CNP 200

INSULATE SEAL PROTECT

2:1 Shrink Ratio



THIN WALL CHLORINATED POLYOLEFIN

HIGH PERFORMANCE HEAT SHRINK TUBING SUITABLE FOR HARNESSING, HYDRAULIC COUPLINGS, AND APPLICATIONS REQUIRING EXCEPTIONAL FLEXIBILITY

FEATURES AND BENEFITS

- 2:1 shrink ratio
- · Very flexible and smooth surface under bend stresses at low temperatures
- Excellent chemical resistance in prolonged exposure
- Excellent abrasion resistance
- Reliable protection in extreme operating environments including exposure to flame
- Continuous operating temperature: -70°C to 121°C
- Minimum full recovery temperature: 135°C
- Standard colors: Black

STANDARDS

SAE AMS-DTL-23053/1A Class 1 and 2

TYPICAL APPLICATIONS

- Insulation, strain relief and abrasion resistance for wire harnesses exposed to fluids and solvents
- Heavy duty cables or harness systems in vehicle applications
- Protection for cable-connector interfaces, terminals, and fittings

ORDERING

- Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Please specify the product name and order reference number. Order Example: CNP 200, 0250, black





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DIMENSIONS

	Expa	nded	Recovered					
Order Number	Internal Diameter (min) D		Internal Diameter (max) d		Wall Thickness W		Lengths	
	mm	in	mm	in	mm	in	m	ft
0125*	3.2	1/8	1.6	0.062	0.66 +/- 0.25	0.026 +/- 0.010	200	60
0187*	4.8	3/16	2.4	0.093	0.84 +/- 0.25	0.033 +/- 0.010	200	60
0250	6.4	1/4	3.6	0.143	0.89 +/- 0.25	0.035 +/- 0.010	200	60
0375	9.5	3/8	5.4	0.211	1.02 +/- 0.25	0.040 +/- 0.010	100	30
0500	12.7	1/2	7.3	0.286	1.22 +/- 0.38	0.048 +/- 0.015	100	30
0625	15.9	5/8	9.1	0.357	1.32 +/- 0.38	0.052 +/- 0.015	100	30
0750	19.0	3/4	10.9	0.428	1.45 +/- 0.38	0.057 +/- 0.015	100	30
0875	22.2	7/8	12.7	0.500	1.65 +/- 0.51	0.065 +/- 0.020	100	30
1000	25.4	1	14.4	0.570	1.78 +/- 0.51	0.070 +/- 0.020	50	15
1250	31.8	1-1/4	18.1	0.714	2.21 +/- 0.51	0.087 +/- 0.020	50	15
1500	38.1	1-1/2	21.8	0.857	2.41 +/- 0.51	0.095 +/- 0.020	50	15

