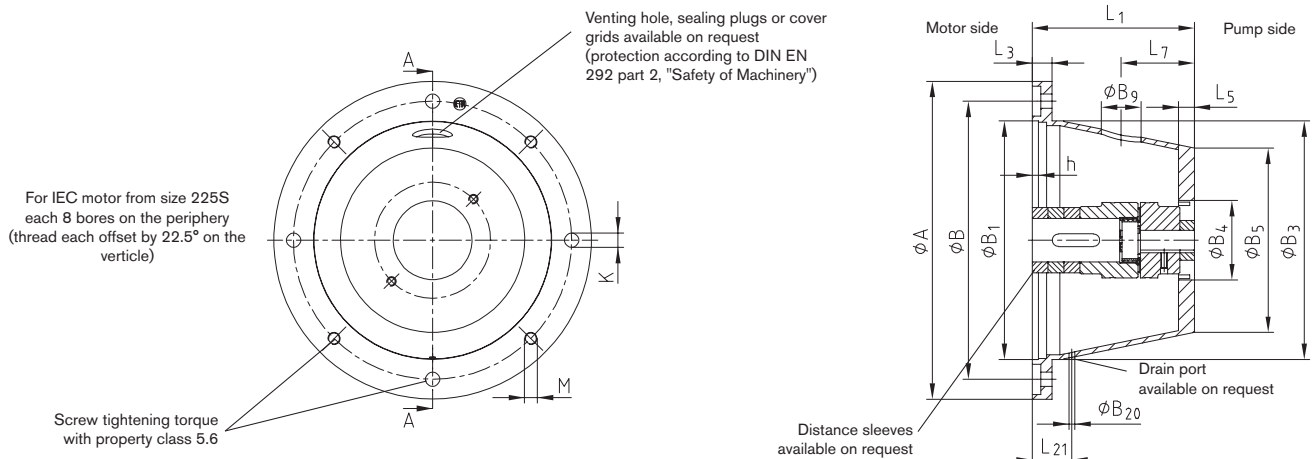
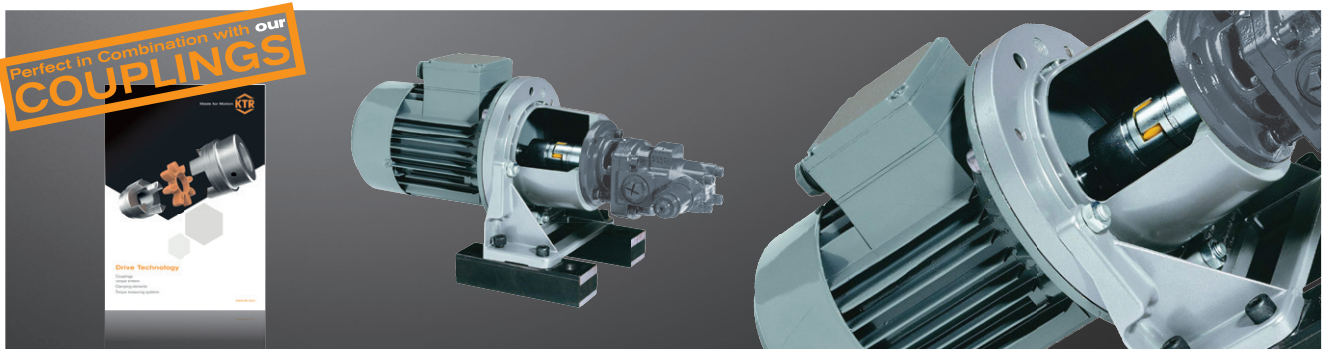


# BELLOUSINGS HYDRAULIC COMPONENTS

## 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 <sub>1</sub> x l <sub>3</sub>	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]												Venting hole		Drain port	
					A	B	B <sub>1</sub>	B <sub>3</sub>	h	K	M	L <sub>1</sub>	L <sub>3</sub>	L <sub>5</sub> <sup>1)</sup>	B <sub>5</sub>	B <sub>4</sub>	B <sub>9</sub>	L <sub>7</sub>	B <sub>20</sub>	L <sub>21</sub>
71 (14 x 30)	0.25	PK 160/5/..	160	160	160	130	110	110	4	9	M8	80	13	8	105	29	25	33	7.5	28
	0.37	PL 160/5/..										90			102	29		38		
80 (19 x 40)	0.55	PK 200/3/..	200	200	200	165	130	145	4	11	M10	100	16	12	124	40	36	43	7.5	36
	0.75	PL 200/3/..										110			140	37		47		
90S/90L (24 x 50)	1.1	PL 200/8/..	200	200	200	165	130	145	4	11	M10	124	16	12	143	40	36	60	7.5	36
	1.5	PFL 200/6/..										140			180	47		62		
100L/112M (28 x 60)	2.2	PK 250/6/..	250	250	250	215	180	190	5	14	M12	120	19	12	177	49	40	54	7.5	43
	3	PL 250/3/..										124			126	42		52		
132S/132M (38 x 80)	3	PL 250/6/..	250	250	250	215	180	190	5	14	M12	135	18	12	180	58	40	57	7.5	43
	4	PL 250/4/..										148			180	56		64		
160M/160L (42 x 110)	5.5	PFL 250/18/..	300	300	300	265	230	234	5	14	M12	175	20	15	250	75	50	77	7.5	45
	7.5	PK 300/5/..										144			205	57		63		
180M/180L (48 x 110)	11	PL 300/15/..	350	350	350	300	250	260	6	17	M16	150	26	15	221	78	50	66	7.5	51
	15	PK 300/4/..										155			205	56		74		
200L (55 x 110)	18.5	PL 300/4/..	400	400	400	350	300	300	6	17	M16	168	26	20	220	57	50	84	7.5	51
	22	PK 350/7/..										196			225	59		82		
225S/225M (60 x 140)	11	PK 350/6/..	450	450	450	400	350	350	6	17	M16	188	26	20	225	59	50	87	7.5	51
	15	PK 350/10/..										204			248	97		102		
250M (65 x 140)	18.5	PL 350/7/..	550	550	550	500	450	450 <sup>2)</sup>	6	17	M16	256	26	25	255	88	50	115	7.5	60
	22	PK 400/4/..										204			230	75		92		
280S/280M (75 x 140)	30	PK 400/5/..	660	660	660	600	550	550 <sup>2)</sup>	7	22	M20	228	32	30	279	95	50	104	7.5	70
	37	PL 400/5/..										256			290	97		118		
315S/315M (80 x 170)	45	PK 450/2/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	234	32	30	280	120	50	107	7.5	70
	55	PK 450/3/..										262			315	97		121		
355L/400M (100 x 210)	75	PL 450/3/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	285	32	30	325	133	50	133	7.5	70
	90	PL 550/8/..										248			340	97		116		
355L/400M (100 x 210)	110	PL 550/1/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	265	32	30	360	120	50	125	7.5	70
	132	PK 550/3/..										275			340	97		130		
355L/400M (100 x 210)	160	PL 550/3/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	295	32	30	360	123	50	140	7.5	70
	200	PL 550/2/..										315			400	150		135		
355L/400M (100 x 210)	355	PK 660/2/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	310	32	30	410	120	50	147	7.5	70
	710	PL 660/5/..										330			400	120		157		
355L/400M (100 x 210)	355	PL 660/2/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	343	32	30	490	174	50	163	7.5	70
	710	PL 660/4/..										395			500	197		190		
355L/400M (100 x 210)	355	PK 800/1/..	880	880	880	740	680	680 <sup>2)</sup>	10	22	M20	370	32	30	500	148	50	135	7.5	70
	710	PK 800/3/..										395			487	160		160		

