615109000	1590	680	2016	1774	1000	1508	-	1444	1430	1330	57	-	900	650	625	325			6	8	2		2	KO03 + KO02
BNK 2000 A/E	272015109000	1960	805	2316	2070	1150	1733	-	1564	1550	1450	57	-	900	650	623	325			6	8	2		2	KO03 + KO02

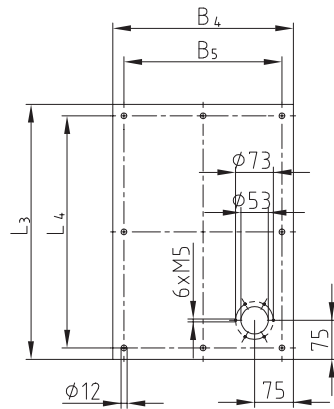
Ordering example:

BNK	250	A	E
KTR standard tank	Nominal size of tank	Tank design "A"	Cover type "E"

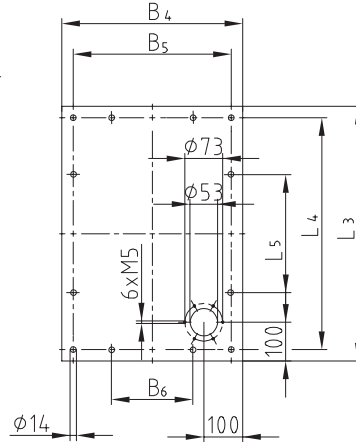
Tank cover
Cover type E



For NG 63-250



For NG 400-2000



Cover type "E" t=10 mm							
NG	Dimensions [mm]						Number of bores
	L3	L4	L5	B4	B5	B6	
63	492	448	-	349	305	-	8
100	615	571	-	442	398	-	8
160	792	748	-	572	528	-	8
250	992	948	-	672	628	-	8
400	1490	1440	480	717	667	222	12
630	1490	1440	480	927	877	292	12
800	1990	1940	647	880	830	277	12
1000	1990	1940	647	1045	995	332	12
1250	1990	1940	647	1315	1265	422	12
1600	1990	1940	647	1408	1358	478	12
2000	2290	2240	1120	1528	1478	558	14

Scope of delivery:

- Bore pattern for filler filter KE02
- Bore pattern for oil level indicator
- Cleaning cover incl. cap nut and gasket
- Cover gasket NBR 15 x 5 self-adhesive
- Cover fastening screws
- Oil drain plug G 1"

Coating:

- Our tanks are primed with mineral oil-resistant 2K-EP paint as a standard

Please contact us:

- Tanks are available without tank cover on request - stock products

- We will be pleased to paint your tanks as specified by you
- We will be pleased to do remachining for you (e. g. additional sleeves, drilling holes, etc.)
- Z spline (Z30 DIN1027) available as a support frame
- Accessories such as fillers, oil level indicators, heaters, etc. can be additionally ordered from the KTR scope of delivery
- We are able to produce all tanks made of stainless steel

Series BNK design B / Cover type A



Special options:

- Tank with oil collecting groove and cover with dripping rim welded on
- This tank is available on request. Please contact us.

Series BNK design A / Cover type C



Special options:

- Tank type with shrink-wrapped cover
- This tank is available on request. Please contact us.

Tank BNK with remachining



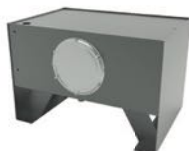
BNK 1000



BNK 100



BNK 160



BNK 250



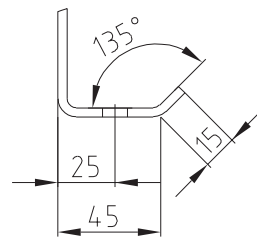
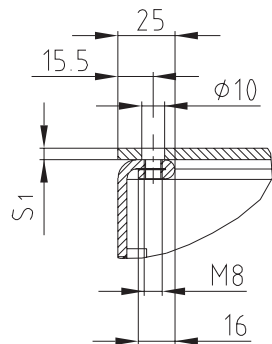
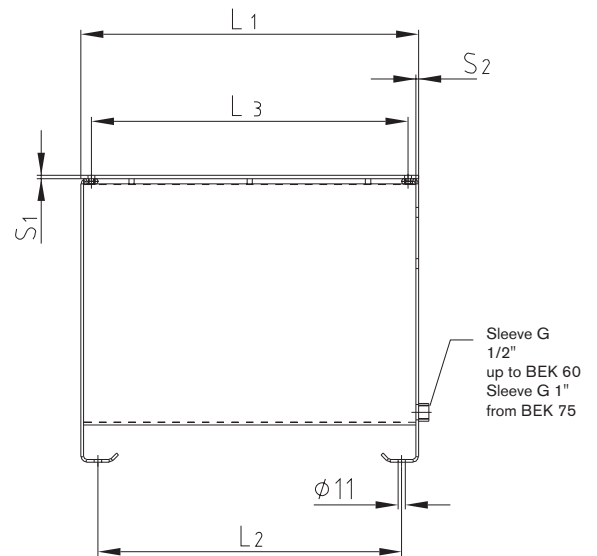
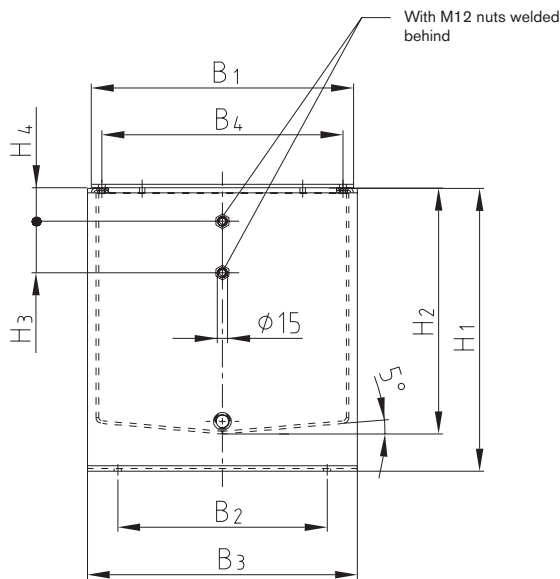
BNK 400



BNK 630

BEK STEEL TANK HYDRAULIC COMPONENTS

Series BEK



Series BEK, NG 12 - 300													
Order description	Part number	Effective vol. [Litre]	Weight [kg]	Tank dimensions [mm]									
				L ₁	L ₂	B ₁	B ₂	B ₃	H ₁	H ₂	H ₃	H ₄	S ₂
BEK 12	270125300000	16	17	310	260	298	220	310	275	220	76	50	4
BEK 20	270205300000	26	23	400	350	298	220	310	325	270	76	50	4
BEK 35	270355300000	40	30	470	420	298	220	310	400	345	76	50	4
BEK 50	270505300000	58	40	500	450	388	310	400	420	365	76	50	4
BEK 60	270605300000	69	43	550	500	388	310	400	445	390	76	50	4
BEK 75	270755300000	85	46	550	500	388	310	400	530	475	127	50	4
BEK 100	271005300000	109	54	700	650	388	310	400	530	475	127	50	4
BEK 150	271505300000	175	79	750	700	488	410	500	620	565	127	80	4
BEK 225	272255300000	267	115	900	850	588	510	600	650	595	127	80	4
BEK 300	273005300000	339	127	900	850	688	610	700	700	645	127	80	4

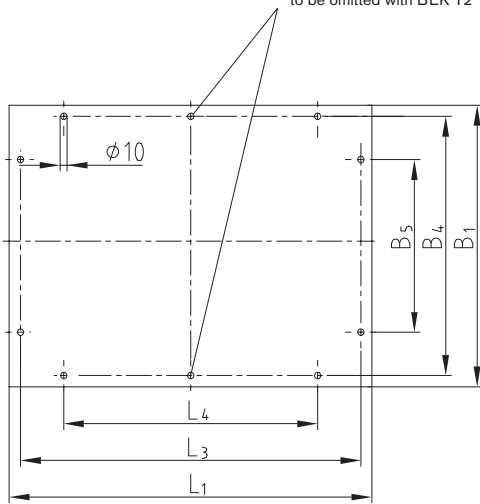
All tanks are available in short term - please contact us.

Ordering example:	BEK	100	E
	KTR standard tank	Nominal size of tank	Cover type "E"

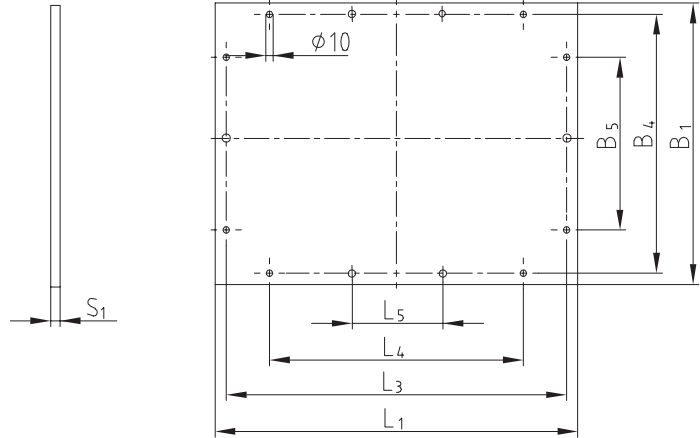
Tank cover
Cover type E

up to NG 75

to be omitted with BEK 12



from NG 100



Cover type "E"									
NG	Dimensions [mm]								Number of bores
	S ₁	L ₁	B ₁	L ₃	B ₄	L ₄	B ₅	L ₅	
12	4	310	298	279	267	160	148	-	8
20	4	400	298	369	267	250	148	-	10
35	5	470	298	439	267	320	148	-	10
50	5	500	388	469	357	350	238	-	10
60	5	550	388	519	357	400	238	-	10
75	5	550	388	519	357	400	238	-	10
100	6	700	388	669	357	550	238	184	14
150	6	750	488	719	457	600	338	200	14
225	8	900	588	869	557	750	438	250	14
300	8	900	688	869	657	750	538	250	14

Scope of delivery:

- Bore pattern for oil level indicator K001/K002
- Cover gasket NBR 15 x 5 self-adhesive
- Cover fastening screws
- Oil drain plug G 1"/G 1/2"

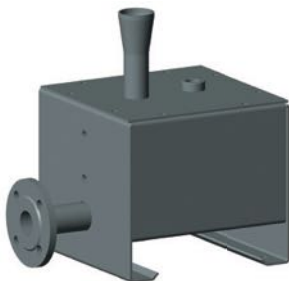
Please contact us:

- Tanks are available without tank cover on request
- We will be pleased to paint your tanks as specified by you
- We will be pleased to do remachining for you (e. g. additional sleeves, drilling holes, etc.)
- Accessories such as fillers, oil level indicators, heaters, etc. can be additionally ordered from the KTR scope of delivery
- We are able to produce all tanks made of stainless steel

Coating:

- Our tanks are primed with mineral oil-resistant 2K-EP paint as a standard

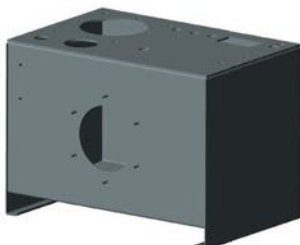
Tanks type BEK with remachining



BEK 50



BEK 150



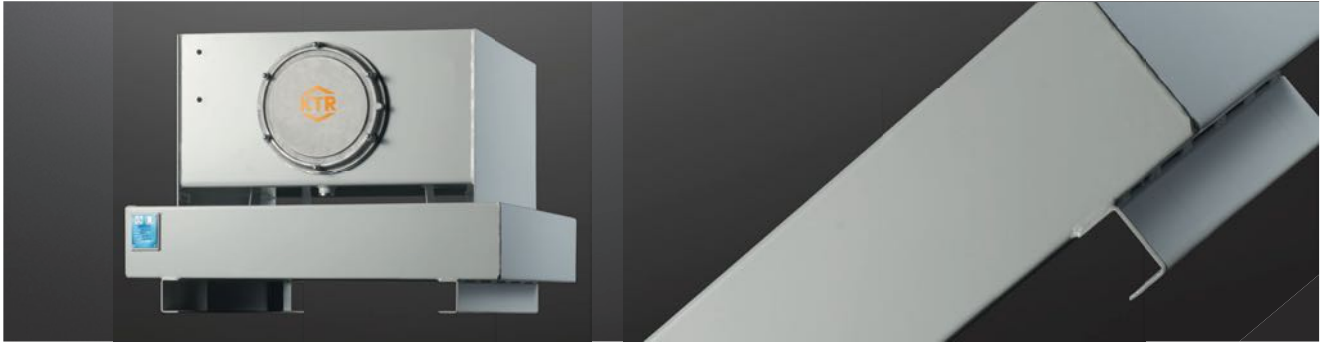
BEK 225



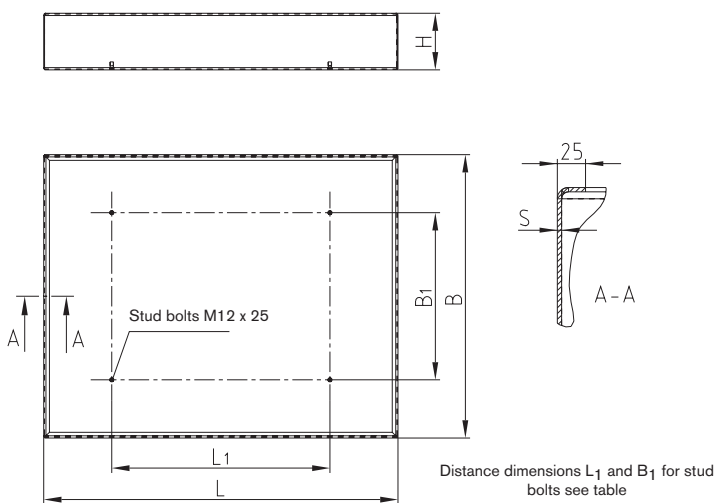
BEK 100

OIL SUMP PANS HYDRAULIC COMPONENTS

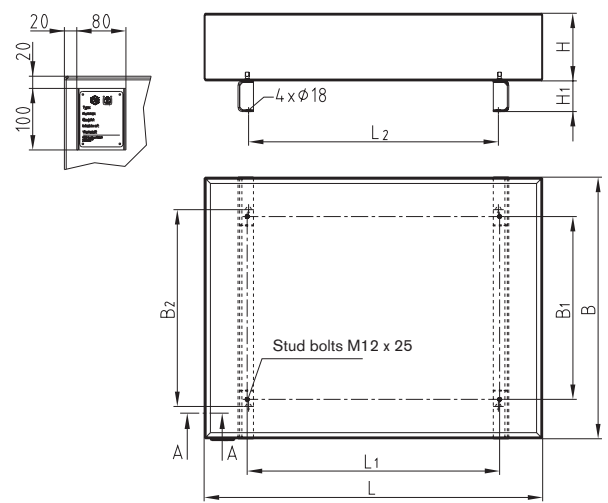
Oil sump pans for steel tanks



Oil sump pan without feet



Oil sump pan with feet



Oil sump pans for **BEK tanks** on request.

All oil sump pans available with **type label and certificates** following **WHG (Water Resources Act)** at an extra charge (please specify in your order).

Oil sump pan for BSK/BNK

Order description	Part number	Effective vol. [Litre]	Weight [kg]		Tank dimensions [mm]								
			Without feet	With foot	L	L ₁ BSK/BNK	L ₂	B	B ₁ BSK/BNK	B ₂	H	H ₁	S
63	270635500000	74	22		700	428		600	315		200		3
With foot	270005900060			30				420			365	100	
100	271005500000	105	29		850	553		700	414		200	100	3
With foot	270005900061			38				545			460	100	
160	271605500000	160	36		1000	730		800	544		200	100	3
With foot	270005900062			47				722			590	100	
200	272005500000	200	42		1100	820		850	594		220	100	3
With foot	270005900063			54				812			640	100	
250	272505500000	250	50		1250	930		1000	644		200	100	3
With foot	270005900064			64				922			690	100	
300	273005500000	300	57		1400	1128		900	654		250	100	3
With foot	270005900065			69				1120			700	100	
400	274005500000	400	72		1720	1434		980	689		250	100	3
With foot	270005900066			87				1426			735	100	
630	276305500001	630	93		1810	1274		1190	845		300	100	3
With foot	270005900073			112				1426			945	100	
800	278005500001	800	110		2410	1774		1190	800		300	100	3
With foot	270005900074			138				1926			900	100	
1000	271015500001	1000	123		2420	1774		1380	965		300	100	3
With foot	270005900075			155				1926			1065	100	
1250	271255500001	1250	156		2380	1774		1770	1235		300	100	3
With foot	270005900076			184				1926			1335	100	
1600	271615500001	1600	280		2760	1774		2070	1330		300	100	4
With foot	270005900077			310				1926			1805	100	
2000	272015500001	2000	420		3200	2070		2250	1450		300	100	5
With foot	270005900078			470				2272			1985	100	

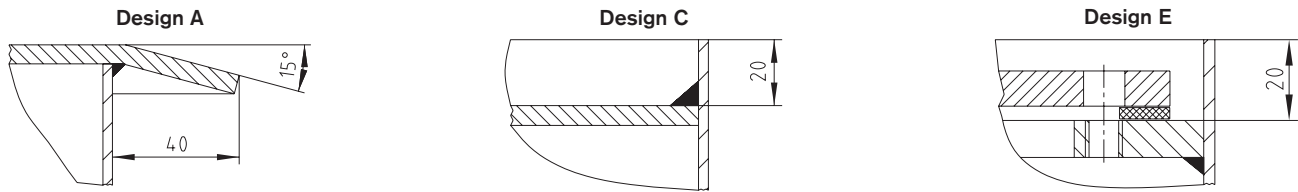
Ordering example:

Ö	63	BSK/BNK	F
Oil sump pan	Nominal size of tank	Tank type	F = with foot O = without foot

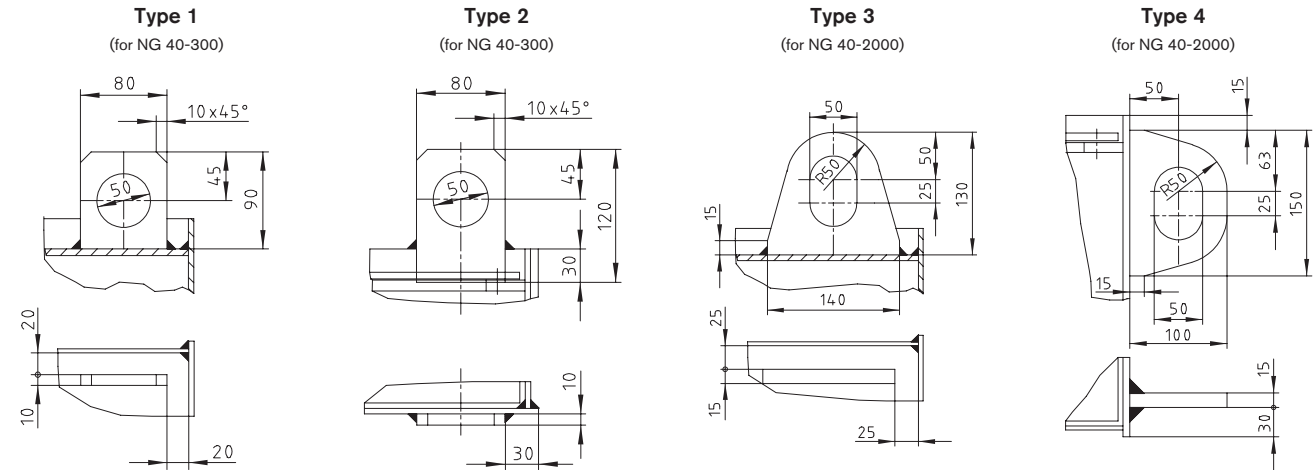
STEEL TANKS TYPE BNK HYDRAULIC COMPONENTS

Cover design, transport eyes, separation sheet metals and seams

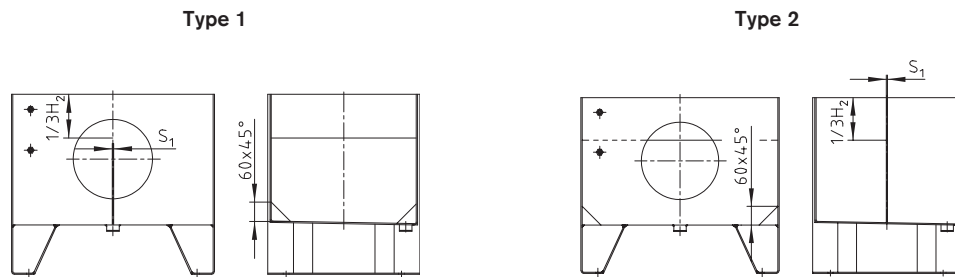
Cover designs for DIN tanks of the BKN series:



Transport eyes:



