Bell Housings with Rigid / Flexible Pump Mounting

PTS / PT

1. DESCRIPTION

1.1. GENERAL

Bell housings are connection elements between drive motors and hydraulic pumps. Both connecting flanges are supplied ready for installation. The bell housings are made from an aluminium cast alloy.

1.2. MODELS

Bell housings in both flexible and rigid design are available in dimensions to the VDMA 24561 standard.

2. TECHNICAL SPECIFICATIONS

2.1. GENERAL

2.1.1 **Mounting position**
Optional.

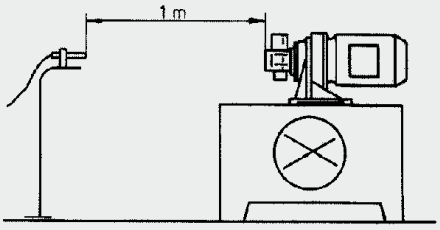
2.1.2 **Operating temperature**
Rigid bell housing
-20°C to +100°C

Flexible bell housing
-20°C to +60°C

2.1.3 **Noise level reduction**
The noise level reduction achieved depends on many factors such as pump type, operating pressure, type of fitting, design etc. It is therefore not possible to quote exact figures. In general, noise level reductions of up to 6 db(A) can be achieved.

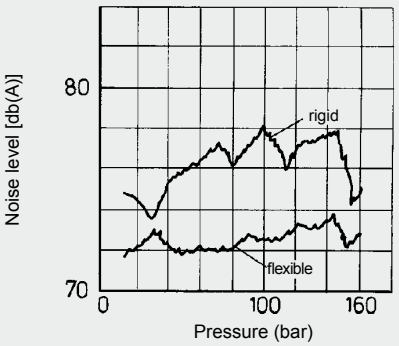
The illustration in the next column shows how the test is set up, together with a graph showing typical noise level improvements when using a flexible bell housing compared to a rigid bell housing.

Test set-up



Bell housing with foot bracket mounted on the oil tank cover plate.

Noise level diagram



2.1.4 **Notes on mounting**

The fixing bolts used for mounting the motor to the pump must be long enough in order to fully utilize the available thread depth on the bell housing. If the bolts used are too short, there is the risk of damaging the thread.

2.1.5 **Weight loading**

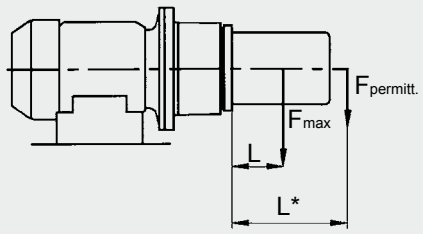
The permitted radial or axial load of the bell housing with flexible and rigid pump mounting, allowing for an operating temperature of +60 °C:

Bell housings Nominal size	Type of Damping ring	Permitted force due to gravity $F_{max.}$ [N]	Centre of gravity distance for radial load L [mm]
160	Only rigid bell housing possible		
200	E	400	200
	K	500	
250	E	600	200
	K	800	
300	E	1000	200
	K	1300	
350	E	1500	200
	K	2000	
400	E	2200	200
	K	3000	
450	E	4000	200
	K	5500	
550	E	4000	200
	K	5500	
660	E	4500	200
	K	6000	
800	Only rigid bell housing possible		

For a larger centre of gravity distance **L*** the permitted force due to gravity is reduced according to the following formula:

$$F_{permitt.*} = \frac{F_{max.} \bullet L}{L^*} [N]$$

If the centre of gravity distance **L*** of the pump is smaller than the centre of gravity distance **L** in the table, then the permitted force due to gravity $\mathbf{F_{permitt.}}$ for the pump is equal to the maximum force due to gravity $\mathbf{F_{max}}$ in the table.



2.2. SPECIFICATIONS

2.2.1 **Permitted fluids**

Mineral oil to DIN 51524,
other fluids on request.

NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

3. MODEL CODE

PT – 250 / 5.0 / M / FL001 – E / F3

Type
PTS = Rigid bell housing
PT = Flexible bell housing

Nominal size for IEC standard motor (type of mounting B5, B35, V1, V15)

Nominal size PTS / PT	Type Rigid	Type Flexible	Electric motor size	Output n = 1430 rpm
160	x		71	0.25 - 0.37 kW
200	x	x	80/90	0.55 - 1.5 kW
250	x	x	100/112	2.2 - 4.0 kW
300	x	x	132	5.5 - 7.5 kW
350	x	x	160/180	11 - 22 kW
400	x	x	200	30 kW
450	x	x	225	37 - 45 kW
550	x	x	250/280	55 - 90 kW
660	x	x	315	110 - 200 kW
800	x		335/400	250 - 400 kW

Model with additional bores

Rigid PTS	Flexible PT	Additional bores
2.0	5.0	Without additional bore (standard)
5.1	5.1	1x Leakage bore
5.3	5.3	Additional bores to Cnomo standard*

Mineral oil resistance (Special models on request)

Bore template code for pump connection (see our sizing program PT-WIN)

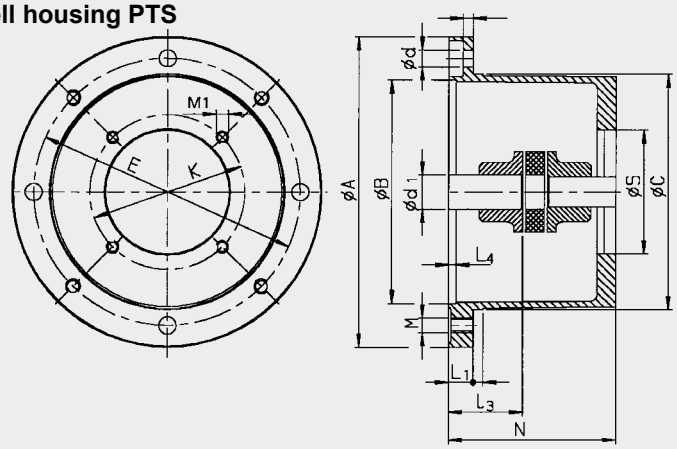
Type of damping ring (only required for flexible bell housings)
E = standard
K = damping ring for higher loads (greater rigidity)

Accessories
... = without accessories (no details)
F3 = bell housing foot bracket

* Cnomo: 1x mounting hole with grille, 1x leakage bore

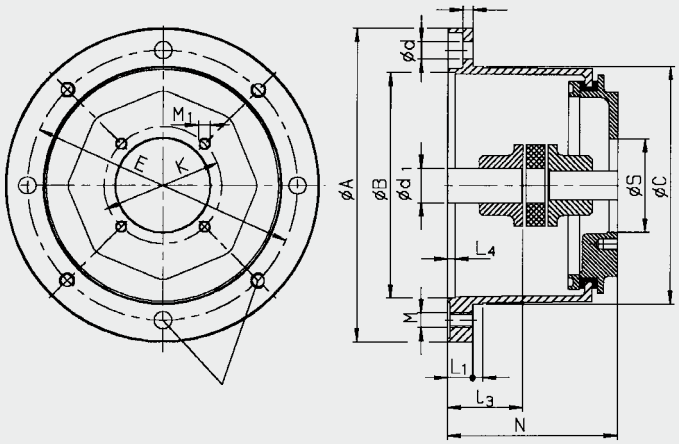
3.1. DIMENSIONS

3.1.1 Dimensions of rigid bell housing PTS



Electric motor size	KW at n =1500 1/min	Drive shaft Ød1 x l3	Bell housing	Ø A	Ø B	Ø C	E	M	Ø d	L1	L4
71	0.25 - 0.37	14x30	PTS-160	160	110	110	130	M8	9	13	4
80	0.55 - 0.75	19x40	PTS-200	200	130	145	165	M10	11	16	6
90S-90L	1.1 - 1.5	24x50									
100L-112M	2.2 - 4	28x60	PTS-250	250	180	190	215	M12	14	19	6
132S-132M	5.5 - 7.5	38x80	PTS-300	300	230	234	265	M12	14	20	6
160M-160L	11 - 15	42x110	PTS-350	350	250	260	300	M16	18	25	6
180M-180L	18.5 - 22	48x110									
200 L	30	55x110	PTS-400	400	300	300	350	M16	18	25	6
225S-225M	37 - 45	60x140	PTS-450	450	350	350	400	M16	18	25	6
250M	55	65x140	PTS-550	550	450	450	500	M16	18	26	6
280S-280M	75 - 90	75x140									
315S-315L	110 - 200	80x170	PTS-660	660	550	550	600	M20	22	32	6
355L-400L	250 - 400	95x170	PTS-800	800	680	680	740	M20	23	60	10

