INTRODUCTION

Braided Sleeving and Shielding Solutions

Protective Sleeving, Wrap-around and Push-Fit

Range of protective sleeving, providing protection for electrical harnesses, hoses and pipes against heat, abrasion, chemicals fluids and electrical noise.
Protective sleeving comes in a wide variety of constructions, sizes and colours including wrap-around, push-on, heat-shrinkable.

Features & Benefits

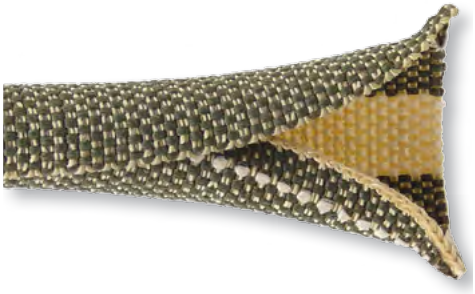
- Mechanical protection
- Chemical resistance
- Electrical insulation
- Fluid and solvent resistance
- Moisture protection
- Strain relief, flexibility
- Aesthetic enhancement
- Fast and efficient installation

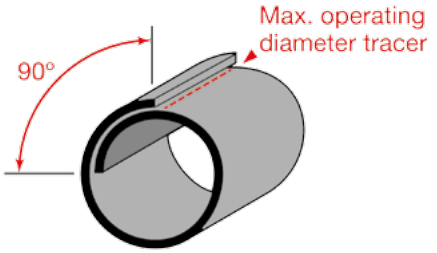
EXPANDO

Expandable braided sleeving

ROUNDIT

Self-wrapping braided sleeving





Maximum application size is determined by wrapping product to obtain a minimum of 90° of overlap. For further information, please contact us.
Professional aluminium assembly tools are available to suit application size. Please note that a basic plastic tool is also available FOC on request.

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Braided Sleeving and Shielding Solutions

Selection Guide

Abrasion and Mechanical Protection

Product	Type	Markets	Description
Mechanical and Abrasion Protection...			
Expando® 686DM	Tubular	Aero, Def	Optimal solution for use where a combination of abrasion protection and lightweight are required.
Expando® HR & HR Plus	Tubular	Aero, Def	Fray-resistant and flame retardant used for abrasion protection over a range of temp. environments. Low vacuum out-gassing.
Expando® HTNS-L/HO	Tubular	Aero, Def	Low flammability, resists most chemicals. Open braid construction, highly flexible and resistant to trapping moisture.
Expando® HTNS-LA/HO	Tubular	Aero	Higher expansion ratio than HTNS L/HO (1:3)
Expando® Peek	Tubular	Aero, Def	Designed for mechanical protection in temperature extremes and hostile conditions
Expando® PFA	Tubular	Aero, Def	Self-extinguishing, used to encase typical non-flammable wires or cables, low flammability, resists damage from most chemicals.
Expando® PPS	Tubular	Aero, Def	Offers mechanical protection in high temperature areas. Often used for its outstanding properties in extreme environments.
Expando® PT Plus	Tubular	Elec	Highly expandable braid (1:3) with strong mechanical protection; treated to prevent end fraying, available in a variety of colours.
Expando® TCP V0	Tubular	Rail, Elec	Expandable braid (1:2) with strong mechanical protection, with low toxicity and smoke-emission.
Roundit® 2000	Wrappable	Elec	Self-wrapping sleeve with strong mechanical protection; quick and easy installation and removal for assembly and maintenance
Roundit® 2000 FR	Wrappable	Rail	Rail approved self-wrapping sleeve with good mechanical protection; Excellent cut through and abrasion resistance.
Roundit® 2000 V0	Wrappable	Rail	Self-wrapping sleeve with high mechanical protection; Highly flame retardant (UL94 V0) with low toxicity and smoke emission.
Roundit® 2000 NX	Wrappable	Aero, Def, Oil/Gas, Rail	Woven combination of Nomex® and PPS in a flat weave for a rugged and smooth texture, for high temperature cable bundling.
Roundit® 2000 NX HT	Wrappable	Aero, Def, Oil/Gas, Rail	High temp. version of 'NX' differentiated by a wide ivory tracer on the outside. PEEK mono-filaments and Nomex® multi-filaments.
Roundit® 2000 NX PTR/VTR	Wrappable	Aero, Def	Designed with a pink tracer to identify fuel lines (PTR) or a violet tracer to identify fibre optics (VTR); Oil and water repellent.
Roundit® 2000 NX Grip	Wrappable	Aero, Def	Designed with a sewn loop textile attachment method in conjunction with adhesive hook, enables direct attachment.

Approvals	Temp.	Flammability	Construction	Size
... continued				
	-70°C to +200°C	FAR Part 25 § 853 and UL 1441 (VW-1)	PEEK and PPS	3 to 64
	-70°C to +150°C	FAR Part 25 § 853 and UL 1441 (VW-1)	Halar® (E-CTFE) fluoropolymer	2 to 70mm
ASD EN6049-003	-60°C to +240°C	FAR Part 25 § 853 and UL 244 (VW-1)	Nomex®	1 to 40mm
ASD EN6049-003	-60°C to +240°C	FAR Part 25 § 853	Nomex®	2 to 60mm
	-70°C to +260°C	FAR Part 25 § 853	PEEK	2 to 76mm
BMS 13-52 Type IV	-70°C to +260°C	FAR Part 25 § 853	Perfluoroalkoxy (PFA)	1 to 76mm
BMS 13-52 Type III	-70°C to +200°C	FAR Part 25 § 853 and UL 1441 (VW-1)	Polyphenylene Sulfide (PPS)	2 to 64mm
	-70°C to +125°C	Flame retardant	Polyester	2 to 114mm
EN 45545-2	-50°C to +150°C	NF16101 - 16102 DB DIN 5510 & 54837 ASTM E-662 & ASTM E-162	Polyester	4 to 75mm
	-70°C to +125°C	FMVSS-302 Method D45 1333	Polyester	5 to 62mm
EN 45545-2	-50°C to +150°C	NF16101 - 16102 DB DIN 5510 & 54837 ASTM E-662 & ASTM E-162	Polyester	5 to 50mm
EN 45545-2	-50°C to +150°C	NF16101 - 16102 DB DIN 5510 & 54837 ASTM E-662 & ASTM E-162	Polyester	5 to 50mm
ASD EN6049-006 BMS 13-81 Type 1	-60°C to +200°C	FAR Part 25 § 853	Nomex® and PPS	5 to 40mm
ASD EN6049-007	-70°C to +260°C	FAR Part 25 § 853	Nomex® and PEEK	5 to 40mm
ASD EN6049-006.	-60°C to +200°C	FAR Part 25 § 853	Nomex® and PPS	5 to 40mm
	-60°C to +200°C	FAR Part 25 § 853	Nomex® and PPS	5 to 40mm

Selection Guide

Electrical Insulation | Thermal and Fire | Electromagnetic Shielding

Product	Type	Markets	Description
Electrical Insulation and Abrasion Resistance...			
GES 40 and GES 100	Tubular	Elec	Highly flexible with relative diametric expansion (1:3), with silicone coating. Offering dielectric strength from 4kV to 10kV.
Roundit® 2000 NX HT	Wrappable	Aero	High temperature version of Roundit 2000 NX. Oil and water repellent - Dielectric 1.5kV
Thermal and Fire Insulation...			
TST/TSX	Tubular	Aero, Def	High temperature resistant, multi-filament pure silica fibre (>99.8%). Heat treated to remove organic content.
Textalu® 1202	Tubular	Elec	Fibreglass sleeve with a heavy aluminium coating for protection in high temperature areas.
Thermotubix Aerospace	Tubular	Aero, Rail	Expands readily to go over fittings and couplings. Protects from molten splash and welding sparks.
Roundit® Therm-A	Wrappable	Aero, Def	Two layer design provides thermal/fire protection and excellent cut-through and abrasion resistance; oils and water repellent.
Roundit® Therm-B	Wrappable	Aero, Def	Three layer design provides increased protection and excellent cut-through and abrasion resistance; oil and water repellent
Therm-L-Wrap® 66	Wrappable	Aero, Def, Oil/Gas	Self-wrappable sleeve with an adhesive closure, offers excellent radiant heat protection and excellent EMI shielding performance.
Electromagnetic Shielding...			
Roundit® 2000 NX EMI	Wrappable	Aero, Def	Multi-layer solution providing mechanical protection and very high EMI shielding; also available with an inner layer of PTFE.
Roundit® 2000 V0 EMI	Wrappable	Rail	Self-wrapping metal solution; flexible and easy to install providing high performance EMI shielding
Roundit® 2000 EMI FMJ	Wrappable	Aero, Rail	Self-wrapping metal solution, with 95% optical coverage; flexible and easy to install providing very high performance EMI shielding
Roundit® 2000 EMI XWS	Wrappable	Aero	Self-wrapping metal solution to optimise weight with EMI shielding performance. C4 (Blue tracer) & C27 (Pink tracer)
Raybraid® 90, 101 and 103	Tubular	Aero, Def	Tubular metal braid for electrical screening of wire bundles, with minimum 90% optical coverage, greater for 101 and 103
HBT90 and HBT99	Tubular	Aero, Def Motorsport	Tubular metal braid for electrical screening, offering up to 99% optical coverage HBT99.
InstaLite® 101 and 103	Tubular	Aero, Motorsport	Lightweight tubular metal alloy braiding for electrical screening of wire bundles, 50% lighter than traditional copper braid