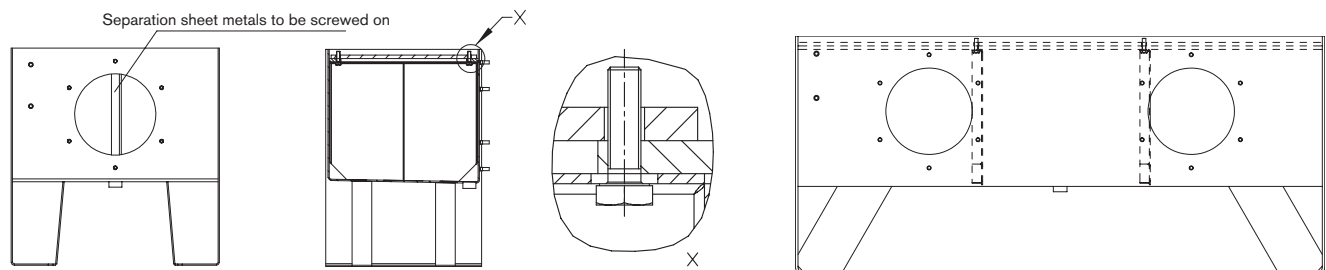
Separation sheet metals:



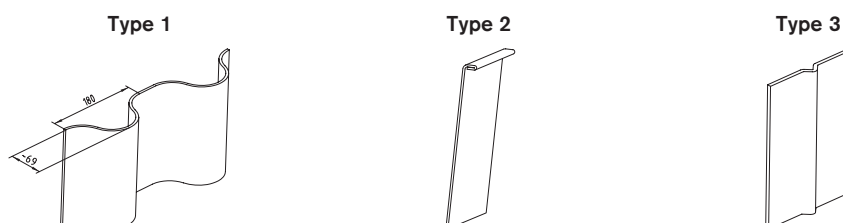
Separation sheet metals to be screwed on:

Separation sheet metal up to BSK/BNK 300

From BSK/BNK 400 separation sheet metals optionally on the right or on the left



Seams:



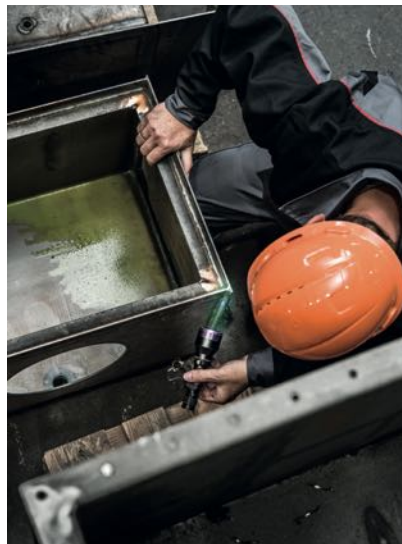
CERTIFICATES

Our approvals and skills

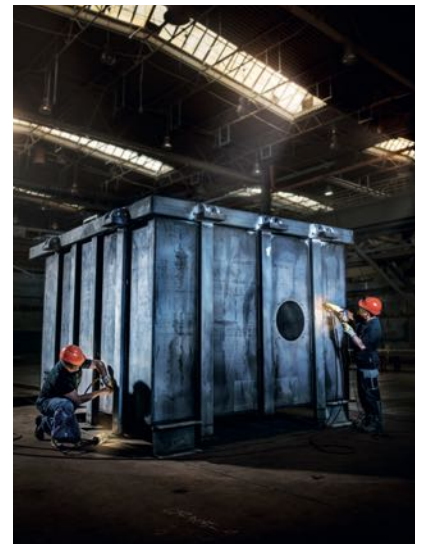
- ISO 9001 : 2008 quality management
- Specialised company in compliance with Water Resources Act
- Welding certification acc. to EN 1090 EXC3 (previously DIN 18800) incl. CE symbol of welded components as per ZA 3.2 and ZA 3.4
- Certificate acc. to DIN EN 15085-2 CL1 (previously DIN 6700-1) for rail vehicles and vehicle components
- Approval for defence technology acc. to DIN 2303 category Q1 and Q2
- Pressure tanks acc. to AD 2000 HP0 and DRG 97/23/EC
- Quality requirements for welding acc. to DIN EN ISO 3834-2
- Material identification following directive 97/23/EC
- Welding of crane girders and crane systems acc. to DIN 15018 and DIN 4132



Welding



Dye penetrant testing



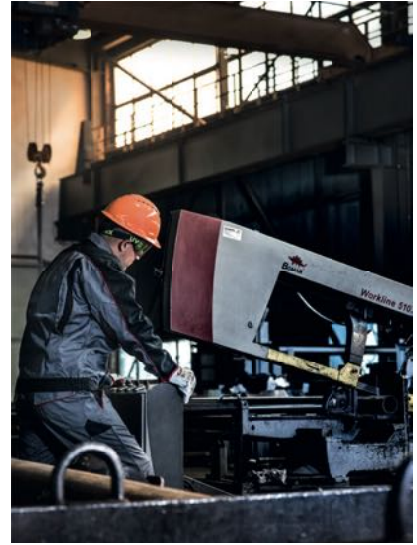
Finishing



Storage



CNC plasma cutting



Sawing



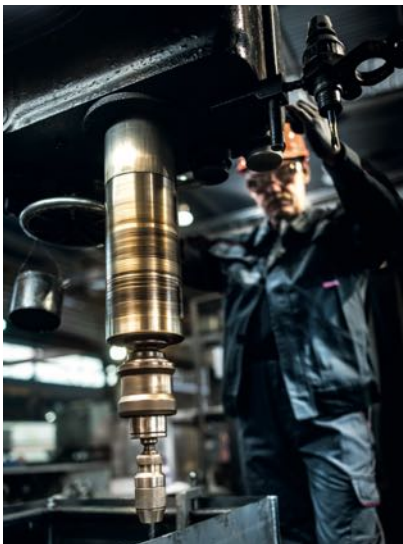
Milling



Tilting



Deburring



Drilling



3D measuring

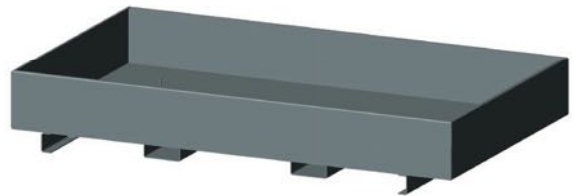
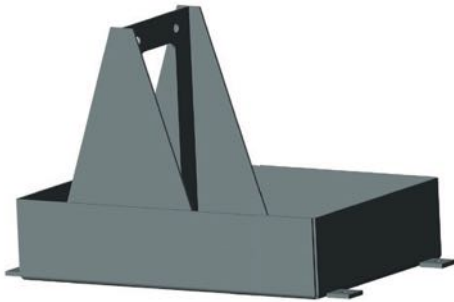


Painting

STEEL TANKS VARIANTS/SPECIAL TYPES

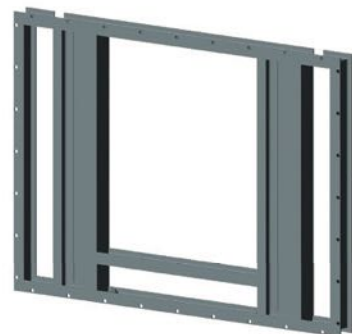
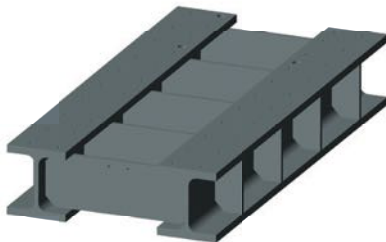
Oil sump pans with and without base frames ¹⁾

Also available in material stainless steel.



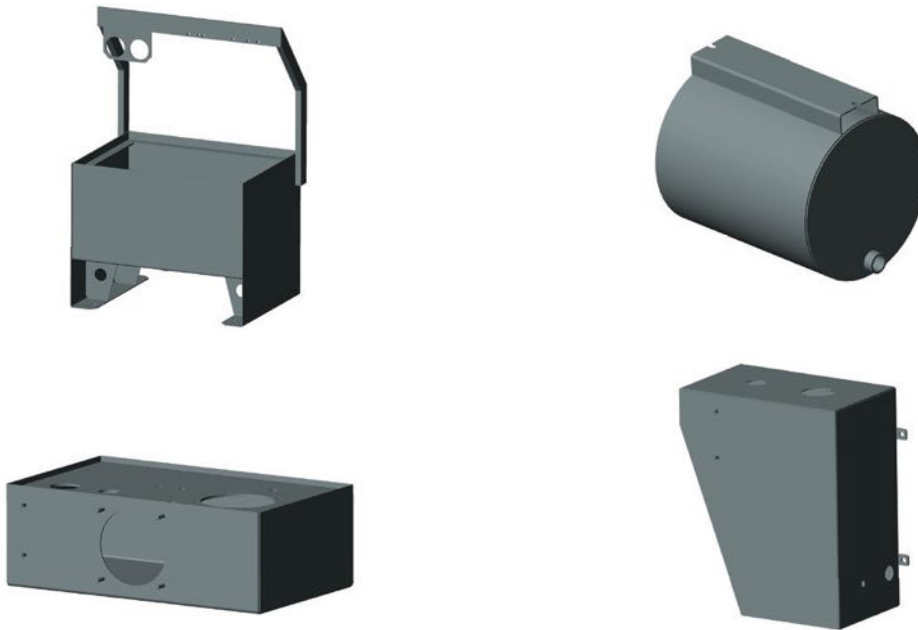
Base frames and stands ¹⁾

Also available in material stainless steel.



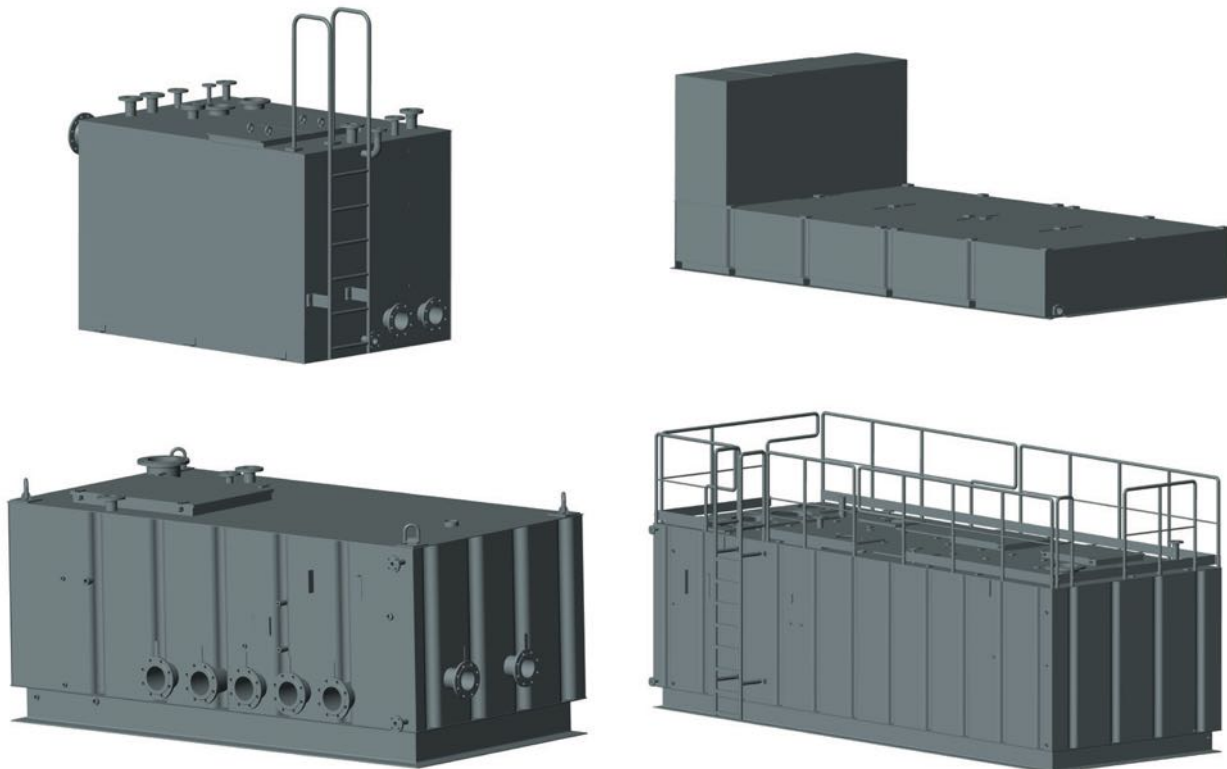
Special tanks 6-1000 l¹⁾

Also available in material stainless steel.



Special tanks up to 130,000 l¹⁾

Also available in material stainless steel.



¹⁾ Please contact us:

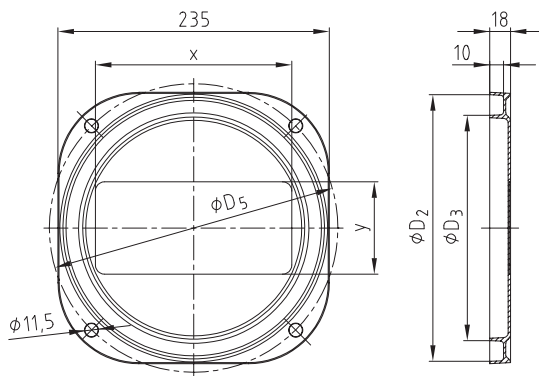
- Tanks are available without tank cover on request
- We will be pleased to paint your tanks as specified by you
- We will be pleased to do remachining for you (e. g. additional sleeves, drilling holes, etc.)
- Accessories such as fillers, oil level indicators, heaters, etc. can be additionally ordered from the KTR scope of delivery

ACCESSORIES FOR OIL TANKS HYDRAULIC COMPONENTS

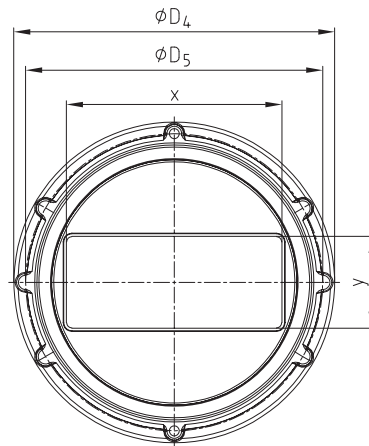
Cleaning cover



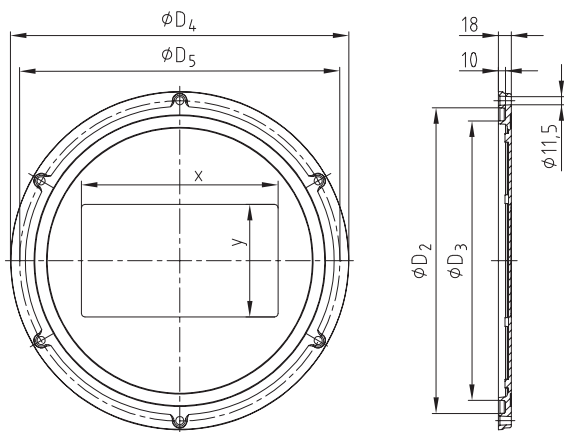
Cleaning cover V250-4 PRD



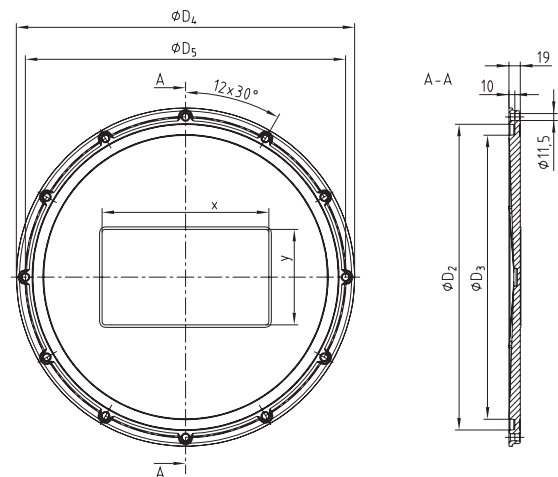
Cleaning cover V324-6 acc. to DIN 24339



Cleaning cover V449-6 acc. to DIN 24339



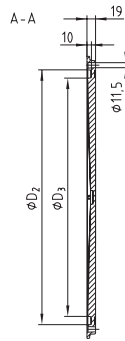
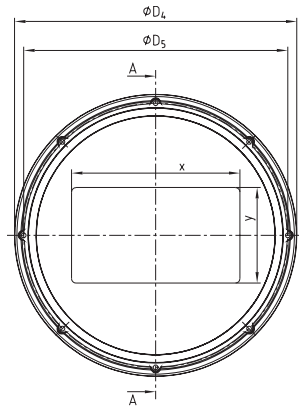
Cleaning cover V530-12



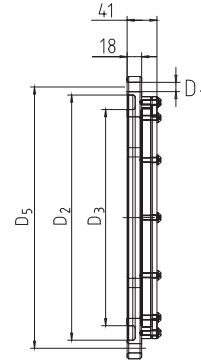
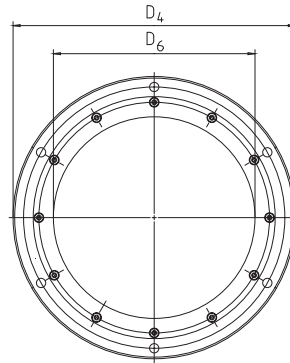
Technical data				
Screw tightening torque	Max. permissible pressure	HFC liquids	Perm. temperature range	Logo
10 Nm	0.5 bar	Order suffix/HFC	-30 °C to +100 °C	On request

Ordering example:	V324-6/W	PRD 393 NBR
	Cleaning cover	Spline seal

Cleaning cover V580-8



Cleaning cover Type W aluminium/polycarbonate (sight glass)

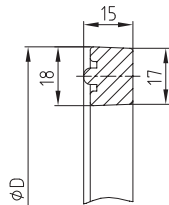


- Screw tightening torque max. 10 Nm
- Max. permissible pressure = 0.5 bar
- Permissible temperature range type W -20 °C to +90 °C

Cleaning cover

Size	Dimensions [mm]								
	D1	D2	D3	D4	D5	Sight glass	Number of bores	x	y
V250-4 PRD		229	193	-	250	-	4	170	80
V324-6 / V324-6 HFC		304	268	350	324	-		235	100
V324-6 permanent mould *		304	268	350	324	-		-	-
V324-6 /W	11.5	304	268	350	324	Ø250	6	276	158
V449-6 / V449-6 HFC		429	393	475	449	-		276	158
V449-6 /W		429	393	475	449	Ø250		-	-
V530-12 / V530-12 HFC		505	471	560	530	-	12	276	158
V580-8 / V580-8 HFC		560	523	620	580	-	8	370	210

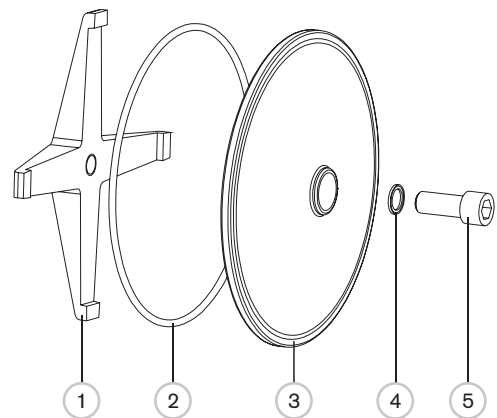
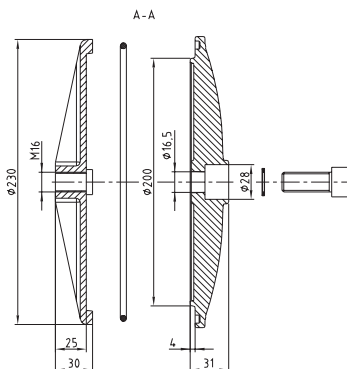
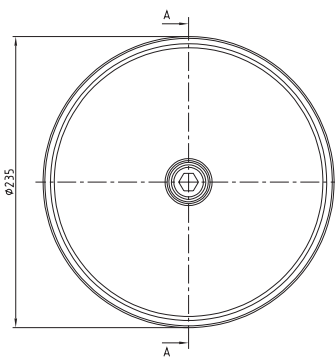
* Cover with mounting by 4 holes on request.