3.1.2 Dimensions of flexible bell housing PT



Electric motor size	KW at n =1500 1/min	Drive shaft Ød1 x l3	Bell housing	Ø A	Ø B	Ø C	E	M	Ø d	L1	L4
80	0.55 - 0.75	19x40	PT-200	200	130	145	165	M10	11	16	6
90S-90L	1.1 - 1.5	24x50									
100L-112M	2.2 - 4	28x60	PT-250	250	180	190	215	M12	14	20	6
132S-132M	5.5 - 7.5	38x80	PT-300	300	230	234	265	M12	14	20	6
160M-160L	11 - 15	42x110	PT-350	350	250	260	300	M16	18	25	6
180M-180L	18.5 - 22	48x110									
200 L	30	55x110	PT-400	400	300	300	350	M16	18	25	6
225S-225M	37 - 45	60x140	PT-450	450	350	350	400	M16	18	25	6
250M	55	65x140	PT-550	550	450	450	500	M16	18	40	6
280S-280M	75 - 90	75x140									
315S-315L	110 - 200	80x170	PT-660	660	550	550	600	M20	22	32	6

To identify the bore template code (dimensions N, S, K, M1), please use our sizing program PT-WIN as far as possible, or consult Head Office. You can download and use the PT-WIN program free of charge from our website **www.hydac.com** by clicking through Support » Download » Software » Product Division - Accessories.

Accessories:
For the range of accessories (bell housing foot brackets, bell housing mounting plate, damping rails, damping rings and couplings) please use our supplementary brochure "Bell Housing Accessories". This brochure can be downloaded from our website **www.hydac.com**.

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Bell Housings with Flexible Pump Mounting with Oil/Air Cooler

PTK Series

1. DESCRIPTION

1.1. GENERAL

Bell housings are connection elements between drive motors and hydraulic pumps.

Both connecting flanges are supplied ready for installation.

The bell housings are made from an aluminium cast alloy.

On the PTK (bell housing with built-in oil/air cooler) the oil is cooled efficiently by an air stream produced by a fan mounted on the motor shaft.

This combination of noise-damping bell housing and oil/air cooler considerably simplifies the construction and reduces the cost of hydraulic systems.

The high cooling capacity of the built-in cooler enables the user to reduce his tank capacity.

This reduction in oil quantity results in a reduction in operating costs and oil disposal costs.

1.2. MODELS

Bell housings with flexible pump mounting and oil/air cooler are supplied with dimensions to the VDMA 24561 standard.

2. TECHNICAL SPECIFICATIONS

2.1. GENERAL

2.1.1 **Mounting position**

Optional.

Once both mounting bolts have been removed, the cooler element can be turned through 180° (ports point towards the motor or to the pump).

2.1.2 **Temperature ranges**

During operation of the PTK, ensure that the maximum oil temperature of +100 °C is not exceeded.

Warning! If there is a temperature difference of over 50 °C between the oil inlet on the cooler element and the ambient temperature, large fluctuations in temperature (e.g. by turning on and off frequently) must be avoided. Otherwise this could result in significant reduction in lifetime or direct damage to the element through stress cracking.

Permitted ambient temperature:
-20 °C to +60 °C

2.1.3 **Noise level reduction**

PTKs have a flexible damping ring as standard between the bell housing and pump flange.

This ensures a complete decoupling of the pump from the motor and bell housing.

The additional use of flexible damping rails reduces the noise level still further.

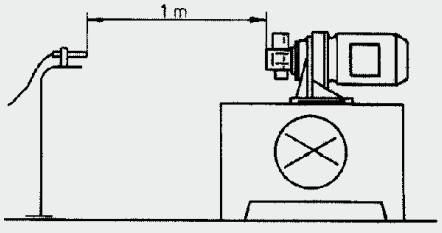
Basically, the noise level reduction achieved depends on many factors such as pump type, operating pressure, type of fitting, design etc.

It is therefore not possible to quote exact figures.

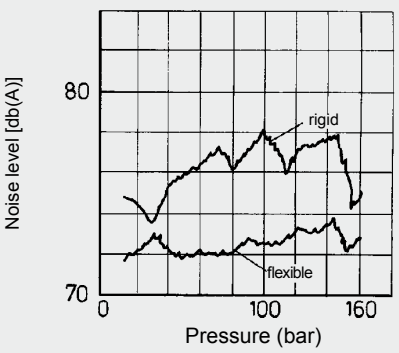
In general, noise level reductions of up to 6 dB(A) can be achieved by using the flexible pump mounting.

The illustration below shows how the test is set up, together with a graph showing typical noise level improvements when using a flexible bell housing compared with a rigid bell housing.

Test set-up



Noise level diagram



2.1.4 Notes on mounting

The fixing bolts used for mounting the motor to the pump must be long enough in order to fully utilize the available thread depth on the PTK.
If the bolts used are too short, there is the risk of damaging the thread and consequently the whole unit.

2.1.5 Weight loading

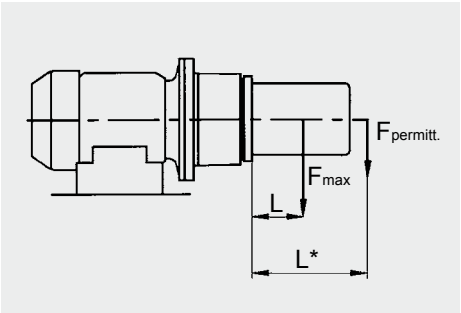
The permitted radial or axial load of the PTK with flexible pump mounting, allowing for an operating temperature of +60 °C:

PTK Nominal size	Type of damping ring	Permitted force due to gravity F max. [N]	Centre of gravity distance for radial load L [mm]
200/ 2001	E	400	200
250	E	700	200
300	E	1150	200
350/ 3501	E	1500	200

For a larger centre of gravity distance **L*** the permitted force due to gravity is reduced according to the following formula:

$$F_{permitt.*} = \frac{F_{max.} \bullet L}{L^*} [N]$$

If the centre of gravity distance **L*** of the pump is smaller than the centre of gravity distance **L** in the table, then the permitted force due to gravity $F_{permitt.}$ for the pump is equal to the maximum force due to gravity F_{max} in the table.



2.2. SPECIFICATIONS

2.2.1 Coolant

Mineral oil to DIN 51524,
other fluids on request

2.2.2 Nominal rpm for drive

n=1430 1/min

(Base rpm for the stated technical data)

(up to 3000 1/min possible)

2.2.3 Direction of rotation

When looking at the pump shaft
clockwise

2.2.4 Air flow rate

Nominal size	Volume
PTK-200	approx. 72 m³/h
PTK-2001	approx. 72 m³/h
PTK-250	approx. 260 m³/h
PTK-300	approx. 435 m³/h
PTK-350	approx. 780 m³/h
PTK-3501	approx. 780 m³/h

2.2.5 Power requirement for fan

Nominal size	Rotation speed	
	1430 1/min	1800 1/min
PTK-200	20 Watt	30 Watt
PTK-2001	20 Watt	30 Watt
PTK-250	30 Watt	50 Watt
PTK-300	90 Watt	130 Watt
PTK-350	140 Watt	220 Watt
PTK-3501	140 Watt	220 Watt

2.2.6 Noise levels for PTK with electric motor without pump

(measured to DIN 45635, Part 1)

Nominal size	Output of electric motor at 1430 1/min	PTK with electric motor
PTK-200	1.5 kW	52 db(A)
PTK-250	4 kW	58 db(A)
PTK-300	5.5 kW	69 db(A)
PTK-350	11 kW	70 db(A)

The noise levels with electric motor depend on the make of motor.

