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[www.heatshrink.com](http://www.heatshrink.com)

# [ table of contents ]



## Page#

|       |  |
|-------|--|
| 1     | Index of Heat Shrink Tubing            |
| 2     | Introduction to Heatshrink.com         |
| 3     | Services and Products                  |
| 4-11  | Picture Idea Guide                     |
| 12-15 | Custom Printed Tubing                  |
| 16-17 | Custom Printed & Heatshrink Order form |
| 18-26 | Steinel Heat Guns                      |
| 27-28 | Heat Gun Accessories                   |
| 29    | Hot Melt Guns                          |
| 30-31 | KROY Handheld Printer                  |
| 32-37 | Braided Sleeving                       |
| 38-39 | Heat Shrink Cross Reference            |
| 40    | Heatshrink Tubing Size Guide           |
| 41    | MIL SPEC Resource                      |
| 42-97 | Heat Shrink Tubing                     |

# [ index of heat shrink tubing types ]

| Page # | Part #          | Shrink Ratio  | MIL SPEC M23053/ | UL | VW-1 | CSA | Material        | Dual Wall   |
|--------|-----------------|---------------|------------------|----|------|-----|-----------------|-------------|
| 42     | <b>A2</b>       | 2 to 1        | /5               |    |      |     | Polyolefin      |             |
| 44     | <b>A2(3X)</b>   | <b>3 to 1</b> |                  |    |      |     | Polyolefin      |             |
| 46     | <b>A4</b>       | 2 to 1        |                  |    |      |     | Polyolefin      |             |
| 48     | <b>A4(3X)</b>   | <b>3 to 1</b> |                  |    |      |     | Polyolefin      |             |
| 50     | <b>B2</b>       | 2 to 1        | /5               | UL | VW-1 | CSA | Polyolefin      |             |
| 52     | <b>B2(3X)</b>   | <b>3 to 1</b> |                  | UL | VW-1 | CSA | Polyolefin      |             |
| 54     | <b>B2(4X)</b>   | <b>4 to 1</b> |                  | UL | VW-1 |     | Polyolefin      |             |
| 56     | <b>B2(4X)C</b>  | <b>4 to 1</b> | /5               | UL | VW-1 |     | Polyolefin      |             |
| 58     | <b>B2(Y/G)</b>  | <b>3 to 1</b> |                  | UL | VW-1 | CSA | Polyolefin      |             |
| 60     | <b>B8</b>       | 2 to 1        |                  | UL | VW-1 | CSA | Polyolefin      |             |
| 62     | <b>CFW-D</b>    | <b>3 to 1</b> |                  | UL |      | CSA | Polyolefin      | Adhesive    |
| 64     | <b>CFW-U</b>    | <b>3 to 1</b> |                  | UL |      | CSA | Polyolefin      |             |
| 66     | <b>D</b>        | 2 to 1        |                  |    |      |     | Polyolefin      |             |
| 68     | <b>F4</b>       | 2 to 1        |                  | UL | VW-1 |     | Polyolefin      |             |
| 70     | <b>F5N</b>      | 2 to 1        |                  | UL | VW-1 | CSA | Polyolefin      |             |
| 72     | <b>FE3</b>      | 2 to 1        | /13              |    |      |     | FluoroElastomer |             |
| 74     | <b>K</b>        | 2 to 1        | /8               | UL | VW-1 |     | Kynar™          |             |
| 76     | <b>K2</b>       | 2 to 1        | /18              | UL | VW-1 |     | Kynar™          |             |
| 78     | <b>K3</b>       | 2 to 1        | /18              | UL | VW-1 |     | Kynar™          |             |
| 80     | <b>O2B2</b>     | 2 to 1        | /4               | UL |      |     | Polyolefin      | Adhesive    |
| 82     | <b>O2C</b>      | 2 to 1        |                  |    |      |     | Polyolefin      | Adhesive    |
| 84     | <b>R10</b>      | 2 to 1        | /1               | UL | VW-1 |     | Polyolefin      |             |
| 86     | <b>R120</b>     | 2 to 1        | /16              |    |      |     | Polyolefin      |             |
| 88     | <b>SCM</b>      | <b>3 to 1</b> |                  |    |      |     | Polyolefin      | Adhesive    |
| 90     | <b>W3B2</b>     | <b>3 to 1</b> | /4               | UL |      | CSA | Polyolefin      | Adhesive    |
| 92     | <b>W3B2(4X)</b> | <b>4 to 1</b> |                  | UL |      |     | Polyolefin      | Adhesive    |
| 94     | <b>W3C</b>      | <b>3 to 1</b> |                  |    |      |     | Polyolefin      | Adhesive    |
| 96     | <b>W5DL</b>     | <b>3 to 1</b> | /4               | UL |      | CSA | Polyolefin      | Encapsulant |

# [ introduction to heatshrink.com ]



## Dear Customer,

Most heat shrink requirements are filled by a very small variety of heat shrink - 10% or less of the types available.

Heatshrink.com™ is the best stocked source when the 10% is not enough.

Heatshrink.com™ stocks more size/color/types than any other supplier. The types listed here are not all we stock.

If you have a need call us, we conduct our business on the premise, that if a customer wanted delivery in 2 weeks then they would have called us in 2 weeks. In other words virtually all orders ship the same day received. This includes printed and cut-to-order shipments. We realize that it is difficult to find a good J.I.T supplier! Well what we want is to be is your O.H.I.O.\* supplier. We will be here to get you out of trouble.

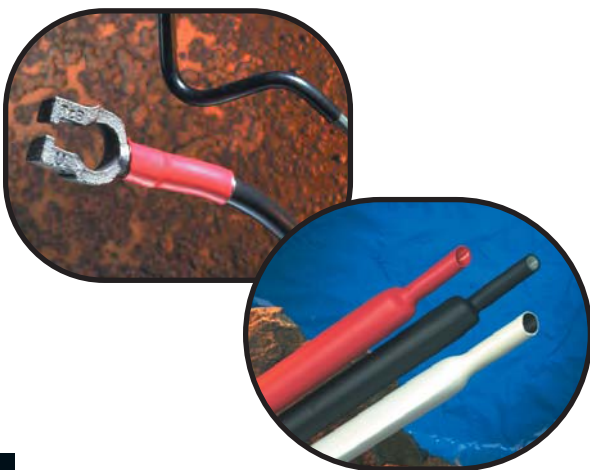
heatshrink.com™ has the most comprehensive heat shrink tubing inventory in the country, over 600 in stock size/color/type variations. Sizes from 3/64" to 9" in diameter, more colors than the rainbow, and a type to fit your every shrink tubing need.

heatshrink.com™ cuts to custom lengths and ships the same or next day. We use very good equipment, and we are fussy about good cuts.

heatshrink.com™ can custom imprint logos, text, serial numbers and/or bar codes on many types of shrink tubing (done in-house) and usually ship within 24 hours. Send us your artwork on paper, on disk or by Email.

**Heat Shrink Guns:** As a service to our heat shrink customers we carry Steinel heat guns imported from Germany. We believe these are the very best heat guns available.

\*Oh H\_\_\_ I'm out!



# [ services and products ]

## Picture Idea Guide

Pages 4-11

Heatshrink and braided sleeving products in real world uses!

Arts, crafts and toys  
Audio and Video  
Automotive  
Electrical  
Aviation

Farming/Ranching  
Theatre  
Repair  
Marine  
Sports



## Custom Printed Heatshrink

Pages 12-15

Custom imprinted logos, text, serial numbers and/or bar codes on many types of shrink tubing (done in-house) with a really fast turnaround.

Send us your artwork on paper, on disk or by Email.

## Steinel Heat Guns

Pages 18-28

As a service to our heat shrink customers we carry Steinel heat guns imported from Germany. We believe these are the very best heat guns available. Our favorite is the Model HG 2510 ESD. Other great Steinel products and accessories are also available.



We also carry Steinel Hot Melt Guns.

Page 29

## Protective Sleeving

Pages 32-37

Braided sleeving provides the highest quality braided expandable sleeving to the marine, aerospace, wire and cable, automotive after market, performance racing, wire harnessing, audio / video, and other industries.



## Heatshrink Tubing

Pages 42-97



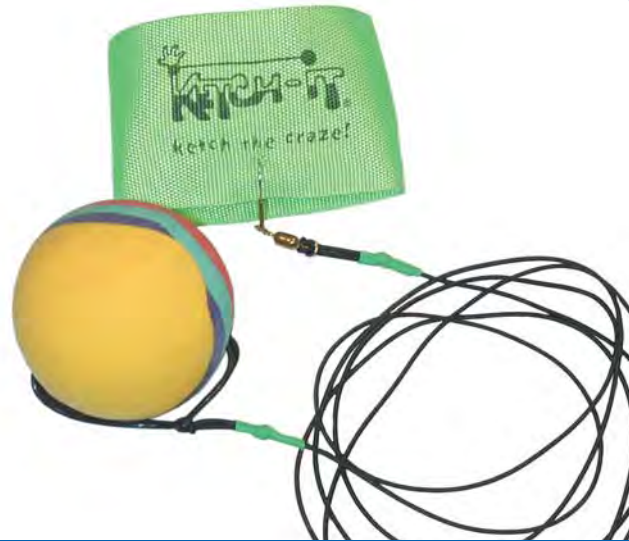
heatshrink.com™ has the most comprehensive heatshrink tubing inventory in the country, over 600 in stock size/color/type variations. Sizes from 3/64" to 9" in diameter, more colors than the rainbow, and a type to fit your every shrink tubing need.

# [ arts, crafts and toys ]

## ADDING COLOR, SUPPORT AND PROTECTION



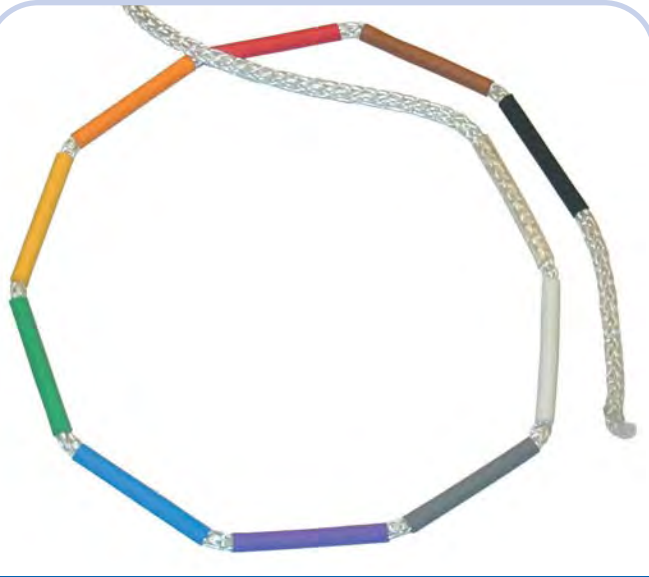
**W5DL: LENDS ADDITIONAL SUPPORT TO RC CAR ANTENNA.  
B2: PROTECT AND COLOR CODE WIRES.**



**Kech-it™ Ball  
B2: SHRINK OVER KNOTS TO PREVENT LOOSENING AND IMPROVE APPEARANCE.**



**SM12: LABEL BRUSHES AND OTHER SUPPLIES FOR EASY IDENTIFICATION.**



**B2: SHRINK ANYWHERE YOU NEED COLOR!**

**O2B2: WATERPROOF FOR RC BOAT CONNECTIONS.**

**W3B2: USE FOR SAME APPLICATIONS AS O2B2 WHEN LARGER SHRINK RATIO IS NEEDED.**

**SM12: PRINTED WITH PATTERNS FOR LABELING PURPOSES.**

**A4: GLOSSY HEATSHRINK (EASY TO CLEAN) FOR FREQUENTLY SOILED APPLICATIONS.**

# [ audio and video ]

## COLOR CODING, BUNDLING, IDENTIFICATION, PROTECTION AND DESIGN



**CUSTOM PRINTING AVAILABLE.**



**A4(3X): EASILY SLIPPED OVER VARIOUS CONNECTORS. GREAT FOR STRAIN RELIEF AND LABEL COVERING.**



**B2: USE FOR COLOR CODING OF CABLES.  
SM12: PRINTED FOR LABELING.  
O2B2: HOLDS BRAIDED SLEEVING IN PLACE.  
BRAIDED SLEEVING: IMPROVES APPEARANCE BY BUNDLING WIRES.**

**W5DL: STRAIN RELIEF FOR CABLES AND CONNECTORS.**

**O2B2: GLUE LINED TO HOLD BRAIDED SLEEVING IN PLACE.**

**F4: THIN WALLED FOR INSULATING TERMINALS INSIDE MULTI PIN, HIGH DENSITY CONNECTORS.**

*We believe the above information to be correct and assume no liability for errors.*

# [ automotive ]

## PROTECTION, SEALANT, SPIFF-UP AND ABRASION RESISTANCE



**O2B2:** USE ON THE END OF CORRUGATED TUBING TO SEAL AROUND WIRES.



**BRAIDED SLEEVING:** RESISTS ABRASION AND IMPROVES APPEARANCE.  
**O2B2:** SHRINK TO HOLD IN PLACE.



**W5E:** ACID AND CHEMICAL RESISTANT. USE TO SEAL CABLE/TERMINAL JUNCTIONS.



BEFORE



AFTER

**W3B2 (4X):** USE FOR STRAIN RELIEF; SLIP OVER A LARGE CONNECTOR AND SHRINK TO SMALL WIRE.

**FE3:** USE FOR PROTECTION IN HIGH-TEMP APPLICATIONS.

**O2:** COVER BRAKE OR FUEL LINES.

**R120:** COVER MISCELLANEOUS WIRE AND CABLES TO PROTECT FROM MECHANICAL OR ROAD ABUSE.



# [ electrical ]

## WIRE HARNESSING, PROTECTION, IDENTIFICATION, BUNDLING AND STRAIN RELIEF



**SM12:** CAN BE PRINTED AND USED TO LABEL CABLES OR WIRE BUNDLES.



**BRAIDED SLEEVING:** BUNDLE CABLES FOR CLEAN APPEARANCE.  
**SM12:** USE TO LABEL CABLE LINES.



**B2(4X):** 4:1 SHRINK RATIO. USE OVER LARGE CONNECTORS FOR EASY TO INSTALL STRAIN RELIEF.



**O2C:** WATER PROOF. CAN BE USED TO HELP SEAL DAMAGED AREAS.

**CFW-U:** HEAVY-DUTY! SUPERB FOR STRAIN RELIEF AND HIGH-VOLTAGE APPLICATIONS.  
**CFW-D:** SAME AS ABOVE WITH A GLUE LINING TO PROVIDE A WATERPROOF SEAL.

# [ farming/ranching ]

**TOOL AND GARDEN GRIPS, BATTERY TERMINALS, HARNESS PARTS AND WATER PROOF SPLICES FOR HYDRAULIC HOSES**



**W5E: PERFECT FOR GRIP SURFACES ON LAWN AND GARDEN TOOLS.**



**O2B2: USE TO PREVENT ROPE ENDS FROM FRAYING.**



**SM12: EASILY LABEL TOOLS WITH SIZES OR YOUR NAME FOR EASY REFERENCE.**



**W3B2 OR O2B2: HARNESS AND TACK USE. PREVENTS FRAYING AND CHAFING.**

**R120 OR R10: EXTRA ABRASION RESISTANT. GREAT TO COVER WIRE ON TRAILERS.**

# [ marine ]

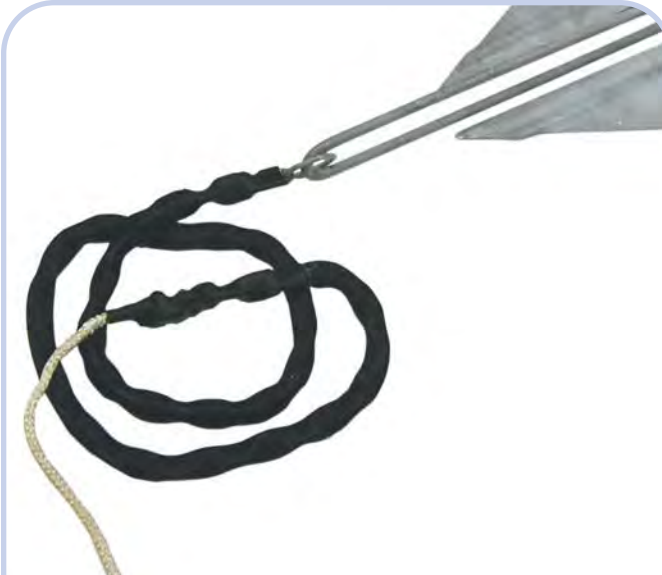
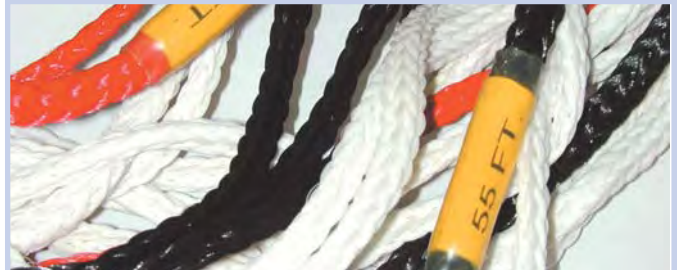
**WATER PROOFING, ABRASION RESISTANCE, DRESS UP AND PROTECTION**



**BRAIDED SLEEVING: RESISTS ABRASION AND IMPROVES APPEARANCE.  
O2B2: SHRINK TO HOLD IN PLACE.**



**O2B2: USE TO PREVENT ROPE ENDS FROM FRAYING.  
SM12: USE FOR COLOR CODING AND LABELING.  
A2: COVER LABEL TO PROTECT PRINTING**



**BRAIDED SLEEVING: COVERS ANCHOR CHAIN. AN EASY WAY TO PROTECT BOAT FINISH.  
W3B2: SHRINK TO HOLD IN PLACE.**



**W5E: ACID AND CHEMICAL RESISTANT. USE TO SEAL CABLE/TERMINAL JUNCTIONS.**

**R120 OR R10: EXTRA ABRASION RESISTANT. GREAT TO COVER WIRE ON TRAILERS.  
W5E: USE AS A COMFORTABLE GRIP ON OARS.**

# [ sports ]

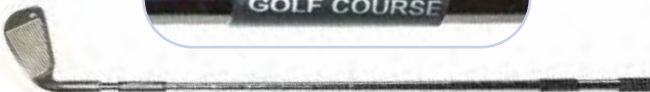
## BASEBALL BAT GRIPS, RACKET BALL GRIPS, IDENTIFICATION AND HATS



**W5E: USE AS A REPLACEMENT GRIP FOR A BASEBALL BAT.**



**BRAIDED SLEEVING: USE TO CREATE UNIQUE FISHING LURES.**



**SM23: EXCELLENT FOR LABELING GOLF CLUBS AND OTHER SPORTING GOODS.**



**BRAIDED SLEEVING: REFLEX SLEEVING REFLECTS LIGHT FOR SAFETY. EASILY INSTALLED ON BICYCLE AND MOTORCYCLE CABLES.**



**D: COVER JUNCTIONS ON ROCK CLIMBING NUTS AND CAMS. O2B2 EXCELLENT FOR ROPE ENDS TO PREVENT FRAYING.**

# [ theatre ]

## BAR-CODING, LABEL IDENTIFICATION, CABLE PROTECTION, STRAIN RELIEF AND TAMPER PROOFING



**CFWD OR R120: HIGHLY ABRASION RESISTANT FOR CABLES IN HIGH-TRAFFIC AREAS OR USE TO REPAIR DAMAGED CABLES.**



**A4(3X): EASILY SLIPS OVER LARGE CONNECTORS AND SHRINKS TO WIRE FOR STRAIN RELIEF AND LABELING CABLE. AVAILABLE FOR XLR, MOLDED AC AND OVERSIZE CONNECTORS.**



**BRAIDED SLEEVING: BUNDLES WIRES AND HELPS CABLES TO SLIDE OVER TRUSSING EASIER**



**K, O2B2, O2C: LACE TIPPING**



**SM12: USE FOR COLOR CODING AND LABELING OF ROPES.**

# [ custom printed heatshrink ]

## **VERY ECONOMICAL, VERY FAST, VERY CUSTOM HEAT SHRINK MARKING SERVICE.**

Graphics, bar codes, text or combinations of these, can be imprinted on heat shrink tubing from Heatshrink.com. There are no tooling or set-up charges, with the exception of a modest charge when graphics are involved.

## **GENERAL TERMS, CONDITIONS AND OTHER STUFF YOU SHOULD KNOW.**

We will NOT accept orders by phone! Orders can be accepted only if mailed or faxed. If you think about this, it only makes sense and eliminates disappointment, waste and mistakes.

Printed Heatshrink are shipped cut to length unless non-cut continuous length or perforated cut (kiss-cut) is specified.

## **IMPRINT COLORS:**

Black, White, Red, Blue, Gold and Silver. Other colors may also be available, either in stock or special order.

## **HOW PERMANENT IS THIS IMPRINTING ANYWAY?**

Black printing on light colored tubing is permanent and meets MIL-M-81531 for both abrasion and solvent resistance. Black printing on black tubing also meets this spec but is not recommended, for obvious reasons. See, you do learn things by reading fine print.

The print permanence of White, Blue, Red and Silver print does not precisely meet the MIL Spec, but they are "tuff enuf" for 99% of all applications.

## **GRAPHIC SUBMISSION**

You can send your graphic to us on disk or by Email. File format is .BMP, 1 bit per pixel (Black & White line art), 200 x 200 dpi, no exceptions. We can add text to your graphics but we recommend you include all your text in the graphic. We require the creator of the disk to inspect the graphic on a high level of magnification before sending it to us. If you don't understand what this means, call us.

If your order consists of ALL text imprinting, there is no graphic charge.

## **SHIPPING CHARGES:**

There is a minimum shipping charge of \$6.00.

We usually ship within 24 hours.

## **VOLUME DISCOUNTS:**

**Please Call**  
**801-651-1501**  
**sales@heatshrink.com**

Same Printed Heatshrink means the same size and color of tubing with the same imprint.

**heatshrink.com**<sup>TM</sup>

# [ custom printed heatshrink ]

## FONT SIZES TO DETERMINE LENGTH

The size of text is measured in "points." A point is 1/72 of an inch. Here are the available point sizes of type and how many characters (approximately) will fit on single 1" lengths of tubing and how many characters (approximately) will fit on each additional inch (length) of tubing:

\*Read the section titled "Never Overlook the Obvious, Or Things Are Not As Big As You Think They Are."

The total standard maximum length is 6 inches.

| TYPE SIZE | TYPE SAMPLE | CHARACTERS PER INCH<br>1st inch of tubing<br>(Approx.) | CHARACTERS PER INCH<br>each additional inches<br>(Approx.) |
|-----------|-------------|--|--|
| 4 point   | ABCDefgh    | 30   | 35   |
| 5 point   | ABCDefgh    | 22   | 26   |
| 6 point   | ABCDefgh    | 19   | 22   |
| 7 point   | ABCDefgh    | 14   | 18   |
| 8 point   | ABCDefgh    | 13   | 15   |
| 9 point   | ABCDefgh    | 12   | 14   |
| 10 point  | ABCDefgh    | 11   | 14   |
| 11 point  | ABCDefgh    | 10   | 12   |
| 12 point  | ABCDefgh    | 10   | 10   |
| 14 point  | ABCDefgh    | 7  | 7  |
| 16 point  | ABCDefgh    | 6  | 7  |
| 18 point  | ABCDefgh    | 6  | 6  |
| 20 point  | ABCDefgh    | 5  | 6  |
| 22 point  | ABCDefgh    | 5  | 5  |
| 24 point  | ABCDefgh    | 5  | 5  |
| 26 point  | ABCDefgh    | 4  | 5  |
| 28 point  | ABCDefgh    | 4  | 4  |
| 36 point  | ABCDefgh    | 3  | 3  |
| 48 point  | ABCDefg     | 2  | 2  |
| 72 point  | ABCef       | 1  | 1  |

The standard font is Helvetica and is available in normal, **bold**, *oblique (italic)* or **bold oblique (italic)**.

**heatshrink.com**<sup>TM</sup>

We believe the above information to be correct and assume no liability for errors.

# custom printed heatshrink

## HOW MANY LINES OF WHAT POINT SIZE TEXT WILL FIT ON WHAT DIAMETER HEATSHRINK?\*

| mm   | inches |   |
|------|--------|---|
| 3.2  | 1/8"   | 3 lines of 4 point<br>0.1250 2 lines of 5 or 6 point<br>1 line of 7, 8, 9, 10, 11 or 12 point   |
| 4.8  | 3/16"  | 3 lines of 5 or 6 point<br>0.1875 2 lines of 7, 8 or 9 point<br>1 line of 10, 11, 12, 14 or 16 point  |
| 6.4  | 1/4"   | 5 lines of 4 point<br>0.2500 4 lines of 5 point<br>3 lines of 6 or 7 point<br>2 lines of 8, 9, 10, 11 or 12 point<br>1 line of 14, 16, 18, 20, 22 or 24 point   |
| 9.5  | 3/8"   | 6 lines of 5 point<br>0.3750 5 lines of 6 point<br>4 lines of 7 or 8 point<br>3 lines of 9, 10 or 11 point<br>2 lines of 12, 14, 16 or 18<br>1 line of 20, 22, 24, 26, 28 or 36 pt.                               |
| 12.7 | 1/2"   | 5 lines of 7 point<br>0.5000 4 lines of 8, 9 or 10 point<br>3 lines of 11, 12 or 14 point<br>2 lines of 16, 18, 20 or 22 point<br>1 line of 24, 26, 28, 36 or 48 point  |
| 19.1 | 3/4"   | 7 lines of 8 point<br>0.7500 6 lines of 9 or 10 point<br>5 lines of 11 or 12 point<br>4 lines of 14 or 16 point<br>3 lines of 18, 20 or 22 point<br>2 lines of 24, 26 or 28 point<br>1 line of 36, 48 or 72 point |
| 25.4 | 1"     | 7 lines of 11 or 12 point<br>1.0000 6 lines of 14 point<br>5 lines of 16 or 18 point<br>4 lines of 20 or 22 point<br>3 lines of 24, 26 or 28 point<br>2 lines of 36 point<br>1 line of 48 or 72 point             |
| 38.1 | 1 1/2" | limited to same number of lines as 1"<br>1.5000   |
| 50.8 | 2"     | limited to same number of lines as 1"<br>2.0000   |

## NEVER OVERLOOK THE OBVIOUS OR THINGS ARE NOT AS BIG AS YOU THINK THEY ARE:

Fine detail and/or ornate graphics might not look good at 200 DPI resolution. Also, when you shrink the tubing, the imprinted image shrinks with it. In other words, if you think 4 point type is small now, imagine it after the shrinking! In addition, really good shrink tubing (which is the only kind we use) shrinks mostly its diameter not its length. So, the imprinted stuff on the label will end up looking a little "squashed." If you are sending us graphics on disk, you may want to stretch the vertical aspect (do not exceed maximum height guide) to match the amount you'll be shrinking the tubing for your specific application. Even though 2 to 1 ratio tubing will shrink to 1/2 its original diameter and our special 3 to 1 ratio heat shrink tubing will shrink down to 1/3 of the original diameter, the actual diameter after shrinking will depend on the diameter of the object you are shrinking the tubing over.

