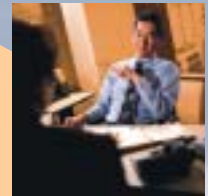


# Quadrant Engineering Plastic Products

global leader in engineering plastics for machining



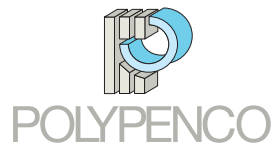
**Stock Shapes  
Delivery  
Programme**



A  
New Name  
built  
on  
Talent  
and  
Innovation



QUADRANT  
ENGINEERING PLASTIC PRODUCTS







Quadrant EPP's **General Engineering Plastics** and **Advanced Engineering Plastics** portfolio, which has been built up over the last 70 years, includes the broadest range of standard and custom shapes for machining in terms of materials and dimensions.

Quadrant EPP materials enhance **performance and service lifetime**. Our unique polymer technology extends the performance boundaries of standard engineering plastics in machined parts. These extreme levels of performance improve the productivity, efficiency, quality and life of equipment beyond the limits of standard materials. Our range of materials comply with FDA and other standards, and resist a variety of chemicals and solvents, temperatures and mechanical loads.

For requirements outside this delivery programme, Quadrant EPP offers tailor made stock shapes (natural or coloured PA, POM, PET, PC, PE, PP, PPE, PMP, TPE, PAI, PEEK, PPS, PPSU, PEI, PES, PSU, PVDF...) enhanced with or without fillers or reinforcements (PTFE, PE, glass fibres, carbon fibres, aramid...) upon request. (See pages 92 & 93)

Quadrant EPP also provides extensive **technical support and application development** and guarantees a constant flow of innovative products and new applications to the market. Extended technical data is available both in print and on the web ([www.quadrantplastics.com](http://www.quadrantplastics.com)). Complete traceability and certification are available to meet your compliance requirements.

The ability to offer reliable products and service levels is based on a **total quality** approach ISO 9002/9001, careful selection of raw materials, leading edge process technologies, a highly qualified workforce and computer aided logistic systems and services.

A **new name** built on **talent and innovation**. Quadrant Engineering Plastic Products' history is rooted in leading producers of stockshapes for machining and fabrication. It includes the former Polymer Corporation and Polypenco Companies, Erta and Cestidur, Symalit fluoropolymers and most recently DSM Engineering Plastic Products. Now part of the Quadrant group, a global diversified high-end plastics processing company, Quadrant EPP continues to strengthen its focus on specialised engineering plastics.

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# DELIVERY PROGRAMME (SUMMARY)

## General Engineering Plastics

MATERIALS SHAPES ↓	ERTALON®						NYLATRON®	
	6 SA	66 SA	4.6	66-GF30	6 PLA	6 XAU+ LFX	MC 901 GSM NSM	GS
ROUND RODS Ø (mm)	5 - 320	5 - 250	5 - 60	10 - 200	50 - 500	50 - 500	50 - 500	6 - 50
	+ discs up to Ø 1200							
PLATES Thicknesses (mm)	0.5 - 100	2 - 100	10 - 50	10 - 100	10 - 100	10 - 100	10 - 100	8 - 50
	+ rectangular blocks up to 1000 wide x 1000 long x 200 thick							
TUBES O.D. (mm)	20 - 100	20 - 100	-	-	50 - 600	50 - 600	50 - 600	20 - 66
	+ rings up to O.D. 2150							

MATERIALS SHAPES ↓	ERTACETAL®			ERTALYTE®	ERTALYTE® TX	PC 1000
	C	H	H-TF			
ROUND RODS Ø (mm)	3 - 320	5 - 200	10 - 100	10 - 210	10 - 200	6 - 200
PLATES Thicknesses (mm)	0.5 - 120	8 - 50	12 - 50	2 - 100	8 - 100	15 - 50
TUBES O.D. (mm)	20 - 350	-	-	20 - 200	20 - 200	-

MATERIALS SHAPES ↓	CESTILENE				CESTICOLOR HD 500	CESTIDUR®	CESTILITE ASTL	CESTITECH 7000
	HD 500	HD 500 R	HD 1000	HD 1000 R				
ROUND RODS Ø (mm) extruded	30 - 200	-	20 - 200	-	-	-	-	-
pressed & turned	20 - 140	-	20 - 240	-	20 - 140	20 - 240	20 - 240	20 - 240
PLATES Thicknesses (mm)								
skived	-	-	1 - 10	-	-	1 - 10	1 - 10	-
extruded	2 - 15	-	-	-	-	-	-	-
pressed	8 - 150	8 - 150	8 - 250	8 - 150	8 - 150	8 - 250	8 - 250	8 - 250

## Advanced Engineering Plastics

MATERIALS SHAPES ↓	CELAZOLE® PBI	TORLON®				
		4203 PAI	4503 PAI	4301 PAI	4501 PAI	5530 PAI
ROUND RODS Ø (mm)	9.53 - 101.60	2.38 - 50.80	57.15 - 381.00	6.35 - 50.80	50.80 - 381.00	50.80 - 381.00
PLATES Thicknesses (mm)	12.7 - 38.10	6.35 - 25.40	-	6.35 - 25.40	9.53 - 50.80	9.53 - 50.80
TUBES O.D. (mm)	42.86 - 138.11	-	42.86 - 882.65	-	42.86 - 882.65	42.86 - 882.65

MATERIALS SHAPES ↓	KETRON® PEEK				TECHTRON® HPV PPS	PEI 1000	PPSU 1000 PSU 1000	SYMALIT® PVDF 1000
	1000	HPV	GF30	CA30				
ROUND RODS Ø (mm)	3 - 200	6 - 100	6 - 100	6 - 80	8 - 100	6.35 - 152.40	5 - 150	10 - 250
PLATES Thicknesses (mm)	5 - 100	5 - 60	5 - 60	5 - 60	5 - 100	6.35 - 50.80	10 - 50	8 - 100
TUBES O.D. (mm)	50 - 200	50 - 200	50 - 200	50 - 200	50 - 200	-	-	-

MATERIALS SHAPES ↓	FLUROSINT® 207 500	SEMITRON® ESd			
		225	410C	500HR	520HR
ROUND RODS Ø (mm)	12.70 - 222.25	4.76 - 101.60	12.70 - 247.65	-	-
PLATES Thicknesses (mm)	6.35 - 76.20	8 - 50	9.53 - 50.80	6.35 - 50.80	9.53 - 38.10
TUBES O.D. (mm)	31.75 - 304.80	-	50.80 - 374.65	-	-

## GENERAL ENGINEERING PLASTICS

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[ <b>ERTACETAL®</b>	29
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# ERTALON® NYLATRON®

## Polyamides (PA)

Within the polyamides, commonly referred to as “nylons”, we distinguish different types. The most important ones are: PA 6, PA 66, PA 11 and PA 12.

The differences in physical properties which exist between these types are mainly determined by the composition and the structure of their molecular chains.

### Main characteristics:

- high mechanical strength, stiffness, hardness and toughness
- good fatigue resistance
- high mechanical damping ability
- good sliding properties
- excellent wear resistance
- good electrical insulating properties
- good resistance to high energy radiation (gamma and X-rays)
- good machinability

### EXTRUDED PRODUCTS

#### ERTALON 6 SA (PA 6) natural (white) / black

This material offers an optimal combination of mechanical strength, stiffness, toughness, mechanical damping properties and wear resistance. These properties, together with a favourable electrical insulating ability and a good chemical resistance make ERTALON 6 SA a “general purpose” grade for mechanical construction and maintenance.

#### ERTALON 66 SA (PA 66) natural (cream) / black

Material with a higher mechanical strength, stiffness, heat and wear resistance than ERTALON 6 SA. It also has a better creep resistance but its impact strength and mechanical damping ability are reduced. Well suited for machining on automatic lathes.

#### ERTALON 4.6 (PA 4.6) (reddish brown)

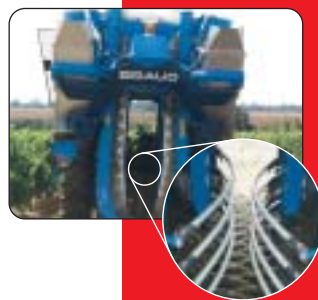
Compared with the conventional nylons, ERTALON 4.6 (STANYL®) features a better retention of stiffness and creep resistance over a wide range of temperatures as well as a superior heat ageing resistance. Therefore, applications for ERTALON 4.6 are situated in the “higher temperature area” (80 - 150°C) where stiffness, creep resistance, heat ageing resistance, fatigue strength and wear resistance of PA 6, PA 66, POM and PET fall short.

#### ERTALON 66-GF30 (PA 66-GF30) (black)

Compared with virgin PA 66, this 30% glass fibre reinforced and heat stabilised nylon grade offers increased strength, stiffness, creep resistance and dimensional stability whilst retaining an excellent wear resistance. It also allows higher max. service temperatures.

#### NYLATRON GS (PA 66 + MoS<sub>2</sub>) (grey-black)

The addition of MoS<sub>2</sub> renders this material somewhat stiffer, harder and dimensionally more stable than ERTALON 66 SA, but results in some loss of impact strength. The nucleating effect of the molybdenum disulphide results into an improved crystalline structure enhancing bearing and wear properties.





# ERTALON® NYLATRON®

## Polyamides (PA)

### CAST PRODUCTS

#### **ERTALON 6 PLA** (PA 6) **natural (ivory) / black**

Unmodified cast nylon 6 grade exhibiting characteristics which come very close to those of ERTALON 66 SA. It combines high strength, stiffness and hardness with good creep and wear resistance, heat ageing properties and machinability.

#### **ERTALON 6 XAU+** (PA 6) **(black)**

ERTALON 6 XAU+ is a heat stabilised cast nylon grade with a very dense and highly crystalline structure. Compared with conventional extruded or cast nylons, ERTALON 6 XAU+ offers superior heat ageing performance in air (much better resistance to thermal-oxidative degradation), allowing 15 - 30°C higher continuously allowable service temperatures. ERTALON 6 XAU+ is particularly recommended for bearings and other mechanical parts subject to wear which are operating in air for long periods of time at temperatures over 60°C.

#### **ERTALON LFX** (PA 6 + oil) **(green)**

This internally lubricated cast nylon 6 is self-lubricating in the real meaning of the word. ERTALON LFX, especially developed for unlubricated, highly loaded and slowly moving parts applications, yields a considerable enlargement of the application possibilities of nylons. This is because of its reduced coefficient of friction (up to -50%) and improved wear resistance (up to x 10).

#### **NYLATRON MC 901** (PA 6) **(blue)**

This modified cast nylon 6 grade with its distinctive blue colour exhibits higher toughness, flexibility and fatigue resistance than ERTALON 6 PLA. It has proved to be an excellent material for gear wheels, racks and pinions.

#### **NYLATRON GSM** (PA 6 + MoS<sub>2</sub>) **(grey-black)**

NYLATRON GSM contains finely divided particles of molybdenum disulphide to enhance its bearing and wear behaviour without impairing the impact and fatigue resistance inherent to unmodified cast nylon grades. It is a very commonly used grade for gears, bearings, sprockets and sheaves.

#### **NYLATRON NSM** (PA 6 + solid lubricants) **(grey)**

NYLATRON NSM is a proprietary cast nylon 6 formulation containing solid lubricant additives which grant this material self-lubricity, excellent frictional properties, superior wear resistance and outstanding Pressure-Velocity capabilities (up to 5 times higher than conventional cast nylons). Being particularly suited for higher velocity, unlubricated moving parts applications, it is the perfect complement to the oil-filled grade ERTALON LFX.

# round rods

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)	
			natural	black
			40000000	40000100
5	+ 0.1	+ 0.4	● 0.025	○ 0.025
6			● 0.035	○ 0.035
8	+ 0.1	+ 0.5	● 0.063	○ 0.063
10			● 0.096	● 0.096
12	+ 0.2	+ 0.7	● 0.141	○ 0.141
14			○ 0.190	○ 0.190
15			● 0.217	○ 0.217
16			● 0.246	● 0.246
18			● 0.309	○ 0.309
20			● 0.380	● 0.380
22	+ 0.2	+ 0.9	● 0.462	○ 0.462
25			● 0.595	● 0.595
28			● 0.740	○ 0.740
30			● 0.850	● 0.850
32	+ 0.2	+ 1.1	● 0.970	● 0.970
36			● 1.22	● 1.22
40			● 1.50	● 1.50
45	+ 0.3	+ 1.3	● 1.91	● 1.91
50			● 2.35	● 2.35
56			● 2.93	● 2.93
60	+ 0.3	+ 1.6	● 3.38	● 3.38
65			● 3.95	○ 3.95
70			● 4.57	● 4.57
75	+ 0.4	+ 2	● 5.28	○ 5.28
80			● 5.99	● 5.99
85	+ 0.5	+ 2.2	● 6.78	○ 6.78
90			● 7.58	● 7.58
95	+ 0.6	+ 2.5	○ 8.47	○ 8.47
100			● 9.37	● 9.37
105	+ 0.7	+ 3	○ 10.40	○ 10.40
110			● 11.35	○ 11.35
115	+ 0.8	+ 3.5	○ 12.45	○ 12.45
120			● 13.55	● 13.55
125			○ 14.70	○ 14.70
130	+ 0.9	+ 3.8	● 15.90	○ 15.90
140			● 18.40	○ 18.40
150	+ 1	+ 4.2	● 21.15	● 21.15
160	+ 1.1	+ 4.5	● 24.10	○ 24.10
170	+ 1.2	+ 5	● 27.25	○ 27.25
180			● 30.45	● 30.45
190	+ 1.3	+ 5.5	○ 34.00	○ 34.00
200			● 37.60	● 37.60
220	+ 1.3	+ 5.8	● 45.40	○ 45.40
250	+ 1.5	+ 6.2	● 58.55	○ 58.55
280	+ 1.6	+ 6.5	● 73.30	○ 73.30
300	+ 1.7	+ 7	● 84.20	○ 84.20
320	+ 1.8	+ 7.4	● 95.75	○ 95.75
Standard lengths (mm)			Tolerance (1) on the lengths (%)	
1000			0	
3000			+ 3	
Non-standard lengths (cut-to-size) : available on request and subject to special conditions				

(1) : tolerances according to DIN 16980

(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# round rods

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)	
			natural	black
			40004000	40004100
5	+ 0.1	+ 0.4	● 0.025	○ 0.025
6			● 0.035	○ 0.035
8	+ 0.1	+ 0.5	● 0.063	○ 0.063
10			● 0.096	○ 0.096
12			+ 0.2	+ 0.7
14	● 0.190	○ 0.190		
15	● 0.217	○ 0.217		
16	● 0.246	● 0.246		
18	● 0.309	○ 0.309		
20	● 0.380	● 0.380		
22	+ 0.2	+ 0.9	● 0.462	○ 0.462
25			● 0.595	● 0.595
28			● 0.740	○ 0.740
30			● 0.850	● 0.850
32	+ 0.2	+ 1.1	● 0.970	○ 0.970
36			● 1.22	● 1.22
40			● 1.50	● 1.50
45	+ 0.3	+ 1.3	● 1.91	● 1.91
50			● 2.35	● 2.35
56			● 2.93	○ 2.93
60	+ 0.3	+ 1.6	● 3.38	● 3.38
65			● 3.95	○ 3.95
70			● 4.57	○ 4.57
75	+ 0.4	+ 2	● 5.28	○ 5.28
80			● 5.99	○ 5.99
85	+ 0.5	+ 2.2	● 6.78	○ 6.78
90			● 7.58	○ 7.58
95	+ 0.6	+ 2.5	○ 8.47	○ 8.47
100			● 9.37	○ 9.37
110	+ 0.7	+ 3	● 11.35	-
120	+ 0.8	+ 3.5	● 13.55	-
125			● 14.70	-
130	+ 0.9	+ 3.8	● 15.90	-
140			● 18.40	-
150	+ 1	+ 4.2	● 21.15	-
160	+ 1.1	+ 4.5	○ 24.10 (3)	-
170	+ 1.2	+ 5	○ 27.25 (3)	-
180			● 30.45 (3)	-
190	+ 1.3	+ 5.5	○ 34.00 (3)	-
200			● 37.60 (3)	-
220	+ 1.3	+ 5.8	○ 45.40 (3)	-
250	+ 1.5	+ 6.2	● 58.55 (3)	-
Standard lengths (mm)			Tolerance (1) on the lengths (%)	
1000			0	
3000			+ 3	

Ground rods up to 70 mm Ø as well as non-standard lengths (cut-to-size) : ○

(1) : tolerances according to DIN 16980

(2) : average production weights

(3) : these rods are made of ERTALON 66 SA-C, a modified polyamide 66

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- : not manufactured

# round rods

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)	
			ERTALON 4.6	ERTALON 66-GF30
			40005500	40004500
5	+ 0.1	+ 0.4	○ 0.026	–
6			○ 0.037	–
8	+ 0.1	+ 0.5	○ 0.065	–
10			○ 0.100	● 0.111
12			○ 0.146	● 0.163
15	+ 0.2	+ 0.7	○ 0.225	● 0.250
16			● 0.256	● 0.283
18			○ 0.322	○ 0.355
20			● 0.395	● 0.436
22			○ 0.480	○ 0.530
25	+ 0.2	+ 0.9	● 0.615	● 0.680
28			○ 0.770	○ 0.850
30			● 0.880	● 0.970
32			○ 1.01	○ 1.11
36	+ 0.2	+ 1.1	○ 1.27	● 1.40
40			● 1.57	● 1.72
45	+ 0.3	+ 1.3	○ 1.99	● 2.18
50			● 2.45	● 2.68
60	+ 0.3	+ 1.6	● 3.52	● 3.86
70			–	● 5.22
80	+ 0.4	+ 2	–	● 6.84
90	+ 0.5	+ 2.2	–	○ 8.66
100	+ 0.6	+ 2.5	–	● 10.70
110	+ 0.7	+ 3	–	○ 13.00
120	+ 0.8	+ 3.5	–	● 15.50
125			–	○ 16.80
130	+ 0.9	+ 3.8	–	● 18.20
140			–	○ 21.05
150			–	● 24.20
180	+ 1.2	+ 5	–	● 34.85
200	+ 1.3	+ 5.5	–	● 42.95
<b>Standard lengths (mm)</b>			<b>Tolerance on the lengths (%)</b>	
1000			0	
3000			+ 3	
<b>Non-standard lengths (cut-to-size) : available on request and subject to special conditions</b>				

(1) : average production weights

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- : not manufactured

round rods

Diameters  (mm)	Tolerances on the diameters  (mm)	Lengths  (mm)	Weights (1) - (kg/m)			
			ERTALON 6 PLA		ERTALON 6 XAU+	ERTALON LFX
			natural	black		
			40042000	40042100	40050000	40055000
50	+ 0.5 + 1.5	1000 / 3000	● 2.39	● 2.39	● 2.39	● 2.36
56		1000 / 3000	● 2.99	● 2.99	○ 2.99	● 2.95
60	+ 0.5 + 1.8	1000 / 3000	● 3.44	● 3.44	● 3.44	● 3.40
65		1000 / 3000	● 4.03	● 4.03	○ 4.03	○ 3.98
70		1000 / 3000	● 4.66	● 4.66	● 4.66	● 4.60
75	+ 0.7 + 2.3	1000 / 3000	● 5.39	● 5.39	○ 5.39	● 5.32
80		1000 / 3000	● 6.12	● 6.12	● 6.12	● 6.04
85	+ 1 + 2.7	1000 / 3000	● 6.95	○ 6.95	○ 6.95	○ 6.85
90		1000 / 3000	● 7.77	● 7.77	● 7.77	● 7.67
95	+ 1 + 2.9	1000 / 3000	○ 8.65	○ 8.65	○ 8.65	○ 8.54
100		1000 / 3000	● 9.57	● 9.57	● 9.57	● 9.45
110	+ 1 + 3.3	1000 / 3000	● 11.60	● 11.60	● 11.60	● 11.45
120	+ 1.1 + 3.8	1000 / 3000	● 13.80	● 13.80	● 13.80	● 13.65
125		1000 / 3000	● 14.95	● 14.95	○ 14.95	○ 14.75
130	+ 1.2 + 4.1	1000 / 3000	● 16.20	● 16.20	● 16.20	● 16.00
140		1000 / 3000	● 18.75	● 18.75	● 18.75	○ 18.50
150	+ 1.3 + 4.5	1000 / 3000	● 21.55	● 21.55	● 21.55	● 21.25
160	+ 2 + 7	1000	● 24.90	● 24.90	● 24.90	○ 24.60
170		1000	● 28.05	● 28.05	○ 28.05	○ 27.65
180		1000	● 31.35	● 31.35	● 31.35	● 30.95
190		1000	● 34.85	○ 34.85	○ 34.85	○ 34.40
200		1000	● 38.50	● 38.50	● 38.50	● 38.00
210	+ 3 + 9	500 / 1000	● 42.95	● 42.95	○ 42.95	○ 42.40
220		500 / 1000	● 47.05	● 47.05	● 47.05	○ 46.40
225		500 / 1000	○ 49.15	○ 49.15	○ 49.15	○ 48.50
230		500 / 1000	● 51.30	● 51.30	○ 51.30	○ 50.60
240		500 / 1000	● 55.70	○ 55.70	○ 55.70	○ 55.00
250		500 / 1000	● 60.35	● 60.35	● 60.35	● 59.55
260		500 / 1000	● 65.15	○ 65.15	○ 65.15	○ 64.30
270		500 / 1000	○ 70.15	○ 70.15	○ 70.15	○ 69.25
275		500 / 1000	○ 72.70	○ 72.70	○ 72.70	○ 71.75
280		500 / 1000	● 75.30	○ 75.30	○ 75.30	○ 74.35
290		500 / 1000	○ 80.65	○ 80.65	○ 80.65	○ 79.60
300	500 / 1000	● 86.20	● 86.20	● 86.20	○ 85.10	
325	+ 4 + 11	500 / 1000	● 101.8	○ 101.8	○ 101.8	○ 100.5
350		500 / 1000	● 117.7	● 117.7	● 117.7	○ 116.1
375		500 / 1000	● 134.7	○ 134.7	○ 134.7	○ 133.0
400		500 / 1000	● 152.9	● 152.9	○ 152.9	○ 150.9
425	+ 5 + 13	500 / 1000	○ 173.4	○ 173.4	○ 173.4	○ 171.2
450		500 / 1000	● 194.0	○ 194.0	○ 194.0	○ 191.5
475		500 / 1000	○ 215.7	○ 215.7	○ 215.7	○ 212.9
500		500 / 1000	● 238.5	○ 238.5	○ 238.5	○ 235.4
Standard lengths (mm) 500 1000 3000			Tolerance on the lengths (%)  0 + 3			

(1) : average production weights

PRODUCT CODE

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# round rods

Diameters (mm)	Tolerances on the diameters (mm)	Lengths (mm)	Weights (1) - (kg/m)		
			NYLATRON MC 901	NYLATRON GSM	NYLATRON NSM
			40042200	40042300	40043500
50	+ 0.5 + 1.5	1000 / 3000	● 2.39	● 2.41	○ 2.36
56		1000 / 3000	○ 2.99	● 3.00	○ 2.95
60	+ 0.5 + 1.8	1000 / 3000	● 3.44	● 3.46	● 3.40
65		1000 / 3000	○ 4.03	● 4.05	○ 3.38
70		1000 / 3000	○ 4.66	● 4.68	○ 4.60
75	+ 0.7 + 2.3	1000 / 3000	○ 5.39	● 5.41	○ 5.32
80		1000 / 3000	○ 6.12	● 6.14	○ 6.04
85	+ 1 + 2.7	1000 / 3000	○ 6.95	● 6.98	○ 6.85
90		1000 / 3000	○ 7.77	● 7.80	○ 7.67
95	+ 1 + 2.9	1000 / 3000	○ 8.65	○ 8.69	○ 8.54
100		1000 / 3000	● 9.57	● 9.61	○ 9.45
110	+ 1 + 3.3	1000 / 3000	○ 11.60	● 11.65	● 11.45
120	+ 1.1 + 3.8	1000 / 3000	○ 13.80	● 13.85	○ 13.65
125		1000 / 3000	○ 14.95	● 15.00	○ 14.75
130	+ 1.2 + 4.1	1000 / 3000	○ 16.20	● 16.25	○ 16.00
140		1000 / 3000	○ 18.75	● 18.80	○ 18.50
150	+ 1.3 + 4.5	1000 / 3000	○ 21.55	● 21.60	○ 21.25
160	+ 2 + 7	1000	● 24.90	● 25.00	○ 24.60
170		1000	○ 28.05	● 28.15	○ 27.65
180		1000	● 31.35	● 31.50	○ 30.95
190		1000	○ 34.85	○ 35.00	● 34.40
200		1000	● 38.50	● 38.65	● 38.00
210	+ 3 + 9	500 / 1000	○ 42.95	○ 43.15	○ 42.40
220		500 / 1000	● 47.05	● 47.25	● 46.40
225		500 / 1000	○ 49.15	○ 49.35	○ 48.50
230		500 / 1000	○ 51.30	○ 51.50	○ 50.60
240		500 / 1000	○ 55.70	○ 55.95	○ 55.00
250		500 / 1000	● 60.35	● 60.60	○ 59.55
260		500 / 1000	○ 65.15	○ 65.45	○ 64.30
270		500 / 1000	○ 70.15	○ 70.45	○ 69.25
275		500 / 1000	○ 72.70	○ 73.00	○ 71.75
280		500 / 1000	○ 75.30	● 75.65	○ 74.35
290		500 / 1000	○ 80.65	○ 81.00	● 79.60
300	500 / 1000	● 86.20	● 86.60	● 85.10	
325	+ 4 + 11	500 / 1000	○ 101.8	○ 102.2	○ 100.5
350		500 / 1000	● 117.7	● 118.2	○ 116.1
375		500 / 1000	○ 134.7	○ 135.3	○ 133.0
400		500 / 1000	○ 152.9	● 153.6	○ 150.9
425	+ 5 + 13	500 / 1000	○ 173.4	● 174.2	○ 171.2
450		500 / 1000	● 194.0	● 194.8	○ 191.5
475		500 / 1000	○ 215.7	○ 216.6	○ 212.9
500		500 / 1000	● 238.5	● 239.6	○ 235.4
Standard lengths (mm)			Tolerance on the lengths (%)		
500 1000 3000			0 + 3		
Ground rods up to 70 mm Ø (only available in lengths of 1000 mm) as well as non-standard lengths (cut-to-size) : ○					

(1) : average production weights

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

*round rods*

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) (kg/m)	
			40004400	
6	+ 0.1	+ 0.4	○	0.036
8	+ 0.1	+ 0.5	○	0.064
10			●	0.098
12			●	0.144
15	+ 0.2	+ 0.7	○	0.221
16			●	0.251
18			●	0.315
20			●	0.387
22			●	0.471
25	+ 0.2	+ 0.9	●	0.605
28			○	0.755
30			●	0.860
32			●	0.985
35	+ 0.2	+ 1.1	●	1.17
40			●	1.52
45			●	1.94
50	+ 0.3	+ 1.3	●	2.38
Standard lengths (mm)			Tolerance (1) on the lengths (%)	
1000			0	
3000			+ 3	

(1) : tolerances according to DIN 16980  
 (2) : average production weights

**PRODUCT CODE**

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*plates*

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) (kg/m)	
			40004404	
8	+ 0.2	+ 0.9	■	6.26
10			■	7.73
12			■	9.44
16	+ 0.3	+ 1.5	■	12.40
20			■	15.35
25			■	19.00
30			■	23.10
35	+ 0.5	+ 2.5	□	26.75
40			■	30.45
45			□	34.15
50			■	37.80
Standard sizes (mm)			Tolerances (1) on width and lengths	
610 x 1000			Width : + 5 mm + 25 mm	
610 x 3000			Lengths : 0 + 3 %	

(1) : tolerances according to DIN 16986  
 (2) : average production weights

**PRODUCT CODE**

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# s h e e t s

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m <sup>2</sup> )		
			ERTALON 6 SA		ERTALON 66 SA
			Coils (3)	Plates (4) 1000 x 1000 mm 1000 x 2000 mm	Plates (4) 1000 x 1000 mm 1000 x 2000 mm
			40000003		40004003
0.5	- 0.02	+ 0.08	■ 0.630	–	–
0.8	- 0.05	+ 0.10	■ 0.990	–	–
1	- 0.10	+ 0.10	■ 1.17	■ 1.17	–
1.5			■ 1.76	■ 1.76	–
2	- 0.15	+ 0.15	–	■ 2.35	■ 2.35
2.5			–	□ 2.94	–
3			–	■ 3.52	■ 3.52
4	- 0.20	+ 0.20	–	■ 4.70	■ 4.70
5			–	■ 5.87	■ 5.87
6	- 0.25	+ 0.25	–	■ 7.05	■ 7.05
8			–	■ 10.15	–
			40000004		40004004

- (1) : tolerances according to DIN 16984  
(2) : average production weights  
(3) : a coil contains approx. 50 kg of material ; width : 1000 (0 + 30) mm  
(4) : tolerance on width and lengths : 0 + 3%

PRODUCT CODE

## ERTALON 6 SA natural / black

# p l a t e s

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m)	
			natural	black
			40000004	40000104
8	+ 0.2	+ 0.9	■ 6.28	■ 6.28
10			■ 7.73	■ 7.73
12	+ 0.3	+ 1.5	■ 9.34	■ 9.34
15			■ 11.50	■ 11.50
16			■ 12.25	□ 12.25
18			□ 13.70	□ 13.70
20			■ 15.15	■ 15.15
25			■ 18.75	■ 18.75
30	+ 0.5	+ 2.5	■ 22.80	■ 22.80
35			■ 26.45	□ 26.45
40			■ 30.05	■ 30.05
45			□ 33.70	□ 33.70
50			■ 37.30	■ 37.30
60	+ 0.5	+ 3.5	■ 44.90	□ 44.90
70			■ 52.15	□ 52.15
80	+ 0.5	+ 5	■ 59.95	□ 59.95
90			□ 67.20	□ 67.20
100			■ 74.45	□ 74.45
Standard sizes (mm)			Tolerances (1) on width and lengths	
610 x 1000			Width : + 5 mm + 25 mm	
610 x 3000			Lengths : 0 + 3 %	

Cut-to-size products : available on request and subject to special conditions

- (1) : tolerances according to DIN 16986  
(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m)	
			natural	black
			40004004	40004104
8	+ 0.2	+ 0.9	■ 6.15	□ 6.15
10			■ 7.59	□ 7.59
12	+ 0.3	+ 1.5	■ 9.28	□ 9.28
15			■ 11.45	□ 11.45
16			■ 12.15	□ 12.15
20			■ 15.05	□ 15.05
25			■ 18.65	□ 18.65
30			■ 22.65	□ 22.65
35	+ 0.5	+ 2.5	■ 26.25	□ 26.25
40			■ 29.85	□ 29.85
45			□ 33.45	□ 33.45
50			■ 37.05	□ 37.05
60			■ 44.60	□ 44.60
70	+ 0.5	+ 3.5	□ 51.80	□ 51.80
80	+ 0.5	+ 5	□ 59.55	□ 59.55
90			□ 66.75	□ 66.75
100			□ 73.95	□ 73.95
Standard sizes (mm)			Tolerances (1) on width and lengths	
610 x 1000			Width : + 5 mm + 25 mm	
610 x 3000			Lengths : 0 + 3 %	
Cut-to-size products : available on request and subject to special conditions				

