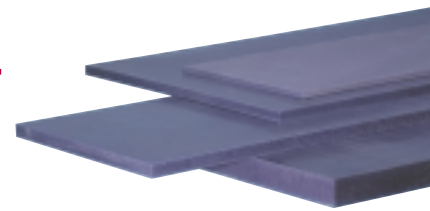


A new standard in Wear Resistance & Motion Control

NYLATRON[®] 703 XL



Key benefits

- No "Stick-Slip"**
 NYLATRON 703 XL is the only nylon with ZERO stick-slip under all circumstances (fully tested against unpainted surfaces, but tests and field experience against painted surfaces show identical results. To be confirmed by actual testing in the different applications). The ZERO stick-slip property allows for more precise, more sensitive motion control, additionally it can increase the overall energy efficiency of a system.
- Lowest coefficient of friction**
 Comparative tests done by an independent research institute have established that NYLATRON 703 XL has the lowest dynamic and static coefficient of friction of any commercial nylon. NYLATRON 703 XL ensures more accurate smaller movements by today's sophisticated control devices or efficiency improvements in the design of the system.
- Best wear performance**
 The low dynamic coefficient of friction results in good wear resistance, which reduce or in many cases eliminate lubrication. NYLATRON 703 XL allows for longer life times of the components and mating parts.
- Excellent mechanical strength to withstand high loads**
 NYLATRON 703 XL has mechanical properties similar to other internally lubricated nylons, and the high thermal resistance as our other cast nylons.

Applications

NYLATRON 703 XL is already in use in the European, North American and Asian Market for different applications. One of these are sliding/wear pads in telescopic crane booms. NYLATRON 703 XL is there the Nylon material of choice because of the virtual absence of vibrations during the movement of the boom resulting in more efficient positioning of the crane and as an added bonus safer working standards. In Europe the use of the material has resulted in the first truly lubrication free crane boom, because of the elimination of stick-slip.

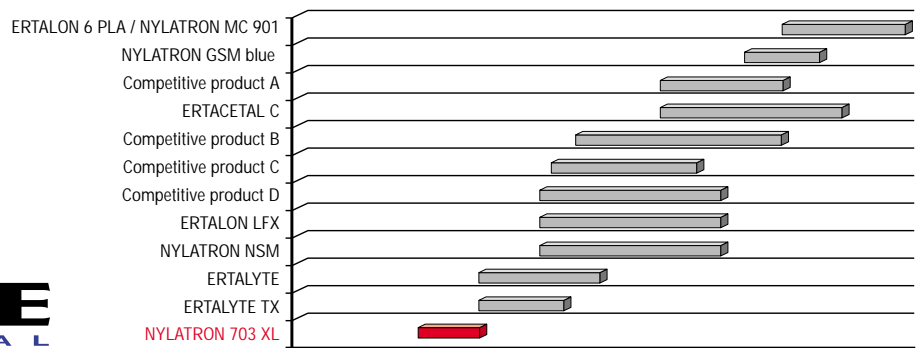
Other targeted applications are wear pads in conveyor systems where NYLATRON 703 XL can avoid vibration of the installation but also reduce operational energy cost. Also applications in Forestry Equipment, Pneumatic and Electric controlled sliding pads and special Vehicle construction are in the reach of the material at the moment.

Availability

NYLATRON 703 XL is standard available in plates at different thickness: 10, 16, 20, 30, 40, 60 and 80 mm at the maximum size 3050*1220. Custom Cast Shapes are available upon request.

Dynamic coefficient of friction

(Lower is better - Plastic Pin on rotating steel Disk Method)



For any further information, please visit our website www.quadrantplastics.com or contact us.

Physical properties (indicatives values) ▶

Properties	Test Methods ISO / IEC	Units	NYLATRON 703 XL
Density	1183	g/cm ³	1.11
Water absorption:			
- after 24/96 h immersion in water of 23°C (1)	62	mg	40/76
- at saturation in air of 23°C / 50% RH	62	%	0.61/1.16
- at saturation in water of 23°C	-	%	2
- at saturation in water of 23°C	-	%	6.3
Thermal Properties			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0.30
Coefficient of linear thermal expansion:			
- average value between 23 and 60°C	-	m/(m.K)	85 x 10 ⁻⁶
- average value between 23 and 100°C	-	m/(m.K)	100 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	75	°C	70
Max. allowable service temperature in air:			
- for short periods (2)	-	°C	160
- continuously: for 5,000 / 20,000 h (3)	-	°C	105/90
Min. service temperature (4)	-	°C	-20
Flammability (5):			
- "Oxygen Index"	4589	%	< 20
- according to UL 94 (3 / 6 mm thickness)	-	-	HB / HB
Mechanical Properties at 23°C (dry material)			
Tension test (6):			
- tensile stress at yield (7)	527	MPa	62
- tensile strain at break (7)	527	%	10
- tensile modulus of elasticity (8)	527	MPa	2750
Compression test (9):			
- compressive stress at 1 / 2 / 5 % nominal strain (8)	604	MPa	20.5/40/67
Creep test in tension (6):			
- stress to produce 1% strain in 1,000 h (s _{1/1,000})	899	MPa	16
Charpy impact strength – unnotched (10)	179/1eU	kJ/m ²	≥ 25
Charpy impact strength – notched	179/1eA	kJ/m ²	3
Izod impact strength - notched	180/2A	kJ/m ²	3
Ball indentation hardness (11)	2039-1	N/mm ²	120
Rockwell hardness (11)	2039-2	-	R 109 (M 59)
Electrical Properties at 23 °C (dry material)			
Volume resistivity	(60093)	Ohm.cm	> 10 ¹²
Surface resistivity	(60093)	Ohm	> 10 ¹²

Note: 1 g/cm³ = 1,000 kg/m³; 1MPa = 1 N/mm²

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Legend:

- (1): According to method 1 of ISO 62 and done on discs - 50 x 3 mm.
 (2): Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
 (3): 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.
 (4): 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 value given here is based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limit.
 (5): These estimated ratings are not intended to reflect hazards presented by the material under actual fire conditions. There are no UL-yellow cards available for NYLATRON 703 XL stock shapes.
 (6): Test specimens: Type 1 B
 (7): Test speed: 20 mm/min
 (8): Test speed: 1 mm/min
 (9): Test specimens: cylinders (~ 12 x 30 mm)
 (10): Pendulum used: 4 J
 (11): 10 mm thick test specimens

▶ 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.

Availability:

Plates: Thicknesses 10, 16, 20, 30, 40, 60 and 80 mm

Surface finish and machineability

Due to its nature, the machined surface finish is relatively rugged. However, this does not impair the performance of the product. Special attention is required during the machining of the material, due to its nature the swarf may result in slippery conditions.

For any further information, please visit our website www.quadrantplastics.com or contact us.

NYLATRON® is a registered trade mark of Quadrant

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