## MAXIMUM HEIGHT GUIDE FOR IMPRINT.

The tubing is flattened for printing, the following are height guide dimensions for each diameter of tubing. All your imprinted image (including stretched graphics, text and bar codes) must fit within the height guide dimensions. This is also known as the "live graphic height".

| Tube Diameter | Height Guide Maximum Print Area | Tube Diameter      | Height Guide Maximum Print Area |
|---------------|---------------------------------|--------------------|---------------------------------|
| 1/8"          | 4.1mm/0.16"                     | 3/4"               | 24.1mm/0.94"                    |
| 3/16"         | 5.8mm/0.23"                     |                    |                                 |
| 1/4"          | 7.0mm/0.27"                     | 1"<br>1-1/2"<br>2" | 33.6mm/1.30"                    |
| 3/8"          | 11.7mm/0.46"                    |                    |                                 |
| 1/2"          | 16.5mm/0.65"                    |                    |                                 |

### NOTE:

If you received this by fax, the actual distance between the height lines may not be to scale due to the fact that some fax machines slightly enlarge or reduce upon sending and some fax machines slightly enlarge or reduce upon receipt. So we recommend double checking the measurements with a ruler.

### \*ANOTHER NOTE:

In all cases when referencing a certain diameter tubing, we refer to the inside diameter before shrinking.



# [ custom printed heatshrink ]

## STANDARD 2 TO 1 RATIO HEAT SHRINK:

Shrink ratio of 2 to 1. Very flexible, flame retardant polyolefin.

Shrink temperature: 90°C/190°F, a hair dryer works fine (compared to other brands that require 121°C/250°F)

Longitudinal change during shrinking: less than 5%.

Operating temperature -55°C/-67°F to 135°C/275°F up to 200°C/392°F for short durations.

UL and CSA recognized. MIL-23053-5 class 1 and class 3

### IN STOCK COLORS

Black, Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray and White.

| Inside Diameter before shrinking: |                 | Length:<br>Price per Inch<br>(imprinted) |
|-----------------------------------|-----------------|--|
| mm                                | inches          |  |
| 3.2 mm                            | 1/8" (0.1250)   | 0.24                                     |
| 4.8 mm                            | 3/16" (0.1875)  | 0.26                                     |
| 6.4 mm                            | 1/4" (0.2500)   | 0.32                                     |
| 9.5 mm                            | 3/8" (0.3750)   | 0.38                                     |
| 12.7 mm                           | 1/2" (0.5000)   | 0.44                                     |
| 15.9 mm                           | 5/8" (0.625)    | 0.56                                     |
| 19.1 mm                           | 3/4" (0.7500)   | 0.56                                     |
| 25.4 mm                           | 1" (1.0000)     | 0.78                                     |
| 38.1 mm                           | 1 1/2" (1.5000) | 1.34                                     |
| 50.8 mm                           | 2" (2.0000)     | 1.88                                     |
| 76 mm                             | 3" (3.0000)     | 2.82                                     |
| 102 mm                            | 4" (4.0000)     | 3.76                                     |

## SPECIAL 3 TO 1 RATIO HEAT SHRINK:

Shrink ratio of 3 to 1. Very flexible, flame retardant polyolefin.

Shrink temperature: 90°C/190°F, a hair dryer works fine (compared to other brands that require 121°C/250°F)

Longitudinal change during shrinking: less than 15% .

Operating temperature -55°C/-67°F to 135°C/275°F up to 200°C/392°F for short durations.

UL and CSA recognized. MIL-23053-5 class 1 and class 3

### IN STOCK COLORS

Black, Red, Yellow, Blue and White (other colors available)

| Inside Diameter before shrinking:   |                | Length:<br>Price per Inch<br>(imprinted) |
|---|----------------|--|
| mm  | inches         |  |
| 3.2 mm  | 1/8" (0.1250)  | 0.30                                     |
| 4.8 mm  | 3/16" (0.1875) | 0.34                                     |
| 6.4 mm  | 1/4" (0.2500)  | 0.40                                     |
| 9.5 mm  | 3/8" (0.3750)  | 0.46                                     |
| 12 mm   | (0.472)        | 0.52                                     |
| 12.7 mm   | 1/2" (0.5000)  | 0.52                                     |
| Fits over usual size RCA plugs, Video F connectors, 1/4 inch phone plugs and most telephone type RJ connectors. |                |  |
| 18 mm   | (0.708)        | 0.68                                     |
| 19.1mm  | 3/4" (0.7500)  | 0.68                                     |
| Fits over most XLR type plugs and jacks, BNC connectors and oversized RCA plugs.                                |                |  |
| 24 mm   | (0.944)        | 1.02                                     |
| 25.4 mm   | 1" (1.0000)    | 1.02                                     |
| Fits over most molded U.S. 120 Volt AC line cords including plugs with the third ground pin.                    |                |  |
| 40 mm   | (1.57)         | 1.70                                     |

If you don't see what you want, call us.

801-621-1501



# Heatshrink Tubing Order Form

**Bulk and Cutting Order Form - For cutting add \$1 per 1,000 pieces**

Please do not tear this page from the catalog.

This order form is intended to be photocopied as many times as needed.

| Qty<br><small>min 1000 pc</small> | Part # | Tube<br>Diameter | Tube<br>Length | Tube<br>Color | Note: | Unit<br>Price | Extended<br>Price |
|-----------------------------------|--------|------------------|----------------|---------------|-------|---------------|-------------------|
|                                   |        |                  |                |               |       |               |                   |
|                                   |        |                  |                |               |       |               |                   |
|                                   |        |                  |                |               |       |               |                   |
|                                   |        |                  |                |               |       |               |                   |
|                                   |        |                  |                |               |       |               |                   |
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|                                   |        |                  |                |               |       |               |                   |
|                                   |        |                  |                |               |       |               |                   |

Total of Column \_\_\_\_\_

**Shipping Speed:**

- Overnight
- 2 day
- 3 day ground
- Ground

**Payment Method:**

- Visa
- MasterCard
- American Express

**Name on Card** \_\_\_\_\_

**Credit Card Number** \_\_\_\_\_

**Expiration Date** \_\_\_\_\_

**CVV 3 digit code on back of card** \_\_\_\_\_

**Billing Address**

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

**Shipping Address**

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_



# [ heat guns ]

As a service to our heat shrink customers we carry Steinel heat guns imported from Germany. We believe these are the very best heat guns available. Other great Steinel products and accessories are also available.

## Receive a **DISCOUNT** on Accessories with the purchase of Steinel Heat Guns!



**Part #**      **Price**  
**350251**      ~~\$926.00~~  
 Call for discount

### HG 5000 E Heat Gun

This gun provides the ultimate in precision technology. With the exclusive IntelliTemp™ control the user can select a target temperature within +/- 5°F and view the output on the LED display. Heating elements are easy to change in the field. Integrated SmartChip™ technology allows the heat gun to automatically recalibrate the temperature to the new element.

- Temperature: 80 - 1100°F
- Airflow: up to 28 CFM, 3000 Pa Air Pressure
- LED Display: Indicates actual and target temperature in 10°F increments
- Power Cord: Rubber construction, double insulated tool, European plug
- Output: 3400 Watts
- Voltage: 230 VAC / 50 Hz
- Nozzle: 50mm Diameter
- Certifications: CE listed
- Warranty: Full One Year, Lifetime Motor Warranty

### HG 5000 E Nozzles: \$56.00 each



#### Angled Flathead Nozzle

For seam sealing and lap welding  
 size: 74mm x 3mm  
 part # 092818



#### Flathead Nozzle

For spreading air over large surfaces.  
 size: 70mm x 10mm  
 part # 092719



**35021**      ~~\$790.00~~  
 Call for discount

### HG 4000 E Heat Gun

This gun provides the ultimate in precision technology. With the exclusive IntelliTemp™ control the user can select a target temperature within +/- 5°F and view the output on the LED display. Heating elements are easy to change in the field. Integrated SmartChip™ technology allows the heat gun to automatically recalibrate the temperature to the new element.

- Temperature: 80 - 1100°F
- Airflow: variable up to 21 CFM, 3000 Pa Air Pressure
- LED Display: Indicates actual and target temperature in 10°F increments
- Power Cord: Rubber construction, double insulated tool.
- Output: 1750 Watts
- Voltage: 120 VAC / 60 Hz
- Nozzle: 40mm Diameter
- Certifications: UL / C-UL
- Warranty: Full One Year, Lifetime Motor Warranty

**heatshrink.com™**

# [ heat guns ]



## HG 2300 EM Heat Gun

This gun combines powerful output with an ergonomic, easy to use design. Variable temperature and airflow control ensure the perfect job everytime. This gun features ultra quiet operation, fast heat-up, and requires no cool-down. Its modular construction is easy to repair, with heating element and power cord both conveniently field changeable.

Temperature: 80 - 1250°F  
 Airflow: up to 15.4 CFM, 3000 Pa Air Pressure  
 LED Display: Indicates actual and target temperature in 10°F increments  
 Power Cord: Rubber construction, double insulated  
 Output: 1750 Watts  
 Voltage: 120 VAC / 60 Hz  
 Nozzle: 40mm Diameter  
 Certifications: UL / C-UL  
 Warranty: Full One Year, Lifetime Motor Warranty

**Part #**      **Price**  
**35011**      ~~\$475.00~~  
 Call for discount

## HG 4000 E & 2300 EM Nozzles



**Angled Flathead Slit Nozzle**  
 For seam sealing and lap welding.  
 size: 40mm x 2mm  
 part # 09201  
**\$44.00**



**90° Nozzle**  
 For corners and hard to reach areas.  
 part # 09241  
**\$52.00**



**Angled Flathead Slit Nozzle**  
 For seam sealing and lap welding.  
 size: 20mm x 2mm  
 part # 09211  
**\$52.00**



**Welding Nozzle**  
 For welding with plastic rods or coils.  
 (fits on 10mm reduction nozzle 09231).  
 part # 07531  
**\$44.00**



**Reduction Nozzle**  
 Produces a precise pinpoint hot air flow  
 for welding and soldering applications.  
 size: 5mm  
 part # 09221  
**\$49.00**



**High Speed Welding Tip**  
 (fits on 5mm reduction nozzle 09221)  
 6mm intake  
 part # 09183  
**\$50.00**



**Reduction Nozzle**  
 Produces a precise pinpoint hot air flow  
 for welding and soldering applications.  
 Can be used with 07531 nozzle.  
 size: 10mm  
 part # 09231  
**\$49.00**



**Triangle Welding Tip**  
 (fits on 5mm reduction nozzle 09221)  
 6mm intake  
 part # 09184  
**\$50.00**

# [ heat guns ]

**Part #**      **Price**  
**34750**      ~~**\$170.00**~~

Call for discount



## HB 1750 Heat Blower

Powerful heat blowers with lightweight ergonomic design, soft grip handle and quiet operation for convenient long term use. Interchangeable temperature keys lock-in specific output ranges. Adjustable quick-lock stand stores keys. Tool removes easily for hand held operation. Long-life reinforced element with plug-in feature takes only seconds to change.

Temperature: 200 - 1200°F with all five keys  
 Airflow: up to 23 CFM  
 Output: 1750 Watts  
 Voltage: 120 VAC / 60 Hz  
 Certifications: UL  
 Warranty: Full One Year



Adjustable quick-lock stand included with HB1750



### Reflector Nozzle

Produces a precise pinpoint of hot air flow.  
 size: 7mm  
 part # 07705

**\$20.00**



### Spreader Nozzle

For spreading air over large surfaces.  
 size: 200mm  
 part # 07725

**\$50.00**



### Reflector Nozzle

Produces a precise pinpoint of hot air flow.  
 size: 7mm  
 part # 07715

**\$15.00**



### Reduction Nozzle

Produces a precise pinpoint of hot air flow.  
 size: 7mm  
 part # 07695

**\$25.00**

**heatshrink.com™**

# [ heat guns ]

**Part #**      **Price**  
**34735**      ~~**\$180.00**~~

Call for discount



## HG 350 ESD Heat Gun

Steinel Lite™ is a precision hot air tool that is sleek, ergonomically optimized tool incorporates cutting edge Steinel technology to meet the exacting needs of even the most sensitive applications. This gun is ESD safe and ideal for shrink tubing, solder sleeves and desoldering electronic components.

Temperature: 750 - 930°F with reducer(included)  
 Airflow: Targeted 3.5 CFM  
 LED Light: Illuminates work area and serves as "on" indicator  
 Output: 300 Watts  
 Voltage: 120 VAC / 60 Hz  
 Certifications: UL  
 Warranty: Full One Year



#07730  
 included  
 with HG350



### All five Nozzles

Buy all nozzles together and get discount.

part # 07775

**\$42.00**



### Reflector Nozzle

For shrink tubing and solder sleeves.

size: 10mm

part # 07745

**\$11.00**



### Reduction Nozzle

Concentrates heat to 930°F.

size: 7mm

part # 07730

**\$11.00**



### Reflector Nozzle

For shrink tubing and solder sleeves.

size: 10mm

part # 07755

**\$11.00**



### Reduction Nozzle

For desoldering electronic components.

size: 5mm

part # 07735

**\$11.00**



### Reflector Nozzle

For shrink tubing and solder sleeves.

size: 40mm

part # 07765

**\$11.00**

**heatshrink.com**™

We believe the above information to be correct and assume no liability for errors.

# [ heat guns ]

## Heat Guns

## Part #

## Price



### HG 2510 ESD Heat Gun

This gun is an ESD safe programmable heat gun with LOC (Lockable Override Control) of temperature and airflow settings. The LCD allows for temperature control in 10°F increments.

Temperature: 120 - 1200°F  
 Airflow: Continuous variable 3.6 - 17.6 CFM  
 Switch: 1) Cool air stage (120°F / 3.6 CFM)  
 2) Variable Temp & Airflow  
 Programs: Four customizable Pre-Set Temperature Airflow programs.  
 Output: 1600 Watts.  
 Voltage: 120 VAC / 6 Hz  
 Certification: UL  
 Warranty: Full One Year

**34890**    ~~\$282.00~~  
 w/case **34891**    ~~\$305.00~~  
 Call for discount



### HG 2310 LCD Heat Gun

The HG 2310 LCD is a programmable heat gun with LOC (Lockable Override Control™) of temperature and airflow settings. The LCD display enables temperature in 10°F increments.

Temperature: 120 - 1200°F  
 Airflow: Continuously variable 3.6 - 17.6 CFM  
 Switch: 1) Cool Air Stage (120°F / 3.6 CFM)  
 2) Variable Temp & Airflow  
 Programs: Four customizable pre-set temperature Airflow programs.  
 Output: 1600 watts  
 Voltage: 120 VAC / 60 Hz  
 Certification: UL  
 Warranty: Full One Year

**34870**    ~~\$271.00~~  
 w/case **34871**    ~~\$294.00~~  
 Call for discount

**heatshrink.com™**



# [ heat guns ]

## Heat Guns

Part #

Price



**34850**    ~~\$249.00-~~  
 w/case **34851**    ~~\$272.00-~~  
 Call for discount

### HL 2010 E Heat Gun

The HL 2010 E is controlled by a microprocessor with an LCD display enabling temperature selection in 10°F increments. The exclusive DuraTherm™ heating element ensures long life and even heat.

Temperature: 120 - 1150°F  
 Airflow: 3.6 / 10.6 / 17.6 CFM  
 Switch: 1) Cool Air (120°F / 3.6 CFM)  
           2) Var Temp / 10.6 CFM  
           3) Var Temp / 17.6 CFM  
 Output: 1500 watts  
 Voltage: 120 VAC / 60 Hz  
 Certification: UL  
 Warranty: Full One Year



**34830**    ~~\$227.00-~~  
 w/case **34831**    ~~\$250.00-~~  
 Call for discount

### HL 1910 E Heat Gun

This powerful heat gun with variable temperature and electronic thermo-couple control for flexible use and maximum reliability. STEINEL's exclusive DuraTherm™ heating element ensures long life and even heat.

Temperature: 120 - 1100°F  
 Airflow: 3.6 / 10.6 / 17.6 CFM  
 Switch: 1) 120°F / 3.6 CFM  
           2) Var Temp / 10.6 CFM  
           3) Var Temp / 17.6 CFM  
 Output: 1500 watts  
 Voltage: 120 VAC / 60 Hz  
 Certification: UL  
 Warranty: Full One Year

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*We believe the above information to be correct and assume no liability for errors.*

# [ heat guns ]

## Heat Guns

Part #

Price



**34820**    ~~\$135.00~~  
w/case **34821**    ~~\$158.00~~

Call for discount

### HL 1810 S Heat Gun

Multi-purpose heat gun with cool air stage and choice of 2 temperature settings for convenient hand-held or bench work. STEINEL's exclusive DuraTherm™ heating element ensures long life and even heat.

Temperature: 120 / 750 / 1100°F  
 Airflow: 3.6 / 10.0 / 15.9 CFM  
 Switch: 1) 120°F / 3.6 CFM  
           2) 750°F / 10.0 CFM  
           3) 1100°F / 15.9 CFM  
 Output: 1400 watts  
 Element: DuraTherm™ Ceramic  
 Voltage: 120 VAC / 60 Hz  
 Certification: UL  
 Warranty: Full One Year



**34810**    ~~\$111.00~~  
w/case **34811**    ~~\$134.00~~

Call for discount

### HL 1610 S Heat Gun

General purpose heat gun with two temperature settings is designed for safe, convenient professional and industrial use. Lightweight, ergonomic design ensures comfortable long-term operation.

Temperature: 575 / 1000°F  
 Airflow: 8.5 / 14.8 CFM  
 Switch: 1) 575°F / 8.5 CFM  
           2) 1000°F / 14.8 CFM  
 Output: 1300 watts  
 Element: Reinforced Ceramic / Mica  
 Voltage: 120 VAC / 60 Hz  
 Certification: UL  
 Warranty: Full One Year

**heatshrink.com™**

# [ heat guns ]

## Heat Guns

Part #

Price

34261 ~~\$206.00~~

Call for discount



### HG 2000 E Heat Gun

Ergonomic, electronically controlled with variable temperature, adjustable from 122°F to 1100°F.

Temperature: Continuously variable 120 - 1100°F  
Airflow: 14.8 CFM  
Output: 1500 watts  
Voltage: 120 VAC / 60 Hz  
Certification: UL  
Warranty: Full One Year

40100

\$35.00



### Available Carrying Case

Heavy duty case provides a safe and convenient way to store and transport STEINEL heat guns and accessories.

**heatshrink.com**<sup>TM</sup>

*We believe the above information to be correct and assume no liability for errors.*

# [ heat guns ]

## Heat Guns

Part #

Price

34103

\$58.00



### UltraHeat II SV 803

STEINEL's Ultra Heat II is a variable temperature heat gun featuring three airflow settings for maximum user control. This model also has a soft grip handel for comfortable operation.

- Temperature: Up to 1050°F
- 3 Stage Airflow: Cool air, 140°F
  - Low Speed
  - High Speed
- Power Cord: Double insulated for safety.
- Output: 1400 watts
- Voltage: 120 VAC / 60 Hz
- Certification: UL/C-UL
- Warranty: Full One Year

34100

\$41.00



### UltraHeat I SV 800

Dual temperature heat gun.

- Temp: Low: 600°F High: 950°F
- Cool Air Stage: Enables rapid cool down
- Power Cord: Double insulated for safety.
- Output: 1300 watts
- Voltage: 120 VAC / 60 Hz
- Certification: UL/C-UL
- Warranty: Full One Year

**heatshrink.com™**

# [ heat gun accessories ]

Receive a **DISCOUNT** on Accessories with the purchase of Steinel Heat Guns!

| Heat Gun Accessories  | Use With  | Part #                                       | Size                                     | Price  |
|---|---|--|--|--|
| <p><b>Spreader Nozzle</b></p> <p>Spread hot air over a wide area for drying, stripping paint, shaping plastic, welding tarpaper etc.</p>  <p>#07011      #07021</p>  | HG 2510 HL 1810<br>HG 2310 HL 1610<br>HG 2000 SV 803<br>HL 2010 SV 800<br>HL 1910 | <b>07011</b><br><b>07021</b>                 | <b>50mm</b><br><b>75mm</b>               | <b>\$14.00</b><br><b>\$14.00</b>                   |
| <p><b>Reflector Nozzle</b></p> <p>Direct hot air around pipes and tubing for even heating. The 9mm is used for small diameter shrink tubes. The 14mm is used for soldering sink wire connectors.</p>  <p>#07061      #07461</p>                | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                               | <b>07061</b><br><b>07461</b>                 | <b>9mm</b><br><b>14mm</b>                | <b>\$22.00</b><br><b>\$16.00</b>                   |
| <p><b>Reflector Nozzle</b></p> <p>Direct hot air around pipes and tubing for even heating. The 39mm is used for soldering, bending, &amp; shrinking. The 75mm is used for soldering, bending, &amp; shrinking.</p>  <p>#07051      #07301</p> | HG 2510 HL 1810<br>HG 2310 HL 1610<br>HG 2000 SV 803<br>HL 2010 SV 800<br>HL 1910 | <b>07051</b><br><b>07301</b>                 | <b>39mm</b><br><b>75mm</b>               | <b>\$14.00</b><br><b>\$22.00</b>                   |
| <p><b>Deflector Nozzle</b></p> <p>Protect adjoining surfaces from over heating, such as panes of glass &amp; corners.</p>  <p>#07031      #07041</p>   | HG 2510 HL 1810<br>HG 2310 HL 1610<br>HG 2000 SV 803<br>HL 2010 SV 800<br>HL 1910 | <b>07031</b><br><b>07041</b>                 | <b>50mm</b><br><b>75mm</b>               | <b>\$14.00</b><br><b>\$14.00</b>                   |
| <p><b>Reduction Nozzle</b></p> <p>Provides a concentrated, aimed stream of hot air for precision welding or soldering, and may be used as a base for specialized attachments.</p>  <p>#07062      #07071      #07081*</p>                    | HG 2510 HL 1810<br>HG 2310 HL 1610<br>HG 2000 SV 803<br>HL 2010 SV 800<br>HL 1910 | <b>07062</b><br><b>07071</b><br><b>07081</b> | <b>9mm</b><br><b>14mm</b><br><b>20mm</b> | <b>\$14.00</b><br><b>\$14.00</b><br><b>\$14.00</b> |
| <p><b>Angle Slit Nozzle</b></p> <p>Specially designed angle slit nozzle for efficiently lap welding single ply roofing materials.</p>    | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                               | <b>07511</b>                                 | <b>40mm</b>                              | <b>\$48.00</b>                                     |
| <p><b>Plastic Welding Tip</b></p> <p>Provides concentrated air flow to melt plastic welding rods. Use with part # 07062</p>    | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                               | <b>07091</b>                                 |  | <b>\$22.00</b>                                     |

We believe the above information to be correct and assume no liability for errors.