(1) : tolerances according to DIN 16986  
(2) : average production weights

PRODUCT CODE

**ERTALON 4.6**  
**ERTALON 66-GF30**

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m)		
			ERTALON 4.6		ERTALON 66-GF30
			width = 500 mm	width = 610 mm	width = 625 mm
			40005504	40004504	
10	+ 0.2	+ 0.9	-	■ 8.05	■ 8.84
15			-	■ 12.15	■ 13.30
20	+ 0.3	+ 1.5	-	■ 15.90	■ 17.50
25			-	■ 19.70	■ 21.70
30			-	■ 24.00	■ 26.40
40	+ 0.5	+ 2.5	-	■ 31.55	■ 34.80
50			■ 32.20	-	■ 43.15
60	+ 0.5	+ 3.5	-	-	■ 51.95
70			-	-	□ 60.35
80	+ 0.5	+ 5	-	-	■ 69.35
90			-	-	□ 77.70
100			-	-	■ 86.10
Standard sizes (mm)			Tolerances on widths and lengths		
ERTALON 4.6		ERTALON 66-GF30	Widths : + 5 mm + 25 mm		
500/610 x 1000		625 x 1000	Lengths : 0 + 3 %		
500/610 x 3000		625 x 3000			
Cut-to-size products : available on request and subject to special conditions					

(1) : average production weights

PRODUCT CODE

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- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

plates



Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)							
		Standard sizes (mm)							
		610 x 1220		1220 x 2000		1220 x 2440		1220 x 3050	
		natural : 40042004 / black : 40042104							
		natural	black	natural	black	natural	black	natural	black
8 (2)	+ 0.5    + 2.5	—	—	—	—	—	—	—	—
10		■ 10.05	■	■ 33.15	■	□ 40.45	□	■ 50.55	■
12		■ 11.80	■	■ 38.90	■	□ 47.45	□	■ 59.30	■
16		■ 15.35	■	■ 50.40	■	□ 61.50	□	■ 76.85	■
20		■ 18.85	■	■ 61.95	■	□ 75.60	□	■ 94.45	■
25	■ 23.20	■	■ 76.35	■	□ 93.15	□	■ 116.4	■	
30	+ 0.5    + 3	■ 27.90	■	■ 91.85	■	□ 112.1	□	■ 140.1	■
35		■ 32.30	□	■ 106.3	■	□ 129.7	□	■ 162.1	□
40		■ 36.70	■	■ 120.7	■	□ 147.3	□	■ 184.1	■
45		□ 41.05	□	□ 135.1	□	□ 164.8	□	■ 206.0	■
50		■ 45.45	■	■ 149.5	■	□ 182.4	□	■ 228.0	■
55	+ 0.5    + 3.5	■ 50.35	□	□ 165.7	□	□ 202.2	□	■ 252.7	□
60		■ 54.75	■	■ 180.1	■	□ 219.7	□	■ 274.7	■
65		□ 59.10	□	□ 194.5	□	□ 237.3	□	—	—
70	+ 0.5    + 4.5	■ 63.50	■	■ 208.9	■	□ 254.9	□	■ 318.6	■
75		□ 67.90	□	□ 223.3	□	□ 272.4	□	—	—
80		■ 72.25	■	■ 237.7	■	□ 290.0	□	■ 362.5	□
90		■ 81.00	□	□ 266.5	□	□ 325.1	□	■ 406.4	□
100		■ 89.75	■	■ 295.3	■	□ 360.3	□	■ 450.3	□
Tolerances on widths and lengths (mm) :		610 ( 0 + 10) x 1220 (+ 10 + 20)		1220 (+ 10 + 20) x 2440 (+ 20 + 40)		1220 (+ 10 + 20) x 2000 (+ 10 + 30)		1220 (+ 10 + 20) x 3050 (+ 20 + 40)	

Cut-to-size products : available on request and subject to special conditions

(1) : average production weights

(2) : please note that 8 mm thick nylon 6 plates (1000 x 1000) and (1000 x 2000) mm are available as standard items in ERTALON 6 SA natural ; see page 15

PRODUCT CODE

plates



Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)							
		Standard sizes (mm)							
		610 x 1220		1220 x 2000		1220 x 2440		1220 x 3050	
		40050004							
		■	□	■	□	■	□	■	□
10	+ 0.5    + 2.5	■ 10.05	□	■ 33.15	□	■ 40.45	□	■ 50.55	□
12		■ 11.80	□	■ 38.90	□	■ 47.45	□	■ 59.30	□
16		■ 15.35	□	■ 50.40	□	■ 61.50	□	■ 76.85	□
20		■ 18.85	□	■ 61.95	□	■ 75.60	□	■ 94.45	□
25		■ 23.20	□	■ 76.35	□	■ 93.15	□	■ 116.4	□
30	+ 0.5    + 3	■ 27.90	□	■ 91.85	□	■ 112.1	□	■ 140.1	□
35		■ 32.30	□	■ 106.3	□	■ 129.7	□	■ 162.1	□
40		■ 36.70	□	■ 120.7	□	■ 147.3	□	■ 184.1	□
45		□ 41.05	□	□ 135.1	□	□ 164.8	□	■ 206.0	□
50		■ 45.45	□	■ 149.5	□	■ 182.4	□	■ 228.0	□
55	+ 0.5    + 3.5	□ 50.35	□	□ 165.7	□	□ 202.2	□	□ 252.7	□
60		■ 54.75	□	■ 180.1	□	■ 219.7	□	■ 274.7	□
65		□ 59.10	□	□ 194.5	□	□ 237.3	□	—	—
70	+ 0.5    + 4.5	■ 63.50	□	■ 208.9	□	■ 254.9	□	■ 318.6	□
75		□ 67.90	□	□ 223.3	□	□ 272.4	□	—	—
80		■ 72.25	□	■ 237.7	□	■ 290.0	□	■ 362.5	□
90		■ 81.00	□	□ 266.5	□	□ 325.1	□	■ 406.4	□
100		■ 89.75	□	■ 295.3	□	□ 360.3	□	■ 450.3	□
Tolerances on widths and lengths (mm) :		610 ( 0 + 10) x 1220 (+ 10 + 20)		1220 (+ 10 + 20) x 2440 (+ 20 + 40)		1220 (+ 10 + 20) x 2000 (+ 10 + 30)		1220 (+ 10 + 20) x 3050 (+ 20 + 40)	

Cut-to-size products : available on request and subject to special conditions

(1) : average production weights

■ : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

— : not manufactured

PRODUCT CODE



Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/piece)			
			Standard sizes (mm)			
			610 x 1220	1220 x 2000	1220 x 2440	1220 x 3050
<b>40055004</b>						
10	+ 0.5	+ 2.5	■ 9.94	□ 32.70	□ 39.90	■ 49.85
12			■ 11.65	□ 38.40	□ 46.85	■ 58.55
16			■ 15.15	□ 49.75	□ 60.70	■ 75.85
20			■ 18.60	□ 61.15	□ 74.60	■ 93.25
25			■ 22.90	□ 75.35	□ 91.95	■ 114.9
30	+ 0.5	+ 3	■ 27.55	□ 90.65	□ 110.6	■ 138.2
35			■ 31.90	□ 104.9	□ 128.0	■ 160.0
40			■ 36.20	□ 119.1	□ 145.3	■ 181.6
45			□ 40.50	□ 133.3	□ 162.6	■ 203.3
50			■ 44.85	□ 147.5	□ 180.0	■ 224.9
55	+ 0.5	+ 3.5	□ 49.70	□ 163.5	□ 199.5	□ 249.3
60			■ 54.05	□ 177.7	□ 216.8	■ 271.0
65			□ 58.35	□ 192.0	□ 234.2	–
70	+ 0.5	+ 4.5	■ 62.65	□ 206.2	□ 251.6	■ 314.5
75			□ 67.00	□ 220.4	□ 268.9	–
80			■ 71.30	□ 234.6	□ 286.2	■ 357.8
90			■ 79.95	□ 263.1	□ 321.0	□ 401.2
100			■ 88.60	□ 291.5	□ 355.6	■ 444.5
<b>Tolerances on widths and lengths (mm) : 610 ( 0 + 10) x 1220 (+ 10 + 20)</b> <b>1220 (+ 10 + 20) x 2000 (+ 10 + 30)</b> <b>1220 (+ 10 + 20) x 2440 (+ 20 + 40)</b> <b>1220 (+ 10 + 20) x 3050 (+ 20 + 40)</b>						
<b>Cut-to-size products : available on request and subject to special conditions</b>						

(1) : average production weights

**PRODUCT CODE**

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- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

## plates



Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)			
		Standard sizes (mm)			
		610 x 1220	1220 x 2000	1220 x 2440	1220 x 3050
<b>40042204</b>					
10	+ 0.5      + 2.5	□ 10.05	■ 33.15	□ 40.45	□ 50.55
12		□ 11.80	□ 38.90	□ 47.45	□ 59.30
16		□ 15.35	■ 50.40	□ 61.50	□ 76.85
20		□ 18.85	■ 61.95	□ 75.60	□ 94.45
25		□ 23.20	■ 76.35	□ 93.15	□ 116.4
30	+ 0.5      + 3	□ 27.90	■ 91.85	□ 112.1	□ 140.1
35		□ 32.30	□ 106.3	□ 129.7	□ 162.1
40		□ 36.70	■ 120.7	□ 147.3	□ 184.1
45		□ 41.05	□ 135.1	□ 164.8	□ 206.0
50		□ 45.45	■ 149.5	□ 182.4	□ 228.0
55	+ 0.5      + 3.5	□ 50.35	□ 165.7	□ 202.2	□ 252.7
60		□ 54.75	■ 180.1	□ 219.7	□ 274.7
65		□ 59.10	□ 194.5	□ 237.3	-
70	+ 0.5      + 4.5	□ 63.50	□ 208.9	□ 254.9	□ 318.6
75		□ 67.90	□ 223.3	□ 272.4	-
80		□ 72.25	□ 237.7	□ 290.0	□ 362.5
90		□ 81.00	□ 266.5	□ 325.1	□ 406.4
100		□ 89.75	□ 295.3	□ 360.3	□ 450.3
<b>Tolerances on widths and lengths (mm) : 610 ( 0 + 10) x 1220 (+ 10 + 20)</b> <b>1220 (+ 10 + 20) x 2000 (+ 10 + 30)</b> <b>1220 (+ 10 + 20) x 2440 (+ 20 + 40)</b> <b>1220 (+ 10 + 20) x 3050 (+ 20 + 40)</b>					
<b>Cut-to-size products : available on request and subject to special conditions</b>					

(1) : average production weights

PRODUCT CODE

# NYLATRON GSM

## plates



Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)			
		Standard sizes (mm)			
		610 x 1220	1220 x 2000	1220 x 2440	1220 x 3050
<b>40042304</b>					
10	+ 0.5      + 2.5	□ 10.10	■ 33.30	□ 40.65	□ 50.80
12		□ 11.85	■ 39.05	□ 47.65	□ 59.55
16		□ 15.40	■ 50.65	□ 61.80	□ 77.25
20		□ 18.90	■ 62.20	□ 75.90	□ 94.85
25		□ 23.30	■ 76.70	□ 93.55	□ 117.0
30	+ 0.5      + 3	□ 28.05	■ 92.25	□ 112.5	□ 140.7
35		□ 32.45	■ 106.7	□ 130.2	□ 162.7
40		□ 36.85	■ 121.2	□ 147.9	□ 184.8
45		□ 41.25	□ 135.6	□ 165.4	□ 206.8
50		□ 45.65	■ 150.1	□ 183.1	□ 228.9
55	+ 0.5      + 3.5	□ 50.60	□ 166.4	□ 203.0	□ 253.8
60		□ 55.00	■ 180.9	□ 220.7	□ 275.9
65		□ 59.35	■ 195.3	□ 238.3	-
70	+ 0.5      + 4.5	□ 63.75	■ 209.8	□ 256.0	□ 319.9
75		□ 68.15	□ 224.3	□ 273.6	-
80		□ 72.55	■ 238.7	□ 291.2	□ 364.0
90		□ 81.35	□ 267.7	□ 326.6	□ 408.2
100		□ 90.15	■ 296.6	□ 361.9	□ 452.3
<b>Tolerances on widths and lengths (mm) : 610 ( 0 + 10) x 1220 (+ 10 + 20)</b> <b>1220 (+ 10 + 20) x 2000 (+ 10 + 30)</b> <b>1220 (+ 10 + 20) x 2440 (+ 20 + 40)</b> <b>1220 (+ 10 + 20) x 3050 (+ 20 + 40)</b>					
<b>Cut-to-size products : available on request and subject to special conditions</b>					

(1) : average production weights

PRODUCT CODE

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)  
- : not manufactured



Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)			
		Standard sizes (mm)			
		610 x 1220	1220 x 2000	1220 x 2440	1220 x 3050
<b>40043504</b>					
10	+ 0.5      + 2.5	□ 9.94	■ 32.70	□ 39.90	□ 49.85
12		□ 11.65	■ 38.40	□ 46.85	□ 58.55
16		□ 15.15	■ 49.75	□ 60.70	□ 75.85
20		□ 18.60	■ 61.15	□ 74.60	□ 93.25
25		□ 22.90	■ 75.35	□ 91.95	□ 114.9
30	+ 0.5      + 3	□ 27.55	■ 90.65	□ 110.6	□ 138.2
35		□ 31.90	■ 104.9	□ 128.0	□ 160.0
40		□ 36.20	■ 119.1	□ 145.3	□ 181.6
45		□ 40.50	□ 133.3	□ 162.6	□ 203.3
50		□ 44.85	■ 147.5	□ 180.0	□ 224.9
55	+ 0.5      + 3.5	□ 49.70	□ 163.5	□ 199.5	□ 249.3
60		□ 54.05	■ 177.7	□ 216.8	□ 271.0
65		□ 58.35	□ 192.0	□ 234.2	-
70	+ 0.5      + 4.5	□ 62.65	□ 206.2	□ 251.6	□ 314.5
75		□ 67.00	□ 220.4	□ 268.9	-
80		□ 71.30	■ 234.6	□ 286.2	□ 357.8
90		□ 79.95	□ 263.1	□ 321.0	□ 401.2
100		□ 88.60	■ 291.5	□ 355.6	□ 444.5
<b>Tolerances on widths and lengths (mm) : 610 ( 0 + 10) x 1220 (+ 10 + 20)</b> <b>1220 (+ 10 + 20) x 2000 (+ 10 + 30)</b> <b>1220 (+ 10 + 20) x 2440 (+ 20 + 40)</b> <b>1220 (+ 10 + 20) x 3050 (+ 20 + 40)</b>					
<b>Cut-to-size products : available on request and subject to special conditions</b>					

(1) : average production weights

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
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- : not manufactured

# tubes

Diameters (mm) O.D. x I.D.	Tolerances (1) on the diameters (mm)				Weights (2) - (kg/m)		
					ERTALON 6 SA		ERTALON 66 SA
	O.D.		I.D.		natural	black	natural
	+ 0.4 + 1.1		- 0.4 - 1.1		40000007	40000107	40004007
20 x 10				● 0.314	● 0.314	⊙ 0.314	
15				⊙ 0.207	⊙ 0.207	⊙ 0.207	
22 x 10				⊙ 0.393	⊙ 0.393	⊙ 0.393	
25 x 12				● 0.488	⊙ 0.488	● 0.488	
15				● 0.418	⊙ 0.418	⊙ 0.418	
18				⊙ 0.332	⊙ 0.332	⊙ 0.332	
28 x 12				⊙ 0.635	⊙ 0.635	⊙ 0.635	
20				⊙ 0.414	⊙ 0.414	⊙ 0.414	
30 x 15				● 0.675	⊙ 0.675	⊙ 0.675	
20				● 0.525	⊙ 0.525	⊙ 0.525	
32 x 15				● 0.835	● 0.835	⊙ 0.835	
20				⊙ 0.690	⊙ 0.690	● 0.690	
25				● 0.497	⊙ 0.497	⊙ 0.497	
36 x 17				● 1.04	● 1.04	⊙ 1.04	
25				● 0.755	⊙ 0.755	⊙ 0.755	
40 x 20				● 1.23	● 1.23	⊙ 1.23	
25				● 1.04	⊙ 1.04	● 1.04	
30				● 0.800	⊙ 0.800	⊙ 0.800	
45 x 20				● 1.63	⊙ 1.63	-	
25				● 1.44	⊙ 1.44	⊙ 1.44	
30				⊙ 1.20	● 1.20	⊙ 1.20	
35				⊙ 0.915	⊙ 0.915	⊙ 0.915	
50 x 20				● 2.07	⊙ 2.07	-	
25				● 1.88	⊙ 1.88	-	
30				● 1.64	● 1.64	● 1.64	
40				● 1.03	⊙ 1.03	● 1.03	
55 x 25				● 2.42	⊙ 2.42	-	
35				● 1.91	⊙ 1.91	⊙ 1.91	
60 x 30				● 2.72	⊙ 2.72	-	
40				● 2.12	⊙ 2.12	● 2.12	
65 x 40				⊙ 2.75	⊙ 2.75	-	
70 x 30				● 3.98	⊙ 3.98	-	
40				● 3.38	⊙ 3.38	-	
50				● 2.60	⊙ 2.60	⊙ 2.60	
75 x 30				● 4.66	⊙ 4.66	-	
50				⊙ 3.27	⊙ 3.27	-	
80 x 40				● 4.78	⊙ 4.78	-	
50				● 3.99	⊙ 3.99	-	
60				● 3.03	⊙ 3.03	⊙ 3.03	
90 x 40				● 6.53	⊙ 6.53	-	
50				⊙ 5.78	⊙ 5.78	-	
60				● 4.84	⊙ 4.84	-	
100 x 40				⊙ 8.31	⊙ 8.31	-	
50				● 7.55	⊙ 7.55	-	
60				● 6.61	⊙ 6.61	-	
80				⊙ 4.18	⊙ 4.18	● 4.18	
<b>Standard lengths (mm)</b>					<b>Tolerance on the lengths (%)</b>		
1000					0 + 3		
3000							
<b>Non-standard lengths (cut-to-size) : available on request and subject to special conditions</b>							

(1) : tolerances according to DIN 16983

(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- ⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

Diameters (mm)			Tolerances (1) on the diameters (mm)				Weights (2) (kg/m)	
O.D.	x	I.D.	O.D.		I.D.		40004407	
20	x	10	+ 0.4	+ 1.1	- 0.4	- 1.1	⊙	0.325
25	x	15					⊙	0.433
30	x	15					●	0.695
		20					⊙	0.540
36	x	20	+ 0.6	+ 2	- 0.6	- 2	●	0.980
		25					⊙	0.790
40	x	25					●	1.08
		30					⊙	0.840
45	x	25					⊙	1.48
		30					●	1.25
		35					⊙	0.960
50	x	30					⊙	1.70
		35	⊙	1.41				
		40	⊙	1.08				
60	x	45	+ 0.8	+ 2.5	- 0.8	- 2.5	⊙	1.83
		50					⊙	1.41
65	x	50	+ 0.8	+ 3	- 0.8	- 3	⊙	2.06
		55					⊙	1.60
66	x	53					⊙	1.92
Standard lengths (mm)					Tolerance on the lengths (%)			
1000					0			
3000					+ 3			
Non-standard lengths (cut-to-size) : available on request and subject to special conditions								

(1) : tolerances according to DIN 16983

(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- ⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



tubes (\*)

I.D. (mm)	Weights (1)(2) – (kg/piece)												
	O.D. (mm)												
	50	56	60	65	70	75	80	85	90	95	100	105	110
20	<b>4.40</b>	5.46	–	–	–	–	–	–	–	–	–	–	–
25	4.04	5.10	5.99	7.22	8.47	9.81	11.25	13.10	–	–	–	–	–
30	–	<b>4.65</b>	<b>5.54</b>	6.77	<b>8.01</b>	9.36	<b>10.80</b>	12.70	14.30	–	–	–	–
35	–	4.11	5.00	6.23	7.47	8.82	10.25	12.15	13.80	15.55	17.70	19.60	21.35
40	–	–	<b>4.36</b>	<b>5.60</b>	<b>6.84</b>	8.18	<b>9.64</b>	<b>11.55</b>	<b>13.20</b>	14.90	<b>17.10</b>	18.95	20.75
45	–	–	–	4.87	6.12	7.46	8.91	10.85	12.50	14.20	16.40	18.30	20.05
50	–	–	–	<b>4.06</b>	<b>5.30</b>	<b>6.65</b>	<b>8.10</b>	10.05	<b>11.70</b>	13.45	<b>15.65</b>	17.50	<b>19.25</b>
55	–	–	–	–	4.40	5.75	7.20	9.19	10.85	12.55	14.75	16.60	18.40
60	–	–	–	–	–	<b>4.75</b>	<b>6.20</b>	8.23	<b>9.87</b>	11.60	<b>13.80</b>	15.65	<b>17.45</b>
65	–	–	–	–	–	–	–	5.12	7.17	8.81	10.55	12.75	14.60
70	–	–	–	–	–	–	–	<b>6.02</b>	<b>7.66</b>	<b>9.38</b>	<b>11.60</b>	13.45	<b>15.20</b>
75	–	–	–	–	–	–	–	–	6.43	8.15	10.35	12.20	14.00
80	–	–	–	–	–	–	–	–	–	6.82	<b>9.01</b>	10.85	<b>12.65</b>
85	–	–	–	–	–	–	–	–	–	–	7.59	9.45	11.25
90	–	–	–	–	–	–	–	–	–	–	–	7.94	<b>9.73</b>
95	–	–	–	–	–	–	–	–	–	–	–	–	8.13

Standard length (mm) : 2000 (0 + 60) - (3)



I.D. (mm)	Weights (1)(2)(4) – (kg/piece)													
	O.D. (mm)													
	115	120	125	130	135	140	150	155 (5)	160 (5)	170 (5)	180 (5)	190 (5)	200 (5)	
35	23.85	–	–	–	–	–	–	–	–	–	–	–	–	
40	23.25	25.20	28.30	30.65	–	–	–	–	–	–	–	–	–	
45	22.55	24.50	27.60	29.95	32.10	34.65	–	–	–	–	–	–	–	
50	21.80	23.75	26.85	29.20	31.35	33.85	40.55	–	–	–	–	–	–	
55	20.95	22.90	25.95	28.35	30.45	33.00	39.70	–	–	–	–	–	–	
60	20.00	21.95	25.00	27.40	29.50	32.05	38.75	–	–	–	–	–	–	
65	18.95	20.90	24.00	26.35	28.50	31.00	37.70	39.85	–	–	–	–	–	
70	17.80	19.75	22.85	25.20	27.35	29.90	36.60	38.70	–	–	–	–	–	
75	16.60	18.55	21.65	24.00	26.10	28.65	35.35	37.50	–	–	–	–	–	
80	15.30	17.20	20.30	22.70	24.80	27.35	34.05	36.20	39.30	–	–	–	–	
85	13.90	15.80	18.90	21.30	23.40	25.95	32.65	34.80	37.90	–	–	–	–	
90	12.40	14.35	17.45	19.80	21.90	24.45	31.15	33.35	36.40	–	–	–	–	
95	10.80	12.75	15.85	18.20	20.35	22.85	29.60	31.75	34.85	–	–	–	–	
100	9.13	11.10	14.15	16.55	18.65	21.20	27.90	30.10	33.20	39.50	–	–	–	
105	–	9.31	12.40	14.80	16.90	19.45	26.15	28.35	31.40	37.75	–	–	–	
110	–	–	10.55	12.95	15.05	17.60	24.30	26.50	29.60	35.90	–	–	–	
115	–	–	–	11.00	13.10	15.65	22.35	24.55	27.65	34.00	–	–	–	
120	–	–	–	–	11.10	13.60	20.30	22.55	25.65	31.95	38.60	–	–	
125	–	–	–	–	–	11.50	18.20	20.45	23.50	29.85	36.50	–	–	
130	–	–	–	–	–	–	16.00	–	21.30	27.65	34.30	–	–	
135	–	–	–	–	–	–	13.70	–	–	25.35	32.00	39.65	–	
140	–	–	–	–	–	–	–	–	–	22.95	29.60	37.30	–	
145	–	–	–	–	–	–	–	–	–	20.50	27.15	34.85	–	
150	–	–	–	–	–	–	–	–	–	–	24.60	32.30	39.65	
155	–	–	–	–	–	–	–	–	–	–	21.90	29.65	37.00	
160	–	–	–	–	–	–	–	–	–	–	–	26.90	34.25	
165	–	–	–	–	–	–	–	–	–	–	–	24.10	31.45	
170	–	–	–	–	–	–	–	–	–	–	–	21.20	28.50	
175	–	–	–	–	–	–	–	–	–	–	–	–	25.50	
180	–	–	–	–	–	–	–	–	–	–	–	–	22.45	

Standard length (mm) : 2000 (0 + 60) - (3)

- (\*) : for product codes and tolerances on the diameters: see page 27
- (1) : the weights figuring in the tables are the average production weights of the ERTALON 6 PLA, ERTALON 6 XAU+ and NYLATRON MC 901 tubes. For ERTALON LFX, resp. NYLATRON GSM, resp. NYLATRON NSM tubes, these weights have to be multiplied with the factors 0.987, resp. 1.004, resp. 0.987.
- (2) : the weight-figures in bold face type refer to the standard sizes of the ERTALON 6 PLA natural tubes (available from stock at the Quadrant EPP Logistic Center). The other sizes as well as all the ERTALON 6 PLA black, ERTALON 6 XAU+, ERTALON LFX and NYLATRON tubes are manufactured to order.
- (3) : the standard length of the NYLATRON GSM tubes up to and including O.D. 70 mm as well as of all NYLATRON NSM tubes is 1000 mm.
- (4) : please note that all tubes figuring in this table can be manufactured to order on any length between 1000 and 2000 mm. In that case, however, a min. order quantity of 10 off and a min. weight of 20 kg per tube apply.
- (5) : a min. order quantity per size of 10 off also applies for these tubes when manufactured on the standard length of 2000 mm.

I.D. (mm)	Weights (1)(2) - (kg/piece)												
	O.D. (mm)												
	155	160	170	180	190	200	210	220	225	230	240	250	260
50	21.25	22.80	25.95	-	-	-	-	-	-	-	-	-	-
55	20.85	22.40	25.55	-	-	-	-	-	-	-	-	-	-
60	20.40	21.90	25.05	28.50	-	-	-	-	-	-	-	-	-
65	19.85	21.40	24.55	28.00	31.65	-	-	-	-	-	-	-	-
70	19.30	20.85	24.00	27.45	31.10	34.80	38.70	-	-	-	-	-	-
75	18.70	20.25	23.40	26.80	30.50	34.20	38.10	-	-	-	-	-	-
80	18.05	19.60	22.75	26.20	29.85	33.55	37.50	-	-	-	-	-	-
85	17.35	18.90	22.05	25.50	29.15	32.85	36.80	-	-	-	-	-	-
90	16.60	18.15	21.30	24.75	28.45	32.10	36.05	-	-	-	-	-	-
95	15.85	17.40	20.55	23.95	27.65	31.35	35.30	40.00	-	-	-	-	-
100	15.00	16.55	19.70	23.15	26.85	30.50	34.45	39.20	-	-	-	-	-
105	14.15	15.65	18.85	22.25	25.95	29.65	33.60	38.30	-	-	-	-	-
110	13.20	14.75	17.90	21.35	25.05	28.75	32.70	37.40	39.70	-	-	-	-
115	12.25	13.80	16.95	20.40	24.10	27.80	31.70	36.45	38.75	-	-	-	-
120	11.25	12.80	15.95	19.35	23.10	26.80	30.70	35.45	37.75	39.95	-	-	-
125	10.20	11.75	14.90	18.30	22.05	25.75	29.65	34.40	36.70	38.90	-	-	-
130	9.10	10.65	13.80	17.20	20.95	24.65	28.60	33.30	35.65	37.80	-	-	-
135	7.95	9.49	12.65	16.05	19.80	23.50	27.45	32.15	34.50	36.70	-	-	-
140	-	8.30	11.45	14.90	18.65	22.30	26.25	31.00	33.35	35.50	39.90	-	-
145	-	-	10.20	13.65	17.40	21.10	25.05	29.75	32.10	34.30	38.70	-	-
150	-	-	8.95	12.35	16.15	19.80	23.75	28.50	30.85	33.05	37.45	-	-
155	-	-	-	11.05	14.80	18.50	22.45	27.15	29.55	31.75	36.10	-	-
160	-	-	-	9.68	13.45	17.15	21.10	25.80	28.20	30.40	34.75	39.40	-
165	-	-	-	-	12.05	15.75	19.65	24.40	26.80	29.00	33.35	38.00	-
170	-	-	-	-	10.60	14.30	18.20	22.95	25.35	27.55	31.90	36.55	-
175	-	-	-	-	-	12.80	16.70	21.45	23.85	26.05	30.45	35.05	40.35
180	-	-	-	-	-	11.25	15.20	19.90	22.30	24.50	28.90	33.50	38.85
185	-	-	-	-	-	-	13.60	18.30	20.75	22.95	27.30	31.95	37.30
190	-	-	-	-	-	-	11.95	16.70	19.10	21.30	25.70	30.30	35.65
195	-	-	-	-	-	-	-	15.00	17.45	19.65	24.05	28.65	34.00
200	-	-	-	-	-	-	-	13.30	15.75	17.95	22.30	26.95	32.30
205	-	-	-	-	-	-	-	-	14.00	16.15	20.55	25.15	30.55
210	-	-	-	-	-	-	-	-	-	14.35	18.75	23.35	28.80
215	-	-	-	-	-	-	-	-	-	-	16.90	21.50	26.95
220	-	-	-	-	-	-	-	-	-	-	15.00	19.65	25.05
225	-	-	-	-	-	-	-	-	-	-	-	17.70	23.15
230	-	-	-	-	-	-	-	-	-	-	-	15.70	21.15
235	-	-	-	-	-	-	-	-	-	-	-	-	19.15

Standard length (mm) : 1000 (0 + 40) - (3)

(\*) : for product codes and tolerances on the diameters: see page 27

(1) : the weights figuring in the tables are the average production weights of the ERTALON 6 PLA, ERTALON 6 XAU+ and NYLATRON MC 901 tubes. For the ERTALON LFX, resp. NYLATRON GSM, resp. NYLATRON NSM tubes, these weights have to be multiplied with the factors 0.987, resp. 1.004, resp. 0.987.

(2) : the weight-figures in bold face type refer to the standard sizes of the ERTALON 6 PLA natural tubes (available from stock at the Quadrant EPP Logistic Center). The other sizes as well as all the ERTALON 6 PLA black, ERTALON 6 XAU+, ERTALON LFX and NYLATRON tubes are manufactured to order.