The noise levels are only a guide as the acoustic properties of a room and reflections have an effect on the noise level.

2.3. HYDRAULIC DATA

2.3.1 Cooler element

Material
Aluminium

Pressure resistance

- At an operating pressure of ≤ 16 bar and a temperature ≤ 50 °C, 1 million cycles (2 Hz) are achieved. For higher operating pressures and/or temperatures, the life expectancy will be shorter.
- Maximum operating pressure at static pressure resistance is 40 bar.

Mounting
When mounting or dismantling the threaded connection of the cooler inlet or outlet, the torque must be countered (protects the cooler element from distortions). Please also see the assembly instructions supplied with the product.

NOTE

The information in this brochure relates to the operating conditions and applications described.

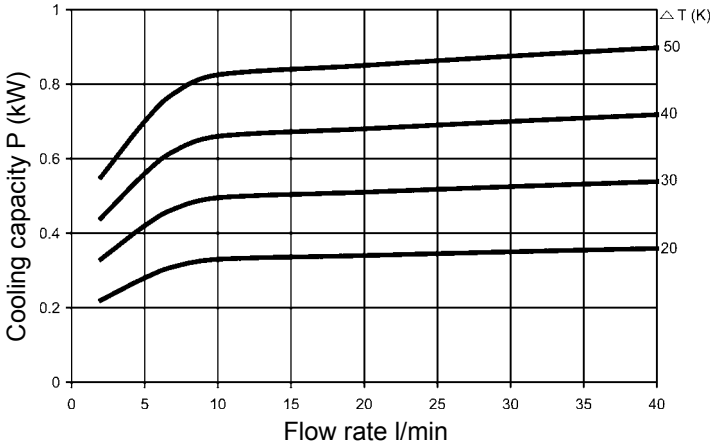
For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

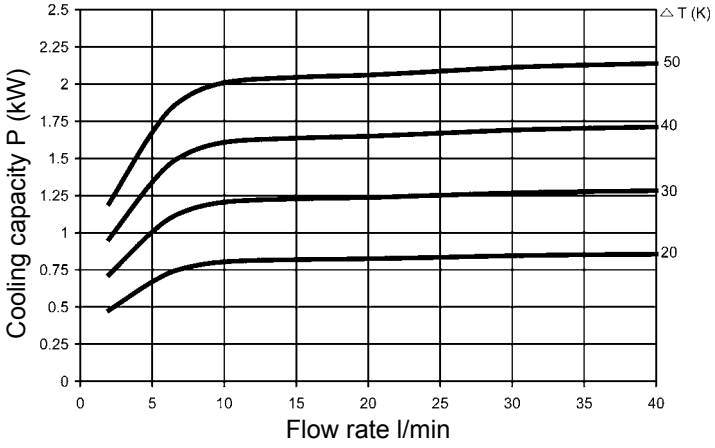
2.3.2 **Cooling capacity**

Cooling capacity against oil flow rate for different temperature differentials ΔT between oil inlet and air inlet.
(Motor rpm 1430 1/min)

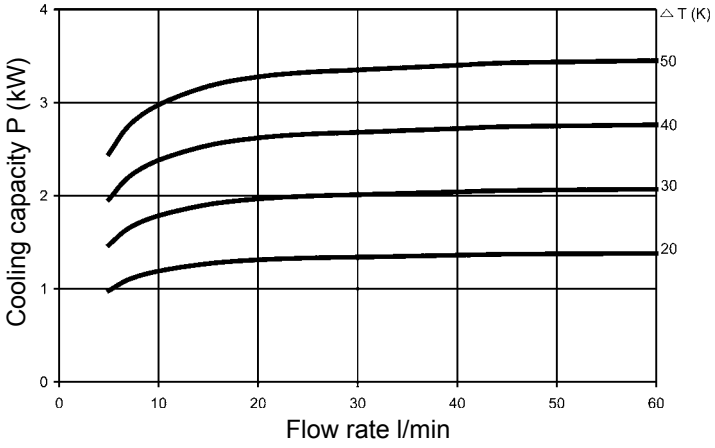
PTK-200/PTK-2001



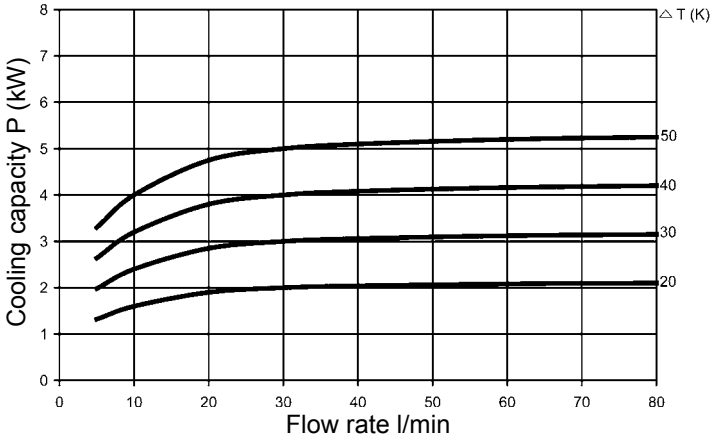
PTK-250



PTK-300



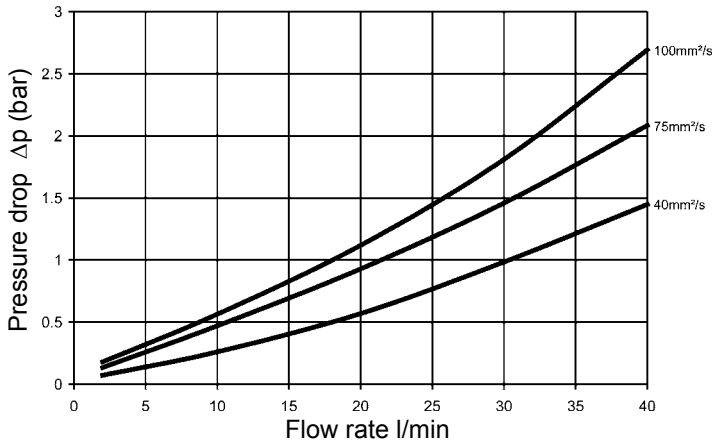
PTK-350/PTK-3501



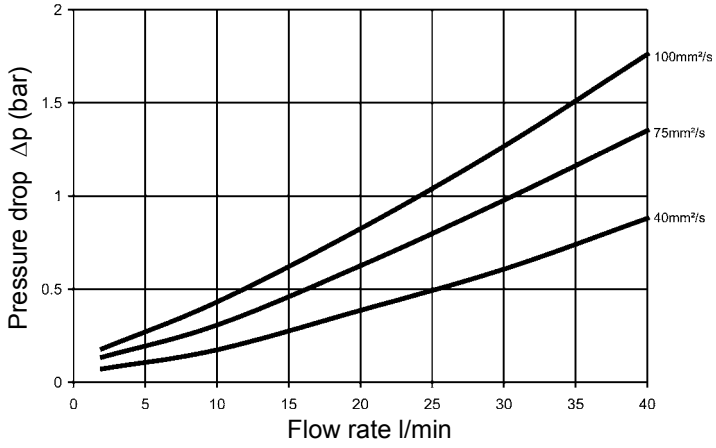
2.3.3 **Pressure drop Δp in the cooler element**

Flow direction is optional. The differential pressure Δp is shown against flow rate for different viscosities.

