



Part Number DWT2X/3X/4X

Header DWT2X/3X/4X Adhesive-Lined Dual Wall Heat Shrink

Description DWT is adhesive-lined, flexible, halogen free and flame-retardant polyolefin heat-shrinkable dual wall tubing. This tubing has good mechanical strength, which can protect from fluids, moisture and corrosion. DWT is used in a wide variety of electrical applications, including back end connector sealing, breakouts, and connector-to-cable transitions. A high expansion ratio makes it possible to repair most damaged cable jackets without removing connectors. The product is UL recognized and the file No is E180908.

Agency Approval & Compliance UL, CUL, ROHS, Halogen Free, Flame Retardant, F Mark, UL224, REACH, VW1

Application DWT series of tubing can be used in a variety of applications where environmental issues are a concern. The adhesive lining provides an excellent barrier to moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections in harsh weather conditions.

Shrink Ratio and Operating Temperature DWT series is available in 2:1, 3:1 and 4:1 shrink ratios. When fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter, the 3:1 material will shrink to one third (33.3%) of its original supplied diameter and the 4X material will shrink to one quarter (25%) of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -55 degree C to 125 degrees C (-67 degrees F to 257 degrees F) and the minimum shrink temperature is 110 degree C (230 degrees F)

Standard Sizes and Dimension



DWT (2X)					
Size	As Supplied		After Recovery		
(Inch)	Min ID (mm)	Nominal Wall (mm)	Max ID (mm)	Total Wall (mm)	Nominal Adhesive Wall (mm)
3/64"	1.2	0.3	0.6	0.45±0.12	0.2
1/16"	1.6	0.3	0.8	0.45±0.12	0.2
3/32"	2.4	0.35	1.2	0.55±0.12	0.3
1/8"	3.2	0.4	1.6	0.60±0.15	0.3
3/16"	4.8	0.4	2.4	0.75±0.15	0.35
1/4"	6.4	0.4	3.2	0.75±0.15	0.35
3/8"	9.5	0.4	4.8	0.80±0.20	0.35
1/2"	12.7	0.4	6.4	0.80±0.20	0.35
3/4"	19.1	0.5	9.5	0.95±0.28	0.4
1"	25.4	0.5	12.7	1.15±0.28	0.45

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SINGLE WALL

1-1/2"	38.1	0.65	19	1.25±0.41	0.45
2"	50.8	0.73	25.4	1.40±0.41	0.5
DWT (3X)					
Size	As Supplied		After Recovery		
(Inch)	Min ID (mm)	Nominal Wall (mm)	Max ID (mm)	Total Wall (mm)	Nominal Adhesive Wall (mm)
3/32	2.8±0.4	0.40±0.15	1	0.85±0.25	0.35±0.10
1/8	3.6±0.4	0.40±0.15	1	0.85±0.25	0.35±0.10
3/16	5.1±0.4	0.40±0.15	1.5	1.05±0.25	0.45±0.10
1/4	6.9±0.5	0.45±0.15	2	1.10±0.25	0.45±0.10
5/16	8.4±0.5	0.55±0.20	2.5	1.45±0.25	0.45±0.10
3/8	9.9±0.5	0.60±0.20	3	1.45±0.25	0.45±0.10
1/2	13.3±0.6	0.60±0.20	4	1.50±0.35	0.45±0.15
5/8	16.4±0.7	0.65±0.25	5	1.70±0.40	0.45±0.15
3/4	19.7±0.7	0.75±0.25	6	2.00±0.45	0.65±0.20
1	25.9±0.7	0.75±0.25	8.4	2.00±0.55	0.65±0.20
1-1/4	31.0±1.0	0.80±0.30	10	2.20±0.55	0.75±0.20
1-1/2	41.0±1.0	0.85±0.35	13.7	2.50±0.55	1.00±0.25
2	51.0±1.0	0.85±0.35	16.5	2.50±0.55	1.00±0.25

DWT (4X)					
Size	As Supplied		After Recovery		
(Inch)	Min ID (mm)	Nominal Wall (mm)	Max ID (mm)	Total Wall (mm)	Nominal Adhesive Wall (mm)
3/16"	4	0.4	1	1.00±0.28	0.5
1/4"	6	0.4	1.5	1.00±0.28	0.5
5/16"	8	0.4	2	1.10±0.28	0.5
3/8"	9.5	0.45	2.5	1.20±0.28	0.55
1/2"	12	0.5	3	1.40±0.28	0.61
5/8"	16	0.6	4	1.78±0.38	0.76
3/4"	19	0.6	4.8	2.00±0.55	0.76
1"	24	0.75	6	2.25±0.55	0.76