(3) : please note that all tubes figuring in this table, next to the standard length of 1000 mm, can also be manufactured to order on a length of 1200 (0 + 40 mm).

tubes (\*)

I.D. (mm)	Weights (1) – (kg/piece)												
	O.D. (mm)												
	220	225	230	240	250	260	270	275	280	290	300	325	350
70	26.45	27.80	29.10	31.80	34.60	37.70	40.65	42.55	43.95	47.05	–	–	–
75	26.05	27.40	28.75	31.40	34.25	37.35	40.30	42.20	43.60	46.70	–	–	–
80	25.65	27.05	28.35	31.05	33.85	36.95	39.90	41.85	43.20	46.35	49.75	58.85	–
85	25.25	26.60	27.95	30.60	33.45	36.55	39.50	41.45	42.80	45.95	49.35	58.45	–
90	24.80	26.20	27.50	30.20	33.00	36.10	39.05	41.00	42.40	45.50	48.95	58.05	67.75
95	–	25.70	27.05	29.70	32.50	35.65	38.60	40.55	41.90	45.05	48.45	57.55	67.30
100	–	25.20	26.55	29.20	32.05	35.15	38.10	40.05	41.45	44.55	48.00	57.10	66.80
105	–	24.70	26.05	28.70	31.50	34.65	37.60	39.55	40.90	44.05	47.45	56.60	66.30
110	–	–	25.50	28.15	30.95	34.10	37.05	39.00	40.40	43.50	46.90	56.05	65.75
115	–	–	24.90	27.55	30.40	33.50	36.50	38.40	39.80	42.95	46.35	55.50	65.20
120	–	–	–	26.95	29.75	32.95	35.90	37.85	39.20	42.35	45.75	54.90	64.60
125	–	–	–	26.35	29.15	32.30	35.25	37.20	38.60	41.70	45.15	54.30	64.00
130	–	–	–	25.70	28.50	31.65	34.60	36.55	37.95	41.05	44.50	53.65	63.35
135	–	–	–	25.00	27.80	31.00	33.95	35.85	37.25	40.40	43.80	52.95	62.65
140	–	–	–	–	27.10	30.30	33.20	35.15	36.55	39.65	43.10	52.25	61.95
145	–	–	–	–	26.35	29.55	32.50	34.45	35.80	38.95	42.35	51.55	61.25
150	–	–	–	–	25.55	28.80	31.75	33.65	35.05	38.15	41.60	50.80	60.50
155	–	–	–	–	24.80	28.00	30.95	32.90	34.25	37.40	40.80	50.00	59.70
160	–	–	–	–	–	27.20	30.10	32.05	33.45	36.55	40.00	49.20	58.90
165	–	–	–	–	–	26.35	29.30	31.20	32.60	35.75	39.15	48.35	58.05
170	–	–	–	–	–	25.45	28.40	30.35	31.75	34.85	38.25	47.50	57.20
175	–	–	–	–	–	–	27.50	29.45	30.85	33.95	37.40	46.60	56.30
180	–	–	–	–	–	–	26.60	28.50	29.90	33.05	36.45	45.70	55.40
185	–	–	–	–	–	–	25.65	27.55	28.95	32.10	35.50	44.75	54.45
190	–	–	–	–	–	–	24.65	26.60	27.95	31.10	34.50	43.75	53.45
195	–	–	–	–	–	–	23.65	25.60	26.95	30.10	33.50	42.75	52.45
200	–	–	–	–	–	–	22.60	24.55	25.95	29.05	32.45	41.75	51.45
205	–	–	–	–	–	–	21.55	23.50	24.85	28.00	31.40	40.65	50.40
210	–	–	–	–	–	–	20.45	22.40	23.80	26.90	30.30	39.60	49.30
215	–	–	–	–	–	–	19.35	21.30	22.65	25.80	29.20	38.50	48.20
220	–	–	–	–	–	–	18.20	20.15	21.50	24.65	28.05	37.35	47.05
225	–	–	–	–	–	–	17.00	18.95	20.35	23.45	26.90	36.20	45.90
230	–	–	–	–	–	–	15.80	17.75	19.15	22.25	25.70	35.00	44.70
235	–	–	–	–	–	–	14.60	16.55	17.90	21.05	24.45	33.75	43.45
240	–	–	–	–	–	–	13.35	15.30	16.65	19.80	23.20	32.50	42.20
245	–	–	–	–	–	–	12.05	14.00	15.40	18.50	21.90	31.25	40.95
250	–	–	–	–	–	–	–	12.70	14.05	17.20	20.60	29.95	39.65
255	–	–	–	–	–	–	–	–	12.75	15.85	19.30	28.30	38.30
260	–	–	–	–	–	–	–	–	–	14.50	17.90	27.25	36.95
265	–	–	–	–	–	–	–	–	–	13.10	16.50	25.85	35.55
270	–	–	–	–	–	–	–	–	–	–	15.10	24.45	34.15
275	–	–	–	–	–	–	–	–	–	–	13.65	23.00	32.70
280	–	–	–	–	–	–	–	–	–	–	–	21.55	31.25
285	–	–	–	–	–	–	–	–	–	–	–	20.05	29.75
290	–	–	–	–	–	–	–	–	–	–	–	18.55	28.25
295	–	–	–	–	–	–	–	–	–	–	–	17.00	26.70
300	–	–	–	–	–	–	–	–	–	–	–	15.40	25.10
305	–	–	–	–	–	–	–	–	–	–	–	–	23.50
310	–	–	–	–	–	–	–	–	–	–	–	–	21.90
315	–	–	–	–	–	–	–	–	–	–	–	–	20.20
320	–	–	–	–	–	–	–	–	–	–	–	–	18.55
325	–	–	–	–	–	–	–	–	–	–	–	–	16.85

Standard length (mm) : 600 (0 + 40)

(\*) : for product codes and tolerances on the diameters: see page 27

(1) : the weights figuring in the tables are the average production weights of the ERTALON 6 PLA, ERTALON 6 XAU+ and NYLATRON MC 901 tubes. For the ERTALON LFX, resp. NYLATRON GSM, resp. NYLATRON NSM tubes, these weights have to be multiplied with the factors 0.987, resp. 1.004, resp. 0.987.

I.D. (mm)	Weights (1) – (kg/piece)									
	O.D. (mm)									
	375	400	425	450	475	500	525	550	575	600
100	77.55	–	–	–	–	–	–	–	–	–
110	76.50	87.55	–	–	–	–	–	–	–	–
120	75.35	86.40	98.90	111.1	125.0	–	–	–	–	–
130	74.10	85.15	97.65	109.8	123.7	–	–	–	–	–
140	72.70	83.75	96.30	108.5	122.3	–	–	–	–	–
150	71.25	82.30	94.85	107.0	120.9	–	–	–	–	–
160	69.65	80.70	93.25	105.4	119.3	–	–	–	–	–
170	67.95	79.00	91.60	103.8	117.6	–	–	–	–	–
180	66.15	77.20	89.80	102.0	115.8	–	–	–	–	–
190	64.20	75.25	87.85	100.1	113.9	–	–	–	–	–
200	62.20	73.25	85.85	98.05	111.8	126.9	–	–	–	–
210	60.05	71.10	83.75	95.90	109.7	124.7	–	–	–	–
220	57.80	68.85	81.50	93.70	107.5	122.5	–	–	–	–
230	55.45	66.50	79.15	91.35	105.1	120.1	–	–	–	–
240	52.95	64.05	76.70	88.90	102.7	117.7	–	–	–	–
250	50.40	61.45	74.15	86.30	100.1	115.1	–	–	–	–
260	47.50	58.75	71.45	83.65	97.40	112.4	–	–	–	–
270	44.90	55.95	68.70	80.85	94.60	109.6	126.1	–	–	–
280	42.00	53.05	65.80	77.95	91.70	106.7	123.2	–	–	–
290	39.00	50.05	62.80	74.95	88.70	103.7	120.2	–	–	–
300	35.85	46.90	59.70	71.85	85.55	100.6	117.1	–	–	–
310	32.65	43.70	56.45	68.65	82.35	97.35	113.9	–	–	–
320	29.30	40.35	53.15	65.30	79.00	94.00	110.6	126.7	–	–
330	25.85	36.90	49.70	61.85	75.55	90.55	107.1	123.3	–	–
340	22.25	33.35	46.15	58.30	71.95	87.00	103.6	119.7	–	–
350	18.60	29.65	42.50	54.65	68.30	83.35	99.90	116.1	–	–
360	–	25.85	38.70	50.90	64.50	79.55	96.15	112.3	–	–
370	–	22.00	34.85	47.00	60.60	75.65	92.30	108.4	124.6	–
380	–	–	30.85	43.05	56.60	71.65	88.30	104.4	120.6	–
390	–	–	26.75	38.95	52.50	67.55	84.20	100.3	116.5	–
400	–	–	22.55	34.75	48.30	63.30	80.00	96.15	112.3	–
410	–	–	–	30.40	43.95	59.00	75.70	91.80	108.0	125.6
420	–	–	–	26.00	39.50	54.55	71.25	87.40	103.6	121.1
430	–	–	–	–	34.95	50.00	66.70	82.85	99.05	116.6
440	–	–	–	–	30.30	45.35	62.05	78.20	94.40	111.9
450	–	–	–	–	–	40.55	57.30	73.45	89.65	107.2
460	–	–	–	–	–	35.65	52.45	68.60	84.80	102.3
470	–	–	–	–	–	30.70	47.50	63.60	79.80	97.35
480	–	–	–	–	–	–	42.40	58.55	74.75	92.25
490	–	–	–	–	–	–	37.20	53.35	69.55	87.05
500	–	–	–	–	–	–	–	48.05	64.25	81.75
510	–	–	–	–	–	–	–	42.60	58.80	76.35
520	–	–	–	–	–	–	–	37.10	53.30	70.85
530	–	–	–	–	–	–	–	–	47.65	65.20
540	–	–	–	–	–	–	–	–	41.90	59.45
550	–	–	–	–	–	–	–	–	–	53.60
560	–	–	–	–	–	–	–	–	–	47.65
570	–	–	–	–	–	–	–	–	–	41.55

Standard length (mm) : 600 (0 + 40)

(\*) : for product codes and tolerances on the diameters: see page 27

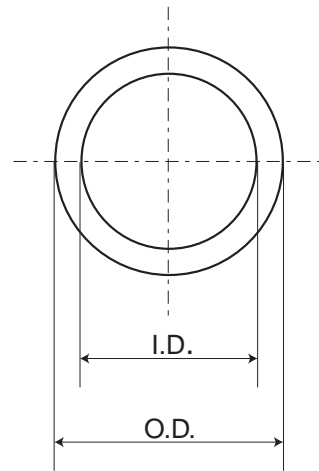
(1) : the weights figuring in the tables are the average production weights of the ERTALON 6 PLA, ERTALON 6 XAU+ and NYLATRON MC 901 tubes. For the ERTALON LFX, resp. NYLATRON GSM, resp. NYLATRON NSM tubes, these weights have to be multiplied with the factors 0.987, resp. 1.004, resp. 0.987.

# tubes

<b>PRODUCT CODES : ERTALON 6 PLA natural</b>	40042007
<b>ERTALON 6 PLA black</b>	40042107
<b>ERTALON 6 XAU+</b>	40050007
<b>ERTALON LFX</b>	40055007
<b>NYLATRON MC 901</b>	40042207
<b>NYLATRON GSM</b>	40042307
<b>NYLATRON NSM</b>	40043507

## TOLERANCES :

O.D. (mm)	Tolerances on the diameters (mm)	
	O.D.	I.D.
O.D. ≤ 60	+ 3 + 0.8	- 0.8 - 4 (*)
60 < O.D. ≤ 80	+ 3.5 + 0.8	- 0.8 - 4 (*)
80 < O.D. ≤ 110	+ 4.5 + 1.2	- 1.6 - 6 (*)
110 < O.D. ≤ 150	+ 6 + 1.5	- 2 - 7.5 (*)
150 < O.D. ≤ 180	+ 7.5 + 1.8	- 2.2 - 8.5 (*)
180 < O.D. ≤ 220	+ 9 + 2	- 2.5 - 9.5 (*)
220 < O.D. ≤ 250	+ 10 + 3	- 3 - 11 (*)
250 < O.D. ≤ 300	+ 11 + 3	- 3.5 - 13 (*)
300 < O.D. ≤ 400	+ 13 + 3	- 3.5 - 15.5 (*)
400 < O.D. ≤ 500	+ 15 + 3	- 3.5 - 18 (*)
500 < O.D. ≤ 600	+ 20 + 5	- 4.5 - 20 (*)



(\*) : due to the manufacturing process, the I.D. at the very ends of the tubes may be somewhat smaller (over a length of 2 - 10 mm, measured from the edge).



*discs (○)*

Diameters (1) (mm)		Tolerance on the diameters (mm)
D <sub>min.</sub>	D <sub>max.</sub>	
550	1200	+ 5 + 20
Height of the discs (mm): - minimum : 110 (+ 10 + casting head) - maximum : 350 (+ 10 + casting head)		
For discs with a D > 1200 or with a height > 350 mm, please consult us.		

(1) : the diameters are to be chosen between D<sub>max.</sub> and D<sub>min.</sub> in increments of 25 mm.

○ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

*rectangular blocks (□)*

Widths (1) (mm)		Lengths (1) (mm)		Heights (mm)	
min.	max.	min.	max.	min.	max.
150	1000	150	1000	110	200
Tolerances on : - widths and lengths : + 5 mm + 15 mm - heights : + 10 mm + casting head					

(1) : the widths and lengths are to be chosen between the min. and max. values in increments of 25 mm.

example: block 375 (+ 5 + 15) x 650 (+ 5 + 15) x 155 (+ 10 + casting head)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

*rings (◎)*

Outside diameters (1) (mm)		Inside diameters (2) (3) (mm)		Tolerances on the diameters (mm)	
min. O.D.	max. O.D.	min. I.D.	max. I.D.	O.D.	I.D.
500	1100	300	1000	+ 5 + 20	- 5 - 20
Height of the rings (mm): - minimum : 110 (+ 10 + casting head) - maximum : 250 (+ 10 + casting head)					
For rings with a height > 250 mm, please consult us.					

Outside diameters (1) (mm)		Inside diameters (2) (3) (mm)		Tolerances on the diameters (mm)	
min. O.D.	max. O.D.	min. I.D.	max. I.D.	O.D.	I.D.
1150	2150	1050	2050	+ (10 + 0.02 x O.D.) + 10	- 10 - (10 + 0.02 x I.D.)
Height of the rings (mm): - minimum : 100 (+ 10 + casting head) - maximum : 210 (+ 10 + casting head)					
For rings with a height > 210 mm, please consult us.					

(1) : the outside diameters are to be chosen between min. O.D. and max. O.D. in increments of 25 mm.

(2) : the inside diameters are to be chosen between min. I.D. and max. I.D. in increments of 25 mm.

(3) : required minimum nominal wall thickness : 50 mm

examples : Ø 875 (+ 5 + 20) x Ø 775 (- 5 - 20) x 165 (+ 10 + casting head)

Ø 1500 (+ 10 + 40) x Ø 1400 (- 10 - 38) x 200 (+ 10 + casting head)

◎ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

## Polyacetal (POM)

**ERTACETAL C** (POM-C)  
**natural (white) / black**

**ERTACETAL H** (POM-H)  
**natural (white) / black**

These are Quadrant Engineering Plastic Products' virgin copolymer and homopolymer acetal grades. The acetal copolymer is more resistant against hydrolysis, strong alkalis and thermal-oxidative degradation than the acetal homopolymer. The latter, however, has higher mechanical strength, stiffness, hardness and creep resistance as well as a lower thermal expansion rate and often it also presents a better wear resistance.

### Main characteristics:

- high mechanical strength, stiffness and hardness
- excellent resilience
- good creep resistance
- high impact strength, even at low temperatures
- very good dimensional stability
- good sliding properties and wear resistance
- excellent machinability
- good electrical insulating and dielectric properties
- physiologically inert (suitable for food contact)
- not self-extinguishing

ERTACETAL is very well suited for machining on automatic lathes and is particularly recommended for mechanical precision parts.

**ERTACETAL H-TF**  
(POM-H + PTFE)  
**(deep brown)**

ERTACETAL H-TF is a DELRIN® AF Blend, a combination of TEFLON® fibres evenly dispersed in a DELRIN acetal resin. Much of the strength that is inherent in ERTACETAL H is retained. Some properties change due to the addition of TEFLON fibre which is softer, less stiff and slipperier than virgin acetal resin. Compared with ERTACETAL C and H, this material offers superior sliding properties. Bearings made of ERTACETAL H-TF show low friction, long wear and are essentially free of stick-slip behaviour.



round rods

Diameters (mm)	Tolerance (1) on the diameters (mm)	Weights (2) - (kg/m)				
		ERTACETAL C		ERTACETAL H		ERTACETAL H-TF
		natural	black	natural	black	
		40200000	40200100	40205000	40205100	
3	+ 0.1 + 0.3	● 0.012	-	-	-	-
4		● 0.020	-	-	-	-
5	+ 0.1 + 0.4	● 0.032	● 0.032	○ 0.032	○ 0.032	-
6		● 0.045	● 0.045	● 0.045	○ 0.045	-
8	+ 0.1 + 0.5	● 0.079	● 0.079	● 0.079	○ 0.079	-
10		● 0.121	● 0.121	● 0.121	○ 0.121	○ 0.128
12	+ 0.2 + 0.7	● 0.176	● 0.176	● 0.178	○ 0.178	○ 0.188
14		● 0.237	● 0.237	● 0.239	○ 0.239	○ 0.252
15		● 0.271	● 0.271	● 0.273	○ 0.273	○ 0.288
16		● 0.307	● 0.307	● 0.309	● 0.309	○ 0.327
18		● 0.386	● 0.386	● 0.388	○ 0.388	○ 0.410
20		● 0.474	● 0.474	● 0.477	● 0.477	○ 0.505
22	+ 0.2 + 0.9	● 0.575	● 0.575	● 0.580	○ 0.580	○ 0.615
25		● 0.740	● 0.740	● 0.745	● 0.745	○ 0.785
28		● 0.925	● 0.925	● 0.930	○ 0.930	○ 0.980
30		● 1.06	● 1.06	● 1.06	● 1.06	○ 1.12
32	+ 0.2 + 1.1	● 1.21	● 1.21	● 1.22	○ 1.22	○ 1.29
36		● 1.52	● 1.52	● 1.53	○ 1.53	○ 1.62
40		● 1.87	● 1.87	● 1.88	● 1.88	○ 1.99
45	+ 0.3 + 1.3	● 2.37	● 2.37	● 2.39	● 2.39	○ 2.52
50		● 2.92	● 2.92	● 2.94	● 2.94	○ 3.10
56		● 3.65	● 3.65	● 3.67	○ 3.67	○ 3.88
60	+ 0.3 + 1.6	● 4.20	● 4.20	● 4.23	● 4.23	○ 4.47
65		● 4.92	● 4.92	● 4.95	○ 4.95	○ 5.23
70		● 5.69	● 5.69	● 5.73	● 5.73	○ 6.05
75	+ 0.4 + 2	● 6.57	● 6.57	● 6.61	○ 6.61	○ 6.99
80		● 7.46	● 7.46	● 7.51	● 7.51	○ 7.93
85	+ 0.5 + 2.2	● 8.43	● 8.43	● 8.49	○ 8.49	○ 8.97
90		● 9.43	● 9.43	● 9.50	○ 9.50	○ 10.05
95	+ 0.6 + 2.5	○ 10.55	○ 10.55	○ 10.60	○ 10.60	○ 11.20
100		● 11.65	● 11.65	● 11.75	○ 11.75	○ 12.40
110	+ 0.7 + 3	● 14.15	● 14.15	● 14.25	-	-
115	+ 0.8 + 3.5	○ 15.55	○ 15.55	○ 15.65	-	-
120		● 16.90	● 16.90	● 17.00	-	-
125		● 18.30	● 18.30	● 18.40	-	-
130	+ 0.9 + 3.8	● 19.80	● 19.80	● 19.95	-	-
135		○ 21.35	○ 21.35	-	-	-
140		● 22.90	● 22.90	● 23.10	-	-
150		+ 1 + 4.2	● 26.35	● 26.35	● 26.55	-
160	+ 1.1 + 4.5	● 30.00	● 30.00	● 30.20	-	-
170	+ 1.2 + 5	● 33.90	● 33.90	● 34.15	-	-
180		● 37.90	● 37.90	● 38.20	-	-
190	+ 1.3 + 5.5	● 42.30	○ 42.30	-	-	-
200		● 46.80	● 46.80	● 47.10	-	-
210	+ 1.3 + 5.8	● 51.60	○ 51.60	-	-	-
220		● 56.50	● 56.50	-	-	-
230	+ 1.5 + 6.2	○ 61.85	-	-	-	-
250		● 72.85	● 72.85	-	-	-
280		+ 1.6 + 6.5	● 91.15	● 91.15	-	-
300	+ 1.7 + 7	● 104.7	○ 104.7	-	-	-
320	+ 1.8 + 7.4	● 119.0	● 119.0	-	-	-
Standard lengths (mm)			Tolerance (1) on the lengths (%)			
1000			0 + 3			
3000						
Ground rods up to 70 mm Ø as well as non-standard lengths (cut-to-size) : available on request and subject to special conditions						

(1) : tolerances according to DIN 16980

(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured



# s h e e t s

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m <sup>2</sup> )	
			Coils (3)	Plates (4) 1000 x 1000 mm 1000 x 2000 mm
			40200003	
0.5	- 0.02	+ 0.08	□ 0.780	-
0.8	- 0.05	+ 0.10	□ 1.21	-
1	- 0.10	+ 0.10	□ 1.45	■ 1.45
1.5	- 0.15	+ 0.15	-	■ 2.18
2			-	■ 2.91
2.5			-	□ 3.63
3	- 0.20	+ 0.20	-	■ 4.36
4			-	■ 5.81
5			-	■ 7.26
6	- 0.25	+ 0.25	-	■ 8.72

(1) : tolerances according to DIN 16977

(2) : average production weights

(3) : a coil contains approx. 50 kg of material ; width : 1000 (0 + 30) mm

(4) : tolerance on width and lengths : 0 + 3%

**PRODUCT CODE**

**ERTACETAL C** natural / black  
**ERTACETAL H** natural / black  
**ERTACETAL H-TF**

# p l a t e s

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m)						
			ERTACETAL C		ERTACETAL C		ERTACETAL H		ERTACETAL H-TF
			natural	black	natural	black	natural	black	
			40200004	40200004	40200104	40205004	40205104	40205204	
			width = 1000 mm			width = 610 mm			
8	+ 0.2	+ 0.9	■ 12.40	■ 7.65	■ 7.65	■ 7.70	■ 7.70	-	
10			■ 15.35	■ 9.44	■ 9.44	■ 9.50	■ 9.50	-	
12	+ 0.3	+ 1.5	■ 18.75	■ 11.55	■ 11.55	■ 11.60	■ 11.60	□ 12.30	
15			-	■ 14.20	■ 14.20	□ 14.30	□ 14.30	□ 15.15	
16			■ 24.55	■ 15.10	■ 15.10	■ 15.20	■ 15.20	□ 16.10	
18			-	□ 16.90	□ 16.90	□ 17.05	□ 17.05	□ 18.00	
20			■ 30.35	■ 18.70	■ 18.70	■ 18.85	■ 18.85	□ 19.90	
25			■ 37.60	■ 23.15	■ 23.15	■ 23.35	■ 23.35	□ 24.65	
30	+ 0.5	+ 2.5	■ 45.75	■ 28.20	■ 28.20	■ 28.40	■ 28.40	□ 29.95	
35			-	■ 32.65	■ 32.65	□ 32.90	□ 32.90	□ 34.75	
40			■ 60.30	■ 37.10	■ 37.10	■ 37.40	■ 37.40	□ 39.50	
45			-	■ 41.60	■ 41.60	□ 41.90	□ 41.90	□ 44.25	
50			■ 74.80	■ 46.05	■ 46.05	■ 46.40	■ 46.40	□ 49.00	
60			-	■ 55.45	■ 55.45	-	-	-	
70	+ 0.5	+ 3.5	-	■ 64.40	■ 64.40	-	-		
80	+ 0.5	+ 5	-	■ 74.00	■ 74.00	-	-	-	
90			-	■ 82.95	■ 82.95	-	-	-	
100			-	■ 91.90	■ 91.90	-	-	-	
120			+ 0.5	+ 6	-	□ 110.2	□ 110.2	-	-
<b>Standard sizes (mm)</b>			<b>Tolerances (1) on widths and lengths</b>						
610 / 1000 x 1000			Widths : + 5 mm + 25 mm Lengths : 0 + 3%						
610 x 3000									
1000 x 2000									
1000 x 3000 (3)									

Cut-to-size products : available on request and subject to special conditions

(1) : tolerances according to DIN 16986

(2) : average production weights

(3) : this size is a non-standard item

**PRODUCT CODE**

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)  
- : not manufactured

Diameters (mm) O.D. x I.D.	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)	
			natural	black
	O.D.	I.D.	40200007	40200107
20 x 10	+ 0.4 + 1.1	- 0.4 - 1.1	● 0.388	⊙ 0.388
			⊙ 0.342	⊙ 0.342
			⊙ 0.256	⊙ 0.256
22 x 10			⊙ 0.486	⊙ 0.486
			⊙ 0.320	⊙ 0.320
			25 x 12	● 0.605
⊙ 0.515				⊙ 0.515
⊙ 0.411				⊙ 0.411
28 x 12			● 0.785	⊙ 0.785
			⊙ 0.700	⊙ 0.700
			⊙ 0.515	⊙ 0.515
30 x 15			⊙ 0.835	⊙ 0.835
	● 0.645	⊙ 0.645		
	+ 0.6 + 2	- 0.6 - 2	● 1.04	● 1.04
⊙ 0.855			⊙ 0.855	
⊙ 0.615			⊙ 0.615	
36 x 17			● 1.29	● 1.29
			⊙ 1.17	⊙ 1.17
			● 0.930	⊙ 0.930
40 x 20			⊙ 0.640	⊙ 0.640
			● 1.52	● 1.52
			⊙ 1.29	⊙ 1.29
45 x 20			● 0.990	⊙ 0.990
			⊙ 2.02	⊙ 2.02
			⊙ 1.78	⊙ 1.78
50 x 20	● 1.48	● 1.48		
	⊙ 1.13	⊙ 1.13		
	● 2.57	⊙ 2.57		
55 x 25	⊙ 2.33	⊙ 2.33		
	● 2.03	● 2.03		
	● 1.27	● 1.27		
60 x 30	⊙ 2.99	⊙ 2.99		
	● 2.36	● 2.36		
	⊙ 1.49	⊙ 1.49		
65 x 40	● 3.37	● 3.37		
	● 2.62	● 2.62		
	● 1.64	⊙ 1.64		
70 x 30	+ 0.8 + 3	- 0.8 - 3	● 3.40	● 3.40
			⊙ 2.43	⊙ 2.43
70 x 40	+ 0.8 + 3	- 0.8 - 4.5	● 4.97	● 4.97
			⊙ 4.18	⊙ 4.18
			● 3.21	⊙ 3.21
Standard lengths (mm)			Tolerance on the lengths (%)	
1000			0 + 3	
3000				
Non-standard lengths (cut-to-size) : available on request and subject to special conditions				

(1) : tolerances according to DIN 16978, except for the tubes dia. 70 x 30 and 100 x 40 mm  
 (2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- ⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# tubes

Diameters (mm) O.D. x I.D.		Tolerances (1) on the diameters (mm) O.D. I.D.		Weights (2) - (kg/m)			
				natural 40200007	black 40200107		
75 x 50	50			○	4.05	○	4.05
	60			○	2.85	○	2.85
80 x 40	40	+ 0.8 + 3	- 0.8 - 3	●	5.91	○	5.91
	50			●	4.94	●	4.94
	60			●	3.75	○	3.75
				●	8.08	○	8.08
90 x 40	40	+ 1.2 + 3.6	- 1.6 - 5	●	7.15	○	7.15
	50			○	5.98	○	5.98
	60			●	4.60	○	4.60
	70			○	10.35	○	10.35
100 x 40	40	+ 1.2 + 3.6	- 1.6 - 6.5	●	9.33	○	9.33
100 x 50	50	+ 1.2 + 3.6	- 1.6 - 5	●	8.17	○	8.17
	60			●	5.17	○	5.17
	80			○	13.30	○	13.30
115 x 50	50			○	10.80	○	10.80
	70			○	7.39	○	7.39
125 x 50	50			○	16.05	○	16.05
	80			●	11.95	○	11.95
140 x 70	70	+ 1.5 + 4.5	- 2 - 6.5	●	8.11	○	8.11
	90			○	18.15	○	18.15
150 x 60	60			○	14.70	○	14.70
	80			○	22.80	○	22.80
	100			○	19.85	○	19.85
				●	16.00	○	16.00
160 x 80	80			○	23.75	○	23.75
	100			●	19.90	○	19.90
180 x 90	90	+ 1.8 + 5.4	- 2.2 - 7.5	●	29.75	○	29.75
	120			●	23.00	○	23.00
	140			○	17.35	○	17.35
200 x 100	100	+ 2 + 6	- 2.5 - 8.5	○	36.75	○	36.75
	120			○	32.05	○	32.05
	150			●	23.30	○	23.30
	160			○	19.95	○	19.95
225 x 150	150	+ 3 + 9	- 3 - 12	○	37.15	○	37.15
	175			●	28.45	○	28.45
250 x 150	150			●	50.85	○	50.85
	200			●	32.00	○	32.00
280 x 150	150			○	69.60		-
	200			○	50.90		-
320 x 150	150	+ 3 + 11	- 3.5 - 14	○	97.95		-
	200			○	79.70		-
350 x 200	200			○	102.3		-
	300			○	46.55		-
Standard lengths (mm)				Tolerance on the lengths (%)			
1000				0 + 3			
3000							
Non-standard lengths (cut-to-size) : available on request and subject to special conditions							

(1) : tolerances according to DIN 16978, except for the tubes dia. 70 x 30 and 100 x 40 mm  
 (2) : average production weights

PRODUCT CODE

- : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
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- : not manufactured



## Polyethylene terephthalate (PET)

Quadrant Engineering Plastic Products' stock shapes made of crystalline thermoplastic polyester, are marketed under the trade names ERTALYTE (virgin grade) and ERTALYTE TX (filled grade).

### Main characteristics:

- high mechanical strength, stiffness and hardness
- very good creep resistance
- low and constant coefficient of friction
- excellent wear resistance (comparable or even better than nylon grades)
- very good dimensional stability (better than polyacetal)
- excellent stain resistance
- better resistance to acids than nylon and polyacetal
- good electrical insulating properties
- physiologically inert (suitable for food contact)
- good resistance to high energy radiation (gamma and X-rays)

### ERTALYTE (PET) natural (white) / black

The specific properties of this virgin crystalline PET make it specially suitable for the manufacture of mechanical precision parts which have to sustain high loads and/or are subject to wear.

### ERTALYTE TX (PET + solid lubricant) (pale grey)

ERTALYTE TX is a polyethylene terephthalate compound incorporating a uniformly dispersed solid lubricant. Its specific formulation yields a premium, internally lubricated bearing-grade.

ERTALYTE TX has not only an outstanding wear resistance, but offers in comparison with ERTALYTE an even lower coefficient of friction as well as higher Pressure-Velocity capabilities.



