



SEMIFINISHED PRODUCTS FROM TARFLEN - PTFE

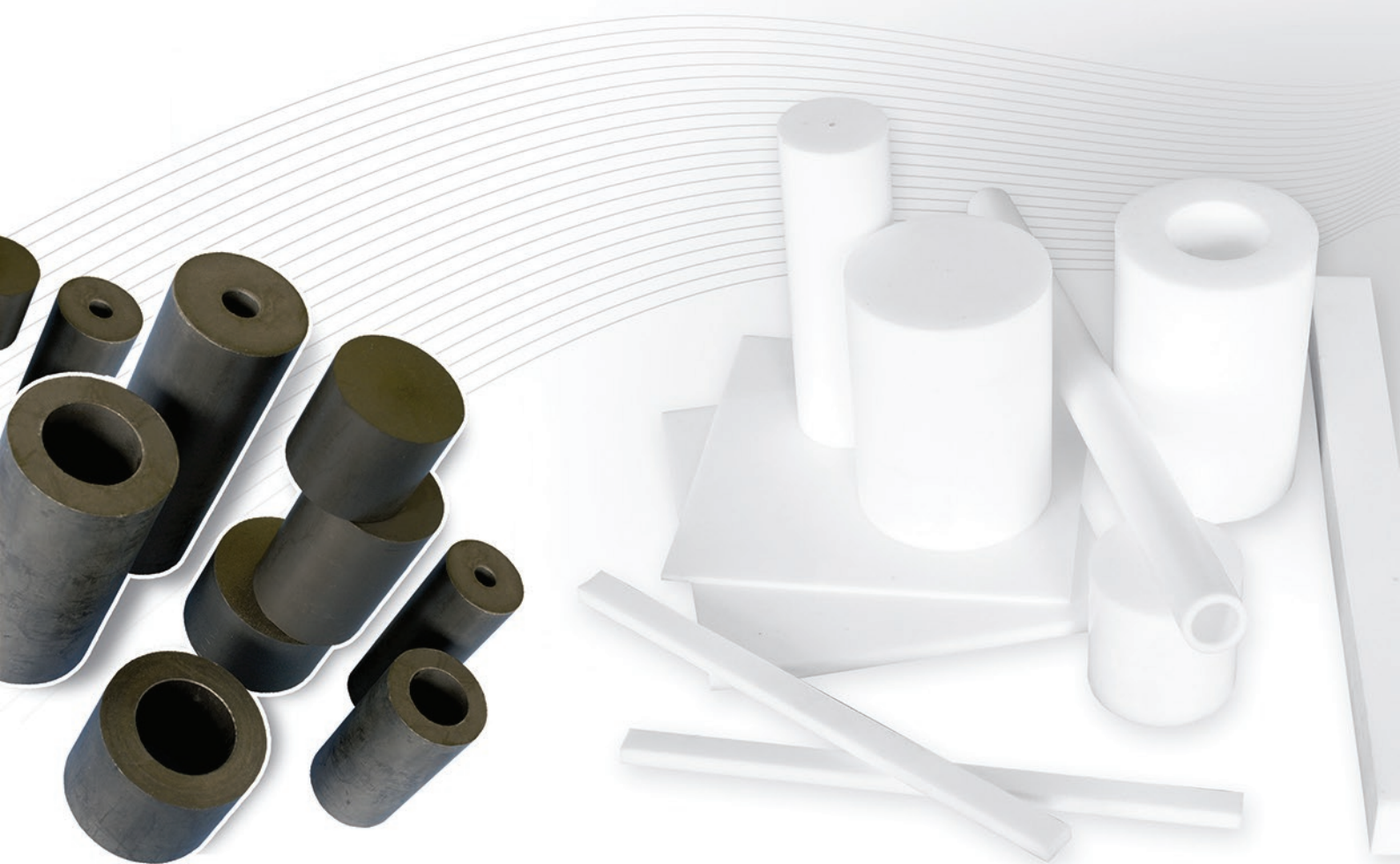


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TARFLEN

Tarflen – is a trade name of polytetrafluoroethylene (PTFE), fluorine plastic with unique properties, indispensable in many areas of modern industry. The origins of its production and processing in the Zakłady Azotowe in Tarnów back to the early 70-ies of the last century. Our company in June 2013 took over Tarflen Processing Division and continues the production. Currently, the process of modernization of the plant is carrying out. We are increasing production capacity and range of products made from PTFE.

Manufacturing of Tarflen®

Raw materials

The raw materials for the production of semi-finished products are Tarflen suspension powders named Tarflen SM-1, Tarflen SM-2 and Tarflen SM-20, granulates Tarflen SG-1, Tarflen SG-2, Tarflen ST and mixtures of Tarflen suspension powder with the (glass fiber, graphite, coke, brown, etc.) that may be present in the form of non free flowing powders or granulates.

Semifinished and finished products

For technical reasons, first are produced semi-finished parts with simple shapes, which are then machining to the finished parts.

Tarflen® properties

The main properties of Tarflen are: chemical resistance, high dielectric strength (independent from temperature, pressure, current frequency), unusual surface properties (antiadhesive and antifrictional properties), heat resistance – application range from -260°C to +260°C. Tarflen can be filled by galss fiber, graphite, coke, bronze, molybden disulphide.

Semi-finished products

- sheets and disks
- tubes and rings
- rods and pipes
- extruded rods and pipes
- thin wall pipes and hoses
- sheets and disks made of porous Tarflen

Finished products

- flat gaskets
- coverings for gaskets
- O-rings
- expansion joints
- skived tapes
- demisters
- sealing tapes
- sealing cords
- molders

Influence of fillers to Tarflen properties:

Filler	Fraction	Filler's influence
Glass fiber	5-25%; possible combination with graphite, coke and MoS ₂	+ better resistance on compression, abrasion + resistant on organic solvents - non-resistant on acids and strong bases
Coke	5-25%; max 35% possible combination with graphite, bronze and MoS ₂	+ better resistance on compression, abrasion + good work without lubrication + higher hardness + better heat conductance + better electric conductance + resistant on acids - non-resistant on strong oxidants
Bronze	Max 60%; possible combination with graphite, coke and MoS ₂	+ better resistance on compression, abrasion + higher hardness + higher hardness - limited chemical resistance - non-resistant on strong bases and oxidative acids
Graphite	Max 40%; possible combination with glass fiber, bronze, coke	+ better slide properties and heat resistance + reduction of friction coefficient - non-resistant on strong oxidants
Molybden disulphide	Max 5%; possible combination with glass fiber, bronze	+ better slide properties + better resistance on abrasion - non-resistant on strong oxidants
Stainless steel	Max 60%	+ better heat conductance - lower chemical resistance on some acids
Soot	Max 5%	+ antistatic, necessary for antiexplosion applications

Applications of Tarflen®

The unique properties of PTFE make it applicable as an anti-corrosion, anti-friction, anti-adhesive and as a dielectric material even in the toughest conditions. It is used in the different industries: chemical, construction, electrical, machinery, textile, paper, aerospace, automotive, food and more. PTFE can also be used in medical devices and appliances due to its overall biological inertness and the possibility of sterilization at elevated temperature.