Gaskets for cleaning covers

Size	For cleaning cover	D [mm]
PRD 193 NBR	PRD 193 FKM	V250- PRD
PRD 268 NBR	PRD 268 FKM	V324
PRD 393 NBR	PRD 393 FKM	V449
PRD 471 NBR	-	V530
PRD 525 NBR	-	V580
O-ring 214-5 NBR	215-5 FKM	V235

Cleaning cover V235

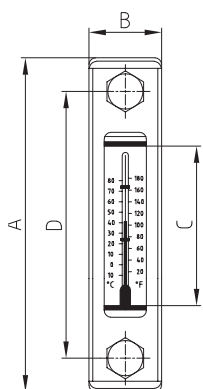
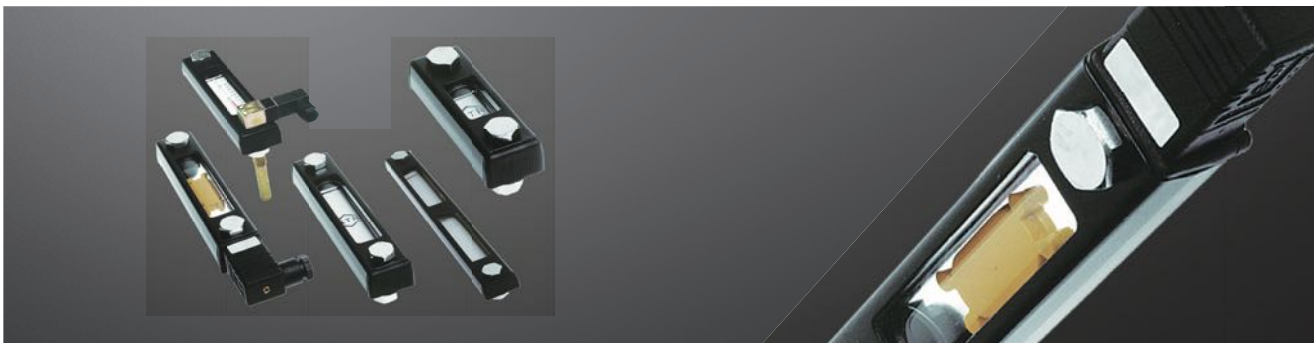


List of components:

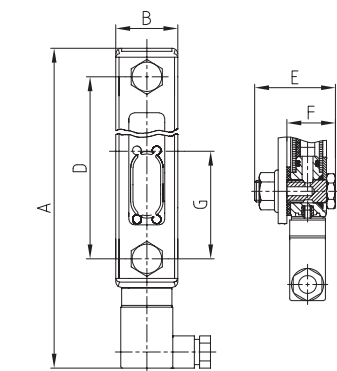
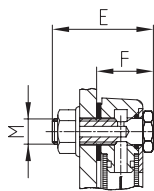
- 1 Fixing cross
 - 2 O-ring 214 x 5
 - 3 Cover
 - 4 Gasket Usit 22 x 16
 - 5 Screw M 16 x 40 tightening torque max. 40 Nm
- Perm. temperature range -30 °C to +100 °C

ACCESSORIES FOR OIL TANKS HYDRAULIC COMPONENTS

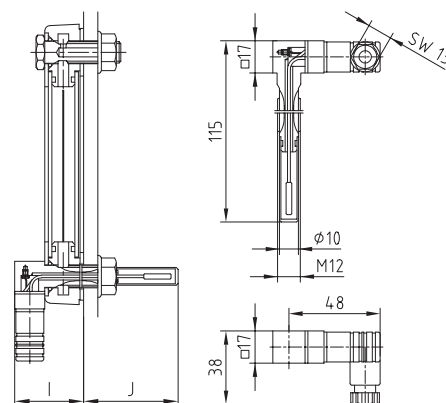
Oil level indicator



With (KOT) and without (KO) temperature indicator



With visual/electrical monitoring of liquid level in the tank
KOO/KOS



Combined with temperature switch
TS60, TS70 or TS80

Oil level indicator										
Description	Dimensions [mm]								With TS	
	A	B	C	D	E	F	M	G	I	J
KO 01 / KOT 01	108		37	76				—	—	76
KO 02 / KOT 02	159			127				—	39	76
KOO 02 / KOS 02	205	34	76	127	45	26	M12	50	47	68
KO 03 / KOT 03	286		203	254				—	39	76

Technical data:

KOT 01: Display range +20 °C to +80 °C
 KOT 02: Display range +20 °C to +80 °C
 KOO: Electrical switch as break contact
 KOS: Electrical switch as make contact
 Operating range: -10 °C to +80 °C

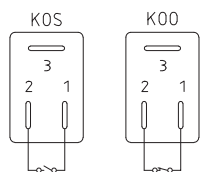
Recommended screw tightening torque: 8 Nm
 Preload pressure of tank: max. 0.8 bar

Technical data (break contact/NC) of temperature switch:

Switching temperature: TS60: Switching temperature 60 °C/140 °F
 TS70: Switching temperature 70 °C/158 °F
 Switching temperature 80 °C/176 °F

Hysteresis: 20 °C
 Tolerance of shifting temperature: ± 5 °C

Electrical connections and functions:



Contact load:

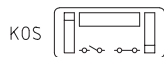
KOS max. 10 W
 KOO max. 5 W

Switching voltage:

50V AC/DC
 Terminal 3 not assigned

Switching current:

KOS max. 0.50 A
 KOO max. 0.25 A
 Wiring box with PG9
 Protection class IP65
 Terminal 3 not assigned

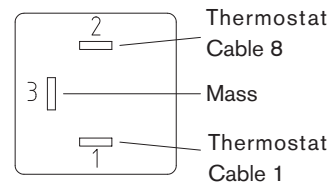


AC current:

- Max. voltage -250V
- Max. current with 10,000 circuits
 2.5 A with - cos φ = 1.0
 1.6 A with - cos φ = 0.6
- Max. current with 100,000 circuits
 0.5 A with cos φ = 1.0
 ~0.25 A with cos φ = 0.6
- Min. switching current 50 mA

DC current:

- Max. voltage 42V
- Max. current with 10,000 circuits 1 A



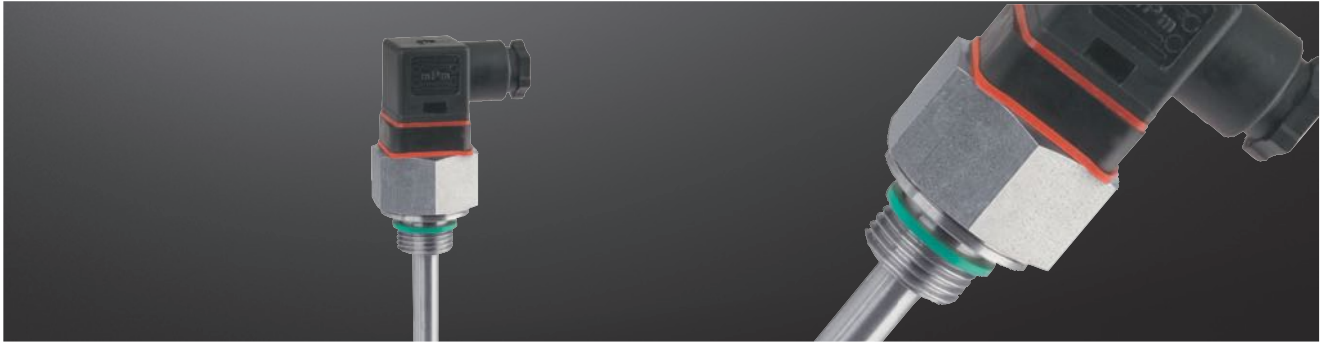
Ordering example:

KO	02	+ TS80
Type [KO, KOT KOO or KOS]	Size [01, 02 or 03]	With temperature switch [TS60, TS70 or TS80]

ACCESSORIES FOR OIL TANKS

HYDRAULIC COMPONENTS

Temperature feeler, filler breather and oil level sight glass

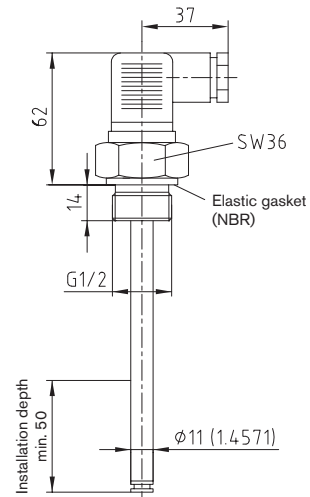


Temperature feeler TE-PT-100

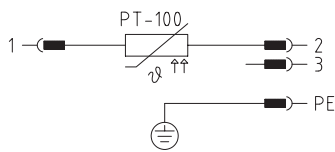
Basic values of precision resistor PT-100												
°C	0	10	20	30	40	50	60	70	80	90	100	
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50	

Technical data

Screw connection and immersion sleeve:	1.4571 (stainless steel) - brass on request
Lengths available:	100, 200 and 300 mm available from stock (special lengths up to 1000 mm)
Operating pressure:	10 bars with immersion sleeve made of stainless steel
Operating temperature/measuring range:	-40 °C to +100 °C
Resistance feeler element:	PT-100 category B DIN/IEC 751
Max. S-wire current PT-100:	1 mA
Plug:	According to DIN 43650 - 3 poles + PE, protection class IP65, cable gland PG11



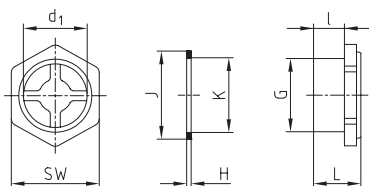
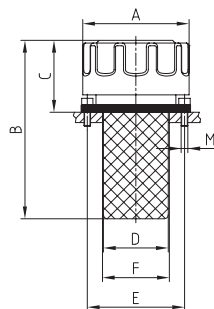
Wiring diagram:



Ordering example:

TE	PT-100	300
Electronic temperature feeler	Resistance feeler element	Length of immersion sleeve

KE 01 and KE 02 Filter grade 10 µm



Filler breather with air filter

Size	Dimensions [mm]						
	A	B	C	D	E	F	M
KE 01	44.5	110	48.5	28	41.3	30	3xM5
KE 02	79.9	134	54	48.7	73	53	6xM5

Air flow: KE 01 = 0.40 m³/min

KE 02 = 0.45 m³/min

Oil level sight glass

Size	Dimensions [mm]							
	L	I	d ₁	G	H	J	K	SW
G 1/2 A	17	9	15	G 1/2"	2	27	21	27
G 3/4 A	18	10	21	G 3/4"	2	32	27	32
G 1 A	20	11	25	G 1"	2	40	34	41

Ordering example:

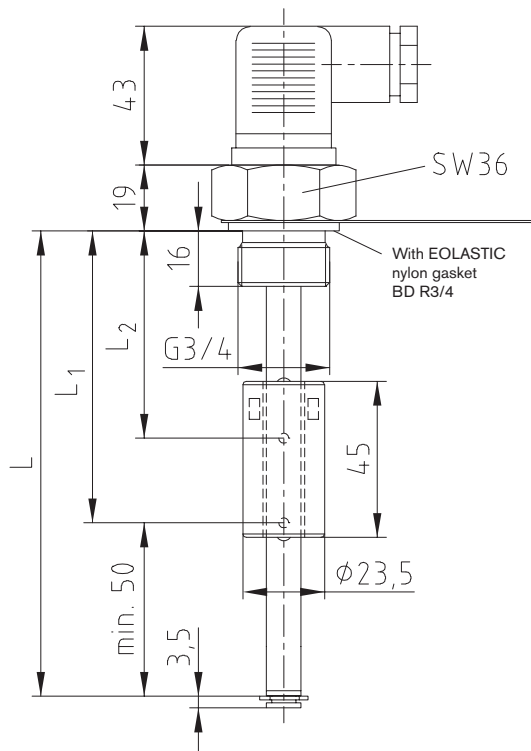
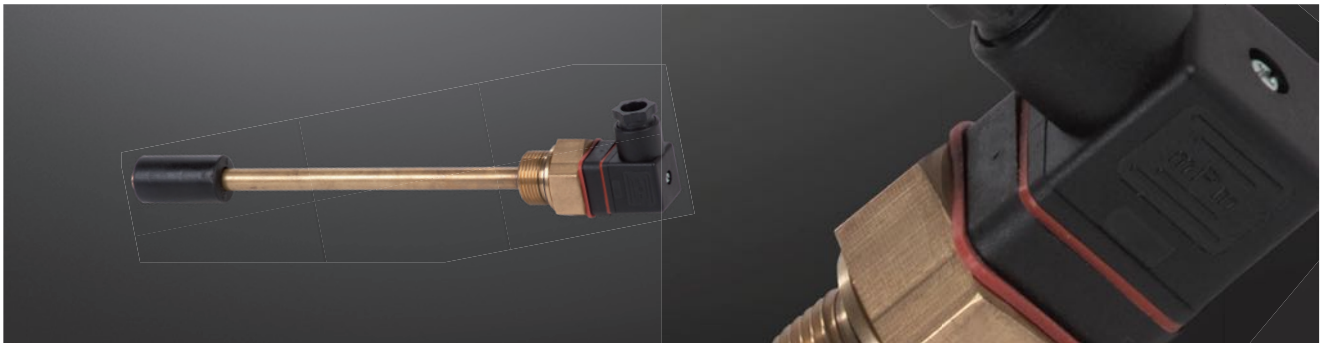
Filler breather	KE 01
Type	Size

Ordering example:

Oil level sight glass	G 3/4 A
Type	Size

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Level and temperature switch



Level and temperature switch			
Size	Dimensions [mm]		
	L	L1	L2
NVT22	220	170	40
NVT37	370	320	40
NVT45	450	400	40

Switching tube

Operating pressure	Max. 1 bar
Operating temperature	Max. 80 °C
Density of liquid	Min. 0.8 kg/dm ³
Float	PU
Switching tube	MS
Flange	MS

Level contacts

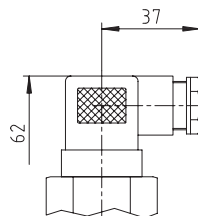
Function	NC (break contact)
Max. operating voltage	230V
Max. switching current	0.5 A
Contact load	10 VA

Temperature contacts

Function	NC (break contact)
Max. operating voltage	250V
Max. switching current	2 A
Max. contact load	100 VA
Switch-back difference	18 K ± 5 K

Plug-in connection D03

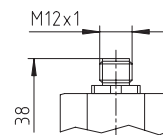
3 poles + PE DIN 43650



Protection class IP65
Cable gland PG11
Max. voltage 230V AC/DC

Plug-in connection DM12

4 poles



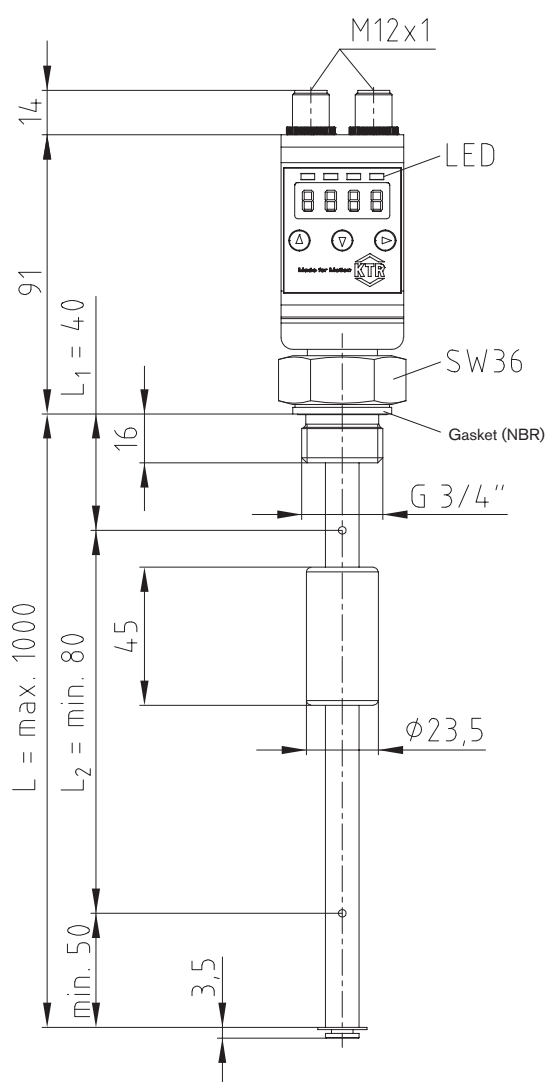
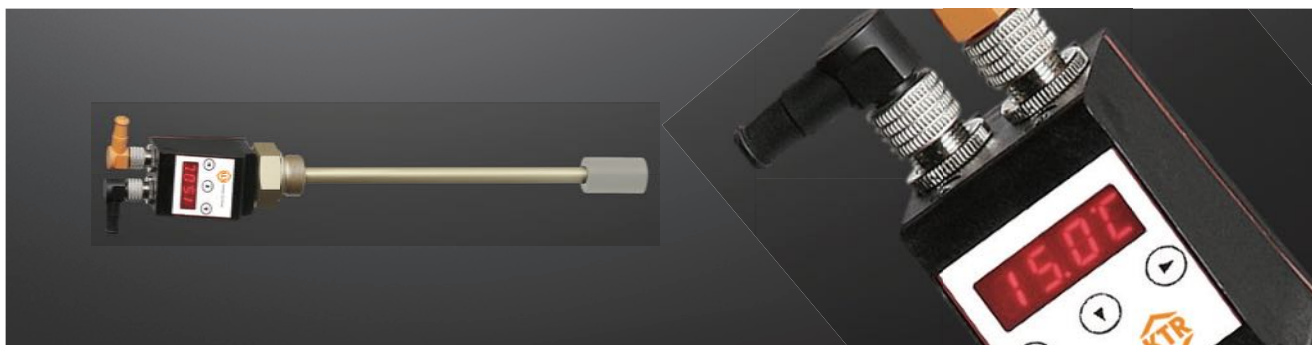
Protection class IP67
Max. voltage 24V DC

Ordering example:

NVT	22	2	60	D3
Type	Size	Type	Switching temperature	Voltage
	22 = 220 mm contact pipe 37 = 370 mm contact pipe 45 = 450 mm contact pipe	1 = 2 switch contact area H and L 2 = 1 switch contact area L and 1 temperature switch Other types on request	O = without temperature switch 60 = 60 °C 70 = 70 °C 80 = 80 °C	D3 = max. 230 volts (standard) DM12 = max. 24 volts

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Electronic level and temperature controller



Technical data

Operating pressure:	Max. 1 bar
Operating temperature:	-20 °C to +80 °C
Ambient temperature:	-20 °C to +70 °C
Weight:	Approx. 400 g
Density of liquid:	Min. 0.8 kg/dm ³
Float:	PU
Immersion pipe:	MS
G 3/4 flange:	MS
Measuring resistor:	Reed chain
Resolution:	10 mm
Temperature sensor:	PT100 class B DIN 60751

Display and control unit

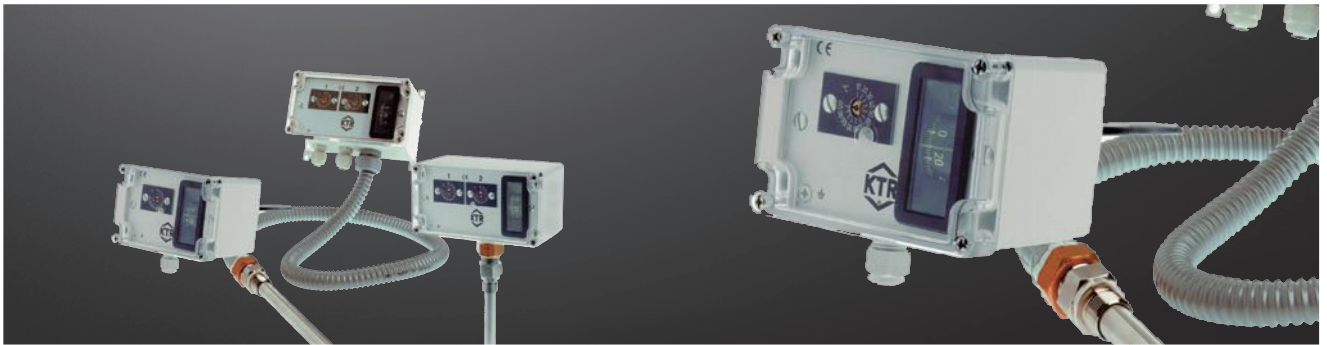
Display:	4-digit 7-segment LED display
Operation:	via 3 buttons
Memory:	Min. and max. value memory
Current consumption with starting:	Approx. 100 mA for 100 ms
Current consumption during operation:	Approx. 50 mA
Supply voltage (U _B):	10 - 32V DC (nominal voltage 24V DC)
Protection class:	IP65
Display units:	Level: %, cm, L, i, Gal Temperature: -20 °C to +120 °C or -4 °F to 248 °F
Setting range:	Level: e. g. 0 - 100 % Temperature: 0 °C to +100 °C or 32 °F to 212 °F
Accuracy:	1% of final value

Ordering example:

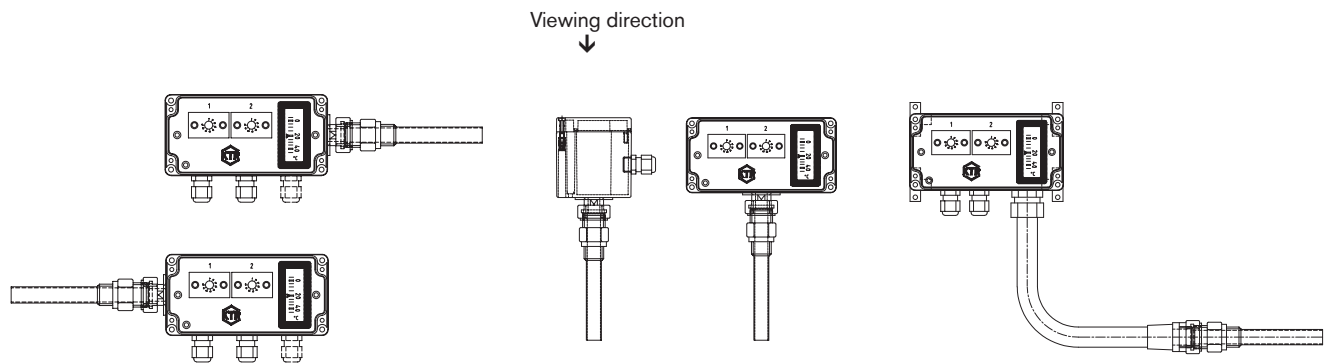
NVT-E	20	4	M12
Type	20 = 200 mm contact pipe 28 = 280 mm contact pipe 37 = 370 mm contact pipe 50 = 500 mm contact pipe	4 = Switching points to be freely assigned 2NT = 2 switch terminals to be freely programmed and 2 analogue outputs (level and temp.)	M12 = M12 plug base 4 poles

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Industrial controller IR



Industrial controller: Type/position of immersion sleeve



Type R and L

- R:** Immersion sleeve on the right
L: Immersion sleeve on the left

Type H and U

- H:** Immersion sleeve at the back
U: Immersion sleeve at the bottom

Type S₁

- S₁:** with 1 hose
S₃: with 2 hoses

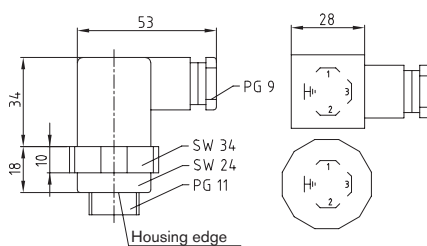
Lengths of hose: S₁ = 1500 mm and S₃ = 2 x 1500 mm

Electrical connections (IR)

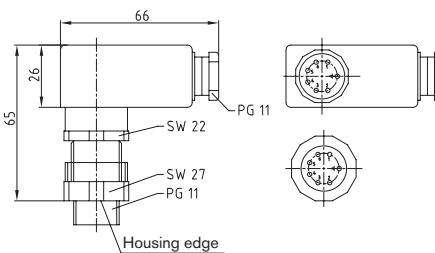
A01 standard: flat plug 6.3 x 0.8; receptacles attached to DIN 46247/3

A04 special design: European terminal strip fully cabled

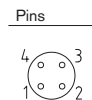
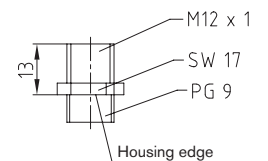
Connectors A02, A03 and A05 see illustrations.



