



# SURFACE VEHICLE STANDARD

J829™

APR2025

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Superseding J829 APR2019

## Fuel Tank Filler Cap and Cap Retainer

### RATIONALE

SAE Five-Year Review: Updated formatting to latest SAE guide. Also updated 4.1 for clarity.

### 1. SCOPE

This SAE Standard was developed primarily for passenger car and truck applications for the sizes indicated, but it may be used in marine, industrial, and similar applications.

#### 1.1 Purpose

The purpose of this document is to provide dimensions for three fuel tank filler cap types (vented, non-vented, and pressure-vacuum) and the corresponding cap retainers. Use of these dimensions preclude the use of a vented or non-vented cap with a pressure-vacuum cap retainer. In addition, these dimensions ensure that a pressure-vacuum cap will not seal to a vented cap retainer. These dimensions will, however, allow the use of a pressure-vacuum cap on a non-vented cap retainer. (See Tables 1A and 1B and Figures 1 and 2.)

### 2. REFERENCES

#### 2.1 Applicable Documents

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 +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

SAE J285 Dispenser Nozzle Spouts for Liquid Fuels Intended for Use with Spark Ignition and Compression Ignition Engines

SAE J1140 Filler Pipes and Openings of Motor Vehicle Fuel Tanks

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## 2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

### 2.2.1 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 13331 Road Vehicles - Filler Pipes and Openings of Motor Vehicle Fuel Tanks - Vapor Recovery Systems

## 3. DEFINITIONS

### 3.1 GASKET SEALING SURFACE

Sealing surface for cap seal/gasket, as well as for boot-style Stage 2/EVR nozzles, as called out in SAE J285. The sealing surface requires a relatively flat surface between 46.3 and 57.9 mm, within 0.25 mm TIR.

### 3.2 NOZZLE LATCHING LIP

Nozzle latching lip, also known as anchor lip or locking lip, is the location where the nozzle anchor interfaces the filler pipe for retention during a refueling event.

## 4. REQUIREMENTS

### 4.1 Nozzle Latching Lip

Primary nozzle latching lip must be oriented in the filler pipe to be within 4.0 to 11.0 mm from the gasket sealing surface. The nozzle latching lip shall be at least 100 degrees of the inside circumference of the filler pipe. The latching lip shall be orientated such that it extends at least 35 degrees to either side of the reference plane in Figure 3.

### 4.2 External Clearance to the Fuel Nozzle

Refer to SAE J1140 for filler pipe clearance and acceptance criteria.

### 4.3 Allowable Interface Leakage During Refueling with Vapor Recovery Systems

Refer to SAE J1140 for procedure and acceptance criteria.

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**Table 1A - Cap and retainer dimensions (A through F)**

