

DR

Diesel resistant, self extinguishing heat shrinkable identification sleeve

TECHNICAL DATA SHEET

Revision Number. 1

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The WM-DR-3X Heat Shrinkable Wire Markers are made of diesel resistant, heat shrinkable polyolefin tubing with ideal printability properties for identification purposes, which provides fluid resistance as per NF-F00-608.

Ideal for applications where diesel resistancy characteristics are required. This product is designed for use in railway and aerospace applications, wire bundling harnesses and assemblies, panel building.

The fluid resistance of the material has passed the NF-F00-608 linked to SNCF specifications where especially oils for long periods have been tested at elevated temperatures.

Meets ASTM D2671 & UL VW-1 standard for flammability which makes the material self-extinguishing and passes vertical burn test. The sleeve meet the material requirements of the SAE-AMS-DTL-23053/6 class 1.

Industry



Industry



Marine



Wind power



Commercial



Aerospace



Construction



Railway



Military



Electrical installations



Petrochemical



Telecom

STANDARD TUBE COLOR



OTHER TUBE COLORS ON REQUEST

BACKING TAPE COLORS



MATERIAL

Extruded, cross linked polyolefin.

SHRINK RATIO

3:1

OPERATING TEMPERATURE

-40°C to +125°C

(-40°F to 193°F)

SHRINK TEMPERATURE

>90°C (130°F)

COMPLIANCES

Mark Permanence:

SAE AS-5942 Superceeds

SAE AS 81531:1998 Sewction 4.6.2

NF F00-608 fluid test cat A & H

Recommended black ribbon:

FTI-Y, FTI-X

Chemical Resistance to solvents:

MIL-STD-202G

Test method 215j

INDUSTRY STANDARDS

NFF F-00-608 cat. A & H

MIL-DTL-23053/6 class 1

FLAMMABILITY

AMS-DTL-23053 1999 4.6.14

ASTM D2671-09 Section 68-

74 Procedure B and AMS-

DTL-23053/6:1999

UL224

STORAGE

Cool and dry in original packaging. Recommended temperature at +10°C to +25°C and 45-55% relative humidity. Use within 2 years from date of manufacture.

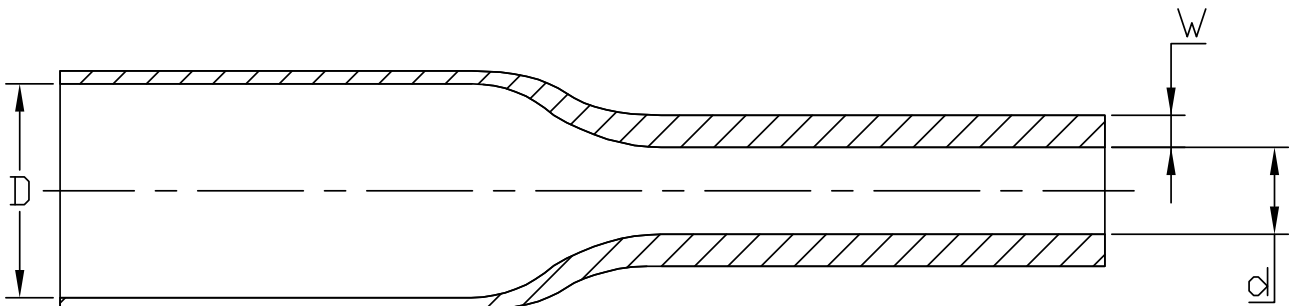
APPLICATIONS

Specific developed to be used in Rail, Defence, Aerospace, cable harnesses, Industrial marking, insulation, wire bundling and mechanical protection.