^{*} These sizes are not included in 23053/1 specification

TECHNICAL DATA

PROPERTY TEST METHOD REQUIREMENT TYPICAL PERFORMANCE UNITS	TECHNICAL DATA				
Remails Strength	PROPERTY	TEST METHOD	REQUIREMENT	TYPICAL PERFORMANCE	UNITS
Elongation	PHYSICAL				
Tensile stress, at 200 percent elongation ASTM D412 1,500 (10.3) maximum 1,063 (7.33) psi (MPa)	Tensile Strength	ASTM D412	1,500 (10.3) minimum	2,365 (16.31)	psi (MPa)
elongation Low Temperature Flexibility Heat Shock Heat resistance: 168 hrs at 250 °F (121 °C) ASTM D412 Class 1 - 150 minimum Class 2 - 2617 (18.04) Ultimate elongation Dielectric strength ASTM D2671 ASTM D2671 ASTM D876 1 x 10 ²¹ minimum CHEMICAL Corrosion 1 68 hrs at 302 °F (120 °C) ASTM D876 1 x 10 ²¹ minimum Chessistivity ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Luthortanting oil, 5 percent NaCl, Deicing fluid) Class 1 - 150 minimum Class 2 - 1,000 (6.2) minimum Class 2 - 1,000 (8.3) psi (MPa) Class 2 - 1,000 (8.3) No pitting or corrosion No pitting or corrosion No pitting or corrosion No pitting or corrosion O.72 Pass Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Luthortanting oil, 5 percent NaCl, Deicing fluid) Class 2 - 1,000 (6.2) minimum Class 1 - 1,200 (8.3) Class 2 - 2,617 (18.04) Dielectric strength ASTM D2671 Class 1 - 150 minimum Class 1 - 1,200 (8.3) psi (MPa) Class 2 - 2,617 (18.04) Pass Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Luthortanting oil, 5 percent NaCl, Deicing fluid) ASTM D412 Class 1 - 150 minimum Class 2 - 2,617 (18.04) Class 2 - 2,617 (18.04) Pass ASTM D2671 Class 1 - 150 minimum Class 1 - 1,200 (8.3) psi (MPa) Class 2 - 2,617 (18.04) Percent Class 2 - 3,62 Poss Poss Poss Fluid resistance ASTM D2671 ASTM D2671 Class 1 - 150 minimum Class 2 - 1,000 (8.3) Class 2 - 2,617 (18.04) Pass Pass	Elongation	ASTM D412	225 minimum	384	percent
Heat Shock	·	ASTM D412	1,500 (10.3) maximum	1,063 (7.33)	psi (MPa)
Heat resistance: 168 hrs at 250 °F (121 °C)	Low Temperature Flexibility	4 hrs at -94 °F (-70 °C)	No cracks	No cracks	
Tensile strength Ultimate elongation Dielectric strength Dielectric strength Dielectric Strength ASTM D412 Class 1 - 150 minimum Class 2 - 2627 Class 1 - 500 (Ass.) Class 2 - 2627 Class 2 - 2627 Class 2 - 2627 Class 2 - 2620 Dielectric strength Dielectric strength ASTM D2671 300 (11.8) minimum Class 2 - 362 Class 1 - 302 (>11.9) Class 2 - 1,090 (43) ELECTRICAL Dielectric Strength ASTM D2671 300 (11.8) - up to 0.875 inch expanded ID 200 (7.8) - 1.000 inch expanded ID and above 1.48 x 10 ¹⁴ Ohm-cm CHEMICAL Corrosion Water absorption 16 hrs at 302 *F (150 *C) No pitting or corrosion Water absorption 24 hrs at 73 *F (23 *C) Fluid resistance: ((hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 2,617 (18.04) Ultimate elongation Dielectric strength ASTM D412 Class 1 - 200 (7.9) minimum Class 2 - 2.50 (9.8) minim	Heat Shock	4 hrs at 392 °F (200 °C)	No cracks, flowing or dripping	No cracks, flowing or dripping	
Ultimate elongation Dielectric strength ASTM D2671 Dielectric Strength Dielectric St	Heat resistance:	168 hrs at 250 °F (121 °C)			
Class 2 - 175 minimum Class 2 - 362 Class 1 - >302 (>11.9) psi (MPa)	Tensile strength	ASTM D412	1,200 (8.3) minimum	1 1 1	psi (MPa)
ELECTRICAL Dielectric Strength ASTM D2671 300 (11.8) - up to 0.875 inch expanded ID 200 (7.8) - 1.000 (8.8	Ultimate elongation	ASTM D412			percent
Dielectric Strength ASTM D2671 300 (11.8) - up to 0.875 inch expanded ID 200 (7.8) - 1.000 inch expanded ID 200 (7.8) - 1.000 inch expanded ID and above Volume Resistivity ASTM D876 1 x 10 ¹¹ minimum 1.48 x 10 ¹⁴ Ohm-cm CHEMICAL Corrosion 16 hrs at 302 °F (150 °C) Volume Resistory Water absorption 24 hrs at 73 °F (23 °C) Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Ultimate elongation Dielectric strength ASTM D412 Class 1 - 200 (7.9) minimum Class 2 - 391 Class 1 - 279 Class 2 - 391 Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 1550 psi and Elongation higher than 125%	Dielectric strength	ASTM D2671	300 (11.8) minimum		psi (MPa)
Volume Resistivity ASTM D876 1 x 10 ¹¹ minimum 1.48 x 10 ¹⁴ Ohm-cm CHEMICAL Corrosion 16 hrs at 302 °F (150 °C) Water absorption 24 hrs at 73 °F (23 °C) Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Delcing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Dielectric strength Dielectric strength ASTM D2671 ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 391 Fungus resistance ASTM G21 No growth or Tensile ligher than 1500 psi and Elongation higher than 225%	ELECTRICAL				