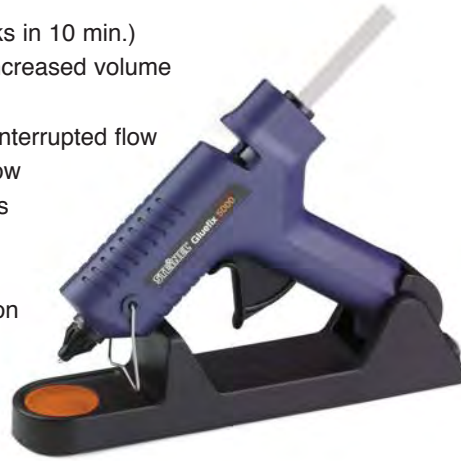
# [ heat gun accessories ]

| Heat Gun Accessories  | Use With   | Part #                       | Size        | Price                            |
|---|--|------------------------------|-------------|----------------------------------|
| <p><b>Lap Welding Slit Tip</b></p> <p>For lap welding plastic materials. Use with part # 07062</p>   | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                          | <b>07101</b>                 | <b>20mm</b> | <b>\$14.00</b>                   |
| <p><b>Rod Welding Slit Tip</b></p> <p>Provides concentrated air flow to melt plastic welding rods. Use with part # 07062</p>   | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                          | <b>07201</b>                 | <b>20mm</b> | <b>\$14.00</b>                   |
| <p><b>Heat Disk</b></p> <p>Teflon coated disc for heating PVC pipe for butt welding. Use with part # 07071</p>   | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                          | <b>07211</b>                 | <b>75mm</b> | <b>\$22.00</b>                   |
| <p><b>Lap Welding Slit Nozzle</b></p> <p>For lap welding PVC Sheeting. Use with part # 07071</p>   | HG 2510<br>HG 2310<br>HG 2000<br>HL 2010<br>HL 1910                          | <b>07471</b>                 | <b>40mm</b> | <b>\$22.00</b>                   |
| <p><b>Wire Protection Tube</b></p> <p>Offers added safety by preventing accidental contact with nozzle. Use #07402 with HG2000 and use #07403 with HG2510, HG2310, HL2010, HL1910, and HL 1810.</p>   | #07402 #07403<br>HG 2000 HG 2510<br>HG 2310<br>HL 2010<br>HL 1910<br>HL 1810 | <b>07402</b><br><b>07403</b> |             | <b>\$16.00</b><br><b>\$16.00</b> |
| <p><b>Flexible Stand</b></p> <p>Flexible stand with magnet. Offers the flexibility of hands free operation, optimum efficiency and maximum safety for most of STEINEL's heat guns.</p>   | HG 2000  | <b>01400</b>                 |             | <b>\$30.00</b>                   |
| <p><b>Metal Stand</b></p> <p>Offers the flexibility of hands free operation, optimum efficiency and maximum safety for most of STEINEL's heat guns.</p>    | HG 2510<br>HG 2310<br>HL 2010<br>HL 1910<br>HL 1810                          | <b>01410</b>                 |             | <b>\$30.00</b>                   |

# [ hot melt guns ]

## Gluefix 5000

Ready to use in only 3 minutes  
 High 40gm output in cord-free operation (four 10" sticks in 10 min.)  
 Die cast aluminum heating chamber retains heat for increased volume  
 No-drip nozzle won't ooze hot glue  
 Exclusive preheating chamber assures continuous uninterrupted flow  
 mechanical glue stick feeding system for consistent flow  
 Includes short (2mm) and long (18mm) no-drip nozzles  
 Convenient corded or cord free operation  
 Lightweight 11.7 oz. applicator (without stand)  
 392°F - 410°F melt temperature in continuous operation  
 Accepts standard 1/2" diameter glue sticks



Price

\$99.00

## Gluefix 3002

High 7.5gm / minute melting capacity  
 Mechanical glue stick feeding system for consistent flow  
 Die cast aluminum heating chamber retains heat for increased volume  
 No-drip nozzle won't ooze hot glue  
 Lightweight 11.4 oz. construction for comfortable long-term use  
 Quick 7 minute warm-up time  
 401°F melt temperature  
 Accepts standard 1/2" diameter glue sticks



\$41.00

## DPX-1 Thermoplastic Hot Melt Adhesive Film

This is not Heat-Shrink tubing.  
 This will not go through a glue gun!  
 DPX-1 is hot melt glue in film form.  
 It is supplied in 50.8mm (2") width  
 with a normal thickness of .33mm(0.013")

Wrap under heat shrink to "build up" low places.  
 Use with single wall to get dual wall results.



\$1.62/ft  
 or  
 \$903.31 per  
 656 feet spool

# [ KROY K5100 ]

## KROY K5100

### Features

- Easy-loading supply cartridges.
- Print graphics, logos, bar codes, and data records.
- Internal battery charger.
- Use as stand-alone or connected to a PC.
- Compatible with Windows 95/98/2000/XP
- Comes with Kroy Label Designer Software and drivers.
- Uses continuous and die cut media.
- Built-in cutter and feed control.
- Audible key clicks.
- Flash upgradeable firmware.
- Real-time clock with time/date stamping ability.
- Alphanumeric sequencing (A-Z, 1-999)

### Printing Specifications

- Thermal transfer and direct thermal printing.
- Auto-sizing text features.
- Built-in cutter and feed control.
- Two line x 16 character LCD display.
- 6-72 point w/downloadable and scaleable fonts.
- 10 resident bar codes including Code 39 and 128.
- On-board memory to store formats and fonts.
- Print speeds vary by content up to 2" per second.
- 300 dots per inch (12 dots per mm)
- Maximum print width: 0.97" (24.7mm)
- Maximum label width: 1" (25.4mm)
- Maximum label length: 20" (508mm)

### Media Specifications

- Tape supply widths: 0.5", 0.8", 1"
- Tape supply length: 40 ft (12.2m)
- Shrink Tube supply length: 110" (2.8m)
- All supplies are housed in a self-contained cartridge for rapid supply change.
- Media type: self-laminating wire wraps, polyolefin shrink tubing, polyester industrial labels, laminated labels, tamper evident labels, cast vinyl labels, component and terminal block die cut labels.

### Electrical Specifications

- Battery operated or AC adapter.
- Batteries are "C"-size rechargeable 2500mAh Ni-Cad.
- AC adapter output is 12VDC, UL listed, C-UL, CE recognized.
- Meets VDE-B and FCC Part 15 class B RFI limits.
- RS-232 serial port, 9600 - 115,200 baud.

### Environmental Specifications

- Operating temperature is 45°F - 105°F.
- Supply cartridge storage temperature is 60°F - 105°F.
- Operating/storage humidity limit is 90% RH non-condensing.



### Physical Specifications

11.0" L x 6.0" W x 4.0" H

### Limited Warranty

- 1 year parts and labor.
- 90 day print head and software.
- Printer for only: **\$399.95**
- Call for price
- Printer + 5 cartridges for: **\$499.95**



### Pelican® 1500 Carrying Case

Pelican cases are the perfect rugged carrying case for industrial use. The protection they offer to the Kroy K5100 is unprecedented.

Add this carrying case to your printer order\* for only: **\$75.00**

\* price is only available with the purchase of a Kroy K5100.



# Available Cartridges

## Polyolefin Shrink Tube

Flexible polyolefin tubing and thermal transfer resin ribbon in a cartridge • Shrink ratio 3:1 • Operating temperature range of -67°F to 275°F (-55°C to 135°C) with up to 347°F for short duration and low recovery temperature of 194°F • All tubing is flame resistant; chemical and water resistant • Meets Military Specification MIL-DTL-23053/5C Class 1 and 3, UL-224 VW-1 rating • Ideal for wire marking an electrical insulation of light wire harness assemblies.

| Description                | Part #  | Each    | 2+      | Description                 | Part #  | Each    | 2+      |
|----------------------------|---------|---------|---------|-----------------------------|---------|---------|---------|
| 1/8"(3.2mm)Black on White  | 2470001 | \$26.31 | \$24.76 | 1/8"(3.2mm)Black on Yellow  | 2470002 | \$26.31 | \$24.76 |
| 3/16"(4.8mm)Black on White | 2470011 | \$27.16 | \$25.56 | 3/16"(4.8mm)Black on Yellow | 2470012 | \$27.16 | \$25.56 |
| 1/4"(6.4mm)Black on White  | 2470021 | \$28.86 | \$27.16 | 1/4"(6.4mm)Black on Yellow  | 2470022 | \$28.86 | \$27.16 |
| 3/8"(9.6mm)Black on White  | 2470031 | \$30.56 | \$28.76 | 3/8"(9.6mm)Black on Yellow  | 2470032 | \$30.56 | \$28.76 |
| 1/2"(12.8mm)Black on White | 2470041 | \$32.26 | \$30.36 | 1/2"(12.8mm)Black on Yellow | 2470042 | \$32.26 | \$30.36 |

## Polyester Industrial Supply

2.0 mil pressure sensitive polyester and thermal transfer resin ribbon in a cartridge • Up to 7 year exterior life; chemical, water, UV light resistant • Operating temperature range of -40°F to 320°F • High performance label stock ideal for smooth, flat surfaces.

| Description                      | Part #  | Each    | 2+      | Description                          | Part #  | Each    | 2+      |
|----------------------------------|---------|---------|---------|--------------------------------------|---------|---------|---------|
| 1/2" x 40' Black image on Clear  | 2487901 | \$28.86 | \$27.16 | 1" x 40' Black image on Clear        | 2438601 | \$30.56 | \$28.76 |
| 1/2" x 40' Black image on White  | 2487916 | \$28.86 | \$27.16 | 1" x 40' Black image on White        | 2438616 | \$30.56 | \$28.76 |
| 1/2" x 40' Black image on Yellow | 2487943 | \$28.86 | \$27.16 | 1" x 40' Black image on Yellow       | 2438643 | \$30.56 | \$28.76 |
| 1/2" x 40' White image on Black  | 2487920 | \$28.86 | \$27.16 | 1" x 40' Black image on Green        | 2438639 | \$30.56 | \$28.76 |
| 1/2" x 40' White image on Clear  | 2487902 | \$28.86 | \$27.16 | 1" x 40' Black image on Red          | 2438631 | \$30.56 | \$28.76 |
|                                  |         |         |         | 1" x 40' Black image on Blue         | 2438635 | \$30.56 | \$28.76 |
|                                  |         |         |         | 1" x 40' Black image on Gold         | 2438626 | \$30.56 | \$28.76 |
|                                  |         |         |         | 1" x 40' Black image on Matte Silver | 2438621 | \$30.56 | \$28.76 |

## Cast Vinyl Industrial Supply

2.0 mil pressure sensitive vinyl and thermal transfer resin ribbon in a cartridge • Up to 10 years exterior life; chemical, water, UV light resistant • Operating temperature range of -50°F to 180°F • Excellent conformability to curved or irregular surfaces.

| Description                      | Part #  | Each    | 2+      | Description                    | Part #  | Each    | 2+      |
|----------------------------------|---------|---------|---------|--------------------------------|---------|---------|---------|
| 1/2" x 40' Black image on Clear  | 2558301 | \$28.86 | \$27.16 | 1" x 40' Black image on Clear  | 2558101 | \$30.56 | \$28.76 |
| 1/2" x 40' Black image on White  | 2558316 | \$28.86 | \$27.16 | 1" x 40' Black image on White  | 2558116 | \$30.56 | \$28.76 |
| 1/2" x 40' Black image on Yellow | 2558343 | \$28.86 | \$27.16 | 1" x 40' Black image on Silver | 2558121 | \$30.56 | \$28.76 |
|                                  |         |         |         | 1" x 40' Black image on Yellow | 2558143 | \$30.56 | \$28.76 |

## Self-Laminating Wire Wrap Supply

4.0 mil translucent vinyl with a white printable area and thermal transfer resin ribbon in a cartridge • Excellent to professionally mark wires and cables • Laminated tail protects text • Chemical, water, UV light resistant • Aggressive permanent adhesive • Operating temperature range of -40°F to 176°F.

| Description  | Part #  | Each    | 2+      |
|--|---------|---------|---------|
| 1" x 1" (printable area = 1" x .375" & fits wire 10 - 12 AWG)  | 2556707 | \$26.31 | \$24.76 |
| 1" x 1.25" (printable area = 1" x .50" & fits wire 8 - 12 AWG) | 2556702 | \$26.31 | \$24.76 |

# [ PROTECTIVE SLEEVING ]

## PET

| Size   | Nominal Diameter | Feet per spool | Price per foot | Price per spool |
|--------|------------------|----------------|----------------|-----------------|
| 1/8"   | 3/32" to 1/4"    | 1000'          | \$0.25         | \$212.50        |
| 1/4"   | 1/8" to 7/16"    | 1000'          | \$0.28         | \$238.00        |
| 3/8"   | 3/16" to 5/8"    | 500'           | \$0.45         | \$191.25        |
| 1/2"   | 1/4" to 3/4"     | 500'           | \$0.59         | \$250.75        |
| 3/4"   | 1/2" to 1-1/4"   | 250'           | \$0.93         | \$197.63        |
| 1-1/4" | 3/4" to 1-3/4"   | 250'           | \$1.22         | \$259.25        |
| 1-1/2" | 1" to 2-1/2"     | 250'           | \$1.60         | \$340.00        |
| 1-3/4" | 1-1/4" to 2-3/4" | 200'           | \$2.12         | \$360.40        |
| 2"     | 1-1/2" to 3-1/2" | 200'           | \$2.73         | \$464.10        |
| 2-1/2" | 1-3/4" to 4-1/2" | 200'           | \$3.58         | \$608.60        |

Flexo PET is braided from a 10 mil monofilament yarn of polyethylene terephthalate. It is especially useful in passive applications where flexibility, durability and economy are important considerations.

Available in black, red, orange, yellow, green, blue, violet, gray, white and clear. Custom colors are also available. (Some colors available in bright neon).

Operating Temperature 125°C



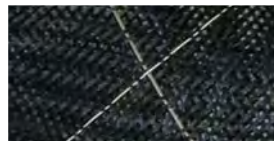
## FR (Flame Retardant)

| Size   | Nominal Diameter | Feet per spool | Price per foot | Price per spool |
|--------|------------------|----------------|----------------|-----------------|
| 1/8"   | 3/32" to 1/4"    | 1000'          | \$0.30         | \$255.00        |
| 1/4"   | 1/8" to 7/16"    | 1000'          | \$0.33         | \$280.50        |
| 3/8"   | 3/16" to 5/8"    | 500'           | \$0.80         | \$340.00        |
| 1/2"   | 1/4" to 3/4"     | 500'           | \$0.80         | \$340.00        |
| 3/4"   | 1/2" to 1-1/4"   | 250'           | \$1.18         | \$250.75        |
| 1-1/4" | 3/4" to 1-3/4"   | 250'           | \$1.65         | \$350.63        |
| 1-3/4" | 1" to 2-1/2"     | 200'           | \$2.78         | \$472.60        |
| 2"     | 1-1/2" to 3-1/2" | 200'           | \$3.48         | \$591.60        |
| 2-1/2" | 1-3/4" to 4-1/2" | 200'           | \$4.14         | \$703.80        |

Flexo FR is braided from a 10 mil monofilament yarn of polyfibre polyester. It is recommended for applications where flame-resistance and durability are critical.

Available in Black with a white tracer & White with a black tracer.

Operating Temperature 125°C



# [ PROTECTIVE SLEEVING ]

## CC (Clean Cut)

| Size   | Nominal Diameter | Feet per spool | Price per foot | Price per spool |
|--------|------------------|----------------|----------------|-----------------|
| 1/8"   | 1/8" to 1/4"     | 1000'          | \$0.47         | \$400.35        |
| 1/4"   | 5/32" to 7/16"   | 1000'          | \$0.47         | \$400.35        |
| 3/8"   | 3/16" to 5/8"    | 500'           | \$0.79         | \$335.75        |
| 1/2"   | 1/4" to 3/4"     | 500'           | \$0.89         | \$379.95        |
| 3/4"   | 5/8" to 1"       | 250'           | \$1.13         | \$239.91        |
| 1"     | 3/4" to 1-3/16"  | 250'           | \$1.27         | \$269.88        |
| 1-1/4" | 3/4" to 1-1/2"   | 250'           | \$1.60         | \$340.00        |
| 1-1/2" | 1-1/4" to 2"     | 250'           | \$2.02         | \$429.25        |

Flexo CC is braided from a 8 mil monofilament yarn of polyethylene terephthlate. It is especially useful in passive applications where flexibility, durability and economy are important considerations.

Fray resistant construction can be cut to length with scissors.

Available in black

Operating Temperature 125°C



## HW (Heavy Wall)

| Size   | Nominal Diameter | Feet per spool | Price per foot | Price per spool |
|--------|------------------|----------------|----------------|-----------------|
| 3/8"   |                  | 500'           | \$0.90         | \$382.50        |
| 5/8"   |                  | 250'           | \$1.30         | \$276.25        |
| 1"     |                  | 250'           | \$1.80         | \$382.50        |
| 1-1/2" |                  | 250'           | \$2.30         | \$488.75        |
| 2"     |                  | 200'           | \$4.10         | \$697.00        |
| 3"     |                  | 100'           | \$4.90         | \$416.50        |
| 4"     |                  | 100'           | \$6.10         | \$518.50        |



HW is braided from a 15 mil monofilament yarn of polyethylene terephthlate. It is especially useful in passive applications where flexibility, durability and abrasion resistance are important considerations.

Available in black.

Operating Temperature 125°C

# [ PROTECTIVE SLEEVING ]

## FLEXO WRAP®

| Size   | Hook and Loop Diameter | Feet per spool | Price per foot | Price per spool |
|--------|------------------------|----------------|----------------|-----------------|
| 1/2"   | 1/2"                   | 100'           | \$3.20         | \$272.00        |
| 3/4"   | 3/4"                   | 100'           | \$3.66         | \$311.00        |
| 1-1/4" | 1-1/4"                 | 100'           | \$5.08         | \$432.00        |
| 2"     | 2"                     | 100'           | \$5.55         | \$472.00        |

FLEXO WRAP® (FW) is braided from 10 mil PET and FR monofilaments with an attached nylon hook and loop fastener.

FLEXO WRAP® (FW) hook and loop expandable sleeving is designed for quick and easy bundling and protection of wire, cable and hose assemblies. This design gives easy access for harness rework without disrupting existing connections, or routing sleeving over the entire bundle.

Since FLEXO WRAP® “wraps around” assemblies, it is an excellent choice for securing existing systems as well as new assemblies. Unlike spiral or tie-on wrapping devices, FLEXO WRAP® covers the entire assembly, protecting it from cuts, abrasion, high temperatures, chemicals, and UV light. Once installed, FLEXO WRAP® conforms to various shapes and sizes, securing them snugly within the bundle.

No scissors, cut with hot knife.

Available in black  
Special order colors Beige and Gray

Operating Temperature -102°F to 257°F



## DURA WRAP®

| Size | Hook and Loop Diameter | Feet per spool | Price per foot | Price per spool |
|------|------------------------|----------------|----------------|-----------------|
| 1"   | 1"                     | 50'            | \$6.75         | \$286.88        |
| 2"   | 2"                     | 50'            | \$9.50         | \$403.75        |
| 3"   | 3"                     | 25'            | \$12.60        | \$267.75        |
| 4"   | 4"                     | 25'            | \$15.70        | \$333.63        |

DURA WRAP® is the answer to organizing and controlling wires, cables and hoses that are subjected to constant and extreme use. The flexible sleeve is made from tightly woven ballistic Nylon with an aggressive, industrial strength Velcro® closure. DURA WRAP® is used on wires to keep them together and on hoses and cables to keep them from ruining expensive finished surfaces.

Operating Temperature -102°F to 257°F

Available in black.



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*We believe the above information to be correct and assume no liability for errors.*

# [ PROTECTIVE SLEEVING ]

## SPLIT BRAID

| Size   | Feet per spool | Price per spool |
|--------|----------------|-----------------|
| 1/8"   | 400'           | \$193.80        |
| 1/4"   | 200'           | \$181.90        |
| 1/2"   | 150'           | \$209.10        |
| 3/4"   | 100'           | \$176.80        |
| 1"     | 100'           | \$246.50        |
| 1 1/2" | 75'            | \$355.09        |
| 2"     | 50'            | \$332.78        |



The 10 mil SPLIT BRAID is lightweight, quiet and flexible. The 25% edge overlap (at nominal diameter) allows complete coverage even around inline plugs, connectors and splices.

Available in black.

Operating Temperature 125°C

## REFLEX™ Reflective Safety Braid

| Size | Nominal Diameter | Feet per spool | Price per foot | Price per spool |
|------|------------------|----------------|----------------|-----------------|
| 1/4" | 3/16" to 3/8"    | 1,000'         | \$2.35         | \$1,997.50      |
| 1/2" | 3/8" to 7/8"     | 500'           | \$3.55         | \$1,508.75      |



Open mesh construction allows water to dissipate • Safety at night • Light weight • Visible at 360 feet • High-tech braided look • 3M® Ultra Reflective Process • Easily integrated • Allows your wires and cables to reflect in the dark • REFLEX™ is 1500 times brighter at night than white.

Braided with 25% 3M® Ultra Reflective Fiber and 75% Rugged PET Monofilament.

This braid provides a criss-cross braided design which when hit with light reflects back to the light source

Available in black or clear.

### Bench Mount Hot Knife

110 volt A.C.



This tool enables the operator to draw the sleeving down across the knife blade - under tension. Both hands are then free to manipulate the sleeving and to seal and flare the ends. Tool should be used in well ventilated areas.

- Warms up in less than 30 seconds
- Will cut through a 1" nylon line in ten seconds

**Price**  
**\$115.00**

**heatshrink.com™**

*We believe the above information to be correct and assume no liability for errors.*

# [ PROTECTIVE SLEEVING ]



|                              |   |
|------------------------------|---|
| <b>Clean Cut FR</b>          | Scissor cut for field installation, will not support combustion.                        |
| <b>Liquid Wrap</b>           | Stylish fluid protection for wires and cables.  |
| <b>F6 FR</b>                 | Flexible semi-rigid split sleeving will not support combustion.                         |
| <b>Flexo Wrap FR</b>         | Easy on, easy off access. Will not support combustion.                                  |
| <b>Tightweave FR</b>         | Tight braid for fuller coverage.  |
| <b>Flexo Halar</b>           | Very low outgassing, self extinguishing UL-2024 Plenum rated sleeving.                  |
| <b>Teflon</b>                | High temp stable, abrasion resistant, low outgassing.                                   |
| <b>Flexo PPS</b>             | Ultra lightweight, high temp tolerant and virtually impervious to chemical degradation. |
| <b>Kevlar</b>                | Stronger than steel, soft and pliable.  |
| <b>Vectran</b>               | A unique combination of properties for demanding applications.                          |
| <b>Studio Key Sleeve</b>     | Keyable sleeve for special effects professionals.                                       |
| <b>Flexo Mounting System</b> | The ultimate termination solution for flexo sleeving.                                   |
| <b>Dura-Race</b>             | Abrasion protection for high traffic carpeting with easy on, easy off hook closure.     |
| <b>Non Skid</b>              | Increased friction on smooth surfaces minimizes slipping and accidents.                 |
| <b>Nylon Monofilament</b>    | Reliability recognized around the world.  |
| <b>Nylon Multifilament</b>   | Full coverage, soft supple, strong and attractive.                                      |
| <b>Mylar</b>                 | Lightweight, economical metallic alternative.   |
| <b>Chrome</b>                | The look of stainless steel braid with an upside.                                       |
| <b>Chrome XC</b>             | The same as Chrome with more coverage.  |
| <b>Flexo 6 mil</b>           | High density fine thread sleeving.  |
| <b>Flexo Thin</b>            | Ultra thin for specialized for fiber applications.                                      |
| <b>Carbon Fiber</b>          | Carbon fiber sleeve for high strength tubular structures.                               |

call for more information and pricing on these Techflex products

# [ PROTECTIVE SLEEVING ]



|                                  |   |
|----------------------------------|---|
| <b>Flexo Noise Reduction</b>     | Self fitting protective oversleeve.   |
| <b>F6 Quiet</b>                  | Nostalgic look and feel! modern day performance.                              |
| <b>Metal Braid</b>               | Tinned copper sleeve for shielding, grounding, and decoration.                |
| <b>Stainless Steel</b>           | Braided stainless steel, pre-rounded for installation ease.                   |
| <b>Stainless Steel XC</b>        | Same as Stainless Steel but with more coverage.                               |
| <b>Flexo Shield</b>              | Lightweight shielded expandable sleeving.                                     |
| <b>Flexo Conductive</b>          | Conductive carbon infused nylon for static protection and shielding           |
| <b>Insultherm</b>                | Resin saturated fiberglass, protects up to 1200° F.                           |
| <b>Insultherm Tru-fit</b>        | Heat treated, fray resistant fiberglass sleeving.                             |
| <b>Insultherm Ultraflexx</b>     | Braid fiberglass protects up to 1200° F.                                      |
| <b>Insultherm Ultraflexx Pro</b> | Heavy wall fiberglass protects up to 1200° F.                                 |
| <b>Insultherm Sleeves</b>        | Double wall fiberglass sleeves protect wires and spark plug boots to 1200° F. |
| <b>Header Wrap</b>               | Vermiculite coated fiberglass wrap withstands heat up to 1200° F.             |
| <b>Header Wrap SI</b>            | Silica wrap withstands continuous heat up to 2000° F.                         |
| <b>Volcano Wrap</b>              | Woven Volanic rock tape withstands heat up to 1500° F.                        |
| <b>Silica Sleeve</b>             | Easy slip on installation protects up to 1800° F.                             |
| <b>Therma Shield T6</b>          | Flexible thermal reflective wrap deflects radiant heat upto 1400° F.          |
| <b>Therma Shield</b>             | Reflective aluminized surface bonded to insulating fiberglass in 4 styles.    |
| <b>Nomex</b>                     | Soft, pliable flame protection to 662° F.                                     |
| <b>Weld Wrap</b>                 | Protects vulnerable welding hoses from catastrophic failure.                  |
| <b>Fireflex</b>                  | Silicone jacketed fiberglass resists heat, abrasion and moisture.             |
| <b>Fireflex Aero</b>             | High temperature sleeve AS1072  |

call for more information and pricing on these Techflex products

# [ heatshrink cross reference ]

| M 23053      | MATERIAL  | SUMITOMO<br>"SUMITUBE" | Alpha     |
|--------------|---|------------------------|-----------|
| / 1 Class 1  | Chlorinated Polyolefin (-55C to +90C)                             | R 10                   | FIT-600   |
| / 1 Class 2  | Chlorinated Polyolefin (-70C to +121C)                            | R 10                   | FIT-600   |
| / 2 Class 1  | PVC Crosslinked—Flexible  | V                      | FIT-105   |
| / 2 Class 2  | PVC Not Crosslinked   |                        | FIT-100   |
| / 3          | PVC—Semi-rigid  |                        |           |
| / 4 Class 1  | Dual-wall Polyolefin Semi-rigid -<br>Not Flame Retardant(Sealant) | W5DL                   | FIT-300   |
| / 4 Class 2  | Dual-wall Polyolefin Flexible 2:1 Shrink Ratio(Adhesive)          | O2B2                   | FIT-750   |
|              | Same —UL/VW-1Surface Printed                                      | O2F2                   |           |
| / 4 Class 3  | Dual-wall Polyolefin Flexible3:1 Shrink Ratio (Adhesive)          | W3B2                   | FIT-321   |
|              | Same— UL/VW-1Surface Printed                                      | W3F2                   |           |
|              | Dual-wall Polyolefin Flexible4:1Shrink Ratio (Adhesive)           | W3B2(4X)               |           |
| / 5 Class 1  | Flexible Polyolefin — Colors — Flame Retardant                    | B 2                    | FIT-221   |
|              | UL/VW-1/CSA Surface Printed                                       | F 2                    | FIT-221 M |
|              | Flexible Polyolefin — Flame Retardant —<br>3:1 Shrink Ratio       | B2(3X)                 |           |
|              | Thin-Wall Polyolefin UL/VW-1Surface Printed                       | F 4                    |           |
| / 5 Class 1  | Over-expanded Polyolefin— 4:1 Shrink Ratio                        | B2(4XC)                | FIT-421   |
| / 5 Class 2  | Flexible Polyolefin — Clear — Flammable                           | A 2                    | FIT-221-2 |
| / 5 Class 3  | Flexible Polyolefin — Colors — Very Flame Retardant               | B 2                    | FIT-221 V |
|              | Commercial Grade Polyolefin                                       | A 4                    |           |
|              | Semi-rigid Polyolefin — Colors                                    | B 8 (UL Printed)       | FIT-295   |
|              | Terminal Insulation — Semi-rigid—Cut pieces— UL                   | B 8 Terminal           |           |
| / 6 Class 2  | Semi-rigid Polyolefin — Clear                                     |                        | FIT-295   |
| / 7          | Mylar (Polyethylene Terephthalate) Longitudinal<br>or Spiral Seam |                        | FIT-130   |
| / 8          | Polyvinylidene Fluoride — Kynar™ — Semi-rigid                     | K                      | FIT-350   |
|              | Polyvinylidene Fluoride — Modified Kynar™ — Flexible              | K 2—Spooled            |           |
| / 9          | Fluorosilicone— —Specification Cancelled                          |                        |           |
| / 10         | Silicone Rubber   |                        |           |
| / 11         | F.E.P. (Fluorinated Ethylene Propylene)                           |                        | FIT-400   |
| / 12         | T.F.E. (Polytetrafluoroethylene)                                  |                        | FIT-600   |
| / 13         | Fluoroelastomer — Viton™  | FE 3                   | FIT-650   |
| / 14         | Tefzel—ETFE   |                        |           |
| / 15 Class 1 | Polyolefin—Heavy-wall (Adhesive lined)                            |                        | FIT-700   |
| / 15 Class 2 | Polyolefin—Medium-wall (Adhesive lined)                           |                        |           |
| / 16         | Elastomeric Polyolefin  | R 120                  |           |
| / 17         | Translucent Polyolefin — Flame Retardant (2 Classes)              | NF - discontinued      |           |
| / 18 Class 1 | Modified Fluoropolymer — Kynar™ —Flexible                         | K 2                    |           |
| / 18 Class 2 | Modified Fluoropolymer—Flexible                                   |                        |           |
| / 18 Class 3 | Modified Fluoropolymer —Kynar™ — Very Flexible                    | K 3                    |           |

Part numbers listed above may be Registered or TradeMarked by their respective companies.