Product Dimensions

DIMENSIONS 3:1

SIZE, INCHES	SIZE, MM	MINIMUM ID (D), AS SUPPLIED MM (INCHES)	MAXIMUM ID, RECOVERED (D) MM (INCHES)	RECOVERED WALL THICKNESS (W), MM (INCHES)
3/32	2.4	2.79 (0.109)	0.79 (0.031)	0.57±0.10 (0.022 ± 0.004)
1/8	3.2	3.64 (0.143)	1.0 (0.039)	0.61±0.10 (0.024 ± 0.004)
3/16	4.8	5.26 (0.207)	1.6 (0.063)	0.67±0.10 (0.0263 ± 0.004)
1/4	6.4	6.92 (0.272)	2.4 (0.094)	0.71±0.10 (0.0279 ± 0.004)
3/8	9.5	10.2 (0.401)	3.2 (0.126)	0.77±0.10 (0.030 ± 0.004)
1/2	12.7	13.5 (0.531)	4.75 (0.187)	0.80±0.10 (0.031 ± 0.004)
3/4	19.1	20.1 (0.791)	6.4 (0.250)	0.84±0.15 (0.0330 ± 0.006)
1	25.4	26.7 (1.05)	8.47(0.333)	0.86±0.15 (0.034 ± 0.006)
1 ½	38.1	39.8 (1.57)	12.9 (0.507)	0.89±0.15 (0.035 ± 0.006)
2	50.8	53.0 (2)	17.2 (0.677)	0.90±0.15 (0.035 ± 0.006)
3	76.2	79.4 (3)	25.8 (1.05)	0.92±0.15 (0.036 ± 0.006)



Heat Shrink Product in as supplied "D" and fully recovered state "d" with recovered wall "W"

General Tests for Identification Products

PHYSICAL

PROPERTIES	TEST METHOD	TYPICAL VALUE
Tensile strength	NF F00-608	17.21 Mpa (min.)
Elongation at break	NF F00-608	≥200%
Longitudinal change	NF F00-608	<10%
Tensile strength after heat aging	NF F00-608	<25%
Elongation at break after heat aging	NF F00-608	<25%
Tensile Strength after diesel oil	NF F00-608	≥7MPa
Elongation at break after diesel oil	NF F00-608	≥200%
Water absorption	NF F00-608	<2%
IRM 902 oil Tensile strength (50 °C x 72h)	MIL-DTL-23053E	16.2 N/mm ²
IRM 902 oil Ultimate elongation (50 °C x 72h)	MIL-DTL-23053E	540%
IRM 903 oil Tensile strength (70 °C x 168h)	MIL-DTL-23053E	12.2 N/mm ²
IRM 903 oil Ultimate elongation (70 °C x 168h)	MIL-DTL-23053E	535%
Petrol oil 97 Tensile strength (24 °C x 24h)	MIL-DTL-23053E	13.7 N/mm ²
Petrol oil 97 Ultimate elongation (24 °C x 24h)	MIL-DTL-23053E	550%
Hydraulic fluid MIL-PRF-5606 (24 °C x 24h)	MIL-DTL-23053E	17.2 N/mm ²
Hydraulic fluid MIL-PRF-5606 (24 °C x 24h)	MIL-DTL-23053E	523%

ELECTRICAL

PROPERTIES	TEST METHOD	TYPICAL VALUE
Dielectric strength	NF F00-608	31.56 kV/mm ²
Volume resistivity	IEC 93	1.82 x10 ¹⁴ Ω/cm

CHEMICAL

PROPERTIES	TEST METHOD	TYPICAL VALUE
Chemical resistance	AMS-DTL-23053/E	Good
Copper corrosion	ASTM D 2671B	No corrosion

THERMAL

PROPERTIES	TEST METHOD	TYPICAL VALUE
Heat shock 4 hours at 225°C	AMS-DTL-23053:1999 4.6.8	No dripping, cracking or flowing through to 360°C
Heat aging 168 hours at 158°C	ASTM D 638	Elongation 100%
Flammability	NF F00-608	VW-1 Pass » Flame retardant
Oxygen Index	NF F00-608	28%
Low temperature flexibility / Bending	NF F00-608	No cracking, no break, pass

Environmental UV Stability

PROPERTIES	TEST METHOD	TYPICAL VALUE
UV-A	ASTM G154 - Machine setup Temp 50-60°C (140°F) Cycle 8 h light 4h condensation UV wavelength 280-400nm Test duration 1000 h of exposure.	Pass - No damage to the marker and print legible after 20 rubs in accordance with SAE-AS 815314.6.2