Plug A02
DIN 43650



Plug A03
DIN 43651

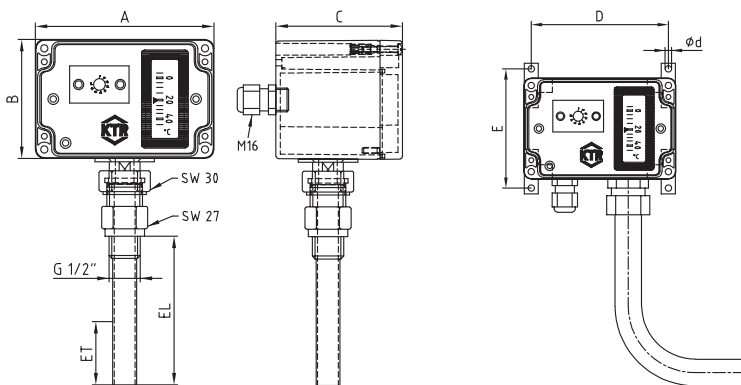


Plug A05
M12 - 4 poles

Controllers and temperature display (IR)

Type	Function	Range	Max. probe temperature limit temperature	Switching difference Kelvin
00	Adjustable controller	-30 °C to +40 °C	80	~5
02	Adjustable controller	0 °C to +80 °C	120	~5
03	Adjustable controller	+10 °C to +120 °C	160	~5
04	Adjustable controller	+10 °C to +120 °C	160	~10
05	Adjustable controller	+60 °C to +160 °C	200	~5
07	Adjustable limiter *	0 °C to +150 °C	200	~5
T1	Thermometer	0 °C to +120 °C	140	
T2	Thermometer	-40 °C to +80 °C	100	

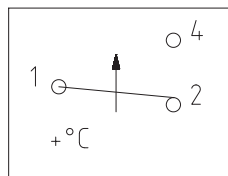
* must be manually released



Pin assignment per controller IR

PE assignment (customer)

PE



Controller 1 ... X
Connector 6.3 AMP
Insulated plug

Type IR						
Dimensions of housing [mm]						
Number of functions	A	B	C	Type S1 - S3		
				D	E	d
1	82	80	85	70	94	5.2
2	120	80	85	108	94	5.2
3	160	80	85	148	94	5.2
4 / 5 / 6 / 7	240	120	100	228	134	5.2

Technical data	
16 A (2.5)/250V AC	0.5 K/min.
10 A (1.5)/400V AC	
	T _{max} depending on type

Dimensions of immersion sleeve IR						
Type/EL [mm] - Mounting length	100	200	300	400	500	900
ET [mm] - minimum depth of immersion referring to the number of functions included						
1 - 3 functions	90					
4 - 6 functions					180	
7 functions				270		

Type IR

Technical data

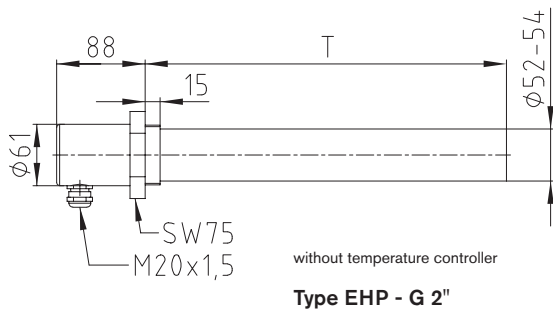
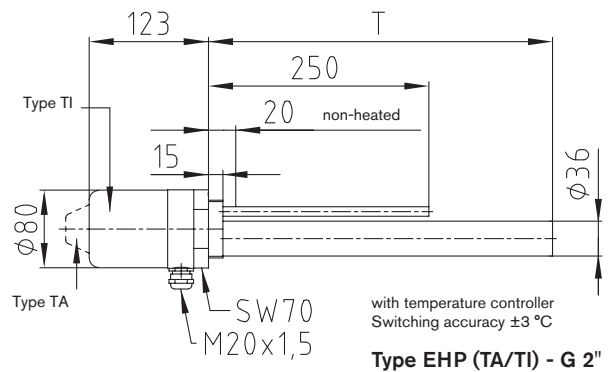
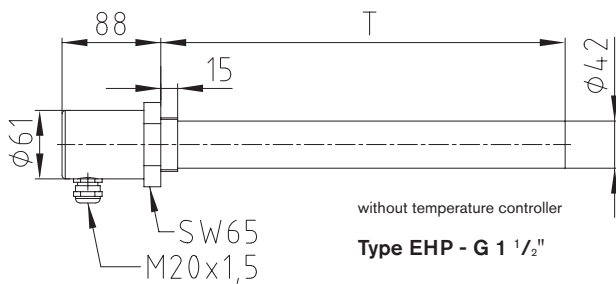
Contact selection:	Single-pole changeover	Accuracy of display:	Class 3 according to DIN 16203
Contact material:	Hard silver Ag	Housing material:	Polycarbonate (Makrolon)
Setting range:	~ 30 °C to +160 °C	Immersion sleeve:	1.4301
Switching accuracy:	~ 4 °C	Cable gland:	Polyamide
Ambient temperature:	~ 35 °C to +80 °C	Probe + capillary tube:	Cu
Test certificates:	VDE 0631, NF, SEMKO, Demko, ÖVE, KEMA	Switching power:	16 A (2.5)/250V AC 10 A (1.5)/400V AC 0.5 A/24V DC
Insulation:	According to VDE	Disruptive strength:	Other data on request 2000V AC between combined contacts and mass 1150V AC between open contacts
Protection class:	IP65		
Cable gland:	M16 with strain relief		
Max. operating pressure of immersion sleeve:	16 bars		
Thermometer display:	~ 30 °C to +160 °C		

LED 12 - 24 V	Index	LED 240V	Index
green	2	green	5
red	3	red	6
red + green	4		

Ordering example:	IR	200	H	A01	03 - 02 - 02 - T1
	Type	Length of immersion sleeve	Position of immersion sleeve	Electrical connection	Requested controller or thermometer (max. 7). Sequence as requested. If an LED is requested to be assembled, the figure 0 in the controller name is replaced by the respective index number (e. g. controller 02 and LED red = 32).

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Tank heater - Type EHP



Technical data of EHP:
Temperature controller for internal or external setting: 0 - 85 °C, 16 amperes
Surface load: 1.5W/cm²
Protection class IP65 (type TA IP54)

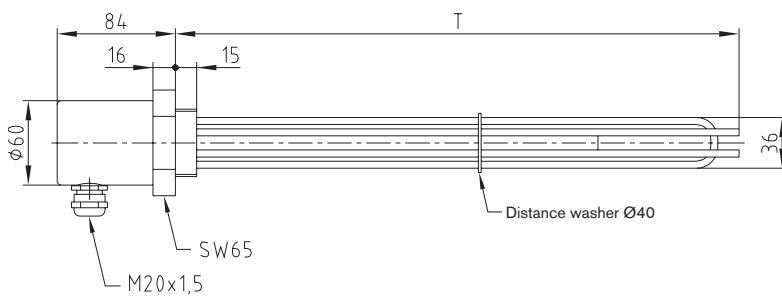
Inserted heating cartridge								
Type EHP - G 1 1/2" without temperature controller			Type EHP - G 2" without temperature controller			Type EHP (TA/TI) - G 2" with temperature controller		
Heating capacity [Watt]	Immersion depth T [mm]	Voltage [V]	Heating capacity [Watt]	Immersion depth T [mm]	Voltage [V]	Heating capacity [Watt]	Immersion depth T [mm]	Voltage [V]
400	200	230	500	200	230	450	300	230
600	300	230	750	300	230	600	400	230
800	400	230	1000	400	230	750	500	230
1000	500	230	1250	500	230	900	600	230
1200	600	230	1450	600	230	1050	700	230
1400	700	230	1700	700	230	1200	800	230
1600	800	230	1950	800	230	1350	900	230
1800	900	230	2200	900	230	1500	1000	230
2000	1000	230	2450	1000	230	1650	1100	230
2200	1100	230	2700	1100	230	1800	1200	230
2400	1200	230	2950	1200	230	1950	1300	230
2800	1400	230	3450	1400	3 x 400	2100	1400	230
3200	1600	230	3900	1600	3 x 400	2250	1500	230
3600	1800	3 x 400	4400	1800	3 x 400	2400	1600	230
4000	2000	3 x 400	4900	2000	3 x 400			

As an alternative: control of tank heater via KTR temperature controller (NVT-E/IR). In this case the temperature controller on the tank heater can be done without. Other types on request. Please observe our assembly instructions at www.ktr.com.

Ordering example:	EHP	1950	1300	G 2"	TI	1 x 230V
	Type	Heating capacity [Watt]	Immersion depth T [mm]	Size of screw-in thread	TA = Temperature controller with external setting TI = Temperature controller with internal setting O = Without temperature controller	Voltage [V] must be specified in the order, e. g. 1 x 230V; 2 x 400V; 3 x 400V (from 1000 watts)

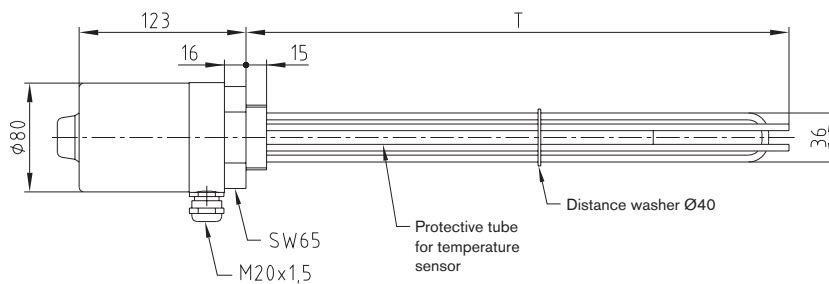
TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Tank heater - Type EH



Type EH - G 1 1/2"

without temperature controller



Type EH (TA/TI) - G 1 1/2"

with temperature controller
Switching accuracy ± 3 °C

Inserted tubular heaters

Type EH - G 1 1/2"
Without or with temperature controller

Heating capacity [Watt]	Immersion depth T [mm]	Voltage [V]
380	200	230
500	250	230
750	350	230
990	450	230
1460	650	230
1825	800	230
2300	1000	230

Technical data of EH:

Temperature controller for internal or external setting: 0 - 85 °C, 16 amperes
Surface load: 1.5W/cm²
Protection class IP65 (type TA IP54)

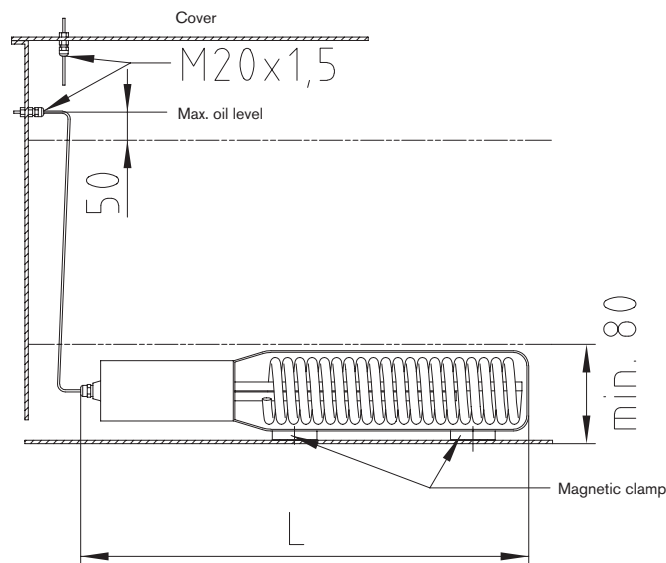
As an alternative: control of tank heater via KTR temperature controller (NVT-E/IR). In this case the temperature controller on the tank heater can be done without. Other types on request. Please observe our assembly instructions at www.ktr.com.

Ordering example:

EH	990	450	G 1 1/2"	TI	1 x 230V
Type	Heating capacity [Watt]	Immersion depth T [mm]	Size of screw-in thread	TA = Temperature controller with external setting TI = Temperature controller with internal setting O = Without temperature controller	Voltage [V] must be specified in the order, e. g. 1 x 230V; 2 x 400V; 3 x 400V (from 1000 watts)

TEMPERATURE CONTROL AND MONITORING HYDRAULIC COMPONENTS

Inserted tank heater with magnetic clamp - Type TEHM



Technical data:

Switching accuracy:	±3°
Voltage:	230V (other voltage up to a maximum of 2 x 400V available on request)
Operating temperature:	-30 °C to +80 °C
Surface load:	1.2 W/cm ² (0.6 W/cm ² on request)
Connection cable:	3 poles, 2.5 m long, incl. cable gland M20x1.5

Inserted tank heater		
Type TEHM		
Heating capacity [Watt]	Total length L [mm]	Voltage [V]
250	265	230
500	290	230
1000	400	230

As an alternative: control of tank heater via KTR temperature controller (NVT-E/IR). In this case the temperature controller on the tank heater can be done without. Other types on request. Please observe our assembly instructions at www.ktr.com.

Ordering example:	TEHM	1000	00	1 x 230V
	Type	Heating capacity [Watt]	00 = Cut-off temperature set by the manufacturer is 20 °C 01 = Without temperature controller 35 = Requested cut-off temperature e. g. 35 °C	Voltage [V] must be specified in the order, e. g. 1 x 230V; 2 x 400V

LIST OF RESISTANCE HYDRAULIC COMPONENTS

List of resistance

KTR Product		Medium							
Component	Material	HFA	HFB	HFC	HFD, HFD-R, HFD-S, HFD-T	Hydraulic liquid on mineral oil base	Biological hydraulic oils		
							HETG	HEES	HEPG
Bellhousings P, PK, PL	Aluminium	●	●	6	●	●	●	●	●
Bellhousings PG/PSG	GJL/GJS	●	●	6	6	●	6	6	6
Bellhousings PS	Steel	●	●	6	6	●	6	6	6
Damping ring D, DT, DTV	Aluminium/NBR	●	●	6	1	●	●	●	●
PIK bellhousing with integrated oil cooler	Steel/Aluminium	●	●	6	1	●	●	●	●
Oil/water cooler TAK	-	●	●	6	6	●	6	6	6
Foot flange PTFL, PTFS	Aluminium	●	●	6	●	●	●	●	●
Foot flange PTFL, PTFS	Steel/GJS	●	●	6	6	●	6	6	6
ZO flange	Aluminium	●	●	6	●	●	●	●	●
Pump bracket K	Aluminium	●	●	6	●	●	●	●	●
	Steel	●	●	6	6	●	6	6	6
Aluminium tank BAK with feet	Aluminium	●	●	6	●	●	●	●	●
Oil sump pan BAKW	Steel	●	●	6	6	●	6	6	6
Steel tanks	Steel	●	●	6	6	●	6	6	6
Tank cover ST	Steel	3	●	6	6	3	●	●	●
Tank cover AL	Aluminium	●	●	6	●	●	●	●	●
Oil level indicator	-	●	●	●	5	●	6	6	6
Oil level sight glass	-	●	●	●	5	●	6	6	6
Filler breather	-	●	●	●	5	●	6	6	6
Cleaning cover	Aluminium	●	●	6	●	●	●	●	●
O-ring seal	NBR	●	●	●	1/2	●	●	●	●
Spline seal	NBR	●	●	●	1/2	●	●	●	●
Gaskets DP, DZ	NBR	●	●	●	1/2	●	●	●	●
Damping rod	Steel/NR	1	1	1	5	1	6	6	6
Elastic flange	Steel/NBR	●	●	●	1	●	●	●	●
Elastic cover support EDL	Steel/NBR/Alu	●	●	7	1	●	●	●	●
Industrial controller IR, IRD	Stainless steel	●	●	●	●	●	●	●	●
Level and temperature switch NVT	Brass/NBR	5	5	5	5	●	5	5	5
Temperature feeler TE-PT-100	Stainless steel/NBR	●	●	●	●	●	●	●	●
Temperature switch TS	Steel (anodized)	●	●	●	●	●	●	●	●
Tank heater EH	Brass/stainless steel	●	●	●	●	●	●	●	●
EHP Tank heater	Steel/fibre NBR	●	●	6	●	●	●	●	●
TEHM Tank heater	Stainless steel/copper	5	5	5	5	●	5	5	5
Plate heat exchanger PHE	Stainless steel/copper	●	●	6	6	●	6	6	6
BoWex® sleeve	PA	●	●	●	●	●	●	●	●
BoWex® hub	Steel	3	●	4	4	3	●	●	●
ROTEX® spider → standard made of Polyurethane	PUR	1	1	1	5	1	6	6	6
ROTEX® hub	Steel	●	●	4	4	3	●	●	●
ROTEX® hub	Aluminium	●	●	6	●	●	●	●	●

Composition of hydraulic liquids:

- HFA = Oil in water emulsion → water content > 80 %
HFB = Water in oil emulsion → water content > 40 %
HFC = Aqueous polymer solution (water glycols)
water content > 45 %
HFD = Synthetical liquids (anhydrous)
HFD-R = Phosphoric ester
HFD-S = Chlorinated hydrocarbons
HFD-T = Compound of HFD-R + HFD-S

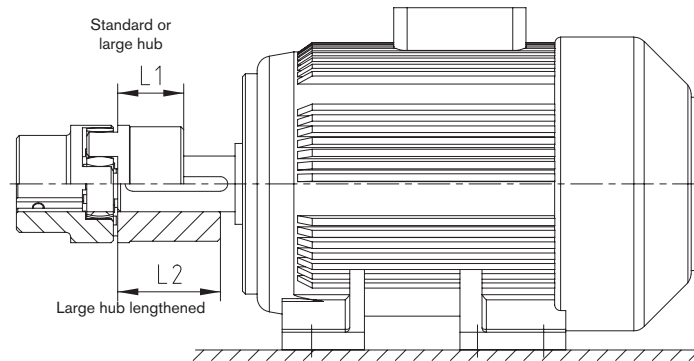
Explanation of items marked:

- = Resistant
1 = Resistant to oil splashes
Not resistant when continuously flushed with oil!
2 = With continuous oil flushing use EPDM gasket!
3 = Priming coat required
4 = Additional coating with epoxy resin/
DD coating is necessary
5 = Not resistant
6 = Consultation is necessary, phone: +49 5971 798-0

Please note:

The figures specified may only be considered as a general standard. In case of doubt we recommend to run a test. The aforementioned details do not entitle for any legal claims, we decline any liability and warranty. The chemical and mechanical resistance only is not sufficient to assess whether a product is suitable or not. The standards have to be considered in particular, as an example, with flammable liquids (explosion protection).