### Other types of bellhousings

IEC motor size (shaft end) d <sub>1</sub> x l <sub>3</sub>	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS *)	Dimensions [mm]																									
					A	B	B <sub>1</sub>	B <sub>3</sub>	h	K	M	L <sub>1</sub>	L <sub>3</sub>	L <sub>5</sub> <sup>1)</sup>	B <sub>5</sub>	Min.	Venting hole		Drain port											
																	B <sub>9</sub>	L <sub>7</sub>	B <sub>20</sub>	L <sub>21</sub>										
71 (14 x 30)	0.25	PFK 160/6/..	160	160	160	130	110	110	4	9	M8	79	13	13	140	30	25	35	7.5	28										
	0.37	PFL 160/6/..										101				60		46												
80 (19 x 40)	0.55	PK 200/11/..	200	200	200	165	130	145	4	11	M10	45	16	12	144	97	10	15	7.5	36										
	0.75	PL 200/11/..										55				18		18												
90S/90L (24 x 50)	1.1	PK 200/13/..	200	200	200	165	130	145	4	11	M10	152	16	12	175	30	36	71	7.5	36										
	1.5	PFK 200/24/..										148				142		37			25	30								
100L/112M (28 x 60)	2.2	PK 200/30/..	250	250	250	215	180	190	5	14	M12	79	18	12	187	97	10	20	7.5	43										
		PK 250/13/..										159				186		77			40	69								
	PK 250/15/..	61										186				74	40	39												
	3	PL 250/15/..																			79	20	29							
4	PK 250/17/..	100	186	74	40	39																								
132S/132M (38 x 80)	5.5	PK 300/8/..	300	300	300	265	230	234	5	14	M12	110	20	15	231	97	30	32	7.5	45										
		PK 300/9/..										85				50		37												
	7.5	PL 300/9/..										99				57	40	37												
	PL 300/13/..	210										221				56	50	57												
160M/160L (42 x 110)	11	PK 300/15/..	350	350	350	300	250	260	6	17	M16	138	25	15	259	53	90	7.5	51											
		PK 350/8/..										204				97				52										
	15	PK 350/11/..										130				252	92			50	60									
	18.5	PL 350/11/..										146				244	89			67										
180M/180L (48 x 110)	22	PK 350/18/..	350	350	350	300	250	260	6	17	M16	159	26	15	244	89	67	7.5	51											
		PL 350/18/..										184								252	79	80								
200L (55 x 110)	30	PL 400/3/..										400	400	400	350	300	300			6	17	M16	165	25	20	290	97	73	7.5	51
		PK 400/12/..																					170							
225S/225M (60 x 140)	37	PL 400/12/..	400	400	400	350	300	300	6	17	M16							184	25				20	325	120	83	7.5	51		
		PK 450/5/..																185												
	45	PK 450/6/..										176	370	137	50	116														
	PFL 450/9/..	253										25	260	97	90															
250M (65 x 140)	55	PK 450/12/..	550	550	550	500	450	450 <sup>2)</sup>	6	17	M16	204	26	26	355	129	88	7.5	51											
		PK 550/4/..										190/192								330	124	96								
280S/280M (75 x 140)	75	PL 550/4/..										550	550	550	500	450	450 <sup>2)</sup>			6	17	M16	207	26	25	340	97	50	7.5	51
		PK 550/8/..																					217							
315S/315M (80 x 170)	110-	PK 660/3/..	660	660	660	600	550	550 <sup>2)</sup>	8	22	M20							247	32				30	465	122	50	7.5	60		
		PL 660/3/..																260												
355L/400M (100 x 210)	355	PK 800/1/..										800	900	800	740	680	680 <sup>2)</sup>	8	22	M20	335	40	36	520	149	50			7.5	70
		P 800/3/..																			443									

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)!**

<sup>1)</sup> Bottom of pot does not consist of solid material → ribbed

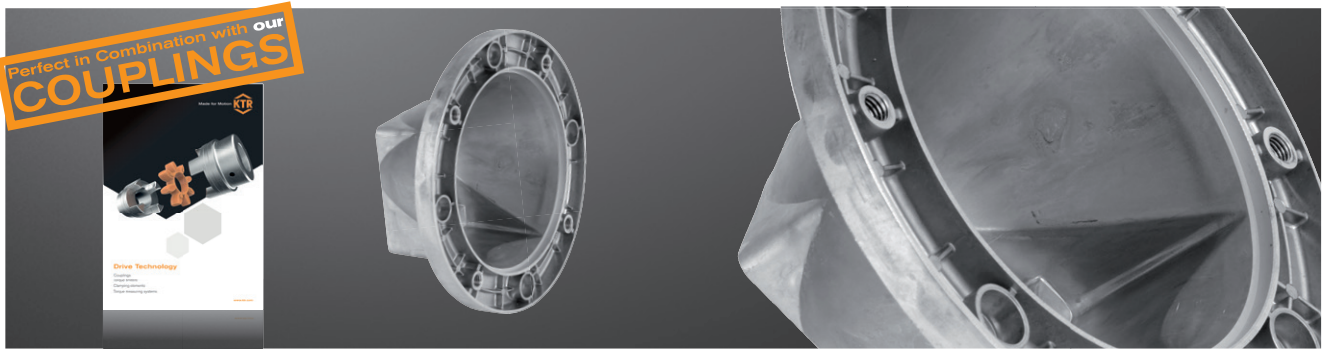
<sup>2)</sup> Passing from dimension B<sub>3</sub> to flange radius R = 5

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

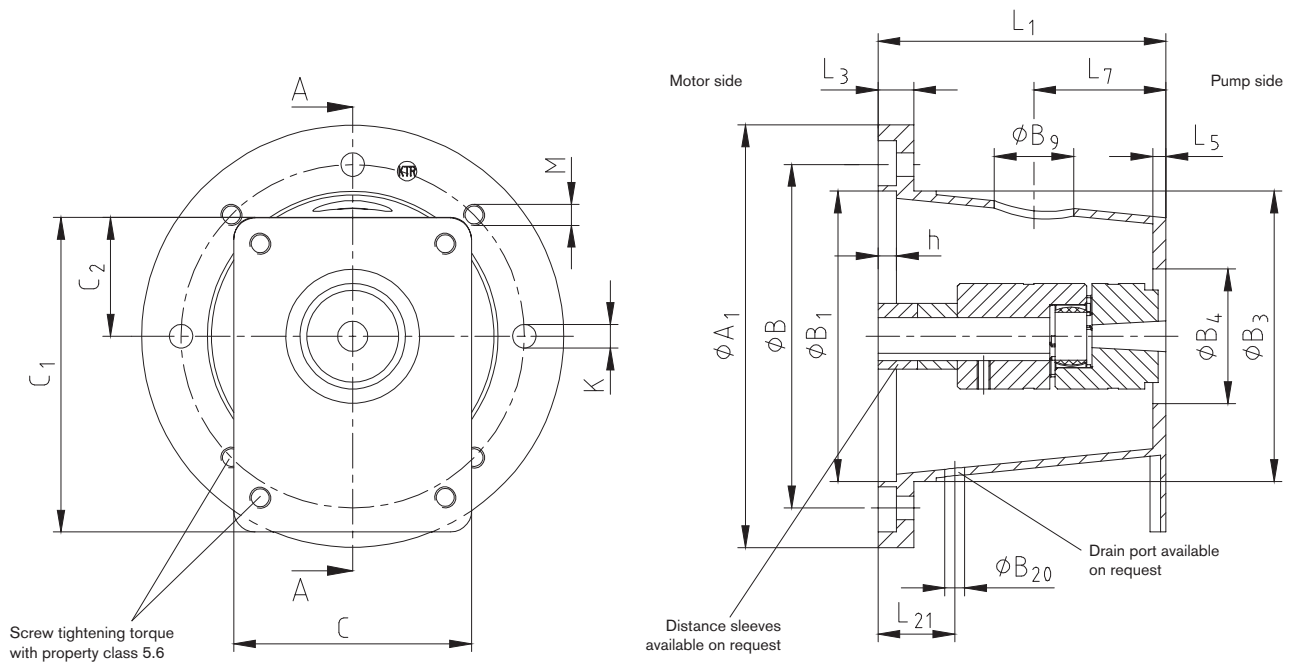
<b>Ordering example:</b>	PL	PK	P	450	3	8
	Bellhousing type, long	Bellhousing type, short	Former bellhousing type	Flange diameter of IEC Motor	Serial model code	In-house modification code

# BELLOUSINGS HYDRAULIC COMPONENTS

## Bellousings with rectangular flanges



Bellousings with rectangular flanges



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

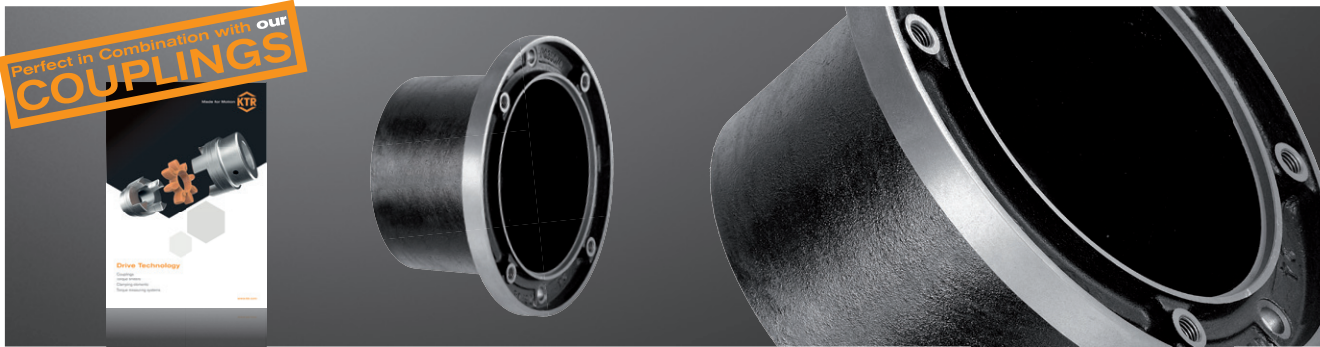
Bellousings made of aluminium with rectangular flanges																								
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]																			
					A <sub>1</sub>	B	B <sub>1</sub>	B <sub>3</sub>	h	K	M	L <sub>1</sub>	L <sub>3</sub>	L <sub>5</sub>	C	C <sub>1</sub>	C <sub>2</sub>	B <sub>4</sub>	B <sub>9</sub>	L <sub>7</sub>	B <sub>20</sub>	L <sub>21</sub>		
71	0.25 0.37	PL 160/1/..	160	160	160	130	110	110	4	9	M8	70	13	8	70	91	35	20	16	27	7.5	28		
		PL 160/4/..										110											25	50
		PK 160/4/..										95											12	43
80 90S/90L	0.55 - 1.5	PL 200/1/..	200	200	200	165	130	145	4	11	M10	90	16	12	70	91	35	22	25	37	7.5	36		
		PL 200/2/..										100											45	42
		PL 250/1/..										110											45	45
100L/112M	3 4	PL 250/2/..	250	250	250	215	180	190	5	14	M12	115	18	12	120	150	53	47	36	47	7.5	43		
		PL 250/7/..										125											46	52
		PK 300/2/..										132											56	56
132S/132M	5.5 7.5	PL 300/1/..	300	300	300	265	230	234	5	14	M12	132	20	15	120	150	53	33	50	56	7.5	45		
		PK 300/2/..										137											33	59
		PL 350/1/..										171											73	73
160M/160L 180M/180L	11 - 22	PL 350/2/..	350	350	350	300	250	260	6	18	M16	181	25	15	120	156	59	33	50	78	7.5	51		
		PK 350/2/..										205											31	78

