Heat-Shrinkable Rubber Tubing

ST Series

Product lineup arranged by type

ST-DG UL Type

Flame retardant grade

UL certified product (UL-224). Product name and other items are printed on the surface of the tube.

*Not including ST-8/10 DG UL

ST-DG Type

General purpose grade

Standard product is light gray (DG). For products in special colors, with special diameters, wall thicknesses & physical properties (eg. enhanced oil resistance), talk to our Sales Department.

ST-HT Type

Transparent grade

This tubing is transparent even after shrinking. Text and figures on the surface of the covered object can be read, so marking is unnecessary.

General Properties

Item \ Type		ST-DG UL	ST-DG	ST-HT
Feature		Flame retardant	Thin wall	Transparent
Standard colors		Light gray	Light gray	Colorless translucent
Density	g/cm^3	1.2	1.2	1.3
Hardness Durometer A		70	70	65
Tensile strength	MPa	6.0	6.0	5.4
Elongation	%	350	350	350
Tear strength	kN/m	15	15	24.5
Volume resistivity	Ω·m	2 x 10^{12}	2 x 10^{12}	2 x 10^{12}
Breakdown strength	kV (1mm)	25	25	20
Dielectric constant (ε) 50 Hz		3.2	3.2	4.3
Dielectric dissipation factor (tanδ) 50 Hz		0.001	0.001	0.017
Flame retardancy UL-224		VW-1	—	—
Usage temperature range	°C	-50 to +200	-50 to +200	-50 to +200
Shrinkage (in direction of diameter)	%	about 50	about 50	about 40
Shrinkage temp.	°C	80-200	80-200	> 170

(Not specified values)

- UL-224 Certification no.: E49996(S)
- Rated temp.: 200°C / rated voltage: 600 V / flame retardancy: passes VW-1
- Method used to measure flame retardancy:
  - A flame is applied for 15 seconds, then the time (sec) is measured until flaming or glowing ceases. This cycle is repeated 5 times.
  - 5 test strips are used (flame applications: 25 total), and the material passes only if the flame/glow time per any single flame application never exceeds 60 seconds.

Reading the product number: ST- ○○ □□ (○.○)

Size: post-shrink bore diameter x 10 (mm) — Grade — Post-shrink wall thickness (mm)

Work Procedure

1 Size selection

Select a size, type, and wall thickness suitable for the application.
As a rule of thumb, select a tubing whose post-shrink bore diameter is slightly smaller than that of the object to be covered.

2 Fitting

Cut the tubing to the appropriate length for the object being covered.

✻ Our heat-shrinkable rubber tubing can be cut easily with a utility knife or scissors. Take care to cut the end cleanly and evenly.

✻ Tubing may shrink or elongate slightly lengthwise. The customer should consider this carefully before use.

Possible heating equipment: hot-air oven, hot-air gun, gas burner, infrared heater, electric heater, etc.

3 Heating

Slip the tubing over the object being covered, then heat evenly to shrink.
Tubing should be heated to between 80°C - 200°C.

✻ If the heating temperature is too high (over 200°C), the tube surface may crack or split.

Precautions during Heating

Using a hot-air oven is the easiest way to ensure even shrinking.
When using a hot-air gun or other device, please observe the following precautions:

1. When the object being covered is long and thin, start shrinking in the center and work outward to the ends.
2. To ensure even rubber thickness, rotate the tubing and heat evenly around the full circumference.
3. Take care not to trap air pockets: apply heat first to any concave sections.
4. When covering a polygonal bar, start shrinking at the angles first. Work should proceed in the order listed above.

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