Selection of standard IEC motors



ROTEX® couplings for standard IEC motors, protection class IP 54/IP 55 (spider 92 Shore A)

Size	A. C. motor 50 Hz		Motor power n= 3000 rpm 2 poles		ROTEX® coupling size	Motor power n= 1500 rpm 4 poles		ROTEX® coupling size	Motor power n= 1000 rpm 6 poles		ROTEX® coupling size	Motor power n= 750 rpm 8 poles		ROTEX® coupling size
	Shaft end DWxLW [mm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]	
	2 poles	4, 6, 8 poles												
56	9 x 20		0.09	0.32	g ¹⁾	0.06	0.43	g ¹⁾	0.037	0.43	g ¹⁾			
			0.12	0.41			0.09		0.64			0.045	0.52	
63	11 x 23		0.18	0.62	14	0.12	0.88	14	0.06	0.7	14			
			0.25	0.86			0.18		1.3			0.09	1.1	
71	14 x 30		0.37	1.3	14	0.25	1.8	14	0.18	2	14	0.09	1.4	14
			0.55	1.9			0.37		2.5			0.25	2.8	
80	19 x 40		0.75	2.5	19	0.55	3.7	19	0.37	3.9	19	0.18	2.5	19
			1.1	3.7			0.75		5.1			0.55	5.8	
90S	24 x 50		1.5	5	19	1.1	7.5	19	0.75	8	19	0.37	5.3	19
90L			2.2	7.4			1.5		10			1.1	12	
100L	28 x 60		3	9.8	24	2.2	15	24	1.5	15	24	0.75	11	24
			4	13			3		20			2.2	22	
112M	38 x 80		5.5	18	28	4	27	28	2.2	22	28	1.5	21	28
			7.5	25			5.5		36			3	30	
132M	38 x 80				28	7.5	49	28	4	40	28	3	40	28
												5.5	55	
160M	42 x 110		11	36	38	11	72	38	7.5	75	38	4	54	38
			15	49			15		98			11	109	
160L	48 x 110		18.5	60	42	18.5	121	42	15	148	42	7.5	100	42
180M			22	71			22		144			15	148	
180L	48 x 110				42	30	196	42	18.5	181	42	15	198	42
200L			30	97			30		196			22	215	
225S	55 x 110		37	120	48			48			48			48
							37		240					
225M	55 x 110		45	145	48	45	292	48	30	293	55	22	290	55
250M	60 x 140	65 x 140	55	177			55		356			37	361	
280S	75 x 140		75	241	55	75	484	65 ²⁾	45	438	65 ²⁾	37	483	65 ²⁾
280M			90	289			90		581			55	535	
315S	80 x 170		110	353	65	110	707	75	75	727	75	55	712	75
315M			132	423			132		849			90	873	
315L	65 x 140	80 x 170	160	513	75	160	1030	90	110	1070	90	90	1170	90
			200	641			200		1290			132	1280	
315	85 x 170		250	802	90	250	1600	100	160	1550	100	132	1710	100
			315	1010			315		2020			200	1930	
355	75 x 140	95 x 170	355	1140	90	355	2280	110	250	2410	110	200	2580	110
			400	1280			400		2570			315	3040	
400	80 x 170	110 x 210	500	1600	100	500	3210	125	400	3850	125	315	4060	125
			560	1790			560		3580			450	4330	
450	90 x 170	120 x 210	630	2020	110	630	4030	140	500	4810	140	400	5150	140
			710	2270			710		4540			560	5390	
			800	2560	110	800	5120	160	630	6060	160	500	6420	160
			900	2880			900		5760			710	6830	
			1000	3200		1000	6400		800	7690		630	8090	

The coupling selection is based on an ambient temperature of up to +30 °C. The selection is based on a minimum safety factor of 2 to the max. coupling torque ($T_{K \max}$). A detailed selection is possible according to catalogue page 14 et seqq. Drives with periodical torque curves must be selected according to DIN 740 part 2. If requested, KTR will perform the selection. Torque T = rated torque according to Siemens catalogue M 11 · 1994/95.

¹⁾ For dimensions see ROTEX® GS series

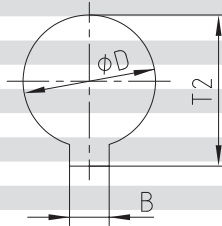
²⁾ For motor hub made of steel see page 40

ROTEX®

Flexible jaw couplings

Inch bores and taper bores

Stock programme of inch bores						Size									
Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)						19	24	28	38	42	48	55	65	75	90
KTR code	Ø bore ["]	Width of keyway ["]	Ø bore [mm]	Width of keyway [mm]	Keyway depth/tolerance +0.381 [mm]	Steel				Cast iron (GJL)					
Tb	3/8	1/8	9.525 ^{+0.0254}	3.175 ^{+0.051}	10.972										
DNB	7/16	3/32	11.112 ^{+0.0254}	2.382 ^{+0.051}	12.293										
T	1/2	3/16	12.7 ^{+0.0254}	4.762 ^{+0.051}	14.757										
Ta	1/2	1/8	12.7 ^{+0.0254}	3.175 ^{+0.051}	14.224	●	●								
DNC	17/32	1/8	13.495 ^{+0.0254}	3.175 ^{+0.051}	15.011										
Do	9/16	1/8	14.287 ^{+0.0254}	3.175 ^{+0.051}	15.824										
E	5/8	1/8	15.875 ^{+0.0254}	3.175 ^{+0.051}	17.424										
Es	5/8	5/32	15.875 ^{+0.0254}	3.968 ^{+0.051}	17.729	●	●	●							
Ed	5/8	3/16	15.875 ^{+0.0254}	4.762 ^{+0.051}	18.008	●	●								
DNH	11/16	3/16	17.462 ^{+0.0254}	4.762 ^{+0.051}	19.634										
Ad	3/4	1/8	19.05 ^{+0.0254}	3.175 ^{+0.051}	20.624										
A	3/4	3/16	19.05 ^{+0.0254}	4.762 ^{+0.051}	21.259	●	●	●	●						
G	7/8	3/16	22.225 ^{+0.0254}	4.762 ^{+0.051}	24.485	●	●	●	●	●					
F	7/8	1/4	22.225 ^{+0.0254}	6.35 ^{+0.051}	25.069		●	●	●	●					
Gf	15/16	1/4	23.812 ^{+0.0254}	6.35 ^{+0.051}	26.695										
H	1	3/16	25.4 ^{+0.0254}	4.762 ^{+0.051}	27.686										
Hs	1	1/4	25.4 ^{+0.0254}	6.35 ^{+0.051}	28.295		●	●	●	●					
R	1 1/16	3/16	26.987 ^{+0.0254}	4.762 ^{+0.051}	29.286										
Sb	1 1/8	1/4	28.575 ^{+0.0254}	6.35 ^{+0.051}	31.521		●	●	●	●					
Sd	1 1/8	5/16	28.575 ^{+0.0254}	7.937 ^{+0.051}	32.105										
Js	1 1/4	1/4	31.75 ^{+0.0254}	6.35 ^{+0.051}	34.721				●						
K	1 1/4	5/16	31.75 ^{+0.0254}	7.937 ^{+0.051}	35.331				●	●	●	●	●	●	
Ma	1 3/8	5/16	34.925 ^{+0.0254}	7.937 ^{+0.051}	38.557				●	●					
RH1	1 3/8	3/8	34.925 ^{+0.0254}	9.525 ^{+0.063}	39.141										
Cb	1 7/16	3/8	36.512 ^{+0.0254}	9.525 ^{+0.063}	40.767										
Ca	1 1/2	5/16	38.1 ^{+0.0254}	7.937 ^{+0.051}	41.783										
C	1 1/2	3/8	38.1 ^{+0.0254}	9.525 ^{+0.0635}	42.392				●	●	●	●	●	●	
Nb	1 5/8	3/8	41.275 ^{+0.0254}	9.525 ^{+0.0635}	45.618				●	●					
Ls	1 3/4	3/8	44.45 ^{+0.0254}	9.525 ^{+0.0635}	48.818										
L	1 3/4	7/16	44.45 ^{+0.0254}	11.112 ^{+0.0635}	49.428										
Lu	1 7/8	1/2	47.625 ^{+0.0254}	12.7 ^{+0.0635}	53.238					●					
Da	1 15/16	1/2	49.212 ^{+0.0254}	12.7 ^{+0.0635}	54.864										
Ds	2	1/2	50.8 ^{+0.0254}	12.7 ^{+0.0635}	56.464										
Pa	2 1/8	1/2	53.975 ^{+0.0381}	12.7 ^{+0.0635}	59.69										
U	2 1/4	1/2	57.15 ^{+0.0381}	12.7 ^{+0.0635}	62.915										
Ub	2 3/8	5/8	60.325 ^{+0.0381}	15.875 ^{+0.076}	67.335										
Wd	3 3/8	7/8	85.725 ^{+0.0381}	22.225 ^{+0.076}	95.504										
Wf	3 5/8	7/8	92.075 ^{+0.0381}	22.225 ^{+0.076}	101.955										

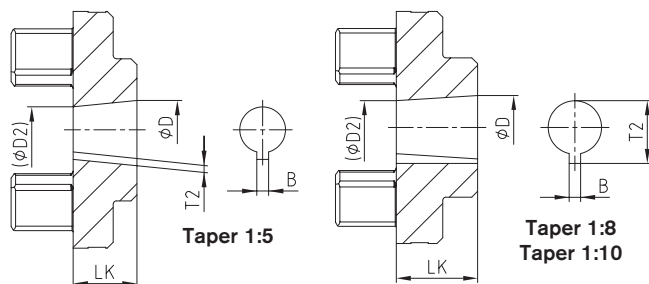


Basic programme taper 1:3					
Code	D ^{+0.05}	(D2)	B ^{JS9}	T2 ^{+0.1}	LK
N/1	9.7	7.575	2.4 ^{+0.05}	10.85	17.0
N/1c	11.6	9.5375	3 ^{JS9}	12.90	16.5
N/1e	13.0	10.375	2.4 ^{+0.05}	13.80	21.0
N/1d	14.0	11.813	3 ^{JS9}	15.50	17.5
N/1b	14.3	11.8625	3.2 ^{+0.05}	15.65	19.5
N/2	17.287	14.287	3.2 ^{+0.05}	18.24	24.0
N/2a	17.287	14.287	4 ^{JS9}	18.94	24.0
N/2b	17.287	14.287	3 ^{JS9}	18.34	24.0
N/3	22.002	18.502	4 ^{JS9}	23.40	28.0
N/4	25.463	20.963	4.78 ^{+0.05}	27.83	36.0
N/4b	25.463	20.963	5 ^{JS9}	28.23	36.0
N/4a	27.0	22.9375	4.78 ^{+0.05}	28.80	32.5
N/4g	28.45	23.6375	6 ^{JS9}	29.32	38.5
N/5	33.176	27.676	6.38 ^{+0.05}	35.39	44.0
N/5a	33.176	27.676	7 ^{JS9}	35.39	44.0

With code N/6 and N/6a keyway in parallel with taper.

Basic programme of taper 1:10					
Code	D ^{+0.05}	(D2)	B ^{JS9}	T2 ^{+0.1}	LK
CX	19.95	16.75	5 ^{JS9}	22.08	32
DX	24.95	20.45	6 ^{JS9}	26.68	45
EX	29.75	24.75	8 ^{JS9}	31.88	50

Basic programme taper 1:5					
Code	D ^{+0.05}	(D2)	B ^{JS9}	T2 ^{+0.1}	LK
A-10	9.85	7.55	2 ^{JS9}	1.0	11.5
B-17	16.85	13.15	3 ^{JS9}	1.8	18.5
C-20	19.85	15.55	4 ^{JS9}	2.2	21.5
Cs-22	21.95	17.65	3 ^{JS9}	1.8	21.5
D-25	24.85	19.55	5 ^{JS9}	2.9	26.5
E-30	29.85	23.55	6 ^{JS9}	2.6	31.5
F-35	34.85	27.55	6 ^{JS9}	2.6	36.5
G-40	39.85	32.85	6 ^{JS9}	2.6	35.0



Cylindrical bores and spline bores

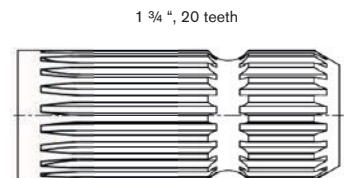
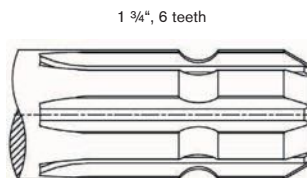
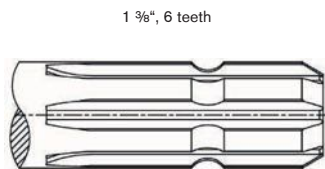
Stock programme of cylindrical finish bores [mm] H7 feather keyway acc. to DIN 6885 sheet 1 [JS9] and setscrew																																									
ROTEX® size	Material	Un-bored	Ø6	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø26	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90	Ø100				
14	Sint	●																																							
	Al-H	●	●	●	●	●	●	●	●	●	●	●																													
19	Sint	●																																							
	Al-D	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
24	St	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Sint	●																																							
28	Al-D	●																																							
	St	●																																							
38	GJL	●																																							
	St	●																																							
42	GJL	●																																							
	St	●																																							
48	GJL	●																																							
	St	●																																							
55	GJL	●																																							
	St	●																																							
65	GJL	●																																							
	St	●																																							
75	GJL	●																																							
	St	●																																							
90	GJL	●																																							
	St	●																																							

Basic programme of SAE involute splines											
Spline code	Size	Pitch circle	pitch	No. of teeth	Angle	Spline code	Size	Pitch circle	pitch	No. of teeth	Angle
PH-S	$\frac{3}{8}$ "	14.28	16/32	9	30°	PS-S	1 $\frac{1}{2}$ "	35.98	12/24	17	30°
PI-S	$\frac{3}{4}$ "	17.46	16/32	11	30°	PD-S	1 $\frac{1}{2}$ "	36.51	16/32	23	30°
PB-S	$\frac{7}{8}$ "	20.63	16/32	13	30°	PE-S	1 $\frac{3}{4}$ "	42.86	16/32	27	30°
PB-BS	1"	23.81	16/32	15	30°	PK-S	1 $\frac{3}{4}$ "	41.275	8/16	13	30°
PJ	1 $\frac{1}{8}$ "	26.98	16/32	17	30°	PT-C ¹⁾	2"	47.625	8/16	15	30°
PC-S	1 $\frac{1}{4}$ "	29.63	12/24	14	30°	PQ-C ¹⁾	2 $\frac{1}{4}$ "	53.975	8/16	17	30°
PA-S	1 $\frac{3}{8}$ "	33.33	16/32	21	30°						

Basic programme of spline bores acc. to DIN 5482										
Size	Pitch circle	Module	No. of teeth	Profile correction	Size	Pitch circle	Module	No. of teeth	Profile correction	
A 17 x 14	14.40	1.6	9	+0.600 ²⁾	A 35 x 31	31.50	1.75	18	+0.676	
A 20 x 17	19.20	1.6	12	-0.2	A 40 x 36	38.00	1.9	20	+0.049	
A 25 x 22	22.40	1.6	14	+0.550	A 45 x 41	44.00	2	22	+0.181	
A 28 x 25	26.25	1.75	15	+0.302	A 50 x 45	48.00	2	24	+0.181	
A 30 x 27	28.00	1.75	16	+0.327						

Basic programme of spline bores acc. to DIN 5480							
Spline code	Pitch circle	Module	No. of teeth	Spline code	Pitch circle	Module	No. of teeth
20 x 1 x 18 x 8H	18.0	1	18	40 x 2 x 18 x 8H	36.0	2	18
20 x 1.25 x 14 x 8H	17.5	1.25	14	45 x 2 x 21 x 8H	41.0	2	21
25 x 1.25 x 18 x 8H	22.5	1.25	18	48 x 2 x 22 x 9H	44.0	2	22
28 x 1.25 x 21 x 8H	26.25	1.25	21	50 x 2 x 24 x 8H	48.0	2	24
30 x 2 x 14 x 8H	26.0	2	14	60 x 2 x 28 x 8H	56.0	2	28
32 x 2 x 14 x 8H	28.0	2	14	75 x 3 x 24 x 8H	72.0	3	24
35 x 2 x 16 x 8H	32.0	2	16	80 x 3 x 25 x 8H	75.0	3	25

Basic programme of spline bores acc. to DIN 9611 - ISO 500 (p.t.o. shaft connection)				
Size	Width of keyway	No. of teeth	Tip circle	Root circle
1 $\frac{3}{8}$ "	8.69	6	34.93	29.65
1 $\frac{3}{8}$ "	-	21	34.95	34.80 ³⁾
1 $\frac{3}{4}$ "	11.07	6	44.45	37.74
1 $\frac{3}{4}$ "	-	20	45.20	40.20



Spline clamping hubs are often adapted to the shafts of hydraulic pump/hydraulic motor shafts. Please contact us for the respective hub length of the spline code!

¹⁾ For clamping hubs only, with plug-in hubs use code PT or PQ.

²⁾ Profile correction different from DIN

³⁾ Similar to code PA-S

COUPLING SELECTION ACCORDING TO DIN 740 PART II WITH SPECIFIC FACTORS

Factors

Temperature factor S_t														
	-50 °C	-40 °C	-30 °C	-20 °C/ +30 °C	≤ +40 °C	≤ +50 °C	≤ +60 °C	≤ +70 °C	≤ +80 °C	≤ +90 °C	≤ +100 °C	≤ +110 °C	≤ +120 °C	≤ +200 °C
ROTEX® GS														
Polyurethane 80 ShA-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	-	-	-	-	-
Polyurethane 92 ShA-GS	-	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 98 ShA-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 57 ShD-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 64 ShD-GS	-	-	-	1.0	1.2	1.3	1.4	1.55	1.8	2.2	3.0	3.0	-	-
Polyurethane 72 ShD-GS	-	-	-	1.0	1.2	1.3	1.4	1.55	1.8	2.2	3.0	3.0	-	-
PUR 52 Sh-D-GS FiPUR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-
Hytrel 64 ShD-H-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.3	2.8	-
Hytrel 72 ShD-H-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.3	2.8	-
TOOLFLEX®														
Size 5 to 12	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	-	-
Size 16 to 65	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
RADEX-NC®														
EK and DK	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
ROTEX® GS HP														
Polyurethane 98 ShA-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-

Operating factor S_g		
ROTEX® GS*		
Backlash-free drives		
Main spindle drive of machine tools		
Moderate shocks	Grinders, small milling machines/drills	2.0 - 5.0
Medium shocks	Milling machines/drills with interrupted cut	1.5 - 2.5
Heavy shocks	Milling machines etc.	2.0 - 3.0
Positioning drives		
Ball screw drive/toothed belt drive		
		2.5 - 4.0
Gearbox	i 3 - ≤ 5	8.0
	i > 5 - ≤ 7	5.0
	i > 7	3.0
Servo-hydraulic drives		
With pulsating load ¹⁾		1.2 - 1.3
With vibratory load ²⁾		1.3 - 1.5
TOOLFLEX®, RADEX-NC		
Uniform motion		1.5
Irregular motion		2.0
Shock motion		2.5 - 4.0
For drives on machine tools (servo motors) values from 1.5 - 2.0 must be applied.		
ROTEX® GS HP		
Main spindle drive		2.0 - 3.0
Starting factor S_z		
Starting frequency per hour		
< 20		1.0
< 60		1.2
< 120		1.4
< 180		1.6
< 240		1.8
> 240		2.0

* When using the spider 64 ShD-GS or 72 ShD-GS a minimum factor of 4 or steel hubs have to be used.

¹⁾ With pulsating load the use of aluminium is permissible.

²⁾ With vibratory load make use of steel hubs.

Shaft encoder drives: Subject to the low torques to be transmitted the coupling size for shaft encoder drives is selected according to the shaft diameters to be connected.

Coupling selection

The coupling selection of the backlash-free servo couplings is based on DIN 740 part 2, but with specific factors. The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible parameters of the coupling. The shaft-hub-connection needs to be verified by the customer.

The size of the coupling must be selected such that the following conditions are met.

1. Backlash-free drives

$$T_{KN} \geq T_N \cdot S_t \cdot S_B$$

and

$$T_{KN} \geq T_S \cdot S_t \cdot S_B$$

$$\text{In case of load torque: } T_{KN} \geq T_S \cdot S_t \cdot S_B + T_N \cdot S_t$$

Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the rated torque of the machine T_N .

Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the peak torque arising.

The following applies for the peak torque T_S :

$$T_S = T_{AS} \cdot M_A \cdot S_z \quad \longrightarrow \quad M_A = \frac{J_L}{(J_A + J_L)}$$

2. Servo-hydraulic drives

$$T_{KN} \geq T_{AS} \cdot S_t \cdot S_B$$

Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the peak torque of the driving side T_{AS} .

$S_t \cdot S_B$ with use of aluminium at least 1.5.

Please note:

For general applications (not backlash-free applications) observe coupling selection according to DIN 740 part 2 (page 14 et seqq.).