Approvals	Temp.	Flammability	Construction	Size
... continued				
	-60°C to +220°C	UL 1441 (VW-1)	Silicone rubber coated fibreglass sleeving	0.5 to 32mm
ASD EN6049-007	-70°C to +260°C	FAR Part 25 § 853	Nomex® and PEEK	5 to 40mm
... continued				
	-60°C to 950°C	FAR Part 25 § 853	Multi-filament pure silica fibre	0.5 to 36mm
ISO 6722 SAE AS1072 (2)	-40°C to +200°C	FMVSS 302, D45 1333	Fibreglass sleeve with aluminium coating	5 to 22mm
EN 45545-2	-54°C to 260°C	ASTM D-350 B and NF 16101-16102. Fire protection to +1100°C (15min)	Thick wall fibreglass sleeve coated with silicone rubber	8 to 100mm
ASD EN6049-009	-60°C to +260°C	ISO 2685 - 5 min @ +1100°C	Roundit® 2000 NX HT, Silica and Panox®	5 to 32mm
	-60°C to +260°C	ISO 2685 - 15 min @ +1100°C	Fibreglass sleeve coated with silicone rubber outer	5 to 32mm
	-60°C to 200°C	FAR Part 25 § 853	Aluminium outer layer and fibreglass inner layer	8 to 25mm
... continued				
ASD EN6049-008	-60°C to 200°C	FAR Part 25 § 853	Ni plated Cu combined with PPS mono-filaments	5 to 38mm
EN 45545-2	-50°C to 200°C	NF 16101-16102	Ni plated Cu combined with PPS mono-filaments	8 to 45mm
EN 45545-2	-65°C to 200°C	FAR Part 25 § 853 NF 16101-16102	Ni plated Cu combined with PPS mono-filaments	5 to 38mm
C4: EN4674-003 C27: EN4674-004	-65°C to 200°C	FAR Part 25 § 853	Ni plated Cu combined with PPS mono-filaments	5 to 165mm
	101 up to +150°C 103 up to +200°C	-	Series 90 & 101 tinned Cu and series 103 tinned Ni Cu	3 to 30mm
	90 up to +150°C 99 up to +260°C	-	Series 90 tinned Cu and series 99 tinned Ni Cu	3 to 30mm 3 to 40mm
	101 up to +150°C 103 up to +200°C	-	Series 101 tinned Cu alloy and series 103 tinned Ni Cu	3 to 20mm

EXPANDO® 686DM

PEEK and PPS Blend
Expandable braided sleeving

Featuring a dual mono-filament construction, Expando 686DM blends larger PEEK guard strands with PPS support strands. The inherent properties of the raw materials give Expando 686DM low levels of flammability, toxicity, smoke generation and hard vacuum off gassing.

Expando 686DM is a protective oversleeve designed for mechanical protection in temperature extremes and hostile environmental conditions.

Operating Temperature

- From -70°C to +200°C

Specifications & Approvals

- VW-1 according to UL 1441
- FAR Part 25

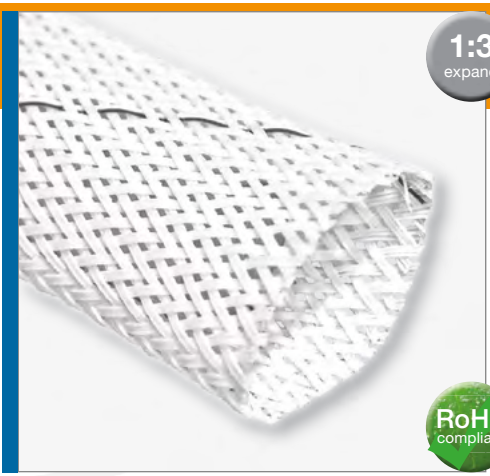
Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	209	600	Expando 686 DM 3-X
3	11	447	300	Expando 686 DM 6-X
5	19	925	150	Expando 686 DM 10-X
6	22	1194	150	Expando 686 DM 13-X
13	35	1790	150	Expando 686 DM 19-X
19	45	2387	75	Expando 686 DM 32-X
25	57	2685	75	Expando 686 DM 45-X
38	57	4476	75	Expando 686 DM 51-X
48	76	5072	75	Expando 686 DM 64-X

Where X denote colour code

Properties	Test	Results
Smoke density	ASTM E-662	D_{mc} = 2.3
Oxygen index	ASTM D-2863	36.5
Toxicity index	NES 713	1.6
Hard vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Retains 91% of original break strength

Colours Available

0 = Black 9 = Natural



EXPANDO® HR and HR Plus

Halar® (E-CTFE) Fluoropolymer

Tough, lightweight expandable sleeving

Constructed of Halar* (E-CTFE) fluoropolymer that is designed for applications up to 150ºC. Inherently flame-retardant, it is a UL recognised component which meets VW-1 requirements and will not melt and drip on direct exposure to flame.

Expando HR is a special purpose, highly reliable solution for military and aerospace applications. It offers good mechanical properties, performs well in both high and low temperature environments and has outstanding chemical resistance.

** Halar is a registered trademark of Solvay Solexis*

Specifications & Approvals

- UL Recognised component

Operating Temperature

- From -70ºC to +150ºC

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	4.02	600m	HR-3mm-Colour
3	11	5.96	300m	HR-6mm-Colour
6	19	17.9	150m	HR-13mm-Colour
12	32	26.85	150m	HR-19mm-Colour
19	45	34.31	150m	HR-32mm-Colour
32	70	56.69	75m	HR-45mm-Colour

Fray resistant treatment is denoted by part number HR-Plus-XX-Colour

Properties	Test	Results
Melt Temperature	ASTM D-2117	+240ºC
Low Temperature flexibility	MIL-DTL-23053E	-70ºC
Copper Corrosivity	MIL-I-23053	No Effect
Flammability	FAR Part 25 and UL 1441	VW-1
Smoke Density	ASTM E-1354	D_{mc}=0.30
Hard Vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Pass

Colours Available

Black with White tracer White with Black tracer

EXPANDO® HTNS L/HO

Meta Aramid NOMEX®
Expandable braided sleeving

HTNS-L/HO is a thin wall braided sleeve manufactured from Meta-Aramid Nomex®. Its highly expandable structure allows easy installation over long lengths after fitting of end connectors. Flexible, expandable and non-flammable properties ensure excellent performance in the most diverse and aggressive environments, including excellent resistance to gamma and x-rays.

Expando HTNS-L/HO braided sleeving has an oil and water repellent treatment (HO) to reduce humidity absorption and to improve impermeability to fluids.

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Operating Temperature

- From -60°C to +240°C (continuous) and up to +310°C (short term).

Specifications & Approvals

- EN 6049-003
- PAN 6480P

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
1	2	2.70	100m	HTNS-L/HO-2mm-Green
2	4	4.00	100m	HTNS-L/HO-4mm-Green
4	8	8.00	100m	HTNS-L/HO-6mm-Green
6	12	12.00	50m	HTNS-L/HO-8mm-Green
8	16	14.00	50m	HTNS-L/HO-10mm-Green
10	20	17.00	50m	HTNS-L/HO-15mm-Green
12	24	22.00	50m	HTNS-L/HO-20mm-Green
15	30	32.50	50m	HTNS-L/HO-25mm-Green
20	40	38.00	50m	HTNS-L/HO-30mm-Green

Properties	Test	Results
Abrasion resistance	EN 6059 Part 403	Pass
Bending strength	50,000 bending cycles at 180°C	Excellent
Flame resistance (self-extinguishing properties)	UL 224 and UL 94	VW-1 and Base material classified VO
	FAR 25 AMDT.25-72 § 853(b)	Pass
Humidity resistance	1000hrs at +150°C	Retains 70% of its original tensile
Water/oil repellent treatment	EN 6059 Part 305	Pass
Fluid resistance	EN 6059 Part 303	Pass

Colours Available

Green

EXPANDO® HTNS LA/HO

Meta Aramid NOMEX®
Expandable braided sleeving

HTNS-LA/HO is a thin wall braided sleeve manufactured from Meta-Aramid Nomex®. Differing from HTNS L/HO by having a different expandable structure offering an increased expansion ratio of 1:3 allows easy installation over long lengths after fitting of end connectors with a limited range of product sizes.