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

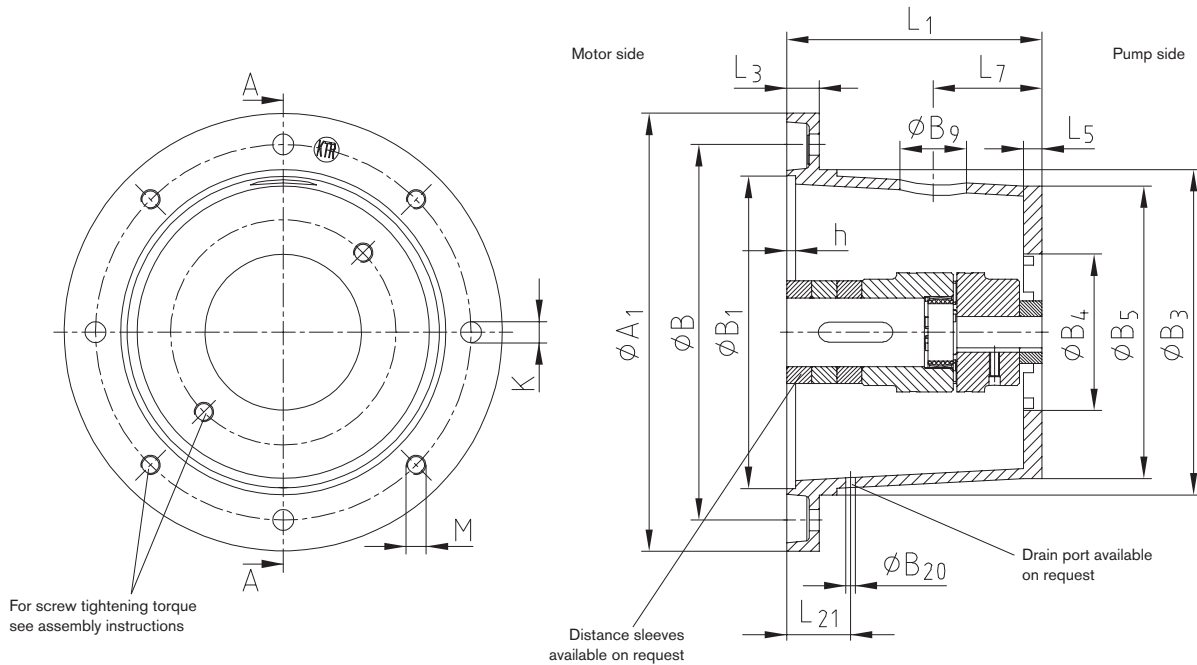
Ordering example:	PL	PK	250	2	8
	Bellhousing type, long	Bellhousing type, short	Flange diameter of IEC motor	Serial model code	In-house modification code

# BELLHOUSINGS HYDRAULIC COMPONENTS

## Bellhousings type PG made of cast iron



Bellhousings made of cast iron (type PG)



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

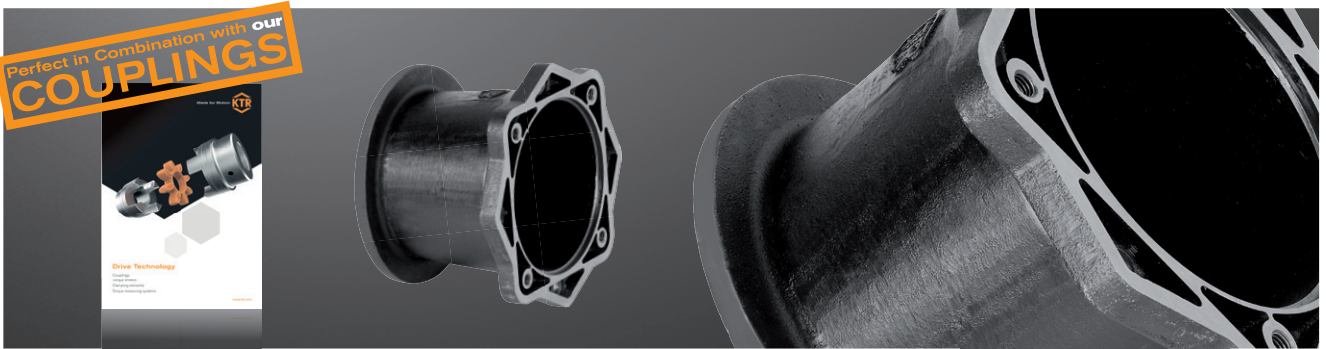
Bellhousings made of cast iron																				
IEC motor size	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]															
					A <sub>1</sub>	B	B <sub>1</sub>	B <sub>3</sub>	h	K	M	L <sub>1</sub>	L <sub>3</sub>	L <sub>5</sub>	B <sub>5</sub>	Min.	Venting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

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

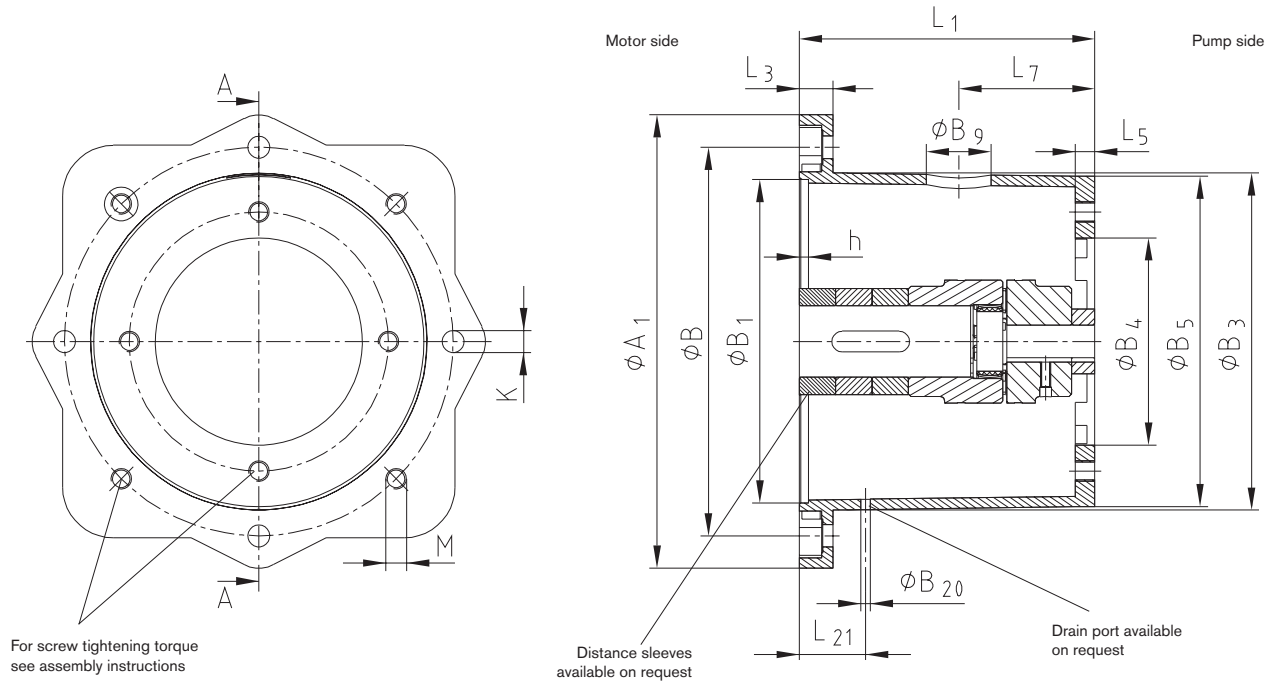
Ordering example:	PG	250	1	4
		Bellhousing type made of cast iron	Flange diameter of IEC motor	Serial model code

# BELLOUSINGS HYDRAULIC COMPONENTS

## Bellousings type PSG made of cast iron for servo motors



Bellousings 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)!

