

**HX-SCE - High Performance Low Fire Hazard Identification Solution**

**Features and Benefits**

- Low Fire Hazard Properties, Low Smoke, Low Toxicity, Low Flammability:- Meets Industry Standard BS 6853 (1999) Vehicle Category 1a
- Superb Print Quality to give Crisp Clear Identification Marker Sleeve
- Excellent Print Permanence when tested in Demanding Industry Related Fluids
- Choice of Printer Options
- Sleeve Diameters from 2.4mm to 38.1mm
- Sleeves are Printable on Both Sides for ease of Identification or Addition of Additional Information to the Marker Sleeve
- Shrink Ratio of 2:1 - Recovers to Half of the Original Diameter



Industries featured in:



Thin wall, zero-halogen, low smoke, low toxicity, radiation cross-linked, UV stabilised polyolefin heat-shrinkable tubing, assembled as cut sleeves organised in a ladder format. Identification of wires and

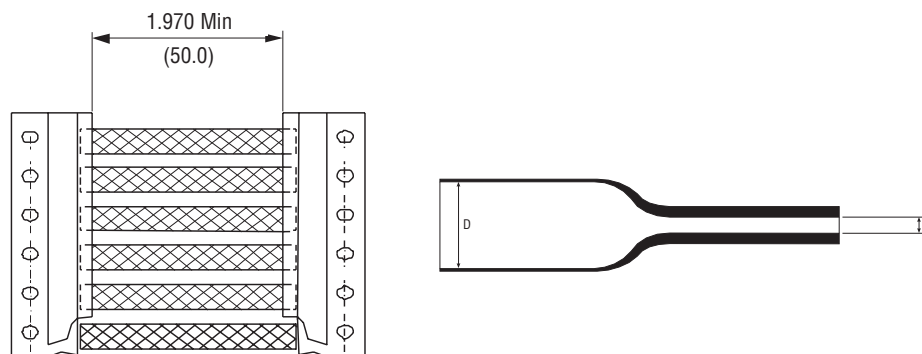
cables by computer-based printing onto sleeves. Ideal for applications where limited fire hazard characteristics are critical. The zero halogen material coupled with low smoke and low toxic fume emissions

make this product ideal for use in enclosed spaces such as mass transit, marine and industrial installations. This product is not recommended where strain relief properties are required.



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**Ordering Information**



**Available Sizes and Formats**

Ordering Description	D (min) as Supplied		d (max) after Recovery		Recommended Use Range	
	mm	inches	mm	inches	mm	inches
HX-SCE-1K-2.4-50-<colour>	2.40	0.094	1.19	0.047	1.27-1.90	0.050-0.075
HX-SCE-1K-3.2-50-<colour>	3.20	0.126	1.58	0.060	1.75-2.66	0.069-0.105
HX-SCE-1K-4.8-50-<colour>	4.80	0.189	2.36	0.090	2.54-4.06	0.100-0.160
HX-SCE-1K-6.4-50-<colour>	6.40	0.250	3.18	0.125	3.81-5.46	0.150-0.215
HX-SCE-1K-9.5-50-<colour>	9.50	0.375	4.75	0.187	5.59-8.12	0.220-0.320
HX-SCE-1K-12.7-50-<colour>	12.70	0.500	6.35	0.250	6.99-10.79	0.275-0.425
HX-SCE-1K-19.0-50-<colour>	19.00	0.730	9.53	0.375	10.16-16.25	0.400-0.640
HX-SCE-1K-25.4-50-<colour>	25.40	1.000	12.7	0.500	14.29-21.59	0.563-0.850
HX-SCE-1K-38.1-50-<colour>	38.1	1.500	19.05	0.750	20.95-33.02	0.825-1.300

**Options**

<b>Prescoring</b>	Perforated score to produce multiple marker sleeves from each HX-SCE sleeve				
	Number of prescores:	1 prescore	2 prescores	3 prescores	
	Code:	S1	S2	S3	
<b>Package sizes</b>	Standard:	1K - 1000 piece packages available for all HX-SCE sizes			
	Non Standard:	250 piece packages available for all HX-SCE sizes 2.5K - 2500 pieces available for 4.8 and 6.4 HX-SCE sizes 5K - 5000 pieces available for 2.4 and 3.2 HX-SCE sizes			
<b>Colours</b>	Standard:	Yellow 4	White 9		
	Non Standard:	Red 2	Orange 3	Green 5	Blue 6
<b>Ordering information:</b>	Reference pack size, product diameter, sleeve length, prescores and colour then reference part numbering system				

**Industry Standards**

Standard	Title	Application
BS6853	Code of practice for fire precautions in the design and construction of passenger carrying trains	Interior minor use materials of mass 100g to 500g. Vehicle category Ia
<sup>1</sup> London Underground Limited Standard 2-01001-002	Fire Safety Performance of Materials	Limited, Dispersed usage (abbreviation RS/EQ/I)
NF F 16-101	Railway Rolling Stock Fire behavior choice of materials	Rolling Stock Classification A1
DIN 5510-2	Preventive fire protection in railway vehicles - Part 2: Fire behavior and fire side effects of materials and parts; Classification, Requirements and test methods	Dripping Classification ST2
<sup>2</sup> EN50343	Railway Applications - Rolling Stock - Rules for installation of cabling	Tests on marking when using heat-shrinkable sleeves

<sup>1</sup> This replaces LUL Engineering Standard E 1042

<sup>2</sup> Not including resistance to liquid fuel - not recommended for use in areas where the sleeves may be subject to extended contact from diesel fuel - Tyco Electronics D-SCE product range is designed for use in these areas

