



Technical data sheet

WM-ZHR-2X/3X Heat Shrinkable Wire Markers



The WM-ZHR-2X and 3X Heat Shrinkable Wire Markers are made of halogen free, flame retardant and low smoke heat shrinkable polyolefin tubing with ideal printability properties for identification purposes, which provides fluid resistance as per EN50343. The compound of the tubing is excluded for halogens and offers excellent low fire hazard characteristics combined with minimal smoke emission.

Dimensions 2:1

Size, Inches	Size, mm	Minimum ID, as supplied	Maximum ID, recovered	Recovered wall thickness, mm
3/32	2.4	2.4	1.2	0.49±0.10
1/8	3.2	3.2	1.6	0.51±0.10
3/16	4.8	4.8	2.4	0.54±0.10
1/4	6.4	6.4	3.2	0.56±0.10
3/8	9.5	9.5	4.8	0.59±0.10
1/2	12.7	12.7	6.4	0.60±0.10
3/4	19.1	19.1	9.5	0.62±0.15
1	25.4	25.4	12.7	0.63±0.15
1 ½	38.1	38.1	19.0	0.64±0.15
2	50.8	50.8	25.4	0.64±0.15
3	76.2	76.2	38.1	0.64±0.15

Dimensions 3:1

Size, Inches	Size, mm	Minimum ID, as supplied	Maximum ID, recovered	Recovered wall thickness, mm
3/32	2.4	2.4	0.8	0.57±0.10
1/8	3.2	3.2	1.0	0.61±0.10
3/16	4.8	4.8	1.6	0.67±0.10
1/4	6.4	6.4	2.4	0.71±0.10
3/8	9.5	9.5	3.2	0.77±0.10
1/2	12.7	12.7	4.8	0.80±0.10
3/4	19.1	19.1	6.4	0.84±0.15
1	25.4	25.4	8.4	0.86±0.15
1 ½	38.1	38.1	12.7	0.89±0.15
2	50.8	50.8	18.0	0.90±0.15
3	76.2	76.2	25.4	0.92±0.15

Standard colours

Yellow and white.

Colour red, blue, black, orange, green, grey, brown and purple on request.

Material

Radiation cross linked polyolefin, shrink ratio 2:1 & 3:1

Operating temperature

-55°C to +125°C

-67°F to 257°F

Minimum shrink temperature

+120°C

+248°F

Specifications

Mark permanence:

SAE AS-5942

EN50343 annex H (section 6.6)

Chemical and solvent resistance:

MIL-STD-202F method 215J

Diesel resistance:

EN50343 annex H (section 6.6)

Fire propagation:

EN45545-2 HL1-2-3, R22/23

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Notes:

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We reserve the right to modify characteristics with the aim of improving the product and adapting it to the requirements of the market.

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Physical

Properties	Test Method	Typical value
Tensile strength	ASTM G 154	10.3 Mpa (min.)
Elongation at break	ISO 37	≥200%
Longitudinal change	UL224	+/-5%

Electrical

Properties	Test Method	Typical value
Dielectric strength	ASTM G 154	15.8 kV/mm ²
Volume resistivity	IEC 93	≥ 10 ¹⁴ Ω/cm
Voltage withstand	IEC 243	2500 V/60 sec.

Chemical

Properties	Test method	Typical value
Chemical resistance	AMS-DTL-23053/5	Good
Copper corrosion	UL224	No corrosion
Copper stability	UL224	No corrosion

Thermal

Properties	Test method	Typical value
Heat shock 4 hours at 225°C	ASTM D 2671	No dripping, cracking or flowing
Heat aging 168 hours at 158°C	ISO 188	Elongation 100%
Flammability	SAE-AMS-DTL-23053/5	Pass » flame retardant
Low temperature flexibility	1h at - 30°C	No cracking

Fire propagation

Normatives	Toxicity	Low oxygen index	Smoke generation / density	Flammability index
EN45545-2	CIT 0.07 (HL3)	43.9% (R22 – HL3)	4.4 Ds(max) (HL3)	
NF F 16 101		>32% (I2)		< 40%
BS 6853	R value 0.56	≥34%	A ₀ 0.017	R<1 (class 1a)
DIN 5510-2	FED 0.13		SR2	Class S4 Drop formation class ST2

Storage

Store in original packaging.
 Recommended temperature at +10°C to +25°C / +50°F to +77°F and 45-55% relative humidity
 Use within 3 years from date of Manufacture.

Printer recommended

CAB Squix 4.3M 300dpi printer

Ribbon recommended

FTI-Y
 FTI-X

Applications

Common uses include marking, insulation, wire bundling and mechanical protection.



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