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# [ heatshrink cross reference ]

| Canusa    | Coleflex | Raychem            | 3M        | M 23053      |  |
|-----------|----------|--------------------|-----------|--------------|--|
| CNP-200   | ST700    | NT (RT-510)        | NST       | / 1 Class 1  |  |
|           | ST700    | NT NTFR(RT-511)    | NST       | / 1 Class 2  |  |
| CVN 105   |          | PVC (RT-800)       |           | / 2 Class 1  |  |
|           | ST100    |                    |           | / 2 Class 2  |  |
|           |          |                    |           | / 3          |  |
|           | ST300    | SCL (RT-1301)      | MW        | / 4 Class 1  |  |
| CPA 100   | ST302    | TAT-125            | EPS-200   | / 4 Class 2  |  |
| CPA-100/3 | ST303    | ATUM (RK-1900)     | EPS-300   | / 4 Class 3  |  |
| CPA 300   |          | ATUM-4             | EPS-400   |              |  |
| CPX 100   | ST221    | RNF-100MIL/LT      | FP-301    | / 5 Class 1  |  |
| CPX 876   | ST221    | Versafit (RT-1136) | FP-301 VW |              |  |
| CPX 300   |          | RNF-3000(RT-123)   | SFTW-203  |              |  |
|           |          | Versa-Thin         |           |              |  |
|           | ST421    | RP-4800            |           | / 5 Class 1  |  |
| CPX 100   | ST221-2  | RNF-100 Type 2     | FP-301-C  | / 5 Class 2  |  |
| CPX 876   | STF221   | RT-876,MIL / LT    | VFP-876   | / 5 Class 3  |  |
|           |          | CG-21              | CP-221    |              |  |
| CHM 140   | ST296    | CRN(RT-360)        | SR-350    | / 6 Class 1  |  |
| CHM 140   | ST295    | RT-3               | TP        |              |  |
|           | ST295    | CRN                |           | / 6 Class 2  |  |
|           |          |                    |           | / 7          |  |
| CKN175    | ST360    | Kynar™(RT-850)     | Kynar     | / 8          |  |
|           |          | HSKR-FK            |           |              |  |
|           |          |                    |           | / 9          |  |
|           |          | SFR(RT-1140)       |           | / 10         |  |
|           | ST400    | FEP                |           | / 11         |  |
| CTFE 250  | ST500    | TFE                |           | / 12         |  |
| CVT 200   | ST650    | Viton™(RT-1146)    | VTN-200   | / 13         |  |
|           |          |                    |           | / 14         |  |
| FCFW      | SPC      | WCSM               | HDT       | / 15 Class 1 |  |
|           | SPCM     | MWTM               | MDT       | / 15 Class 2 |  |
|           |          | DR-25(RT-1116)     | PSTH      | / 16         |  |
|           |          |                    |           | / 17         |  |
|           |          | RNF-150Clear=175   |           | / 18 Class 1 |  |
|           |          | RNF-150            |           | / 18 Class 2 |  |
|           |          |                    | THV-150   | / 18 Class 3 |  |









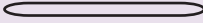




Part numbers listed above may be Registered or TradeMarked by their respective companies.

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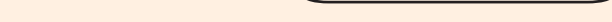
*We believe the above information to be correct and assume no liability for errors.*

# [ shrink tube size guide ]

## 2 to 1 Ratio

| Size   | Inside Diameter |        |
|--|-----------------|--------|
|  | mm              | inches |
|   | 1.2             | 3/64   |
|   | 1.6             | 1/16   |
|   | 2.4             | 3/32   |
|   | 3.2             | 1/8    |
|   | 4.8             | 3/16   |
|   | 6.4             | 1/4    |
|   | 9.5             | 3/8    |
|    | 12.7            | 1/2    |
|    | 16.0            | 5/8    |
|    | 19.1            | 3/4    |
|    | 25.4            | 1      |
|   | 38.1            | 1-1/2  |
|  | 50.8            | 2      |

## 3 to 1 Ratio

| Size  | Inside diameter |        |
|---|-----------------|--------|
|   | mm              | inches |
|  | 1.5             | 0.060  |
|  | 3.0             | 0.120  |
|  | 6.0             | 0.240  |
|  | 9.0             | 0.360  |
|   | 12.0            | 0.480  |
|   | 18.0            | 0.720  |
|   | 24.0            | 0.945  |
|   | 40.0            | 1.575  |
|   | 50.0            | 2.0    |

# MIL SPEC resource

| MILSpec  | M23053/1 | M23053/1 | M23053/4 | M23053/4 | M23053/4 | M23053/5 | M23053/5 | M23053/5 | M23053/5 | M23053/8 | M23053/8 | M23053/13 | M23053/16 | M23053/18 | M23053/18 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Class    | 1        | 2        | 1        | 2        | 3        | 1        | 2        | 3        | 5        | K        | K2       | FE3       | R120      | 1         | 2         |
| Part No. | R10      | R10      | W5DL     | O2B2     | W3B2     | B2       | A2       | B2       | B2(4X)C  |          |          |           |           | K2        | K3        |
| 3/64     |          |          |          |          |          | 101      | 201      | 301      |          | 001      |          |           |           | K2        | 301       |
| 1/16     |          |          |          |          |          | 102      | 202      | 302      |          | 002      |          |           |           | K2        | 302       |
| 3/32     |          |          |          |          |          | 103      | 203      | 303      |          | 003      |          |           |           | K2        | 303       |
| 1/8      |          |          | 101      |          | 301      | 104      | 204      | 304      |          | 004      |          |           |           | K2        | 304       |
| 3/16     |          |          | 102      |          |          | 105      | 205      | 305      |          | 005      |          | 001       |           | K2        | 305       |
| 1/4      | 101      | 201      | 103      | 201      | 302      | 106      | 206      | 306      |          | 006      |          | 002       | 001       | K2        | 306       |
| 3/8      | 102      | 202      | 104      | 202      |          | 107      | 207      | 307      |          | 007      |          | 003       | 002       | K2        | 307       |
| 1/2      | 103      | 203      | 105      | 203      | 303      | 108      | 208      | 308      |          | 008      |          | 004       | 003       | K2        | 308       |
| 5/8      | 104      | 204      | 106      | 204      |          |          |          |          |          |          |          |           | 005       |           |           |
| 3/4      | 105      | 205      | 106      | 204      |          | 109      | 209      | 309      |          | 009      |          | 006       | 004       | K2        | 309       |
| 7/8      | 106      | 206      |          |          |          |          |          |          |          |          |          | 007       |           |           |           |
| 1        | 107      | 207      | 107      | 205      | 304      | 110      | 210      | 310      | 115      | 010      |          | 008       | 005       | K2        | 310       |
| 1-1/4    | 108      | 208      |          |          |          |          |          |          |          |          |          | 009       |           |           |           |
| 1-1/2    | 109      | 209      |          |          | 305      | 111      | 211      | 311      |          | 011      |          | 010       | 006       | K2        | 111       |
| 1-3/4    | 110      | 210      |          |          |          |          |          |          |          |          |          |           |           |           |           |
| 2        | 111      | 211      |          |          |          | 112      | 212      | 312      | 116      |          |          | 011       | 007       | K2        | 112       |
| 3        | 112      | 212      |          |          |          | 113      | 213      | 313      | 117      |          |          |           |           |           |           |
| 4        | 113      | 213      |          |          |          | 114      | 214      | 314      | 118      |          |          |           |           |           |           |

Part # **A2**

**Clear**  
**Flexible Polyolefin**  
**2 to 1 Ratio**  
 (For colors use B2)



|          | Specification Reference    |
|----------|----------------------------|
| UL       | ○                          |
| VW-1     | ○                          |
| CSA      | ○                          |
| MIL Spec | ● AMS-DTL-23053/5C Class 2 |

| Replaces |                |
|----------|----------------|
| Raychem  | RNF-100 Type 2 |
| 3M/ECC   | FP301-C        |
| Alpha    | FIT-221-2      |

|                        |   |
|------------------------|---|
| <b>Description</b>     | A2 is a flexible, clear polyolefin heat shrinkable tubing (for colors use B2). Not flame retardant.   |
| <b>Uses</b>            | Uses requiring inspection (clear) or legibility of covered objects. Lightweight harnessing, strain relief and insulation of solder and crimp connections. |
| <b>Operating Temp</b>  | -55°C, to +135°C, and up to 200°C, for short durations.   |
| <b>Shrink Temp</b>     | 115°C   |
| <b>Standard Put-up</b> | Spool<br>*1/8", 3/16", & 1/4" also stocked in 4 foot lengths.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.00 MAX.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (260°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance (175°C, 168 Hrs.) Elongation (%)        | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change                                     | AMS-DTL-23053 | ±5                         |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion (175°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.2 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  |               | N/A                        |
|                   | Shrink Temperature (nominal)                            |               | 110°C                      |

# Wholesale Pricing on Full Spools/Bags

Clear  
Flexible Polyolefin  
2 to 1 Ratio  
(For colors use B2)

**A2** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:               | Color Selection |       |     |        |        |       |      |        |      |       |       |  |
|--|----------------|---|----------------------------|-------------------|----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|--|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet           | per spool per foot   | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |  |
|  |                |   |                            |                   |                      | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |  |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                         | 0.4064<br>(0.016)          | 1000              | \$348.50<br>\$0.41   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.4318<br>(0.017)          | 1000              | \$357.00<br>\$0.42   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.508<br>(0.020)           | 500               | \$187.00<br>\$0.44   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 3.2  | 1/8<br>0.1250  | 1.5748<br>(0.062)                         | 0.508<br>(0.020)           | *500              | \$195.50<br>\$0.46   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.508<br>(0.020)           | *200              | \$96.90<br>\$0.57    | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.635<br>(0.025)           | *200              | \$119.00<br>\$0.70   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.635<br>(0.025)           | 200               | \$134.30<br>\$0.79   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.635<br>(0.025)           | 200               | \$154.70<br>\$0.91   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 15.9                                       | 5/8<br>0.625   | 7.9375<br>(0.3125)                        | 0.762<br>(0.030)           | 200               | \$202.30<br>\$1.19   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.762<br>(0.030)           | 200               | \$205.70<br>\$1.21   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 25.4                                       | 1.000<br>1.000 | 12.700<br>(0.500)                         | 0.889<br>(0.035)           | 200               | \$307.70<br>\$1.81   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 31.8                                       | 1-1/4<br>1.250 | 15.875<br>(0.625)                         | 1.016<br>(0.040)           | 200               | \$559.30<br>\$3.29   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 38.1                                       | 1-1/2<br>1.500 | 19.050<br>(0.750)                         | 1.0160<br>(0.040)          | 200               | \$508.30<br>\$2.99   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 50.8                                       | 2.000<br>2.000 | 25.400<br>(1.000)                         | 1.143<br>(0.045)           | 200               | \$703.80<br>\$4.14   | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 76.2                                       | 3.000<br>3.000 | 38.100<br>(1.500)                         | 1.270<br>(0.050)           | 200               | \$1,417.80<br>\$8.34 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 101.6                                      | 4.000<br>4.000 | 50.800<br>(2.000)                         | 1.397<br>(0.055)           | 100               | \$921.40<br>\$10.84  | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |

Available in Clear Only  
(For colors use B2)

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | Not Possible  |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # **A2(3X)**

Clear  
Flexible Polyolefin  
3 to 1 Ratio  
(For colors use B2(3X))



|          | Specification Reference |
|----------|-------------------------|
| UL       | ○                       |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

| Replaces                      |
|-------------------------------|
| Raychem RNF-3000-C,<br>RT-123 |

|                        |   |
|------------------------|---|
| <b>Description</b>     | A2(3X) is a flexible, clear polyolefin heat shrinkable tubing (for colors use B2(3X) ). Not flame retardant. Special 3 to 1 shrink ratio.   |
| <b>Uses</b>            | Uses requiring inspection (clear) or legibility of covered objects. Lightweight harnessing, strain relief and insulation of solder and crimp connections. 3 to 1 ratio will accommodate large or irregular items. |
| <b>Operating Temp</b>  | -55°C, to +135°C, and up to 200°C, for short durations  |
| <b>Shrink Temp</b>     | 115°C   |
| <b>Standard Put-up</b> | Spool   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.0 MAX.                   |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (260°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, Elongation (%)                         | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion   | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.2 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  |               | N/A                        |
|                   | Shrink Temperature (nominal)                            |               | 110°C                      |

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**Wholesale Pricing  
on Full Spools/Bags**

**Clear  
Flexible Polyolefin  
3 to 1 Ratio  
(For colors use B2(3X))**

**A2(3X)** Part #

| Inside Diameter Before Shrinking (minimum) |             | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |             |         |           |          |        |        |       |      |        |      |       |       |    |
|--|-------------|---|----------------------------|-------------------|-----------------------|-----------------|-------------|---------|-----------|----------|--------|--------|-------|------|--------|------|-------|-------|----|
| mm   | inches      |   |                            |                   |                       | mm (inches)     | mm (inches) | in feet | per spool | per foot | BK     | BR     | RD    | OR   | YL     | GN   | BL    | VI    | GY |
|  |             |   |                            |                   |                       |                 |             | black   | brown     | red      | orange | yellow | green | blue | violet | gray | white | clear |    |
| 1.5  | —<br>0.059  | 0.508<br>(0.020)                          | 0.508<br>(0.020)           | 1000              | \$399.50<br>\$0.47    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 3  | —<br>0.1181 | 1.016<br>(0.040)                          | 0.6096<br>(0.024)          | 500               | \$225.25<br>\$0.53    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 6  | —<br>0.2362 | 2.032<br>(0.080)                          | 0.7112<br>(0.028)          | 200               | \$137.70<br>\$0.81    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 9  | —<br>0.3543 | 3.048<br>(0.120)                          | 0.7874<br>(0.031)          | 200               | \$154.70<br>\$0.91    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 12   | —<br>0.4724 | 4.064<br>(0.160)                          | 0.8382<br>(0.033)          | 200               | \$173.40<br>\$1.02    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 18   | —<br>0.7086 | 6.096<br>(0.240)                          | 0.9906<br>(0.039)          | 200               | \$232.90<br>\$1.37    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 24   | —<br>0.9448 | 8.001<br>(0.315)                          | 1.2192<br>(0.048)          | 200               | \$346.80<br>\$2.04    | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 40   | —<br>1.5748 | 13.081<br>(0.515)                         | 1.270<br>(0.050)           | 200               | \$644.30<br>3.79      | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 50   | —<br>1.9685 | 17.018<br>(0.670)                         | 1.4986<br>(0.059)          | 200               | \$1,569.10<br>\$9.23  | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ●  |
| 75   | —<br>2.9527 | 25.4<br>(1.000)                           | 1.651<br>(0.065)           | 200               | \$2,714.90<br>\$15.97 | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ⬛  |
| 102  | —<br>4.0157 | 33.782<br>(1.330)                         | 1.8034<br>(0.071)          | 100               | \$1,898.05<br>\$22.33 | X               | X           | X       | X         | X        | X      | X      | X     | X    | X      | X    | X     | X     | ⬛  |

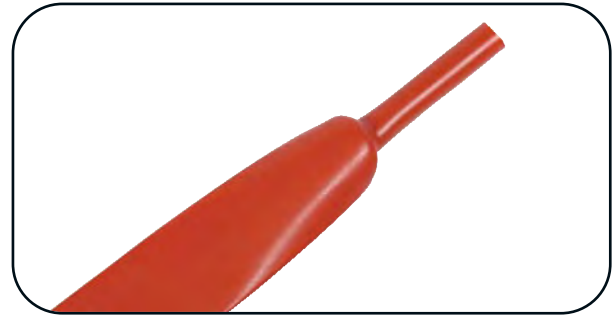
**Available in Clear Only  
(For colors use B2(3X))**

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

Part # **A4**

**Commercial Grade  
Flexible Polyolefin  
UV Resistant  
Glossy Surface  
2 to 1 Ratio**



|          | Specification Reference |
|----------|-------------------------|
| UL       | ○                       |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

| Replaces |       |
|----------|-------|
| Raychem  | CG-21 |
| 3M/ECC   | CP221 |

|                        |  |
|------------------------|--|
| <b>Description</b>     | A4 is a flexible, heat shrinkable polyolefin tubing which has excellent weather (UV) resistance with good electrical properties and chemical resistance.               |
| <b>Uses</b>            | General purpose applications such as handle covering, radio antennas, insulating wire terminations, and light wire harness bundling. Has an attractive glossy surface. |
| <b>Operating Temp</b>  | -55°C, to +105°C   |
| <b>Shrink Temp</b>     | 115°C  |
| <b>Standard Put-up</b> | Spool  |

|                   | Property (units)  | Test Method     | Requirements               |
|-------------------|---|-----------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638       | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638       | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792       | 1.0 MAX.                   |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053   | No Cracking                |
|                   | Heat resistance (136°C, 168 Hrs) Elongation (%)         | ASTM D638       | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882       | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053   | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876       | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876       | 1.0 x 10 <sup>15</sup> MIN |
| <b>Chemical</b>   | UV color stability (3000 Hrs.)                          | Weather-o-meter | No color reduction         |
|                   | UV resistance (3000 Hrs.)                               | Weather-o-meter | No color reduction         |
|                   | Elongation (%)  |                 | 100 MIN.                   |
|                   | Water absorption (%)                                    | ASTM D570       | 0.2 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053   | 1000 MIN.                  |
|                   | Flammability  |                 | N/A                        |
|                   | Shrink Temperature (nominal)                            |                 | 115°C                      |



## Wholesale Pricing on Full Spools/Bags

**Commercial Grade  
Flexible Polyolefin  
UV Resistant  
Glossy Surface  
2 to 1 Ratio**

**A4** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:             | Color Selection |       |     |        |        |       |      |        |      |       |       |  |
|--|----------------|---|----------------------------|-------------------|--------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|--|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet           | per spool per foot | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |  |
|  |                |   |                            |                   |                    | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |  |
| 1.2  | 3/64<br>0.0469 | 0.6000<br>(0.023)                         | 0.4000<br>(0.016)          | 1000              | \$348.50<br>\$0.41 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.4318<br>(0.017)          | 1000              | \$357.00<br>\$0.42 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.508<br>(0.020)           | 500               | \$187.00<br>\$0.44 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.508<br>(0.020)           | 500               | \$199.75<br>\$0.47 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.508<br>(0.020)           | 200               | \$98.60<br>\$0.58  | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.635<br>(0.025)           | 200               | \$124.10<br>\$0.73 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.635<br>(0.025)           | 200               | \$137.70<br>\$0.81 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.635<br>(0.025)           | 200               | \$154.70<br>\$0.91 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.762<br>(0.030)           | 200               | \$207.40<br>\$1.22 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)                         | 0.889<br>(0.035)           | 200               | \$309.40<br>\$1.82 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 38.1                                       | 1-1/2<br>1.500 | 19.050<br>(0.750)                         | 1.016<br>(0.040)           | 200               | \$578.00<br>3.40   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |
| 50.8                                       | 2<br>2.000     | 25.400<br>(1.000)                         | 1.143<br>(0.045)           | 200               | \$810.90<br>\$4.77 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |  |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

Part # **A4(3X)** Cable Identification Shrink System

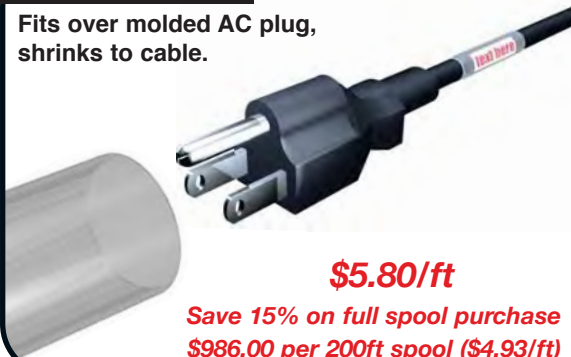
Flexible Polyolefin, irradiation cross linked for strength and flexibility  
 Non-reflective matte finish, UV Resistant 3 to 1 Ratio

**Part#A4(3X) 20/6**  
 Fits over XLR type plug, shrinks to cable.



**\$4.10/ft**  
 Save 15% on full spool purchase  
 \$697.00 per 200ft spool (\$3.48/ft)

**Part#A4(3X) 30/9**  
 Fits over molded AC plug, shrinks to cable.



**\$5.80/ft**  
 Save 15% on full spool purchase  
 \$986.00 per 200ft spool (\$4.93/ft)

**Part#A4(3X) 40/12**  
 Fits over big AC plug, shrinks to cable.



**\$7.60/ft**  
 Save 15% on full spool purchase  
 \$1,292.00 per 200ft spool (\$6.46/ft)

**Part#A4(3X) 53/16**  
 Fits over female 19 pin stage plug, shrinks to fit smaller diameter cables.



**\$10.40/ft**  
 Save 15% on full spool purchase  
 \$1,768.00 per 200ft spool (\$8.84/ft)

**Part#A4(3X) 61/19**  
 Fits over 19 pin stage plug, shrinks to cable.



**\$10.40/ft**  
 Save 15% on full spool purchase  
 \$1,768.00 per 200ft spool (\$8.84/ft)

**Simple three step process!**



1. Apply any label onto cable.
2. Slide tubing over connector.
3. Shrink tubing with hot air gun.

*We believe the above information to be correct and assume no liability for errors.*

Flexible Polyolefin  
Irradiation cross linked for strength and flexibility  
Non-reflective matte finish, UV Resistant  
3 to 1 Ratio

**A4(3X)** Part #

**Wholesale Pricing  
on Full Spools/Bags**

**Cable Identification Shrink System**

|                        |  |
|------------------------|--|
| <b>Description</b>     | A4(3X) is a flexible, heat shrinkable polyolefin tubing which has excellent weather (UV) resistance with good electrical properties and chemical resistance. |
| <b>Uses</b>            |  |
| <b>Operating Temp</b>  | -55°C, to +105°C   |
| <b>Shrink Temp</b>     | 115°C  |
| <b>Standard Put-up</b> | Spool  |

| Inside Diameter Before Shrinking (minimum) |        | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |  |
|--|--------|---|----------------------------|-------------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|--|
| mm   | inches | mm (inches)                               | mm (inches)                | in feet           | per spool<br>per foot | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |  |
|  |        |   |                            |                   |                       | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |  |
| 20   | 0.787  | 6 (0.236)                                 | 1.140 (0.045)              | 200               | \$697.00<br>\$4.10    | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 30   | 1.181  | 9 (0.354)                                 | 1.140 (0.045)              | 200               | \$986.00<br>\$5.80    | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 40   | 1.575  | 12 (0.472)                                | 1.140 (0.045)              | 200               | \$1,292.00<br>\$7.60  | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 53   | 2.087  | 16 (0.630)                                | 1.270 (0.050)              | 200               | \$1,768.00<br>\$10.40 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |
| 61   | 2.402  | 19 (0.748)                                | 1.770 (0.070)              | 200               | \$1,768.00<br>\$10.40 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |  |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # B2

**Flexible Polyolefin**  
**2 to 1 Ratio**  
 (For clear use A2)



|          | Specification Reference                |
|----------|--|
| UL       | ● UL224 125°C, 600 V                   |
| VW-1     | ● VW-1 File E48762 YDPU2               |
| CSA      | ● CSA C22.2 No. 198.1-98               |
| MIL Spec | ● AMS-DTL-23053/5, Class 1 and Class 3 |

| Replaces               |
|------------------------|
| Raychem RNF-100 type 1 |
| 3M/ECCFP-301           |
| AlphaFIT-221           |

|                        |  |
|------------------------|--|
| <b>Description</b>     | B2 is a very flexible, flame retardant, heat shrinkable polyolefin tubing. (For clear tubing see A2.)                        |
| <b>Uses</b>            | General Purpose applications such as wire marking, color coding, and electrical insulation of light wire harness assemblies. |
| <b>Operating Temp</b>  | -55° C to +135° C and up to 200° C for short durations.  |
| <b>Shrink Temp</b>     | 90° C  |
| <b>Standard Put-up</b> | Spool<br>*1/8", 3/16", & 1/4" also stocked in 4 foot lengths.  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 MAX.                  |
|                   | Low temperature flex (-55°C)                            | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat Resistance (175°C, 168 Hrs.) Elongation (%)        | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | ±5                         |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion   | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |

