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TUBING & ACCESSORIES

## Tubing and Accessories Nylon 11 Tubing (Inch and Metric O.D.)

Tube Diameter OD 1/8", 5/32", 1/4",  
5/16", 3/8", 1/2"  
Reel Length 100 feet

Metric Tube Diameter OD 4, 5, 6,  
8, 10, 12 mm  
Reel Length 100 feet



### TECHNICAL SPECIFICATIONS (INCH)

Material	Nylon 11 (Polyamide)
Melting point	354° ± 4° (flame retardant rating UL-94 HB)
Water absorption (ASTM D-50)	1.1%
Operating pressure	From 0 - 250 psi (See Working Pressure Table)
Bursting pressure	1000 psi
Hardness	78 Rockwell R
Tensile strength at break (D-638)	9500 psi
Elongation at break (D-638)	360 psi
Flexural modulus (D-790)	47,000 psi
Tube diameter	1/8", 5/32", 1/4", 5/16", 3/8", 1/2"
Fluid	Compressed air [for other types of fluid please contact our engineers]
Operating temperature	-60°F - 180°F * (See Working Pressure Table)

### TECHNICAL SPECIFICATIONS (METRIC)

Material	Nylon 11 (Polyamide)
Melting point	354° ± 4° (flame retardant rating UL-94 HB)
Water absorption (ASTM D-570)	1.1%
Operating pressure	From 0 - 250 psi (See working pressure table)
Bursting pressure	1000 psi
Hardness	78 Rockwell R
Tensile strength at break (D-638)	9500 psi
Elongation at break (D-638)	360 psi
Flexural modulus (D-790)	47,000 psi
Tube diameter OD	4, 5, 6, 8, 10, 12 mm
Fluid	Compressed air [for other types of fluid please contact our engineers]
Operating temperature	-60°F - 180°F

**TUBE CODING**

**1411 - 04 - BL**

**TYPE**

1411 = Nylon 11

**TUBE DIAMETER OD**

- 02 = 1/8"
- 04 = 1/4"**
- 05 = 5/16"
- 06 = 3/8"
- 08 = 1/2"
- 53 = 5/32"
- 4mm = 4mm
- 5mm = 5mm
- 6mm = 6mm
- 8mm = 8mm
- 10mm = 10mm
- 12mm = 12mm

**COLOR**

- BL** = Blue
- BK = Black
- NT = Natural
- OR = Orange
- YL = Yellow
- RD = Red
- GR = Green

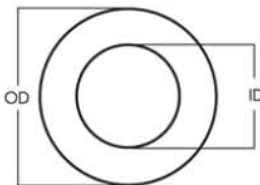
**WORKING PRESSURE**

**INCH**

OD/ID (IN)	Tolerances for OD (IN)	Minimum Bend Radius (IN)	Working Pressure (PSI)			
			@75°F	@100°F	@125°F	@150°F
1/8 x .093	+0.02 - .003	.375	225	171	148	125
5/32 x .106	+0.02 - .003	.500	275	209	181	160
1/4 x .180	+0.02 - .004	.875	250	190	165	137
5/16 x .232	+0.02 - .004	1.250	220	170	145	121
3/8 x .275	+0.02 - .004	1.500	220	170	145	128
1/2 x .375	+0.02 - .004	2.000	200	152	133	125

**METRIC**

OD/ID (MM)	Tolerances for OD (MM)	Minimum Bend Radius (IN)	Working Pressure (PSI)			
			@75°F	@100°F	@125°F	@150°F
4 x 2.7	+0.05, - .1	.75	275	209	181	151
5 x 3	+0.05, - .1	1.00	375	285	248	206
6 x 4	+0.05, - .1	1.50	280	213	185	154
8 x 6	+0.05, - .1	2.25	210	160	139	115
10 x 8	+0.05, - .1	3.00	180	137	119	99
12 x 10	+0.05, - .1	3.50	165	125	109	91