# round rods

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)		
			ERTALYTE		ERTALYTE TX
			natural 40300000	black 40300100	40300200
10	+ 0.1	+ 0.5	● 0.118	○ 0.118	● 0.122
12	+ 0.2	+ 0.7	● 0.173	○ 0.173	● 0.178
14			○ 0.233	○ 0.233	○ 0.240
15			● 0.266	○ 0.266	○ 0.274
16			● 0.302	● 0.302	● 0.311
18			● 0.380	○ 0.380	○ 0.391
20			● 0.467	● 0.467	● 0.480
22	+ 0.2	+ 0.9	● 0.570	○ 0.570	○ 0.585
25			● 0.730	● 0.730	● 0.750
28			○ 0.910	○ 0.910	○ 0.935
30			● 1.04	● 1.04	● 1.07
32	+ 0.2	+ 1.1	● 1.19	○ 1.19	○ 1.22
36			● 1.50	● 1.50	● 1.54
40			● 1.84	● 1.84	● 1.90
45	+ 0.3	+ 1.3	● 2.34	● 2.34	● 2.41
50			● 2.88	● 2.88	● 2.96
56			● 3.60	○ 3.60	○ 3.70
60	+ 0.3	+ 1.6	● 4.15	● 4.15	● 4.26
65			● 4.85	○ 4.85	○ 4.99
70			● 5.62	● 5.62	● 5.78
75	+ 0.4	+ 2	● 6.48	○ 6.48	○ 6.67
80			● 7.36	● 7.36	● 7.57
85	+ 0.5	+ 2.2	● 8.32	○ 8.32	○ 8.56
90			● 9.31	● 9.31	● 9.58
100	+ 0.6	+ 2.5	● 11.50	● 11.50	● 11.85
110	+ 0.7	+ 3	● 13.95	○ 13.95	● 14.35
120	+ 0.8	+ 3.5	● 16.65	● 16.65	● 17.15
125			● 18.05	○ 18.05	○ 18.55
130	+ 0.9	+ 3.8	● 19.55	● 19.55	● 20.10
140			● 22.60	○ 22.60	○ 23.25
150	+ 1	+ 4.2	● 26.00	● 26.00	● 26.75
160	+ 1.1	+ 4.5	● 29.60	-	○ 30.40
170	+ 1.2	+ 5	○ 33.45	-	○ 34.40
180			● 37.40	-	○ 38.50
190	+ 1.3	+ 5.5	○ 41.75	-	○ 42.95
200			● 46.15	-	○ 47.50
210	+ 1.3	+ 5.8	● 50.90	-	-
Standard lengths (mm)			Tolerance (1) on the lengths (%)		
1000			0 + 3		
3000 (3)					

Ground rods up to 70 mm Ø as well as non-standard lengths (cut-to-size) : ○

(1) : tolerances according to DIN 16980

(2) : average production weights

(3) : not available for : ERTALYTE rods over 150 mm diameter  
ERTALYTE TX rods over 100 mm diameter

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

# sheets

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m <sup>2</sup> )	
			Standard sizes (2)	
			1000 x 1000 mm	
			1000 x 2000 mm	
				40300003
2	- 0.15	+ 0.15	■	2.87
3	- 0.20	+ 0.20	■	4.30
4			■	5.70
5	- 0.25	+ 0.25	■	7.12
6	- 0.30	+ 0.30	■	8.55

(1) : average production weights  
 (2) : tolerance on width and lengths : 0 + 3%

**PRODUCT CODE**

# plates

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) - (kg/m)		
			ERTALYTE		ERTALYTE TX
			natural	black	
			40300004	40300104	40300204
8	+ 0.2	+ 0.9	■ 7.59	■ 7.59	■ 7.81
10			■ 9.37	■ 9.37	■ 9.64
12	+ 0.3	+ 1.5	■ 11.45	■ 11.45	■ 11.80
15			■ 14.10	□ 14.10	■ 14.50
16			■ 15.00	■ 15.00	□ 15.45
18			□ 16.80	□ 16.80	□ 17.25
20			■ 18.55	■ 18.55	■ 19.10
25			■ 22.95	■ 22.95	■ 23.60
30	+ 0.5	+ 2.5	■ 27.90	■ 27.90	■ 28.70
35			■ 32.30	□ 32.30	□ 33.25
40			■ 36.75	■ 36.75	■ 37.80
45			■ 41.15	□ 41.15	□ 42.35
50			■ 45.60	■ 45.60	■ 46.90
60	+ 0.5	+ 3.5	■ 54.90	■ 54.90	■ 56.45
70			■ 63.75	□ 63.75	□ 65.55
80	+ 0.5	+ 5	■ 73.25	■ 73.25	■ 75.35
90			□ 82.10	□ 82.10	□ 84.45
100			■ 90.95	■ 90.95	■ 93.55
<b>Standard sizes (mm)</b>		<b>Tolerances (1) on width and lengths</b>			
610 x 1000		Width : + 5 mm + 25 mm			
610 x 3000		Lengths : 0 + 3 %			
<b>Cut-to-size products : available on request and subject to special conditions</b>					

(1) : tolerances according to DIN 16986  
 (2) : average production weights

**PRODUCT CODE**

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Diameters (mm) O.D. x I.D.	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)			
			ERTALYTE		ERTALYTE TX	
	O.D.	I.D.	4030007		4030027	
20 x 12			⊙	0.339	⊙	0.349
25 x 15	+ 0.4	+ 1.1	- 0.4	- 1.1	●	0.530
30 x 20			●	0.640	●	0.660
36 x 20			●	1.16	⊙	1.20
40 x 20			●	1.51	●	1.56
30			⊙	0.985	⊙	1.01
45 x 30	+ 0.6	+ 2	- 0.6	- 2	●	1.52
50 x 30			●	2.02	●	2.08
40			●	1.27	●	1.30
55 x 45			⊙	1.48	⊙	1.53
60 x 30	+ 0.8	+ 2.5	- 0.8	- 2.5	●	3.44
40			●	2.60	●	2.67
65 x 50			●	2.41	●	2.48
70 x 30			●	4.89	⊙	5.03
40			●	4.15	●	4.27
50			●	3.19	●	3.28
75 x 60	+ 0.8	+ 3	- 0.8	- 3	⊙	2.91
80 x 40			●	5.87	⊙	6.03
50			⊙	4.90	●	5.04
60			●	3.72	⊙	3.82
90 x 40			⊙	8.03	⊙	8.25
50			●	7.09	●	7.30
60			⊙	5.94	⊙	6.11
70			●	4.56	⊙	4.69
100 x 40	+ 1.2	+ 3.6	- 1.6	- 5	⊙	10.50
50			●	9.27	●	9.53
60			⊙	8.11	⊙	8.35
80			●	5.14	●	5.28
115 x 50			⊙	13.20	⊙	13.60
70			●	10.70	●	11.00
90			⊙	7.33	⊙	7.54
125 x 50	+ 1.5	+ 4.5	- 2	- 6.5	●	16.40
80			⊙	11.90	⊙	12.20
140 x 70			●	18.00	●	18.50
90			⊙	14.60	⊙	15.05
160 x 80			●	23.55	●	24.25
100			⊙	19.75	⊙	20.35
180 x 80	+ 1.8	+ 5.4	- 2.2	- 7.5	⊙	32.20
100			⊙	27.50	●	28.30
140			●	17.25	⊙	17.75
200 x 100			●	36.50	●	37.50
140	+ 2	+ 6	- 2.5	- 8.5	⊙	27.00
160			●	19.80	⊙	20.35
Standard lengths (mm)			Tolerance on the lengths (%)			
1000			0 + 3			
3000						
Non-standard lengths (cut-to-size) : available on request and subject to special conditions						

(1) : tolerances according to DIN 16809  
(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- ⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# PC 1000

## Polycarbonate (PC) natural (clear, translucent)

Quadrant Engineering Plastic Products is marketing non-UV-stabilised polycarbonate stock shapes under the trade name PC 1000 (virgin grade). It is a “non-optical” industrial quality.

### Main characteristics:

- high mechanical strength
- good creep resistance
- very high impact strength, even at low temperatures
- stiffness retention over a wide range of temperatures
- very good dimensional stability
- translucent
- good electrical insulating and dielectric properties
- physiologically inert (suitable for food contact)



# round rods

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) (kg/m)	
			40495000	
6	+ 0.1	+ 0.4	●	0.037
8	+ 0.1	+ 0.5	●	0.066
10			●	0.101
12	+ 0.2	+ 0.9	●	0.151
16			●	0.262
20			●	0.404
22			○	0.493
25	+ 0.2	+ 1.2	●	0.630
28			○	0.790
30			●	0.900
32			○	1.02
36			+ 0.2	+ 1.6
40	●	1.60		
45	+ 0.3	+ 2	○	2.04
50			●	2.50
56			○	3.12
60	+ 0.3	+ 2.5	●	3.61
65			○	4.22
70			●	4.88
75	+ 0.4	+ 3	○	5.63
80			●	6.39
85	+ 0.5	+ 3.4	○	7.23
90			○	8.09
100	+ 0.6	+ 3.8	●	9.99
110	+ 0.7	+ 4.2	○	12.10
120	+ 0.8	+ 4.6	●	14.40
125			○	15.60
130	+ 0.9	+ 5.4	○	16.95
140			○	19.60
150	+ 1	+ 5.8	●	22.50
160	+ 1.1	+ 6.3	○	25.65
170	+ 1.2	+ 7.4	○	29.05
180			●	32.50
190	+ 1.3	+ 8.5	○	36.35
200			●	40.15
<b>Standard lengths (mm)</b>			<b>Tolerance (1) on the lengths (%)</b>	
1000			0	
3000			+ 3	
<b>Non-standard lengths (cut-to-size) : available on request and subject to special conditions</b>				

(1) : tolerances according to DIN 16980

(2) : average production weights

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# plates

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) (kg/m)	
			40495004	
15	+ 0.3	+ 1.5	■	12.55
18			□	14.85
20			■	16.40
25			■	20.25
30	+ 0.5	+ 2.5	■	24.75
40			■	32.50
50			■	40.25
			■	40.25
Standard sizes (mm)		Tolerances (1) on width and lengths		
620 x 1000		Width : + 5 mm + 25 mm		
620 x 3000		Lengths : 0 + 3 %		
Cut-to-size products : available on request and subject to special conditions				

(1) : tolerances according to DIN 16986

(2) : average production weights

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
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# Physical properties

## ERTALON, NYLATRON, ERTACETAL, ERTALYTE and PC stock shapes (indicative values ▶)

PROPERTIES	Test methods ISO/(IEC)	Units	ERTALON 6 SA	ERTALON 66 SA	ERTALON 66 SA-C	ERTALON 4.6	ERTALON 66-GF30	ERTALON 6 PLA	
Colour	—	—	natural (white) / black	natural (cream) / black	natural (white)	reddish brown	black	natural (ivory) / black	
Density	1183	g/cm <sup>3</sup>	1.14	1.14	1.14	1.18	1.29	1.15	
Water absorption:									
– after 24/96 h immersion in water of 23 °C (1)	62	mg	86/168	40/76	65/120	90/180	30/56	44/83	
	62	%	1.28/2.50	0.60/1.13	0.97/1.79	1.30/2.60	0.39/0.74	0.65/1.22	
– at saturation in air of 23 °C / 50% RH	—	%	2.6	2.4	2.5	2.8	1.7	2.2	
– at saturation in water of 23 °C	—	%	9	8	8.5	9.5	5.5	6.5	
<b>Thermal Properties (2)</b>									
Melting temperature	—	°C	220	255	240	295	255	220	
Glass transition temperature (3)	—	°C	—	—	—	—	—	—	
Thermal conductivity at 23 °C	—	W/(K·m)	0.28	0.28	0.28	0.30	0.30	0.29	
Coefficient of linear thermal expansion:									
– average value between 23 and 60 °C	—	m/(m·K)	90·10 <sup>-6</sup>	80·10 <sup>-6</sup>	85·10 <sup>-6</sup>	80·10 <sup>-6</sup>	50·10 <sup>-6</sup>	80·10 <sup>-6</sup>	
– average value between 23 and 100 °C	—	m/(m·K)	105·10 <sup>-6</sup>	95·10 <sup>-6</sup>	100·10 <sup>-6</sup>	90·10 <sup>-6</sup>	60·10 <sup>-6</sup>	90·10 <sup>-6</sup>	
Temperature of deflection under load:									
– method A: 1.8 MPa	+	75	°C	70	85	75	160	150	80
Max. allowable service temperature in air:									
– for short periods (4)	—	°C	160	180	170	200	240	170	
– continuously: for 5,000 / 20,000 h (5)	—	°C	85/70	95/80	90/75	155/135	120/110	105/90	
Min. service temperature (6)									
–			-40	-30	-30	-40	-20	-30	
Flammability (7):									
– “Oxygen Index”	4589	%	25	26	24	24	—	25	
– according to UL 94 (3 / 6 mm thickness)	—	—	HB/HB	HB/V-2	HB/HB	HB/HB	HB/HB	HB/HB	
<b>Mechanical Properties at 23 °C (8)</b>									
Tension test (9):									
– tensile stress at yield / tensile stress at break (10)	+	527	MPa	76/—	90/—	86/—	100/—	—/100	85/—
	++	527	MPa	45/—	55/—	50/—	55/—	—/75	55/—
– tensile strain at break (10)	+	527	%	> 50	> 40	> 50	25	5	25
	++	527	%	> 100	> 100	> 100	> 100	12	> 50
– tensile modulus of elasticity (11)	+	527	MPa	3,250	3,450	3,300	3,300	5,900	3,500
	++	527	MPa	1,400	1,650	1,450	1,300	3,200	1,700
Compression test (12):									
– compressive stress at 1/2/5 % nominal strain (11)+	+	604	MPa	24/46/80	25/49/92	24/47/88	23/45/94	28/55/90	26/51/92
Creep test in tension (9):									
– stress to produce 1 % strain in 1,000 h ( $\sigma_{1/1,000}$ )	+	899	MPa	18	20	19	22	26	22
	++	899	MPa	7	8	7.5	7.5	18	10
Charpy impact strength – Unnotched (13)	+	179/1eJ	kJ/m <sup>2</sup>	no break	no break	no break	no break	≥ 50	no break
Charpy impact strength – Notched	+	179/1eA	kJ/m <sup>2</sup>	5.5	4.5	5	8	6	3.5
Izod impact strength – Notched	+	180/2A	kJ/m <sup>2</sup>	5.5	4.5	5	8	6	3.5
	++	180/2A	kJ/m <sup>2</sup>	15	11	13	25	11	7
Ball indentation hardness (14)	+	2039-1	N/mm <sup>2</sup>	150	160	155	165	165	165
Rockwell hardness (14)	+	2039-2	—	M 85	M 88	M 87	M 92	M 76	M 88
<b>Electrical Properties at 23 °C</b>									
Electric strength (15)	+	(60243)	kV/mm	25	27	26	25	30	25
	++	(60243)	kV/mm	16	18	17	15	20	17
Volume resistivity	+	(60093)	Ω·cm	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>
	++	(60093)	Ω·cm	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>13</sup>	> 10 <sup>12</sup>
Surface resistivity	+	(60093)	Ω	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>
	++	(60093)	Ω	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>
Relative permittivity $\epsilon_r$ :									
– at 100 Hz	+	(60250)	—	3.9	3.8	3.8	3.8	3.9	3.6
	++	(60250)	—	7.4	7.4	7.4	7.4	6.9	6.6
– at 1 MHz	+	(60250)	—	3.3	3.3	3.3	3.4	3.6	3.2
	++	(60250)	—	3.8	3.8	3.8	3.8	3.9	3.7
Dielectric dissipation factor tan $\delta$ :									
– at 100 Hz	+	(60250)	—	0.019	0.013	0.013	0.009	0.012	0.012
	++	(60250)	—	0.13	0.13	0.13	0.13	0.19	0.14
– at 1 MHz	+	(60250)	—	0.021	0.020	0.020	0.019	0.014	0.016
	++	(60250)	—	0.06	0.06	0.06	0.06	0.04	0.05
Comparative tracking index (CTI)	+	(60112)	—	600	600	600	400	475	600
	++	(60112)	—	600	600	600	400	475	600

Note: 1 g/cm<sup>3</sup> = 1,000 kg/m<sup>3</sup>; 1 MPa = 1 N/mm<sup>2</sup>; 1 kV/mm = 1 MV/m.

**Legend:**

- + : values referring to dry material
- ++ : values referring to material in equilibrium with the standard atmosphere 23°C/50 % RH (mostly derived from literature)
- (1) According to method 1 of ISO 62 and done on discs Ø 50 x 3 mm.
- (2) The figures given for these properties are for the most part derived from raw material supplier data and other publications.
- (3) Values for this property are only given here for amorphous materials and not for semi-crystalline ones.
- (4) Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
- (5) Temperature resistance over a period of 5,000/20,000 hours. After these periods of time, there is a decrease in tensile strength of about 50% as compared with the original value. The

temperature values given here are thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that, as for all thermoplastics, the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.

(6) Impact strength decreasing with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The values given here are based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limits.

(7) These estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There are no UL-yellow cards available for these stock shapes.

- (8) The figures given for the properties of dry material (+) are for the most part average values of tests run on test specimens machined out of rods Ø 40 - 60 mm. Considering the very low water absorption of ERTACETAL, ERTALYTE and PC 1000, the values for the mechanical and electrical properties of these materials can be considered as being practically the same for dry (+) and moisture conditioned (++) test specimens.
- (9) Test specimens: Type 1 B
- (10) Test speed: 20 mm/min (5 mm/min for ERTALON 66-GF30, ERTACETAL H-TF and ERTALYTE TX).
- (11) Test speed: 1 mm/min.
- (12) Test specimens: cylinders Ø 12 x 30 mm.
- (13) Pendulum used: 15 J.
- (14) 10 mm thick test specimens.
- (15) Electrode configuration: 25/75 mm coaxial cylinders; in transformer oil according to IEC 60296; 1 mm thick natural coloured test specimens. It is important to know that the electric strength of

black extruded material (ERTALON 6 SA, ERTALON 66 SA, ERTACETAL and ERTALYTE) can be as low as 50% of the value for natural material. Possible microporosity in the centre of polyacetal stock shapes also significantly reduces the electric strength.

(16) The property-values given below do not apply to the ERTALYTE sheets.

► This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties. **However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.** It has to be noted that ERTALON 66-GF30 is a fibre reinforced, and consequently anisotropic material (properties differ when measured parallel and perpendicular to the extrusion direction).

ERTALON 6 XAU+	ERTALON LFX	NYLATRON MC 901	NYLATRON GSM	NYLATRON NSM	NYLATRON GS	ERTACETAL C	ERTACETAL H	ERTACETAL H-TF	ERTALYTE (16)	ERTALYTE TX	PC 1000
black	green	blue	grey-black	grey	grey-black	natural (white)/black	natural (white)/black	deep brown	natural (white)/black	pale grey	natural (clear, translucent)
1.15	1.135	1.15	1.16	1.14	1.15	1.41	1.43	1.50	1.39	1.44	1.20
47/89	44/83	49/93	52/98	40/76	46/85	20/37	18/36	16/32	6/13	5/11	13/23
0.69/1.31	0.66/1.24	0.72/1.37	0.76/1.43	0.59/1.12	0.68/1.25	0.24/0.45	0.21/0.43	0.18/0.36	0.07/0.16	0.06/0.13	0.18/0.33
2.2	2	2.3	2.4	2	2.3	0.20	0.20	0.17	0.25	0.23	0.15
6.5	6.3	6.6	6.7	6.3	7.8	0.85	0.85	0.72	0.50	0.47	0.35
220	220	220	220	220	255	165	175	175	255	255	—
—	—	—	—	—	—	—	—	—	—	—	150
0.29	0.28	0.29	0.30	0.29	0.29	0.31	0.31	0.31	0.29	0.29	0.21
80 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	110 · 10 <sup>-6</sup>	95 · 10 <sup>-6</sup>	105 · 10 <sup>-6</sup>	60 · 10 <sup>-6</sup>	65 · 10 <sup>-6</sup>	65 · 10 <sup>-6</sup>
90 · 10 <sup>-6</sup>	90 · 10 <sup>-6</sup>	90 · 10 <sup>-6</sup>	90 · 10 <sup>-6</sup>	95 · 10 <sup>-6</sup>	90 · 10 <sup>-6</sup>	125 · 10 <sup>-6</sup>	110 · 10 <sup>-6</sup>	120 · 10 <sup>-6</sup>	80 · 10 <sup>-6</sup>	85 · 10 <sup>-6</sup>	65 · 10 <sup>-6</sup>
80	75	80	80	75	85	105	115	105	75	75	130
180	165	170	170	165	180	140	150	150	160	160	135
120/105	105/90	105/90	105/90	105/90	95/80	115/100	105/90	105/90	115/100	115/100	125/115
-30	-20	-30	-30	-30	-20	-50	-50	-20	-20	-20	-60
25	—	25	25	—	26	15	15	—	25	25	25
HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	HB / HB	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB
83/—	70/—	81/—	78/—	76/—	92/—	68/—	78/—	—/55	90/—	—/76	70/—
55/—	45/—	50/—	50/—	50/—	55/—	68/—	78/—	—/55	90/—	—/76	70/—
25	25	35	25	25	20	35	35	10	15	7	> 50
> 50	> 50	> 50	> 50	> 50	> 50	35	35	10	15	7	> 50
3,400	3,000	3,200	3,300	3,100	3,500	3,100	3,600	3,200	3,700	3,450	2,400
1,650	1,450	1,550	1,600	1,500	1,675	3,100	3,600	3,200	3,700	3,450	2,400
26/51/92	22/43/79	24/47/86	25/49/88	23/44/81	25/49/92	19/35/67	22/40/75	20/37/69	26/51/103	24/47/95	18/35/72
22	18	21	21	18	21	13	15	13	26	23	17
10	8	9	9	8	9	13	15	13	26	23	17
no break	≥ 50	no break	no break	≥ 100	no break	≥ 150	≥ 200	≥ 30	≥ 50	≥ 30	no break
3.5	4	3.5	3.5	4	4	7	10	3	2	2.5	9
3.5	4	3.5	3.5	4	4	7	10	3	2	2.5	9
7	7	7	7	7	9	7	10	3	2	2.5	9
165	145	160	160	150	165	140	160	140	170	160	120
M 87	M 82	M 85	M 84	M 81	M 88	M 84	M 88	M 84	M 96	M 94	M 75
29	22	25	24	25	26	20	20	20	22	21	28
19	14	17	16	17	17	20	20	20	22	21	28
> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>15</sup>	> 10 <sup>15</sup>	> 10 <sup>15</sup>
> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>15</sup>	> 10 <sup>15</sup>	> 10 <sup>15</sup>
> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>15</sup>
> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>15</sup>
3.6	3.5	3.6	3.6	3.6	3.8	3.8	3.8	3.6	3.4	3.4	3
6.6	6.5	6.6	6.6	6.6	7.4	3.8	3.8	3.6	3.4	3.4	3
3.2	3.1	3.2	3.2	3.2	3.3	3.8	3.8	3.6	3.2	3.2	3
3.7	3.6	3.7	3.7	3.7	3.8	3.8	3.8	3.6	3.2	3.2	3
0.015	0.015	0.012	0.012	0.012	0.013	0.003	0.003	0.003	0.001	0.001	0.001
0.15	0.15	0.14	0.14	0.14	0.13	0.003	0.003	0.003	0.001	0.001	0.001
0.017	0.016	0.016	0.016	0.016	0.020	0.008	0.008	0.008	0.014	0.014	0.008
0.05	0.05	0.05	0.05	0.05	0.06	0.008	0.008	0.008	0.014	0.014	0.008
600	600	600	600	600	600	600	600	600	600	600	350 (225)
600	600	600	600	600	600	600	600	600	600	600	350 (225)



# CESTILENE HD 500 / 1000, CESTICOLOR HD 500, CESTIDUR®

## High Molecular Weight Polyethylene (PE-HMW) Ultra High Molecular Weight Polyethylene (PE-UHMW)

These are the trade names Quadrant Engineering Plastic Products uses for its extensive range of virgin, partially reprocessed, coloured and filled High Density Polyethylene stock shapes, manufactured by compression moulding or extrusion.

### Main characteristics :

- good wear and abrasion resistance (particularly PE-UHMW)
- high impact strength, even at low temperatures (particularly PE-UHMW)
- excellent chemical resistance
- low density compared with other thermoplastics (< 1 g/cm<sup>3</sup>)
- low coefficient of friction
- excellent release properties
- very low water absorption
- moderate mechanical strength, stiffness and creep resistance
- very good electrical insulating and dielectric properties (virgin grades only ; see table on page 57)
- excellent machinability
- physiologically inert (most grades are suitable for food contact)
- good resistance to high energy radiation (gamma and X-rays)
- not self-extinguishing

### CESTILENE HD 500

(PE-HMW)

#### natural (white) / black

Molecular weight of about 500,000 g/mol.

This grade exhibits a good combination of stiffness, toughness, mechanical damping ability with wear and abrasion resistance and can easily be welded. CESTILENE HD 500 is a versatile polyethylene grade used mainly in the food industry (meat and fish processing) but it is also put to use in all kinds of mechanical, chemical and electrical applications.

### CESTILENE HD 500 R

(PE-HMW)

#### black / green

Molecular weight of about 500,000 g/mol.

This grade is partially composed of reprocessed HD 500 material. CESTILENE HD 500 R is used for those applications where its reduced physical properties are overruled by its economical advantage.

### CESTICOLOR HD 500

(PE-HMW)

#### green, red, yellow, king's blue, sky blue, salmon, orange and chestnut.

Molecular weight of about 500,000 g/mol.

The CESTICOLOR HD 500 range of materials offers a series of homogeneous, attractive and food compliant colours which find particular outlet in the food and leisure industry. The property profile of these grades is practically identical to the one of CESTILENE HD 500.

# CESTILITE ASTL CESTITECH 7000

## CESTILENE HD 1000

(PE-UHMW)

**natural (white) / black / green**

Molecular weight of about 4,500,000 g/mol.

Of all ultra high molecular weight polyethylene grades, CESTILENE HD 1000 exhibits the best balanced property profile. It combines an excellent wear and abrasion resistance with an outstanding impact strength, even at temperatures below -200°C. Its main fields of application are: general mechanical construction; bottling, canning and packaging machinery; chemical and electroplating industry; cryogenic equipment; textile industry and storage systems for bulk materials.

## CESTILENE HD 1000 R

(PE-UHMW)

**black / green**

Molecular weight of about 4,000,000 g/mol.

This grade, partially composed of reprocessed HD 1000 material, has an overall lower property level than the virgin CESTILENE HD 1000 and a lower cost. Compared with CESTILENE HD 500, however, it has a much better impact strength and wear resistance. CESTILENE HD 1000 R is an economical PE-UHMW grade for use in material handling equipment.

## CESTIDUR

(PE-UHMW)

**(blue grey)**

Molecular weight of about 6,000,000 g/mol.

The higher molecular weight and the particular manufacturing process of this material result in a PE-UHMW grade with superior wear and abrasion resistance. CESTIDUR has proven to be able to deal with the toughest bearing and wear jobs in all kinds of industries.

## CESTILITE ASTL

(PE-UHMW + additives)

**(black)**

Molecular weight of about 7,000,000 g/mol.

CESTILITE ASTL has been specifically developed for the toughest anti-abrasion applications. The additives used also confer this material static dissipative (anti-static) and UV-stabilised properties. This reduces the risk of explosions when handling certain bulk materials on the one hand and make the material suitable for outdoor use on the other hand.

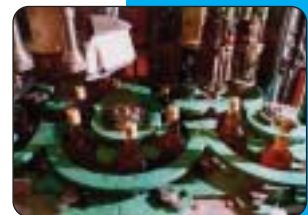
## CESTITECH 7000

(PE-UHMW + additives)

**(grey-black)**

Molecular weight of about 7,000,000 g/mol.

This grade, made from a PE-UHMW resin with extremely high degree of polymerisation, contains specific additives which result in a material with remarkable wear resistance and sliding properties. Its particular manufacturing process (high pressure and very long sintering cycle) results into stock shapes with low internal stress level and excellent overall quality.



*round rods (extruded)*

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) - (kg/m)	
			40120100	
30	+ 0.2	+ 1.2	●	0.715
40	+ 0.2	+ 1.5	●	1.26
50	+ 0.3	+ 2	●	1.98
60	+ 0.3	+ 2.3	●	2.85
70	+ 0.3	+ 2.5	●	3.86
80	+ 0.4	+ 3	●	5.06
90	+ 0.5	+ 3.4	●	6.40
100	+ 0.6	+ 3.8	●	7.91
120	+ 0.8	+ 4.6	●	11.40
140	+ 0.9	+ 5.4	○	15.50
150	+ 1	+ 5.8	●	17.80
160	+ 1.1	+ 6.3	○	20.30
200	+ 1.3	+ 8.5	○	31.80
Standard lengths (mm)			Tolerance (1) on the lengths (%)	
1000			0	
2000 (3)			+ 3	

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : tolerances according to DIN 16980
- (2) : average production weights
- (3) : not available for diameters over 100 mm

**PRODUCT CODE**

**CESTILENE HD 500** natural / black  
**CESTICOLOR HD 500**

*round rods (pressed & turned)*

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)					
			CESTILENE HD 500		CESTICOLOR HD 500			
			natural 40120120	black 40120220	see codes below			
20	+ 0.6	+ 1	●	0.329	○	0.329	○	0.329
25			●	0.505	○	0.505	○	0.505
30			●	0.720	○	0.720	○	0.720
35			●	0.975	○	0.975	○	0.975
40			●	1.27	○	1.27	○	1.27
45			●	1.60	○	1.60	○	1.60
50			●	1.96	○	1.96	○	1.96
55	+ 1.1	+ 1.5	●	2.37	○	2.37	○	2.37
60			●	2.81	○	2.81	○	2.81
70			●	3.87	○	3.87	○	3.87
80			●	5.03	○	5.03	○	5.03
90			●	6.35	○	6.35	○	6.35
100	+ 1.8	+ 2.2	●	7.81	○	7.81	○	7.81
110			○	9.55	○	9.55	○	9.55
120			●	11.35	○	11.35	○	11.35
130			○	13.25	○	13.25	○	13.25
140	●	15.35	○	15.35	○	15.35		
Standard lengths (mm)			Tolerances on the lengths (mm)					
1000			+ 5 + 25					
2000 (2)			+ 20 + 50					

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : average production weights
- (2) : not available for diameters over 60 mm
- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**COLOURS (\*) & PRODUCT CODES**

<b>CESTICOLOR HD 500 green</b>	(RAL 6024)	<b>40120420</b>	<b>CESTICOLOR HD 500 sky blue</b>	(RAL 5015)	<b>40120820</b>
<b>CESTICOLOR HD 500 red</b>	(RAL 3020)	<b>40120520</b>	<b>CESTICOLOR HD 500 salmon</b>	(RAL 3012)	<b>40120920</b>
<b>CESTICOLOR HD 500 yellow</b>	(RAL 1018)	<b>40120620</b>	<b>CESTICOLOR HD 500 orange</b>	(RAL 2003)	<b>40121120</b>
<b>CESTICOLOR HD 500 king's blue</b>	(RAL 5005)	<b>40120720</b>	<b>CESTICOLOR HD 500 chestnut</b>	(RAL 8017)	<b>40121220</b>

(\*) : the corresponding, yet approximating, RAL-colours are given between brackets



# round rods (extruded)

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)		
			natural	black	green
			40140100	40140200	40140400
20	+ 0.5	+ 1.5	● 0.326	○ 0.326	○ 0.326
25			● 0.494	○ 0.494	○ 0.494
30			● 0.720	○ 0.720	○ 0.720
35	+ 0.5	+ 2	● 0.995	○ 0.995	○ 0.995
40			● 1.28	○ 1.28	○ 1.28
45			● 1.57	○ 1.57	○ 1.57
50	+ 0.5	+ 2.5	● 2.03	○ 2.03	○ 2.03
60			● 2.87	○ 2.87	○ 2.87
70			● 3.72	○ 3.72	○ 3.72
80	+ 0.5	+ 3.5	● 5.10	○ 5.10	○ 5.10
90			● 6.09	○ 6.09	○ 6.09
100			● 7.82	○ 7.82	○ 7.82
110	+ 1	+ 3.5	● 9.42	○ 9.42	○ 9.42
125			● 12.00	○ 12.00	○ 12.00
140	+ 1.5	+ 5	● 15.35	○ 15.35	○ 15.35
160			● 19.80	○ 19.80	○ 19.80
180	+ 5	+ 10	○ 26.25	-	-
200			○ 32.30	-	-
Lengths (mm)			Tolerance on the lengths (%)		
● 1000			0 + 2		
● 2000 (2)					
○ 3000 (3)					
Non-standard lengths (cut-to-size) : available on request and subject to special conditions					

(1) : average production weights  
 (2) : not available for diameter 200 mm  
 (3) : not available for diameters over 50 mm

PRODUCT CODE

● : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
 ○ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)  
 - : not manufactured

*round rods (pressed & turned)*

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)	
			natural	black
			40140120	40140220
20	+ 0.6	+ 1	● 0.322	○ 0.322
25			● 0.496	○ 0.496
30			● 0.705	○ 0.705
35			● 0.955	○ 0.955
40			● 1.24	○ 1.24
45			● 1.56	○ 1.56
50			● 1.92	○ 1.92
55			● 2.32	○ 2.32
60			● 2.76	○ 2.76
70			+ 1.1	+ 1.5
80	● 4.93	○ 4.93		
90	● 6.21	○ 6.21		
100	● 7.65	○ 7.65		
110	+ 1.8	+ 2.2	● 9.35	○ 9.35
120			● 11.10	○ 11.10
130			● 13.00	○ 13.00
140			● 15.05	○ 15.05
150			● 17.20	○ 17.20
160			○ 19.55	○ 19.55
170			○ 22.05	○ 22.05
180			○ 24.70	○ 24.70
190			○ 27.50	○ 27.50
200			● 30.40	○ 30.40
210			○ 33.50	○ 33.50
220			○ 36.75	○ 36.75
230			○ 40.10	○ 40.10
240			○ 43.65	○ 43.65
Standard lengths (mm)			Tolerances on the lengths (%)	
1000			+ 5	+ 25
2000 (2)			+ 20	+ 50

(1) : average production weights

(2) : not available for diameters over 60 mm

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

Note : coloured HD 1000 round rods (CESTICOLOR HD 1000) can be manufactured to order.  
Please consult us.