Nominal Filler Pipe Size (at Fuel Inlet) Millimeters	Nominal Filler Pipe Size (at Fuel Inlet) Inches	A Millimeters	A Inches	B Millimeters	B Inches	C Millimeters	C Inches	D Millimeters	D Inches	E Millimeters	E Inches	F Millimeters	F Inches
<b>Non-Vented</b>													
44.5 <sup>(1)</sup>	1.75 <sup>(1)</sup>	30.7-31.2	1.21-1.23	37.1-37.8	1.46-1.49	11.9-13.0	0.47-0.51	7.1-7.9	0.28-0.31	9.1-9.7	0.36-0.38	0.3-0.8	0.01-0.03
50.8	2.00	34.8-35.6	1.37-1.40	41.7-42.9	1.64-1.69	11.9-13.0	0.47-0.51	7.6-8.4	0.30-0.33	9.9-10.4	0.39-0.41	0.3-0.8	0.01-0.03
57.2	2.25	38.6-39.4	1.52-1.55	48.3-49.8	1.90-1.96	11.9-13.0	0.47-0.51	8.6-9.4	0.34-0.37	11.4-12.2	0.45-0.48	0.3-0.8	0.01-0.03
<b>Vented</b>													
44.5 <sup>(1)</sup>	1.75 <sup>(1)</sup>	30.7-31.2	1.21-1.23	37.1-37.8	1.46-1.49	6.6-7.6	0.26-0.30	3.3-4.1	0.13-0.16	5.1-5.6	0.20-0.22	0.3-0.8	0.01-0.03
50.8	2.00	34.8-35.6	1.37-1.40	41.7-42.9	1.64-1.69	6.6-7.6	0.26-0.30	2.8-3.6	0.11-0.14	5.1-5.6	0.20-0.22	0.3-0.8	0.01-0.03
57.2	2.25	38.6-39.4	1.52-1.55	48.3-49.8	1.90-1.96	6.6-7.6	0.26-0.30	2.3-3.0	0.09-0.12	5.1-5.6	0.20-0.22	0.3-0.8	0.01-0.03
<b>Pressure-Vacuum</b>													
50.8	2.00	34.8-35.6	1.37-1.40	41.7-42.9	1.64-1.69	6.6-7.6	0.26-0.30	7.6-8.4	0.30-0.33	9.9-10.4	0.39-0.41	0.3-0.8	0.01-0.03
57.2	2.25	38.6-39.4	1.52-1.55	48.3-49.8	1.90-1.96	6.6-7.6	0.26-0.30	8.6-9.4	0.34-0.37	11.4-12.2	0.45-0.48	0.3-0.8	0.01-0.03

<sup>(1)</sup> The 44.5-mm (1.75-inch) filler pipe inlet size is not recommended for passenger cars and trucks. Application refers to SAE J1140.

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**Table 1B - Cap and retainer dimensions (G through Deg X)**

Nominal Filler Pipe Size (at Fuel Inlet) Millimeters	Nominal Filler Pipe Size (at Fuel Inlet) Inches	G Millimeters	G Inches	H, Min Millimeters	H, Min Inches	J Millimeters	J Inches	K Millimeters	K Inches	L Millimeters	L Inches	Deg X ±4
<b>Non-Vented</b>												
44.5 <sup>(1)</sup>	1.75 <sup>(1)</sup>	12.2-13.0	0.48-0.51	3.0	0.12	35.6-36.3	1.40-1.43	29.7-30.2	1.17-1.19	9.1-10.2	0.36-0.40	130
50.8	2.00	13.7-14.5	0.54-0.57	3.0	0.12	39.9-41.4	1.57-1.63	33.8-34.5	1.33-1.36	9.1-10.2	0.36-0.40	140
57.2	2.25	15.2-16.0	0.60-0.63	3.0	0.12	45.7-47.2	1.80-1.86	37.6-38.4	1.48-1.51	9.1-10.2	0.36-0.40	140
<b>Vented</b>												
44.5 <sup>(1)</sup>	1.75 <sup>(1)</sup>	7.6-8.4	0.30-0.33	30	0.12	35.6-36.3	1.40-1.43	29.7-30.2	1.17-1.19	5.3-6.1	0.21-0.24	130
50.8	2.00	7.6-8.4	0.30-0.33	3.0	0.12	39.9-41.4	1.57-1.63	33.8-34.5	1.33-1.36	5.3-6.1	0.21-0.24	140
57.2	2.25	7.6-8.4	0.30-0.33	3.0	0.12	45.7-47.2	1.80-1.86	37.6-38.4	1.48-1.51	5.3-6.1	0.21-0.24	140
<b>Pressure-Vacuum</b>												
50.8	2.00	13.7-14.5	0.54-0.57	3.0	0.12	39.9-41.4	1.57-1.63	33.8-34.5	1.33-1.36	5.3-6.1	0.21-0.24	140
57.2	2.25	15.2-16.0	0.60-0.63	3.0	0.12	45.7-47.2	1.80-1.86	37.6-38.4	1.48-1.51	5.3-6.1	0.21-0.24	140

<sup>(1)</sup> The 44.5-mm (1.75-inch) filler pipe inlet size is not recommended for passenger cars and trucks. Application refers to SAE J1140.

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