



Discover the NYCAST® Advantage

Stock Shapes & Custom Cast Products



Discover the NYCAST® Advantage

Cast Nylons Limited (CNL) is the premier producer of cast nylon in North America. Our people, our processes and our products are recognized as being among the very best in the industry. We sell cast nylon stock shapes and custom cast parts through an international network of distributors.

Innovation drives our engineers and casters to develop creative solutions for our customers. CNL offers 42 standard and custom product formulas to meet the needs of the most demanding applications.

Our product offerings include cast nylon sheets, rods, tubular bars, rectangular bars, nylon sheaves, elevator buckets, discs, rings and custom cast components. With distributors strategically located throughout the United States, Canada, Mexico, Latin America, South America, Europe and Asia, CNL is available to serve a wide variety of industries and applications.

We also offer a unique 24/7 melt storage facility which allows CNL to run product anytime, so orders placed during the day can be scheduled for production the same evening.

CNL's single-product focus allows us to provide a depth of service unmatched by the competition. Every aspect of our operation is focused on providing excellence, from manufacturing quality to our product line, tool design, engineering support, delivery and every part of the customer experience - **that's the NYCAST® advantage.**

NYCAST® Cast Nylons are used in a Wide Variety of Industries Including:

- Construction Equipment
- Metals Processing
- Metal Forming
- Pulp and Paper
- Mining Equipment
- Marine
- Material Handling
- Automotive Production
- Printing Equipment
- Bottling Equipment
- Water Treatment
- Canning Equipment
- Packaging Equipment
- Textile
- Oil Field Equipment
- Food Processing
- Gas Industries

Standard Grades

Standard Type 6



NYCAST® 6PA Natural & Black

NYCAST 6PA Natural and Black nylon products have delivered successful performance - with and without lubrication - in a variety of diverse applications, particularly as a bearing material. They are lightweight, offer extremely good wear resistance, high tensile strength and high modulus of elasticity.

Other significant properties include:

- High impact resistance
- Excellent vibration resistance
- Resistance to brittleness and deterioration
- Easy machinability and abrasion resistance
- High heat distortion temperature



Also available in orange, forest green, red, yellow and others.

NYCAST® 6PA MoS₂

NYCAST 6PA MoS₂ is a popular choice as a dry lubricant-filled bearing material. Manufactured to be a more crystalline product with improved wear resistance, NYCAST 6PA MoS₂ also offers improved compressive strength.



NYCAST® XHA Blue

NYCAST XHA Blue has a heat stabilizer that retards the loss of physical properties as temperature increases. This allows the material to function at approximately 10% higher temperatures than standard grades - meaning NYCAST XHA operating at 200°F will have approximately the same physical properties as a standard grade operating at 185°F.

Maximum intermittent temperature for NYCAST XHA is 350°F and continuous operating temperature is 250°F (compared to 230°F for standard grades). Also available in natural, black and forest green.



Premium Grades

Oil-Filled & Solid Lubricant-Filled Bearing Grades



NYCAST® NYLOIL®

NYCAST NYLOIL nylon was the very first oil-filled cast nylon, introduced to North America 35 years ago. Often copied, never equaled, CNL's NYLOIL is carefully dispersed with an oil-based lubricant during the manufacturing process. The result is a highly crystalline, internally lubricated, high-strength polymer with enhanced wear and reduced friction properties. NYLOIL is green in color, but also available in natural FG, blue, black, orange, MDX gray and blue, yellow, and red.

NYLOIL is offered in grades tailored to specific applications:

■ NYLOIL® FG

(Natural) - Specified for direct contact with food- FDA and USDA 3A compliant

■ NYLOIL® MDX

(Gray, Blue or MoS₂-filled)
- Designed for slightly higher load capabilities

NYCAST® RX/GX/BX

NYCAST RX (red), NYCAST GX (gray), and NYCAST BX (black) are solid lubricant-filled cast nylons designed to provide low coefficient of friction and superior wear resistance, making them an excellent choice in high-load, low-speed applications.



Proprietary Lubrication Grades

Premium Bearing Grades



NYCAST® SLX Nylon

SLX (purple) joins the NYCAST family of premium bearing grades as an engineering and design solution for bearing and wear applications. NYCAST SLX closes the gap between static and dynamic coefficients of friction with superior performance where customers require the best material for overcoming “stick-slip” tendencies.

Unlike the competition, Cast Nylons Limited offers SLX in all our standard stock shape configurations. We never limit your design to only a few options. This is one more reason why the NYCAST Advantage will work for you.