ROTEX®

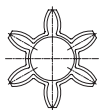
Flexible jaw couplings

Properties of standard spiders

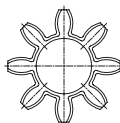
ROTEX® 14



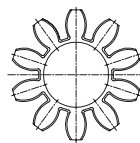
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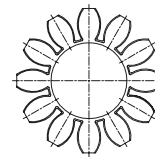
ROTEX® 24 - 65



ROTEX® 75 - 160








ROTEX® 180



Degree of hardness



Spider type (Shore hardness)	92 Shore A (T-PUR®)	92 Shore A
	 T-PUR®	
Size	14 to 180	14 to 90
Material	T-PUR®	Polyurethane (PUR)
Permissible temperature range		
Permanent temperature	-40 °C to +120 °C	-40 °C to +90 °C
Short-term temperature	-40 °C to +150 °C	-40 °C to +120 °C
Properties	<ul style="list-style-type: none"> – significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – good damping, medium flexibility – suitable for all hub materials 	<ul style="list-style-type: none"> – good damping, medium flexibility – suitable for all hub materials
Spider type (Shore hardness)	98 Shore A (T-PUR®) ¹⁾	98 Shore A ¹⁾
	 T-PUR®	
Size	14 to 180	14 to 90
Material	T-PUR®	Polyurethane (PUR)
Permissible temperature range		
Permanent temperature	-40 °C to +120 °C	-30 °C to +90 °C
Short-term temperature	-40 °C to +150 °C	-40 °C to +120 °C
Properties	<ul style="list-style-type: none"> – significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – transmission of high torques with average damping – recommended hub material: steel, GJL and GJS 	<ul style="list-style-type: none"> – transmission of high torques with average damping – recommended hub material: steel, GJL and GJS
Spider type (Shore hardness)	64 Shore D (T-PUR®)	
	 T-PUR®	
Size	14 to 180	
Material	T-PUR®	
Permissible temperature range		
Permanent temperature	-40 °C to +120 °C	
Short-term temperature	-40 °C to +150 °C	
Properties	<ul style="list-style-type: none"> – significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – transmission of very high torques with low damping – recommended hub material: steel and GJS 	

Technical data of standard spiders

92 Shore A spider made of T-PUR® and PUR															
ROTEX® size	Max. speed		Torsion angle ϕ with		Torque [Nm]				Damping power F _{KW} [W] ³⁾	Relative damping ψ	Resonance factor V _R	Torsion spring stiffness C dyn. [Nm/rad]			
	v=35 m/s cast material	v=40 m/s steel	T _{KN}	T _{K max}	DIN 740 ¹⁾			T _{K max} ²⁾				1.0 T _{KN}	0.75 T _{KN}	0.5 T _{KN}	0.25 T _{KN}
					Rated T _{KN}	Max. T _{K max}	Vibratory T _{KW}								
14	22200	25400	6.4°	10°	7.5	15	2.0	22.5	—			0.38x10 ³	0.31x10 ³	0.24x10 ³	0.14x10 ³
19	16700	19000			10	20	2.6	30	4.8			1.28x10 ³	1.05x10 ³	0.8x10 ³	0.47x10 ³
24	12100	13800			35	70	9.1	105	6.6			4.86x10 ³	3.98x10 ³	3.01x10 ³	1.79x10 ³
28	10100	11500			95	190	25	285	8.4			10.9x10 ³	8.94x10 ³	6.76x10 ³	4.01x10 ³
38	8300	9500			190	380	49	570	10.2			21.05x10 ³	17.26x10 ³	13.05x10 ³	7.74x10 ³
42	7000	8000			265	530	69	795	12.0			23.74x10 ³	19.47x10 ³	14.72x10 ³	8.73x10 ³
48	6350	7250			310	620	81	930	13.8			36.7x10 ³	30.09x10 ³	22.75x10 ³	13.49x10 ³
55	5550	6350			410	820	107	1230	15.6			50.7x10 ³	41.59x10 ³	31.45x10 ³	18.64x10 ³
65	4950	5650	3.2°	5°	625	1250	163	1875	18.0	0.80	7.90	97.1x10 ³	79.65x10 ³	60.2x10 ³	35.7x10 ³
75	4150	4750			1280	2560	333	3840	21.6			113.3x10 ³	92.9x10 ³	70.3x10 ³	41.65x10 ³
90	3300	3800			2400	4800	624	7200	30.0			190.1x10 ³	155.9x10 ³	117.9x10 ³	69.9x10 ³
100	2950	3350			3300	6600	858	9900	36.0			253.1x10 ³	207.5x10 ³	156.9x10 ³	93x10 ³
110	2600	2950			4800	9600	1248	14400	42.0			415.5x10 ³	336.9x10 ³	257.6x10 ³	177.4x10 ³
125	2300	2600			6650	13300	1729	19950	48.0			647.7x10 ³	537.3x10 ³	412.2x10 ³	277.5x10 ³
140	2050	2350			8550	17100	2223	25650	54.6			813.4x10 ³	670.2x10 ³	519.7x10 ³	351.7x10 ³
160	1800	2050			12800	25600	3328	38400	75.0			1298x10 ³	1104x10 ³	901.9x10 ³	655.7x10 ³
180	1550	1800			18650	37300	4849	55950	78.0			2327x10 ³	1981x10 ³	1618x10 ³	1176x10 ³

98 Shore A spider made of T-PUR® and PUR															
ROTEX® size	Max. speed		Torsion angle ϕ with		Torque [Nm]				Damping power F _{KW} [W] ³⁾	Relative damping ψ	Resonance factor V _R	Torsion spring stiffness C dyn. [Nm/rad]			
	v=35 m/s cast material	v=40 m/s steel	T _{KN}	T _{K max}	DIN 740 ¹⁾			T _{K max} ²⁾				1.0 T _{KN}	0.75 T _{KN}	0.5 T _{KN}	0.25 T _{KN}
					Rated T _{KN}	Max. T _{K max}	Vibratory T _{KW}								
14	22200	25400	6.4°	10°	12.5	25	3.3	37.5	—			0.56x10 ³	0.46x10 ³	0.35x10 ³	0.21x10 ³
19	16700	19000			17	34	4.4	51	4.8			2.92x10 ³	2.39x10 ³	1.81x10 ³	1.07x10 ³
24	12100	13800			60	120	16	180	6.6			9.93x10 ³	8.14x10 ³	6.16x10 ³	3.65x10 ³
28	10100	11500			160	320	42	480	8.4			26.77x10 ³	21.95x10 ³	16.6x10 ³	9.84x10 ³
38	8300	9500			325	650	85	975	10.2			48.57x10 ³	39.83x10 ³	30.11x10 ³	17.85x10 ³
42	7000	8000			450	900	117	1350	12.0			54.5x10 ³	44.69x10 ³	33.79x10 ³	20.03x10 ³
48	6350	7250			525	1050	137	1575	13.8			65.3x10 ³	53.54x10 ³	40.48x10 ³	24x10 ³
55	5550	6350			685	1370	178	2055	15.6			95x10 ³	77.9x10 ³	58.88x10 ³	34.9x10 ³
65	4950	5650	3.2°	5°	940	1880	244	2820	18.0	0.80	7.90	129.5x10 ³	106.2x10 ³	80.3x10 ³	47.6x10 ³
75	4150	4750			1920	3840	499	5760	21.6			197.5x10 ³	162x10 ³	122.5x10 ³	72.6x10 ³
90	3300	3800			3600	7200	936	10800	30.0			312.2x10 ³	256x10 ³	193.6x10 ³	114.7x10 ³
100	2950	3350			4950	9900	1287	14850	36.0			383.3x10 ³	314.3x10 ³	237.6x10 ³	140.9x10 ³
110	2600	2950			7200	14400	1872	21600	42.0			805.9x10 ³	663.1x10 ³	515.3x10 ³	360.5x10 ³
125	2300	2600			10000	20000	2600	30000	48.0			1207x10 ³	1003x10 ³	773.1x10 ³	552.5x10 ³
140	2050	2350			12800	25600	3328	38400	54.6			1549x10 ³	1283x10 ³	979.8x10 ³	674.1x10 ³
160	1800	2050			19200	38400	4992	57600	75.0			2481x10 ³	2137x10 ³	1781x10 ³	1275x10 ³
180	1550	1800			28000	56000	7280	84000	78.0			4220x10 ³	3635x10 ³	3031x10 ³	2170x10 ³

64 Shore D spider made of T-PUR®															
ROTEX® size	Max. speed		Torsion angle ϕ with		Torque [Nm]				Damping power F _{KW} [W] ³⁾	Relative damping ψ	Resonance factor V _R	Torsion spring stiffness C dyn. [Nm/rad]			
	v=35 m/s cast material	v=40 m/s steel	T _{KN}	T _{K max}	DIN 740 ¹⁾			T _{K max} ²⁾				1.0 T _{KN}	0.75 T _{KN}	0.5 T _{KN}	0.25 T _{KN}
					Rated T _{KN}	Max. T _{K max}	Vibratory T _{KW}								
14	22200	25400	4.5°	7.0°	16	32	4.2	48	9.0			0.76x10 ³	0.62x10 ³	0.47x10 ³	0.28x10 ³
19	16700	19000			21	42	5.5	63	7.2			5.35x10 ³	4.39x10 ³	3.32x10 ³	1.97x10 ³
24	12100	13800			75	150	19.5	225	9.9			15.11x10 ³	12.39x10 ³	9.37x10 ³	5.55x10 ³
28	10100	11500			200	400	52	600	12.6			27.52x10 ³	22.57x10 ³	17.06x10 ³	10.12x10 ³
38	8300	9500			405	810	105	1215	15.3			70.15x10 ³	57.52x10 ³	43.49x10 ³	25.78x10 ³
42	7000	8000			560	1120	146	1680	18.0			79.9x10 ³	65.5x10 ³	49.52x10 ³	29.35x10 ³
48	6350	7250			655	1310	170	1965	20.7			95.5x10 ³	78.3x10 ³	59.22x10 ³	35.1x10 ³
55	5550	6350			825	1650	215	2475	23.4			107.9x10 ³	88.5x10 ³	66.9x10 ³	39.66x10 ³
65	4950	5650	2.5°	3.6°	1175	2350	306	3525	27.0	0.75	8.50	151.1x10 ³	123.9x10 ³	93.7x10 ³	55.53x10 ³
75	4150	4750			2400	4800	624	7200	32.4			248.2x10 ³	203.5x10 ³	153.9x10 ³	91.2x10 ³
90	3300	3800			4500	9000	1170	13500	45.0			674.5x10 ³	553.1x10 ³	418.2x10 ³	247.9x10 ³
100	2950	3350			6185	12370	1608	18555	54.0			861.2x10 ³	706.2x10 ³	533.9x10 ³	316.5x10 ³
110	2600	2950			9000	18000	2340	27000	63.0			1230x10 ³	1001x10 ³	773.1x10 ³	531.4x10 ³
125	2300	2600			12500	25000	3250	37500	72.0			1749x10 ³	1436x10 ³	1149x10 ³	832.1x10 ³
140	2050	2350			16000	32000	4160	48000	81.9			2312x10 ³	1929x10 ³	1521x10 ³	1082x10 ³
160	1800	2050			24000	48000	6240	72000	112.5			3415x10 ³	2961x10 ³	2471x10 ³	1830x10 ³
180	1550	1800			35000	70000	9100	105000	117.0			5670x10 ³	4917x10 ³	4103x10 ³	3038x10 ³

¹⁾ see catalogue page 15

²⁾ ≤ 1000 load cycles

³⁾ with +30 °C

Temperature factor S _t										
	-40 °C +30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C
T-PUR®	1.0	1.0	1.2	1.3	1.45	1.6	1.8	2.1	2.5	3.0
PUR	1.0	1.0	1.3	1.4	1.55	1.8	2.2	—	—	—

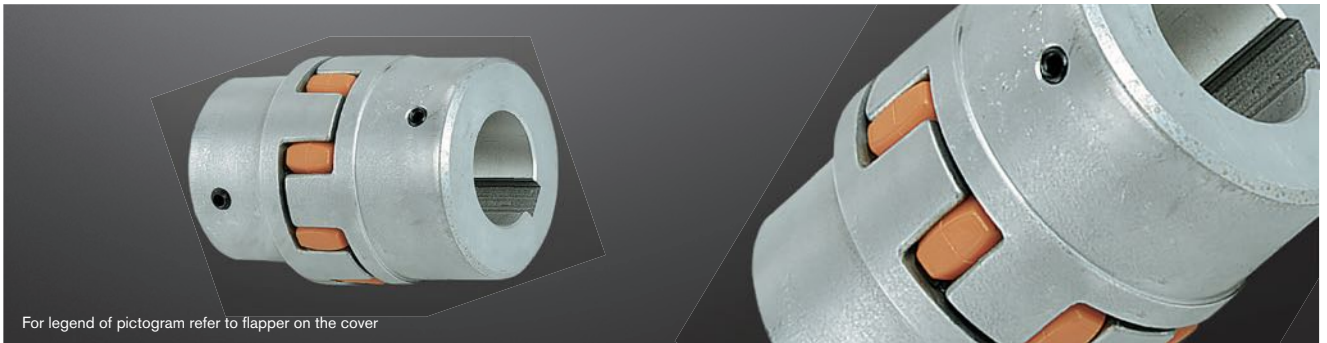
With temperatures below -40 °C please consult with KTR.

Unless the Shore hardness of spider is explicitly specified in your order, we will supply spiders with Shore hardness 92 Shore A T-PUR®.

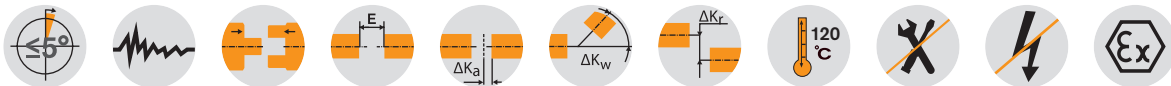
For circumferential speeds exceeding v = 30 m/s dynamic balancing is required. For circumferential speeds exceeding v = 35 m/s only steel or nodular iron.

ROTEX® Standard Flexible jaw couplings

Materials: aluminium + cast + sinter material



For legend of pictogram refer to flapper on the cover



ROTEX® Sintered steel (Sint)																		
Size	Component	Spider ¹⁾ (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]										Setscrew		
		92 ShA	98 ShA	64 ShD		General										G	T	T _A [Nm]
					L	L1, L2	E	B1	S	DH	DI1	DN	N					
14	1a	7.5	12.5	—	0-16	35	11	13	10	1.5	30	10	30	—	M4	5	1.5	
19	1a	10	17	—	0-24	66	25	16	12	2.0	40	18	40	—	M5	10	2	
24	1a	35	60	—	0-28	78	30	18	14	2.0	56	27	56	—	M5	10	2	

ROTEX® Aluminium diecast (Al-D)																	
Size	Component	92 ShA	98 ShA	64 ShD	Finish bore D (min. - max.)	L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T _A [Nm]
19	1 1a	10	17	—	0-19 19-24	66	25	16	12	2	41	18	32 41	20	M5	10	2
24	1 1a	35	60	—	0-24 22-28	78	30	18	14	2	56	27	40 56	24	M5	10	2
28	1 1a	95	160	—	0-28 28-38	90	35	20	15	2.5	66	30	48 66	28	M8	15	10

ROTEX® Aluminium (Al-H)																	
Size	Component	92 ShA	98 ShA	64 ShD	Finish bore D (min. - max.)	L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T _A [Nm]
14	1a	7.5	12.5	16	0-16	35	11	13	10	1.5	30	10.5	-	-	M4	5	1.5
19	1a	10	17	26	0-24	66	25	16	12	2.0	40	18	-	-	M5	10	2
24	1a	35	60	75	0-28	78	30	18	14	2.0	55	27	-	-	M5	10	2
28	1a	95	160	200	0-38	90	35	20	15	2.5	65	30	-	-	M8	15	10
38	1a	190	325	405	0-45	114	45	24	18	3.0	80	38	-	-	M8	15	10
42	1a	265	450	560	0-55	126	50	26	20	3.0	95	46	-	-	M8	20	10
48	1a	310	525	655	0-62	140	56	28	21	3.5	105	51	-	-	M8	20	10

The coupling is provided with a ROTEX® GS spider as a standard (ROTEX® standard spider available, if requested).

ROTEX® Cast iron (GJL)																	
Size	Component	92 ShA	98 ShA	64 ShD	Finish bore D (min. - max.)	L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T _A [Nm]
38	1	190	325	405	12-40	114	45	24	18	3	80	38	66	37	M8	15	10
	38-48				78												
42	1	265	450	560	12-48	126	50	26	20	3	95	46	75	40	M8	20	10
	14-45				94												
48	1	310	525	655	14-55	140	56	28	21	3.5	105	51	85	45	M8	20	10
	15-52				104												
55	1	410	685	825	15-62	160	65	30	22	4	120	60	98	52	M10	20	17
	15-62				118												
65	1	625	940	1175	20-60	185	75	35	26	4.5	135	68	115	61	M10	20	17
75	1	1280	1920	2400	20-60	210	85	40	30	5	160	80	135	69	M10	25	17
90	1	2400	3600	4500	55-74	245	100	45	34	5.5	200	100	160	81	M12	30	40

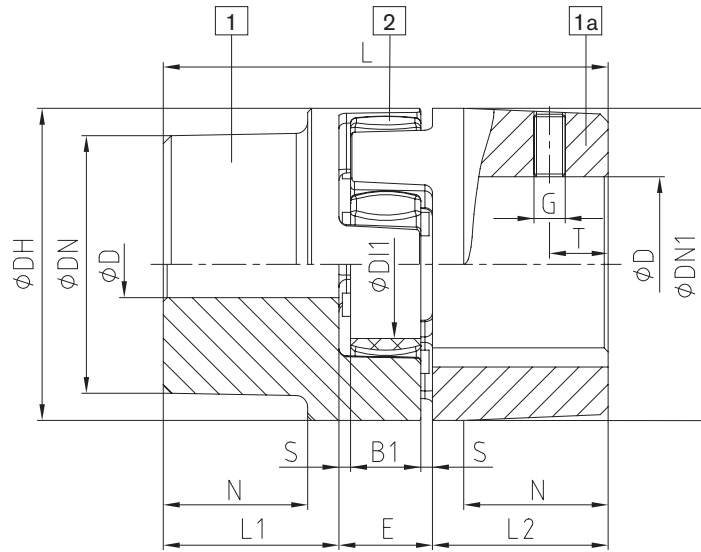
ROTEX® Nodular iron (GJS)																	
Size	Component	92 ShA	98 ShA	64 ShD	Finish bore D (min. - max.)	L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T _A [Nm]
100	1	3300	4950	6185	50-115	270	110	50	38	6	225	113	180	89	M12	30	40
110	1	4800	7200	9000	60-125	295	120	55	42	6.5	255	127	200	96	M16	35	80
125	1	6650	10000	12500	60-145	340	140	60	46	7	290	147	230	112	M16	40	80
140	1	8550	12800	16000	60-160	375	155	65	50	7.5	320	165	255	124	M20	45	140
160	1	12800	19200	24000	80-185	425	175	75	57	9	370	190	290	140	M20	50	140
180	1	18650	28000	35000	85-200	475	195	85	64	10.5	420	220	325	156	M20	50	140

■ = Unless any material is specified in the order, it is defined with the calculation/order.

