Gaskets

Vulkocell®

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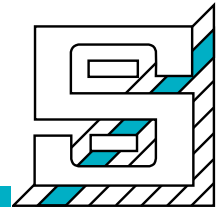Internet: www.pus-polyurethan.de
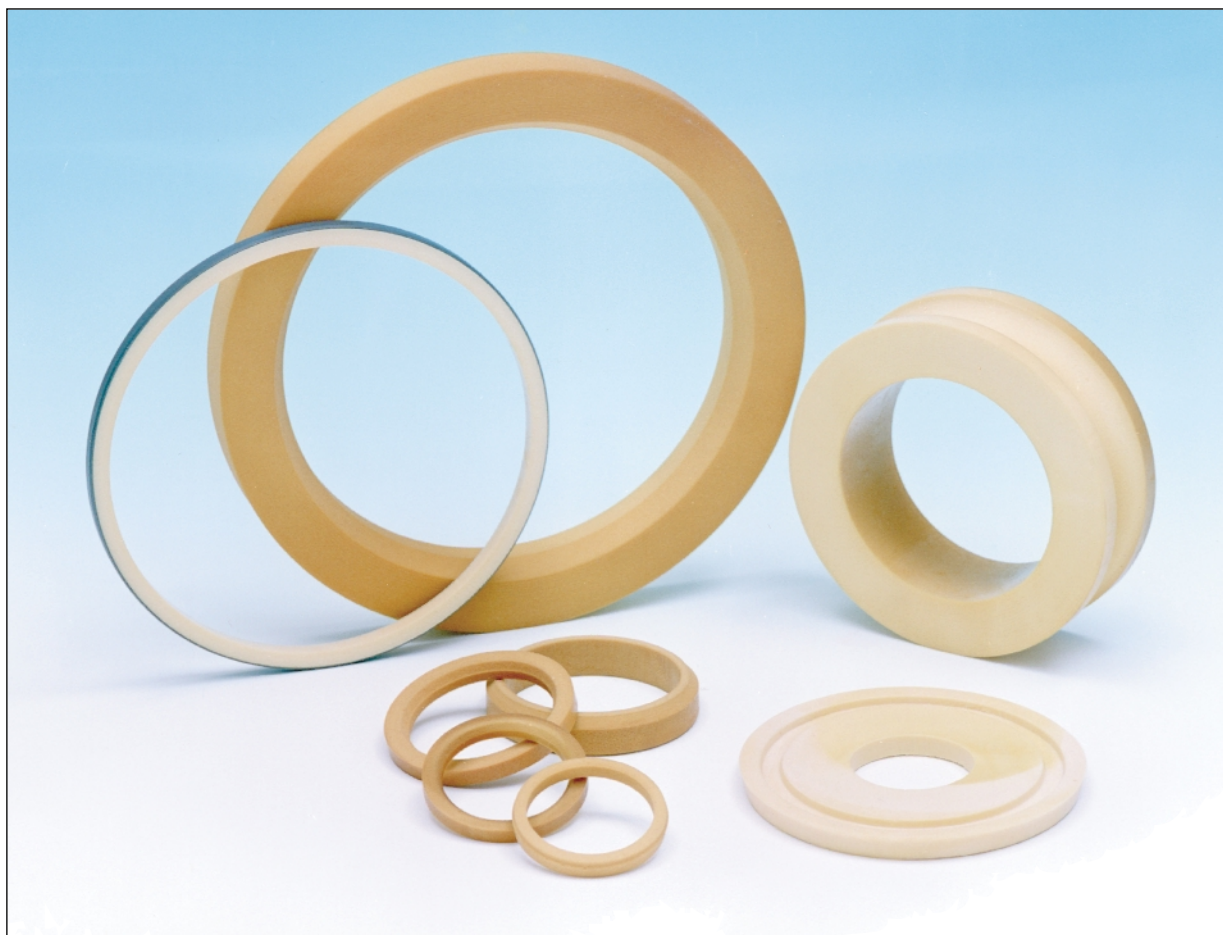
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Vulkocell® is a cellular polyurethane elastomer which was developed especially for technical applications; it is particulary suitable for damping and sealing elements – above all for gaskets. Vulkocell® gaskets in square and rectangular cross section are mainly used for the sealing of bearings of various designs where they serve as dirt and dust barriers and as noise and vibration insulators. When Vulkocell® gaskets are oil impregnated they become completely self-lubricating and therefore provide life long maintenance – free service.

