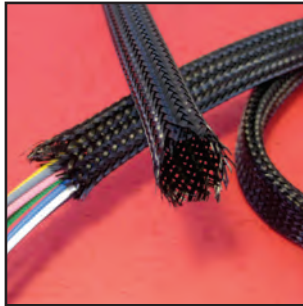
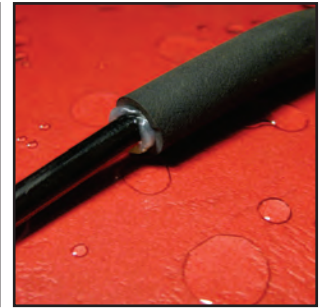
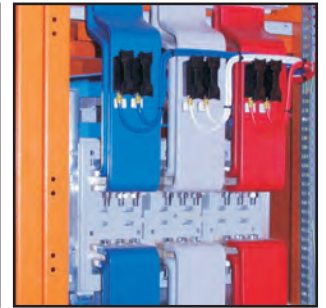
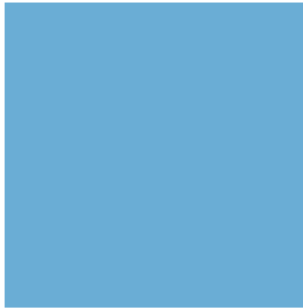


AIRSHRINK
— a new dimension —

CiP
Cable Installation Products (Pty) Ltd



Standard Products Catalogue 2022



Company Introduction



AIRSHRINK/CiP SA is a South African manufacturer of heatshrink tubing and components, originally established in 1986 to manufacture the then novel Airshrink product as a local alternative to imported heatshrink. In 2001 the company changed ownership and the new management realized that the future growth lay in diversification into heatshrink and associated products. In recent years the company has made great strides in in-house development and has significantly expanded its manufacturing facility to include other products such as heatshrink, medium voltage joints, terminations, screened and un-screened separable connectors, bushing boots, mechanical torque shear lugs, connectors, other LV and MV accessories, spiral bind, labelling systems and a range of flexible and semi-rigid extrusions.

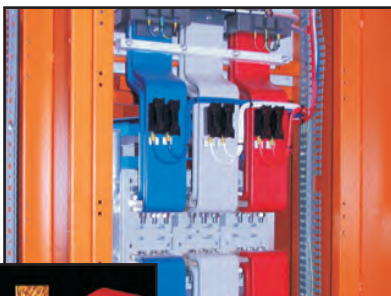
In order to meet our customer's requirements on specialized products the company expanded further by complimenting our already well established and comprehensive product portfolio by carefully selecting and setting up joint ventures with foreign manufacturers such as **elcon megarad** / **AMPLETEK** / **MELEC** that are experts in their respective fields. The company is situated in Johannesburg with customers in Southern Africa as well as abroad. Our commitment to innovation and customer service ensures fast turnaround times for both standard and non standard products. Understanding the needs and expectations of our business partners and building lasting relationships by constantly exceeding expectations remains our main objective.

AIRSHRINK/CiP products are widely accepted and approved. Current customers include all major municipalities, Eskom, contractors, mines, OEM manufacturers and industry.

Investment in new processes and equipment is part of the company's long term strategy to ensure that we stay abreast of global developments and meet the existing and future requirements of our customers. Excellent in-house technical know-how means that the company can offer engineering solutions for a variety of challenges.

AIRSHRINK/CiP is ISO 9001/2015 certified and BBBEE compliant

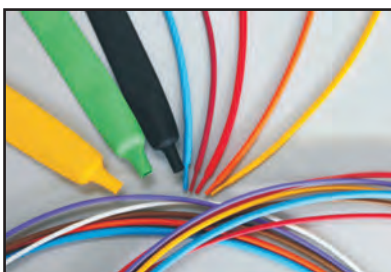
Product Profile



1. Airshrink

AIRSHRINK tubing shrinks when exposed to air. Supplied in expanded form in any length or colour, diameters ranging from 1 mm to 90mm. All you do is remove it from its container, slip it on and let the air do the rest. One hour later you have the perfect shrink. Airshrink is ideally suited to irregular shaped objects and tight bends. Applications include:

- Insulation and colour coding of busbars, lugs etc
- Strain relief on lugs
- Sound sticks for mines
- Coating of gym equipment (barbells, handles, and footrests)
- Covering on lawn mower handles (insulation and comfort)
- Anti-rattle sleeves (automotive seat springs)
- Covering of canoe paddles
- Automotive coil and leaf springs (dampening)



2. Heatshrink

Standard heatshrink is a cross-linked polyolefin product that can be supplied in either general purpose or flame retardant form. Heatshrink's high dielectric strength and excellent mechanical properties makes it suitable for a variety of applications, including:

- Insulation and colour coding of busbars, lugs etc
- Cable and component identification
- Mechanical strain relief and protection

Specialized heatshrink and components range from heatshrink with a thicker wall, higher shrink ratios, adhesive lined, RoHS and REACH compliant, halogen free and product suitable for applications up to 36 kV. Other products include:

- Heatshrink with excellent resistance to diesel, chemicals & hydraulic fluids
- Medium and thick wall adhesive and non-adhesive lined for use in low voltage and medium voltage joints and terminations
- Wrap around cable repair sleeves
- Heatshrinkable ladder / rail type and continuous reel marker sleeves

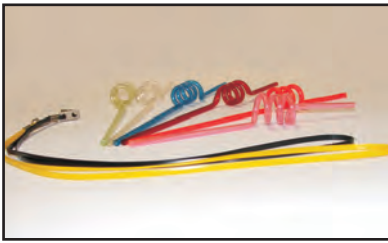


3. Extrusions - (Flexible and semi-rigid)

Spiral Bind

General purpose helically split thermoplastic tube manufactured in a range of diameters and colours. Main application is for organizing and protection of cables and hoses. Other applications include:

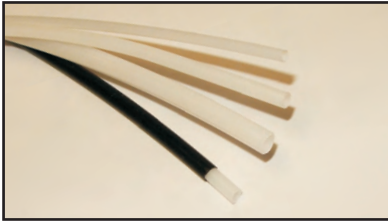
- Harness for wires and electrical cables (e.g. computer, Hi-Fi & telephone systems)
- Breakout on cable bundling systems
- Colour coding and mechanical protection on regulator hoses
- Protection on squash / tennis racquets



Straws, Leashes, TPU Solid Extrusions / Cords

Rigid and flexible PVC extrusions and profiles available in colours used as leashes in sporting goods, such as surfboards, body boards, sunglasses as well as a host of applications in the promotional markets. (Flag posts and drinking straws)

High strength polymeric rope makes this product ideal as tie-down for tarpaulins on trucks and LDVs.



Control cable sleeves

Semi-rigid HDPE, polyacetal, polypropylene and PTFE sleeves used in automotive control cables e.g. accelerator, clutch and brake cables.

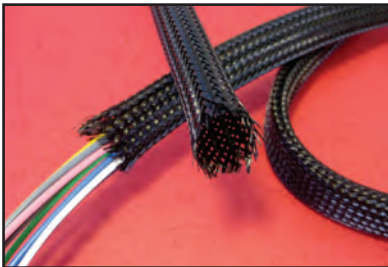


Harness tubing

Flexible PVC used to secure and protect numerous wires, in the manufacture of wiring harnesses. Tubing available in different colours and sizes.

4. Other Products

- Expandable Braided Sleeving
- Heat guns and gas burners
- LV terminations
- LV heatshrink, polyurethane resin and epoxy joints
- LV breakout boots
- Cable and caps (Adhesive lined)
- Hot melt tape
- Mastic tape/ Putty



5. Medium Voltage Heatshrink, Components and Accessories

CiP, **MELEC** and **elcon megarad** offer a range of joints, terminations and other products suitable for applications up to 36kv. These products have been designed and tested to meet the required standards and the relevant test reports are available. This range includes the following:

- MV (medium voltage) joint and termination kits
- MV components including anti-track and busbar tubing
- Busbar insulation tape
- Self amalgamating tape
- Screened separable connectors (11kV - 36kV)
- Torque shear lugs and connectors
- Overhead line insulation sleeving
- Flexible un-screened silicone bushing boots
- Un-screened separable connectors for Type C, 630A bushings
- Un-screened anti-tracking heat shrinkable right angle / straight bushing boots



INDEX

Design and Selection

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Design Information (Busbar Sizing Guide, Calculations and Cable Sizing Guide)

Design Information (Busbar Sizing / Layflat to Diameter / Circumference to Layflat / Imperial to Metric)

Design Information (General Tips on Selecting, Applying and Shrinking)

Airshrink

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Airshrink

Heatshrink

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Thin Wall - Black and Colours

Thin Wall - Clear

Thin Wall - MILL, SAE - AMS - DTL Compliant

Heavy Wall - Strain Relief

Thin Wall - Adhesive Lined (3 : 1 and 4 : 1)

Medium Wall - Adhesive / No Adhesive Lined

Extrusions and Profiles

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Spiral Bind

PVC Tubing

PVC Grommet / Edge Protection Strip

Protective Channel for Stainless Steel Cable Tie

Other Products

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Hot Melt Tape

Self-Amalgamating Tape

Wrap Around Cable Repair Sleeve

Expandable Braided Sleeving

Heatshrinkable Identification Marker Sleeves

Electrical Heat Gun

SIEVERT Gas Burners

Panel Caps and Connectors

Lug Shrouds

LV and MV Joints, Terminations and Accessories

Training and Skills Development

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Design Information

Busbar Sizing Guide

Busbar Sizes (mm)	Heatshrink Code (Low Voltage)	Heatshrink Layflat Size (mm)	Airshrink Code	Airshrink Dimensions (mm)		
				Expanded ID	Shrunk ID	Nom. Wall Thickness
12 X 1.5 / 12.5 X 3	ATW12.7	20	AS0807	10.40	8.00	0.75
14 X 4	ATW19	30	AS0907	11.70	9.00	0.75
15 X 3	ATW19	30	AS1007	13.00	10.00	0.75
16 X 3	ATW19	30	AS1107	14.30	11.00	0.75
16 X 4	ATW19	30	AS1210	15.60	12.00	1.00
20 X 3 / 20 X 4 / 20 X 6	ATW19	30	AS1410	18.20	14.00	1.00
25 X 3	ATW25.4	40	AS1610	20.80	16.00	1.00
25 X 5 / 25 X 6 / 25 X 6.3	ATW25.4	40	AS1810	23.40	18.00	1.00
30 X 3 / 30 X 6 / 30 X 6.3	ATW38.1	60	AS1910	25.70	19.00	1.00
30 X 10 / 30 X 12 / 31.5 X 6.3	ATW38.1	60	AS2210	28.60	22.00	1.00
40 X 4 / 40 X 6 / 40 X 6.3 / 40 X 10	ATW38.1	60	AS2510	32.50	25.00	1.00
50 X 6 / 50 X 6.3	ATW38.1	60	AS3010	39.00	30.00	1.00
50 X 10 / 50 X 12 / 50 X 16 / 60 X 3 / 60 X 6	ATW50.8	80	AS3510	45.50	35.00	1.00
60 X 10 / 63 X 6 / 63 X 6.3	ATW80.5	80	AS4010	52.00	40.00	1.00
80 X 6 / 80 X 8 / 80 X 10 / 80 X 12	ATW76	120	AS5010	65.00	50.00	1.00
100 X 6 / 100 X 10 / 100 X 12 / 100 X 16	ATW76	120	AS6010	78.00	60.00	1.00
120 X 10 / 120 X 16.5	ATW100	160	AS7010	91.00	70.00	1.00

Calculations

Busbars

How to calculate / determine the correct size Airshrink or Heatshrink for your busbar dimensions.