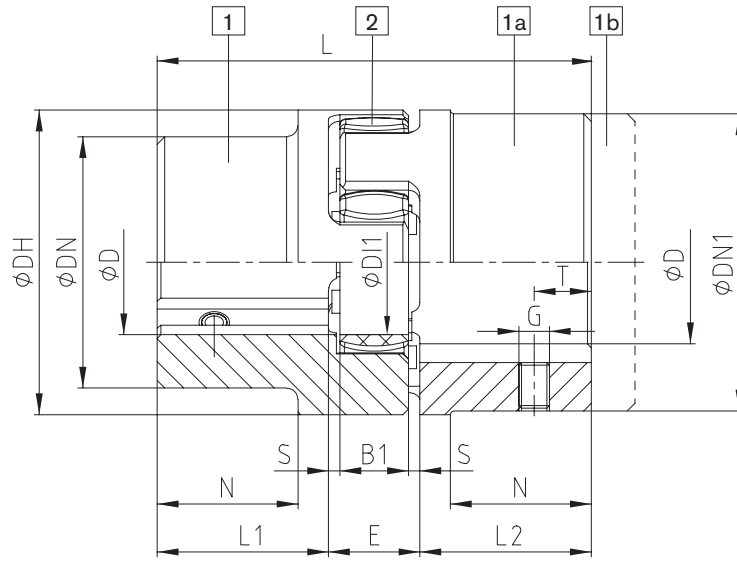
¹⁾ Maximum torque of the coupling T_{K max} = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

Ordering example:	ROTEX® 38	GJL	92 ShA	1a	Ø45	1	Ø25
	Coupling size	Material	Spider hardness	Component	Finish bore	Component	Finish bore

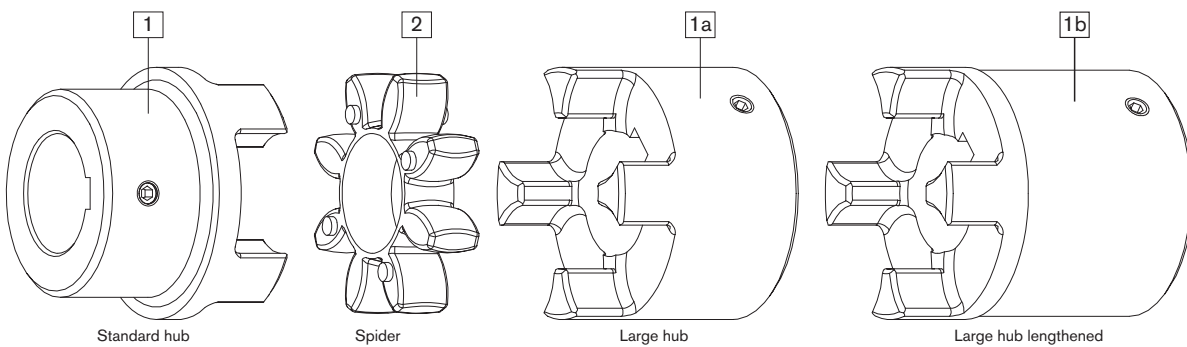
Components



AI-D (thread opposite the keyway)

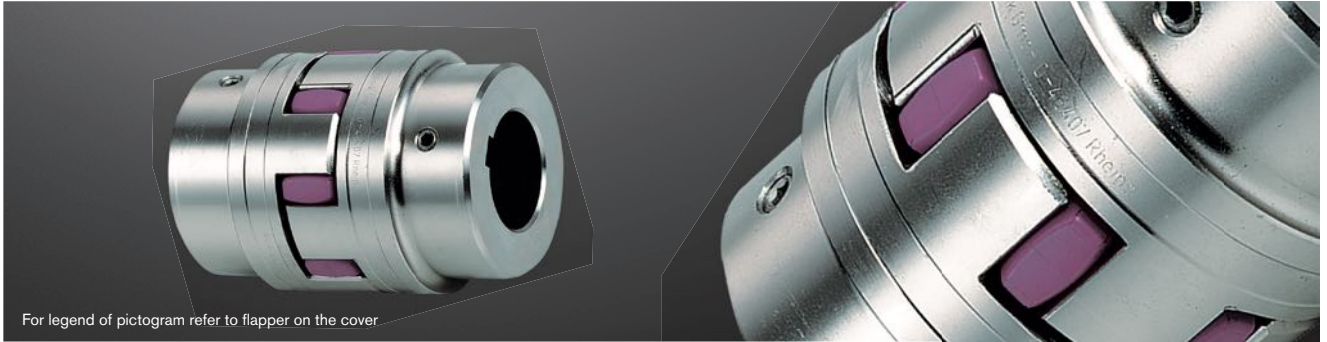


GJL / GJS (thread on the keyway)

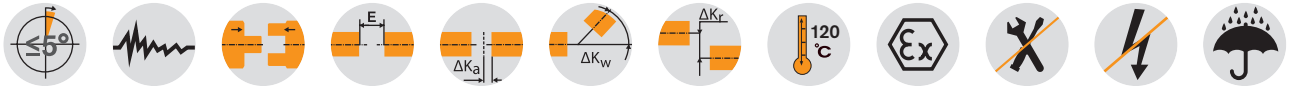


ROTEX® Standard Flexible jaw couplings

Material steel/stainless steel



For legend of pictogram refer to flapper on the cover.



ROTEX® Steel (St)																		
Size	Component	Spider ¹⁾ (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]										Setscrew		
		92 ShA	98 ShA	64 ShD		General										G	T	T _A [Nm]
						L	L1, L2	E	B1	S	DH	DI1	DN	N				
14	1a	7.5	12.5	16	0-16	35	11	13	10	1.5	30	10	30	-	M4	5	1.5	
	50					18.5												
19	1a	10	17	21	0-25	66	25	16	12	2	40	18	40	-	M5	10	2	
	90					37												
24	1a	35	60	75	0-35	78	30	18	14	2	55	27	55	-	M5	10	2	
	118					50												
28	1a	95	160	200	0-40	90	35	20	15	2.5	65	30	65	-	M8	15	10	
	140					60												
38	1	190	325	405	0-48	114	45	24	18	3	80	38	70	27	M8	15	10	
	164					70	80						-					
42	1	265	450	560	0-55	126	50	26	20	3	95	46	85	28	M8	20	10	
	176					75	95						-					
48	1	310	525	655	0-62	140	56	28	21	3.5	105	51	95	32	M8	20	10	
	188					80	105						-					
55	1	410	685	825	0-75	160	65	30	22	4	120	60	110	37	M10	20	17	
	210					90	120						-					
65	1	625	940	1175	0-80	185	75	35	26	4.5	135	68	115	47	M10	20	17	
	235					100	135						-					
75	1	1280	1920	2400	0-95	210	85	40	30	5	160	80	135	53	M10	25	17	
	260					110	160						-					
90	1	2400	3600	4500	0-110	245	100	45	34	5.5	200	100	160	62	M12	30	40	
	295					125	200						-					
100	1	3300	4950	6185	0-115	270	110	50	38	6	225	113	180	89	M12	30	40	
110	1	4800	7200	9000	0-125	295	120	55	42	6.5	255	127	200	96	M16	35	80	
125	1	6650	10000	12500	60-145	340	140	60	46	7	290	147	230	112	M16	40	80	
140	1	8550	12800	16000	60-160	375	155	65	50	7.5	320	165	255	124	M20	45	140	
160	1	12800	19200	24000	80-185	425	175	75	57	9	370	190	290	140	M20	50	140	
180	1	18650	28000	35000	85-200	475	195	85	64	10.5	420	220	325	156	M20	50	140	

■ = Unless any material is specified in the order, it is defined with the calculation/order.

¹⁾ Maximum torque of the coupling T_{K max} = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

ROTEX® Stainless steel																		
Size	Material	Spider (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]										Setscrew		
		92 ShA	98 ShA	64 ShD		General										G	T	T _A [Nm]
						L	L1, L2	E	B1	S	DH	DI1	DN	N				
19	1.4305	10	17	21	0-25	66	25	16	12	2	40	18	40	-	M5	10	2	
24	1.4305	35	60	75	0-35	78	30	18	14	2	55	27	55	-	M5	10	2	
28	1.4305	95	160	200	0-40	90	35	20	15	2.5	65	30	65	-	M8	15	10	
38	1.4305	190	325	405	0-48	114	45	24	18	3	80	38	70	27	M8	15	10	
42	1.4305	265	450	560	0-55	126	50	26	20	3	95	46	85	28	M8	20	10	
48	1.4305	310	525	655	0-62	140	56	28	21	3.5	105	51	95	32	M8	20	10	

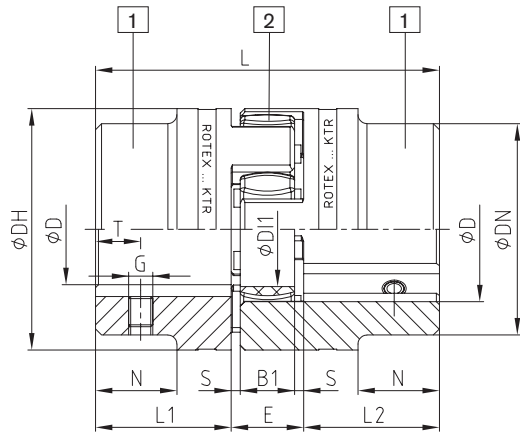
Material 1.4571 on request.

Ordering example:	ROTEX® 38	1.4305	92 ShA	1 - Ø45	1 - Ø25
	Coupling size	Material	Spider hardness	Component Finish bore	Component Finish bore

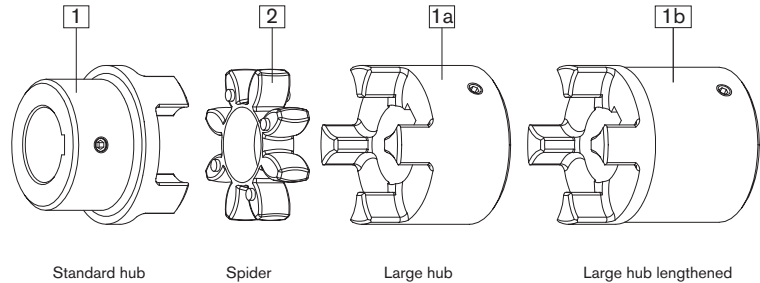
ROTEX® Flexible jaw couplings

DIN EN 10204 - 3.1 and 3.2 material test certificate

Components



Steel (thread on the keyway)



ROTEX® Coupling hubs with test certificate ¹⁾				
Size	Component	Material ²⁾	Inspection certificate acc. to DIN EN 10204	Notch impact strength
19	1a	S355 ²⁾	3.1	>=27 J
24	1a	S355 ²⁾	3.1	>=27 J
28	1a	S355 ²⁾	3.1	>=27 J
38	1a	S355 ²⁾	3.1	>=27 J
42	1	S355 ²⁾	3.1	>=27 J
48	1	S355 ²⁾	3.1	>=27 J
55	1	S355 ²⁾	3.1	>=27 J
65	1	S355 ²⁾	3.1	>=27 J
75	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
90	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
100	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
110	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
120	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
140	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
160	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		
180	1	S355 ²⁾	3.1/3.2	>=27 J
		42CrMoS4+QT ³⁾		

¹⁾ S355 suitable for feather key connections, 42CrMoS4+QT for oil press-fits

²⁾ Notch impact strength with -40 °C

³⁾ Notch impact strength with -20 °C

Marine programme:

Hub materials S355J2+N and 42CrMo4+QT acc. to DIN EN 10204 - 3.1+3.2, size 75 - 180 available from stock.



UL



Use in fire pumps

ROTEX® couplings comply with the specifications of NFPA 20 standard for the installation of stationary pumps for fire protection and due to completion of the endurance tests required they also comply with the specifications of UL 448A, flexible couplings and connection shafts for stationary fire pumps.

Sizes available:

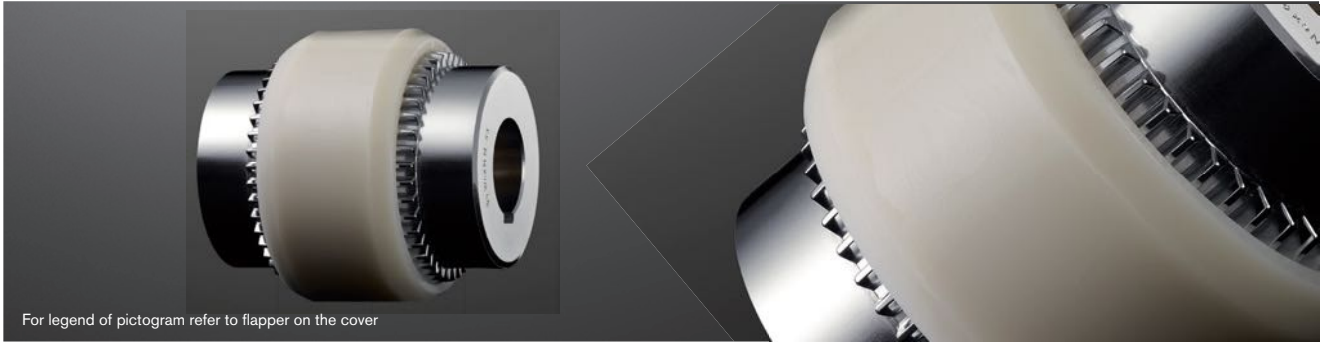


ROTEX® UL Listed								
Size	Component	Material	Spider (component 2) Rated torque [Nm] 92 ShA	Dimensions [mm]				
				Finish bore D (min. - max.)	L	L1, L2	E	DH
42	1	St	265	18-55	126	50	26	95
55	1	St	410	24-74	160	65	30	120
65	1	St	625	24-80	185	75	35	135
75	1	St	1280	24-95	210	85	40	160
90	1	St	2400	30-110	245	100	45	200

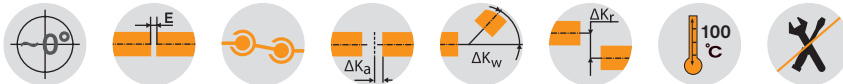
* for complete dimensions see table on page 40

BoWex® M, I Curved-tooth gear coupling®

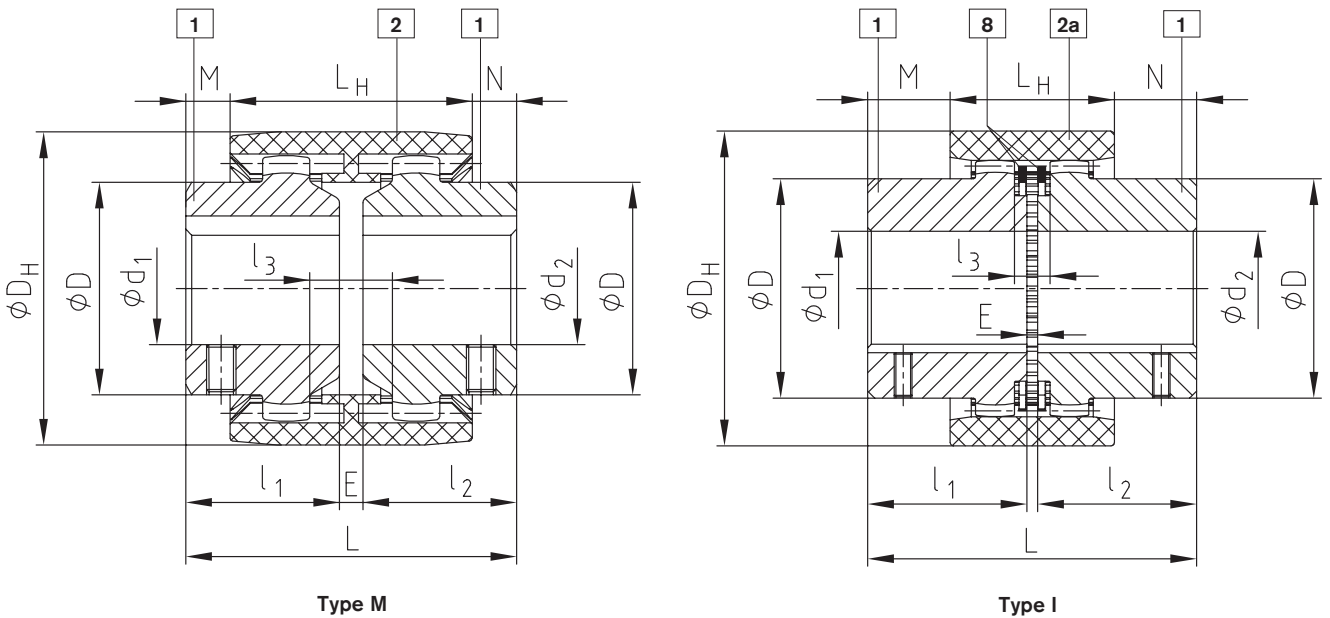
Compact and maintenance-free



For legend of pictogram refer to flapper on the cover



Components

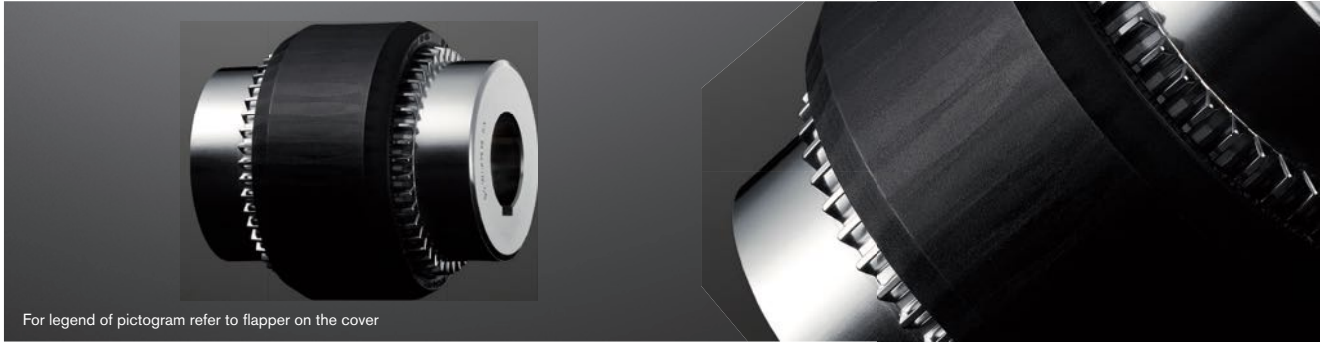


BoWex® type M, type I																						
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm ²]		
	T _{KN}	T _{K max.}	T _{KW}	Pilot bored	Max.	l ₁ , l ₂	E	L	L _H	M, N	l ₃	D	D _H	Tip circle ØD _Z hub	Number of teeth	Hub lengthened max. l ₁ , l ₂	Sleeve	Hub	Total	Sleeve	Hub	Total
M-14	10	30	5	-	15	23	4	50	37	6.5	10	25	40	33	20	40	0.03	0.07	0.1	0.08	0.09	0.26
M-19	16	48	8	-	20	25	4	54	37	8.5	10	32	47	39	24	40	0.03	0.1	0.23	0.15	0.16	0.47
M-24	20	60	10	-	24	26	4	56	41	7.5	14	36	53	45	28	50	0.04	0.14	0.32	0.21	0.36	0.93
M-28	45	135	23	-	28	40	4	84	46	19	13	44	65	54	34	55	0.08	0.33	0.74	0.65	1.22	3.09
M-32	60	180	30	-	32	40	4	84	48	18	13	50	75	63	40	55	0.09	0.43	0.95	1.14	2.17	5.48
M-38	80	240	40	-	38	40	4	84	48	18	13	58	83	69	44	60	0.13	0.55	1.23	1.58	3.55	8.68
M-42	100	300	50	-	42	42	4	88	50	19	13	65	92	78	50	60	0.14	0.68	1.5	2.32	5.98	14.28
M-48	140	420	70	-	48	50	4	104	50	27	13	68	95	78	50	60	0.23	0.79	1.81	3.9	7.22	18.34
M-65	380	1140	190	21	65	55	4	114	68	23	16	96	132	110	42	70	0.55	1.9	4.35	21.2	31.8	84.8
I-80	700	2100	350	31	90	90	6	186	93	46.5	20	124	178	145	46	-	1.13	5.2	11.53	68.9	150.8	370.5
I-100	1200	3600	600	38	100	110	8	228	102	63	22	152	210	176	48	-	1.78	9.37	20.52	158.6	401.3	961.2
I-125	2500	7500	1250	45	125	140	10	290	134	78	30	192	270	225	54	-	3.88	19.44	42.76	562.9	1362.3	3287.5

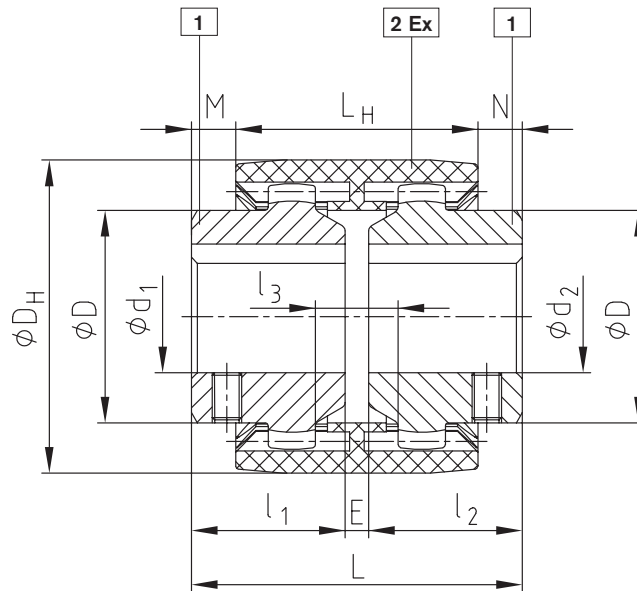
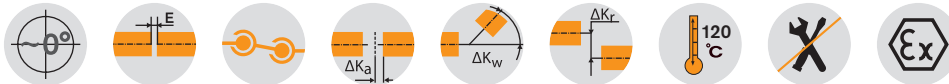
Ordering example:	BoWex® M-28	d ₁ Ø20	d ₂ Ø28
	Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex® M...C Curved-tooth gear coupling®

