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quality sealing and engineering plastics solutions

ECONOMOS[®]

PTFE molded tubes

A COMPLETE RANGE OF VIRGIN PTFE PRODUCED FROM CERTIFIED ORIGINAL MATRIX

- PTFE virgin type TF 1641 ou 807N
- PTFE virgin fine powder type Teflon 703N ou 701N
- PTFE virgin fine powder type TF1750
- PTFE virgin fine powder type M12

A LARGE RANGE OF FILLED PTFE

- PTFE filled 5%, 15%, 25%, 30% et 40% glass fibers
- PTFE filled 10%, 15% et 25% glass balls
- PTFE filled 10% glass 3% MoS2
- PTFE filled 15% glass 5% MoS2
- PTFE filled 25% glass 5% MoS2
- PTFE filled 5%, 15% et 25% coke powder
- PTFE filled 25% carbone soft
- PTFE filled 5%, 15% et 25% graphite
- PTFE filled 25% et 35% carbone-graphite
- PTFE filled 15%, 40% et 60% bronze
- PTFE filled 55% bronze 5% MoS2
- PTFE filled 10% & 25% ekonol
- PTFE equivalent VX1 (28% glass + blue pigmen)
- PTFE filled 20% nickel
- PTFE filled 50% stainless steel
- PTFE filled carbone conductive (antistatic)
- PTFE filled 15% glass 5% graphite
- PTFE filled 15% carbone 10% glass
- PTFE blue turquoise, black or red
- Other PTFE on demand – Delivery 4 to 6 weeks

A COMPLETE RANGE OF MODIFIED PTFE

PTFE MODIFIED DYNEON

- PTFE TFM virgin type 1600 ou 1700
- PTFE TFM type 4103 filled 15% glass
- PTFE TFM type 4105 filled 25% glass
- PTFE TFM type 4215 filled 25% carbone
- PTFE TFM type 4220 antistatic

PTFE MODIFIED DUPONT DE NEMOURS

- PTFE modified type TG70J
- PTFE modified type TE6472
- PTFE modified type NXT75

PTFE MODIFIED DAIKIN

- PTFE modified type M112

OUR MAIN PTFE POWDERS SUPPLIERS

PTFE VIRGINS AND MODIFIED

- DUPONT DE NEMOURS Netherland
- DYNEON Germany
- ASAHI UK
- SOLEXIS Italy
- DAIKIN Japan

PTFE FILLED

- DYNEON Germany
- ASAHI UK
- UPM Netherland
- HEROFLON Italy

MAIN CHARACTERISTICS OF PTFE VIRGIN AND FILLED

PTFE virgin	Very low coefficient of friction Excellent chemical resistance Very good electric insulator Service temp. from -100°C to +200°C
PTFE + 5% graphite	Very low coefficient of friction Quite good wear and deformation under load characteristics
PTFE + 25% glass	Excellent deformation under load characteristics Wear resistance Excellent chemical resistance Best glass filling for bearing applications
PTFE + 25% carbone	Excellent resistance in corrosive environments Quite good wear and deformation under load characteristics Does not scratch counter-surfaces Good thermal conductivity
PTFE + 15% graphite	The lowest coefficient of friction of filled PTFE Quite good wear and deformation under load characteristics
PTFE + 60% bronze	Good material for bearings at high speeds and in contact with soft counter-materials Excellent deformation under load and wear resistance Good thermal conductivity
PTFE + 20% nickel	Good compression resistance
PTFE + 15% glass	Maximum glass content to obtain non-porous materials Good deformation under load characteristics Good wear resistance Excellent chemical resistance
PTFE glass + carbone	Excellent resistance in corrosive environments Do not scratch shafts Good thermal conductivity
PTFE glass + metallic oxyde "VX1"	Good resistance to wear and deformation under load Good resistance in acids and solvants Good material for bearings at low PV