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1-1/4"	32	0.8	8	2.54±0.55	1.02
1-1/2"	38.1	0.8	9.5	2.54±0.55	1.02
2"	52	0.8	13	2.60±0.55	1.02

Specifications

Item	Specifications
Shrink Temperature (°C)	110
Operating Temperature Range (°C)	-55—125
Tensile Strength (Mpa)	≥10.4
Dielectric Voltage Withstand (v)	600
Ultimate Elongation (%)	≥200
Radial shrinking ratio (%)	≥50; ≥33.3; ≥25
Longitudinal Change (%)	≤15
Aging in Circulating-air Oven	158.0±1.0°C, 168hrs
After aging - Tensile Strength (Mpa)	≥7.3
After aging - Ultimate Elongation (%)	≥100
Dielectric Strength kV/mm	≥15.0
Volume Resistivity (Ω cm)	≥10 ¹³
Flammability	VW-1
Water Absorption (%)	Less than 0.4%
Fluid Resistance	Excellent
(Copper Corrosion)	
Softening Point (°C)	85±5°C
Peel Strength (N/25mm)	>80

Availability Four-foot lengths, master reels and cut pieces

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Part Number DWT1000

Header DWT1000 Mil Spec Adhesive Lined Dual Wall Heat Shrink

Description Thermosleeve-USA DWT1000 is an adhesive-lined, cross-linked polyolefin heat-shrinkable tubing with great flexibility and is flame-retardant. The typical electrical applications include repairing damaged cables, sealing connectors and components, covering wire bundles and harness breakouts.

When heated to 110 degree C (230 degrees F), DWT1000 will rapidly shrink and the adhesive will flow freely around the substrate. The adhesive will bond to a variety of materials including metals, plastics and rubbers. Once cooled, the adhesive will solidify, remain flexible and provide an excellent barrier against moisture.

Agency Approval & Compliance UL, CUL, ROHS, Halogen Free, MIL, UL224, REACH, VW1

Application DWT1000 can be used in a variety of applications where environmental issues are a concern. The adhesive lining provides an excellent barrier to moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections in harsh weather conditions.

Shrink Ratio and Operating Temperature DWT1000 is available in both 2:1 and 3:1 shrink ratio. When fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter and the 3:1 material will shrink to one third of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -55 degree C to 135 degrees C (-67 degrees F to 275 degrees F) and the minimum shrink temperature is 110 degree C (230 degrees F)

Standard Sizes and Dimension



Sizes					
2:1					
Size (mm)	Size (inch)	Min as Supplied (D)	Max. after recovery (d)	Total Wall (T)	Adhesive wall (t)
3.2	1/8"	3.2	1.6	0.60±0.15	0.3
4.7	3/16"	4.8	2.4	0.75±0.15	0.35
6.4	1/4"	6.4	3.2	0.75±0.15	0.35
9.5	3/8"	9.5	4.8	0.80±0.20	0.35
12.7	1/2"	12.7	6.4	0.80±0.20	0.35
19.1	3/4"	19.1	9.5	0.95±0.28	0.4
25.4	1"	25.4	12.7	1.15±0.28	0.45
3:1					

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Size (mm)	Size (inch)	Min as Supplied (D)	Max. after recovery (d)	Total Wall (T)	Adhesive wall (t)
3.2	1/8"	3.2	1	0.85±0.28	0.35
4.7	3/16"	4.8	1.5	1.05±0.28	0.45
6.4	1/4"	6.4	2	1.10±0.28	0.45
9.5	3/8"	9.5	3	1.45±0.28	0.45
12.7	1/2"	12.7	4	1.50±0.38	0.45
19.1	3/4"	19.1	6	2.00±0.55	0.65
25.4	1"	25.4	8	2.20±0.55	0.65
38.1	1-1/2"	38.1	13	2.54±0.55	1