Compact and maintenance-free



For legend of pictogram refer to flapper on the cover



Type M...C

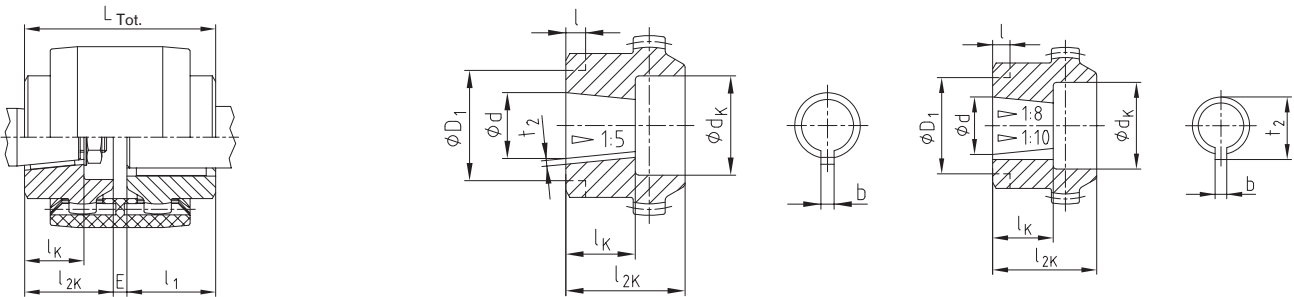
BoWex® Type M...C																								
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]													Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm ²]		
	T _{KN}	T _{K max.}	T _{KW}	Pilot bored	Max.	l ₁ , l ₂	E	L	L _H	M, N	l ₃	D	D _H	Tip circle ØD _Z hub	Number of teeth	Hub lengthened max. l ₁ , l ₂	Sleeve	Hub	Total	Sleeve	Hub	Total		
M-14C	15	45	7,5	-	15	23	4	50	37	6,5	10	25	40	33	20	40	0.03	0.07	0.1	0.08	0.09	0.26		
M-19C	24	72	12	-	20	25	4	54	37	8,5	10	32	47	39	24	40	0.03	0.1	0.23	0.15	0.16	0.47		
M-24C	30	90	15	-	24	26	4	56	41	7,5	14	36	53	45	28	50	0.04	0.14	0.32	0.21	0.36	0.93		
M-28C	70	210	35	-	28	40	4	84	46	19	13	44	65	54	34	55	0.08	0.33	0.74	0.65	1.22	3.09		
M-32C	90	270	45	-	32	40	4	84	48	18	13	50	75	63	40	55	0.09	0.43	0.95	1.14	2.17	5.48		
M-38C	120	360	60	-	38	40	4	84	48	18	13	58	83	69	44	60	0.13	0.55	1.23	1.58	3.55	8.68		
M-48C	200	600	100	-	48	50	4	104	50	27	13	68	95	78	50	60	0.23	0.79	1.81	3.9	7.22	18.34		
M-65C	560	1680	280	21	65	55	4	114	68	23	16	96	132	110	42	70	0.55	1.9	4.35	21.2	31.8	84.8		
M-80C	1000	3000	500	31	90	90	6	186	93	46.5	20	124	178	145	46	-	1.13	5.2	11.53	68.9	150.8	370.5		

Ordering example:	BoWex® M-28C	d ₁ Ø20	d ₂ Ø28
	Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex® Curved-tooth gear coupling®

Taper bores

BoWex® with taper bore



$$L_{Tot} = l_1 + E + l_{2K}$$

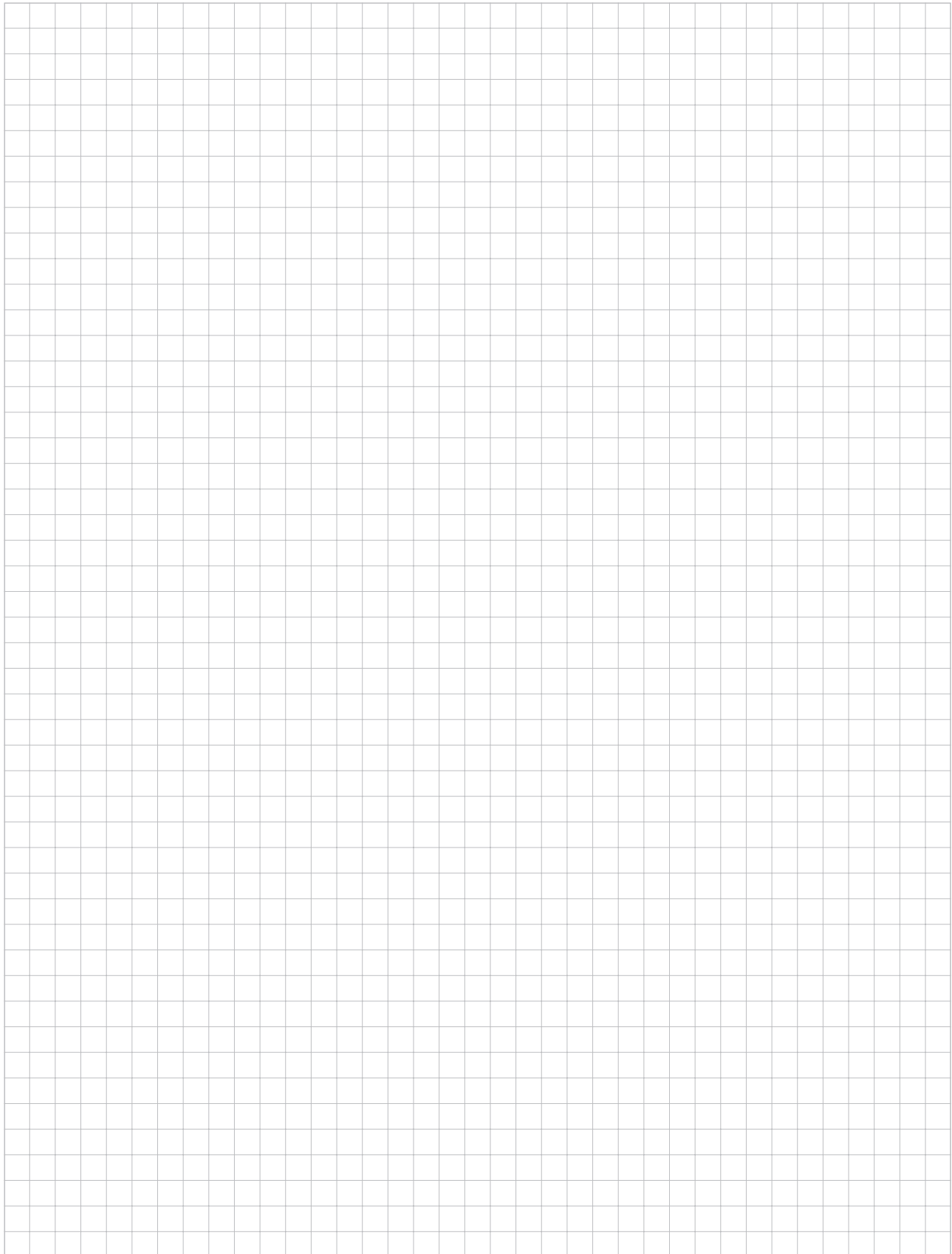
see stock programme on page 90

Taper bores 1:5																							
Dimensions [mm]					Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar $D_1 \times l$ [mm]																		
Code	Details of bores				14		19		24		28		32		38		42		48		65		
	$d^{+0.05}$	b^{J59}	$t_2^{+0.1}$	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	
A-10	9.85	2	1.0	11.5	18	23	18	25	25	26	25	26	25	26	25	26							
B-17	16.85	3	1.8	18.5			30 x 7	30 x 7	30 x 7	30 x 5					30 x 5								
C-20	19.85	4	2.2	21.5					28	36	36	40	36	40	36	40	45	42	45	42	45	50	
Cs-22	21.95	3	1.8	21.5					28	36	36	40	36	40	36	40	45	42	45	42			
D-25	24.85	5	2.9	26.5							36	40	36	40	36	40	45	42	45	42	45	50	
E-30	29.85	6	2.6	31.5											45	55	45	55	45	55	45	55	
F-35	34.85	6	2.6	36.5																52	60	55	60
G-40	39.85	6	2.6	41.5																52	60	65	70

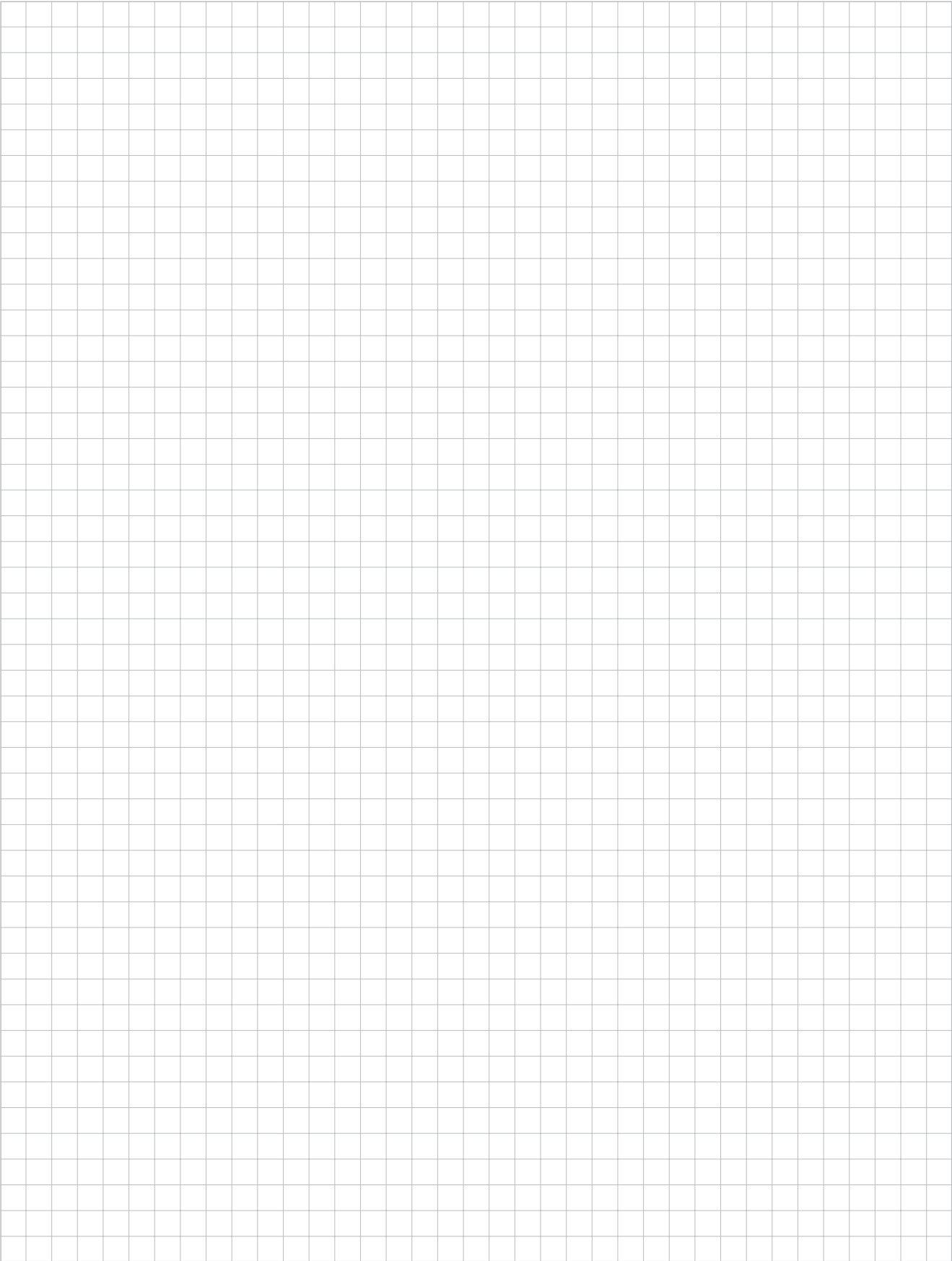
Taper bores 1:8																						
Dimensions [mm]					Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar $D_1 \times l$ [mm]																	
Code	Details of bores				14		19		24		28		32		38		42		48		65	
	$d^{+0.05}$	b^{J59}	$t_2^{+0.1}$	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}
N/1	9.7 ± 0.015	2.4 ^{+0.05}	10.85	17	18	26	18	25	25	26	25	30	25	30	25	30						
N/1c	11.6	3 ^{J59}	12.90	16.5	18	23			25	26	25	30										
N/1e	13	2.4 ^{+0.05}	13.80	21					25	30	25	30			25	30						
N/1d	14	3 ^{J59}	15.50	17.5	20	23	25	30	28	30	28	30	28	40								
N/2	17.287	3.2 ^{+0.05}	18.24	24					28	35	36	40	36	40	36	40	45	42	45	42	45	50
N/2a	17.287	4 ^{J59}	18.94	24					28	35	36	40	36	40	36	40	45	42	45	42	45	50
N/2b	17.287	3 ^{J59}	18.34	24					28	35					36	40	45	42	45	42		
N/3	22.002	4 ^{J59}	23.40	28							36	40	36	40	36	40	45	42	45	42	45	50
N/4	25.463	4.78 ^{+0.05}	27.83	36							36	50	36	50	36	50	45	50	45	50	45	62
N/4b	25.463	5 ^{J59}	28.23	36													58 x 10	58 x 10				
N/4a	27	4.78 ^{+0.05}	28.80	32.5							36	50			36	50						
N/4g	28.45	6 ^{J59}	29.32	38.5											36	60	45	60	45	60		
N/5	33.176	6.38 ^{+0.05}	35.39	44											45	60	45	60	45	60	45	62
N/5a	33.176	7 ^{J59}	35.39	44													45	60	45	60	45	62

Taper bores 1:10																						
Dimensions [mm]					Counterbore d_K and hub length l_{2K} [mm]																	
Code	Details of bores				14		19		24		28		32		38		42		48		65	
	$d^{+0.05}$	b^{J59}	$t_2^{+0.1}$	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}
CX-20	19.85	5	22.08	32							36	50			36	50	45	50	45	50		
DX-25	24.95	6	26.68	45											36	50	45	60	45	60	45	60
EX-30	29.75	8	31.88	50													45	60	45	60	45	70

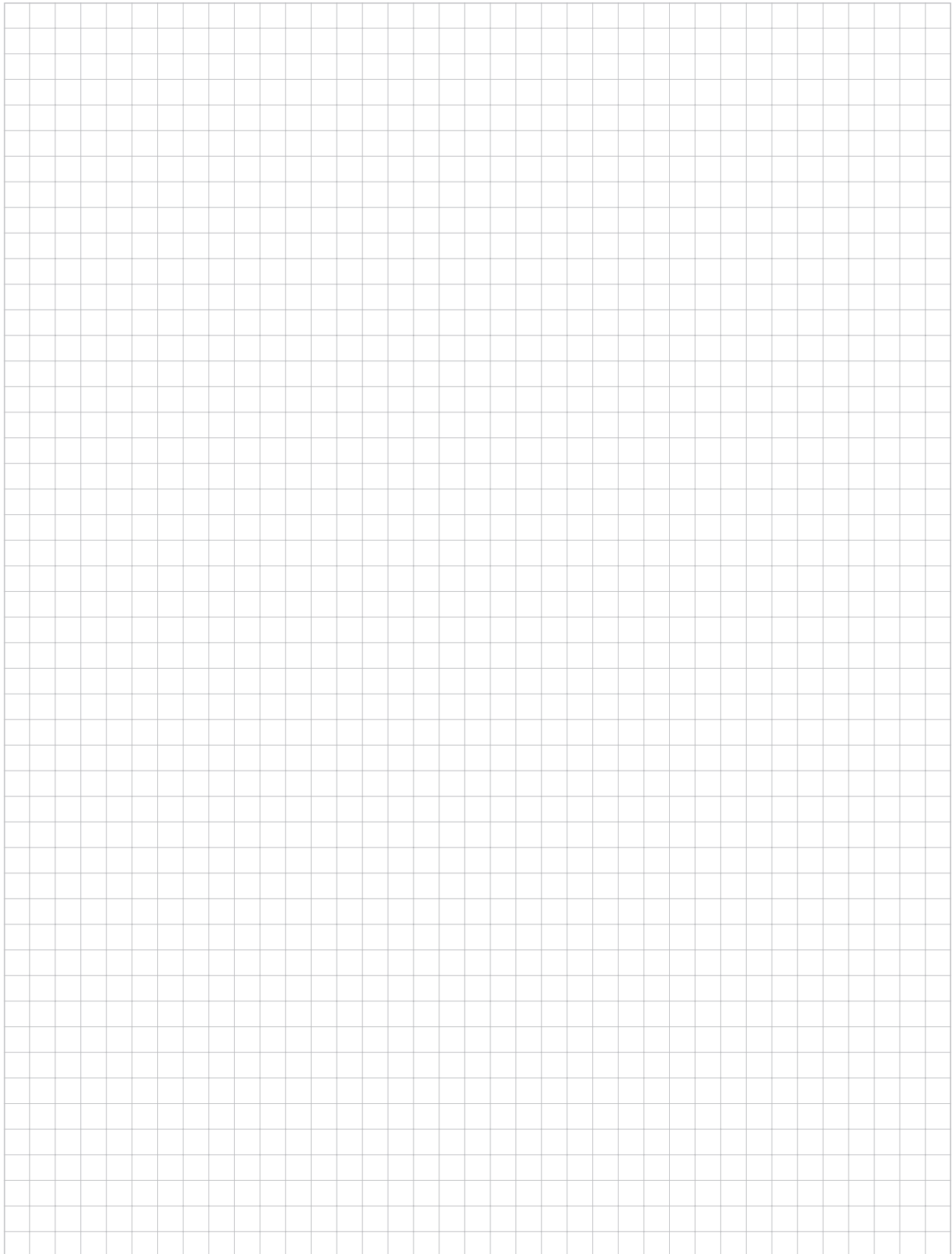
Notes



Notes



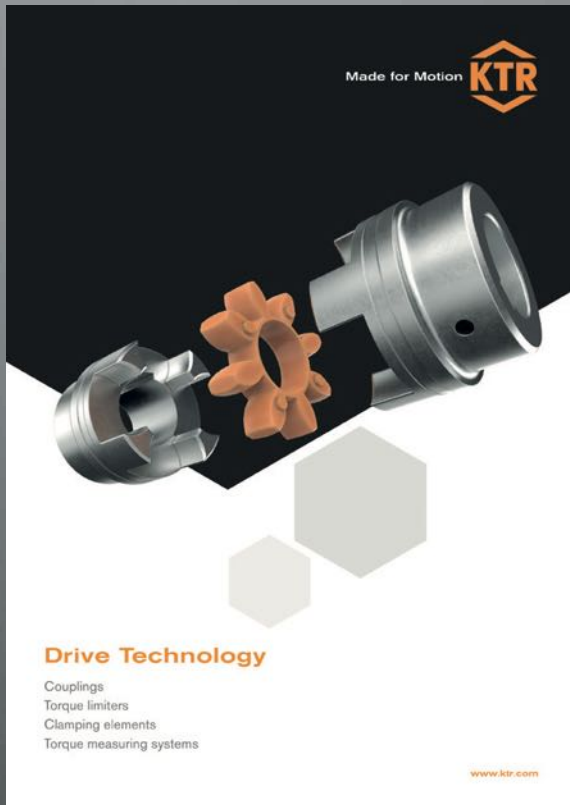
Notes



Summary of literature

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR's product portfolio is just as manifold as its applications. The following catalogues and leaflets provide an overview. Available at www.ktr.com

Product catalogues



ATEX leaflet



Company leaflet



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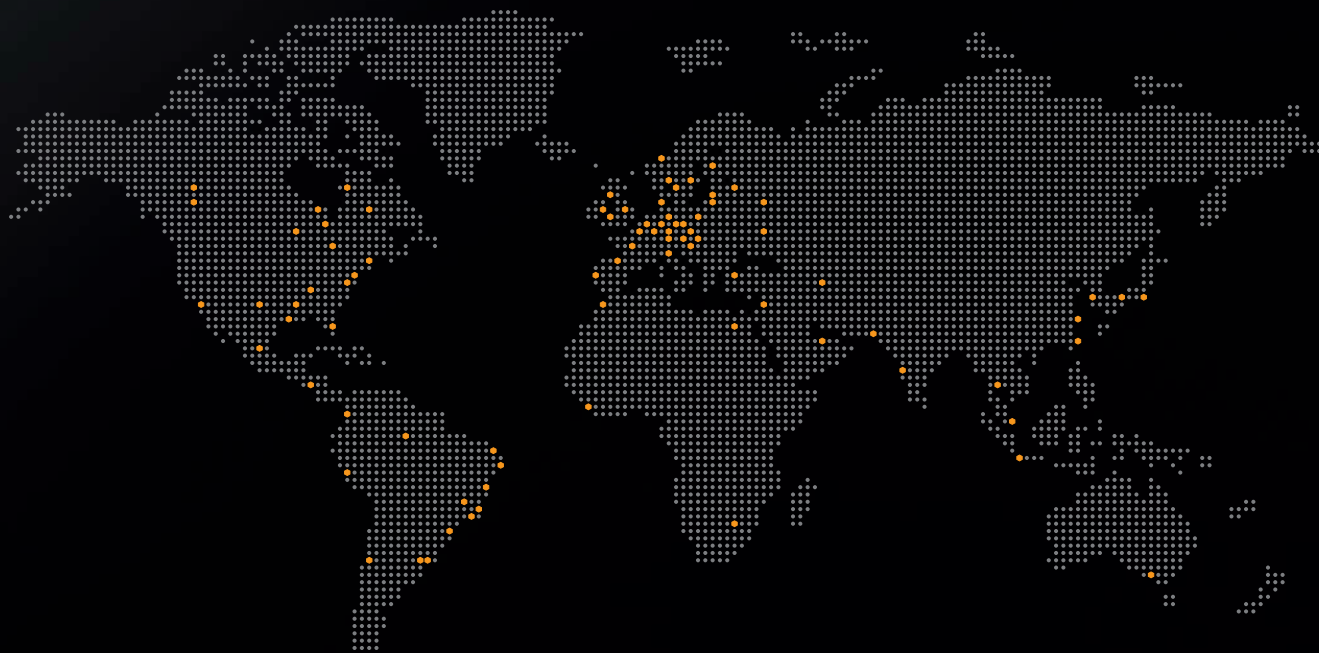
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