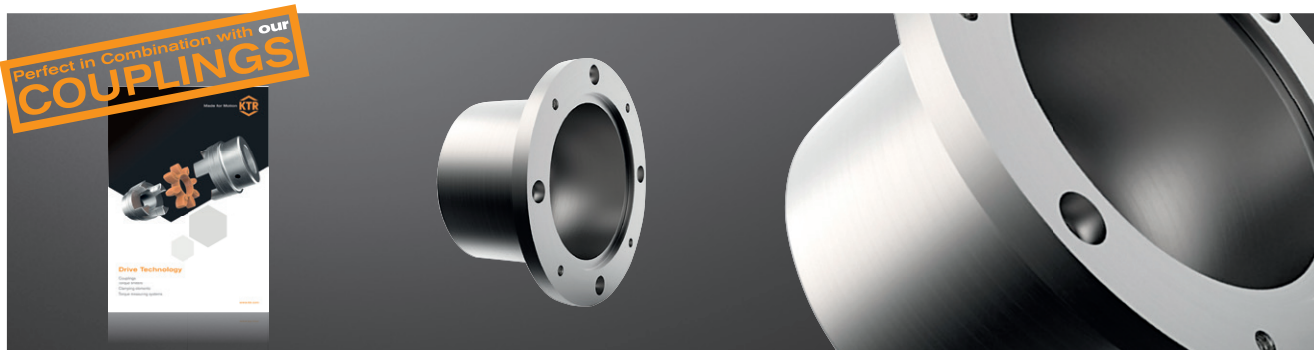
Bellousings made of cast iron for servo motors																				
Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS	Dimensions [mm]													Min.	Venting hole		Drain port	
			A <sub>1</sub>	B	B <sub>1</sub>	B <sub>3</sub>	h	K	M	L <sub>1</sub>	L <sub>3</sub>	L <sub>5</sub>	B <sub>5</sub>	B <sub>9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

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

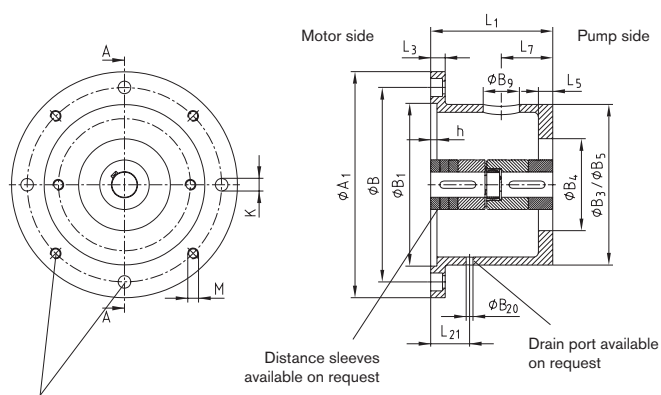
Ordering example:	PSG	250	1	4
	Bellhousing type for servo drives	Flange diameter of IEC motor	Serial model code	In-house modification code

# BELLHOUSINGS HYDRAULIC COMPONENTS

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

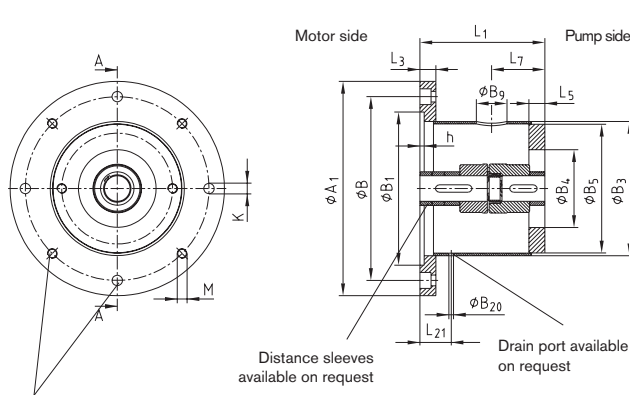


### Bellhousings type PS made of steel for IEC- and servo motors



For screw tightening torque see assembly instructions

**Bellhousing size 160 - 300**



For screw tightening torque see assembly instructions

**Bellhousing size 350 - 660**

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

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

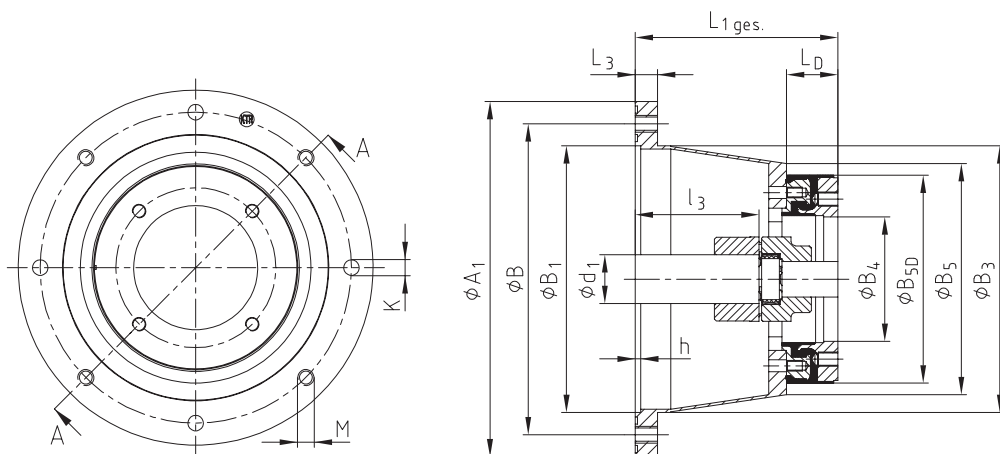
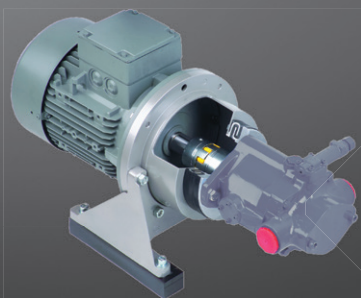
Bellhousings made of steel for IEC motors																				
IEC motor size (shaft end) d1 x l3	kW with n = 1500 rpm	Bellhousing size	Gasket DP size	Foot flange PTFE/PTFS)*	Dimensions [mm]															
					A1	B	B1	B3	h	K	M	L1	L3	L5	B5	Min. B4	Venting hole		Drain port	
																	B9	L7	B20	L20
80 90S/90L	0.55	PS 200/2/..	200	200	200	165	130	144	4	11	M10	100	16	12	144	-	36	43	64	
	0.75	PS 200/8/..										110						47	74	
100L/112M (28x60)	2.2 3	PS 250/5/..	250	250	250	215	180	189	5	14	M12	120	19	12	179	-	40	54	77	
		PS 250/3/..										124						52	81	
	PS 250/6/..	135										57						92		
	PS 250/10/..	148										64						105		
132S/132M (38x80)	5.5	PS 300/4/..	300	300	300	265	230	233	5	14	M12	155	20	15	233	-	50	68	110	
	7.5	PS 300/3/..										168						74	123	
		PS 300/6/..										196						84	163	
160M/180L	11-22	PS 350/24/..	350	350	350	300	250	220	6	17	M16	256	26	26	255	-	20	115	7.5	206
225S/225M	37-45	PS 450/17/..	450	450	450	400	350	274	6	17	M16	285	26	26	259	-	50	133	7.5	239
250M (65x140)	55	PS 550/3/..	550	550	550	500	450	407	6	17	M16	265	26	26	385	-	50	130	228	
280S/280M (75x140)	75	PS 550/2/..										295						140	248	
	90	PS 550/..										315						135	268	
315S/315M (80x170)	110	PS 660/3/..	660	660	660	600	550	458	8	22	M20	310	28	28	435	-	50	147	253	
	up to 200	PS 660/2/..										343						163	290	
		PS 660/4/..										395						190	338	
315S/315M	160	PS 660/5/..	660	660	660	600	550	510	8	22	M20	330	32	33	425	119	50	157	7.5	60

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

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

# DAMPING RINGS HYDRAULIC COMPONENTS

## Damping rings in combination with bellhousings



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

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

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

Damping rings D in combination with bellhousings <sup>1)</sup>																					
IEC motor size (shaft end) d1 x l3	kW with n = 1500 rpm	Bellhousing size	Damping ring size	Foot flange size	Dimensions [mm]													Min.	Max.		
					A1	B	B1	L1 total	L3	K	M	h	LD	B3	B4	B5	B5D				
90S/90L (24 x 50)	1.1 1.5	PK 200/11/..	D 150/..	PTFL 200	200	165	130	90	16	11	M10	4	45	145	18	83	145	148			
		PL 200/11/..						100													
		PK 200/30/..						124													
100L/112M (28 x 60)	2.2 3	PK 250/15/..	D 150/..	PTFL 250	250	215	180	106	18	14	M12	5	45	190	18	83	187	190			
		PL 250/15/..						124													
		PK 250/17/..	145																		
		PK 250/15/..	106																		
		PL 250/15/..	124																		
		PK 250/17/..	145																		
132S/132M (38 x 80)	5.5 7.5	PK 300/8/..	D 150/..	PTFL 300	300	265	230	155	20	14	M12	5	45	234	30	121	231	190			
		PK 300/9/..						130													
		PL 300/9/..						144													
		PK 300/15/..						183													
		PL 300/15/..						195													
		PK 300/8/..						155													
		PK 300/9/..	130																		
		PL 300/9/..	144																		
		PK 300/15/..	183																		
		PL 300/15/..	195																		
		PK 300/8/..	168																		
		PK 300/9/..	143																		
160M/160L (42 x 110)	11 15	PK 350/11/..	D 150/..	PTFL 350/ PTFS 350	350	300	250	175	17	M16	6	45	260	30	121	244	244	190			
		PL 350/11/..						25													
		PK 350/18/..						190													
		PK 350/18/..						204													
		PL 350/18/..						229													
		PK 350/18/..						204													
		PL 350/11/..	188																		
		PK 350/18/..	204																		
		PL 350/11/..	229																		
		PK 350/11/..	188																		
		PL 350/11/..	204																		
		PK 350/18/..	217																		
180M/180L (48 x 110)	18.5 22	PK 350/18/..	D 230/..					208													
		PL 350/18/..						242													
		PK 350/18/..						25													

