

## Bell Housing 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 integral oil-air cooler), the oil is cooled efficiently by an air stream produced by a fan wheel 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.

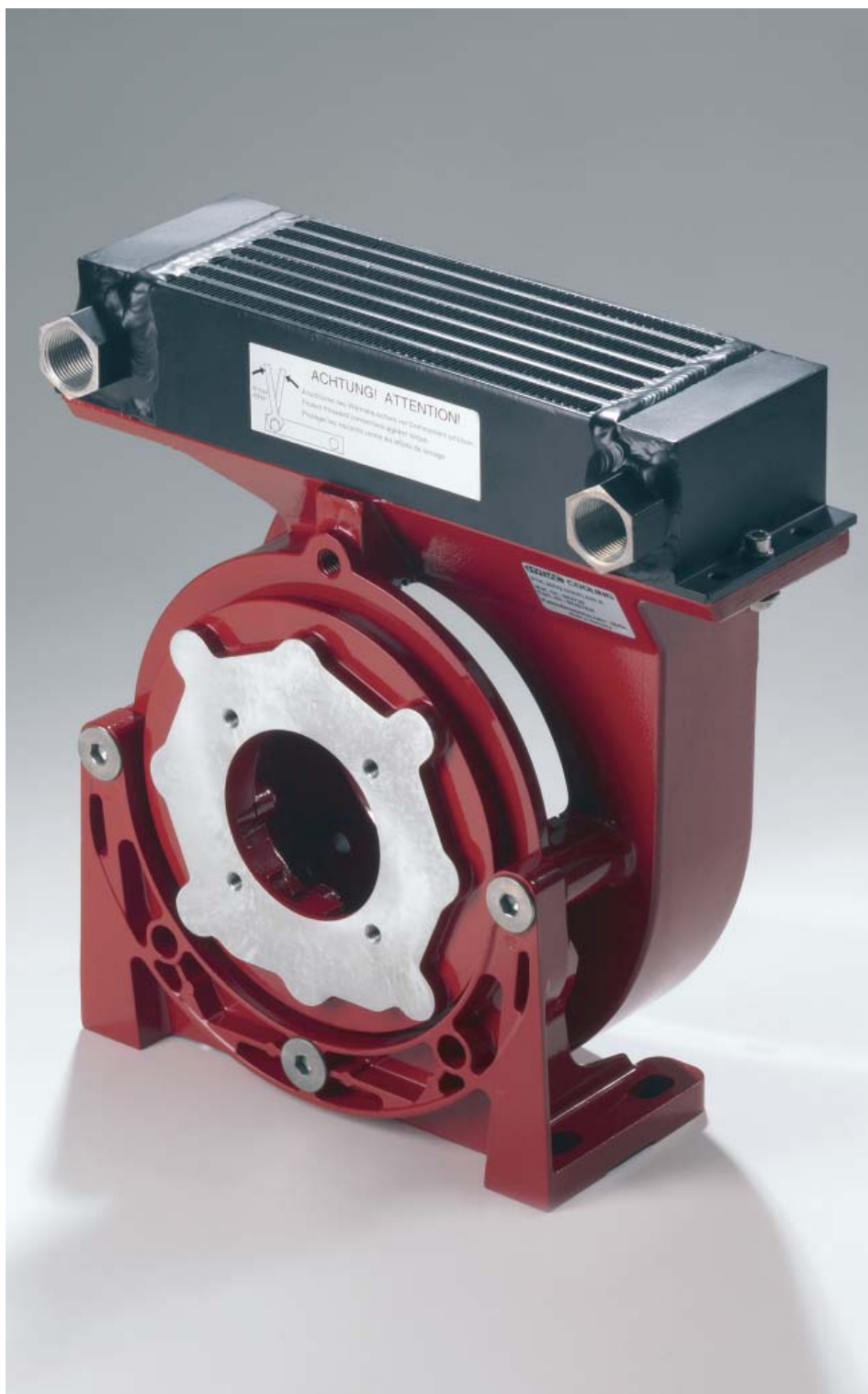
The high cooling capacity of the built-in cooler enables the user to reduce his tank capacity.

