GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW14720

Elastomer for Duct – Air Cleaner

1 Scope

This specification covers the materials and performance of elastomeric hose elbows for duct air cleaner.

1.1 Material Description. Materials covered by this specification are divided into four (4) types.

1.1.1 Type A. Nitrile Acrylonitrile Butadiene Rubber Copolymer (NBR) for +100 °C permanent and +125 °C peak temperatures.

1.1.2 Type B. Ethyl Acrylate Ethylene Copolymer (AEM) for +160 °C permanent and +175 °C peak temperatures.

1.1.3 Type C. Drawing defined (e.g., using SAE J200 or ASTM D2000 line callout).

1.1.4 Type D. AEM for +175 °C permanent and +185 °C peak temperatures.

1.2 Symbols. Not applicable.

1.3 Applicability. Elastomeric hose elbows for duct air cleaner.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D2000	ISO 815	ISO 7619-1	SAE J200
ISO 37	ISO 1431-1	ISO 23529	
ISO 188	ISO 1817		

2.2 GM Standards/Specifications.

GMW3059	GMW14914	GMW17245

3 Requirements

3.1 Requirements on Test Specimens.

3.1.1 Test Samples. Unless otherwise specified, the shape, size, and number of test pieces shall be in accordance with the relevant test procedure. Unless otherwise specified, samples are finished parts or to be taken from finished parts. If not otherwise stated, mechanical properties in delivery state and after heat or fluid immersion, are to be tested at +23 °C and with the same test methods.

3.1.2 Conditioning. Conditioning shall be as specified in the relevant test procedure.

3.1.3 Equipment. Conforming to the relevant test procedures.

3.1.4 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.5 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this specification shall be determined correctly with respect to its physical definition.

3.1.6 Facilities. Conforming to the relevant test procedures.

3.1.7 Deviations. Deviations from the requirements of this standard shall have been agreed upon. Such deviations shall be specified on component drawings, test certificates, reports, etc.

3.2 Material and Performance Requirements. Material and performance requirements are summarized in Table 1.

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Table 1: Material and Performance Properties

Property	Test Procedure	Unit	Value
Hardness			
Type A, Type D	ISO 7619-1	Shore A	75 ± 5
Type B	ISO 7619-1	Shore A	75 +6
Type C	As specified on drawing/math data file	Shore A	As specified on drawing
Elongation at Break			
Type A, Type D	ISO 37, Type 2 or Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	%	200 Minimum
Type B	ISO 37, Type 2 or Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	%	150 Minimum
Type C	As specified on drawing/math data file	%	As specified on drawing
Tensile Strength			
Type A	ISO 37, Type 2 or Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	MPa	7 Minimum
Type B	ISO 37, Type 2 or Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	MPa	8.5 Minimum
Type C	As specified on drawing/math data file	MPa	As specified on drawing
Type D	ISO 37, Type 2 or Type 4 dumbbell, 200 mm/minute ± 20 mm/minute	MPa	10 Minimum
Age Resistance (Heat Aging)			
Type A	ISO 188 Method B, 168 h -2 h at +125 °C ± 3 °C Bending Test r = 2 mm		No cracks
Type B	ISO 188 Method B, 168 h -2 h at +175 °C ± 3 °C Change in Hardness	Shore A	+15 Maximum
Type C	As specified on drawing/math data file		As specified on drawing
Type D	ISO 188 Method B, 336 h -2 h at +175 °C ± 3 °C Change in Hardness Change in Elongation at Break Elongation at Break Change in Tensile Strength	 Shore A % % %	 +15 Maximum -60 Maximum 80 Minimum -50 Maximum
Type D	ISO 188 Method B, 168 h -2 h at +185 °C ± 3 °C Change in Hardness Change in Elongation at Break Elongation at Break Change in Tensile Strength	 Shore A % % %	 +15 Maximum -60 Maximum 80 Minimum -50 Maximum
Oil Resistance			
Type A	ISO 1817 to heat-aged engine oil to GMW17245 168 h -2 h; at +70 °C ± 3 °C Change in Volume	%	± 15
Type B, D	ISO 1817 to heat-aged engine oil to GMW17245 168 h -2 h; at +150 °C ± 3 °C Change in Volume	%	-10 to +20
Type C	As specified on drawing/math data file	%	As specified on drawing

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