



Since 1924, Varflex has been a leading designer and high quality manufacturer of electrical insulating sleeveings that are used in various electrical equipment applications such as motors, generators, transformers, stators, actuators, etc; Our sleeveing products are also found in military, medical, food processing and many other applications.

Many of our sleeveings are UL recognized, CSA certified and meet military specifications. All materials are RoHS and REACH compliant.

Our decades of design and manufacturing expertise allow us to create custom sleeveings for applications that other manufacturers can't.

Our braided sleeveings have a balanced tube shape, without distortions, and are manufactured to precise inside diameter measurements.

We primarily braid our sleeveings using these yarns: ECG, ECD, ECE & S2 Fiberglass – Nylon - Kevlar Polypropylene – Polyester – Nomex- Spectra Copper – Stainless Steel – Inconel.

Twisted and plied yarns, braider packages, and uncoated fiberglass braid are also available.

We are not limited to these specific products and we also braid tying cord, flat braid, polyester monofilament and practically any continuous fiber, wire-like substance, or a combination of several materials.

We can also braid and in most cases coat:

- Double Wall (one braided tube over another)
- Triple Wall (two braided tubes over another)
- Over braid sleeveing onto your products
- Stripes and a variety of colors



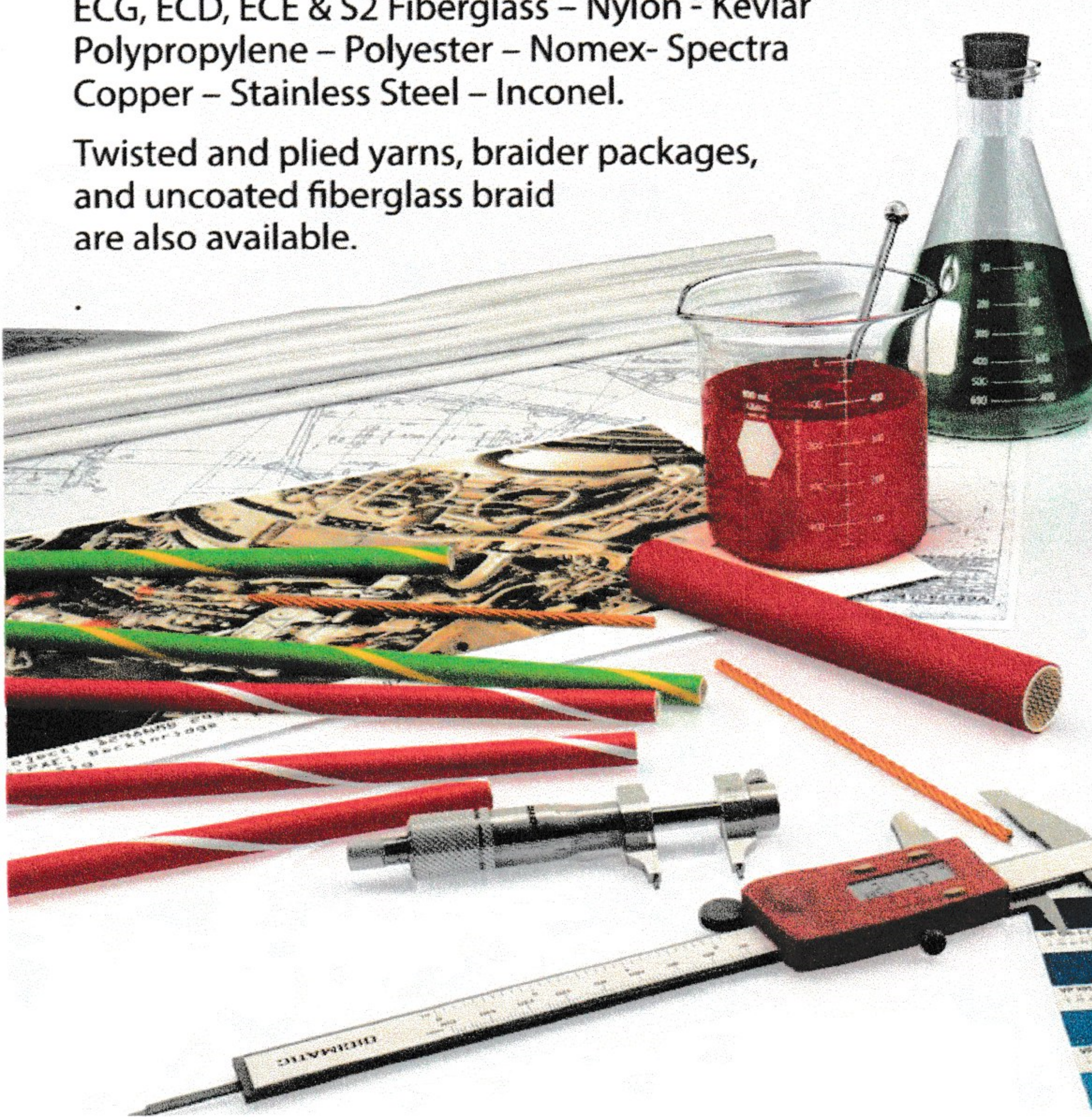
Sleeving is provided uncoated or coated or impregnated with the following:

- Acrylic, including Hermetic – Silicone Resin
- Silicone Rubber – Varnish – Vinyl & Viton

Varflex can also supply sleeveing cut, bagged and labeled with a bar code ready for a Kanban inventory or reshipping to your customers. We'll do whatever it takes to make sure you have the right design, material, color and packaging for virtually any application, no matter how exotic.

Call our design professionals and get the right sleeveing for your application today!

We take great pride in saying that "our products are proudly made in America."



