

### Convolute Rolled Tube Products - Dimensional & Tolerance Data

Norplex-Micarta Grade / NEMA Grade	Minimum & Maximum Inside Diameters and Tolerances									Minimum & Maximum Outside Diameters and Tolerances										
	Inside Diameter		Inside Diameter Tolerance (+/-) (For Inside Diameter Ranges Indicated)							Outside Diameter		Outside Diameter Tolerance Ground (+/-) (For Outside Diameter Ranges Indicated)			Outside Diameter Tolerance Lathe Turned (+/-) (For Outside Diameter Ranges Indicated)			Unfinished Minimum Target (+ only) (For Outside Diameter Ranges Indicated)		
			0.094" ≤ 0.749"	0.750" ≤ 1.999"	2.000" ≤ 4.000"	4.001" ≤ 12.000"	12.001" ≤ 18.000"	18.001" ≤ 24.000"	24.001" ≤ 48.000"			0.156" ≤ 1.999"	2.000" ≤ 4.000"	4.001" ≤ 9.000"	9.001" ≤ 12.000"	12.001" ≤ 18.000"	18.001" ≤ 24.000"	24.001" ≤ 48.000"	9.000" ≤ 20.000"	20.001" ≤ Maximum
	Minimum	Maximum	(Built-up Mandrel)	(Built-up Mandrel)	(Built-up Mandrel)	(Built-up Mandrel)	(Built-up Mandrel)	Minimum	Maximum	1.999"	4.000"	9.000"	12.000"	18.000"	24.000"	48.000"	20.000"	Maximum		
BT13NPN	0.625"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.875"	58"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.100"	0.150"
BT13HPN	0.625"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.875"	58"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.100"	0.150"
BT13SPN	0.625"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.875"	58"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.100"	0.150"
BT13NPG	0.750"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	1.000"	58"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.100"	0.150"
BT12NPN	0.500"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.594"	56.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT12HPN	0.500"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.594"	56.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT18NPM	2.000"	35.500"	N/A	N/A	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	2.500"	36"	N/A	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.175"	0.250"
BT18NPA	2.000"	35.500"	N/A	N/A	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	2.500"	36"	N/A	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.175"	0.250"
BT25NPN	0.250"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.313"	55"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT25HPN	0.250"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.313"	55"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT25SPN	0.250"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.313"	55"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT22NPN	0.187"	23.812"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	N/A	0.250"	24"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.100"	0.150"
BT22ZPN	0.094"	0.938"	0.003"	0.004"	N/A	N/A	N/A	N/A	N/A	0.156"	1.562"	0.005"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BT25NPP	0.375"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.438"	50.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT25NPG	0.500"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.563"	50.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT25NEE	0.375"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.438"	50.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT25HEE	0.375"	48"	0.003"	0.004"	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	0.438"	50.5"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.075"	0.125"
BT45NPM	2.000"	48"	N/A	N/A	0.008"	0.010" (0.060")	0.030" (0.060")	0.040" (0.075")	0.060" (0.090")	2.250"	54.0"	0.005"	0.008"	0.025"	0.025"	0.030"	0.035"	N/A	0.175"	0.250"



