

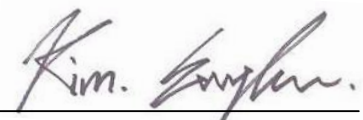
SPECIFICATION

For

Heat shrinkable Modified fluoropolymer tubing (Shrinkage 2:1)
used for 600V, 150°C.

(Type designation : LS-FK150)

PREPARED BY



SANG - HEE KIM
Engineer

REVIEWED BY



MIN - KYU KANG
Manager

APPROVED BY



YOUNG - GOO KIM
General Manager

1.Scope

This specification covers the requirements for heat shrinkable PVdF (Shrinkage 2:1) tubing used for 600V, 150°C. (Type designation : LS-FK150)

2.Reference Standard

The following documents form a part of this specification to the extent specified herein.

UL 224 : Extruded insulating tubing

SAE AS23053/18 : Insulation sleeving, electrical, heat shrinkable,
modified fluoropolymer, crosslinked

RoHS

3.Standard

The insulation shall be a irradiated cross-linked polyvinylidene fluoride complying with UL specification and SAE AS23053/18 Class II.

Expanded inside diameter and recovered thickness at any point of insulation shall be in the attached table 1. The standard color of insulation is natural and black.

4.Performance

The following item shall be carried out in accordance with SAE AS23053/18.

| Test Item | | Characteristics | Test condition |
|-------------------------------------|---------------------|--------------------------------|------------------------|
| Supplied inside diameter | | Attached table 1 | - |
| Recovered inside diameter | | Attached table 1 | - |
| Recovered thickness | | Attached table 1 | - |
| Heat shock | | No cracks, flowing or dripping | 275°C/4hrs |
| Secant modulus | | 25,000 to 120,000 psi | 2%, ASTM D882 |
| Restricted shrinkage | | No cracks | 200°C |
| Voltage withstand | | pass | 2,000V/min |
| Color stability (Clarity stability) | | pass | 200°C/24hrs |
| Melting Point | | Min. 284 °F | ASTM D 4951 |
| Unaged | Tensile strength | Min. 2500 psi | Room Temp. |
| | Ultimate elongation | Min. 300 % | |
| | Dielectric strength | Min. 400 volts/mil | |
| Volume resistivity | | Min. 10 ¹¹ ohm-cm | ASTM D 876 |
| Specific gravity | | Max. 2.00 | ASTM D 792 |
| Water absorption | | Max. 0.5 % | 23°C/24hrs: ASTM D 570 |

| | | | |
|-----------------------------|---------------------|--------------------|-------------------------|
| Corrosion | | No corrosion | 160°C/16hrs |
| Low temperature flexibility | | No cracks | -55°C/4rs |
| Flammability | | Pass | ASTM D 2671 Procedure C |
| Heat resistance | Ultimate elongation | Min. 250% | 225°C/168hrs |
| Fluid resistance | Tensile strength | Min. 2000 psi | * AS23503 Test fluid |
| | Ultimate elongation | Min. 250 % | |
| | Dielectric strength | Min. 400 volts/mil | |
| Fungus resistance | Tensile strength | Min. 2500 psi | ISO 846 |
| | Ultimate elongation | Min. 300 % | |
| | Dielectric strength | Min. 400 volts/mil | |

※ Test fluid

| Fluid | Conforming to |
|--------------------------------|---------------|
| Hydraulic fluid petroleum base | MIL-PRF-5606 |
| JP-8 | MIL-DTL-83133 |
| Lubricating oil | MIL-PRF-7808 |
| Lubricating oil | MIL-PRF-23699 |
| 5 percent NaCl | A-A-694 |
| Deicing fluid | AMS1424 |

6.Storage condition

Keep cool. Don't expose tubes to the direct rays of sun to prevent natural shrinkage and don't keep this package over 8 hours at temperature exceeding 40°C(104F)

Attached Table 1.

| Standard Size (Inch size) | Expanded | Recovered | |
|------------------------------|-----------------------------------|---------------------------------|-------------------------------------|
| | Min Inside Diameter [mm] | Max. Inside Diameter [mm] | Min. Thick. At any point [mm] |
| 0.10T X 1/16" | 1.6 | 0.8 | 0.203 |
| 0.12T X 3/32" | 2.4 | 1.2 | 0.229 |
| 0.12T X 1/8" | 3.2 | 1.6 | 0.229 |
| 0.12T X 3/16" | 4.7 | 2.4 | 0.229 |
| 0.14T X 1/4" | 6.4 | 3.2 | 0.279 |
| 0.14T X 3/8" | 9.5 | 4.7 | 0.279 |
| 0.14T X 1/2" | 12.7 | 6.4 | 0.279 |
| 0.18T X 3/4" | 19.1 | 9.5 | 0.356 |
| 0.20T X 1" | 25.4 | 12.7 | 0.406 |