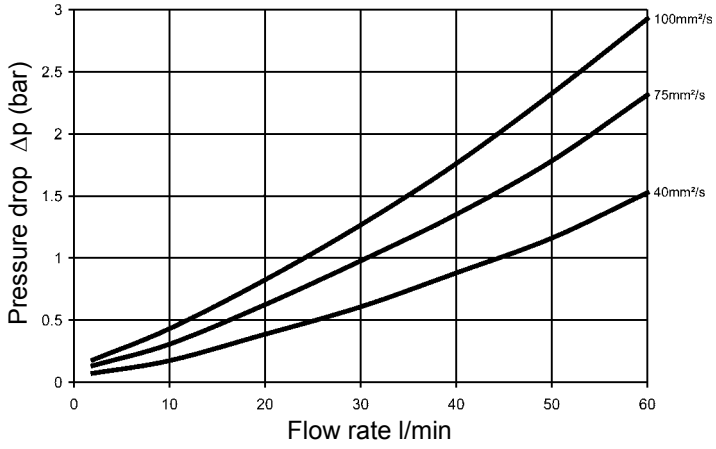
PTK-200/PTK-2001



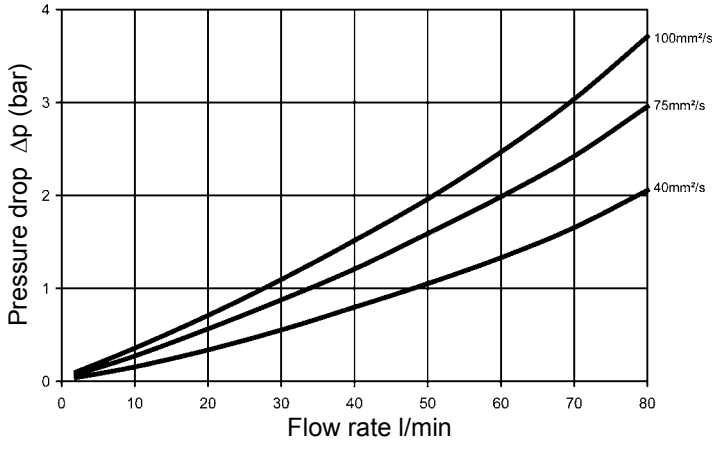
PTK-250



PTK-300



PTK-350/PTK-3501



3. MODEL CODE

PTK – 250 / 2.X / M / FL001 – E / F3

Bell housing with flexible pump mounting and built-in oil/air cooler

Nominal size for IEC standard motor (type of mounting B5, B35, V1, V15)

Nominal size PTK	Size Electric motor	Output n = 1430 rpm
2001	80	0.55 - 0.75 kW
200	90	1.1 - 1.5 kW
250	100/112	2.2 - 4.0 kW
300	132	5.5 - 7.5 kW
350	160	11.0 - 15.0 kW
3501	180	18.5 - 22.0 kW

Modification number

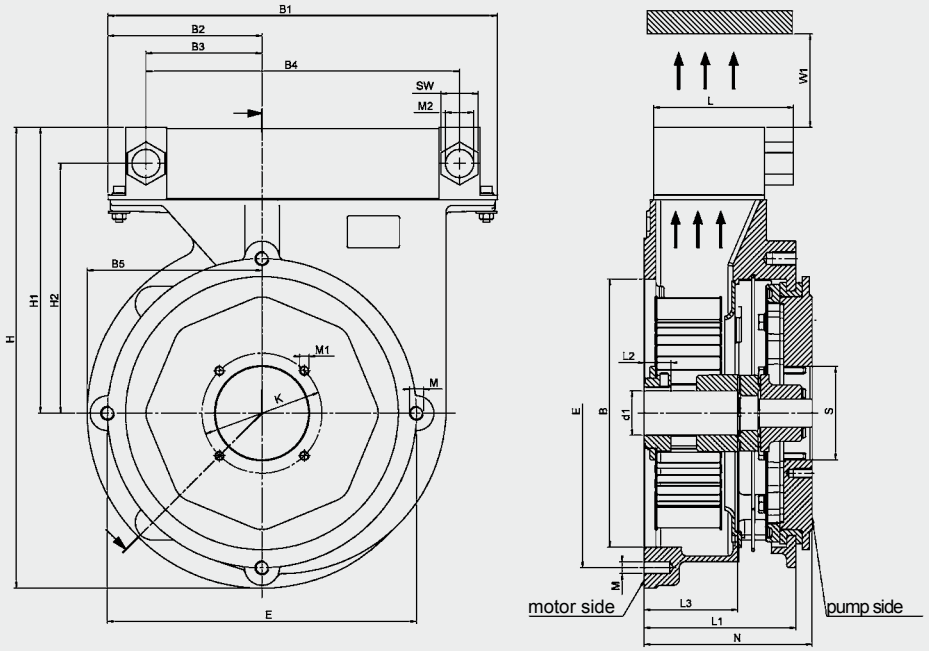
Mineral oil resistance (Special models on request)

Bore template code for pump connection (please use our sizing program PT-WIN)

Type of damping ring
E = standard
K = damping ring for higher loads (greater rigidity)

Accessories
... = without accessories (no details)
F3 = bell housing foot bracket

3.1. DIMENSIONS



Electric motor Size	Output at 1500 rpm kW	Electric motor Drive shaft d x l	PTK Nominal size	PTK Foot bracket	PTK Mounting plate	H	H1	H2	B	E	M	B1	B2	B3	B4	B5	SW	M2	L	L1	L2	min. W1
80 80	0.55 0.75	19 x 40	PTK-2001	PTFL-200	PP200	275	174	143	130	164	M10	260	110	77.5	195	100	32	G1/2	84	80	21	120
90 S 90 L	1.1 1.5	24 x 50	PTK-200																			
100 L 112 M	2.2 4	28 x 60	PTK-250	PTFL-250	PP250	327	197	166	180	215	M12	334	156	123.5	269	130	32	G3/4	120	105	23	160
132 S 132 M	5.5 7.5	38 x 80	PTK-300	PTFL-300	PP-300	395	245	214	230	265	M12	334	132	99.5	269	150	32	G3/4	120	130	23	200
160 M 160 L	11 15	42 x 110	PTK-350	PTFL-350	–	437	262	231	250	300	M16	334	102	69.5	269	175	32	G3/4	148	170	31	240
180 M 180 L	18.5 22	48 x 110	PTK-3501																			

To identify the bore template code (dimensions N, S, K, M1), please use our sizing program PT-WIN as far as possible, or ask at our Head Office. You can download and use the PT-WIN program free of charge from our website **www.hydac.com** by clicking through Support » Download » Software » Product Division - Accessories.

Accessories:
For the range of accessories (bell housing foot brackets, bell housing mounting plate, damping rails, damping rings and couplings) please use our supplementary brochure "Bell Housing Accessories". This brochure can be downloaded from our website **www.hydac.com**.

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E-Mail: info@hydac.com

Bell Housings
Accessories

FLEXIBLE DRIVE COUPLINGS
Features
Model code
Dimensions

GEAR COUPLINGS
Features
Model code
Dimensions

BELL HOUSING FOOT BRACKETS
Light-duty range
Heavy-duty range

BELL HOUSING MOUNTING PLATE
Bell housing mounting plate
Seal for bell housing mounting plate

DAMPING RAILS
Damping rails for motors
Damping rails for bell housing foot brackets

DAMPING RINGS
Application
Dimensions

TANKSET

Flexible Drive Couplings

FEATURES

- Torsionally flexible and vibration damping due to elastomer toothed insert (spider) with 98° Shore A (polyurethane)
- Elastomer is only subjected to compression loading
- Axial plug-in
- Failsafe as a result of positive-fit power transmission
- Maintenance-free
- Axial, radial and angular misalignment compensation
- Available in aluminium (Al), cast iron (GG/GGG) or steel (St)
- Temperature range:
  -30 °C to +90 °C for continuous operation,
  -40 °C to +120 °C for short-term operation

MODEL CODE

(also order example)

Coupling 24/28 – 28 / 22.2 F ALU

Coupling size

Type of hub, motor-side

28	= 28H7 cylindrical bore with key to DIN 6885

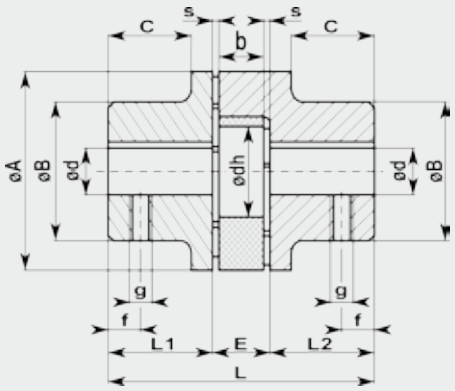
Type of hub, pump-side

22.2F	= 22.2 Code F (7/8") inch bore
B17...TN2A	= taper bores
SAE ...	= profile bores / spline shafts