Chemical industry

- items of equipment and fittings (faucets, seat bullet, membranes, nozzles, etc)
- all kinds of seals (flat, coverings, o-rings, spiral, V-type) in chemically aggressive environments
- expansion joints as a connector pipelines, covers against pollution and aggressive substances, the connector on the glassware
- pipelines for the transport of aggressive media
- columns filling Raschig-ring
- anti-corrosion lining tanks and chutes
- demisters for removing liquid droplets from the corrosive gases
- porous filter elements

Electrical engineering and electronics

- insulators in a wide range of operating temperatures, current frequency and high humidity
- insulation foils and tapes, spacer dielectric capacitors
- wire and cable insulations working in particularly difficult circumstances
- fuses elements of high voltage
- various elements of the electronic apparatus

Industry and construction

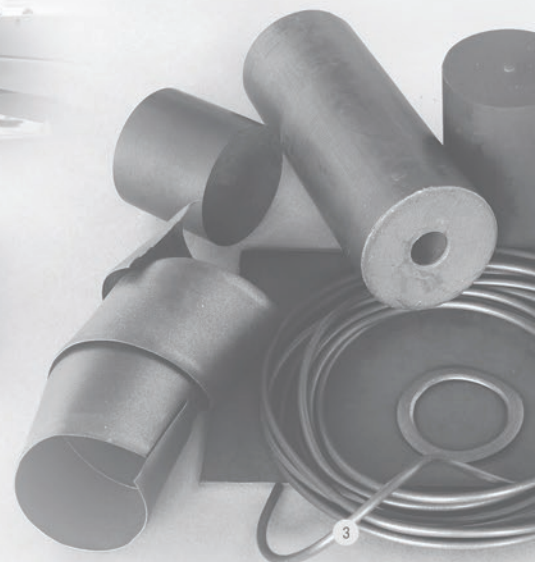
- machinery and equipment
- lubricant-free bearings and slip rings
- piston rings for oil free compressors
- shafts seals
- valves, membranes, nozzles

Paper and Textile Industry

- coating roller bearings, drying drum, dyeing vats
- tension rollers and scraper blades

Food industry

- anti-adhesive coatings on various parts of machinery and equipment
- nozzles for extruding pasta
- items of equipment (carpeting, slides)



1. Virgin Tarflen

1.1 SHEETS virgin Tarflen

Thickness [mm]	Tolerance [mm]	Size [mm]					
		130x130	260x260	330x330	410x410	1200x1200	1500x1500
2	± 0,6	0,08	0,30	0,00		6,7	10,1
3	± 0,6	0,09	0,45	0,72	1,29	9,9	15,2
4	± 0,6	0,15	0,60	0,96	1,50	13,4	22,1
5	± 0,6	0,19	0,75	1,20	1,90	16,6	26,9
6	± 0,7	0,23	0,90	1,45	2,30	19,9	33,0
7	± 0,7	0,26	1,10	1,70	2,60		
8	± 0,7	0,30	1,20	2,00	3,00	26,9	43,6
9	± 0,7	0,34	1,35	2,20	3,40		
10	± 0,7	0,37	1,50	2,40	3,70	33,1	54,0
12	± 0,7	0,44	1,80	2,88	4,40	39,4	62,0
15	± 5%	0,56	2,30	3,60	5,60	50,0	81,6
18	± 5%	0,67	2,70	4,40	6,70		
20	± 5%	0,75	3,00	4,80	7,50	66,6	109,3
25	± 5%	0,93	3,75	6,00	10,00	83,0	136,4
30	± 5%	1,12	4,50	7,20	12,00	101,0	160,4
40	± 5%	1,50	6,00	9,60		133,1	
50	± 5%		7,50	12,00		166,0	
60	± 5%		9,00	14,50		201,6	
70	± 5%		10,50	17,00		248,5	

Tolerance on length and width: ± 10 mm

1.2 DISKS virgin Tarflen

Thickness [mm]	Tolerance [mm]	Diameter [mm]								
		90	110	120	140	150	175	190	235*	330*
3	± 0,6	0,04	0,06	0,08	0,11	0,12	0,16	0,19	0,29	0,80
4	± 0,6	0,06	0,08	0,10	0,14	0,16	0,22	0,26	0,40	1,00
5	± 0,6	0,07	0,11	0,13	0,18	0,20	0,27	0,32	0,48	1,20
6	± 0,7	0,90	0,13	0,15	0,21	0,24	0,32	0,38	0,58	1,35
7	± 0,7	0,10	0,15	0,18	0,25	0,28	0,38	0,44	0,67	1,50
8	± 0,7	0,12	0,17	0,20	0,28	0,32	0,43	0,50	0,77	1,70
9	± 0,7	0,13	0,19	0,23	0,32	0,36	0,49	0,56	0,86	1,88
10	± 0,7	0,14	0,21	0,25	0,35	0,40	0,53	0,60	0,95	2,90
15	± 5%	0,21	0,32	0,38	0,53	0,60	0,80	0,94	1,43	3,40
18	± 5%	0,26	0,38	0,45	0,63	0,72	0,96	1,12	1,73	3,80
20	± 5%	0,28	0,42	0,50	0,70	0,80	1,06	1,25	1,90	4,70
25	± 5%	0,35	0,53	0,63	0,88	1,00	1,33	1,56	2,40	5,70
30	± 5%	0,42	0,63	0,75	1,05	1,20	1,60	1,87	2,86	7,50
40	± 5%	0,56		1,00	1,40	1,60	2,13	2,50	3,90	9,50
50	± 5%	0,70		1,25	1,75		2,65	3,20	4,80	11,50
60	± 5%	0,84		1,50	2,10		3,18	3,80	5,70	13,50
70	± 5%	0,98		1,75	2,45		3,72	4,40	6,70	
80	± 5%			2,00			4,25	4,98	7,60	
90	± 5%						4,80		8,60	
100	± 5%						5,30			