WEIGHT COEFFICIENTS

Coefficient	Type of PTFE
0,90	PTFE 20% & 25% ekonol
0,95	PTFE 10% ekonol
1,00	PTFE virgin PTFE 17% carbone 10% glass PTFE 25% & 35% carbone
1,03	PTFE 5% & 15% graphite PTFE 5% & 15% glass
1,05	PTFE 25% gaphite PTFE 25% glass
1,06	PTFE 30% glass PTFE 15% glass 5% MoS2
1,09	PTFE 28% glass blue pigment (VX1))
1,20	PTFE 15% bronze PTFE 20% nickel
1,26	PTFE 20% inox
1,45	PTFE 40% bronze
1,53	PTFE 50% inox
1,85	PTFE 55% bronze 5% MoS2 PTFE 60% bronze

DIMENSIONAL LIST OF PTFE MOLDED TUBES

Ø ext.	Ø int.	H. maxi	Weight* g/100mm
14	0	100	38
19	0	100	66
22	0	100	88
24	0	100	104
26	0	100	126
28	0	100	150
30	0	150	176
33	0 20	150	204 138
35	0 20	150	232 166
38	0 20 25	150	264 198 162
40	0 20 23 25	150	298 232 212 196
43	0 20 25 27	150	334 270 232 210
45	0 23 25 27 30	150	374 286 270 248 224
48	0 20 23 25 30 32 35	150	414 348 326 310 264 240 212
50	0 20 23 25 30 35	150	456 390 368 352 308 254
52	0 20 23 25 30 35 37 40	150	500 434 412 396 352 298 268 236
55	0 20 25 30 35 37 40 42	150	546 480 444 398 344 314 282 248
57	0 23 25 30 32 35 37 40 42 45	150	594 508 492 446 420 392 362 330 296 260
60	0 27 30 35 37 40 45	150	656 530 508 454 424 392 322

Ø ext.	Ø int.	H. maxi	Weight* g/100mm
62	0	150	698
	20		632
	23		610
	25		594
	27		574
	35		496
	37		466
	40		434
	45		364
	47		326
50	286		
65	0	150	752
	20		686
	30		604
	35		550
	37		520
	40		488
	42		454
	45		418
	47		380
	50		340
67	0	150	810
	23		722
	27		684
	30		660
	35		608
	37		578
	40		546
	42		512
	45		476
	50		396
55	310		
70	0	150	880
	37		648
	40		616
	45		546
	47		508
	50		468
	52		426
	55		382
	60		334
	72		0
20		862	
25		826	
27		804	
30		780	
32		754	
35		726	
37		696	
40		664	
45		594	
47	556		
50	516		
52	474		
55	430		
74	0	150	992
	37		760
	52		538
	55		492
	60		398
	77		0
20		1 020	
23		996	
27		958	
35		882	
40		820	
45		750	
50		670	
55		584	
60		490	
65	386		

Ø ext.	Ø int.	H. maxi	Weight* g/100mm
80	0	150	1 195
	20		1 130
	30		1 045
	40		928
	42		894
	50		780
	55		694
	60		598
	65		496
	70		384
83	0	150	1 265
	50		852
	55		764
	60		670
	65		566
85	0	150	1 340
	30		1 190
	35		1 135
	37		1 106
	40		1 075
	42		1 040
	45		1 005
	50		924
	52		882
	55		838
60	744		
65	640		
70	528		
75	410		
88	0	150	1 430
	25		1 325
93	0	150	1 490
	25		1 390
	37		1 260
	42		1 195
	45		1 156
	47		1 120
	50		1 080
	55		990
	60		896
	62		834
65	792		
68	726		
70	682		
72	634		
75	562		
80	434		
93	0	150	1 570
	50		1 160
95	0	150	1 650
	20		1 585
	35		1 450
	40		1 390
	42		1 355
	45		1 320
	50		1 240
	55		1 155
	60		1 060
	65		954
70	842		
75	722		
76	660		
80	594		
85	458		
100	0	150	1 820
	42		1 525
	47		1 450
	55		1 320
	65		1 125
	70		1 015
	75		892
	76		828
	80		764
	85		628
88	542		