CHEMICAL Corrosion 16 hrs at 302 °F (150 °C) No pitting or corrosion No pitting or corrosion Water absorption 24 hrs at 73 °F (23 °C) 1.0 maximum 0.72 percent Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 2,617 (18.04) Ultimate elongation ASTM D412 Class 1 - 150 minimum Class 2 - 2,617 (18.04) Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 391 Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225%	Dielectric Strength	ASTM D2671	200 (7.8) - 1.000 inch expanded ID and	1,650 (65)	volts/mil (Kv/mm)
Corrosion 16 hrs at 302 °F (150 °C) No pitting or corrosion 0.72 percent Water absorption 24 hrs at 73 °F (23 °C) 1.0 maximum 0.72 percent Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 2,617 (18.04) Ultimate elongation Dielectric strength Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 391 Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225%	Volume Resistivity	ASTM D876	1 x 10 ¹¹ minimum	1.48 x 10 ¹⁴	Ohm-cm
Water absorption 24 hrs at 73 °F (23 °C) Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Dielectric strength Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Class 2 - 250 (9.8) minimum Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225% Pass Class 1 - >1,200 (>8.3) Class 1 - >1,200 (>8.3) Class 1 - >1,200 (>8.3) Class 2 - 2,617 (18.04) Percent Class 1 - 279 Class 2 - 391 Volt/mil (Kv/mm)	CHEMICAL	•	•	•	
Flammability ASTM D2671, Procedure A Self extinguishing 15 seconds; 3 inches maximum burn length Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength Ultimate elongation Dielectric strength Dielectric strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Class 1 - 279 Class 2 - 391 Class 1 - 279 Class 2 - 391 Class 2 - 250 (9.8) minimum Class 2 - 250 (9.8) minimum Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225% Pass Pass Pass	Corrosion	16 hrs at 302 °F (150 °C)	No pitting or corrosion	No pitting or corrosion	
Fluid resistance: (Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength ASTM D412 Class 1 - 900 (6.2) minimum Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Ultimate elongation Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Pass Pass	Water absorption	24 hrs at 73 °F (23 °C)	1.0 maximum	0.72	percent
(Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing fluid) Tensile strength Ultimate elongation Dielectric strength Past M D2671 Eurogus resistance ASTM G21 Least 1 - 900 (6.2) minimum Class 1 - 900 (6.9) minimum Class 2 - 2,617 (18.04) Class 1 - 279 Class 1 - 279 Class 2 - 391 Least 1 - 279 Class 2 - 391 Least 2 - 391 ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Class 3 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Class 2 - 250 (9.8) minimum Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 2 - 391 Class 3 - 200 (7.9) minimum Class 3 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Class 3 - 200 (7.9) minimum Class 4 - 200 (7.9) minimum Class 5 - 200 (7.9) minimum Class 6 - 200 (7.9) minimum Class 7 - 200 (7.9) minimum Class 7 - 200 (7.9) minimum Class 7 -	Flammability	ASTM D2671, Procedure A	, , , , , , , , , , , , , , , , , , , ,	Pass	
Ultimate elongation ASTM D412 Class 2 - 1,000 (6.9) minimum Class 2 - 2,617 (18.04) Class 1 - 150 minimum Class 2 - 279 Class 1 - 279 Class 2 - 391 Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 391 Volt/mil (Kv/mm) Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225% Pass	(Hydraulic fluid (petroleum base), JP-8, Lubricating oil, 5 percent NaCl, Deicing	24 hrs immersion at 75 °F (24 °C)			
Class 2 - 175 minimum Class 2 - 391 Dielectric strength ASTM D2671 Class 1 - 200 (7.9) minimum Class 2 - 250 (9.8) minimum Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225% Pass	Tensile strength	ASTM D412	` '	1 1 1	psi (MPa)
Class 2 - 250 (9.8) minimum Fungus resistance ASTM G21 No growth or Tensile higher than 1500 psi and Elongation higher than 225% Pass	Ultimate elongation	ASTM D412			percent
psi and Elongation higher than 225%	Dielectric strength	ASTM D2671	1 '	1,400 (55)	volt/mil (Kv/mm)
	Fungus resistance	ASTM G21	psi and Elongation higher than 225%	Pass	

believed to be reliable. We advise, and some of the contraction presented and disclaim any includes for their presentation application. DSC or the south select to be reliable to the reliable. We advise, and somewer, that contraction presented and disclaim any includes for their presentation and somewers that contraction presented and disclaim any includes for their presentation and somewers that contraction presented and disclaim any includes for their presentation and somewers. The reliable to the reliab