**Technical Information**

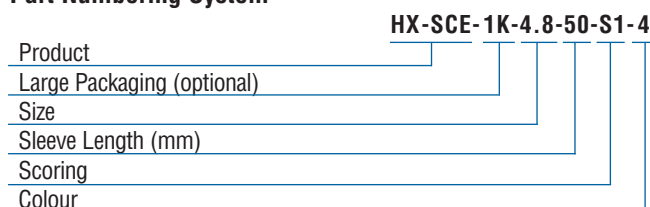
<b>Print Method/Ribbon:</b>	T312M-PRINTER with 1966-RIBBON or T212M-PRINTER with T200-1966-RIBBON
<b>Service Temperature:</b>	-30°C to +105°C (-22°F to +221°F).
<b>Minimum Shrink Temperature:</b>	135°C (275°F).
<b>Colours:</b>	White or yellow. Other colours available on request.
<b>Flammability:</b>	<b>Self-extinguishing -</b> (ASTM D2671 Procedure B). <b>Oxygen Index (BS6853: Pass 34% Min.) -</b> (BS EN ISO 4589-2 [1999]). (AFNOR NF F 16-101 Class I2). <b>Dripping Classification ST2 -</b> (DIN 5510-2)
<b>Smoke:</b>	<b>A0=0.017 Max.</b> - (BS 6853 [1999] Annex D [D.8.3]) Small scale test <b>Smoke Index Determination (IF) Maximum 20, Smoke Class F1 -</b> (AFNOR NF F 16-101-1988 Smoke Index)
<b>Toxicity:</b>	<b>R &lt; 1 -</b> (BS 6853 [1999] Annex B – AFNOR NF X 70-100 Determination of weighted summation of toxic fume, mass based method) <b>LUL Toxic Fume: No Halogens, No P, S or N sources above trace level -</b> (LUL E1042: A6 [2002]). (London Underground Standard 2-01001-002, section 5.2.3. Chemical composition / toxicity)

<b>Toxicity (continued):</b>	<b>Toxicity Index = 0.34 -</b> (CEI 20-37-7 09-1997 Determination of toxicity index of gases from combustion of organic material)
<b>Dielectric Strength:</b>	15kV/mm minimum.
<b>Water Absorption:</b>	1% maximum after 24 hours at 23°C (73°F).
<b>Copper Mirror Corrosion:</b>	8% maximum after 16 hours at 150°C (302°F).
<b>Longitudinal Change:</b>	+5% to -10%.
<b>Tensile Strength:</b>	7MPa minimum.
<b>Ultimate Elongation:</b>	80% minimum.
<b>Secant Modulus:</b>	200MPa maximum at 2% elongation.
<b>UV Resistance:</b> (base polymer)	Tensile strength > 90% & Ultimate elongation > 40% of original value after 1000 hours (ASTM G53: UVA [100% dry cycle]; UVB [8 hours dry/4 hours wet cycle]).
<b>Print Permanence:</b>	ADHERENCE - Meets the requirements of SAE AS81531 4.6.2 (50 rubs). FLUID RESISTANCE - Meets the requirements of MIL-STD-202F method 215J.

**Fluid Resistance**

Threat	Test	Effect
Xylene/butylacetate/cyclohexanone mix (Paint stripper)	10 wipes dry tissue	Print Contrast >/8
Locomotive diesel	10 wipes dry tissue	Print Contrast >/8
Tunnel dust/white spirits	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Water	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Tunnel Dust and Oil (50% / 50%)	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Tunnel Dust and Water (50% / 50%)	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
White Spirits	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Diesel	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Grease	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Glycol rail de-icer (50% glycol / 50% water)	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Cleaning solvent	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Surface Cleaner (PGP500)	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
Multi-Purpose Graffiti remover gel	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
CGR gel (Chewing gum remover)	LUL C3349 (72 hours, 20 strokes dry tissue)	Print Contrast >/8
IRM 902 oil	EN50343 (70 hours at 50°C(122°F) 10 wipes)	Print Contrast >/8
Hydrochloric acid 5% solution	EN50343 (1 minute at 23°C(73°F) 10 wipes)	Print Contrast >/8
Sodium Hydroxide 5% solution	EN50343 (1 minute at 23°C(73°F) 10 wipes)	Print Contrast >/8
Heat aging	EN50343 (240 hours at 120°C (248°F) 10 wipes)	Print Contrast >/8
Wash cycle test	25 cycles at 75°C (167°F) 25 wipes	Print Contrast >/8
Aircraft fuel (ISO 1817 Liquid B)	24 hours at 40°C (104°F) then 25 strokes dry tissue; IEC 60684-2	Print Contrast >/8; 4MPa TS & 90% UE retained
Silicone fluid (S1714)	24 hours at 50°C (122°F) then 25 strokes dry tissue; IEC 60684-2	Print Contrast >/8; 4MPa TS & 90% UE retained
Propan-2-ol	24 hours at 23°C (73°F) then 25 strokes dry tissue; IEC 60684-2	Print Contrast >/8; 4MPa TS & 90% UE retained
De-icing fluid (50% ethylene glycol)	24 hours at 23°C (73°F) then 25 strokes dry tissue; IEC 60684-2	Print Contrast >/8; 4MPa TS & 90% UE retained
Sullage fluid (formaldehyde/cresol)	24 hours at 23°C (73°F) then 25 strokes dry tissue; IEC 60684-2	Print Contrast >/8; 4MPa TS & 90% UE retained

**Part Numbering System**



All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

Tyco is a trademark. Other respected brands include Agastat, Alcoswitch, AMP, AMP Netconnect, Buchanan, CII, CoEv, Critchley, Elcon, Elo TouchSystems, M/A-COM, Madison Cable, OEG, Potter & Brumfield, Raychem, Schrack, Simel and TDI Batteries.