## Standard Sleeving Sizes

Wire Size (AWD)	Nominal		Inside Diameter				Wall Thickness*	
	(in.)	(mm.)	Max (in.)	Min (in.)	Max (mm.)	Min (mm.)	(in.)	(mm.)
No. 24	0.022	0.565	0.027	0.020	0.685	0.508	0.011	0.279
No. 22	0.027	0.69	0.032	0.025	0.812	0.638	0.013	0.330
No. 20	0.034	0.86	0.039	0.032	0.990	0.812	0.013	0.330
No. 19	0.038	0.96	0.044	0.036	1.117	0.914	0.013	0.330
No. 18	0.042	1.07	0.049	0.04	1.244	1.016	0.015	0.381
No. 17	0.047	1.19	0.054	0.045	1.371	1.143	0.015	0.381
No. 16	0.053	1.35	0.061	0.051	1.549	1.295	0.015	0.381
No. 15	0.059	1.50	0.067	0.057	1.701	1.447	0.015	0.381
No. 14	0.066	1.68	0.074	0.064	1.879	1.625	0.015	0.381
No. 13	0.076	1.93	0.082	0.072	2.087	1.828	0.015	0.381
No. 12	0.085	2.16	0.091	0.081	2.311	2.057	0.015	0.381
No. 11	0.095	2.41	0.101	0.091	2.565	2.311	0.018	0.457
No. 10	0.106	2.69	0.112	0.102	2.844	2.59	0.018	0.457
No. 9	0.118	3.10	0.124	0.114	3.149	2.895	0.018	0.457
No. 8	0.133	3.38	0.141	0.129	3.581	3.276	0.018	0.457
No. 7	0.148	3.76	0.158	0.144	4.013	3.657	0.018	0.457
No. 6	0.166	4.22	0.178	0.162	4.521	4.114	0.020	0.508
No. 5	0.186	4.72	0.198	0.182	5.029	4.622	0.020	0.508
No. 4	0.208	5.28	0.224	0.204	5.689	5.181	0.020	0.508
No. 3	0.234	5.94	0.249	0.229	6.324	5.816	0.020	0.508
No. 2	0.263	6.68	0.278	0.258	7.061	6.553	0.020	0.508
No. 1	0.294	7.47	0.311	0.289	7.899	7.340	0.020	0.508
5/16"	0.313	7.95	0.334	0.312	8.483	7.924	0.020	0.508
No. 0	0.330	8.38	0.347	0.325	8.813	8.255	0.025	0.635
3/8"	0.375	9.52	0.399	0.375	10.134	9.525	0.025	0.635
7/16"	0.438	11.12	0.462	0.438	11.734	11.12	0.025	0.635
1/2"	0.500	12.70	0.524	0.500	13.309	12.70	0.025	0.635
5/8"	0.563	14.30	0.655	0.625	16.637	15.87	0.025	0.635
3/4"	0.625	15.87	0.786	0.75	19.964	19.05	0.025	0.635
7/8"	0.750	19.05	0.911	0.875	23.139	22.22	0.025	0.635
1"	1	25.40	1.036	1	26.314	25.00	0.025	0.635
1-1/4"	na	na	1.286	1.25	32.664	31.75	na	na
1-1/2"	na	na	1.536	1.5	39.014	38.10	na	na
1-3/4"	na	na	1.786	1.75	45.364	44.45	na	na
2"	na	na	2.036	2	51.714	50.80	na	na

\*Minimum required wall thickness, Grade A, per NEMA standard TF-1

### Grades

Grades of sleeving are identified in terms of minimum average dielectric breakdown voltage as follows:

### Nema Grades

A-1 — 7000* volt average,	5000 volt minimum individual
C-1 — 2500 volt average,	2500 volt minimum individual
C-1 — 2500 volt average,	1500 volt minimum individual
C-2 — 1500 volt average,	800 volt minimum individual
C-3 — No dielectric guarantee	

\*For sleeving Types 3, 4, and 5, values are 8000 volt average, 6000 volt minimum individual. For more information, refer to NEMA Standards for Coated Electric Sleeving. Also, ASTM D372.

## Types of Sleeving

### Definitions

Coated sleeving is a flexible, tubular product braided from fiberglass, nylon or other fibers, which is impregnated, coated, or impregnated and coated with an electrical insulating material.

### Types & Classes

Coated sleeving is categorized by the type of coating, base fabric material, dielectric breakdown voltage, temperature index, and inside diameter as follows:

#### Type 2

A flexible treated sleeving made from inorganic-base yarns such as fibrous glass and impregnated or coated with an insulating material which can be shown by applicable experience or accepted test to have at temperature index of 130 (continuous use at 130°C).

#### Type 3

A flexible treated sleeving made from inorganic-base yarns such as fibrous glass and impregnated or coated with an insulating material, such as polyvinyl chloride, which can be shown by applicable experience or accepted test to have a temperature index of 105 (continuous use at 105°C).

#### Type 4

A flexible treated sleeving made from inorganic-base yarns such as fibrous glass and impregnated or coated with an insulating material, such as silicone resin or polytetrafluoroethylene, which can be shown by applicable experience or accepted test to have a temperature index of 200 (continuous use at 200°C).

#### Type 5

A flexible treated sleeving made from inorganic-base yarns such as fibrous glass and impregnated or coated with an insulating material, such as silicone elastomer, which can be shown by experience or accepted test to have a temperature index of 200 (continuous use at 200°C).

#### Type 6

A flexible treated sleeving made from inorganic-base yarns such as fibrous glass and impregnated or coated with an insulating material, such as epoxies, polyesters, or acrylics, which can be shown by experience or accepted test to have a temperature index of 155 (continuous use at 155°C).

*Varglas ES4400 Silicone Rubber – 220C class*

*Varglas 240 Silicone Rubber – 240C class*

