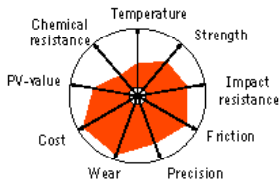


Basic type ZX-100K

Characteristics

- hard, stiff, tough
- high fatigue strength
- good resistance to weathering
- resistance to stress cracking
- good machinability
- bondable and weldable
- FDA compliant, LABS compliant
- PTFE- and Silicone-Free
- KTW approved
- low-outgassing
- notch-sensitive

ZX-100K



Resistance

- UV-radiation**
(1000 hours Xenon DIN 53597)
tensile strength: -25%,
elongation at break: -43%
- Gamma-radiation**
limit absorbed dose 1200 kGy
- Chemicals, resistant**
aromatic and aliphatic hydrocarbons, weak acids and alkalis
- Chemicals, not resistant**
strong acids and alkalis, phenols, cresols
- Lubricants and fuels**
resistant
- Water**
max. water absorption: 0,3%
dimensional changes: 0,1%
up to max. 80°C resistant
- Fire behavior**
oxygen index (LOI): 24%,
classification: HB (UL94)

Operational parameters*

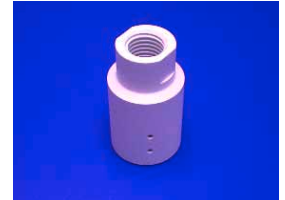
- Temperature (T)**
-100°C to +110°C (+140°C)
- Surface pressure (p)**
max. 35 (75) MPa
- Sliding speed (v)**
max. 100 m/min
- Fatigue (S)**
tensile fatigue strength at 20°C and 10⁶ stress cycles,
1 Hz = 52 MPa

Impacts, vibrations, edge loading, outdoor use, underwater use. Allround-plastic up to 110°C.

Available as:

- plastic granules
- rods
- tubes
- sheets
- machined parts
- plain bearing bushes according to DIN

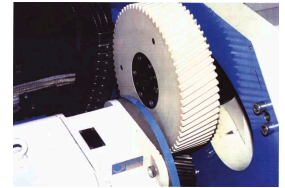
Examples of usage



A trapezoidal thread nut (TR40) carries more than 5t, for Kfz-lifting platforms. ZX-100K is placed without backlash in actuating units.



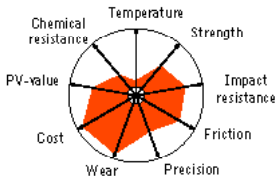
Glue can be easily removed from the ZX-100K mould wiper.



ZX-100K, with a modulus (m) = 5 mm, transmits 38 kW in a dry running condition.

Modified ZX-100

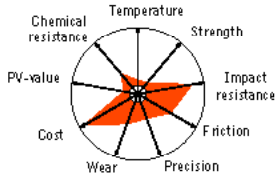
ZX-100A



Strong amorphous structure
tougher, more elastic, softer, only injection moulding possible, reduced precision.

- T: -100°C to +55°C (+75°C)
- p: max. 20 (60) MPa
- v: max. 40 m/min
- S = 40 MPa
- low-cost solution for large-scale manufacturing, with low precision and temperature requirements.

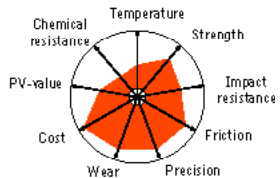
ZX-100EL55
ZX-100EL63



Elastomer-modified
rubbery, grip, soft elongation >300%, high impact absorption, high impact resistant
ZX-100EL63 (63 Shore D)
ZX-100EL55 (55 Shore D).

- T: -50°C to +55°C (+75°C)
- p: max. 3 (10) MPa
- v: max. 10 m/min
- S = 9 MPa
- solution for stressed parts subject to strong abrasive wear and erosive wear.

ZX-100MT



Mineral-reinforced
stiffer, harder, ultra-high strength, no fibre reinforcement.

- T: -40°C to +80°C (+130°C)
- p: max. 28 (85) MPa
- v: max. 150 m/min
- S = 42 MPa
- low-cost solution for heavy-stressed parts up to 80°C and low sliding speed.



ZX-100K drives plungers with a peak load of 120MPa and with 1µm thickness tolerance. It is used as main bearing of the measuring devices.



ZX-100K is mounted on water-use-pumps up to 1000 kW, chassis of trucks and excavators, and it works in a rough and dirty condition.

*Values in the brackets, are valid for short-term service

Substitution examples

Which material can replace the ZX-100K?

Bronze/Sintered bronze
up to 60°C universal replaceable; the strength must be tested

Targets: cost reduction, friction and wear reduction, dry running condition, corrosion prevention.

PEEK

taking into account the temperature and the chemical resistant required, replaceable.

Targets: cost reduction, wear reduction, increment of the PV-value.

Polyamide

Targets: friction and wear reduction, load increment, increment of the resistance to atmospheric and chemical corrosion. Prevention of strength decrements and volume variations through the moisture absorption.

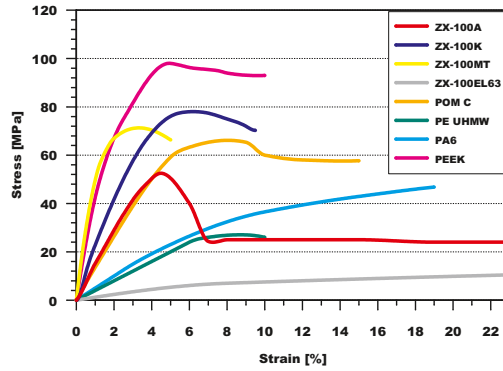
POM

Targets: friction and wear reduction, load increment, increment of the resistance to weathering, prevention of volume variations through the moisture absorption. It prevents the outgassing of the formaldehyde in case of fire.