Ø ext.	Ø int.	H. maxi	Weight* g/100mm
105	0	150	2 000
	47		1 625
	52		1 545
	55		1 500
	60		1 405
	65		1 300
	70		1 190
	75		1 070
	80		942
	85		806
90	660		
110	0	150	2 190
	30		2 040
	45		1 850
	50		1 770
	52		1 730
	55		1 685
	60		1 590
	65		1 486
	72		1 330
	75		1 255
76	1 195		
80	1 130		
85	990		
88	906		
90	846		
95	694		
115	0	150	2 380
	50		1 965
	55		1 880
	65		1 680
	75		1 450
	85		1 185
	88		1 100
	90		1 040
	92		950
	95		888
100	726		
118	0	150	2 500
	80		1 440
	82		1 360
	90		1 160
	100		846
	105		678
120	0	150	2 580
	68		1 816
	0		1 525
	85		1 390
	90		1 245
	95		1 090
	100		928
	105		760
	108		654
	125		0
25		2 690	
55		2 290	
70		1 980	
80		1 735	
90		1 455	
95		1 300	
100		1 140	
105		970	
110		792	
130	0	150	3 010
	50		2 600
	60		2 420
	75		2 080
	80		1 955
	95		1 520
	100		1 360
	105		1 190
	108		1 085
	110		1 015
115	826		
0118	710		

*Theoretical weight for virgin PTFE length 100mm - Other dimensions on demand.

DIMENSIONAL LIST OF PTFE MOLDED TUBES

Ø ext.	Ø int.	H. maxi	Weight* g/100mm		
135	0	150	3 240		
	45		2 900		
	62		2 580		
	70		2 430		
	75		2 310		
	80		2 180		
	85		2 050		
	90		1 900		
	100		1 585		
	105		1 416		
	110		1 240		
	115		1 055		
120	858				
140	0	150	3 470		
	35		3 270		
	90		2 140		
	95		1 980		
	100		1 820		
	105		1 650		
	110		1 475		
	115		1 290		
	118		1 175		
	125		892		
	145		0	150	3 720
			62		3 060
65		3 020			
75		2 790			
80		2 660			
90		2 380			
100		2 070			
110		1 720			
120		1 340			
125		1 135			
130		924			
150		0	150		3 970
	80	2 910			
	95	2 480			
	100	2 320			
	105	2 150			
	115	1 785			
	120	1 590			
	125	1 390			
	130	1 180			
	135	958			
	155	0		150	4 230
		85			3 040
95		2 740			
105		2 410			
120		1 850			
125		1 650			
130		1 436			
135		1 220			
140		990			
160		0	150		4 500
		70			3 690
		110			2 500
	120	2 120			
	125	1 915			
	130	1 705			
	135	1 486			
	140	1 260			
	145	1 025			
	165	0		150	4 770
		65			4 070
		85			3 580
100		3 120			
110		2 780			
120		2 400			
130		1 980			
140		1 535			
145		1 300			
150		1 060			

Ø ext.	Ø int.	H. maxi	Weight* g/100mm		
168	0	150	5 060		
	90		3 720		
	100		3 410		
	110		3 060		
	115		2 870		
	120		2 680		
	145		1 585		
	150		1 345		
	155		1 090		
	170		0	150	5 350
			80		4 290
			90		4 010
100		3 700			
125		2 770			
130		2 560			
135		2 340			
140		2 120			
145		1 880			
150		1 635			
155		1 385			
160		1 125			
175	125	150	3 070		
	140		2 420		
	160		1 425		
180	0	150	5 960		
	140		2 730		
	145		2 490		
	150		2 250		
	160		1 735		
	165		1 465		
	170		1 190		
	185		0	150	6 280
			90		4 940
			95		4 790
			100		4 630
			115		4 100
140		3 040			
150		2 570			
155		2 310			
160		2 050			
170		1 510			
175		1 225			
190		0	150		6 600
	35	6 400			
	100	4 950			
	110	4 610			
	125	4 030			
	145	3 130			
	150	2 890			
	155	2 640			
	160	2 380			
	165	2 110			
	170	1 835			
	200	0		150	7 110
160		2 880			
170		2 340			
180		1 760			
205		0	150		7 630
		25			7 530
	75	6 700			
	125	5 050			
	140	4 400			
	145	4 160			
	150	3 920			
	160	3 410			
	170	2 860			
	180	2 290			
	210	0		150	7 990
		100			6 340
150		4 280			
180		2 640			
185		2 340			
190		2 030			