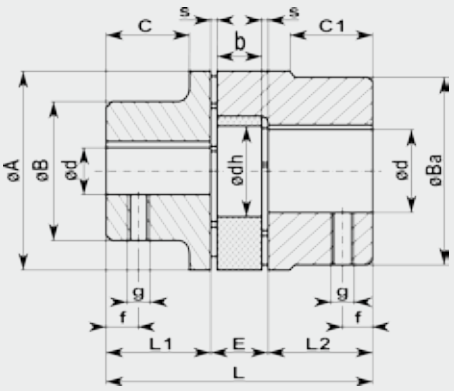
Special models

...	= coupling in cast iron or steel (no details required)
ALU	= coupling in aluminium
ATEX	= with ATEX approval

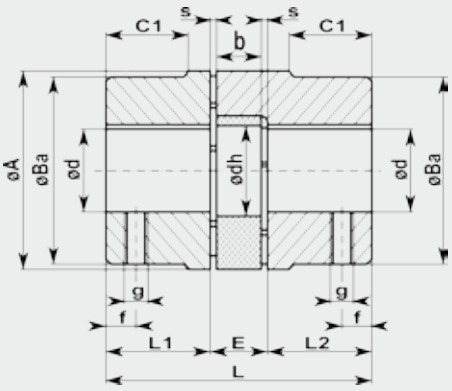
DIMENSIONS



Hub combination A/A
e.g. Coupling 28 – 28/20



Hub combination A/B
e.g. Coupling 28/38 – 28/35



Hub combination B/B
e.g. Coupling 28/38 – 38/38

Coupling hubs in aluminium
Order example: Coupling 19/24-24/14 ALU

Types	max. kW at 1000 rpm	max. kW at 1500 rpm	Bores						Dimensions [mm]														Weight [kg]
			A hub			B hub																	
			Pilot hole	Finished bore Ø d		Pilot hole	Finished bore Ø d																
				min	max		min	max	A	B	Ba	L	L1+ L2	E	s	b	C	C1	dh	g	f		
19/24	1.1	1.5	5	6	19	18	19	24	40	32	39	66	25	16	2	12	20	21	18	M5	10		0.13
24/28	2.2	4	7	8	24	15	16	32	55	40	53	78	30	18	2	14	24	26	27	M5	10		0.26
28/38	5.5	7.5	8	10	28	25	28	38	65	48	63	90	35	20	3	15	28	29	30	M6	15		0.46
38/45	11	15	13	14	38	35	38	45	80	66	79	114	45	24	3	18	37	39	38	M8	15		0.9
42/55	22	30	13	19	42	40	42	55	95	75	94	126	50	26	3	20	40	41	46	M8	20		1.39
48/60	30	45	18	19	48	46	48	60	105	85	104	140	56	28	4	21	45	46	51	M8	20		1.86

Coupling hubs in steel / cast iron
Order example: Coupling 24/28-20/24

Types	max. kW at 1000 rpm	max. kW at 1500 rpm	Bores						Dimensions [mm]														Weight [kg]
			A hub			B hub																	
			Pilot hole	Finished bore Ø d		Pilot hole	Finished bore Ø d																
				min	max		min	max	A	B	Ba	L	L1+ L2	E	s	b	C	C1	dh	g	f		
19/24	1.1	1.5	–	6	19	–	12	24	40	32	39	66	25	16	2	12	20	21	18	M5	10		0.35
24/28	2.2	4	–	10	24	–	14	32	55	40	52	78	30	18	2	14	24	26	27	M5	10		1
28/38	5.5	7.5	–	12	28	22	24	38	65	45	62	90	35	20	2.5	15	28	29	30	M6	15		1.6
38/45	11	15	–	14	38	30	38	45	80	66	77	114	45	24	3	18	37	37	38	M8	15		2.3
42/55	22	30	–	19	42	15	42	55	95	75	94	126	50	26	3	20	40	40	46	M8	20		3.6
48/60	30	45	–	19	48	15	48	60	105	85	102	140	56	28	3.5	21	45	45	51	M8	20		4.8
55/70	37	55	–	19	55	47	55	70	120	98	118	160	65	30	4	22	52	52	60	M10	20		7.4
65/75	55	90	–	22	65	57	65	75	135	115	132	185	75	35	4.5	26	61	59	68	M10	20		10.9
75/90	90	132	–	30	75	50	75	90	160	135	158	210	85	40	5	30	69	65	80	M10	25		17.7
90/100	250	315	29	40	90	79	90	100	200	160	180	245	100	45	5.5	34	81	81	100	M10	25		29.5
100/110	315	315	–	–	–	40	55	110	225	–	200	270	110	50	6	38	–	89	113	M12	30		43.5

IMPERIAL BORES

Order code	Ød mm	Ød Inch	Groove b+0.05	Groove t2+0.2
9.5 TB	9.5	3/8	3.17	11.1
11.11 DNB	11.11	7/16	2.4	12.5
12.69 T	12.69	1/2	4.75	14.6
12.7 TA	12.7	1/2	3.17	14.3
13.45 DNC	13.45	17/32	3.17	14.9
14.29 DO	14.29	9/16	3.17	15.6
15.87 E	15.87	5/8	3.17	17.5
15.87 S	15.87	5/8	3.97	17.9
15.88 ES	15.88	5/8	4.0	17.7
15.85 DND	15.852	5/8	4.75	18.1
15.87 ED	15.87	5/8	4.75	18.1
17.47 DNH	17.465	11/16	4.75	19.6
19.02 AD	19.02	3/4	3.17	20.7
19.02 AS	19.02	3/4	4.78	21.3
19.05 A	19.05	3/4	4.78	21.3
22.2 FA	22.2	7/8	6.35	25.2
22.23 DNI	22.228	7/8	6.35	25.0
22.22 GS	22.22	7/8	4.78	24.4
22.22 G	22.22	7/8	4.75	24.7
22.22 GB	22.22	7/8	4.78	25.5
22.22 F	22.22	7/8	6.38	25.2
22.225 GD	22.225	7/8	4.76	24.7
23.8 GF	23.8	15/16	6.35	26.8
25.0 HB	25.0	63/64	6.35	28.7
25.38 BA	25.38	1	6.35	27.6
25.38 BS	25.38	1	6.37	28.3
25.4 H	25.4	1	4.78	27.8
25.4 HS	25.4	1	6.35	28.7
26.95 R	26.95	1 1/16	4.78	29.3
28.58 SA	28.575	1 1/8	6.35	31.7
28.58 SB	28.58	1 1/8	6.35	31.5
28.58 SD	28.58	1 1/8	7.93	32.1
31.7 JA	31.7	1 1/4	7.93	34.4
31.71 JC	31.71	1 1/4	7.93	35.3
31.75 JS	31.75	1 1/4	6.35	34.6
31.75 K	31.75	1 1/4	7.93	35.5
31.75 KS	31.75	1 1/4	7.93	36.6
31.76 DNK	31.755	1 1/4	7.93	35.3
34.93 MA	34.925	1 3/8	7.93	38.7
34.92 M	34.92	1 3/8	7.93	38.6
34.93 RH1	34.93	1 3/8	9.55	37.8
36.5 CB	36.5	1 7/16	9.55	40.9
38.07 CA	38.07	1 1/2	7.93	42.0
38.07 C	38.07	1 1/2	9.55	42.5
41.25 N	41.25	1 5/8	9.55	45.6
41.28 NB	41.275	1 5/8	9.55	45.8
44.42 LS	44.42	1 3/4	9.55	48.8
44.45 LA	44.45	1 3/4	11.0	48.1
44.45 L	44.45	1 3/4	11.11	49.4
47.63 LU	47.625	1 7/8	12.7	53.5
49.2 DA	49.2	1 15/16	12.7	55.0
50.77 DS	50.77	2	12.7	56.4
50.8 D	50.8	2	12.7	55.1
53.95 P	53.95	2 1/8	12.7	59.6
53.98 PA	53.975	2 1/8	12.7	60.0
57.1 U	57.1	2 1/4	12.73	62.9
60.33 UB	60.325	2 3/8	15.875	67.6
73.03 WA	73.025	2 7/8	19.05	81.7
85.73 WD	85.725	3 3/8	22.225	95.8
92.08 WF	92.075	3 5/8	22.225	101.9