# Wholesale Pricing on Full Spools/Bags

Flexible Polyolefin  
2 to 1 Ratio  
(For clear use A2)

**B2** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:               | Color Selection |       |     |        |        |       |      |        |      |       |       |   |
|--|----------------|---|----------------------------|-------------------|----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|---|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet           | per spool per foot   | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |   |
|  |                |   |                            |                   |                      | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |   |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                         | 0.4064<br>(0.016)          | 1000              | \$348.50<br>\$0.41   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.4318<br>(0.017)          | 1000              | \$357.00<br>\$0.42   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.508<br>(0.020)           | 500               | \$187.00<br>\$0.44   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 3.2  | 1/8<br>0.1250  | 1.5748<br>(0.062)                         | 0.508<br>(0.020)           | *500              | \$195.50<br>\$0.46   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.508<br>(0.020)           | *200              | \$96.90<br>\$0.57    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.635<br>(0.025)           | *200              | \$119.00<br>\$0.70   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.635<br>(0.025)           | 200               | \$134.30<br>\$0.79   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.635<br>(0.025)           | 200               | \$154.70<br>\$0.91   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 15.9                                       | 5/8<br>0.625   | 7.9375<br>(0.3125)                        | 0.762<br>(0.030)           | 200               | \$202.30<br>\$1.19   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.762<br>(0.030)           | 200               | \$205.70<br>\$1.21   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 25.4                                       | 1.000<br>1.000 | 12.700<br>(0.500)                         | 0.889<br>(0.035)           | 200               | \$307.70<br>\$1.81   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 31.8                                       | 1-1/4<br>1.250 | 15.875<br>(0.625)                         | 1.016<br>(0.040)           | 200               | \$559.30<br>\$3.29   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 38.1                                       | 1-1/2<br>1.500 | 19.050<br>(0.750)                         | 1.0160<br>(0.040)          | 200               | \$508.30<br>\$2.99   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 50.8                                       | 2.000<br>2.000 | 25.400<br>(1.000)                         | 1.143<br>(0.045)           | 200               | \$703.80<br>\$4.14   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 76.2                                       | 3.000<br>3.000 | 38.100<br>(1.500)                         | 1.270<br>(0.050)           | 200               | \$1,417.80<br>\$8.34 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |
| 101.6                                      | 4.000<br>4.000 | 50.800<br>(2.000)                         | 1.397<br>(0.055)           | 100               | \$921.40<br>\$10.84  | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     | X |

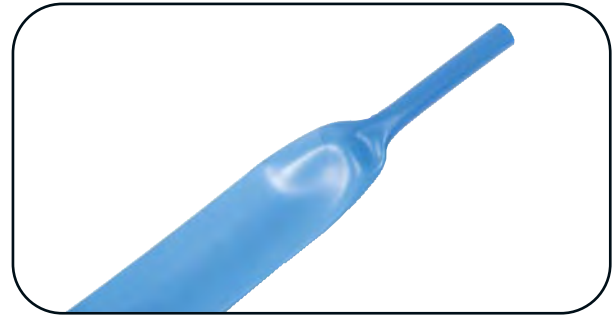
(For clear use A2)

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | Not Possible  |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # B2(3X)

**Flexible Polyolefin**  
**3 to 1 Ratio**  
 (For clear use A2(3X))



|          | Specification Reference  |
|----------|--------------------------|
| UL       | ● UL224 125°C, 600 V     |
| VW-1     | ● VW-1 File E48762 YDPU2 |
| CSA      | ● CSA C22.2 No. 198.1-98 |
| MIL Spec | ○                        |

| Replaces |                     |
|----------|---------------------|
| Raychem  | RNF-3000,<br>RT-123 |
| 3M/ECC   | SFTW-203            |

|                        |   |
|------------------------|---|
| <b>Description</b>     | B2 is a very flexible, flame retardant, heat shrinkable polyolefin tubing. 3 to 1 shrink ratio (For clear tubing see A2(3X)). |
| <b>Uses</b>            | General Purpose applications such as wire marking, color coding, and electrical insulation of light wire harness assemblies.  |
| <b>Operating Temp</b>  | -55° C to +135° C and up to 200° C for short durations.   |
| <b>Shrink Temp</b>     | 90° C   |
| <b>Standard Put-up</b> | Spool   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 MAX.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock  | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (175°C, 168 Hrs.) Elongation (%)       | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal Change (%)                                 | AMS-DTL-23053 | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion   | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |

## Wholesale Pricing on Full Spools/Bags

**Flexible Polyolefin**  
**3 to 1 Ratio**  
(For clear use A2(3X))

**B2(3X)** Part #

| Inside Diameter Before Shrinking (minimum) |              | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |             |         |           |          |        |       |      |        |      |       |       |    |    |
|--|--------------|---|----------------------------|-------------------|-----------------------|-----------------|-------------|---------|-----------|----------|--------|-------|------|--------|------|-------|-------|----|----|
| mm   | inches       |   |                            |                   |                       | mm (inches)     | mm (inches) | in feet | per spool | per foot | BK     | BR    | RD   | OR     | YL   | GN    | BL    | VI | GY |
|  |              |   |                            |                   |                       |                 | black       | brown   | red       | orange   | yellow | green | blue | violet | gray | white | clear |    |    |
| 1.5  | —<br>0.059   | 0.508<br>(0.020)                          | 0.508<br>(0.020)           | 1000              | \$399.50<br>\$0.47    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 3  | —<br>0.1181  | 1.016<br>(0.040)                          | 0.6096<br>(0.024)          | 500               | \$225.25<br>\$0.53    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 6  | —<br>0.2362  | 2.032<br>(0.080)                          | 0.7112<br>(0.028)          | 200               | \$137.70<br>\$0.81    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 9  | —<br>0.3543  | 3.048<br>(0.120)                          | 0.7874<br>(0.031)          | 200               | \$154.70<br>\$0.91    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 9.5  | 3/8<br>0.375 | 3.048<br>(0.125)                          | 0.7874<br>(0.031)          | 200               | \$154.70<br>\$0.91    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 12   | —<br>0.4724  | 4.064<br>(0.160)                          | 0.8382<br>(0.033)          | 200               | \$173.40<br>\$1.02    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 12.7                                       | 1/2<br>0.5   | 4.242<br>(0.167)                          | 0.8382<br>(0.033)          | 200               | \$173.40<br>\$1.02    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 18   | —<br>0.7086  | 6.096<br>(0.240)                          | 0.9906<br>(0.039)          | 200               | \$232.90<br>\$1.37    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 19   | 3/4<br>0.75  | 6.35<br>(0.25)                            | 0.9906<br>(0.039)          | 200               | \$232.90<br>\$1.37    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 24   | —<br>0.9448  | 8.001<br>(0.315)                          | 1.2192<br>(0.048)          | 200               | \$346.80<br>\$2.04    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 40   | —<br>1.5748  | 13.081<br>(0.515)                         | 1.270<br>(0.050)           | 200               | \$644.30<br>\$3.79    | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 50   | —<br>1.9685  | 17.018<br>(0.670)                         | 1.4986<br>(0.059)          | 200               | \$1,569.10<br>\$9.23  | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 75   | —<br>2.9527  | 25.4<br>(1.000)                           | 1.651<br>(0.065)           | 200               | \$2,714.90<br>\$15.97 | ●               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |
| 102  | —<br>4.0157  | 33.782<br>(1.330)                         | 1.8034<br>(0.071)          | 100               | \$1,898.05<br>\$22.33 | ◀               | ●           | ●       | ●         | ●        | ●      | ●     | ●    | ●      | ●    | ●     | ●     | ●  | X  |

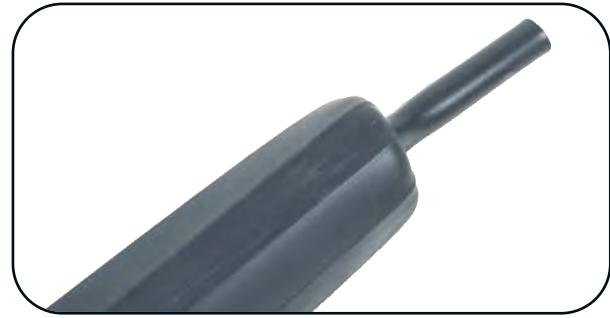
(For clear use A2(3X))

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # B2(4X)

**Special Over-Expanded  
4 to 1 Ratio  
Flexible Polyolefin**



|                 | Specification Reference   |
|-----------------|---|
| <b>UL</b>       | ● UL 224  |
| <b>VW-1</b>     | ● VW-1 File E70631 YDQS2  |
| <b>CSA</b>      | ○   |
| <b>MIL Spec</b> | ● AMS-DTL-23053/5C, Class 1, overexpanded (except wall thickness) |

**Replaces**  
No Equivalent Available

\*B2(4X) does not meet wall thickness requirements.

|                        |  |
|------------------------|--|
| <b>Description</b>     | B2(4X) is a flexible, flame-retardant heat-shrinkable polyolefin tubing, which is specially over-expanded (4:1 expansion ratio) with minimal longitudinal change (5% Max.) |
| <b>Uses</b>            | Special purpose applications such as cable jacket retrofit or repair and electrical insulation of wire assemblies which have oversize components or connectors.            |
| <b>Operating Temp</b>  | -55°C, to +135°C, and up to 200°C, for short durations.  |
| <b>Shrink Temp</b>     | 90°C   |
| <b>Standard Put-up</b> | Bag<br>Depending on the size/color the put-up could be bags of 4 foot or 3 foot lengths.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 MAX.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (175°C, 168 Hrs.) Elongation (%)       | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal Change (%)                                 | AMS-DTL-23053 | ±5                         |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion (175°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |

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## Wholesale Pricing on Full Spools/Bags

**Special Over-Expanded  
4 to 1 Ratio  
Flexible Polyolefin**

B2(4X) Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>bag<br>Length | Price:              | Color Selection |       |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-----------------------|---------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                       |                     | per bag         | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet               | per foot            | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 25.4   | 1<br>1.000     | 6.604<br>(0.260)                                      | 1.4986<br>(0.059)                   | 60                    | \$666.06<br>\$13.06 | ●               | ⊗     | ⊗   | ⊗      | ⊗      | ⊗     | ⊗    | ⊗      | ⊗    | ◀     | ◀     | ⊗  |
| 38.1   | 1-1/2<br>1.500 | 9.525<br>(0.375)                                      | 1.4986<br>(0.059)                   | 40                    | \$532.78<br>\$15.67 | ●               | ⊗     | ⊗   | ⊗      | ⊗      | ⊗     | ⊗    | ⊗      | ⊗    | ⊗     | ◀     | ⊗  |
| 50.8   | 2<br>2.000     | 12.700<br>(0.500)                                     | 1.4986<br>(0.059)                   | 40                    | \$674.56<br>\$19.84 | ●               | ⊗     | ⊗   | ⊗      | ⊗      | ⊗     | ⊗    | ⊗      | ⊗    | ⊗     | ◀     | ⊗  |
| 76.2   | 3<br>3.000     | 19.050<br>(0.750)                                     | 1.4986<br>(0.059)                   | 15                    | \$332.90<br>\$26.11 | ●               | ⊗     | ⊗   | ⊗      | ⊗      | ⊗     | ⊗    | ⊗      | ⊗    | ⊗     | ◀     | ⊗  |
| 101.6  | 4<br>4.000     | 25.400<br>(1.000)                                     | 1.4986<br>(0.059)                   | 15                    | \$466.01<br>\$36.55 | ●               | ⊗     | ⊗   | ⊗      | ⊗      | ⊗     | ⊗    | ⊗      | ⊗    | ⊗     | ◀     | ⊗  |

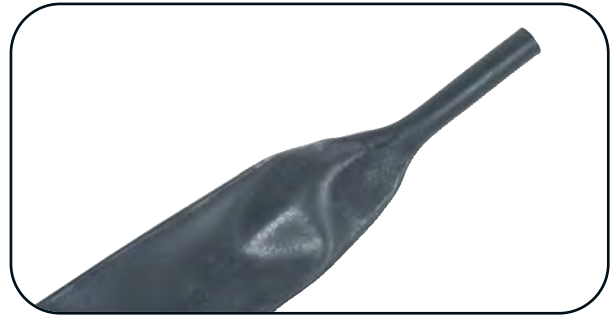
Depending on the size the put-up could be bags of 4 foot or 3 foot lengths.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # B2(4X)C

**Special Over-Expanded  
4 to 1 Ratio  
Flexible Polyolefin**



|          | Specification Reference   |
|----------|---|
| UL       | ● UL224   |
| VW-1     | ● VW-1 File E70631 YDQS2  |
| CSA      | ○   |
| MIL Spec | ● AMS-DTL-23053/5C, Class 1, overexpanded (except wall thickness) |

| Replaces |         |
|----------|---------|
| Raychem  | RP-4800 |
|          | RT1122  |
| Alpha    | FIT-421 |

\*B2(4X)C does not meet wall thickness requirements.

|                        |  |
|------------------------|--|
| <b>Description</b>     | B2(4X) is a flexible, flame-retardant heat-shrinkable polyolefin tubing, which is specially over-expanded (4:1 expansion ratio) with minimal longitudinal change (5% Max.) |
| <b>Uses</b>            | Special purpose applications such as cable jacket retrofit or repair and electrical insulation of wire assemblies which have oversize components or connectors.            |
| <b>Operating Temp</b>  | -55°C, to +135°C, and up to 200°C, for short durations.  |
| <b>Shrink Temp</b>     | 90°C   |
| <b>Standard Put-up</b> | Spool  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 MAX.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock, (250°C, 4 hrs.)                             | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (175°C, 168 Hrs.) Elongation (%)       | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | ±5                         |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion (175°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |


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Special Over-Expanded  
4 to 1 Ratio  
Flexible Polyolefin

**B2(4X)C** Part #

**Wholesale Pricing  
on Full Spools/Bags**

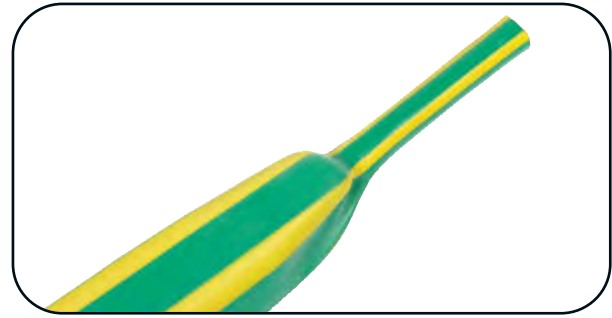
| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Spool<br>Length | Price:                | Color Selection |                |         |                       |             |             |           |              |              |             |            |              |            |
|--|----------------|---|-------------------------------------|-------------------------|-----------------------|-----------------|----------------|---------|-----------------------|-------------|-------------|-----------|--------------|--------------|-------------|------------|--------------|------------|
| mm   | inches         |   |                                     |                         |                       | mm<br>(inches)  | mm<br>(inches) | in feet | per spool<br>per foot | BK<br>black | BR<br>brown | RD<br>red | OR<br>orange | YL<br>yellow | GN<br>green | BL<br>blue | VI<br>violet | GY<br>gray |
| 19.1   | 3/4<br>0.75    | 4.749<br>(0.187)                                      | 1.4986<br>(0.059)                   | 200                     | \$2,658.80<br>\$15.64 | ●               | ⊘              | ⊘       | ⊘                     | ⊘           | ⊘           | ⊘         | ⊘            | ⊘            | ⊘           | ⊘          | ⊘            | X          |
| 25.4   | 1<br>1.000     | 6.35<br>(0.250)                                       | 1.4986<br>(0.059)                   | 200                     | \$2,230.40<br>\$13.12 | ●               | ⊘              | ⊘       | ⊘                     | ⊘           | ⊘           | ⊘         | ⊘            | ⊘            | ⊘           | ⊘          | ⊘            | X          |
| 38.1   | 1-1/2<br>1.500 | 9.525<br>(0.375)                                      | 1.4986<br>(0.059)                   | 200                     | \$3,134.00<br>\$15.67 | ●               | ⊘              | ⊘       | ⊘                     | ⊘           | ⊘           | ⊘         | ⊘            | ⊘            | ⊘           | ⊘          | ⊘            | X          |
| 50.8   | 2<br>2.000     | 12.700<br>(0.500)                                     | 1.4986<br>(0.059)                   | 200                     | \$3,393.20<br>\$19.96 | ●               | ⊘              | ⊘       | ⊘                     | ⊘           | ⊘           | ⊘         | ⊘            | ⊘            | ⊘           | ⊘          | ⊘            | X          |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # B2(Y/G)

Yellow/Green striped (Ground)  
3 to 1 Ratio  
Flexible Polyolefin



|          | Specification Reference  |
|----------|--------------------------|
| UL       | ● UL224 125°C, 600 V     |
| VW-1     | ● VW-1 File E48762 YDPU2 |
| CSA      | ● CSA C22.2 No. 198.1-98 |
| MIL Spec | ○                        |

**Replaces**  
No Equivalent Available

|                        |   |
|------------------------|---|
| <b>Description</b>     | B2(Y/G) is a very flexible, flame-retardant, heat shrinkable tubing which has a unique yellow/green striped color and high expansion ratio (3:1).                                     |
| <b>Uses</b>            | Special purpose applications such as wire marking, color coding, electrical insulation of wire harness assemblies, where the international electrical ground designation is intended. |
| <b>Operating Temp</b>  | -55°C, to +135°C, and up to 200°C, for short durations.   |
| <b>Shrink Temp</b>     | 90°C  |
| <b>Standard Put-up</b> | Bag<br>*This product is stocked in 4 foot lengths and on spools.  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 NOM.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance (175°C, 168 Hrs.) Elongation (%)        | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion (175°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | pass                       |
|                   | Shrink Temperature, nominal                             |               | 90°C                       |

Yellow/Green striped (Ground)  
3 to 1 Ratio  
Flexible Polyolefin

**B2(Y/G)** Part #

**Wholesale Pricing  
on Full Spools/Bags**

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag/ Spool Length | Price:             | Color Ratio is Yellow/Green = 35/65 |
|--|----------------|---|----------------------------|------------------------|--------------------|-------------------------------------|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet                | per bag per foot   |                                     |
| 4.8  | 3/16<br>0.1875 | 1.5748<br>(0.062)                         | 0.508<br>(0.020)           | 200                    | \$258.40<br>\$1.52 | ●                                   |
| 9.5  | 3/8<br>0.375   | 3.175<br>(0.125)                          | 0.635<br>(0.025)           | 200                    | \$287.30<br>\$1.69 | ●                                   |
| 12.7                                       | 1/2<br>0.500   | 4.233<br>(0.1667)                         | 0.7112<br>(0.028)          | 200                    | \$345.10<br>\$2.03 | ●                                   |
| 19.1                                       | 3/4<br>0.750   | 6.350<br>(0.250)                          | 0.762<br>(0.030)           | 200                    | \$455.60<br>\$2.68 | ●                                   |

Color Ratio is Yellow/Green = 35 / 65

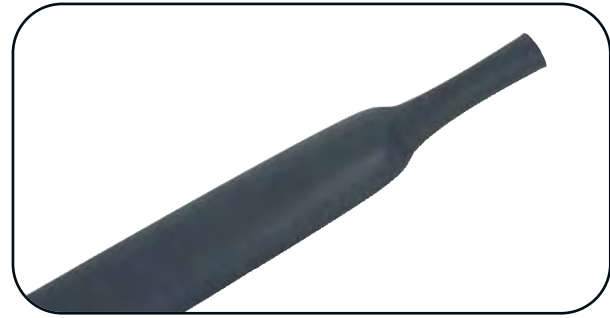
\*This product is stocked in 4 foot lengths and on spools.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

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# Part # B8

2 to 1 Ratio  
Semi-Rigid Polyolefin



|          | Specification Reference                 |
|----------|---|
| UL       | ● UL224 125°C, 600V,                    |
| VW-1     | ● VW-1, File E48762 YDPU2               |
| CSA      | ● CSA C-22.2 No. 198-M1982, 125°C, 600V |
| MIL Spec | ○                                       |

| Replaces |              |
|----------|--------------|
| Raychem  | CRN (RT-360) |
| 3M/ECC   | SR-350       |
| Alpha    | FIT-295      |

|                        |   |
|------------------------|---|
| <b>Description</b>     | B8 is a semi-rigid, flame-retardant, polyolefin heat-shrinkable tubing that is recognized by Underwriters Laboratories (UL) under subject 224 as VW-1 rated and Canadian Standards Association (CSA) 125° |
| <b>Uses</b>            | Recommended for applications where rigid strain relief of components is important.  |
| <b>Operating Temp</b>  | -55°C, to +135°C  |
| <b>Shrink Temp</b>     | 130°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |
| <b>Marking</b>         | B8 is imprinted with the following: "SUMITOMO-K CSA SR HS X PO TUBING 125°C, SUMITUBE B8 VW-1-F."   |

|                             | Property (units)  | Test Method                     | Requirements               |
|-----------------------------|---|---------------------------------|----------------------------|
| <b>Physical</b>             | Tensile Strength (psi)                                  | ASTM D638                       | 200 MIN.                   |
|                             | Elongation (%)  | ASTM D638                       | 1.35 MAX.                  |
|                             | Specific gravity  | ASTM D792                       | No Cracking                |
|                             | Low temp. flex (-55°C)                                  | AMS-DTL-23053                   | No Cracking                |
|                             | Heat shock (250° C, 4 Hrs.)                             | AMS-DTL-23053                   | 100 MIN.                   |
|                             | Heat resistance, (175° C, 168 Hrs.) Elongation (%)      | ASTM D638                       | 25000 MAX.                 |
|                             | Secant modulus (psi)                                    | ASTM D882                       | 50 MAX.                    |
|                             | Deformation (% @ 150°C, 1 hr)                           | UL 224 VW-1                     | ±5                         |
|                             | Longitudinal change (%)                                 | AMS-DTL-23053                   | 2000 MIN.                  |
|                             | <b>Electrical</b>                                       | Dielectric strength (volts/mil) | ASTM D876                  |
| Volume resistivity (ohm-cm) |   | ASTM D876                       | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>             | Corrosion (175° C, 16 Hrs.)                             | AMS-DTL-23053                   | No Corrosion               |
|                             | Copper mirror stability (158°C, 168 Hrs.)               |                                 |                            |
|                             | Elongation (%)  | UL 224                          | 100 MIN.                   |
|                             | Water absorption (%)                                    | ASTM D 570                      | 0.5 MAX.                   |
|                             | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053                   | 1000 MIN.                  |
|                             | Flammability  | UL 224 VW-1                     | Pass                       |
|                             | Shrink Temperature (nominal)                            |                                 | 130°C                      |

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# Wholesale Pricing on Full Spools/Bags

2 to 1 Ratio  
Semi-Rigid Polyolefin

**B8** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:             | Color Selection |       |     |        |        |       |      |        |      |       |       |   |   |   |
|--|----------------|---|----------------------------|-----------------|--------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|---|---|---|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet         | per bag per foot   | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |   |   |   |
|  |                |   |                            |                 |                    | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |   |   |   |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                         | 0.508<br>(0.020)           | 500             | \$216.75<br>\$0.51 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | X |   |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.508<br>(0.020)           | 500             | \$221.00<br>\$0.52 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.508<br>(0.020)           | 500             | \$233.75<br>\$0.55 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.508<br>(0.020)           | 500             | \$255.00<br>\$0.60 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.635<br>(0.025)           | 200             | \$124.10<br>\$0.73 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.635<br>(0.025)           | 200             | \$153.00<br>\$0.90 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.762<br>(0.030)           | 200             | \$171.70<br>\$1.01 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.762<br>(0.030)           | 100             | \$96.90<br>\$1.14  | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.762<br>(0.030)           | 100             | \$129.20<br>\$1.52 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)                         | 0.889<br>(0.035)           | 60              | \$117.81<br>\$2.31 | ▶               | ◉     | ◉   | ◉      | ◉      | ◉     | ◉    | ◉      | ◉    | ◉     | ◉     | ◉ | ◉ | X |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

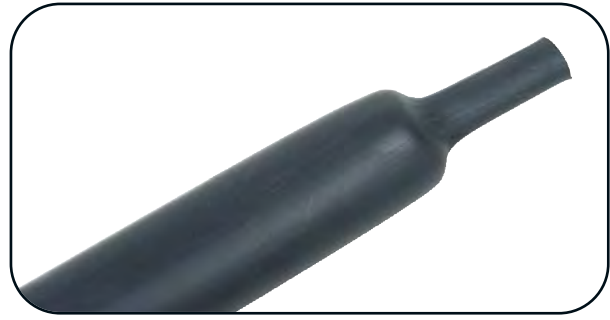
4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # CFW-D

Heavy Wall Glue Lined  
3 to 1 Ratio



|          | Specification Reference  |
|----------|--------------------------|
| UL       | ● UL 486D - FILE E132914 |
| VW-1     | ○                        |
| CSA      | ● CSA C22.2 No. 198.2    |
| MIL Spec | ○                        |