**CHEMICAL RESISTANCE**

Acids	Good to ph-5
Alkalies	Good to ph-11
Hydrocarbons - aromatic	Excellent
Hydrocarbons - aliphatic	Excellent
Ketones	Excellent
Ethers	Excellent
Esters	Excellent
Alcohols	Good
Salts, neutral	Excellent
Freons	Excellent
Continuous sunlight	Fair
Zinc chloride	Good



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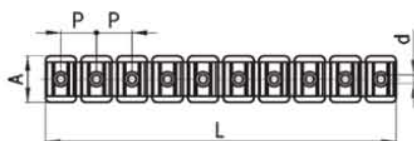
TUBING & ACCESSORIES

**Nylon 11 Tubing**



DIMENSIONS — INCH				DIMENSIONS — METRIC			
Mod.	OD	ID	Reel Length Feet	Mod.	OD	ID	Reel Length Feet
1411-02	1/8	.093	100	1411-4mm	4	2.7	100
1411-53	5/32	.106	100	1411-5mm	5	3	100
1411-04	1/4	.180	100	1411-6mm	6	4	100
1411-05	5/16	.232	100	1411-8mm	8	6	100
1411-06	3/8	.275	100	1411-10mm	10	8	100
1411-08	1/2	.375	100	1411-12mm	12	10	100

**Tube Clamp**



DIMENSIONS						
Mod.	Tube o	L	A	d	P	
MPL-4 4mm or	5/32	115	19	2.5	11.5	
MPL-6 6mm or	1/4	115	19	2.5	11.5	
MPL-8 8mm or	5/16	144	19	3.5	14.5	
MPL-10 10mm or	3/8	172	19	4.5	17.5	

**Plastic Tube Cutter**

How To Use: Insert plastic tube to desired length, allow tube cutter to close, then apply pressure until tube snaps off.



DIMENSIONS	
Mod.	
PNZ-12	Cutter
PNZ-12 Blades	Replacement Blades
PNZ-25	Large Cutter (1/2" and up)
PNZ-25 Blades	Replacement Blades



## Tubing and Accessories Polyurethane Tubing (Inch and Metric O.D.)

Tube Diameter OD 1/8", 5/32", 1/4", 5/16", 3/8", 1/2"  
Reel Length 100 feet

Metric Tube Diameter OD 4, 5, 6,  
8, 10, 12 mm  
Reel Length 100 feet



TUBING & ACCESSORIES

### TECHNICAL SPECIFICATIONS - INCH

Material	Polyurethane (Ether Based), PUR 95A
Vacuum rating	to 28" Hg
Operating pressure	From 0 - 230 psi (See Working Pressure Table)
Bursting pressure	690 psi
Hardness	95 Shore A
Tube diameter	1/8", 5/32", 1/4", 5/16", 3/8", 1/2"
Fluid	Compressed air [for other types of fluid please contact our engineers]
Operating temperature	-40°F - 165°F

### TECHNICAL SPECIFICATIONS - METRIC

Material	Polyurethane (Ether Based), PUR 95A
Vacuum rating	to 28" Hg
Operating pressure	From 0 - 180 psi (See Working Pressure Table)
Bursting pressure	540 psi
Hardness	95 Shore A
Tube diameter	4, 6, 8, 10, 12 mm
Fluid	Compressed air [for other types of fluid please contact our engineers]
Operating temperature	-40°F - 165°F



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TUBING & ACCESSORIES

**TUBE CODING**

**1422 - 04 - BL**

**TYPE**

1422 = Polyurethane (95A)

**TUBE DIAMETER OD**

- 02 = 1/8"
- 04 = 1/4"**
- 05 = 5/16"
- 06 = 3/8"
- 08 = 1/2"
- 53 = 5/32"
- 4mm = 4mm
- 6mm = 6mm
- 8mm = 8mm
- 10mm = 10mm
- 12mm = 12mm

**THREADS**

**COLOR**

- BL** = Blue
- BK = Black
- NT = Natural
- OR = Orange
- YL = Yellow
- RD = Red
- GR = Green

