

## HIGH TEMPERATURE FLEXIBLE FLUID RESISTANT FLUOROPOLYMER 2 : 1 Shrink Ratio

### MILITARY SPECIFICATION / LOW OUTGASSING



RoHS/RoHS2 Compliant



Lead-Free

### TYPICAL FEATURES

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| <p>1) SUMITUBE KH 230 is a highly flexible and fluid resistant, inherently flame retarded fluoropolymer heat-shrinkable tubing that meets the material and functional requirements of military specifications AMS-DTL-23053/13. It is also available in a thin wall version, KH 230(TW).</p> <p>2) SUMITUBE KH 230 meets the low outgassing requirements of NASA SP-R-0022A.</p> <p>3) In addition to resistance to fluids in AMS-DTL-23053, SUMITUBE KH 230 is highly resistant to Skydrol 500 aircraft hydraulic fluid.</p> <p>4) Shrink temperature is 130°C.</p> | <p>5) Operating temperature range is -70°C to +230°C and up to 300°C for short periods.</p> <p>6) SUMITUBE KH 230 is recommended for applications where resistance to aggressive solvents, including Skydrol, and high temperatures is required. Bundling, harnessing and environmental protection within engine compartments is one such application.</p> <p>7) For clear material, see KH 200</p> |
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### STANDARD SIZES

NOMINAL SIZE	INSIDE DIAMETER AS SUPPLIED (MIN)		INSIDE DIAMETER AFTER RECOVERY (MAX)		WALL THICKNESS AFTER RECOVERY (NOM)	
	INCH	(MM)	INCH	(MM)	INCH	(MM)
1/8	.125	3.2	.062	1.6	.031	0.80
3/16	.187	4.8	.093	2.4	.035	0.90
1/4	.250	6.4	.125	3.2	.035	0.90
3/8	.375	9.5	.187	4.8	.035	0.90
1/2	.500	12.7	.250	6.4	.035	0.90
5/8	.625	15.9	.312	7.9	.042	1.10
3/4	.750	19.1	.375	9.5	.042	1.10
7/8	.875	22.2	.437	11.1	.049	1.20
1	1.000	25.4	.500	12.7	.049	1.20

**Standard Colors:** Black. Other colors factory quote.  
**Standard Package:** Spooled (S)  
**How to Order:** (Type of material) (Size) (Color) (Packaging)  
**Example:** KH 230 1/4 Black S

# KH 230 SPECIFICATION VALUES

PROPERTY (UNITS)	TEST METHOD	REQUIREMENT
<b>Physical:</b> Tensile strength (psi) Elongation (%) Tensile stress @ 200% elongation (psi) Cold impact (-40°C) Heat shock (300°C, 4 hrs.) Heat resistance (250°C, 168 hrs.) Elongation (%) Tensile strength (psi) Longitudinal change (%)	ASTM D 638 ASTM D 638 ASTM D 412 ASTM D 746 AMS-DTL-23053  ASTM D 638 ASTM D 638 AMS-DTL-23053	2000 min. 250 min. 2000 max. no cracking no cracking  200 min. 1200 min. -10 max.
<b>Electrical:</b> Dielectric strength (volts/mil) Volume resistivity (ohm-cm)	ASTM D 876 ASTM D 876	500 min. 1.0 X 10 <sup>13</sup> min.
<b>Chemical:</b> Vacuum outgassing, TML / CVCM, % Copper mirror corrosion (175°C, 16 hrs.) Water absorption (%) Fluid resistance (23°C, 24 hrs.) Tensile strength (psi) Elongation (%) Flammability Shrink temperature, nominal	NASA SP-R-0022A MIL-DTL-23053 ASTM D 570  AMS-DTL-23053 AMS-DTL-23053 AMS-DTL-23053 -----	1.0 / 0.1 max. no corrosion 0.1max.  1200 min. 250 min. 15 sec. max.. 130°C

**Specification references:** AMS-DTL-23053/13, NASA SP-R-0022A



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