

HANNA RUBBER COMPANY

America's First Choice for Rubber & Plastic Products

Established 1925 | Kansas City, MO | www.hannarubber.com

PRODUCT SPECIFICATION

Doc No: HRC-SS-HH20R3-D1

Rev: A | Date: April 2026

HEATER HOSE -- SAE 20R3 EC CLASS D1 | BLACK EPDM

1. PRODUCT OVERVIEW

This specification covers Hanna Rubber Company's black EPDM heater hose manufactured in compliance with SAE J20 -- Coolant System Hoses standard. The hose is classified as SAE 20R3, Type EC (ends cut straight), and meets the performance requirements for Class D coolant resistance and Grade 1 heat resistance (Class D1).

EPDM (Ethylene Propylene Diene Monomer) is the material of choice for automotive and industrial coolant hose due to its outstanding resistance to ethylene glycol-based coolants, hot water, steam, and ozone. The black cover provides UV protection and is suitable for underhood and industrial environments.

2. APPLICABLE STANDARDS & CLASSIFICATION

Primary Standard	SAE J20 -- Coolant System Hoses
Hose Designation	SAE 20R3
Hose Type	EC -- Ends Cut (straight, not cuffed or belled)
Coolant Resistance Class	Class D -- Ethylene Glycol/Water Based Coolants
Heat Resistance Grade	Grade 1 -- Continuous service to 125C (257F)
Combined Classification	SAE 20R3 EC Class D1
Elastomer (Tube & Cover)	EPDM -- Ethylene Propylene Diene Monomer (Black)
Supporting Test Methods	ASTM D412, D471, D573, D1149, D1384, D2240

3. PERFORMANCE SPECIFICATIONS

Category	Property	Value / Requirement	Test Method
Construction	Tube	EPDM (Ethylene Propylene Diene Monomer)	Black
Construction	Reinforcement	Textile braid or spiral (single or multiple plies)	--
Construction	Cover	EPDM	Black
Temperature	Continuous Service	-40F to +257F (-40C to +125C)	SAE J20 Sec. 4.2

Category	Property	Value / Requirement	Test Method
Temperature	Intermittent / Surge	Up to +275F (+135C)	SAE J20 Sec. 4.2
Fluid Compatibility	Coolant (Ethylene Glycol)	Excellent resistance	ASTM D1384
Fluid Compatibility	Water/Glycol Mix	Full compatibility -- up to 50% antifreeze	--
Fluid Compatibility	Oil / Fuel Resistance (cover)	Not intended -- EPDM not oil resistant	SAE J20 Note
SAE Classification	Designation	SAE 20R3 EC Class D1	SAE J20
SAE Classification	Hose Type	Type EC (Straight, Ends Cut)	SAE J20 Sec. 3
SAE Classification	Class D1	Meets coolant resistance Class D, Grade 1 heat resistance	SAE J20 Table 1
Physical -- Tube	Tensile Strength (min)	1,200 psi (8.3 MPa)	ASTM D412
Physical -- Tube	Elongation at Break (min)	250%	ASTM D412
Physical -- Tube	Hardness (Shore A)	55 +/- 5	ASTM D2240
Physical -- Cover	Tensile Strength (min)	1,000 psi (6.9 MPa)	ASTM D412
Physical -- Cover	Elongation at Break (min)	200%	ASTM D412
Physical -- Cover	Hardness (Shore A)	60 +/- 5	ASTM D2240
Heat Aging (Air Oven)	Condition	70 hrs @ 212F (100C)	ASTM D573
Heat Aging (Air Oven)	Tensile Strength Change (max)	+/-25%	ASTM D573
Heat Aging (Air Oven)	Elongation Change (max)	-35%	ASTM D573
Heat Aging (Air Oven)	Hardness Change (max)	+10 points Shore A	ASTM D573
Impulse / Burst	Working Pressure (typical)	30-50 psi (per ID size)	SAE J20
Impulse / Burst	Burst Pressure (min)	4x working pressure	SAE J20
Ozone Resistance	Result	No cracking after 100 hrs @ 40C, 50 pphm ozone	ASTM D1149
Vacuum Resistance	Collapse	No collapse at 27 in. Hg vacuum (selected sizes)	SAE J20

4. STANDARD SIZE RANGE (TYPICAL)

Stock sizes shown below. Additional sizes and other SAE classes available upon request -- contact Hanna Rubber Company for availability and pricing.

Nominal ID	ID (in.)	OD (in.)	Wall (in.)	Min Bend Radius (in.)	Max WP (psi)
5/8"	0.625	0.875	0.125	2.0	30-50
3/4"	0.750	1.000	0.125	2.0	30-50
1"	1.000	1.250	0.125	2.5	25-40

5. EPDM MATERIAL HIGHLIGHTS

Polymer Type	Ethylene Propylene Diene Monomer (EPDM)
Coolant Compatibility	Excellent -- ethylene glycol, propylene glycol, water/glycol blends
Ozone & UV Resistance	Excellent -- suitable for outdoor/underhood environments
Steam Resistance	Good -- suitable for hot water/steam applications
Oil & Fuel Resistance	Poor -- not recommended for petroleum-based fluids
Low Temperature Flex	Excellent -- remains flexible to -40F (-40C)
Color -- Tube	Black
Color -- Cover	Black

6. HOSE MARKING

Hose shall be legibly marked on the outer cover at regular intervals (not to exceed 12 inches) with the following information, per SAE J20:

- Manufacturer's name or trademark
- SAE designation: SAE 20R3 EC D1
- Nominal inside diameter
- Year / quarter of manufacture (optional per manufacturer)

7. TYPICAL APPLICATIONS

SAE 20R3 EC Class D1 EPDM heater hose is used in the following applications:

- Automotive and truck engine coolant circuits (heater inlet/outlet)
- HVAC and hydronic heating systems
- Agricultural and off-highway equipment coolant lines
- Industrial process water and coolant transfer
- Marine engine cooling systems (freshwater only)

8. INSTALLATION & STORAGE NOTES

Installation: Ensure all fittings and barbs are clean and free of burrs. Use an appropriate hose clamp (worm gear or spring clamp). Do not exceed the published bend radius. Hose ends must be fully seated on fittings to the barb root.

Storage: Store hose in a cool, dry location away from direct sunlight, ozone sources (electric motors), and solvents. Ideal storage temperature: 40F-85F (4C-29C), relative humidity below 65%. Maintain in a relaxed, non-kinked state. Recommended maximum shelf life: 10 years from date of manufacture (ARPM IP-2 guidelines).

9. ORDERING INFORMATION

To order or request a quote, contact Hanna Rubber Company with the following information:

Nominal inside diameter (e.g., 3/4")

Length required (standard 50 ft. and 100 ft. reels; cut lengths available)

Quantity

Any special requirements (end treatment, certification, traceability)

DISCLAIMER: The information contained in this specification sheet is based on data considered reliable and is provided in good faith. Users are responsible for ensuring suitability for their specific application. Hanna Rubber Company reserves the right to update specifications without prior notice.

HANNA RUBBER COMPANY

Kansas City, MO | (816) 842-2244
www.hannarubber.com

HRC-SS-HH20R3-D1 Rev A | April 2026
Specifications subject to change without notice.