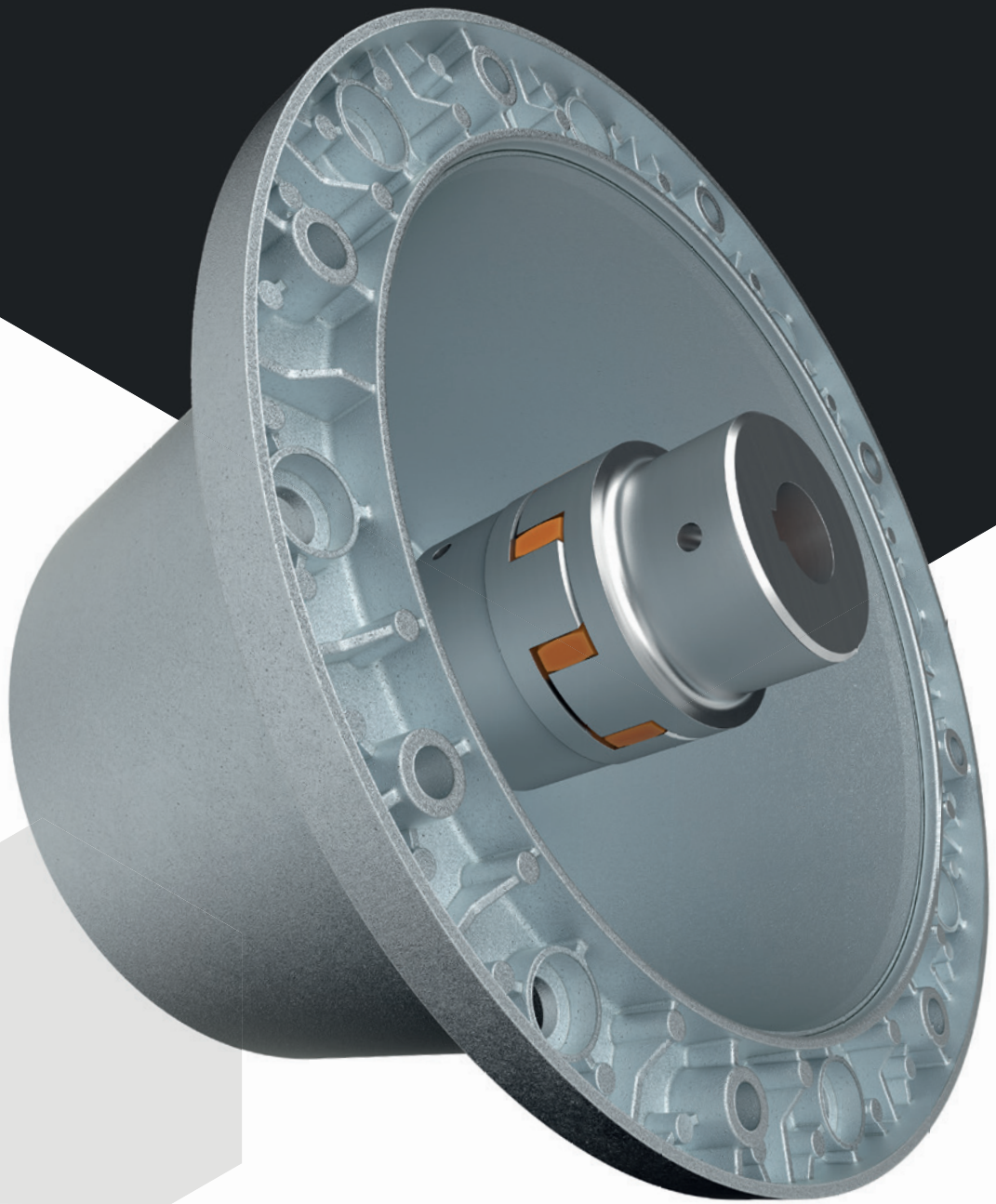
Made for Motion KTR



Hydraulic Components

Bellhousings
Damping elements
Cooling systems
Oil tanks

2024/25
www.ktr.com

In the middle of the action: the KEC

In September 2023 we opened the "KTR Exhibition Center", in brief KEC, at our headquarters in Rheine. The generously glazed building with a surface of about 750 square metres is to be used in a variety of ways: as an exhibition space for KTR products, for customer and information events, workshops and trainings, but also as a meeting point for the KTR staff providing a kiosk and a terrace. KTR's CEO Nicola Warning: „The KEC is a multifunctional building providing a new platform for digital and analogue communication with customers, staff and stakeholders – whilst giving the staff a fancy meeting point that increases the attractiveness of their work location."

Discover more on ktr.com

Corporate Responsibility at KTR

Together for sustainable transformation:

With the new Corporate Responsibility department we meet the growing requirements of the market environment and regulatory specifications: The task of our team of HSE, Compliance and ESG officials is to ensure legal compliance (Compliance), strengthen the commitment for environment, social issues and governance (ESG) and improve the standards for health, safety and environment (HSE) in KTR Systems GmbH and its supply chain. Within the framework of reports, certifications, audits and ratings we make our progress measurable and will announce it to the public on our website in the future.

Do you have any questions about the subjects of compliance, occupational safety, environmental protection, carbon footprint, Supply Chain Due Diligence Act or sustainability reporting/CSRD?

Please contact our Corporate Responsibility team at:
responsibility@ktr.com

DID YOU KNOW ...

that couplings, hydraulic components and coolers are part of our scope of supply, too? Details are available at ktr.com.

POSSIBLE COMBINATIONS

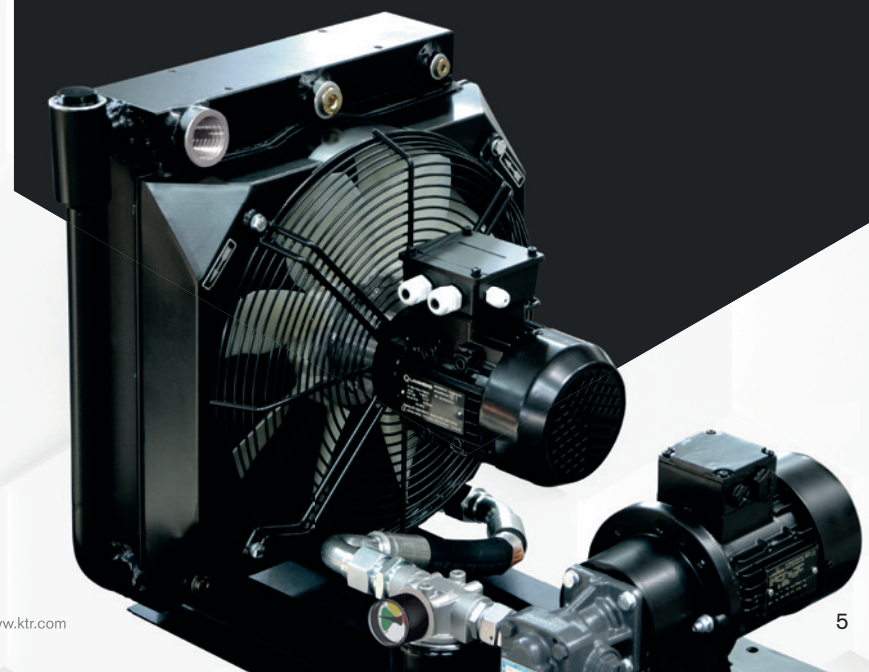
Our brake systems can be combined with our drive components.

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 7 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 and shaft connections

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

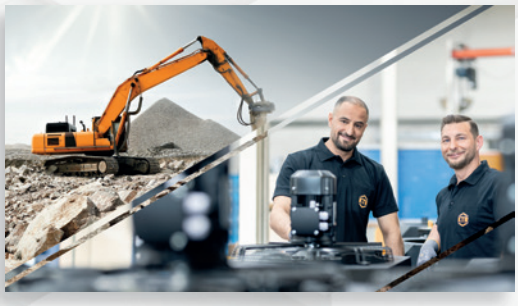
For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house development and manufacturing: accurate selection, high-quality processing, quick availability.

Cooling systems

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

PART OF EXCELLENCE

Wind power



Construction machinery

Agriculture

Pumps and compressors

Automation

Machine tools

Hydraulics

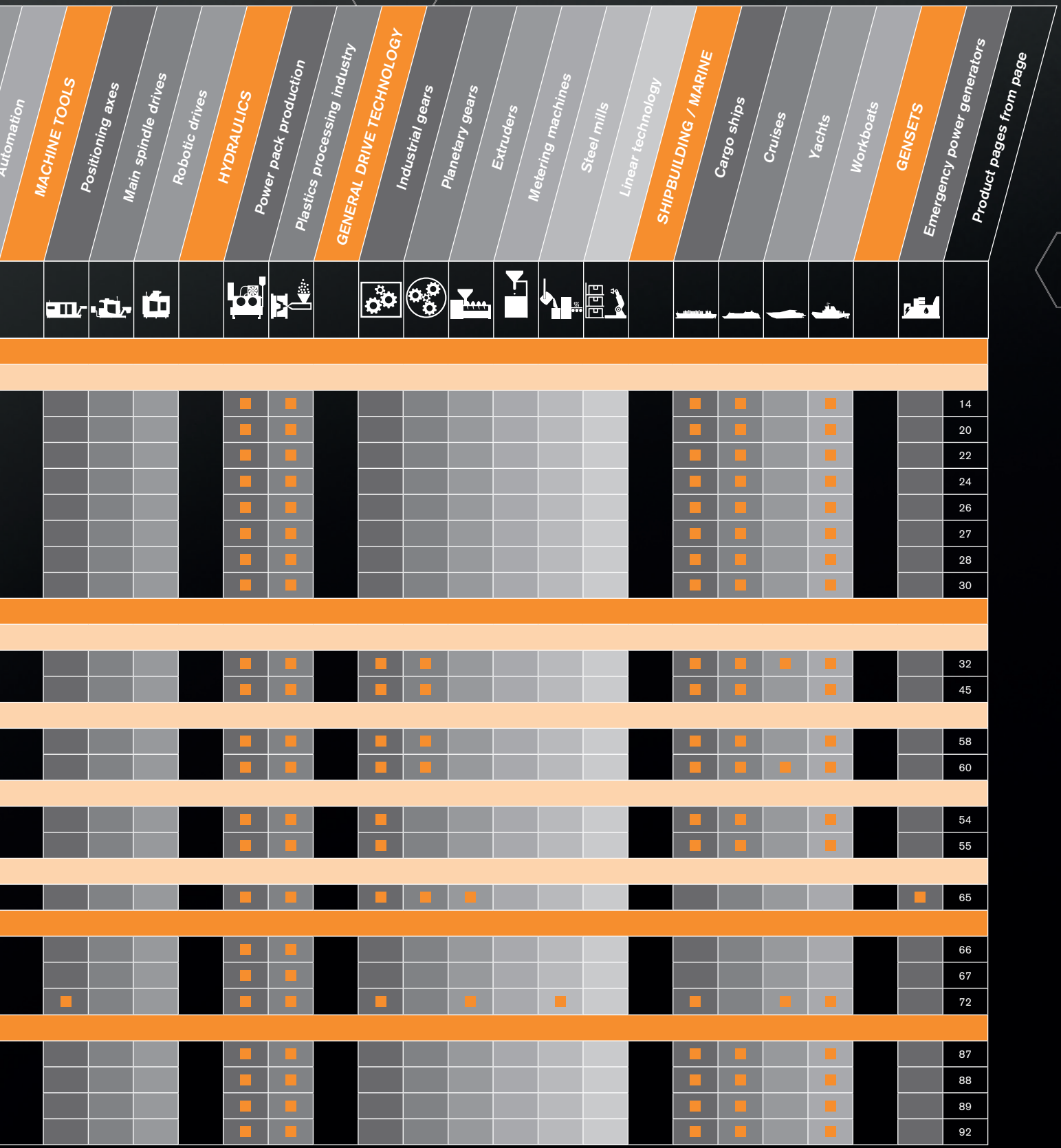
General drive technology

Marine

Gensets

SUMMARY OF PRODUCTS/INDUSTRIES

	WIND POWER	Gearless wind turbines	Wind turbines	Local power grids	CONSTRUCTION AND AGRICULTURAL MACHINERY	Excavators	Road rollers	Crushers	Combine harvesters	Tank spreaders	PUMPS AND COMPRESSORS	Compressors	Pumps	Cooling towers	INDOOR MATERIALS HANDLING	Conveying and storage	Food processing machinery	Packaging machinery
HYDRAULICS																		
Bellhousings and accessories																		
Bellhousings	■	■									■	■						
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 sump pans	■	■			■		■	■				■	■				■	■
TEMPERATURE CONTROL AND MONITORING																		
Temperature switch / controller	■	■	■															
Level and temperature switch	■	■	■															
El. level and temperature controller	■	■	■															
Tank heater	■	■	■															


Automation
MACHINE TOOLS
Positioning axes
Main spindle drives
Robotic drives
HYDRAULICS
Power pack production
Plastics processing industry
GENERAL DRIVE TECHNOLOGY
Industrial gears
Planetary gears
Extruders
Metering machines
Steel mills
Linear technology
SHIPBUILDING / MARINE
Cargo ships
Cruises
Yachts
Workboats
GENSETS
Emergency power generators
Product pages from page
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A short touch of a button assists you when you are pressed for time.

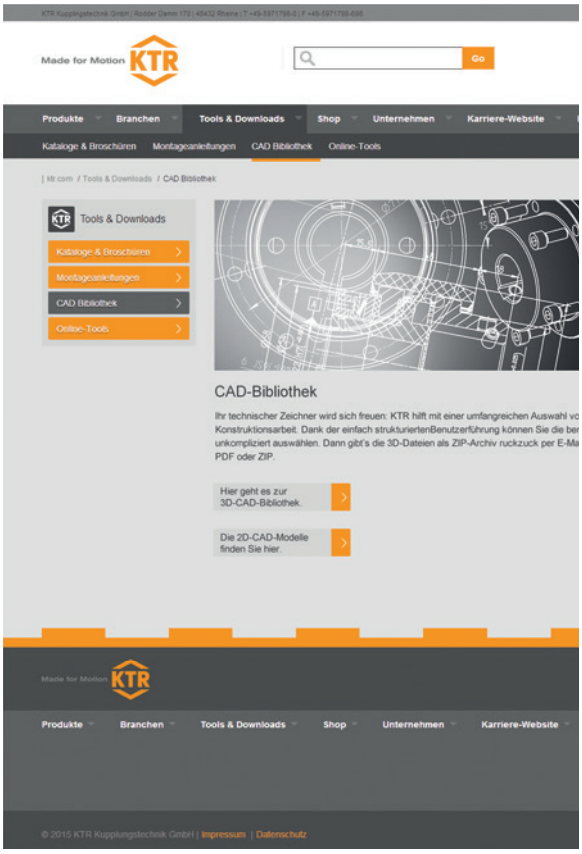
All of us are familiar with this: During the selection stage the importance of hydraulic components is sometimes undervalued. Then you suddenly realize that the basis of power supply for the machine was left out of consideration - now a prompt reaction is essential. But even if you are pressed for time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



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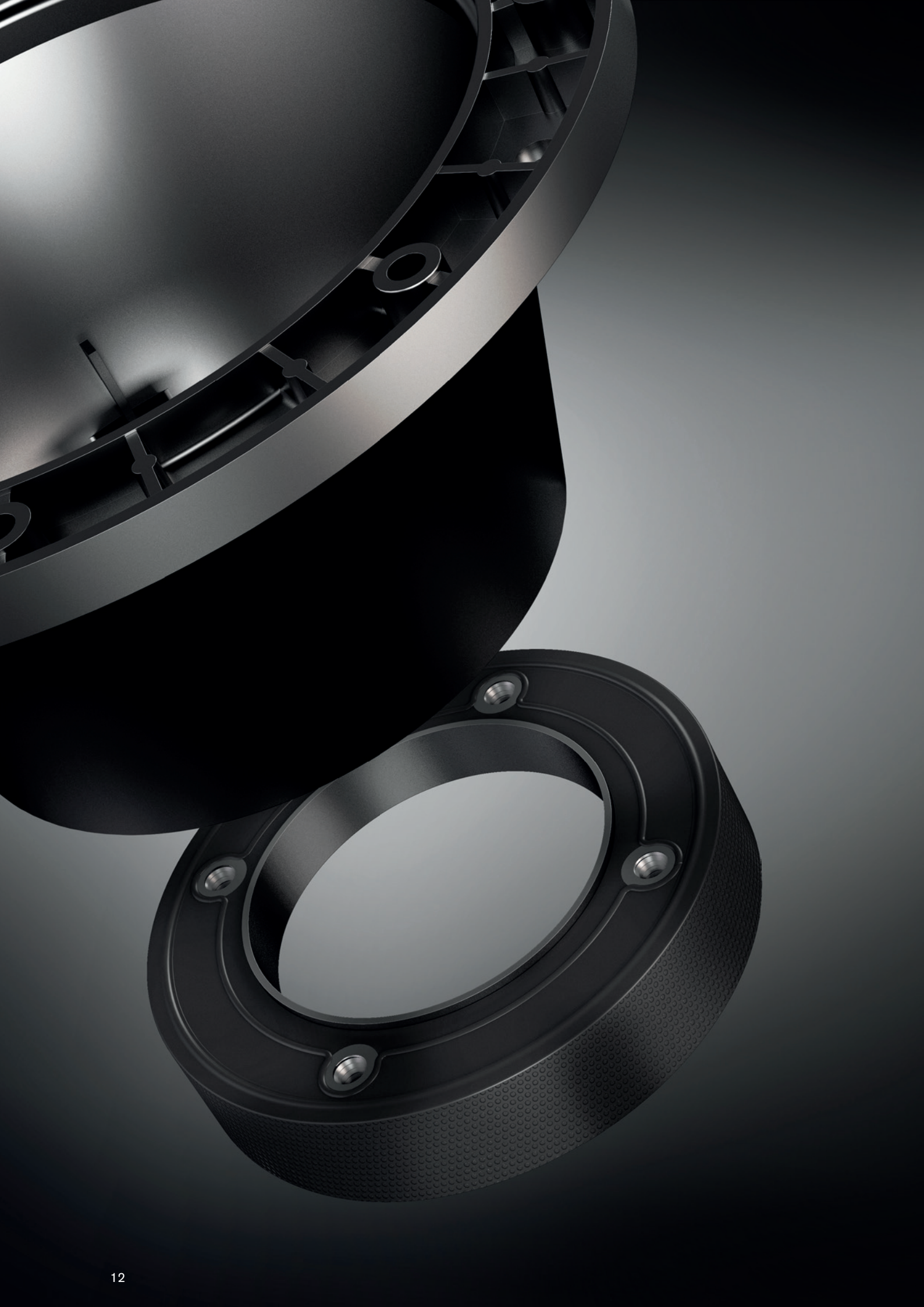
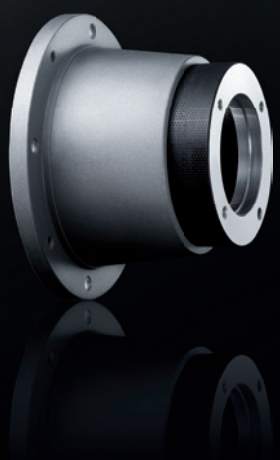


Summary of Products

Bellhousings

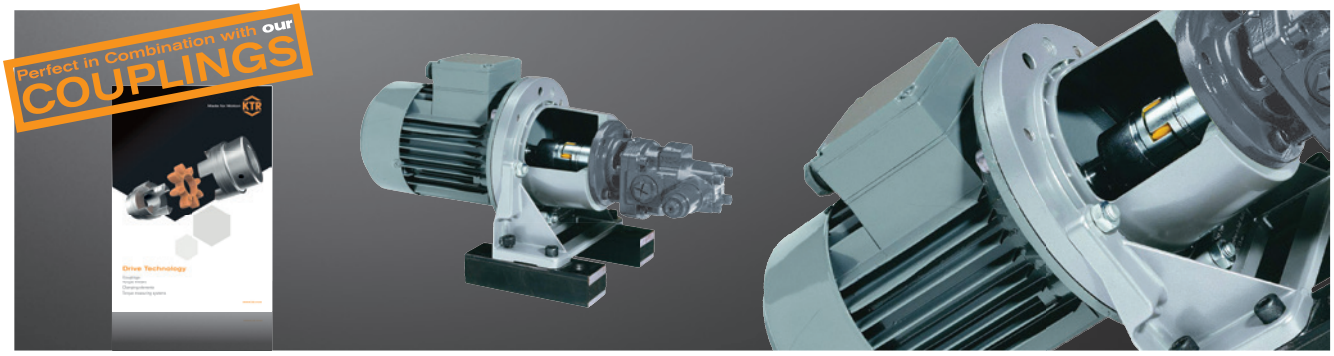


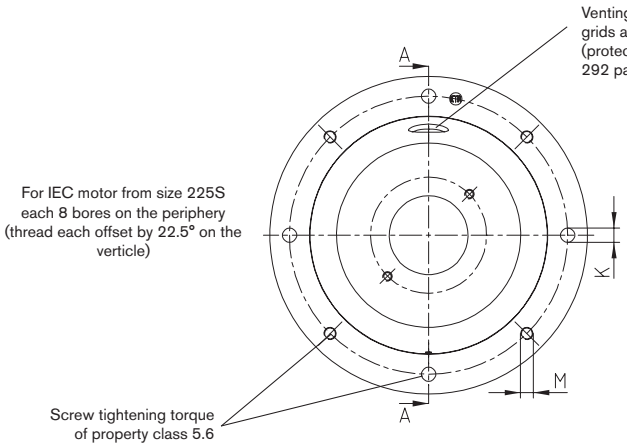
Coolers

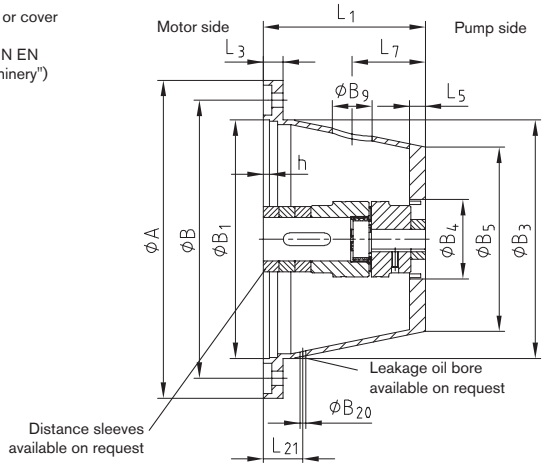
Tanks

Tank heaters

Bellhousings made of aluminium







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

Bellhousings 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 PTFL/ PTFS	Dimensions [mm]																
					A	B	B_1	B_3	h	K	M	L_1	L_3	L_5 [1]	B_5	min. B_4	Venting hole B_9	Venting hole L_7	Leakage oil bore B_{20}	Leakage oil bore L_{21}
71	0.25	PK 160/5/..	160	160	160	130	110	110	4	9	M8	80	13	8	105	29	25	33	7.5	28
(14 x 30)	0.37	PL 160/5/..										90			102	29		38		
80	0.55	PK 200/3/..	200	200	200	165	130	145	4	11	M10	100	16	12	124	40	36	43	7.5	36
(19 x 40)	0.75	PL 200/3/..										110			140	37		47		
90S/90L	1.1	PL 200/8/..										124			143	40		60		
(24 x 50)	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
		PL 250/3/..										124			126	42		52		
	3	PL 250/6/..										135			180	58		57		
	4	PL 250/4/..										148			180	56		64		
		PFL 250/18/..										175			250	75		77		
132S/132M (38 x 80)	5.5	PK 300/5/..	300	300	300	265	230	234	51	14	M12	144	20	15	205	57	50	63	7.5	45
		PL 300/15/..										150			221	78		66		
		PK 300/4/..										155			205	56		68		
	7.5	PL 300/4/..										168			220	57		74		
		PL 300/7/..										196						84		
160M/160L	11	PK 350/4/..	350	350	350	300	250	260	6	17	M16	188	26	15	225	59	50	82	7.5	51
(42 x 110)	15	PK 350/6/..										204				56		87		
180M/180L	18.5	PK 350/10/..										228			248	97		102		
(48 x 110)	22	PL 350/7/..										256			255	88		115		
200L (55 x 110)	30	PK 400/4/..	400	400	400	350	300	300	6	17	M16	204	26	20	230	75	50	92	7.5	51
		PK 400/5/..										228			279	95		104		
		PL 400/5/..										256			290	97		118		
225S/225M (60 x 140)	37	PK 450/2/..	450	450	450	400	350	350	6	17	M16	234	26	20	280	97	50	107	7.5	51
		PK 450/3/..										262			315			121		
	45	PL 450/3/..										285			325			133		
250M (65 x 140) 280S/280M (75 x 140)	55	PL 550/8/..	550	550	550	500	450	450 [2]	6	17	M16	248	26	25	340	97	50	116	7.5	51
		PL 550/1/..										265			360	120		125		
	75	PK 550/3/..										275			340	97		130		
	90	PL 550/3/..										295			360	123		140		
		PL 550/2/..										315			400	150		135		
315S/315M (80 x 170)	110	PK 660/2/..	660	660	660	600	550	550 [2]	7	22	M20	310	32	30	410	120	50	147	7.5	60
	132	PL 660/5/..										330			400			157		
	160	PL 660/2/..										343			490	174		163		
	200	PL 660/4/..										395			500	197		190		
355L/400M (100 x 210)	355	PL 800/1/..	–	–	800	740	680	680 [2]	10	22	M20	370	40	36	500	148	50	135	7.5	70
	710	PK 800/3/..										395			487			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 PTFL/ PTFS *)	Dimensions [mm]																
					A	B	B_1	B_3	h	K	M	L_1	L_3	L_5 [1]	B_5	min. B_4	Venting hole B_9	Venting hole L_7	Leakage oil bore B_{20}	Leakage oil bore L_{21}
71	0.25	PFK 160/6/..	160	160	160	130	110	110	4	9	M8	79	13	13	140	30	25	35	7.5	28
(14 x 30)	0.37	PFL 160/6/..										101				60		46		
80	0.55	PL 200/11/..										55			144			18		
(19 x 40)	0.75	PK 200/13/..	200	200	200	165	130	145	4	11	M10	152	16	12		58	36	71	7.5	36
90S/90L	1.1	PFK 200/24/..										148			175	114	36	80		
(24 x 50)	1.5	PK 200/30/..										79			142	37	25	30		
100L/112M	2.2	PK 250/13/..										159			186	77	40	69		
(28 x 60)	3	PL 250/15/..	250	250	250	215	180	190	55	14	M12	79	18	12	187	97	20	29	7.5	43
	4	PK 250/17/..										100			186	74	40	39		
		PK 300/8/..										110				95	40	45		
132S/132M	5.5	PL 300/9/..	300	300	300	265	230	234	55	14	M12	99	20	15	225	97	40	37	7.5	45
(38 x 80)	7.5	PL 300/13/..										210				57	50	95		
		PK 300/15/.										138			221	56		57		
160M/160L	11	PK 350/8/..										204	25	15	259	53		90		
(42 x 110)	15	PL 350/11/..	350	350	350	300	250	260	6	17	M16	146	26	18	252	92	50	60	7.5	51
180M/180L	18.5	PK 350/18/..										159	26	15	244	89		67		
(48 x 110)	22	PL 350/18/..										184	25		252	79		80		
200L		PL 400/3/..										165			290	97		73		
(55 x 110)	30	PK 400/12/..	400	400	400	350	300	300	6	17	M16	170	25	20	260	95	50	75	7.5	51
		PL 400/12/..										184						82		
		PL 450/5/..										185	25		325	120		83		
225S/225M	37	PK 450/6/..										176	26	20	259	98	50	80	7.5	51
(60 x 140)	45	PFL 450/9/..										253	25		370	137		116		
		PK 450/12/..										204	26		260	97		90		
250M (65x140)	55	PK 550/4/..										190/192		26	355	129		88		
280S/280M	75	PL 550/4/..	550	550	550	500	450	450 [2]	6	17	M16	207	26	25	330	124	50	96	7.5	51
(75 x 140)	90	PK 550/8/..										217			340	97		100		
315S/315M	110-	PK 660/3/..	660	660	660	600	550	550 [2]	8	22	M20	247	32	30	465	122	50	115	7.5	60
(80 x 170)	160																			
355L/400M	355	PK 800/1/..	–	–	800	740	680	680 [2]	8	22	M20	335	40	36	520	149	50	140	7.5	70
(100 x 210)	710																			

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

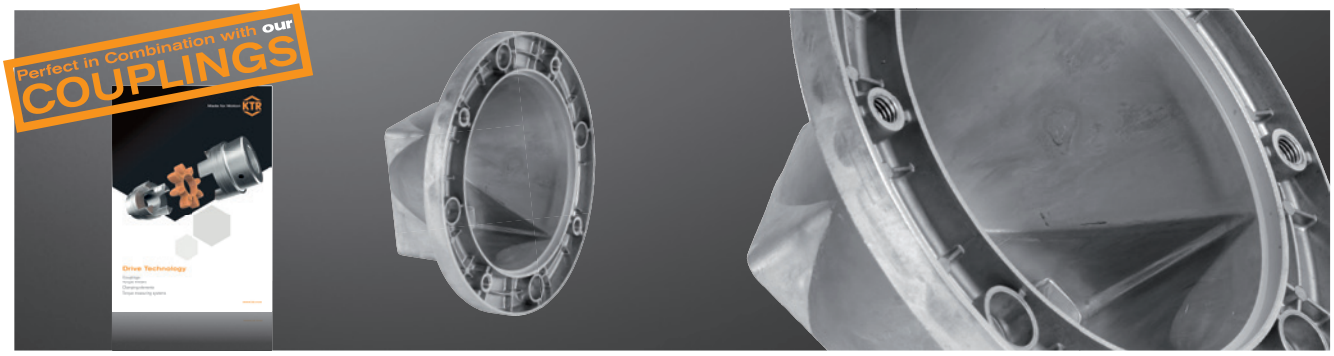
[2] Passing from dimension B_3 to flange radius R = 5

*) 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. leakage oil bores are required, please specify in your order.

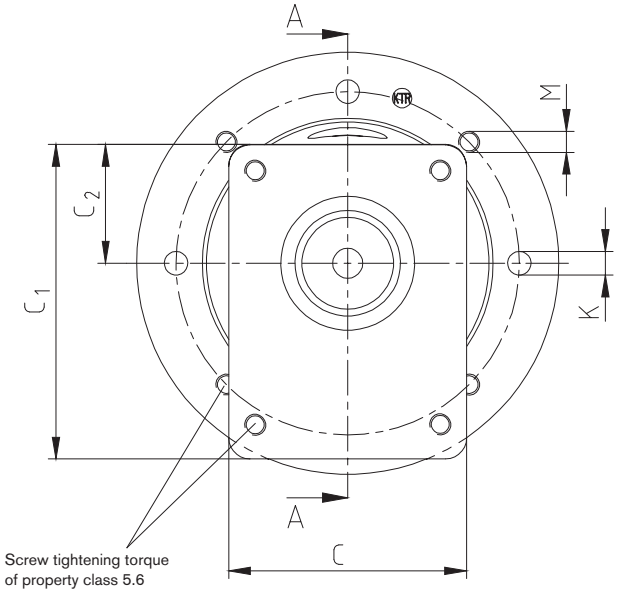
Ordering example:

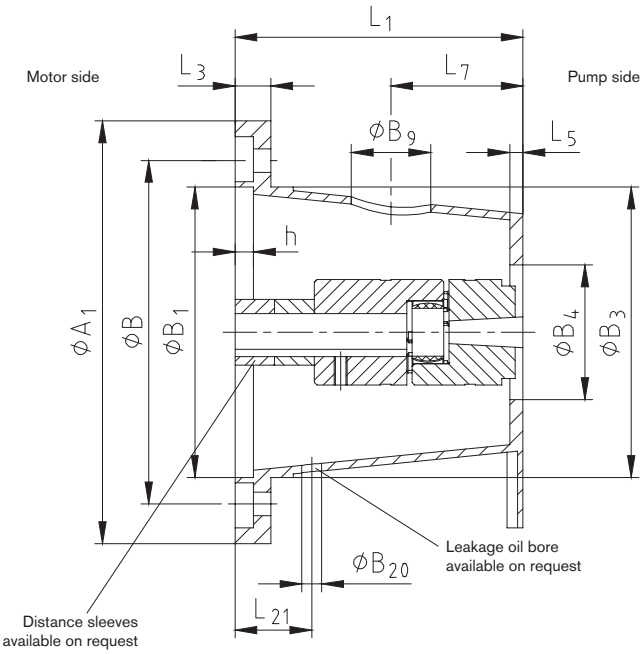
PL	PK	P	450	3	8
Bellhousing type, long	Bellhousing type, short	Former bellhousing type	Flange diameter of IEC Motor	Serial model code	In-house modification code

Bellhousings with rectangular flanges



Bellhousings with rectangular flanges





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

Bellhousings made of aluminium with rectangular flanges

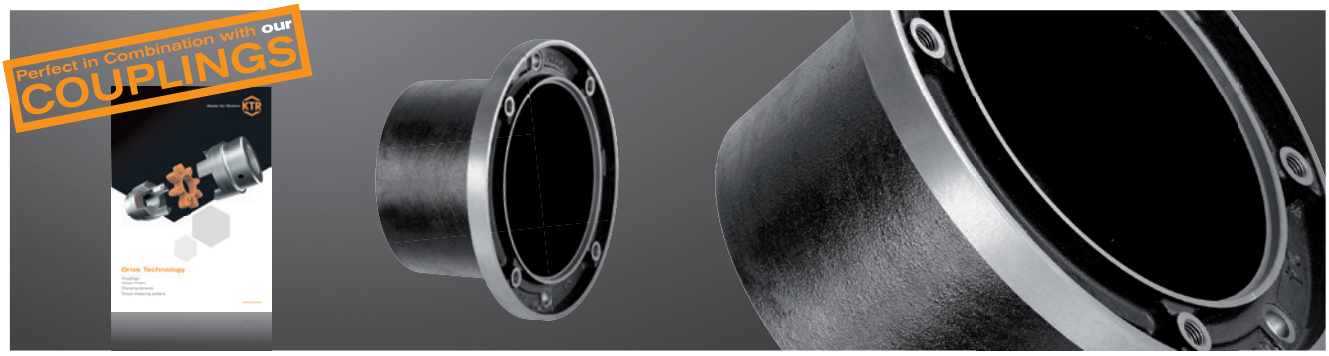
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFL/ PTFS	Dimensions [mm]																	
																		min.	Venting hole		Leakage oil bore	
					A_1	B	B_1	B_3	h	K	M	L_1	L_3	L_5	C	C_1	C_2	B_4	B_9	L_7	B_{20}	L_{21}
	0.25	PL 160/1/..										70		8	70	91	35	20	16	27		
71	0.37	PL 160/4/..	160	160	160	130	110	110	4	9	M8	110	13	12	90	120	45	22	25	50	7.5	28
		PK 160/4/..										95								43		
80	0.55	PL 200/1/..	200	200	200	165	130	145	4	11	M10	90	16	12	70	91	35	22	25	37	7.5	36
90S/90L	- 1.5	PL 200/2/..										100			90	120	45	22		42		
	2.2	PL 250/1/..										110			90	120	45	22		45		
100L/112M	3	PL 250/2/..	250	250	250	215	180	190	5	14	M12	115	18	12	120	150	53	47	36	47	7.5	43
	4	PL 250/7/..										125			145	180	64	46		52		
132S/132M	5.5	PL 300/1/..	300	300	300	265	230	234	5	14	M12	132	20	15	120	150	53	33	50	56	7.5	45
	7.5	PK 300/2/..										137			145	180	64	33		59		
160M/160L	11	PL 350/1/..	350	350	350	300	250	260	6	18	M16	171	26	15	120	156	59	33	50	73	7.5	51
180M/180L	- 22	PL 350/2/..										181	25		145	180	64	31		78		

If venting holes resp. leakage oil bores are required, please specify in your order.

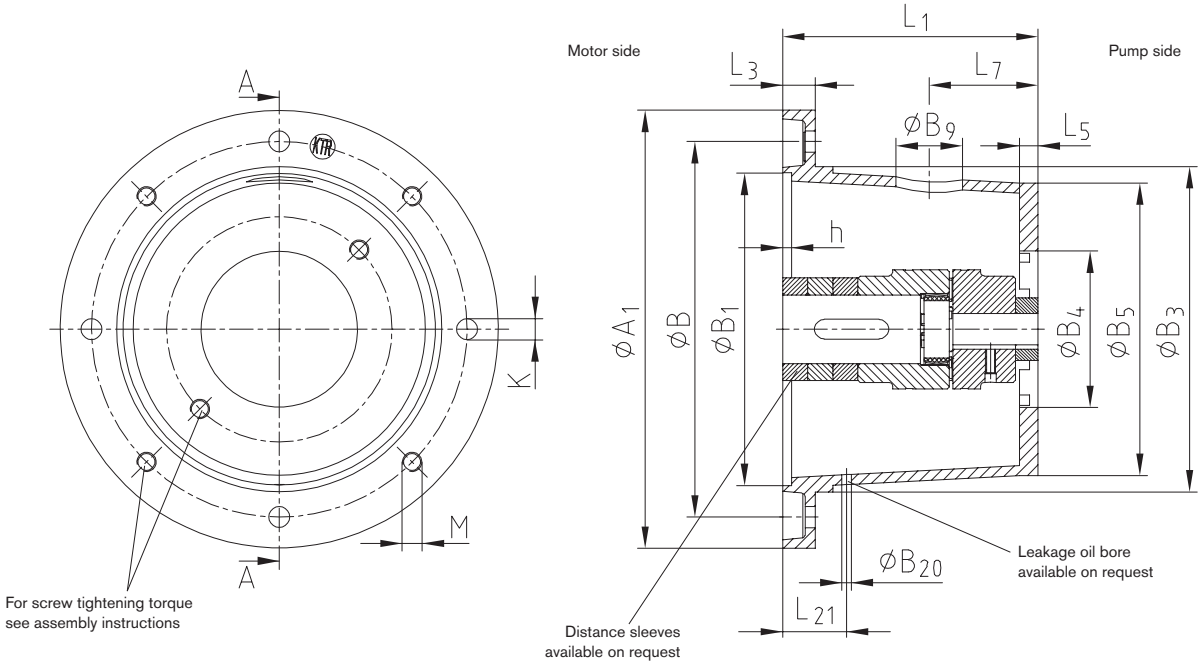
Ordering example:

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

Bellhousings 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

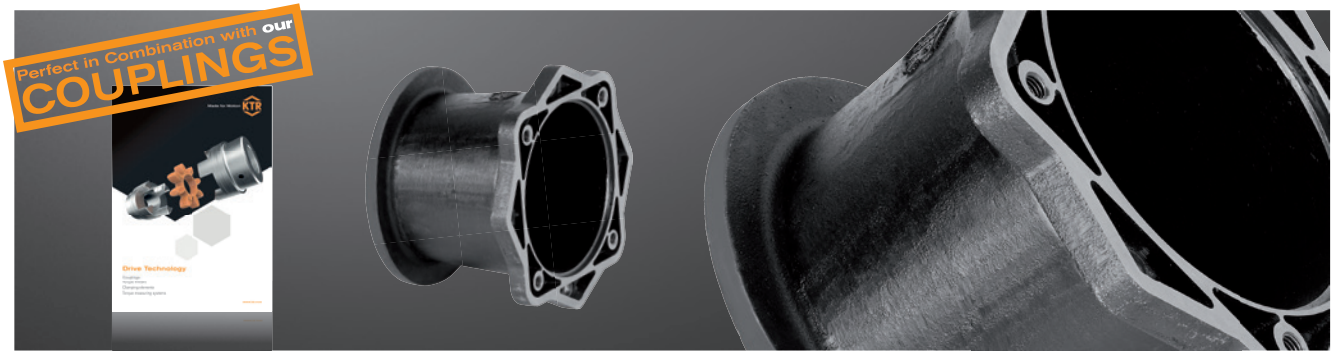
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFL/ PTFS	Dimensions [mm]											min.	Venting hole		Leakage oil bore	
					A_1	B	B_1	B_3	h	K	M	L_1	L_3	L_5	B_5	B_4	B_9	L_7	B_{20}	L_{21}
132S/132M	5.5 7.5	PG 300/5/..	300	300	300	265	230	234	5	14	M12	144	20	15	215	30	50	63	7.5	45
160M/160L	11 -	PG 350/4/..	350	350	350	300	250	260	7	17	M16	188	26	15	242	76	50	82	7.5	51
180M/180L	22	PG 350/6/..										204			235			87		
		PG 400/2/..										256			280			118		
200L	30	PG 400/4/..	400	400	400	350	300	300	7	17	M16	204	26	20	260	97	50	92	7.5	51
		PG 400/5/..										228			280			104		
225S/225M	37	PG 450/2/..	450	450	450	400	350	350	7	17	M16	234	26	24	289	97	50	107	7.5	51
	45	PG 450/3/..										262		20	315	91		121		
250M	55, 75	PG 550/1/..	550	550	550	500	450	450	7	17	M16	265	26	25	360	97	50	125	7.5	51
280S/280M	90	PG 550/8/..										248			349			116		
315S/315M	110 -	PG 660/3/..	660	660	660	600	550	550	8	22	M20	279	32	33	425	119	50	117	7.5	60
	160	PG 660/5/..										330						157		
355L/400M	355 - 680	PG 800/1/..	–	–	800	740	680	680	10	22	M20	370	40	30	600	149	50	135	7.5	70
(100 x 210)	710 -	PG 1000/19/..			1000	940	880	801				410			600					

If venting holes resp. leakage oil bores are required, please specify in your order.

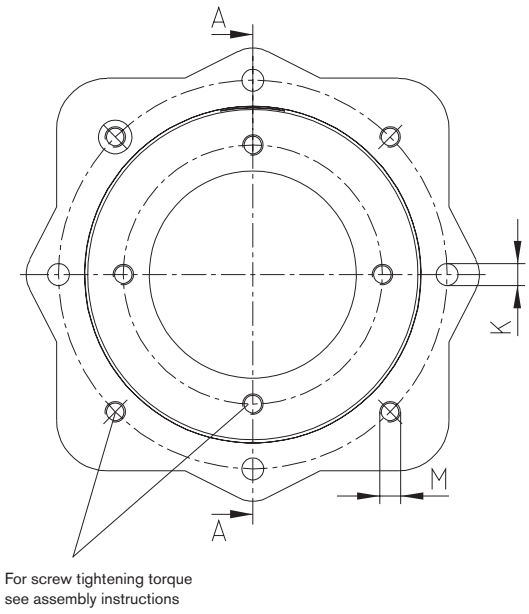
Ordering example:

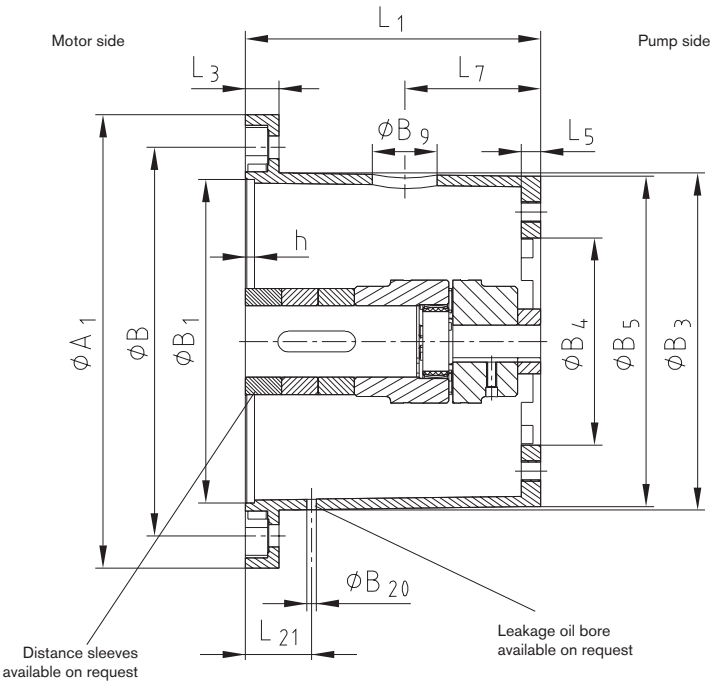
PG	250	1	4
Bellhousing type made of cast iron	Flange diameter of IEC motor	Serial model code	In-house modification code

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)!