Specifications

Item	Specification
Shrink Temperature (°C)	110 –150°C
Temperature Range (°C)	-55°C+135°C
Radial Shrinking Ratio (%)	≥50; ≥33.3
Tensile Strength (MPa)	≥10.4 MPa
Ultimate Elongation (%)	≥200%
Aging in Circulating-air Oven	158.0±1.0°C, 168 hrs
Tensile Strength (MPa) - After Aging	≥7.3
Ultimate Elongation (%) - After Aging	≥100
Volume Resistivity (Ω.cm)	≥1×10 ¹²
Dielectric Strength (kV/mm)	≥19.7kV/mm
Heat Shock	No cracking, dripping, flowing
Cold Shock	No cracking
2% scan modulus	≤172MPa
Water Absorption (%)	Less than 1.0%
Oil Resistance	24±3°C, 24hrs
Fluid Resistance	Excellent

Availability Four-foot lengths, master reels and cut pieces

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Part Number DWT2000

Header DWT2000 Mil Spec Adhesive Lined Dual Wall Heat Shrink

Description Thermosleeve-USA's DWT2000 is an adhesive-lined, semi rigid, flame-retardant cross-linked polyolefin heat-shrinkable tubing specifically designed to meet automotive industry requirements. The typical electrical applications include repairing damaged cables, sealing connectors and components, covering wire bundles and harness breakouts.

When heated to a minimum of 100 degree C (212 degrees F), DWT2000 will begin to shrink and the adhesive will flow freely around the substrate. The adhesive will bond to a variety of materials including metals, plastics and rubbers. Once cooled, the adhesive will solidify, remain flexible and provide an excellent barrier against moisture.

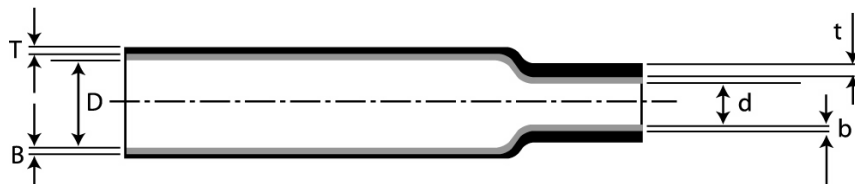
Agency Approval & Compliance ROHS, REACH, VW1

Application Specifically designed to meet the demanding requirements of OEM automakers, DWT2000 can also be used in a variety of applications where environmental issues are a concern. DWT2000 can effectively protect metal pipes and fuel lines against any kind of damage caused by friction and corrosion, improving vehicle safety. The adhesive lining provides an excellent barrier to moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections where harsh weather conditions are present or are a concern.

Shrink Ratio and Operating Temperature DWT2000 has a shrink ratio of 2:1. When fully recovered, the 2:1 material will shrink to fifty percent (50%) of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -40 degree C to 125 degrees C (-40 degrees F to 257 degrees F)

Standard Sizes and Dimension



Size (IN)		As Supplied		After Recovery		
(mm)	(inch)	Inside Diameter (D)	Total Wall Thickness (T+B)	Pipe Size (d)	Total Wall Thickness (t+b)	Adhesive Wall-thickness (b)
Φ6.0 (1.5X)	1/4"	6.5±0.5	0.75±0.15	4.76	1.00±0.10	0.05+0.05
Φ8.0 (1.5X)	5/16"	8.5±0.5	0.75±0.15	6.35	1.00±0.10	0.05+0.05
Φ10.0 (1.5X)	3/8"	10.5±0.5	0.75±0.15	8.00	1.00±0.10	0.05+0.05
Φ12.5 (1.5X)	1/2"	13.0±0.5	0.75±0.15	10.00	1.00±0.10	0.05+0.05
Φ14.0 (4X)	9/16"	14.5±0.5	0.35±0.15	4.85	1.00±0.10	0.05+0.05

Standard color: black, other colors are also available. Please refer the pipe diameters to make the order.

Specifications

Items	Specifications
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Shrink Temperature (°C)	110°C ~ 150°C
Temperature Range (°C)	-40°C ~ 125°C
Radial Shrinking Ratio (%)	≥66
Tensile Strength (MPa)	12MPa
Ultimate Elongation (%)	400
Aging in Circulating-air Oven (175.0±2°C, 168hrs)	No cracking, dripping, flowing
Tensile Strength (MPa) - After Aging	≥12
Ultimate Elongation (%) - After Aging	≥270
Dielectric Strength -After Aging	≥15.8kv/mm ± 1.0 °C
Eccentricity	20%
Deformation Resistance	50%(min)
Drop impact resistance	No cracking
Cold resistance (-35°C 1hr)	No cracking
Stress cracking resistance (50°C 24 hrs)	No cracking
Fluid resistance	No cracking after 72 hrs at 25°C
	Sulfuric acid (1.28 S.G.), no cracking
	Sodium hydroxide (0.1N), no cracking
	Automotive Brake fluid, no cracking
	Unleaded gasoline, no cracking