Manufactured with proprietary lubrication package, NYCAST SLX is available as plate up to 12” thick, rod up to 16” diameter, and tubular bar up to 40” diameter.



Impact Modified Grades



NYCAST® CP 6/12

Highly resilient, with higher tensile elongation and impact strength than standard grades, NYCAST CP has proven itself in many applications requiring an extra degree of toughness. A copolymer of caprolactam and laurilactam, NYCAST CP was originally developed specifically for use in ball valve seats in the oil and gas industry. This durable material provides an economical, high-performance bridge between NYCAST 6 and NYCAST 12 formulations. Also available upon request: yellow, natural, and black.



NYCAST® 6PA MPB (Blue) & MPY (Yellow)

Designed to address the problems associated with impact loads, NYCAST 6MP formulations provide performance advantages in applications that require improved impact properties over standard grades. NYCAST 6MP cushion pads protect the hammer from metal-to-metal damage in pile drivers and provide many performance advantages in certain gear, die block, valve seat and other applications.

This formulation also provides superior performance in extreme cold temperature applications, where standard grades are prone to impact failure.



Food Grade Products

Food Grade Compliant Products & Colors



NYCAST® 6PA FG

NYCAST 6PA FG products are available in a wide array of food grade compliant colors and formulas to meet the demands of our customers. These distinctive colors are ideal for use in food processing equipment and fixtures.

Each color and grade has been given a favorable opinion by the FDA for food contact situations.

All colors and formulas can be provided in standard stock shapes such as rod, tube, plate and can also be custom cast to meet customer requirements.

Food Grade Compliant Grades & Colors

	NYCAST 6PA – FG Natural		NYCAST 6PA – FG NYLOIL Orange
	NYCAST 6PA – FG Natural (Wax)		NYCAST 6PA – FG NYLOIL Red
	NYCAST 6PA – FG Blue		NYCAST 6PA – FG NYLOIL Gray
	NYCAST 6PA – FG NYLOIL Natural		NYCAST 6PA – FG NYLOIL Black
	NYCAST 6PA – FG NYLOIL Yellow		

Custom Cast Shapes



NYCAST® Near Net Shape Castings

Our manufacturing process involves a molten material which is poured directly into a mold to create a nylon 6 shape. NYCAST Near Net Shape Castings are offered in our full line of formulations.



NYCAST® NYMETAL® Products

Cast Nylons has combines the best of both worlds - cast nylon and metal - to produce NYMETAL products, which offer advantages that cannot be obtained from traditional all metal or all nylon components. NYMETAL billets made exclusively with NYCAST nylon and a variety of metal cores are superior choices for manufacturing gears, rollers, and sprockets, particularly for use in power transmission applications.



Custom Cast Construction Equipment



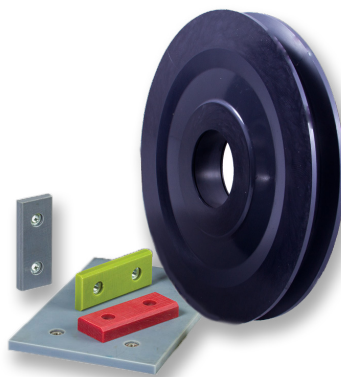
Sheaves, Outrigger Pads & Slide Pads

NYCAST Custom Cast sheaves offer some very important advantages to the equipment designer searching for ways to reduce component weights, improve service life of the wire rope, and provide protection against corrosive environments at a cost which is very competitive with other sheave materials. NYCAST sheaves are custom formulated and cast in the anionic polymerization process of caprolactame to form Nylon Type 6, yielding a technologically advanced part, free from localized stresses which occur in most other plastics processing methods.

In addition, NYCAST sheaves can be specifically formulated with modifiers and internal lubricant packages appropriate to the end use which further enhance performance.