1. Add all four sides.
2. Divide by 3.1415 (π)
3. This result gives the actual OD (outer diameter) of your busbar and thus the min ID (inner diameter) that your Airshrink / Heatshrink needs to shrink down to.
4. Add 10% to this result to allow sufficient clearance. This will ensure that your Airshrink / Heatshrink slips over easily.

Example

Busbar Size: 50 x 10

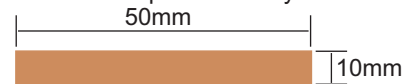
$$= (50+50+10+10) / 3.1415$$

$$= 120 / 3.1415$$

$$= 38.198$$

Add 10%

$$= 42.02\text{mm}$$



This is the most suitable diameter (ID) for your application. Now choose the Airshrink / Heatshrink size that suits this busbar size. (AS3510 / 50.8)

Cable Sizing Guide

Cable Size (mm ²)	Approx. Core OD (mm) Including Insulation (LV)	Airshrink Code	Heatshrink Size (ID)	Heatshrink Layflat Size (mm)
630	42.8	AS3510	50.8	80
500	36.5	AS3010	50.8	80
300	30.0	AS2510	38.1	60
240	27.0	AS2210	38.1	60
185	23.5	AS1910	25.4	40
150	22.0	AS1910	25.4	40
120	18.5	AS1810 / AS1910	25.4	40
95	16.5	AS1610	19	30
70	14.5	AS1410	19	30
50	12.6	AS1210	19	30
35	10.8	AS1007	12.7	20
25	9.0	AS0907	12.7	20
16	6.9	AS0607 / AS0707	9.5	15
10	6.0	AS0607	9.5	15
6	5.1	AS0505	6.4	10
4	4.5	AS0505 / AS0405	6.4	10
2.5	3.7	AS0505 / AS0406	4.8	7.5
1.5	3.2	AS0305	4.8	7.5
1	2.6	AS0205	3.2	5
0.5	2.1	AS0205	2.4	3.8

- Insulation thickness depends on cable rating. The above refers to 600 - 1000v PVC insulated cable
- The information detailed above is intended as a guide only
- Cable dimensions depend on the rating and therefore accurate measurement of outside diameter is recommended before order is placed. This will ensure that correct size is supplied

Design Information

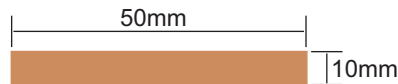
1. Busbar

How to calculate / determine the correct size Airshrink or Heatshrink for your busbar dimensions.

1. Add all four sides.
2. Divide by 3.1415 (π)
3. This result gives the actual OD (outer diameter) of your busbar and thus the min ID (inner diameter) that your Airshrink / Heatshrink needs to shrink down to.
4. Add 10% to this result to allow sufficient clearance. This will ensure that your Airshrink / Heatshrink slips over easily.

Example:

Busbar Size: 50 x 10
 = $(50+50+10+10) / 3.1415$
 = $120 / 3.1415$
 = 38.198
 Add 10%
 = 42.02mm



This is the most suitable diameter (ID) for your application. Now choose the Airshrink / Heatshrink size that suits this busbar size. (AS3510 / 50.8))

2. Layflat to Diameter

Heatshrink sizes are given as the internal diameter (ID) as supplied and **NOT** the layflat (LF) size. If you are not sure of the correct ID you can calculate as follow:

Example:

Heatshrink size: 25.4mm
 ID = $(LF \times 2) / 3.1415 (\pi)$
 = $(40 \times 2) / 3.1415$
 = $80 / 3.1415$
 ID = 25.46mm



3. Circumference to Layflat

To calculate the Layflat if you have the diameter (D) it can be done as follow:

Example:

Heatshrink Size: 25.4mm
 Circumference (C) is the same as 2 x Layflat (LF)
 $C = 3.1415 \times ID$
 $2LF = 3.1415 \times ID$
 $2LF = 3.1415 \times 25.4$
 $2LF = 79.79$
 $LF = \frac{79.79}{2}$
 LF = 39.9mm

4. Imperial to Metric

Inch	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"
mm	0.8	1.2	1.6	2	2.4	3.2	4.8	6.4	9.5	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

Design Information

General Tips on Selecting, Applying and Shrinking Heatshrink

1. Selection:

- Confirm the OD (Outside Diameter) of the cable / object you need to cover.
- Decide on the wall thickness you require. Based on the thickness you may need to choose one size up or select a heatshrink with a higher shrink ratio. Standard thin wall heatshrink has a 2 : 1 ratio which means it will shrink to half its supplied size. **(Example: 25.4 will shrink to 12.7).**
- Take note that all heatshrink sizes are given as the ID (Inside Diameter) and not in mm² or layflat (see pages 4, 5, 7, 12). Should you not have the ID refer to pages 4, 5, 7 and see the calculation necessary to determine the ID.
- When choosing the heatshrink always allow for at least a 20% shrink and a maximum of 80% as this will ensure the product performs according to the specifications stated.
- Will the heatshrink be placed onto the cable before or after a lug or ferrule has been crimped into place? If afterwards confirm that the heatshrink size is suitable to fit over the lug / ferrule and if it will still recover to the OD of the cable. If not, a heatshrink with a higher shrink ratio must be selected.
- Other considerations include:
 - Do you need a moisture seal / watertight connection, this will require an adhesive lined heatshrink (see pages 16, 17, 18, 25).
 - Will it be exposed to cleaning fluids, fuel, oils or more aggressive chemicals? This may require diesel resistant, Kynar, Viton or Teflon heatshrink.
 - What will the minimum or maximum operating temperature be? Typically diesel resistant, Kynar and Teflon material offer higher operating temperatures, up to 330°C.
 - Are you covering identification labels that must be clearly visible after shrink and must it be moisture free? Various grades of clear heatshrink exist, including adhesive lined.
 - Do you need any specific specifications, approvals and accreditations? This may include Military, Halogen Free, RoHS, Flame Retardant, REACH, UL, IEC, UV stability etc.
 - What will the operating voltage be?
 - Do you require high abrasion properties?
 - Standard or specialised colours. (Standard - Black, Clear, White, Red, Blue, Yellow, Green / Yellow).

2. Application and Shrinking:

- Always keep the work area and cables / application as clean as possible.
- When cutting the heatshrink to the required size bear the following in mind.
 - Always cut with a sharp knife / guillotine. Make sure that there are no jagged edges as this will lead to the heatshrink splitting / tearing during application of heat (see page 7). Should you need to trim the heatshrink to size after shrunk, allow sufficient time for the product to cool down first.
 - In order to allow for continuation of insulation determine a suitable overlap.
 - Allow for the longitudinal shrinkage by cutting slightly longer. This could be as much as 5% (see page 7).
- Slide the heatshrink sleeve into place by positioning it centrally over the ferrules / object.
- Before shrinking:
 - Carefully read the installation instructions first as improvements and amendments may have been introduced.
 - Confirm that all other heatshrink or components have been placed over the cable and that all ferrules / lugs are crimped / connected.
 - Remove all sharp edges that may cause the heatshrink to split.
 - Ensure that the surface has been abraded (if required) and that it is clean and de-greased.
 - If an adjustable heat gun is used, confirm the suitable setting / temperature. Incorrect temperature may lead to uneven shrinkage / wall thickness, incorrect insulation properties, damage to heatshrink and undesired air entrapment.

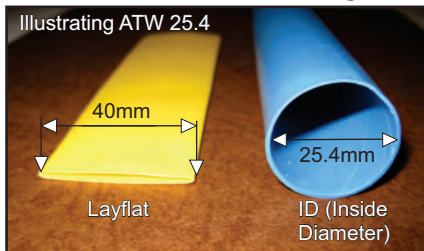
Design Information

General Tips Continued:

2. Application and Shrinking continued:

- Commence shrinking by starting from the middle working towards the outer ends applying heat circumferentially outwards until the internal sealant (adhesive) has melted, sleeves have a uniform wall thickness and are fully recovered (see below).
- When shrinking long lengths of heatshrink tubing (on cables for example), commence shrinking at one end and gradually move towards the other end.
- When shrinking thicker wall heatshrink (shrinks at higher temperatures) you may also use a propane gas torch (see below). When doing this keep the following in mind:
 - Ensure that this is done in a well ventilated area.
 - Use a “clean burning torch” e.g. a propane gas torch which does not leave any conductive contamination deposits.
 - Adjust the torch to a soft blue flame with an orange / yellow tip. A “pencil-like” blue flame should be avoided (see below).
 - As this heatshrink has a very thick wall the torch / flame has to be moved continuously to ensure proper shrinkage and avoid damage due to overheating in one place.
- Keep the following in mind during the shrinking process:
 - Keep the heat aimed in the shrink direction to pre-heat the material (see below).
 - Always apply the heat circumferentially around and outwards on all tubes, this ensures correct heat application which results in the correct material wall thickness.
 - Shrink the tubing and moulded parts as recommended and indicated in the instructions & manufacturer’s guidelines.
- Once shrunk, all of the tubing should be smooth and free of any wrinkles. Signs of wrinkles indicate incorrect heating and possible air entrapment. With regards to Medium Voltage (MV) applications this may lead to failure over time.
- Allow the heatshrink to cool before applying any mechanical strain or trimming / cutting it to size.