Availability Four-foot lengths, master reels and cut pieces

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Part Number DWT3000

Header DWT3000 Mil Spec Adhesive Lined Dual Wall Heat Shrink

Description Thermosleeve-USA DWT3000 is an adhesive-lined, semi rigid, flame-retardant cross-linked polyolefin heat-shrinkable tubing specifically designed to meet automotive industry requirements. The typical electrical applications include repairing damaged cables, sealing connectors and components, covering wire bundles and harness breakouts.

When heated to a minimum of 110 degree C (230 degrees F), DWT3000 will begin to shrink and the adhesive will flow freely around the substrate. The adhesive will bond to a variety of materials including metals, plastics and rubbers. Once cooled, the adhesive will solidify, remain flexible and provide an excellent barrier against moisture.

Agency Approval & Compliance UL, CUL, ROHS, MIL Spec, Flame Retardant, UL224, REACH, VW1

Application Specifically designed to meet the demanding requirements of OEM automakers, DWT3000 can also be used in a variety of applications where environmental issues are a concern. The adhesive lining provides an excellent barrier to moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections where harsh weather conditions are present or are a concern.

Shrink Ratio and Operating Temperature DWT3000 has a minimum shrink ratio of 4:1. When fully recovered, the 4:1 material will shrink to twenty five percent (25%) of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -40 degree C to 135 degrees C (-40 degrees F to 275 degrees F)



Size

Size (Inches)	Size (mm)	As supplied (mm)		After recovery (mm)		
		Inside diameter (D)	Wall Thickness (T+B)	Inside diameter (d)	Wall Thickness (T)	Min. Adhesive wall (t)
7/32"	5.72	6.2±0.4	0.55±0.25	1.27	1.30±0.30	0.6
19/64"	7.44	8.0±0.5	0.58±0.25	1.65	1.52±0.30	0.75
7/16"	10.85	11.5±0.6	0.7±0.25	2.41	1.90±0.40	1.05
11/16"	17.78	19.0±0.8	0.88±0.25	4.45	2.40±0.50	1.37

Specifications

Item	Specification
Temperature Range (°C)	-55°C-135°C
Shrink Temperature (°C)	110°C-150°C

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Longitudinal Change (%)	0~10%
Tensile Strength (M Pa)	≥10.3
Ultimate Elongation (%)	≥250
Secant Modulus at 2% (expanded)* (M Pa)	≥137
Heat Shock 4 hours at 250°C (437)	No cracking
Dynamic Cut Through (Kg)	≥13.6kg
Volume Resistivity (ohm-cm)	1.0 x 10 ¹²
Flammability	Self-extinguishing within 30 seconds
Fluid Resistance	Excellent

Availability Four-foot lengths, master reels and cut pieces

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Part Number DWT4000

Header DWT4000 Mil Spec Adhesive Lined Dual Wall Heat Shrink

Description Thermosleeve USA DWT4000 is a clear adhesive-lined, semi rigid, flame-retardant cross-linked polyolefin heat-shrinkable tubing. Typical electrical applications include repairing damaged cables, sealing connectors and components and covering wire bundles where see through inspection is required.

When heated to a minimum of 110 degree C (230 degrees F), DWT4000 will begin to shrink and the adhesive will flow freely around the substrate. The adhesive will bond to a variety of materials including metals, plastics and rubbers. Once cooled, the adhesive will solidify and provide an excellent barrier against moisture.

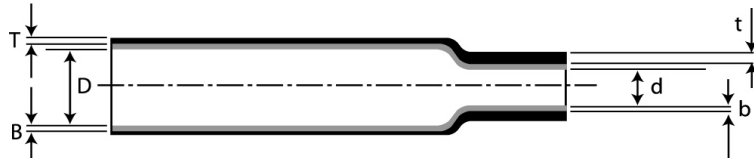
Agency Approval & Compliance RoHS, MIL, REACH, VW1

Application DWT4000 can be used in a variety of applications where environmental issues are a concern. The adhesive lining provides an excellent barrier against moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections. The translucent properties of the tubing allow for easy see-through inspection.