This results in a reduction in operating costs due to reduced oil quantities and there is therefore less used oil to dispose of.

#### 1.2. MODELS

(All dimensions to VDMA Standard 24561)

Bell housing with flexible pump mounting and integral oil-air cooler.



## 2. TECHNICAL SPECIFICATIONS

### 2.1. GENERAL

#### 2.1.1 Mounting position

Optional

On V1 construction type (vertical), the cooler element can be turned through 180°, once both mounting bolts have been removed.

#### 2.1.2 Operating temperature

When operating the PTK ensure that the maximum oil temperature of +100 °C is not exceeded

When operating the PTK in situations where the difference in temperature between ambient air and inlet oil may exceed 50 °C, care must be taken to avoid cycling of the fan at full speed as rapid changes in material temperature of the cooler element can cause unacceptable stresses and may result in significant reduction in lifetime or direct damage to the element through thermal shock.

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 connection flange which ensures a complete decoupling of the metal parts.

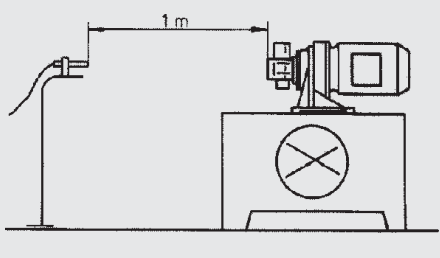
The additional use of flexible damping foot brackets significantly reduces the noise level.

Basically the noise level reduction achieved depends on many factors (pump type, operating pressure, type of fitting, construction etc.)

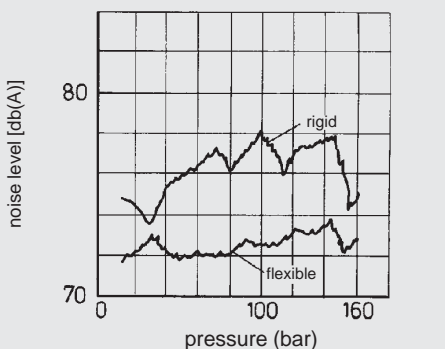
It is therefore not possible to quote exact figures. In general, noise level reductions of up to 6 dB (A) can be achieved.

The illustration 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 Note 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 screws used are too short, there is the risk of damaging the thread and consequently the whole unit.

#### 2.1.5 Weight loading

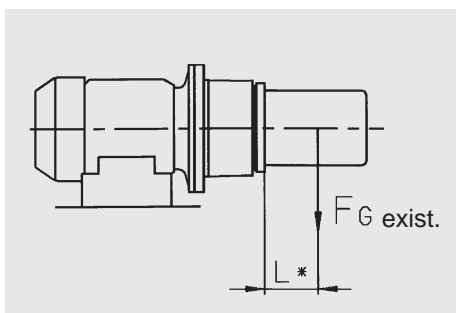
The permissible radial load of the PTK with flexible pump mounting, allowing for an operating temperature of +60 °C.

PTK Nominal size	Type of damping ring	Permiss. weight force F permiss. [N]	Centre to centre spacing for radial load L [mm]
200/2001	E	400	200
250	E	700	200
300	E	1150	200
350/3501	E	1500	200

Where  $L^* \leq L$  then **FG exist.** must be  $\leq F$  permiss.  
Where  $L^* > L$  the new permissible weight force **F permiss.\*** must be calculated according to the following formula:

$$F \text{ permiss.*} = \frac{F \text{ permiss} \times L}{L^*} \text{ [N]}$$

The actual existing weight force **FG exist.** must be smaller than the calculated value **F permiss.\***



### 2.2. SPECIFICATIONS

#### 2.2.1 Cooling fluid

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	Revolutions	
	1500 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)

Nom. size	Electric motor output 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 serve only as a guide since the acoustic properties of a room and reflection will have an effect on the noise level.