**Replaces**  
No Equivalent Available

|                        |  |
|------------------------|--|
| <b>Description</b>     | CFW-D Heavy Wall, heat shrinkable tubing affords maximum reliability for insulating and sealing electrical connections and terminations, including direct burial, URD, and submersion. |
| <b>Uses</b>            | Sealing protection for splices connections, jacket repairs, and terminations.  |
| <b>Operating Temp</b>  | -55°C, to 110°C  |
| <b>Shrink Temp</b>     | 120°C  |
| <b>Standard Put-up</b> | Bag: 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)                 | Test Method   | Requirements                          |
|-------------------|----------------------------------|---------------|---------------------------------------|
| <b>Physical</b>   | Tensile Strength (psi)           | ASTM-D412     | 2100 MIN.                             |
|                   | Elongation (%)                   | ASTM-D412     | 600%                                  |
|                   | Elongation after heat aging (%)  | ASTM D2671    | 500%                                  |
|                   | Heat shock (200°C, 4 Hrs.)       | ASTM D2671    | No Cracking                           |
|                   | Longitudinal change              | ASTM D2671    | +1%/-10%                              |
| <b>Electrical</b> | Dielectric strength (volts/mil)  | ASTM-D149     | 500 MIN.                              |
|                   | Voltage rating of outer jacket   | UL-486D       | No Breakdown,<br>24kV-1 ,in 15kV-4hrs |
|                   | Volume resistivity (ohm-cm)      | ASTM-D257     | 1.0 x 10 <sup>15</sup> MIN            |
| <b>Chemical</b>   | Fluid resistance (23°C, 24 Hrs.) | MIL-DTL-23053 | Pass                                  |
|                   | Water absorption (%)             | ASTM D570     | 0.1 MAX.                              |
|                   | Copper corrosion                 | ASTM D2671    | No Corrosion                          |

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# Wholesale Pricing on Full Spools/Bags

Heavy Wall Glue Lined  
3 to 1 Ratio

**CFW-D** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |  |
|--|----------------|---|----------------------------|-----------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|--|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet         | per bag per foot      | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |  |
|  |                |   |                            |                 |                       | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |  |
| 9.5  | 3/8<br>0.375   | 3.048<br>(0.120)                          | 1.778<br>(0.070)           | 200             | \$1,443.30<br>\$8.49  | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 12.7                                       | 1/2<br>0.500   | 4.064<br>(0.160)                          | 2.286<br>(0.090)           | 200             | \$1,519.80<br>\$8.94  | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 19.1                                       | 3/4<br>0.750   | 6.096<br>(0.240)                          | 2.286<br>(0.090)           | 100             | \$789.65<br>\$9.29    | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 25.4                                       | 1<br>1.000     | 8.890<br>(0.350)                          | 3.048<br>(0.120)           | 60              | \$603.33<br>\$11.83   | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 38.1                                       | 1-1/2<br>1.500 | 11.938<br>(0.470)                         | 4.064<br>(0.160)           | 40              | \$512.38<br>\$15.07   | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 50.8                                       | 2<br>2.000     | 16.002<br>(0.630)                         | 4.064<br>(0.160)           | 40              | \$622.88<br>\$18.32   | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 69.9                                       | 2-3/4<br>2.750 | 22.098<br>(0.870)                         | 4.064<br>(0.160)           | 20              | \$409.53<br>\$24.09   | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 88.9                                       | 3-1/2<br>3.500 | 29.972<br>(1.180)                         | 4.064<br>(0.160)           | 20              | \$686.46<br>40.38     | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 119.9                                      | —<br>4.700     | 39.878<br>(1.570)                         | 4.318<br>(0.170)           | 20              | \$1,048.39<br>\$61.67 | ●               | X     | ■   | X      | X      | X     | X    | X      | X    | X     | X     |  |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

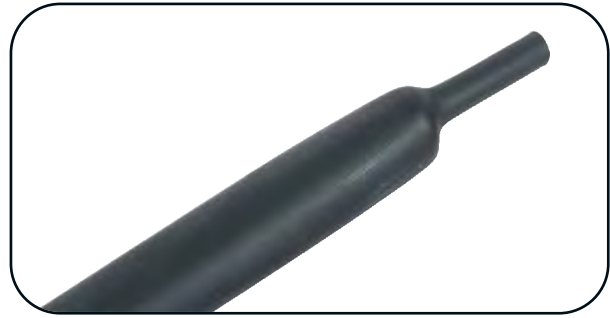
4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # CFW-U

Heavy Wall  
3 to 1 Ratio



|          | Specification Reference  |
|----------|--------------------------|
| UL       | ● UL 486D - FILE E132914 |
| VW-1     | ○                        |
| CSA      | ● CSA C22.2 No. 198.2    |
| MIL Spec | ○                        |

**Replaces**  
No Equivalent Available

|                        |  |
|------------------------|--|
| <b>Description</b>     | CFW-U Heavy Wall, heat shrinkable tubing affords maximum reliability for insulating and sealing electrical connections and terminations, including direct burial, and URD. |
| <b>Uses</b>            | Protection for splices connections, jacket repairs, and terminations.  |
| <b>Operating Temp</b>  | -55°C, to 110°C  |
| <b>Shrink Temp</b>     | 120°C  |
| <b>Standard Put-up</b> | Bag: 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)                 | Test Method   | Requirements                          |
|-------------------|----------------------------------|---------------|---------------------------------------|
| <b>Physical</b>   | Tensile Strength (psi)           | ASTM-D412     | 2100 MIN.                             |
|                   | Elongation (%)                   | ASTM-D412     | 600%                                  |
|                   | Elongation after heat aging (%)  | ASTM D2671    | 500%                                  |
|                   | Heat shock (200°C, 4 Hrs.)       | ASTM D2671    | No Cracking                           |
|                   | Longitudinal change              | ASTM D2671    | +1%/-10%                              |
| <b>Electrical</b> | Dielectric strength (volts/mil)  | ASTM-D149     | 500 MIN.                              |
|                   | Voltage rating of outer jacket   | UL-486D       | No Breakdown,<br>24kV-1 ,in 15kV-4hrs |
|                   | Volume resistivity (ohm-cm)      | ASTM-D257     | 1.0 x 10 <sup>15</sup> MIN            |
| <b>Chemical</b>   | Fluid resistance (23°C, 24 Hrs.) | MIL-DTL-23053 | Pass                                  |
|                   | Water absorption (%)             | ASTM D570     | 0.1 MAX.                              |
|                   | Copper corrosion                 | ASTM D2671    | No Corrosion                          |

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## Wholesale Pricing on Full Spools/Bags

Heavy Wall  
3 to 1 Ratio

**CFW-U** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:               | Color Selection |             |         |         |          |        |        |       |      |        |      |       |       |
|--|----------------|---|----------------------------|-----------------|----------------------|-----------------|-------------|---------|---------|----------|--------|--------|-------|------|--------|------|-------|-------|
| mm   | inches         |   |                            |                 |                      | mm (inches)     | mm (inches) | in feet | per bag | per foot | BK     | BR     | RD    | OR   | YL     | GN   | BL    | VI    |
|  |                |   |                            |                 |                      |                 |             | black   | brown   | red      | orange | yellow | green | blue | violet | gray | white | clear |
| 9.5  | 3/8<br>0.375   | 3.048<br>(0.120)                          | 1.778<br>(0.070)           | 200             | \$1,154.30<br>\$6.79 | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 12.7                                       | 1/2<br>0.500   | 4.064<br>(0.160)                          | 2.286<br>(0.090)           | 200             | \$1,222.30<br>\$7.19 | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 19.1                                       | 3/4<br>0.750   | 6.096<br>(0.240)                          | 2.286<br>(0.090)           | 100             | \$633.25<br>\$7.45   | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 25.4                                       | 1<br>1.000     | 8.890<br>(0.350)                          | 3.048<br>(0.120)           | 60              | \$482.46<br>\$9.46   | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 38.1                                       | 1-1/2<br>1.500 | 11.938<br>(0.470)                         | 4.064<br>(0.160)           | 40              | \$409.36<br>\$12.04  | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 50.8                                       | 2<br>2.000     | 16.002<br>(0.630)                         | 4.064<br>(0.160)           | 40              | \$530.06<br>\$15.59  | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 69.9                                       | 2-3/4<br>2.750 | 22.098<br>(0.870)                         | 4.064<br>(0.160)           | 20              | \$347.65<br>\$20.45  | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 88.9                                       | 3-1/2<br>3.500 | 29.972<br>(1.180)                         | 4.064<br>(0.160)           | 20              | \$472.09<br>\$27.77  | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |
| 119.9                                      | —<br>4.700     | 39.878<br>(1.570)                         | 4.318<br>(0.170)           | 20              | \$814.30<br>\$47.90  | ●               | X           | X       | X       | X        | X      | X      | X     | X    | X      | X    | X     | X     |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

Part # **D**

**Commercial Grade Semi-Rigid Polyolefin  
2 to 1 Ratio**



|          | Specification Reference |
|----------|-------------------------|
| UL       | <input type="radio"/>   |
| VW-1     | <input type="radio"/>   |
| CSA      | <input type="radio"/>   |
| MIL Spec | <input type="radio"/>   |

**Replaces**  
No Equivalent Available

|                        |   |
|------------------------|---|
| <b>Description</b>     | D is a lightweight, semi-rigid, heat shrinkable polyolefin tubing which has excellent mechanical strength with good electrical properties and chemical resistance.  |
| <b>Uses</b>            | D should be considered in applications where strain relief, mechanical strength or abrasion resistance is a factor. Examples would be in protecting solder or crimped wire terminations on light wire harnesses |
| <b>Operating Temp</b>  | -55°C, to +135°C  |
| <b>Shrink Temp</b>     | 130°C   |
| <b>Standard Put-up</b> | Bag<br>4 foot lengths, packaged in plastic bags.  |

|                   | Property (units)                                  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                            | ASTM D638     | 2000 MIN.                  |
|                   | Elongation (%)                                    | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity                                  | ASTM D792     | 1.0 MAX.                   |
|                   | Low temp. flex (-55°C)                            | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (175°C, 168 Hrs.) Elongation (%) | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                              | ASTM D882     | 2.5 x 10 <sup>4</sup> MIN  |
|                   | Longitudinal change (%)                           | AMS-DTL-23053 | +5, -10                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                   | ASTM D638     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                       | ASTM D638     | 1.0 x 10 <sup>16</sup> MIN |
| <b>Chemical</b>   | Corrosion (175°C, 16 Hrs.)                        | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                              | ASTM D570     | 1.0 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.)                  |               |                            |
|                   | Tensile Strength (psi)                            | AMS-DTL-23053 | 1600 MIN.                  |
|                   | Flammability                                      |               | N/A                        |
|                   | Shrink Temperature (nominal)                      |               | 130°C                      |

# Wholesale Pricing on Full Spools/Bags

**Commercial Grade Semi-Rigid  
Polyolefin  
2 to 1 Ratio**

**D** Part #

| Inside Diameter Before Shrinking (minimum) |               | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:             | Color Selection |             |         |         |        |       |      |        |      |       |       |    |
|--|---------------|---|----------------------------|-----------------|--------------------|-----------------|-------------|---------|---------|--------|-------|------|--------|------|-------|-------|----|
| mm   | inches        |   |                            |                 |                    | mm (inches)     | mm (inches) | in feet | per bag | BK     | BR    | RD   | OR     | YL   | GN    | BL    | VI |
|  |               |   |                            |                 | per foot           | black           | brown       | red     | orange  | yellow | green | blue | violet | gray | white | clear |    |
| 1.2  | 3/64<br>0.046 | 0.600<br>(0.23)                           | 0.510<br>(0.020)           | 500             | \$170.00<br>\$0.40 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 1.6  | 1/16<br>0.063 | 0.800<br>(0.031)                          | 0.510<br>(0.020)           | 500             | \$174.25<br>\$0.41 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 2.4  | 3/32<br>0.093 | 1.200<br>(0.046)                          | 0.510<br>(0.020)           | 500             | \$187.00<br>\$0.44 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 3.2  | 1/8<br>0.125  | 1.600<br>(0.062)                          | 0.510<br>(0.020)           | 500             | \$199.75<br>\$0.47 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 4.8  | 3/16<br>0.187 | 2.400<br>(0.093)                          | 0.640<br>(0.025)           | 200             | \$96.90<br>\$0.57  |                 |             |         |         |        |       |      |        |      |       |       |    |
| 6.4  | 1/4<br>0.250  | 3.200<br>(0.125)                          | 0.640<br>(0.025)           | 200             | \$120.70<br>\$0.71 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 9.5  | 3/8<br>0.375  | 4.800<br>(0.187)                          | 0.760<br>(0.030)           | 200             | \$134.30<br>\$0.79 |                 |             |         |         |        |       |      |        |      |       |       |    |
| 12.7                                       | 1/2<br>0.500  | 6.400<br>(0.250)                          | 0.890<br>(0.035)           | 100             | \$76.50<br>\$0.90  |                 |             |         |         |        |       |      |        |      |       |       |    |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

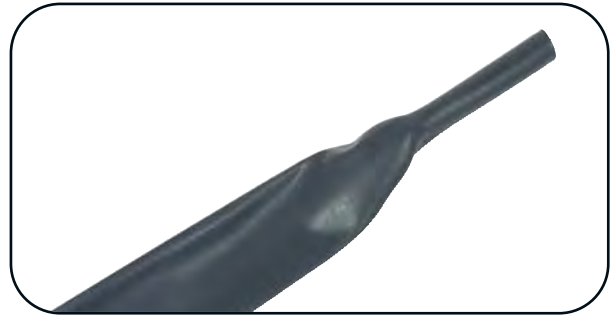
4 foot lengths, packaged in plastic bags.

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # F4

**Ultra Thin Wall  
2 to 1 Ratio  
Flexible Polyolefin**



|          | Specification Reference                        |
|----------|--|
| UL       | ● UL 224 125°C, 150V                           |
| VW-1     | ● VW1, File E48762 YDPU2, Cat. No. SUMITUBE F4 |
| CSA      | ○  |
| MIL Spec | ○  |

**Replaces**  
Raychem Versa-Thin

|                        |   |
|------------------------|---|
| <b>Description</b>     | F4 is a very flexible, thin wall, flame retardant, heat-shrinkable polyolefin tubing that is UL recognized VW-1.  |
| <b>Uses</b>            | F4 is recommended for all general purpose applications for flame retardant tubing such as insulating, color coding, bundling or environmental protection, especially when space is at a premium and low shrink temperatures are required. |
| <b>Operating Temp</b>  | -55°C, to +125°C  |
| <b>Shrink Temp</b>     | 90°C  |
| <b>Standard Put-up</b> | Spool   |
| <b>Marking</b>         | Sumitube F4 is surface printed with recognized UL marking as follows:<br>"SUMITOMO SUMITUBE F4 125°C, VW-1"   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | UL 224        | 1500 MIN.                  |
|                   | Elongation (%)  | UL 224        | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.35 MAX.                  |
|                   | Low temp. flex (-55°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (158°C, 168 Hrs.) Elongation (%)       | UL 224        | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Deformation (% @ 125°C, 1 hr)                           | UL 224        | 50 MAX.                    |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | -15 min.                   |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | UL 224        | 2500 MIN.                  |
|                   | Volume resistivity (ohm-cm)                             | UL 224        | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion   | UL 224        | No Corrosion               |
|                   | Copper mirror stability (158°C, 168 Hrs.)               |               |                            |
|                   | Elongation (%)  | UL 224        | 100 MIN.                   |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | MIL-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |

**heatshrink.com**<sup>TM</sup>

## Wholesale Pricing on Full Spools/Bags

**Ultra Thin Wall**  
**2 to 1 Ratio**  
**Flexible Polyolefin**

F4 Part #

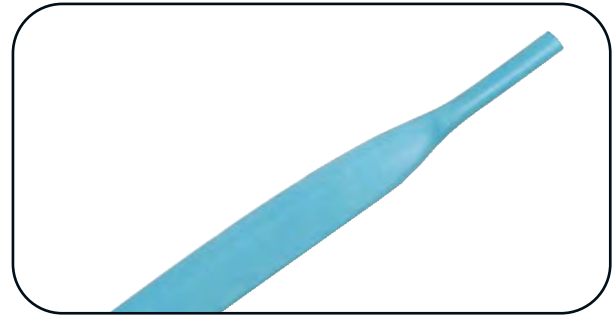
| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Spool<br>Length | Price:             | Color Selection |          |       |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-------------------------|--------------------|-----------------|----------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                         |                    | per spool       | per foot | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet                 |                    |                 | black    | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                                     | 0.254<br>(0.010)                    | 1000                    | \$408.00<br>\$0.48 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                                     | 0.254<br>(0.010)                    | 1000                    | \$416.50<br>\$0.49 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                                     | 0.3048<br>(0.012)                   | 500                     | \$221.00<br>\$0.52 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                                     | 0.3048<br>(0.012)                   | 500                     | \$238.00<br>\$0.56 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                                     | 0.3048<br>(0.012)                   | 200                     | \$115.60<br>\$0.68 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                                      | 0.3556<br>(0.014)                   | 200                     | \$144.50<br>\$0.85 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                                     | 0.3556<br>(0.014)                   | 200                     | \$161.50<br>\$0.95 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 12.7   | 1/2<br>0.500   | 6.350<br>(0.250)                                      | 0.3556<br>(0.014)                   | 200                     | \$183.60<br>\$1.08 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 19.1   | 3/4<br>0.750   | 9.525<br>(0.375)                                      | 0.4318<br>(0.017)                   | 200                     | \$243.10<br>\$1.43 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 25.4   | 1<br>1.000     | 12.700<br>(0.500)                                     | 0.508<br>(0.020)                    | 200                     | \$365.50<br>\$2.15 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |
| 31.8   | 1-1/4<br>1.250 | 15.875<br>(0.625)                                     | 0.508<br>(0.020)                    | 200                     | \$486.20<br>\$2.86 | ▶               | ◼        | ◼     | ◼   | ◼      | ◼      | ◼     | ◼    | ◼      | ◼    | ◼     | ◼     | ✘  |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # F5N

**Ultra Low Shrink Temperature**  
**2 to 1 Ratio**  
**Flexible Polyolefin**



|          | Specification Reference                          |
|----------|--|
| UL       | ● UL-224 125°C, 600V, VW-1                       |
| VW-1     | ● File E48762 YDUP2, Cat. No. SUMITUBE F5 or 863 |
| CSA      | ● CSA-C22.2 No. 198-M1986 125°C, 600V            |
| MIL Spec | ○  |

**Replaces**  
 No Equivalent Available

|                        |  |
|------------------------|--|
| <b>Description</b>     | F5N is a very flexible, very low recovery temperature, heat-shrinkable polyolefin tubing that is highly flame retardant. F5N is UL VW-1 recognized. It is also certified by the CSA.   |
| <b>Uses</b>            | F5N is recommended for all general purpose commercial applications such as insulating, color coding, bundling and light harness jacketing or environmental protection where UL or CSA recognition and VW-1 and OFT ratings and low shrink temperature are important. |
| <b>Operating Temp</b>  | -55°C, to +125°C   |
| <b>Shrink Temp</b>     | 80°C   |
| <b>Standard Put-up</b> | Spool  |
| <b>Note</b>            | Caution should be taken in storing this product where it may become hotter than 160°F.   |

|                   | Property (units)   | Test Method   | Requirements               |
|-------------------|--|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                   | UL 224        | 1500 MIN.                  |
|                   | Elongation (%)   | UL 224        | 200 MIN.                   |
|                   | Specific gravity   | ASTM D792     | 1.35 MAX.                  |
|                   | Low temp. flex (-55°C)                                   | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, (158°C, 168 Hrs.) Elongation (%)        | UL 224        | 100 MIN.                   |
|                   | Secant modulus (psi)                                     | ASTM D882     | 25000 MAX.                 |
|                   | Deformation (% @ 125°C, 1 hr)                            | UL 224        | 50 MAX.                    |
|                   | Longitudinal change (%)                                  | AMS-DTL-23053 | ±5                         |
| <b>Electrical</b> | Dielectric strength (volts/mil)                          | UL 224        | 2500 MIN.                  |
|                   | Volume resistivity (ohm-cm)                              | UL 224        | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion  | UL 224        | No Corrosion               |
|                   | Copper mirror stability (158°C, 168 Hrs.) Elongation (%) | UL 224        | 100 MIN.                   |
|                   | Water absorption (%)                                     | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi)  | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability   | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                             |               | 80°C                       |

**heatshrink.com**<sup>TM</sup>



## Wholesale Pricing on Full Spools/Bags

**Ultra Low Shrink Temperature  
2 to 1 Ratio  
Flexible Polyolefin**

**F5N** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum)<br>mm (inches) | Post Shrink Wall Thickness<br>mm (inches) | Full Spool Length<br>in feet | Price:<br>per spool<br>per foot | Color Selection |       |     |        |        |       |      |        |      |       |       |          |
|--|----------------|--|---|------------------------------|---------------------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----------|
| mm   | inches         |  |   |                              |                                 | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |          |
|  |                |  |   |                              |                                 | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |          |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)  | 0.4064<br>(0.016)                         | 1000                         | \$357.00<br>\$0.42              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)  | 0.4318<br>(0.017)                         | 1000                         | \$365.50<br>\$0.43              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)  | 0.508<br>(0.020)                          | 500                          | \$191.25<br>\$0.45              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)  | 0.508<br>(0.020)                          | 500                          | \$204.00<br>\$0.48              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)  | 0.508<br>(0.020)                          | 200                          | \$98.60<br>\$0.58               |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)   | 0.635<br>(0.025)                          | 200                          | \$122.40<br>\$0.72              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)  | 0.635<br>(0.025)                          | 200                          | \$137.70<br>\$0.81              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)   | 0.635<br>(0.025)                          | 200                          | \$158.10<br>\$0.93              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)   | 0.762<br>(0.030)                          | 200                          | \$210.80<br>\$1.24              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)  | 0.889<br>(0.035)                          | 200                          | \$316.20<br>\$1.86              |                 |       |     |        |        |       |      |        |      |       |       | <b>X</b> |

Note: The color TEAL is in stock in 3/16" & 1/2".

**F5N has no printing**

**F5 has printed specifications on tubing**

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

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# Part # FE3

**High Temperature  
Solvent Resistant, Flame Retardant  
Flexible Fluoro-Elastomer  
2 to 1 Ratio**



| Specification Reference |   |
|-------------------------|---|
| UL                      | ○   |
| VW-1                    | ○   |
| CSA                     | ○   |
| MIL Spec                | ● AMS-DTL-23053/13B, MIL-R-46846, Type III, Class 1 |

| Replaces |                 |
|----------|-----------------|
| Raychem  | Viton™(RT-1146) |
| 3M/ECC   | VTN-200         |
| Alpha    | FIT-650         |

|                        |  |
|------------------------|--|
| <b>Description</b>     | FE3 is a rubber-like, highly fluid resistant, flame retardant fluoro-elastomer heat-shrinkable tubing with high solvent resistance.  |
| <b>Uses</b>            | FE3 is recommended for applications where resistance to aggressive solvents and high temperatures is required. Bundling, harnessing and environmental protection within engine compartments is one such application. |
| <b>Operating Temp</b>  | -55°C, to +200°C, and up to 300°C, for short periods.  |
| <b>Shrink Temp</b>     | 120°C  |
| <b>Standard Put-up</b> | Spool  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1200 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 250 MIN.                   |
|                   | Tensile Strength @ 200% elongation (psi)                | ASTM D412     | 2000 MAX.                  |
|                   | Heat shock (300°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance (250°C, 168 Hrs.) Elongation (%)        | ASTM D638     | 200 MIN.                   |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | -20 MAX.                   |
|                   | Cold Impact (-40°C)                                     | ASTM D746     | No Cracking                |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 200 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>11</sup> MIN |
| <b>Chemical</b>   | Copper mirror corrosion (175°C, 16 Hrs.)                | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1200 MIN.                  |
|                   | Elongation (%)  | AMS-DTL-23053 | 250 MAX.                   |
|                   | Flammability  | AMS-DTL-23053 | 15 Sec. MAX.               |
|                   | Shrink Temperature (nominal)                            |               | 120°C                      |

# Wholesale Pricing on Full Spools/Bags

High Temperature  
Solvent Resistant, Flame Retardant  
Flexible Fluoro-Elastomer  
2 to 1 Ratio

**FE3** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |             |         |           |          |        |       |      |        |      |       |       |    |          |
|--|----------------|---|----------------------------|-------------------|-----------------------|-----------------|-------------|---------|-----------|----------|--------|-------|------|--------|------|-------|-------|----|----------|
| mm   | inches         |   |                            |                   |                       | mm (inches)     | mm (inches) | in feet | per spool | per foot | BK     | BR    | RD   | OR     | YL   | GN    | BL    | VI | GY       |
|  |                |   |                            |                   |                       |                 | black       | brown   | red       | orange   | yellow | green | blue | violet | gray | white | clear |    |          |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.7874<br>(0.031)          | 100               | \$1,210.40<br>\$14.24 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.889<br>(0.035)           | 100               | \$1,063.35<br>\$12.51 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.889<br>(0.035)           | 100               | \$966.45<br>\$11.37   |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.889<br>(0.035)           | 100               | \$1,190.85<br>\$14.01 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.889<br>(0.035)           | 100               | \$1,496.00<br>\$17.60 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 1.0668<br>(0.042)          | 100               | \$2,144.55<br>\$25.23 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |
| 25.4                                       | 1<br>1.000     | 12.70<br>(0.500)                          | 1.2446<br>(0.049)          | 100               | \$3,031.10<br>\$35.66 |                 |             |         |           |          |        |       |      |        |      |       |       |    | <b>X</b> |

Other sizes available

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

**Withstands High Temps. and Abrasion  
2 to 1 Ratio  
Semi-Rigid Polyvinylidene Fluoride**



|          | Specification Reference                     |
|----------|---|
| UL       | ● UL 224, 150°C, 600V,                      |
| VW-1     | ● VW-1 File E75077 YDTU2, CAT.NO Sumitube K |
| CSA      | ○   |
| MIL Spec | ● AMS-DTL-23053/8C                          |

| Replaces |                |
|----------|----------------|
| Raychem  | Kyna™ (RT-850) |
| 3M/ECC   | Kynar™         |
| Alpha    | FIT-350        |

|                        |   |
|------------------------|---|
| <b>Description</b>     | K is a highly flame-retardant tubing that is tough and abrasion resistant in mechanical environments. It has excellent properties for cut through and solvent resistance.   |
| <b>Uses</b>            | K is recommended for applications for strain relieving components such as soldered connections and splices which are in high continuous operating temp. environments. The material is good for applications where abrasion resistance is important. |
| <b>Operating Temp</b>  | -55°C, to +175°C  |
| <b>Shrink Temp</b>     | 175°C   |
| <b>Standard Put-up</b> | Bag<br>4 foot lengths, packaged in plastic bags.  |

|                   | Property (units)   | Test Method   | Requirements               |
|-------------------|--|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                   | ASTM D638     | 5000 MIN                   |
|                   | Elongation (%)   | ASTM D638     | 150 MIN.                   |
|                   | Specific gravity   | ASTM D792     | 1.8 MAX.                   |
|                   | Low temp. flex (-55C)                                    | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (300°C, 4 Hrs.)                               | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance (250°C, 168 Hrs.) Elongation (%)         | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                     | ASTM D882     | 100,000 MIN.               |
|                   | Deformation (150°C, 1 hr)(%)                             | UL 224        | 50 MAX                     |
|                   | Longitudinal change (%)                                  | AMS-DTL-23053 | ±10                        |
| <b>Electrical</b> | Dielectric strength (volts/mil)                          | ASTM D876     | 800 MIN.                   |
|                   | Volume resistivity (ohm-cm)                              | ASTM D876     | 1.0 x 10 <sup>13</sup> MIN |
| <b>Chemical</b>   | Copper mirror stability (180°C, 168 Hrs.) Elongation (%) | UL 224        | 70% of unaged value min    |
|                   | Water absorption (%)                                     | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi)  | AMS-DTL-23053 | 5000 MIN.                  |
|                   | Flammability   | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                             |               | 170°C                      |

# Wholesale Pricing on Full Spools/Bags

Withstands High Temps. and Abrasion  
2 to 1 Ratio  
Semi-Rigid Polyvinylidene Fluoride

**K** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:                | Color Selection |             |         |         |          |        |        |       |      |        |      |       |       |    |
|--|----------------|---|----------------------------|-----------------|-----------------------|-----------------|-------------|---------|---------|----------|--------|--------|-------|------|--------|------|-------|-------|----|
| mm   | inches         |   |                            |                 |                       | mm (inches)     | mm (inches) | in feet | per bag | per foot | BK     | BR     | RD    | OR   | YL     | GN   | BL    | VI    | GY |
|  |                |   |                            |                 |                       |                 |             | black   | brown   | red      | orange | yellow | green | blue | violet | gray | white | clear |    |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                         | 0.254<br>(0.010)           | 500             | \$522.75<br>\$1.23    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.254<br>(0.010)           | 500             | \$535.50<br>\$1.26    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.254<br>(0.010)           | 500             | \$565.25<br>\$1.33    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.254<br>(0.010)           | 500             | \$607.75<br>\$1.43    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.254<br>(0.010)           | 200             | \$396.10<br>\$2.33    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.3048<br>(0.012)          | 200             | \$493.00<br>\$2.90    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.3048<br>(0.012)          | 200             | \$549.10<br>\$3.23    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.3048<br>(0.012)          | 100             | \$388.45<br>\$4.57    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 15.9                                       | 5/8<br>0.625   | 7.9375<br>(0.3125)                        | 0.4318<br>(0.017)          | 100             | \$451.35<br>\$5.31    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.4318<br>(0.017)          | 100             | \$714.00<br>\$8.40    |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)                         | 0.4826<br>(0.019)          | 60              | \$841.50<br>\$16.50   |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 38.1                                       | 1-1/2<br>1.500 | 19.050<br>(0.750)                         | 0.508<br>(0.020)           | 40              | \$742.56<br>\$21.84   |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |
| 50.8                                       | 2<br>2.000     | 25.400<br>(1.000)                         | 0.508<br>(0.020)           | 40              | \$1,136.96<br>\$33.44 |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

4 foot lengths, packaged in plastic bags.