Shrink Ratio and Operating Temperature DWT4000 has a minimum shrink ratio of 4:1. When fully recovered, the 4:1 material will shrink to twenty five percent (25%) of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -40 degree C to 130 degrees C (-40 degrees F to 266 degrees F)

Standard Sizes and Dimension



Size					
As Supplied (D)		After recovery (mm)			
Size (in)	Size (mm)	Inside Diameter (D)	Wall-thickness (t)	Adhesive Wall (b)	Total Wall (t+b)
7/32"	5.72	1.27	0.64	0.56	1.2
19/64"	7.44	1.65	0.76	0.76	1.52
7/16"	10.85	2.41	0.89	1.02	1.91
11/16"	17.78	4.45	1.04	1.37	2.41

Specifications

Item	Specifications
Shrink Temperature (°C)	110°C - 150°C

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Temperature Range (°C)	40°C - 130°C
Radial Shrinking Ratio (%)	≥25
Longitudinal Change (%)	0 to -10%
Tensile Strength (MPa)	≥10.3
Ultimate Elongation (%)	≥200%
Volume Resistivity (Ω.cm)	≥1.0 x 10 ¹²
Dielectric Strength (kV/mm) jacket only	≥350
Flammability	VW-1
Concentricity (%)	≥65
Heat Shock	No Cracking
Water Absorption ASTM D 570	≤1.0 %

Availability Four-foot lengths, master reels and cut pieces

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Part Number DWTFR

Header DWTFR Adhesive Lined Semi Rigid Polyolefin Heat Shrink Tubing

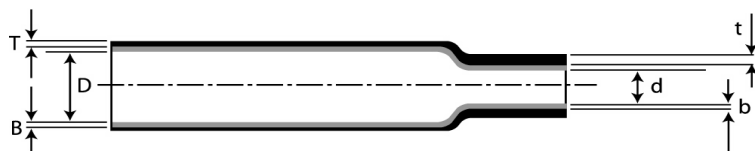
Description Thermosleeve-USA DWTFR with adhesive liner is a semi-rigid, flame retardant polyolefin heat shrink tubing with good mechanical strength, sealing oil-resistance and insulation properties. Mechanically tough, DWTFR tubing provides good electrical insulation and has high resistance to impact and abrasion. When heated, the internal adhesive flows to form a positive seal creating an excellent barrier against moisture. Specially designed for reliable performance, DWTFR tubing is manufactured to cover a broader range of applications in fewer sizes *due to its bigger* shrink ratios. DWTFR has a minimum shrink temperature rating of 110 degrees C (230 degrees F).

Agency Approval & Compliance ROHS, Flame Retardant, REACH, VW1

Application DWTFR heat shrink tubing with adhesive liner is designed to seal and protect components and electrical splices from moisture and corrosion. Widely used to provide insulation and strain relief cover to both wire terminations and electrical connectors, DWTFR tubing is a tough material commonly used for both automotive and harsh environment applications. DWTFR tubing shrinks quickly, requires no special skills and is easy to use. The adhesive liner bonds to a wide variety of materials including plastics, rubbers and metals.

Shrink Ratio and Operating Temperature DWTFR has a 4:1 shrink ratio and when fully recovered, the 4:1 material will shrink to one fourth (25%) of its original supplied diameter. DWTFR has a continuous operating temperature rating of -40 degrees C (-40 degrees F) and 125 degrees C (257 degrees F)

Standard Sizes and Dimension



Size (Inches)	As Supplied		Wall after recovery		
	ID (mm) (D)	Nominal Wall Thickness (T)	ID (mm) (d)	Total wall (t+b)	Nominal Adhesive Wall (b)
13/64	5.2	0.55	≥1.20	1.65±0.2	0.95±0.05
5/16"	≥ 7.6	0.60	≤1.60	1.85±0.2	1.15±0.06
3/8"	≥ 9.0	0.60	≤2.10	1.9±0.3	1.10±0.06
7/16"	≥ 11.6	0.75	≤2.30	2.30±0.3	1.35±0.07
11/16"	≥ 17.8	0.83	≤4.45	2.70±0.3	1.50±0.08

Typical Properties

Item	Specification
Shrink Temperature (°C)	110 –150°C
Temperature Range (°C)	-40°C+125°C
Longitudinal Change (%)	≤10