In other respects characteristics and performance is much the same as HTNS L/HO.

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Operating Temperature

- From -60°C to +240°C (continuous) and up to +310°C (short term).

Specifications & Approvals

- EN 6049-003
- PAN 6480P

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	5.50	100m	HTNS-LA/HO-5mm-Green
5	15	11.00	100m	HTNS-LA/HO-10mm-Green
8	24	18.00	100m	HTNS-LA/HO-15mm-Green
12	36	22.00	50m	HTNS-LA/HO-25mm-Green
22	60	31.00	50m	HTNS-LA/HO-40mm-Green

Properties	Test	Results
Abrasion resistance	EN 6059 Part 403	Pass
Bending strength	50,000 bend cycles @ +180°C	Excellent
Flame resistance (self-extinguishing properties)	UL 224	VW-1
	UL 94	Base material classified VO
	FAR 25 AMDT.25-72 § 853(b)	Pass
Water/oil repellent treatment	EN 6059 Part 305	Pass
Fluid resistance	EN 6059 Part 303	Pass

Colours Available

Green

EXPANDO® PEEK

Polyetheretherketone
Expandable braided sleeving

Expando® PEEK (polyetheretherketone) is an expandable sleeve designed for aerospace and defence applications.

The inherent properties of PEEK offers low levels of flammability, toxicity, smoke generation and vacuum off-gassing.

Used in the aerospace industry for its outstanding properties in extreme environments. This product should be considered for aircraft, space, military, marine and hostile environment applications.

Operating Temperature

- From -70°C to +260°C

Specifications & Approvals

- VW-1 according to UL 1441

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	2.46	600m	Expando-PEEK-3-Colour
3	13	4.17	300m	Expando-PEEK-6-Colour
6	22	11.61	150m	Expando-PEEK-13-Colour
13	29	16.86	150m	Expando-PEEK-19-Colour
19	45	21.94	75m	Expando-PEEK-25-Colour
25	45	23.57	75m	Expando-PEEK-32-Colour
32	64	41.09	75m	Expando-PEEK-45-Colour
38	64	48.07	75m	Expando-PEEK-51-Colour
51	76	55.66	75m	Expando-PEEK-64-Colour

Properties	Test	Results
Melt Temperature	ASTM D-3418	+334°C
Low Temperature flexibility	MIL-DTL-23053E	-70°C
Flammability	UL 1441	VW-1
Smoke Density	ASTM E-662	D_{mc}= 50
Hard Vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Pass

Colours Available

Black Natural

EXPANDO® PFA

Perfluoroalkoxy
Expandable braided sleeving

Expando® PFA is constructed from PFA (perfluoroalkoxy). Offering low flammability and resists damage from most chemicals.

Expando PFA protective over-sleeve is widely used in the aerospace industry for its high temperature capability and ability to retain flexibility at low temperatures.

Tough and lightweight used to protect cable assemblies, hoses and wire harnesses from chafing, cutting and abrading. The open braid construction enables each size to expand to fit several application shapes and diameters and also makes them highly flexible and resistant to trapping water, heat and humidity

Specifications & Approvals

- BMS 13-52 Type IV
- FAR Part 25

Operating Temperature

- From -70°C to +260°C

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
1	6	7.9	600m	Expando-PFA-3-Natural
2	11	10.8	300m	Expando-PFA-6-Natural
5	16	33.7	150m	Expando-PFA-10-Natural
8	19	40.8	150m	Expando-PFA-13-Natural
10	25	50.6	150m	Expando-PFA-19-Natural
16	38	82.2	75m	Expando-PFA-32-Natural
17	51	101.3	75m	Expando-PFA-45-Natural
19	76	144.4	75m	Expando-PFA-51-Natural

Properties	Test	Results
Melt Temperature	ASTM D-3418	+302°C
Low Temperature flexibility	MIL-DTL-23053E	-70°C
Flammability	FAR Part 25 § 853	Pass
Smoke Density	ASTM E-662	No smoke / No ignition
Hard Vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Pass

Colours Available

Natural

EXPANDO® PPS

Polyphenylene Sulfide
Expandable braided sleeving

Designed for mechanical protection in high temperatures environments being rated to +200°C. The inherent properties of PPS offers low levels of flammability, toxicity, smoke generation and hard vacuum off gassing.

The inherent properties of PPS resists damage from high temperature air guns used with heat-shrinkable elements such as strain reliefs, terminations and identification sleeves.

Expando PPS is used in the aerospace industry for its outstanding properties in extreme environments. This product should be considered for aircraft, space, military, marine and hostile environment applications.

Operating Temperature

- From -70°C to +200°C

Specifications & Approvals

- BMS 13-52 Type III
- Meets VW-1 requirements

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	3.44	610m	Expando-PPS-3mm-Colour
3	13	5.89	305m	Expando-PPS-6mm-Colour
6	19	12.11	152m	Expando-PPS-13mm-Colour
13	32	14.24	152m	Expando-PPS-19mm-Colour
25	45	26.34	76m	Expando-PPS-32mm-Colour
32	64	28.72	76m	Expando-PPS-45mm-Colour

Properties	Test	Results
Low temperature flexibility	MIL-DTL-23053E	-70°C
Flammability	UL 1441	VW-1
	FAR Part 25	Pass
Smoke Density	ASTM E662	Dmax <50
Copper Corrosivity	MIL-I-23053	No effect
Hard Vacuum	ASTM E-595	Meets industry limits
Fluid resistance	MIL-DTL-23053	Retains >97% of its initial break strength

Colours Available

Black with White tracer White with Black tracer

EXPANDO® PT and PT Plus

Polyester (PET)
Expandable braided sleeving

The open-braid construction enables each size to expand to fit several application shapes and diameters. This open-textile construction also makes them highly flexible and resistant to trapping water, heat and humidity.

Expando PT and Expando PT Plus are braided polyester (PET) sleeves designed for applications up to 125ºC. General purpose industrial/commercial products.

The patented 'Plus' treatment makes end termination neater and easier, by creating a webbing between the filaments of the sleeving to reduce end fray during installation and through the life of the product, allowing it to be cut with ordinary scissors.

Specifications & Approvals

- UL Recognised component

Operating Temperature

- From -70ºC to +125ºC

Recommended Application Range		Weight	Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Nom g/m	Spools	
2	6	2.62	600m	Expando-PT-3-Colour
3	11	4.32	300m	Expando-PT-6-Colour
6	13	9.90	150m	Expando-PT-10-Colour
6	19	12.60	150m	Expando-PT-13-Colour
13	32	19.64	150m	Expando-PT-19-Colour
19	45	26.19	75m	Expando-PT-32-Colour
32	70	44.20	75m	Expando-PT-45-Colour
38	89	54.02	75m	Expando-PT-51-Colour
45	114	58.17	75m	Expando-PT-64-Colour

Properties	Test	Results
Melt Temperature	ASTM D-2117	+250ºC
Low Temperature flexibility	MIL-DTL-23053E	-70ºC
Copper Corrosivity	MIL-I-23053	No Effect
Smoke Density	ASTM E-1354	D_{mc}=2.12
Hard Vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Pass

Colours Available

Black, Natural[NS], Orange[NS], Yellow[NS], Blue[NS], Grey[NS]

[NS] Non standard colours, MOQ's may apply.

EXPANDO® TCP V0

UL94 V0 rated Polyester
Expandable braided sleeving

An expandable braided sleeve manufactured from modified polyester mono-filaments classified UL 94 V0 which offers excellent flame-retardant properties. It is designed for the protection of tubing and maintenance of wire and cable bundles and commonly used on Rail and Military ground vehicles..

This product has a highly expandable structure which allows for easy installation over long lengths, even after fitting of end connectors.

The properties of the mono-filament ensures excellent performance in the most diverse and hostile environments. The product is used in a wide range of industries including railway and electrical / electronic devices.