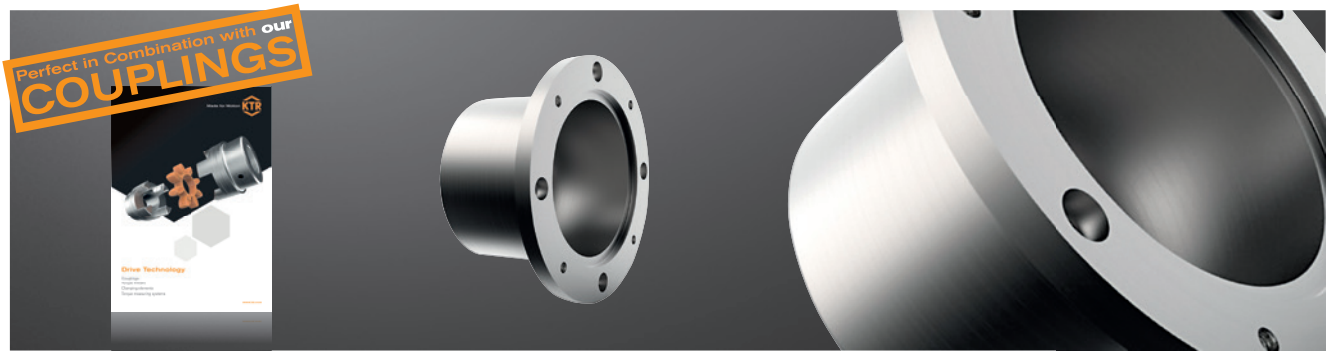
Bellhousings made of cast iron for servo motors

	Bellhousing size	Gasket DP size	Foot flange PTFL/ PTFS	Dimensions [mm]																
															min.	Venting hole		Leakage oil bore	
				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}
For servo and IEC motors	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
	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

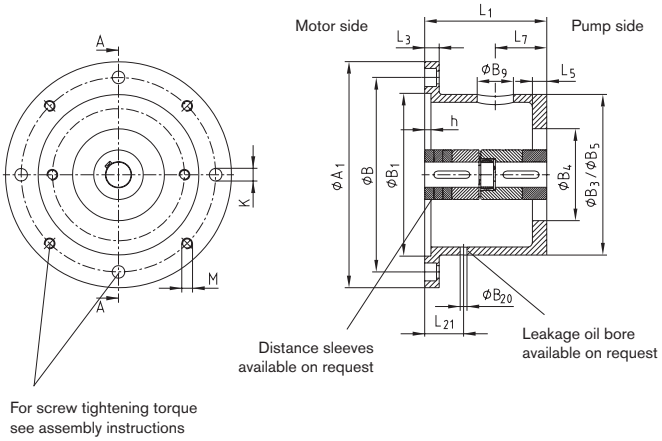
If venting holes resp. leakage oil bores are required, please specify in your order.

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

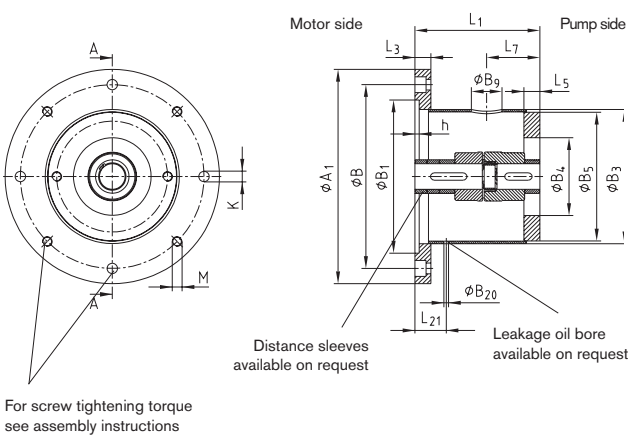
Bellhousings type PS made of steel for IEC- and servo motors



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



Bellhousing size 160 - 300



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.

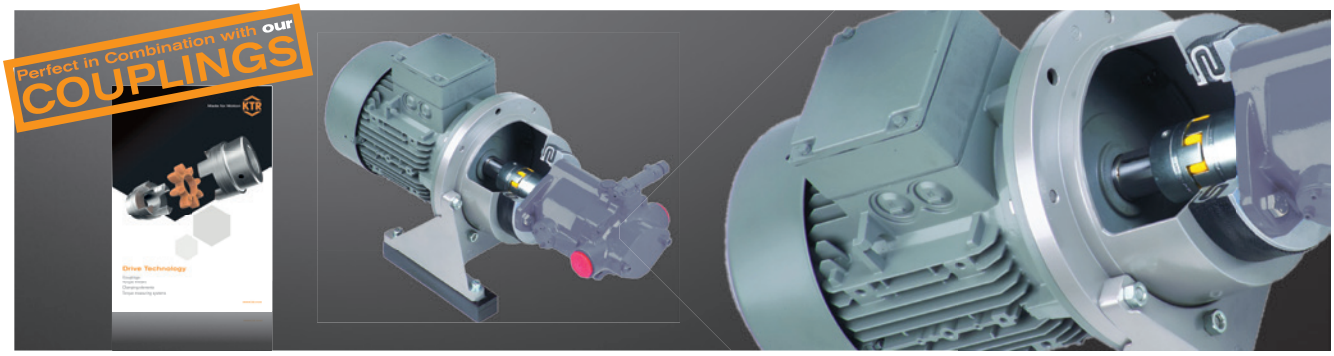
Bellhousings made of steel for IEC motors

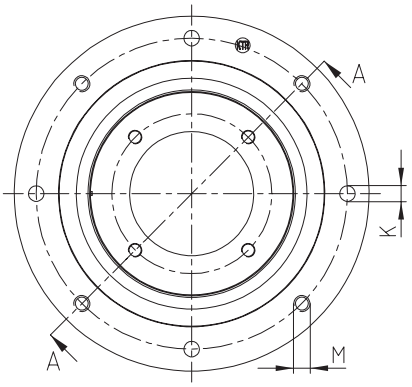
IEC motor size (shaft end) d_1 x l_3	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFL/ PTFS)*	Dimensions [mm]															
																min.	Venting hole		Leakage oil bore	
					A_1	B	B_1	B_3	h	K	M	L_1	L_3	L_5	B_5	B_4	B_9	L_7	B_{20}	L_{20}
80	0.55	PS 200/2/..	200	200	200	165	130	144	4	11	M10	100	16	12	144	-	36	43	7.5	64
90S/90L	0.75	PS 200/8/..										110						47		74
100L/112M (28x60)	2.2	PS 250/5/..	250	250	250	215	180	189	5	14	M12	120	19	12	179	-	40	54	7.5	77
	3	PS 250/3/..										124						52		81
	4	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	7.5	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	7.5	228
280S/280M	75	PS 550/2/..										295						140		248
(75x140)	90	PS 550../..										315						135		268
315S/315M (80x170)	110	PS 660/3/	660	660	660	600	550	407	8	22	M20	310	28	28	385		50	147	7.5	253
	up to	PS 660/2/..						458				343	28	28	435			163		290
	200	PS 660/4/..						510				395	30	30	485			190		338
315S/315M	160	PS 660/5/..	660	660	660	600	550	550	8	22	M20	330	32	33	425	119	50	157	7.5	60

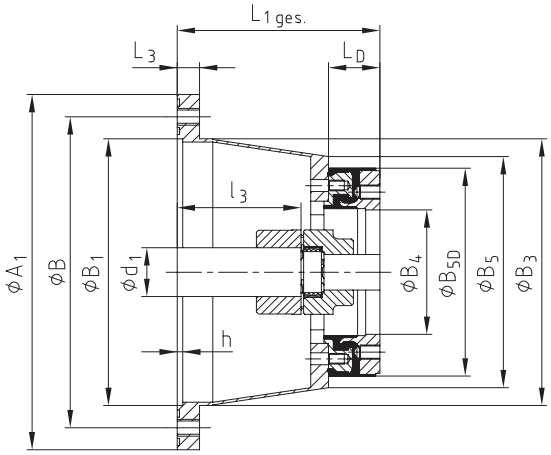
If venting holes resp. leakage oil bores are required, please specify in your order.

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

Damping rings 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 leakage oil bore.
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]													
					A_1	B	B_1	L_1 total	L_3	K	M	h	L_D	B_3	B_4 min.	B_4 Max.	B_5	B_{5D}
90S/90L (24 x 50)	1.1 / 1.5	PL 200/11/.. / PK 200/30/..	D150/..	PTFL 200	200	165	130	100 / 124	16	11	M10	4	45	145	18	83	145	148
100L/112M (28 x 60)	2.2 / 3	PL 250/15/.. / PK 250/17/..	D 150/..	PTFL 250	250	215	180	124 / 145	18	14	M12	54	45	190	18	83	187	148
		PL 250/15/.. / PK 250/17/..	D 190/..					124 / 145							30	121		190
132S/132M	5.5	PK 300/8/.. / PL 300/9/.. / PK 300/15/.. / PL 300/15/..	D 150/..	PTFL 300	300	265	230	155 / 144 / 183 / 195	20	14	M12	5	45	234	18	83	225 / 231	148
		PK 300/8/.. / PL 300/9/.. / PK 300/15/.. / PL 300/15/..	D 190/..					155 / 144 / 183 / 195							30	121	225 / 231	190
		PK 300/8/.. / PL 300/9/.. / PK 300/15/.. / PL 300/15/..	D 230/..					168 / 157 / 196 / 208					58		97	143	225 / 231	234
160M/160L (42 x 110) 180M/180L (48 x 110)	11 / 15 / 18.5 / 22	PL 350/11/.. / PK 350/18/.. / PL 350/18/.. / PK 350/18/.. / PK 350/18/.. / PL 350/18/.. / PL 350/11/.. / PK 350/18/.. / PL 350/18/..	D 150/..	PTFL 350/ PTFS 350	350	300	250	190 / 204 / 229 / 204 / 204 / 229 / 204 / 217 / 242	26 / 26 / 25 / 26 / 25 / 26 / 25	17	M16	6	45	260	18	83	252 / 244 / 252 / 244 / 252 / 244 / 252	148
			D 190/..												30	121		190
			D 230/..										58		97	143		234

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]													
					A_1	B	B_1	$L_{1\ total}$	L_3	K	M	h	L_D	B_3	B_4 min.	B_4 Max.	B_5	B_{5D}
160M/160L	11	PL 350/11/..						204	26									
(42 x 110)	15	PK 350/18/..	D 260/..	PTFS 350	350	300	250	217	26	17	M16	6	58	260	97	143	252	264
180M/180L	18.5	PL 350/18/..						242	25									
		PL 400/3/..						210									290	
		PK 400/12/..	D 190/..					215					45		30	121		190
		PL 400/12/..						229										
200L (55 x 110)	30	PK 400/12/..	D 230/..	PTFS 400	400	350	300	228	25	17	M16	6		300		143	260	
		PL 400/12/..						242										264
		PK 400/12/..	D 260/..					228					58		97			
		PL 400/12/..						242								164		
		PL 450/5/94	D 190/..					230					45		30	121	325	190
		PK 450/12/94						249									260	
		PL 450/5/96						243									325	
225S/225M	37	PK 450/6/96	D 230/..	PTFS 450	450	400	350	234	25	17	M16	6				143	260	234
(60 x 140)	45	PK 450/12/96						262					58		97			
		PK 450/6/98	D 260/..					234								164	260	265
		PK 450/12/98						262										
		PL 450/5/..	D 330/..					268					83		120	208	325	330
		PK 550/4/94						237									355	
		PL 550/4/94	D 190/..					252					45		30	121	330	190
		PK 550/8/94						262									340	
		PK 550/4/96						248									355	
250M (65 x 140)	55	PL 550/4/96	D 230/..					265								143	330	234
		PK 550/8/96		PTFS 550	550	500	450	275	26	17	M16	6	58	450	97		340	
		PK 550/4/98						248									355	
280S/280M (75 x 140)	75 90	PL 550/4/98	D 260/..					265								164	330	264
		PK 550/8/98						275									340	
		PK 550/4/..						275									355	
		PL 550/4/..	D 330/..					290					83		120	208	330	330
		PK 550/8/..						300									340	
315S/315M (80 x 170) 315L (80 x 170) (85 x 170)	110 132 160 200	PK 660/3/98	D 260/..					310					58		97	164	500	264
		PK 660/3/..	D 330/..	PTFS 660	660	600	550	330	32	22	M20	8	83	550	120	208	500	330

[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).

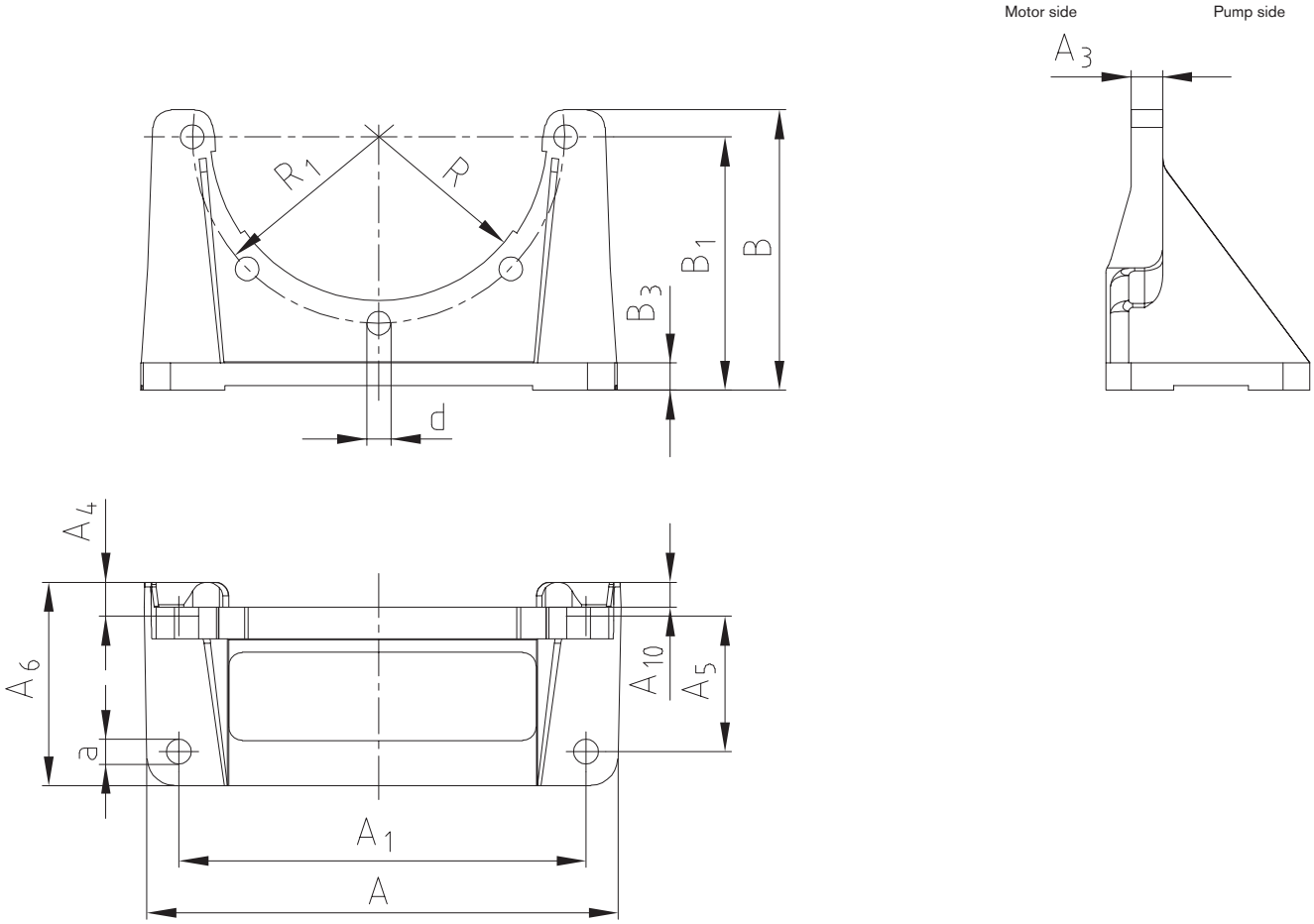
For the detailed order designation refer to our PC/Internet selection program or specify the IEC motor size and detailed pump type for selection.

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 flange type PTFL

Foot flange type PTFL *



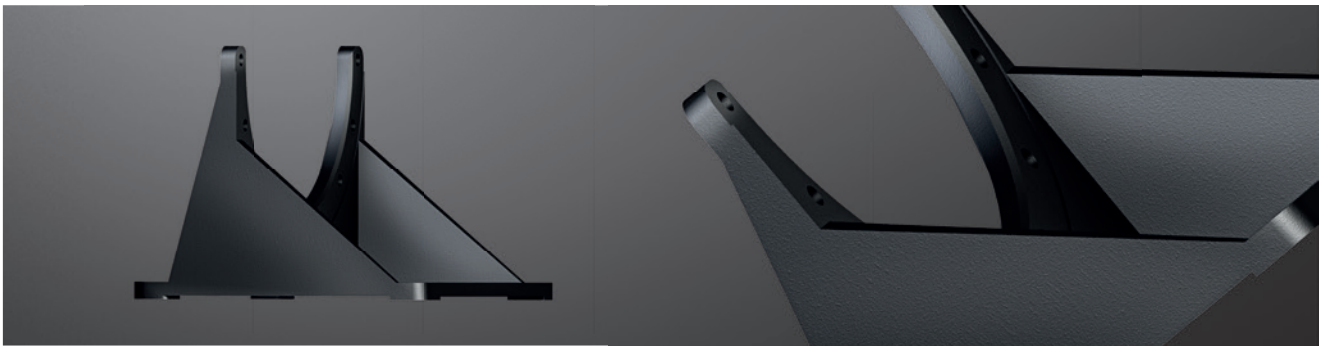
* according to VDMA standard 24561 part 1

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

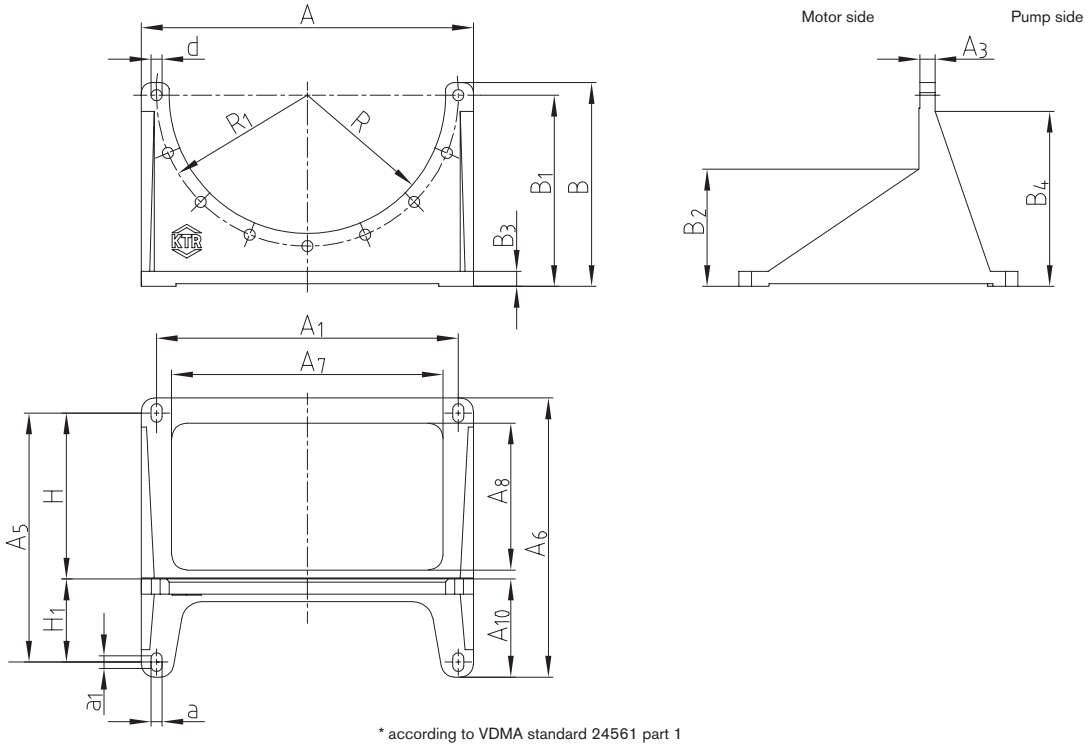
To reach the full loading capacity of foot flanges, all fastening holes have to be screwed to the bellhousing.

Ordering example:	PTFL	350	Al
	Foot flange type	Size	Material

Foot flange type PTFS



Foot flange type PTFS *



* according to VDMA standard 24561 part 1

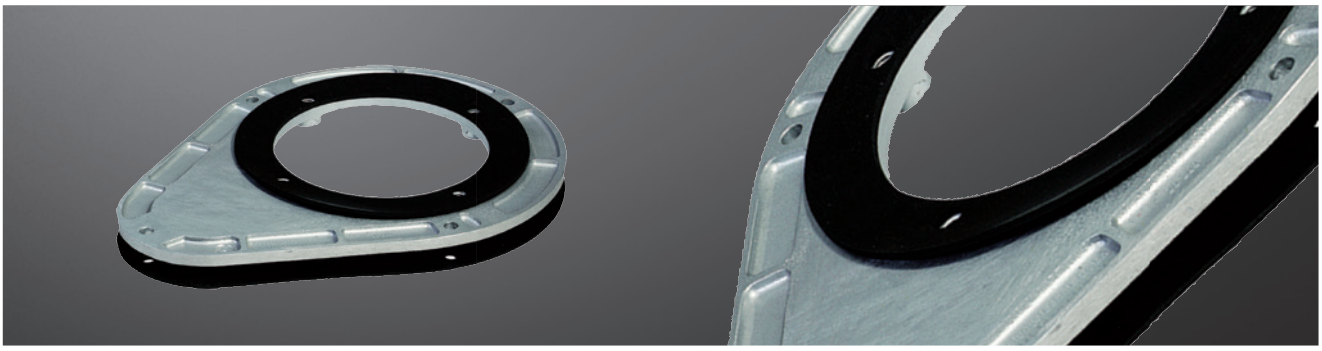
Foot flange type PTFS made of aluminium (Al)																				
Foot flange size	For bellhousing size	Dimensions [mm]																		
		A	A_1	A_3	A_5	A_6	A_7	A_8	A_{10}	B	B_1	B_2	B_3	B_4	R	R_1	a	a_1	d	H	H_1
PTFS 250	250	250	215	18	185	230	190	127	82	165	155	120	16	150	95	107.5	14	10	14	125	60
PTFS 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

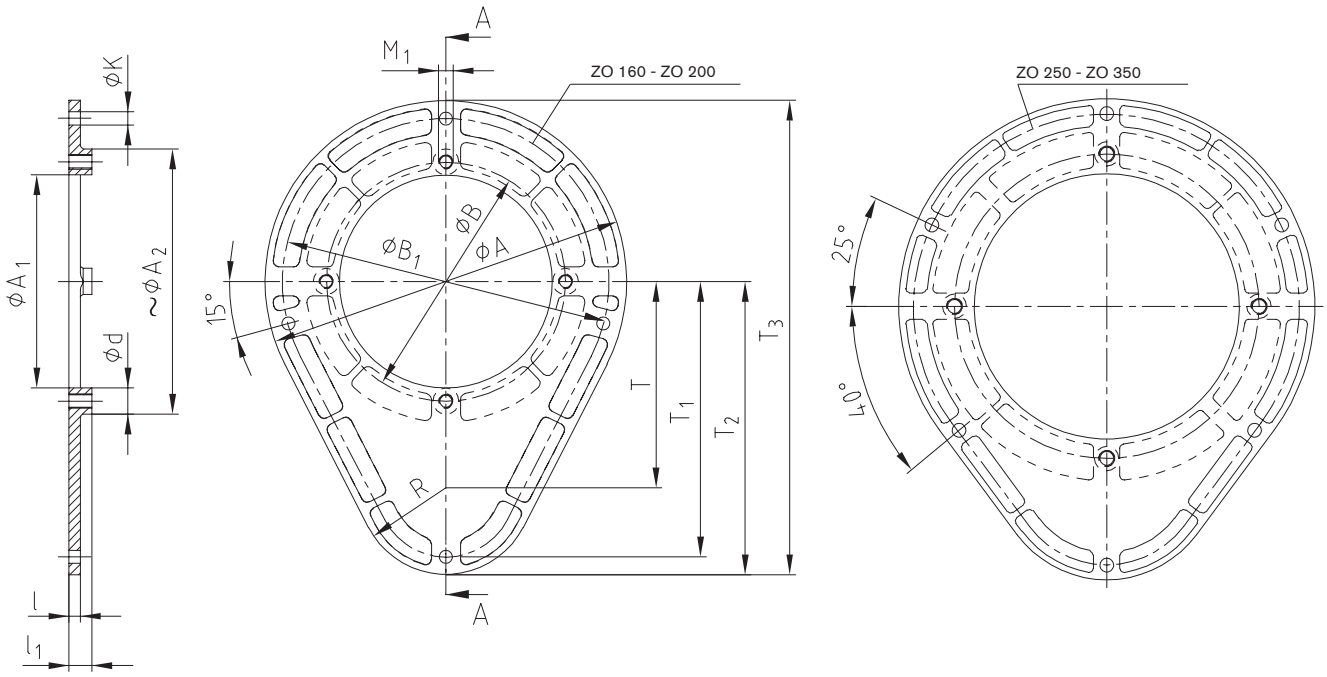
Foot flange type PTFS made of nodular iron (GJS)																					
Foot flange size	For bellhousing size	Dimensions [mm]																			
		A	A_1	A_3	A_5	A_6	A_7	A_8	A_{10}	B	B_1	B_2	B_3	B_4	R	R_1	a	a_1	d	H	H_1
PTFS 200 GGG	200	200	165	12	150	185	130	85	68	138	125	90	15	120	72.5	82.5	11	8	11.5	100	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 300 GGG	300	300	26	20	225	270	237	132	92	200	185	148	19	184	117	132.5	14	10	14	150	75
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
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

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	l1		
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

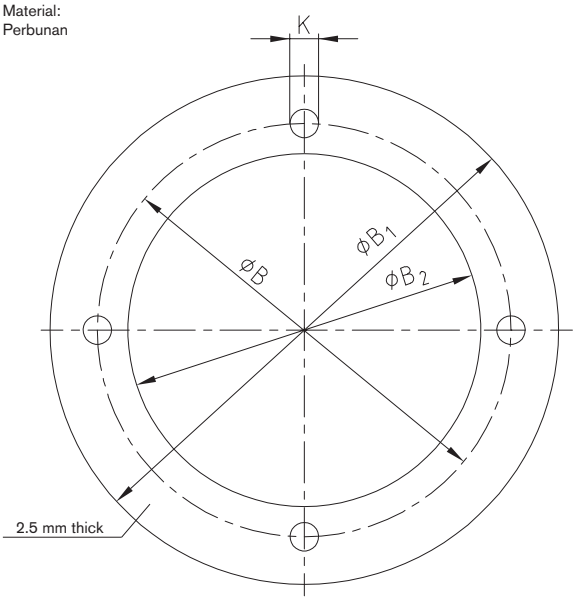
Ordering example:

ZO 300
Mounting flange size

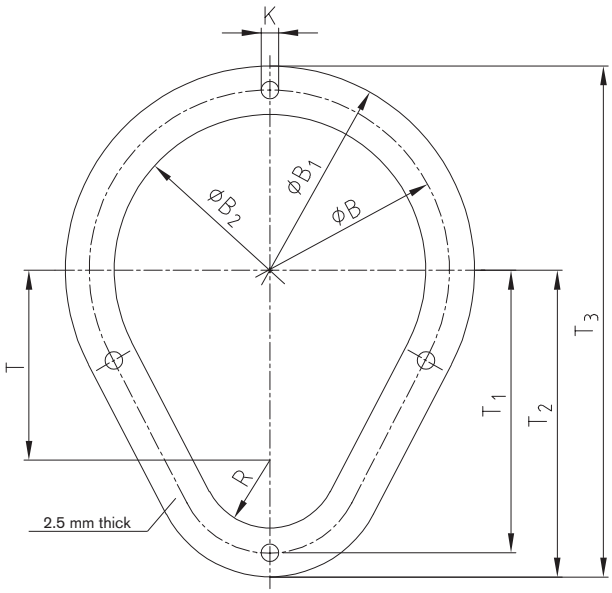
Gaskets type DP and DZ for mounting flange ZO

Gasket type DP

Material:
Perbunan



Gasket DZ

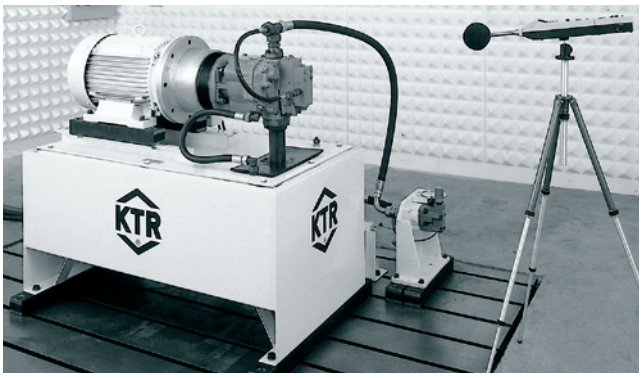


Gaskets for bellhousings and mounting flanges									
Size	Dimensions [mm]								
	B	B_1	B_2	T	T_1	T_2	T_3	K	R
DP 160	130	160	111	–	–	–	–	4 x 9	–
DP 200	165	200	146	–	–	–	–	4 x 11	–
DP 250	215	250	191	–	–	–	–	4 x 13	–
DP 300	265	300	235	–	–	–	–	4 x 13	–
DP 350	300	350	261	–	–	–	–	4 x 17	–
DP 400	350	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:

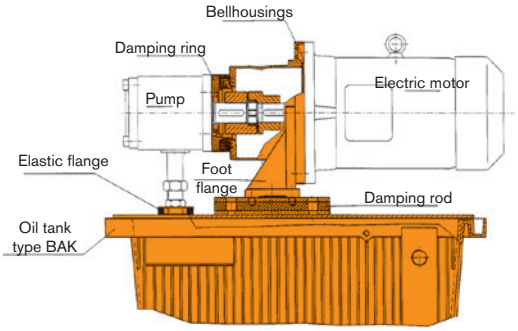
DP 300
Type and size of gasket

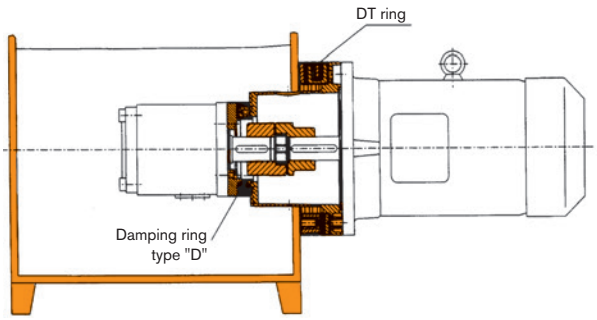
Damping elements



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:

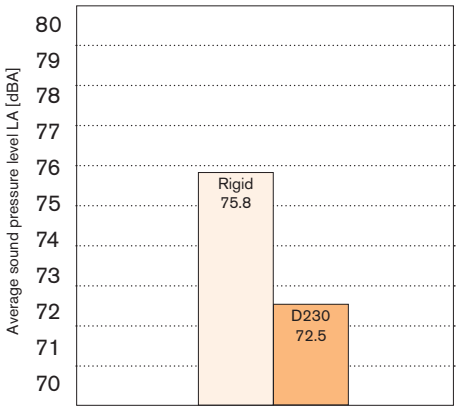
a) Damping ring only:	3 - 6 dBA
b) Damping rod only:	3 - 4 dBA
c) Damping ring and damping rod:	6 - 8 dBA
d) Damping ring, damping rod and elastic flange:	7 - 10 dBA
e) Damping ring type DT/DTV:	3 - 6 dBA
f) Damping ring type DT/DTV and damping ring:	6 - 8 dBA

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.

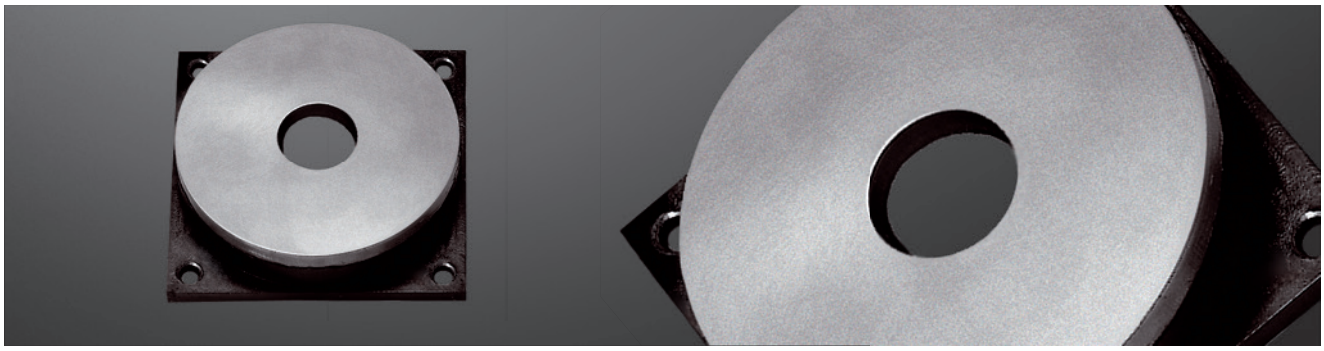
Result of noise measurement:

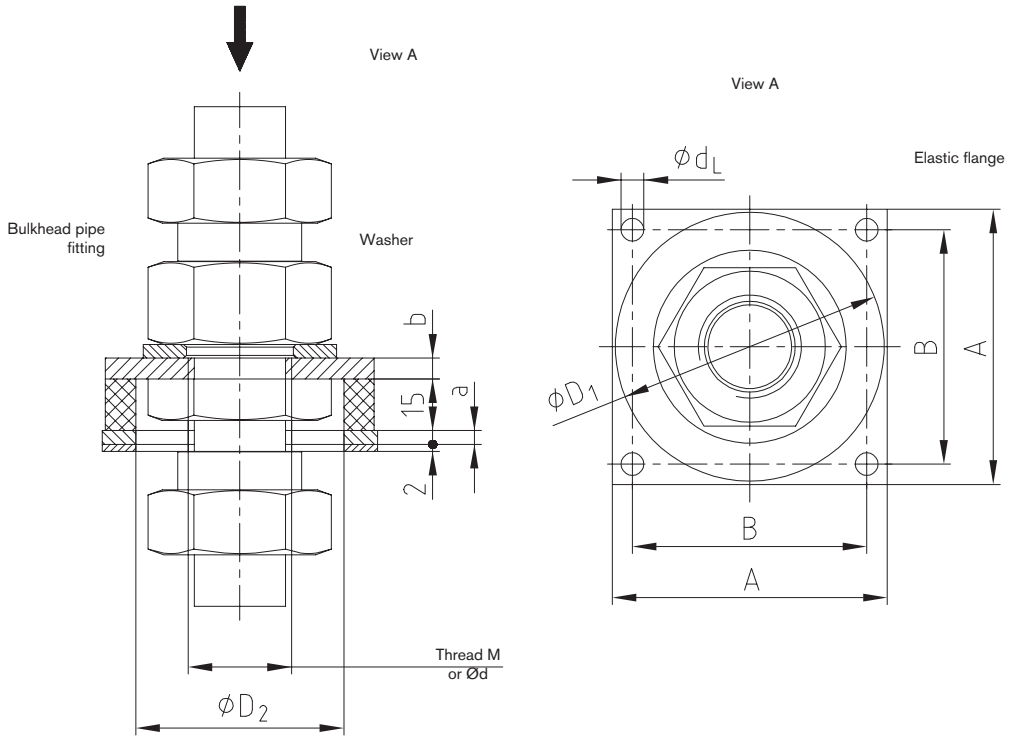
Test data:

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



Elastic flange



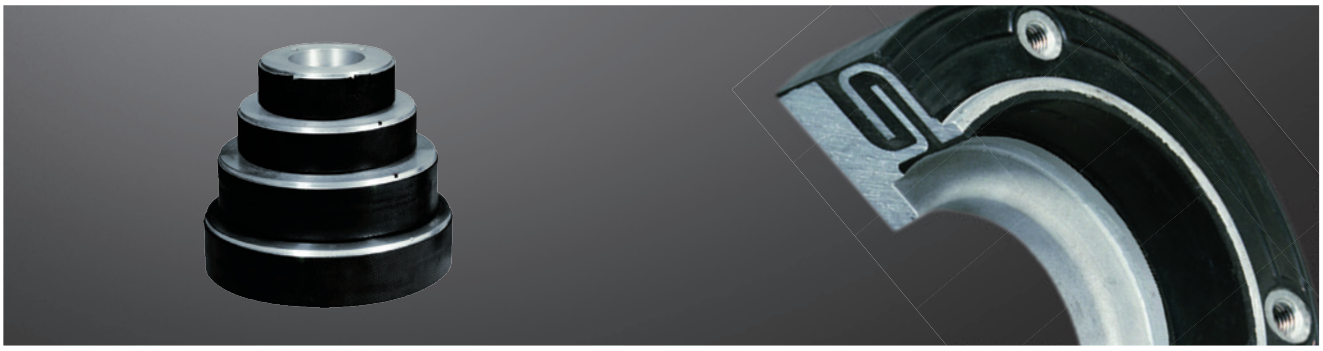


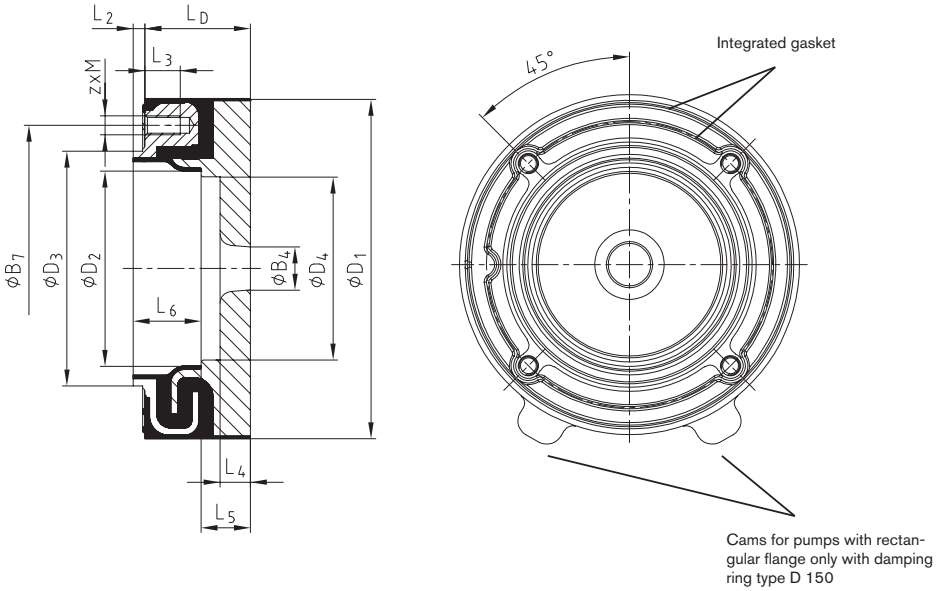
Elastic flange												
Elastic flange								Bulkhead pipe fitting *)				Note
Size	A	B	a	b	D_1	D_2	d_L	Type L light-weight	Type S heavy-weight	Thread M	Pilot bore for Ød	
80-2.11								SV 28-L	SV 25-S	M36 x 2	Ø34	
80-2.10								SV 22-L	SV 20-S	M30 x 2	Ø28	
80-2.9								SV 18-L	–	M26 x 1.5	Ø24.5	
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	130	110	6	10	125	95	9	SV 35-L	–	M45 x 2	Ø43	
130-2.2								–	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 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	8 3	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 $F_{max.} = F_{perm.}$

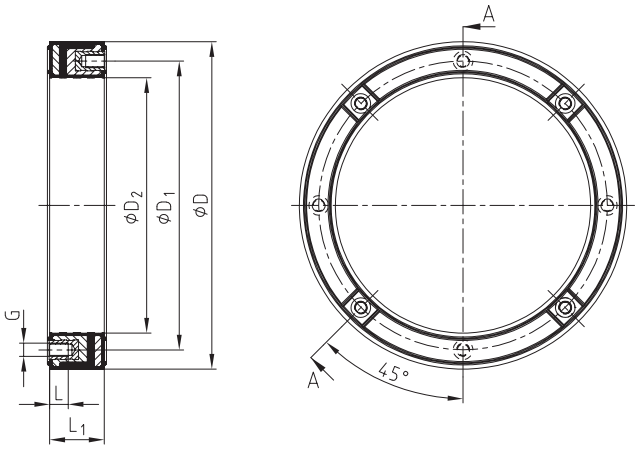
$F_{perm.} = F_{max.} \cdot L / L_X$ [N]

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

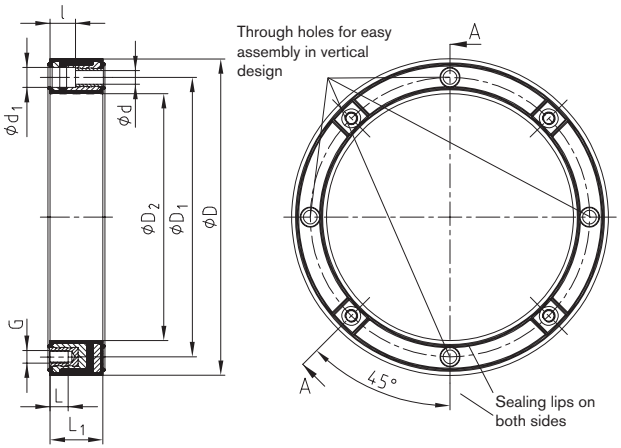
Ordering example:	D	230	14
	Damping ring	Size	In-house modification code