Inside Diameter vs. Layflat



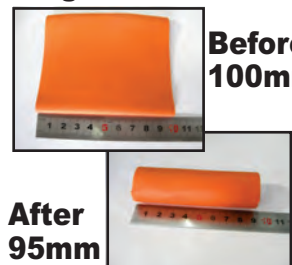
Adhesive Lined



Split When Nicked



Longitudinal Shrinkage



Hand Held Heat Gun



After 95mm



Gas Torch
Orange /
Yellow Tip

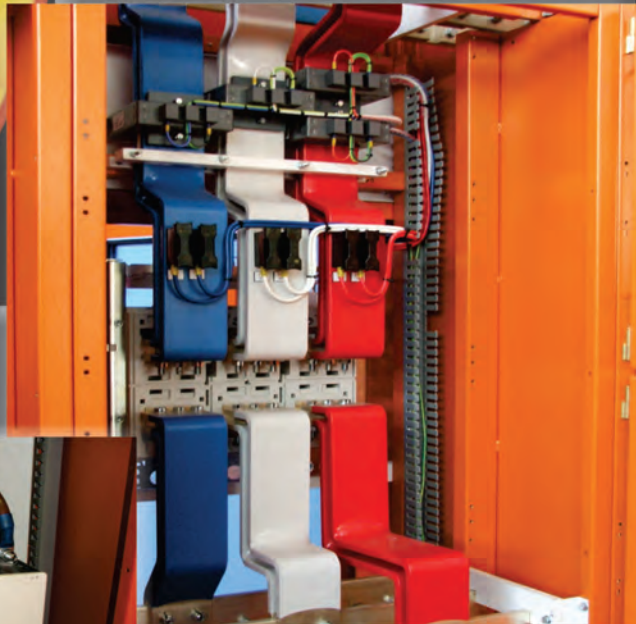
Standard Colours



Special Colours



AIRSHRINK



Airshrink

AS



Description

AS is an electrical grade vinyl Airshrink sleeving. AS requires no heat and shrinks when exposed to air. The product is supplied in airtight containers. Shelf life is in excess of 12 months when stored correctly. Airshrink is an ideal alternative to heatshrink for large installations and applications where the use of heatguns or open flames is neither possible nor practical.

Features

- Shrink Ratio max 1.5 : 1
- 15 minutes handling time
- Operating temperature -35 to 80°C
- High chemical resistance
- Excellent electrical properties
- Flame retardant when recovered
- Colours - Standard colours
- Uniform shrinkage, even around bends

Applications

- Insulation and colour coding of busbars and bustubes
- Covering of handles for electrical, aesthetic and functional requirements (eg lawn mowers, gym equipment etc.)
- Insulation and strain relief of heat sensitive electronic components
- Precut lengths for easy insulation and colour coding lugs

Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	IEC 60811	> 14
Elongation (%)	IEC 60811	> 250
Heat Ageing: Tensile (MPa) : Elongation (%)	IEC 60811 (100°C x 168hrs)	> 12 > 250
Heat Shock (150°C x 1hr)	IEC 60811	No Cracking
Cold Elongation -15°C	ASTM D 2671	No Cracking
Mass Loss (100°C x 168) mg/cm ²	IEC 60811	< 1.5
Limiting Oxygen Index (%)	IEC 60811	> 27 min
Hot Deformation (95°C x 1hr) %	IEC 60811	< 50
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹³



Dimensions: See overleaf



Airshrink aircap

Busbar Insulation



Strain Relief on Lugs

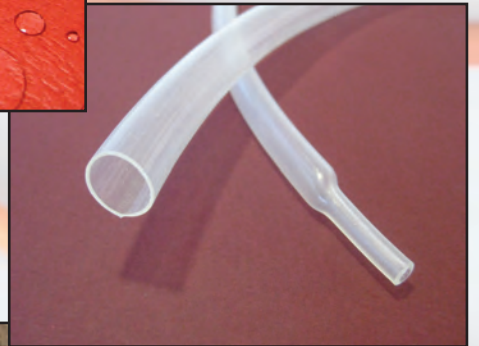
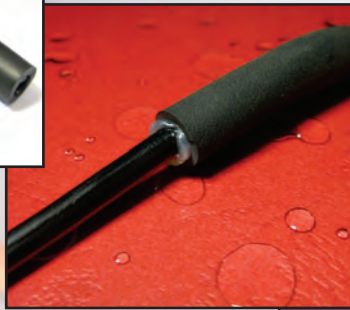
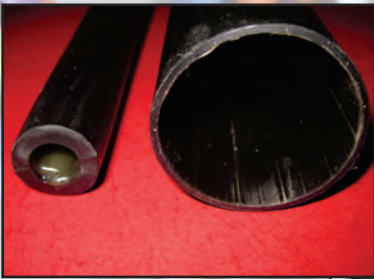
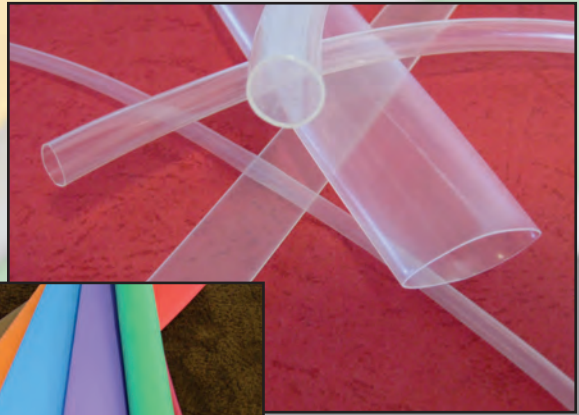


Truck Handles

Dimensions

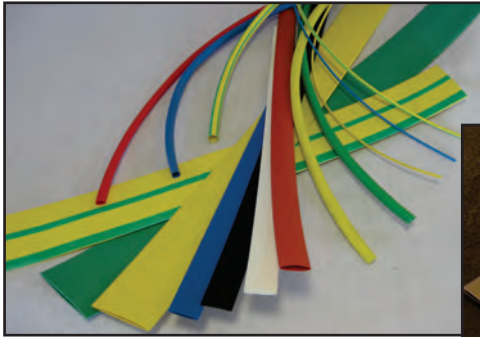
Product	Expanded ID (mm)	Recovered ID (mm)	Wall Thickness (mm)	Metres Per Tin
AS0103	1.3	1.0	0.30	80
AS0155	2.0	1.5	0.50	80
AS0205	2.6	2.0	0.50	80
AS0255	3.3	2.5	0.50	80
AS0305	3.9	3.0	0.50	60
AS0405	5.2	4.0	0.50	60
AS0505	6.5	5.0	0.50	40
AS0607	7.8	6.0	0.75	40
AS0707	9.1	7.0	0.75	20
AS0807	10.4	8.0	0.75	20
AS0907	11.7	9.0	0.75	20
AS1007	13.0	10.0	0.75	20
AS1107	14.3	11.0	0.75	20
AS1210	15.6	12.0	1.00	20
AS1410	18.2	14.0	1.00	20
AS1610	20.8	16.0	1.00	10
AS1605	20.8	16.0	0.50	10
AS1810	23.4	18.0	1.00	10
AS1805	23.4	18.0	0.50	10
AS1910	24.7	19.0	1.00	10
AS1905	24.7	19.0	0.50	10
AS2210	28.6	22.0	1.00	10
AS2510	32.5	25.0	1.00	10
AS2505	32.5	25.0	0.50	10
AS3010	39.0	30.0	1.00	10
AS3510	45.5	35.0	1.00	10
AS4010	52.0	40.0	1.00	5
AS4510	58.5	45.5	1.00	5
AS5010	65.0	50.0	1.00	5
AS6010	78.0	60.0	1.00	5
AS7010	91.0	70.0	1.00	5
AS8010	112.0	80.0	1.00	5

HEATSHRINK



Thin Wall

ATW



Other colours on request



Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	UL 224	> 10.4
Elongation (%)	UL 224	> 200
Heat Ageing: Tensile (MPa) : Elongation (%)	UL 224 (158°C x 168hrs)	> 7.3 > 100
Heat Shock	UL 224 (250°C x 4hrs)	No Cracks / Dripping
Low temperature Flexibility	ASTM D 2671 (4hrs @ -35°C)	No Cracking
Copper Stability	ASTM D 2671 (158°C x 168hrs)	Pass
RoHS (ppm)	IEC 62321 (Cd, Pb, Cr ⁶ , Hg)	< 200
Flammability	VW-1	Pass
Dielectric Strength (kV/mm)	ASTM D 2671	> 15
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴
Halogen Test (ppm)	EN 114582 (BF, Ci, FI, I)	< 800



Dimensions

Product	Inside Diameter (mm)		Layflat size (mm)	Suitable for wire sizes (mm ²)	Wall Thickness (mm)		Reel Length (m)
	Supplied	Recovered			Supplied	Recovered	
ATW1.2	1.2	0.6	2		0.18	0.36	200
ATW1.6	1.6	0.8	2.5		0.18	0.36	200
ATW2.4	2.4	1.2	3.8	0.5	0.18	0.36	200
ATW3.2	3.2	1.6	5	1	0.20	0.40	200
ATW4.8	4.8	2.4	7.5	1.5-2.5	0.23	0.46	100
ATW6.4	6.4	3.2	10	4-6	0.28	0.60	100
ATW9.5	9.5	4.8	15	10-16	0.30	0.60	100
ATW12.7	12.7	6.4	20	25-35	0.33	0.66	100
ATW16	16.0	8	25		0.38	0.76	100
ATW19	19.0	9.5	30	50-95	0.40	0.80	100
ATW25.4	25.4	12.7	40	120-185	0.45	0.90	50
ATW32	32.0	16	50		0.45	0.90	50
ATW38.1	38.1	19	60	240-300	0.50	1.00	50
ATW50.8	50.8	25.4	80	500-630	0.50	1.00	25
ATW76	76.0	38	120		0.65	1.30	25
ATW100	100.0	50.8	160		0.65	1.30	25

Tolerances for recovered wall thickness from 1.6 to 16 mm + - 0.10 mm
19 to 50 mm + - 0.15 mm
50 to 100 mm + - 0.2 mm

Description

ATW is a halogen free, RoHS, flame retardant tubing designed for application in closed and sensitive environments such as trains, ships and in underground mining where the formation of acid gas after fire must be minimised to avoid consequential damage to computers, plc's and electronic control equipment. Being RoHS compliant means the product does not contain restricted substances such as Cadmium (Cd), Lead (Pb), Hexavalent Chrome (Cr⁶) and Mercury (Hg). RoHS is now a requirement in the automotive industry.