PROFILE BORES

Profile spline DIN 5480	Profile DIN 5482	Profile SAE
N 20 x 1.25 x 14 x 9 G	A 17 x 14	SAE 5/8" – 16/32 – Z9
N 25 x 1.25 x 18 x 9 G	A 28 x 25	SAE 3/4" – 16/32 – Z11
N 30 x 2 x 14 x 9 G	A 30 x 27	SAE 7/8" – 16/32 – Z13
N 35 x 2 x 16 x 9 G	A 35 x 31	SAE 1" – 16/32 – Z15
N 40 x 2 x 18 x 9 G	A 40 x 36	SAE 1-1/8" – 16/32 – Z17
N 45 x 2 x 21 x 9 G	A 45 x 41	SAE 1-1/4" – 12/24 – Z14
N 50 x 2 x 24 x 9 G	A 48 x 44	SAE 1-3/8" – 16/32 – Z21
N 55 x 2 x 24 x 9 G	A 50 x 45	SAE 1-1/2" –12/24 – Z17
N 60 x 2 x 28 x 9 G	A 58 x 53	SAE 1-1/2" – 16/32 – Z23
N 70 x 3 x 22 x 9 G	A 70 x 64	SAE 1-3/4" – 16/32 – Z27
N 80 x 3 x 25 x 9 G		SAE 1-3/4" – 8/16 – Z13
N 90 x 3 x 28 x 9 G		SAE 2" – 8/16 – Z15
		SAE 2-1/4" – 8/16 – Z17

TAPER BORES

Order code	Taper 1:8 Ød	b	t2	l
TN1	9.75	2.40	10.7	17.0
TN1C	11.60	3.00	12.9	16.5
TN1E	13.00	2.40	13.8	21.0
TN1D	14.00	3.00	15.5	17.5
TN1B	14.30	3.20	15.7	19.5
TN2	17.20	3.20	18.3	24.0
TN2A	17.20	4.00	18.9	24.0
TN2B	17.20	3.00	18.3	24.0
TN3	22.00	4.00	23.4	28.0
TN4	25.46	4.78	27.8	36.0
TN4B	25.46	5.00	28.2	36.0
TN4A	27.00	4.78	28.8	32.5
TN4G	28.45	6.00	29.3	38.5
TN5	33.17	6.38	35.4	44.0
TN5A	33.17	7.00	35.4	44.0

Order code	Taper 1:5 Ød	b	t2	l
A10	9.85	2	10.9	11.5
B17	16.85	3	18.9	18.5
C20	19.85	4	22.0	21.5
Cs22	21.95	3	23.8	21.5
D25	24.85	5	27.9	26.5
E30	29.85	6	32.5	31.5
F35	34.85	6	37.5	36.5
G40	39.85	6	45.5	41.5

= Standard

Gear Couplings

FEATURES

- Flexible shaft connection
- Axial, radial and angular misalignment compensation
- Coupling hub in steel, coupling sleeve in polyamide
- Torque transmission without radial stress due to double cardanic construction
- Temperature range: -25°C to +80°C for continuous operation

MODEL CODE

(also order example)

Coupling B 24 24H7 / 20H7

Gear coupling

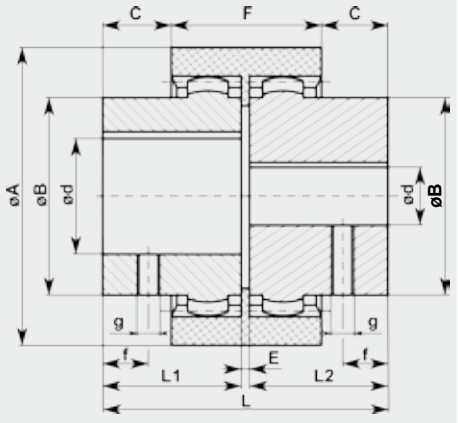
Coupling size

Type of hub, motor-side
24H7 = cylindrical bore with key to DIN 6885

Type of hub, pump-side
20H7 = cylindrical bore with key to DIN 6885
22.2F = 22.2 Code F (7/8") inch bore*
B17/TN2A = taper bore*

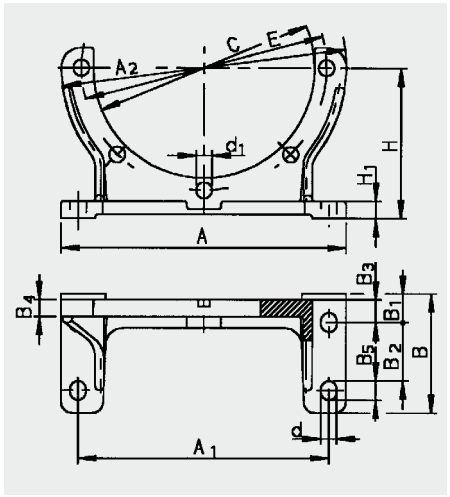
* see tables under Flexible Drive Couplings, p. 244

DIMENSIONS



Types	max. kW at 1000 rpm	max. kW at 1500 rpm	Pilot hole	Finished bores d [mm]		Dimensions [mm]									Weight
				min.	max.	A	B	L	L1 + L2	E	C	F	g	f	[kg]
B 24	1.10	1.50	–	10	24	52	36	56	26	4	7.5	41	M 5	6	0.316
B 28	2.20	4.00	7	10	28	66	44	84	40	4	19	46	M 8	10	0.739
B 38	5.50	7.50	12	14	38	83	58	84	40	4	18	48	M 8	10	1.22
B 42	11.00	15.00	12	20	42	92	68	88	42	4	19	50	M 8	10	1.49

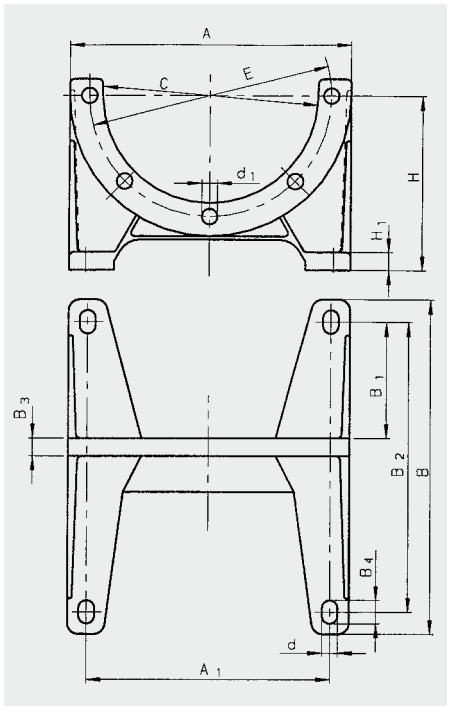
Bell Housing Foot Brackets
for PT, PTK, PTS



LIGHT-DUTY RANGE TO VDMA 24561

Size	Part no.	A	A1	A2	B	B1	B2	B3	B4	B5	H	H1	d	C	E	d1
PF-160/3	3130712	160	140	–	80	15	50	7	12	–	100	10	9	110	130	9
PF-200/3	953938	210	180	200	93	14	60	3	8	23	112	12	11	146	165	11
PF-250/3 for PT, PTS	3326868	250	220	–	110	20	60	21	19	–	132	15	14	190	215	14
PF-250/3 for PTK*	3290117	250	220	–	110	20	60	21	19	–	132	15	14	190	215	14
PF-300/3	953710	290	260	300	120	19	80	19	15	32	160	15	14	240	265	14

* additional counterbore for use with countersunk screws



HEAVY-DUTY RANGE TO VDMA 24561

Size	Part no.	A	A1	B	B1	B2	B3	B4	H	H1	d	C	E	d1
PF-350/3*	953942	350	300	305	70	265	18	22	180	18	18	265	300	18
PF-250/4	3045399	250	215	260	60	185	15	24	155	15	14	190.3	215	14
PF-300/4	3043132	300	265	270	75	225	18	24	185	18	14	234.5	265	14
PF-350/4	3045259	350	300	305	90	265	18	30	235	18	18	260	300	18
PF-400/4	3044298	400	350	350	100	300	20	30	260	20	18	302	350	18
PF-450/4	3044299	450	400	385	110	335	22	30	295	20	18	352	400	18
PF-550/4	3030682	550	500	465	140	415	25	30	350	25	18	452	500	18
PF-660/4	3044300	660	600	555	165	495	30	40	380	30	22	552	600	22

