

**Disposable Hydraulic Filter Elements—21 MPa Collapse Pressure,  
Filtration Ratio = 75 at 10 µm, 75 to 175 L/Min**

**Foreword**—The following document numbering convention was established to accommodate currently used military part numbers:

In the part number, “J2321/3” is used rather than “J2321-3” to more clearly indicate that the part number is defined in SAE J2321-3 and not in the SAE J2321 General Specification.

**1. Scope**—This specification sheet establishes requirements for high collapse pressure configuration filter elements of several configurations with a minimum filtration ratio of 75 for particles larger than 10 µm when designed and tested in accordance with SAE J2321 and this specification sheet.

**1.1 Part or Identifying Number**—Filter elements can be identified and ordered using part identifying numbers as follows:

J2321/3–C10–F

|         |   |
|---------|---|
| J2321/3 | Specification Sheet Number (SAE J2321-3) see the Foreword                     |
| –C10    | Dash Number for Filter Element Configuration and Rating (see 1.1.1 and 1.1.2) |
| –F      | O-ring Material (C size only)   |

EXAMPLE—J2321/3–C10–F is for a configuration C element with filtration ratio >75 for particles larger than 10 µm(c) with a fluorocarbon O-ring.

**1.1.1 FILTER ELEMENT SIZE AND CONFIGURATION**—The following sizes and corresponding configurations are covered:

A = Figure 1 Configuration  
C = Figure 2 Configuration  
D = Figure 3 Configuration

**1.1.2 FILTRATION RATIO**—(Currently only the following rating is covered.)

10 = Minimum Filtration Ratio of 75 for particles greater than 10 µm(c)

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- 1.1.3 **SEAL MATERIAL**—The O-ring to be supplied with the C Size element shall be of the size specified in 3.13 and with material as designated as follows:

No designation = Supplied without O-ring  
F = Fluorocarbon rubber per SAE AS3209-132  
N = Nitrile rubber per AMS-P-83461/1-132  
X = Seal material as designated by purchaser

- 1.2 **Rationale**—This document has been reaffirmed to comply with the SAE 5-Year Review policy.

## 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 the applicable publication, or its replacement shall apply.

- 2.1.1 **SAE PUBLICATIONS**—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

SAE J2321—Ship Systems and Equipment—General Specification for Filter Elements—Hydraulic and Lube Oil Service  
SAE AMS-P-83461/1—Packing, Preformed, Petroleum Hydraulic Fluid Resistant, Improved Performance at 275 Deg F (135 Deg C) Sizes and Tolerances  
SAE AS3209—Packing, Preformed – AMS 7276, 'O' Ring

- 2.1.2 **ISO PUBLICATIONS**—Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

ISO 12103-1—Road vehicles—Test dust for filter evaluation—Part 1: Arizona test dust

## 3. Requirements

- 3.1 **Design, Materials, and Testing**—Design, materials, and testing shall be in accordance with the general specification, SAE J2321, and the requirements of this specification sheet.

- 3.2 **Configuration and Dimensions**—The element configuration and dimensions shall be in accordance with the applicable Figure.

- 3.3 **Rated Flow**—Rated flow with a petroleum base fluid with a viscosity of 68 mm<sup>2</sup>/s (68 cSt) as indicated for each configuration element.

A = 175 L/min  
C = 150 L/min  
D = 75 L/min

- 3.4 **Dirt Holding Capacity**—The apparent dirt holding capacity when tested with ISO 12103-1 A3 Medium Test Dust shall be as indicated as follows, at rated flow to a differential pressure not exceeding 200 kPa (29 lb/in<sup>2</sup>) when tested with a fluid with a viscosity not less than 15 mm<sup>2</sup>/s (15 cSt).

A = 24 g  
C = 18 g  
D = 15 g

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- 3.5 Filtration Ratio**—The minimum filtration ratio for the multi-pass test shall not be less than 75 for particles 10 µm and larger with an ingestion rate of 3 mg/L.
- 3.6 Terminal Pressure Drop for Determining Filtration Ratio**—The element shall be tested at rated flow with 15 mm<sup>2</sup>/s fluid at differential pressures to 1600 kPa (232 lb/in<sup>2</sup>).
- 3.7 Clean Element Pressure Drop**—The pressure differential across a clean element with rated flow of 68 mm<sup>2</sup>/s (68 cSt) fluid shall not exceed 200 kPa (29 lb/in<sup>2</sup>).
- 3.8 Collapse Pressure**—The element shall withstand a minimum collapse pressure of 21 MPa (3045 lb/in<sup>2</sup>).
- 3.9 Reverse Flow Pressure**—The element shall withstand a minimum differential pressure of 140 kPa (20 lb/in<sup>2</sup>) in the reverse flow direction.
- 3.10 Flow Fatigue Cycles**—The element shall be subjected to 45 000 flow fatigue cycles at a differential pressure of 700 kPa (100 lb/in<sup>2</sup>) followed by 5000 cycles at a differential pressure of 2.0 MPa (290 lb/in<sup>2</sup>).
- 3.11 Media Migration/Vibration Testing**—When subjected to media migration/vibration testing, media migration and built-in contamination shall not exceed 5.0 mg.
- 3.12 Magnetic permeability**—Unless specifically waived by the procuring activity, the relative magnetic permeability shall be less than 2.0.
- 4. General Notes**—This section contains information of a general or explanatory nature that may be helpful but is not a requirement of the specification.
- 4.1** These elements are intended to replace elements previously procured to MIL-F-24402/4 as indicated in Table 1. The MIL-F-24402/4 elements had a higher collapse pressure of 27.6 MPa (4000 lb/in<sup>2</sup>) with similar efficiency requirements.