Specifications & Approvals

- EN 45545-2

Operating Temperature

- From -50°C to +150°C

Recommended Range		Std Pack Size	Part Number
Minimum Ø (mm)	Maximum Ø (mm)	Spools	
2	5	200m	TCP-V0-3mm-Colour
4	8	200m	TCP-V0-5mm-Colour
5	9	200m	TCP-V0-6mm-Colour
6	12	200m	TCP-V0-8mm-Colour
7	15	100m	TCP-V0-10mm-Colour
10	18	100m	TCP-V0-12mm-Colour
12	23	50m	TCP-V0-15mm-Colour
16	28	50m	TCP-V0-20mm-Colour
21	35	50m	TCP-V0-25mm-Colour
26	45	50m	TCP-V0-30mm-Colour
36	60	50m	TCP-V0-40mm-Colour
45	75	50m	TCP-V0-50mm-Colour

Properties	Test	Results
Fire / Smoke / Toxicity	UL 94 NF 16101 / 16102 ASTM E 662 - ASTM E 162 EN 45545-2	Raw material classified V0 I2 - F1 Zero halogen Pass R22, HL3, R23, HL3

Colours Available

Black with Grey tracer Grey with Black tracer

ROUNDIT® 2000

Polyester
Self Wrap-around sleeving

Roundit® 2000 is a wrap-around sleeving manufactured from modified mono-filament and textured polyester yarn.

The self-wrapping feature of Roundit® 2000 allows for quick and easy installation and removal of the product for assembly and maintenance applications. Roundit® 2000 may be applied or removed without any manipulation of connectors or fittings and offers an innovative solution in areas where breakouts are required.

Operating Temperature

- From -70°C to +125°C

Specifications & Approvals

- UL Recognised component, versions also available.

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	11	150	Roundit-2000-5mm-Black
5	8	14	100	Roundit-2000-8mm-Black
10	13	21	50	Roundit-2000-13mm-Black
13	16	24	35	Roundit-2000-16mm-Black
16	19	28	25	Roundit-2000-19mm-Black
19	25	39	25	Roundit-2000-25mm-Black
25	29	41	25	Roundit-2000-29mm-Black
29	32	45	25	Roundit-2000-32mm-Black
32	38	54	25	Roundit-2000-38mm-Black

Properties	Test	Results
Melt Temperature	ASTM D-276	+256°C
Low Temperature flexibility	MIL-DTL-23053E	-70°C
Copper Corrosivity	MIL-I-23053	No effect
Fire Resistance	FMVSS-302 (D45 1333)	Self-extinguishing, type B
Smoke Density	ASTM E-1354	Please ask for info
Hard Vacuum	ASTM E-595	Pass
Fluid resistance	MIL-I-23053	Pass

Colours Available

Black

ROUNDIT® 2000 FR

Flame Retardant Polyester
Self Wrap-around sleeving

Roundit® 2000 FR is a wrap-around sleeving manufactured from flame-retardant polyester mono-filaments and multi-filaments.

The self-wrapping feature of Roundit® 2000 FR allows for quick and easy installation and removal of the product for assembly and maintenance applications. May be applied or removed without any manipulation of connectors or fittings and offers an innovative solution in areas where breakouts are required.

Roundit® 2000 FR has many applications in the aerospace, motorsport, marine, defence, railway, electronics and manufacturing industries.

Operating Temperature

- From -50°C to +150°C

Specifications & Approvals

- NF16101/16102
- EN 45545-2

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	9	150m	Roundit-2000FR-5mm-Black
5	8	12	100m	Roundit-2000FR-8mm-Black
8	13	18	50m	Roundit-2000FR-13mm-Black
13	19	25	25m	Roundit-2000FR-19mm-Black
19	25	36	25m	Roundit-2000FR-25mm-Black
25	29	37	25m	Roundit-2000FR-29mm-Black
29	32	43	25m	Roundit-2000FR-32mm-Black
32	38	54	25m	Roundit-2000FR-38mm-Black
38	50	75	25m	Roundit-2000FR-50mm-Black**

** Size 50 is made of two sizes 25 sewn together.

Properties	Test	Results
Oxygen Index	NF EN ISO 4589-2	IO 31.75%
Abrasion Resistance	NF F 63-808	Pass
Fluid resistance	EN 6059-303	No visible degradation
Fire / Smoke / Toxicity	NF 16101 and NF 16102 ASTM E 662 - ASTM E 162 EN 45545-2	I2 - F2 Pass R22, HL3, R23, HL3

Colours Available

Black with White tracer

ROUNDIT® 2000 V0

UL94 V0 Rated Polyester
LFH Wrap-around sleeving

Roundit® 2000 V0 is a wrap-around sleeving manufactured from UL 94 V0 rated flame-retardant polyester mono-filaments and multi-filaments.

The self-wrapping feature allows for quick and easy installation and removal of the product for assembly and maintenance applications. Roundit® 2000 V0 may be applied or removed without any manipulation of connectors or fittings and offers an innovative solution in areas where breakouts are required.

Roundit® 2000 V0 has many applications in the aerospace, motorsport, marine, defence, railway, electronics and manufacturing industries.

Specifications & Approvals

- UL94 V0 Rated (raw material)
- EN 45545-2

Operating Temperature

- From -50ºC to +150ºC

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	7	150m	Roundit-2000-V0-5mm-Black
5	8	9	100m	Roundit-2000-V0-8mm-Black
8	13	14	50m	Roundit-2000-V0-13mm-Black
13	19	18	25m	Roundit-2000-V0-19mm-Black
19	25	24	25m	Roundit-2000-V0-25mm-Black
25	29	28	25m	Roundit-2000-V0-29mm-Black
29	32	31	25m	Roundit-2000-V0-32mm-Black
32	38	35	25m	Roundit-2000-V0-38mm-Black
38	50	58	25m	Roundit-2000-V0-50mm-Black

Properties	Test	Results
Oxygen Index	NF EN ISO 4589-2	IO 37%
Fluid resistance:	EN 6059-303	No visible degradation
Abrasion Resistance	ISO 6722	1464 cycles (size 19)
Fire / Smoke / Toxicity	NF 16101 and NF 16102 DB DIN 5510 § 2 & 54 837 BS6853 ASTM E-162 & ASTM E 662 EN 45545-2	I2 - F2 Halogen free S4, SR2, ST2 R = 1.3, A0 = 0.193, OI = 34.9% Pass R22, HL3, R23, HL3

Colours Available

Black with White tracer

ROUNDIT® 2000 NX

Polyphenylene Sulfide and NOMEX®
High temperature wrap-around sleeving

Roundit® 2000 NX is a woven combination of Nomex® and PPS (polyphenylene sulfide). This blend in a flat weave construction gives Roundit 2000 NX a rugged yet smooth texture and appearance for high temperature bundling and abrasion resistance.

Also available as Roundit® 2000 NX RED or Roundit® 2000 NX ORANGE. Designed to identify wire harnesses connected with test equipment taken on board airplanes (Orange) or with weapon systems (Red).

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Operating Temperature

- From -60°C to +200°C (continuous) and up to +220°C (short term).

Specifications & Approvals

- EN 6049-006
- BMS 13-81 Type 1
- DMS2379 Class 4, type 4
- JN1149

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	13	150m	Roundit-2000-NX-5mm-Colour
5	8	18	100m	Roundit-2000-NX-8mm-Colour
8	13	26	50m	Roundit-2000-NX-13mm-Colour
16	19	38	25m	Roundit-2000-NX-19mm-Colour
19	25	47	25m	Roundit-2000-NX-25mm-Colour
25	32	65	25m	Roundit-2000-NX-32mm-Colour
32	40	90	25m	Roundit-2000-NX-40mm-Colour

Properties	Test	Results
Classification flammability	ABD 031 & FAR 25 § 853	Conforms - no halogen content
Smoke density/toxicity	NF F 16-101	F3, I4
Water repellent	EN 6059 Part 305	Pass
Abrasion resistant	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Fluid resistance	EN 6059-303	Good resistance

Colours Available

Green | red[NS] | Orange[NS]

[NS] Non standard colours, MOQ's may apply.

ROUNDIT® 2000 NX HT

PEEK Mono-filaments and NOMEX®
High temperature wrap-around sleeving

Roundit® 2000 NX HT is a woven combination of PEEK mono-filaments and Nomex® multi--filaments. It includes an oil and water repellent treatment in order to prevent the absorption of condensation build-up caused by the extreme changes aircraft are subjected to.

The self-wrapping feature allows quick and easy application and removal. The product may also be applied or removed without disturbing connectors or fittings.

This high temperature version is differentiated from the standard Roundit 2000 NX by a wide ivory tracer on the outer side.