*round rods (pressed & turned)*



Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)		
			CESTIDUR	CESTILITE ASTL	CESTITECH 7000
			40145320	40147320	40147920
20	+ 0.6	+ 1	● 0.322	● 0.329	● 0.329
25			● 0.496	● 0.505	● 0.505
30			● 0.705	● 0.720	● 0.720
35			● 0.955	● 0.975	● 0.975
40			● 1.24	● 1.27	● 1.27
45			● 1.56	● 1.60	● 1.60
50			● 1.92	● 1.96	● 1.96
55			● 2.32	● 2.37	● 2.37
60			● 2.76	● 2.81	● 2.81
70	+ 1.1	+ 1.5	● 3.79	● 3.87	● 3.87
80			● 4.93	● 5.03	● 5.03
90			● 6.21	● 6.35	● 6.35
100			● 7.65	● 7.81	● 7.81
110	+ 1.8	+ 2.2	● 9.35	● 9.55	● 9.55
120			● 11.10	● 11.35	● 11.35
130			● 13.00	● 13.25	● 13.25
140			● 15.05	● 15.35	● 15.35
150			● 17.20	● 17.60	● 17.60
160			○ 19.55	○ 20.00	○ 20.00
170			○ 22.05	○ 22.50	○ 22.50
180			○ 24.70	○ 25.20	○ 25.20
190			○ 27.50	○ 28.05	○ 28.05
200			● 30.40	● 31.05	● 31.05
210			○ 33.50	○ 34.20	○ 34.20
220			○ 36.75	○ 37.50	○ 37.50
230	○ 40.10	○ 41.00	○ 41.00		
240	○ 43.65	○ 44.60	○ 44.60		
Standard lengths (mm)			Tolerances on the lengths (mm)		
1000			+ 5 + 25		
2000 (2)			+ 20 + 50		
Non-standard lengths (cut-to-size) : available on request and subject to special conditions					

(1) : average production weights  
(2) : not available for diameters over 60 mm

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# sheets & plates (extruded)

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/piece)	
			Standard size (mm) : 1000 x 2000	
			natural	black
			40120103	40120303
2	- 0.11	+ 0.11	■ 3.84	□ 3.84
3	- 0.14	+ 0.14	■ 5.76	□ 5.76
4	- 0.17	+ 0.17	■ 7.68	□ 7.68
5	- 0.20	+ 0.20	■ 9.60	□ 9.60
6	- 0.23	+ 0.23	■ 11.50	□ 11.50
8	- 0.29	+ 0.29	■ 15.35	□ 15.35
10	- 0.35	+ 0.35	■ 19.20	□ 19.20
12	- 0.41	+ 0.41	■ 23.05	□ 23.05
15	- 0.50	+ 0.50	■ 28.80	□ 28.80

**Tolerance on width and length (%) : 0 + 0.5**  
**Cut-to-size products : available on request and subject to special conditions**

(1) : average production weights

**PRODUCT CODE**

# plates (pressed)

Thicknesses (1) (mm)	Tolerances on the thicknesses (mm)		Weights (2) - (kg/piece)							
			Standard sizes (mm) - (3)							
			1020 x 2050		1020 x 3050		1220 x 2050		1220 x 3050	
			natural : 40120124 / black : 40120224							
			natural	black	natural	black	natural	black	natural	black
8			□ 17.15	□	□ 25.50	□	■ 20.45	■	■ 30.45	□
10			□ 21.25	□	□ 31.60	□	■ 25.35	■	■ 37.70	□
12			□ 25.30	□	□ 37.65	□	■ 30.20	■	■ 44.95	□
15			□ 31.45	□	□ 46.80	□	■ 37.50	■	■ 55.80	□
20			■ 41.65	□	□ 61.95	□	■ 49.70	■	■ 73.95	□
25			■ 51.85	□	□ 77.15	□	■ 61.85	■	■ 92.00	□
30			■ 62.05	□	□ 92.30	□	■ 74.05	■	■ 110.2	□
35			■ 72.25	□	□ 107.5	□	■ 86.20	■	■ 128.2	□
40			■ 82.45	□	□ 122.7	□	■ 98.40	■	■ 146.4	□
45			■ 92.65	□	□ 137.8	□	■ 110.6	■	■ 164.6	□
50			■ 102.9	□	□ 153.1	□	■ 122.7	■	■ 182.6	□
60			■ 123.3	□	□ 183.4	□	■ 147.1	■	■ 218.9	□
			Standard size (mm) : 1250 x 2040							
			natural : 40120124				black : 40120224			
70			■ 174.8				□ 174.8			
80			■ 199.6				□ 199.6			
90			■ 224.4				□ 224.4			
100			■ 249.3				□ 249.3			
110			□ 274.1				□ 274.1			
120			□ 298.9				□ 298.9			
130			□ 323.7				□ 323.7			
140			□ 348.6				□ 348.6			
150			□ 373.4				□ 373.4			
<b>Tolerances on widths and lengths (mm): 1020 (0 + 30) x 2050 / 3050 (0 + 30)</b> <b>1220 (0 + 30) x 2050 / 3050 (0 + 30)</b> <b>1250 (0 + 30) x 2040 (0 + 30)</b>										
<b>Cut-to-size products : available on request and subject to special conditions</b>										

(1) : planed

(2) : average production weights

(3) : non-standard sizes in the thickness range 8 - 60 mm: 1220 x 6150, 2050 x 3050 and 2050 x 6150

**PRODUCT CODE**

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

*plates (pressed)*

Thicknesses (1) (mm)	Tolerances on the thicknesses (mm)	Weights (2) - (kg/piece)							
		Standard sizes (mm) - (3)							
		1020 x 2050		1020 x 3050		1220 x 2050		1220 x 3050	
		black: 40130924 / green: 40131924							
		black	green	black	green	black	green	black	green
8	+ 0.2      + 0.6	□ 17.15	□	□ 25.50	□	■ 20.45	■	□ 30.45	□
10		□ 21.25	□	□ 31.60	□	■ 25.35	■	□ 37.70	□
12		□ 25.30	□	□ 37.65	□	■ 30.20	■	□ 44.95	□
15		□ 31.45	□	□ 46.80	□	■ 37.50	■	□ 55.80	□
20		□ 41.65	□	□ 61.95	□	■ 49.70	■	□ 73.95	□
25		□ 51.85	□	□ 77.15	□	■ 61.85	■	□ 92.00	□
30		□ 62.05	□	□ 92.30	□	■ 74.05	■	□ 110.2	□
35		□ 72.25	□	□ 107.5	□	■ 86.20	■	□ 128.2	□
40		□ 82.45	□	□ 122.7	□	■ 98.40	■	□ 146.4	□
45		□ 92.65	□	□ 137.8	□	■ 110.6	■	□ 164.6	□
50		□ 102.9	□	□ 153.1	□	■ 122.7	■	□ 182.6	□
60		□ 123.3	□	□ 183.4	□	■ 147.1	■	□ 218.9	□
		Standard size (mm): 1250 x 2040							
		black				green			
		40130924				40131924			
70	+ 0.2      + 0.6	■ 174.8	□	□ 174.8	□	□ 174.8	□	□ 174.8	□
80		■ 199.6	□	□ 199.6	□	□ 199.6	□	□ 199.6	□
90		■ 224.4	□	□ 224.4	□	□ 224.4	□	□ 224.4	□
100		■ 249.3	□	□ 249.3	□	□ 249.3	□	□ 249.3	□
110		□ 274.1	□	□ 274.1	□	□ 274.1	□	□ 274.1	□
120		□ 298.9	□	□ 298.9	□	□ 298.9	□	□ 298.9	□
130		□ 323.7	□	□ 323.7	□	□ 323.7	□	□ 323.7	□
140		□ 348.6	□	□ 348.6	□	□ 348.6	□	□ 348.6	□
150		□ 373.4	□	□ 373.4	□	□ 373.4	□	□ 373.4	□
Tolerances on widths and lengths (mm): 1020 (0 + 30) x 2050 / 3050 (0 + 30) 1220 (0 + 30) x 2050 / 3050 (0 + 30) 1250 (0 + 30) x 2040 (0 + 30)									
Cut-to-size products : available on request and subject to special conditions									

(1) : planed

(2) : average production weights

(3) : non-standard sizes in the thickness range 8 - 60 mm:1220 x 6150, 2050 x 3050 and 2050 x 6150

PRODUCT CODE

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

*plates (pressed)*

Thicknesses (1) (mm)	Tolerances on the thicknesses (mm)	Weights (2) - (kg/piece)			
		Standard sizes (mm) - (3)			
		1020 x 2050	1020 x 3050	1220 x 2050	1220 x 3050
		see codes below			
8	+ 0.2      + 0.6	□ 17.15	□ 25.50	□ 20.45	□ 30.45
10		□ 21.25	□ 31.60	□ 25.35	□ 37.70
12		□ 25.30	□ 37.65	□ 30.20	□ 44.95
15		□ 31.45	□ 46.80	□ 37.50	□ 55.80
20		□ 41.65	□ 61.95	□ 49.70	□ 73.95
25		□ 51.85	□ 77.15	□ 61.85	□ 92.00
30		□ 62.05	□ 92.30	□ 74.05	□ 110.2
35		□ 72.25	□ 107.5	□ 86.20	□ 128.2
40		□ 82.45	□ 122.7	□ 98.40	□ 146.4
45		□ 92.65	□ 137.8	□ 110.6	□ 164.6
50		□ 102.9	□ 153.1	□ 122.7	□ 182.6
60		□ 123.3	□ 183.4	□ 147.1	□ 218.9
		Standard size (mm): 1250 x 2040			
		see codes below			
70	+ 0.2      + 0.6	□ 174.8			
80		□ 199.6			
90		□ 224.4			
100		□ 249.3			
110		□ 274.1			
120		□ 298.9			
130		□ 323.7			
140		□ 348.6			
150	□ 373.4				
Tolerances on widths and lengths (mm): 1020 (0 + 30) x 2050 / 3050 (0 + 30) 1220 (0 + 30) x 2050 / 3050 (0 + 30) 1250 (0 + 30) x 2040 (0 + 30)					
Cut-to-size products : available on request and subject to special conditions					

(1) : planed

(2) : average production weights

(3) : non-standard sizes in the thickness range 8 - 60 mm:1220 x 6150, 2050 x 3050 and 2050 x 6150

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**COLOURS (\*)**

COLOURS (*)		PRODUCT CODES
CESTICOLOR HD 500 green	(RAL 6024)	40120424
CESTICOLOR HD 500 red	(RAL 3020)	40120524
CESTICOLOR HD 500 yellow	(RAL 1018)	40120624
CESTICOLOR HD 500 king's blue	(RAL 5005)	40120724
CESTICOLOR HD 500 sky blue	(RAL 5015)	40120824
CESTICOLOR HD 500 salmon	(RAL 3012)	40120924
CESTICOLOR HD 500 orange	(RAL 2003)	40121124
CESTICOLOR HD 500 chestnut	(RAL 8017)	40121224

(\*) : the corresponding, yet approximating, RAL-colours are given between brackets

# sheets & plates

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/piece)			
			Standard size (mm): 1000 x 2000			
skived			natural: 40140103			
1	0	+ 0.4	■			2.28
2			■			3.80
3	- 0.2	+ 0.2	■			5.70
4			■			7.60
5			■			9.50
6	- 0.3	+ 0.3	■			11.40
			natural: 40140104			
8			■			15.20
10	- 0.3	+ 0.3	■			19.00
pressed (2)			Standard sizes (mm) - (3)			
			1020 x 2050	1020 x 3050	1220 x 2050	1220 x 3050
			natural: 40140124 / black: 40140224			
			natural	black	natural	black
8			□ 16.80	□	□ 25.00	□ 20.05
10			□ 20.80	□	□ 30.95	□ 24.80
12			□ 24.80	□	□ 36.90	□ 29.55
15			□ 30.75	□	□ 45.75	□ 36.70
20			■ 40.75	□	■ 60.65	■ 48.65
25			■ 50.75	□	■ 75.50	■ 60.55
30	+ 0.2	+ 0.6	■ 60.75	□	■ 90.40	■ 72.50
35			■ 70.75	□	■ 105.3	■ 84.40
40			■ 80.75	□	■ 120.1	■ 96.35
45			■ 90.75	□	■ 135.0	■ 108.3
50			■ 100.7	□	■ 149.8	■ 120.2
60			■ 120.7	□	■ 179.6	■ 144.0
pressed (2)			Standard size (mm): 1250 x 2040			
			natural: 40140124		black: 40140224	
70			■	171.1	□	171.1
80			■	195.4	□	195.4
90			■	219.7	□	219.7
100			■	244.0	□	244.0
110			□	268.3	□	268.3
120			□	292.6	□	292.6
130	+ 0.2	+ 0.6	□	317.0	□	317.0
140			□	341.3	□	341.3
150			□	365.6	□	365.6
160			□	389.9	□	389.9
170			□	414.2	□	414.2
180			□	438.5	□	438.5
190			□	462.8	□	462.8
			natural: 40140104		black: 40140204	
200			□	511.6	□	511.6
210			□	535.9	□	535.9
220			□	560.3	□	560.3
230	+ 1	+ 20	□	584.6	□	584.6
240			□	608.9	□	608.9
250			□	633.2	□	633.2
Tolerances on widths and lengths (mm):						
			1000 (0 + 10) x 2000 (0 + 20)		1220 (0 + 30) x 2050 / 3050 (0 + 30)	
			1020 (0 + 30) x 2050 / 3050 (0 + 30)		1250 (0 + 30) x 2040 (0 + 30)	
Cut-to-size products : available on request and subject to special conditions						

(1) : average production weights

(2) : planed up to 190 mm thick ; "as pressed" as from 200 mm thick

(3) : non-standard sizes in the thickness range 8 - 60 mm: 1220 x 6150, 2050 x 3050 and 2050 x 6150

PRODUCT CODE

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**Note** : coloured HD 1000 plates (CESTICOLOR HD 1000) can be manufactured to order. Please consult us.

*plates (pressed)*

Thicknesses (1) (mm)	Tolerances on the thicknesses (mm)	Weights (2) - (kg/piece)							
		Standard sizes (mm) - (3)							
		1020 x 2050		1020 x 3050		1220 x 2050		1220 x 3050	
		black: 40150924 / green: 40151924							
		black	green	black	green	black	green	black	green
8	+ 0.2      + 0.6	□ 16.80	□	□ 25.00	□	■ 20.05	■	□ 29.85	□
10		□ 20.80	□	□ 30.95	□	■ 24.80	■	□ 36.90	□
12		□ 24.80	□	□ 36.90	□	■ 29.55	■	□ 43.95	□
15		□ 30.75	□	□ 45.75	□	■ 36.70	■	□ 54.60	□
20		□ 40.75	□	□ 60.65	□	■ 48.65	■	□ 72.40	□
25		□ 50.75	□	□ 75.50	□	■ 60.55	■	□ 90.10	□
30		□ 60.75	□	□ 90.40	□	■ 72.50	■	□ 107.9	□
35		□ 70.75	□	□ 105.3	□	■ 84.40	■	□ 125.6	□
40		□ 80.75	□	□ 120.1	□	■ 96.35	■	□ 143.4	□
45		□ 90.75	□	□ 135.0	□	■ 108.3	■	□ 161.1	□
50		□ 100.7	□	□ 149.8	□	■ 120.2	■	□ 178.8	□
60		□ 120.7	□	□ 179.6	□	■ 144.0	■	□ 214.2	□
			Standard size (mm): 1250 x 2040						
		black				green			
		40150924				40151924			
70	+ 0.2      + 0.6	□ 171.1				□ 171.1			
80		□ 195.4				□ 195.4			
90		□ 219.7				□ 219.7			
100		□ 244.0				□ 244.0			
110		□ 268.3				□ 268.3			
120		□ 292.6				□ 292.6			
130		□ 317.0				□ 317.0			
140		□ 341.3				□ 341.3			
150		□ 365.6				□ 365.6			
Tolerances on widths and lengths (mm) : 1020 (0 + 30) x 2050 / 3050 (0 + 30) 1220 (0 + 30) x 2050 / 3050 (0 + 30) 1250 (0 + 30) x 2040 (0 + 30)									
Cut-to-size products : available on request and subject to special conditions									

(1) : planed

(2) : average production weights

(3) : non-standard sizes in the thickness range 8 - 60 mm: 1220 x 6150, 2050 x 3050 and 2050 x 6150

PRODUCT CODE

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# sheets & plates

Thicknesses (mm)	Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)							
skived	0 + 0.4	<b>Standard size (mm) : 1000 x 2000</b>							
		<b>40145303</b>							
1		□	2.28						
2		■	3.80						
3	- 0.2 + 0.2	■	5.70						
4		■	7.60						
5	- 0.3 + 0.3	■	9.50						
6		■	11.40						
8	- 0.3 + 0.3	<b>40145304</b>							
10		■	15.20						
		■	19.00						
pressed (2)		<b>Standard sizes (mm) - (3)</b>							
		<b>1020 x 2050</b>	<b>1020 x 3050</b>	<b>1220 x 2050</b>	<b>1220 x 3050</b>				
		<b>40145324</b>							
8	+ 0.2 + 0.6	□	16.80	□	25.00	■	20.05	□	29.85
10		□	20.80	□	30.95	■	24.80	□	36.90
12		□	24.80	□	36.90	■	29.55	□	43.95
15		□	30.75	□	45.75	■	36.70	□	54.60
20		□	40.75	□	60.65	■	48.65	□	72.40
25		□	50.75	□	75.50	■	60.55	□	90.10
30		□	60.75	□	90.40	■	72.50	□	107.9
35		□	70.75	□	105.3	■	84.40	□	125.6
40		□	80.75	□	120.1	■	96.35	□	143.4
45		□	90.75	□	135.0	■	108.3	□	161.1
50		□	100.7	□	149.8	■	120.2	□	178.8
60		□	120.7	□	179.6	■	144.0	□	214.2
pressed (2)		<b>Standard size (mm) : 1250 x 2040</b>							
		<b>40145324</b>							
70	+ 0.2 + 0.6	■				171.1			
80		■				195.4			
90		□				219.7			
100		■				244.0			
110		□				268.3			
120		□				292.6			
130		□				317.0			
140		□				341.3			
150		□				365.6			
160		□				389.9			
170		□				414.2			
180		□				438.5			
190	□				462.8				
200	+ 1 + 20	<b>40145304</b>							
		□				511.6			
		□				535.9			
		□				560.3			
		□				584.6			
		□				608.9			
250		□				633.2			
<b>Tolerances on widths and lengths (mm):</b>									
1000 (0 + 10) x 2000 (0 + 20)					1220 (0 + 30) x 2050 / 3050 (0 + 30)				
1020 (0 + 30) x 2050 / 3050 (0 + 30)					1250 (0 + 30) x 2040 (0 + 30)				
<b>Cut-to-size products : available on request and subject to special conditions</b>									

(1) : average production weights

(2) : planed up to 190 mm thick ; "as pressed" as from 200 mm thick

(3) : non-standard sizes in the thickness range 8 - 60 mm: 1220 x 6150, 2050 x 3050 and 2050 x 6150

PRODUCT CODE

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/piece)							
skived	0	+ 0.4	<b>Standard size (mm): 1000 x 2000</b>							
			<b>CESTILITE ASTL: 40147303</b>							
1			□	2.33						
2			■	3.88						
3	- 0.2	+ 0.2	■	5.82						
4			■	7.76						
5	- 0.3	+ 0.3	■	9.70						
6			■	11.65						
8	- 0.3	+ 0.3	<b>CESTILITE ASTL: 40147304</b>							
10			■	15.50						
			■	19.40						
pressed (2)			<b>Standard sizes (mm) - (3)</b>							
			<b>1020 x 2050</b>	<b>1020 x 3050</b>	<b>1220 x 2050</b>	<b>1220 x 3050</b>				
			<b>CESTILITE ASTL: 40147324 / CESTITECH 7000: 40147924</b>							
8	+ 0.2	+ 0.6	□	17.15	□	25.50	■	20.45	□	30.45
10			□	21.25	□	31.60	■	25.35	□	37.70
12			□	25.30	□	37.65	■	30.20	□	44.95
15			□	31.45	□	46.80	■	37.50	□	55.80
20			□	41.65	□	61.95	■	49.70	□	73.95
25			□	51.85	□	77.15	■	61.85	□	92.00
30			□	62.05	□	92.30	■	74.05	□	110.2
35			□	72.25	□	107.5	■	86.20	□	128.2
40			□	82.45	□	122.7	■	98.40	□	146.4
45			□	92.65	□	137.8	■	110.6	□	164.6
50			□	102.9	□	153.1	■	122.7	□	182.6
60	□	123.3	□	183.4	■	147.1	□	218.9		
pressed (2)			<b>Standard size (mm) : 1250 x 2040</b>							
			<b>CESTILITE ASTL: 40147324 / CESTITECH 7000: 40147924</b>							
70	+ 0.2	+ 0.6			□	174.8				
80					□	199.6				
90					□	224.4				
100							□	249.3		
110							□	274.1		
120							□	298.9		
130							□	323.7		
140							□	348.6		
150							□	373.4		
160							□	398.2		
170							□	423.0		
180					□	447.9				
190					□	472.7				
200	+ 1	+ 20	<b>CESTILITE ASTL: 40147304 / CESTITECH 7000: 40147904</b>							
					□	522.6				
					□	547.4				
					□	572.2				
					□	597.1				
					□	621.9				
					□	646.7				
<b>Tolerances on widths and lengths (mm):</b>										
			1000 (0 + 10) x 2000 (0 + 20)		1220 (0 + 30) x 2050 / 3050 (0 + 30)					
			1020 (0 + 30) x 2050 / 3050 (0 + 30)		1250 (0 + 30) x 2040 (0 + 30)					
<b>Cut-to-size products : available on request and subject to special conditions</b>										

(1) : average production weights  
 (2) : planed up to 190 mm thick ; "as pressed" as from 200 mm thick  
 (3) : non-standard sizes in the thickness range 8 - 60 mm: 1220 x 6150, 2050 x 3050 and 2050 x 6150

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
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## CESTILENE, CESTICOLOR, CESTIDUR, CESTILITE and CESTITECH stock shapes (indicative values ▶)

PROPERTIES	Test methods ISO / (IEC)	Units	CESTILENE	CESTILENE	CESTICOLOR	CESTILENE	CESTILENE	CESTIDUR	CESTILITE	CESTITECH
			HD 500	HD 500 R	HD 500	HD 1000	HD 1000 R	ASTL	7000	
Colour	—	—	natural (white)/ black	black/green	8 colours see page 46	natural (white)/ black / green	black / green	blue grey	black	grey-black
Average molar mass (average molecular weight) (1)	—	10 <sup>6</sup> g/mol	0.5	0.5	0.5	4.5	4	6	7	7
Density	1183	g/cm <sup>3</sup>	0.96	0.96	0.96	0.93	0.93	0.93	0.95	0.95
Water absorption at saturation in water of 23 °C (2)	—	%	0.01	0.01	0.01	0.01	0.02	0.01	0.05	0.05
<b>Thermal Properties (3)</b>										
Melting temperature (DSC, 10 °C/min)	11357	°C	130–135	130–135	130–135	130–135	130–135	130–135	130–135	130–135
Thermal conductivity at 23 °C	—	W/(K·m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Average coeff. of linear therm. exp. between 23 and 100 °C	—	10 <sup>-6</sup> m/(m·K)	150	150	150	200	200	200	200	200
Temperature of deflection under load:										
– method A: 1.8 MPa	75	°C	44	44	44	42	42	42	42	42
Vicat softening temperature – VST/B50	306	°C	80	80	80	80	80	80	83	83
Max. allowable service temperature in air:										
– for short periods (4)	—	°C	120	120	120	120	120	120	120	120
– continuously: for 20,000 h (5)	—	°C	80	80	80	80	80	80	80	80
Min. service temperature (6)	—	°C	– 100	– 60	– 100	– 200 <sup>(7)</sup>	– 150	– 200 <sup>(7)</sup>	– 150	– 150
Flammability (8):										
– “Oxygen Index”	4589	%	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
– according to UL 94 (1.6 mm thickness)	—	—	HB	HB	HB	HB	HB	HB	HB	HB
<b>Mechanical Properties at 23 °C (9)</b>										
Tension test (10):										
– tensile stress at yield (11)	527	MPa	28	28	28	19	22	19	20	20
– tensile strain at yield (11)	527	%	10	10	10	15	13	15	15	15
– nominal tensile strain at break (11)	527	%	> 50	> 50	> 50	> 50	> 50	> 50	> 50	> 50
– tensile modulus of elasticity (12)	527	MPa	1,350	1,300	1,350	750	950	710	770	785
Compression test (13):										
– compressive stress at 1/2/5 % nominal strain (12)	604	MPa	9/15/23	9/14.5/22	9/15/23	4.5/8/14	6/10.5/18	4/7.5/13.5	5/9/15	5/9/15
Charpy impact strength – Unnotched (14)	179/1eU	kJ/m <sup>2</sup>	no break	no break	no break	no break	no break	no break	no break	no break
Charpy impact strength – Notched (15)	179/1eA	kJ/m <sup>2</sup>	105 P	85 P	105 P	110 P	≥ 90 P	105 P	80 P	70 P
Charpy impact strength – Notched (double 15° notch) (16)	DIS 11542-2	kJ/m <sup>2</sup>	≥ 25	≥ 20	≥ 25	≥ 170	≥ 80	≥ 120	≥ 90	≥ 50
Ball indentation hardness	2039-1	N/mm <sup>2</sup>	45	45	45	36	38	35	37	37
Shore hardness D (3/15 s)	868	—	66/64	66/64	66/64	62/60	63/61	62/60	63/61	63/61
Relative weight loss (wear test in “sand/water-slurry”, CESTILENE HD 1000 = 100)	internal test	—	350	350	350	100	180	90	85	80
Relative weight loss (wear test on “plastics pin on rotating steel disk”-tribo system); CESTILENE HD 1000 = 100 (17)	internal test	—	1,200	1,600	1,200	100	150	90	80	75
<b>Electrical Properties at 23 °C (3)</b>										
Electric strength (18)	(60243)	kV/mm	45	—	45	45	—	45	—	—
Volume resistivity	(60093)	Ω · cm	> 10 <sup>14</sup>	—	> 10 <sup>14</sup>	> 10 <sup>14</sup>	—	> 10 <sup>14</sup>	< 10 <sup>6</sup>	> 10 <sup>13</sup>
Surface resistivity	(60093)	Ω	> 10 <sup>13</sup>	—	> 10 <sup>13</sup>	> 10 <sup>13</sup>	—	> 10 <sup>13</sup>	< 10 <sup>6</sup>	> 10 <sup>12</sup>
Relative permittivity ε <sub>r</sub> :										
– at 100 Hz	(60250)	—	2.4	—	2.4	2.1	—	2.1	—	—
– at 1 MHz	(60250)	—	2.4	—	2.4	3	—	3	—	—
Dielectric dissipation factor tan δ:										
– at 100 Hz	(60250)	—	0.0002	—	0.0002	0.0004	—	0.0004	—	—
– at 1 MHz	(60250)	—	0.0002	—	0.0002	0.0010	—	0.0010	—	—
Comparative tracking index (CTI)	(60112)	—	600	—	600	600	—	600	—	—

Note: 1 g/cm<sup>3</sup> = 1,000 kg/m<sup>3</sup>; 1 MPa = 1 N/mm<sup>2</sup>; 1 kV/mm = 1 MV/m.

### Legend:

- (1) Calculated by means of the Margolies-equation  $M = 5.37 \times 10^4 \times [\eta]^{1.49}$ , with  $[\eta]$  being the Staudinger index derived from a viscosity measurement using decahydronaphthalene as a solvent (concentration of 0.0005 g/cm<sup>3</sup> for PE-HMW and 0.0003 g/cm<sup>3</sup> for PE-UHMW).
- (2) Measured on 1 mm thick test plates.
- (3) The figures given for these properties are for the most part derived from raw material supplier data and other literature.
- (4) Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
- (5) Temperature resistance over a period of 20,000 hours. After this period of time, there is a decrease in tensile strength of about 50% as compared

with the original value.

- The temperature values given here are thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that, as for all thermoplastics, the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
- (6) Impact strength decreasing with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The values given here are based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limits.
  - (7) Because of its outstanding tough-

- ness, this material withstands even the temperature of liquid helium (-269 °C) at which it still maintains a useful impact resistance without shattering.
- (8) These estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There are no UL-yellow cards available for these stock shapes.
  - (9) The figures given for these properties are average values of tests run on test specimens machined out of 20 mm thick plates.
  - (10) Test specimens: Type 1 B
  - (11) Test speed: 50 mm/min.
  - (12) Test speed: 1 mm/min.
  - (13) Test specimens: cylinders Ø 12 x 30 mm.
  - (14) Pendulum used: 15 J.
  - (15) Pendulum used: 5 J.
  - (16) Pendulum used: 25 J.

- (17) Test conditions: pressure: 3 MPa ; sliding velocity: 0.33 m/s ; surface roughness of the steel disk: Ra = 0.25 – 0.40 µm ; total distance run: 28 km ; unlubricated operation in normal environment (air, 23 °C / 50% RH).
- (18) Electrode configuration: Ø 25 / Ø 75 mm coaxial cylinders ; in transformer oil according to IEC 60296 ; 1 mm thick natural coloured test specimens. It is important to know that the electric strength of black material can be considerably lower than the value for natural coloured material.

▶ This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties. **However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.**



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# CELAZOLE® PBI

## Polybenzimidazole (PBI) (black)

CELAZOLE PBI offers the highest temperature resistance and best mechanical property retention of all unfilled thermoplastics. Thanks to its unique property profile, CELAZOLE PBI might bring the ultimate solution when no other plastics material can. It is a very appealing material to high-tech industries such as semiconductor, aircraft and aerospace industries.

### Main characteristics :

- extremely high max. allowable service temperature in air (310°C continuously to 500°C for short periods of time).
- excellent retention of mechanical strength, stiffness and creep resistance over a wide range of temperatures
- extremely low coefficient of linear thermal expansion up to 250°C
- excellent wear and frictional behaviour
- inherent low flammability
- good electrical insulating and dielectric properties
- low outgassing in vacuum (dry material)
- high purity in terms of ionic contamination
- excellent resistance against high energy radiation (gamma and X-rays)



CELAZOLE® PBI



# round rods

Diameters (1) (2)		Standard lengths (1) (mm)	Weights (3) - (kg/piece)	
(mm)	(inch)		43000100	
9.53	3/8	305	○	0.028
12.70	1/2		●	0.050
15.88	5/8		○	0.078
19.05	3/4		●	0.113
22.23	7/8		○	0.154
25.40	1		●	0.201
31.75	1 1/4		○	0.314
38.10	1 1/2		○	0.452
50.80	2	153	○	0.403
68.26	2 11/16		○	0.730
88.90	3 1/2		○	1.23
101.60	4		○	1.61

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values.
- (2) : for non-listed intermediate diameters, please consult us.
- (3) : theoretical weights, based on nominal dimensions and average density.

