



## COMPOUND BEARINGS

Compound bearings offer many possibilities to solve slide bearing problems. Unique material compounds make it possible to fit the properties to different circumstances.

Injection moulding is very economical and rational way to manufacture this kind of bearings. Thus the price level for this kind of bearings is attractive.

The compounding makes it possible to manufacture bearings with special properties for needed applications. In many cases it is possible to replace traditional metal bearings with compound bearings.

### **PDE: PBT+bronze+PTFE**

PDE-material has a very wide field of application and is used by us as a standard-material.

It is a base-polymer with part-crystalline structure and medium temperature-durability.

PDE is reinforced with synthetic fibre and compounded with PTFE as firm lubricant and bronze powder to strengthen the loading capacity but also to raise the heat-conductivity.

### **PBT: PBT+synthetic fibre+bronze+PTFE**

PBT-material is specially suitable for mechanical machining, e.g. reaming after mounting. The other properties are close to the standard-material PDE.

### **PPA: PPA+fibre+bronze+PTFE**

PPA-material makes it technically possible to replace 3-layer bearings, type WICO or SBP (POM/steel).

The PPA-material can be used in a higher field of temperature than standard PDE. The base-polymer is a thermoplastic with an unusual combination of strength, resistance of temperature and wear.

The material is strengthened with synthetic-fibre and bronze powder to reinforce the loading capacity but also to increase the heat extraction capacity.

The PTFE-additive is acting as a firm lubricant

### **PBTL: PBT+long fibres+bronze+PTFE**

PBTL-material has quite similar properties as PBT. The difference is the long synthetic fibres instead of short ones.

### **PPS: PPS+long glass fibres+PTFE**

PPS-material is a material with a high load capacity. PPS is a rather economical alternative compared with PEEK.

The high pv-value and the low water absorption makes this material suitable to use in many applications.

### **PEEK: PEEK+carbonfibre+graphite+PTFE**

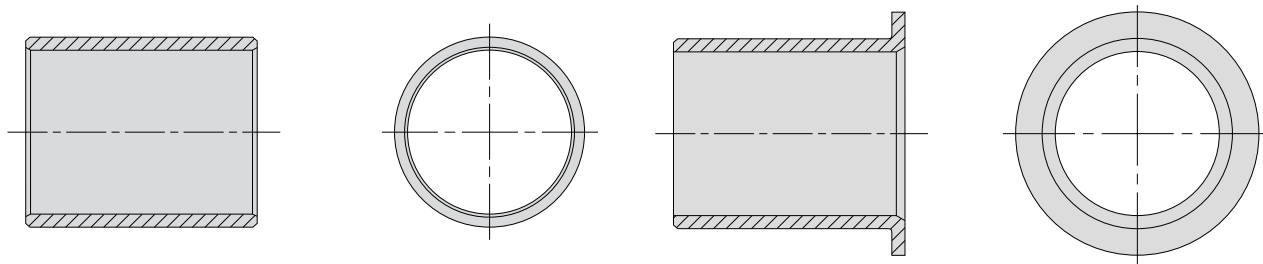
PEEK-material should be used when very high demands are made for this type of bearings. It is almost chemically resistant.

Concerning durability against as well high as low temperatures during long time of use this thermoplastic material has the highest values possible to procure.

PEEK can also stand a great load even during extreme conditions. This high-temperature resistant base-polymer is a part-crystalline thermoplastic with a special addition of coal-fibre and PTFE.

### **POM: POM**

POM-material is accepted to use in medicine- or food industry. POM-material is quite an economic material and can be used in many standard applications.



## Material data

Designation	Unit	PDE	PBT	PPA	PBLT	PPS	PEEK	POM
Thermal conductivity	W/(mK)	0,26	0,27	0,40	0,26	0,34	0,60	0,32
Linear coefficient of expansion	10 <sup>-7</sup> / m x K	1,4	1,3	2,5	2,5	3,0	3,0	12,0
Dynamic range of temperature	°C max	-50/ +100	-50/ +130	-40/ +150	-50/ +135	-40/ +200	-100/ +250	-40/ +80
Maximum temperature	°C max	150	200	280	200	260	310	140
Density	g/cm <sup>3</sup>	1,65	1,46	1,48	1,73	1,74	1,53	1,52
Moisture absorption capacity	%	0,10	0,15	0,70	0,30	0,05	0,10	0,65
Tensile strength	N/mm <sup>2</sup>	65	100	190	140	155	150	50
E-modul	N/mm <sup>2</sup>	2800	4200	5800	6400	13000	6500	2500
Permitted surface load	N/mm <sup>2</sup>	70	80	130	90	120	150	60
Permitted speed of rotation	m/s	1,0	1,0	1,2	1,2	1,2	1,5	1,0
Permitted linear speed	m/s	3,0	4,0	4,5	4,5	4,5	5,0	4,0
pv-value max	N/mm <sup>2</sup> x m/s	0,8	1,0	1,5	1,1	2,6	3,5	0,6
Dynamic friction/ steel	μ	0,08 - 0,15	0,10 - 0,13	0,09 - 0,23	0,08 - 0,20	0,15 - 0,30	0,10 - 0,20	0,07 - 0,15
Colour		brown	olive	redbrown	grey	pale brown	black	white

## Chemical resistance

Examples of some mediums.

+ = Constant

/ = Limited constancy

- = Not constant

Medium	PDE	PBT	PPA	PBLT	PPS	PEEK	POM
Acetone	+	-	+	+	+	+	+
Petrol	+	+	+	+	+	+	+
Hydraulic brake fluid	+	+	+	+	+	+	+
Ethanol	+	+	/	+	/	+	+
Hydraulic oil	+	+	+	+	+	+	+
Methanol	+	-	+	+	+	+	+
Mineral oil	+	+	+	+	+	+	+
Motor oil	+	+	+	+	+	+	+
Aqua fortis 10%	-	-	-	-	-	+	/
Chlorhydric acid	-	-	-	-	-	+	/
Lubricating greases	+	+	+	+	+	+	+
Water	+	+	+	+	+	+	+

### Benefits:

- Designed to work even without lubrication.
- Can be used in difficult circumstances.
- Unique properties with different compounds.
- No water absorbtion.
- Economical.

### Special:

- Many different compounds with unique properties
- In- or outside lubrication grooves.
- Bearings with integrated seals.
- Other positions of tolerance.
- Flat and spherical thrust washers.
- Drawing details.

### Type of applications:

- Pumps.
- Agricultural machines.
- Hoisting equipment.
- Food industry.
- Furniture industry.
- Paper industry.