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

Damping ring type DT



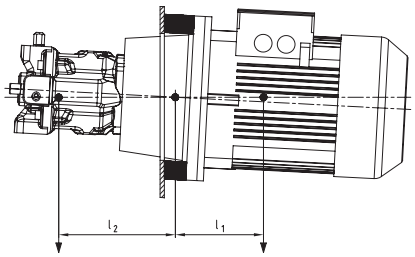
Damping ring type DT…/2
(not suitable for lateral installation of tank)



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

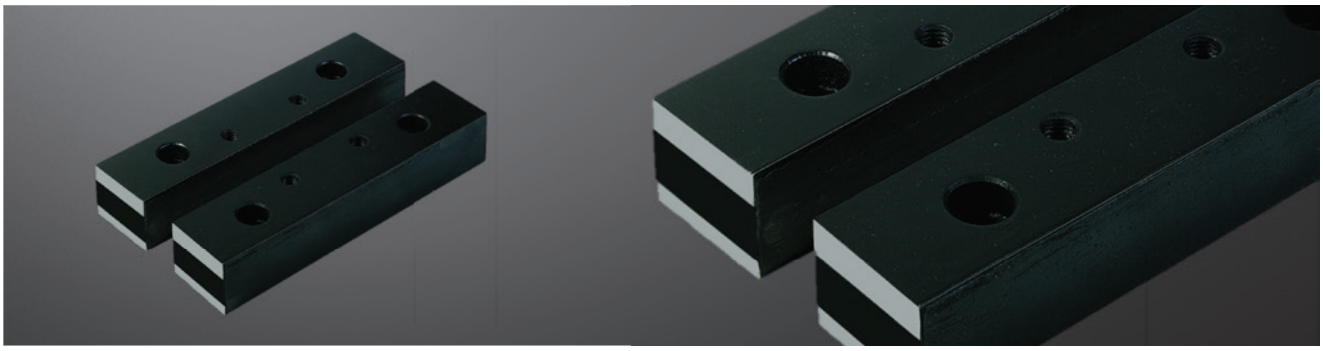
$F_{perm.} \geq F_P + F_M$

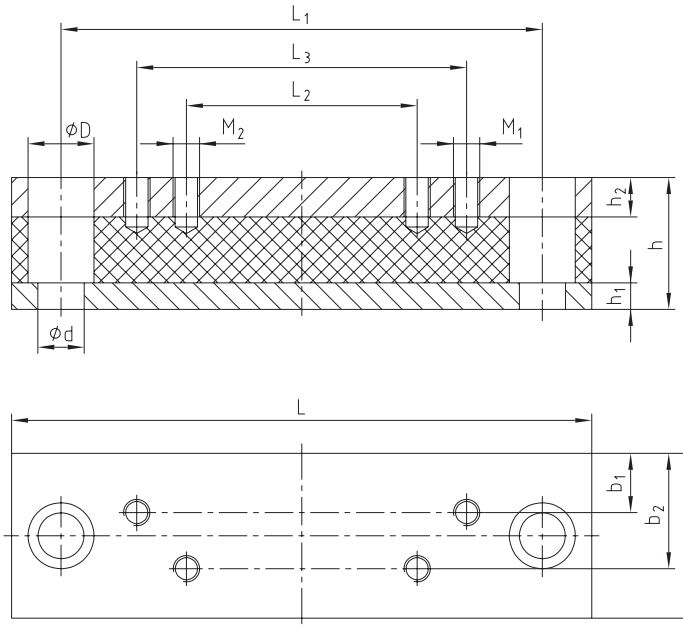
$M_{b\ perm.} \geq F_M \cdot l_1 - F_P \cdot l_2$

Ordering example:

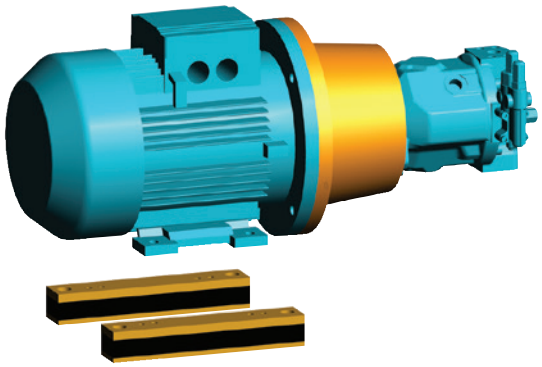
DT	250
Damping ring	Size

Damping rods type DSM





Type DSM



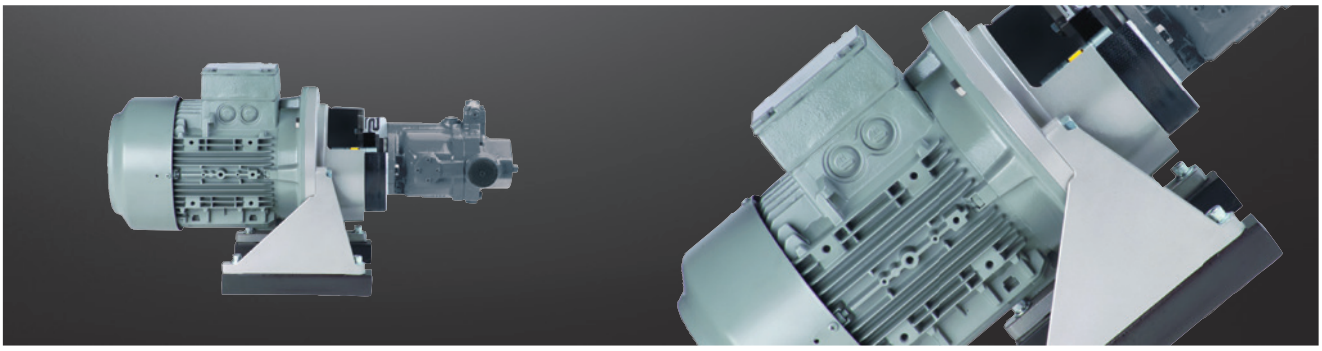
Damping rods type DSM for electric motors type IMB 35, protection class IP54															
Damping rod size	For motor size	Dimensions [mm]													
		L	L_1	L_2	L_3	h	h1	h2	b	b1	b2	d	D	M 1	M_2
DSM 71	71	196	156	90		40	8	12	50	21		14	20	M6	
DSM 80	80	176	146	100		40	8	12	50	22		14	20	M8	
DSM 90 S	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 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	h1	h2	b	b1	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

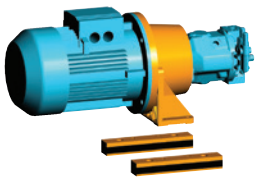
Damping rod size	For foot flange	Dimensions [mm]												
		L	L_1	L_2	L_3	h	h1	h2	b	b1	b2	d	D	M_1, M_2
DSFS 200L	PTFS 200	245	205	150	–	40	8	12	50	19	-	13	20	M10
DSFS 250	PTFS 250	240	140	185		40	8	12	50	17.5	-	13	20	M12
DSFS 250/300L	PTFS 250/300	340	300	185	225	40	8	12	50	17.5	32.5	13	20	M12
DSFS 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

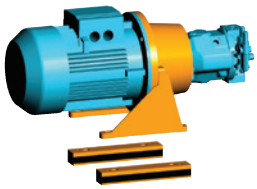
Damping rod size	For cooler size	Dimensions [mm]										
		L	L_1	L_2	h	h1	h2	b	b1	d	D	M
DSK 200	PIK 200	240	210	154.5	40	8	12	50	25	14	20	M12
DSK 250	PIK 250	270	240	175.5	40	8	12	50	25	14	20	M12
DSK 300	PIK 300	280	250	199.5	40	8	12	50	25	14	20	M12
DSK 350	PIK 350	325	295	243.5	60	15	15	70	35	14	20	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

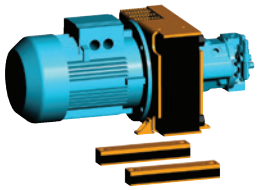
Type DSFL



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 machinery
- Agricultural machinery
- 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 lamina 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: Ⓔx II 2G Ex h IIC T6…T3 Gb X
- Dust sector: Ⓔx 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)
- Speed-controlled operation

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

Selection system

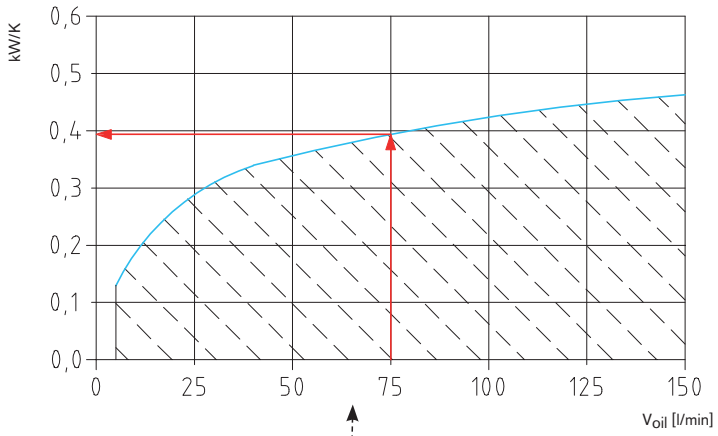
To select the suitable cooler you need to know the following details:

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

Performance diagramme of OAC400



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

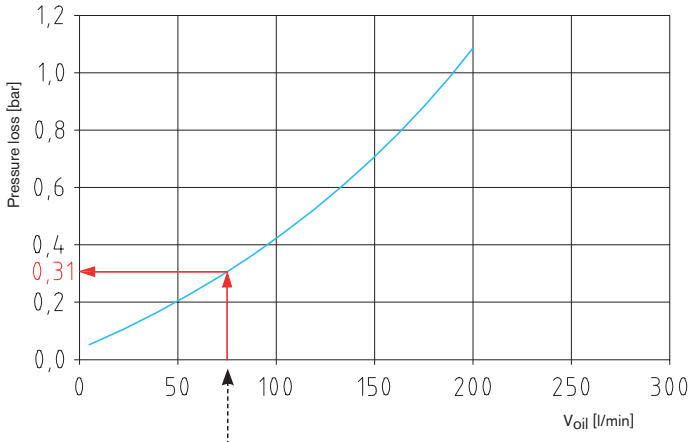
Calculation of pressure loss

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

Pressure loss 30 cSt



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

Type code of industrial cooler oil/air

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

Size of cooler
100
200
250
300
400
500
600
700
800
850
900
1000
2000

Type
No specification = Standard
M = Marine (seawater resistance)
ExG = ATEX (gas-protected area)
ExD = ATEX (dust-protected area)
M-ExG = Marine & ATEX (gas)
M-ExD = Marine & ATEX (dust)
ECO2 = Speed-controlled operation

Motor
00 = Without motor
01 = Direct current 12V
02 = Direct current 24V
03 = AC current
04 = Hydraulics
09 = Special

Effective direction
Standard = Sucking (no specification required)
B = Pressing

Number of poles or displacement
0 = Not applicable
2 = Number of poles
4 = Number of poles
6 = Number of poles
8 = Number of poles
6 = Displacement cm3/revolution
8 = Displacement cm3/revolution
11 = Displacement cm3/revolution
14 = Displacement cm3/revolution
19 = Displacement cm3/revolution

Voltage
To be omitted if not applicable
A = 230/400V 50 Hz 460V 60 Hz
B = 400/690V 50 Hz
C = 230V 50/60 Hz (single-phase)
D = 230/400V 50/60 Hz Compact fan (OAC300/400)
Z = Special voltage*

* Special voltage in plain language

Bypass
0 = Without bypass
TB6 = Thermal bypass (6 bars/50 °C)
DB6 = Pressure bypass (2, 4, 6 bars)
DB4F = Pressure bypass (4 bars)

Protective grid against stones
0 = No
1 = Yes

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				6
OAC200-01	12	0.10	2838	8.2	IP68	280			100	11
OAC200-02	24	0.11	2925	4.4	IP68	280				11
OAC250-01	12	0.10	2838	8.2	IP68	280				13
OAC250-02	24	0.11	2925	4.4	IP68	280			120	13
OAC300-01	12	0.22	3080	18.4	IP68	350				16
OAC300-02	24	0.23	2730	9.4	IP68	350				16
OAC400-01	12	0.22	3080	18.4	IP68	350	26	14		22
OAC400-02	24	0.23	2730	9.4	IP68	350			200	22
OAC500-01	12	0.24	2600	20.2	IP68	385				30
OAC500-02	24	0.24	2700	9.8	IP68	385				30
OAC600-01	12	2 x 0.10	2838	2x8.2	IP68	280			250	43
OAC600-02	24	2 x 0.11	2925	2x4.4	IP68	280				43
OAC700-01	12	2 x 0.24	2600	2x20.2	IP68	385				53
OAC700-02	24	2 x 0.24	2700	2x9.8	IP68	385			350	53
OAC800-01	12	2 x 0.24	2600	2x20.2	IP68	385				81
OAC800-02	24	2 x 0.24	2700	2x9.8	IP68	385				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]		Protection class		Fan Ø [mm]	Noise [1] [dbA]	Perm. pressure [bar]		Max. volume flow [l/min]	Weight [kg]
	50 Hz	60 Hz	50 Hz	60 Hz	Standard	Marine			Static	Dynamic		
OAC100-03 C	0.07	0.08	2500	2700	IP54	–	200	64			50	16
OAC200-03 C	0.12	0.16	2450	2650	IP54	–	250	69			100	16
OAC200-03	0.18	0.21	1350	1650	IP55	IP56	280	66			100	16
OAC250-03	0.18	0.21	1350	1650	IP55	IP56	280	66			120	20
OAC300-03-4	0.37	0.43	1370	1670	IP55	IP56	380	76			160	24
OAC300-03-6	0.18	0.21	850	1020	IP55	IP56	380	63			160	24
OAC300-03 D	0.14	0.17	1400	1600	IP44	-	350	72			160	21
OAC400-03-4	0.37	0.43	1370	1670	IP55	IP56	380	76			200	29
OAC400-03-6	0.18	0.21	850	1020	IP55	IP56	380	63	26	14	200	29
OAC400-03 D	0.14	0.17	1400	1600	IP44	-	350	72			200	26
OAC500-03-4	0.37	0.43	1370	1670	IP55	IP56	380	78			200	37
OAC500-03-6	0.18	0.21	850	1020	IP55	IP56	380	63			200	37
OAC600-03-4	0.75	0.86	1440	1740	IP55	IP56	520	78			250	57
OAC600-03-6	0.55	0.6 3	935	1135	IP55	IP56	520	70			250	57
OAC700-03-4	0.75	0.86	1440	1740	IP55	IP56	520	78			350	70
OAC700-03-6	0.55	0.63	935	1135	IP55	IP56	520	70			350	70
OAC800-03-4	1.5	1.75	1435	1730	IP55	IP56	630	87			350	97
OAC800-03-6	1.1	1.3	955	1146	IP55	IP56	630	81			350	97
OAC850-03	2.2	2.55	965	1165	IP55	IP56	750	79			350	130
OAC900-03-6	2.2	-	965	-	IP55	IP56	900	85			450	173
OAC900-03-4	7.5	-	1465	-	IP55	IP56	900	97			450	205
OAC1000-03-8	1.5	-	700	-	IP55	IP56	900	81			530	154
OAC1000-03-6	2.2	-	965	-	IP55	IP56	900	87	21	14	530	187
OAC1000-03-4	7.5	-	1465	-	IP55	IP56	900	97			530	212
OAC2000-03-8	4	-	720	-	IP55	IP56	1000	86			700	329
OAC2000-03-6	7.5	-	980	-	IP55	IP56	1000	92			700	357
OAC2000-03-4	18.5	-	1470	-	IP55	IP56	1000	100			700	429

[1] Measurement based on 50 Hz operation
[2] Max. medium temperature: 110 °C (higher temperatures on request)/Max. ambient temperature: 40 °C

Hydraulic fan drive										
Type of cooler [3]	Displacement [ccm]	Speed [rpm]	Fan Ø [mm]	Noise [dbA]	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			160	21	10	18
OAC300-04-08	7.9		380	75				21	13	15
OAC400-04-06	6.3		380	74			200	25	10	18
OAC400-04-08	7.9		380	74				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			250	50	13	27
OAC600-04-11	10.9		520	78				50	20	17
OAC700-04-08	7.9		520	78			250	60	13	27
OAC700-04-11	10.9		520	78				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	1000	750	79			450	110	15	45
OAC900-04-19	18.8		900	85				155	20	82
OAC900-04-19	18.8	1500	900	95				155	46	132
OAC1000-04-19	18.8	1000	900	85	21	14	530	188	20	82
OAC1000-04-19	18.8	1500	900	97				188	46	132
OAC2000-04-44	44.1	1000	1000	92			700	295	48	87
OAC2000-04-44	44.1	1500	1000	100				295	107	126

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

Diagrammes of performance and pressure loss

Performance diagramme oil

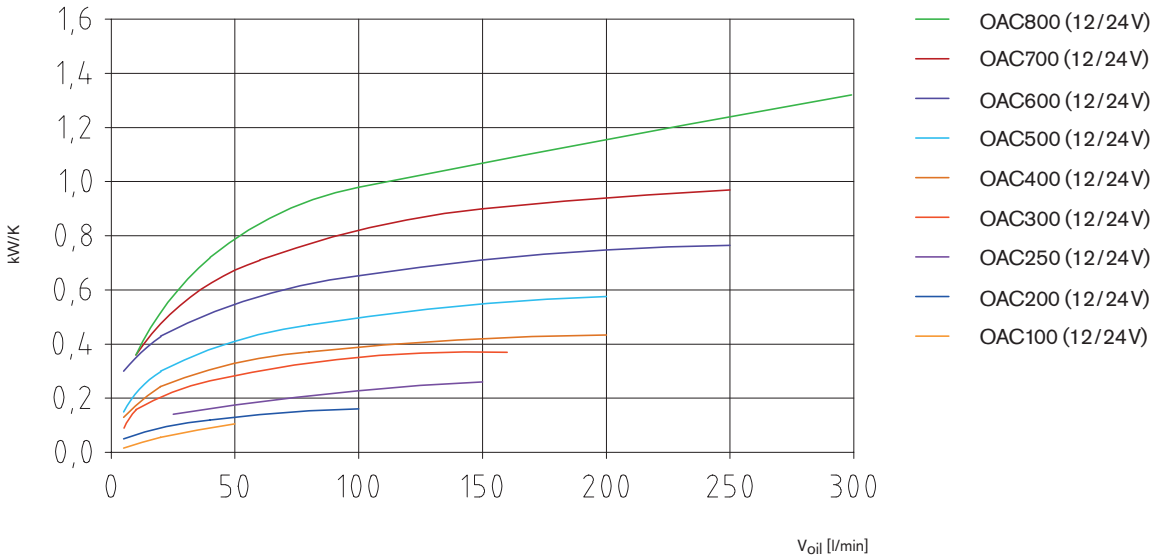
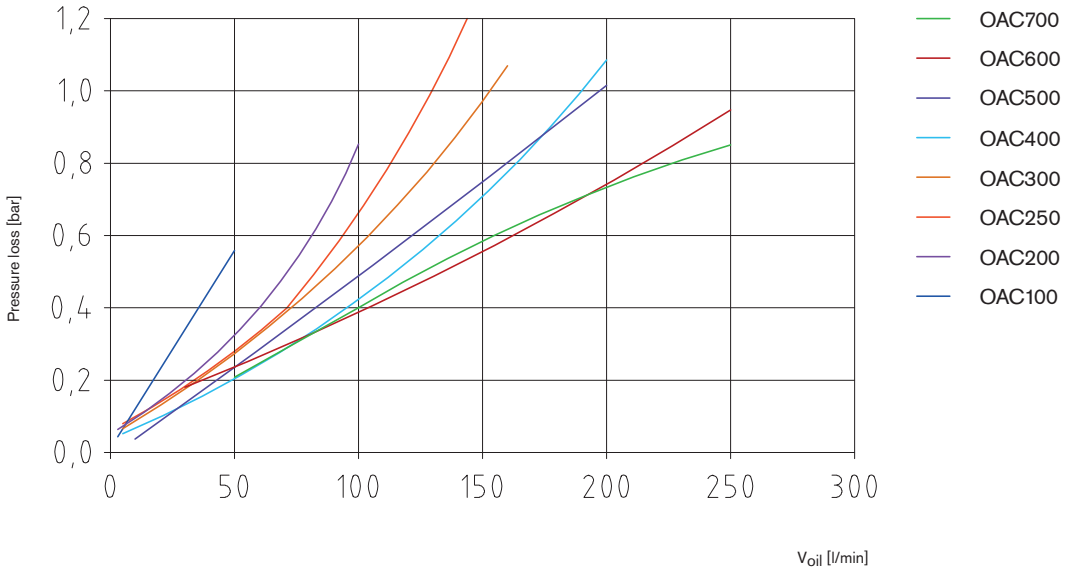
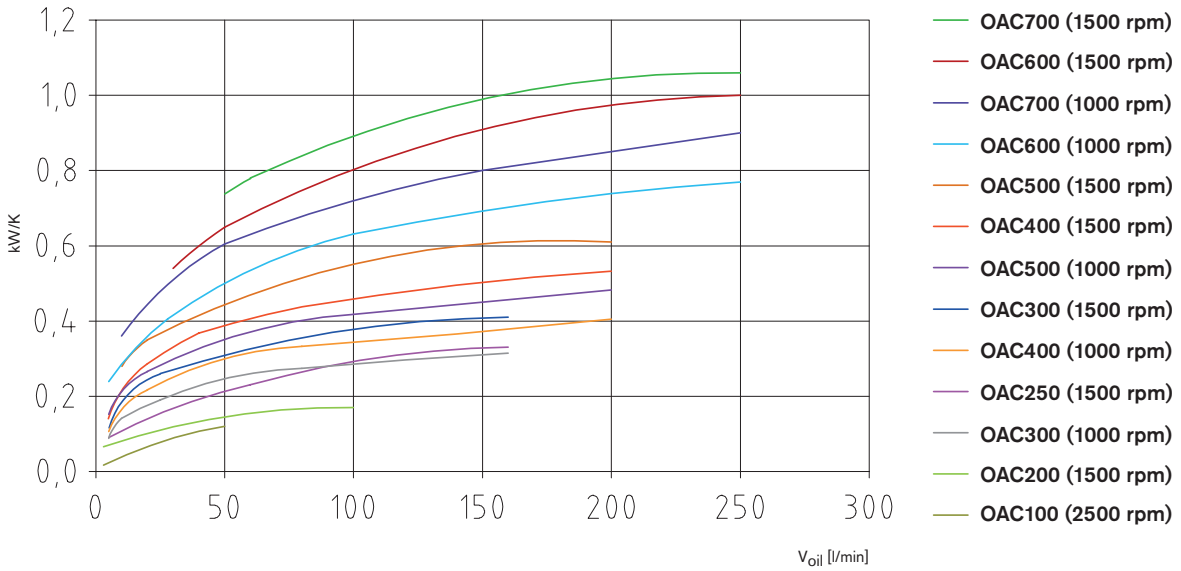


Diagramme of pressure loss

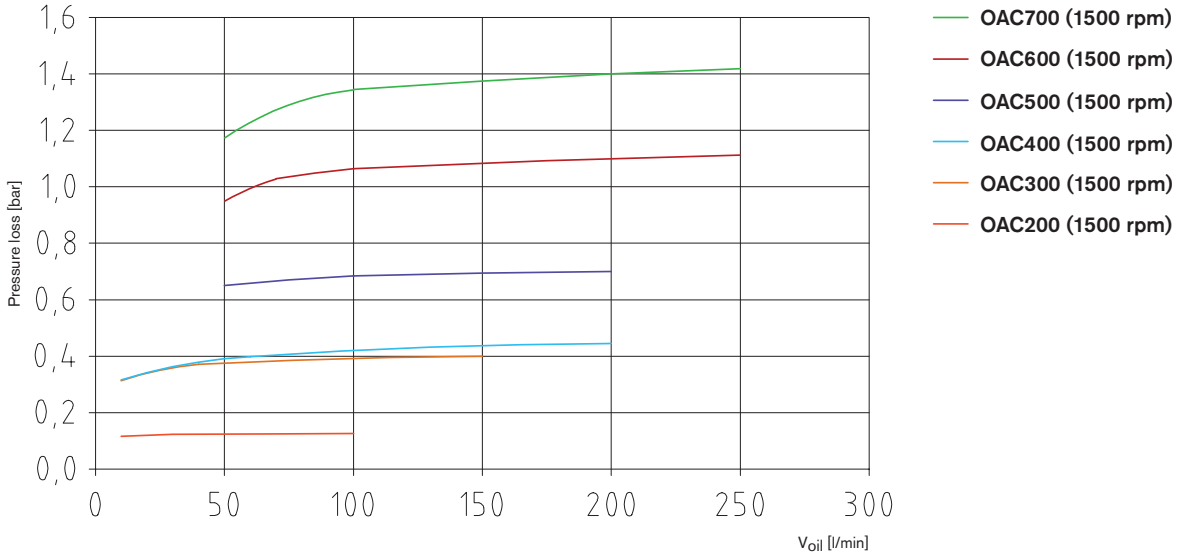


Conversion factor of pressure loss									
cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	51	1.2	1.4	1.6	2.1	2.8

Performance diagramme oil



Performance diagramme water/glycol (50/50)



Diagrammes of performance and pressure loss

Performance diagramme oil

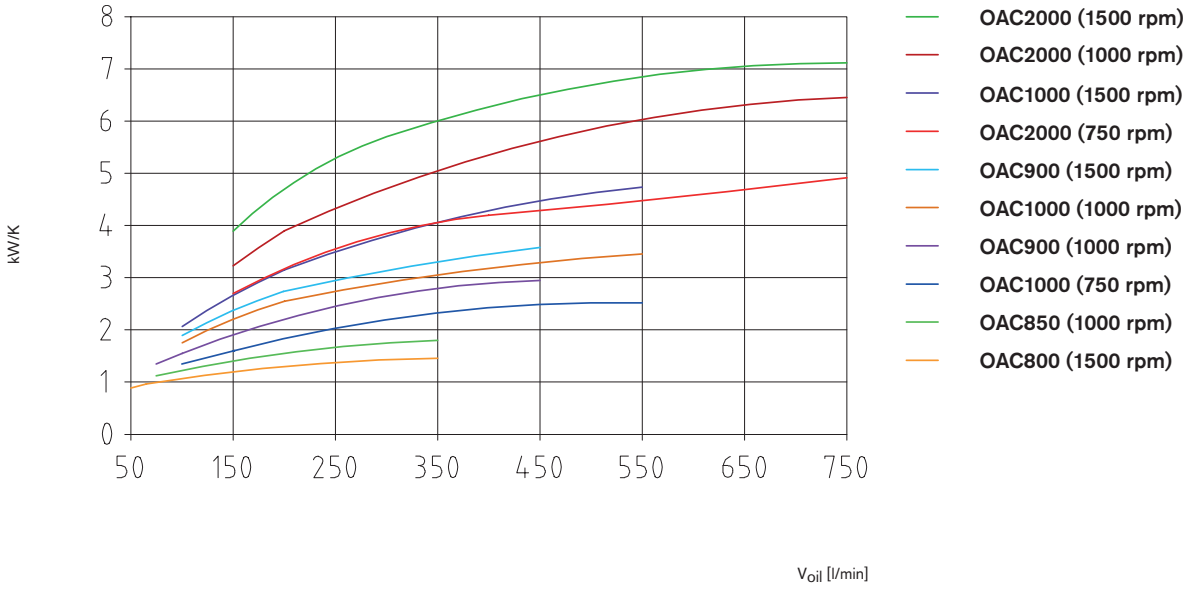
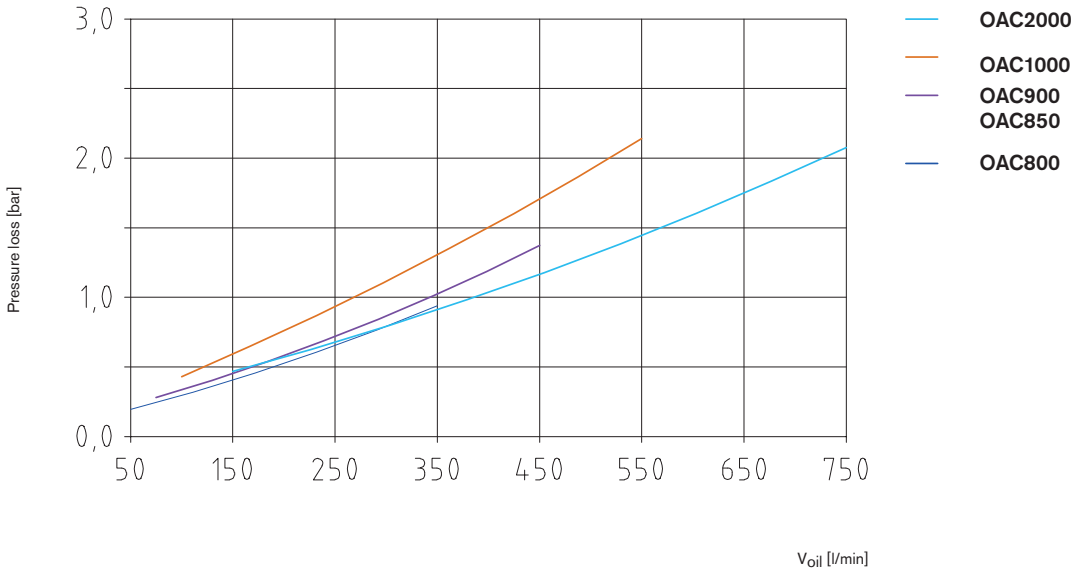
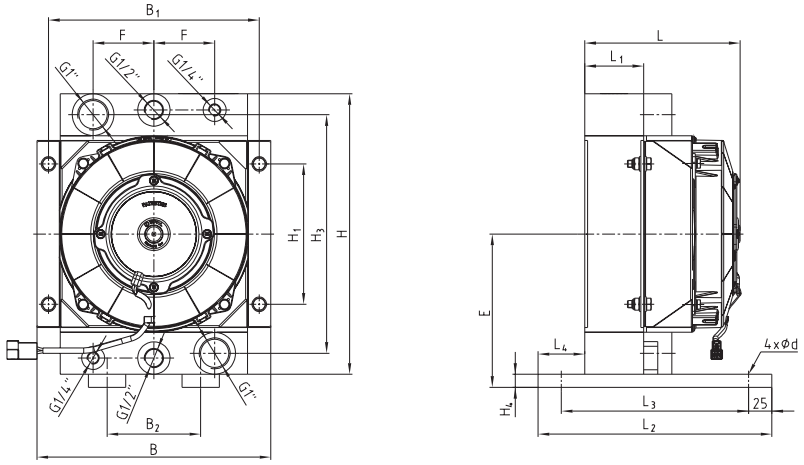


Diagramme of pressure loss

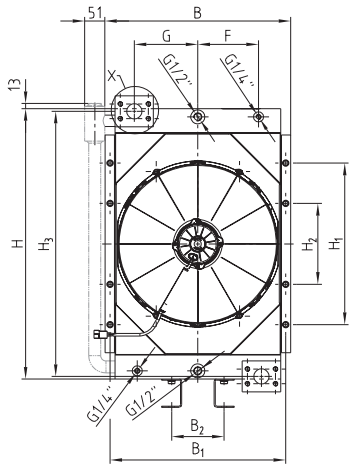


Conversion factor of pressure loss									
cSt	10	15	20	30	40	50	60	80	100
Factor	0.5	0.65	0.75	1	1.2	1.4	1.6	2.1	2.8

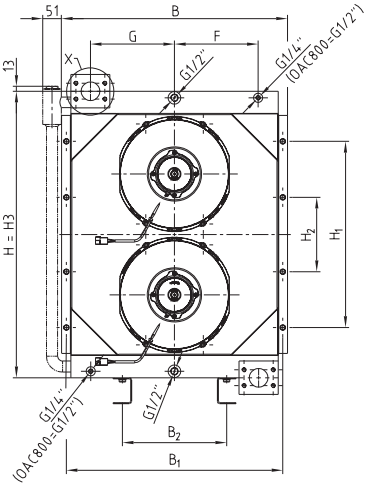
Dimensions of OAC100 - 800 (12/24V)

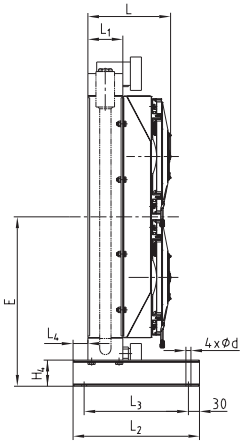


OAC100 - OAC400 12/24V

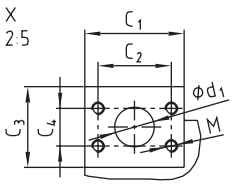


OAC500 12/24V



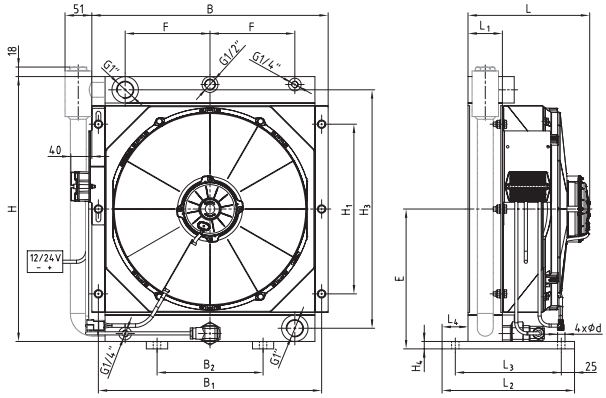


OAC600 - OAC800 12/24V

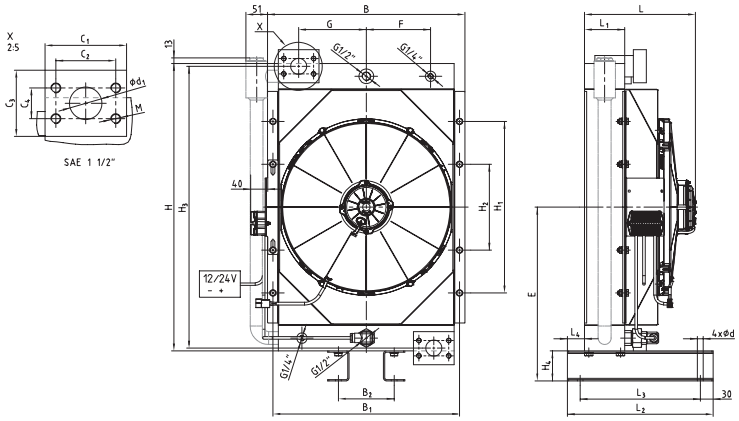


Oil/air cooler type OAC 12/24V																									
Type of cooler	Dimensions [mm]																								
	L	L_1	L_2	L_3	L_4	B	B_1	B_2	H	H_1	H_2	H_3	H_4	H_5	d	d_1	C_1	C_2	C_3	C_4	SAE flange	M	F	G	E
OAC100-01	167	64	250	200	50	250	225	100	300	150	-	255	14	-	14	-	-	-	-	-	-	-	75	-	164
OAC100-02																									
OAC200-01	167	64	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	115	-	219
OAC200-02																									
OAC250-01	197	95	250	200	50	350	325	174	410	240	-	360	14	-	14	-	-	-	-	-	-	-	115	-	219
OAC250-02																									
OAC300-01	230	65	250	200	49	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC300-02																									
OAC400-01	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC400-02																									
OAC500-01	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1½"	M12	150	157.5	405
OAC500-02																									
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																									
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																									
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																									

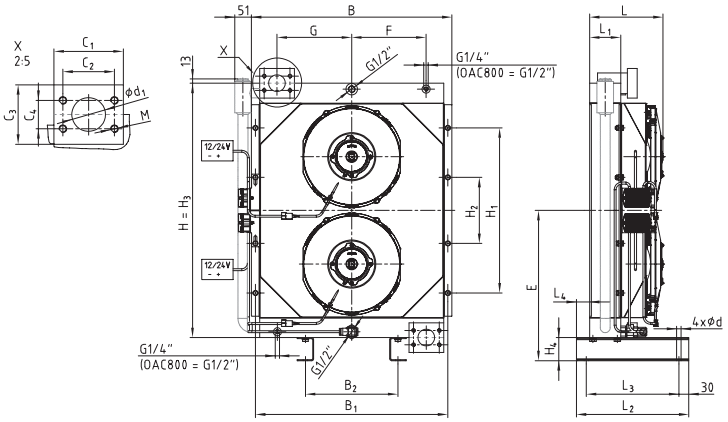
Dimensions of OAC 300 - 800 (12/24V) speed-controlled



OAC300 - 400 12/24V



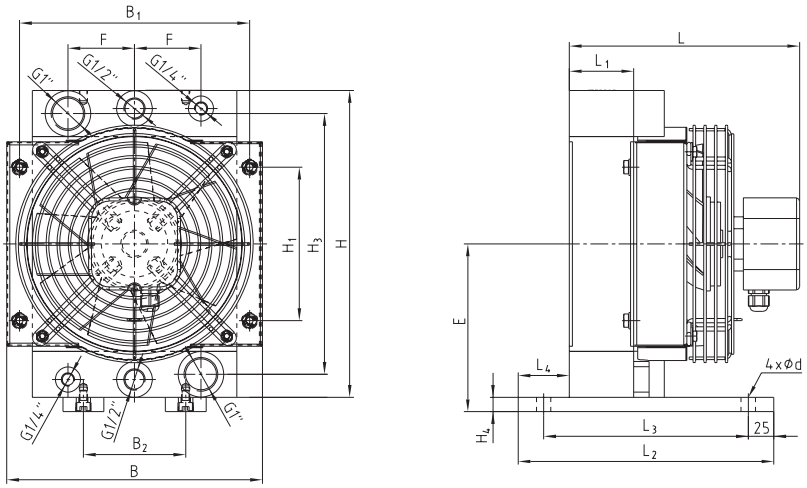
OAC500 12/24V



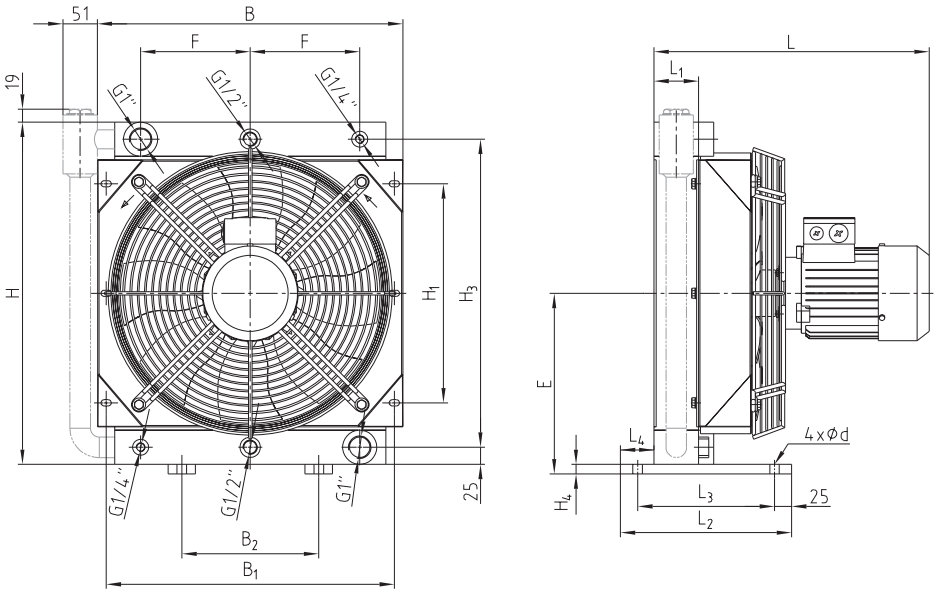
OAC600 - 800 12/24V

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																									
OAC400-01	260	94	280	230	55.5	446	421	200	500	320	-	450	14	-	14	-	-	-	-	-	-	-	160	-	264
OAC400-02																									
OAC500-01	259	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1½"	M12	150	157.5	405
OAC500-02																									
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																									
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																									
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																									

Dimensions of OAC100 - 400 (230/400V)



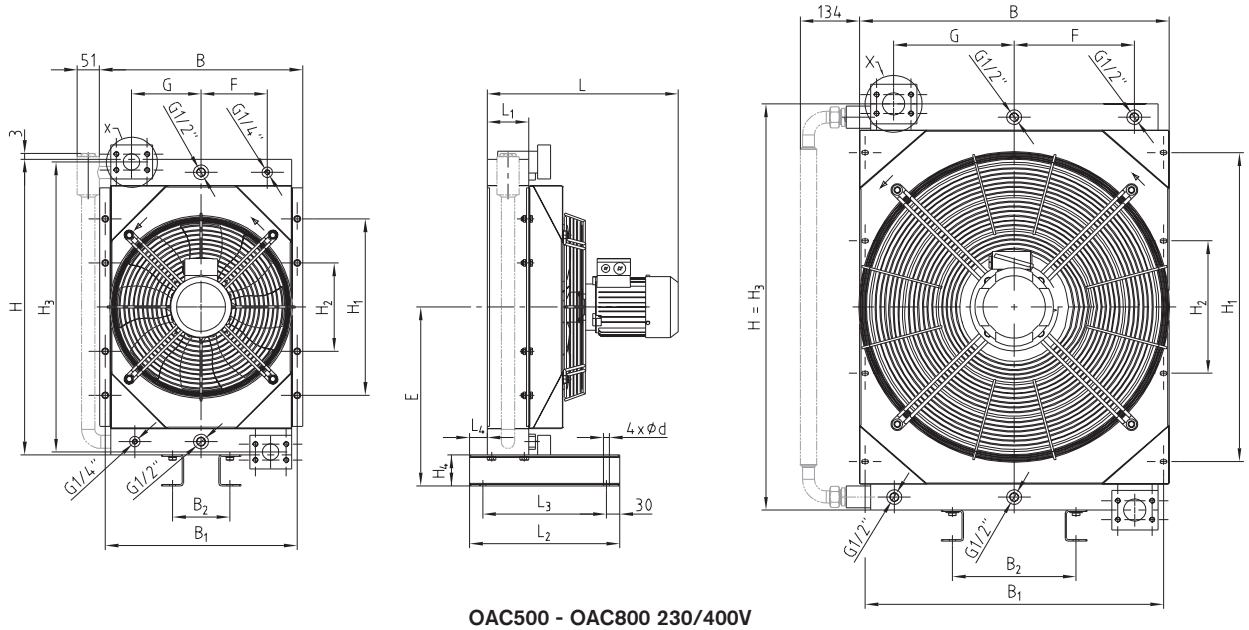
OAC100 - OAC400 230/400V (compact fan)