SINGLE WALL

Tensile Strength (MPa)	≥10.4 MPa
Ultimate Elongation (%)	≥200
Volume Resistivity (Ω.cm)	≥10 ¹²
Flammability	VW-1
Heat Shock	No cracking
Cold Shock	No cracking
(Copper Corrosion)	No Corrosion

Availability Four-foot lengths and cut pieces

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Part Number DWTRX

Header DWTRX 4X Mil Spec Clear Low Temp Adhesive-Lined Dual Wall

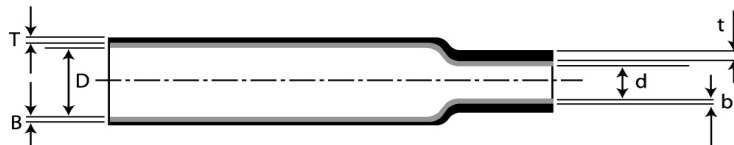
Description Thermosleeve USA's DWTRX is a clear, semi-rigid heat shrinkable tubing with adhesive liner that provides excellent resistance to impact and abrasion. DWTRX's outer jacket offers excellent sealing, oil resistance, insulation and mechanical strength properties. DWTRX tubing is manufactured to cover a broader range of applications in fewer sizes *due to its bigger shrink ratios*. DWTRX has a minimum shrink temperature rating of 110 degrees C (230 degrees F).

Agency Approval & Compliance UL, CUL, ROHS, Flame Retardant, REACH, VW1

Application DWTRX heat shrink tubing offers excellent clarity and provides an easy solution for inspection of substrates that may require visual inspection.

Shrink Ratio and Operating Temperature DWTRX has a 4:1 shrink ratio and when fully recovered, the 4:1 material will shrink to one fourth (25%) of its original supplied diameter. DWTRX has a continuous operating temperature rating of -40 degrees C (-40 degrees F) and 125 degrees C (257 degrees F)

Standard Sizes and Dimension



Size	As Supplied (mm)	After Recovery (mm)		
	Min. Inside Diameter	Max. Inside Diameter	Total Wall	Adhesive Wall
5.7	≥5.7	≤1.27	1.50+/-0.30	0.7
8.0	≥8.0	≤1.65	1.80+/-0.30	0.7
10.8	≥10.8	≤2.40	2.20+/-0.50	1.2
17.8	≥17.0	≤4.45	2.40+/-0.50	1.2

Typical Properties

Items	Test Methods	Specifications
Operating Temperature Range	Company Standard	-40-125°C
Shrink Temperature	ASTM D2671	110°C
Tensile Strength	ASTM D638	≥10.4MPa
Elongation at Break	ASTM D638	≥200%
Cold Shock	ASTM D745,-40+/-2	No Cracking
Dielectric Strength	ASTM D2671	≥19.7kV/mm
Volume Resistance	ASTM D876	≥10 ¹³ Ω.cm

SINGLE WALL

Tensile Strength after aging	ASTM D638	≥7.4MPa
Elongation at Break after aging	ASTM D638	≥100%
Dielectric Strength after aging	ASTM D2671	≥15.8kV/mm
Softening point of meltable liner	Company Standard	110+/-5°C
Peel Strength of meltable liner	ASTM D2671	>80N/25mm

Availability Four-foot lengths and cut pieces

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Part Number DWTRO

Header DWTRO Semi-Rigid Dual Wall Heat Shrink Tubing Adhesive -Lined

Description Thermosleeve-USA DWTRO is a semi rigid flame retardant dual wall heat shrink tubing with excellent sealing, oil resistance, insulation and mechanical strength properties. DWTRO simultaneously seals and protects and at the same time offers excellent electrical insulation. DWTRO has a tough outer jacket that provides superior strain relief and mechanical protection against abrasion, cut through and flexing. DWTRO over-expanded sizes allow for easy placement over tapered objects and there are only five sizes to cover the diameter range from 5.7mm to 17mm. DWTRO has a minimum shrink temperature rating of 110 degrees C (230 degrees F).

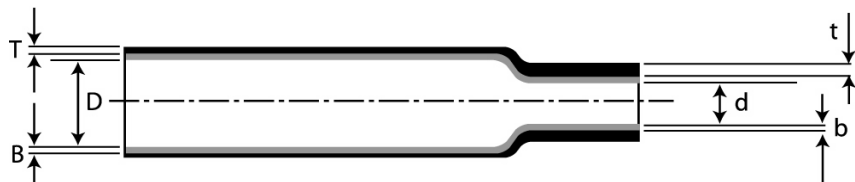
Agency Approval & Compliance UL, CUL, ROHS, Flame Retardant, REACH, VW1

Application DWTRO heat shrink tubing is well suited and is widely used for special auto bundling of wires and harnesses.