PE UHMW

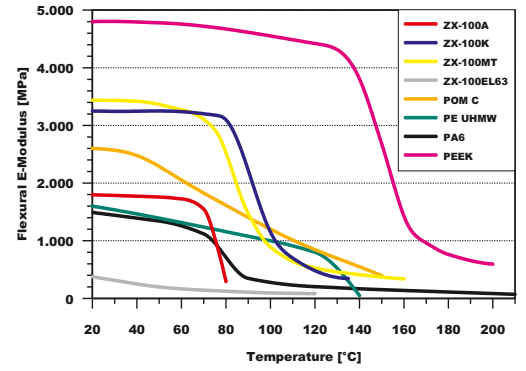
with strong abrasive wear not replaceable
Targets: wear reduction, load increment, stiffness increment, increment of the operating temperature range.

Stress/Strain (ISO 527)



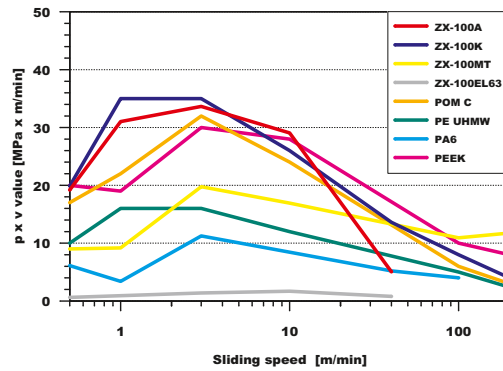
ZX-100K is stiffer and stronger than POM, PA oder PE UHMW, similar elongation at break as PEEK. ZX-100MT reacts up to 60 MPa like PEEK.

Flexural E-Modulus (ISO 178)



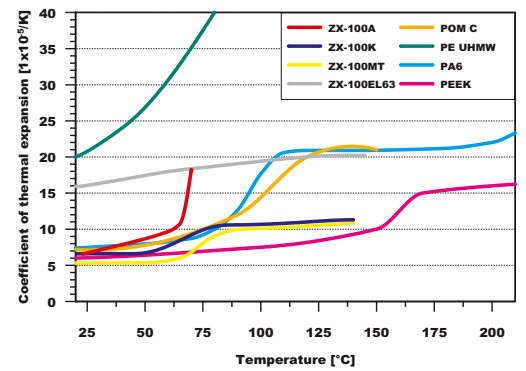
ZX-100K loses, up to 90°C, just a little part of its stiffness. The stiffness decrement of the plastic materials, during elevated temperature, must be taken into consideration.

Admissible PV-value



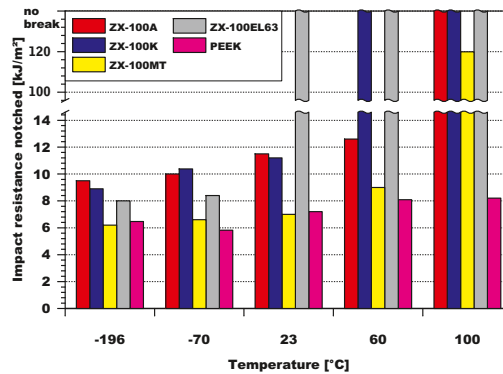
ZX-100K, up to 10 m/min sliding speed, has got a higher PV-value than PEEK. PEUHMW, PA6 are for applications with dynamic friction less appropriated.

Thermal expansion coefficient (ISO E830)



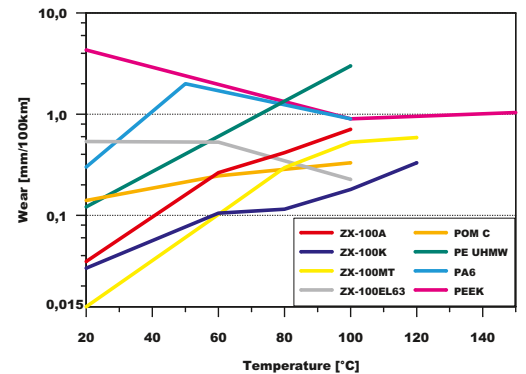
The thermal expansion coefficient of the ZX-100K is smaller than the one of POM, PE UHMW and PA6. Precision applications are possible.

Impact resistance notched (ISO179/1eA)



Elastomer modified ZX-100EL63 has got the highest Charpy v-notch test result. ZX-100K and ZX-100MT lie in the same level of PEEK.

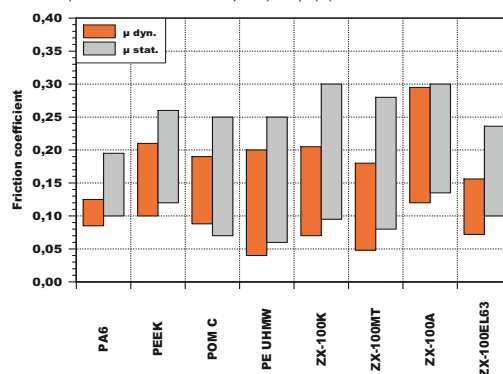
Wear



ZX-100K, depending on temperature, is 3 up to 100 times more wear resistant than PEEK. The bearing type POM C9021 SW is 2 to 3 times worse than ZX-100K.

Coefficient of friction in dry running

25-100°C, on X5CrNi18.9 hard-chrome plated, Rz 2µm, 0,5-5 MPa



Coefficient of friction with oil lubrication

25-100°C, on X5CrNi18.9 hard-chrome plated, Rz 2µm, 0,5-5 MPa, oil: OL-J46 DIN 51502

