



SURFACE VEHICLE RECOMMENDED PRACTICE

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Dimensions and Tolerances for Coolant System Hoses

RATIONALE

The technical report covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

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1. SCOPE

The purpose of this SAE Recommended Practice is to provide dimensions for both standard and thin-wall hoses and to provide commercial and precision tolerances for SAE 20R3 and SAE 20R4 coolant system hoses.

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 issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J20 Coolant System Hoses

SAE J2605 Non-Contact Hose Measurement Study 1

3. DIMENSIONS AND TOLERANCES FOR SAE 20R3

Target dimensions and tolerances are shown in Tables 1A through 4B. Contact or non-contact measurement method must be agreed upon by manufacturer and customer. Since expanded ends may cause wall gages to change, O.D.'s and tolerances for the expanded ends must also be agreed upon by the manufacturer and customer. Dimensions and tolerances other than those listed in Tables 1A to 4B must be agreed upon by manufacturer and customer.

TABLE 1A - STANDARD WALL DIMENSIONS AND COMMERCIAL TOLERANCES FOR SAE 20R3
Tolerances and Method for Contact Measurement

ID mm	ID Tolerance mm	Target OD ⁽¹⁾ mm	OD Tolerance mm	Reference Wall mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	Maximum ID Plus 7 mm	±0.8	3.5	1.0
9.0 to <25.4	±0.8	Maximum ID Plus 8 mm	±0.8	4.0	1.0
25.4	±0.8	34	±1.2	4.3	1.0
>25.4	±0.8	Maximum ID Plus 10.0 mm	±1.6	5.0	1.0

1. The target OD should be measured over a plug gauge equal to the specified maximum ID.

TABLE 1B - STANDARD DIMENSIONS AND COMMERCIAL TOLERANCES FOR SAE 20R3
Tolerances for Non-Contact Measurement (see SAE J2605)

ID mm	ID Tolerance mm	Target Wall Thickness mm	Wall Thickness Tolerance mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	3.5	±0.4	1.0
9.0 to <25.4	±0.8	4.0	±0.4	1.0
25.4	±0.8	4.3	±0.6	1.0
>25.4	±0.8	5.0	±0.8	1.0

TABLE 2A - STANDARD WALL DIMENSIONS AND PRECISION TOLERANCES FOR SAE 20R3
(GENERALLY APPLIED TO WRAPPED MANDREL-BUILT HOSES ONLY)

ID mm	ID Tolerance mm	Target OD ⁽¹⁾ mm	OD Tolerance mm	Reference Wall mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.5	Maximum ID Plus 7 mm	±0.5	3.5	1.0
9.0 and larger	±0.5	Maximum ID Plus 8 mm	±0.5	4.0	1.0

1. The target OD should be measured over a plug gauge equal to the specified maximum ID.

TABLE 2B - STANDARD WALL DIMENSIONS AND PRECISION TOLERANCES FOR SAE 20R3
(GENERALLY APPLIED TO WRAPPED MANDREL-BUILT HOSES ONLY)
Tolerances for Non-Contact Measurement (see SAE J2605)

ID mm	ID Tolerance mm	Target Wall Thickness mm	OD Tolerance mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	3.5	±0.5	1.0
9.0 and larger	±0.8	4.0	±0.5	1.0

TABLE 3A - THIN WALL DIMENSIONS AND COMMERCIAL TOLERANCES FOR SAE 20R3
Tolerances and Method for Contact Measurement

ID mm	ID Tolerance mm	Target OD ⁽¹⁾ mm	OD Tolerance mm	Reference Wall mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	Maximum ID Plus 6 mm	±0.8	3.0	1.0
9.0 to <25.4	±0.8	Maximum ID Plus 7 mm	±0.8	3.5	1.0
25.4	±0.8	32.4	±1.2	3.5	1.0
>25.4	±0.8	Maximum ID Plus 7 mm	±1.2	3.5	1.0

1. The target OD should be measured over a plug gauge equal to the specified maximum ID.

TABLE 3B - THIN WALL DIMENSIONS AND COMMERCIAL TOLERANCES FOR SAE 20R3
Tolerances for Non-Contact Measurement (see SAE J2605)

ID mm	ID Tolerance mm	Target Wall Thickness mm	Wall Thickness Tolerance mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	3.0	±0.4	1.0
9.0 to <25.4	±0.8	3.5	±0.4	1.0
25.4	±0.8	3.5	±0.6	1.0
>25.4	±0.8	3.5	±0.6	1.0

TABLE 4A - THIN WALL DIMENSIONS AND PRECISION TOLERANCES FOR SAE 20R3
(GENERALLY APPLIED TO WRAPPED MANDREL-BUILT HOSES ONLY)

ID mm	ID Tolerance mm	Target OD ⁽¹⁾ mm	OD Tolerance mm	Reference Wall mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.5	Maximum ID Plus 6 mm	±0.5	3.0	1.0
9.0 and larger	±0.5	Maximum ID Plus 7 mm	±0.5	3.5	1.0

1. The target OD should be measured over a plug gauge equal to the specified maximum ID.

TABLE 4B - THIN WALL DIMENSIONS AND PRECISION TOLERANCES FOR SAE 20R3
(GENERALLY APPLIED TO WRAPPED MANDREL-BUILT HOSES ONLY)
Tolerances for Non-Contact Measurement (see SAE J2605)

ID mm	ID Tolerance mm	Target Wall Thickness mm	OD Tolerance mm	Maximum Wall Thickness Variation mm
5.0 to <9.0	±0.8	3.0	±0.5	1.0
9.0 and larger	±0.8	3.5	±0.5	1.0