**WORKING PRESSURE**

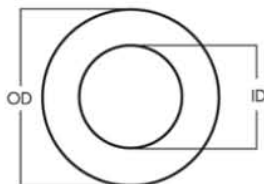
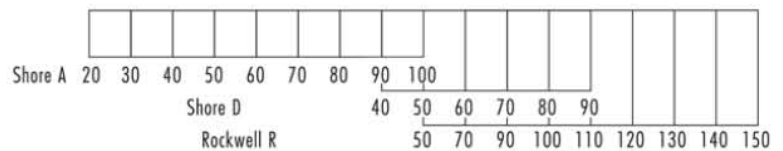
**INCH**

OD/ID (IN)	Tolerances for OD (IN)	Minimum Bend Radius (IN)	Working Pressure (PSI)			
			@75°F	@100°F	@125°F	@150°F
1/8 x .066	±.005	1/4	233	172	140	116
5/32 x 3/32	±.005	3/8	176	130	106	88
1/4 x .160	±.005	1/2	148	110	89	74
5/16 x .216	±.005	3/4	150	111	90	75
3/8 x .245	±.005	7/8	147	109	88	74
1/2 x .320	±.005	1 1/8	140	104	84	70

**METRIC**

OD/ID (MM)	Tolerances for OD (MM)	Minimum Bend Radius (IN)	Working Pressure (PSI)			
			@75°F	@100°F	@125°F	@150°F
4 x 2.4	±.127	3/8	176	130	106	88
6 x 4	±.127	1/2	145	107	87	73
8 x 5	±.127	3/4	155	115	93	78
10 x 6.5	±.127	7/8	149	110	89	75
12 x 8	±.127	1 1/8	133	133	80	67

**HARDNESS COMPARISON**



Polyurethane Tubing



DIMENSIONS — INCH				DIMENSIONS — METRIC			
Mod.	OD	ID	Reel Length Feet	Mod.	OD	ID	Reel Length Feet
1422-02	1/8	.066	100	1422-4mm	4	2.4	100
1422-04	1/4	.160	100	1422-6mm	6	4	100
1422-05	5/16	.216	100	1422-8mm	8	5	100
1422-06	3/8	.245	100	1422-10mm	10	6.5	100
1422-08	1/2	.320	100	1422-12mm	12	8	100
1422-53	5/32	3/32	100				



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TUBING & ACCESSORIES

TUBING CHEMICAL RESISTANCE DATA

The following ratings are very general guidelines, designed ONLY to be used as an initial screening tool. Bear in mind that dynamic vs. static application, temperature, chemical mixtures, and the specific tubing compound selected can significantly affect or change these ratings either positively or negatively. Careful testing under actual conditions is essential. Accuracy for these ratings is not given or implied.

N = Nylon
PUR = Polyurethane
PE = Polyethylene
PVC = Polyvinylchloride (vinyl)

RATINGS:

SOLVENT/CHEMICAL
1 = little or no effect
2 = minor effect
3 = moderate effect
4 = severe effect
-- = no tested data available