1.3 MOLDED TUBES virgin Tarflen



O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
28	14	170	0,20
28	15	160	0,18
32	22	100	0,12
37	22	160	0,31
37	23	160	0,26
38	18	160	0,35
42	20	50	0,15
43	27	170	0,40
44	16	160	0,43
44	21	150	0,53
47	19	170	0,59
47	26	170	0,50
49	170	150	0,60
50	30	160	0,50
52	25	40	0,16
55	35	160	0,55
56	25	160	0,71
58	32	140	0,65
58	34	140	0,61
60	18	150	0,90
60	33	150	0,75
62	17	150	1,10
64	43	160	0,72
65	48	80	0,31
67	39	40	0,25
68	35	100	0,65
70	50	160	0,80
71	30	80	0,64
72	23	150	1,30
72	45	160	0,93
75	33	150	1,30
76	40	40	0,32
76	48	130	0,82
77	50	160	1,10
80	30	170	1,79
84	49	165	1,40
84	53	35	0,28
84	63	160	0,92
86	55	150	1,30
90	68	140	0,98
92	66	170	1,35
92	74	170	1,10
95	20	160	2,30
95	36	160	2,25
95	42	160	2,15
95	50	80	1,02
95	51	160	1,90
95	58	80	0,87
95	64	160	1,54
95	65	160	1,50
95	68	80	0,70

O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
99	56	40	0,50
100	80	150	1,15
103	89	100	0,65
104	55	200	3,00
105	49	80	1,30
105	59	80	1,15
105	69	80	0,90
109	49	80	1,47
109	60	80	1,30
109	69	80	1,14
110	56	80	1,40
110	75	130	1,60
15	56	40	0,78
15	78	60	0,85
116	71	30	0,55
118	64	80	1,50
118	74	80	1,30
118	81	60	0,85
118	84	80	1,10
118	91	90	1,14
118	97	110	1,05
121	100	60	0,58
123	64	80	1,70
123	74	80	1,50
123	83	80	1,25
125	88	50	0,80
133	94	130	2,10
134	79	80	1,75
134	88	80	1,60
134	98	80	1,25
135	55	50	1,45
143	74	80	2,30
143	83	80	2,05
143	93	80	1,80
143	103	80	1,55
143	115	80	1,16
143	130	120	1,60
146	108	50	0,90
146	110	90	1,65
150	58	50	1,85
150	82	70	2,10
150	95	50	1,35
151	124	100	1,50
152	32	100	4,26
157	123	50	0,99
158	88	80	2,50
158	98	80	2,30
158	108	80	2,05
164	122	35	0,80

1.3 MOLDED TUBES virgin Tarflen (continuation)

O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
167	98	80	2,70
167	108	80	2,40
167	117	80	2,20
167	132	80	1,68
169	98	90	3,20
170	107	50	1,67
170	147	100	1,40
171	128	100	2,35
175	140	50	1,10
175	156	60	0,88
177	100	60	2,28
178	108	130	5,30
178	130	130	3,70
179	117	130	4,50
184	165	40	0,58
184	125	130	4,30
185	70	60	3,30
187	93	50	2,40
187	97	130	6,00
187	122	130	5,00
187	134	130	4,53
188	116	50	2,04
190	153	50	1,26
192	140	50	1,60
196	98	130	6,90
197	126	130	5,60
198	78	130	7,80
199	126	50	2,20
210	150	50	2,15
210	154	60	2,25
212	97	130	9,00
212	117	130	7,50
212	137	130	6,80
216	155	130	5,50
218	145	130	6,10
218	190	70	1,65
220	126	300	15,80
223	146	70	3,70
225	208	50	0,88
230	211	20	0,43
235	184	100	4,10
250	113	40	3,67
250	176	40	2,48
250	218	40	1,25
251	185	130	6,70
264	175	130	9,50
265	192	130	8,50
266	215	130	6,30
268	240	40	1,15
275	100	50	5,80
275	195	130	8,90

O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
275	215	130	7,20
280	240	20	1,10
282	261	20	0,52
295	240	80	4,60
299	235	80	5,70
300	88	40	6,45
300	195	80	8,10
300	215	80	7,40
315	250	80	5,50
315	275	80	4,17
325	275	50	3,00
337	250	80	8,00
337	260	80	6,80
338	285	80	5,60
350	258	40	4,20
355	310	50	2,95
370	118	1000	215,00
382	293	80	9,58
383	319	80	7,00
397	347	100	6,80
415	366	40	3,10
430	369	80	7,85
430	385	80	5,80
460	400	20	2,10
463	396	150	16,80
482	410	40	5,40
529	452	80	12,00
533	466	50	7,40
540	420	80	16,80
570	522	80	9,30
574	440	40	10,50
575	505	80	12,30
580	560	40	2,83
590	505	80	16,00
620	565	80	11,80
620	585	80	8,30
	607	80	14,50
	630	80	11,00
685	635	30	4,60
700	620	40	9,00
769	700	70	16,50

1.4 MOLDED RODS virgin Tarflen



1.4.1 Rods molded horizontally

Diameter [mm]	Tolerance on diameter [mm]	Length [mm]	Weight [kg]		Pieces in 1 molder	Diameter after turning* [mm]
			molder	rod in molder		
9	±2	260	1,30	0,046	28	8
10	±2	190	0,43	0,043	10	8
11	±2	140	0,31	0,031	10	9
13	±2	140	0,37	0,046	8	11
15	±2	190	0,57	0,081	7	12
16	±2	140	0,49	0,070	7	14
18	±3	140	0,57	0,095	6	16
18	±2	260	2,50	0,18	14	15
21	±2	140	0,58	0,12	5	19
21	±2	190	0,84	0,17	5	18
23	±2	140	0,68	0,14	5	20
26	±3	140	0,70	0,17	4	23
26	±3	190	1,02	0,25	4	23
28	±4	230	2,60	0,32	8	25
29	±3	260	3,90	0,43	9	25
30	±4	230	2,75	0,39	7	24
32	±3	230	3,12	0,45	7	28
34	±4	230	2,90	0,48	6	32
36	±3	190	1,42	0,47	3	31
37	±4	230	3,40	0,57	6	34
38	±3	260	5,20	0,74	7	32
39	±3	230	3,75	0,62	6	35
41	±3	230	3,50	0,70	5	37
44	±3	230	4,20	0,90	5	40

1.4.2 Rods molded vertically

Diameter [mm]	Tolerance on diameter [mm]	Length [mm]	Weight [kg]
40	±2,5	100	0,28
50	±3	100	0,43
60	±3,5	100	0,63
62	±3,7	150	1,10
70	±4	100	0,90
220	±5	280	24

Acceptable curvature of rod: 1 mm on each 100 mm length

* average values, which are obtaining after turning

Tolerance on length: ± 10 mm

CAUTION

We can make different length for rods molded vertically on request.