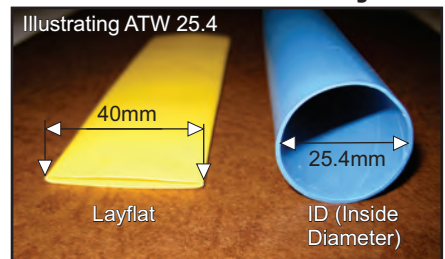
Features

- Cross-linked polyolefin
- Shrink Ratio 2 : 1 (3 : 1 on request)
- Operating temperature -55 to 125°C
- Excellent flame retardance VW-1
- Colours - Standard colours, green / yellow stripe and clear
- Minimum shrink temperature 70°C
- 600V
- Black - UV Stable

Applications

- Quick recovery at low temperatures makes it ideal for use in electronics and telecommunication applications
- RoHS coupled to flame retardant properties makes this product suitable for use in automotive harnesses
- Ships, trains and underground mining
- Any enclosed areas which contain sensitive electronic equipment and computers

Inside Diameter vs. Layflat

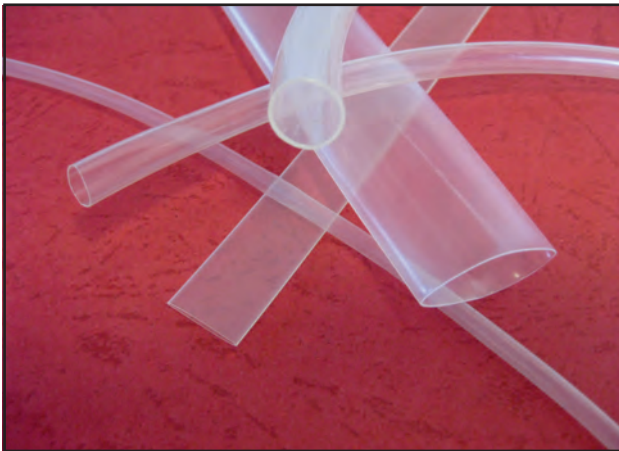


ATW - Heatshrink, Thin Wall, FR RoHS, 2 : 1

Abbreviation	Colour
Standard Colours	
BK	Black
BL	Blue
CL	Clear
RD	Red
WT	White
YL	Yellow
Other Colours	
BR	Brown
GR	Green
GRY	Grey
OR	Orange
GYS	Green Yellow Stripe

Thin Wall Clear

ATW...CL



Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	UL 224	> 15
Elongation (%)	UL 224	> 300
Heat Ageing : Tensile (MPa) : Elongation (%)	UL 224 (158°C x 168hrs)	> 12 > 250
Heat Shock (250°C x 4hrs)	UL 224	Pass
Low temperature Flexibility	ASTM D 2671 (4hrs @ -35°C)	No Cracks / Pass
Fluid Resistance * (MPa)	ASTM D 2671	Tensile > 10
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴

*Fluid Resistance: Tests conducted using brake fluid and unleaded petrol

Dimensions

Product	Inside Diameter (mm)		Wall Thickness (mm)		Reel Length (m)
	Supplied	Recovered	Supplied	Recovered	
ATW1.2CL	1.2	0.6	0.18	0.36	200
ATW1.6CL	1.6	0.8	0.18	0.36	200
ATW2.4CL	2.4	1.2	0.18	0.36	200
ATW3.2CL	3.2	1.6	0.20	0.40	200
ATW4.8CL	4.8	2.4	0.23	0.46	100
ATW6.4CL	6.4	3.2	0.28	0.60	100
ATW9.5CL	9.5	4.8	0.30	0.60	100
ATW12.7CL	12.7	6.4	0.33	0.66	100
ATW16CL	16	8.0	0.38	0.76	100
ATW19CL	19	9.5	0.40	0.80	100
ATW25.4CL	25.4	12.7	0.45	0.90	50
ATW32CL	32	16	0.45	0.90	50
ATW38.1CL	38.1	19.1	0.50	1.0	50
ATW50.8CL	50.8	25.4	0.50	1.0	25
ATW76CL	76	38	0.65	1.30	25

Tolerances for recovered wall thickness from 1.6 to 16 mm + - 0.10 mm
19 to 50 mm + - 0.15 mm
50 to 100 mm + - 0.2 mm

Description

ATW...CL is a non flame retardant clear tubing which has excellent oil resistance and clarity. ATW...CL is RoHS compliant and halogen free.

Features

- Shrink Ratio 2 : 1
- Operating temperature -55 to 125°C
- High chemical resistance
- Good abrasion resistance
- Excellent oil resistance
- Minimum shrink temperature 115°C

Applications

- Oil barrier in paper cable joints
- Abrasion and oil resistant covering for heatshrink and write and wrap labels
- Clear retainer for shock absorbers on safety harnesses
- Strain relief for electrical and electronic connections where visibility of connection is required

Protection of identification labels



Safety Harness



Oil barrier sleeve - PILC cables

Thin Wall - MIL-DTL-23053/5C

ATW...MIL



Technical Data

Properties	Test Methods	Typical Values
Tensile Strength (MPa)	ASTM D 2671/D638	≥ 10,4
Elongation (%)	ASTM D 2671/D638	≥ 200
Tensile Strength after heat ageing (MPa)	175°C x 168hrs	≥ 7.3
Ultimate Elongation after heat ageing (%)	175°C x 168hrs	≥ 100
Longitudinal Change (%)	ASTM D 2671	-5% ~ +5%
Flammability	ASTM D 2671 C Method	VW-1
Voltage Withstand (Dielectric)	UL 224, 2500V, 60s	No Breakdown
Heat Shock	UL 224, 250°C, 4hrs	No Cracks, Flowing or Dripping
Dielectric Strength (kV/mm)	ASTM D 2671	≥ 15
Volume Resistivity (Ω/cm)	ASTM D 876	≥ 1 x 10 ¹⁴
Copper Stability	UL224, 175°C x168hrs	Pass
Low Temperature Flexibility	-55°C x1hr	No Cracking



Description

ATW...MIL is an ultra thin highly flexible, fast shrinking thermally stabilized flame retardant polyolefin tubing. Its excellent insulation, oil, chemical and environmental properties make it suitable for the most arduous conditions in the military and rail industries.

Features

- Continuous operating temperature -55 to 135°C
- Minimum shrink temperature 70°C
- **In compliance with SAE-AMS-DTL-23053/5 class 1 and 3**
- Shrink ratio 2 : 1 (3 : 1 on request)
- Excellent flame retardance VW1
- Colour - Black (Other colours on request)
- Excellent corrosive resistant properties
- Excellent oil and chemical resistance
- RoHS compliant

Applications

- Its superior properties make it suitable for insulation and bundling of electrical wiring and harnesses
- Due to its fast shrinking temperature it is suitable for sensitive applications
- Suitable for protection of corrosion proof metallic rods and tubes
- Strain relief on connectors
- Antenna protection

Dimensions

Product	Inside Diameter (mm)		Layflat Size (mm)	Wall Thickness (mm)		Reel Length (m)
	Supplied	Recovered		Recovered		
ATW1.2BKMIL	1.5	0.68	2	0.28		200
ATW1.6BKMIL	2	0.85	2.5	0.32		200
ATW1.8BKMIL	1.9	0.7	3.2	0.4		200
ATW2.4BKMIL	2.5	1	3.8	0.35		200
ATW3.2BKMIL	3.5	1.5	5	0.4		200
ATW4.8BKMIL	5	2.25	7.5	0.5		100
ATW6.4BKMIL	6.5	3	10	0.55		100
ATW9.5BKMIL	9.5	4.5	15	0.6		100
ATW12.7BKMIL	13.5	6.5	20	0.65		100
ATW16BKMIL	16.5	8	25	0.7		100
ATW19BKMIL	19	9	30	0.8		100
ATW25.4BKMIL	25.6	12.5	40	0.9		50
ATW32BKMIL	31.5	15	50	0.95		50
ATW35BKMIL	36.5	17.5	56	1		50
ATW38.1BKMIL	41.5	20	60	1		50
ATW50.8BKMIL	51.5	25	80	1		25
ATW70BKMIL	70	35	110	1.6		25
ATW80BKMIL	80	40	125.66	1.7		25
ATW100BKMIL	100	50	160	2.1		25

Heavy Wall Strain Relief Sleeves

AHW



Description

AHW is a non flame retardant heavy wall heatshrink sleeving designed for strain relief of heavy connectors, where flexing of cable at the cable / connector interface can lead to damage of the conductor and ultimately failure. AHW addresses this problem by dissipating the bending force over a larger radius and away from the connector / cable interface.

Features

- Shrink Ratio 2 : 1 and 3 : 1
- Operating temperature -35 to 125°C
- High chemical resistance
- Excellent mechanical and abrasion resistance
- Colours – Black and neutral
- Minimum shrink temperature 120°C

Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	UL 224	> 15
Elongation (%)	UL 224	> 400
Heat Ageing: Tensile (MPa) : Elongation (%)	UL 224 (158°C x 168hrs)	> 14 > 300
Heat Shock (250°C x 4hrs)	UL 224	Pass
Low temperature Flexibility	ASTM D 2671(4hrs @ -35°C)	No Cracking
Fluid Resistance * (MPa) (%)	ASTM D 2671 (25°C x 72hrs)	Tensile > 10 Elongation > 150
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴

*Fluid Resistance: Tests conducted using brake fluid and unleaded petrol

Applications

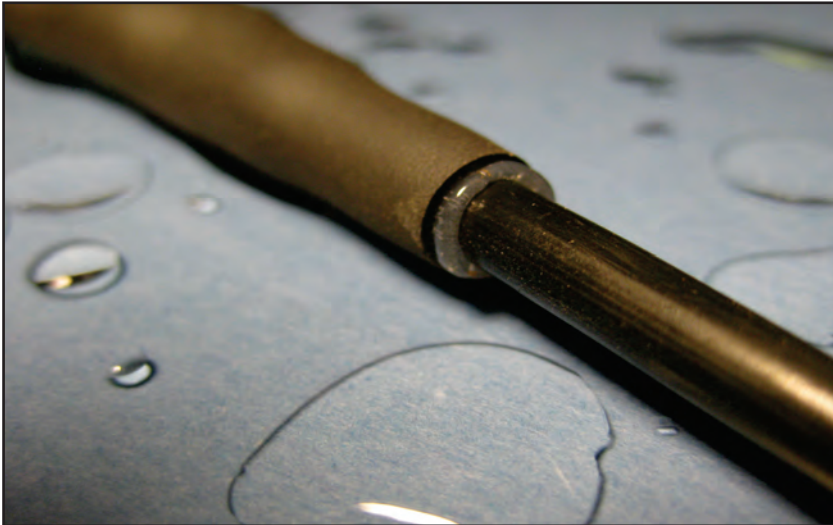
- Mechanical strain relief at cable / connector interface

Dimensions

Product	Inside Diameter (mm)		Wall Thickness (mm)	
	Supplied	Recovered	Supplied	Recovered
AHW11/4	11	4	1	3
AHW18/6	18	6	1	3
AHW24/8	24	8	1.2	3
AHW30/10	30	10	1.2	3
AHW36/12	36	12	1.2	3

Eccentricity < 30% as per UL 224

Tolerances on size id's and wall thickness allow 15% on above values

Thin Wall Adhesive Lined - SAE-AMS-DTL-23053/4**ADW3****Technical Data**

Properties	Test Method	Typical Values
Cold Impact	ASTM D746-13 (-40°C)	No Cracking
Heat Shock	(250°C, 4hrs)	No Cracking / Dripping
Sealing Efficiency	(200°C, 3min) Reheat (150°C, 5min)	No opening on reheat
Tensile Strength (MPa)	ASTM D638-10	12.8
Elongation at Break (%)	ASTM D638-10	390
Dielectric Strength (kV/mm)	ASTM D2671-09	19.7
Volume Resistivity (Ω/cm)	ASTM D257-07	2x10 ¹⁵
Flammability	ASTM D2671-09	Pass (Self extinguishing)
Corrosion	(121°C, 16hrs)	No Corrosion
Water Absorbtion (%)	ASTM D570-98 (23°C, 24hrs)	0.25
Heat Resistance	(175°C, 168hrs)	No Cracks / Dripping / Flowing of outer walls
Longitudinal Shrinkage (%)	UL224	0 ± 5

**Dimensions**

Product	Inside Diameter (mm)		Wall Thickness Recovered (mm)	Reel Length (m)
	Supplied	Recovered		
ADW315	1.6	0.5	0.45	100
ADW331	3.2	1.0	0.90	100
ADW341	4.8	1.5	1.00	100
ADW362	6.4	2.0	1.25	100
ADW393	9.5	3.0	1.40	100
ADW3124	12.7	4.0	1.70	100
ADW3196	19.1	6.0	1.95	100
ADW3258	25.4	8.0	2.05	75
ADW33813	38.1	13.0	2.50	30
ADW35016	50.8	16	2.80	15

Description

ADW3 is manufactured by co-extrusion of polyolefin and hot-melt adhesive. The product has been developed for applications that require a flame retardant highly flexible thin wall tubing with a higher shrink ratio and where a moisture seal is required.