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# plates

Thicknesses (1)		Weights (2) - (kg/piece)	
(mm)	(inch)	Standard sizes (mm) - (1)	
		305 x 305	305 x 610
		43000104	
12.70	1/2	□ 1.54	□ 3.08
15.88	5/8	□ 1.92	□ 3.84
19.05	3/4	□ 2.30	□ 4.60
22.23	7/8	□ 2.69	□ 5.38
25.40	1	■ 3.07	□ 6.14
31.75	1 1/4	□ 3.84	□ 7.68
38.10	1 1/2	□ 4.61	□ 9.22

**Cut-to-size products : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values.
- (2) : theoretical weights, based on nominal dimensions and average density.

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# tubes

Diameters (1) (2)				Standard length (1) (mm)	Weights (3) (kg/piece)	
(mm)		(inch)				
O.D.	x	I.D.		153	43000108	
42.86	x	19.05	1 11/16 x 3/4		○	0.230
68.26	x	22.23	2 11/16 x 7/8		○	0.650
		25.40	1		○	0.625
		31.75	1 1/4		○	0.570
88.90	x	60.33	3 1/2 x 2 3/8		○	0.665
101.60	x	44.45	4 x 1 3/4		○	1.30
138.11	x	60.33	5 7/16 x 2 3/8		○	2.41

- (1) : all O.D.'s and lengths are minimum values; all I.D.'s are maximum values.
- (2) : for non-listed diameters, please consult us.
- (3) : theoretical weights, based on nominal dimensions and average density.

**PRODUCT CODE**

- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



## Polyamide-imide (PAI)

The TORLON PAI grades, combining excellent retention of mechanical strength, stiffness and creep resistance over a wide temperature range with extremely low thermal expansion up to 250°C, are top-rank materials for high temperature applications.

### Main characteristics :

- very high max. allowable service temperature in air (250°C continuously)
- excellent retention of mechanical strength, stiffness and creep resistance over a wide range of temperatures
- extremely low coefficient of linear thermal expansion up to 250°C
- excellent wear and frictional behaviour (particularly TORLON 4301 PAI)
- excellent UV-resistance
- inherent low flammability
- exceptional resistance against high energy radiation (gamma and X-rays)

We distinguish five grades:

### TORLON 4203 PAI (PAI) (yellow-ochre)

TORLON 4203 PAI offers the best toughness and impact strength of all TORLON PAI grades. Because of its intrinsic high temperature resistance, high dimensional stability and good machinability, this extruded TORLON PAI grade is very popular for precision parts in high-tech equipment. In addition, its good electrical insulating ability provides numerous possibilities in the field of electrical components.

### TORLON 4503 PAI (yellow-ochre)

This compression moulded material is similar in composition to TORLON 4203 PAI, and is selected when larger shapes are required.

### TORLON 4301 PAI (PAI + graphite + PTFE) (black)

The addition of graphite and PTFE provides higher wear resistance and lower coefficient of friction compared to the unfilled grade as well as little or no stick-slip in use. This extruded grade excels in severe wear applications such as non-lubricated bearings, seals, bearings cages and reciprocating compressor parts.

### TORLON 4501 PAI (PAI + graphite + PTFE) (black)

This compression moulded material is similar in composition to TORLON 4301 PAI, and is selected when larger shapes are required.

### TORLON 5530 PAI (PAI-GF30) (khaki grey)

This compression moulded, 30% glass fibre reinforced grade offers higher stiffness, mechanical strength and creep resistance than TORLON 4203 PAI and TORLON 4503 PAI. It is well suited for structural applications supporting static loads for long periods of time at high temperatures. The suitability of TORLON 5530 PAI for sliding parts, however, is to be carefully examined since the glass fibres tend to abrade the mating surface.





*round rods*

Diameters (1) (2)		Standard lengths (1) (mm)	Weights (3) - (kg/piece)				
			TORLON				
			4203 PAI 42000000	4503 PAI 42005000	4301 PAI 42000100	4501 PAI 42004900	5530 PAI 42010100
2.38	3/32	2440	○ 0.015	-	-	-	-
3.18	1/8	2440	● 0.027	-	-	-	-
6.35	1/4	2440	● 0.109	-	● 0.112	-	-
9.53	3/8	2440	● 0.245	-	● 0.252	-	-
12.70	1/2	2440	● 0.436	-	● 0.448	-	-
15.88	5/8	2440	● 0.680	-	● 0.700	-	-
19.05	3/4	2440	● 0.980	-	● 1.01	-	-
25.40	1	2440	● 1.74	-	● 1.79	-	-
31.75	1 1/4	2440	● 2.72	-	● 2.80	-	-
34.93	1 3/8	2440	○ 3.30	-	● 3.39	-	-
38.10	1 1/2	2440	● 3.92	-	● 4.03	-	-
50.80	2	2440	● 6.97	-	● 7.17	-	-
50.80	2	153	-	-	-	○ 0.450	○ 0.499
53.98	2 1/8	153	-	-	-	○ 0.510	○ 0.565
57.15	2 1/4	153	-	○ 0.550	-	-	-
60.33	2 3/8	153	-	-	-	○ 0.635	○ 0.705
63.50	2 1/2	153	-	○ 0.680	-	-	-
66.68	2 5/8	153	-	-	-	○ 0.775	○ 0.860
69.85	2 3/4	153	-	○ 0.820	-	-	-
73.03	2 7/8	153	-	-	-	○ 0.930	○ 1.03
76.20	3	153	-	○ 0.975	-	-	-
79.38	3 1/8	153	-	-	-	○ 1.10	○ 1.22
82.55	3 1/4	153	-	○ 1.15	-	-	-
85.73	3 3/8	153	-	-	-	○ 1.28	○ 1.42
88.90	3 1/2	153	-	○ 1.33	-	-	-
95.25	3 3/4	153	-	○ 1.53	-	-	-
98.43	3 7/8	153	-	-	-	-	-
101.60	4	153	-	○ 1.74	-	○ 1.80	○ 2.00
127.00	5	153	-	○ 2.71	-	○ 2.81	○ 3.12
152.40	6	153	-	○ 3.91	-	○ 4.05	○ 4.49
177.80	7	153	-	○ 5.32	-	○ 5.51	○ 6.12
203.20	8	153	-	○ 6.95	-	○ 7.19	○ 7.99
228.60	9	153	-	○ 8.79	-	○ 9.11	○ 10.10
254.00	10	153	-	○ 10.85	-	○ 11.25	○ 12.50
304.80	12	153	-	○ 15.65	-	○ 16.20	○ 17.95
381.00	15	153	-	○ 24.40	-	○ 25.30	○ 28.10

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values.
- (2) : for non-listed intermediate diameters, please consult us.
- (3) : theoretical weights, based on nominal dimensions and average density.

**PRODUCT CODE**

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- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured

# plates

Thicknesses (1) (2)		Weights (3) - (kg/piece)	
(mm)	(inch)	TORLON 4203 PAI	
		Standard size (mm) - (1)	
		305 x 1220	
		42000004	
6.35	1/4	■	3.33
9.53	3/8	■	5.00
12.70	1/2	■	6.66
15.88	5/8	□	8.33
19.05	3/4	□	9.99
25.40	1	■	13.35

**Cut-to-size products : available on request and subject to special conditions**

Thicknesses (1) (2)		Weights (3) - (kg/piece)	
(mm)	(inch)	TORLON 4301 PAI	
		Standard size (mm) - (1)	
		305 x 1220	
		42000104	
6.35	1/4	■	3.43
9.53	3/8	■	5.14
12.70	1/2	■	6.85
15.88	5/8	■	8.57
19.05	3/4	□	10.30
25.40	1	■	13.70

**Cut-to-size products : available on request and subject to special conditions**

Thicknesses (1) (2)		Weights (3) - (kg/piece)			
(mm)	(inch)	TORLON 4501 PAI			
		Standard sizes (mm) - (1)			
		305 x 305		305 x 610	
		42004904			
9.53	3/8	□	1.28	□	2.56
12.70	1/2	□	1.71	□	3.42
15.88	5/8	□	2.14	□	4.28
19.05	3/4	□	2.57	□	5.14
25.40	1	□	3.43	□	6.86
31.75	1 1/4	□	4.28	□	8.56
38.10	1 1/2	□	5.15	□	10.30
44.45	1 3/4	□	6.00		-
50.80	2	□	6.85		-

**Cut-to-size products : available on request and subject to special conditions**



Thicknesses (1) (2)		Weights (3) - (kg/piece)			
(mm)	(inch)	TORLON 5530 PAI			
		Standard sizes (mm) - (1)			
		305 x 305		305 x 610	
		42010104			
9.53	3/8	□	1.43	□	2.86
12.70	1/2	□	1.90	□	3.80
15.88	5/8	□	2.38	□	4.76
19.05	3/4	□	2.85	□	5.70
25.40	1	□	3.80	□	7.60
31.75	1 1/4	□	4.76	□	9.52
38.10	1 1/2	□	5.70	□	11.40
44.45	1 3/4	□	6.66		-
50.80	2	□	7.61		-

**Cut-to-size products : available on request and subject to special conditions**

(1) : all dimensions shown are minimum values

(2) : for non-listed intermediate thicknesses, please consult us

(3) : theoretical weight, based on nominal dimensions and average density

**PRODUCT CODE**

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

- : not manufactured



Diameters (1) (2)				Standard lengths (1) (mm)	Weights (3) (kg/piece)
(mm)		(inch)			
O.D. x I.D.	O.D. x I.D.	O.D. x I.D.	O.D. x I.D.		
42.86 x 19.05	1 3/4 x 3/4	153	⊙ 0.271		
49.21 x 19.05	1 15/16 x 3/4	153	⊙ 0.346		
53.98 x 25.40	2 1/8 x 1	153	⊙ 0.382		
60.33 x 31.75	2 3/8 x 1 1/4	153	⊙ 0.443		
66.68 x 19.05	2 5/8 x 3/4	153	⊙ 0.685		
73.03 x 19.05	2 7/8 x 3/4	153	⊙ 0.835		
31.75	1 1/4	153	⊙ 0.730		
38.10	1 1/2	153	⊙ 0.655		
44.45	1 3/4	153	⊙ 0.565		
79.38 x 31.75	3 1/8 x 1 1/4	153	⊙ 0.890		
57.15	2 1/4	153	⊙ 0.510		
85.73 x 31.75	3 3/8 x 1 1/4	153	⊙ 1.07		
50.80	2	153	⊙ 0.800		
63.50	2 1/2	153	⊙ 0.560		
92.08 x 19.05	3 5/8 x 3/4	153	⊙ 1.37		
44.45	1 3/4	153	⊙ 1.09		
60.33	2 3/8	153	⊙ 0.815		
98.43 x 25.40	3 7/8 x 1	153	⊙ 1.52		
44.45	1 3/4	153	⊙ 1.30		
66.68	2 5/8	153	⊙ 0.880		
73.03	2 7/8	153	⊙ 0.735		
103.19 x 44.45	4 1/16 x 1 3/4	153	⊙ 1.46		
57.15	2 1/4	153	⊙ 1.24		
60.33	2 3/8	153	⊙ 1.18		
73.03	2 7/8	153	⊙ 0.895		
109.54 x 44.45	4 5/16 x 1 3/4	153	⊙ 1.69		
60.33	2 3/8	153	⊙ 1.41		
66.68	2 5/8	153	⊙ 1.27		
115.89 x 76.20	4 9/16 x 3	153	⊙ 1.28		
88.90	3 1/2	153	⊙ 0.930		
95.25	3 3/4	153	⊙ 0.735		
122.24 x 25.40	4 13/16 x 1	153	⊙ 2.41		
50.80	2	153	⊙ 2.08		
60.33	2 3/8	153	⊙ 1.90		
82.55	3 1/4	153	⊙ 1.37		
95.25	3 3/4	153	⊙ 0.985		
128.59 x 44.45	5 1/16 x 1 3/4	153	⊙ 2.45		
95.25	3 3/4	153	⊙ 1.26		
134.94 x 50.80	5 5/16 x 2	153	⊙ 2.63		
66.68	2 5/8	153	⊙ 2.32		
82.55	3 1/4	153	⊙ 1.92		
101.60	4	153	⊙ 1.33		
141.29 x 66.68	5 9/16 x 2 5/8	153	⊙ 2.61		
82.55	3 1/4	153	⊙ 2.21		
88.90	3 1/2	153	⊙ 2.03		
101.60	4	153	⊙ 1.62		
111.13	4 3/8	153	⊙ 1.28		
147.64 x 50.80	5 13/16 x 2	153	⊙ 3.23		
76.20	3	153	⊙ 2.69		
88.90	3 1/2	153	⊙ 2.34		
101.60	4	153	⊙ 1.93		
171.45 x 50.80	6 3/4 x 2	153	⊙ 4.51		
76.20	3	153	⊙ 3.97		

Diameters (1) (2)				Standard lengths (1) (mm)	Weights (3) (kg/piece)
(mm)		(inch)			
O.D. x I.D.	O.D. x I.D.	O.D. x I.D.	O.D. x I.D.		
171.45 x 101.60	6 3/4 x 4	153	⊙ 3.21		
114.30	4 1/2	153	⊙ 2.75		
120.65	4 3/4	153	⊙ 2.50		
133.35	5 1/4	153	⊙ 1.95		
139.70	5 1/2	153	⊙ 1.66		
174.63 x 101.60	6 7/8 x 4	153	⊙ 3.39		
120.65	4 3/4	153	⊙ 2.68		
133.35	5 1/4	153	⊙ 2.14		
184.15 x 101.60	7 1/4 x 4	153	⊙ 3.97		
120.65	4 3/4	153	⊙ 3.26		
127.00	5	153	⊙ 2.99		
193.68 x 107.95	7 5/8 x 4 1/4	153	⊙ 4.35		
196.85 x 50.80	7 3/4 x 2	153	⊙ 6.08		
76.20	3	153	⊙ 5.54		
101.60	4	153	⊙ 4.78		
127.00	5	153	⊙ 3.81		
139.70	5 1/2	153	⊙ 3.24		
152.40	6	153	⊙ 2.61		
158.75	6 1/4	153	⊙ 2.28		
165.10	6 1/2	153	⊙ 1.93		
211.14 x 139.70	8 5/16 x 5 1/2	153	⊙ 4.22		
158.75	6 1/4	153	⊙ 3.26		
180.98	7 1/8	153	⊙ 1.99		
220.66 x 76.20	8 11/16 x 3	153	⊙ 7.21		
88.90	3 1/2	153	⊙ 6.86		
127.00	5	153	⊙ 5.48		
152.40	6	153	⊙ 4.28		
177.80	7	153	⊙ 2.87		
246.06 x 76.20	9 11/16 x 3	153	⊙ 9.21		
101.60	4	153	⊙ 8.45		
127.00	5	153	⊙ 7.47		
152.40	6	153	⊙ 6.28		
177.80	7	153	⊙ 4.87		
203.20	8	153	⊙ 3.24		
269.88 x 127.00	10 5/8 x 5	153	⊙ 9.54		
152.40	6	153	⊙ 8.35		
203.20	8	153	⊙ 5.31		
228.60	9	153	⊙ 3.46		
295.28 x 88.90	11 5/8 x 3 1/2	153	⊙ 13.35		
203.20	8	153	⊙ 7.72		
368.30 x 101.60	14 1/2 x 4	153	⊙ 21.10		
203.20	8	153	⊙ 15.85		
228.60	9	153	⊙ 14.05		
279.40	11	153	⊙ 9.69		
374.65 x 180.98	14 3/4 x 7 1/8	153	⊙ 18.10		
279.40	11	153	⊙ 10.50		
441.33 x 203.20	17 3/8 x 8	153	⊙ 25.80		
279.40	11	153	⊙ 19.65		
514.35 x 279.40	20 1/4 x 11	153	⊙ 31.35		
381.00	15	153	⊙ 20.10		
603.25 x 457.20	23 3/4 x 18	153	⊙ 26.05		
787.40 x 609.60	31 x 24	153	⊙ 41.80		
882.65 x 736.60	34 3/4 x 29	153	⊙ 39.80		

(1) : all O.D.'s and lengths are minimum values ; all I.D.'s are maximum values

(2) : for non-listed intermediate diameters, please consult us

(3) : theoretical weight of TORLON 4503 PAI tubes, based on nominal dimensions and average density. For TORLON 4501 PAI, resp.

TORLON 5530 PAI tubes, these weights have to be multiplied with the factors 1.035, resp. 1.15

⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**TORLON 4501 PAI** 42004908

**TORLON 4503 PAI** 42005008

**TORLON 5530 PAI** 42010108

## Polyetheretherketone (PEEK)

The KETRON PEEK family of materials is based on polyetheretherketone resin. This semi-crystalline advanced material exhibits a unique combination of high mechanical properties, temperature resistance and excellent chemical resistance making it the most popular advanced plastics material.

### Main characteristics:

- very high max. allowable service temperature in air (250°C continuously, up to 310°C for short periods)
- high mechanical strength, stiffness and creep resistance, also at elevated temperatures
- excellent chemical and hydrolysis resistance
- excellent wear and frictional behaviour (particularly KETRON PEEK-HPV and PEEK-CA30)
- very good dimensional stability
- inherent low flammability and very low levels of smoke evolution during combustion
- good electrical insulating and dielectric properties (except for KETRON PEEK-HPV and PEEK-CA30)
- excellent resistance against high energy radiation (gamma and X-rays)

All four KETRON PEEK grades are based on VICTREX®, PEEK™ polymers:

### KETRON PEEK-1000 (PEEK) natural (brownish grey) / black

KETRON PEEK-1000 stock shapes are produced from virgin polyetheretherketone resin and offer the highest toughness and impact strength of all KETRON PEEK grades.

The composition of the raw materials used for the production of the KETRON PEEK-1000 natural stock shapes complies with the directives of the European Union and with the American FDA regulations concerning plastic materials intended to come into contact with foodstuffs. These features, added to its excellent sterilisability by means of steam, dry heat, ethylene oxide and gamma irradiation, make this grade very popular in medical\*, pharmaceutical and food processing industries.

### KETRON PEEK-HPV (PEEK + CF + PTFE + graphite) (black)

The addition of carbon fibres, PTFE and graphite to virgin PEEK results in a KETRON PEEK "Bearing Grade". Its excellent tribological properties (low friction, long wear and high Pressure-Velocity capabilities) make this grade especially suited for bearing and wear applications.

### KETRON PEEK-GF30 (PEEK-GF30) natural (brownish grey)

This 30% glass fibre reinforced grade offers higher stiffness and creep resistance than KETRON PEEK-1000 and has a much better dimensional stability. KETRON PEEK-GF30 is very appropriate for structural parts carrying high static loads for long periods of time at elevated temperatures. Its suitability for sliding parts, however, is to be carefully examined since the glass fibres tend to abrade the mating surface.

### KETRON PEEK-CA30 (PEEK-CF30) (black)

This 30% carbon fibre reinforced grade combines even higher stiffness, mechanical strength and creep resistance than KETRON PEEK-GF30 with an optimum wear resistance. Moreover, the carbon fibres provide 3.5 times higher thermal conductivity than virgin PEEK, dissipating heat from the bearing surface faster.



\* See, however, our "no-use for implants statement" on page 94

*round rods*

Diameters (mm)	Tolerances on the diameters (mm)	Weights (1) - (kg/m)				
		KETRON PEEK-1000		KETRON PEEK-HPV	KETRON PEEK-GF30	KETRON PEEK-CA30
		natural	black			
		<b>41300000</b>	<b>41301000</b>	<b>41300200</b>	<b>41300300</b>	<b>41300100</b>
3	+ 0.1 + 0.3	○ 0.011	○ 0.011	–	–	–
4		○ 0.018	○ 0.018	–	–	–
5	+ 0.1 + 0.4	○ 0.029	○ 0.029	–	–	–
6		● 0.041	○ 0.041	● 0.046	○ 0.047	○ 0.045
7		○ 0.055	○ 0.055	○ 0.062	○ 0.065	○ 0.061
8	+ 0.1 + 0.5	● 0.072	○ 0.072	● 0.080	○ 0.084	○ 0.079
9		○ 0.090	○ 0.090	○ 0.101	○ 0.105	○ 0.098
10		● 0.110	● 0.110	● 0.123	● 0.128	● 0.121
11		○ 0.139	○ 0.139	○ 0.156	○ 0.163	○ 0.153
12		● 0.164	● 0.164	● 0.184	○ 0.192	○ 0.180
14		○ 0.220	○ 0.220	○ 0.247	○ 0.257	○ 0.242
15	+ 0.2 + 0.9	○ 0.252	○ 0.252	○ 0.282	○ 0.293	○ 0.276
16		● 0.285	● 0.285	● 0.319	○ 0.332	○ 0.312
18		● 0.358	○ 0.358	○ 0.400	○ 0.416	○ 0.391
20		● 0.439	● 0.439	● 0.490	● 0.510	● 0.480
22		● 0.535	○ 0.535	○ 0.600	○ 0.625	○ 0.585
25		● 0.685	● 0.685	● 0.765	○ 0.800	○ 0.750
28	+ 0.2 + 1.2	● 0.855	○ 0.855	○ 0.955	○ 0.995	○ 0.935
30		● 0.980	● 0.980	● 1.09	● 1.14	● 1.07
32		● 1.11	○ 1.11	○ 1.24	○ 1.29	○ 1.21
35		● 1.34	● 1.34	● 1.49	○ 1.56	○ 1.46
36	+ 0.2 + 1.6	○ 1.42	○ 1.42	○ 1.58	○ 1.64	○ 1.55
40		● 1.74	● 1.74	● 1.94	● 2.02	● 1.90
45		● 2.22	○ 2.22	○ 2.47	○ 2.57	○ 2.42
50	+ 0.3 + 2	● 2.72	● 2.72	● 3.03	● 3.16	● 2.97
56		○ 3.40	○ 3.40	○ 3.78	○ 3.94	○ 3.70
60		● 3.92	○ 3.92	● 4.37	● 4.55	○ 4.28
65	+ 0.3 + 2.5	○ 4.59	○ 4.59	○ 5.10	○ 5.32	○ 5.00
70		● 5.30	○ 5.30	● 5.90	○ 6.14	○ 5.78
75		○ 6.12	○ 6.12	○ 6.81	○ 7.10	○ 6.67
80	+ 0.4 + 3	● 6.94	○ 6.94	● 7.73	● 8.05	● 7.57
85		○ 7.87	○ 7.87	○ 8.76	○ 9.12	–
90	+ 0.5 + 3.4	● 8.80	○ 8.80	○ 9.79	○ 10.20	–
95		○ 9.83	○ 9.83	○ 10.95	○ 11.40	–
100	+ 0.6 + 3.8	● 10.85	○ 10.85	● 12.10	● 12.60	–
105		○ 11.85	–	–	–	–
110	+ 0.7 + 4.2	● 13.00	–	–	–	–
115		○ 14.20	–	–	–	–
120	+ 0.8 + 4.6	● 15.45	–	–	–	–
125		○ 16.75	–	–	–	–
130		● 18.20	–	–	–	–
135	+ 0.9 + 5.4	○ 19.60	–	–	–	–
140		○ 21.05	–	–	–	–
150		● 24.15	–	–	–	–
160	+ 1 + 5.8	○ 27.45	–	–	–	–
170		○ 30.90	–	–	–	–
180		● 34.60	–	–	–	–
190		○ 38.50	–	–	–	–
200		● 42.60	–	–	–	–
Standard lengths (mm)			Tolerance on the lengths (%)			
1000			0 + 3			
3000 (2)						
Non-standard lengths (cut-to-size) : available on request and subject to special conditions						

(1) : average production weights  
(2) : non-standard length for diameters over 60 mm

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)
- : not manufactured



# plates

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m)				
			KETRON PEEK-1000				
			natural		black		
			41300004		41301004		
				width = 615 mm	width = 1000 mm	width = 615 mm	width = 1000 mm
5	+ 0.2	+ 0.7	□ 4.64	■ 7.51	□ 4.64	□ 7.51	
6			□ 5.47	■ 8.85	□ 5.47	□ 8.85	
8	+ 0.2	+ 0.9	□ 7.24	■ 11.70	□ 7.24	□ 11.70	
10			□ 8.90	■ 14.40	□ 8.90	□ 14.40	
12	+ 0.3	+ 1.5	□ 10.95	■ 17.70	□ 10.95	□ 17.70	
15			□ 13.45	□ 21.75	□ 13.45	□ 21.75	
16			□ 14.25	■ 23.10	□ 14.25	□ 23.10	
18			□ 15.90	-	□ 15.90	-	
20			□ 17.60	■ 28.45	□ 17.60	□ 28.45	
25			□ 21.75	■ 35.20	□ 21.75	□ 35.20	
30			+ 0.5	+ 2.5	width = 615 mm		width = 615 mm
35	■ 26.55	□ 26.55					
40	■ 30.70	□ 30.70					
45	■ 34.85	□ 34.85					
50	■ 39.00	□ 39.00					
55	+ 0.5	+ 3.5	□ 47.85	□ 47.85	□ 47.85	□ 47.85	
60			■ 52.00	□ 52.00			
65			□ 56.15	□ 56.15			
70			□ 60.30	□ 60.30			
80	+ 0.5	+ 5	□ 69.40	□ 69.40	□ 69.40	□ 69.40	
90			□ 77.70	□ 77.70			
100			□ 86.00	□ 86.00			
Standard sizes (mm)			Tolerances on widths and lengths				
Thicknesses ≤ 25 mm		Thicknesses > 25 mm	Widths : + 5 mm + 25 mm				
1000 x 1000		615 x 1000	Lengths : 0 + 3 %				
1000 x 3000		615 x 3000 (2)					

Cut-to-size products : available on request and subject to special conditions

(1) : average production weights  
(2) : non-standard size

PRODUCT CODE

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m)		
			KETRON PEEK-HPV	KETRON PEEK-GF30	KETRON PEEK-CA30
			41300204	41300304	41300104
			width = 525 mm	width = 525 mm	width = 525 mm
5	+ 0.2	+ 0.7	■ 4.41	□ 4.59	□ 4.32
6			□ 5.20	□ 5.41	□ 5.09
8	+ 0.2	+ 0.9	■ 6.88	□ 7.17	□ 6.74
10			■ 8.46	■ 8.81	□ 8.28
12	+ 0.3	+ 1.5	width = 625 mm		
15			□ 12.30	□ 12.80	□ 12.05
16			□ 15.10	□ 15.70	□ 14.75
18			■ 16.00	□ 16.70	□ 15.70
20			□ 17.90	□ 18.60	□ 17.50
25			■ 19.75	■ 20.55	□ 19.35
30	+ 0.5	+ 2.5	■ 24.40	□ 25.40	□ 23.90
35			■ 29.80	■ 31.05	□ 29.15
40			□ 34.45	□ 35.90	□ 33.75
45			■ 39.10	□ 40.75	□ 38.30
50			□ 43.80	□ 45.60	□ 42.85
55	+ 0.5	+ 3.5	■ 48.45	■ 50.45	□ 47.45
60			□ 53.70	□ 55.95	□ 52.60
			□ 58.35	□ 60.80	□ 57.15
Standard sizes (mm)			Tolerances on widths and lengths		
525/625 x 1000			Widths : + 5 mm + 25 mm		
525/625 x 3000 (2)			Lengths : 0 + 3 %		

Cut-to-size products : available on request and subject to special conditions

(1) : average production weights  
(2) : non-standard size for thicknesses over 25 mm

PRODUCT CODE

■ : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
□ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)  
- : not manufactured



Diameters (1) (mm)		Tolerances on the diameters (mm)		Weights (2) - (kg/m)				
				KETRON PEEK-1000		KETRON PEEK		
				natural	black	HPV	GF30	CA30
O.D. x I.D.	O.D.	I.D.	41300007	41301007	41300207	41300307	41300107	
50 x 30	+ 0.5 + 2.2	- 0.5 - 2.2	● 1.89	⊙ 1.89	⊙ 2.08	⊙ 2.17	⊙ 2.04	
			⊙ 1.19	⊙ 1.19	⊙ 1.31	⊙ 1.37	⊙ 1.28	
60 x 30	+ 0.6 + 2.8	- 0.6 - 2.8	⊙ 3.13	⊙ 3.13	⊙ 3.45	⊙ 3.59	⊙ 3.38	
			● 2.43	⊙ 2.43	⊙ 2.69	⊙ 2.80	⊙ 2.63	
			⊙ 1.53	⊙ 1.53	⊙ 1.69	⊙ 1.76	⊙ 1.66	
70 x 30	+ 0.6 + 3.4	- 0.6 - 3.4	⊙ 4.58	⊙ 4.58	⊙ 5.05	⊙ 5.26	⊙ 4.95	
			⊙ 3.89	⊙ 3.89	⊙ 4.29	⊙ 4.47	⊙ 4.20	
			● 3.00	⊙ 3.00	⊙ 3.31	⊙ 3.44	⊙ 3.24	
			⊙ 1.89	⊙ 1.89	⊙ 2.09	⊙ 2.18	⊙ 2.05	
			⊙ 5.49	⊙ 5.49	⊙ 6.06	⊙ 6.31	⊙ 5.93	
			⊙ 4.60	⊙ 4.60	⊙ 5.07	⊙ 5.29	⊙ 4.97	
80 x 40	+ 1 + 4	- 1.4 - 5.4	● 3.50	⊙ 3.50	⊙ 3.86	⊙ 4.02	⊙ 3.78	
			⊙ 7.51	⊙ 7.51	⊙ 8.28	⊙ 8.63	⊙ 8.11	
			⊙ 6.64	⊙ 6.64	⊙ 7.33	⊙ 7.63	⊙ 7.18	
90 x 40	+ 1.3 + 5	- 1.8 - 7	⊙ 5.57	⊙ 5.57	⊙ 6.14	⊙ 6.40	⊙ 6.02	
			● 4.29	⊙ 4.29	⊙ 4.73	⊙ 4.93	⊙ 4.63	
			⊙ 9.54	⊙ 9.54	⊙ 10.50	⊙ 10.95	⊙ 10.30	
			⊙ 8.67	⊙ 8.67	⊙ 9.57	⊙ 9.97	⊙ 9.37	
			⊙ 7.60	⊙ 7.60	⊙ 8.38	⊙ 8.73	⊙ 8.21	
100 x 40	+ 1.3 + 5	- 1.8 - 7	⊙ 6.32	⊙ 6.32	⊙ 6.97	⊙ 7.26	⊙ 6.82	
			● 4.83	⊙ 4.83	⊙ 5.32	⊙ 5.55	⊙ 5.21	
			⊙ 12.35	⊙ 12.35	⊙ 13.65	⊙ 14.20	⊙ 13.35	
			⊙ 11.30	⊙ 11.30	⊙ 12.50	⊙ 13.00	⊙ 12.20	
			⊙ 10.05	⊙ 10.05	⊙ 11.10	⊙ 11.55	⊙ 10.85	
			⊙ 8.58	⊙ 8.58	⊙ 9.46	⊙ 9.86	⊙ 9.27	
115 x 50	+ 1.3 + 5	- 1.8 - 7	● 6.90	⊙ 6.90	⊙ 7.61	⊙ 7.93	⊙ 7.45	
			⊙ 5.01	⊙ 5.01	⊙ 5.53	⊙ 5.76	⊙ 5.42	
			⊙ 14.90	⊙ 14.90	⊙ 16.45	⊙ 17.15	⊙ 16.10	
			⊙ 13.85	⊙ 13.85	⊙ 15.30	⊙ 15.95	⊙ 15.00	
			⊙ 12.60	⊙ 12.60	⊙ 13.90	⊙ 14.50	⊙ 13.60	
125 x 50	+ 1.3 + 5	- 1.8 - 7	⊙ 11.15	⊙ 11.15	⊙ 12.30	⊙ 12.80	⊙ 12.05	
			● 9.46	⊙ 9.46	⊙ 10.45	⊙ 10.90	⊙ 10.20	
			⊙ 7.58	⊙ 7.58	⊙ 8.36	⊙ 8.71	⊙ 8.19	
			⊙ 19.15	⊙ 19.15	⊙ 21.15	⊙ 22.00	⊙ 20.70	
			⊙ 18.10	⊙ 18.10	⊙ 19.95	⊙ 20.80	⊙ 19.55	
			⊙ 16.85	⊙ 16.85	⊙ 18.60	⊙ 19.35	⊙ 18.20	
140 x 50	+ 1.3 + 5	- 1.8 - 7	⊙ 15.35	⊙ 15.35	⊙ 16.95	⊙ 17.65	⊙ 16.60	
			⊙ 13.70	⊙ 13.70	⊙ 15.10	⊙ 15.75	⊙ 14.80	
			⊙ 11.80	⊙ 11.80	⊙ 13.05	⊙ 13.60	⊙ 12.75	
			⊙ 21.20	⊙ 21.20	⊙ 23.40	⊙ 24.35	⊙ 22.90	
			⊙ 18.45	⊙ 18.45	⊙ 20.35	⊙ 21.20	⊙ 19.95	
			⊙ 16.80	⊙ 16.80	⊙ 18.50	⊙ 19.30	⊙ 18.15	
150 x 60	+ 1.6 + 6	- 2 - 8	⊙ 14.90	⊙ 14.90	⊙ 16.45	⊙ 17.10	⊙ 16.10	
			⊙ 10.50	⊙ 10.50	⊙ 11.60	⊙ 12.05	⊙ 11.35	
			⊙ 22.05	⊙ 22.05	⊙ 24.35	⊙ 25.35	⊙ 23.85	
			⊙ 20.40	⊙ 20.40	⊙ 22.50	⊙ 23.45	⊙ 22.05	
			⊙ 18.50	⊙ 18.50	⊙ 20.45	⊙ 21.30	⊙ 20.00	
160 x 80	+ 1.6 + 6	- 2 - 8	● 14.15	⊙ 14.15	⊙ 15.60	⊙ 16.25	⊙ 15.30	
			⊙ 29.30	⊙ 29.30	⊙ 32.30	⊙ 33.65	⊙ 31.65	
			⊙ 27.65	⊙ 27.65	⊙ 30.50	⊙ 31.75	⊙ 29.85	
			⊙ 25.75	⊙ 25.75	⊙ 28.40	⊙ 29.60	⊙ 27.85	
			⊙ 21.40	⊙ 21.40	⊙ 23.60	⊙ 24.60	⊙ 23.10	
			⊙ 16.20	⊙ 16.20	⊙ 17.85	⊙ 18.60	⊙ 17.50	
180 x 80	+ 1.8 + 6.5	- 2.3 - 9	⊙ 34.10	⊙ 34.10	⊙ 37.60	⊙ 39.20	⊙ 36.85	
			⊙ 29.75	⊙ 29.75	⊙ 32.85	⊙ 34.20	⊙ 32.15	
			⊙ 24.60	⊙ 24.60	⊙ 27.10	⊙ 28.25	⊙ 26.55	
			⊙ 18.55	⊙ 18.55	⊙ 20.50	⊙ 21.35	⊙ 20.05	
Standard lengths (mm)		Tolerance on the lengths (%)						
1000 3000		0 +3						

(1) : for non-listed intermediate diameters, please consult us

(2) : average production weights

PRODUCT CODE

● : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
⊙ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# TECHTRON® HPV PPS

## Polyphenylene sulphide (PPS) (deep blue)

This reinforced, internally lubricated polyphenylene sulphide grade demonstrates an excellent combination of properties including wear resistance, load-bearing capabilities and dimensional stability, when exposed to chemicals and high temperature environments.

