



400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J20-1

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Coolant Hose

(Supplement to SAE J20 for Government Use Replacing Part of MS52130)

1. Scope—This SAE Standard provides ordering information for any SAE 20R1 through SAE 20R4 hose type (such as EC, HT, LT, or combination thereof.) It is a supplement for Government use but may be used by others.

2. References

2.1 Applicable Publications—The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J20—Coolant System Hoses

2.1.2 ISO PUBLICATION—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 9001—Quality systems—Model for quality assurance in design, development, production, installation and servicing

2.1.3 GOVERNMENT PUBLICATIONS—Available from U. S. Government, DOD SSP, Subscription Service Division, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094

Federal Specification ZZ-H-428—Hose; Non-Metallic and Hose; Preformed: (for Coolant Systems of Automotive and Other Liquid-Cooled Engines)

Military Drawing MS52130—Hose, Nonmetallic: Straight, Engine Coolant

2.1.4 AUTOMOTIVE INDUSTRY PUBLICATION—Available from AIAG, 26200 Lasher Road, Suite 200, Southfield, MI 48034-7100.

QS 9000—Quality System Requirements

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3. Technical Requirements—The following requirements are in addition to the requirements of SAE J20.

3.1 Certification—Manufacturers/suppliers of hose to the Government must be ISO-9001 or QS-9000 certified and provide their certification to the Government before providing SAE 20R1, 20R2, 20R3 or 20R4 hose.

3.2 Lengths—The lengths shall comply with SAE J20 tolerances.

3.3 Inside Diameters—The inside diameters specified in Table 1 shall comply with SAE J20 tolerances.

TABLE 1—CROSS REFERENCE OF NOMINAL INSIDE DIAMETERS AND APPLICABILITY

J20 Nominal Size (mm)	MS52130 Size No.	MS52130 Nominal ID (inch)	R1 Hose	R2 Hose	R3 Hose	R4 Hose
10	01	3/8	X		X	X
13	02	1/2	X		X	X
16	03	5/8	X		X	X
19	04	3/4	X		X	X
22	05	7/8	X		X	X
25	06	1	X	X	X	X
29	07	1-1/8	X	X	X	X
32	08	1-1/4	X	X	X	X
33	09	1-5/16	X	X		X
35	10	1-3/8	X	X		X
37	11	1-7/16	X	X		X
38	12	1-1/2	X	X		X
40	13	1-9/16	X	X		X
41	14	1-5/8	X	X		X
44	15	1-3/4	X	X		X
48	16	1-7/8	X	X		X
51	17	2	X	X		X
54	18	2-1/8	X	X		X
57	19	2-1/4	X	X		X
60	20	2-3/8	X	X		X
64	21	2-1/2	X	X		X
67	22	2-5/8	X	X		X
70	23	2-3/4	X	X		X
73	24	2-7/8	X	X		X
76	25	3	X	X		X
79	26	3-1/8	X	X		X
83	27	3-1/4	X	X		X
86	28	3-3/8	X	X		X
89	29	3-1/2	X	X		X
95	30	3-3/4	X	X		
102	31	4	X	X		
114	32	4-1/2	X			

3.4 Wall Thickness Range—Wall gauge range shall comply with SAE J20.

3.4.1 **WALL THICKNESS FOR SAE 20R1 HEAVY-DUTY TYPE HOSE**—There are two wall thicknesses available for R1 Hose per SAE J20 paragraph 6.3. Standard wall thickness hose is 4.3 mm to 5.6 mm wall. Heavy Wall Thickness hose is 5.8 to 7.1 mm wall. The part number code for standard wall is “S” and for heavy wall is “H”. See part numbering example in 4.1.

3.5 Bulk Hose—Bulk hose shall be furnished in lengths of 3.66, 7.62, or 12.19 m (12, 25, or 40 ft, respectively) or in multiples thereof, except that on such orders up to 10% may be furnished in random lengths over 4.57 m (15ft). An additional 10% may be furnished in random lengths over 915 mm (36 in).

3.6 Markings for U.S. Government use only—For U.S. Government use only, marking shall consist of the following:

- a. Part Identification Number (see 4.2)
- b. Manufacturer's Identification code (CAGE) or trademark symbol
- c. Month and year of manufacture

3.6.1 If there is insufficient space on the hose for the required marking due to small ID hose or too short a straight length, a label carrying the required information shall be taped around the individual pieces of hose in lieu of the standard method of marking.

3.6.2 Marking for non-Government users shall be agreed upon by the customer and manufacturer.

4. Notes

4.1 Part Identification Number—Part numbers shall be constructed as indicated in Figure 1.

SAE-20 Basic type	R Hose type	**** Special Characteristics 1/ 2/	- ** X Class 1/ 3/	- *** X Inside diameter (See Table 1)	*** Nominal Length 4/
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Notes: 1/ See SAE J20.

2/ Examples are EC, LT, HT, and for R1 hose wall; S, H

3/ For Class D-1, use “D1”. For Class D-3, use “D3”.

4/ When random lengths of hose are permissible, use an “R”.

FIGURE 1—PART IDENTIFICATION NUMBER

EXAMPLE—SAE-20R1LTH-A-51X280 indicates a hose with low temperature characteristics, heavy wall, in a Class A compound that is nominally 51 by 280 mm (50.8 mm (2.00 in) ID by 279.4mm (11.00 in) length.)

4.2 Government Specification Replacement—This document is a replacement for Military Drawing MS52130, “Hose, Nonmetallic: Straight, Engine Coolant” and portions of Federal Specification ZZ-H-428, “Hose; Non-Metallic and Hose; Preformed: (for Coolant Systems of Automotive and Other Liquid-Cooled Engines.)”

4.3 Cross Reference Information—Table 2 shows the relationship between designations in this document and ZZ-H-428. MS52130 provided part numbers for ZZ-H-428, Types I through IV hose.

TABLE 2—CROSS REFERENCE DESIGNATIONS

J20 Designation	J20 Class	ZZ-H-428 Type	ZZ-H-428 Grade	ZZ-H-428 Class
SAE-20R1ECLTH	A	II	A	2
SAE-20R1ECLTH	A	II	A	4
SAE-20R1ECH	B	II	B	1
SAE-20R1ECH	C	II	B	2
SAE-20R1ECH	D-1	II	B	3
SAE-20R1ECH	D-3	II	B	4
SAE-20R1ECLTS	A	I	A	2
SAE-20R1ECLTS	A	I	A	4
SAE-20R1ECS	B	I	B	1
SAE-20R1ECS	C	I	B	2
SAE-20R1ECS	D-1	I	B	3
SAE-20R1ECS	D-3	I	B	4
SAE-20R3ECLT	A	IV	A	2
SAE-20R3ECLT	A	IV	A	4
SAE-20R3EC	B	IV	B	1
SAE-20R3EC	C	IV	B	2
SAE-20R3EC	D-1	IV	B	3
SAE-20R3EC	D-3	IV	B	4
SAE-20R4ECLT	A	III	A	2
SAE-20R4ECLT	A	III	A	4
SAE-20R4EC	C	III	B	2
SAE-20R4EC	D-1	III	B	3
SAE-20R4EC	D-3	III	B	4

4.4 Key Words—Automotive, coolant hose, flexible hose, heater hose, preformed hose, wire reinforced hose.

4.5 Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE NON-HYDRAULIC HOSE COMMITTEE