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Specifications & Approvals

- EN 6049-007

Operating Temperature

- From -70ºC to +260ºC

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	20	150m	Roundit-2000-NX-HT-5mm-Green
5	8	27	100m	Roundit-2000-NX-HT-8mm-Green
8	13	39	50m	Roundit-2000-NX-HT-13mm-Green
13	19	60	25m	Roundit-2000-NX-HT-19mm-Green
19	25	73	25m	Roundit-2000-NX-HT-25mm-Green
25	32	93	25m	Roundit-2000-NX-HT-32mm-Green
32	40	116	25m	Roundit-2000-NX-HT-40mm-Green

Properties	Test	Results
Flammability & Smoke	ABD 031 & FAR 25 § 853	Conforms - no halogen content
Water repellent	EN 6059 Part 305	Pass
Abrasion resistant	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Vibrations	DO 160B	No cable abrasion
Mould growth	EN 6059 Part 306	Pass
Fluid resistance	EN 6059-303	Good resistance

Colours Available

Green with Ivory tracer

ROUNDIT® 2000 NX PTR/VTR

Polyphenylene Sulfide and NOMEX®
High temperature wrap-around sleeving

Roundit® 2000 NX is a woven combination of Nomex® and PPS (polyphenylene sulfide). This blend in a flat weave construction gives Roundit 2000 NX PTR/VTR a rugged yet smooth texture and appearance for high temperature bundling and abrasion resistance.

Roundit® 2000 NX PTR and VTR variants have been designed to help identify fuel lines with a pink tracer (PTR) or a violet tracer to identify fibre optics (VTR).

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Operating Temperature

- From -60ºC to +200ºC (continuous)

Specifications & Approvals

- EN 6049-006
- BMS 13-81 Type 1
- DMS2379 Class 4, type 4
- JN1149

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	13	150m	Roundit-2000-NX-XXX-5mm
5	8	18	100m	Roundit-2000-NX-XXX-8mm
8	13	26	50m	Roundit-2000-NX-XXX-13mm
16	19	38	25m	Roundit-2000-NX-XXX-19mm
19	25	47	25m	Roundit-2000-NX-XXX-25mm
25	32	65	25m	Roundit-2000-NX-XXX-32mm
32	40	90	25m	Roundit-2000-NX-XXX-40mm

Where XXX is replaced with either VTR or PTR to suit.

Properties	Test	Results
Classification flammability	ABD 031 & FAR 25 § 853	Conforms - no halogen content
Smoke density/toxicity	NF F 16-101	F3, I4
Water repellent	EN 6059 Part 305	Pass
Abrasion resistant	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Fluid resistance	EN 6059-303	Good resistance

Colours Available

VTR - Green with Violet tracer

PTR - Green with Pink tracer

ROUNDIT® 2000 NX GRIP

Polyphenylene Sulfide and NOMEX®
High temperature wrap-around sleeving

Roundit® 2000 NX is a woven combination of Nomex® and PPS (polyphenylene sulfide). This blend in a flat weave construction gives Roundit 2000 NX GRIP a rugged yet smooth texture and appearance for high temperature bundling and abrasion resistance.

Roundit® 2000 NX GRIP features a sewn loop textile attachment method which in conjunction with an adhesive hook installed on the aircraft structure to locate and attach the wire harness. This unique design reduces the space needed between the wire harness and structure compared to standard fixation methods.

* Nomex is a registered trademark of E.I. DuPont de Nemours.

Operating Temperature

- From -60°C to +200°C (continuous)

Application Range		Weight	Pack Size	Part Number
Min Ø mm	Max Ø mm	g/m	Spools (m)	
1	5	21	150m	Roundit-2000-NX-GRIP-5mm
5	8	25	100m	Roundit-2000-NX-GRIP-8mm
8	13	34	50m	Roundit-2000-NX-GRIP-13mm
16	19	46	25m	Roundit-2000-NX-GRIP-19mm
19	25	63	25m	Roundit-2000-NX-GRIP-25mm
25	32	78	25m	Roundit-2000-NX-GRIP-32mm
32	40	90	25m	Roundit-2000-NX-GRIP-40mm

Standard Colour: Green (Olive Green)

Properties	Test	Results
Classification flammability	ABD 031 & FAR 25 § 853	Conforms
Smoke density/toxicity	EN2825 and EN2826	Conforms
Water repellent	EN 6059 Part 305	Pass
Abrasion resistant	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Fluid resistance	EN 6059-303	Good resistance

GES 40 and GES 100

Glass fibre, Silicone
High temperature electrical insulation

GES is a braided fibreglass sleeve with a silicone rubber coating designed to provide electrical insulation. The thickness of the silicone coating determines the dielectric strength, which ranges from 4 to 10 kV.

The high flexibility of GES allows relative diametrical expansion (approximately 1:1.3)

This product provides electrical insulation for a wide range of industries and applications, including winding, engines and transformer outlets.

Available in a wide range of sizes from 0.5mm to 32mm diameter, the table below represents our most popular sizes. Please ask for details.

Operating Temperature

- From -60ºC to +220ºC

Specifications

- UL 1441 VW-1
- NF16101-16102
- NF Standard C.93641

Internal Diameter		Pack Size	Part Number	
Nom Ø mm	Tolerance mm	Spools (m)		
1.0	± 0.2	500	GES-40-1-12	GES-100-1-12
2.0	± 0.2	500	GES-40-2-12	GES-100-2-12
3.0	± 0.2	500	GES-40-3-12	GES-100-3-12
4.0	± 0.2	500	GES-40-4-12	GES-100-4-12
5.0	± 0.3	500	GES-40-5-12	GES-100-5-12
6.0	± 0.3	500	GES-40-6-12	GES-100-6-12
8.0	± 0.3	100	GES-40-8-12	GES-100-8-12
10.0	± 0.5	100	GES-40-10-12	GES-100-10-12
12.0	± 0.5	100	GES-40-12-12	GES-100-12-12
16.0	± 0.7	50	GES-40-16-12	GES-100-16-12
20.0	± 1.5	50	GES-40-20-12	GES-100-20-12
25.0	± 2.0	25	GES-40-25-12	GES-100-25-12
28.0	± 2.0	25	GES-40-28-12	n/a

Properties	Test	Results
Dielectric measurements	NF standard C93.641	GES-40 4.0kv average - 2.5kv min. GES-100 10.0kv average - 7.0kv min.
Volume resistivity		10^{12} ohms/cm

TST and TSX

Pure Silica Fibre
High temperature Thermal sleeving

TST and TSX are high temperature resistant, multi-filament pure silica fibre braided sleeving.

TST sleeve is heat-treated to remove organic content. This heat treatment confers excellent thermal properties to the sleeving, thus offering an excellent thermal barrier against heat, fire, molten metal splashes and other projections.

The TSX sleeve has an additional impregnation disappearing above 300°C which prevents end fray and skin irritation when cut.

TST/TSX are both fireproof and radiation-proof.

TST/TSX mainly used in the aircraft, railway, iron and steel, off-shore and nuclear industries.

Operating Temperature

- From -60ºC to +1100ºC (continuous), with peaks of +1350°C for 30 minutes

Internal Diameter		Weight	Pack Size	Part Number
Min Ø mm	Max. Ø mm	g/m	Spools (m)	
0.5	0.8	2.1	100	TST/TSX-0.5-White
1.0	1.4	3.2	100	TST/TSX-1-White
2.0	2.4	4.2	100	TST/TSX-2-White
4.0	5.0	7.4	100	TST/TSX-4-White
6.0	7.0	11.6	100	TST/TSX-6-White
8.0	9.0	15.8	100	TST/TSX-8-White
10.0	11.0	21.0	50	TST/TSX-10-White
12.0	13.0	22.1	50	TST/TSX-12-White
14.0	15.0	25.2	50	TST/TSX-14-White
16.0	17.0	28.4	25	TST/TSX-16-White
20.0	21.0	35.7	25	TST/TSX-20-White
25.0	26.0	52.5	25	TST/TSX-25-White
35.0	36.0	80.9	25	TST/TSX-35-White

Properties	
Gamma Ray Resistance	Excellent resistance to gamma rays, unaffected by UV and IR rays
Silica Purity	Silica fibre purity >99.8%

TEXTALU® 1202

Glass fibre, Aluminium coating
Thermal Management Sleeving

Textalu® 1202 is an insulating fibreglass sleeving with a heavy aluminium coating designed to protect components in high temperature areas. Offers superior insulation to components that must maintain a stable temperature to assure performance efficiency.

The infra-red emissivity rating of the heavy aluminium coating, combined with its fibreglass braid, ensures temperature stability inside the sleeving despite external fluctuations due to radiant heat.

Fibreglass liner withstand up to +550°C.