**TABLE 1—PART NUMBER—CROSS REFERENCE**

| MIL-F-24402/4 Part Number | J2321/3 Part Number |
|---------------------------|---------------------|
| M24402/4 Size A           | J2321/3–A10         |
| M24402/4 Size C           | J2321/3–C10         |
| M24402/4 Size D           | J2321/3–D10         |

**TABLE 2—DIMENSIONS FOR J2321/3–A10 ELEMENT (FIGURE 1)**

| Dimension | Millimeters                | Millimeters | Inches                       | Inches  |
|-----------|----------------------------|-------------|------------------------------|---------|
|           | Minimum                    | Maximum     | Minimum                      | Maximum |
| Dia A     | 31.0                       | 32.5        | 1.22                         | 1.28    |
| B         | 18.3                       | 19.8        | 0.72                         | 0.78    |
| C         | 274.6                      | 277.9       | 10.81                        | 10.94   |
| D         | 15.1                       | 16.7        | 0.59                         | 0.66    |
| E         | 36.6 D x 11.9 Min Depth    | 39.6 D      | 1.44 D x 0.47 deep           | 1.56 D  |
| Dia F     | 44.40                      | 44.50       | 1.748 D                      | 1.752   |
| Dia G     | —                          | 65.5        | —                            | 2.58    |
| Dia H     | 76.2 D                     | 77.07       | 3.00                         | 3.06    |
| J         | 3 x 15 degrees Min Chamfer | —           | 1/8 x 15 degrees Min Chamfer | —       |

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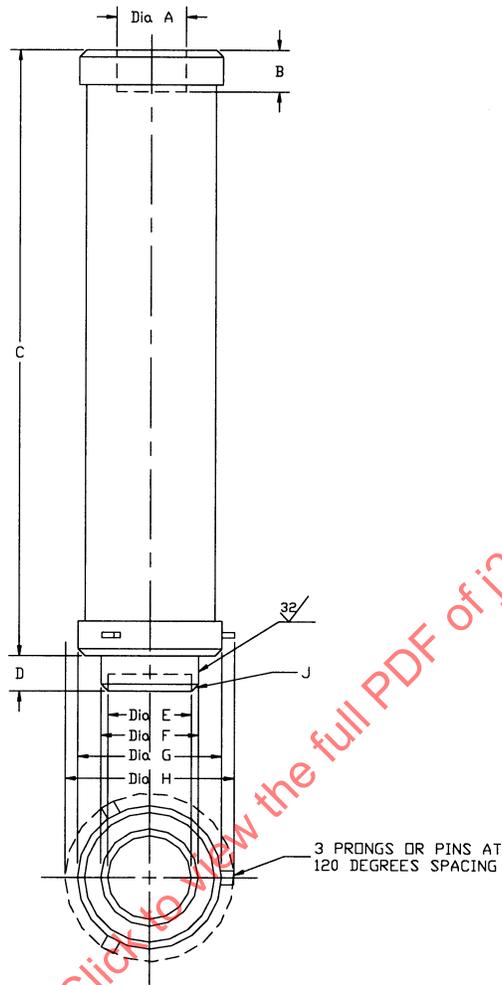


FIGURE 1—J2321/3—A10 FILTER ELEMENT

TABLE 3—DIMENSIONS FOR J2321/3—C10 ELEMENT (FIGURE 2)

| Dimension      | Millimeters<br>Minimum | Millimeters<br>Maximum | Inches<br>Minimum | Inches<br>Maximum |
|----------------|------------------------|------------------------|-------------------|-------------------|
| Dia A          | 50.8                   | 52.4                   | 2.000             | 2.062             |
| Dia B          | 44.45                  | 44.50                  | 1.750             | 1.752             |
| C              | 19.1                   | —                      | 0.75              | —                 |
| D              | 2.41                   | 2.67                   | 0.095             | 0.105             |
| E              | 15.9                   | —                      | 0.625             | —                 |
| F              | 236.9                  | 238.1                  | 9.328             | 9.375             |
| G              | 10.3                   | —                      | 0.406             | —                 |
| Dia H          | 55.30                  | 55.55                  | 2.177             | 2.187             |
| Dia J          | —                      | 63.5                   | —                 | 2.5               |
| O-Ring Gland   |                        |                        |                   |                   |
| Width          | 3.58                   | 3.84                   | 0.141             | 0.151             |
| Diameter       | 48.84                  | 48.90                  | 1.923             | 1.925             |
| Surface Finish | 1.6 $\mu$ m            | 1.6 $\mu$ m            | 63 $\mu$ in       | 63 $\mu$ in       |