# DAMPING RINGS HYDRAULIC COMPONENTS

## Damping rings in combination with bellhousings

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

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

\* Passing from dimension B<sub>3</sub> to flange radius R = 5

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

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

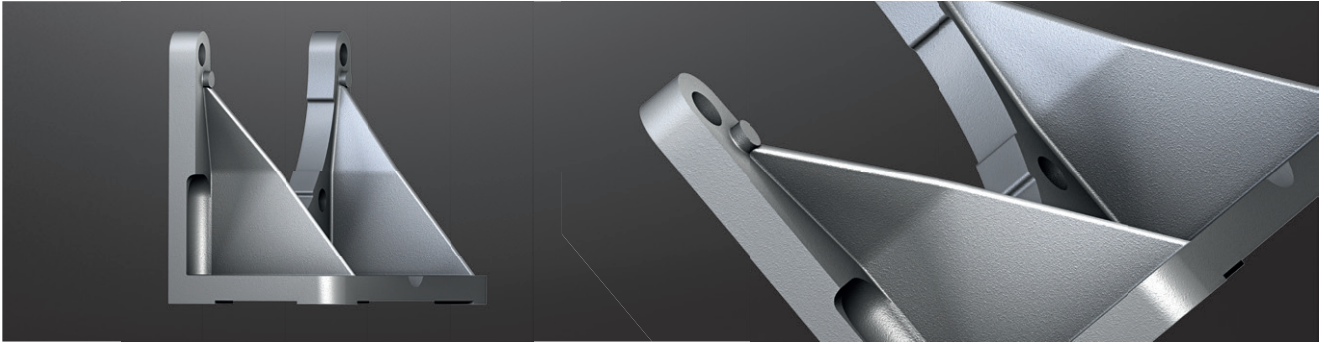
For the detailed order designation refer to our PC/Internet selection program or specify the IEC motor size and detailed pump type for selection.

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

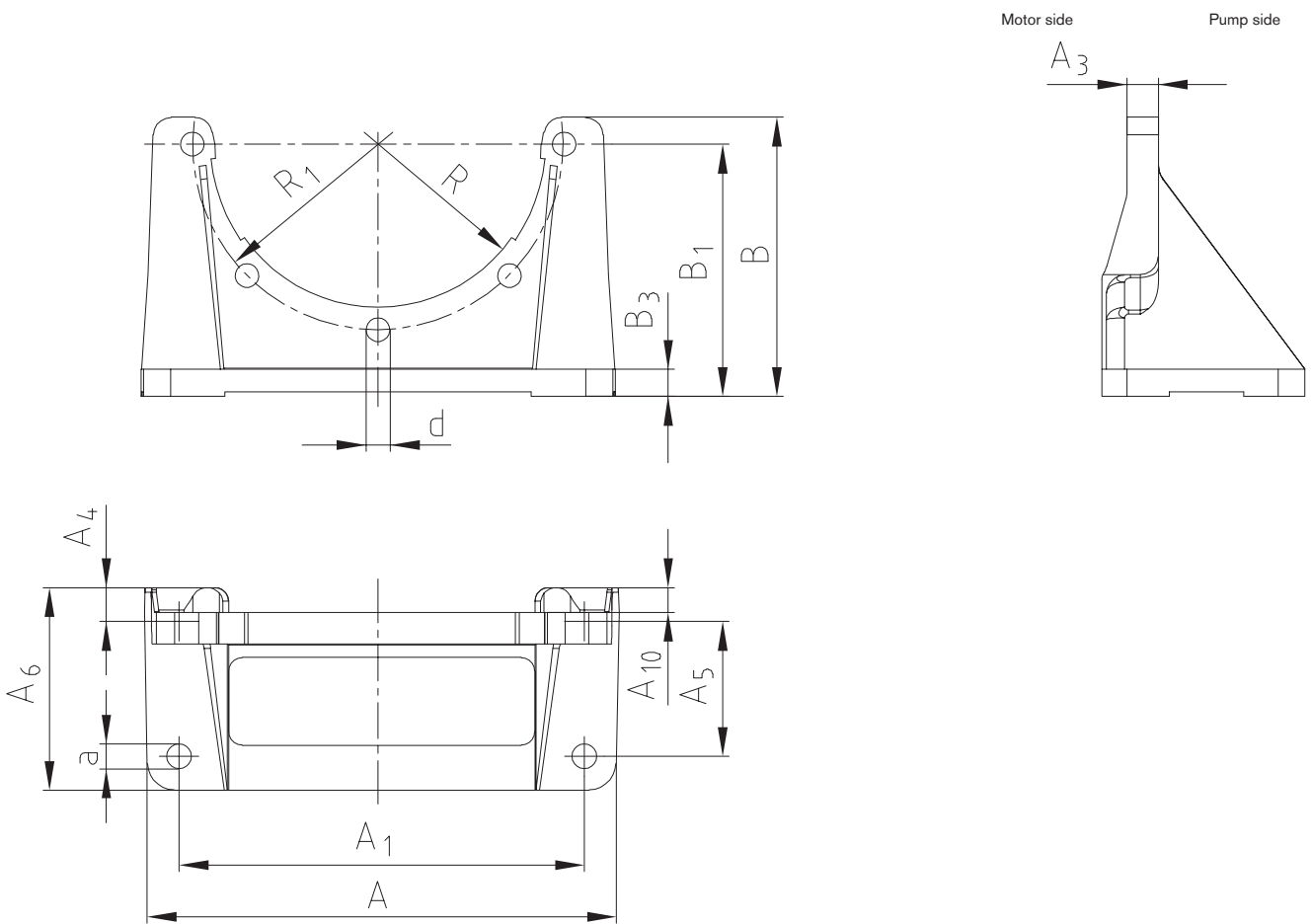


# FOOT FLANGES TYPE PTFL HYDRAULIC COMPONENTS

## Foot flange type PTFL



Foot flange type PTFL \*



\* according to VDMA standard 24561 part 1

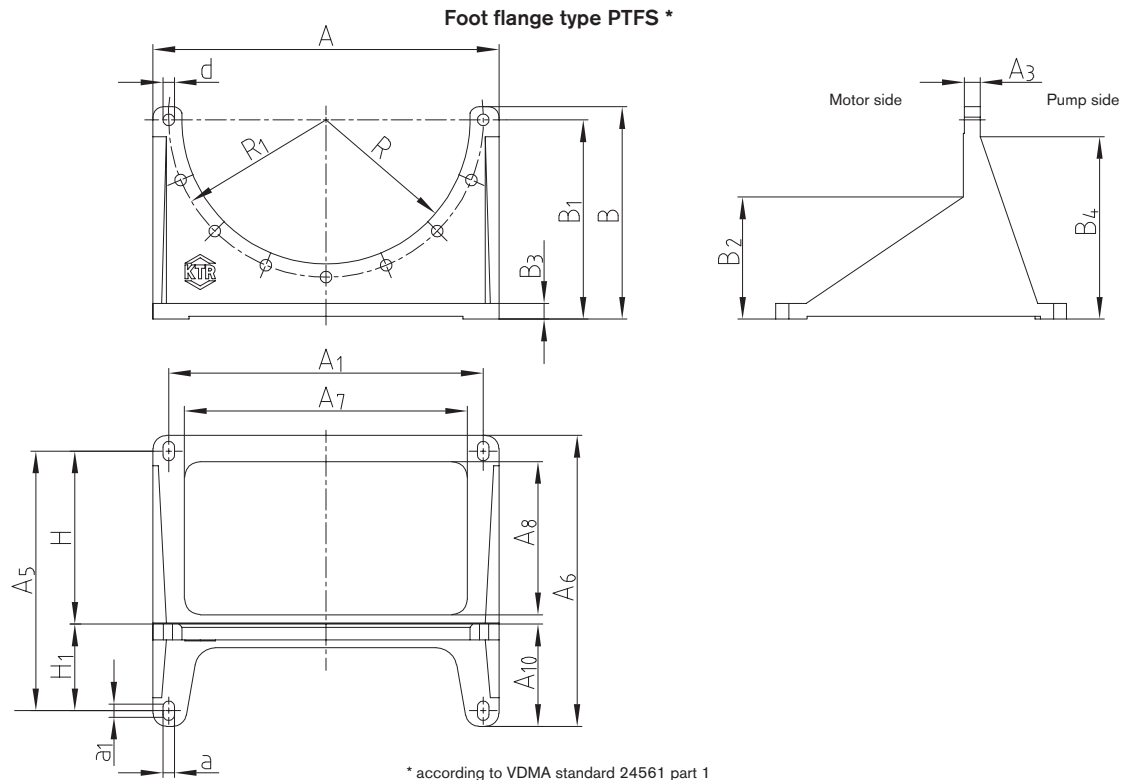
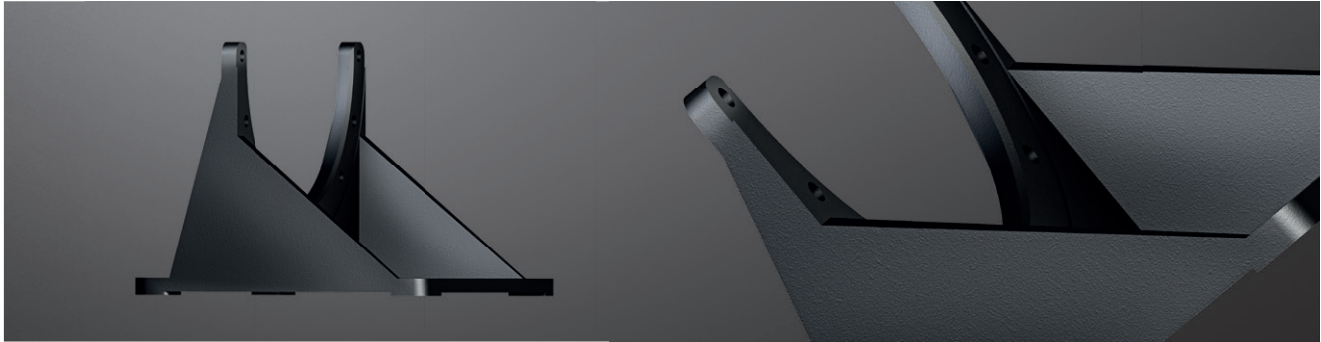
Foot flange type PTFL made of aluminium (Al)															
Foot flange size	For bellhousing size	Dimensions [mm]													
		A	A <sub>1</sub>	A <sub>3</sub>	A <sub>6</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>10</sub>	B	B <sub>1</sub>	B <sub>3</sub>	R	R <sub>1</sub>	d	a
PTFL 160	160	160	140	12	80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