Operating Temperature

- From -40°C to +200°C

Specifications & Approvals

- ISO 6722 Heat ageing
- FMVSS 302 flame resistance

Inside Diameter	Wall Thickness	Pack Size	Part Number
Nominal (mm)	mm	Spools (m)	
5.0	0.55	200	TEXTALU-1202-5mm
7.0	0.65	150	TEXTALU-1202-7mm
8.0	0.65	150	TEXTALU-1202-8mm
10.0	0.75	150	TEXTALU-1202-10mm
12.0	0.75	150	TEXTALU-1202-12mm
15.0	0.75	150	TEXTALU-1202-15mm
18.0	1.0	100	TEXTALU-1202-18mm
20.0	1.5	50	TEXTALU-1202-20mm
22.0	1.5	50	TEXTALU-1202-22mm
24.0	1.9	50	TEXTALU-1202-24mm
28.0	2.0	25	TEXTALU-1202-28mm

Standard Colour: Aluminium grey

Properties	Test	Results
Heat ageing	ISO 6722 240h at 225°C	No visible degradation or loss of flex
Flame resistance	FMVSS 302, test method D45 1333	Non flammable, Type A
Fluid resistance • Motor, oil, protection oil, mineral hydraulic, automatic transmission fluid & zinc chloride. • Engine coolant • Unleaded petrol 98 & diesel.	D47 1924 • Immersion for 15s @ 22°C followed by drying period of 24h @ 175°C. • Immersion for 24h @ 118°C • Immersion for 24h @ 40°C	No visible degradation or alteration after being exposed to test cycles

THERMOTUBIX® Aerospace

Glass fibre, Silicone Thermal Management Sleeving

Thermotubix® Aerospace sleeving is a thick wall braided fibreglass sleeve, coated with a specially compounded, flame retardant silicone rubber. Offers effective protection against sustained high temperatures, flames and molten metal splashes.

- Fire protection up to +1100ºC (15 min) and +800ºC (30 min). SAE-ASTM specifications.
- Flexibility to -54ºC
- Highly resistant to hydraulic fluids and lubricating oils

Operating Temperature

- From -54ºC to +260ºC

Specifications & Approvals

- EN 45545-2
- ASTM E-162; ASTM E-662; BSS 7239 and SMP 800C

Inside Ø	Wall	Pack Size	NATO Spec	Part Number
Nom. (mm)	mm	Spools		
6.0	4.0	30m	-	THERMOTUBIX-6
8.0	4.0	30m	5970-14-455-2318	THERMOTUBIX-8
9.5	4.0	30m	5970-14-455-2322	THERMOTUBIX-9.5
12.7	4.0	30m	5970-14-455-2324	THERMOTUBIX-12.7
16.0	4.0	30m	5970-14-413-6212	THERMOTUBIX-16
22.0	4.0	30m	5970-14-413-6214	THERMOTUBIX-22
25.0	4.0	15m	5970-14-413-6215	THERMOTUBIX-25
32.0	4.0	15m	5970-14-413-6216	THERMOTUBIX-32
38.0	4.0	15m	5970-14-413-6217	THERMOTUBIX-38
45.0	4.0	9m	5970-14-413-6220	THERMOTUBIX-45
51.0	4.0	9m	5970-14-413-6221	THERMOTUBIX-51
57.0	4.0	9m	5970-14-413-6222	THERMOTUBIX-57
64.0	4.0	6m	5970-14-455-2328	THERMOTUBIX-64
89.0	4.0	6m	5970-14-455-2332	THERMOTUBIX-89
101.0	4.0	6m	5970-14-455-2334	THERMOTUBIX-101

Properties	Test	Results
Flammability	ASTM D-350, Method B	Not flammable
Fire / Smoke / Toxicity	NF 16101 & NF 16102 DIN 5510 § 2 & 54837 DIN EN ISO 5659-2 EN 45545-2	I2 F0 S4, SR2, ST2 CIT 8 min: 0.036 / FED 30 min: 0.031 R22, HL3, R23, HL3. >64mm R9 HL3

ROUNDIT® Therm-A and -B

Multi-layer Wrappable Thermal Management Sleeving

Multi-layer thick wall wrappable sleeving designed for thermal protection and maintenance of wire and cable bundles. Closure of product is secured with fire resistant lacing tape or similar.

Therm-A: Two layer design, comprising Roundit® 2000 NX HT, Silica and panox®. Offering 5 minutes at +1100°C to ISO 2685

Therm-B: Three layer design, comprising fibreglass sleeve coated with silicone rubber, plus Roundit® 2000 NX HT outer. Offering 15 minutes at +1100°C to ISO 2685.

Operating Temperature

- from -60°C to +260°C

Specifications & Approvals

- ASDN EN6049-009 for Therm-A

Diameter	Size Range	Max. Weight	Pack Size	Part Number
Nominal (mm)	Nominal (mm)	(g/m)	Spools (m)	
10.0	5 to 10	336	25	RounditTherm-A-10-5
16.0	10 to 16	336	25	RounditTherm-A-16-5
24.0	16 to 24	361	15	RounditTherm-A-24-5
32.0	24 to 32	436	15	RounditTherm-A-32-5
10.0	5 to 10	360	15	RounditTherm-B-10-5
16.0	10 to 16	495	15	RounditTherm-B-16-5
23.0	16 to 23	580	15	RounditTherm-B-23-5
32.0	23 to 32	710	15	RounditTherm-B-32-5

Standard Colour: 5 Olive green outer

Properties	Test	Results	
Fire resistance	ISO 2685	5 minutes, Therm-A	15 minutes, Therm-B
Flamability/Smoke/toxicity	ABD 031 & FAR 25 § 853	Conforms	
Water repellent	EN 6059-305	Pass	
Abrasion resistance	EN 6059-403	Pass	
Dynamic cut through	EN 6059-405	Pass	
Vibrations	EN 6059-406	Pass	
Fluid resistance	EN 6059-303	Good resistance	

THERM-L-Wrap® 66

Fibreglass fabric with Aluminium Foil Thermal Management Sleeving

A self-wrapping, reflective sleeve that provides protection from both radiant and convective heat. Composed of a woven fibreglass base fabric and aluminum foil, the product can withstand convective heat soaks up to +200ºC and simultaneously protect critical components from radiant or reflected heat.

The unique woven structure imparts a level of flexibility not found in other reflective products. It also allows the product to maintain a circular profile when flexed.

Self-sealing adhesive reinforcement, allows for permanent closure. The adhesive strip acts as a barrier to dirt and fluids while maintaining the full integrity of the finished aluminised sleeve.

Operating Temperature

- From -60ºC to +200ºC

Application Range		Max. Weight	Part Number
Nominal (mm)	Nominal (mm)	(g/m)	
8.0	10.0	32	Therm-L-Wrap-66-10-Silver-XXX
10.0	13.0	54	Therm-L-Wrap-66-13-Silver-XXX
13.0	16.0	58	Therm-L-Wrap-66-16-Silver-XXX
16.0	19.0	68	Therm-L-Wrap-66-19-Silver-XXX
19.0	25.0	96	Therm-L-Wrap-66-25-Silver-XXX

XXX - Product available in straight cut lengths only, in 10mm increments up to 1 metre		
50 to 500mm	± 5 mm	
501 to 1000mm	± 10 mm	

Standard Colour: Silver

Properties	Test	Results
Ageing	EN6059-302 (168 hrs. at +200ºC)	Pass
Salt Spray	EN2591-307 (96 hrs.)	Pass
Flammability / Smoke / Toxicity	ABD0031 & FAR part 25 § 853	Pass
EMI Performance	Transfer impedance IEC62153-4-3	70dB @ 100 MHz, RO=15mΩ
Thermal Performance	SAE J2302 (Hot box 540ºC)	147ºC reduction
Resistance to Fluid Spray	EN6059-303	Remained stuck after fluid spray

ROUNDIT® 2000 NX EMI

Polyphenylene Sulfide and NOMEX®
Self-wrapping electromagnetic shielding

Roundit® 2000 NX EMI is a self-wrapping sleeve designed for mechanical protection and EMI shielding of wire and cable bundles. The outer layer, supplies the abrasion resistance, is manufactured from PPS mono-filaments and Nomex® with an oil and water repellent treatment. The inner layer is composed of nickel-plated copper (Cu/Ni), which provides EMI insulation. The outer layer construction with a 100% covering ratio provides excellent cut-through and abrasion resistance.

Also available with an internal layer of PTFE tape, allowing wire harnesses to be protected from the inner metal layer.

Nomex is a registered trademark of E.I. DuPont de Nemours.