Features

- Crosslinked polyolefin
- Shrink Ratio 3 : 1
- Adhesive lined
- Operating temperature -45 to 125°C
- Excellent flame retardant properties VW-1
- Standard colours - Black / Clear
Special Colours on request
- Minimum shrink temperature, 70°C
- RoHS / REACH Compliant
- **Excellent oil & chemical resistance**
- **In compliance with SAE-AMS-DTL-23053/4**

Applications

- Environmental seal & insulation for electrical and electronic connections
- Bundling of wires and cables for flexible harnesses, including automotive and marine harnesses
- Quick recovery at low temperatures makes it ideal for use in the electronics & telecommunication applications
- Its 3 : 1 shrink ratio can easily cope with components of varying diameter, with no tendency to split

Clear Tubing

- Abrasion and oil resistant covering for identification labels / tags and write and wrap labels
- Strain relief and environmental seal for electrical and electronic connections where visibility of the connection is required
- Designed for applications where substrates need to remain visible and protected against the ingress of fluids

Thin Wall Adhesive Lined

ADW4



Description

ADW4 is an adhesive lined flame retardant tubing. High shrink ratio combined with excellent sealing characteristics makes this product ideal for electrical and electronic connections where a moisture seal is required.

Features

- Shrink Ratio 4 : 1
- Operating temperature -55 to 135°C
- Good flame retardant properties
- Good electrical and fungal resistant properties
- Colours - Black
- Minimum / fully recovered shrink temperature 90 to 110°C

Applications

- Automotive wiring harnesses
- Low voltage joints
- Low voltage submersible connections
- Waterproof strain relief connections

Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	UL 224	> 14
Elongation (%)	UL 224	> 400
Heat Ageing: Tensile (MPa) : Elongation (%)	UL 224 (175°C x 168hrs)	> 12 > 250
Heat Shock (25°C x 4hrs)	UL 224	Pass
Low temperature Flexibility	ASTM D 2671 (4hrs @ -55°C)	No Cracking
Copper Stability	ASTM D 2671 (175°C x 168hrs)	Pass
Flammability	VW-1	Pass *
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴

Tests values are for outer crosslinked polyolefin layer



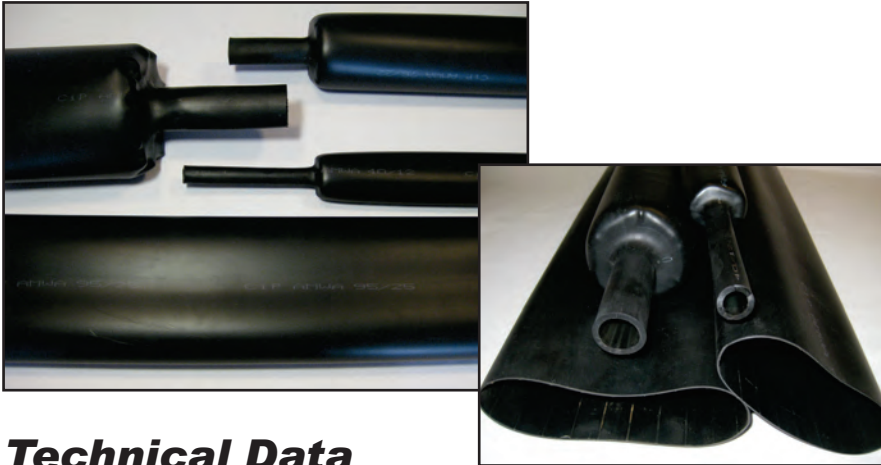
Dimensions

Product	Inside Diameter (mm)		Wall Thickness (mm)	
	Supplied	Recovered	Supplied	Recovered
ADW461	6.5	1.3	1.0	1.8
ADW491	8.9	1.6	1.0	2.5
ADW4122	11	2.4	1.1	2.1
ADW4164	16	4.0	1.2	3.0
ADW4194	19	4.0	1.2	3.0
ADW4256	25	6.0	1.2	3.2

Eccentricity < 30% as per UL 224

Medium Wall

AMWA - Medium Wall Adhesive Lined AMW - Medium Wall (Non-Adhesive Lined)



Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	ASTM D2671	≥ 14
Elongation (%)	ASTM D2671	≥ 400
Heat Ageing: Tensile (MPa) : Elongation (%)	ASTM D2671 (150°C, 168hrs)	≥ 12 > 300
Water Absorption (%)	ISO 62 (23°C, 14days)	< 0.15
Eccentricity (%)	ASTM D2671	< 40
Copper Stability	ASTM D 2671	Pass
ESCR (environmental stress crack resistance)	ASTM D 1693 (50°C)	No Cracking
Dielectric Strength (kV/mm)	ASTM D 2671	≥ 18
Volume Resistivity (Ω/cm)	ASTM D 257 / IEC 93	10 ¹³
Eccentricity (%)	ASTM D2671	< 40
Density (g/cm ³)	ASTM D792	1.05
Longitudinal Shrink (%)	UL224	≤ 10
Adhesive Lining		
Water Absorption (%)	ISO 62	< 0.2
Softening Point (°C)	ASTM E28	85 ± 5
Peel Strength (N/cm)	DIN 30672	4
Resistance to Fungus and Decay	ISO 846	Pass

Dimensions

Product	Inside Diameter (mm)		Wall Thickness Recovered (mm)	Standard Length (mm)
	Supplied	Recovered		
AMWA12/3	12	3	1.8	1200
AMWA22/6	22	6	2.2	1200
AMWA28/6	28	6	2.5	1200
AMWA33/8	33	8	2.5	1200
AMWA40/12	40	12	2.5	1200
AMWA55/16	55	16	2.7	1200
AMWA63/19	63	19	2.8	1200
AMWA75/22	75	22	3.0	1200
AMWA85/25	85	25	3.0	1200
AMWA95/25	95	25	3.0	1200
AMWA105/30	105	30	3.3	1200
AMWA115/34	115	34	3.3	1200
AMWA130/36	130	36	3.5	1200
AMWA140/42	140	42	3.5	1200
AMWA160/50	160	50	3.5	1200
AMWA180/58	180	58	3.5	1200

NOTE: For non-adhesive lined replace AMWA with AMW (Suffix "A"-Adhesive lined)

Description

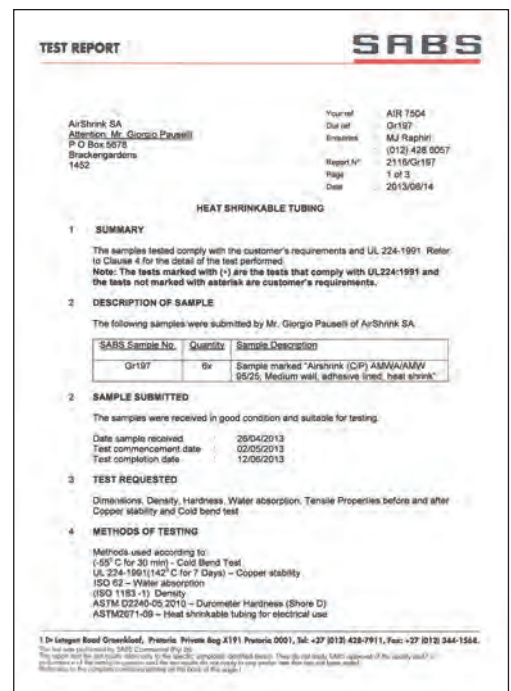
AMW / AMWA is a polyolefin medium wall tubing with outstanding insulation and environmental sealing properties. AMW & AMWA are UV resistant and have excellent mechanical properties.

Features

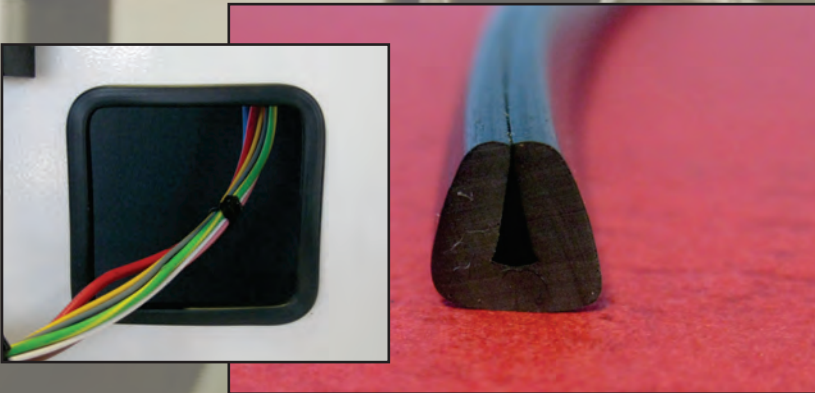
- Shrink Ratio 3 : 1
- Operating temperature -55 to 110°C
- Excellent impact and abrasion resistance
- Excellent environmental and UV resistance
- High electrical insulation properties
- Colours - Black
- Minimum full recovery temperature 120°C

Applications

- Inner and outer sleeves for joints from 1 kV to 36 kV
- Strain relief / protection of connector components
- Water proofing of cable and wire harnesses
- Encapsulation and weatherproofing of irregular shapes
- Cable sheath repairs



EXTRUSIONS AND PROFILES



Spiral Bind

ASB



Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	IEC 60811	> 14
Elongation (%)	IEC 60811	> 250
Heat Ageing * : Tensile (MPa) : Elongation (%)	IEC 60811 (100°C x 168hrs)	> 12 > 250
Heat Shock (150°C x 1hr) **	IEC 60811	No Cracking
Cold Elongation -25°C	ASTM D 2671	No Cracking
Hot Deformation (95°C x 1hr) %	IEC 60811	< 50
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴

Dimensions

Product	Supplied ID (mm)	Range (mm)	Wall Thickness (mm) *	Roll Qty (m)
ASB3	3	3 - 6	0.8	30
ASB6	6	6 - 12	1	30
ASB6T	6	6 - 12	0.6	30
ASB9	9	9 - 18	0.8	30
ASB12	12	12 - 20	1.2	30
ASB12T	12	12 - 20	0.6	30
ASB20	20	20 - 30	1.2	30

* Different wall thicknesses on request
Eccentricity < or equal to 30% as per UL 22
Tolerances on size ID's and wall thickness allow 15 % on above values

Description

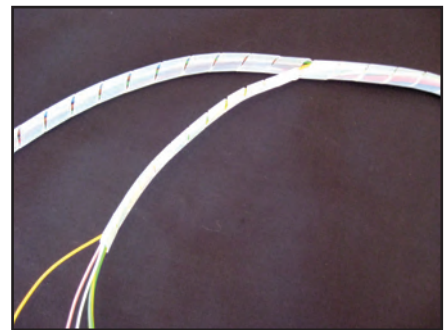
ASB is a thermoplastic tubing which is spiral cut. Spiral bind is a cable management product used to tidy up data and telecom cables and wires around the office and home.