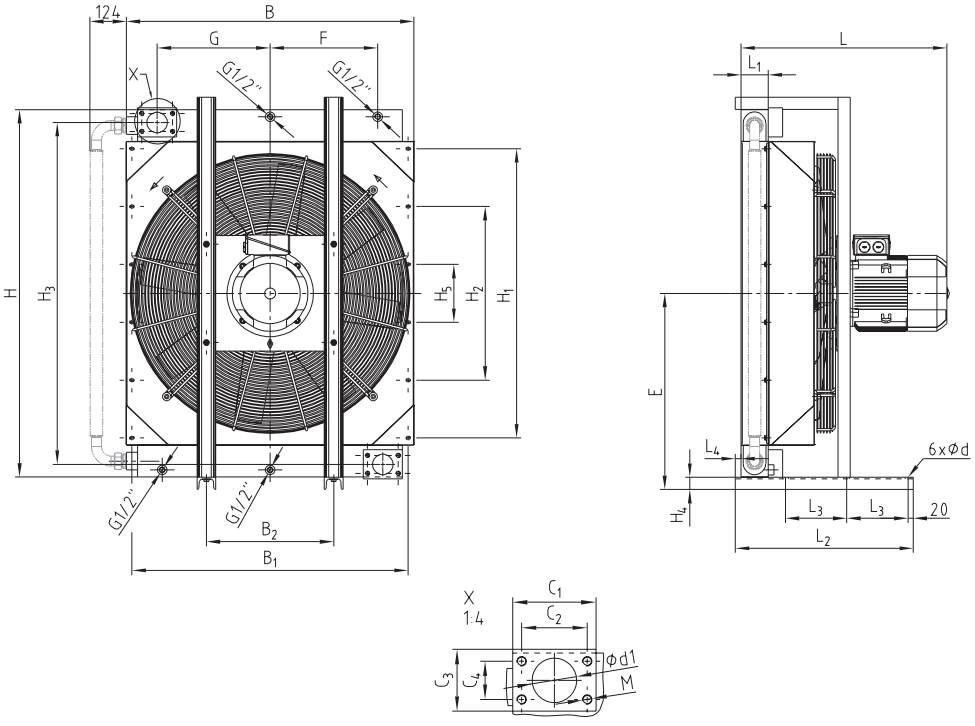
OAC200 - OAC400 230/400V

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

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



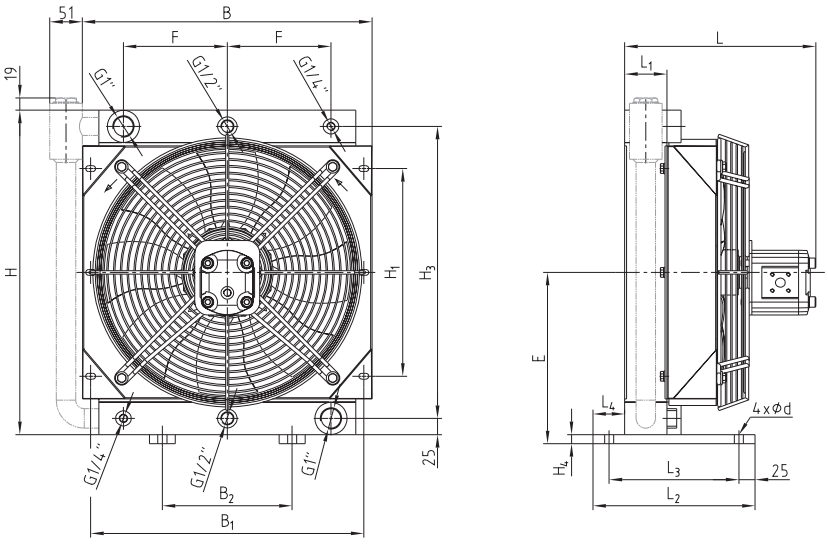
OAC500 - OAC800 230/400V



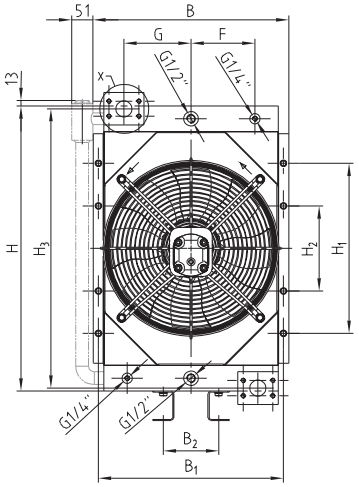
OAC850 - OAC2000 230/400V (400/690V)

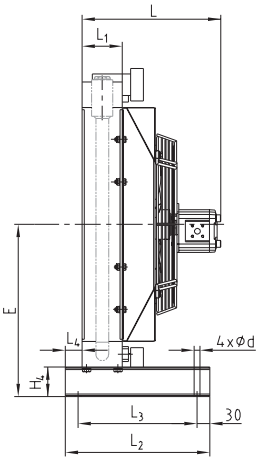
Oil/air cooler type OAC 230/400V																									
Type of cooler	Dimensions [mm]																								
	L	L_1	L_2	L_3	L_4	B	B_1	B_2	H	H_1	H_2	H_3	H_4	H_5	d	d_1	C_1	C_2	C_3	C_4	SAE flange	M	F	G	E
OAC500-03	431	94	340	280	40	460	435	130	670	400	200	657	70	-	13.5	38	95	69.9	77	35.7	1½"	M12	150	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		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		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		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		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		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		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		M16	532	532	756

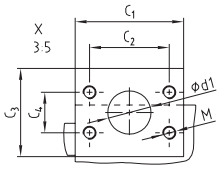
Dimensions of OAC200 - 800 (hydraulic)



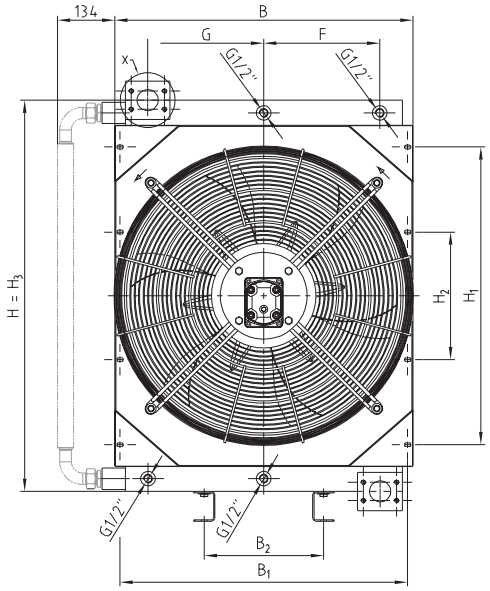
OAC200 - OAC400







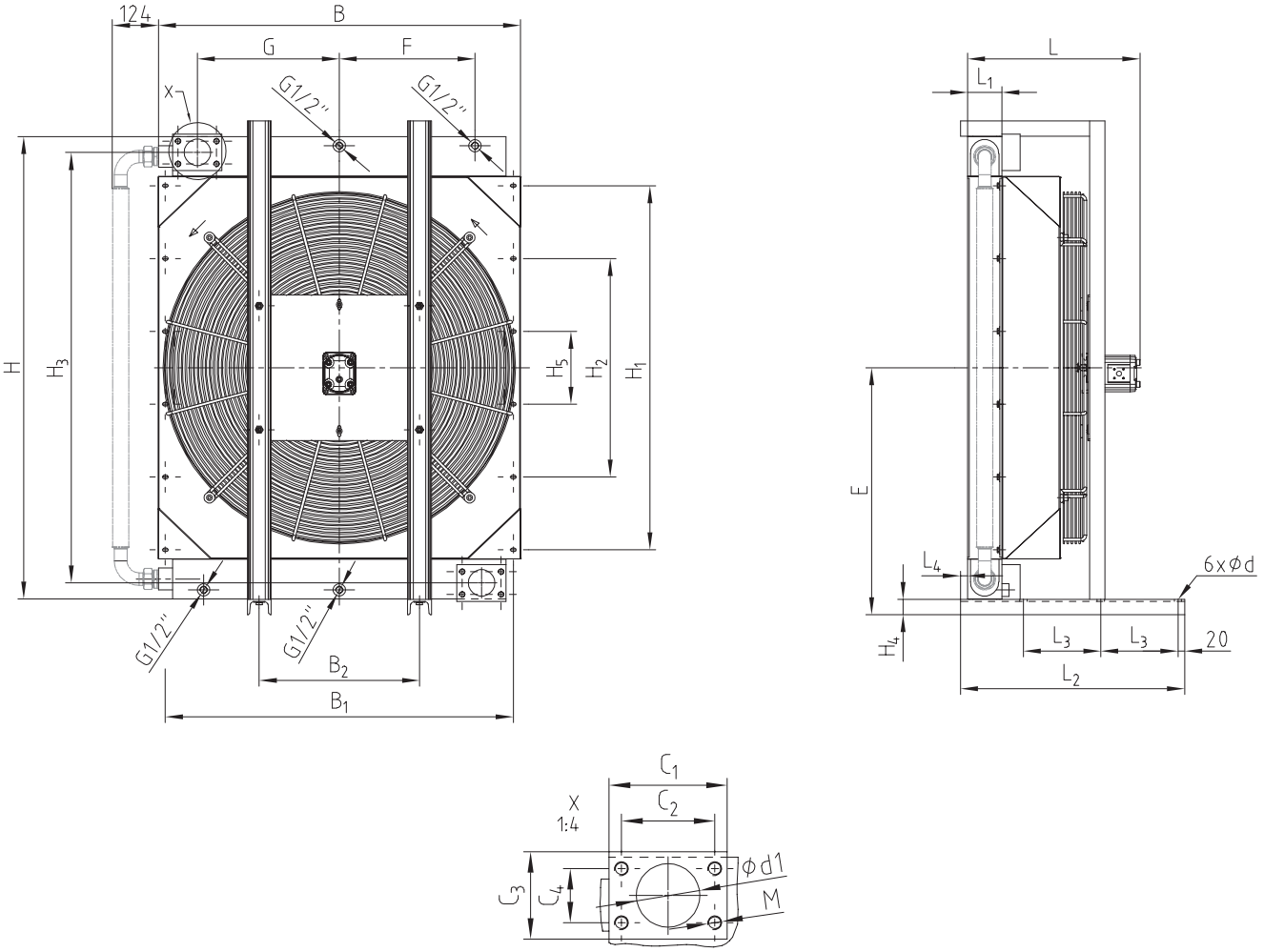
OAC500 - OAC700



OAC800

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
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	1½“	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

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	95 5	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

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 lamina 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:

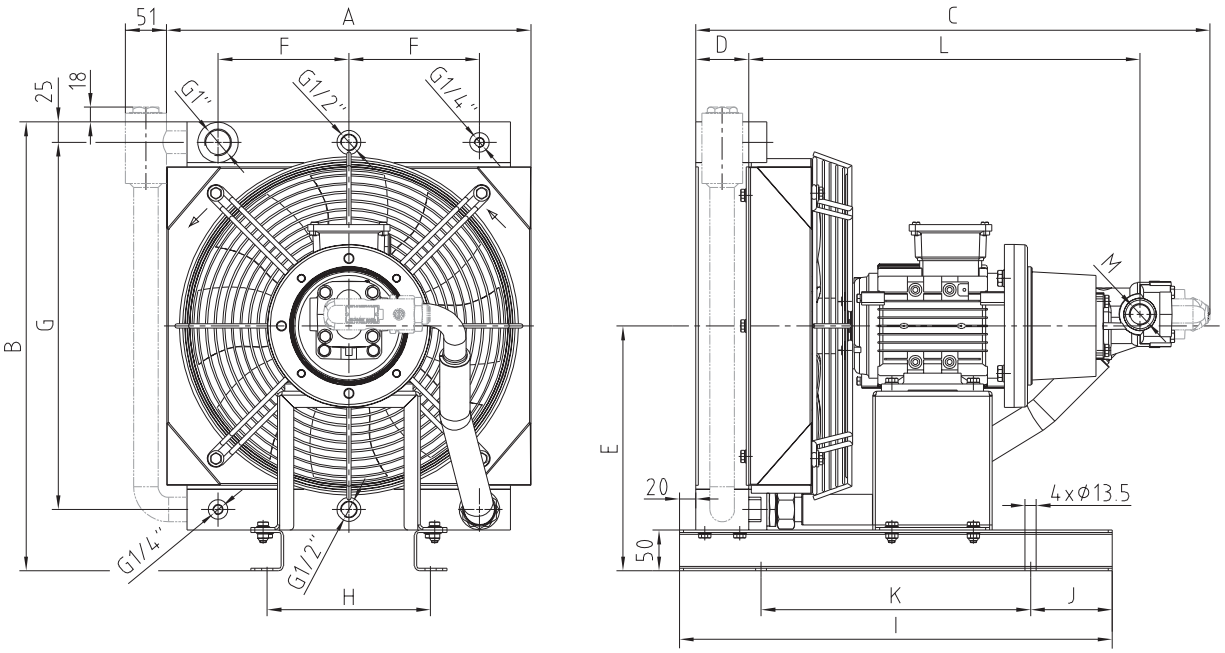
- Gas sector: Ⓔx II 2G Ex h IIC T6…T3 Gb X
- Dust sector: Ⓔx II 3D Ex h IIIC T68 °C…110 °C Gb X
- Ambient temperature -40 °C < Ta < +55 °C
- Motor and fan as an adequate ATEX design

Accessories (see page 51 et seqq.):

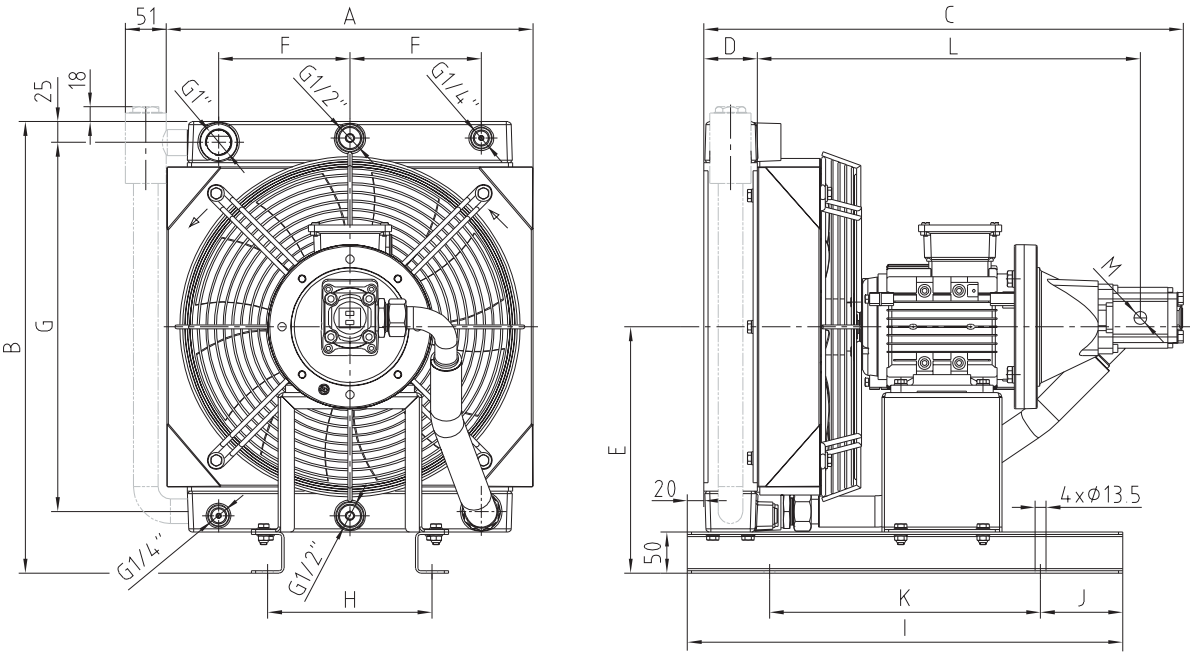
- Thermal bypass valves
- Oil thermostat valve (OTV)
- Protective grid
- Temperature switch (TSC)

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

Dimensions of OPC200 - 400 (230/400V)



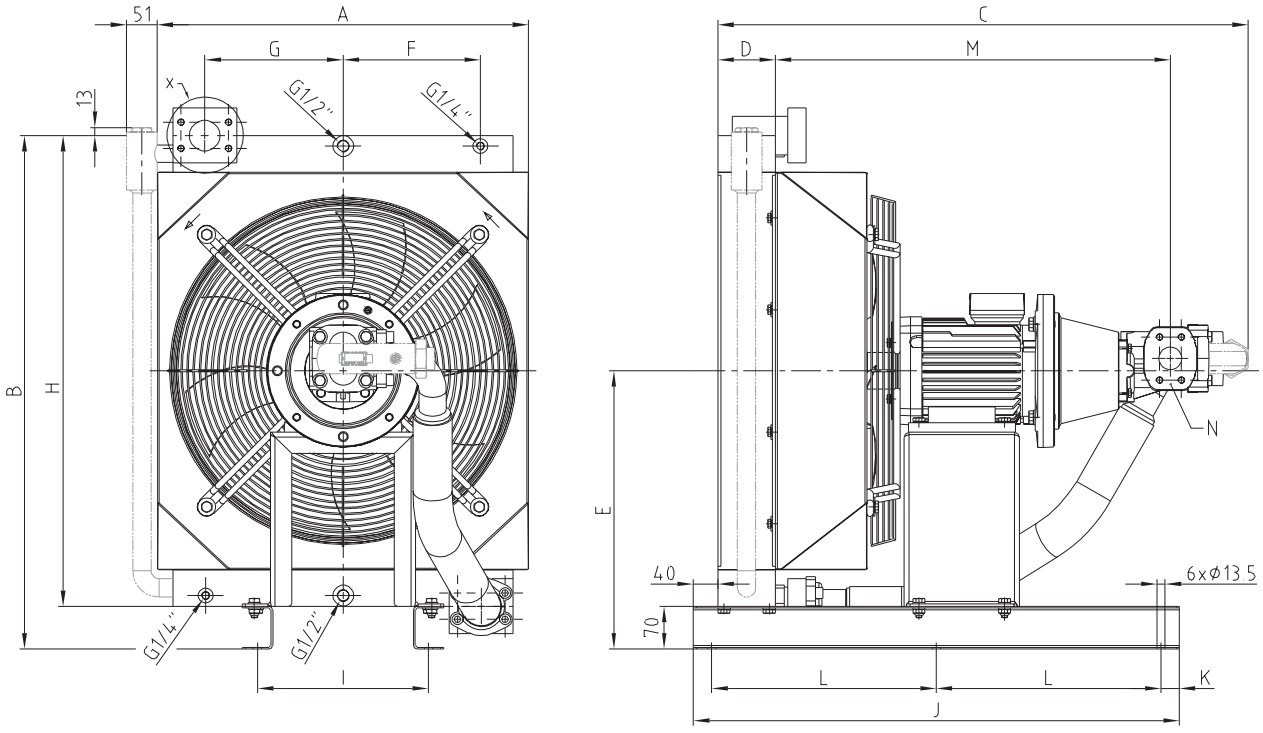
OPC200 - OPC400 for hydraulic applications (ISO VG32-68)

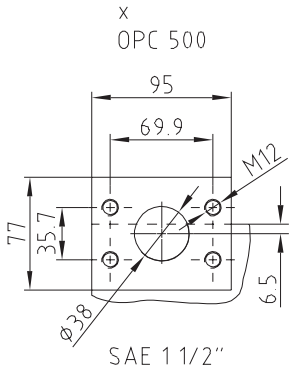


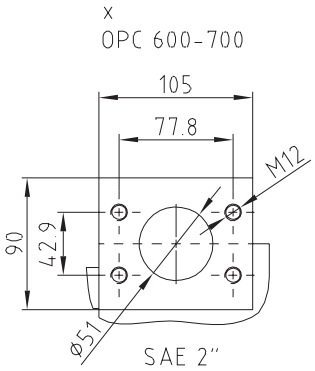
Technical data																			
Type of cooler	Voltage	Current [A]	Speed [rpm]	l/min	kW/°C	Dimensions [mm]													Weight [kg]
						A	B	C	D	E	F	G	H	I	J	K	L	M	
OPC200-I4-0.75kW	230/400V 50 Hz	1.8	1400	5.7	0.07	350	460	547	64	255	115	360	174	530	100	330	436	G 3/4“	35
OPC200-I8-0.75kW				11.5	0.09														
OPC200-4D-0.75kW				5.5	0.07	350	460	572									426	G 3/4"	
OPC200-12D-0.75kW				16.7	0.09														
OPC200-16D-0.75kW				21.4	0.10			596									435	G 1"	
OPC300-I8-0.75kW				11.5	0.18	446	550	615	65	300	160	450	200	530	100	330	467	G3/4“	42
OPC300-I14-0.75kW				20.1	0.23												476	G 1“	
OPC300-4D-0.75kW				5.5	0.12												464	G 3/4"	
OPC300-12D-0.75kW				16.7	0.23														
OPC300-16D-0.75kW				21.4	0.25			638									473	G 1"	
OPC400-I14-0.75kW				20.1	0.26			622	94					550	75	400	476	G 1“	45
OPC400-12D-0.75kW				16.7	0.24														
OPC400-16D-0.75kW				21.4	0.27			668									474	SAE	

= hydraulics application

Dimensions of OPC500 - 600 (230/400V)



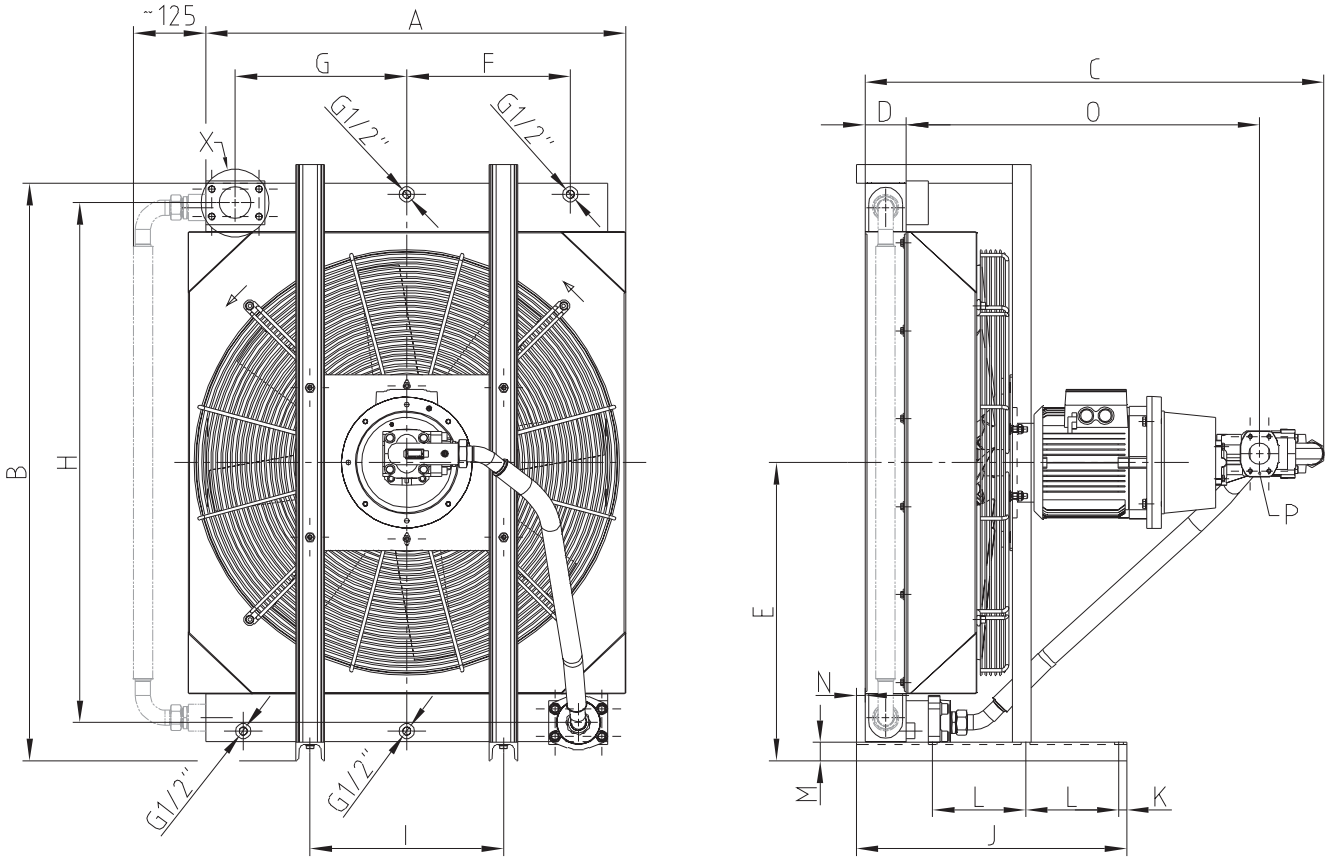


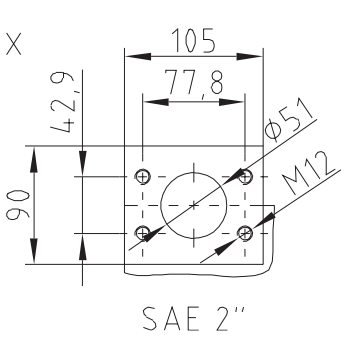


OPC500 - OPC600

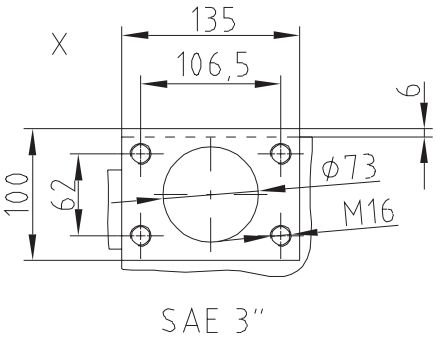
Technical data																					
Type of cooler	Voltage	Current [A]	Speed [rpm]	l/min	kW/°C	Dimensions [mm]															Weight [kg]
						A	B	C	D	E	F	G	H	I	J	K	L	M	N		
OPC500-16D-2.2kW	230/400V 50 Hz	4.9	1410	21.4	0.35	460	740	740	94	405	150	157.5	657	130	720	30	330.0	547	G 1"		75
OPC500-25D-2.2kW				33.4	0.40																
OPC500-32D-2.2kW				42.7	0.42			790										568	SAE 1 1/2"		77
OPC500-40D-2.2kW				53.5	0.45																
OPC600-16D-2.2kW				21.4	0.47	607	840	819	94	455	225	226.0	770	280	795	30	367.5	626	G 1"		96
OPC600-25D-2.2kW				33.4	0.56																
OPC600-32D-2.2kW				42.7	0.61			868										647	SAE 1 1/2"		98
OPC600-40D-2.2kW				53.5	0.66																

Dimensions of OPC800 - 1000 (400/690V)





(OPC800)

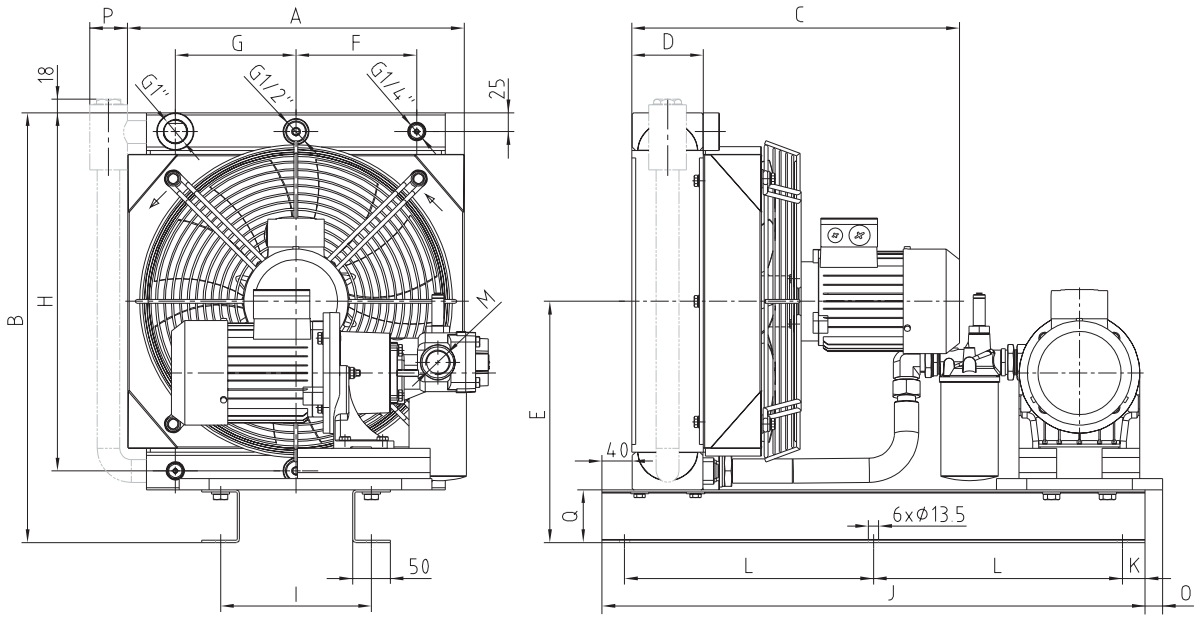


(OPC850 - OPC1000)

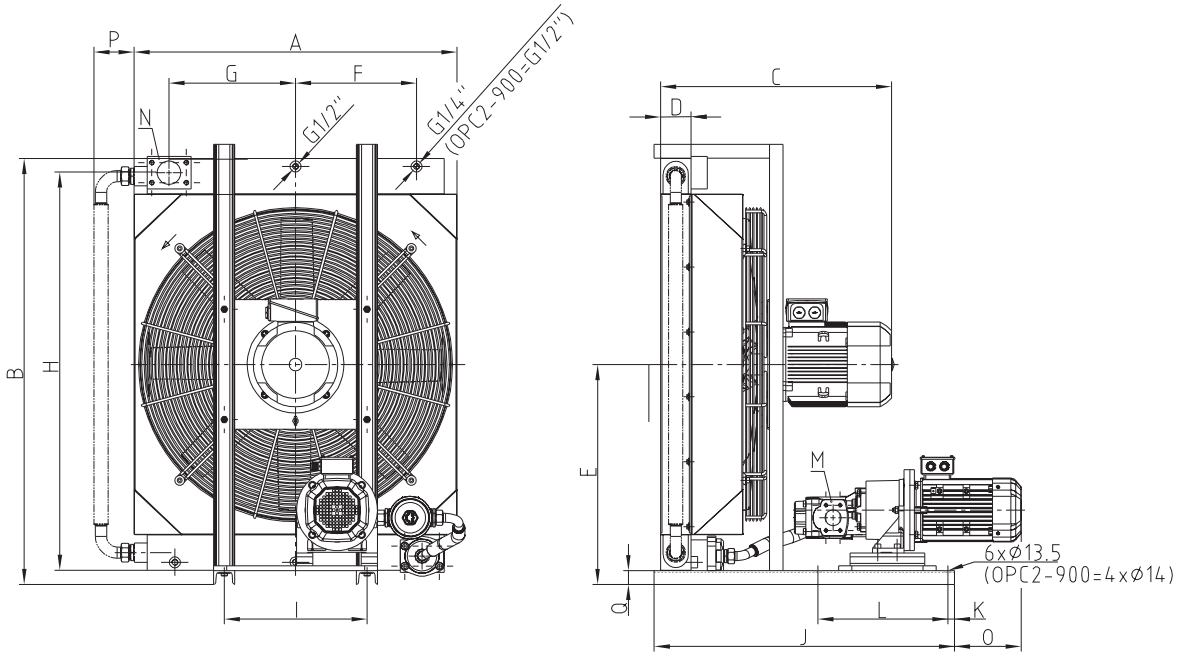
OPC800 - OPC1000 (400/690V)

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	N	
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		112
OPC800-80D-4kW				112	1.15			1130										845	38.0	113
OPC850-80D-5.5kW				72	1.12	870	1002	1046		523			910	350	590		180	804		146
OPC850-125D-5.5kW				113	1.32			1081	94							20		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									844		217
OPC1000-180D-5.5kW				167	2.33			1136										854	76.2	220

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



OPC2-300 - OPC2-400



OPC2-500 - OPC2-900

Technical data

Type of cooler	Volt-age	Motor Coolers		Motor Pump		Flow rate	kW/°C	Dimensions																Weight [kg]
		Cur-rent* [A]	Speed [rpm]	Cur-rent* [A]	Speed [rpm]	[l/min]		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	446	570	417	64	320	160	160	500	200	720	30	330	G¾"	G1"	23	51	70	53
OPC2-300-12						17	0.21																		
OPC2-400-16				1.77	1420	21.6	0.27				94									G 1"					63
OPC2-400-32						44	0.36																		66
OPC2-500-32						44	0.46	460	740	448		405	150	157.5	670	130				SAE 1 ½"	SAE 1 ½"				74
OPC2-500-63				3.43	1445	88	0.54																		81
OPC2-700-40		1.77	1420	1.77	1420	53.5	0.76	607	990	563	94	530	225	226	920	280	795		367.5		SAE 2"	340			117
OPC2-700-100				4.83	1440	141	0.98													SAE 2"					139
OPC2-900-63		5.3	955	3.43	1445	88	1.50	995	1313	712		678	372.5	390	1270	440	925	20	400	SAE 1 ½"	SAE 3"	227	125	42	235
OPC2-900-100				4.83	1440	141	1.91													SAE 2"		206			275

x basis 400V

Type code of industrial cooler oil/air

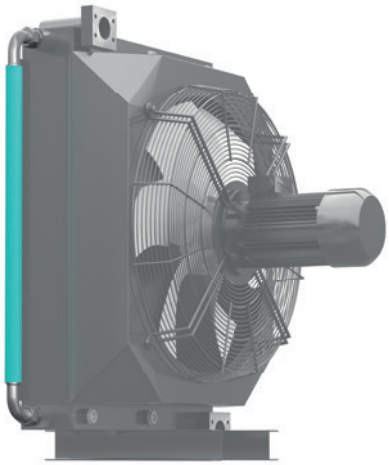
OPC 200 M - 4D - 0.75 kW - A - F10 - 0 - 0

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
200	**M** = Marine (seawater resistance)		**2.2 kW**	**B =** 400/690V 50 Hz	**F10 =** Filter (permeability up to 10µ) with visual display	**TB6 =** Thermal bypass (6 bars/50 °C)	1 = Yes
300	**ExG** = ATEX (gas-protected area)		**4 kW**	**Z =** Special voltage*	**F25 =** Filter (permeability up to 25µ) with visual display	**DB6(F) =** Pressure bypass (2, 4, 6 bars)	
400	**ExD** = ATEX (dust-protected area)		**5.5 kW**	* Special voltage in plain language			
500	**M-ExG =** Marine & ATEX (gas)						
600	**M-ExD =** Marine & ATEX (dust)						
700							
800							
900							
1000							

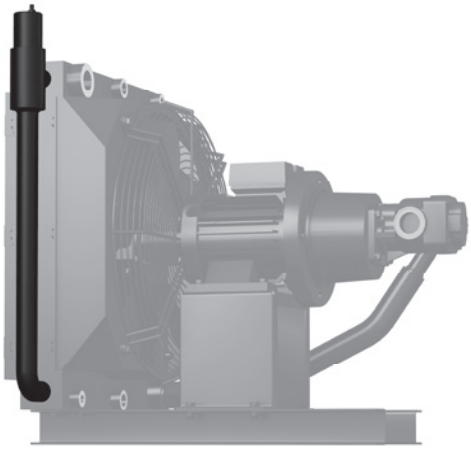
OPC2 - 400 M - 16 - 0.75-4 / 0.37-4 - Z - F10 - DB4 - 1

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
300	**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)	1 = Yes
400					**Z =** Special voltage*	**F25 =** Filter (permeability up to 25µ) with visual display	**DB6 =** Pressure bypass (2, 4, 6 bars)	
500					* Special voltage in plain language			
600								
700								
800								
850								
900								
1000								
2000								

Cooler accessories



Pressure bypass (DB6 & DB6F)
The pressure bypass protects the cooler core against excess pressure. A share of the volume flow is bypassed along the cooler core depending on the opening pressure.



Thermal & pressure bypass (TB6)
The 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.

Integrated bypass (DBI6 oder TBI6)
The integrated pressure (DBI6) or thermal & pressure bypass (TBI6) operates in the same way as mentioned above, but the bypass guide is completely integrated into the cooling element and therefore does not represent an interfering contour to the standard.

Cooler accessories

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

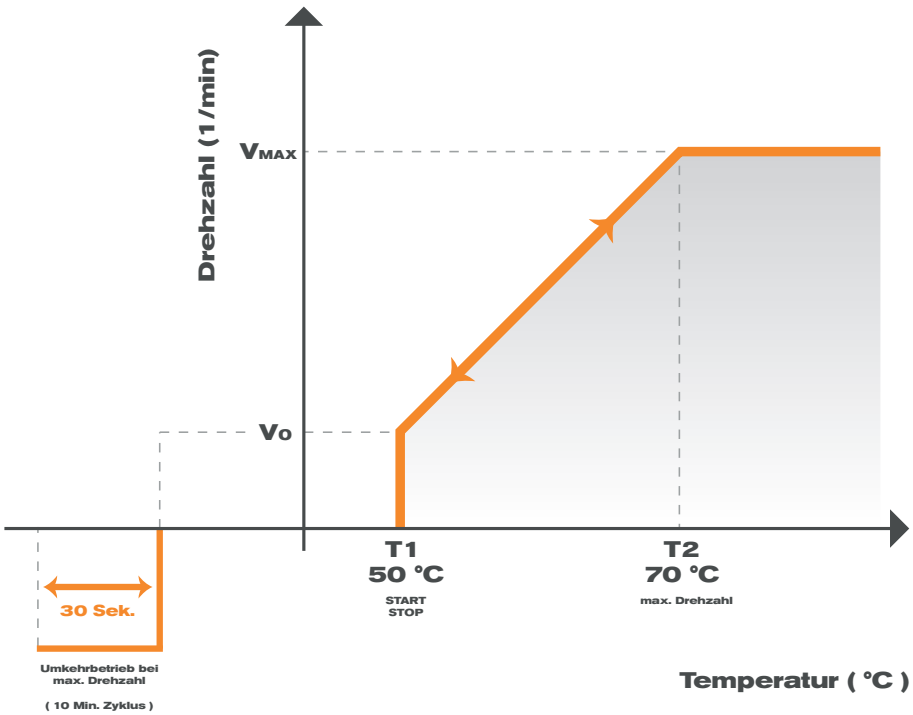
The soft start-up makes sure the motor exceeds the nominal current consumption by a maximum of 10 %, the motor accelerates slowly with increasing temperatures not overloading the current supply. Depending on temperature the motor makes sure that only as much cooling capacity as actually needed is provided. 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.

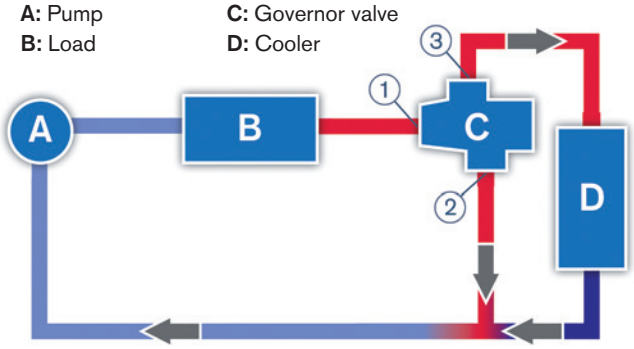
Frequency converter operation for coolers with three-phase motors

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.

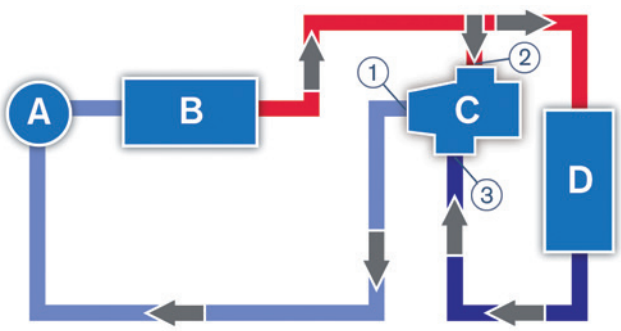


Oil thermostat valve

A: Pump
B: Load
C: Governor valve
D: Cooler



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



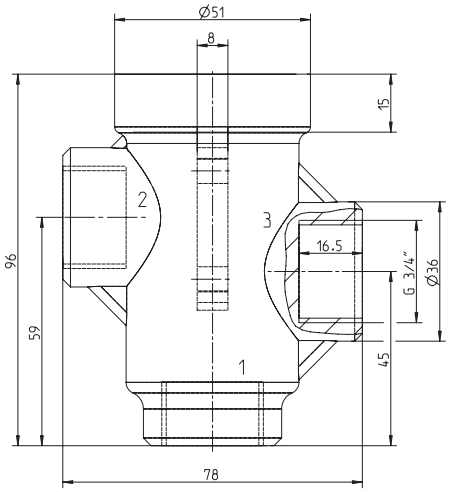
Use as a mixing valve:
Constant temperature on load inlet

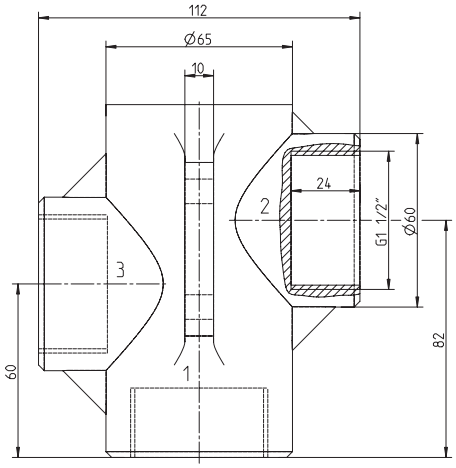
Main applications of oil thermostat valves

- Agricultural machinery
- Construction machinery
- 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





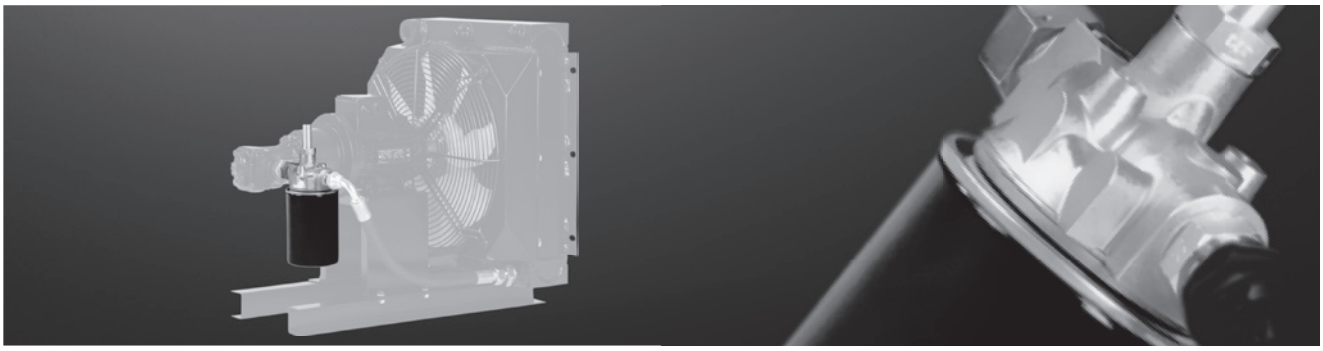
OTV Oil thermostat valve				
Description	Max. volume flow [m³/h]	Connection thread	Inlet temperature [°C]	Max. inflow to the cooler obtained with °C
OTV1-45	54	G ¾"	45	60
OTV1-55	41	G ¾"	55	70
OTV1-70	48	G ¾"	70	85
OTV2-45	100	G 1 ½"	45	60
OTV2-55	10	G 1 ½"	55	70
OTV2-70	10	G 1 ½"	70	85

Max. operating pressure 16 bars
15 m³ type available on request

Ordering example:

OTV	41	55
Oil thermostat valve	Size	Inlet temperature

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

Attachment for electrical signal (accessories)

Filter head

Filter cartridge

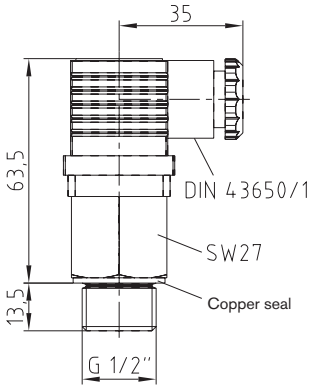
Attachment for electrical signal (accessories)

Filter head with switch lever
Replacing the cartridge during operation is possible.