Properties

● Unlike O-Rings and lip contact gaskets which only provide a single "line" seal, Vulkocell® gaskets have a large surface area contact and very high strength, they therefore remain completely effective even under the roughest conditions, e.g. tractors and construction machinery.
● Vulkocell® gaskets are compressible up to 80 % and therefore allow very large oscillating movements such as those found in universal joints and pivoting bearings.
● Working tolerances – When using Vulkocell® as a seal on the apertures for cables, bearings, shafts, etc. it is possible to enlarge the tolerances considerably since the compressibility of Vulkocell® will always ensure an effective seal.
● The easy deformation of Vulkocell® gaskets enables a rapid and improblematic assembly even in the most difficult cases.
● The low compression set properties of Vulkocell® guarantee a long operational life even under high deformation frequencies and this is further enhanced by its resistance to oils and greases (see details).
● Oil and grease impregnated gaskets enable the automatic lubrication of the bearins and they increase the sealing power against dust etc.
● The physical properties of Vulkocell® may be seen in publication no 200/1.

The following information is given for the design, installation and construction of Vulkocell® gaskets. The installation of Vulkocell® gaskets is made in the same simple way as round cord or O-Ring gaskets. The dimension required for Vulkocell® gaskets are as follows.

1. Radial Gaskets

Vulkocell® gaskets in this type of application should be subject to a pre-loading of 10 % more than the maximum deflection of the moving parts, for this reason the diameter of the seal for shafts should be 5 % smaller than the shaft diameter and the outside dimensions should be 5 % larger that the gasket groove.

The maximum allows static pre-loading of Vulkocell® elements can be approx. 30 % to 35 % where a compression set of 6 % to 10 % can be expected.

Owing to the elasticity of Vulkocell® the diameter tolerance and the mismatch of the shaft diameter and the grooves may be relatively large, however, the peak to valley height of the machined surface on parts to be sealed should not exceed 0.005 mm at the tight joint.

It must be kept in mind that the impregnation of Vulkocell® gaskets with grease will reduce the friction loss by approx. 50 %.
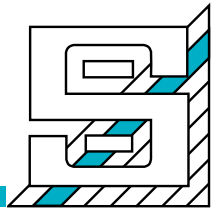
2. Axial Gaskets

Where the Vulkocell® component is intended to seal axial movement of a shaft or other component the length of the seal must be 10 % longer than the maximum pitch achievable by the moving parts. When all components are moved to their minimum pitch the compression of the Vulkocell® component must not exceed 80 % as damage will result.

In cases where Vulkocell® is required to be compressed to a high degree (max. 80 %) care should be taken to ensure that the frequency of oscillation remains low, otherwise the temperature rise within the Vulkocell® could be suffcient to-burn it. There is a similar risk attached to seals on rotating shafts and in these cases lubrication should be employed.

In designing seals for universal joints the same principles should be employed, care must be taken to ensure that at maximum deflection there is still a 10 % pre-loading on the one side while avoiding an 80 % compression of the opposing side.

It is necessary to ensure that the Vulkocell® has the required space for lateral expansion when compressed, i.e. 30 % of wall thickness for a maximum compression of 80 %.
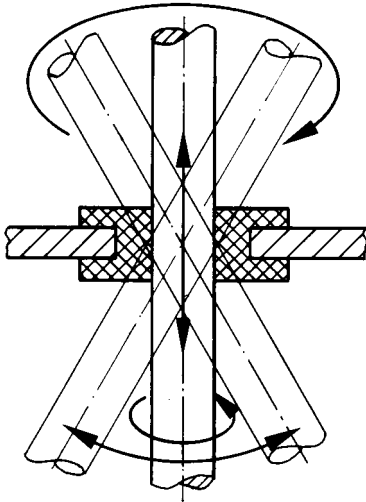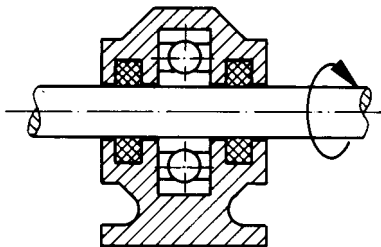
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Applications

2. Axial gaskets
for sealing machine parts with reciprocating move-
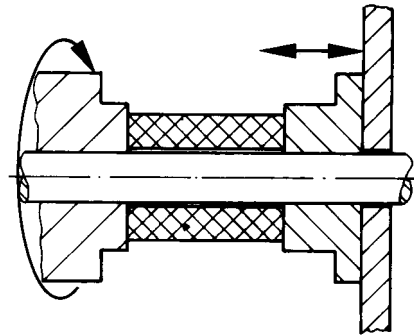ments and/or rotating movement.