### NOTE

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

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

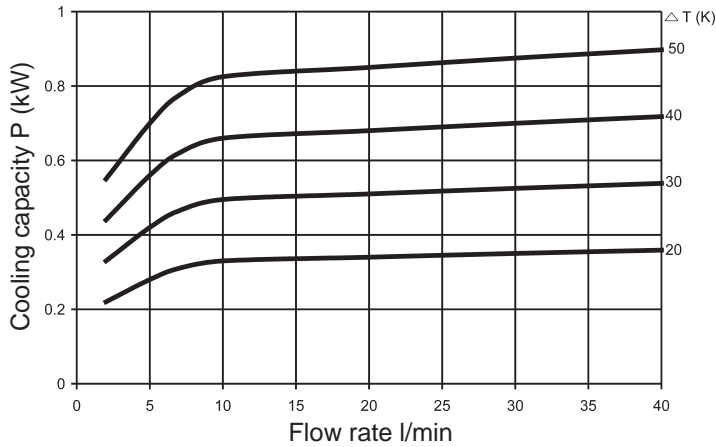
Subject to technical modifications.

### 2.3. HYDRAULIC SPECIFICATIONS

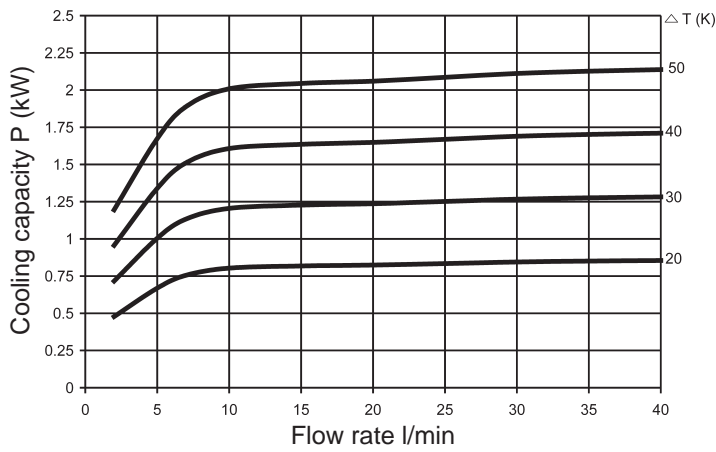
#### 2.3.1. Cooling capacity

Cooling capacity against oil flow rate **Q** and the temperature differential **T** between oil inlet and air inlet.  
Rpm of fan: 1430 1/min.