1.5 EXTRUDED TUBES virgin Tarflen

O.D. [mm]	I.D. [mm]	Weight [kg/m]
19	12	0,38
20	11	0,51
20	15	0,30
20	17	0,21
22	14	0,50
24	10	0,79
25	10	0,85
25	15	0,68
26	16	0,85
26	21	0,48
28	20	0,89
30	26	0,38
31	19	1,10
31	21	0,83
33	23	1,20
36	22	1,39
39	21	1,80
40	33	0,88
40	36	0,48
44	30	1,89
50	45	0,80
59	49	1,86
61	49	2,20
78	58	4,50
80	70	2,50
91	71	5,48
100	70	9,30
102	88	4,91
110	100	3,40
160	144	8,50
200	180*	13,40



1.6 EXTRUDED RODS virgin Tarflen

Diameter [mm]	Weight [kg/m]
7,8	0,11
9,5	0,14
10	0,17
12	0,24
15	0,38
17	0,55
20	0,72
21	0,78
25	1,05
30	1,5
35	2,1
40	2,7
44	3,5
50	4,3
53	5,1
58	6,2
60	6,3
65	7,6
70	8,3
75	10,2
80	11,5
90	14,4
100	17,7
120	23,2

▲ Tolerance on diameter: $\pm 6\%$ ● Tolerance on length: $\pm 2\%$
Standard length L: 500 mm, 1000 mm, eventually 2000 lub 3000 mm

Tolerance on O.D.: $\pm 6\%$ ● Tolerance on I.D.: $\pm 6\%$
◀ Standard length L: 2000 mm. Tolerance : $\pm 2\%$
* Real size: $197 \div 201/178 \div 179,7$ mm

1.7 SKIVED TAPES AND FOILS virgin Tarflen

1.7.1 Tape skived from disks (weight in [g/m])

Thickness [mm]	Length of 1 roll [m]	Width [mm]			
		20	30	40	50
0,15	185	6,4	9,6	13	16
0,20	130	8,4	12,5	17	21
0,25	115	10,5	15,5	21	26
0,30	87	12,5	19	26	31
0,40	65	17	25	35	42
0,45	58	19	28	40	48
0,50	56	22	32	43	53
0,80	33	36	52	70	85
0,90	29	41	58	79	96
1,00	27	43	64	85	106
1,20	21	53	77	104	128
1,25	20	54	80	108	133
1,30	20	58	84	112	138
1,40	19	61	90	120	148
1,50	17	66	96	130	160
1,80	15	80	115	155	191
2,00	13	88	128	172	212



1.7.2 Tape skived from tubes (weight in [g/m])

Thickness [mm]	Length of 1 roll [m]	Width [mm]						
		60	70	100	130	150	200	270
0,15	150	19	22	32	36	41	60	
0,20	113	25	29	41	48	54	80	
0,25	90	31	37	52	60	68	92	
0,30	75	38	44	62	72	81	100	140
0,40	57	51	59	84	96	108	122	168
0,45	50	57	66	94	108	122	180	250
0,50	45	64	74	104	120	135	200	280
0,80	28	102	118	167	192	138	320	435
0,90	25	114	132	188	216	243	360	490
1,00	23	126	148	208	240	270	400	540
1,20	19	152	176	250	288	324	480	650
1,25	18	159	184	260	300	338	500	680
1,30	17	164	191	270	312	352	520	705
1,40	16	174	206	291	336	378	560	
1,50	15	190	220	312	360	405	600	
1,80	13	228	264	374	432	486	720	
2,00	11	254	294	416	480	540		



Minimum of production: 1 roll
 Weight of tape and length of 1 roll are only indicative data
 Tolerance on width: $\pm 3\%$
 Tolerance on thickness: $\pm 10\%$
 On request we can make tape on different sizes

1.7.3 Skived foil

Thickness [mm]	Width [mm]	Length of 1 roll [m]	Mass of 1 m [g]
0,1	1200	74	0,28
0,2	1200	50	0,45
0,5	1200	36	1,32

Minimum of production: 1 roll
 Weight of tape and length of 1 roll are only indicative data
 Tolerance on width: $\pm 3\%$
 Tolerance on thickness: $\pm 10\%$

1.8 SEALING TAPE

Width of roll [mm]	Weight of roll [g]
10	50-55
12	55-65
15	85-95
20	95-110
30	145-155
40	190-210



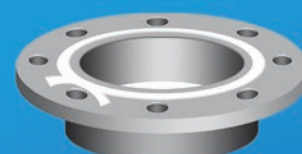
Tape thickness: ca. 0,08 mm
 Length in 1 roll: ca. 30 m
 Tolerance on width: $\pm 10\%$
 Tolerance on thickness: $\pm 0,02$ mm

1.9 ePTFE TAPE

Thickness [mm]	Width [mm]
1,5	3
2	5
2,5	7
3	10
4	12
5	14
5	25
5	28
6	17
7	20



pH – 0-14
 -240 – +270°C



Length of 1 roll: 5, 10 lub 25 m
 Minimum of production: 1 roll
 Tolerance on width: $\pm 3\%$
 Tolerance on thickness: $\pm 10\%$

2. Tarflen with fillers

Unless otherwise stated, the mass of individual elements are given for the mixture SM-S25. Conversion factors for other compounds can be found in the table below.

2.1 SHEETS Tarflen with fillers

Tolerance on length and width: ± 10 mm

Acceptable curvature: 1 mm on each 100 mm length or width



Thickness [mm]	Tolerance [mm]	Length x width [mm]			
		90x40	240x70	130x130	410x168
5	$\pm 0,7$	0,04	0,10	0,20	0,75
10	$\pm 0,7$	0,08	0,39	0,36	1,51
15	$\pm 5\%$	0,12	0,56	0,57	2,24
20	$\pm 5\%$	0,16	0,74	0,74	3,05
25	$\pm 5\%$	0,20	0,92	0,93	3,76
30	$\pm 5\%$	0,24		1,11	4,51
40	$\pm 5\%$	0,32		1,48	6,04
50	$\pm 5\%$				

Conversion rates for calculating weight of products made from different mixtures

SM-S15	SM-S25	SM-G15	SM-G20	SM-K25
0,978	1	0,956	0,947	0,933
SM-B30	SM-B40	SM-B60	SM-S15G2	SM-K22G3
1,244	1,378	1,756	0,978	0,933

2.2 DISKS Tarflen with fillers

Tolerance on diameter: ± 10 mm

Acceptable curvature: 1 mm on each 100 mm length or width

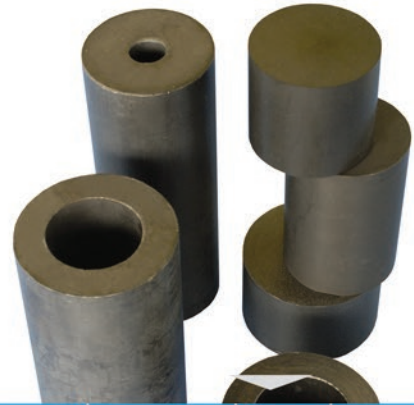


Thickness [mm]	Tolerance [mm]	Diameter [mm]	
		190	234
5	$\pm 0,7$	0,35	0,49
10	$\pm 0,7$	0,69	0,98
15	$\pm 5\%$	1,03	1,52
20	$\pm 5\%$	1,38	1,96
25	$\pm 5\%$	1,72	2,44
30	$\pm 5\%$	2,07	2,91
40	$\pm 5\%$	2,76	3,95
50	$\pm 5\%$	3,43	4,87

