

# SPECIFICATION

For

heat shrinkable, semi-rigid Polyolefin tubing  
(Shrinkage 2:1) used for 600V, 135°C.  
(Type designation : GSHS-1635S)

PREPARED BY   
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## 1. Scope

This specification covers the requirements for heat shrinkable, semi-rigid Polyolefin tubing (Shrinkage 2:1) used for 600V, 135°C. (Type designation : GSHS-1635S)

## 2. Reference Standard

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

UL224 : Extruded insulating tubing

MIL-DTL-23053/6D : Insulation sleeving, Electrical, Heat Shrinkable, Polyolefin, semi-rigid, Crosslinked

## 3. Product Standard

The insulation shall be a irradiated cross-linked polyolefin complying with MIL,UL224 specification and free from bubbles, pinholes, cracks, inclusion of impurities. Expanded inside diameter and recovered thickness at any point of insulation shall be in the attached table 1. The standard color of insulation is Black.

## 4. Applied Recipe

The used material of insulation is in the attached table 2.

## 5. Performance

The following item shall be carried out in accordance with MIL,UL224 specification.

시험항목(Test Item)		특성치(Characteristics)	시험조건(Test condition)
팽창내경(Expanded inside diameter)		유첨Table1.참조(Attached table 1)	-
수축내경(Recovered inside diameter)		유첨Table1.참조(Attached table 1)	-
수축두께(Recovered thickness at any point)		유첨Table1.참조(Attached table 1)	-
상 온 (Unaged)	인장강도(Tensile strength)	Min. 1.4 kgf/mm <sup>2</sup>	ASTM D638
	신율(Elongation)	Min. 200%	
가열후 (Aged)	인장강도(Tensile strength)	More than 75% of unaged value	ASTM D638,UL224 175°C/7 days
	신율(Elongation)	Min. 100 %	
전압저항(Voltage withstand )		Pass	2,500V/min
부식성(Corrosion)		No corrosion	150°C/16 hours
난연성(Flammability)		Pass	ASTM D 2671 Procedure B
Minimum secant modulus(2% strain)		17.59 kgf/mm <sup>2</sup>	ASTM D882
한정수축(Restricted shrinkage)		No crack	175°C/ 30min
내유성(Fluid resistance) * Refer to below test fluid	인장강도(Tensile strength)	Min. 1.13 kgf/mm <sup>2</sup>	24°C/24 hours
	절연강도Dielectric strength	Min. 15.8kv/mm	24°C/24 hours
내곰팡이성(Fungus resistance)		No growth	ASTM G21

흡수율(Water absorption)	Max. 0.5%	ASTM D570, 23°C/24 hours
절연상수(Dielectric constant)	Max. 3.2	ASTM D150
체적고유저항(Volume resistivity)	Min. 10 <sup>14</sup> Ω-cm	ASTM D876
가열권부(Heat shock)	No cracks, flowing or dripping	250°C

※ Test fluid

Fluid	Conforming to
Hydraulic fluid petroleum base	MIL-H-5606
JP-8	MIL-T-5624
Lubricating oil	MIL-L-7808
Lubricating oil	MIL-L-23699
5 percent NaCl	A-A-694
Deicing fluid	MIL-A-8243

Restricted Hazardous Substances	Characteristics	Test Method
Pb	Max. 100	EPA 3050B or EN1122, ICP-AES
Cd	Max. 5	EPA 3050B, ICP-AES
Hg	N.D	EPA 3052, ICP-AES
Cr6+		EPA 3060A
PBBs	Max. 100	With reference to 83/264/EEC and 2003/11/EEC. GC/MS
PBDEs		

Ref) N.D : Not detected

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)	팽창후(Expanded)		수축후(Recovered)		Standard Length [m]
	Inside Diameter [mm]	Nominal Thickness [mm]	Max. Inside Diameter [mm]	Min. Thick. At any point [mm]	
0.30T X 3/64"	1.5 ± 0.3	0.30	0.6	0.430	200
0.25T X 1/16"	1.9 ± 0.3	0.25	0.8	0.430	200
0.25T X 3/32"	2.8 ± 0.4	0.25	1.2	0.430	200
0.25T X 1/8"	3.6 ± 0.4	0.25	1.6	0.430	200
0.30T X 3/16"	5.2 ± 0.4	0.30	2.4	0.560	100
0.30T X 1/4"	6.7 ± 0.3	0.30	3.2	0.560	100
0.35T X 3/8"	9.9 ± 0.4	0.35	4.8	0.680	100
0.35T X 1/2"	13.3 ± 0.6	0.35	6.4	0.680	50
0.40T X 3/4"	20.1 ± 1.0	0.40	9.5	0.686	50
0.40T X 1"	26.4 ± 1.0	0.40	12.70	0.770	50

Attached Table 2.

MATERIAL IDENTIFICATION	IDENTI. No	LGCGBT-040501
	ISSUED DATE	May. 1. 2004

NOMENCLATURE	SEMI-RIGID, HEAT-SHRINKABLE POLYOLEFIN TUBE	
TYPE & STYLE	GSHS-1635S	
BRIEF DESCRIPTION	RATING	600V, 135°C
	DESCRIPTION OF RAW MATERIAL	1) MATERIAL OF COMPOUND : Semi-rigid Heat Shrinkable Polyolefin  2) MANUFACTURER OF COMPOUND : LS cable Ltd.
REMARKS	REFERENCE SPECIFICATION : MIL-DTL-23053/6D.UL224	

WE CERTIFY THAT THE ABOVE MENTIONED MATERIAL HAS BEEN USED

LS Cable Ltd.



General Manager H. W. Jang