Filter cartridge

Cooler accessories - temperature switch TSC

Technical data		
		Switching point:
Switching element:	Bi metal	TSC 40 = 40 °C
Switching operation:	NO = make contact	TSC 50 = 50 °C
Switching temperature:	+25 °C to +80 °C	TSC 60 = 60 °C
Material of probe:	Brass	TSC 70 = 70 °C
Max. operating pressure:	26 bars	TSC 80 = 80 °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

Pump unit with low-pressure pump

PUG - 4D - 0.18kW - 4 - A - F25.3

Filtration	25.3	25 µ incl. bypass + visual display
	10.3	10 µ incl. bypass + visual display
Voltage	A	230/400V 50 Hz
	B	400/690V 50 Hz
	Z	Special voltage
Pole number of motor	4	1500 revolutions
	6	1000 revolutions
For motor power see table		
Pressure relief valve	D	integrated valve
	-	without valve
for size of pump see table (without pump on request)		
Pump unit	PUG	Gearbox
	PUH	Hydraulics (NBR)
	PUW	Without pump

Motor [1]	**Pump**	
Power [kW]	Size	Volume flow [l/min]
0.37	4	5.5
	6	6.9
	48	11.0
	12	16.5
	16	22.0
	20	27.5
0.75	25	34.4
	32	44.0
1.5	40	55.0
	50	68.8
2.2	63	87.0
	80	110.0

[1] 4-pole operation

Gearbox application:
Pump unit with pressure limitation

PUG-25D-0,75kW-4-A-F25.3

Pump unit with finish machined bellhousing acc. to customer's specifications

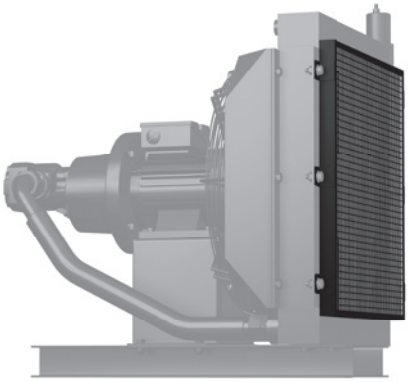
PUW-0-0.75kW-4-A-0

Stationary hydraulics
Pump unit without pressure relief valve

PUH-8-0.37kW-4-A-0

The pump units are assembled ready to fit and include a foot flange and two damping rods. Modifications on request

Accessories



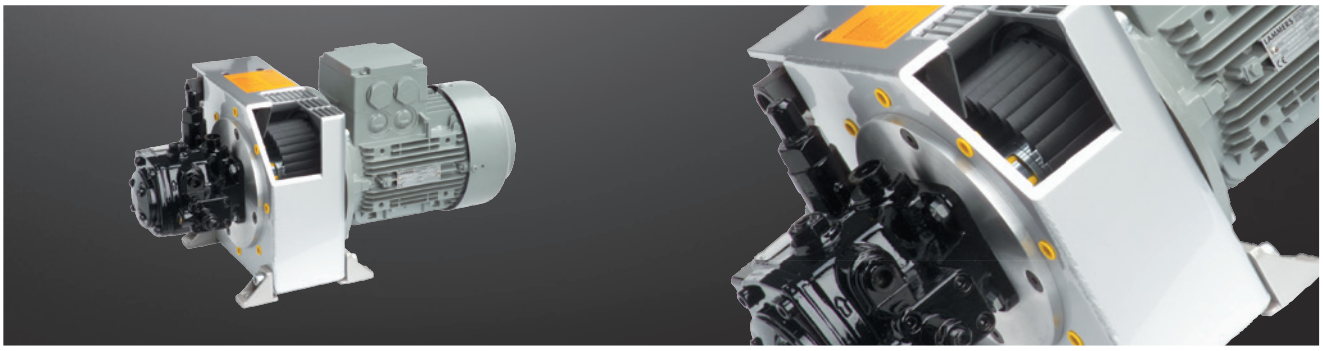
Flow rate sensor

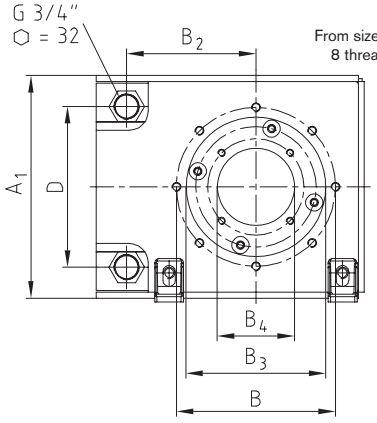
- Incl. non-return valve & display
- Measuring range 2 - 100 l/min (other on request)
- Connection thread G1“ or G1 1/2“
- Supply voltage 18 - 30 V DC
- Temperature range -10 ... 100 °C

Protective grid

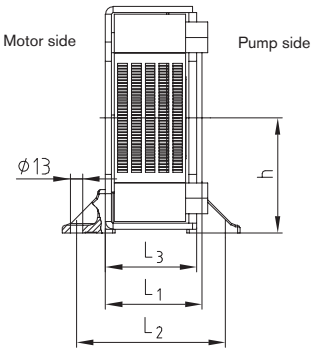
Protection against rough damages of cooling laminas via corrugated wire mesh (10 x 10 mm). Optionally a filter pad is available protecting against smaller particles (dust, sand). Please consider a reduction of performance depending on load.

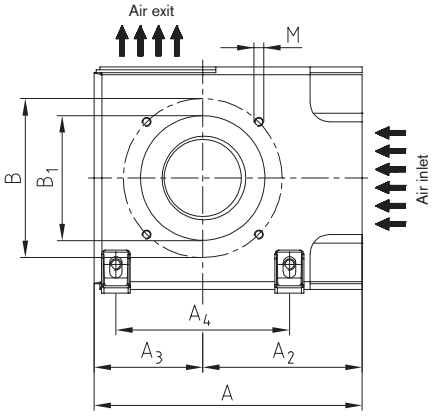
Bellhousing with integrated oil/air cooler





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 (38 x 80)	5.5	PIK 300/1/...	144	199.5	139.5	359	300	205	154	260	265	230	175	234	30	242	M12	154
	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.

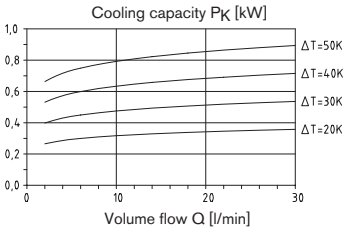
For PIK sizes 200 and 350 specify the IEC motor sizes in your order.

Ordering example:	PIK	300	38	265	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

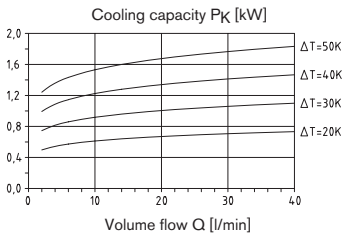
Oil/air cooler type PIK 200 - 350

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

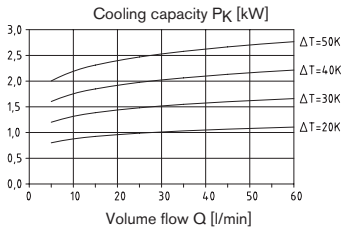
PIK 200



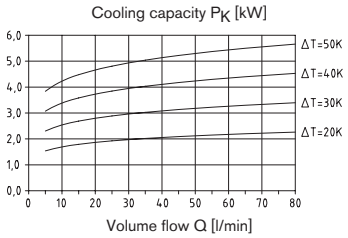
PIK 250



PIK 300



PIK 350

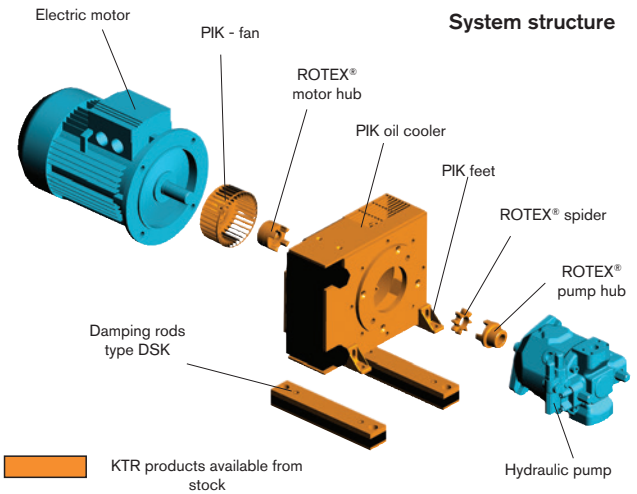


The diagrammes shown are based on actual measurements of the PIK oil cooler performed in KTR's in-house R&D test center. With 3000 rpm the cooling capacity is increased by approx. 50 %.

2. Operating pressure

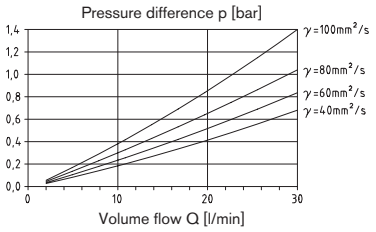
The permissible operating pressure of the oil cooler is 12 bars dynamically. Max. operating pressure with static load of 20 bars (all values apply for the average pressure cooler).

System structure

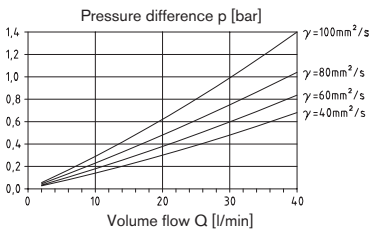


3. Pressure loss depending on oil flow and oil viscosity

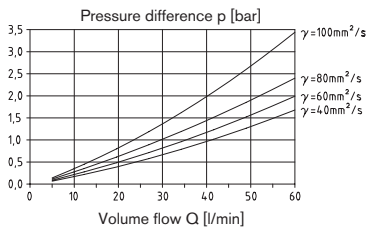
PIK 200



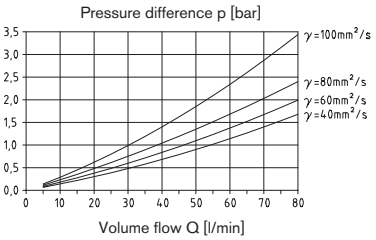
PIK 250



PIK 300



PIK 350



Viscosity measured up to 100 mm^2/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 m^3/h with 1500 rpm
PIK 200 = approx. 90 m^3/h
PIK 250 = approx. 200 m^3/h
PIK 300 = approx. 400 m^3/h
PIK 350 = approx. 860 m^3/h

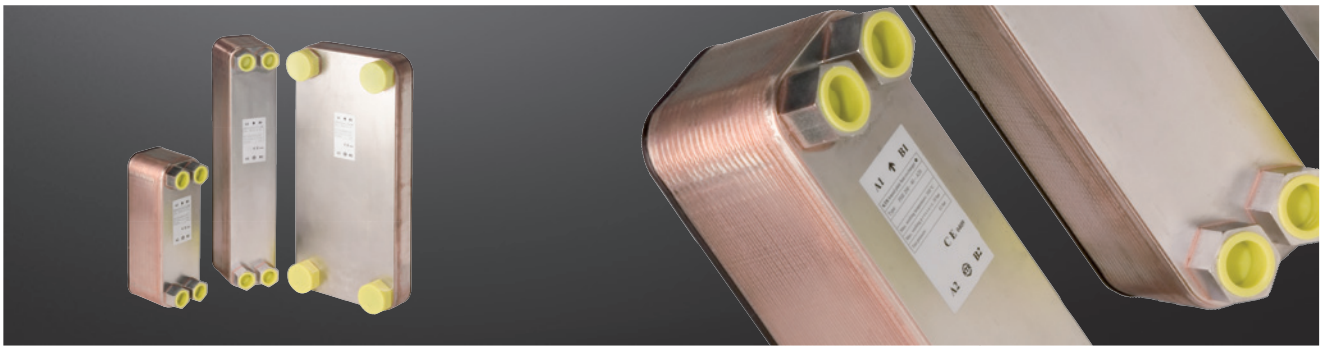
5. Cooler connection

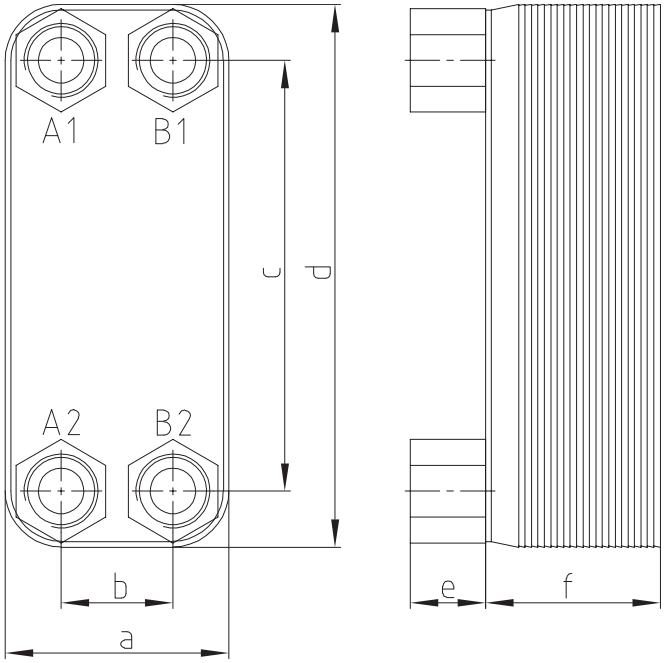
R $^3/_4$" internal thread

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

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, injection 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.

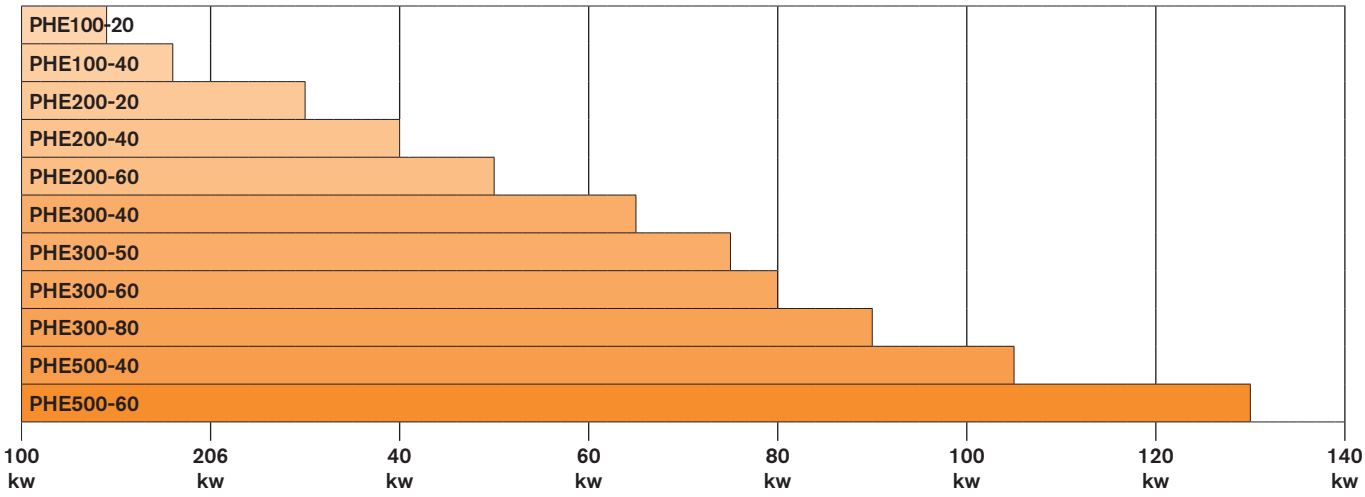
Operating temperature: -10 °C to +200 °C.
Please observe boiling point and freezing point!
Maximum permissible operating pressure: PHE 100: 10 bars / PHE 200 - 500: 30 bars

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	116	72	243	286	24	55
PHE	200	4 x 1“	40						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	191	92	519	616	30	103
PHE	500	4 x 1 1/2“	60						151

Ordering example:

PHE	100	20
PHE = Plate heat exchanger	Size	Number of plates

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	20	30	20	60
PHE100-40			45	35	80
PHE200-20			70	60	120
PHE200-40			85	60	
PHE200-60			100	80	
PHE300-40			110	60	150
PHE300-50			120	70	
PHE300-60			120	85	
PHE300-80			130	90	
PHE500-40			180	95	450
PHE500-60			220	100	

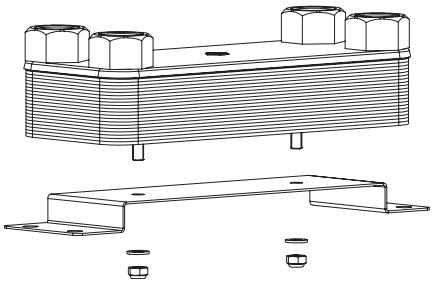
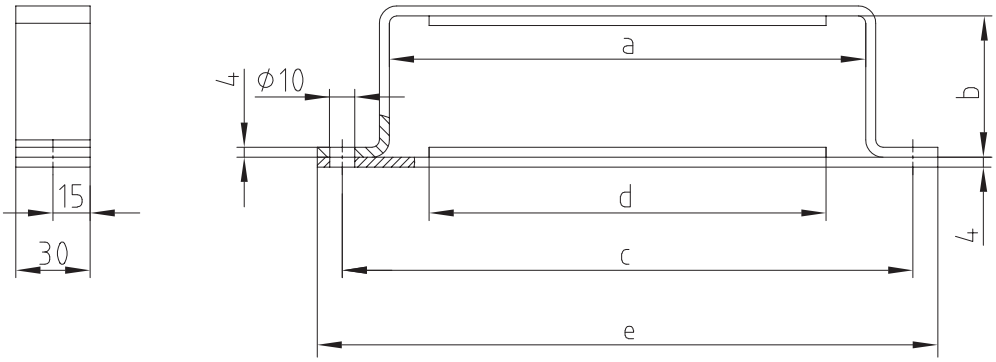


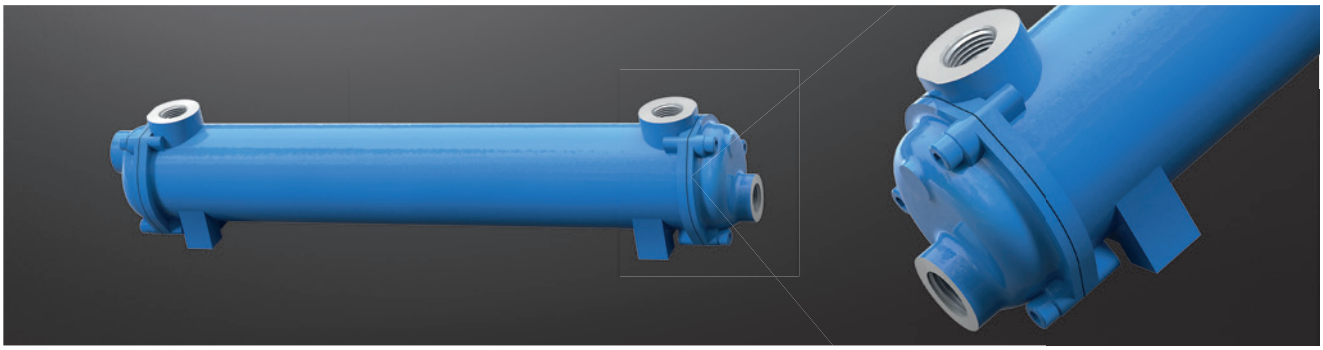
Plate heat exchanger with bottom-side threaded pins and mounting plate on request



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	155	115	170
BH200/300-40	125	100	155	120	175
BH200/300-50	120	132	155	115	170
BH200/300-60	125	148	155	120	175
BH200/300-80	125	193	155	120	175
BH500-40	200	107	235	193	260
BH500-60		155			

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

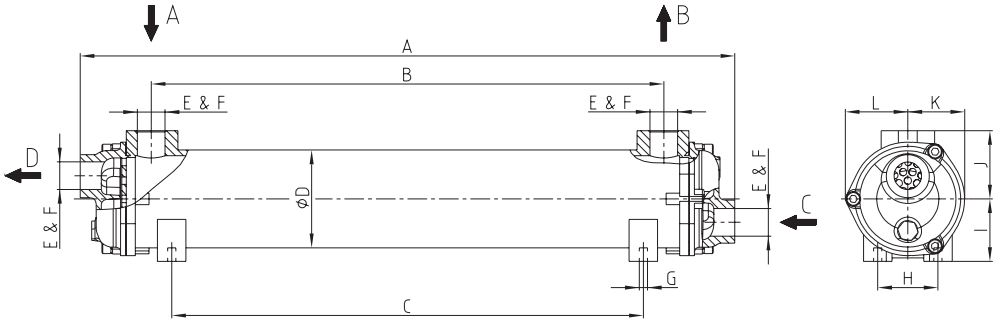
Marine version	
Tubes	90/10 copper/nickel

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 [m²]	Maximum volume flow of water/sea water [l/min]
TAK/TP-A1	3	30	15	0.1	0.02	0.13	
TAK/TP-A2	206	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	38	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 selected parameters may result in a different selection of oil cooler.

Series A-C



A - medium to be cooled

B - medium cooled

C - cooling water „in“

D - cooling water „out“

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	Ø86	G 3/4“	4xM8	53	55	60	50	55	3
TAK/TP-A2	263	138	103									3.5
TAK/TP-A3	349	225	189									4
TAK/TP-A4	448	326	288									4.7
TAK/TP-A5	576	450	415									5.5
TAK/TP-A6	731	603	557									10
TAK/TP-B1	273	123	109	Ø108	G 1“	4xM8	77	65	70	60	55	265
TAK/TP-B2	355	205	191									6
TAK/TP-B3	452	302	289									167
TAK/TP-B4	587	437	425									8.2
TAK/TP-B5	730	580	566									10
TAK/TP-C1	372	182	93	Ø130	G 1 1/4“	4xM10	78	75	80	70	80	9
TAK/TP-C2	472	287	193									10
TAK/TP-C3	600	415	320									12.5
TAK/TP-C4	744	557	465									14.5
TAK/TP-C5	922	737	643									17.5
TAK/TP-C6	1332	1146	1055									30

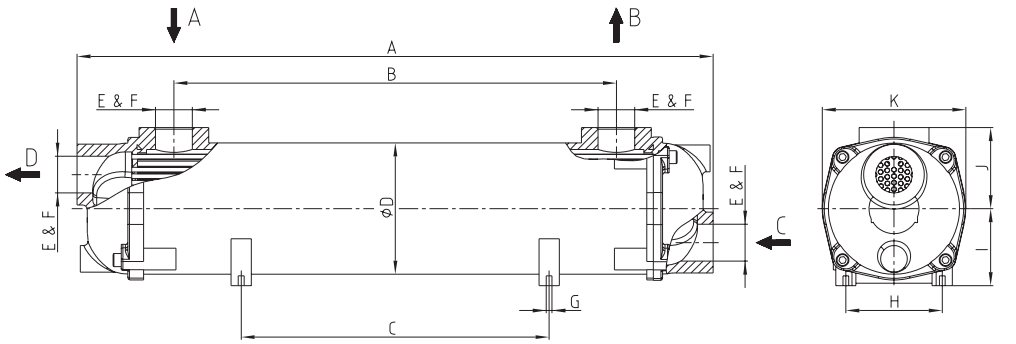
Max. perm. oil temperature 120 °C. Max. oil pressure 14 bars. Max. water pressure 10 bars.

Ordering example:

TAK/TP	A	1	M
Type	Series	Size	Seawater version [1]

[1] Code letter can be omitted with industrial design.

Series D-F



A - medium to be cooled

B - medium cooled

C - cooling water „in“

D - cooling water „out“

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	Ø162	G 1 1/2“	4xM10	119	95	100	177	–	20
TAK/TP-D2	634	402	238									24
TAK/TP-D3	780	546	384									27
TAK/TP-D4	954	722	558									32
TAK/TP-D5	1,160	928	764									38
TAK/TP-D6	1,364	1,132	968									45
TAK/TP-E1	675	372	239	Ø198	G 2“	4xM12	120	110	120	206	–	33
TAK/TP-E2	816	513	380									39
TAK/TP-E3	998	696	560									45
TAK/TP-E4	1,204	901	766									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	Ø278	G 3“	4xM16	180	155	170	288	–	47
TAK/TP-F2	900	476	382									57
TAK/TP-F3	1,077	654	560									68
TAK/TP-F4	1,280	856	762									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.

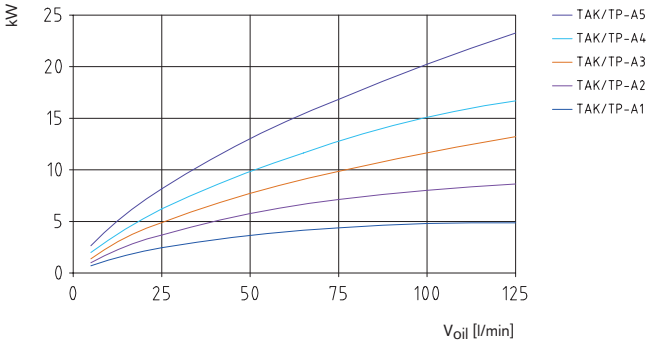
Ordering example:

TAK/TP	D	1	M
Type	Series	Size	Seawater version [1]

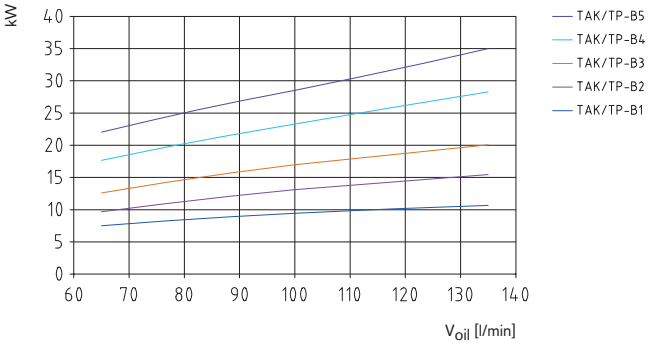
[1] Code letter can be omitted with industrial design.

Performance diagrammes

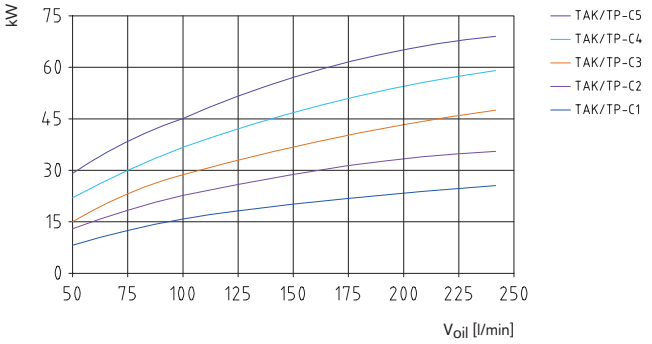
Performance diagramme of A series



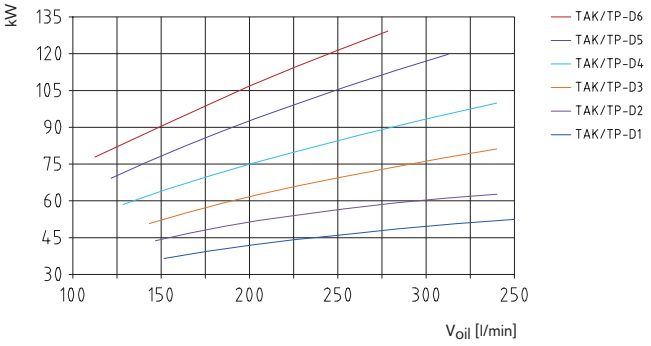
Performance diagramme of B series



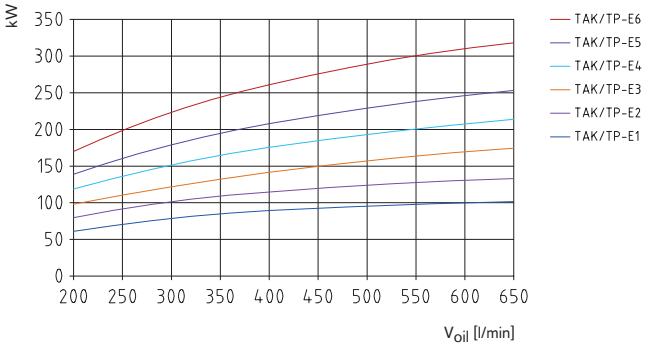
Performance diagramme of C series



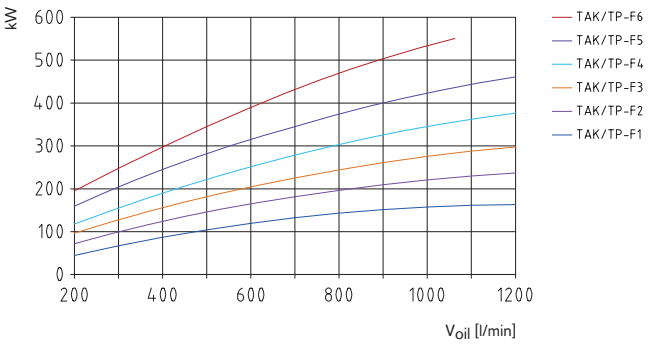
Performance diagramme of D series



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

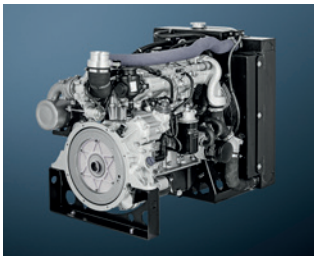
MMC motor system coolers

MMC hydraulic coolers

MMC compressor coolers

Applications

Construction machinery



Diesel engines

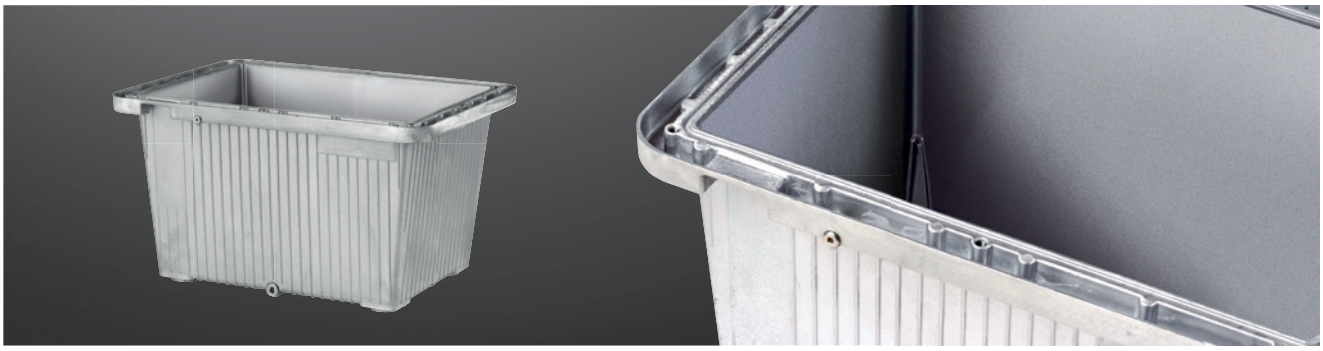
Special hydraulics

Compressors

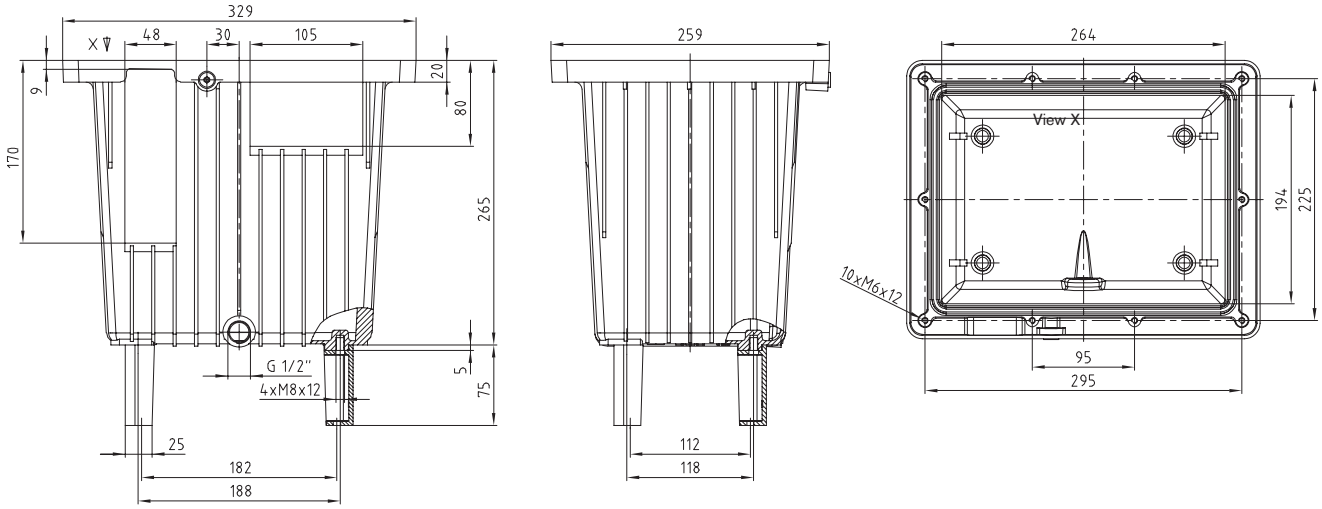
For further details about our customised system development, the new cooler production plant in Jiaxing, China and the versatile applications of our MMC coolers see our new catalogue "**cooling systems**".

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

Tank with oil collecting groove



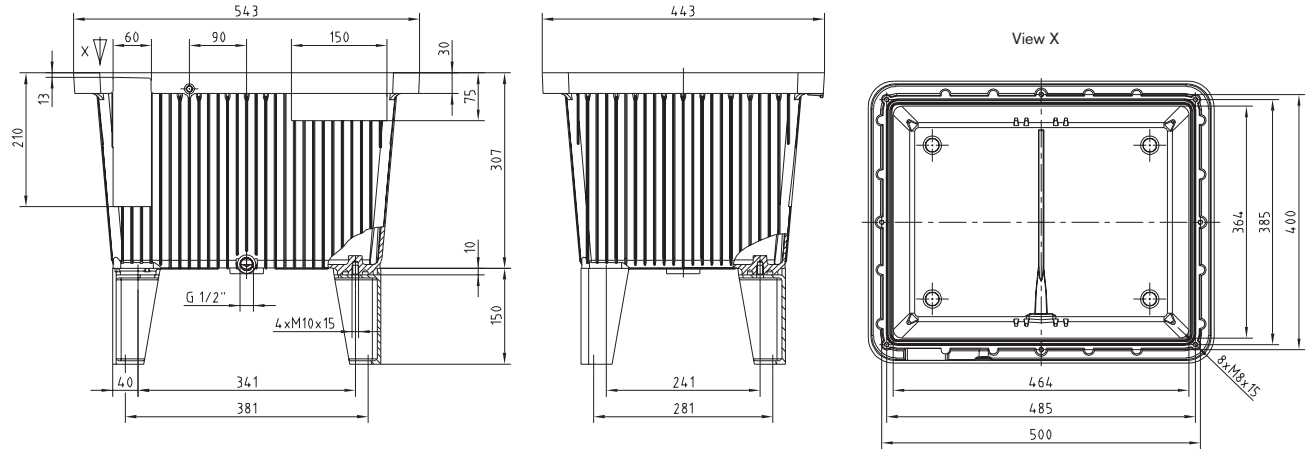
Tank with oil collecting groove BAK 13



The tank is available with bores for oil level sight glass 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

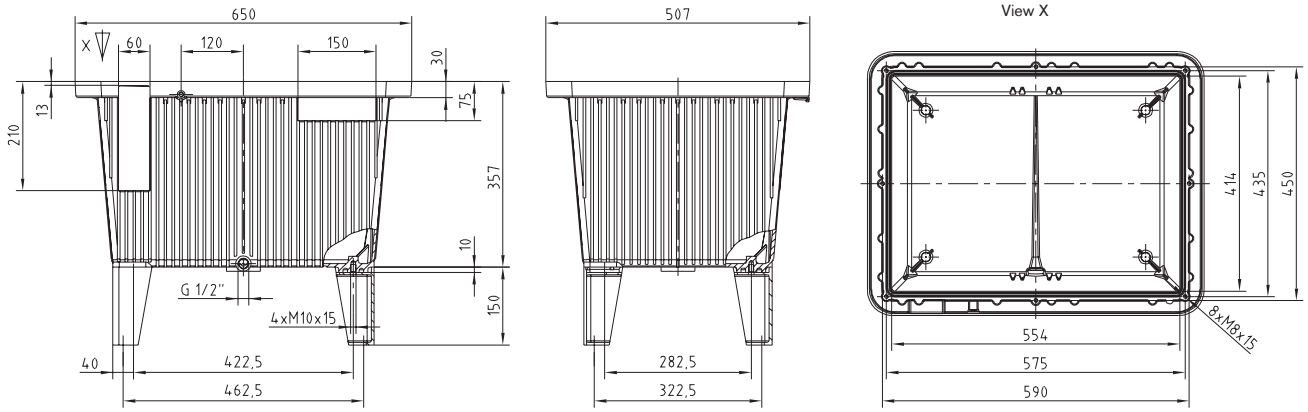
Tank with oil collecting groove BAK 44



The tank is available with bores for oil level sight glass 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

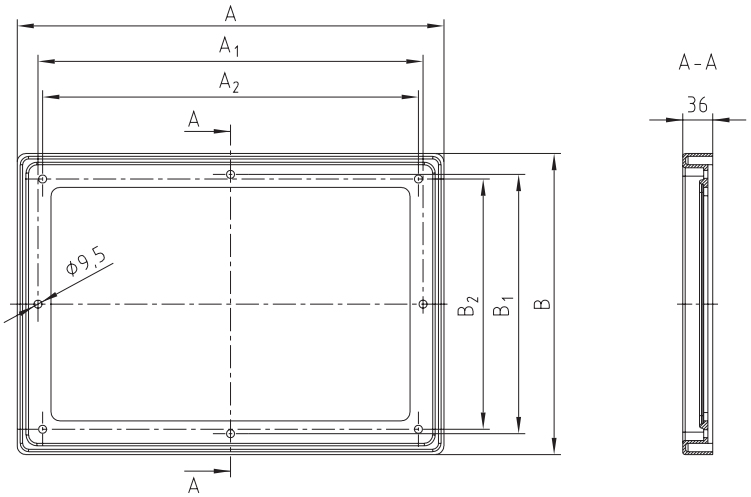
Tank with oil collecting groove BAK 70



The tank is available with bores for oil level sight glass 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

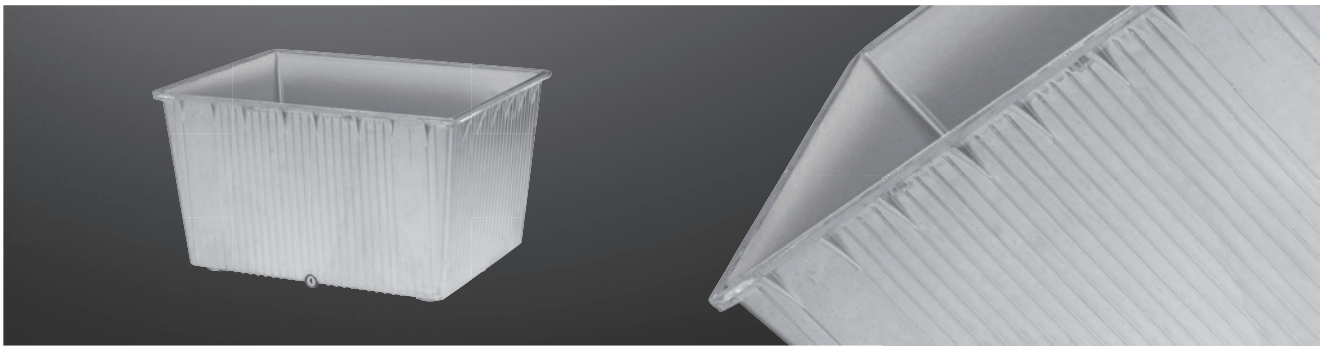
Gasket with oil collecting groove RS-O (as an alternative to BAK with oil collecting groove)



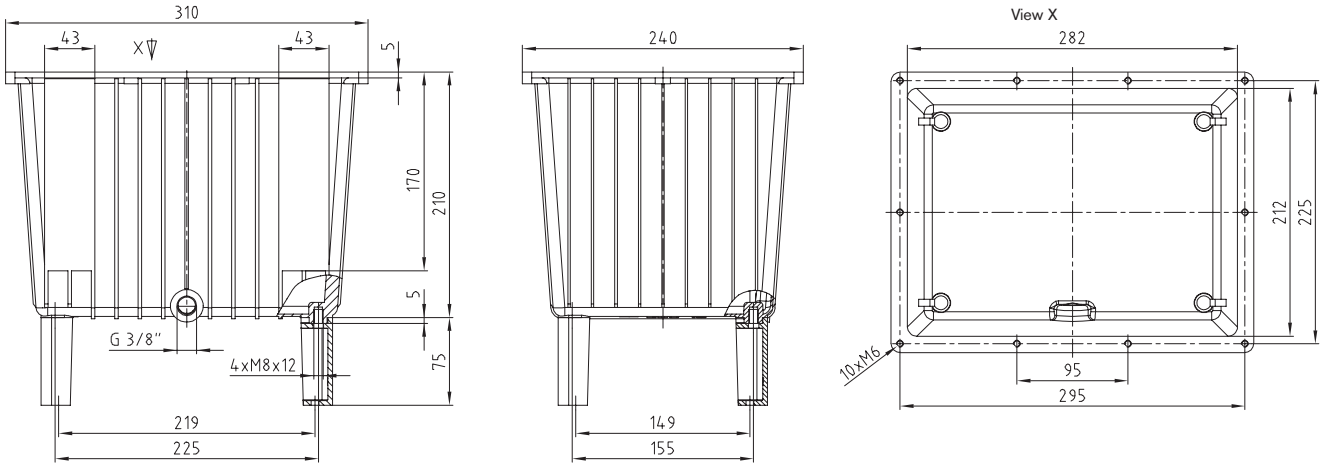
Type	For tank*	A	A1	A2	B	B1	B2
RS-O 27	BAK 27	510	460	449	360	310	299
RS-O 40	BAK 40	550	500	485	451	400	385
RS-O 63	BAK 63	655	590	575	518	450	435