Ø ext.	Ø int.	H. maxi	Weight* g/100mm		
215	0	150	8 350		
	145		4 890		
	170		3 590		
	175		3 300		
	180		3 010		
	190		2 400		
225	0	150	9 110		
	80		8 060		
	90		7 780		
	140		5 880		
	150		5 400		
	155		5 150		
	165		4 620		
	175		4 060		
	180		3 770		
	190		3 160		
	200		2 520		
	205		2 180		
230	0	150	9 510		
	200		2 910		
	210		2 230		
235	0	150	9 910		
	55		9 410		
	80		8 850		
	155		5 940		
	175		4 850		
	190		3 950		
240	0	150	10 310		
	200		3 720		
	210		3 040		
245	0	150	10 730		
	80		9 670		
	190		4 780		
	200		4 130		
250	0	150	11 150		
	210		3 880		
	220		3 170		
	230		2 430		
	255		0	150	11 590
			40		11 320
145		8 120			
170		6 820			
200		4 990			
210		4 310			
260	0	150	12 030		
	220		4 050		
	270		0	150	12 940
			90		11 600
205		6 000			
210		5 660			
280	0	150	13 880		
	170		9 110		
	175		8 820		
	200		7 280		
	210		6 600		
	220		5 890		
	230		5 150		
	235		4 770		
	240		4 380		
	250		3 570		
	260		2 730		

Ø ext.	Ø int.	H. maxi	Weight* g/100mm		
290	0	120	14 850		
	50		14 440		
	185		9 200		
	250		4 540		
300	0	120	16 370		
	240		6 870		
305	0	120	16 890		
	100		15 420		
	180		11 550		
	230		8 170		
	240		7 390		
	250		6 590		
	260		5 740		
	280		3 960		
320	0	120	17 970		
	260		6 820		
325	0	120	19 070		
	70		18 260		
	180		13 730		
	200		12 470		
	240		9 570		
	250		8 760		
	260		7 920		
340	0	120	20 790		
	210		13 520		
	270		8 770		
	280		7 860		
	295		6 440		
	305		4 940		
350	270	120	9 950		
360	0	120	23 820		
	185		18 160		
	220		15 840		
	250		13 510		
	295		9 470		
	300		8 980		
	305		7 970		
380	280	120	13 460		
	300		11 550		
	305		10 540		
	320		9 510		
	332		7 880		
400	332	120	9 900		
	345		6 190		
	410		280	120	16 870
			332		11 290
365		7 220			
385		4 710			
420	332	120	13 430		
	355		10 560		
	360		9 960		
	365		9 360		
430	365	120	10 820		
	385		8 320		
	450		380	120	11 220
385		10 580			
460		385	120		12 920
	400	11 220			
	480	410		100	12 010
490		385	100		17 820
		410			14 500
	435	10 970			
	460	7 240			
510	435	100	14 400		
	485		6 730		
525	460	100	13 330		
	485		9 390		

*Theoretical weight for virgin PTFE length 100mm - Other dimensions on demand.

PROPERTIES OF VIRGIN PTFE AND OTHER ENGINEERING PLASTICS		PTFE VIRGIN	POLYACÉTAL	POLYAMIDE 66	POLYÉTHYLÈNE PEHD	PVC
Density	g/cm ³	2,16	1,42	1,15	0,95	1,38
Tensile strength	kg/cm ²	270	700	650	220	480
Elongation at yield	%	280	50	40	350	30
Temperature of deflection under load (4,6 kg/cm ²)	°C	121			65	
Temperature of deflection under load (18,5 kg/cm ²)		56			42	70
Hardness Shore D		52	85	80	64	77
Impact strength	kJ/m ²		5	10	60/75	20
Coefficient of friction on dry steel		0,22	0,34	0,35	0,28	0,60
Wear		21	4,60	0,09	1,80	5,60
Coeff of linear expansion	10 ⁻⁵ /°C	12	10	7	14	7
Max. service temperature - peak	°C	260	140	170	120	80
Max. service temperature - continuous	°C	-270 / 250	-40/+100	-30/+120	-270/+100	-40/+60
Water absorption in 24 hours	%	0	0,25	2-3	0	0,10
Volume resistivity	Ohm/cm	1x10 ¹⁸	1x10 ¹³	1x10 ¹²	2x10 ¹⁴	1x10 ¹⁵