Advantages:

- Reduced Component Weight
- Improved Service Life
- Corrosion Protection
- Custom Engineered



Materials Selector Guide



NYCAST®, NYLOIL® & NYMETAL® Grades

Standard Grades - for bearings, bushings, seals, die blocks, wear pads

- **NYCAST 6PA Natural** - tough, hard, resilient, high strength, for all around use; use for direct food contact
- **NYCAST XHA Blue** - extra heat resistance over 6PA Natural
- **NYCAST MoS₂** - improved wear resistance and higher crystallinity

Premium Bearing Grades - offering improved wear properties as much as five times longer life than unfilled grades

- **NYLOIL** - oil-filled, low coefficient of friction, excellent bearing material
- **NYLOIL FG** - oil-filled, low coefficient of friction, can be used in direct food contact
- **NYCAST MDX** - oil-filled + MoS₂, low coefficient of friction, higher crystallinity
- **NYCAST RX/GX/BX** - solid lubricant-filled, low coefficient of friction for high load, low speeds

Impact Modified Grades -

manufactured to improve impact properties in cold temperatures or high impact areas

- **NYCAST CP** - solid impact modified copolymer, added toughness over standard 6PA Natural
- **NYCAST MP** - liquid impact modified, tailored for high impact applications as in cushion pads

Specialty Grades

- **NYCAST 12** - high impact resistance, low moisture absorption, excellent dimensional stability, higher dielectric properties
- **NYCAST NYMETAL** - nylon bonded to metal cores creates excellent nylon-metal interface for higher torque loading
- **NYCAST Colors** - 13 colors of nylon 6 to choose from to allow color-coding of components

Product Specifications

Property	Units	ASTM Test Method	NYCAST® 6PA	NYCAST® 6PA MoS ₂
Specific Gravity	g/cm ³	D 792	1.15 - 1.17	1.15 - 1.17

Tensile Strength	psi	D 638	10,000 - 13,500	10,000 - 13,500
Tensile Elongation	%	D 638	20 - 55	20 - 55
Tensile Modulus	psi	D 638	400,000 - 550,000	400,000 - 550,000

Compressive Strength	psi	D 695	13,500 - 16,000	14,000 - 16,500
Compressive Modulus	psi	D 695	325,000 - 400,000	345,000 - 425,000
Flexural Strength	psi	D 790	15,000 - 17,500	15,000 - 18,000
Flexural Modulus	psi	D 790	420,000 - 500,000	400,000 - 520,000
Shear Strength	psi	D 732	10,000 - 11,000	10,000 - 11,000

Notched Izod Impact	ft.lbs/in.	D 256	1.5 - 2.5	1.4 - 2.4
Hardness Rockwell	R	D 785	110 - 115	110 - 120
Hardness, Shore	D	D 2240	78 - 84	78 - 86
Melting Point	°F	D 3418	430 +/- 10	430 +/- 10
Coefficient of Linear Thermal Expansion	in./in./°F	D 696	5.0 * 10 ⁻⁵	5.0 * 10 ⁻⁵
Deformation Under Load	%	D 621	0.5 - 2.5	0.5 - 2.6

Deflection Temperature

264 psi	°F	D 570	200 - 300	200 - 300
66 psi	°F	D 570	300 - 400	300 - 400
Continuous Service Temperature	°F	-	230	230
Intermittent Service Temperature	°F	-	330	330
Coefficient of Friction, Dynamic		D 1894	0.26	0.22

Water Absorption

24 hours	%	D 570	0.5 - 0.6	0.5 - 0.6
Saturation	%	D 570	4.0 - 6.0	4.0 - 6.0
Dielectric Strength	v/mil.	D 149	500 - 600	500 - 600

Dielectric Constant

60 Hz		D 150	3.7	3.7
1000 Hz		D 150	3.7	3.7
1 MHz		D 150	3.7	3.7

Compliance

FDA			X	-
USDA 3A			X	-
UL 94 HB			X	X

Property	Units	ASTM Test Method	NYCAST® XHA	NYCAST® NYLOIL®
Specific Gravity	g/cm ³	D 792	1.15 - 1.17	1.14 - 1.15
Tensile Strength	psi	D 638	10,000 - 13,500	9,500 - 11,000
Tensile Elongation	%	D 638	20 - 30	35 - 55
Tensile Modulus	psi	D 638	450,000 - 550,000	375,000 - 475,000
Compressive Strength	psi	D 695	13,500 - 16,000	13,500 - 15,000
Compressive Modulus	psi	D 695	325,000 - 400,000	325,000 - 375,000
Flexural Strength	psi	D 790	15,000 - 17,500	14,000 - 16,000
Flexural Modulus	psi	D 790	420,000 - 500,000	375,000 - 475,000
Shear Strength	psi	D 732	10,000 - 11,000	8,000 - 9,000
Notched Izod Impact	ft.lbs/in.	D 256	1.0 - 2.5	1.4 - 1.8
Hardness Rockwell	R	D 785	110 - 120	100 - 115
Hardness, Shore	D	D 2240	78 - 86	74 - 80
Melting Point	°F	D 3418	430 +/- 10	430 +/- 10
Coefficient of Linear Thermal Expansion	in./in./°F	D 696	5.0 × 10 ⁻⁵	5.0 × 10 ⁻⁵
Deformation Under Load	%	D 621	0.5 - 2.6	0.7 - 3.0
Deflection Temperature				
264 psi	°F	D 570	200 - 400	200 - 300
66 psi	°F	D 570	300 - 450	300 - 400
Continuous Service Temperature	°F	-	250	230
Intermittent Service Temperature	°F	-	350	330
Coefficient of Friction, Dynamic		D 1894	0.26	0.12
Water Absorption				
24 hours	%	D 570	0.5 - 0.6	0.4 - 0.6
Saturation	%	D 570	4.0 - 6.0	4.0 - 5.0
Dielectric Strength	v/mil.	D 149	500 - 600	500 - 600
Dielectric Constant				
60 Hz		D 150	3.7	3.7
1000 Hz		D 150	3.7	3.7
1 MHz		D 150	3.7	3.7
Compliance				
FDA			-	-
USDA 3A			-	-
UL 94 HB			X	X