Features

- Operating temperatures -25 to 70°C
- Available in different thicknesses
- Standard colours : Black / Natural, others on request
- Easy to use

Applications

- Cable management system, telecoms and data cables at the office and home
- Cable harnesses - keeping individual wires together during assembly
- Mechanical protection and colour coding for hydraulic and pneumatic hoses



PVC Tubing

PVC



Technical Data

Properties	Typical Values
Material	PVC (Polyvinylchloride)
Operating Temperature (°C)	-15 to 70
Heatshock (°C)	150
Volume Resistivity at 20°C Min (Ω/cm)	2x10 ¹⁰

Complies with SANS 1411 - 1 Type S2 & D3
Test method SANS 60811

Dimensions

Product	ID (mm)	Nom.Wall Thickness (mm)
PVC1	1	0.35
PVC2	2	0.35
PVC3	3	0.4
PVC4	4	0.4
PVC5	5	0.4
PVC6	6	0.5
PVC7	7	0.5
PVC8	8	0.5
PVC9	9	0.5
PVC10	10	0.5
PVC11	11	0.5
PVC12	12	0.5
PVC14	14	0.5
PVC16	16	0.7
PVC18	18	0.7
PVC19	19	0.7
PVC20	20	0.7
PVC22	22	0.9
PVC25	25	0.9
PVC28	28	0.9
PVC30	30	0.9
PVC35	35	0.9

Description

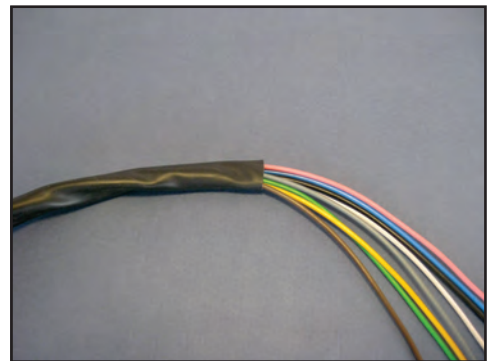
This is a specially formulated polyvinylchloride tubing designed for continuous operation in the -15 to 70°C temperature range. The thin wall makes it suitable for use in any harness & electronic assembly application.

Features

- Very flexible
- Thin wall thickness
- Colours - Black & white standard, other colours on request
- Standard packaging - 100m reels
- Can be cut to customer requirements

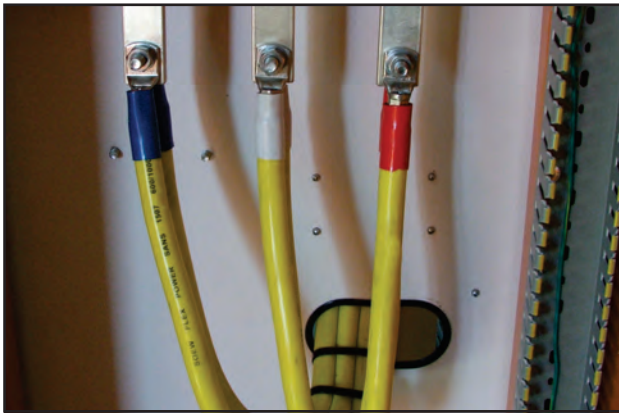
Applications

- All harnesses including automotive, slot machines, mining equipment, industrial equipment
- Colour coding of cables



PVC Grommet / Edge Protection Strip

AGS



Description

This edge protection grommet is produced from flexible PVC material and is suitable for use in applications where protection is required against sharp edges. These include panels and enclosures that has been cut to route cables through.

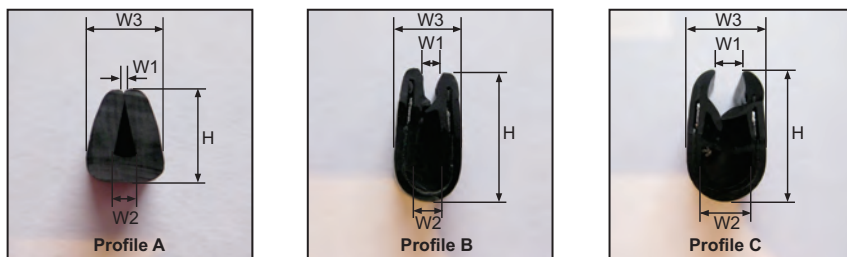
Features

- Highly flexible
- Colour - Black
- Aesthetically attractive finish

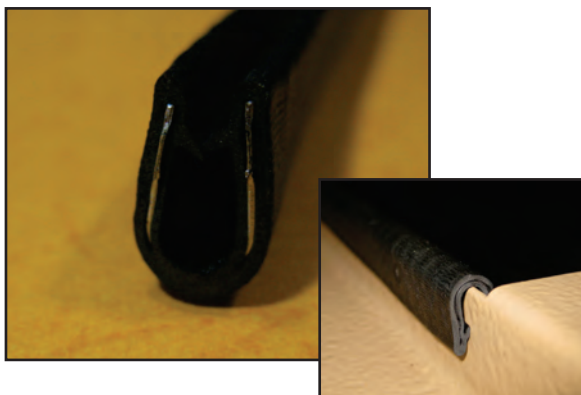
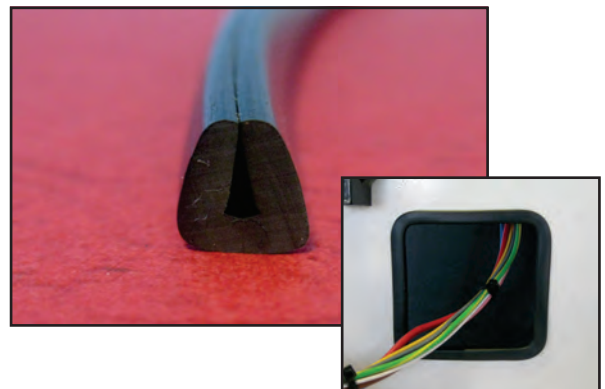
Technical Data

Properties	Typical Values
Material	PVC (Flexible Polyvinylchloride)
Operating Temp. (°C)	-15 to 70
Heat Shock (°C)	150

Dimensions



Product	Width (mm)			Height H (mm)	Material	Profile
	W1	W2	W3			
AGS1	0.5	1.8	5	6.3	PVC	A
AGS3	1.8	3	6.25	12.5	PVC Steel Re-Inforced	B
AGS4	4	5.5	10	16		C
AGS5	1.4	3	7.5	11	PVC	A



Protective Channel - For Stainless Steel Cable Tie

ACPC



Description

ACPC stainless steel cable tie protective channel is manufactured from UV stable flexible heavy metal free PVC material. The channel was designed to be used in conjunction with stainless steel cable ties especially the type that incorporates a metal ball locking principal. By using the channel you are able to retain tension when tying two hard surfaces together and avoid damage to cable (outer sheaths) in applications where vibration/movement is expected.

Features

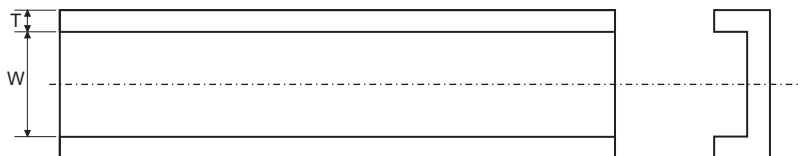
- UV stable
- Highly flexible
- Colour - black (Other colours on request)
- Can be cut to customers requirements
- Easy to use

Technical Data

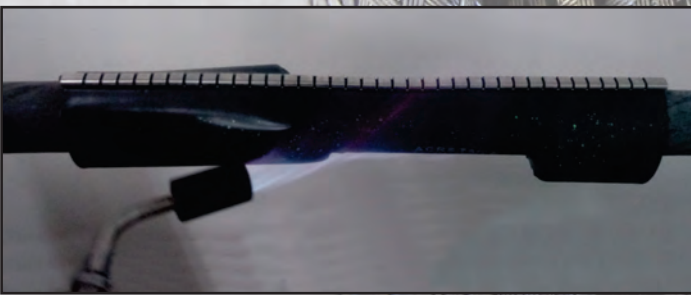
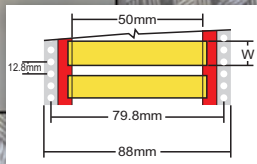
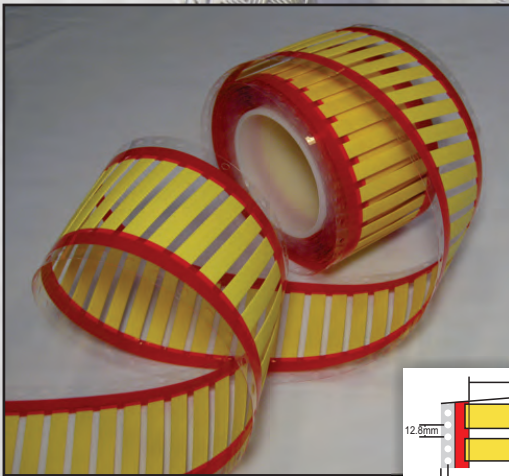
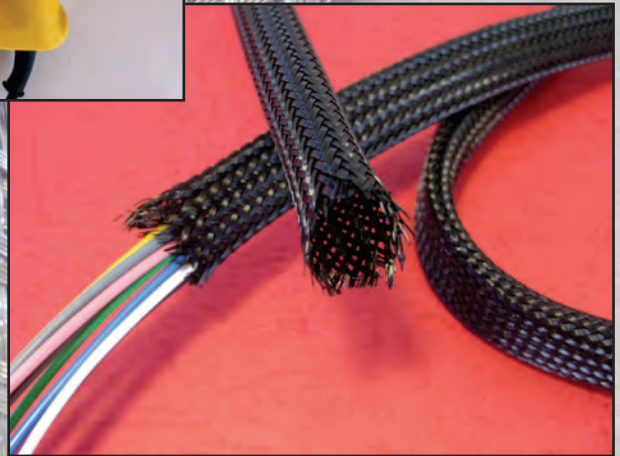
Properties	Test Methods	Typical Values
Hardness	ASTM D 2240	Shore "A", 90
Operating Temp. (°C)		-15 to 70
Tensile Strength (MPa)	SANS 60811-1-1	16.1
Elongation (%)	SANS 60811-1-1	200
Heatshock (°C)	SANS 60811-3-1 (150°C x 1hr)	Comply
Volume Resistivity (Ω/cm)	SANS 5526	2.4 x 10 ¹²

Dimensions

Product	Wall Thickness (mm) T	Width (mm) W	Suitable for SS Strap (mm)	SS Tie Head Size (mm)	Reel Qty (m)
ACPC4/6P-UV	2	6.3	4.6	6	100
ACPC8/12.7P-UV	2	11.4	7.9	10.4	100
ACPC12/17P-UV	2	17	12.7	16	100



OTHER PRODUCTS



Hot Melt Tape

AHT40



Technical Data

Properties	Typical Values
Material	(EVA) ethylenevinylacetate
Melting Point (°C)	> 95
Operating Temp. (°C)	-50 to 105
Thickness (mm)	0.5
Width (mm)	40
Length on roll (m)	5



Description

AHT40 is a hot melt tape that melts and flows when heated.