Shrink Ratio and Operating Temperature DWTRO has a shrink ratio in excess of 4:1. When fully recovered, the 4:1 material will shrink more than 75 percent (75%) of its original supplied diameter.

DWTRO has a continuous operating temperature rating of -40 degrees C (-40 degrees F) and 125 degrees C (257 degrees F)

Standard Sizes and Dimension



Size (mm)	As Supplied		After Recovery		
	Min ID (mm) (D)	Nominal Wall (mm) (T)	Max ID (mm) (d)	Total Wall (mm) (t+b)	Nominal Adhesive Wall (mm) (b)
5.7	≥6.40	0.57	1.25	1.55 ± 0.30	0.88±0.05
7.4	≥7.70	0.60	1.60	1.70 ± 0.30	0.90±0.05
9.02	≥9.50	0.60	2.10	1.90±0.30	1.10±0.06
11.00	≥12.0	0.83	2.30	2.60 ± 0.50	1.45±0.07
14.00	≥14.0	0.76	2.40	2.50 ± 0.50	1.40±0.07
18.30	≥18.30	0.85	4.35	2.60 ± 0.50	1.50±0.08

Typical Properties

Item	Specifications
Shrink Temperature (°C)	110°C
Operating Temperature Range (°C)	-40°C—+125°C
Tensile Strength (Mpa)	≥10.4
Ultimate Elongation (%)	≥200
Radial shrinking ratio (%)	≥25
Longitudinal Change (%)	±10
Aging in Circulating-air Oven	158.0±1.0°C, 168hrs
After aging - Tensile Strength (Mpa)	≥7.3
After aging - Ultimate Elongation (%)	≥100
Volume Resistivity (Ω.cm)	≥10 ¹²
Sealing	>1 X 10 ⁸

Availability Four-foot lengths and cut pieces

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Part Number DWT-ZHP

Header DWT-ZHP Phosphorous-Free Dual Wall Heat Shrink Tubing

Description DWT-ZHP is a phosphorous-free version of our DWT-(2X/3X/4X) dual wall heat shrink tubing. This dual wall heat shrink tubing comes in 2X/3X/4X versions but with the elimination of the red phosphor to comply with EU requirements, it also has the same RoHS and REACH compliance.

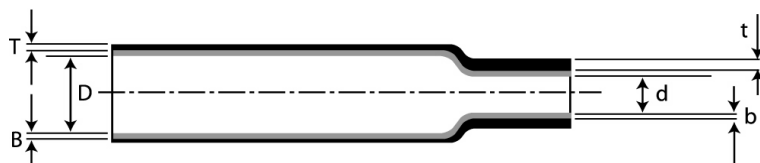
Agency Approval & Compliance UL, CUL, ROHS, Halogen Free, Flame Retardant, F Mark, UL224, REACH, VW1

Application DWT-ZHP series of tubing can be used in a variety of applications where environmental issues are a concern. The adhesive lining provides an excellent barrier to moisture and is good choice of material for repairing cables, covering components and other electronic/electrical connections in harsh weather conditions.

Shrink Ratio and Operating Temperature DWT-ZHP series is available in 2:1, 3:1 and 4:1 shrink ratios. When fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter, the 3:1 material will shrink to one third (33.3%) of its original supplied diameter and the 4X material will shrink to one quarter (25%) of its original supplied diameter. The tubing's wall thickness will also change proportionally to the degree of recovery.

Operating temperature range is from -55 degree C to 125 degrees C (-67 degrees F to 257 degrees F) and the minimum shrink temperature is 120 degree C (230 degrees F)

Size



DWT-ZHP (2X)

