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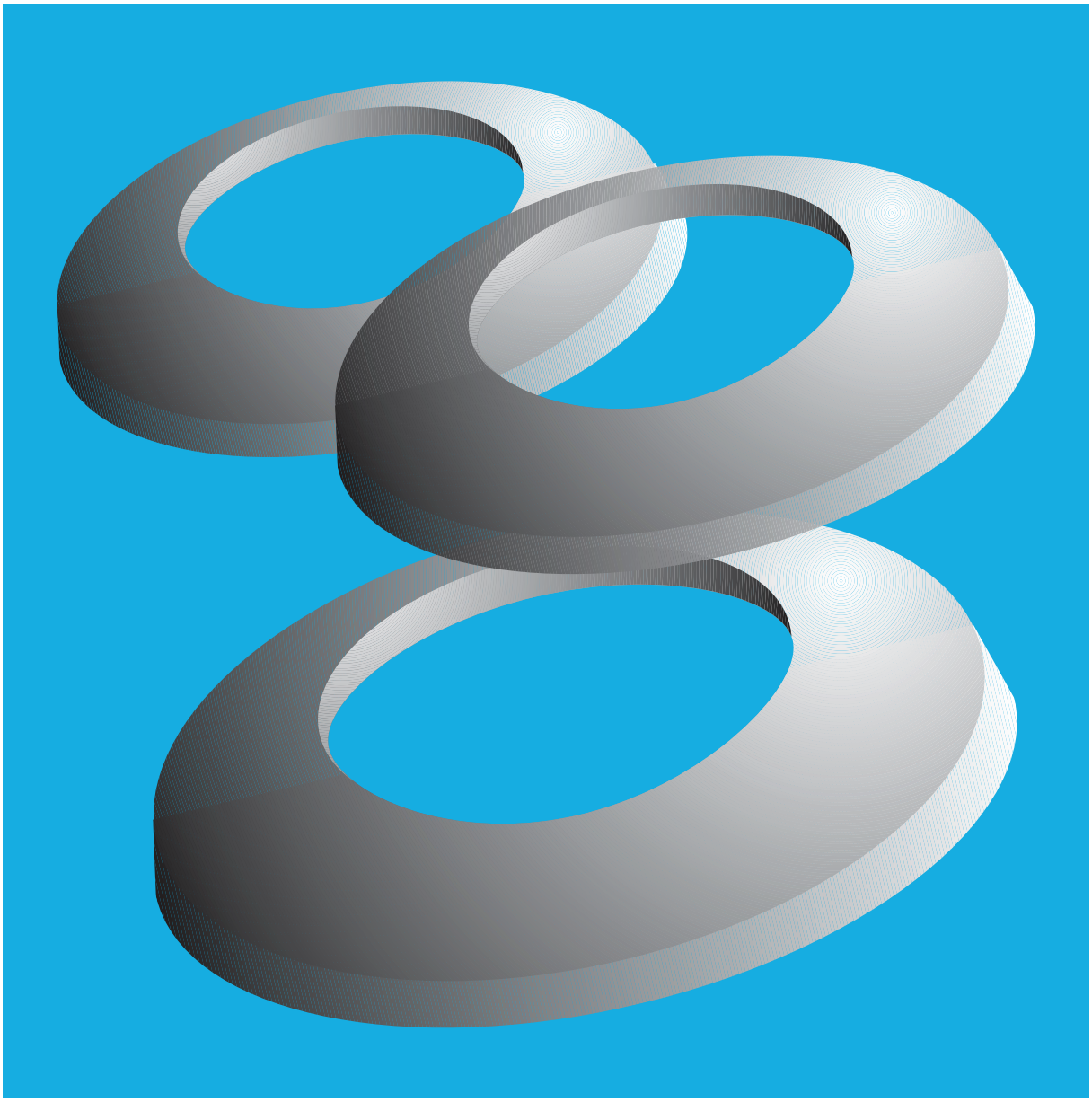