Features

- Excellent environmental seal
- RoHS compliant
- Halogen Free
- Clear / transparent colour

Applications

- Suitable for use with heatshrink and moulds
- Any application that requires sealing against moisture and dust

Self-Amalgamating Tape

ASM18



Technical Data

Properties	Typical Values
Electrical resistivity (Ω/cm)	10 ¹⁴
Dielectric power factor (%)	0.3
Dielectric strength (kV/mm)	25
Tensile Strength (kg/mm)	0.2
Elongation at break (%)	600
Thickness (mm)	0.75
Width (mm)	18
Length (Roll) (m)	10

Description

ASM18 Self-amalgamating EPR rubber tape is non sticky but bonds to itself within hours. This forms a homogeneous moulding which is water-proof and electrically insulating. To apply remove the separator film, gently stretch and wrap with a 50% overlap.

Features

- Sealing, insulating and waterproofing
- Water, ozone and corona resistant
- Suitable for use in HV and MV applications
- High dielectric strength
- Forms stable, long lasting joint
- Excellent UV resistance
- For in and outdoor applications

Applications

- Waterproofing of power cable joints
- Corrosion protection if wrapped onto metal pipes
- Temporary repairs to waterhose and pipe leaks
- Soft non-slip handgrip in sports racquets and bicycles

Wrap Around - Cable Repair Sleeve

ACRS



Description

ACRS is a wrap-around sleeve which provides a fast and convenient way to repair both power and telecom cables. The hot melt adhesive lining ensures a water proof seal.

Features

- Shrink Ratio 3 : 1
- Thermochromic heat activated paint
- Operating temperature -35 to 105°C
- Excellent impact and abrasion resistance
- Excellent environmental cracking and UV resistance
- Colour - Black
- Minimum shrink temperature 120°C

Applications

- Permanent sheath repairs on both power and telecom cables
- Temporary repairs to low pressure gas lines
- Temporary repairs to low pressure water and sewerage pipes

Technical Data

Properties	Test Methods	Typical Values
Tensile (MPa)	UL 224	> 14
Elongation (%)	UL 224	> 300
Heat Ageing: Tensile (MPa) : Elongation (%)	UL 224 (135°C x 168hrs)	> 10 > 150
Water Absorption (%)	ISO 62	< 0.15
Eccentricity (%)	UL 224	< 30
Mould Resistance	ASTM D638 G21	No Growth
ESCR	ASTM D 1693 (50°C)	No Cracking
Dielectric Strength (kV/mm)	ASTM D 2671	> 20
Volume Resistivity (Ω/cm)	ASTM D 257	10 ¹⁴

Dimensions

Product	Inside Diameter (mm)		Wall Thickness Recovered (mm)	Standard Length (mm)
	Supplied	Recovered		
ACRS50/15	50	15	3.0	1000
ACRS75/22	75	22	3.2	1000
ACRS105/30	105	30	3.5	1000
ACRS146/38	146	38	3.5	1000
ACRS188/55	188	55	3.5	1000

Eccentricity < 30 % as per UL 224
Tolerances on size ID's and wall thickness allow 15 % on above values



Expandable Braided Sleeving

POLYESTER - ABSP



Technical Data

Product	Typical Values
Material	Polyester (PET)
Operating Temp. (°C)	-50 to 150
Melting Point (°C)	250
Flammability	VW-1
Approvals	UL, CSA, PFOS, REACH
Colour	Black (other colours on request)



Dimensions

Product	Normal Size	Expandable Range		Reel Length (m)
		Min	Max	
ABSP3	3	1	6	100
ABSP4	4	3	6	100
ABSP5	5	3	7	100
ABSP6	6	3	9	100
ABSP8	8	5	16	100
ABSP10	10	7	19	100
ABSP12	12	8	24	100
ABSP14	14	9	25	100
ABSP16	16	10	27	100
ABSP20	20	14	30	100
ABSP25	25	18	35	100
ABSP30	30	20	50	100
ABSP35	35	25	55	100
ABSP40	40	30	60	100
ABSP50	50	40	80	100
ABSP60	60	45	95	100

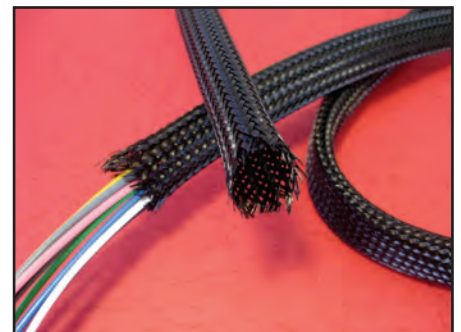
Note 1: All dimensions in mm
 2: Normal Size indicates the flat width
 3: To prevent fraying use hot knife tool. P/N AHK1

Description

ABSP Polyester sleeving offers good abrasion resistance and is flame-retardant and halogen free. The more loosely woven construction enables the sleeving to expand to almost 1½ times its size and allows easier installation on cables, hoses, bulky connectors and plugs.

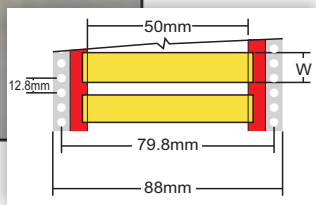
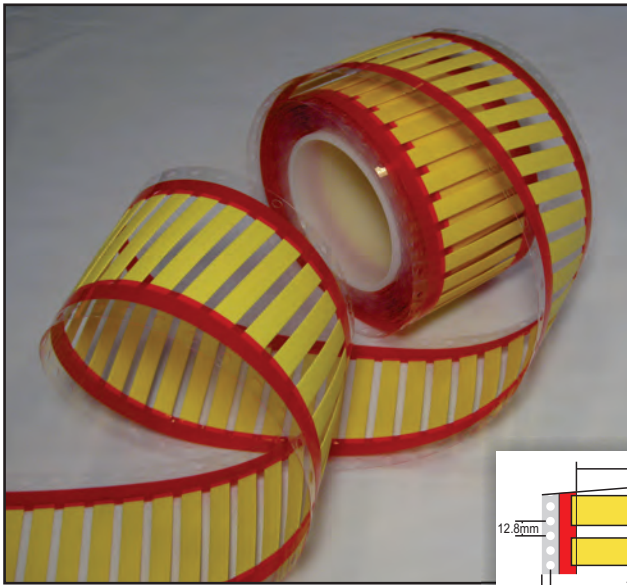
Applications

- Bundling of cables / wiring in electronic applications
- Vehicle harnesses
- Protection and bundling of tubing and industrial hoses
- Panel / Switchboard manufacturing to route and protect cable, especially where movement is required
- **AHFR, UL 94 V0 Rated**



Heat Shrinkable Identification Marker Sleeves

AHMS



Description

AHMS is a military grade flattened heat shrinkable ladder / rail type marker sleeve designed to offer **outstanding resistance to oil**, especially long term exposure at high temperatures. AHMS is manufactured from UV and thermally stable flame retardant radiation cross-linked polyolefin material which is also RoHS compliant. Printing is easy by means of a thermal transfer or laser printer.

Features

- Outstanding resistance to fluids and oils, including JP-8 aviation fuel oil
- RoHS compliant
- Flame retardant
- UV Stable
- Meets AMS-DTL 23053/6 Classes 1 and 3, SAE AS 81531, MIL-STD-202F method 215J and NFF 00608 Class A and H
- Printing have excellent abrasive resistance, even if contamination is encountered prior to shrinking
- Shrink Ratio 3 : 1
- Colours - Yellow
- White on demand
- Perforated versions on demand
- **ACPIT - Continuous identification heatshrinkable tubing on reels for more cost effective printing**

Technical Data

Properties	Test Method	Typical Values
Material	Thermally Stable Crosslinked Polyolefin	
Operating Temperature (°C)		-55 to 135
Tensile Strength (MPa)	AMS-DTL-23053 : 1999 4.6.13 ASTM D 638-08, AMS-DTL- 23053/6 : 1999	17.0
Ultimate Elongation (%)	Before Ageing	AMS-DTL-23053 : 1999 4.6.13 ASTM D 638-08
	After Ageing	566
Heat Shock	AMS-DTL-23053 : 1999 4.6.8 MIL-DTL-23053/5C : 1996 (4hrs, 225°C)	No Cracks, Flowing or Dripping
Low Temperature Flexibility	AMS-DTL-23053 : 1999 4.6.7.1 AMS-DTL23053/6 : 1999 (4hrs, -30°C)	No Cracking
Dielectric Strength (kV/mm)	ASTM D2671-09 AMS-DTL 23053/6 : 1999	34.48
Volume Resistivity (Ω/cm)	IEC92	≥ 10 ¹⁴
Flammability	AMS-DTL-23053 : 1999 4.6.14, ASTM D2671-09 AMS-DTL-23053/6 : 1999 (2min, 200°C) UL94-2013 Section 8	Pass V-0
Oil Resistance	SAE AS81531 : 1998 4.6.2 Transformer & Hydraulic Oil (24hrs, 24°C)	Pass. Printing was uniform, clear easily identified at 356mm
Min. Shrink Temperature (°C)		120
Water Absorption (%)	AMS-DTL-23053 : 1999 4.6 ASTM-D570-98 (2005) AMS-DTL-23053/6 : 1999 (24hrs, 23°C)	0.09

Applications

- Identification requirements in military / defence, aerospace and marine applications

Dimensions

Product	Inside Diameter (mm)		Flat Width (w) mm	Wall Thickness (mm)		Standard Pack
	Supplied (min)	Recovered (max)	As Supplied	Supplied	Recovered	Qty. Pcs
AHMS1.6/YL - 50 - 3	2.00	0.53	3.7	0.24	0.52	250
AHMS2.4/YL - 50 - 3	2.79	0.79	5.0	0.24	0.57	250
AHMS3.2/YL - 50 - 3	3.64	1.06	6.3	0.24	0.61	250
AHMS4.8/YL - 50 - 3	5.26	1.59	8.9	0.25	0.67	250
AHMS6.4/YL - 50 - 3	6.92	2.36	11.5	0.25	0.71	250
AHMS9.5/YL - 50 - 3	10.2	3.18	16.7	0.26	0.77	250
AHMS12.7/YL - 50 - 3	13.5	4.75	21.8	0.27	0.80	250
AHMS19/YL - 50 - 3	20.1	6.35	32.2	0.28	0.84	250
AHMS25/YL - 50 - 3	26.7	8.47	42.5	0.28	0.86	250
AHMS38/YL - 50 - 3	39.8	12.9	63.2	0.29	0.89	250
AHMS50/YL - 50 - 3	53.0	17.2	83.9	0.29	0.90	250
AHMS76/YL - 50 - 3	79.4	25.8	125.3	0.29	0.92	250

Electrical Heat Gun

AFME



Description

AFME670K is a powerful electronically controlled hot air gun with temperature and airflow control for continuous use. The unit is a professional high-spec tool for virtually any hot air application.