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

**Withstands High Temps. and Abrasion  
2 to 1 Ratio  
Flexible Polyvinylidene Fluoride**



|          | Specification Reference                         |
|----------|---|
| UL       | ● UL-224 150°C, 600V                            |
| VW-1     | ● VW-1 File E-70631 YDQS2, Cat. No. Sumitube K2 |
| CSA      | ○   |
| MIL Spec | ● AMS-DTL-23053/18B, Class 1                    |

**Replaces**  
No Equivalent Available

|                        |  |
|------------------------|--|
| <b>Description</b>     | K2 is a tough and abrasion resistant in mechanical environments and has excellent properties for cut through and solvents.   |
| <b>Uses</b>            | K2 is recommended for applications where the properties of standard Kynar™ are desirable, but with the added benefits of flexibility, greater clarity, reduced shrink temperature and long continuous lengths. |
| <b>Operating Temp</b>  | -55°C, to +175°C   |
| <b>Shrink Temp</b>     | 150°C  |
| <b>Standard Put-up</b> | Spool  |

|                             | Property (units)  | Test Method                     | Requirements               |
|-----------------------------|---|---------------------------------|----------------------------|
| <b>Physical</b>             | Tensile Strength (psi)                                  | ASTM D638                       | 3500 MIN.                  |
|                             | Elongation (%)  | ASTM D638                       | 200 MIN.                   |
|                             | Specific gravity  | ASTM D792                       | 2.0 MAX.                   |
|                             | Low temp. flex (-55C)                                   | AMS-DTL-23053                   | No Cracking                |
|                             | Heat shock (275°C, 4 Hrs.)                              | AMS-DTL-23053                   | No Cracking                |
|                             | Heat resistance (250°C, 168 Hrs.)                       |                                 |                            |
|                             | Elongation (%)  | ASTM D638                       | 100 MIN.                   |
|                             | Secant modulus (psi)                                    | ASTM D882                       | 100,000 MIN.               |
|                             | Deformation (150°C, 1 hr) (%)                           | UL 224                          | 50 MAX.                    |
|                             | Longitudinal change (%)                                 | AMS-DTL-23053                   | ±10                        |
|                             | <b>Electrical</b>                                       | Dielectric strength (volts/mil) | ASTM D876                  |
| Volume resistivity (ohm-cm) |   | ASTM D876                       | 1.0 x 10 <sup>11</sup> MIN |
| <b>Chemical</b>             | Copper Stability (180°C, 168 Hrs.) Elongation (%)       | UL 224                          | 70% of unaged value min.   |
|                             | Water absorption (%)                                    | ASTM D570                       | 0.5 MAX.                   |
|                             | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053                   | 2000 MIN.                  |
|                             | Flammability  | UL 224 VW-1                     | Pass                       |
|                             | Shrink Temperature (nominal)                            |                                 | 150°C                      |
|                             | Vacuum Outgassing TML%                                  | ASTM E595                       | 1.0 MAX.                   |
| Vacuum Outgassing CVCM%     | ASTM E595   | 0.1 MAX.                        |                            |

## Wholesale Pricing on Full Spools/Bags

**Withstands High Temps. and Abrasion**  
**2 to 1 Ratio**  
**Flexible Polyvinylidene Fluoride**

K2

Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Spool<br>Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-------------------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                         |                       | per spool       | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet                 | per foot              | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                                     | 0.254<br>(0.010)                    | 1000                    | \$1,156.00<br>\$1.36  | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                                     | 0.254<br>(0.010)                    | 1000                    | \$1,181.50<br>\$1.39  | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                                     | 0.254<br>(0.010)                    | 500                     | \$620.50<br>\$1.46    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                                     | 0.254<br>(0.010)                    | 500                     | \$667.25<br>\$1.57    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                                     | 0.254<br>(0.010)                    | 200                     | \$435.20<br>\$2.56    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                                      | 0.3048<br>(0.012)                   | 200                     | \$542.30<br>\$3.19    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                                     | 0.3048<br>(0.012)                   | 200                     | \$605.20<br>\$3.56    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 12.7   | 1/2<br>0.500   | 6.350<br>(0.250)                                      | 0.3048<br>(0.012)                   | 200                     | \$855.10<br>\$5.03    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 15.9   | 5/8<br>0.625   | 7.9375<br>(0.3125)                                    | 0.4318<br>(0.017)                   | 200                     | \$992.80<br>\$5.84    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 19.1   | 3/4<br>0.750   | 9.525<br>(0.375)                                      | 0.4318<br>(0.017)                   | 200                     | \$1,570.80<br>\$9.24  | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 25.4   | 1<br>1.000     | 12.700<br>(0.500)                                     | 0.4826<br>(0.019)                   | 200                     | \$3,085.50<br>\$18.15 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 38.1   | 1-1/2<br>1.500 | 19.050<br>(0.750)                                     | 0.508<br>(0.020)                    | 200                     | \$4,085.10<br>\$24.03 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 50.8   | 2<br>2.000     | 25.400<br>(1.000)                                     | 0.508<br>(0.02)                     | 200                     | \$5,695.00<br>\$33.50 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # K3

**Withstands High Temps. and Abrasion  
2 to 1 Ratio  
Very Flexible Polyvinylidene Fluoride**



|          | Specification Reference      |
|----------|------------------------------|
| UL       | ● UL-224 150°C, 600V         |
| VW-1     | ● VW-1 File E-70631 YDQS2    |
| CSA      | ○                            |
| MIL Spec | ● AMS-DTL-23053/18B, Class 3 |

| Replaces       |
|----------------|
| 3M/ECC THV-150 |

|                        |   |
|------------------------|---|
| <b>Description</b>     | K3 is tough and abrasion resistant in mechanical environments. It also has excellent resistance to solvents.  |
| <b>Uses</b>            | K3 is recommended for applications where requiring clarity, flexibility and low shrink temperature, combined with the excellent fluid resistant capabilities of fluoropolymers. |
| <b>Operating Temp</b>  | -55°C, to +150°C  |
| <b>Shrink Temp</b>     | 90°C  |
| <b>Standard Put-up</b> | Spool   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.9 MAX.                   |
|                   | Low temp. flex (-55C)                                   | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (275°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance (250°C, 168 Hrs.) Elongation (%)        | ASTM D638     | 100 MIN.                   |
|                   | Secant modulus (psi)                                    | ASTM D882     | 2.5 X 10 <sup>4</sup> MAX  |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | ±10                        |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>12</sup> MIN |
| <b>Chemical</b>   | Copper Stability (180°C, 168 Hrs.) Elongation (%)       | UL 224        | 70% of unaged value min.   |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224 VW-1   | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 90°C                       |

**heatshrink.com™**



## Wholesale Pricing on Full Spools/Bags

**Withstands High Temps. and Abrasion  
2 to 1 Ratio  
Very Flexible Polyvinylidene Fluoride**

**K3** Part #

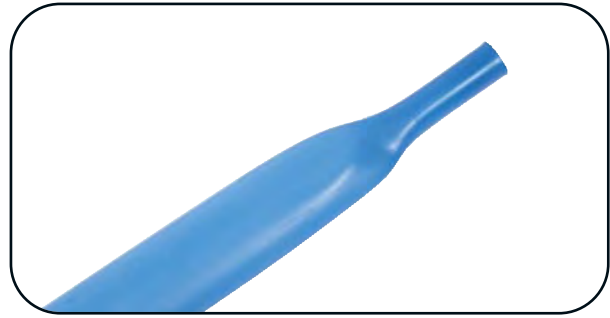
| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |             |         |           |          |        |        |       |      |        |      |       |       |
|--|----------------|---|----------------------------|-------------------|-----------------------|-----------------|-------------|---------|-----------|----------|--------|--------|-------|------|--------|------|-------|-------|
| mm   | inches         |   |                            |                   |                       | mm (inches)     | mm (inches) | in feet | per spool | per foot | BK     | BR     | RD    | OR   | YL     | GN   | BL    | VI    |
|  |                |   |                            |                   |                       |                 |             | black   | brown     | red      | orange | yellow | green | blue | violet | gray | white | clear |
| 1.2  | 3/64<br>0.0469 | 0.5842<br>(0.023)                         | 0.254<br>(0.010)           | 1000              | \$1,538.50<br>\$1.81  |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 1.6  | 1/16<br>0.0625 | 0.7874<br>(0.031)                         | 0.254<br>(0.010)           | 1000              | \$1,581.00<br>\$1.86  |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 2.4  | 3/32<br>0.0938 | 1.1684<br>(0.046)                         | 0.254<br>(0.010)           | 500               | \$833.00<br>\$1.96    |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.254<br>(0.010)           | 500               | \$892.50<br>\$2.10    |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.254<br>(0.010)           | 200               | \$583.10<br>\$3.43    |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.254<br>(0.010)           | 200               | \$725.90<br>\$4.27    |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 0.3048<br>(0.012)          | 200               | \$809.20<br>\$4.76    |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 0.3048<br>(0.012)          | 200               | \$1,144.10<br>\$6.73  |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 0.4318<br>(0.017)          | 200               | \$1,433.10<br>\$8.43  |                 |             |         |           |          |        |        |       |      |        |      |       |       |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)                         | 0.4826<br>(0.019)          | 200               | \$4,131.00<br>\$24.30 |                 |             |         |           |          |        |        |       |      |        |      |       |       |

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # O2B2

**Dual Wall Adhesive Lined**  
**2 to 1 Ratio**  
**Flexible Polyolefin**  
 (For clear use O2C)



|                 | Specification Reference                                |
|-----------------|--|
| <b>UL</b>       | ● UL 224, 125°C  |
| <b>VW-1</b>     | ● File E75077 YDTU2                                    |
| <b>CSA</b>      | ● LR 33298   |
| <b>MIL Spec</b> | ● AMS-DTL-23053/4D, Class 2 except longitudinal change |

| Replaces |         |
|----------|---------|
| Raychem  | TAT-125 |
| ALPHA    | FIT-750 |
| CANUSA   | CPA-100 |
| 3M/ECC   | EPS-200 |

|                        |   |
|------------------------|---|
| <b>Description</b>     | O2B2 is a flexible heat shrinkable polyolefin tubing with a modified polyamide adhesive inner wall which melts and flows to seal components within. |
| <b>Uses</b>            | O2B2 is recommended for applications in environmental conditions which require sealing against moisture. (For clear use O2C)                        |
| <b>Operating Temp</b>  | -55°C, to +110°C  |
| <b>Shrink Temp</b>     | 110°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Cold Impact (-55°C, 4 Hrs.)                             | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal Change (%)                                 | AMS-DTL-23053 | +1, -5                     |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>14</sup> MIN |
| <b>Chemical</b>   | Corrosion   | UL 224        | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | UL 224        | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 110°C                      |

## Wholesale Pricing on Full Spools/Bags

**Dual Wall Adhesive Lined**  
**2 to 1 Ratio**  
**Flexible Polyolefin**  
(For clear use O2C)

O2B2 Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Bag<br>Length | Price:             | Color Selection |       |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-----------------------|--------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                       |                    | per bag         | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet               | per foot           | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 3.2  | 1/8<br>0.125   | 1.600<br>(0.062)                                      | 0.660<br>(0.026)                    | 200                   | \$215.90<br>\$1.27 | ●               | ■     | ●   | ■      | ▲      | ▲     | ●    | ■      | ■    | ●     | ■     |    |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                                     | 0.6604<br>(0.026)                   | 200                   | \$265.20<br>\$1.56 | ●               | ■     | ●   | ■      | ▲      | ▲     | ●    | ■      | ■    | ●     | ■     |    |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                                      | 0.762<br>(0.030)                    | 200                   | \$329.80<br>\$1.94 | ●               | ■     | ●   | ■      | ●      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                                     | 0.762<br>(0.030)                    | 100                   | \$183.60<br>\$2.16 | ●               | ■     | ●   | ■      | ●      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 12.7   | 1/2<br>0.500   | 6.350<br>(0.250)                                      | 0.762<br>(0.030)                    | 100                   | \$208.25<br>\$2.45 | ●               | ■     | ●   | ■      | ●      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 19.1   | 3/4<br>0.750   | 9.525<br>(0.375)                                      | 0.889<br>(0.035)                    | 60                    | \$166.26<br>\$3.26 | ●               | ■     | ●   | ■      | ●      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 25.4   | 1<br>1.000     | 12.700<br>(0.500)                                     | 1.0668<br>(0.042)                   | 60                    | \$248.88<br>\$4.88 | ●               | ■     | ●   | ■      | ●      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 31.8   | 1-1/4<br>1.250 | 15.875<br>(0.625)                                     | 1.0668<br>(0.042)                   | 40                    | \$209.10<br>\$6.15 | ●               | ■     | ●   | ■      | ■      | ●     | ●    | ■      | ■    | ●     | ■     |    |
| 38.1   | 1-1/2<br>1.500 | 19.050<br>(0.750)                                     | 1.0668<br>(0.042)                   | 40                    | \$276.42<br>\$8.13 | ●               | ■     | ■   | ■      | ■      | ■     | ■    | ■      | ■    | ■     | ■     |    |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

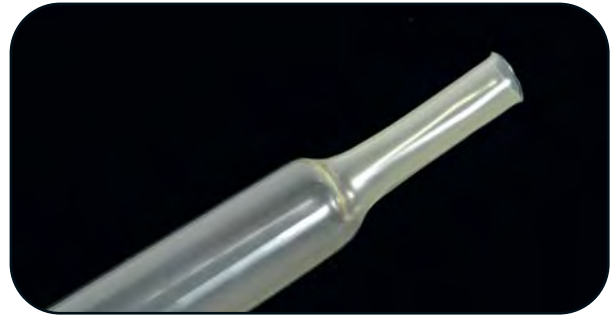
4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # O2C

**Dual Wall Adhesive Lined**  
**2 to 1 Ratio**  
**Flexible Polyolefin**  
 (For colors use O2B2)



|          | Specification Reference |
|----------|-------------------------|
| UL       | ○                       |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

**Replaces**  
 Raychem TAT-Clear

|                        |  |
|------------------------|--|
| <b>Description</b>     | O2C is a flexible, clear heat shrinkable polyolefin tubing with a modified polyamide adhesive inner wall which melts and flows to seal components within.                                  |
| <b>Uses</b>            | O2C is recommended for applications in environmental conditions which require sealing against moisture and where visual inspection of the substrate is important.<br>(For colors use O2B2) |
| <b>Operating Temp</b>  | -55°C, to +110°C   |
| <b>Shrink Temp</b>     | 115°C  |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Cold Impact (-55°C, 4 Hrs.)                             | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal Change (%)                                 | AMS-DTL-23053 | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>15</sup> MIN |
| <b>Chemical</b>   | Corrosion (121°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Shrink Temperature (nominal)                            |               | 115°C                      |

## Wholesale Pricing on Full Spools/Bags

**Dual Wall Adhesive Lined  
2 to 1 Ratio  
Flexible Polyolefin  
(For colors use O2B2)**

O2C

Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Bag<br>Length | Price:             | Color Selection |       |     |        |        |       |      |        |      |       |       |
|--|----------------|---|-------------------------------------|-----------------------|--------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|
|  |                |   |                                     |                       |                    | per bag         | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet               | per foot           | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |
| 3.2  | 1/8<br>0.125   | 1.5875<br>(0.0625)                                    | 0.6604<br>(0.026)                   | 200                   | \$195.50<br>\$1.15 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                                     | 0.6604<br>(0.026)                   | 200                   | \$239.70<br>\$1.41 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                                      | 0.762<br>(0.030)                    | 200                   | \$299.20<br>\$1.76 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                                     | 0.762<br>(0.030)                    | 100                   | \$166.60<br>\$1.96 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 12.7   | 1/2<br>0.500   | 6.35<br>(0.250)                                       | 0.762<br>(0.030)                    | 100                   | \$188.70<br>\$2.22 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 19.1   | 3/4<br>0.750   | 9.525<br>(0.375)                                      | 0.889<br>(0.035)                    | 60                    | \$150.96<br>\$2.96 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 25.4   | 1<br>1.000     | 12.7<br>(0.500)                                       | 1.0668<br>(0.042)                   | 60                    | \$225.93<br>\$4.43 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |
| 38.1   | 1-1/2<br>1.500 | 19.050<br>(0.750)                                     | 1.067<br>(0.042)                    | 40                    | \$276.42<br>\$8.13 | X               | X     | X   | X      | X      | X     | X    | X      | X    | X     | ●     |

**Available in Clear Only  
(For colors use O2B2)**

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # R10

## Flexible Chlorinated Polyolefin 2 to 1 Ratio



|          | Specification Reference          |
|----------|----------------------------------|
| UL       | ○                                |
| VW-1     | ○                                |
| CSA      | ○                                |
| MIL Spec | ● AMS-DTL-23053/1C Classes 1 & 2 |

| Replaces |                            |
|----------|----------------------------|
| Raychem  | NT(RT-510)<br>NTFR(RT-511) |
| 3M/ECC   | NST                        |
| Alpha    | FIT-600                    |

|                        |  |
|------------------------|--|
| <b>Description</b>     | R10 is a rubber-like, flame retarded chlorinated polyolefin heat-shrinkable tubing which meets all the requirements of MIL Specifications AMS-DTL-23053/1C Classes 1 and 2 and MIL-R-46846 Type 1, Class 1 |
| <b>Uses</b>            | R10 is recommended for general purpose applications which require excellent abrasion and chemical resistance, such as diesel fuel environments. R10 has excellent properties at low temperatures.          |
| <b>Operating Temp</b>  | -75°C, to +120°C, and up to 200°C, for short term durations.   |
| <b>Shrink Temp</b>     | 150°C  |
| <b>Standard Put-up</b> | Spool  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 250 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.3 MAX.                   |
|                   | Low temp. flex (-75°C)                                  | AMS-DTL-23053 | No Cracking                |
|                   | Heat shock (200°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Heat resistance, 150°C, 168 Hrs, Elongation (%)         | ASTM D638     | 200 MIN.                   |
|                   | Tensile Strength @ 200% elongation (psi)                | ASTM D412     | 2500 MAX.                  |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +1, -10                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 300 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>11</sup> MIN |
| <b>Chemical</b>   | Corrosion (150°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 1.0 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  | AMS-DTL-23053 | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 130° C                     |

**heatshrink.com**<sup>TM</sup>

# Wholesale Pricing on Full Spools/Bags

Flexible Chlorinated Polyolefin  
2 to 1 Ratio

**R10** Part #

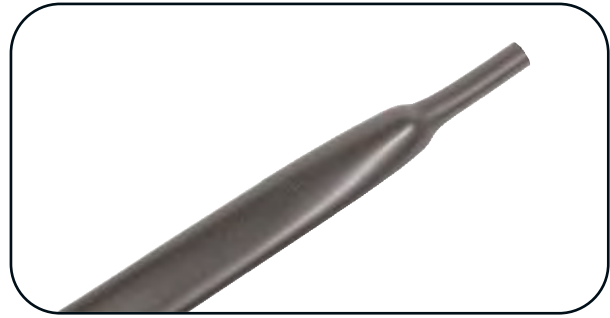
| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |  |
|--|----------------|---|----------------------------|-------------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|--|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet           | per spool<br>per foot | BK              | BR    | RD  | OR     | YL     | GN    | BL   | VI     | GY   | WH    | CL    |  |
|  |                |   |                            |                   |                       | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |  |
| 2.4  | 3/32<br>0.0938 | 1.190625<br>(0.04687)                     | 0.6858<br>(0.027)          | 500               | \$667.25<br>\$1.57    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                         | 0.6858<br>(0.027)          | 500               | \$722.50<br>\$1.70    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                         | 0.8382<br>(0.033)          | 200               | \$353.60<br>\$2.08    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                          | 0.889<br>(0.035)           | 200               | \$440.30<br>\$2.59    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                         | 1.016<br>(0.040)           | 100               | \$245.65<br>\$2.89    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 12.7                                       | 1/2<br>0.500   | 6.350<br>(0.250)                          | 1.2192<br>(0.048)          | 100               | \$277.95<br>\$3.27    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 15.9                                       | 5/8<br>0.625   | 8.001<br>(0.315)                          | 1.2954<br>(0.051)          | 100               | \$305.15<br>\$3.59    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 19.1                                       | 3/4<br>0.750   | 9.525<br>(0.375)                          | 1.400<br>(0.057)           | 100               | \$370.60<br>\$4.36    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 22.2                                       | 7/8<br>0.875   | 10.9982<br>(0.433)                        | 1.651<br>(0.065)           | 100               | \$439.45<br>\$5.17    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 25.4                                       | 1<br>1.000     | 12.700<br>(0.500)                         | 1.778<br>(0.070)           | 100               | \$554.20<br>\$6.52    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 31.8                                       | 1-1/4<br>1.250 | 15.875<br>(0.625)                         | 2.032<br>(0.080)           | 100               | \$725.05<br>\$8.53    |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 38.1                                       | 1-1/2<br>1.500 | 19.05<br>(0.750)                          | 2.032<br>(0.080)           | 100               | \$983.45<br>\$11.57   |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 44.5                                       | 1-3/4<br>1.750 | 22.225<br>(0.875)                         | 2.413<br>(0.095)           | 100               | \$1,183.20<br>13.92   |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |
| 50.8                                       | 2<br>2.000     | 25.4<br>(1.000)                           | 2.413<br>(0.095)           | 100               | \$1,359.15<br>15.99   |                 | X     | X   | X      | X      | X     | X    | X      | X    | X     | X     |  |

|                     |                             |                              |                              |              |
|---------------------|-----------------------------|------------------------------|------------------------------|--------------|
|                     |                             |                              |                              |              |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | Not Possible |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # R120

**Flexible Elastomeric Polyolefin  
2 to 1 Ratio**



| Specification Reference |                     |
|-------------------------|---------------------|
| UL                      | ○                   |
| VW-1                    | ○                   |
| CSA                     | ○                   |
| MIL Spec                | ● AMS-DTL-23053/16B |

| Replaces |                |
|----------|----------------|
| Raychem  | DR-25(RT-1116) |
| 3M/ECC   | PSTH           |

|                        |  |
|------------------------|--|
| <b>Description</b>     | R120 is a heat-shrinkable flame retarded elastomer tubing specifically formulated for long term resistance to fluids, heat and mechanical abuse.                               |
| <b>Uses</b>            | R120 is recommended for protecting cables and wire harnesses on military ground vehicles. It is ideal for a variety of applications requiring ruggedness and fluid resistance. |
| <b>Operating Temp</b>  | -75°C, to +120°C.  |
| <b>Shrink Temp</b>     | 150°C  |
| <b>Standard Put-up</b> | Spool  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1700 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 250 MIN.                   |
|                   | Specific gravity  | ASTM D792     | 1.5 MAX.                   |
|                   | Low temp. flex (-65°C)                                  | AMS-DTL-23053 | Pass                       |
|                   | Heat shock (200°C, 4 Hrs.)                              | AMS-DTL-23053 | Pass                       |
|                   | Heat resistance, (150°C, 168 Hrs.)                      |               |                            |
|                   | Tensile stress (psi)                                    | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Tensile Strength @ 100% elongation (psi)                | ASTM D412     | 1500 MAX.                  |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | ±10                        |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 300 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>10</sup> MIN |
| <b>Chemical</b>   | Corrosion, copper contact (121°C, 16 Hrs.)              | AMS-DTL-23053 | No Corrosion               |
|                   | copper mirror (135°C, 16 Hrs.)                          | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 2.0 MAX.                   |
|                   | Fluid resistance (23°C, 24 Hrs.) Tensile strength (psi) | AMS-DTL-23053 | 1500 MIN.                  |
|                   | Flammability  | AMS-DTL-23053 | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 130° C                     |

