



HZ

HALOGEN FREE HEAT SHRINK TUBING

- Zero halogen, flame retardant and low smoke polyolefin tubing for insulation and identification marking.
- Ideal for applications where limited fire hazard and low smoke characteristics are required.
- Reduced marking costs as marking can be done on site with Partex marking machines.

General information

Design

HZ is a halogen free, flame retardant and low smoke crosslinked polyolefin tubing, ideal for use in enclosed spaces such as mass transit, marine and industrial installations.

Primary applications include marking, insulation and protection of cables, harnesses and electronic components. HZ is specifically developed to be used in rail, marine, aerospace, industrial marking, insulation, wire bundling and mechanical protection.

Its flexibility enables fast mounting.

Marking equipment

HZ is printable for on site production with Partex MK10 or EOS marking machines. See separate product information.

Technical specification

Material

Extruded, cross linked polyolefin

Shrink ratio 2:1

Colours (standard)

Yellow, white

Temperature range

Working temperature: -55°C to +105°C

Shrink temperature: $\geq 90^\circ\text{C}$

Compliances

Mark Permanence:

SAE AS-5942

LUL 3349

Print Resistance to solvents:

MIL-STD-202H

Test method 215

Industry standards

EN 60684-3

EN45545-2 Class HL3 R22-23-R24

NFPA 130

NF F 16-101

London Underground

1-085 A3

BOEING BSS 7239

UNI CEI 11170-3 (LR4)

DIN 5510-2

BS6853: 1999 vehicle category 1a

HZD dimensions (nominal)

| Article number | Size (mm) | Inside diameter (mm) before shrinking (D) | Inside diameter (mm) after shrinking (D1) | Wall thickness (mm) after shrinking (W) | Sleeve length (mm) | Packaging markers/reel |
|----------------|-----------|---|---|---|--------------------|------------------------|
| HZD024125LR* | 2.40 | 2.50 | 1.20 | 0.43 | 12.5 | 4000 |
| HZD024250LR* | 2.40 | 2.50 | 1.20 | 0.43 | 25 | 2000 |
| HZD024500LR* | 2.40 | 2.50 | 1.20 | 0.43 | 50 | 1000 |
| HZD032125LR* | 3.20 | 3.60 | 1.60 | 0.55 | 12.5 | 4000 |
| HZD032250LR* | 3.20 | 3.60 | 1.60 | 0.55 | 25 | 2000 |
| HZD032500LR* | 3.20 | 3.60 | 1.60 | 0.55 | 50 | 1000 |
| HZD048125LR* | 4.80 | 5.20 | 2.40 | 0.55 | 12.5 | 4000 |
| HZD048250LR* | 4.80 | 5.20 | 2.40 | 0.55 | 25 | 2000 |
| HZD048500LR* | 4.80 | 5.20 | 2.40 | 0.55 | 50 | 1000 |
| HZD064125LR* | 6.40 | 6.70 | 3.20 | 0.65 | 12.5 | 4000 |
| HZD064250LR* | 6.40 | 6.70 | 3.20 | 0.65 | 25 | 2000 |
| HZD064500LR* | 6.40 | 6.70 | 3.20 | 0.65 | 50 | 1000 |
| HZD095125LR* | 9.50 | 10.00 | 4.80 | 0.65 | 12.5 | 2000 |
| HZD095250LR* | 9.50 | 10.00 | 4.80 | 0.65 | 25 | 1000 |
| HZD095500LR* | 9.50 | 10.00 | 4.80 | 0.65 | 50 | 500 |
| HZD127125LR* | 12.70 | 13.60 | 6.40 | 0.65 | 12.5 | 2000 |
| HZD127250LR* | 12.70 | 13.60 | 6.40 | 0.65 | 25 | 1000 |
| HZD127500LR* | 12.70 | 13.60 | 6.40 | 0.65 | 50 | 500 |
| HZD190125LR* | 19.10 | 20.40 | 9.50 | 0.70 | 12.5 | 2000 |
| HZD190250LR* | 19.10 | 20.40 | 9.50 | 0.70 | 25 | 1000 |
| HZD190500LR* | 19.10 | 20.40 | 9.50 | 0.70 | 50 | 500 |
| HZD254125LR* | 25.40 | 27.00 | 12.70 | 0.85 | 12.5 | 1200 |
| HZD254250LR* | 25.40 | 27.00 | 12.70 | 0.85 | 25 | 600 |
| HZD254500LR* | 25.40 | 27.00 | 12.70 | 0.85 | 50 | 300 |
| HZD381250LR* | 38.10 | 40.00 | 19.10 | 0.90 | 25 | 200 |
| HZD381500LR* | 38.10 | 40.00 | 19.10 | 0.90 | 50 | 100 |
| HZD508250LR* | 50.80 | 50.80 | 25.40 | 0.90 | 25 | 200 |
| HZD508500LR* | 50.80 | 50.80 | 25.40 | 0.90 | 50 | 100 |

*=color (4=yellow, 9=white)

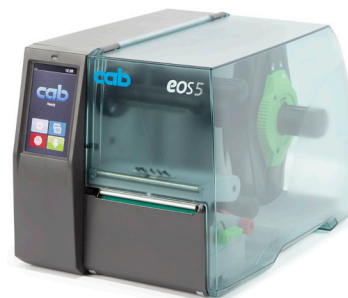


Print-on-Site



MK10

Printer for high volume on site marking production. See separate product information.