Features

- Airflow rate adjustable in three stages
- Electronic temperature control
- 2000W
- Hand held and self resting on soft stand
- Continuously adjustable temperature from 50 to 600°C
- Dual protection cut-off system to prolong tool life
- Durable for continuous operation
- 4m Rubber cord
- Cool air stage for rapid cooling on nozzle change
- 3 Year guarantee

Applications

- Shrinking heatshrink sleeves
- Welding plastics
- Soldering of plumbing joints
- Stripping of paint
- Removing stickers
- Bending plastic pipes
- Loosening of tight nuts and bolts

Technical Data

Properties	Typical Values
Dimensions (L x W x H) mm	250 x 83 x 210
Output (W)	2000
Voltage	230 - 240 V, 50 - 60 Hz
Airflow (l/min)	300 / 550
Temperature (°C)	50 - 450 / 70 - 600
Weight (g)	940

SIEVERT Gas Burners

AGB



AGB38



AGB38PRO



Recommended flame
Orange / yellow tip

AGB38PRO

- With **automatic Piezo Ignition**
- No gas emission unless burner fitted
- Bayonet fitting for burners
- Combined suspension hook and foot stand

Description

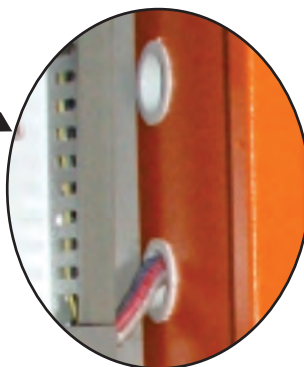
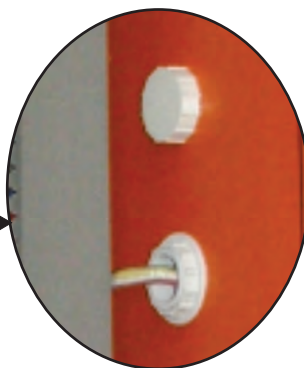
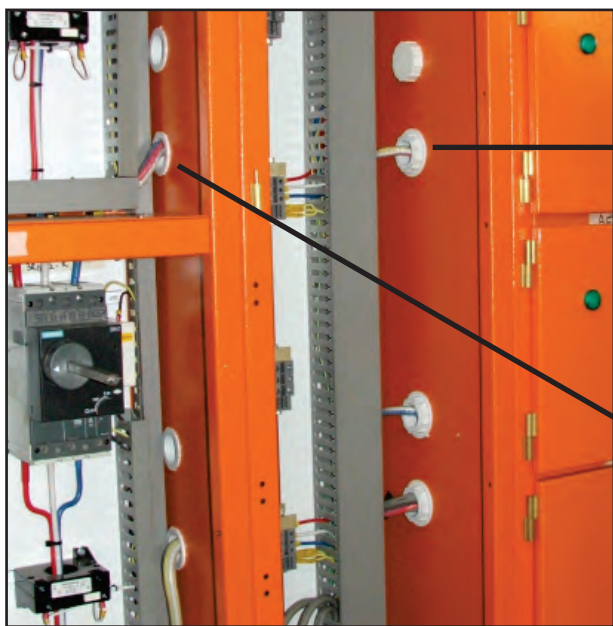
The **AGB** SIEVERT gas burner's advanced and safe design makes it one of the craftsman's most important tools when efficiency and professional workmanship are the most important requirements. Its soft yellow and blue soot-free windproof flame makes it ideal for all heat shrinking applications. Design allows fresh air to be sucked in and keeps the burner head cold to minimise the risk of burning the heatshrink material.

Features

- Design ensures a very exact and quick flame setting
- Spring design knob gives a precise and stable setting
- Metal parts made of high quality brass
- Double moulded soft grip for highest comfort and usability
- **Swivel hose fitting avoids hose drag**
- Working pressure - 2bar
- Burner diameter - 38mm
- Gas consumption - 1200g/hr at 2 bar

Other

Panel Caps and Connectors



Lug shroud

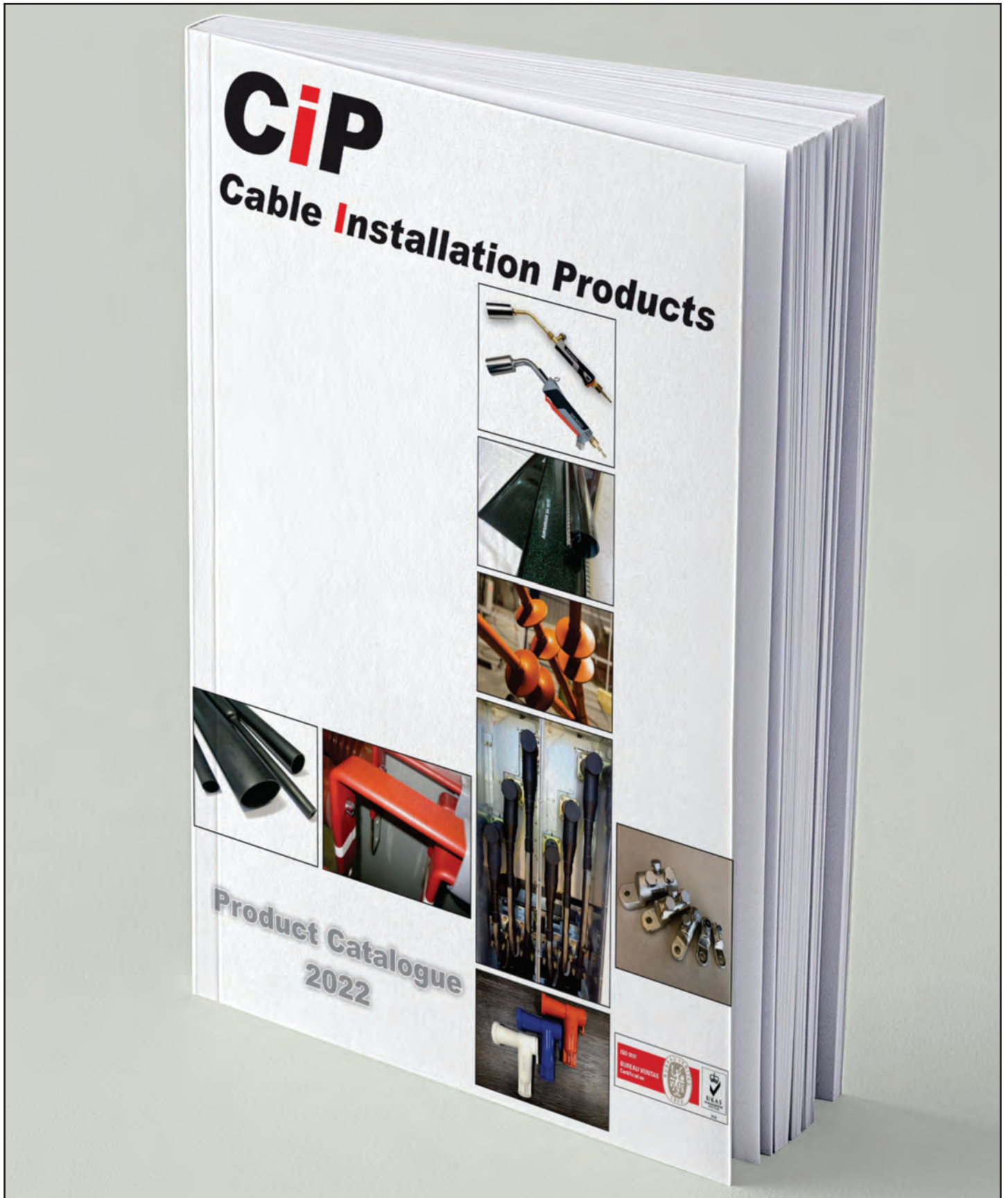


LV and MV Joints, Terminations and Accessories



LV and MV Joints, Terminations and Accessories

Should you require a more comprehensive catalogue on these products, contact your sales representative or our office.



Practical and Theoretical Training



Basic Outline

AIRSHRINK/CiP offers a range of training modules tailored to the requirements of our customers. These include courses designed for the novice, intermediate and the professional joiner with a wealth of experience. Training offered can be as basic as just a practical demonstration, hands on principal or for individuals that require training to be done under the accreditation of EWSETA.



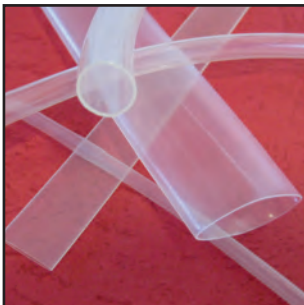
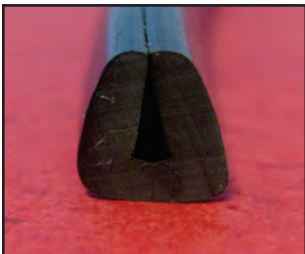
- Training on jointing and termination of Low and Medium Voltage cables are aligned to the requirements of SANS 10198
 - Part 9 - Cables up to 3.3kV
 - Part 10 - Paper insulated cables not exceeding 33kV (PILC)
 - Part 11 - Screened polymeric insulated cables not exceeding 33kV (XLPE)
- Practical and theoretical training available as per SAQA unit standards ID 259187 and 259189
- Training can be arranged at **AIRSHRINK/CiP**'s training centre in Klipriver Business Park or at the customers premises
- Course duration depends on the requirements of the customer and is generally between 2 to 5 days
- Our training is presented by well experienced and qualified jointers and engineers with many years experience in this field. During the course they will share the "tricks of the trade" which they acquired
- Trainees receive individual attention and are assessed by registered assessors
- Where required, assessments are moderated by registered and accredited moderators
- Certificates issued will either be a certificate of attendance or a certificate of competence based on the course selected
- All material used meet the requirements of SANS 1332



AIRSHRINK
— a new dimension —

CiP

Cable Installation Products (Pty) Ltd



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