Table with columns for SOLVENT/CHEMICAL and ratings (N, U, P, R, E, C) for various chemicals like Acetic Acid, Acetic Acid 30%, Acetone, Acetylene, Alkylene, Aluminum Chloride (aq), Aluminum Nitrate (aq), Ammonia Anhydrous, Ammonia Gas (cold), Ammonia Gas (hot), Ammonium Chloride (aq), Ammonium Sulfate (aq), Amyl Alcohol, Amyl Naphthalene, Animal Fats, Aqua Regia, Arsenic Acid, Asphalt, ASTM Fuel A, ASTM Fuel B, ASTM Fuel C, Barium Chloride (aq), Beer, Beet Sugar Liquors, Benzene, Benzine, Blast Furnace Gas, Bleach Solutions, Borax, Boric Acid, Brake Fluid, Brine, Bromine Water, Bunker Oil, Butane, Butter, Butyl Alcohol, Butylene, Calcium Chloride (aq), Calcium Hydroxide (aq), Calcium Nitrate (aq), Calcium Sulfide (aq), Cane Sugar Liquors, Carboic Acid, Carbon Dioxide, Carbon Monoxide, Carbon Tetrachloride, Castor Oil, Chlorine (dry), Chlorine (wet), Chloroform, Chlorox, Chromic Acid, Citric Acid, Coal Tar, Coconut Oil, Cod Liver Oil, Coke Oven Gas, Copper Chloride (aq), Copper Cyanide (aq), Corn Oil, Cotton Seed Oil, Creosol, Alkylene, Cyclohexane, Denatured Alcohol, Detergent Solution, Diesel Oil, Diioxane, Dowtherm Oil, Dry Cleaning Fluids, Ethane, Ethyl Acrylate, Ethyl Alcohol, Ethyl Benzene, Ethyl Cellulose, Ethyl Chloride, Ethyl Ether, Ethyl Chloride, Ethyl Glycol, Ethylene Oxide, Ethylene Trichloride, Ferric Chloride (aq), Ferric Nitrate (aq), Ferric Sulfate (aq), Fluorine (liquid), Formaldehyde (RT), Formic Acid, Freon 11, Freon 12, Freon 22, Fuel Oil, Furfural Glucose, Glue, Glycerin, Glycols, Green Sulfate Liquor, Hexane, Hydraulic Oil, Hydrochloric Acid (cold) 37%, Hydrochloric Acid (hot) 37%, Hydrochloric Acid (cold), Hydrochloric Acid (hot), Hydrogen Gas, Isobutyl Alcohol, Isooctane, Isopropyl Acetate, Isopropyl Alcohol, Isopropyl Ether, Kerosene, Lacquers, Lard, Lavender Oil, Lead Acetate (aq), Linseed Oil, Liquefied Petroleum Gas, Lubricating Oils, Lye, Magnesium Chloride (aq), Magnesium Hydroxide (aq), Mercury, Methane, Methyl Acetate, Methyl Acrylate, Methyl Alcohol, Methyl Butyl Ketone, Methyl Chloride, Methylene Chloride, Methyl Ethyl Ketone, Methyl Isobutyl Ketone, Milk, Mineral Oil, Naphtha, Naphthalene, Natural Gas, Nitric Acid (concentrate), Nitric Acid (dilute), Nitroethane, Nitrogen, Oleic Acid, Oleum Spirits, Olive Oil, Oxygen (cold), Oxygen (200°-400°F), Paint Thinner, "Duco", Perchloric Acid, Perchloroethylene, Petroleum (Below 250°F), Petroleum (Above 250°F), Phenol, Phenyl Ethyl Ether, Phosphoric Acid 45%, Pickling Solution, Ploric Acid, Potassium Acetate (aq), Potassium Chloride (aq), Potassium Cyanide (aq), Potassium Hydroxide (aq), Producer Gas, Propane, Propyl Alcohol, Propylene, Propylene Oxide, "Pydraul, 10E, 29 ELI", "Pydraul, 30E, 50E, 65E", "Pydraul, 115E", "Pydraul, 23DE, 312C, 540C", Rapeseed Oil, Red Oil (MIL-H-5808), RJ-1 (MIL-F-23338 O), RP-1 (MIL-F-25578 C), Salt Water, Sewage, Silicate Esters, Silicone Oils, Silver Nitrate, Skydrol 500, Skydrol 700, Soap Solutions, Sodium Chloride (aq), Sodium Hydroxide (aq), Sodium Peroxide (aq), Sodium Phosphate (aq), Sodium Sulfate (aq), Soy Bean Oil, Steam (Below 300°F), Steam (Above 300°F), Stoddard Solvent, Styrene, Sucrose Solution, Sulfuric Acid (concentrate), Sulfuric Acid (dilute), Sulfuric Acid (20% oleum), Sulfurous Acid, Tannic Acid, Tetrachloroethylene, Toluene, Transformer Oil, Transmission Fluid Type A, Trichloroethane, Trichloroethylene, Turbine Oil, Turpentine, Varnish, Vinegar, Vinyl Chloride, Water, "Whiskey, Wines", White Oil, Wood Oil, Xylene, Zinc Acetate (aq), Zinc Chloride (aq)