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

Ordering example:	PTFL	350	Al
	Foot flange type	Size	Material

# FOOT FLANGES TYPE PTFS HYDRAULIC COMPONENTS

## Foot flange type PTFS



### Foot flange type PTFS made of aluminium (Al)

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

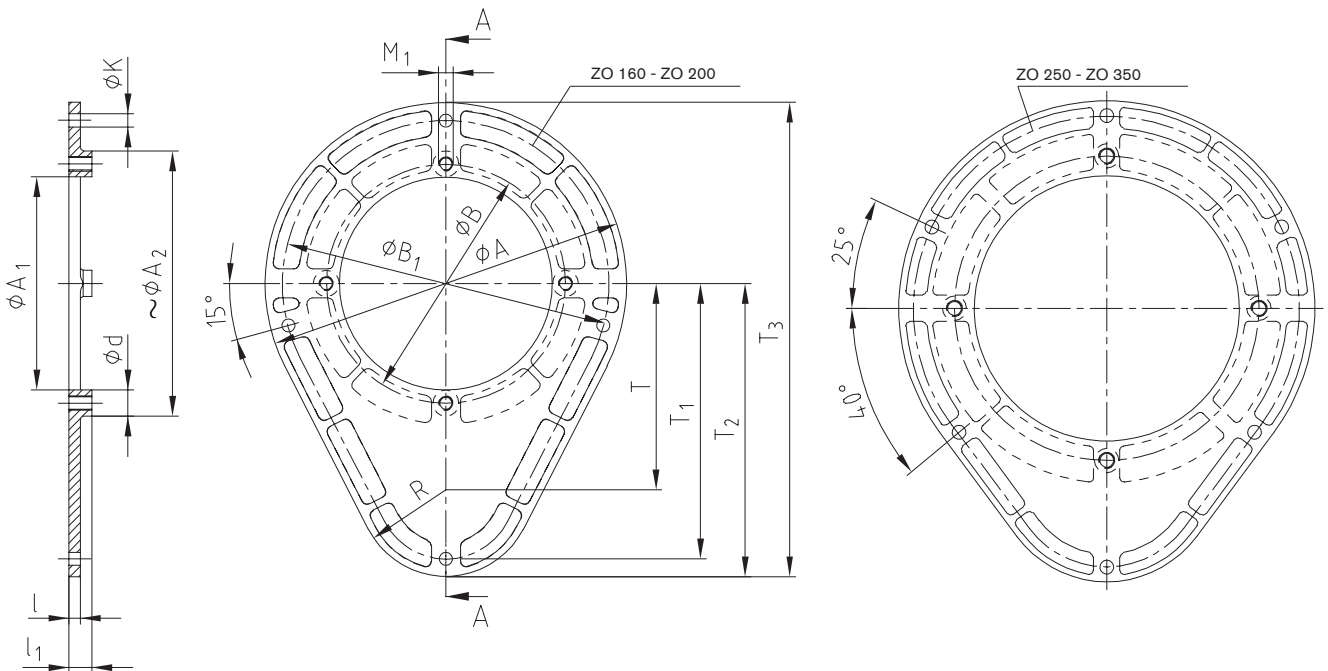
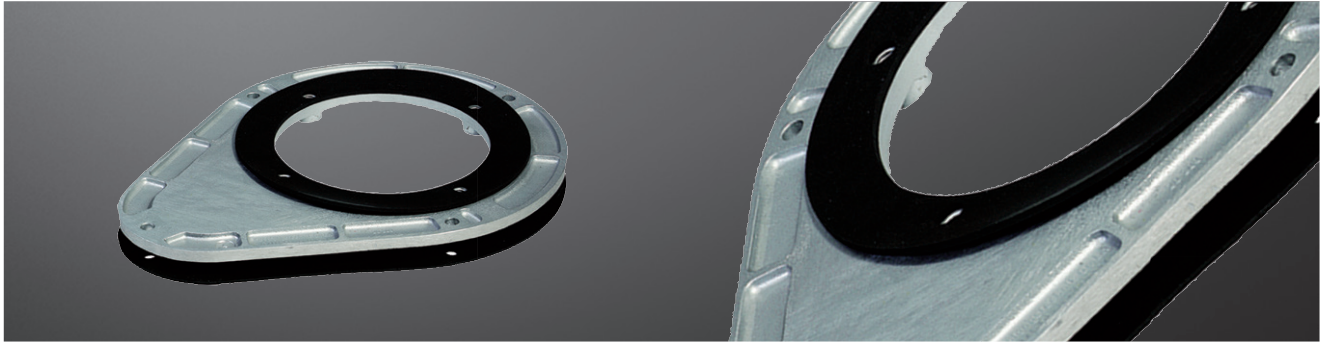
PTFS 800 made of steel on request

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

<b>Ordering example:</b>	PTFL	350	Al
	Foot flange type	Size	Material

# ACCESSORIES FOR BELLHOUSINGS HYDRAULIC COMPONENTS

## Mounting flange type ZO



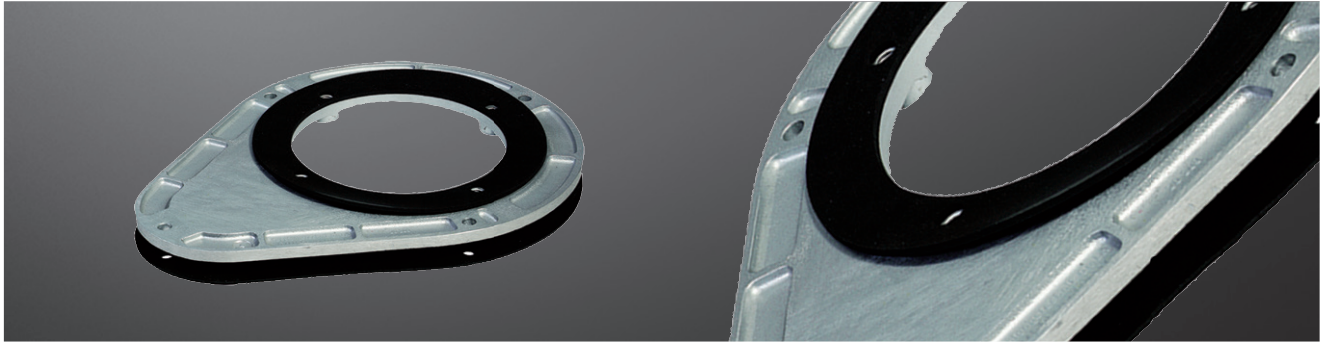
Mounting flange type ZO																	
Size	Dimensions [mm]															Gasket DZ size	Gasket DP size
	A	A <sub>1</sub>	~A <sub>2</sub>	B	B <sub>1</sub>	K	M <sub>1</sub>	R	T	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	d	l	l <sub>1</sub>		
ZO 160	210	112	150	130	185	9	M8	60	97.5	145	157.5	262.5	18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

Ordering example:

ZO 300  
Mounting flange size

# ACCESSORIES FOR BELLHOUSINGS HYDRAULIC COMPONENTS

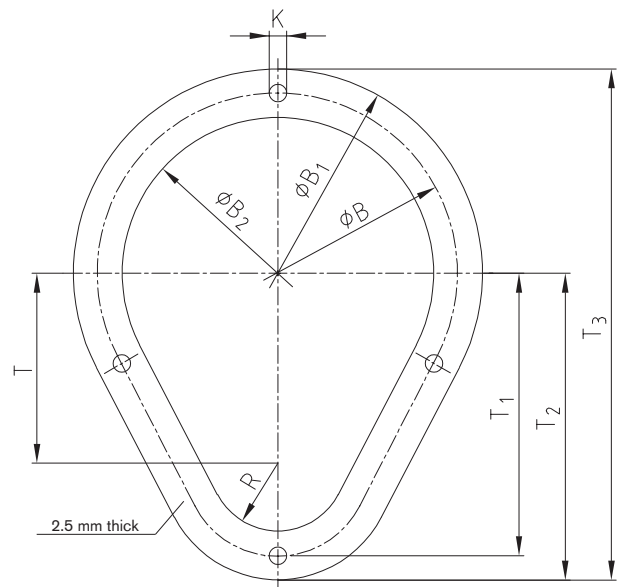
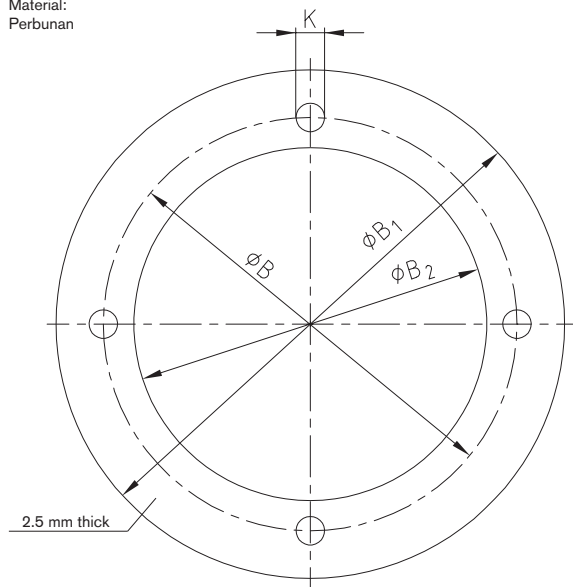
## Gaskets type DP and DZ for mounting flange ZO



Gasket type DP

Gasket DZ

Material:  
Perbunan



### Gaskets for bell housings and mounting flanges

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

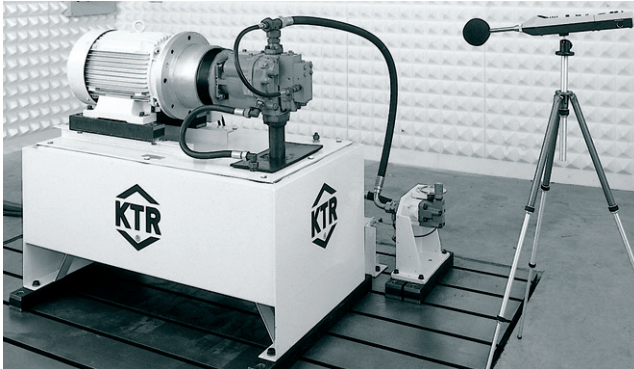
Ordering  
example:

DP 300

Type and size of gasket

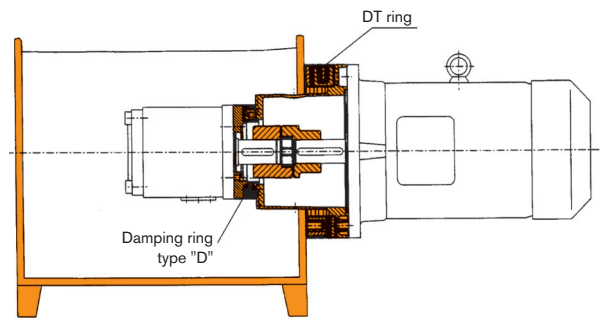
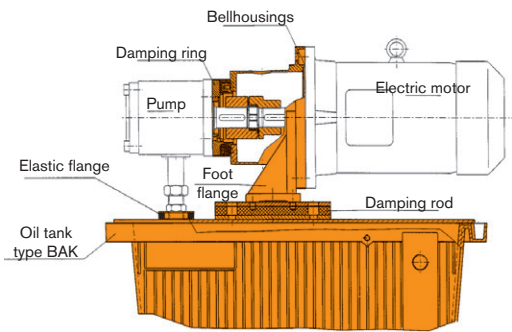
# DAMPING ELEMENTS HYDRAULIC COMPONENTS

## Damping elements



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

### Examples of application:



### Potential noise reductions compared to the rigid arrangement:

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

### Mode of operation:

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

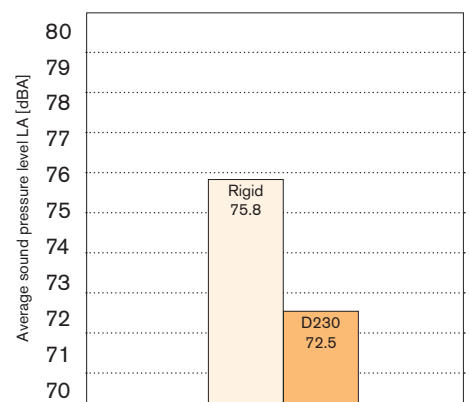
### Result of noise measurement:

#### Test data:

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

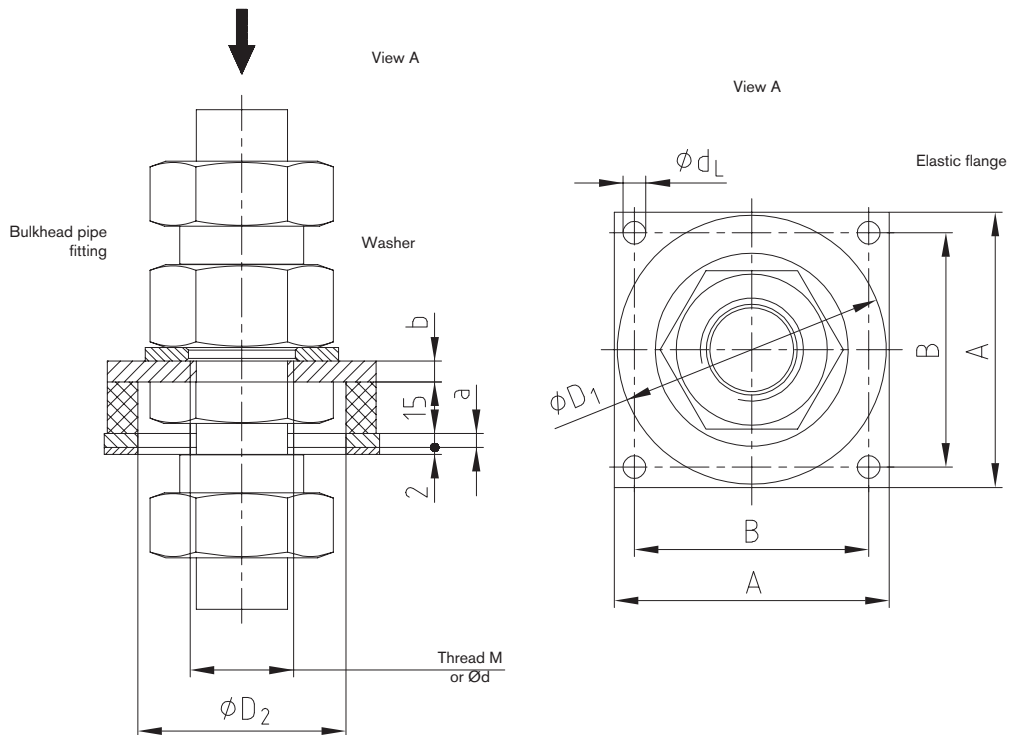
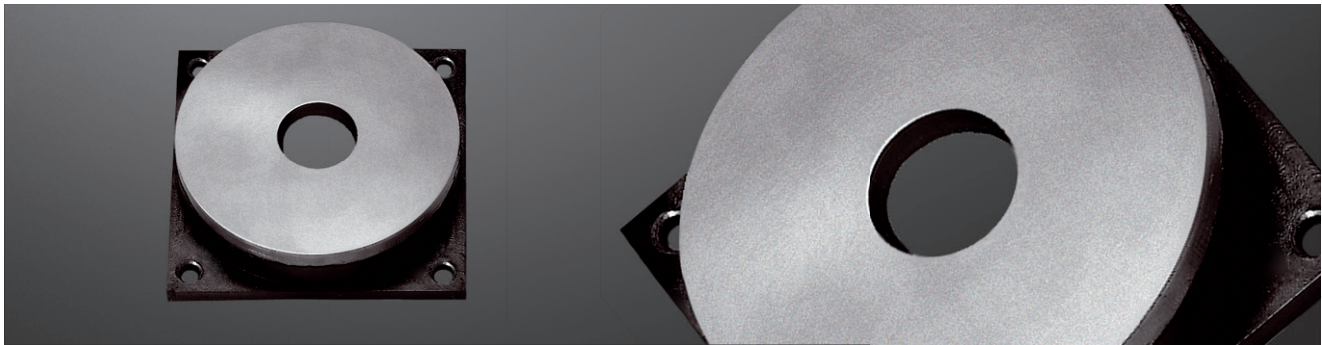
Pump: Axial piston pump

Coupling: ROTEX® 42 - 92 Shore A



# DAMPING ELEMENTS HYDRAULIC COMPONENTS

## Elastic flange



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

■ Available from stock

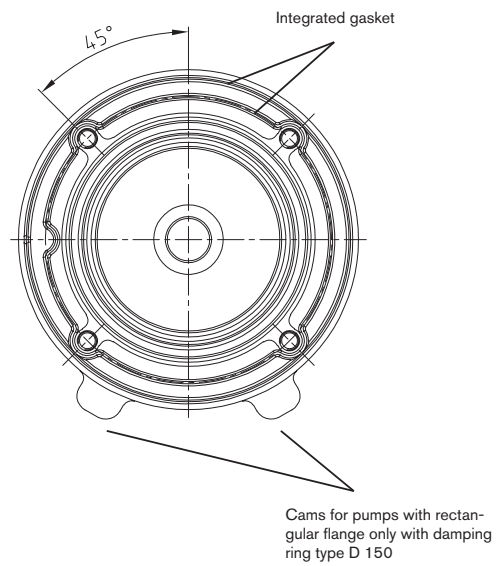
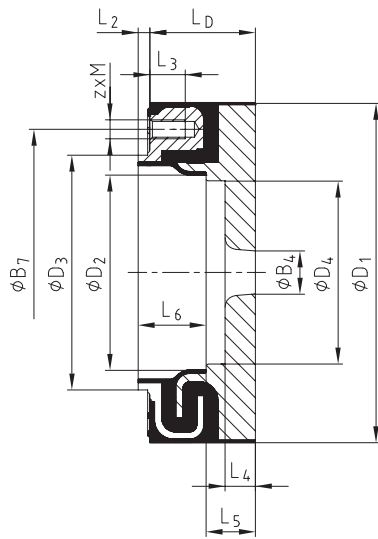
\*) Bulkhead pipe fitting and washer do not form part of our scope of delivery.