NYCAST® NYLOIL® MDX	NYCAST® RX/GX/BX	NYCAST® SLX	NYCAST® CP	NYCAST® 6 MPD/6 MPY
Blue 1.14 - 1.15	1.14 - 1.15	1.12 - 1.14	1.10 - 1.13	1.14 - 1.16
10,500 - 11,000	11,000 - 11,200	10,000 - 11,000	9,000 - 11,000	9,000 - 11,000
35 - 45	35 - 100	20 - 45	25 - 40	25 - 35
425,000 - 475,000	495,000 - 525,000	400,000 - 475,000	375,000 - 475,000	375,000 - 475,000
13,500 - 14,000	13,000 - 14,500	14,000 - 16,500	12,000 - 14,000	12,500 - 15,000
325,000 - 375,000	390,000 - 410,000	345,000 - 425,000	275,000 - 375,000	300,000 - 375,000
15,500 - 16,000	14,000 - 14,500	13,500 - 16,000	13,000 - 16,000	12,000 - 13,000
425,000 - 475,000	400,000 - 450,000	350,000 - 475,000	325,000 - 475,000	300,000 - 360,000
8,000 - 9,000	8,000 - 9,000	8,000 - 9,000	7,500 - 9,000	7,500 - 10,000
1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	2.0 - 4.0	2.5 - 6.0
110 - 115	110 - 115	100 - 115	100 - 110	95 - 110
74 - 80	74 - 80	74 - 80	74 - 80	70 - 80
430 +/- 10	430 +/- 10	430 +/- 10	400 +/- 10	430 +/- 10
5.0×10^{-5}	5.0×10^{-5}	5.0×10^{-5}	$4.0 - 5.0 \times 10^{-5}$	5.0×10^{-5}
0.7 - 0.8	0.7 - 3.0	0.7 - 3.0	1.0 - 3.0	1.0 - 3.0
200 - 300	200 - 300	200 - 300	200 - 300	200 - 300
300 - 400	300 - 400	300 - 400	300 - 400	300 - 400
230	230	230	210	230
330	330	330	300	330
0.12	0.12	0.14	0.26	0.26
0.4 - 0.6	0.4 - 0.5	0.5 - 0.6	0.2 - 0.3	0.5 - 0.6
4.0 - 5.0	4.0 - 5.0	4.0 - 6.0	3.0 - 5.0	4.0 - 6.0
500 - 600	500 - 600	500 - 600	500 - 600	500 - 600
3.7	3.7	3.7	3.7	3.7
3.7	3.7	3.7	3.7	3.7
3.7	3.7	3.7	3.7	3.7
	-	-	-	-
	-	-	-	-
	X	X	X	X

**Four Facilities on Hamann
Parkway in Willoughby, Ohio**

Commercial Operations

4429 Hamann Parkway
Willoughby, OH 44094
800-543-3619

**Manufacturing
Services Center**

4413 Hamann Parkway
Willoughby, OH 44094

Casting Operations

4300 Hamann Parkway
Willoughby, OH 44094

Logistics Center

4366 Hamann Parkway
Willoughby, OH 44094

Mexico

**Cast Nylons de México S
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The facts stated and recommendations contained herein are based on experiments and information to be reliable. No guarantee is made of the accuracy, however, and the products are sold without warranty, expressed or implied, and upon the conditions that purchasers shall conduct tests to determine suitability for their intended use.

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