TECHTRON HPV PPS finds its applications where PA, POM, PET, PEI and PSU fall short or where PBI, PI, PEEK and PAI are over-engineered and a more economical solution must be found.

Thanks to the uniformly dispersed internal lubricant, TECHTRON HPV PPS exhibits excellent wear resistance and a low coefficient of friction. It overcomes the disadvantages of virgin PPS caused by a high coefficient of friction, and of glass fibre reinforced PPS which can cause premature wear of the counterface in moving-part applications. It goes without saying that these features, in combination with its excellent chemical resistance, offer numerous application possibilities to TECHTRON HPV PPS in all kinds of industries.

### Main characteristics :

- very high max. allowable service temperature in air (220°C continuously to 260°C for short periods of time)
- high mechanical strength, stiffness and creep resistance, also at elevated temperatures
- excellent chemical and hydrolysis resistance
- excellent wear and frictional behaviour
- very good dimensional stability
- excellent resistance against high energy radiation (gamma and X-rays)
- good UV-resistance
- inherent low flammability
- good electrical insulating and dielectric properties.



round rods

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)	
			41600200	
8	+ 0.1	+ 0.5	○	0.080
10			●	0.123
12	+ 0.2	+ 0.9	○	0.183
15			○	0.281
16			●	0.318
18			○	0.398
20	+ 0.2	+ 1.2	●	0.488
22			○	0.595
25			●	0.765
28			○	0.950
30	+ 0.2	+ 1.6	●	1.09
32			○	1.23
36	+ 0.2	+ 1.6	●	1.57
40			●	1.93
45	+ 0.3	+ 2	○	2.46
50			●	3.02
56			○	3.77
60	+ 0.3	+ 2.5	●	4.35
65			○	5.09
70			●	5.88
75	+ 0.4	+ 3	○	6.79
80			●	7.70
85	+ 0.5	+ 3.4	○	8.73
90			●	9.75
95	+ 0.6	+ 3.8	○	10.90
100			●	12.05
Standard lengths (mm)		Tolerance on the lengths (%)		
1000		0 + 3		
3000 (2)				

Non-standard lengths (cut-to-size) : available on request and subject to special conditions

(1) : average production weights

(2) : non-standard length for diameters over 60 mm

● : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

○ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

PRODUCT CODE

plates



Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m)	
			41600204	
			width = 525 mm	
5	+ 0.2	+ 0.7	□	4.39
6			□	5.18
8	+ 0.2	+ 0.9	■	6.85
10			■	8.43
			width = 625 mm	
12	+ 0.3	+ 1.5	■	12.30
16			■	16.00
20			■	19.75
25			■	24.40
30	+ 0.5	+ 2.5	■	29.80
35			□	34.45
40			■	39.10
45			□	43.75
50	+ 0.5	+ 3.5	■	48.45
55			□	53.70
60			□	58.35
65			□	63.00
70	+ 0.5	+ 5	□	67.70
80			□	77.90
90			□	87.25
100			□	96.55
Standard sizes (mm)		Tolerances on widths and lengths		
525 / 625 x 1000		Widths : + 5 mm + 25 mm		
525 / 625 x 3000 (2)		Lengths : 0 + 3 %		

Cut-to-size products : available on request and subject to special conditions

(1) : average production weights

(2) : non-standard size for thicknesses over 25 mm

■ : standard item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

PRODUCT CODE

tubes



Diameters (1) (mm)			Tolerances on the diameters (mm)				Weights (2) (kg/m)	
O.D.	x	I.D.	O.D.		I.D.		41600207	
50	x	30	+ 0.5	+ 2.2	- 0.5	- 2.2	⊙	2.08
		40					⊙	1.31
60	x	30	+ 0.6	+ 2.8	- 0.6	- 2.8	⊙	3.44
		40					⊙	2.68
		50					⊙	1.69
70	x	30	+ 0.6	+ 3.4	- 0.6	- 3.4	⊙	5.03
		40					⊙	4.28
		50					⊙	3.29
		60					⊙	2.08
80	x	40	+ 1	+ 4	- 1.4	- 5.4	⊙	6.04
		50					⊙	5.06
		60					⊙	3.84
90	x	40	+ 1.3	+ 5	- 1.8	- 7	⊙	8.26
		50					⊙	7.30
		60					⊙	6.12
		70					⊙	4.71
100	x	40	+ 1.6	+ 6	- 2	- 8	⊙	10.50
		50					⊙	9.53
		60					⊙	8.35
		70					⊙	6.94
		80					⊙	5.31
115	x	50	+ 1.8	+ 6.5	- 2.3	- 9	⊙	13.60
		60					⊙	12.45
		70					⊙	11.05
		80					⊙	9.43
		90					⊙	7.59
		100					⊙	5.51
125	x	50	+ 1.8	+ 6.5	- 2.3	- 9	⊙	16.40
		60					⊙	15.25
		70					⊙	13.85
		80					⊙	12.25
		90					⊙	10.40
140	x	50	+ 1.8	+ 6.5	- 2.3	- 9	⊙	8.33
		60					⊙	21.05
		70					⊙	19.90
		80					⊙	18.50
		90					⊙	16.90
		100					⊙	15.05
150	x	60	+ 1.8	+ 6.5	- 2.3	- 9	⊙	13.00
		80					⊙	23.30
		90					⊙	20.30
		100					⊙	18.45
160	x	80	+ 1.8	+ 6.5	- 2.3	- 9	⊙	16.40
		90					⊙	24.25
		100					⊙	22.45
		120					⊙	20.35
		140					⊙	15.55
180	x	80	+ 1.8	+ 6.5	- 2.3	- 9	⊙	32.20
		90					⊙	30.40
		100					⊙	28.30
		120					⊙	23.50
		140					⊙	17.80
200	x	100	+ 1.8	+ 6.5	- 2.3	- 9	⊙	37.50
		120					⊙	32.70
		140					⊙	27.05
		160					⊙	20.40
<b>Standard lengths (mm)</b>			<b>Tolerance on the lengths (%)</b>					
1000 3000			0 + 3					

**PRODUCT CODE**

(1) : for non-listed intermediate diameters, please consult us.  
 (2) : average production weights

⊙ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
 ⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# PPSU 1000 - PEI 1000 PSU 1000

## Polyphenylsulphone (PPSU) Polyetherimide (PEI) Polysulphone (PSU)

These unreinforced amorphous thermoplastic materials have a lot of features in common and all three offer a combination of excellent mechanical, thermal and electrical properties.

### Main characteristics :

- high max. allowable service temperature in air (180°C, 170°C and 150°C continuously for PPSU 1000, PEI 1000 and PSU 1000 respectively)
- high mechanical strength, stiffness and creep resistance, also at elevated temperatures
- excellent hydrolysis resistance (suitable for repeated steam sterilisation)
- high toughness, also at low temperatures
- physiologically inert (suitable for food contact)
- very good dimensional stability
- translucent, non-optical quality (except for PPSU which is black)
- very good resistance against high energy radiation (gamma- and X-rays)
- good electrical insulating and dielectric properties

### PPSU 1000 (PPSU) (black)

PPSU 1000 stock shapes are produced from RADEL® R resin. This material offers a better impact strength and chemical resistance than PEI 1000 and PSU 1000. PPSU 1000 also has superior hydrolysis resistance as measured by steam autoclaving cycles to failure. In fact, this material has virtually unlimited steam sterilisability which makes it an excellent choice for devices that are subjected to repeated steam autoclaving.

Additionally, the raw material used for the production of PPSU 1000 stock shapes is USP Class VI compliant, making it a very popular material for medical\* and pharmaceutical industries.

### PEI 1000 (PEI)

**natural (amber, translucent)**  
PEI 1000 stock shapes are produced from ULTEM® resin.

This advanced polymer shows a combination of outstanding thermal, mechanical and electrical properties, together with very low flammability and low levels of smoke evolution during combustion. These features make PEI 1000 extremely suitable for electrical / electronic insulators and for a variety of structural components requiring high strength and rigidity at elevated temperatures.

### PSU 1000 (PSU)

**natural (yellow, translucent)**  
PSU 1000 stock shapes are produced from non-UV-stabilised polysulphone resin.

It offers very good radiation stability, low ionic impurity levels and good chemical and hydrolysis resistance. Compared to PEI 1000, PSU 1000 has a lower property profile and often replaces polycarbonate when higher temperature resistance, improved chemical resistance or autoclavability are required.

\* See, however, our "no-use for implants statement" on page 94



# round rods

Diameters (mm)	Tolerances on the diameters (mm)		Weights (1) - (kg/m)	
			PPSU 1000	PSU 1000
			41400300	41500000
5	+ 0.1	+ 0.4	○ 0.029	○ 0.028
6			○ 0.041	○ 0.040
8	+ 0.1	+ 0.5	○ 0.073	○ 0.070
10			○ 0.111	● 0.107
12			● 0.167	○ 0.160
15	+ 0.2	+ 0.9	○ 0.255	○ 0.244
16			● 0.288	○ 0.276
18			○ 0.361	○ 0.346
20			● 0.443	● 0.424
22			○ 0.540	○ 0.520
25	+ 0.2	+ 1.2	○ 0.695	○ 0.665
28			○ 0.860	○ 0.825
30			● 0.985	● 0.945
32			○ 1.12	○ 1.07
36			○ 1.42	○ 1.36
40			● 1.75	● 1.67
45	+ 0.3	+ 2	○ 2.23	○ 2.13
50			● 2.73	● 2.62
60	+ 0.3	+ 2.5	○ 3.94	○ 3.77
70			○ 5.32	○ 5.09
80			○ 6.97	● 6.67
90	+ 0.5	+ 3.4	○ 8.83	○ 8.45
100	+ 0.6	+ 3.8	○ 10.90	● 10.45
110	+ 0.7	+ 4.2	○ 13.20	○ 12.65
120	+ 0.8	+ 4.6	○ 15.75	○ 15.05
125			○ 17.05	○ 16.30
130			○ 18.55	○ 17.75
140	+ 0.9	+ 5.4	○ 21.40	○ 20.50
150			○ 24.60	○ 23.55
Standard lengths (mm)			Tolerance on the lengths (%)	
1000			0 + 3	
3000 (2)				

(1) : average production weights  
(2) : non-standard length for diameters over 60 mm

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# plates

Thicknesses (mm)	Tolerances on the thicknesses (mm)		Weights (1) - (kg/m)	
			PPSU 1000	PSU 1000
			41400304	41500004
10	+ 0.2	+ 0.9	□ 8.95	□ 8.57
12			□ 11.00	□ 10.55
16	+ 0.3	+ 1.5	□ 14.35	□ 13.75
20			■ 17.70	■ 16.95
25			□ 21.85	□ 20.95
30	+ 0.5	+ 2.5	■ 26.70	■ 25.55
40			□ 35.05	□ 33.55
50			□ 43.40	■ 41.55
Standard sizes (mm)			Tolerances on widths and lengths	
625 x 1000			Widths : + 5 mm + 25 mm	
625 x 3000 (2)			Lengths : 0 + 3 %	

(1) : average production weights  
(2) : non-standard size for thicknesses over 25 mm

PRODUCT CODE

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# round rods



Diameters (1)		Tolerances on the diameters (mm)	Standard lengths (2) (mm)	Weights (3) - (kg/piece)	
(mm)	(inch)			41800000	
6.35	1/4	0	2440	○	0.099
9.53	3/8		2440	○	0.223
12.70	1/2		2440	●	0.396
15.88	5/8		2440	○	0.620
19.05	3/4		2440	○	0.890
25.40	1		2440	●	1.58
31.75	1 1/4	0	2440	○	2.47
38.10	1 1/2		2440	●	3.56
50.80	2		2440	●	6.33
63.50	2 1/2	0	2440	○	9.89
76.20	3	0	1220	●	7.12
101.60	4		1220	●	12.65
127.00	5		1220	○	19.80
152.40	6		1220	○	28.50

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : for non-listed intermediate diameters, please consult us
- (2) : all lengths shown are minimum values
- (3) : theoretical weights, based on nominal dimensions and average density

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

# plates



Thicknesses		Tolerances on the thicknesses (mm)	Weights (1) - (kg/piece)			
(mm)	(inch)		Standard sizes (mm)			
			605 x 610		610 x 1220	
			41800004			
6.35	1/4	0	□	3.00	□	6.04
9.53	3/8		□	4.50	□	9.08
12.70	1/2		□	6.00	■	12.10
19.05	3/4		□	9.00	□	18.14
25.40	1		□	12.00	■	24.20
38.10	1 1/2		□	18.00	□	36.30
44.45	1 3/4		□	21.00	□	42.30
50.80	2		□	24.00	■	48.40

**Tolerances on widths and lengths (mm): 605 (0 + 15) x 610 (0 + 15)**

**610 (0 + 15) x 1220 (+ 5 + 25)**

**Cut-to-size products : available on request and subject to special conditions**

- (1) : theoretical weights, based on nominal dimensions and average density

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)





# SYMALIT® PVDF 1000

## Polyvinylidene fluoride (PVDF) natural (white)

SYMALIT PVDF 1000 is a highly crystalline unreinforced fluoropolymer combining good mechanical, thermal and electrical properties with excellent chemical resistance.

Its property profile makes SYMALIT PVDF 1000 a versatile engineering material, especially suitable for the manufacture of components for the petrochemical, chemical, metallurgical, pharmaceutical, food, paper, textile and nuclear industries.



### Main characteristics:

- high max. allowable service temperature in air (150°C continuously)
- good mechanical strength, stiffness and creep resistance (better than other fluoropolymers)
- excellent chemical and hydrolysis resistance
- high toughness, also at low temperatures
- good sliding properties and wear resistance
- good dimensional stability
- physiologically inert (suitable for food contact)
- good electrical insulating properties
- outstanding UV and weather resistance
- inherent low flammability
- fairly good resistance against high energy radiation (much better than other fluoropolymers)





round rods

Diameters (mm)	Tolerances (1) on the diameters (mm)		Weights (2) (kg/m)	
			42100000	
10	+ 0.1	+ 0.5	●	0.151
12	+ 0.2	+ 0.7	○	0.220
16			●	0.384
18			○	0.483
20			●	0.595
22	+ 0.2	+ 0.9	○	0.720
25			●	0.925
30			●	1.32
32			○	1.51
36	+ 0.2	+ 1.1	●	1.91
40			●	2.34
45			●	2.98
50	+ 0.3	+ 1.3	●	3.66
60	+ 0.3	+ 1.6	●	5.27
70			●	7.14
80	+ 0.4	+ 2	●	9.36
90	+ 0.5	+ 2.2	●	11.85
100	+ 0.6	+ 2.5	●	14.65
110	+ 0.7	+ 3	○	17.75
120	+ 0.8	+ 3.5	●	21.15
130	+ 0.9	+ 3.8	○	24.85
140			○	28.75
150			●	33.05
160	+ 1.1	+ 4.5	○	37.60
180	+ 1.2	+ 5	●	47.55
200	+ 1.3	+ 5.5	●	58.70
250	+ 1.5	+ 6.2	●	91.45
Standard lengths (mm)		Tolerance (1) on the lengths (%)		
1000		0 + 3		
3000 (3)				

- (1) : tolerances according to DIN 16986
- (2) : average production weights
- (3) : 3000 mm is a non-standard length for diameters over 60 mm

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

PRODUCT CODE

Non-standard lengths (cut-to-size) : available on request and subject to special conditions



plates

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)		Weights (2) (kg/m)	
			42100004	
8	+ 0.2	+ 0.9	□	9.61
10			■	11.85
12			■	14.60
16			■	19.10
20	+ 0.3	+ 1.5	■	23.70
25			■	29.30
30			■	36.25
40			■	47.50
50	+ 0.5	+ 2.5	■	58.70
60			■	70.80
70			□	82.05
80	+ 0.5	+ 3.5	■	94.55
90			□	105.8
100			□	117.0
Standard sizes (mm)		Tolerances (1) on width and lengths		
610 x 1000		Width : + 5 mm + 25 mm		
610 x 3000 (3)		Lengths : 0 + 3 %		

- (1) : tolerances according to DIN 16986
- (2) : average production weights
- (3) : non-standard size for thicknesses over 25 mm

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

PRODUCT CODE

Cut-to-size products : available on request and subject to special conditions

## Reinforced Polytetrafluorethylene (PTFE)

FLUOROSINT's unique properties are the result of a proprietary process in which synthetically manufactured mica is chemically linked to PTFE. This bonding results into a load carrying capability and thermal expansion rate not normally attainable in reinforced PTFE. The chemical and temperature resistance inherent in PTFE are practically retained.

### Main characteristics :

- very high max. allowable service temperature in air (continuously 260°C)
- excellent chemical and hydrolysis resistance
- good wear resistance
- low coefficient of friction
- very good dimensional stability
- physiologically inert (only applies to FLUOROSINT 207)
- good electrical insulating properties
- outstanding UV- and weather resistance
- inherent low flammability

We distinguish two different formulations:

### FLUOROSINT 500

(PTFE + mica)

#### (ivory)

FLUOROSINT 500 has nine times greater resistance to deformation under load than unfilled PTFE (tested according to ASTM D 621; stress of 14 MPa at 50°C). Its coefficient of linear thermal expansion approaches the expansion rate of aluminium and is 1/5 that of virgin PTFE. It is considerably harder than virgin PTFE, has better wear characteristics and maintains low frictional properties. FLUOROSINT 500 is also non-abrasive to most mating materials.

### FLUOROSINT 207

(PTFE + mica)

#### (white)

The composition of the raw materials used for the production of FLUOROSINT 207 meets the requirements of the directives of the European Union and the American FDA regulations concerning plastic materials intended to come into contact with foodstuffs. In combination with the good mechanical performance of FLUOROSINT and its inherent outstanding chemical and hydrolysis resistance, this feature opens numerous application possibilities in food, pharmaceutical and medical\* industries.



\* see, however, our "no-use for implants statement" on page 94

*round rods*

Diameters (1)		Tolerances on the diameters		Standard lengths (2) (mm)	Weights (3) - (kg/piece)	
(mm)	(inch)	(mm)			FLUOROSINT	
					207	500
12.70	1/2	- 0.03	+ 0.03	1220	40804000	40804200
19.05	3/4			-	● 0.359	
25.40	1	0	+ 0.30	1220	-	● 0.805
31.75	1 1/4			-	● 1.43	
				1220	-	● 2.24
					40804100	40804300
12.70	1/2	0	+ 3	305	○ 0.089	○ 0.090
19.05	3/4			○ 0.200	○ 0.202	
25.40	1			○ 0.355	○ 0.359	
31.75	1 1/4			○ 0.555	○ 0.560	
38.10	1 1/2			○ 0.800	● 0.805	
44.45	1 3/4			○ 1.09	● 1.10	
50.80	2			○ 1.42	● 1.43	
53.98	2 1/8			○ 1.61	○ 1.62	
57.15	2 1/4			○ 1.80	○ 1.82	
63.50	2 1/2			○ 2.22	● 2.24	
69.85	2 3/4			○ 2.69	○ 2.71	
76.20	3			○ 3.20	○ 3.23	
82.55	3 1/4			○ 3.75	○ 3.79	
88.90	3 1/2			○ 4.35	○ 4.39	
95.25	3 3/4			○ 5.00	○ 5.04	
101.60	4			○ 5.69	○ 5.74	
107.95	4 1/4			○ 6.42	○ 6.48	
114.30	4 1/2			○ 7.20	○ 7.26	
120.65	4 3/4			○ 8.02	○ 8.09	
127.00	5			○ 8.89	○ 8.96	
139.70	5 1/2	○ 10.75	○ 10.85			
152.40	6	○ 12.80	○ 12.90			
177.80	7	○ 17.40	○ 17.55			
203.20	8	○ 22.75	○ 22.95			
222.25	8 3/4	○ 27.20	○ 27.45			

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

(1) : for non-listed intermediate diameters, please consult us

(2) : all lengths shown are minimum values

(3) : theoretical weights, based on nominal dimensions and average density

● : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

○ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

- : not manufactured

**PRODUCT CODE**

*plates*

Thicknesses		Tolerances on the thicknesses		Weights (1) - (kg/piece)	
(mm)	(inch)	(mm)		FLUOROSINT	
				207	500
6.35	1/4	0	+ 1	40804104	40804304
7.94	5/16			□ 1.36	■ 1.37
9.53	3/8	0	+ 1.5	□ 1.70	□ 1.71
12.70	1/2			□ 2.04	■ 2.06
19.05	3/4	0	+ 2	□ 2.72	■ 2.74
25.40	1	0	+ 3	□ 4.08	□ 4.11
31.75	1 1/4	0	+ 4	□ 5.43	□ 5.48
38.10	1 1/2	0	+ 5	□ 6.79	□ 6.85
44.45	1 3/4	0	+ 6	□ 8.15	□ 8.22
50.80	2	0	+ 7	□ 9.51	□ 9.59
53.98	2 1/8	0	+ 8	□ 10.85	□ 10.95
57.15	2 1/4	0	+ 10	□ 13.60	□ 13.70
63.50	2 1/2	0	+ 12	□ 16.30	□ 16.45
76.20	3	0			
<b>Standard size (mm)</b>		<b>Tolerance on width and length</b>			
305 x 305		0 + 6 mm			

**Cut-to-size products : available on request and subject to special conditions**

(1): theoretical weights, based on nominal dimensions and average density

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**PRODUCT CODE**

# tubes

Diameters (1)				Standard lengths (mm)	Weights (2) (kg/piece)
(mm)		(inch)			
O.D.	x I.D.	O.D.	x I.D.		
31.75	x 12.70	1 1/4	x 1/2	305	⊙ 0.469
	19.05		3/4	305	⊙ 0.357
	25.40		1	305	⊙ 0.201
38.10	x 11.10	1 1/2	x 7/16	150	⊙ 0.362
	12.70		1/2	150	⊙ 0.351
	15.88		5/8	150	⊙ 0.326
	19.05		3/4	150	⊙ 0.296
	22.23		7/8	305	⊙ 0.530
	25.40		1	305	⊙ 0.446
44.45	x 9.53	1 3/4	x 3/8	150	⊙ 0.515
	12.70		1/2	150	⊙ 0.494
	15.88		5/8	305	⊙ 0.955
	19.05		3/4	305	⊙ 0.895
	22.23		7/8	305	⊙ 0.820
	25.40		1	305	⊙ 0.735
	31.75		1 1/4	305	⊙ 0.535
47.63	x 15.88	1 7/8	x 5/8	305	⊙ 1.12
	19.05		3/4	305	⊙ 1.05
	22.23		7/8	305	⊙ 0.980
	25.40		1	305	⊙ 0.900
	28.58		1 1/8	305	⊙ 0.805
	31.75		1 1/4	305	⊙ 0.695
	34.93		1 3/8	305	⊙ 0.580
	38.10		1 1/2	305	⊙ 0.452
50.80	x 12.70	2	x 1/2	150	⊙ 0.660
	15.88		5/8	305	⊙ 1.29
	19.05		3/4	305	⊙ 1.23
	22.23		7/8	305	⊙ 1.15
	25.40		1	305	⊙ 1.07
	28.58		1 1/8	305	⊙ 0.975
	31.75		1 1/4	305	⊙ 0.870
	34.93		1 3/8	305	⊙ 0.755
	38.10		1 1/2	305	⊙ 0.625
57.15	x 12.70	2 1/4	x 1/2	150	⊙ 0.845
	19.05		3/4	305	⊙ 1.61
	25.40		1	305	⊙ 1.45
	31.75		1 1/4	305	⊙ 1.25
	38.10		1 1/2	305	⊙ 1.00
	44.45		1 3/4	305	⊙ 0.715
63.50	x 22.23	2 1/2	x 7/8	305	⊙ 1.96
	25.40		1	305	⊙ 1.87
	31.75		1 1/4	305	⊙ 1.67
	38.10		1 1/2	305	⊙ 1.43
	44.45		1 3/4	305	⊙ 1.14
	50.80		2	305	⊙ 0.805
69.85	x 12.70	2 3/4	x 1/2	150	⊙ 1.28
	25.40		1	305	⊙ 2.34
	31.75		1 1/4	305	⊙ 2.14
	38.10		1 1/2	305	⊙ 1.90
	44.45		1 3/4	305	⊙ 1.61
	50.80		2	305	⊙ 1.27
	57.15		2 1/4	305	⊙ 0.895
76.20	x 11.11	3	x 7/16	150	⊙ 1.55
	12.70		1/2	150	⊙ 1.54

Diameters (1)				Standard lengths (mm)	Weights (2) (kg/piece)
(mm)		(inch)			
O.D.	x I.D.	O.D.	x I.D.		
76.20	x 22.23	3	x 7/8	305	⊙ 2.94
	25.40		1	305	⊙ 2.86
	31.75		1 1/4	305	⊙ 2.66
	38.10		1 1/2	305	⊙ 2.41
	44.45		1 3/4	305	⊙ 2.12
	50.80		2	305	⊙ 1.79
	57.15		2 1/4	305	⊙ 1.41
	63.50		2 1/2	305	⊙ 0.980
82.55	x 12.70	3 1/4	x 1/2	150	⊙ 1.81
	19.05		3/4	150	⊙ 1.76
	25.40		1	305	⊙ 3.41
	31.75		1 1/4	305	⊙ 3.21
	38.10		1 1/2	305	⊙ 2.97
	44.45		1 3/4	305	⊙ 2.68
	50.80		2	305	⊙ 2.34
	53.98		2 1/8	305	⊙ 2.16
	57.15		2 1/4	305	⊙ 1.96
	63.50		2 1/2	305	⊙ 1.54
	69.85		2 3/4	305	⊙ 1.07
88.90	x 25.40	3 1/2	x 1	305	⊙ 4.02
	31.75		1 1/4	305	⊙ 3.82
	38.10		1 1/2	305	⊙ 3.57
	44.45		1 3/4	305	⊙ 3.28
	50.80		2	305	⊙ 2.95
	57.15		2 1/4	305	⊙ 2.57
	63.50		2 1/2	305	⊙ 2.14
	69.85		2 3/4	305	⊙ 1.67
	76.20		3	305	⊙ 1.16
95.25	x 25.40	3 3/4	x 1	305	⊙ 4.66
	31.75		1 1/4	305	⊙ 4.46
	38.10		1 1/2	305	⊙ 4.22
	44.45		1 3/4	305	⊙ 3.93
	50.80		2	305	⊙ 3.59
	57.15		2 1/4	305	⊙ 3.21
	63.50		2 1/2	305	⊙ 2.79
	69.85		2 3/4	305	⊙ 2.32
	76.20		3	305	⊙ 1.81
	82.55		3 1/4	305	⊙ 1.25
101.60	x 25.40	4	x 1	305	⊙ 5.36
	31.75		1 1/4	305	⊙ 5.15
	50.80		2	305	⊙ 4.28
	57.15		2 1/4	305	⊙ 3.90
	63.50		2 1/2	305	⊙ 3.48
	69.85		2 3/4	305	⊙ 3.01
	76.20		3	305	⊙ 2.50
	82.55		3 1/4	305	⊙ 1.94
	88.90		3 1/2	305	⊙ 1.34
107.95	x 22.23	4 1/4	x 7/8	150	⊙ 3.04
	25.40		1	150	⊙ 3.00
	50.80		2	305	⊙ 5.02
	63.50		2 1/2	305	⊙ 4.22
	76.20		3	305	⊙ 3.24
	82.55		3 1/4	305	⊙ 2.68

(1) : for non-listed intermediate diameters, please consult us  
(2) : theoretical weights, based on nominal dimensions and average density