Polysorb – Polymer Disc Springs

Compensation for axial clearances and manufacturing tolerances

Vibration dampening

Noise dampening

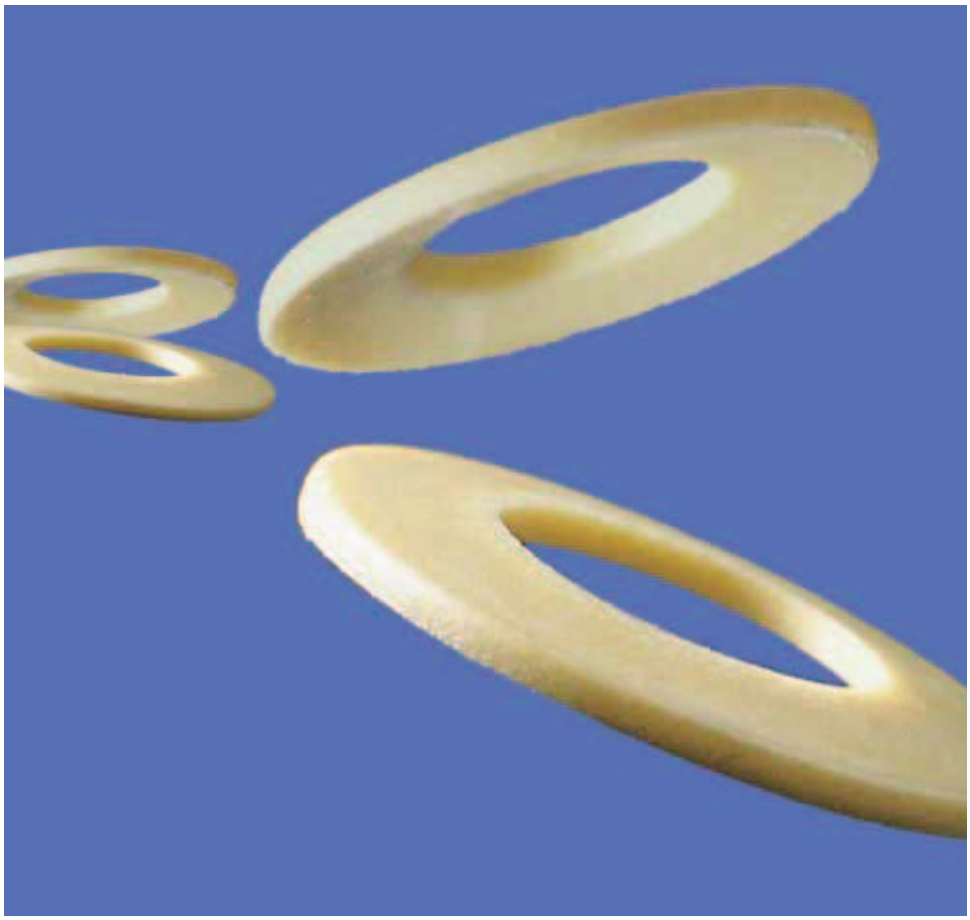
Corrosion-free

Light weight

Polysorb | **Polymer Disc springs**

Spring washers are discs that can be axially loaded, which are concave in the axial direction on the plate surface. Polysorb disc springs require less space than other spring types. They are especially suitable for designs that do not require a high spring length.

