fast MARK
the fast way to Mark it

FHZ zero halogen heat shrinkable wire markers

**fastMARK** FHZ sleeves are 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 space such as mass transit, marine and industrial installations. Marks are permanent immediately after printing and remain legible even when exposed to abrasion, aggressive cleaning solvents.

Ordering information

Part Number (WHITE)	Part Number (YELLOW)	Diameter x Length	Pack Size	Cable Range (mm²)*		
FHZ-1K-024050-9	FHZ-1K-024050-4	2.4 x 50	1000pcs		<0.5	
FHZ-1K-032050-9	FHZ-1K-032050-4	3.2 x 50	1000pcs	0.50	to	1.00
FHZ-1K-048050-9	FHZ-1K-048050-4	4.8 x 50	1000pcs	1.00	to	4.00
FHZ-1K-064050-9	FHZ-1K-064050-4	6.4 x 50	1000pcs	4.00	to	6.00
FHZ-1K-095050-9	FHZ-1K-095050-4	9.5 x 50	1000pcs	6.00	to	16.00
FHZ-1K-127050-9	FHZ-1K-127050-4	12.7 x 50	1000pcs	16.00	to	35.00
FHZ-1K-190050-9	FHZ-1K-190050-4	19.0 x 50	1000pcs	35.00	to	120.00
FHZ-250-254050-9	FHZ-250-254050-4	25.4 x 50	250pcs	120.00	to	185.00
FHZ-250-381050-9	FHZ-250-381050-4	38.1 x 50	250pcs	185.00	to	400.00

(*based upon BS6231 cable)

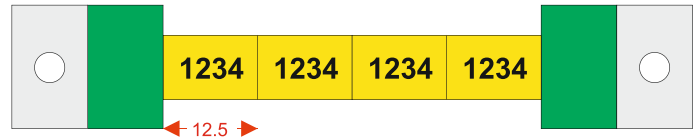**50.0mm sleeve option** *(example: 11 point Arial with 22 digits)*

1234567890123456789012 — 50.0

25.0mm sleeve option *(example: 11 point Arial with 10 digits)*

1234567890 1234567890 — 25.0
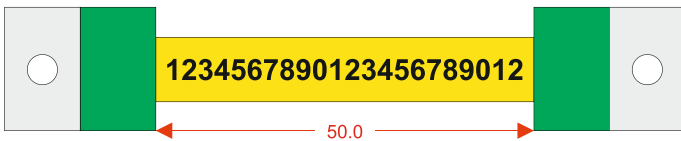
16.6mm sleeve option *(example: 11 point Arial with 6 digits)*

123456 123456 123456 — 16.6
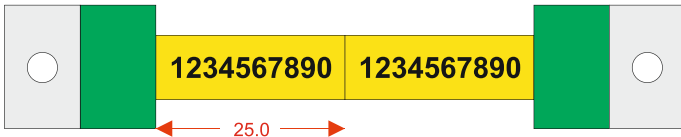
12.5mm sleeve option *(example: 11 point Arial with 4 digits)*

1234 1234 1234 1234 — 12.5

Sleeve length options

FHZ-X-XXX050-X	1 x 50.0mm sleeves per 50mm strip
FHZ-X-XXX025-X	2 x 25.0mm sleeves per 50mm strip
FHZ-X-XXX017-X	3 x 16.6mm sleeves per 50mm strip
FHZ-X-XXX012-X	4 x 12.5mm sleeves per 50mm strip

Colour options

FHM-X-XXX050-0	BLACK
FHZ-X-XXX025-2	RED
FHZ-X-XXX017-3	ORANGE
FHZ-X-XXX012-4	YELLOW
FHZ-X-XXX050-5	GREEN
FHZ-X-XXX050-6	BLUE
FHZ-X-XXX050-9	WHITE

Printer Ribbon Part Numbers — Ribbon Colour

FTI-Y-CSO-110X300-BK	BLACK
FTI-HXX-CSO-105X300-BK	BLACK
FTI-X-CSO-100X300-BK	BLACK

Inner Core Design :- Sized to the same width as the carrier allowing markers to be loaded directly within the printer.
Write-on side carrier :- You can hand write information relating to the printed markers directly on the side carrier. Also shows part number and QA code.
Perforated edges :- Remove markers without the need to remove the coloured side tapes. This lead to less mess and a faster install time.