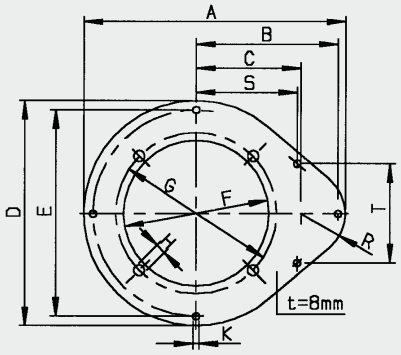
* PF-350/3 is part of the light-duty range but has dimensions according to drawing on left

Bell Housing Mounting Plate
for Bell Housings Type PT, PTK, PTS

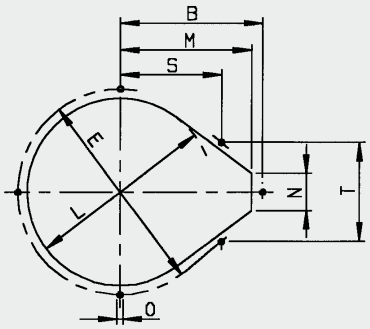
FEATURES

- Enables the complete motor-pump unit to be fitted and removed from outside the tank
- Simplifies cleaning and maintenance
- Bell housing mounting plate in aluminium, seal in NBR rubber (mineral oil resistant)

Bell housing mounting plate

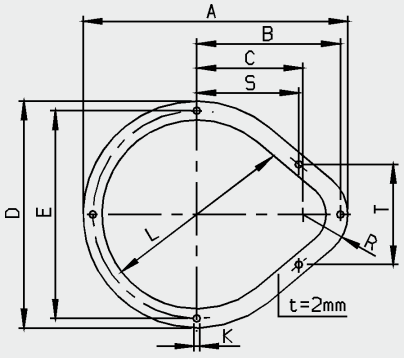


Oil tank cut-out



Size	Part no.	A	B	C	D	E	F	G	H	K	R	L	M	N	O	S	T
PP 200	273931	325	190	140	250	225	146	165	11	9.5	60	200	175	50	M8	84	168
PP 250	272058	350	190	140	300	275	194	215	14	9.5	60	250	175	50	M8	135	134
PP 300	272059	423	225	150	350	330	246	265	14	14.5	98	300	200	100	M12	160	190
PP 350	637939	475	225	160	410	380	262	300	18	14	110	350	200	136	M12	112	307.5

Seal for bell housing mounting plate

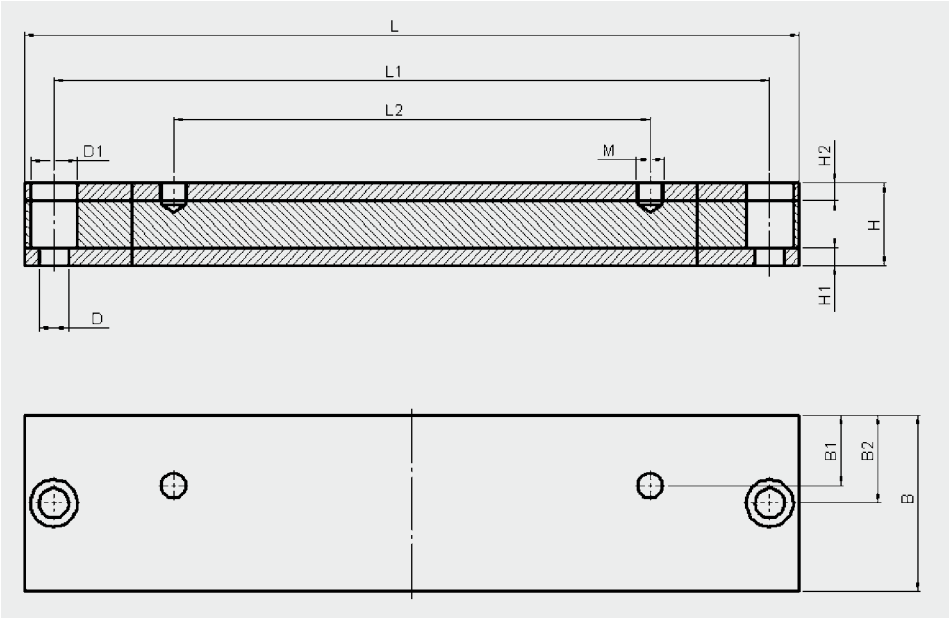


Size	Part no.	A	B	C	D	E	K	R	L	S	T
PPD 200	952788	325	190	140	250	225	10	60	200	84	168
PPD 250	952789	350	190	140	300	275	10	60	250	135	134
PPD 300	952812	420	225	150	360	330	15	90	300	160	190
PPD 350	3159093	475	225	160	410	380	20	110	350	112	307.5

Damping Rails
for Electric Motors Mounting-Type IMB35

FEATURES

- Horizontal base mounting only (not overhead mounted)
- Machined ready for IMB 35 motors
- Noise reduction due to decoupling
- Resistant to mineral oil due to NBR rubber compound
- Special lengths and models are possible on request