Specifications & Approvals

- ASD EN 6049-008

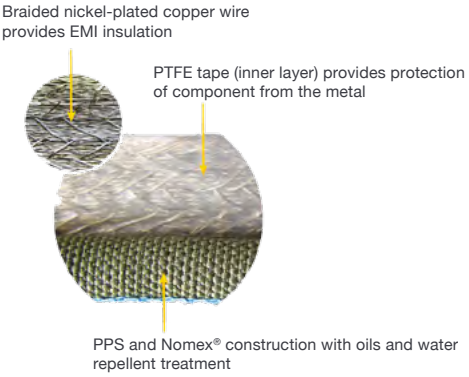
Operating Temperature

- From -60°C to +200°C

App. Range		Max Weight		Pack Size	Part Number
Min. (mm)	Max (mm)	A (g/m)	B (g/m)	Spools (m)	
1.0	6.0	79	86	50	ROUNDIT-2000-NX-EMI-*-6mm-Green
6.0	11.0	92	102	50	ROUNDIT-2000-NX-EMI-*-11mm-Green
11.0	14.0	116	132	25	ROUNDIT-2000-NX-EMI-*-14mm-Green
14.0	17.0	149	165	25	ROUNDIT-2000-NX-EMI-*-17mm-Green
17.0	23.0	175	196	25	ROUNDIT-2000-NX-EMI-*-23mm-Green
23.0	30.0	235	262	25	ROUNDIT-2000-NX-EMI-*-30mm-Green
30.0	38.0	305	339	25	ROUNDIT-2000-NX-EMI-*-38mm-Green

* = **A** the sleeving comes without internal PTFE layer; * = **B** the sleeving comes with internal PTFE layer

Standard Colour: Green (Olive green)



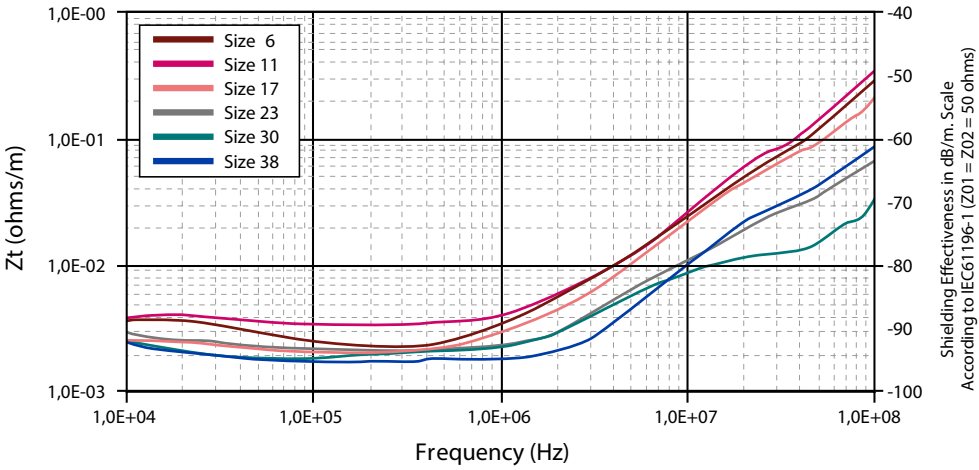
ROUNDIT® 2000 NX EMI

Polyphenylene Sulfide and NOMEX®
Self-wrapping electromagnetic shielding

Properties	Test	Results
Rapid change of temperature	EN2591-305	Pass
Flammability / Smoke / Toxicity	ABD 013 & FAR 25 § 853	Conforms
Water repellency	EN 6059 Part 305	Pass
Abrasion resistance	EN 6059 Part 403	Pass
Dynamic cut-through	EN 6059 Part 405	Pass
Fluid resistance • Jet fuel: JP4 (Otan F44) • Hydraulic fluid: Skydrol 500 B4 • Mineral oil: MIL-L-7870A • Synthetic oil: MIL-L-23699 • Cleaning fluids: MIL-L-87936 • De-icing fluid: MIL-A-8243	EN 6059-303	Good resistance
Salt spray resistance	EN 2591-307 for 500 hours ASTM B355	Pass Class 27 Nickel plated copper
Mould growth	EN 6059 Part 306	Pass

EMI Performance		
Transfer Impedance	IEC 60512-23-3 Triaxial method	Size 11: Ro = 3.45 mΩ/m

Transfer Impedance Measurement



ROUNDIT® 2000 V0 EMI

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Ro max = 6mΩ
Lt = 1.2nH

HALOGEN FREE

RoHS compliant

Roundit® 2000 V0 EMI is a wrap-around sleeving designed for high performance EMI shielding of wire and cable bundles.

Manufactured from UL 94 V0 rated PPS mono-filaments and nickel plated copper wires class 4 according to ASTM B-355.

The stable construction guarantees the same level of EMI shielding regardless of the diameter on which it is installed within the recommended application range.

Roundit V0 EMI has many applications in the railway, marine and electronics industries.

Operating Temperature

- From -50°C to +200°C

Specifications & Approvals

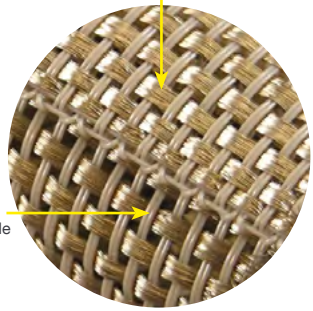
- EN 45545-2

App. Range		Cross	Weight	Pack Size	Part Number
Min. (mm)	Max (mm)	mm^2	g/m	Spools (m)	
5.0	8.0	3.5	40	250	ROUNDIT-2000-V0-EMI-8mm-8
8.0	13.0	4.8	55	175	ROUNDIT-2000-V0-EMI-13mm-8
13.0	19.0	5.9	66	125	ROUNDIT-2000-V0-EMI-19mm-8
19.0	25.0	6.9	80	75	ROUNDIT-2000-V0-EMI-25mm-8
25.0	32.0	8.9	105	50	ROUNDIT-2000-V0-EMI-32mm-8
32.0	38.0	10.6	120	35	ROUNDIT-2000-V0-EMI-38mm-8
38.08.0	45.0	11.6	140	35	ROUNDIT-2000-V0-EMI-45mm-8**

** Size 45 has an 80° of overlap (average value) as opposed to normal 90°

Standard Colour: 8 Light grey

Nickel-plated copper strands are woven to provide high conductivity and ensure EMI shielding.



PPS mono-filaments ensure a highly flexible assembly

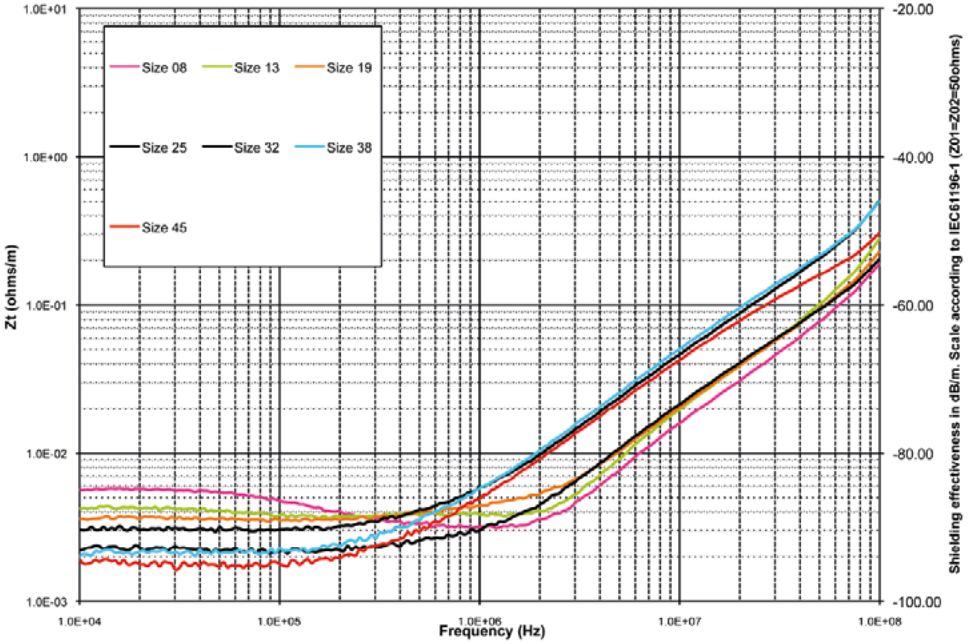
ROUNDIT® 2000 V0 EMI

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Properties	Test	Results
Flammability / Smoke / Toxicity	UL 94 BS6853 DIN 5510 § 2 and 54837 EN 45545-2	Raw material classified V0 Zero halogen toxicity R<1.0 S4,SR2, ST2 R22 HL3 R23 HL3
Nickel plated copper	ASTM B-355	Nickel plated copper, Class 4
Fluid resistance • Hydraulic fluids: NATO.0.156	EN 6059-303 Immersion for 24hrs at +70°C D47 1924	No visible degradation
Salt spray resistance	EN 2591-307 for 96 hours	Pass

EMI Performance		
Resistance measurement	EN 3475-301	R0 max all sizes = 6mΩ
Transfer Impedance	IEC 60096-1 Triaxial method on straight installation	Lt = 1.2 nH

Transfer Impedance Measurement



ROUNDIT® EMI FMJ

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Roundit® EMI FMJ (Full Metal Jacket) is a wrap-around sleeving designed for high performance EMI shielding of wire and cable bundles. Manufactured from PPS mono-filaments and nickel plated copper.