2.3. MOLDED TUBES Tarflen with fillers

2.3.1 Tubes made from: SM-S15, SM-S25, SM-B30, SM-B40, SM-B60

O.D. [mm]	I.D. [mm]	Length [mm]	Wiegth [kg]		
			S25	B40	B60
40	30	80		0,18	
42	21	80	0,22		
44	22	100	0,27	0,40	
45	30	100	0,25	0,34	
45	31	100	0,21	0,3	
46	22	100	0,31	0,43	
48	18	150	0,57	0,80	
52	28	100	0,38	0,54	
52	31	100	0,33	0,52	0,63
55	38	100	0,32	0,45	
62	31	100	0,57	0,8	1,17
62	34	75	0,38	0,53	
62	35	100	0,52	0,7	
66	48	85	0,33	0,45	
66	53	70	0,23	0,32	
72	29	80			1,17
72	46	160	0,98		
72	57	100	0,43	0,60	
76	43	65	0,51	0,70	0,90
76	49	130	0,90	1,20	
77	31	80	0,76		
80	52	80	0,60	0,85	1,05
80	63	85	0,43	0,61	
82	30	60	0,68	0,94	
89	64	160	1,20	1,70	2,15
92	63	80	0,72	1,05	
96	54	70	0,88	1,15	
96	59	140	1,58	2,18	
97	42	160	2,35	3,24	4,10
97	50	80	1,10	1,52	1,86
97	64	60	0,61	0,85	
97	71	150	1,25	1,78	2,25
97	74	70	0,55	0,78	0,95
100	77	150	1,13		
113	57	80	1,51	2,05	3,24
113	90	90	0,90	1,20	1,54
119	91	95	1,16	1,60	1,96
124	43	50	1,27	1,75	
124	49	50	1,20	1,70	
124	61	65	1,40	2,00	2,55
124	63	50	1,10	1,55	
125	62	84	1,79		



O.D. [mm]	I.D. [mm]	Length [mm]	Wiegth [kg]		
			S25	B40	B60
133	92	130	2,06	3,10	3,65
135	89	80	1,67	2,30	3,00
135	99	80	1,38	1,85	2,50
136	79	80	1,79	2,70	
145	93	80	1,90	2,70	
145	103	80	1,64	2,25	2,95
146	75	80	2,40	3,30	
146	83	80	2,18	3,00	
146	117	80	1,26	1,75	2,20
154	126	100	1,60	2,23	2,92
155	32	100	4,40	6,05	
160	90	80	2,68	3,70	
160	100	80	2,40	3,30	
160	110	80	2,14	2,95	
162	106	100	3,20	4,00	
165	128	45	0,90	1,20	
171	150	105		2,10	
174	150	100	1,65	2,25	
182	118	130	4,95	6,70	
185	116	60	2,39	3,29	
186	126	130	4,80	6,30	
195	155	40	1,33	1,82	2,33
205	168	40	1,28	1,75	
211	154	60	2,35	3,20	4,25
218	147	130	6,90	9,60	
218	157	130	6,00	8,60	
239	184	100	4,44	6,12	
267	196	130	8,70	12,5	
269	176	130	10,4	14,5	18,3
270	218	130	6,80	9,40	
280	198	120	9,10		
295	241	80	5,00	6,90	
308	205	80	8,23	11,4	
318	255	80	5,90	8,15	
320	280	80	4,45	6,15	7,60
359	312	50	3,30	4,70	
384	300	80	8,90	12,8	16,3
398	351	100	7,20	10,4	
465	406	50	5,35	7,40	9,40
530	454	80	12,5		
546	457	80	10,2	14	

Different sizes are available on request

2.3.2 Tubes made form: **SM-G15, SM-G20, SM-K25, SM-K22G3, SM-S15G2**
[Weight for SM-G15]

O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
40	30	80	0,12
42	21	80	0,19
44	22	100	0,27
44	31	100	0,20
48	18	150	0,55
52	28	100	0,36
52	31	100	0,35
55	38	100	0,31
61	30	100	0,55
61	35	100	0,42
61	46	140	0,47
66	48	80	0,31
68	37	50	0,31
71	23	80	0,64
72	46	80	0,48
72	46	160	0,92
72	48	150	0,75
73	27	60	0,49
73	60	60	0,24
76	49	130	0,85
77	31	80	0,70
77	43	60	0,52
80	62	85	0,48
81	30	60	0,64
82	64	140	0,71
88	64	160	1,15
94	46	80	1,00
95	54	70	0,82
96	42	170	2,30
96	51	160	1,95
96	63	60	0,60
96	65	95	0,85
96	71	150	1,20
97	74	70	0,55
100	80	150	1,15
105	59	80	1,16
105	70	80	1,00
112	57	80	1,40
112	89	80	0,75
119	81	60	0,88
119	91	95	1,13
123	43	50	1,24
124	48	50	1,20
124	63	50	1,10
124	84	80	1,25
125	62	84	1,65
133	91	130	2,10
134	98	80	1,30
135	88	80	1,60
136	79	80	1,75
136	115	60	0,58
144	83	80	2,05
144	85	60	1,45
144	103	80	1,15
145	75	80	2,30
145	92	80	2,05
145	116	80	1,16
152	125	100	1,55
153	32	100	4,2

O.D. [mm]	I.D. [mm]	Length [mm]	Weight [kg]
158	90	80	2,60
158	100	80	2,30
158	108	80	2,05
162	106	100	3,00
164	126	45	0,90
168	150	100	1,40
172	149	100	1,60
182	119	130	4,70
182	125	130	4,45
182	130	134	4,15
184	113	60	2,23
188	132	20	0,62
189	98	40	6,40
192	122	130	5,35
192	137	130	4,40
195	155	40	1,00
198	157	20	0,52
204	167	40	1,20
217	137	130	6,80
218	146	130	6,30
218	156	130	5,70
228	156	40	2,10
236	186	100	4,20
252	186	130	7,00
258	195	60	3,30
267	195	130	8,4
269	176	130	9,3
270	200	130	7,90
270	216	40	1,95
270	216	130	6,50
282	205	40	3,00
296	240	80	4,60
306	200	80	7,80
317	255	80	5,50
318	276	80	4,10
320	262	30	1,80
339	263	80	6,60
339	285	80	5,60
345	249	80	7,90
358	308	50	3,15
383	297	80	8,50
397	347	100	6,95
436	372	80	7,80
436	389	80	5,80
462	405	45	4,80
472	376	20	2,90
536	453	80	12,0
538	470	80	9,60
600	510	80	16,6
605	523	60	10,5
615	483	30	7,80
625	588	80	8,50
638	592	50	5,14
678	610	80	14,5
680	625	80	10,8
683	592	60	12,4
778	695	80	18,6