1 style
> 5 dimensions
Ø 10–40 mm



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igus® GmbH
51147 Cologne

Material:
iglidur® J
▶ chapter 3

Picture 35.1: Polysorb disc springs in a fatigue test

Polymer Disc Springs

When to use Polysorb disc springs:

- Application requires flat spring characteristics which are only possible in metal at a considerable expense (slotted design)
- Compensation of axial clearances and manufacturing tolerances
- Vibration dampening
- Noise reduction
- Non-magnetic
- Electrical and thermal insulation
- Corrosion resistance
- No lubrication necessary
- Very light weight
- Very low profile dimensions
- Maintenance-free

When not to use Polysorb disc springs:

- When constant spring forces are necessary over wide temperature ranges
- When high spring forces are desired

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/polysorb

Spring washers are discs that can be axially loaded and which are concave in the axial direction on the plate surface. Polysorb disc springs require less space than other spring types. They are especially suitable for designs that do not require a high spring length as the spring length of a disc spring is relatively small. In practice, a number of disc springs are combined

Disc springs that are alternately stacked increase the spring length proportionally to the amount of springs. The total spring force is as large as the force of one single disc spring. In order to increase the force, the disc springs can be parallel stacked to form a spring packet. Please contact us if you have any questions regarding the stacking of Polysorb disc springs.

Chemical Resistance

Polysorb disc springs are resistant to diluted alkalines and very weak acids, as well as against fuels and all types of lubricants. The low moisture absorption permits the use in wet or moist environments.

Moisture Absorption

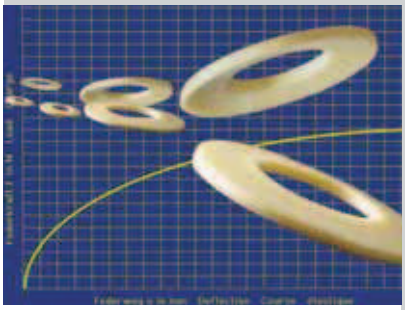
Polysorb disc springs absorb moisture and in the process their mechanical properties change. However, in the worst application case – a long term use in water – Polysorb disc springs still have a maximum spring force of 10 N.

Increased Temperatures

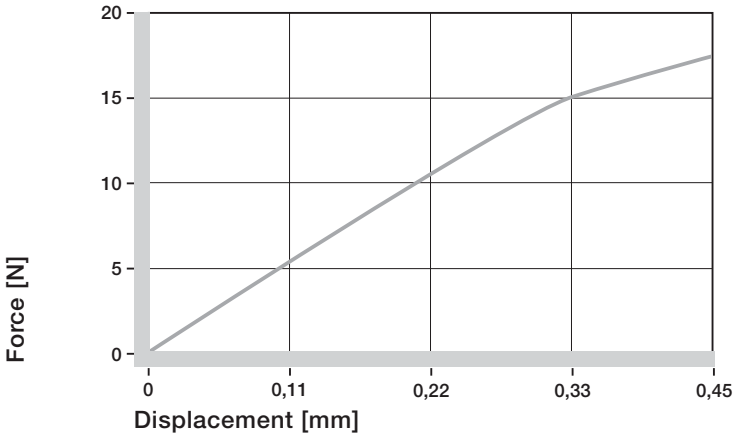
Increased temperatures reduce the rigidity of polymers. Polysorb disc springs still have a maximum spring force of 8 N at the maximum permissible temperature of 80° C. The spring force against ambient temperature is shown in Graph 35.2.

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

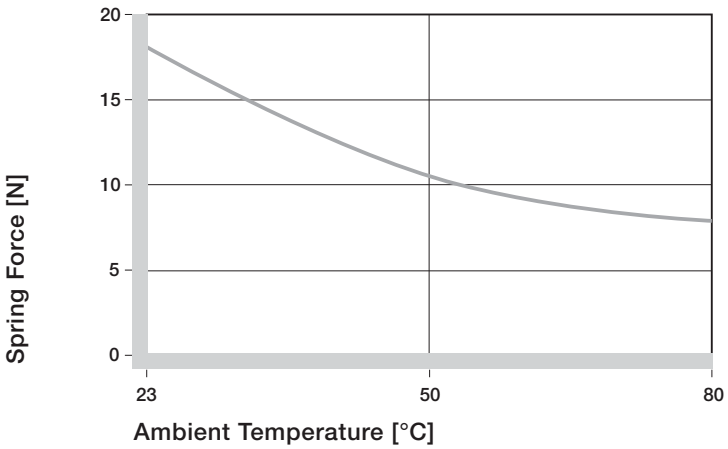
Table 35.1: Chemical resistance of Polysorb