**heatshrink.com**<sup>TM</sup>



## Wholesale Pricing on Full Spools/Bags

Flexible Chlorinated  
Polyolefin  
2 to 1 Ratio

# R120

Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Spool<br>Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-------------------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                         |                       | per spool       | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet                 | per foot              | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 3.2  | 1/8<br>0.125   | 1.5748<br>(0.062)                                     | 0.6858<br>(0.027)                   | 500                     | \$722.50<br>\$1.70    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 4.8  | 3/16<br>0.1875 | 2.3622<br>(0.093)                                     | 0.8382<br>(0.033)                   | 200                     | \$353.60<br>\$2.08    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 6.4  | 1/4<br>0.250   | 3.175<br>(0.125)                                      | 0.889<br>(0.035)                    | 200                     | \$440.30<br>\$2.59    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 9.5  | 3/8<br>0.375   | 4.7498<br>(0.187)                                     | 1.016<br>(0.040)                    | 100                     | \$245.65<br>\$2.89    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 12.7   | 1/2<br>0.500   | 6.350<br>(0.250)                                      | 1.2192<br>(0.048)                   | 100                     | \$277.95<br>\$3.27    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 19.1   | 3/4<br>0.750   | 9.525<br>(0.375)                                      | 1.400<br>(0.057)                    | 100                     | \$370.60<br>\$4.36    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 22.2   | 7/8<br>0.875   | 10.9982<br>(0.433)                                    | 1.651<br>(0.065)                    | 100                     | \$439.45<br>\$5.17    | ◀               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 25.4   | 1<br>1.000     | 12.700<br>(0.500)                                     | 1.778<br>(0.070)                    | 100                     | \$554.20<br>\$6.52    | ●               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 31.75  | 1-1/4<br>1.250 | 15.875<br>(0.625)                                     |                                     | 100                     | \$725.05<br>\$8.53    | ◀               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 38.1   | 1-1/2<br>1.500 | 19.100<br>(0.750)                                     | 2.400<br>(0.094)                    | 100                     | \$983.45<br>11.57     | ◀               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 44.45  | 1-3/4<br>1.750 | 22.22<br>(0.875)                                      |                                     | 100                     | \$1,183.20<br>\$13.92 | ◀               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |
| 50.8   | 2<br>2.000     | 25.4<br>(1.000)                                       | 2.800<br>(0.110)                    | 100                     | \$1,358.30<br>\$15.98 | ◀               | ✘     | ✘   | ✘      | ✘      | ✘     | ✘    | ✘      | ✘    | ✘     | ✘     |    |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # SCM

**Dual Wall with Adhesive**  
**3 to 1 Ratio**  
**Medium Wall**



|          | Specification Reference |
|----------|-------------------------|
| UL       | ○                       |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

**Replaces**  
 No Equivalent Available

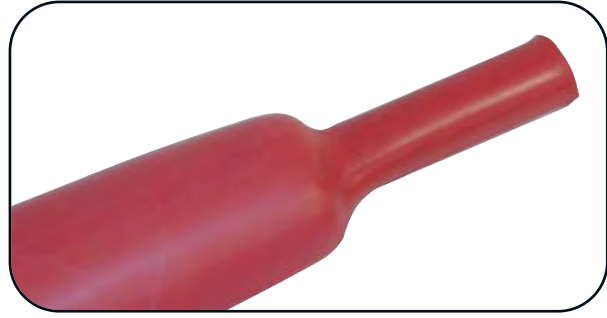
|                        |   |
|------------------------|---|
| <b>Description</b>     | SCM is a medium wall, flame retardant, heat shrinkable polyolefin tubing with large expansion ratios and an inner liner of hot melt adhesive.   |
| <b>Uses</b>            | Typical applications include covering of splices and electrical terminations. SCM sleeves provide seals with a variety of synthetic sheath materials and most metals, including lead, aluminum and steel. The material is tough and provides good mechanical support and strain relief. |
| <b>Operating Temp</b>  | -40°C, to +110°C  |
| <b>Shrink Temp</b>     | 110°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |
| <b>Marking</b>         | Irrax sleeve (Size)   |

|                   | Property (units)                  | Test Method   | Requirements               |
|-------------------|-----------------------------------|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)            | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)                    | ASTM D638     | 350 MIN.                   |
|                   | Low temp. flex (-40°C)            | ASTM D2671    | No Cracking                |
|                   | Heat shock (200°C, 4 Hrs.)        | ASTM D2671    |                            |
|                   | Heat resistance (150°C, 168 Hrs.) | ASTM D2671    | No Cracking                |
|                   | Tensile Strength (psi)            |               | 80% of Orig. Min.          |
|                   | Elongation (%)                    |               | 85% of Orig. Min.          |
|                   | Longitudinal change (%)           | AMS-DTL-23053 | 0, -10                     |
| <b>Electrical</b> | Dielectric strength (volts/mil)   | ASTM D876     | 350 MIN.                   |
|                   | Volume resistivity (ohm-cm)       | ASTM D876     | 1.0 x 10 <sup>13</sup> MIN |
| <b>Chemical</b>   | Water absorption (%)              | ASTM D570     | 0.5 MAX.                   |
|                   | Shrink Temperature (nominal)      |               | 110°C                      |



# Part # W3B2

**Dual Wall Adhesive Lined**  
**3 to 1 Ratio**  
**Flexible Polyolefin**  
 (For clear use W3C)



|                 | Specification Reference                                |
|-----------------|--|
| <b>UL</b>       | ● UL 224, 125°C, 600V                                  |
| <b>VW-1</b>     | ● File E75077 YDTU2 Cat. No. SUMITUBE W3B2             |
| <b>CSA</b>      | ● CSA LR33298  |
| <b>MIL Spec</b> | ● AMS-DTL-25053/4C, Class 3 except longitudinal change |

| Replaces |               |
|----------|---------------|
| Raychem  | ATUM(RK-1900) |
| 3M/ECC   | EPS-300       |
| Alpha    | FIT-321       |

|                        |  |
|------------------------|--|
| <b>Description</b>     | W3B2 is a flexible, flame retardant heat-shrinkable polyolefin tubing with a thick wall of modified polyamide adhesive which melts and flows, encapsulating and sealing components contained within. (For clear use W3C).              |
| <b>Uses</b>            | W3B2 is recommended for applications requiring water-proofing for light cable and wire harnesses and protection of connector components. Its 3 to 1 shrink ratio allows it to easily fit over irregular surfaces and large connectors. |
| <b>Operating Temp</b>  | -55°C, to +110°C   |
| <b>Shrink Temp</b>     | 110°C  |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.  |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 250 MIN.                   |
|                   | Cold Impact (-55°C)                                     | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +1, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 300 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>12</sup> MIN |
| <b>Chemical</b>   | Corrosion   | UL 224        | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 1.0 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 900 MIN.                   |
|                   | Flammability  | UL 224        | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 110°C                      |

## Wholesale Pricing on Full Spools/Bags

**Dual Wall Adhesive Lined**  
**3 to 1 Ratio**  
**Flexible Polyolefin**  
(For clear use W3C)

W3B2

Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |             | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Bag<br>Length | Price:                | Color Selection |       |     |        |        |       |      |        |      |       |       |    |
|--|-------------|---|-------------------------------------|-----------------------|-----------------------|-----------------|-------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |             |   |                                     |                       |                       | per bag         | BK    | BR  | RD     | OR     | YL    | GN   | BL     | VI   | GY    | WH    | CL |
| mm   | inches      | mm<br>(inches)  | mm<br>(inches)                      | in feet               | per foot              | black           | brown | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 3  | —<br>0.1181 | 0.6096<br>(0.024)                                     | 0.9398<br>(0.037)                   | 200                   | \$260.10<br>\$1.53    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 4.5  | —<br>0.1870 | 1.4986<br>(0.059)                                     | 1.0922<br>(0.043)                   | 200                   | \$317.90<br>\$1.87    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 6  | —<br>0.2362 | 2.0066<br>(0.079)                                     | 1.1938<br>(0.047)                   | 200                   | \$396.10<br>\$2.33    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 9  | —<br>0.3543 | 2.9972<br>(0.118)                                     | 1.2954<br>(0.051)                   | 100                   | \$220.15<br>\$2.59    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 12   | —<br>0.4724 | 3.9878<br>(0.157)                                     | 1.397<br>(0.055)                    | 100                   | \$249.05<br>\$2.93    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 19   | —<br>0.7480 | 5.9944<br>(0.236)                                     | 1.8034<br>(0.071)                   | 60                    | \$199.41<br>\$3.91    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 24   | —<br>0.9448 | 8.001<br>(0.315)                                      | 2.4892<br>(0.098)                   | 60                    | \$298.35<br>\$5.85    | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 40   | —<br>1.5748 | 13.0048<br>(0.512)                                    | 2.4892<br>(0.098)                   | 40                    | \$641.58<br>\$18.87   | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |
| 50   | —<br>1.9685 | 16.600<br>(0.654)                                     | 2.2606<br>(0.089)                   | 40                    | \$1,032.58<br>\$30.37 | ●               | ●     | ●   | ●      | ●      | ●     | ●    | ●      | ●    | ●     | ●     |    |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

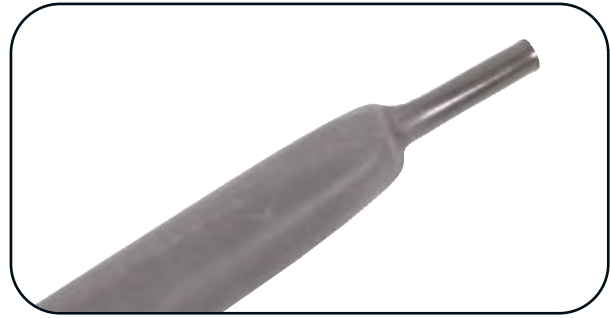
4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # **W3B2(4X)**

**Dual Wall Adhesive Lined  
4 to 1 Ratio  
Flexible Polyolefin**



|          | Specification Reference |
|----------|-------------------------|
| UL       | ● UL 224, 125°C, 600V   |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

| Replaces |           |
|----------|-----------|
| Raychem  | ATUM (4X) |
| 3M/ECC   | EPS-400   |

|                        |   |
|------------------------|---|
| <b>Description</b>     | W3B2(4X) is an over-expanded flexible, flame retardant heat-shrinkable polyolefin tubing with a thick wall of modified polyamide adhesive which melts and flows, encapsulating and sealing components contained within.                         |
| <b>Uses</b>            | W3B2(4X) is recommended for applications requiring water-proofing for light cable and wire harnesses and protection of connector components. Its 4 to 1 shrink ratio allows it to easily fit over very irregular surfaces and large connectors. |
| <b>Operating Temp</b>  | -55°C, to +110°C  |
| <b>Shrink Temp</b>     | 110°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 250 MIN.                   |
|                   | Cold Impact (-55°C)                                     | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +5, -15                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 300 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>10</sup> MIN |
| <b>Chemical</b>   | Corrosion   | UL 224        | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 1.0 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 900 MIN.                   |
|                   | Flammability  | UL 224        | Pass                       |
|                   | Shrink Temperature (nominal)                            |               | 110°C                      |

**Wholesale Pricing  
on Full Spools/Bags**

**W3B2(4X)** Part #

Dual Wall Adhesive Lined 4 to 1 Ratio  
Flexible Polyolefin

| Inside Diameter Before Shrinking (minimum) |             | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Spool Length | Price:              | Color Selection |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
|--|-------------|---|----------------------------|-------------------|---------------------|-----------------|-------------|---------|---------|----------|--------|--------|-------|------|--------|------|-------|-------|----|----|
| mm   | inches      |   |                            |                   |                     | mm (inches)     | mm (inches) | in feet | per bag | per foot | BK     | BR     | RD    | OR   | YL     | GN   | BL    | VI    | GY | WH |
|  |             |   |                            |                   |                     |                 |             | black   | brown   | red      | orange | yellow | green | blue | violet | gray | white | clear |    |    |
| 4  | —<br>0.1574 | 0.9906<br>(0.039)                         | 1.016<br>(0.040)           | 200               | \$399.50<br>\$2.35  |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 8  | —<br>0.3149 | 2.0066<br>(0.079)                         | 1.2192<br>(0.048)          | 100               | \$303.45<br>\$3.57  |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 12   | —<br>0.4724 | 2.9972<br>(0.118)                         | 1.397<br>(0.055)           | 100               | \$373.15<br>\$4.39  |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 16   | —<br>0.6299 | 3.9878<br>(0.157)                         | 1.8034<br>(0.071)          | 100               | \$629.00<br>\$7.40  |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 24   | —<br>0.9448 | 5.9944<br>(0.236)                         | 2.2606<br>(0.089)          | 60                | \$507.45<br>\$9.95  |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 32   | —<br>1.2600 | 8.000<br>(0.315)                          | 2.540<br>(0.100)           | 40                | \$563.72<br>\$16.58 |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |
| 52   | —<br>2.0470 | 13.000<br>(0.512)                         | 2.540<br>(0.100)           | 40                | \$834.36<br>\$24.54 |                 |             |         |         |          |        |        |       |      |        |      |       |       |    |    |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

4 foot lengths, packaged in plastic bags.

|                     |                             |                              |                              |                     |
|---------------------|-----------------------------|------------------------------|------------------------------|---------------------|
|                     |                             |                              |                              |                     |
| Lead Time:<br>1 day | Lead Time:<br>up to 50 days | Lead Time:<br>up to 100 days | Lead Time:<br>up to 200 days | <b>Not Possible</b> |

The above lead time guidelines are estimated only. They may be longer (not usually) or they may be shorter (typically). Regarding products with 100 & 200 day lead time; pricing may vary, and a minimum order with deposit may be required. Oh... and by the way, everything can change without notice and/or liability.

# Part # W3C

Clear  
 Dual Wall Adhesive Lined  
 3 to 1 Ratio  
 Flexible Polyolefin  
 (For colors use W3B2)



|          | Specification Reference |
|----------|-------------------------|
| UL       | ○                       |
| VW-1     | ○                       |
| CSA      | ○                       |
| MIL Spec | ○                       |

**Replaces**  
 Raychem ATUM Clear

|                        |   |
|------------------------|---|
| <b>Description</b>     | W3C is a clear, flexible, flame retardant heat-shrinkable polyolefin tubing with a thick wall of modified polyamide adhesive which melts and flows, encapsulating and sealing components contained within. (For colors use W3B2).     |
| <b>Uses</b>            | W3C is recommended for applications requiring water-proofing for light cable and wire harnesses and protection of connector components. Its 3 to 1 shrink ratio allows it to easily fit over irregular surfaces and large connectors. |
| <b>Operating Temp</b>  | -55°C, to +110°C  |
| <b>Shrink Temp</b>     | 115°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Cold Impact (-55°C)                                     | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Longitudinal change (%)                                 | AMS-DTL-23053 | +5, -15                    |
|                   | Secant modulus (psi)                                    | AMS-DTL-23053 | 25000 MAX.                 |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM D876     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>15</sup> MIN |
| <b>Chemical</b>   | Corrosion (121°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 900 MIN.                   |
|                   | Flammability  |               | N/A                        |
|                   | Shrink Temperature (nominal)                            |               | 115°C                      |



## Wholesale Pricing on Full Spools/Bags

**Clear**  
**Dual Wall Adhesive Lined**  
**3 to 1 Ratio**  
**Flexible Polyolefin**  
(For colors use W3B2)

W3C

Part #

| Inside Diameter<br>Before Shrinking<br>(minimum) |                | Inside<br>Diameter<br>After<br>Shrinking<br>(maximum) | Post<br>Shrink<br>Wall<br>Thickness | Full<br>Bag<br>Length | Price:             | Color Selection |          |     |        |        |       |      |        |      |       |       |    |
|--|----------------|---|-------------------------------------|-----------------------|--------------------|-----------------|----------|-----|--------|--------|-------|------|--------|------|-------|-------|----|
|  |                |   |                                     |                       |                    | per bag         | per foot | BK  | BR     | RD     | OR    | YL   | GN     | BL   | VI    | GY    | WH |
| mm   | inches         | mm<br>(inches)  | mm<br>(inches)                      | in feet               |                    | black           | brown    | red | orange | yellow | green | blue | violet | gray | white | clear |    |
| 3.2  | 1/8<br>0.125   | 0.600<br>(0.023)                                      | 0.960<br>(0.038)                    | 200                   | \$217.60<br>\$1.28 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 4.8  | 3/16<br>0.1875 | 1.500<br>(0.059)                                      | 1.092<br>(0.043)                    | 200                   | \$249.90<br>\$1.47 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 6.4  | 1/4<br>0.250   | 2.000<br>(0.078)                                      | 1.193<br>(0.047)                    | 200                   | \$311.10<br>\$1.83 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 9.5  | 3/8<br>0.375   | 3.000<br>(0.118)                                      | 1.270<br>(0.050)                    | 100                   | \$173.40<br>\$2.04 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 12.7   | 1/2<br>0.500   | 4.000<br>(0.157)                                      | 1.397<br>(0.055)                    | 100                   | \$196.35<br>\$2.31 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 19.1   | 3/4<br>0.750   | 8.000<br>(0.315)                                      | 1.650<br>(0.065)                    | 60                    | \$157.08<br>\$3.08 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |
| 25.4   | 1<br>1.000     | 10.200<br>(0.400)                                     | 1.900<br>(0.075)                    | 60                    | \$235.11<br>\$4.61 | X               | X        | X   | X      | X      | X     | X    | X      | X    | X     | X     |    |

**Available in Clear Only**  
(For colors use W3B2)

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

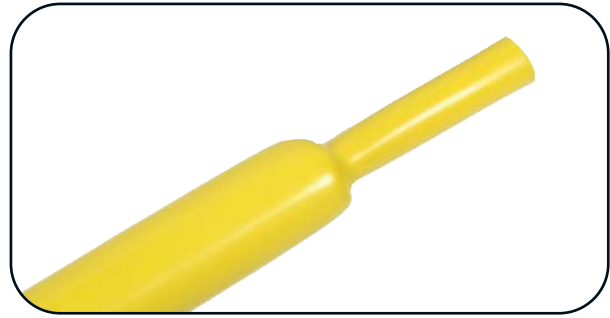
4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

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# Part # W5DL

**Semi-Rigid Dual Wall  
with Encapsulant  
3 to 1 Ratio**



|          | Specification Reference    |
|----------|----------------------------|
| UL       | ● UL 224, 125°C, 600V      |
| VW-1     | ○                          |
| CSA      | ● CSA C22.2 No. 198.1-98   |
| MIL Spec | ● AMS-DTL-23053/4, Class 1 |

| Replaces |              |
|----------|--------------|
| Raychem  | SCL(RT-1301) |
| 3M/ECC   | MW           |
| Alpha    | FIT-300      |

|                        |   |
|------------------------|---|
| <b>Description</b>     | W5DL is a semi-rigid, dual wall polyolefin heat-shrinkable tubing. When heated the inner liner melts and flows to encapsulate (not adhesive lined) components or splices contained within.  |
| <b>Uses</b>            | W5DL is recommended in applications for connections and wire harnesses where filling voids and interstices is of importance. W5DL provides good strain relief because it does not adhere to the substrate material; it can be removed for repair of components. |
| <b>Operating Temp</b>  | -55°C, to +110°C  |
| <b>Shrink Temp</b>     | 130°C   |
| <b>Standard Put-up</b> | Bag - 4 foot lengths, packaged in plastic bags.   |

|                   | Property (units)  | Test Method   | Requirements               |
|-------------------|---|---------------|----------------------------|
| <b>Physical</b>   | Tensile Strength (psi)                                  | ASTM D638     | 1500 MIN.                  |
|                   | Elongation (%)  | ASTM D638     | 200 MIN.                   |
|                   | Cold Impact (-55°C)                                     | ASTM D746     | No Cracking                |
|                   | Heat shock (250°C, 4 Hrs.)                              | AMS-DTL-23053 | No Cracking                |
|                   | Secant modulus (psi)                                    | ASTM D882     | 25000 MAX.                 |
|                   | Longitudinal change                                     | AMS-DTL-23053 | +1, -10                    |
| <b>Electrical</b> | Dielectric strength (volts/mil)                         | ASTM 2671     | 500 MIN.                   |
|                   | Volume resistivity (ohm-cm)                             | ASTM D876     | 1.0 x 10 <sup>15</sup> MIN |
| <b>Chemical</b>   | Corrosion (121°C, 16 Hrs.)                              | AMS-DTL-23053 | No Corrosion               |
|                   | Water absorption (%)                                    | ASTM D570     | 0.5 MAX.                   |
|                   | Fluid Resistance (23°C, 24 Hrs.) Tensile Strength (psi) | AMS-DTL-23053 | 1000 MIN.                  |
|                   | Flammability  |               | N/A                        |
|                   | Shrink Temperature (nominal)                            |               | 140°C                      |

**Wholesale Pricing  
on Full Spools/Bags**

**Semi-Rigid Dual Wall  
with Encapsulant  
3 to 1 Ratio**

**W5DL** Part #

| Inside Diameter Before Shrinking (minimum) |                | Inside Diameter After Shrinking (maximum) | Post Shrink Wall Thickness | Full Bag Length | Price:             | Color Selection |        |     |         |         |        |       |         |       |        |       |   |
|--|----------------|---|----------------------------|-----------------|--------------------|-----------------|--------|-----|---------|---------|--------|-------|---------|-------|--------|-------|---|
| mm   | inches         | mm (inches)                               | mm (inches)                | in feet         | per bag per foot   | BK              | BR     | RD  | OR      | YL      | GN     | BL    | VI      | GY    | WH     | CL    |   |
|  |                |   |                            |                 |                    | black,          | brown, | red | orange, | yellow, | green, | blue, | violet, | gray, | white, | clear |   |
| 3.2  | 1/8<br>0.125   | 0.5842<br>(0.023)                         | 0.9652<br>(0.038)          | 200             | \$260.10<br>\$1.53 | ●               | ●      | ⊗   | ⊗       | ⊗       | ⊗      | ⊗     | ⊗       | ⊗     | ⊗      | ⊗     | ⊗ |
| 4.8  | 3/16<br>0.1875 | 1.524<br>(0.060)                          | 1.0922<br>(0.043)          | 200             | \$317.90<br>\$1.87 | ●               | ⊗      | ●   | ⊗       | ⊗       | ⊗      | ⊗     | ⊗       | ●     | ●      | ⊗     | ⊗ |
| 6.4  | 1/4<br>0.250   | 2.032<br>(0.080)                          | 1.1938<br>(0.047)          | 200             | \$396.10<br>\$2.33 | ●               | ⊗      | ●   | ⊗       | ⊗       | ⊗      | ⊗     | ⊗       | ●     | ●      | ⊗     | ⊗ |
| 9.5  | 3/8<br>0.375   | 3.429<br>(0.135)                          | 1.270<br>(0.050)           | 100             | \$220.15<br>\$2.59 | ●               | ⊗      | ●   | ⊗       | ⊗       | ⊗      | ●     | ⊗       | ●     | ●      | ⊗     | ⊗ |
| 12.7                                       | 1/2<br>0.500   | 4.953<br>(0.195)                          | 1.397<br>(0.055)           | 100             | \$249.05<br>\$2.93 | ●               | ⊗      | ●   | ⊗       | ⊗       | ⊗      | ●     | ⊗       | ⊗     | ●      | ⊗     | ⊗ |
| 19.1                                       | 3/4<br>0.750   | 7.9502<br>(0.313)                         | 1.651<br>(0.065)           | 60              | \$199.41<br>\$3.91 | ●               | ⊗      | ⊗   | ⊗       | ●       | ⊗      | ⊗     | ⊗       | ⊗     | ⊗      | ⊗     | ⊗ |
| 25.4                                       | 1<br>1.000     | 10.160<br>(0.400)                         | 1.905<br>(0.075)           | 60              | \$298.35<br>\$5.85 | ●               | ⊗      | ⊗   | ⊗       | ⊗       | ⊗      | ⊗     | ⊗       | ⊗     | ⊗      | ⊗     | ⊗ |

**NOTE:** Some types of heat shrink, for instance semi-rigid and dual wall types are manufactured in 4 foot lengths. The rigid and semi-rigid ones do not bend without kinking, the adhesives in dual walls tend to stick or block shut when spooled.

4 foot lengths, packaged in plastic bags.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| Lead Time:<br>1 day   | Lead Time:<br>up to 50 days   | Lead Time:<br>up to 100 days  | Lead Time:<br>up to 200 days  | <b>Not Possible</b>   |

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## Discounts

Special discounting for OEM, wholesalers, dealers and distributors.  
Maximum discount will vary depending on the product.  
Please call for discount levels.

## Cutting

Usual price is \$1 per thousand cuts/bagged/min., *(orders under 1000 pieces are subject to a \$10 cut charge)*

Diameter 3/64" to 6"

Cut to most desired lengths.

Depending on length and diameter tolerance is routinely +/- 0.015".

24 hour turn around time on most products.

**Most orders ship same day.**

# **heatshrink.com**

*Heat Shrink Tubing — Cutting — Printing*

**2752 South 1900 West — Ogden, Utah 84401**

**ph: 801-621-1501 — fax: 801-627-6980**

[www.heatshrink.com](http://www.heatshrink.com)

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