PROPERTIES OF VIRGIN AND FILLED PTFE		VIRGIN	GLASS	GLASS +MoS ₂	GRAPHITE	CARB. GRAPH.	BRONZE	ST. STEEL
Density	g/cm ³	2,16	2,23	2,28	2,12	2,11	3,88	3,40
Tensile strength	kg/cm ²	270	170	210	150	170	150	160
Elongation at yield	%	280	250	260	200	90	100	120
Compression strength deformation 1%	kg/cm ²	45	85	80	60	100	78	69
Compression strength deformation 25%		320	400	500			600	
Deformation under load 140kg/cm ² -24 h - 25°C	%	15	7	8	9	4	6	7
Deformation under load 140kg/cm ² -100 h - 25°C		17	9	9	11	6	6	7
Deformation under load 42kg/cm ² -24 h - 260°C		31	17	17	18	10	10	13
Hardness Shore D		52	58	57	57	63	65	63
Dynamic coeff. of friction on polished steel		0,04	0,16	0,09	0,07	0,09	0,10	0,08
PV limit at 3m/mn	kg/cm ² .m/mn	25	210	235	214	300	320	270
PV limit at 30m/mn		38	270	300	360	430	400	340
PV limit at 300m/mn		52	350	375	560	640	470	400
Wear ratio		2300	12	11	120	30	6	8
Coeff. of linear expansion from 25 to 100°C	10 ⁻⁵ /°C	12	6,90	8,70	8,20	6,70	7,90	8,20
Thermal conductivity		6	11	8	11	11	12	11
Dielectric rigidity th. 0,1mm	kV/mm	55	13	27				

PROPERTIES OF FLUOR BASED MATERIALS		PTFE	FEP	PFA	PTFCE	PVDF	ETFE	ETPCE
Density	g/cm ³	2,16	2,14	2,15	2,11	1,77	1,70	1,70
Tensile strength	kg/cm ²	270	220	300	360	450	450	450
• at 23°C		100		160			100	
• at 160 °C		90		160			100	
• at 200°C		80	20	12				
• at 250°C								
Elongation at break	%	280	300	300	150	150	200	200
• at 23°C		510		460			600	
• at 160 °C		510		510			600	
• at 200°C		350	350	510				
• at 250°C								
Tensile elastical limit	kg/cm ²	100	140	160		270	260	320
• at 23°C		40		65			40	
• at 160 °C		30		55			20	
• at 200°C								
• at 250°C								
Elasticity modulus in traction	kg/cm ²	56	58		146	175	82	140
Flexion resistance		180	220	210	575	670	350	500
Elasticity modulus in flexion		60	70	70	130	170	140	170
Impact strength IZOD notched	kg/cm ²	16	Sans rupt.		20	15	Sans rupt.	Sans rupt.
Hardness Shore D		52	59	60	78	80	75	75
Dynamic coeff. of friction on polished steel		0,04	0,15	0,40	0,40	0,40	0,40	0,60
Thermal conductivity	Cal/g.°C	6	6		1,40	3	6	4,50
Specific heat	10 ⁻⁵ /°C	0,25	0,26		0,21	0,33	0,45	0,25
Coeff. of linear expansion		10	9	12	7	12	7	8
Cold temperature brittleness	°C	-200	-180		-250	-60	-100	-76
Continuous service temperature		250	200	250	150	150	150	150
Peak service temperature		260	210	260	200	160	170	175
Vicat flow temperature	°C	110	105	140		140	145	
Melt temperature		327	275	305	214	170	270	245
Temperature of deflection under load (4,6 kg/cm ²)	°C	121	70		126	149	104	115
Temperature of deflection under load (18,5 kg/cm ²)		56	51			90	71	76
Dielectric rigidity (0,1mm)	kV/mm	55	90	90	200	65	120	70
Dielectric rigidity (2mm)		18	22		20	12	16	15

Non contractual datas.

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quality sealing and engineering plastics solutions

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