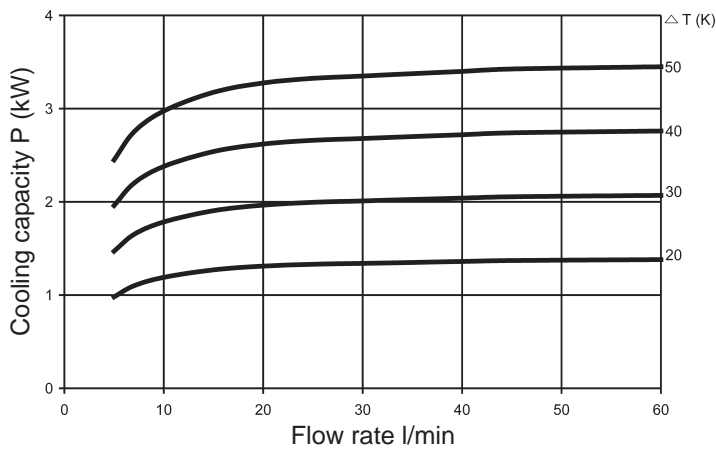
**PTK-200/PTK-2001**



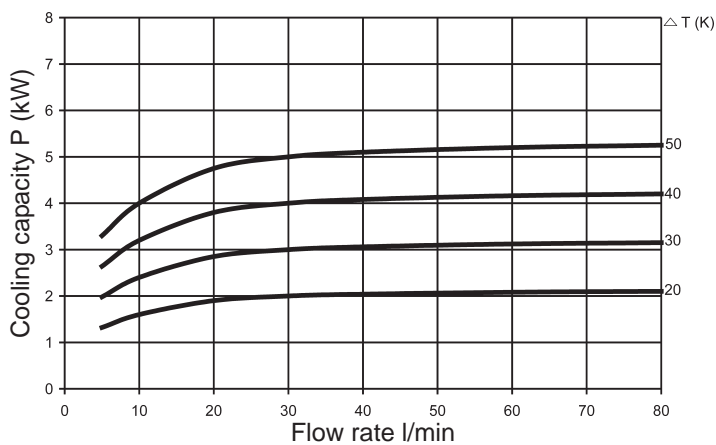
**PTK-250**



**PTK-300**



**PTK-350/PTK-3501**

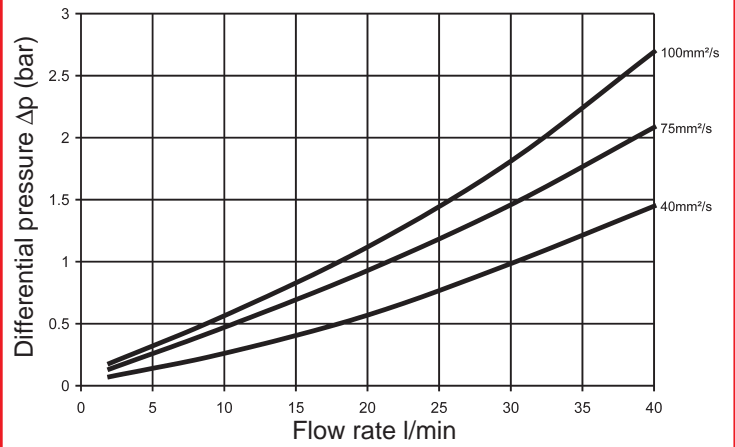


#### 2.3.2. Nominal flow rate

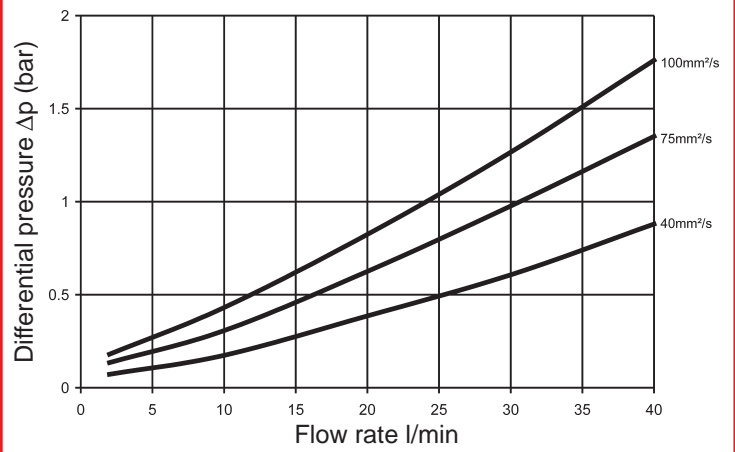
Flow direction: optional

Pressure differential  $\Delta p$  against flow rate **Q** and the viscosity of the oil.