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

Tank without oil collecting groove



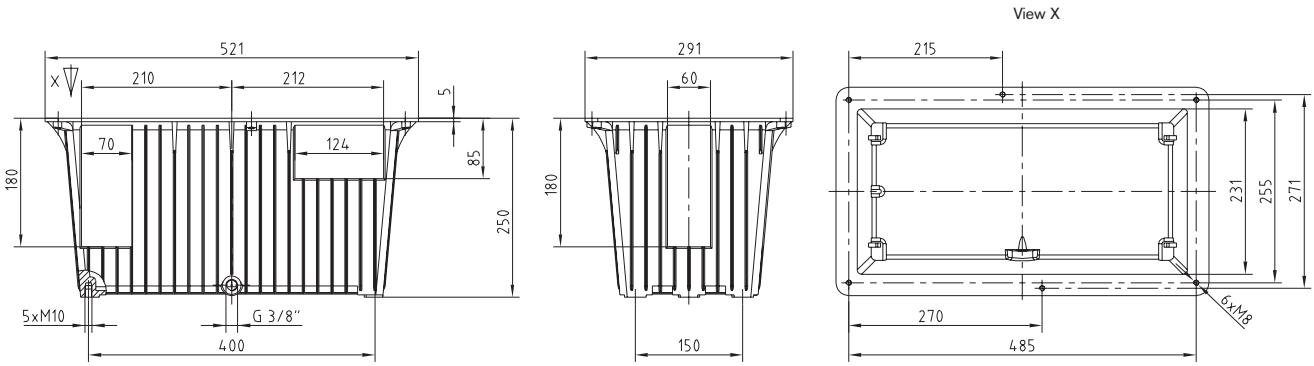
Tank without oil collecting groove BAK 12



The tank is available with bores for oil level sight glass 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 $^{3}/_{8}$" = 40 Nm	100 °C	0.5 bar	M6 = 6 Nm

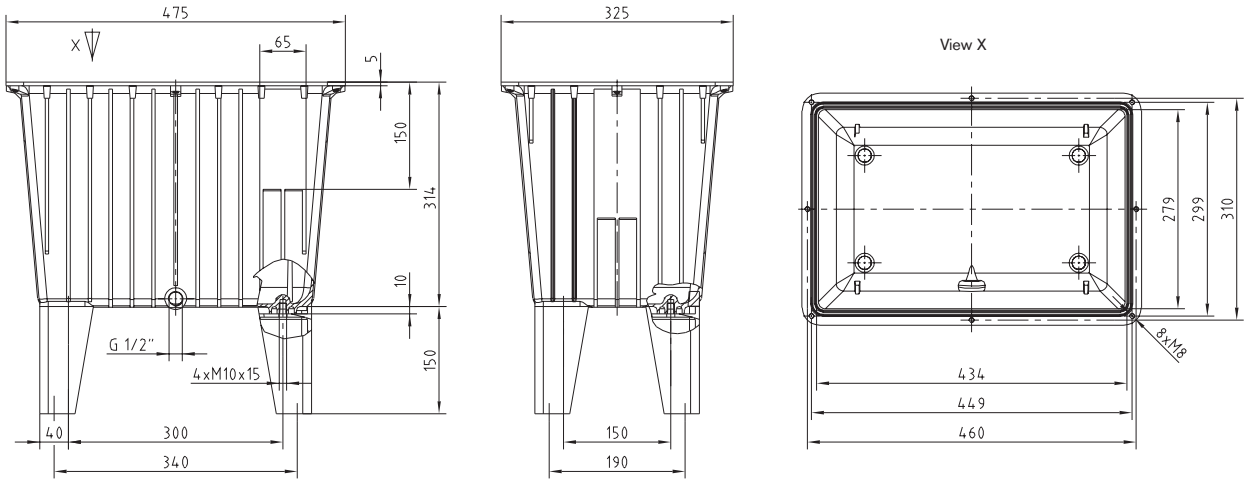
Tank without oil collecting groove BAK 20



The tank is available with bores for oil level sight glass 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 $^{3}/_{8}$" = 40 Nm	100 °C	0.5 bar	M8 = 12 Nm

Tank without oil collecting groove BAK 27

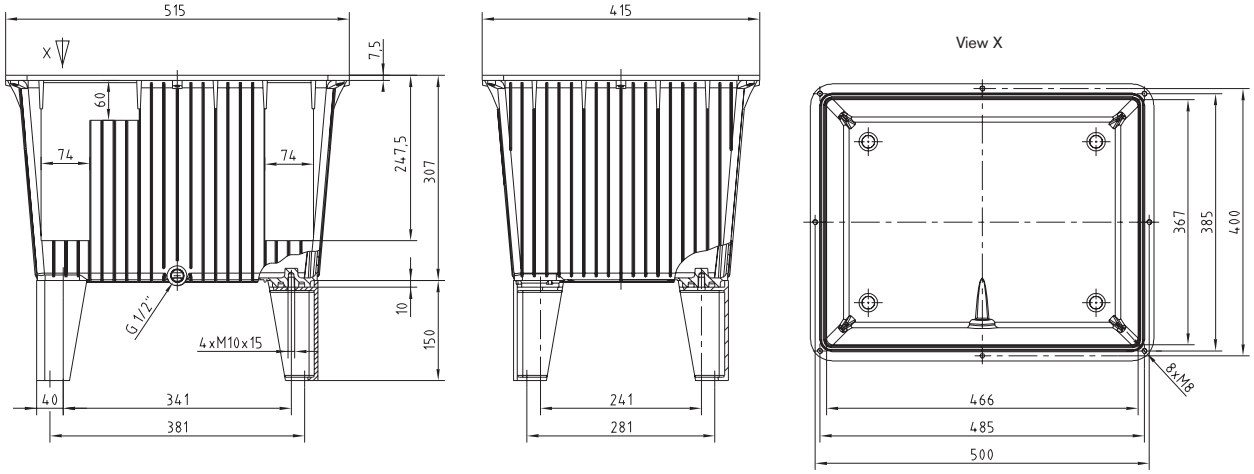


The tank is available with bores for oil level sight glass KO 01 on request.

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

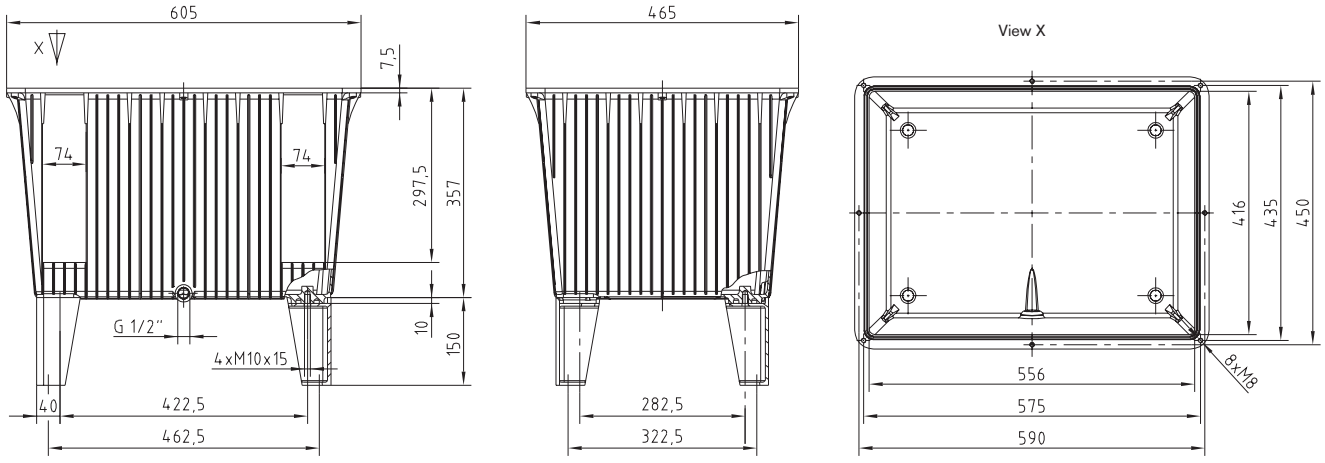


The tank is available with bores for oil level sight glass KO 02 on request.

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

Tank without oil collecting groove

BAK 63

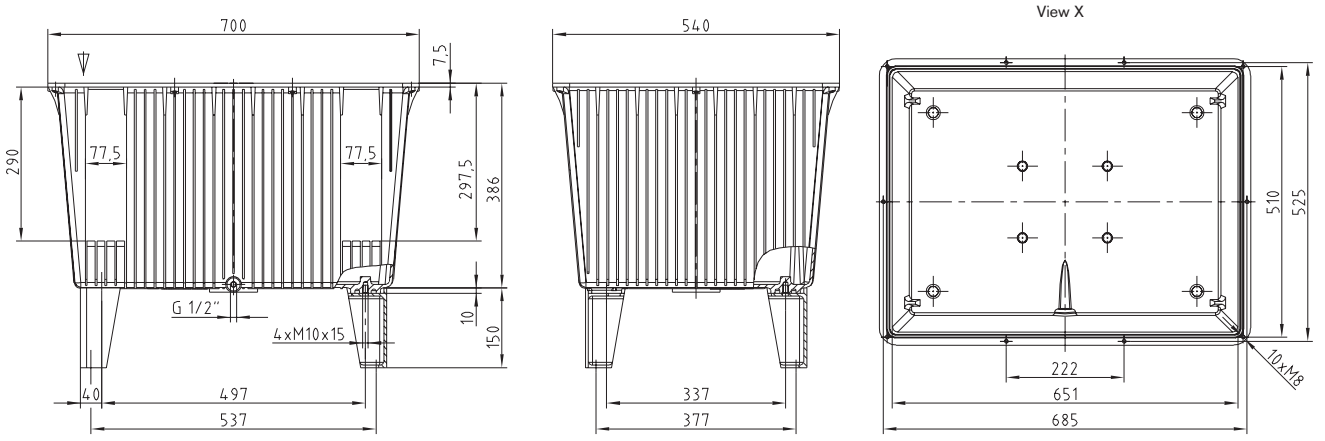


The tank is available with bores for oil level sight glass KO 02 on request.

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*	G ½" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm

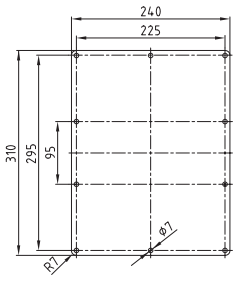
* see page 67 et seqq.

BAK 100

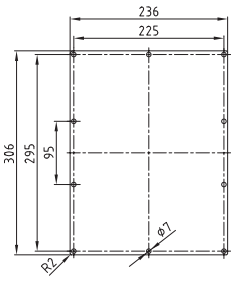


The tank is available with bores for oil level sight glass KO 03 on request.

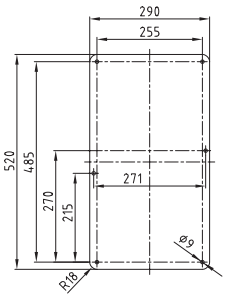
Effective volume	Gasket	Tightening torque of drain plug	Max. medium temperature	Max. permissible pressure	Tightening torque of tank cover
95 L	RS 100 NBR	G ½" = 55 Nm	100 °C	0.5 bar	M8 = 12 Nm



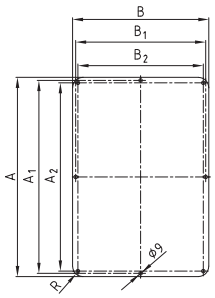
BAK 12 - ST 12 / AL 12
St: 3 mm thick; 1.7 kg



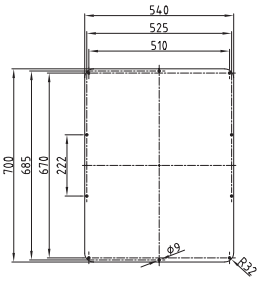
BAK 13 - ST 13 / AL 13
St: 4 mm thick; 2.2 kg
Al: 5 mm thick; 1.0 kg



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

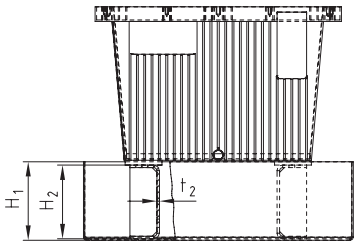


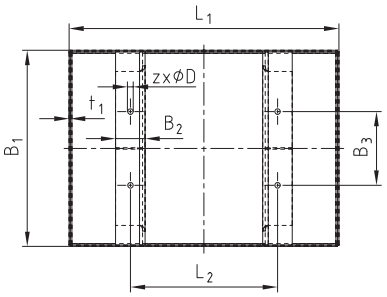
BAK 30-70
ST 30-70
AL 30-70



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

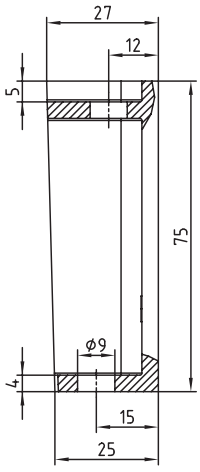




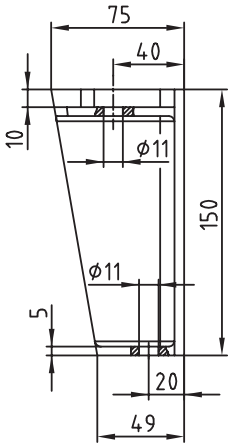
Oil sump pans BAKW made of steel for KTR aluminium tank BAK/available acc. to WHG (Water Resources Act)															
Oil sump pan	For tank	Volume of oil sump pan	Dimensions [mm]											Available from stock	
			L_1	L_2	B_1	B_2	B_3	H_1	H2	t1	t2	z	D	Standard	WHG (Water Resources Act)
BAKW 12 +13	BAK12/BAK13	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:

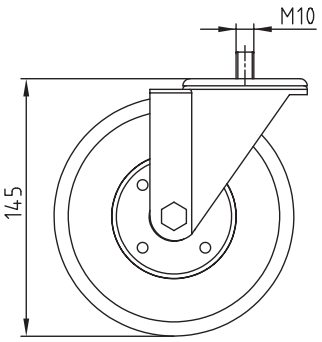
BF 75 for BAK 12 and BAK 13



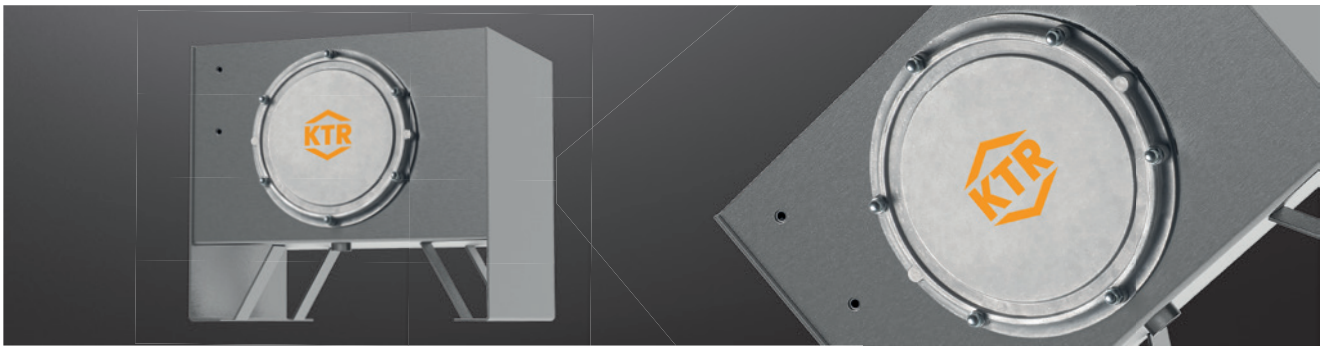
BF 150 for BAK 27 to BAK 100



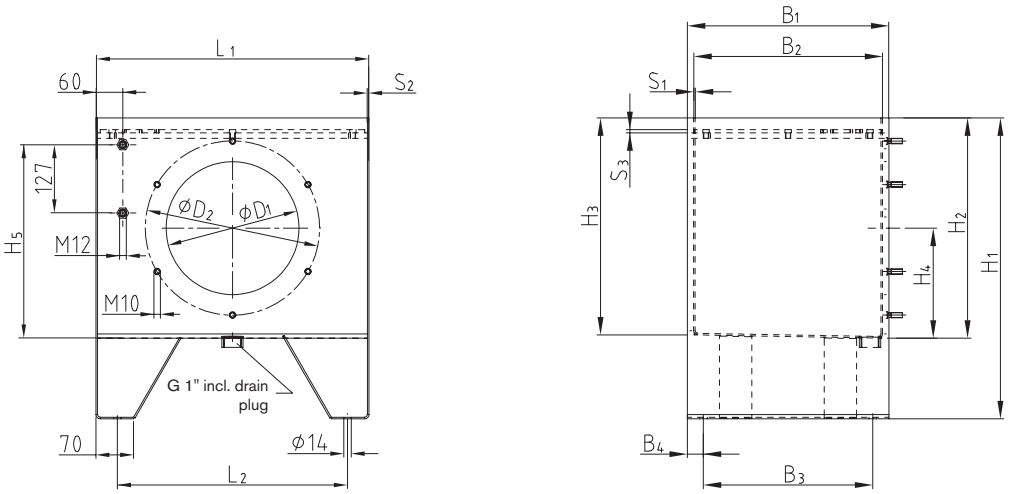
Wheels LR 150 and LR 150 F with lock



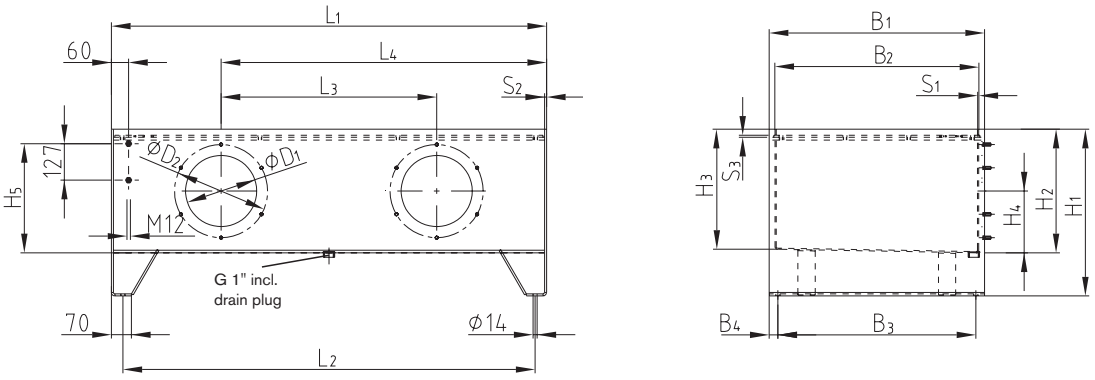
Series BSK



up to NG 200



from NG 250



Series BSK, NG 40 - 400

Order description NG	Part number	Effec-tive vol. [Litre]	Weight [kg]	Tank dimensions [mm]															Cleaning cover				Bore pattern for oil level sight glass	
				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	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	

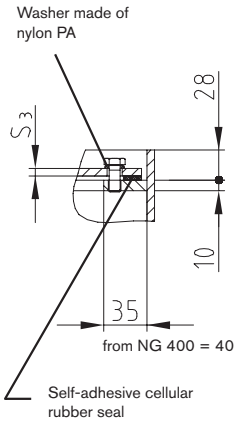
All tanks are available in short term - please contact us.

Ordering example:

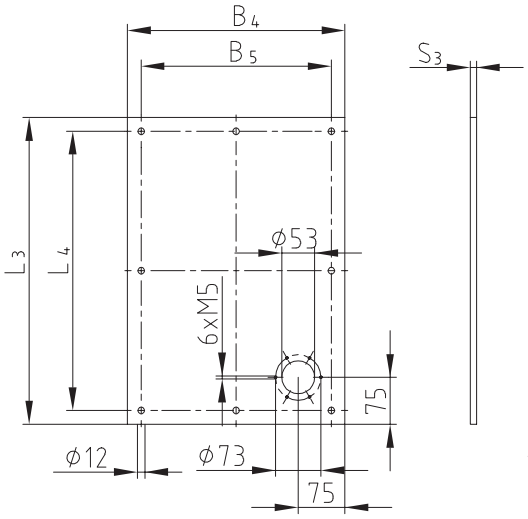
BSK	250	E
KTR standard tank	Nominal size of tank	Cover type “E”

Tank cover

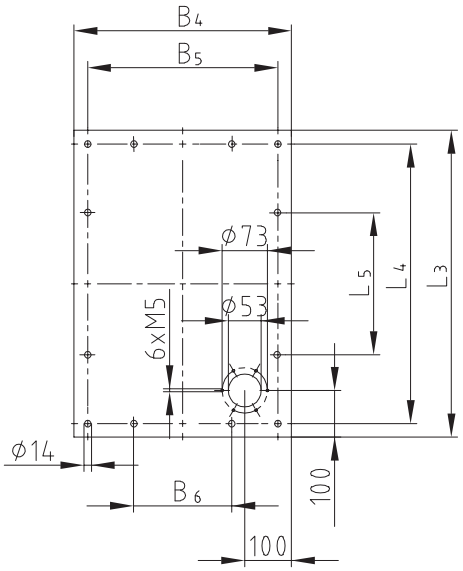
Cover type E



For NG 40-300



For NG 400



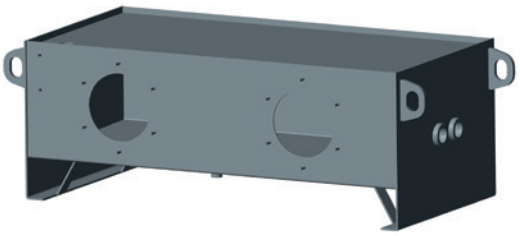
Cover type "E"								
NG	Dimensions [mm]							Number of bores
	L_3	L_4	L_5	B_4	B_5	B_6	S_3	
40	492	448	-	349	305	-	6	8x
63	492	448	-	349	305	-	6	8x
100	615	571	-	442	398	-	6	8x
160	792	748	-	572	528	-	6	8x
200	882	838	-	622	578	-	6	8x
250	992	948	-	672	628	-	7	8x
300	1190	1146	-	682	638	-	7	8x
400	1490	1440	480	717	667	222	7	12x

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

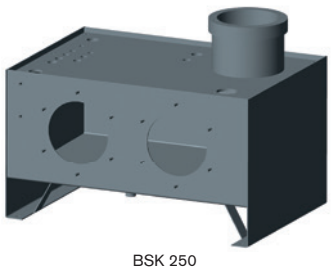
Coating:
- Our tanks are primed with mineral oil-resistant 2K-EP paint as a standard

Please contact us:
- Tanks are available without tank cover on request
- 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 sight glasses, heaters, etc. can be additionally ordered from the KTR scope of delivery
- We are able to produce all tanks made of stainless steel

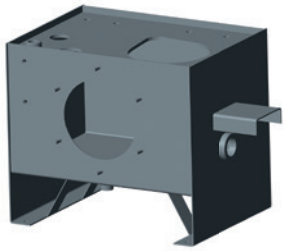
BSK tank with remachining



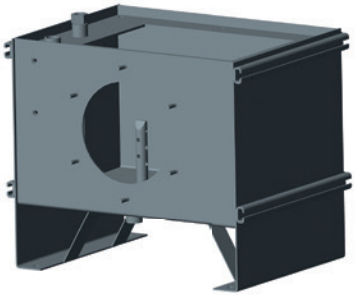
BSK 400



BSK 250



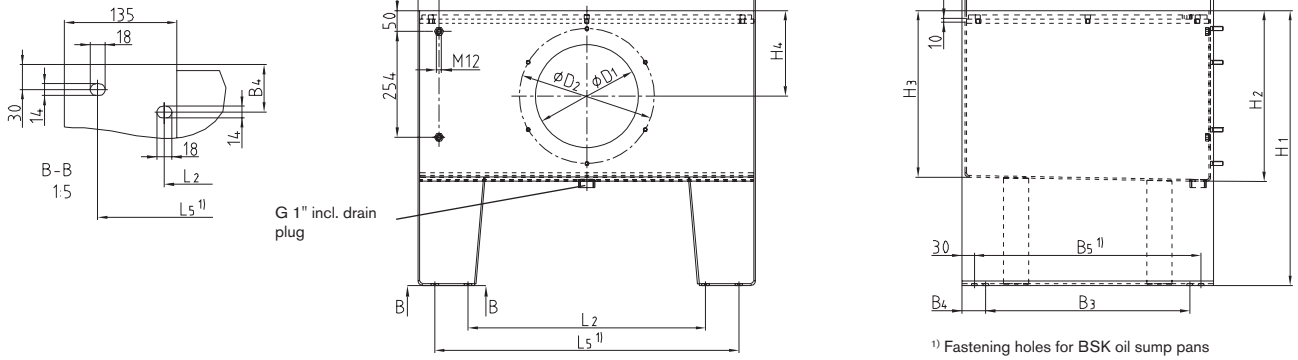
BSK 63



BSK 160

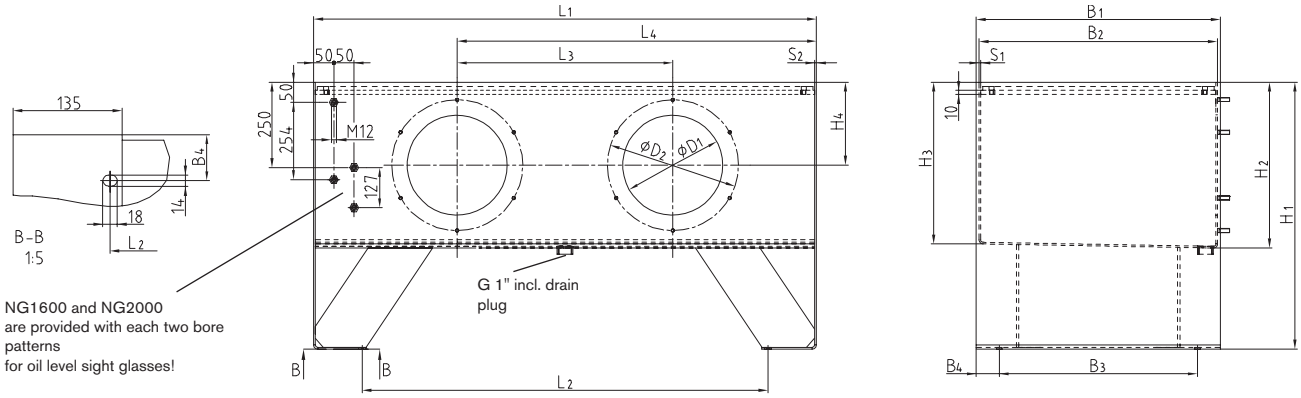
Series BNK type A (new) DIN24339

up to NG 250



1) Fastening holes for BSK oil sump pans

from NG 400



Series BNK design A, NG 63 - 2000

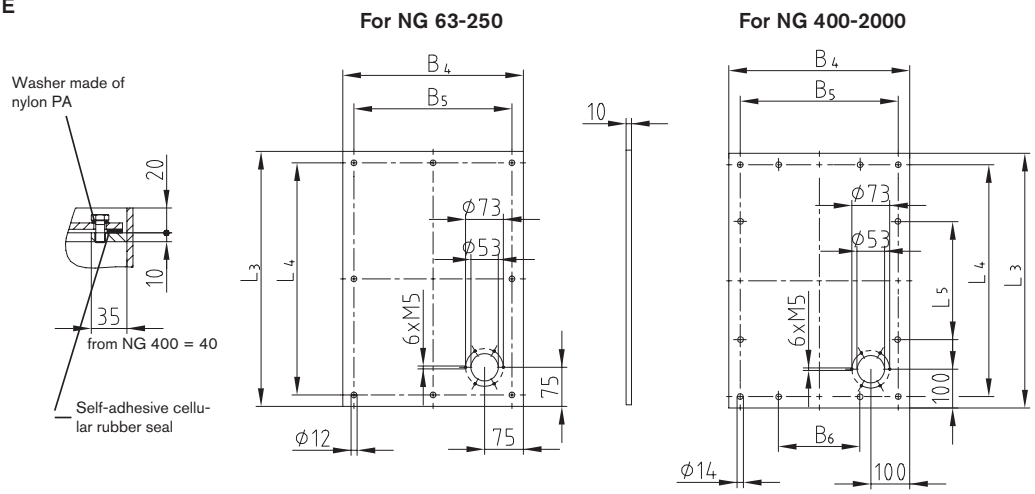
Order description	material number	Effective vol. [Litre]	Weight [kg]	Tank dimensions [mm]																		Cleaning cover		Bore pattern for oil level sight glass	
NG				L_1	L_2	L_3	L_4	L_5	B_1	B_2	B_3	B_4	B_5	H_1	H_2	H_3	H_4	D_1	D_2	S_1	S_2	No.	Type	No.	
BNK 63 A/E	270635109000	59	47	508	308	-	-	428	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	383	449	5	6	2	V 449-6	1	KO03
BNK 1250 A/E	271255109000	1180	532	2012	1774	1000	1506	-	1349	1335	1235	57	-	800	550	527	265			5	6	2		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



Cover type "E" t=10 mm							
NG	Dimensions [mm]						Number of bores
	L_3	L_4	L_5	B_4	B_5	B_6	
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 sight glass
- 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 sight glasses, 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

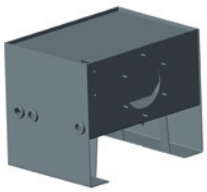
Special options:
- Tank with oil collecting groove and cover with dripping rim welded on
- This tank is available on request. Please contact us.

Series BNK design A / Cover type C

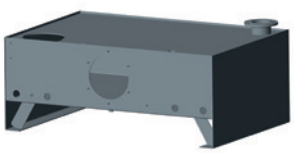
Special options:
- Tank type with shrink-wrapped cover
- This tank is available on request. Please contact us.

Tank BNK with remachining

BNK 1000



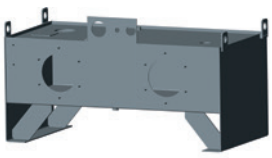
BNK 100



BNK 160

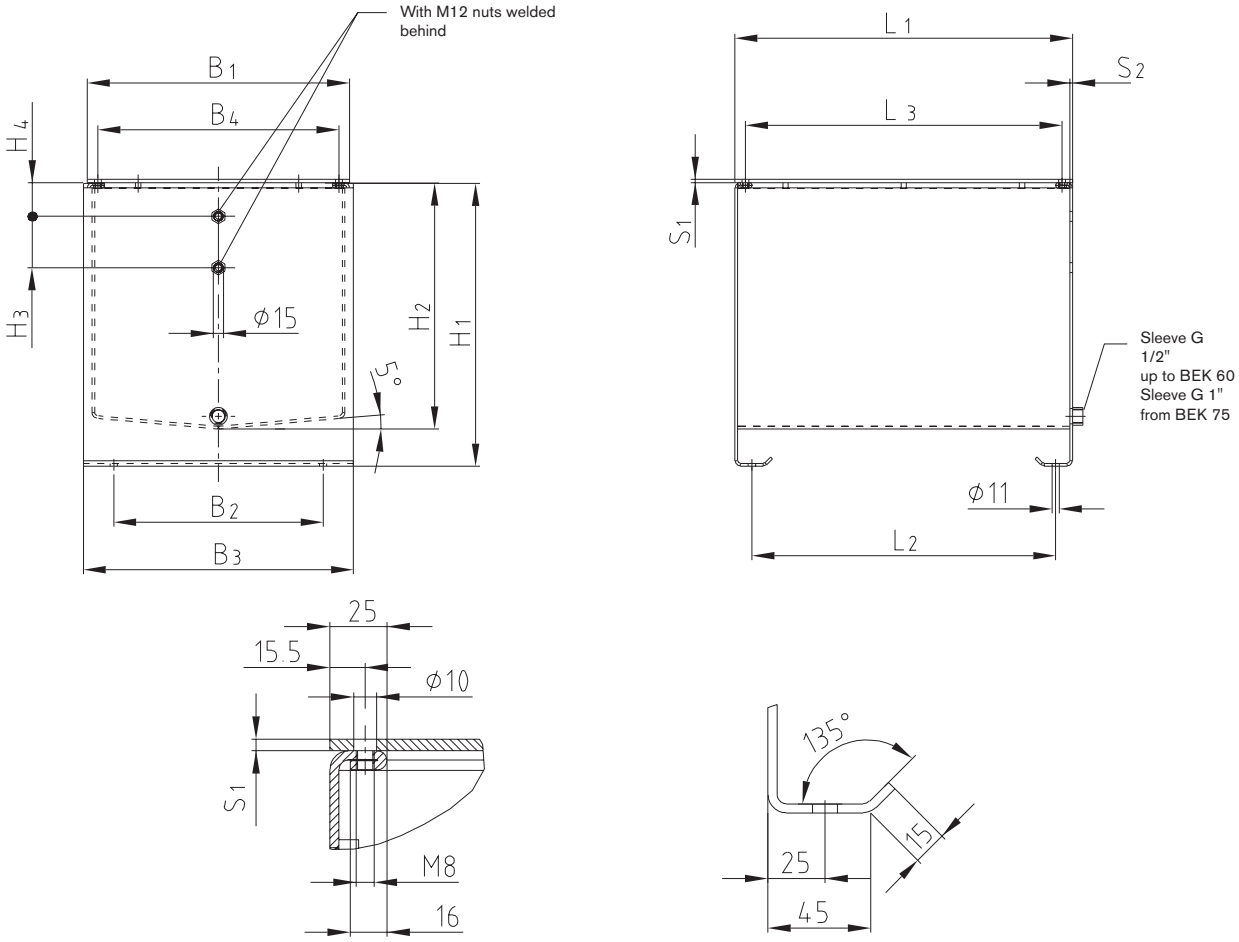
BNK 250

BNK 400



BNK 630

Series BEK



Series BEK, NG 12 - 300													
Order description	Part number	Effective vol. [Litre]	Weight [kg]	Tank dimensions [mm]									
NG				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.

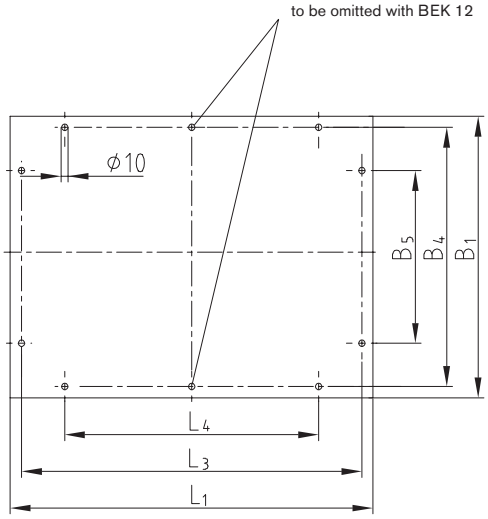
Ordering example:

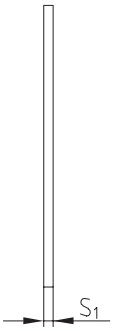
BEK	100	E
KTR standard tank	Nominal size of tank	Cover type “E”

Tank cover

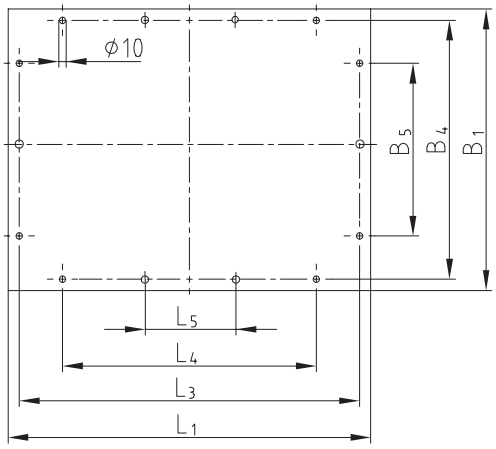
Cover type E

up to NG 75





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 sight glass K001/K002
- Cover gasket NBR 15 x 5 self-adhesive
- Cover fastening screws
- Oil drain plug G 1"/G 1/2"

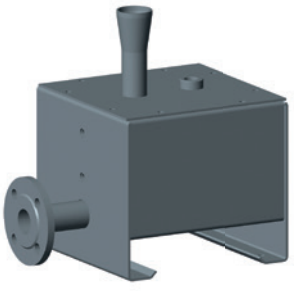
Coating:

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

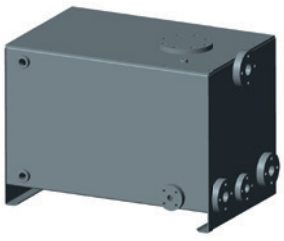
Please contact us:

- Tanks are available without tank cover on request
- 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 sight glasses, heaters, etc. can be additionally ordered from the KTR scope of delivery
- We are able to produce all tanks made of stainless steel

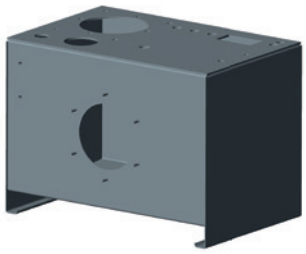
Tanks type BEK with remachining



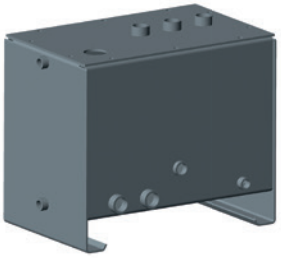
BEK 50



BEK 150



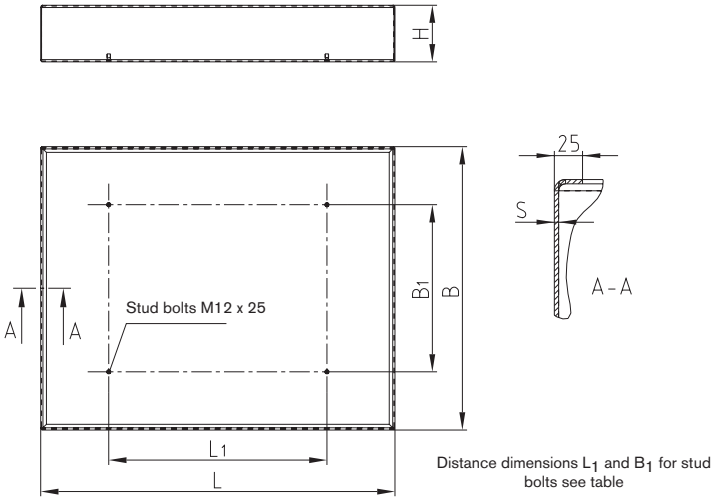
BEK 225



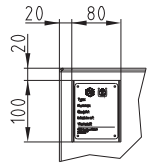
BEK 100

Oil sump pans for steel tanks

Oil sump pan without feet

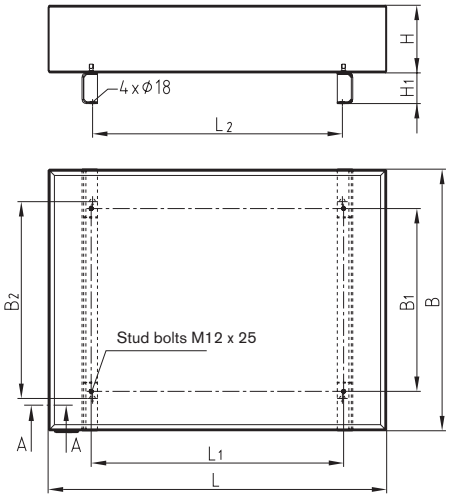


Distance dimensions L_1 and B_1 for stud bolts see table



Type label available on request

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]									
NG			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		3
With foot	270005900061			38			545			460		100	
160	271605500000	160	36		1000	730		800	544		200		3
With foot	270005900062			47			722			590		100	
200	272005500000	200	42		1100	820		850	594		220		3
With foot	270005900063			54			812			640		100	
250	272505500000	250	50		1250	930		1000	644		200		3
With foot	270005900064			64			922			690		100	
300	273005500000	300	57		1400	1128		900	654		250		3
With foot	270005900065			69			1120			700		100	
400	274005500000	400	72		1720	1434		980	689		250		3
With foot	270005900066			87			1426			735		100	
630	276305500001	630	93		1810	1274		1190	845		300		3
With foot	270005900073			112			1426			945		100	
800	278005500001	800	110		2410	1774		1190	800		300		3
With foot	270005900074			138			1926			900		100	
1000	271015500001	1000	123		2420	1774		1380	965		300		3
With foot	270005900075			155			1926			1065		100	
1250	271255500001	1250	156		2380	1774		1770	1235		300		3
With foot	270005900076			184			1926			1335		100	
1600	271615500001	1600	280		2760	1774		2070	1330		300		4
With foot	270005900077			310			1926			1805		100	
2000	272015500001	2000	420		3200	2070		2250	1450		300		5
With foot	270005900078			470			2272			1985		100	

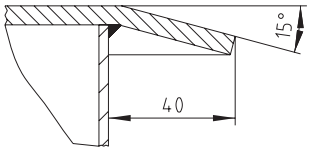
Ordering example:

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

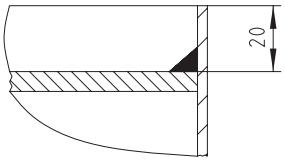
Cover design, transport eyes, separation sheet metals and seams

Cover designs for DIN tanks of the BKN series:

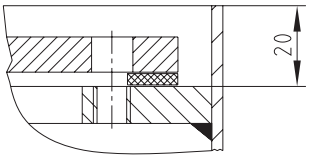
Design A



Design C

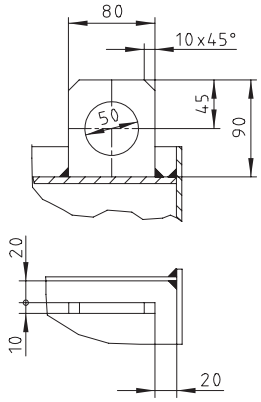


Design E

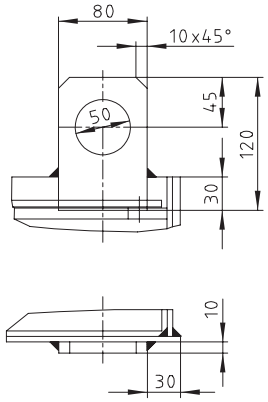


Transport eyes:

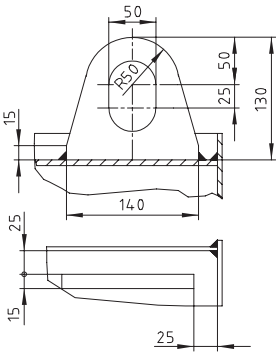
Type 1
(for NG 40-300)



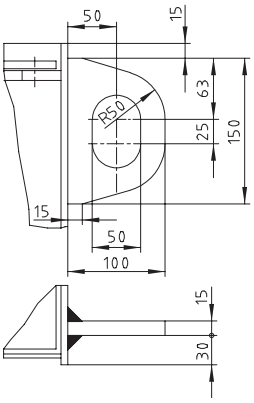
Type 2
(for NG 40-300)



Type 3
(for NG 40-2000)

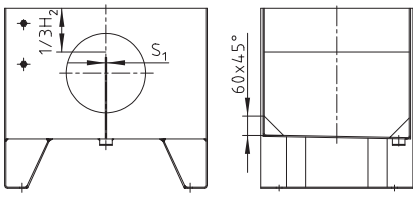


Type 4
(for NG 40-2000)

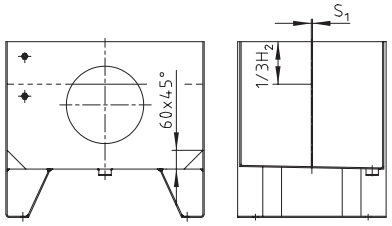


Separation sheet metals:

Type 1

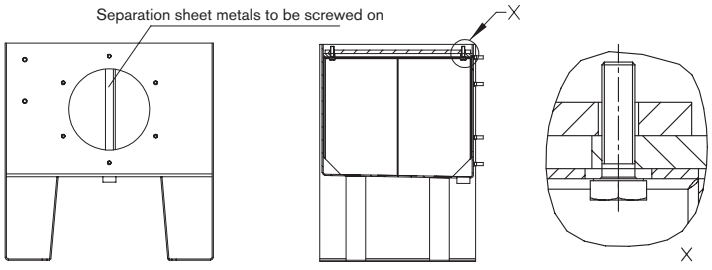


Type 2

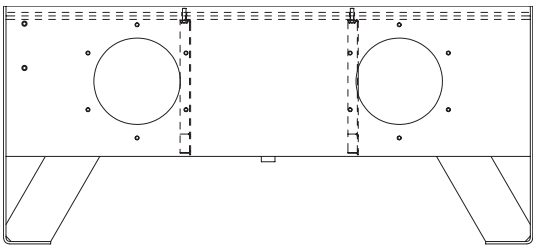


Separation sheet metals to be screwed on:

Separation sheet metal up to BSK/BNK 300

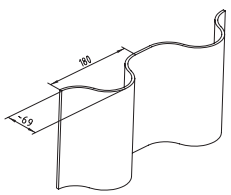


From BSK/BNK 400 separation sheet metals optionally on the right or on the left



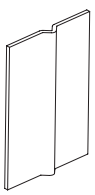
Seams:

Type 1



Type 2

Type 3



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
- 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

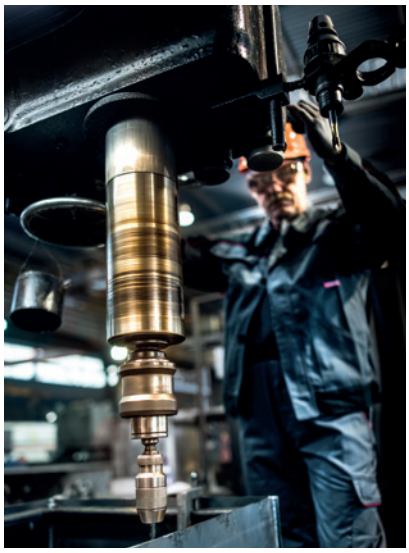
CNC plasma cutting

Sawing

Milling

Tilting

Deburring



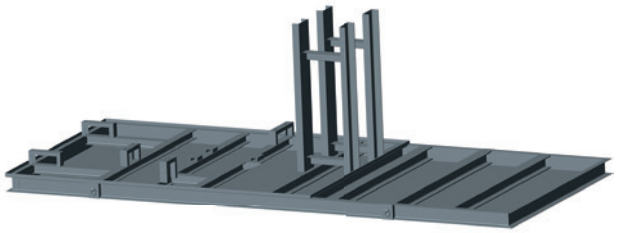
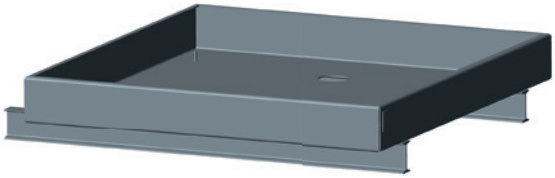
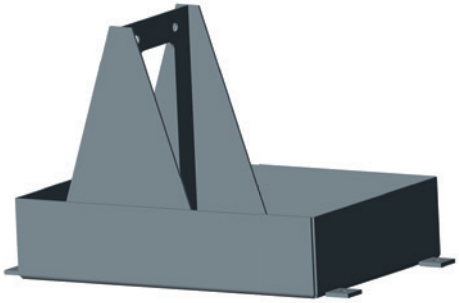
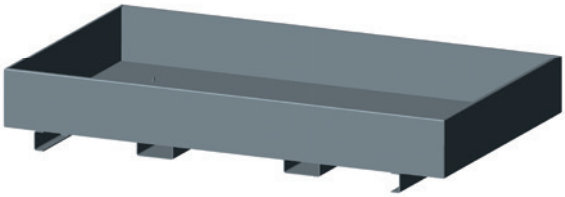
Drilling

3D measuring

Painting

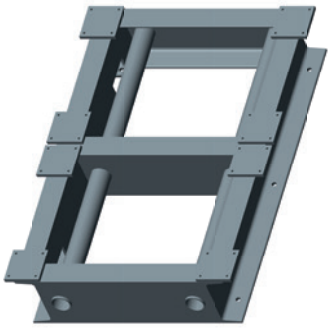
Oil sump pans with and without base frames [1)]

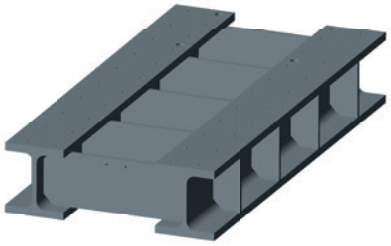
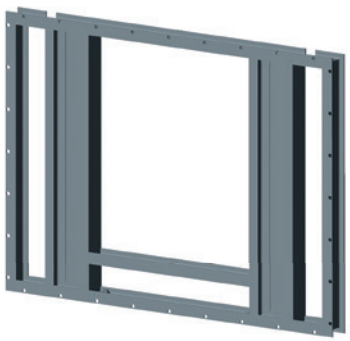
Also available in material stainless steel.

Base frames and stands [1)]

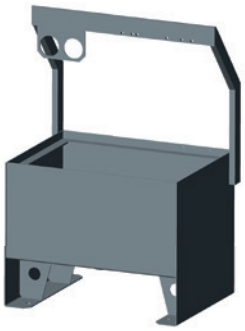
Also available in material stainless steel.

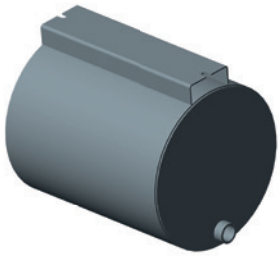


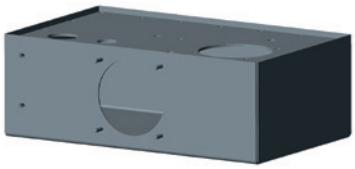



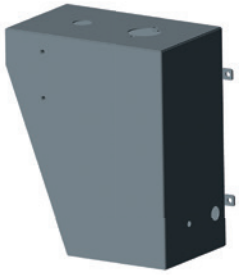
Special tanks 6-1000 l [1)]

Also available in material stainless steel.



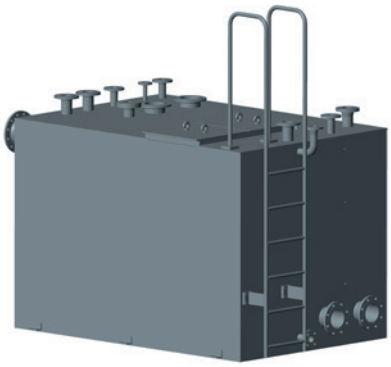


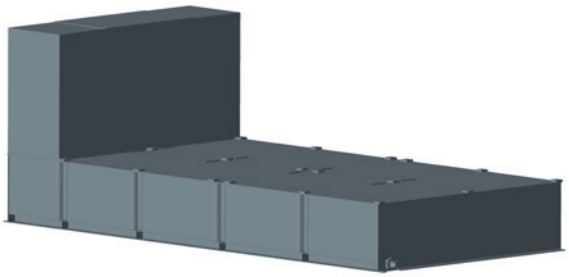


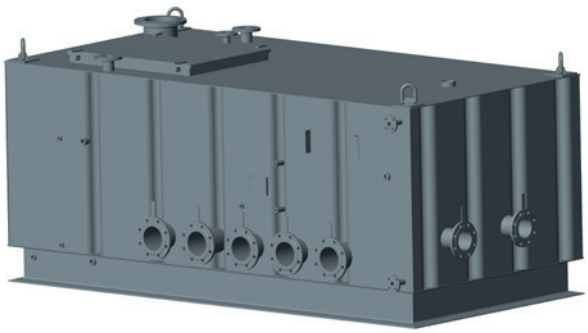


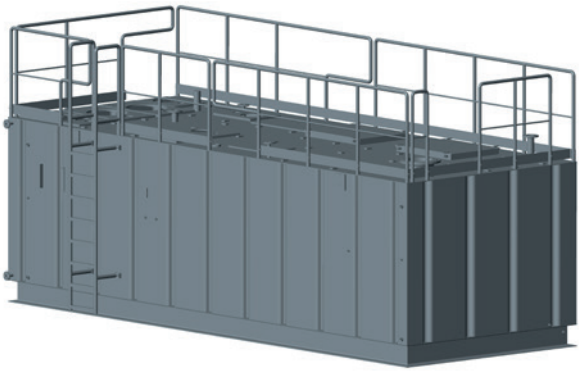
Special tanks up to 130,000 l [1)]

Also available in material stainless steel.







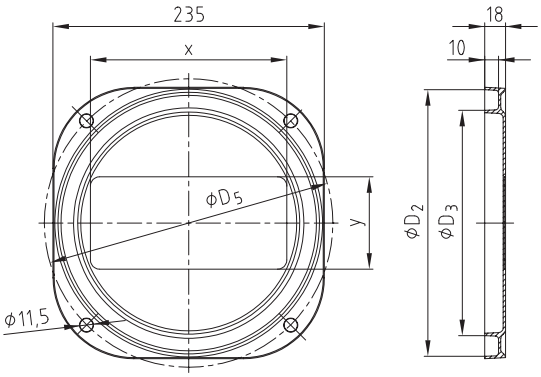


[1)] **Please contact us:**

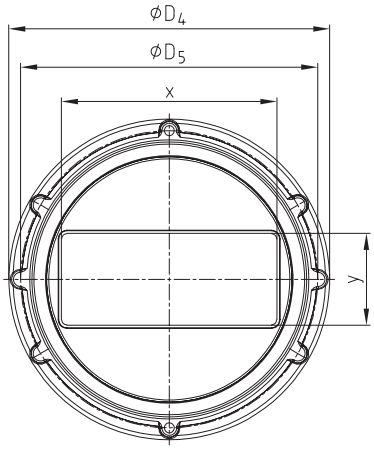
- Tanks are available without tank cover on request
- We will be pleased to paint your tanks as specified by you
- We will be pleased to do remachining for you (e. g. additional sleeves, drilling holes, etc.)
- Accessories such as fillers, oil level sight glasses, heaters, etc. can be additionally ordered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

Cleaning cover

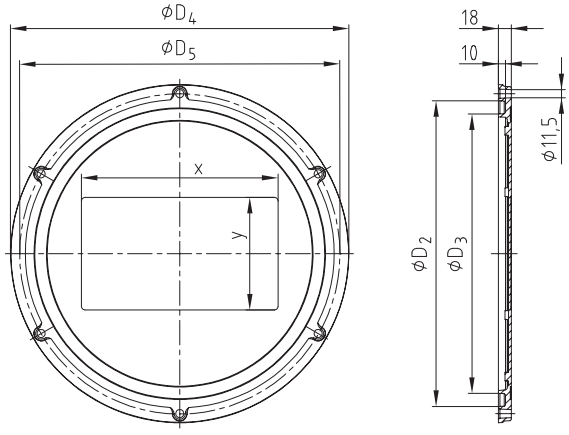
Cleaning cover V250-4 PRD



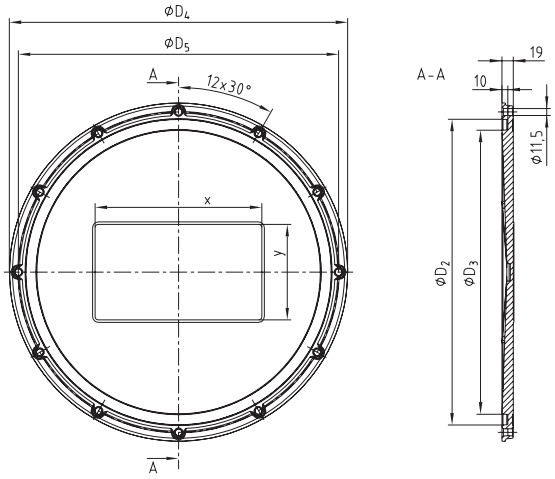
Cleaning cover V324-6 acc. to DIN 24339



Cleaning cover V449-6 acc. to DIN 24339



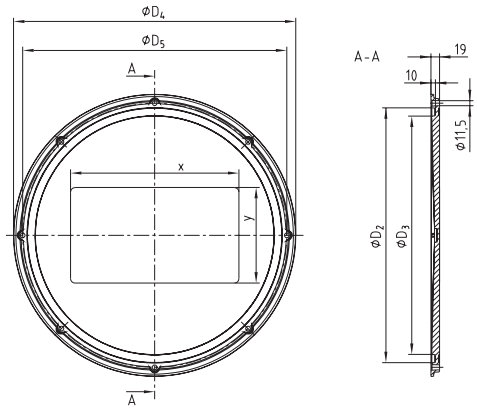
Cleaning cover V530-12



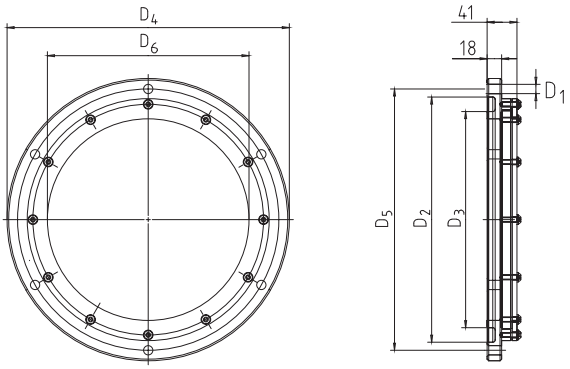
Technical data				
Screw tightening torque	Max. permissible pressure	HFC liquids	Perm. temperature range	Logo
10 Nm	0.5 bar	Order suffix/HFC	-30 °C to +100 °C	On request

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

Cleaning cover V580-8



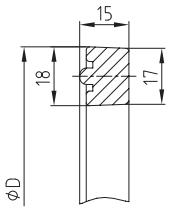
Cleaning cover
Type W aluminium/polycarbonate (sight glass)



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

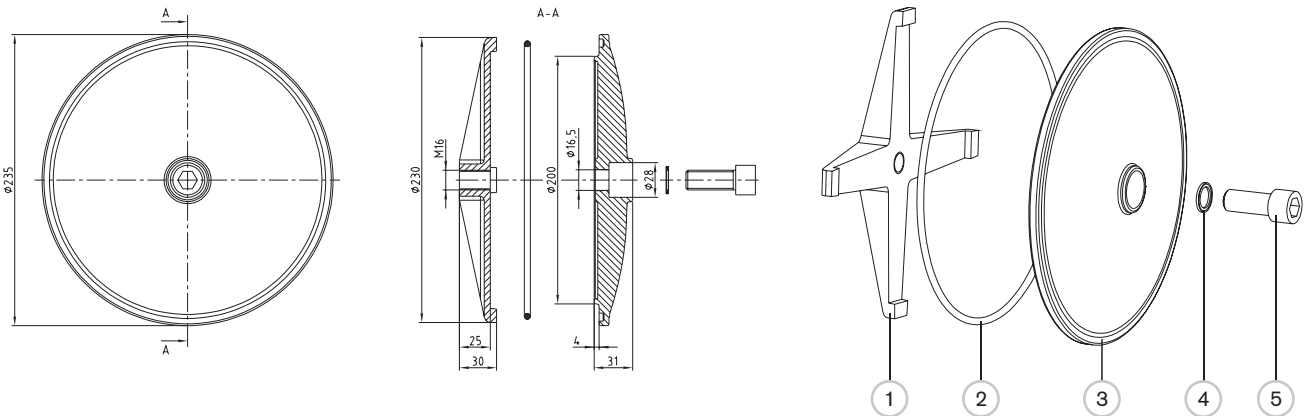
Cleaning cover									
Size	Dimensions [mm]								
	D_1	D_2	D_3	D_4	D_5	Sight glass	Number of bores	x	y
V250-4 PRD	11.5	229	193	-	250	-	4	170	80
V324-6 / V324-6 HFC		304	268	350	324	-	6	235	100
V324-6 permanent mould *		304	268	350	324	-		-	-
V324-6 /W		304	268	350	324	Ø250		276	158
V449-6 / V449-6 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	229
PRD 268 NBR	PRD 268 FKM	V324	304
PRD 393 NBR	PRD 393 FKM	V449	429
PRD 471 NBR	-	V530	507
PRD 525 NBR	-	V580	561
O-ring 214-5 NBR	215-5 FKM	V235	224

Cleaning cover V235

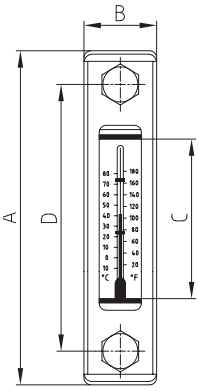


List of components:

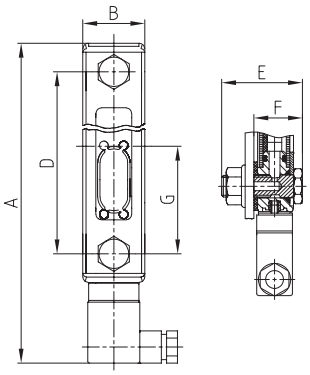
1. Fixing cross
2. O-ring 214 x 5
3. Cover
4. Gasket Usit 22 x 16
5. Screw M 16 x 40 tightening torque max. 40 Nm

Perm. temperature range -30 °C to +100 °C

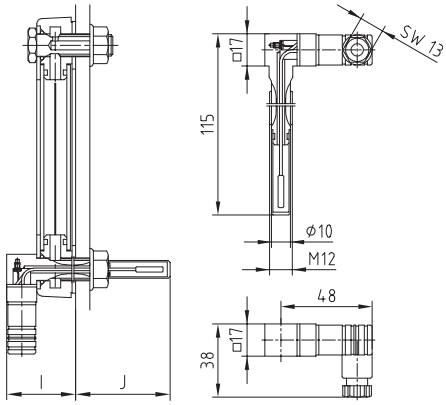
Oil level sight glass



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 sight glass										
Description	Dimensions [mm]								With TS	
	A	B	C	D	E	F	M	G	I	J
KO 01 / KOT 01	108	34	37	76	45	26	M12	—	39	76
KO 02 / KOT 02	159		76	127				—		
KOO 02 / KOS 02	205			127				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

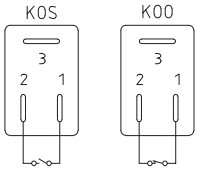
Recommended screw tightening torque: 8 Nm
Preload pressure of tank: max. 0.8 bar

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

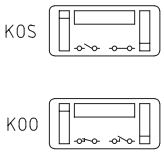
Hysteresis: 20 °C
Tolerance of shifting temperature: ± 5 °C

Electrical connections and functions:



Contact load:
KOS max. 10 W
KOO max. 5 W

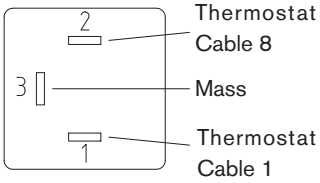
Switching voltage:
50V AC/DC
Terminal 3 not assigned



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

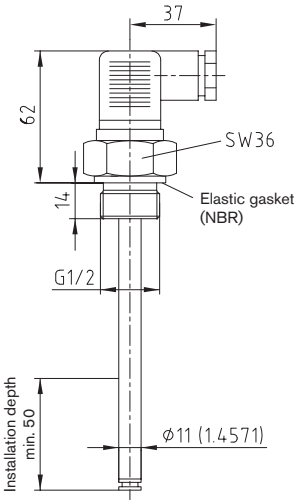


Ordering example:	KO	02	+ TS80
	Type [KO, KOT KOO or KOS]	Size [01, 02 or 03]	With temperature switch [TS60, TS70 or TS80]

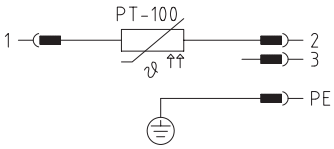
Temperature feeler, filler breather and oil level sight glass

Temperature probe 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

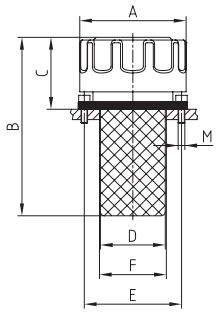


Wiring diagram:



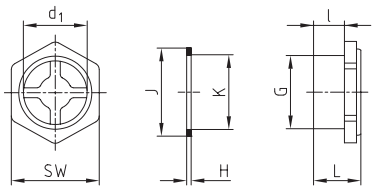
Ordering example:	TE	PT-100	300
	Electronic temperature feeler	Resistance feeler element	Length of immersion sleeve

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

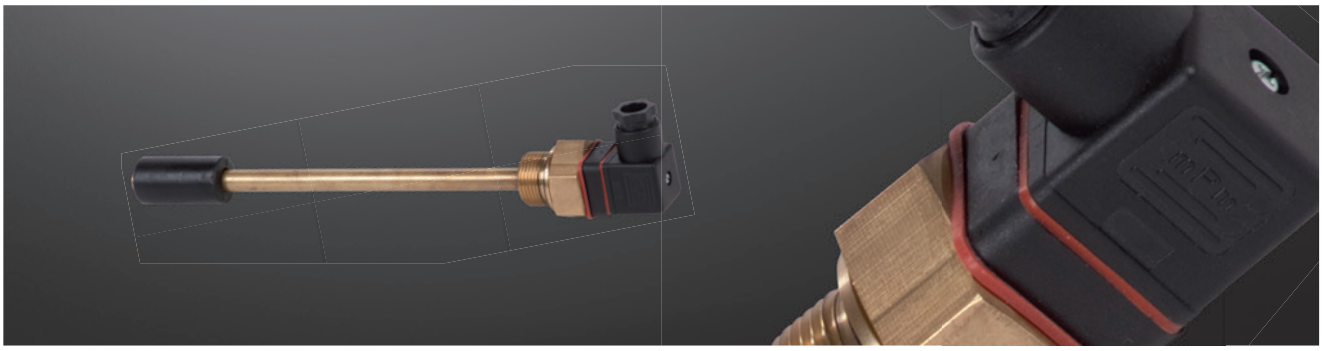


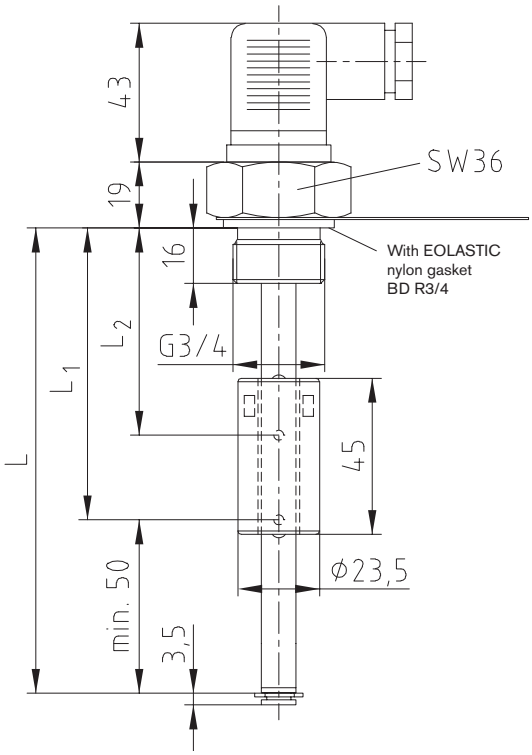
Oil level sight glass								
Size	Dimensions [mm]							
	L	l	d_1	G	H	J	K	SW
G 1/2 A	17	9	15	G 1/2"	2	27	21	27
G 3/4 A	18	10	21	G 3/4"	2	32	27	32
G 1 A	20	11	25	G 1"	2	40	34	41

Ordering example:	Filler breather	KE 01
	Type	Size

Ordering example:	Oil level sight glass	G 3/4 A
	Type	Size

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/dm³
Float	PU
Switching tube	MS
Flange	MS

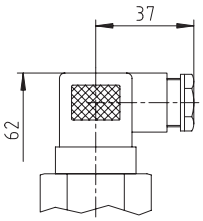
Level contacts

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

Temperature contacts

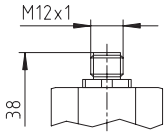
Function	NC (break contact)
Max. operating voltage	250V
Max. switching current	2 A
Max. contact load	100 VA
Switch-back difference	18 K ± 5 K

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

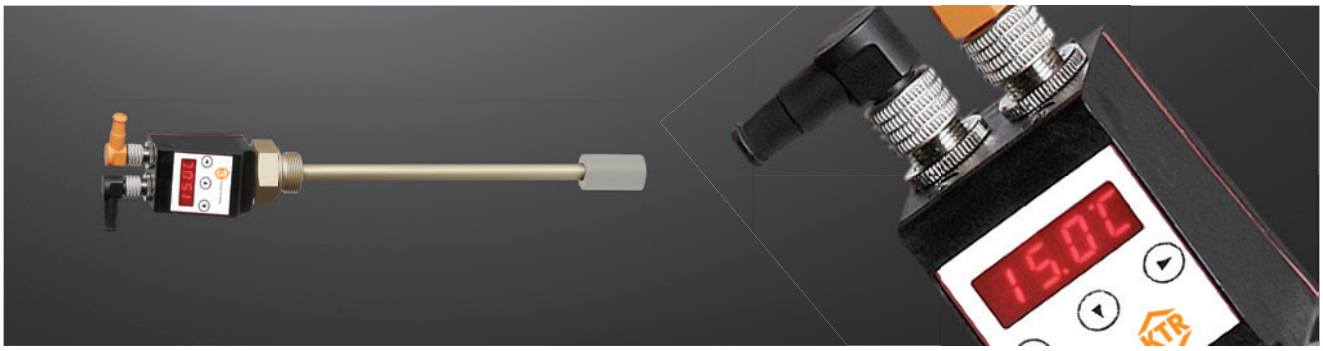


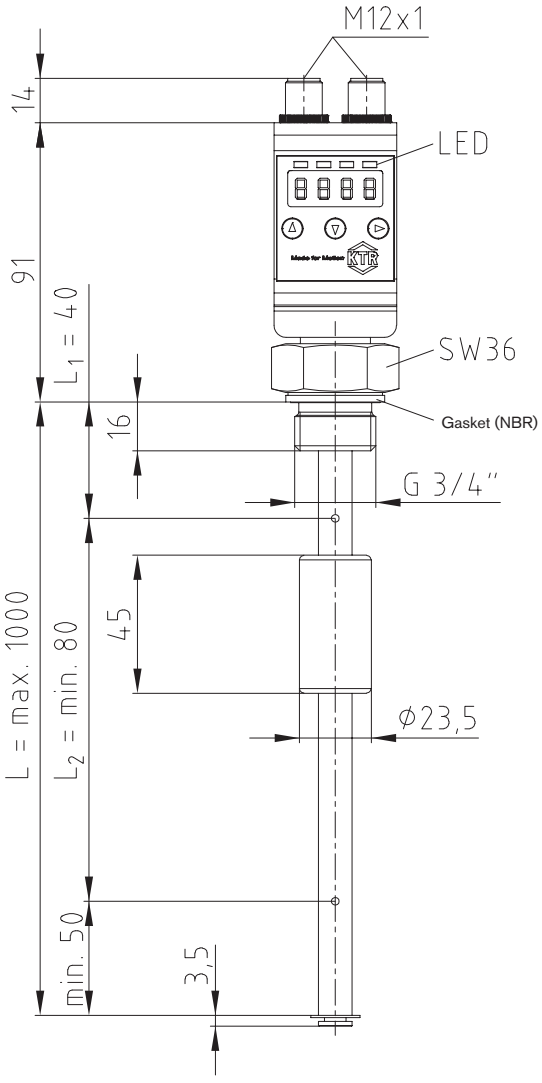
Protection class IP67
Max. voltage 24V DC

Ordering example:

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

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/dm³
Float:	PU
Immersion pipe:	MS
G ³/₄ flange:	MS
Measuring resistor:	Reed chain
Resolution:	10 mm
Temperature sensor:	PT100 class B DIN 60751

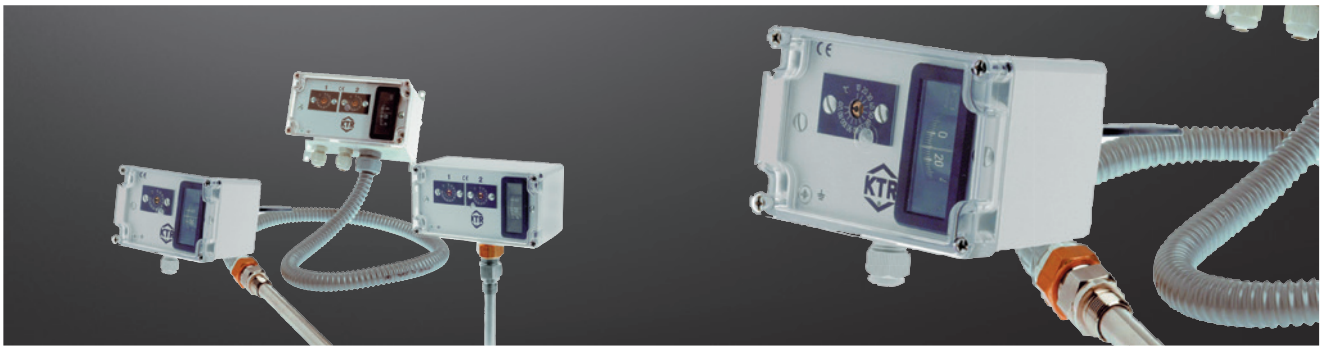
Display and control unit

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

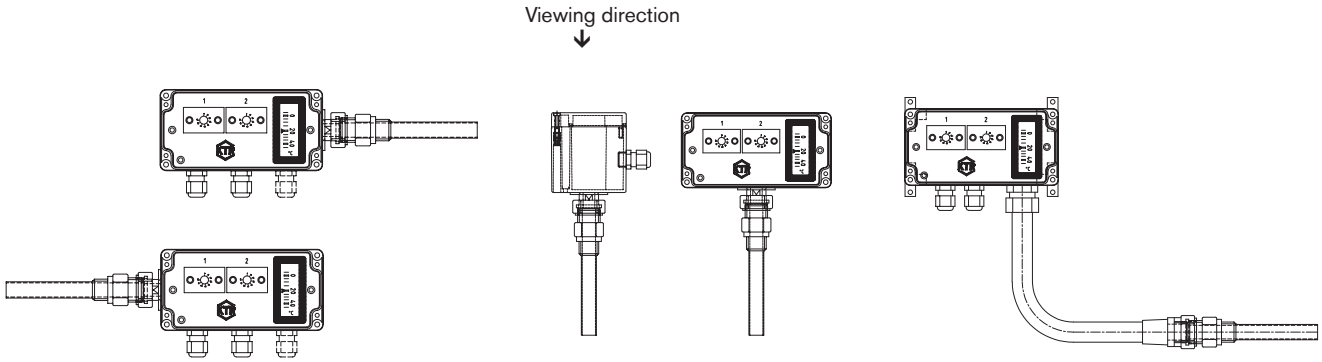
Ordering example:

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

Industrial controller IR



Industrial controller: Type/position of immersion sleeve



Type R and L | **Type H and U** | **Type S_1**

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

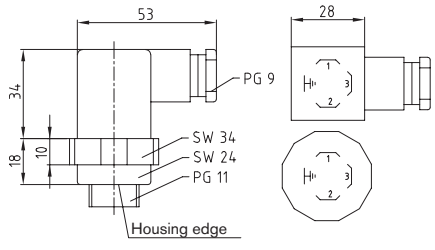
H: Immersion sleeve at the back
U: Immersion sleeve at the bottom

S_1: with 1 hose
S_3: with 2 hoses

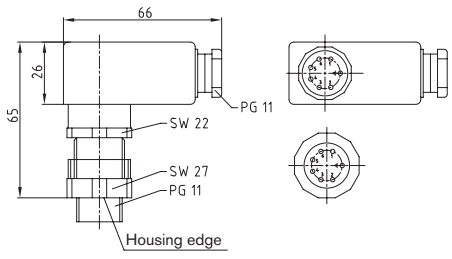
Lengths of hose: S_1 = 1500 mm and S_3 = 2 x 1500 mm

Electrical connections (IR)

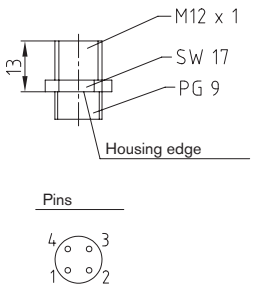
A01 standard: flat plug 6.3 x 0.8; receptacles attached to DIN 46247/3
A04 special design: European terminal strip fully cabled
Connectors A02, A03 and A05 see illustrations.



Plug A02
DIN 43650



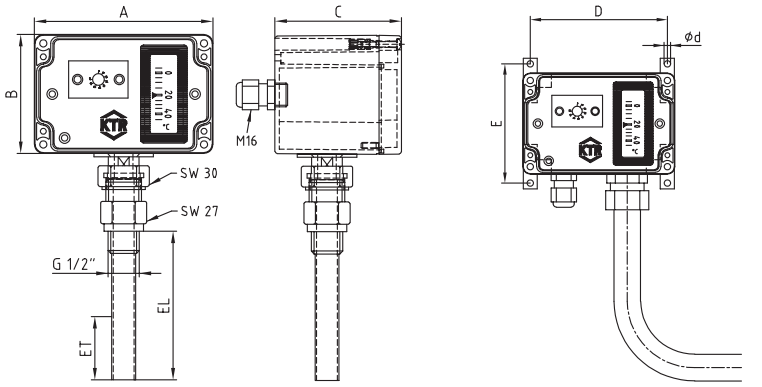
Plug A03
DIN 43651



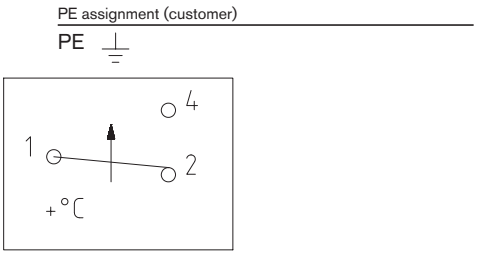
Plug A05
M12 - 4 poles

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



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 immersion depth referring to the number of functions included						
1 - 3 functions	90					
4 - 6 functions	180					
7 functions	270					

Type IR

Technical data

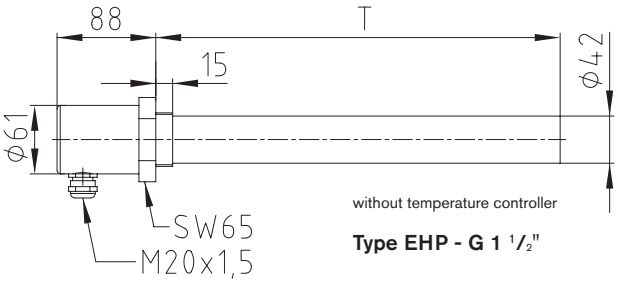
Contact selection:	Single-pole changeover	Accuracy of display:	Class 3 according to DIN 16203
Contact material:	Hard silver Ag	Housing material:	Polycarbonate (Makrolon)
Setting range:	~ 30 °C to +160 °C	immersion sleeve:	1.4301
Switching accuracy:	~ 4 °C	Cable gland:	Polyamide
Ambient temperature:	~ 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 Other data on request
Insulation:	According to VDE		
Protection class:	IP65		
Cable gland:	M16 with strain relief	Disruptive strength:	2000V AC between combined contacts and mass 1150V AC between open contacts
Max. operating pressure of immersion sleeve:	16 bars		
Thermometer display:	~ 30 °C to +160 °C		

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

LED 240V	Index
green	5
red	6

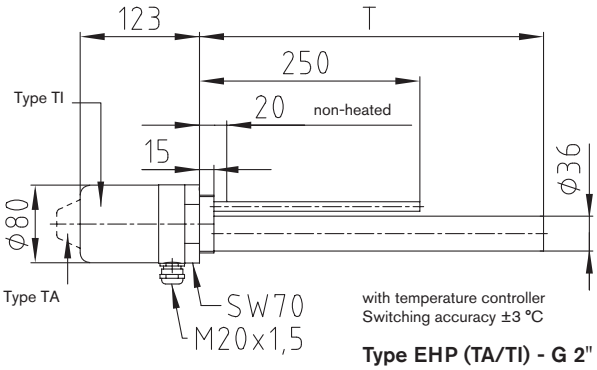
Ordering example:	IR	200	H	A01	03 - 02 - 02 - T1
	Type	Length of immersion sleeve	Position of immersion sleeve	Electrical connection	Requested controller or thermometer (max. 7). Sequence as requested. If an LED is requested to be assembled, the figure 0 in the controller name is replaced by the respective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

Tank heater - Type EHP



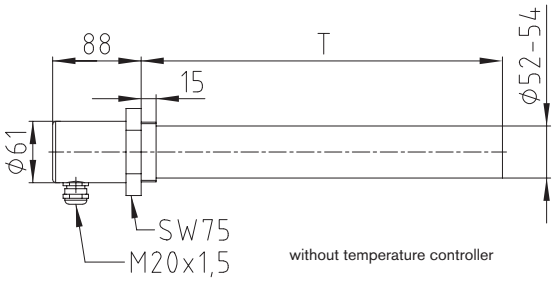
without temperature controller

Type EHP - G 1 ½"



with temperature controller
Switching accuracy ±3 °C

Type EHP (TA/TI) - G 2"



without temperature controller

Type EHP - G 2"

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)

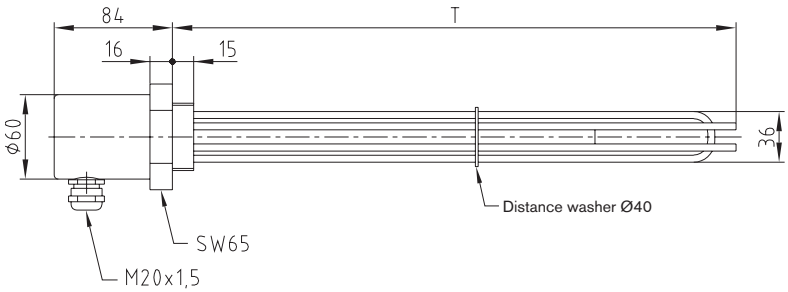
Inserted heating cartridge								
Type EHP - G 1 ½" without temperature controller			Type EHP - G 2" without temperature controller			Type EHP (TA/TI) - G 2" with temperature controller		
Heating capacity [Watt]	Immersion depth T [mm]	Voltage [V]	Heating capacity [Watt]	Immersion depth T [mm]	Voltage [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:

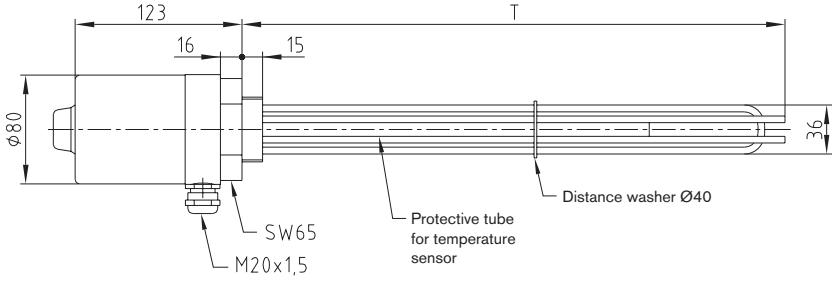
EHP	1950	1300	G 2"	TI	1 x 230V
Type	Heating capacity [Watt]	Immersion depth T [mm]	Size of screw-in thread	TA = Temperature controller with external setting TI = Temperature controller with internal setting O = Without temperature controller	Voltage [V] must be specified in the order, e. g. 1 x 230V;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

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

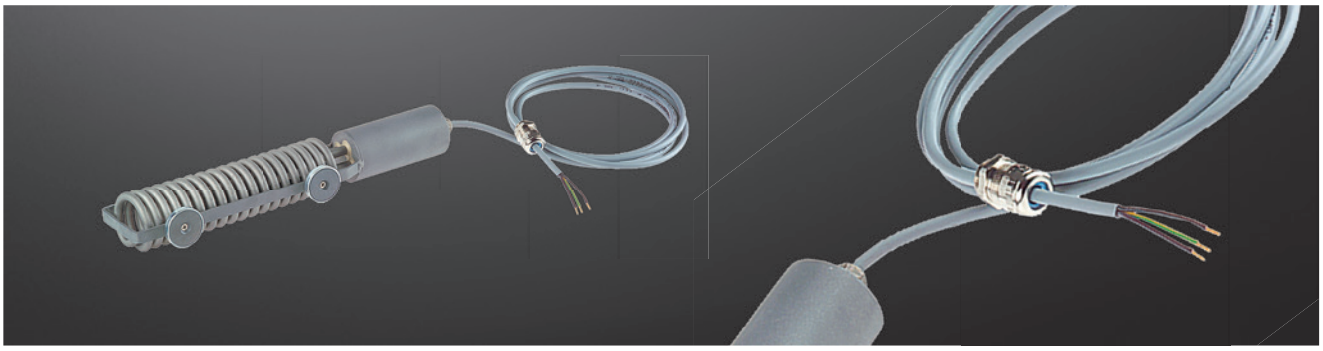
Technical data of EH:
Temperature controller for internal or external setting: 0 - 85 °C, 16 amperes
Surface load: 1.5W/cm²
Protection class IP65 (type TA IP54)

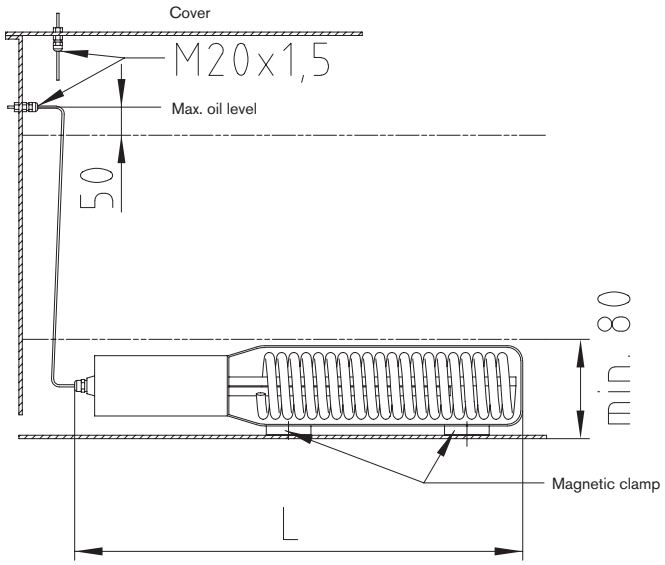
As an alternative: control of tank heater via KTR temperature controller (NVT-E/IR). In this case the temperature controller on the tank heater can be done without. Other types on request. Please observe our assembly instructions at www.ktr.com.