### Convolute Rolled Tube Products - Dimensional & Tolerance Data

Wall Thicknesses and Tolerances by Inside Diameter																							
Norplex-Micarta Grade / NEMA Grade	Inside Diameter		Minimum And Maximum Wall Thickness (For Inside Diameter Ranges Indicated)													Wall Thickness Tolerance (+/-) (Average Wall Thickness Of Individual Tube, Measured At Any Point On The Wall)							
			0.094" ≤ 0.186"	0.187" ≤ 0.249"	0.250" ≤ 0.374"	0.375" ≤ 0.499"	0.500" ≤ 0.624"	0.625" ≤ 1.249"	1.250" ≤ 1.999"	2.000" ≤ 2.999"	3.000" ≤ 4.874"	4.875" ≤ 8.999"	9.000" ≤ 23.999"	24.000" ≤ 29.999"	30.000" ≤ 48.000"	0.031"	0.032" ≤ 0.061"	0.062"	0.063" ≤ 0.125"	0.126" ≤ 0.250"	0.251" ≤ 0.500"	0.501" ≤ 5.750"	
	Minimum	Maximum																					
BT13NPN	0.625"	48"	N/A	N/A	N/A	N/A	N/A	0.125" - 1.562"	0.125" - 3.125"	0.125" - 3.125"	0.125" - 2.250"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.156" - 5.750"	N/A	N/A	N/A	0.015"	0.020"	0.020"	N/A
BT13HPN	0.625"	48"	N/A	N/A	N/A	N/A	N/A	0.125" - 1.562"	0.125" - 3.125"	0.125" - 3.125"	0.125" - 2.250"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.156" - 5.750"	N/A	N/A	N/A	0.015"	0.020"	0.020"	N/A
BT13SPN	0.625"	48"	N/A	N/A	N/A	N/A	N/A	0.125" - 1.562"	0.125" - 3.125"	0.125" - 3.125"	0.125" - 2.250"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.156" - 5.750"	N/A	N/A	N/A	0.015"	0.020"	0.020"	N/A
BT13NPG	0.750"	48"	N/A	N/A	N/A	N/A	N/A	0.125" - 1.562"	0.125" - 3.125"	0.125" - 3.125"	0.125" - 2.250"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.125" - 5.750"	0.156" - 5.750"	N/A	N/A	N/A	0.015"	0.020"	0.020"	N/A
BT12NPN	0.500"	48"	N/A	N/A	N/A	N/A	0.047" - 1.000"	0.047" - 1.562"	0.047" - 3.125"	0.047" - 3.125"	0.062" - 2.250"	0.062" - 4.250"	0.094" - 4.250"	0.125" - 4.250"	0.156" - 4.250"	N/A	N/A	0.015"	0.015"	0.020"	0.020"	N/A	
BT12HPN	0.500"	48"	N/A	N/A	N/A	N/A	0.047" - 1.000"	0.047" - 1.562"	0.047" - 3.125"	0.047" - 3.125"	0.062" - 2.250"	0.062" - 4.250"	0.094" - 4.250"	0.125" - 4.250"	0.156" - 4.250"	N/A	N/A	0.015"	0.015"	0.020"	0.020"	N/A	
BT18NPM	2.000"	36"	N/A	N/A	N/A	N/A	N/A	0.250" - 3.125"	0.250" - 3.125"	0.250" - 2.250"	0.250" - 2.250"	0.250" - 5.750"	0.250" - 5.750"	0.250" - 5.750"	0.250" - 5.750"	N/A	N/A	N/A	N/A	0.020"	0.020"	N/A	
BT18NPA	2.000"	36"	N/A	N/A	N/A	N/A	N/A	0.250" - 3.125"	0.250" - 3.125"	0.250" - 2.250"	0.250" - 2.250"	0.250" - 5.750"	0.250" - 5.750"	0.250" - 5.750"	0.250" - 5.750"	N/A	N/A	N/A	N/A	0.020"	0.020"	N/A	
BT25NPN	0.250"	48"	N/A	N/A	0.031" - 0.250"	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.562"	0.031" - 3.125"	0.031" - 3.125"	0.031" - 2.250"	0.047" - 3.500"	0.062" - 3.500"	0.094" - 3.500"	0.125" - 3.500"	0.156" - 3.500"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A
BT25HPN	0.250"	48"	N/A	N/A	0.031" - 0.250"	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.562"	0.031" - 3.125"	0.031" - 3.125"	0.047" - 2.250"	0.062" - 3.500"	0.094" - 3.500"	0.125" - 3.500"	0.156" - 3.500"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT25SPN	0.250"	48"	N/A	N/A	0.031" - 0.250"	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.562"	0.031" - 3.125"	0.031" - 3.125"	0.047" - 2.250"	0.062" - 3.500"	0.094" - 3.500"	0.125" - 3.500"	0.156" - 3.500"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT22NPN	0.187"	23.812"	0.031" - 0.203"	0.031" - 0.218"	0.031" - 0.250"	0.031" - 0.312"	0.031" - 0.312"	0.031" - 0.312"	0.031" - 0.312"	0.031" - 0.312"	0.047" - 0.312"	0.062" - 0.312"	0.094" - 0.312"	N/A	N/A	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT22ZPN	0.094"	0.938"	0.031" - 0.203"	0.031" - 0.218"	0.031" - 0.250"	0.031" - 0.312"	0.031" - 0.312"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - N/A	0.015" - N/A	N/A	
BT25NPP	0.375"	48"	N/A	N/A	N/A	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.250"	0.031" - 1.250"	0.031" - 1.250"	0.047" - 1.250"	0.062" - 1.250"	0.094" - 1.250"	0.125" - 1.250"	0.156" - 1.250"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT25NPG	0.500"	48"	N/A	N/A	N/A	N/A	0.031" - 1.062"	0.031" - 1.250"	0.031" - 1.250"	0.031" - 1.250"	0.047" - 1.250"	0.062" - 1.250"	0.094" - 1.250"	0.125" - 1.250"	0.156" - 1.250"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT25NEE	0.375"	48"	N/A	N/A	N/A	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.250"	0.031" - 1.250"	0.031" - 1.250"	0.047" - 1.250"	0.062" - 1.250"	0.094" - 1.250"	0.125" - 1.250"	0.156" - 1.250"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT25HEE	0.375"	48"	N/A	N/A	N/A	0.031" - 1.062"	0.031" - 1.062"	0.031" - 1.250"	0.031" - 1.250"	0.031" - 1.250"	0.047" - 1.250"	0.062" - 1.250"	0.094" - 1.250"	0.125" - 1.250"	0.156" - 1.250"	0.010" - 0.008"	0.010" - 0.008"	0.010" - 0.008"	0.011" - 0.009"	0.013" - 0.011"	0.015" - 0.013"	N/A	
BT45NPM	2.000"	48"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.125" - 1.500"	0.125" - 2.250"	0.125" - 3.000"	0.125" - 3.000"	0.125" - 3.000"	0.156" - 3.000"	N/A	N/A	N/A	N/A	0.040"	0.040"	N/A	