The stable construction guarantees the same level of EMI shielding regardless of the diameter on which it is installed within the recommended application range.

Thanks to its unique geometry and metal insertion, ROUNDIT EMI FMJ is easy to clamp with existing solutions.

Roundit® EMI FMJ has many applications in the aeronautical, space and military industries.

Specifications & Approvals

- EN 45545-2

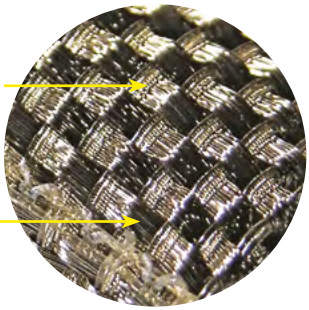
Operating Temperature

- From -65°C to +200°C

App. Range		Weight	Pack Size	Part Number
Min. (mm)	Max (mm)	g/m	Spools (m)	
1.0	5.0	30	250	ROUNDIT-EMI-FMJ-5mm-8*
5.0	8.0	40	250	ROUNDIT-EMI-FMJ-8mm-8
8.0	13.0	60	175	ROUNDIT-EMI-FMJ-13mm-8
13.0	19.0	85	125	ROUNDIT-EMI-FMJ-19mm-8
19.0	25.0	107	75	ROUNDIT-EMI-FMJ-25mm-8
25.0	32.0	144	50	ROUNDIT-EMI-FMJ-32mm-8
32.0	38.0	169	35	ROUNDIT-EMI-FMJ-38mm-8

* Size 5 is designed for cross-talk applications and complies with a maximum R0 at 8mΩ and a Lt at 1.3 nH. This is delivered with a white ivory line for maximum operating diameter identification. Lightening strike exposure upon request.

Standard Colour: 8 Light grey



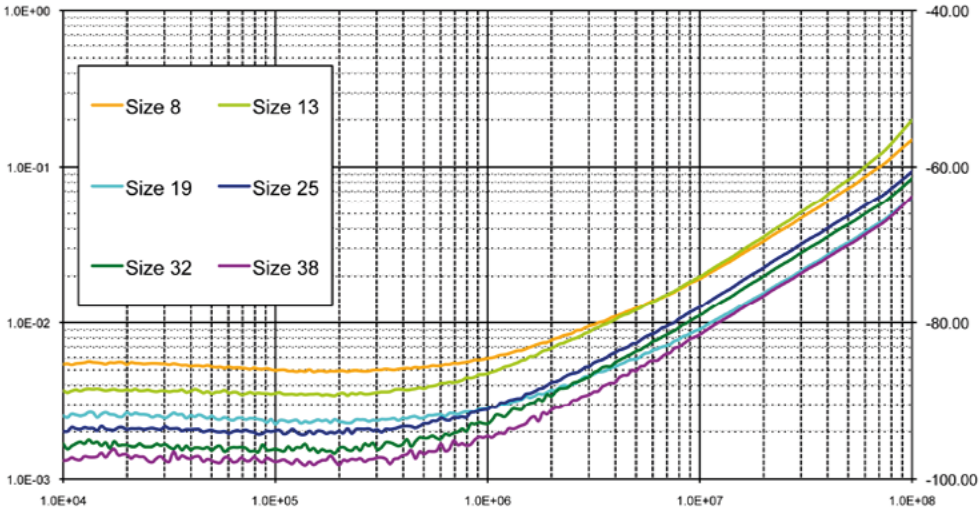
ROUNDIT® EMI FMJ

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Properties	Test	Results
Rapid change of temperature	EN2591-305	Pass
Flammability / Smoke / Toxicity	ABD 031 & FAR 25 § 853 NF 16101 & 16102 EN 45545-2	Conforms I3 F0 R22 HL3 R23 HL3
Dynamic cut-through	EN 6059 Part 405	Pass
Hard Vacuum	ASTM E-595	Meets standards
Fluid resistance • Jet fuel: JP4 (NATO F44) • Hydraulic fluid: Skydrol 500 B4 • Mineral oil: MIL-L-7870A • Synthetic oil: MIL-L-23699 • Cleaning fluids: MIL-L-87936 • De-icing fluid: MIL-A-8243	EN 6059-303	Pass
Salt spray resistance	EN 2591-307 for 96 hours	Pass
Mould growth	EN 6059 Part 306	Pass

EMI Performance		
Resistance Measurement	EN 3475-301	Ro max size 8 - 5.5 mΩ Ro max other sizes - 5 mΩ
Transfer Impedance	IEC 62153-4-3 Triaxial method on straight installation	Lt = 0.6 nH
Lightning	EN 2591-214 - Waveform 1 10KA	Pass

Transfer Impedence Measurement



ROUNDIT® EMI C* XWS B

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Wrap-around sleeving designed for EMI shielding of wire and cable bundles. Manufactured from PPS mono-filaments and nickel plated copper wire.

C4 blue tracer (Nickel coating is at least 4% total weight of coated wire)

C27 violet tracer (Nickel coating is at least 27% total weight of coated wire)

Supplied with an internal layer of PTFE tape thus allowing wire harnesses/bundles to be protected from the metal.

Thanks to its unique geometry and metal insertion, is easy to clamp with existing solutions.

Operating Temperature

- From -65°C to +200°C

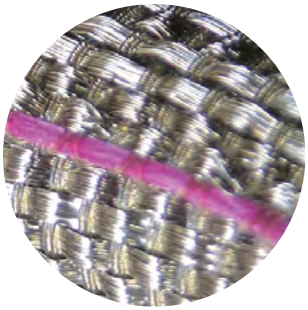
Specifications & Approvals

- C4 offers; ASD EN 4674-003
- C27 offers; ASD EN 4674-004

App. Range		Max. Weight		Pack Size	Part Number
Min. (mm)	Max (mm)	C4 (g/m)	C27 (g/m)	Spools (m)	
1.0	5.0	50	59	200	ROUNDIT-EMI-C*-XWS-B-5-8
5.0	8.0	54	66	150	ROUNDIT-EMI-C*-XWS-B-8-8
8.0	13.0	67	77	125	ROUNDIT-EMI-C*-XWS-B-13-8
13.0	16.0	72	82	75	ROUNDIT-EMI-C*-XWS-B-16-8
16.0	19.0	93	96	75	ROUNDIT-EMI-C*-XWS-B-19-8
19.0	25.0	122	122	75	ROUNDIT-EMI-C*-XWS-B-25-8
25.0	32.0	160	160	50	ROUNDIT-EMI-C*-XWS-B-32-8
32.0	38.0	187	187	35	ROUNDIT-EMI-C*-XWS-B-38-8
38.0	45.0	205	205	35	ROUNDIT-EMI-C*-XWS-B-45-8

* Denotes that either C4 or C27 should be stated

Larger sizes up to 165mm are available in C27 sleeving, made up by assembling two together without the inner PTFE layer, please contact us for more information.



Colours Available

C4 - Blue tracer

C27 - Violet tracer

ROUNDIT® EMI C* XWS

PPS Mono-filaments and Cu/Ni Wire
Self-wrapping electromagnetic shielding

Properties	Test	Results
Rapid change of temperature	EN6059-308	Pass
Flammability / Smoke / Toxicity	ABD 031 & FAR 25 § 853	Conforms
Dynamic cut-through	EN 6059 Part 405	Pass
Bending	EN 6059 Part 402	Pass
Vibrations	EN 6059 Part 406	Pass
Fluid resistance • Jet fuel: JP4 (NATO F44) • Hydraulic fluid: Skydrol 500 B4 • Mineral oil: MIL-L-7870A • Synthetic oil: MIL-L-23699 • Cleaning fluids: MIL-L-87936 • De-icing fluid: MIL-A-8243	EN 6059-303	Good resistance
Salt spray resistance	C4: EN 2591-307 for 96 hours C27: EN 2591-307 for 500 hours	Pass
Mould growth	EN 6059 Part 306	Pass

EMI Performance		
Resistance Measurement	EN 3475-301	Ro max = 5 mΩ all sizes except size 5 = 6 mΩ
Transfer Impedance	IEC 62153-4-3 Triaxial method	Lt = 2 nH Pass
Lightning	EN 2591-214 C4: Waveform 1 5KA C27: Waveform 1 10KA	Pass