Picture 35.2: Polysorb disc springs



Graph 35.1: Experimental test results between the force ratio $F/F_{1.0}$ and the spring length ratio S/h_0 ($S_{1.0} = H_0$), using part number JTEM-10



Graph 35.2: Effect of ambient temperature on the spring force, using part number JTEM-10

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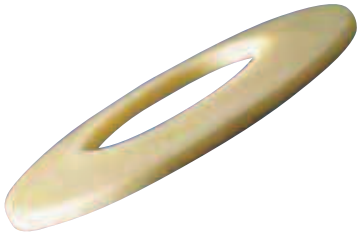
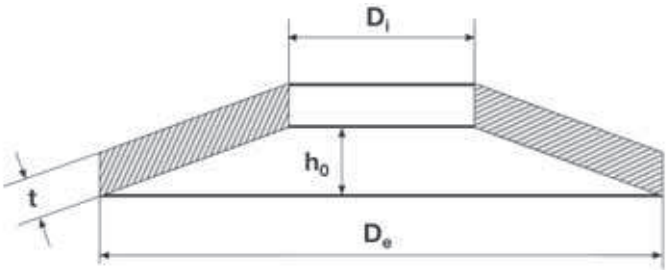


Data in mm

Structure – part no.

J T E M-05

- d1
- Metric
- „Elastic spring“
- Disc spring
- iglidur® J



Dimensions based on DIN 2093

Part No.	Standard Values: Spring Lengths and Forces											
	D_e [mm]	D_i [mm]	t [mm]	h_0 [mm]	$S_{0,25}$ [mm]	$F_{0,25}$ [N]	$S_{0,5}$ [mm]	$F_{0,5}$ [N]	$S_{0,75}$ [mm]	$F_{0,75}$ [N]	$F_{1,0}$ [N]	M [g]
JTEM-05	10,0	5,2	0,5	0,25	0,06	1	0,13	2,4	0,19	3,6	5	0,04
JTEM-06	12,5	6,2	0,7	0,30	0,08	3	0,15	5,1	0,23	8	12	0,11
JTEM-08	16,0	8,2	0,9	0,35	0,09	4	o,18	8	0,28	11	12	0,20
JTEM-10	20,0	10,2	1,1	0,45	0,11	5	0,22	10	0,33	15	18	0,33
JTEM-12	25,0	12,2	1,5	0,55	0,14	9	0,28	18	0,42	27	35	0,85
JTEM-16	31,5	16,3	1,75	0,70	0,18	15	0,35	32	0,53	51	70	1,44
JTEM-20	40,0	20,4	2,25	0,90	0,23	35	0,45	70	0,68	110	140	3,10

The standard values for the spring lengths and forces are rounded mean values

Symbols and Units:

F = Force
S = Spring length
D_e = Outside diameter [mm]
D_i = Inside diameter [mm]
t = Plate thickness [mm]
h_0 = Maximum spring displacement [mm]
$S_{0.25}$ = 25% of max. spring displacement [mm]
$F_{0.25}$ = Spring force 25% displacement [N]
$S_{0.5}$ = 50% of max. spring displacement [mm]
$F_{0.5}$ = Spring force 50% displacement [N]
$S_{0.75}$ = 75% of max. spring displacement [mm]
$F_{0.75}$ = Spring force 75% displacement [N]
$F_{1.0}$ = Spring force 100% displacement [N]
M = Mass of one disc spring [g]

Order example

Our prices are staggered by the amount of your order.

1– 9	50– 99	500– 999
10–24	100–199	1000–2499
25–49	200–499	2500–4999

For the actual prices please visit the igus®-Homepage www.igus.de/en
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