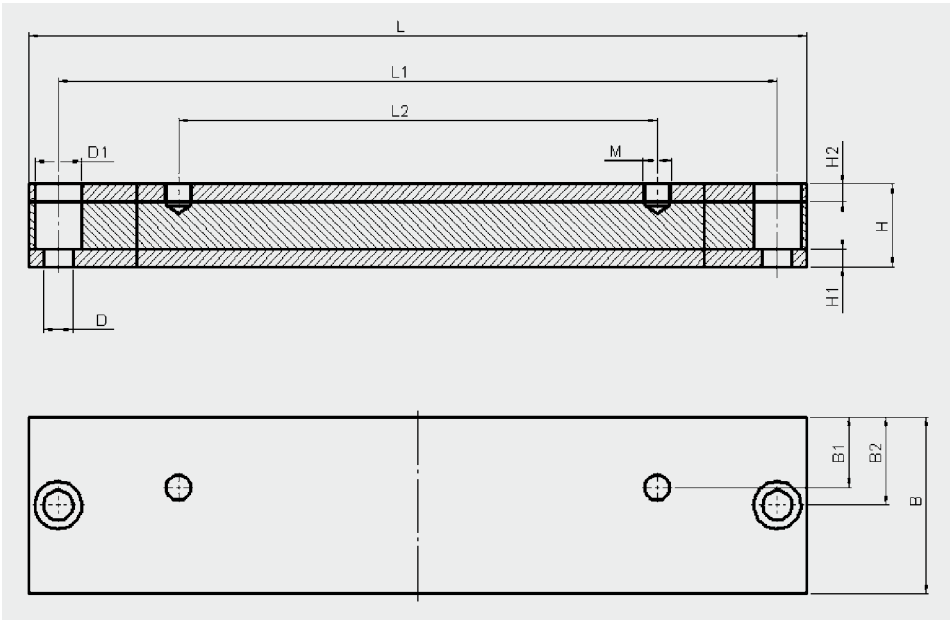


Damping rails	For type	Part no.	L	L1	L2	H	H1	H2	B	B1	B2	D	D1	M
MDS 080	80	3134999	176	146	100	40	8	12	50	22	25	14	20	M8
MDS 090S	90S	721987	196	156	100	40	8	12	50	22	25	14	20	M8
MDS 090L	90L	721988	240	205	125	40	8	12	50	24	25	14	20	M8
MDS 100L	100L	721989	240	205	140	40	8	12	50	24	25	14	20	M10
MDS 112M	112M	3065818	240	205	140	40	8	12	50	20	25	14	20	M10
MDS 132S	132S	721990	285	245	140	45	8	12	50	20	25	14	20	M10
MDS 132M	132M	721991	285	245	178	45	8	12	50	20	25	14	20	M10
MDS 160M	160M	721992	340	300	210	60	15	15	70	28	35	18	26	M12
MDS 160L	160L	3128252	416	370	254	60	15	15	70	28	35	18	26	M12
MDS 180M	180M	3234395	416	370	241	60	15	15	70	35	35	18	26	M12
MDS 180L	180L	721995	446	400	279	60	15	15	70	35	35	18	26	M12
MDS 200L	200L	724279	496	430	305	60	15	15	70	35	35	22	32	M16
MDS 225S	225S	3042916	496	430	286	60	15	15	70	35	35	22	32	M16
MDS 225M	225M	723832	496	445	311	60	15	15	70	35	35	22	32	M16
MDS 250M	250M	722801	496	445	349	60	15	15	100	50	50	25	40	M20
MDS 280S	280S	3042928	580	530	368	60	15	15	100	50	50	25	40	M20
MDS 280M	280M	3042929	580	530	419	60	15	15	100	50	50	25	40	M20
MDS 315S	315S	3026755	660	610	406	70	15	15	150	60	75	25	40	M24
MDS 315M	315M	3026452	660	610	457	70	15	15	150	60	75	25	40	M24
MDS 315L	315L	3065559	720	670	508	70	15	15	150	60	75	25	40	M24

Damping Rails
for Bell Housing Foot Bracket

FEATURES

- Horizontal base mounting only (not overhead mounted)
- Machined ready for IMB 35 motors
- Noise reduction due to decoupling
- Resistant to mineral oil due to NBR rubber compound
- Special lengths and models are possible on request



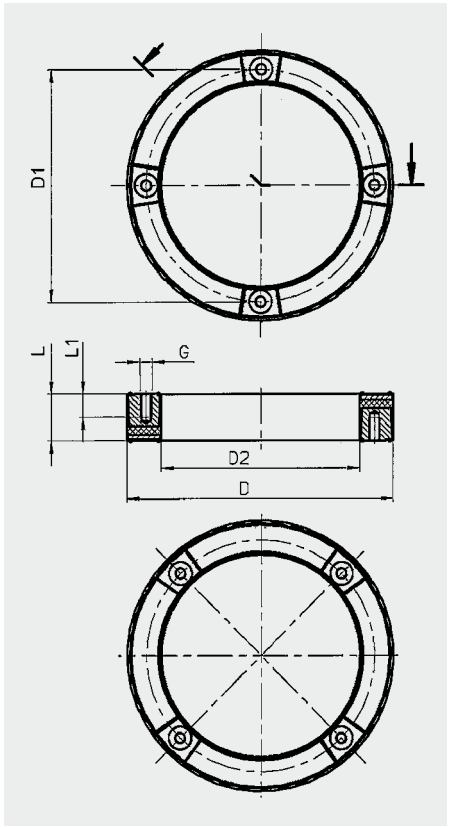
Damping rails *	For type	Part no.	L	L1	L2	H	H1	H2	B	B1	B2	D	D1	M
FDS 200/3	PF200/3	721983	190	150	60	40	8	12	50	25	29	14	20	M10
FDS 250/3	PF250/3	721984	225	185	60	40	8	12	50	25	29	14	20	M12
FDS 300/3	PF300/3	721985	285	245	80	45	8	12	50	25	29	14	20	M12
FDS 350/3	PF350/3	721986	380	340	265	60	8	12	70	35	29	18	26	M16
FDS 300/4	PF300/4	3169191	350	300	225	40	8	12	50	20	25	14	20	M12
FDS 350/4	PF350/4	3169192	375	340	265	60	15	15	70	35	29	18	26	M16
FDS 400/4	PF400/4	3044302	420	385	300	60	15	15	70	35	30	18	26	M16
FDS 450/4	PF450/4	3044304	455	420	335	60	15	15	70	35	30	18	26	M16
FDS 550/4	PF550/4	3044305	535	500	415	60	15	15	70	35	30	18	26	M16
FDS 660/4	PF660/4	3044306	660	610	495	60	15	15	70	35	30	22	32	M20

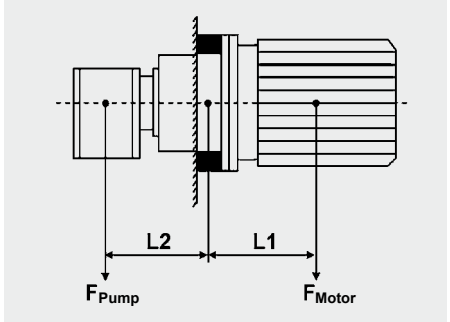
* FDS .../3 for bell housing foot brackets, light-duty range
FDS .../4 for bell housing foot brackets, heavy-duty range

Damping Rings

APPLICATION

- For vertical and horizontal mounting
- Cost-effective noise reduction due to decoupling
- Resistant to mineral oil through the use of NBR rubber compound
- Vulcanized seal lip, no additional seal required





DIMENSIONS

Damping ring type	For IEC motor size	Part no.	Dimensions [mm]					
			D	D1	D2	G	L1	L
DFR-V1/B5 200	80, 90S / 90L	3026885	200	165	146	4xM10	18	40
DFR-V1/B5 250	100L / 112 M	3026886	250	215	191	4xM12	22	45
DFR-V1/B5 300	132S / 132 M	3026887	300	265	235	4xM12	22	50
DFR-V1/B5 350	160M / 160L / 180M / 180 L	3210971	350	300	261	4xM16	28	60
DFR-V1/B5 400	200L	3210987	400	350	301	4xM16	29	50
DFR-V1/B5 450	225S / 225M	1151180	450	400	352	8xM16	32	60
DFR-V1/B5 550	250M / 280S / 280M	1151181	550	500	452	8xM16	32	60
DFR-V1/B5 660	315S / 315M	3041666	660	600	552	8xM20	33	65

Permitted radial weight load and bending stress, allowing for an operating temperature of + 60°C:

Maximum permitted force: $F_{pump} + F_{motor} \leq F_{permitt.}$

Maximum permitted bending moment: $F_{motor} \times L1 - F_{pump} \times L2 \leq Mb_{permitt.}$

Damp. ring type	200	250	300	350	400	450	550	660
$F_{perm.}$ [N]	385	755	1520	3780	5040	6800	13390	24720
$Mb_{perm.}$ [Nm]	32	68	184	770	1135	1650	4530	9270

TankSet

COMPONENT PARTS:

- Tank (aluminium)
- Feet (aluminium)
- Cover seal
- Cover (steel, grey primer)
- Fluid level gauge FSA
- Return line filter RF
- Breather filter BFP
- Screw set

Type	Tank size LxBxH1/H2	Co-ordinates L1/B1	Part no.	Displ. vol. (l)	Fluid level gauge	Return line filter with filter cartr. 10µm	Breather filter
HYNG 6.5-140	260x220x170/10	85/85	3102944	6	FSA 076	RF 30	BFP3G10W3.0
HYNG 12-140	310x240x215/75	81/85	3104404	10	FSA 076	RF 30	BFP3G10W3.0
HYNG 12-160	310x240x215/75	96/96	3102945	10	FSA 076	RF 30	BFP3G10W3.0
HYNG 20-160	366x288x245/75	99/100	3102946	17	FSA 076	RFM 75	BFP3G10W3.0
HYNG 20-200	366x288x245/75	119/120	3104405	17	FSA 076	RFM 75	BFP3G10W3.0
HYNG 30-200	490x340x275/150	125/120	3104406	27	FSA 076	RFM 165	BFP3G10W3.0
HYNG 30-250	490x340x275/150	150/145	3102947	27	FSA 076	RFM 165	BFP3G10W3.0
HYNG 44-200	515x415x305x150	122/122	3104407	40	FSA 127	RFM 165	BFP3G10W3.0
HYNG 44-250	515x415x305x150	147/147	3103018	40	FSA 127	RFM 165	BFP3G10W3.0
HYNG 70-250	605x465x355/150	170/170	3103019	63	FSA 127	RFM 165	BFP3G10W3.0
HYNG 70-300	605x465x355/150	157/157	3104428	63	FSA 127	RFM 165	BFP3G10W3.0

NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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