EOS

Printer for on site marking production. See separate product information.

Properties

| Properties PHYSICAL | Data | Test Method |
|---|--|-------------------------|
| Tensile Strength | 10.0 N/mm ² | ASTM D 638 |
| Elongation at break | ≥ 200% | ASTM D 638 |
| Longitudinal Change | -10% to +5% | ASTM D 2671 |
| Water absorption | ≤ 0,15% | ASTM D 570 |
| Specific gravity | 1,40 | ASTM D 792 |
| Properties ELECTRICAL | Data | Test Method |
| Dielectric Strength | 20.0 kV/mm ² | ASTM D 2671 |
| Volume Resistivity | ≥ 10 ¹⁴ Ω /cm | ASTM D 257 |
| Properties CHEMICAL | Data | Test Method |
| Chemical resistance | Good, pass | EN 60684-2-36 |
| Copper corrosion | No chemical interaction, pass | EN 60684-2-33 |
| Copper stability | N-A | N-A |
| Properties THERMAL | Data | Test Method |
| Heat shock 4 hours at 175°C | No dripping, cracking or flowing | ASTM D 2671 |
| Heat aging 168 hours at 150°C | Elongation ≥ 100% | ASTM D 638 |
| Flammability | Pass » flame retardant | ASTM D 2671 Procedure C |
| Low temperature flexibility / Bending | No cracking, no break, no detachment of coating | 1h at - 55°C EN 60684-2 |
| Optical density of smoke (Ds) | Flaming mode 41 , non flaming mode 111 | ASTM E 662 |
| Smoke index | Smoke class F1 | NF F 16-101 |
| Surface Flammability of Materials - Flame Spread Index | Specified Maximum = 35 | ASTM E 162 |
| Heat and visible smoke release rate | Average Heat Release Rate & Average specific Extinguishing area M ² / kg at 3 minutes is measured | ASTM E 1354 |
| Generation of Toxic gases 3x3 inches sample burning in controlled setting | Toxicity for CO, HF, HCN, HCl, SO ₂ and NO _x in Combustion Gases | BSS 7239 |

Fire propagation comparison

| Normatives | Toxicity | Low Oxygen Index(LOI) | Smoke Density | Flammability Spread Index | Capacity of forming drops |
|----------------------|----------|-----------------------|---------------|---------------------------|---------------------------|
| EN45545-2 | HL3 | HL3 | HL3 | | |
| NF F 16 101 | | | Class F1 | Class I4 | |
| BS 6853 - Superseded | 1a | 1a | 1a | | |
| DIN 5510-2 | Pass | | SR2 | | ST1 |
| NFPA130 | Pass | | Pass | Pass | |
| UNI CEI 11170-3 | LR4 | LR4 | | LR4 | |

Fire behavior standard classification for identification products

| Standards | Classification | Usage |
|------------------------------|--------------------------------------|--|
| EN 45545-2 (R22 - R23 - R24) | HL3 | Unlimited Usage All Vehicles |
| BS6853 | 1a | Unlimited Usage All Vehicles |
| UNI CEI 11170-3 | LR4 | Unlimited Usage All Vehicles |
| DIN 5510-2 | SR2, ST1 | Usage Limited |
| NF F 16-101 | F1 & I4 | Usage Limited to External Vehicles |
| NFPA 130 | National Fire Protection Association | Usage Permitted upon agreement with end user |
| BSS 7239 | Boeing | Usage Permitted upon agreement with end user |

Compliance on fire behavior for identification products

| Standards | Flame Propagation Flame Spread Index | Toxicity | Smoke Optical Density | Low Oxygen Index | TEST METHOD |
|-------------|---|------------------------------------|-----------------------|------------------|-----------------------------------|
| | | | | | Heat and Visible Smoke Release |
| BS6853 | | BS 6853 appendix B1 or NF X-70-100 | BS 6853 D8.3 | ISO 4589-2 | |
| NF F-16 101 | NF EN 60-695-2 | NF X 70-100 | NF X 10-702-1 & 2 | ISO 4589-2 | |
| NFPA130 | ASTM E 162 | BSS 7239 | ASTM E 662 | N/A | ASTM E 1354 |
| EN 45545-2 | | NF X 70-100 600°C | EN ISO 5659-2 | ISO 4589-2 | |
| DIN 5510-2 | DIN 54837 | DIN ISO 5510-2 | DIN 54837 | | |