1. Radial gaskets
for internal and external diameters
Sealing, guiding, sound absorption, oscillation, dam-
ping for shafts and rods with axial and/or slowly
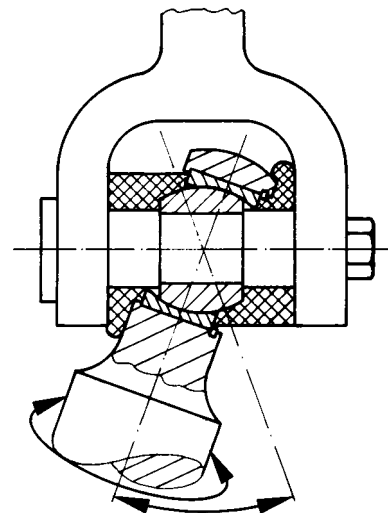rotating and/or oscillating movement.
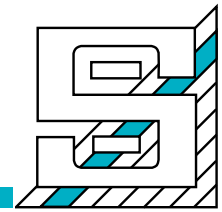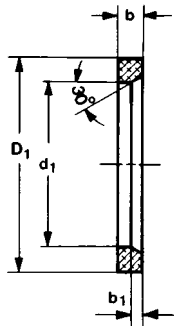

For sealing rotating shafts.

Sealing of pivoting bearings and spherical heads
with rotating and/or rotating movement.

Vulkocell®

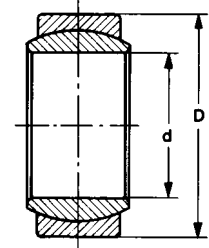## Gaskets for radial – pivoting bearings

DIN 648 Part 1
Dimension series E

Specific density 0,45 g/cm³
(Other hardness on request)

d 1	D 1	b	b 1
6.5	10	3	1.5
8	12	3	1.5
8	12	3	1.5
10.5	14	4	2
13.5	17	4	2
15	20	4	2
18.5	24	4	2
21	28	5	2.5
24.5	33	5	2.5
29.5	40	5	2.5
34.5	45	5	2.5
40	53	6	3
45	60	6.5	3.5
51	65	7	3.5
56	72	7.5	3.5
67	87	9	4
78	101	9	4
89.5	116	10	5
98	126	12	6
110	145	16.5	8
122	155	16.5	8
130	173	15	7.5
156	202	16	8
172	222	18	9
200	250	18	9
215	280	25	12
240	310	25	12
266	328	25	12
290	358	25	12
314	390	25	12
337	418	28	14
345	361	25	14
410	460	25	15
452	522	25	15

Rated Quality	d	D	Order No.
4	4	12	280000444
5	5	14	280000544
6	6	14	280000644
8	8	16	280000844
10	10	19	280001044
12	12	22	280001244
15	15	26	280001544
17	17	30	280001744
20	20	35	280002044
25	25	42	280002544
30	30	47	280003044
35	35	55	280003544
40	40	62	280004044
45	45	68	280004544
50	50	75	280005044
60	60	90	280006044
70	70	105	280007044
80	80	120	280008044
90	90	130	280009044
100	100	150	280010044
110	110	160	280011044
120	120	180	280012044
140	140	210	280014044
160	160	230	280016044
180	180	260	280018044
200	200	290	280020044
220	220	320	280022044
240	240	340	280024044
260	260	370	280026044
280	280	400	280028044
300	300	430	280030044
320	320	440	280032044
380	380	520	280038044
420	420	560	290042044

The above information is given in good faith, it is derived from our experience and best knowledge. There is no guarantee expressed or implied that adherance to these guidelines will lead to satisfactory performance, each application should be tested individually.