Different sizes are available on request

2.4 MOLDED RODS

Tarflen with fillers



2.4.1 Rods molded horizontally

Diameter [mm]	Tolerance [%]	Length [mm]	Weight (for SM-S25) [kg]		Pieces in 1 molder	Diameter after turning* [mm]
			molder	rod in molder		
16	± 2	190	0,60	0,09	7	14
19	± 2	190	1,14	0,13	9	17
21	± 3	190	1,26	0,16	8	17
28	± 3	190	1,70	0,28	6	25
30	± 3	190	1,95	0,33	6	28
32	± 4	190	1,90	0,38	5	30

2.4.2 Rods molded vertically

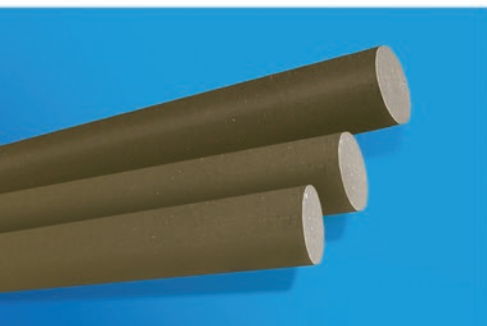
Diameter [mm]	Tolerance [%]	Length [mm]	Weight (for SM-S25) [kg]
30	± 2	100	0,16
38	± 2	100	0,27
40	± 2	100	0,38
50	± 3	100	0,48
60	± 3	100	0,68
70	± 3	100	0,92
80	± 3	100	1,18
95	± 3	70	1,12
120	± 3	60	1,58

Acceptable curvature of rod:
1 mm on each 100 mm length

* average values, which are obtaining after turning

Tolerance on length: ± 10 mm

CAUTION
We can make different length for rods molded vertically on request.



2.5 EXTRUDED RODS made of: G10, K23G2

Extruded rods with fillers are available on request. Rods length is 1 m.
Dimensions of rods are in range from 10 to 100 mm.

2.6 SKIVED TAPE Tarflen with fillers (weight in [g/m])

Thickness [mm]	Length in 1 roll [m]	Width [mm]						
		20	30	40	50	60	80	100
0,5	35	22	34	44	54	66	88	107
1,0	17	43	64	85	107	127	169	213
1,5	10	65	97	132	162	193	257	324
2,0	8	87	132	172	218	264	352	440
2,5	7	110	165	216	272	330		
3,0	6	135	196	266	326			

Minimum of production: 1 roll

Weight of tape and length of 1 roll are only indicative data

Tolerance on width: ± 3%

Tolerance on thickness: ± 15%

On request we can make tape on different sizes

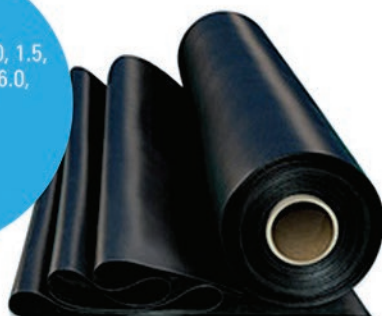
Other products from our offer

FPM/FKM SHEETS (VITON® – FLUOROELSTOMER)

Sheets are made on the base of fluoroelastomer VITON® B by DuPont. They are characterized by high heat and chemical resistance. Fluorine content results in non-flammability of this material. Temperature range of application is from -10°C to 200°C. This material is highly resistant to ozone, UV and aggressive chemical substances.

Types:

- thickness: 0.5, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0 mm
- width 1000 mm and 1200 mm
- length 10 mb



Properties:

- hardness 70° Shore (+/- 5°)
- specific gravity 1,85 g/cm³
- elongation at break 200% (min)
- temperature resistance:
from -40°C to +204°C (short-term)
and +315°C (long-term)
- high resistance to fire
- resistance to weather conditions,
oxygen and ozone
- black colour

Applications:

As a sealing in various industries, like:

- energetics
- crude oil processing and transport
- chemical processing and transport of chemicals
- road constructions
- conveyor mechanisms
- aerospace

IES BESTCHEM LFP

IES BESTCHEM expansion joints are manufactured according to the best technology, on the base of glass fabrics laminated by multilayer cross laminate of PTFE film.

Figure shows sectional view of expansion joint fabric. From gaseous side there is few layers of PTFE films cross applied and laminated to the glass fabric covered by PTFE.



Multi-layer cross laminate technology guarantees outstanding chemical and mechanical resistance of expansion joints. Thousands expansion joints made by cross-laminate technology and installed, e.g. gas desulphurization installations all around the world, confirm the very good liveliness. Laboratory tests, fatigue tests (number of cycles), confirmed by real operation of expansion joints, shows the fatigue strength five times higher cross laminated PTFE fabrics compared to other fabrics PTFE coating technology.

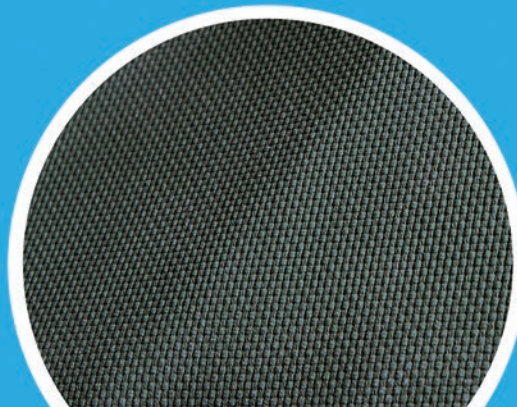
Expansion joints properties:

working temperature: from -30°C to +316°C

pressure: +/- 30 kPa

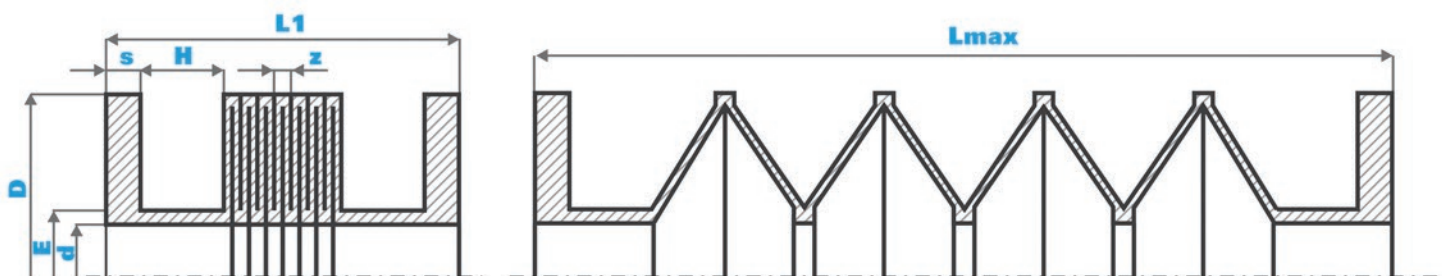
resistance to acidic condensates

mechanical strength: 10724 N/m



3. EXPANSION JOINTS

3.1 Expansion joints type A

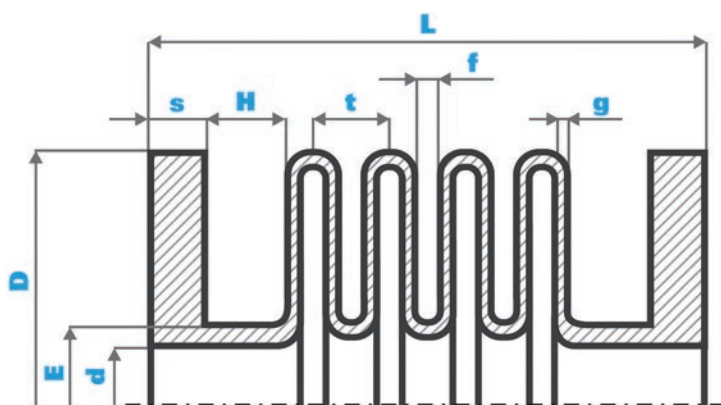


I.D. d [mm]	O.D. D [mm]	Number of cuts n	Length of compressed joint L1 [mm]	Length of expanded joint L max [mm]	Mass of 1 pc [kg]
Standadr sizes					
25	45	5	27	67	0,04
32	52	5	29	69	0,045
40	64	5	31	78	0,07
50	74	5	31	78	0,08
65	93	6	35	98	0,14
80	120	6	40	140	0,28
100	140	6	40	140	0,32
125	165	6	42	138	0,45
150	190	6	42	138	0,50
200	250	6	50	176	0,90
250	296	8	59	213	1,40
300	360	5	52	177	1,60

Non-standard sizes					
28	48	5	26	66	0,04
35	57	5	29	74	0,05
43	70	5	30	85	0,09
49	80	5	31	96	0,11
61	92	6	34,6	128	0,16
77	110	6	39,6	120	0,22
90	128	6	39,6	120	0,32
115	152	6	39,6	131	0,35
141	182	6	43	142	0,54
169	207	6	51	141	0,6
220	262	6	55	169	1,0

There is a possibility of making other dimensions.
They can be made on request by prior arrangement.
Measurement of the size of the table are shown in Figure reproduced.
Given weight of expansion joint should be treated as indicative only.

3.2 Expansion joints type B



I.D. d [mm]	O.D. D [mm]	Number of cuts n	Length L [mm]	Length of compressed joint L min [mm]	Length of expanded joint L max [mm]	Mass of 1 pc [kg]
Standadr sizes						
20	35	6	43	37	50	0,03
25	40	6	43	37	50	0,04
32	56	6	58	49	69	0,09
40	64	6	58	49	69	0,11
50	74	6	62	53	73	0,15
65	89	6	74	62	88	0,24
80	120	5	68	58	80	0,48
100	140	5	74	64	86	0,65
125	165	5	74	64	86	0,76
150	190	5	84	72	98	1,05
200	250	5	84	72	98	1,7
250	300	4	81	69	96	2,15
300	350	4	81	69	96	2,35

Non-standard sizes						
28	50	5	43	38	49	0.096
35	58	5	47	42	53	0,07
43	70	5	47	42	53	0,11
49	80	6	53	47	60	0,15
61	92	6	69	60	79	0,21
77	112	6	69	60	79	0,35
90	130	6	70	61	80	0,45
115	150	6	70	61	80	0,49
141	182	6	74	65	84	0,75
169	207	6	86	74	100	0,95
115	150	6	70	61	80	0,49
141	182	6	74	65	84	0,75
169	207	6	86	74	100	0,95
220	262	6	90	78	104	1,30
246	287	6	90	78	104	1,20

There is a possibility of making other dimensions.
They can be made on request by prior arrangement.
Measurement of the size of the table are shown in Figure reproduced.
Given weight of expansion joint should be treated as indicative only.

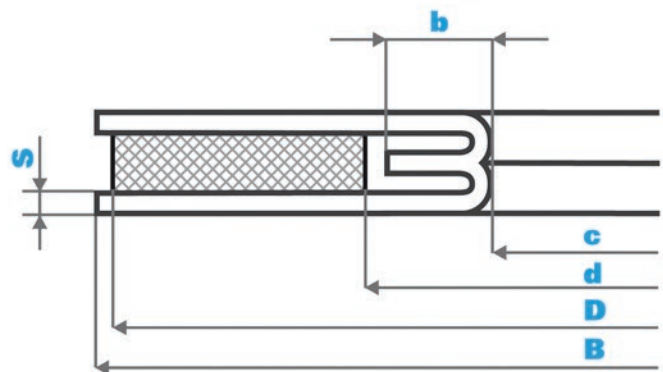
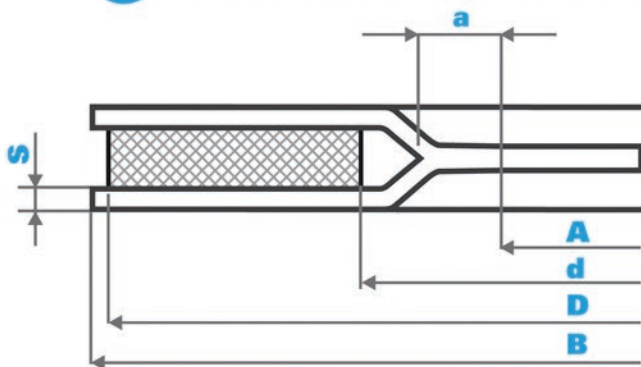


4. MEMBRANES

We have the ability to produce membranes for different applications - in any shape, any thickness. They are done on request by prior arrangement.