FHZ halogen free thermal printable heat shrink tubing

fastMARK FHZ printable heat shrink tubing is manufactured from halogen free, flame retardant, heat shrinkable polyolefin tubing optimised printing for thermal printing. The compound of the tubing excludes halogens and offers excellent fire safety characteristics combined with minimal smoke emission.

Physical

Properties	Test Method	Typical Value
Tensile strength	ASTM D 638	13 N/mm²
Elongation at break	ASTM D 638	200%
Longitudinal change	SAE-AMS-DTL-23053	≤+5% , ≤-10%
Specific gravity	ASTM D 792	1.4g/cm³
Water absorption	ASTM D 570	≤15%

Chemical

Properties	Test Method	Typical Value
Fungus resistance	ASTM-DTL-7444	Inert (no growth)
Fluid resistance (after 24hrs immersion at 23°C)	SAE-AMS-DTL-23053	Good
Copper corrosion	ASTM D 2671B	No corrosion
Oxygen index	ASTM D 2863	36%

Electrical

Properties	Test Method	Typical Value
Dielectric strength	ASTM D 2671	20 kV/mm²
Volume resistivity	ASTM D 257	10^{14} Ω cm

Thermal

Properties	Test Method	Typical Value
Heat shock (4hrs at 175°C)	ASTM D 2671	Pass. (no dripping, cracking or flowing)
Heat ageing (168hrs at 150°C)	ASTM D 638	Elongation 100%
Low temperature flexibility (-30°C)	ASTM D 2671C	No cracking
Flammability	ASTM D 635	Pass (flame retardant)

Compliance on fire behaviour

Standard	Flame propogation	Toxicity	Smoke density	Low oxygen index
BS 6853	ISO 4589-2 (ANNEX A)	BS 6853 Ap B1 / NF X 70-100	BS 6853 D8.3	ISO 4589-2
NF F-16 101	NF T 51-071 / NF C 20-455	NF X 70-100	NF X 10-702	ISO 4589-2
NFPA130	ASTM 162	BSS 7239	ASTM 662	
EN 45545-2	DIN 60332-1-2	NF X 70-100	EN 61034-2	ISO 4589-2
DIN 5510-2	DIN 54837	DIN ISO 5659	DIN ISO 5659	
UNI CEI 11170-3 cl LR4	ISO 11925-2 : 2010	NF X 70-100	NF X 10-702	

Technical Datasheet

Standard Colours
Yellow and White | Other colours upon request

Material
Radiation cross linked polyolefin | Shrink Ratio 2:1

Operating Temperature
-30℃ up to +105℃

Minimum Shrink Temperature
+90℃

Mark Permanence
SAE AS81531:1998, point 4.6.2.

Chemical and Solvent Resistance
MIL-STD-202F method 215J

Standard
BS 6853 vehicle category 1a. | EN 45545-2 (Rail Rolling Stock)
LU 1-085:A3 (Compliant). | NF F 16-101 (French Rolling Stock).
DIN 5510-2 (German Rolling Stock). | UNI CEI 11170-3 (Italian Rolling Stock).
NFPA130 (Fixed Guideway Transit System). | NFPA130 (To Meet Boeing Toxicity Test)

Storage
Store in original packaging. Recommended storage environment is +10℃ to +25℃ and 45-55% relative humidity.

Printing Method
Thermal Transfer

Packaging
Supplied on printer ready reals.
Inner cores are sized to allow loading inside most printers.
Edge perforations as standard to allow easy removal of markers