

**HOSE, LOW AND HIGH PRESSURE CLUTCH, RUBBER-
REINFORCED, BRAKE FLUID DOT 4 AND SUPER DOT 4
(SAE J1704/ISO 4925) RESISTANT****WSS-M96D42-A****1. SCOPE**

The material defined by this specification is a reinforced rubber hose, resistant to DOT 4 and Super DOT 4 brake fluids and containing no extractable compounds that can cause swelling of hydraulic brake and clutch seals. The hose is not to be used for high pressure brake system hose applications.

2. APPLICATION

This specification was originally released for hoses, used as low pressure hose between the reservoir and clutch master cylinders and high pressure hose between the clutch master cylinder and clutch actuation cylinder in non-petroleum brake fluid based systems.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

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).

3.3 CONSTRUCTION AND MATERIAL

The hose shall consist of an EPDM rubber inner tube and EPDM or Chloroprene outer cover with an internal layer of braided reinforced textile capable of meeting the burst requirements as specified.

3.4 MATERIAL TESTING

Whenever possible, all test specimens shall be die-cut from the finished parts. When not feasible, specimen cut from molded test sheets manufactured from the same material and with equivalent cure to molded parts are recommended. The test sheets shall have the following dimensions:

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

**3.5 MATERIAL TESTING, ORIGINAL PROPERTIES,
TUBE AND COVER MATERIAL**

	TUBE	COVER
3.5.1 Hardness, International (ISO 48/ASTM D 1415)	70 - 80	55 - 80
3.5.2 Tensile Strength, MPa, min (ISO 37, Type 1 dumbbell)	12	10

Date	Action	Revisions	Rev 02
2017 07 07	Editorial	Corrected wording in Section 3.4	L. Click, NA
2006 09 13	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.10, 3.11 & 4; Fixed numbering 3.5 - 3.10	
1996 11 12	Activated		



ENGINEERING MATERIAL SPECIFICATION

WSS-M96D42-A

	TUBE	COVER
3.5.3 Elongation at Break, %, min (Test Method according to para 3.4.2)	150	140
3.5.4 Modulus at 100% Elongation, MPa min (Test Method according to para 3.4.2)	2.5	2.0
3.5.5 Tear Strength, N/cm, min (ISO 34, Method B, Procedure (a) ASTM D 624, Die B)	10	10
3.5.6 Compression Set, %, max (ISO 815/ASTM D 395 Method B except 25% compression, plied-up specimens, 22 h at 100 °C +/- 1 °C)	40	40
3.5.7 Ozone Resistance, max (FLTM BP 101-01, Method B)		Rating max 0
3.6 HEAT AGED (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 168 h at 100 °C)		
Hardness Change, max	+10	+20 (90 IRHD max)
Tensile Strength Change, %, max	-15	-15
Elongation at Break Change, %, max	-35	-45
Visual Evaluation	No surface tackiness or cracks when folded flat against itself.	
3.7 HEAT AGED (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 80 °C)		
Hardness Change, max	+10	+20 (90 IRHD max)
Tensile Strength Change, %, max	-20	-20
Elongation at Break Change, %, max	-30	-50 (100% Elongation min)
Visual Evaluation	No surface tackiness or cracks when folded flat against itself.	