\*\*) Counter nut cannot be assembled!

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

# DAMPING ELEMENTS HYDRAULIC COMPONENTS

## Damping ring type D



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

<sup>1)</sup> Pitch circle diameter on request.

<sup>2)</sup> Tightening torque according to property class 5.6

<sup>3)</sup> 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 <sub>max.</sub> [N]	650	1800	3000	2300	4100

With a modified distance of center of gravity L<sub>X</sub> the permissible weight load is converted. If L<sub>X</sub> < L, then F<sub>max.</sub> = F<sub>perm.</sub>

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

The permissible weight load F<sub>perm.</sub> must not be exceeded by the existing weight load F<sub>G</sub> (neither radially nor axially).

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

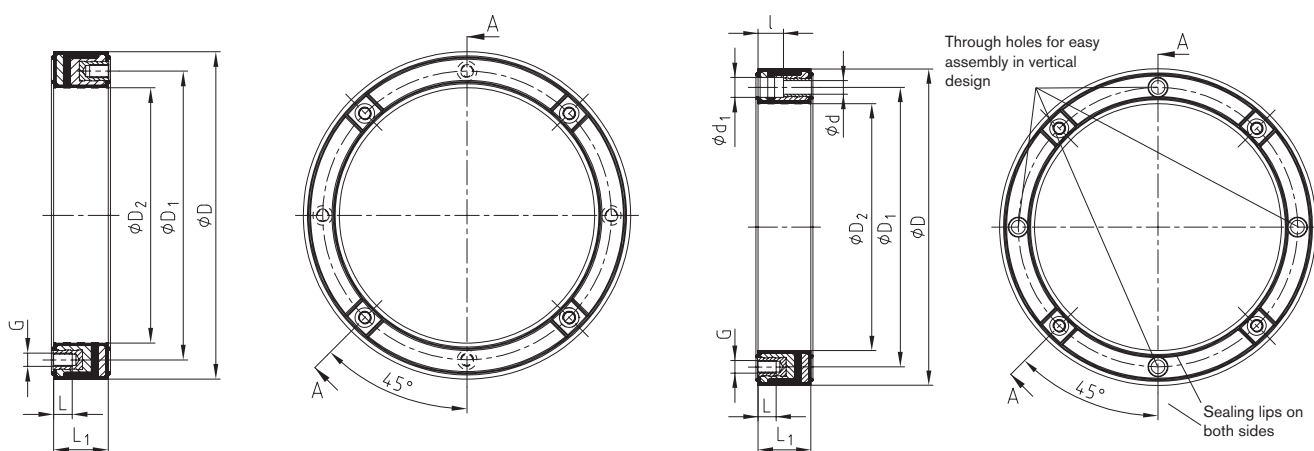
# DAMPING ELEMENTS HYDRAULIC COMPONENTS

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



Damping ring type DT

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



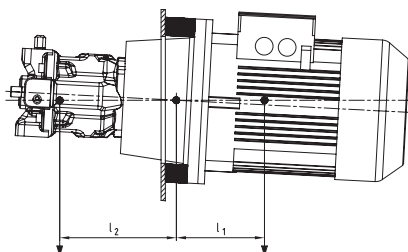
Damping ring type DT and DTV\*

IEC motor size	Damping ring size	Dimensions [mm]									Screw tightening torque [Nm]
		D	D <sub>1</sub>	D <sub>2</sub>	z x G	L	L <sub>1</sub>	z x d	z x d <sub>1</sub>	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 <sub>1</sub>	D <sub>2</sub>	z x G	L	L <sub>1</sub>	z x d	z x d <sub>1</sub>	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 <sub>perm.</sub> [N]	370	720	1450	3600	4800	6600	13000	24000
M <sub>b perm.</sub> [Nm]	30	65	175	740	1100	1600	4400	9000

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

$$M_b perm. \geq F_M \cdot l_1 - F_P \cdot l_2$$

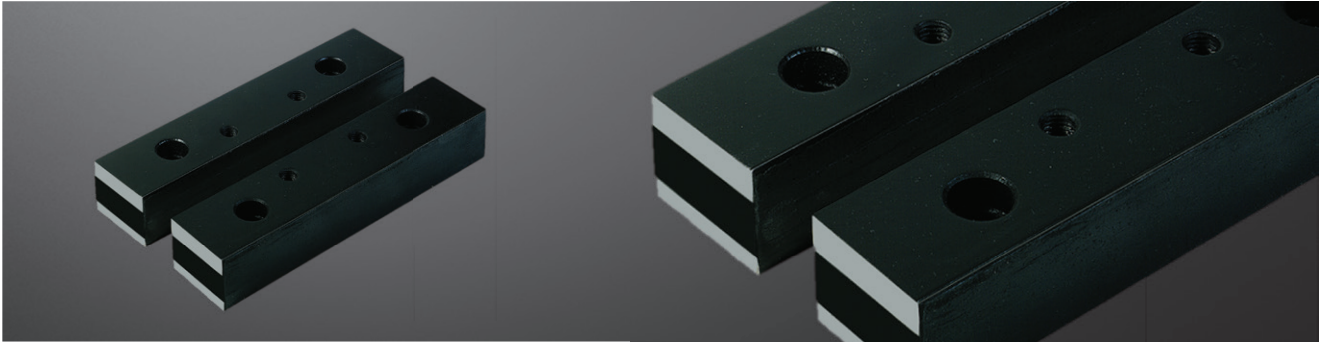
Ordering  
example:

DT	250
Damping ring	Size

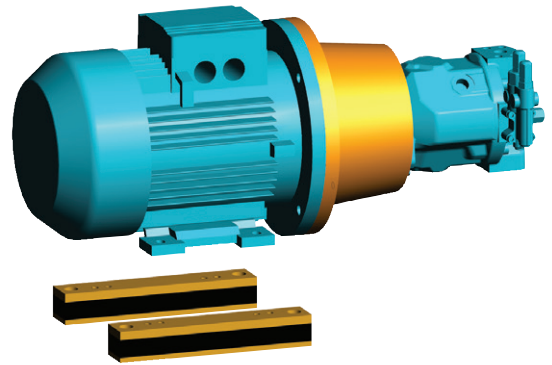
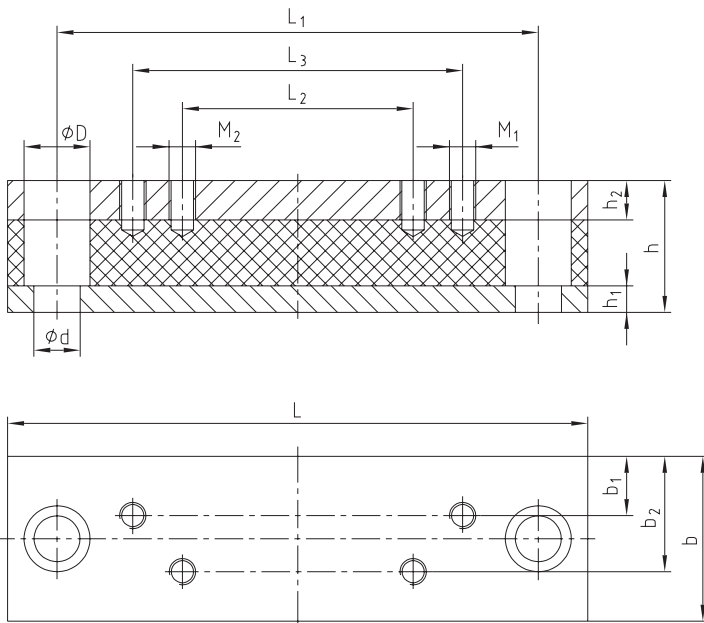


# DAMPING ELEMENTS HYDRAULIC COMPONENTS

## Damping rods type DSM



Type DSM



Damping rods type DSM for electric motors type IMB 35, protection class IP54															
Damping rod size	For motor size	Dimensions [mm]													
		L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	h	h <sub>1</sub>	h <sub>2</sub>	b	b <sub>1</sub>	b <sub>2</sub>	d	D	M <sub>1</sub>	M <sub>2</sub>
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