⊙ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

**FLUROSINT 207** 40804108  
**FLUROSINT 500** 40804308

Diameters (1)				Standard lengths (mm)	Weights (2) (kg/piece)
(mm)		(inch)			
O.D.	x I.D.	O.D.	x I.D.		
107.95	x 88.90	4 1/4	x 3 1/2	305	⊙ 2.08
	95.25		3 3/4	305	⊙ 1.43
114.30	x 25.40	4 1/2	x 1	150	⊙ 3.38
	44.45		1 3/4	305	⊙ 6.14
	50.80		2	305	⊙ 5.80
	63.50		2 1/2	305	⊙ 5.00
	69.85		2 3/4	305	⊙ 4.53
	76.20		3	305	⊙ 4.02
	82.55		3 1/4	305	⊙ 3.46
	88.90		3 1/2	305	⊙ 2.86
	95.25		3 3/4	305	⊙ 2.21
	101.60		4	305	⊙ 1.52
120.65	x 63.50	4 3/4	x 2 1/2	305	⊙ 5.82
	69.85		2 3/4	305	⊙ 5.36
	76.20		3	305	⊙ 4.84
	82.55		3 1/4	305	⊙ 4.28
	88.90		3 1/2	305	⊙ 3.68
	95.25		3 3/4	305	⊙ 3.03
	101.60		4	305	⊙ 2.34
	107.95		4 1/4	305	⊙ 1.61
127.00	x 22.23	5	x 7/8	150	⊙ 4.25
	31.75		1 1/4	305	⊙ 8.37
	69.85		2 3/4	305	⊙ 6.23
	76.20		3	305	⊙ 5.71
	88.90		3 1/2	305	⊙ 4.55
	95.25		3 3/4	305	⊙ 3.90
	101.60		4	305	⊙ 3.21
	107.95		4 1/4	305	⊙ 2.48
	114.30		4 1/2	305	⊙ 1.70
133.35	x 31.75	5 1/4	x 1 1/4	305	⊙ 9.28
	88.90		3 1/2	305	⊙ 5.47
	95.25		3 3/4	305	⊙ 4.82
	101.60		4	305	⊙ 4.13
	104.78		4 1/8	305	⊙ 3.77
	107.95		4 1/4	305	⊙ 3.39
	114.30		4 1/2	305	⊙ 2.61
139.70	x 50.80	5 1/2	x 2	305	⊙ 9.37
	76.20		3	305	⊙ 7.59
	88.90		3 1/2	305	⊙ 6.43
	101.60		4	305	⊙ 5.09
	114.30		4 1/2	305	⊙ 3.57
146.05	x 120.65	5 3/4	x 4 3/4	305	⊙ 3.75
152.40	x 25.40	6	x 1	150	⊙ 6.15
	50.80		2	305	⊙ 11.40
	76.20		3	305	⊙ 9.64
	95.25		3 3/4	305	⊙ 7.83
	101.60		4	305	⊙ 7.14
	107.95		4 1/4	305	⊙ 6.40
	114.30		4 1/2	305	⊙ 5.62
	127.00		5	305	⊙ 3.93
158.75	x 31.75	6 1/4	x 1 1/4	305	⊙ 13.40
	101.60		4	305	⊙ 8.23
	127.00		5	305	⊙ 5.02
165.10	x 76.20	6 1/2	x 3	305	⊙ 11.85

Diameters (1)				Standard lengths (mm)	Weights (2) (kg/piece)
(mm)		(inch)			
O.D.	x I.D.	O.D.	x I.D.		
165.10	x 101.60	6 1/2	x 4	305	⊙ 9.37
	127.00		5	305	⊙ 6.16
	139.70		5 1/2	305	⊙ 4.28
177.80	x 31.75	7	x 1 1/4	150	⊙ 8.33
	44.45		1 3/4	150	⊙ 8.07
	101.60		4	305	⊙ 11.80
	127.00		5	305	⊙ 8.57
	165.10		6 1/2	305	⊙ 2.41
184.15	x 25.40	7 1/4	x 1	150	⊙ 9.05
	38.10		1 1/2	150	⊙ 8.83
	127.00		5	305	⊙ 9.84
	139.70		5 1/2	305	⊙ 7.97
	152.40		6	305	⊙ 5.91
	165.10		6 1/2	305	⊙ 3.68
190.50	x 127.00	7 1/2	x 5	305	⊙ 11.15
	152.40		6	305	⊙ 7.23
	165.10		6 1/2	305	⊙ 5.00
	177.80		7	305	⊙ 2.59
196.85	x 38.10	7 3/4	x 1 1/2	150	⊙ 10.15
	69.85		2 3/4	305	⊙ 18.75
	165.10		6 1/2	305	⊙ 6.36
203.20	x 31.75	8	x 1 1/4	76	⊙ 5.55
	38.10		1 1/2	76	⊙ 5.49
	139.70		5 1/2	305	⊙ 12.05
	152.40		6	305	⊙ 10.00
	165.10		6 1/2	305	⊙ 7.76
	171.45		6 3/4	305	⊙ 6.58
209.55	x 165.10	8 1/4	x 6 1/2	305	⊙ 9.22
215.90	x 152.40	8 1/2	x 6	305	⊙ 12.95
	177.80		7	305	⊙ 8.30
222.25	x 209.55	8 3/4	x 8 1/4	305	⊙ 3.03
228.60	x 152.40	9	x 6	305	⊙ 16.05
	177.80		7	305	⊙ 11.40
	203.20		8	305	⊙ 6.07
241.30	x 152.40	9 1/2	x 6	305	⊙ 19.35
	177.80		7	305	⊙ 14.75
	203.20		8	305	⊙ 9.37
	215.90		8 1/2	305	⊙ 6.43
254.00	x 152.40	10	x 6	305	⊙ 22.85
	177.80		7	305	⊙ 18.20
	203.20		8	305	⊙ 12.85
	215.90		8 1/2	305	⊙ 9.91
266.70	x 152.40	10 1/2	x 6	305	⊙ 26.50
	177.80		7	305	⊙ 21.85
	190.50		7 1/2	305	⊙ 19.30
	215.90		8 1/2	305	⊙ 13.55
279.40	x 139.70	11	x 5 1/2	305	⊙ 32.40
304.80	x 139.70	12	x 5 1/2	305	⊙ 40.60
	177.80		7	305	⊙ 33.90
	203.20		8	305	⊙ 28.55
	215.90		8 1/2	305	⊙ 25.60
	228.60		9	305	⊙ 22.50
	254.00		10	305	⊙ 15.70

(1): for non-listed intermediate diameters, please consult us  
(2): theoretical weights, based on nominal dimensions and average density

⊙ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

FLUROSINT 207	40804108
FLUROSINT 500	40804308

Outside diameter (O.D.) (mm)	Tolerances (mm) on :	
	outside diameter (O.D.)	inside diameter (I.D.)
31.75 - 120.65	0 +3	0 - 1.5
127.00 - 184.15		
190.50 - 304.80	0 +6	0 - 3

Tolerances on the lengths (mm)	
76	(0 +6)
150	(0 +13)
305	(0 +25)



# SEMITRON® ESd

The SEMITRON ESd family of static dissipative plastics is designed for applications where electrical discharge in operation is a problem (ESd: ElectroStatic dissipation). They provide a controlled bleed-off of static charges.

#### Main characteristics :

- permanently static dissipative
- dissipate static charge of 5 kV in less than 2 seconds per Mil-B-81705C
- no metals or graphite / carbon powder used

There are four SEMITRON ESd-grades, servicing static dissipative needs over a broad range of temperatures and mechanical loading conditions:

#### SEMITRON ESd 225 (POM) (beige)

SEMITRON ESd 225 is an acetal based static dissipative material ideal for material handling applications. It avoids discharge problems for parts intended for human contact. SEMITRON ESd 225 is also an excellent choice for fixturing used for handling in-process silicon wafers or used in the manufacturing of sensitive electronic components including hard disk drives and circuit boards.

#### SEMITRON ESd 410C (PEI) (black)

Having an excellent mechanical performance up to 210°C, SEMITRON ESd 410C provides ESd-solutions at higher temperatures.

Additionally, SEMITRON ESd 410C exhibits excellent dimensional stability (low coefficient of linear thermal expansion and small water absorption), ideal for handling equipment in the electrical/electronic or semiconductor industries.

#### SEMITRON ESd 500HR

(PTFE + mica)

#### (white)

Reinforced with a proprietary synthetic mica, SEMITRON ESd 500HR offers an excellent combination of low frictional properties, good dimensional stability and electrostatic dissipation. Whenever virgin PTFE causes electrical discharge problems, SEMITRON ESd 500HR will provide a controlled bleed-off of static charges while maintaining typical PTFE-properties such as broad chemical resistance, temperature resistance and low coefficient of friction.

#### SEMITRON ESd 520HR (PAI) (khaki grey)

SEMITRON ESd 520HR has an industry first combination of electrostatic dissipation (ESd), high strength and heat resistance. This new ESd material is ideal for making nests, sockets and contactors for test equipment and other device handling components in the semiconductor industry. The key feature of SEMITRON ESd 520HR is its unique ability to resist dielectric breakdown at high voltages (>100V). Whereas e.g. typical carbon fiber enhanced products become irreversibly more conductive when exposed to even moderate voltages, SEMITRON ESd 520HR maintains its electrical performance throughout the voltage range 100 to 1000 V, while offering the mechanical performance needed to excel in demanding applications.





Diameters (1) (2)		Standard lengths (1) (mm)	Weights (3) - (kg/piece)	
(mm)	(inch)		40202700	
4.76	3/16	2440	○	0.058
6.35	1/4	2440	●	0.104
7.94	5/16	2440	○	0.162
9.53	3/8	2440	○	0.233
11.11	7/16	2440	○	0.317
12.70	1/2	2440	●	0.414
14.29	9/16	2440	○	0.525
15.88	5/8	2440	○	0.645
19.05	3/4	2440	○	0.930
22.23	7/8	2440	○	1.27
25.40	1	2440	●	1.66
28.58	1 1/8	2440	○	2.10
31.75	1 1/4	2440	○	2.59
34.93	1 3/8	2440	○	3.13
38.10	1 1/2	2440	○	3.73
41.28	1 5/8	2440	○	4.37
44.45	1 3/4	2440	○	5.07
47.63	1 7/8	2440	○	5.82
50.80	2	2440	○	6.63
53.98	2 1/8	2440	○	7.48
57.15	2 1/4	2440	○	8.39
63.50	2 1/2	2440	○	10.35
69.85	2 3/4	2440	○	12.55
76.20	3	1220	○	7.46
82.55	3 1/4	1220	○	8.75
88.90	3 1/2	1220	○	10.15
95.25	3 3/4	1220	○	11.65
101.60	4	1220	○	13.25

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values
- (2) : for non-listed intermediate diameters, please consult us
- (3) : theoretical weights, based on nominal dimensions and average density

**PRODUCT CODE**



Diameters (1) (2)		Standard lengths (1) (mm)	Weights (3) - (kg/piece)	
(mm)	(inch)		41800600	
12.70	1/2	305	○	0.054
15.88	5/8	305	○	0.085
19.05	3/4	305	○	0.123
25.40	1	305	○	0.218
31.75	1 1/4	305	○	0.340
38.10	1 1/2	305	○	0.490
47.63	1 7/8	203	○	0.510
109.54	4 5/16	203	○	2.70
220.66	8 11/16	76	○	4.10
247.65	9 3/4	76	○	5.16

**Non-standard lengths (cut-to-size) : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values
- (2) : for non-listed intermediate diameters, please consult us
- (3) : theoretical weights, based on nominal dimensions and average density

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)
- : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)



# plates

Thicknesses (mm)	Tolerances (1) on the thicknesses (mm)	SEMITRON ESd 225	
		Weights (2) - (kg/m)	
		40202704	
8	+ 0.2      + 0.9	■	7.27
10		□	8.97
12	+ 0.3      + 1.5	■	10.95
16		□	14.35
20		■	17.75
25		□	22.00
30	+ 0.5      + 2.5	□	26.80
35		□	31.05
40		□	35.30
45		□	39.55
50		□	43.80
<b>Standard sizes (mm)</b>		<b>Tolerances (1) on width and lengths</b>	
610 x 1000		<b>Width :</b>	+ 5 mm    + 25 mm
610 x 3000 (3)		<b>Lengths :</b>	0            + 3 %
<b>Cut-to-size products : available on request and subject to special conditions</b>			

(1) : tolerances according to DIN 16986

(2) : average production weights

(3) : non-standard size for thicknesses over 25 mm

**PRODUCT CODE**

■ : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)

□ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

Thicknesses (1) (2)		Weights (3) - (kg/pce)	
		SEMITRON ESd 410C	
		Standard sizes (mm) - (1)	
(mm)	(inch)	305 x 305	305 x 610
		41800604	
9.53	3/8	■ 1.25	□ 2.50
12.70	1/2	■ 1.67	□ 3.34
15.88	5/8	□ 2.08	□ 4.16
19.05	3/4	■ 2.50	□ 5.00
25.40	1	■ 3.33	□ 6.66
31.75	1 1/4	□ 4.16	-
38.10	1 1/2	□ 5.00	-
44.45	1 3/4	□ 5.83	-
50.80	2	□ 6.66	-

**Cut-to-size products : available on request and subject to special conditions**

Thicknesses (1) (2)		Weights (3) - (kg/pce)	
		SEMITRON ESd 500HR	
		Standard size (mm) - (1)	
(mm)	(inch)	305 x 305	
		40807004	
6.35	1/4	□	1.36
9.53	3/8	□	2.04
12.70	1/2	□	2.72
15.88	5/8	□	3.40
19.05	3/4	□	4.08
25.40	1	□	5.43
31.75	1 1/4	□	6.79
38.10	1 1/2	□	8.15
44.45	1 3/4	□	9.51
50.80	2	□	10.85

**Cut-to-size products : available on request and subject to special conditions**



Thicknesses (1) (2)		Weights (3) - (kg/pce)	
		SEMITRON ESd 520HR	
		Standard size (mm) - (1)	
(mm)	(inch)	305 x 305	
		42010204	
9.53	3/8	□	1.40
12.70	1/2	□	1.87
15.88	5/8	□	2.33
19.05	3/4	□	2.80
25.40	1	□	3.73
31.75	1 1/4	□	4.67
38.10	1 1/2	□	5.60

**Cut-to-size products : available on request and subject to special conditions**

- (1) : all dimensions shown are minimum values  
 (2) : for non-listed intermediate thicknesses, please consult us  
 (3) : theoretical weights, based on nominal dimensions and average density

**PRODUCT CODE**

- : **standard** item (generally available from stock at the Quadrant EPP Logistic Center; large quantities may have to be manufactured to order)  
 □ : **non-standard** item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)  
 - : not manufactured

tubes



Diameters (1) (2)						Standard lengths (1) (mm)	Weights (3) (kg/piece)	
(mm)			(inch)				41800608	
O.D.	x	I.D.	O.D.	x	I.D.			
50.80	x	25.40	2	x	1	203	⊙	0.435
85.73	x	63.50	3 3/8	x	2 1/2	203	⊙	0.745
92.08	x	44.45	3 5/8	x	1 3/4	203	⊙	1.46
		50.80			2	203	⊙	1.33
98.43	x	76.20	3 7/8	x	3	203	⊙	0.870
109.54	x	60.33	4 5/16	x	2 3/8	203	⊙	1.88
115.89	x	76.20	4 9/16	x	3	203	⊙	1.71
122.24	x	25.40	4 13/16	x	1	203	⊙	3.21
		50.80			2	203	⊙	2.78
		82.55			3 1/4	203	⊙	1.83
128.59	x	44.45	5 1/16	x	1 3/4	203	⊙	3.27
		95.25			3 3/4	203	⊙	1.68
134.94	x	50.80	5 5/16	x	2	203	⊙	3.51
		66.68			2 5/8	203	⊙	3.09
		82.55			3 1/4	203	⊙	2.56
		101.60			4	203	⊙	1.77
141.29	x	66.68	5 9/16	x	2 5/8	203	⊙	3.49
		82.55			3 1/4	203	⊙	2.96
		88.90			3 1/2	203	⊙	2.71
153.99	x	73.03	6 1/16	x	2 7/8	203	⊙	4.13
		76.20			3	203	⊙	4.03
		111.13			4 3/8	203	⊙	2.55
158.75	x	101.60	6 1/4	x	4	203	⊙	3.34
171.45	x	114.30	6 3/4	x	4 1/2	203	⊙	3.67
		120.65			4 3/4	203	⊙	3.34
184.15	x	25.40	7 1/4	x	1	203	⊙	7.48
		101.60			4	203	⊙	5.30
		120.65			4 3/4	203	⊙	4.35
196.85	x	127.00	7 3/4	x	5	203	⊙	5.09
		139.70			5 1/2	203	⊙	4.32
		158.75			6 1/4	203	⊙	3.05
		165.10			6 1/2	203	⊙	2.58
211.14	x	139.70	8 5/16	x	5 1/2	203	⊙	5.63
		158.75			6 1/4	203	⊙	4.36
		180.98			7 1/8	203	⊙	2.66
269.88	x	203.20	10 5/8	x	8	153	⊙	5.34
319.09	x	203.20	12 9/16	x	8	153	⊙	10.25
374.65	x	180.98	14 3/4	x	7 1/8	153	⊙	18.25
		279.40			11	153	⊙	10.55

(1) : all O.D.'s and lengths are minimum values ; all I.D.'s are maximum values  
 (2) : for non-listed intermediate diameters, please consult us  
 (3) : theoretical weights, based on nominal dimensions and average density

PRODUCT CODE

⊙ : non-standard item (generally not available from stock at the Quadrant EPP Logistic Center, but manufactured to order and subject to special conditions)

## Advanced Engineering Plastics Stock shapes (indicative values <sup>1</sup>)

PROPERTIES	Test methods ISO/(IEC)	Units	CELAZOLE PBI	TORLON 4203 & 4503 PAI (13)	TORLON 4301 & 4501 PAI (13)	TORLON 5530 PAI
Colour	–	–	black	yellow-ochre	black	khaki grey
Density	1183	g/cm <sup>3</sup>	1.30	1.41	1.45	1.61
Water absorption:						
- after 24h / 96h immersion in water of 23°C (1)	62	mg	38/–	29/–	26/–	25/–
	62	%	0.50/–	0.35/–	0.30/–	0.26/–
- at saturation in air of 23°C / 50% RH	–	%	–	2.5	1.9	1.7
- at saturation in water of 23°C	–	%	14	4.4	3.8	3.0
<b>Thermal Properties</b>						
Melting temperature	–	°C	NA	NA	NA	NA
Glass transition temperature (2)	–	°C	425	280	280	280
Thermal conductivity at 23°C	–	W/(K·m)	0.40	0.26	0.54	0.36
Coefficient of linear thermal expansion:						
- average value between 23 and 100°C	–	m/(m·K)	25 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
- average value between 23 and 150°C	–	m/(m·K)	25 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
- average value above 150°C	–	m/(m·K)	25 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
Temperature of deflection under load:						
- method A: 1.8 MPa	75	°C	425	280	280	280
Max. allowable service temperature in air:						
- for short periods (3)	–	°C	500	270	270	270
- continuously: for min. 20,000h (4)	–	°C	310	250	250	250
Flammability (5):						
- "Oxygen index"	4589	%	58	45	44	50
- according to UL 94 (1.5 / 3 mm thickness)	–	–	V-0 / V-0	V-0 / V-0	V-0 / V-0	V-0 / V-0
<b>Mechanical Properties at 23°C</b>						
Tension test (6):						
- tensile stress at yield / tensile stress at break (7)	527	MPa	–/140	120/–	–/80	–/95
- tensile strain at break (7)	527	%	3	10	5	3
- tensile modulus of elasticity (8)	527	MPa	5,800	4,500	5,800	6,200
Compression test (9):						
- compressive stress at 1% nominal strain (8)	604	MPa	42	27	31	–
- compressive stress at 2% nominal strain (8)	604	MPa	82	53	58	–
Charpy impact strength - Unnotched (10)	179/1eU	kJ/m <sup>2</sup>	–	no break	–	–
Charpy impact strength - Notched	179/1eA	kJ/m <sup>2</sup>	3.5	10	4	3.5
Ball indentation hardness (11)	2039-1	N/mm <sup>2</sup>	375	200	200	–
Rockwell hardness (11)	2039-2	–	E 105	E 80 (M120)	M 105	E 85 (M125)
<b>Electrical Properties at 23°C</b>						
Electric strength (12)	(60243)	kV/mm	22	24	–	28
Volume resistivity	(60093)	Ω·cm	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>13</sup>	> 10 <sup>14</sup>
Surface resistivity	(60093)	Ω	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>
Relative permittivity ε <sub>r</sub> :						
- at 100 Hz	(60250)	–	3.3	4.2	6.0	4.4
- at 1 MHz	(60250)	–	3.2	3.9	5.4	4.2
Dielectric dissipation factor tan δ :						
- at 100 Hz	(60250)	–	0.001	0.026	0.037	0.022
- at 1 MHz	(60250)	–	–	0.031	0.042	0.050
Comparative tracking index (CTI)	(60112)	–	–	–	–	–

Note: 1 g/cm<sup>3</sup> = 1,000 kg/m<sup>3</sup>; 1 MPa = 1 N/mm<sup>2</sup>; 1 kV/mm = 1 MV/m.

NA: not applicable

**Legend:**

- (1) According to method 1 of ISO 62 and done on discs  $\varnothing$  50 x 3 mm.
- (2) Values for this property are only given here for amorphous materials and not for semi-crystalline ones.
- (3) Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
- (4) Temperature resistance over a period of min. 20,000 hours. After this period of time, there is a decrease in tensile strength of about 50% as compared with the original value. The temperature values given here are thus based on the thermal-

- oxidative degradation which takes place and causes a reduction in properties. Note, however, that the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
- (5) These mostly estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There are no UL-yellow cards available for these stock shapes.
- (6) Test specimens: Type 1 B
- (7) Test speed: 5 mm/min.

- (8) Test speed: 1 mm/min.
- (9) Test specimens: cylinders  $\varnothing$  12 x 30 mm
- (10) Pendulum used: 4 J.
- (11) 10 mm thick test specimens.
- (12) 1 mm thick test specimens.
- It is important to know that the electric strength of black KETRON PEEK-1000 can be as low as 50 % of the value for natural material.
- (13) It has to be noted that the figures given for the properties of these TORLON grades have mainly been derived from tests run on test specimens machined from extruded material.

► This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.

It has to be noted that plenty of the products listed in this table are fibre reinforced and/or filled, and consequently they are anisotropic materials (properties differ when measured parallel and perpendicular to e.g. the extrusion or compression direction).

KETRON PEEK-1000	KETRON PEEK-HPV	KETRON PEEK-GF30	KETRON PEEK-CA30	TECHTRON HPV PPS	PPSU 1000	PEI 1000	PSU 1000	SYMALIT PVDF 1000	FLUOROSINT 500	FLUOROSINT 207	SEMITRON ESd 225	SEMITRON ESd 410C	SEMITRON ESd 500HR	SEMITRON ESd 520HR
natural (brownish grey) / black	black	natural (brownish grey)	black	deep blue	black	natural (amber, translucent)	natural (yellow, translucent)	natural (white)	ivory	white	beige	black	white	khaki grey
1.31	1.45	1.51	1.41	1.43	1.29	1.27	1.24	1.79	2.32	2.30	1.33	1.41	2.30	1.58
5/10	4/9	-	-	1/2	26/55	20/41	23/44	1/3	14/-	4/-	392/705	-	4/-	56/-
0.06/0.12	0.05/0.11	-	-	0.01/0.03	0.35/0.72	0.26/0.54	0.32/0.61	0.01/0.03	0.10/-	0.03/-	5/9	-	0.03/-	0.60/-
0.20	0.14	0.14	0.14	0.03	0.60	0.75	0.40	0.05	-	-	0.8	0.75	-	-
0.45	0.30	0.30	0.30	0.09	1.20	1.35	0.85	0.05	3.0	2.0	10	1.35	2.0	-
340	340	340	340	280	NA	NA	NA	175	327	327	165	NA	327	NA
-	-	-	-	-	220	215	190	-	-	-	-	215	-	280
0.25	0.24	0.43	0.92	0,30	0.35	0.22	0.26	0.19	0.77	-	-	0.35	-	0.36
50 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>	50 x 10 <sup>-6</sup>	55 x 10 <sup>-6</sup>	45 x 10 <sup>-6</sup>	60 x 10 <sup>-6</sup>	130 x 10 <sup>-6</sup>	45 x 10 <sup>-6</sup>	100 x 10 <sup>-6</sup>	150 x 10 <sup>-6</sup>	35 x 10 <sup>-6</sup>	100 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
50 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	30 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>	60 x 10 <sup>-6</sup>	55 x 10 <sup>-6</sup>	45 x 10 <sup>-6</sup>	60 x 10 <sup>-6</sup>	145 x 10 <sup>-6</sup>	45 x 10 <sup>-6</sup>	100 x 10 <sup>-6</sup>	-	35 x 10 <sup>-6</sup>	100 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
110 x 10 <sup>-6</sup>	65 x 10 <sup>-6</sup>	65 x 10 <sup>-6</sup>	55 x 10 <sup>-6</sup>	80 x 10 <sup>-6</sup>	55 x 10 <sup>-6</sup>	45 x 10 <sup>-6</sup>	-	-	60 x 10 <sup>-6</sup>	140 x 10 <sup>-6</sup>	-	35 x 10 <sup>-6</sup>	140 x 10 <sup>-6</sup>	25 x 10 <sup>-6</sup>
160	195	230	230	115	200	190	170	105	130	100	-	210	100	280
310	310	310	310	260	210	200	180	160	280	280	140	200	280	270
250	250	250	250	220	180	170	150	150	260	260	90	170	260	250
35	43	40	40	47	44	47	30	44	≥ 95	≥ 95	< 20	47	≥ 95	48
V-0 / V-0	V-0 / V-0	V-0 / V-0	V-0 / V-0	V-0 / V-0	V-0 / V-0	V-0 / V-0	HB / HB	V-0 / V-0	V-0 / V-0	V-0 / V-0	- / HB	V-0 / V-0	V-0 / V-0	V-0 / V-0
110/-	-/75	-/90	-/130	-/75	76/-	105/-	80/-	50/-	-/8	-/10	-/38	-/62	-/10	-/83
20	5	5	5	5	30	10	10	> 20	10	50	15	2	50	3
4,400	5,900	6,300	7,700	3,700	2,500	3,400	2,700	2,300	2,200	1,800	1,500	6,400	1,800	5,500
29	34	41	49	28	18	25	20	17	-	-	11	-	-	-
57	67	81	97	55	35	49	39	32	-	-	20	-	-	-
no break	25	35	35	25	no break	no break	no break	no break	no break	no break	no break	-	no break	-
3.5	2.5	4	4	3.5	10	3.5	4	10	4	5	8	4	5	4
230	215	270	325	180	-	170	155	110	-	-	70	-	-	-
M 105	M 85	M 99	M 102	M 84	M 80	M 114	M 91	M 75	R 55	R 50	R 106	M 115	R 50	M 108
24	-	24	-	24	-	27	30	18	11	8	-	-	-	-
> 10 <sup>14</sup>	-	> 10 <sup>14</sup>	< 10 <sup>5</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>14</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	10 <sup>10</sup> -10 <sup>12</sup>	10 <sup>4</sup> -10 <sup>6</sup>	10 <sup>10</sup> -10 <sup>12</sup>	10 <sup>10</sup> -10 <sup>12</sup>
> 10 <sup>13</sup>	-	> 10 <sup>13</sup>	-	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>13</sup>	> 10 <sup>12</sup>	> 10 <sup>12</sup>	10 <sup>10</sup> -10 <sup>12</sup>	10 <sup>4</sup> -10 <sup>6</sup>	10 <sup>10</sup> -10 <sup>12</sup>	10 <sup>10</sup> -10 <sup>12</sup>
3.2	-	3.2	-	3.3	3.4	3.0	3.0	7.4	-	-	-	-	-	-
3.2	-	3.6	-	3.3	3.5	3.0	3.0	6.0	2.85	2.65	-	-	-	-
0.001	-	0.001	-	0.003	0.001	0.002	0.001	0.025	-	-	-	-	-	-
0.002	-	0.002	-	0.003	0.005	0.002	0.003	0.165	0.008	0.008	-	-	-	-
150	-	175	-	100	-	175	150	600	-	-	-	-	-	-

# Extrusion capabilities for AEP & GEP specialities

Forms & sizes Materials	ROUND RODS Ø (mm)															
	5	6	8	10	20	30	40	50	60	80	100	120	150	200	250	
KETRON PEEK-1000 natural	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red
KETRON PEEK-1000 black	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Red	Red	White
KETRON PEEK-HPV	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	White	White	White	White
KETRON PEEK-GF30	Red	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	White	White	White	White
KETRON PEEK-CA30	Red	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	White	White	White	White	White
PEEK coloured	Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	White	White	White	White
TORLON 4203 PAI	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	Red	White	White	White	White
TORLON 4301 PAI	White	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	Red	White	White	White	White
TECHTRON 1000 PPS	Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	White	White
TECHTRON HPV PPS	White	White	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	Red	White	White
PPS-GF40	White	White	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red	White	White	White	White
PEI 1000	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	White
PEI black	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
PEI-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White	White
PEI Bearing Grade	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Red	White	White	White	White	White
PEI + Carbon fibre	Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	White	White	White	White
PES	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	White
PES-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red	White	White	White	White
PSU 1000	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	White
PSU-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red	White	White	White	White
PPSU 1000	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	White
SYMALIT PVDF 1000	Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
PVDF antistatic	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
PA 11	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White
PA 11-GF30	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
PA 12	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White
PA 12-GF30	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
ERTALON 4.6	Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Red	White	White	White
PA 66 + Carbon fibre	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White
PA 66 + Aramide fibre	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
ERTALON 66-GF30	Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
IXEF (Polyarylamide)	Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	White	White	White	White
PBTP-GF	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
PC-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
TPX (Polymethylpentene)	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
POM C-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
POM C + PTFE	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White	White	White
SEMITRON ESd 225	Red	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	White	White
ERTACETAL H-TF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	White	White
PPO mod	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
PPO-GF	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	White
HYTREL / ARNITEL (TPE)	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	White	White
AURUM (TPI)	White	White	White	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White	White



PLATES Thickness (mm)													TUBES outside $\varnothing$ (mm)					
5	6	8	10	20	30	40	50	60	70	80	90	100	< 50	50	100	150	200	>200
Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Red	Green	Green	Green	Green	Red
Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Red
Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	Red	Red	Green	Green	Green	Green	Red
Green	Green	Green	Blue	Blue	Blue	Blue	Blue	Green	Red	Red	Red	Red	Red	Green	Green	Green	Green	Red
Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Green	Green	Green	Green	Red
Red	Red	Red	Red	Red	Red	Red	Red	White	White	White	White	White	White	White	White	White	White	White
Red	Blue	Blue	Blue	Blue	Green	Red	Red	White	White	White	White	White	White	Green	Red	White	White	White
Red	Blue	Blue	Blue	Blue	Green	Red	Red	White	White	White	White	White	White	Green	Red	White	White	White
Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Green	Green	Green	Green
Green	Green	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
Red	Red	Red	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
White	White	White	Red	Red	Red	Red	Red	White	White	White	White	White	White	Red	Red	Red	Red	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	White
Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	White
Red	Red	Red	Red	Red	Red	Red	Red	White	White	White	White	White	White	Red	Red	Red	Red	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
White	White	White	Red	Red	Red	Red	Red	White	White	White	White	White	White	Red	Red	Red	Red	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
Red	Red	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	White
White	White	White	Red	Red	Red	Red	Red	White	White	White	White	White	White	Red	Red	Red	Red	White

- Available from stock; intermediate sizes can be made on request with minimum order quantities or at a premium price
- Manufactured on request; delivery time is mainly depending on the availability of the resin
- Subject to preliminary testing
- Actually not possible



## Quadrant Engineering Plastic Products

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