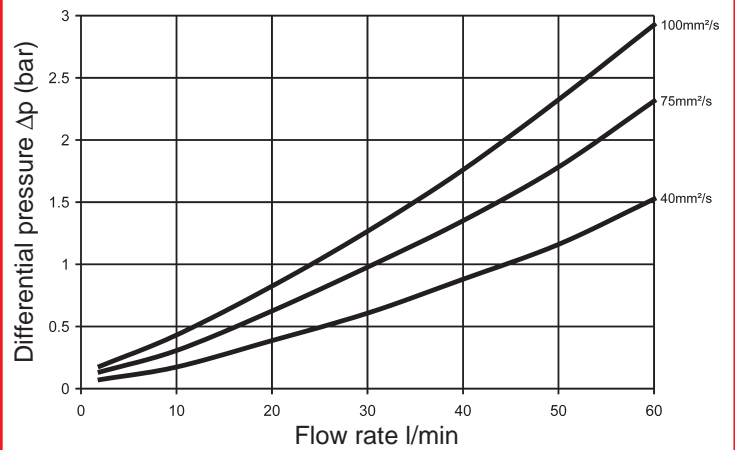
**PTK-200/PTK-2001**



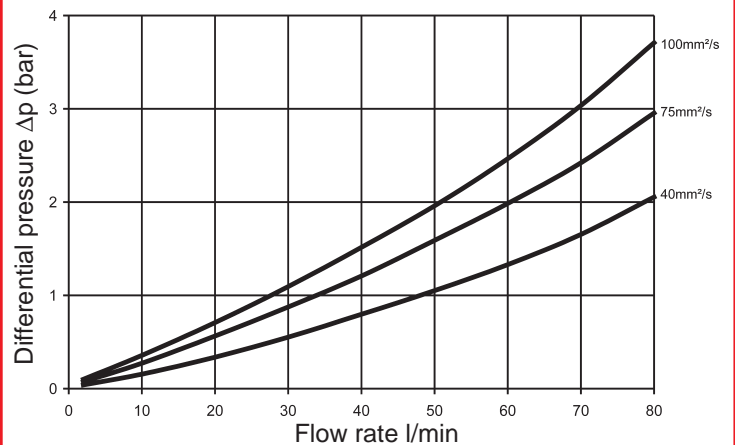
**PTK-250**



**PTK-300**



**PTK-350/PTK-3501**



### 3. MODEL CODE

PTK - 250 / 2.X / M / FL001 - E / F3

**Bell housing with flexible pump mounting and integral oil/air cooler**

**Nominal size:** IEC standard motor, type of construction B5, B35, V1, V15

Electric motor size	Output n=1430 1/min	Flange size PTK
80	0.55-0.75 kW	2001
90	1.1-1.5 kW	200
100/112	2.2-4.0 kW	250
132	5.5-7.5 kW	300
160	11.0-15.0 kW	350
180	18.5-22.0 kW	3501