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)

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/cm²
	(0.6 W/cm² 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

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 sight glass	-	●	●	6	5	●	6	6	6
Oil level sight glass	-	●	●	6	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 probe 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

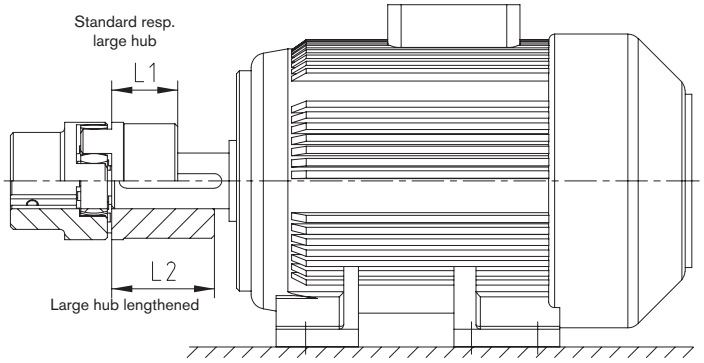
Explanation of items marked:

● = 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 expoxy 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)

A. C. motor 50 Hz													
Size	Shaft end DWxLW [mm]		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
	2 poles	4, 6, 8 poles	Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]	
56	9 x 20		0.09	0.32	9 [1]	0.06	0.43	9 [1]	0.037	0.43	9 [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		0.25	1.8		0.18	2		0.09	1.4	14
			0.55	1.9		0.37	2.5		0.25	2.8		0.12	1.8	
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		0.25	3.5	
90S	24 x 50		1.5	5		1.1	7.5		0.75	8		0.37	5.3	
90L			2.2	7.4		1.5	10		1.1	12		0.55	7.9	
100L	28 x 60		3	9.8	24	2.2	15	24	1.5	15	24	0.75	11	24
						3	20					1.1	16	
112M			4	13		4	27		2.2	22		1.5	21	
132S	38 x 80		5.5	18	28	5.5	36	28	3	30	28	2.2	30	28
			7.5	25										
132M						7.5	49		4	40		3	40	
									5.5	55				
160M	42 x 110		11	36	38	11	72	38	7.5	75	38	4	54	38
			15	49								5.5	74	
160L			18.5	60		15	98		11	109		7.5	100	
180M	48 x 110		22	71	42	18.5	121	42			42			42
180L						22	144		15	148		11	145	
200L	55 x 110		30	97		30	196		18.5	181		15	198	
			37	120					22	215				
225S	55 x 110	60 x 140				37	240	48				18.5	244	48
225M			45	145		45	292	55	30	293	55	22	290	55
250M	60 x 140	65 x 140	55	177	48	55	356		37	361	65 [2]	30	392	65
280S	65 x 140	75 x 140	75	241	55	75	484	65 [2]	45	438		37	483	65 [2]
280M			90	289		90	581		55	535		45	587	75
315S		80 x 170	110	353		110	707	75	75	727	75	55	712	
315M			132	423	65	132	849		90	873		75	971	
			160	513		160	1030		110	1070		90	1170	90
315L			200	641		200	1290	90	132	1280	90	110	1420	
					75				160	1550		132	1710	
315		85 x 170	250	802		250	1600		200	1930		160	2070	
			315	1010		315	2020		250	2410	100	200	2580	100
			355	1140		355	2280	100						
355	75 x 140	95 x 170	400	1280	90	400	2570		315	3040	110	250	3220	110
			500	1600		500	3210	110	400	3850	125	315	4060	125
			560	1790		560	3580	125	450	4330		355	4570	
400	80 x 170	110 x 210	630	2020		630	4030		500	4810		400	5150	140
			710	2270	100	710	4540		560	5390	140	450	5790	
			800	2560		800	5120	140	630	6060		500	6420	
450	90 x 170	120 x 210	900	2880	110	900	5760		710	6830	160	560	7190	160
			1000	3200		1000	6400	160	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.

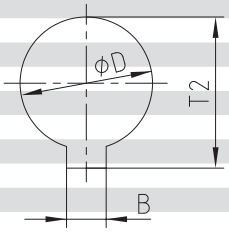
[1] For dimensions see ROTEX® GS series

[2] For motor hub made of steel see page 40

Inch bores and taper bores

Stock programme of inch bores

Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)						Size									
						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 1:8

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

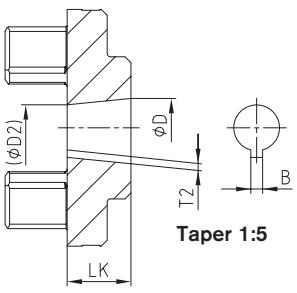
With code N/6 and N/6a keyway in parallel with taper.

Basic programme of taper 1:10

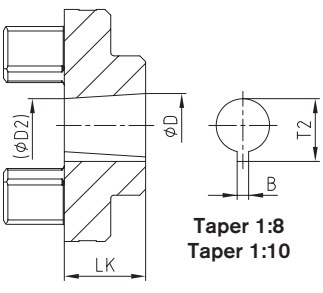
Code	D$^{+0.05}$	(D2)	B^{JS9}	T2$^{+0.1}$	LK
CX	19.95	16.75	5^{JS9}	22.08	32
DX	24.95	20.45	6^{JS9}	26.68	45
EX	29.75	24.75	8^{JS9}	31.88	50

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



Taper 1:5



Taper 1:8
Taper 1:10

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	Unbored	Ø6	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	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	●		●		●	●	●	●	●	●	●	●	●	●		●																				
	St	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																			
24	Sint	●											●		●		●	●	●																		
	Al-D	●				●		●	●	●	●	●	●	●	●	●	●	●	●		●																
	St	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																
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	5/8"	14.28	16/32	9	30°	**PS-S**	1 1/2"	35.98	12/24	17	30°
PI-S	3/4"	17.46	16/32	11	30°	**PD-S**	1 1/2"	36.51	16/32	23	30°
PB-S	7/8"	20.63	16/32	13	30°	**PE-S**	1 3/4"	42.86	16/32	27	30°
PB-BS	1"	23.81	16/32	15	30°	**PK-S**	1 3/4"	41.275	8/16	13	30°
PJ	1 1/8"	26.98	16/32	17	30°	**PT-C** [1]	2"	47.625	8/16	15	30°
PC-S	1 1/4"	29.63	12/24	14	30°	**PQ-C** [1]	2 1/4"	53.975	8/16	17	30°
PA-S	1 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					

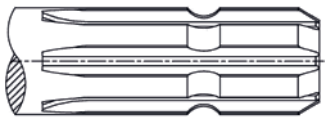
Basic programme of spline bores acc. to DIN 5480

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

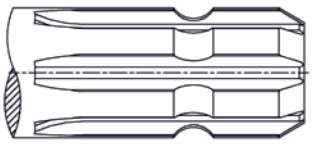
Basic programme of spline bores acc. to DIN 9611 - ISO 500 (p.t.o. shaft connection)

Size	Width of keyway	No. of teeth	Tip circle	Root circle
1 3/8"	8.69	6	34.93	29.65
1 3/8"	–	21	34.95	34.80 [3]
1 3/4"	11.07	6	44.45	37.74
1 3/4"	–	20	45.20	40.20

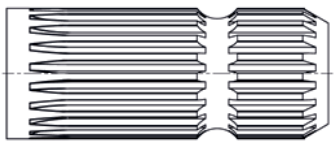
1 ⅜“, 6 teeth



1 ¾“, 6 teeth



1 ¾ “, 20 teeth



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_B		
ROTEX® GS*		
Backlash-free drives		
Main spindle drive of machine tools		2.0 - 5.0
Moderate shocks	Grinders, small milling machines/drills	1.5 - 2.5
Medium shocks	Milling machines/drills with interrupted cut	2.0 - 3.0
Heavy shocks	Milling machines etc.	2.5 - 3.5
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

Start-up factor S_Z	
Start-up 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 must be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads must be compared to the permissible coupling parameters. 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

$T_{KN} \geq T_N \bullet S_t \bullet S_B$ and $T_{KN} \geq T_S \bullet S_t \bullet S_B$

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

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:

Shock on drive side $T_S = T_{AS} \bullet M_A \bullet S_Z$ → $M_A = \frac{J_L}{(J_A + J_L)}$

2. Servo-hydraulic drives

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

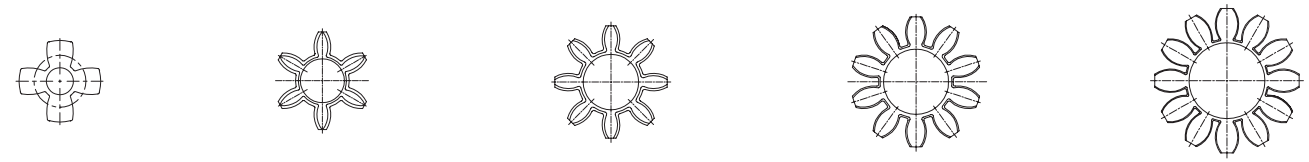
Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the peak torque of the driving side T_{AS}.

$S_t \bullet S_B$ 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.).

Properties of standard spiders

ROTEX® 14 | ROTEX® 19 | 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 Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C	 -40 °C to +90 °C -40 °C to +120 °C
Properties	– significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – good damping, medium flexibility – suitable for all hub materials	– 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 Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C	 -30 °C to +90 °C -40 °C to +120 °C
Properties	– significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – transmission of high torques with medium damping – recommended hub material: steel, GJL and GJS	– transmission of high torques with medium 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 Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C
Properties	– 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 v=35 m/s cast material	Max. speed v=40 m/s steel	Torsion angle ϕ with T_{KN}	Torsion angle ϕ with $T_{K\,max}$	Torque [Nm] DIN 740 [1] Rated T_{KN}	Torque [Nm] DIN 740 [1] Max. $T_{K\,max}$	Torque [Nm] DIN 740 [1] Vibratory T_{KW}	Torque [Nm] $T_{K\,max}$ [2]	Damping power P_{KW} [W] [3]	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad] 1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	22200	25400	6.4°	10°	7.5	15	2.0	22.5	–			0.38x10³	0.31x10³	0.24x10³	0.14x10³
19	16700	19000			10	20	2.6	30	4.8			1.28x10³	1.05x10³	0.8x10³	0.47x10³
24	12100	13800			35	70	9.1	105	6.6			4.86x10³	3.98x10³	3.01x10³	1.79x10³
28	10100	11500			95	190	25	285	8.4			10.9x10³	8.94x10³	6.76x10³	4.01x10³
38	8300	9500			190	380	49	570	10.2			21.05x10³	17.26x10³	13.05x10³	7.74x10³
42	7000	8000			265	530	69	795	12.0			23.74x10³	19.47x10³	14.72x10³	8.73x10³
48	6350	7250			310	620	81	930	13.8			36.7x10³	30.09x10³	22.75x10³	13.49x10³
55	5550	6350			410	820	107	1230	15.6			50.7x10³	41.59x10³	31.45x10³	18.64x10³
65	4950	5650	3.2°	5°	625	1250	163	1875	18.0	0.80	7.90	97.1x10³	79.65x10³	60.2x10³	35.7x10³
75	4150	4750			1280	2560	333	3840	21.6			113.3x10³	92.9x10³	70.3x10³	41.65x10³
90	3300	3800			2400	4800	624	7200	30.0			190.1x10³	155.9x10³	117.9x10³	69.9x10³
100	2950	3350			3300	6600	858	9900	36.0			253.1x10³	207.5x10³	156.9x10³	93x10³
110	2600	2950			4800	9600	1248	14400	42.0			415.5x10³	336.9x10³	257.6x10³	177.4x10³
125	2300	2600			6650	13300	1729	19950	48.0			647.7x10³	537.3x10³	412.2x10³	277.5x10³
140	2050	2350			8550	17100	2223	25650	54.6			813.4x10³	670.2x10³	519.7x10³	351.7x10³
160	1800	2050			12800	25600	3328	38400	75.0			1298x10³	1104x10³	901.9x10³	655.7x10³
180	1550	1800			18650	37300	4849	55950	78.0			2327x10³	1981x10³	1618x10³	1176x10³

98 Shore A spider made of T-PUR® and PUR

ROTEX® size	Max. speed v=35 m/s cast material	Max. speed v=40 m/s steel	Torsion angle ϕ with T_{KN}	Torsion angle ϕ with $T_{K\,max}$	Torque [Nm] DIN 740 [1] Rated T_{KN}	Torque [Nm] DIN 740 [1] Max. $T_{K\,max}$	Torque [Nm] DIN 740 [1] Vibratory T_{KW}	Torque [Nm] $T_{K\,max}$ [2]	Damping power P_{KW} [W] [3]	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad] 1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	22200	25400	6.4°	10°	12.5	25	3.3	37.5	–			0.56x10³	0.46x10³	0.35x10³	0.21x10³
19	16700	19000			17	34	4.4	51	4.8			2.92x10³	2.39x10³	1.81x10³	1.07x10³
24	12100	13800			60	120	16	180	6.6			9.93x10³	8.14x10³	6.16x10³	3.65x10³
28	10100	11500			160	320	42	480	8.4			26.77x10³	21.95x10³	16.6x10³	9.84x10³
38	8300	9500			325	650	85	975	10.2			48.57x10³	39.83x10³	30.11x10³	17.85x10³
42	7000	8000			450	900	117	1350	12.0			54.5x10³	44.69x10³	33.79x10³	20.03x10³
48	6350	7250			525	1050	137	1575	13.8			65.3x10³	53.54x10³	40.48x10³	24x10³
55	5550	6350			685	1370	178	2055	15.6			95x10³	77.9x10³	58.88x10³	34.9x10³
65	4950	5650	3.2°	5°	940	1880	244	2820	18.0	0.80	7.90	129.5x10³	106.2x10³	80.3x10³	47.6x10³
75	4150	4750			1920	3840	499	5760	21.6			197.5x10³	162x10³	122.5x10³	72.6x10³
90	3300	3800			3600	7200	936	10800	30.0			312.2x10³	256x10³	193.6x10³	114.7x10³
100	2950	3350			4950	9900	1287	14850	36.0			383.3x10³	314.3x10³	237.6x10³	140.9x10³
110	2600	2950			7200	14400	1872	21600	42.0			805.9x10³	663.1x10³	515.3x10³	360.5x10³
125	2300	2600			10000	20000	2600	30000	48.0			1207x10³	1003x10³	787.6x10³	552.5x10³
140	2050	2350			12800	25600	3328	38400	54.6			1549x10³	1283x10³	979.8x10³	674.1x10³
160	1800	2050			19200	38400	4992	57600	75.0			2481x10³	2137x10³	1781x10³	1275x10³
180	1550	1800			28000	56000	7280	84000	78.0			4220x10³	3635x10³	3031x10³	2170x10³

64 Shore D spider made of T-PUR®

ROTEX® size	Max. speed v=35 m/s cast material	Max. speed v=40 m/s steel	Torsion angle ϕ with T_{KN}	Torsion angle ϕ with $T_{K\,max}$	Torque [Nm] DIN 740 [1] Rated T_{KN}	Torque [Nm] DIN 740 [1] Max. $T_{K\,max}$	Torque [Nm] DIN 740 [1] Vibratory T_{KW}	Torque [Nm] $T_{K\,max}$ [2]	Damping power P_{KW} [W] [3]	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad] 1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	22200	25400	4.5°	7.0°	16	32	4.2	48	9.0			0.76x10³	0.62x10³	0.47x10³	0.28x10³
19	16700	19000			21	42	5.5	63	7.2			5.35x10³	4.39x10³	3.32x10³	1.97x10³
24	12100	13800			75	150	19.5	225	9.9			15.11x10³	12.39x10³	9.37x10³	5.55x10³
28	10100	11500			200	400	52	600	12.6			27.52x10³	22.57x10³	17.06x10³	10.12x10³
38	8300	9500			405	810	105	1215	15.3			70.15x10³	57.52x10³	43.49x10³	25.78x10³
42	7000	8000			560	1120	146	1680	18.0			79.9x10³	65.5x10³	49.52x10³	29.35x10³
48	6350	7250			655	1310	170	1965	20.7			95.5x10³	78.3x10³	59.22x10³	35.1x10³
55	5550	6350			825	1650	215	2475	23.4			107.9x10³	88.5x10³	66.9x10³	39.66x10³
65	4950	5650	2.5°	3.6°	1175	2350	306	3525	27.0	0.75	8.50	151.1x10³	123.9x10³	93.7x10³	55.53x10³
75	4150	4750			2400	4800	624	7200	32.4			248.2x10³	203.5x10³	153.9x10³	91.2x10³
90	3300	3800			4500	9000	1170	13500	45.0			674.5x10³	553.1x10³	418.2x10³	247.9x10³
100	2950	3350			6185	12370	1608	18555	54.0			861.2x10³	706.2x10³	533.9x10³	316.5x10³
110	2600	2950			9000	18000	2340	27000	63.0			1230x10³	1001x10³	773.1x10³	531.4x10³
125	2300	2600			12500	25000	3250	37500	72.0			1749x10³	1436x10³	1149x10³	832.1x10³
140	2050	2350			16000	32000	4160	48000	81.9			2312x10³	1929x10³	1521x10³	1082x10³
160	1800	2050			24000	48000	6240	72000	112.5			3415x10³	2961x10³	2471x10³	1830x10³
180	1550	1800			35000	70000	9100	105000	117.0			5670x10³	4917x10³	4103x10³	3038x10³

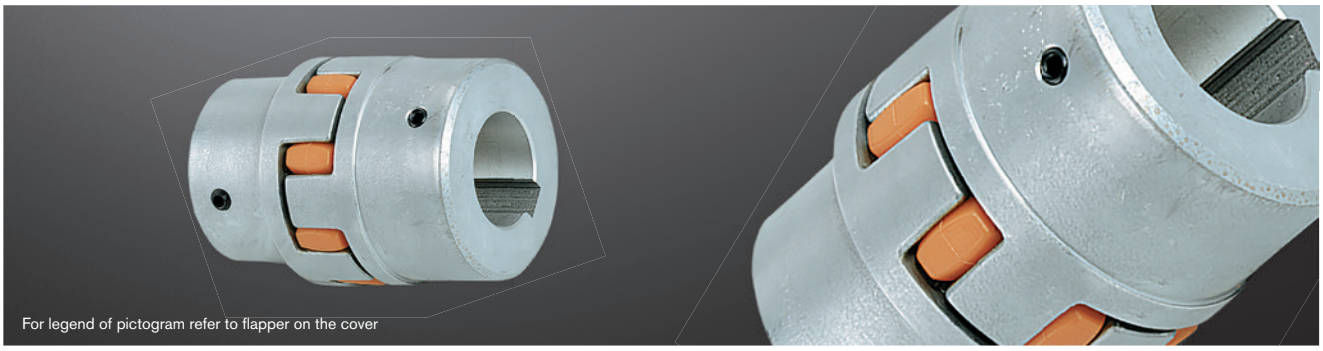
[1] see catalogue page 15
[2] ≤ 1000 load cycles
[3] with +30 °C

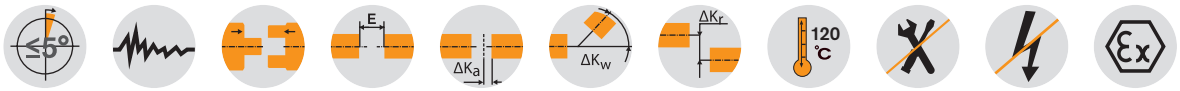
Temperature factor S_t

	-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 consult with KTR engineering department.
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.

Materials: aluminium + cast + sinter material





Size	Compo-nent	Spider [1] (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]											
						General									Setscrew		
		92 ShA	98 ShA	64 ShD		L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T_A [Nm]
ROTEX® Sinter steel (Sint)																	
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)																	
19	1	10	17	—	0-19	66	25	16	12	2	41	18	32	20	M5	10	2
	1a				19-24								41				
24	1	35	60	—	0-24	78	30	18	14	2	56	27	40	24	M5	10	2
	1a				22-28								56				
28	1	95	160	—	0-28	90	35	20	15	2.5	66	30	48	28	M8	15	10
	1a				28-38								66				
ROTEX® Aluminium (Al-H)																	
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).

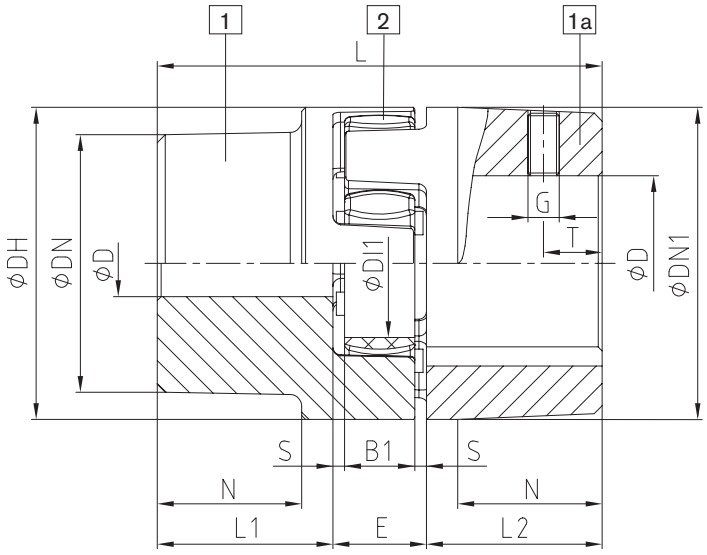
ROTEX® Cast iron (GJL)																	
	1				12-40	114	45						66	37			
38	1a	190	325	405	38-48			24	18	3	80	38	78		M8	15	10
	1b				12-48	164	70							62			
	1				14-45	126	50						75	40			
42	1a	265	450	560	42-55			26	20	3	95	46	94		M8	20	10
	1b				14-55	176	75							65			
	1				15-52	140	56						85	45			
48	1a	310	525	655	48-62			28	21	3.5	105	51	104		M8	20	10
	1b				15-62	188	80							69			
55	1	410	685	825	20-60	160	65	30	22	4	120	60	98	52	M10	20	17
	1a				55-74								118				
65	1	625	940	1175	22-70	185	75	35	26	4.5	135	68	115	61	M10	20	17
75	1	1280	1920	2400	30-80	210	85	40	30	5	160	80	135	69	M10	25	17
90	1	2400	3600	4500	40-100	245	100	45	34	5.5	200	100	160	81	M12	30	40
ROTEX® Nodular iron (GJS)																	
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.

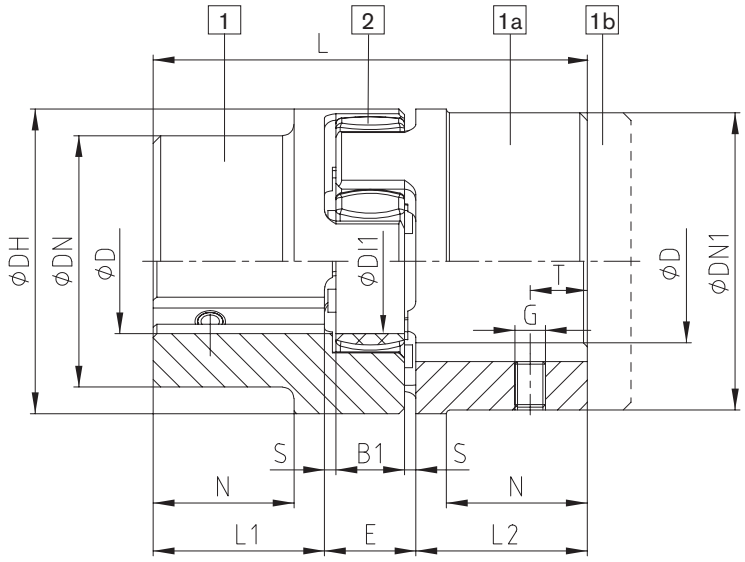
Ordering example:

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

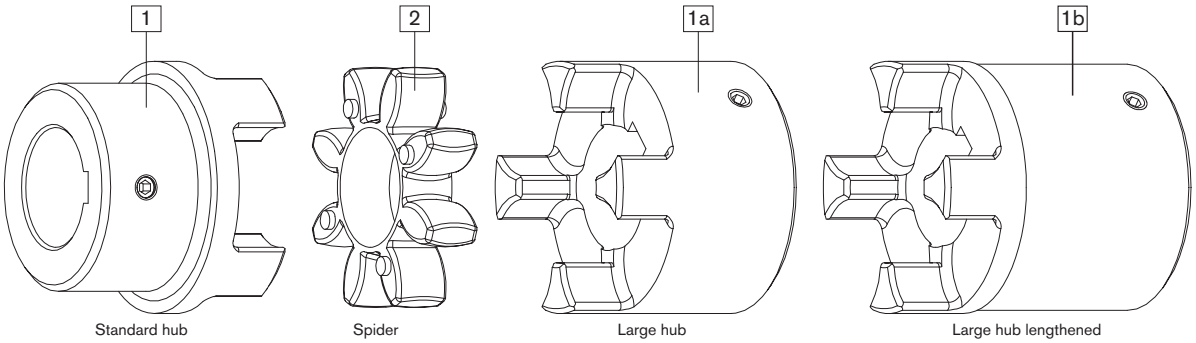
Components



AI-D (thread opposite the keyway)

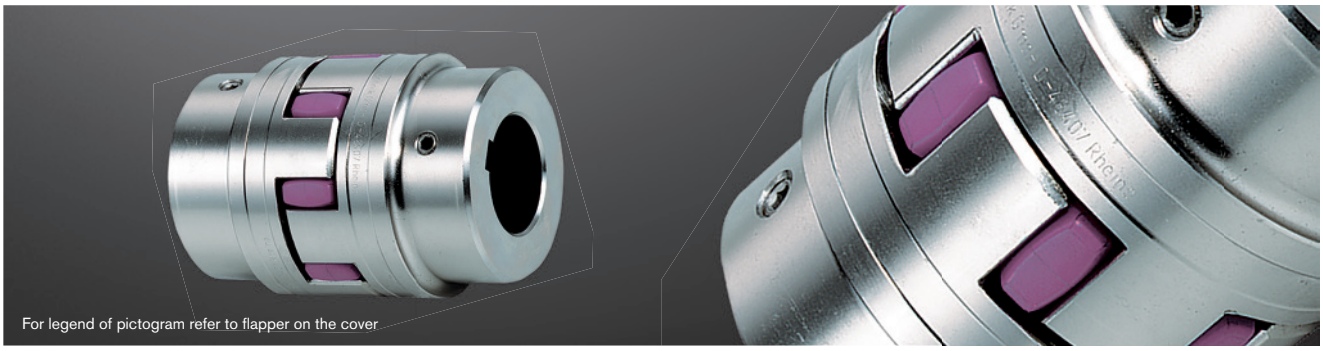


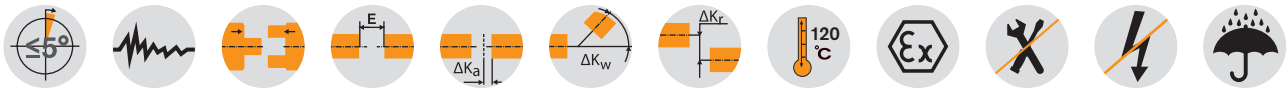
GJL / GJS (thread on the keyway)



ROTEX® Standard
Flexible jaw couplings

Material steel/stainless steel





ROTEX® Steel (St)

Size	Compo-nent	Spider [1] (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]											
						General									Setscrew		
		92 ShA	98 ShA	64 ShD		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	30	—	M4	5	1.5
	1b					50	18.5										
19	1a	10	17	21	0-25	66	25	16	12	2	40	18	40	—	M5	10	2
	1b					90	37										
24	1a	35	60	75	0-35	78	30	18	14	2	55	27	55	—	M5	10	2
	1b					118	50										
28	1a	95	160	200	0-40	90	35	20	15	2.5	65	30	65	—	M8	15	10
	1b					140	60										
38	1	190	325	405	0-48	114	45	24	18	3	80	38	70	27	M8	15	10
	1b					164	70						80	—			
42	1	265	450	560	0-55	126	50	26	20	3	95	46	85	28	M8	20	10
	1b					176	75						95	—			
48	1	310	525	655	0-62	140	56	28	21	3.5	105	51	95	32	M8	20	10
	1b					188	80						105	—			
55	1	410	685	825	0-75	160	65	30	22	4	120	60	110	37	M10	20	17
	1b					210	90						120	—			
65	1	625	940	1175	0-80	185	75	35	26	4.5	135	68	115	47	M10	20	17
	1b					235	100						135	—			
75	1	1280	1920	2400	0-95	210	85	40	30	5	160	80	135	53	M10	25	17
	1b					260	110						160	—			
90	1	2400	3600	4500	0-110	245	100	45	34	5.5	200	100	160	62	M12	30	40
	1b					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]											
						General									Setscrew		
		92 ShA	98 ShA	64 ShD		L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T_A [Nm]
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

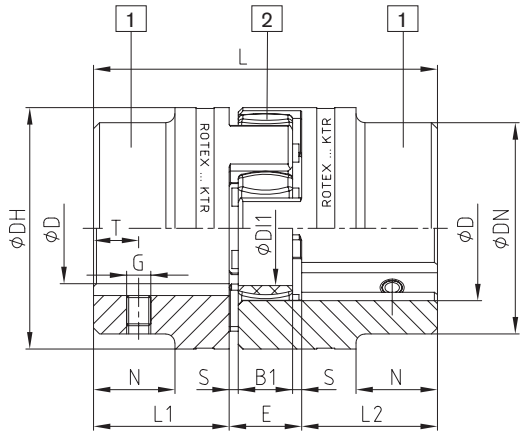
Material 1.4571 on request.

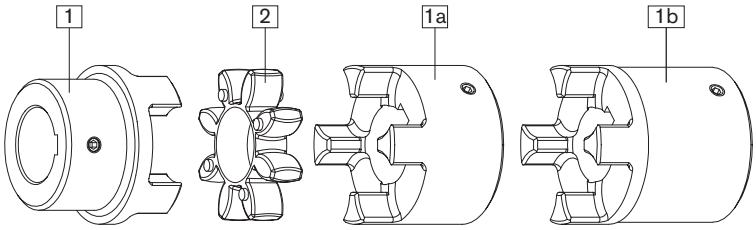
Ordering example:

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

DIN EN 10204 - 3.1 and 3.2 material test certificate

Components





Standard hub | Spider | Large hub | Large hub lengthened

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.

DNV·GL ABS BUREAU VERITAS Lloyd's Register ClassNK

UL

CERTIFIED SAFETY US EX15517

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

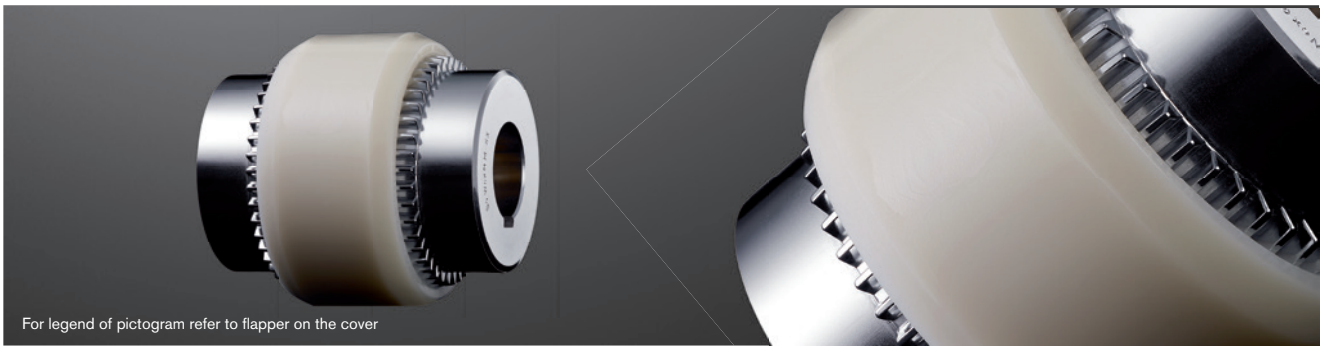
Sizes available:

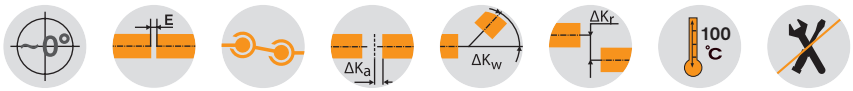
ROTEX® UL Listed								
Size	Compo-nent	Material	Spider (component 2) Rated torque [Nm] 92 ShA	Dimensions [mm] Finish bore D (min. - max.)	L	L1, L2	E	DH
42	1	St	265	18-55	126	50	26	95
55	1	St	410	24-74	160	65	30	120
65	1	St	625	24-80	185	75	35	135
75	1	St	1280	24-95	210	85	40	160
90	1	St	2400	30-110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

* for complete dimensions see table on page 40

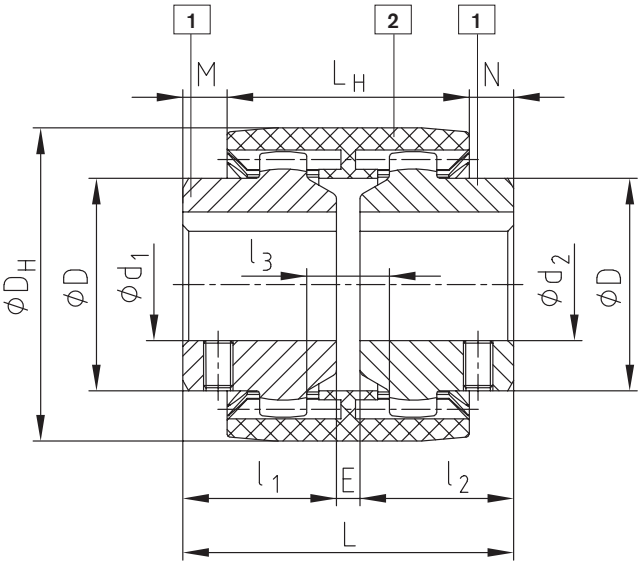
BoWex® M, I
Curved-tooth gear coupling®

Compact and maintenance-free

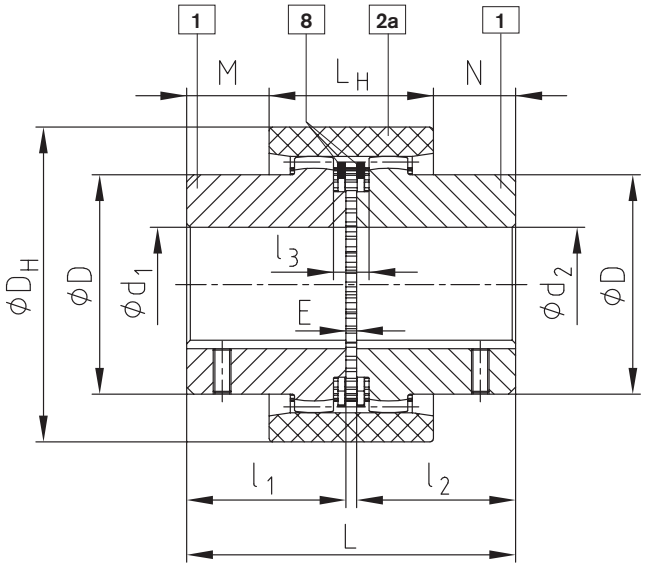




Components



Type M



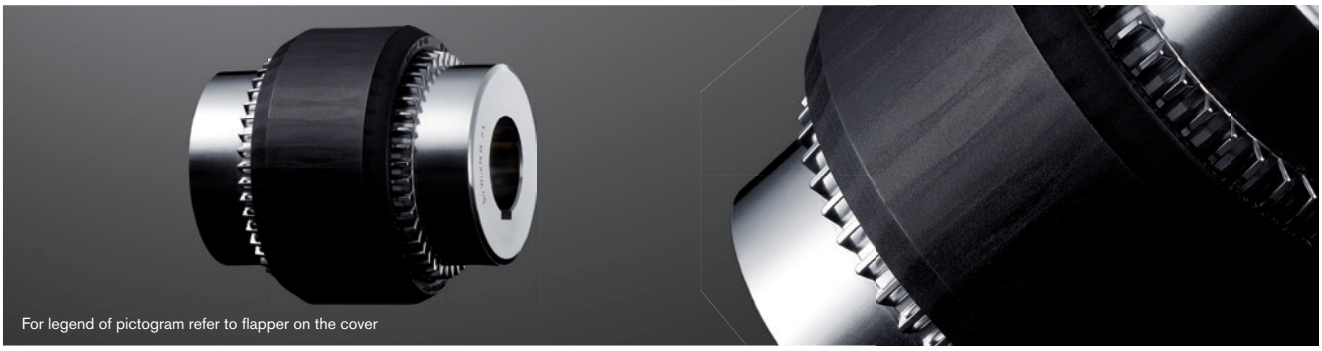
Type I

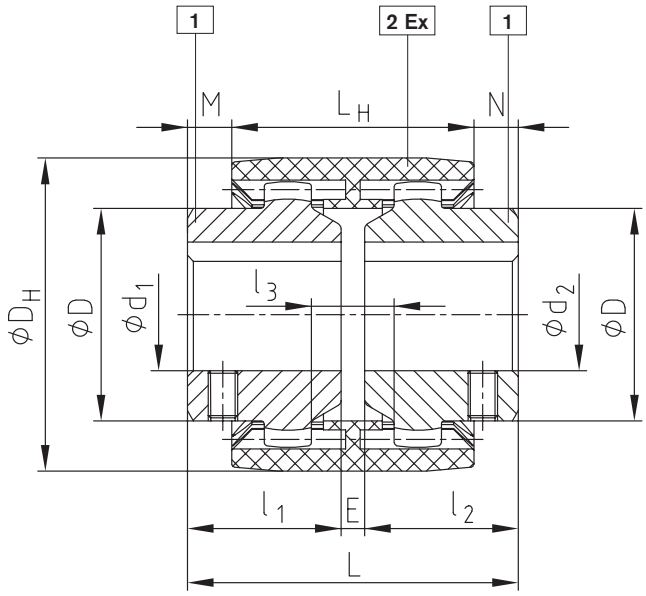
BoWex® type M, type I																						
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T_{KN}	$T_{K\,max.}$	T_{KW}	Pilot bored	Max.	l_1, l_2	E	L	L_H	M, N	l3	D	DH	Tip circle $ØD_Z$ hub	Number of teeth	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





Type M...C Ex

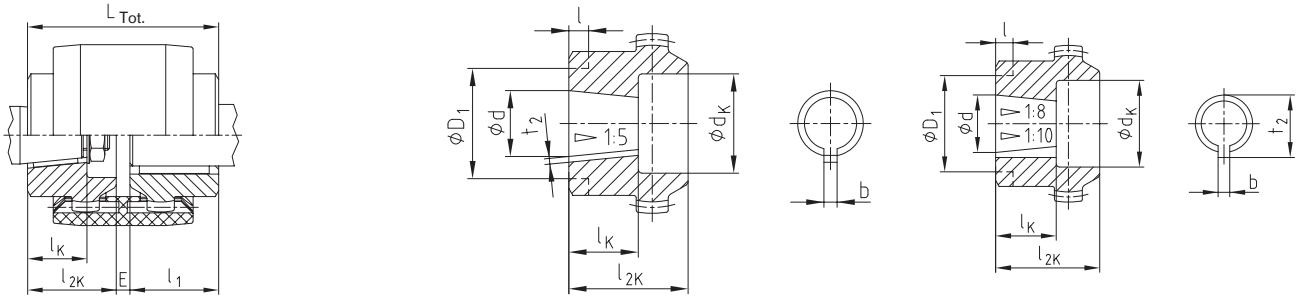
BoWex® Type M...C Ex																					
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T_{KN}	$T_{K\ max.}$	T_{KW}	Pilot bored	Max.	l_1, l_2	E	L	L_H	M, N	l3	D	DH	Tip circle $ØD_Z$ hub	Number of teeth	Hub 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)

Taper bores

BoWex® with taper bore



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

see stock programme on page 90

Taper bores 1:5

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar D_1 x l [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	$d^{+0.05}$	b^{JS9}	$t_2^{+0.1}$	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						
					-		30 x 7		30 x 7		30 x 5		-		30 x 5							
B-17	16.85	3	1.8	18.5			25	30	28	30	36	40	36	40	36	40	45	42	45	42	45	50
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

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar D_1 x l [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	$d^{+0.05}$	b^{JS9}	$t_2^{+0.1}$	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						
					23 x 8		23 x 8		23 x 8		23 x 8		-		23 x 8							
N/1c	11.6	3^{JS9}	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^{JS9}	15.50	17.5	20	23	25	30	28	30	28	30	28	40								
					-		-		-		28 x 10		-									
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
									-		35 x 12		-		-		-		-		-	
N/2a	17.287	4^{JS9}	18.94	24					28	35	36	40	36	40	36	40	45	42	45	42	45	50
									-		35 x 12		-		-		-		-		-	
N/2b	17.287	3^{JS9}	18.34	24					28	35					36	40	45	42	45	42		
									-						-		-		-			
N/3	22.002	4^{JS9}	23.40	28							36	40	36	40	36	40	45	42	45	42	45	50
											-		-		-		-		-		48 x 14	
N/4	25.463	$4.78^{+0.05}$	27.83	36							36	50	36	50	36	50	45	50	45	50	45	62
											-		-		-		58 x 10		58 x 10		-	
N/4b	25.463	5^{JS9}	28.23	36							36	50					45	50	45	50	45	62
N/4a	27	$4.78^{+0.05}$	28.80	32.5											36	50						
N/4g	28.45	6^{JS9}	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^{JS9}	35.39	44													45	60	45	60	45	62

Taper bores 1:10

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	$d^{+0.05}$	b^{JS9}	$t_2^{+0.1}$	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


Made for Motion KTR
Hydraulic components
Bellhousings
Damping elements
Cooling systems
Oil tanks
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