Size (mm)	As Supplied		After Recovery		
	Min ID (mm) (D)	Nominal Wall (mm) (T+B)	Max ID (mm) (d)	Total Wall (mm) (t+b)	Nominal Adhesive Wall (mm) (b)
Φ1.2	1.2	0.30±0.10	0.6	0.45±0.12	0.2
Φ1.6	1.6	0.30±0.10	0.8	0.45±0.12	0.2
Φ2.4	2.4	0.35±0.10	1.2	0.55±0.12	0.3
Φ3.2	3.2	0.40±0.15	1.6	0.60±0.15	0.3
Φ4.8	4.8	0.40±0.15	2.4	0.75±0.15	0.35
Φ6.4	6.4	0.40±0.15	3.2	0.75±0.15	0.35
Φ9.5	9.5	0.40±0.15	4.8	0.80±0.20	0.35
Φ12.7	12.7	0.40±0.15	6.4	0.80±0.20	0.35
Φ19.1	19.1	0.50±0.20	9.5	0.95±0.28	0.4
Φ25.4	25.4	0.50±0.20	12.7	1.15±0.28	0.45

SINGLE WALL

Φ38.1	38.1	0.65±0.25	19	1.25±0.41	0.45
Φ50.8	50.8	0.73±0.30	25.4	1.40±0.41	0.5

DWT-ZHP (3X)

Size	As Supplied		After Recovery		
	Min ID (mm) (D)	Nominal Wall (mm) (T+B)	Max ID (mm) (d)	Total Wall (mm) (t+b)	Nominal Adhesive Wall (mm) (b)
Φ2.4	2.4	0.40±0.15	1	0.85±0.25	0.35±0.10
Φ3.2	3.2	0.40±0.15	1	0.85±0.25	0.35±0.10
Φ4.7	4.7	0.40±0.15	1.5	1.05±0.25	0.45±0.10
Φ6.4	6.4	0.45±0.15	2	1.10±0.25	0.45±0.10
Φ7.9	7.9	0.55±0.20	2.5	1.45±0.25	0.45±0.10
Φ9.5	9.5	0.60±0.20	3	1.45±0.25	0.45±0.10
Φ12.7	12.7	0.60±0.20	4	1.50±0.35	0.45±0.15
Φ15.7	15.7	0.65±0.25	5	1.70±0.40	0.45±0.15
Φ19.1	19.1	0.75±0.25	6	2.00±0.45	0.65±0.20
Φ25.4	25.4	0.75±0.25	8.4	2.00±0.55	0.65±0.20
Φ30.0	30	0.80±0.30	10	2.20±0.55	0.75±0.20
Φ40.0	40	0.85±0.35	13.7	2.50±0.55	1.00±0.25
Φ50.0	50	0.85±0.35	16.5	2.50±0.55	1.00±0.25

DWT-ZHP (4X)

Size	As Supplied		After Recovery		
	Min ID (mm) (D)	Nominal Wall (mm) (T+B)	Max ID (mm) (d)	Total Wall (mm) (t+b)	Nominal Adhesive Wall (mm) (b)
Φ4.0	4	0.40±0.20	1	1.00±0.28	0.5
Φ8.0	8	0.40±0.20	2	1.10±0.28	0.5
Φ12	12	0.50±0.20	3	1.40±0.28	0.61
Φ16	16	0.60±0.30	4	1.78±0.38	0.76
Φ19.1	19.1	0.60±0.30	4.8	2.00±0.55	0.76
Φ24	24	0.75±0.40	6	2.25±0.55	0.76
Φ32	32	0.80±0.40	8	2.54±0.55	1.02
Φ38.1	38.1	0.80±0.40	9.5	2.54±0.55	1.02

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Typical Properties

Item	Specifications
Shrink Temperature (°C)	120-150
Temperature Range (°C)	125
Radial Shrinking Ratio (%)	≥50
Longitudinal Change (%)	≤5
Tensile Strength (MPa)	≥10.4
Ultimate Elongation (%)	≥200
Aging in Circulating-air Oven	158.0±1.0°C, 168hrs
Tensile Strength (MPa) - After Aging	≥7.3
Ultimate Elongation (%) - After Aging	≥100
Dielectric Voltage Withstand (V)	
Volume Resistivity (Ω.cm)	≥10 ¹⁴
Dielectric Voltage (V) AC	
Dielectric Strength (kV/mm)	≥15.0
Flammability	VW-1
Concentricity (%)	≥65
sHeat Shock	
Cold Shock	
Water Absorption (%)	Less than 0.4%
Fluid Resistance	Excellent
(Copper Corrosion)	24 hours at (95±5)%, 2°C, No cracking, No fade
Softening Point (°C)	120±5°C
Tissue Strength (N/25mm)	>80

Availability Available in black and color as special order. Four-foot lengths, master reels and cut pieces

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