5. COVERING FOR GASKETS



5.1 Coverings for standard gaskets

Dnom [mm]	D [mm]	d [mm]	B [mm]	A [mm]	C [mm]
10	38	18	38	10	
10	46	18	48	10	
15	43	22	45	14	
15	51	22	50	14	
20	53	28	55	20	24
20	61	28	60	20	24
25	63	35	62	26	30
25	71	35	73	26	30
32	76	43	76	34	38
32	82	43	82	34	38
40	86	49	83	40	44
40	92	49	95	40	44
50	96	61	96	52	56
50	107	61	108	52	56
65	116	71	116	62	66
65	127	71	125	62	66
80	132	90	134	82	86
80	142	90	144	82	86
100	152	115	152	106	110
100	162	115	164	106	110
100	167	115	170	106	110
125	182	141	182	132	136
125	192	141	190	132	136
150	207	169	210	160	164
150	217	169	220	160	164
150	223	169	226	160	164
175	237	195	235	186	190
175	247	195	250	186	190
175	253	195	251	186	190
175	265	195	268	186	190
200	262	220	266	210	215
200	272	220	276	210	215
200	290	220	296	212	216
225	287	246	288	236	240
225	302	246	302	236	240

Tolerance: A,B,C $\pm 1\%$

Sizes $\textcircled{a} = 1,0 \pm 0,5 \text{ mm}$ $\textcircled{b} = 1,5 \pm 0,5 \text{ mm}$ $\textcircled{s} = 0,3 \pm 0,1 \text{ mm}$

On request we can make tape on different sizes

5.2 Coverings for non-standard gaskets

B [mm]	A [mm]	C [mm]
50	15	
58	20	24
60	20	24
65	20	24
60	25	29
70	25	29
70	32	36
80	32	36
80	40	44
85	40	44
90	40	44
85	45	50
90	50	55
100	50	55
105	50	55
110	50	55
93	56	60
110	65	70
120	65	70
125	65	70
132	65	70
130	80	84
134	80	84
140	80	84
135	84	88
138	87	91
150	100	104
155	100	104
160	100	104
162	106	110
172	106	110
75	125	130
180	125	130
220	150	155
210	156	160
219	156	160
221	170	175
276	206	210
277	220	225

Tolerance: A,B,C $\pm 1\%$

Sizes

a = 1,0+0,5 mm

b = 1,5+0,5 mm

s = 0,3+0,1 mm

On request we can make tape on different sizes



6. GASKETS



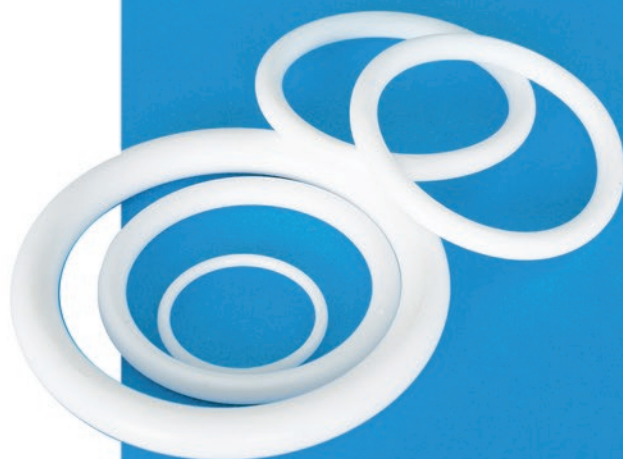
6.1. Flat gaskets

D nom.	$p \leq 0,6 \text{ MPa}$		$p = 1-10 \text{ MPa}$	
	D [mm]	d [mm]	D [mm]	d [mm]
10	29	19	34	24
10	29	18	34	18
15	33	23	39	29
15	33	22	39	22
20	43	23	50	36
20	43	28	50	28
25	51	41	57	43
25	51	35	57	35
32	59	49	65	51
32	59	43	65	43
40	69	55	75	61
40	69	49	75	49
50	80	66	87	73
50	80	61	87	61
65	100	86	100	95
65	100	77	109	77
80	115	101	120	105
80	115	90	120	90
100	137	117	149	129
100	137	115	149	115
125	166	146	175	155
125	166	141	175	141
150	191	171	203	183
150	191	169	203	169
175	223	203	232	213
175	223	195	233	195
200	249	229	259	239
200	249	220	259	220
225	276	256	286	266
225	276	256	286	246
250	303	283	312	292
250	303	274	312	274
300	356	336	363	343
300	356	325	363	325
350	406	386	421	395
350	406	361	421	382
400	456	436	473	447
400	456	407	473	407
450	509	489	523	497
450	509	458	523	458
500	561	541	575	549
500	561	509	575	509
600	661	635	677	651
600	661	620	677	620

On request we can make tape on different sizes, also with Tarflen with fillers

6.2. O-rings

O-rings are produced with inner diameters **D** in the range of 10-200 mm and the original cross-sectional diameter **d** in the range of 2,4-7 mm. There is also the possibility of making rings with incised groove. All types and sizes of rings are recommended for implementation depends before ordering to determine the manufacturer.



7. PRODUCTS FROM POROUS PTFE

7.1 Sheets

Thickness [mm]	Length x Width [mm]		
	330x200	440x440	800x107
12	1,2	3,5	
20			2,5

Tolerance: $\pm 15\%$

On request we can make different sizes

7.2 Disks

Diameter [mm]	Thickness [mm]	Mass [kg]
150	8	0,2
188	12	0,3
190	8	0,5
285	12	1

Tolerance: $\pm 15\%$

On request we can make different sizes

7.3 Protective cups with thread

Thread	Sizes [mm]	Mass [kg]
M16 x 1,5	$\phi 25/12 \times 32$	0,012
M10 x 1	$\phi 19/7 \times 45$	0,013

Tolerance: $\pm 10\%$

On request we can make different sizes



8. OTHER FINISHED PRODUCTS



8.1 Demisters

Demisters are elements of a chemical apparatus for removing the grid drops of liquid from the gas or vapor on a cumulative basis droplets (coalesce). During the gas flow through the demisters smaller droplets clump into larger and are falling.

Depending on the needs of the structure can have the following shapes: round, spiral, circular segment, rectangular.

Demisters are made to individual order.

8.2 Products for individual demand

We realize individual orders of our customers - we have the ability to perform custom machining parts or by plotter. Conditions for the implementation of such an order should be discussed individually with the manufacturer.

9. PTFE POWDER

Type	Description	Particle size [μm]	Tensile strength, min. [MPa]	Elongation at break, min. [%]
SM1	For moulding	40 ± 10	31	230
SM2	For moulding	80 ± 20	28	210
SM20	For moulding	20 ± 5	43	240
SG1	Granulated	400 ± 100	30	200
ST1	For ram extrusion	800 ± 100	30	200
SD	Dispersive	500 ± 50	30	250
D	Water dispersion (50%)	0,06 ÷ 0,4	30	300
DV	Water dispersion (55%)	0,06 ÷ 0,4	30	280

SEMIFINISHED PRODUCTS FROM TARFLEN - PTFE



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