**Modification number**

**M** = mineral oil (see point 2.2.1)

**Bore template code for pump connection,** See sizing program **PT-WIN**

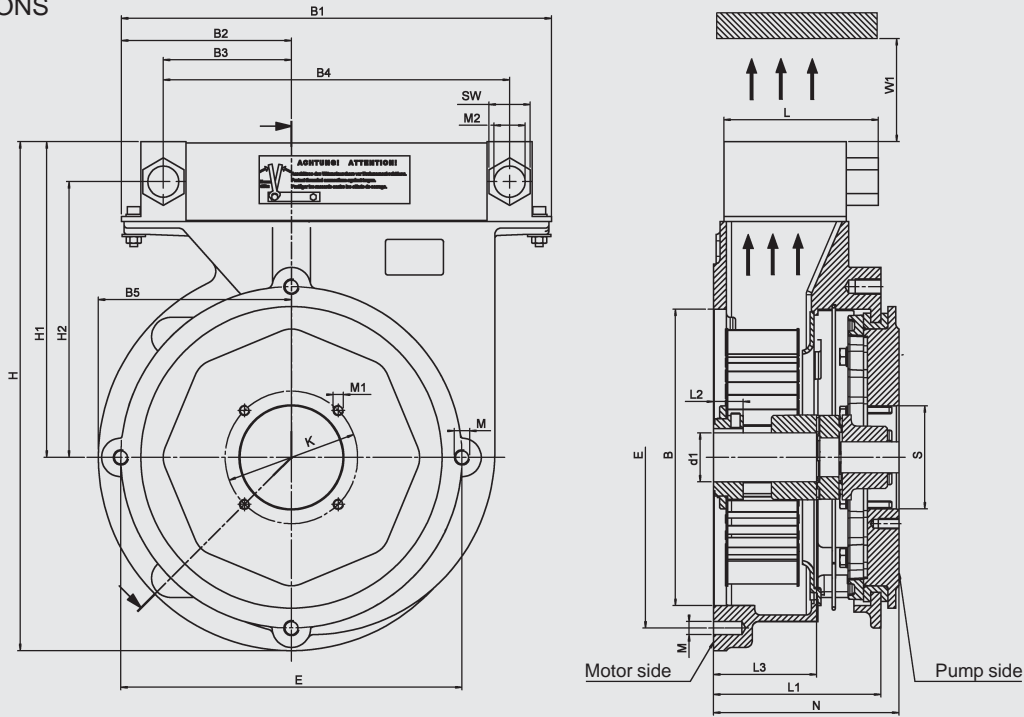
**Type of damping ring**

**E** = standard (see point 2.1.5)

**K** = for a higher load than that given in table at point 2.1.5

**Accessories: F3** = Bell housing foot bracket

#### 3.1. DIMENSIONS



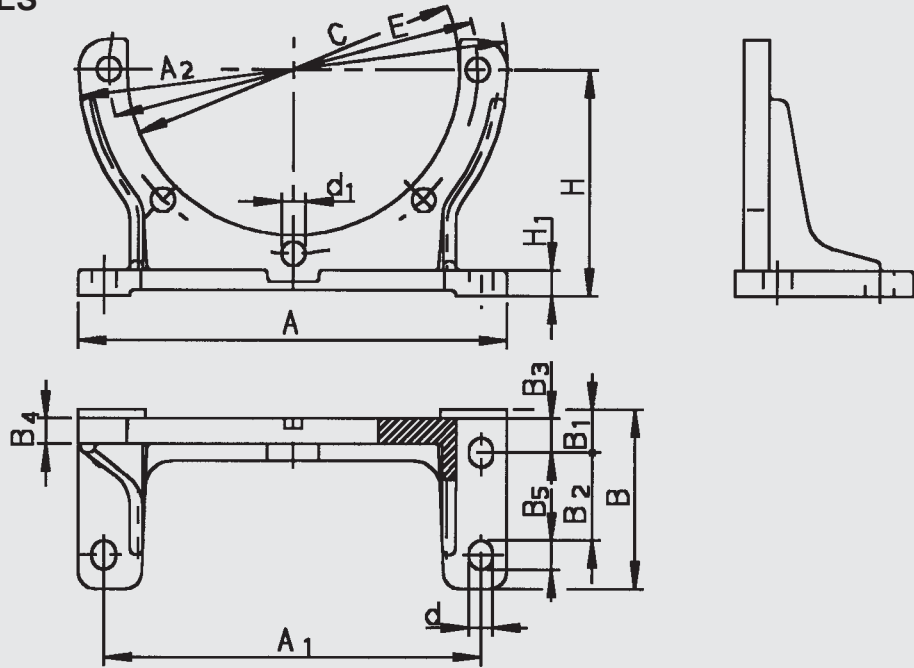
Electric motor size	Output at 1500 RPM kW	Electric motor Drive shaft d <sub>1</sub> x l <sub>3</sub>	PTK Nominal size	PTK Foot bracket	PTK Mounting plate	H	H1	H2	B	E	M	B1	B2	B3	B4	B5	SW	M2	L	L1	L2	min. W1
80	0.55	19 x 40	PTK-2001	PTFL-200	PP200	275	174	143	130	164	M10	260	110	77.5	195	100	32	G1/2	84	80	21	120
80	0.75																					
90 S	1.1	24 x 50	PTK-200	PTFL-250	PP250	327	197	166	180	215	M12	334	156	123.5	269	130	32	G3/4	120	105	23	160
90 L	1.5																					
100 L	2.2	28 x 60	PTK-250	PTFL-300	PP-300	395	245	214	230	265	M12	334	132	99.5	269	150	32	G3/4	120	130	23	200
112 M	4																					
132 S	5.5	38 x 80	PTK-300	PTFL-350	-	437	262	231	250	300	M16	334	102	69.5	269	175	32	G3/4	148	170	31	240
132 M	7.5																					
160 M	11	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
160 L	15																					
180 M	18.5	48 x 110	PTK-3501	PTFL-350	-	437	262	231	250	300	M16	334	102	69.5	269	175	32	G3/4	148	170	31	240
180 L	22																					

