

**HOSE, ETHYLENE/ACRYLIC (AEM) RUBBER REINFORCED
- AUTOMATIC TRANSMISSION FLUID AND ENGINE
OIL RESISTANT****WSD-M96D13-A****1. SCOPE**

The material defined by this specification is an Ethylene/Acrylic Rubber hose, internally reinforced with one or more plies of braided textile.

2. APPLICATION

This specification was released originally for material used as automatic transmission and/or engine oil cooler hoses. The hose is resistant to long term exposure to automatic transmission fluids and/or engine oils up to 150 °C and air temperatures up to 150 °C. The hose is also capable of withstanding short term oil temperatures up to 175 °C.

3. REQUIREMENTS**3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS**

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 HOSE CONSTRUCTION

The hose shall consist of an ethylene/acrylic rubber inner tube and outer cover with one or more layers of suitable braided reinforcing textile. The hose will usually be fitted with crimped metal end-fittings.

3.5 MATERIAL TESTING

The following tests shall be performed on finished hoses and/or test specimens cut from them. The test specimens shall be die-cut from the finished parts and buffed or slit to the required thickness where necessary. When not feasible, specimens cut from molded test slabs manufactured from the same material with an equivalent state of cure shall be used. The test slabs shall have the following dimensions:

150 x 150 mm, min x 2.0 +/- 0.2 mm

3.6 ORIGINAL PROPERTIES: - TUBE AND COVER MATERIAL

3.6.1 Hardness, International (ASTM D 1415) 70-80

3.6.2 Hardness, Durometer A (ASTM D 2240, instantaneous, plied-up specimens.) 70-80

3.6.3 Tensile Strength, min (ASTM D 412, Die C) 10 MPa

Date	Action	Revisions
2006 08 16	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.10 & 4
2000 05 30		Editorial – No Technical Change
1987 07 03	Released	SM/ER 1076 TC

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3.6.4	Elongation at Break, min (ASTM D 412, Die C)	200%
3.6.5	Modulus at 100% Elongation (ASTM D 412, Die C)	7.0 to 8.5 MPa
3.6.6	Tear Strength, min (ASTM D 624, Die B)	40 kN/m
3.6.7	Compression Set, max (ASTM D 395 Method B, 70 h at 150 +/- 2 °C)	50%
3.6.8	Ozone Resistance (FLTM BP 101-01)	Rating 0

3.7 AGED PROPERTIES

3.7.1	Heat Aged (ASTM D 573, 1000 h at 150 +/- 2 °C)	
	Hardness Change	0 to +15
	Tensile Strength Change, max	-20%
	Elongation at Break Change, max	-60%
	Visual Evaluation	
	No surface tackiness or cracks when folded flat against itself.	
3.7.2	Immersion in Currently Released Production Automatic Transmission Fluid (ASTM D 471, 168 h at 175 +/- 2 °C, see para 5.1)	
	Hardness Change, max	-25
	Tensile Strength Change, max	-20%
	Elongation at Break Change, max	-35%
	Modulus at 100% Elongation	6.5 to 8.0 MPa
	Volume Change	0 to +30%
	Visual Evaluation	
	No surface tackiness or cracks when folded flat against itself.	