To determine the bore template code (dimension N, S, K, M1), please use our sizing program **PT-WIN**

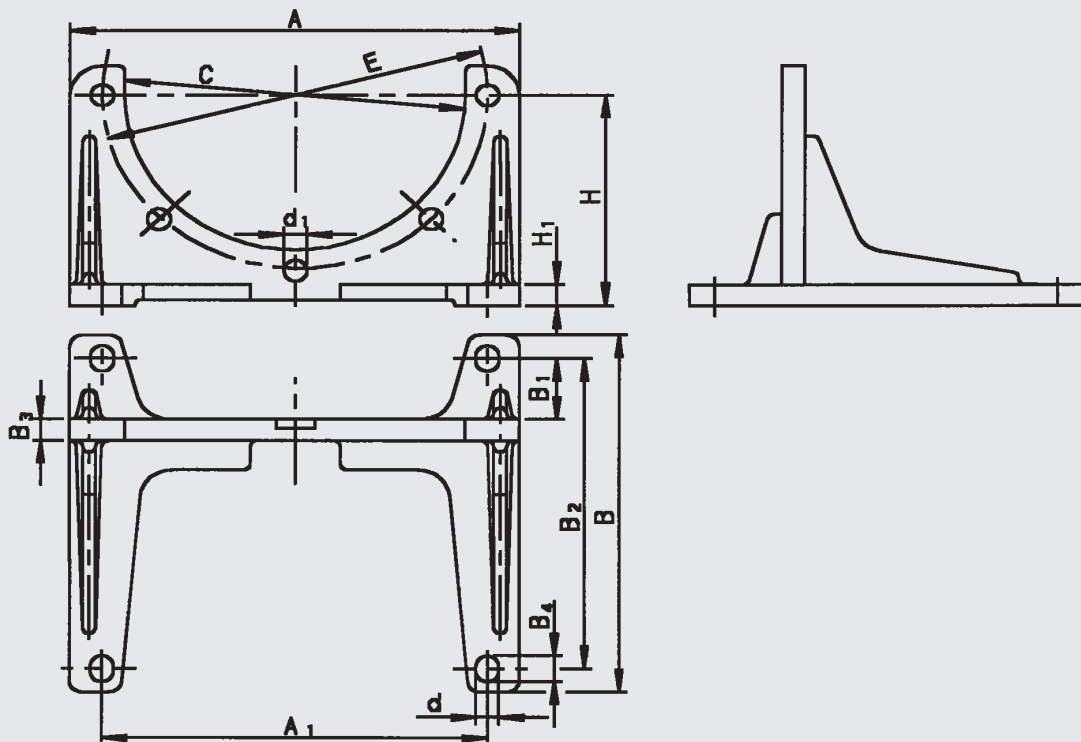
**Accessories:**

For bell housing foot brackets: (see page 5); for bell housing mounting plate, damping rails, damping rings, couplings: (see internet website)

## 4. ACCESSORIES



PTK	PTK	PTK	A	A1	A2	B	B1	B2	B3	B4	B5	H	H1	d	C	E	d1
PTK-2001	PTFL-200	953938	210	180	200	93	14	60	3	8	23	112	12	11	146	165	11
PTK-200																	
PTK-250	PTFL-250	3290117	250	220	-	110	25	60	25	19	22	132	15	14	190	215	14
PTK-300	PTFL-300	953710	290	260	300	120	19	80	19	15	32	160	15	14	240	265	14



PTK	PTK	PTK	A	A1	A2	B	B1	B2	B3	B4	B5	H	H1	d	C	E	d1
PTK-350	PTFS-350	953942	350	300	-	305	52	265	18	22	-	180	18	18	265	300	18
PTK-3501																	