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SURFACE VEHICLE STANDARD

SAE J2321-3

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Submitted for recognition as an American National Standard

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

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 Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096. Telephone: (724) 776-4970, Web address: 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, 11 West 42nd Street, New York, NY 10028-0001. Web address: 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^2/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^2) when tested with a fluid with a viscosity not less than 15 mm^2/s (15 cSt).

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

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 ingression 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^2/s fluid at differential pressures to 1600 kPa (232 lb/in^2).

3.7 Clean Element Pressure Drop—The pressure differential across a clean element with rated flow of 68 mm^2/s (68 cSt) fluid shall not exceed 200 kPa (29 lb/in^2).

3.8 Collapse Pressure—The element shall withstand a minimum collapse pressure of 21 MPa (3045 lb/in^2).

3.9 Reverse Flow Pressure—The element shall withstand a minimum differential pressure of 140 kPa (20 lb/in^2) 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^2) followed by 5000 cycles at a differential pressure of 2.0 MPa (290 lb/in^2).

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^2) 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 Minimum	Millimeters Maximum	Inches Minimum	Inches 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	—

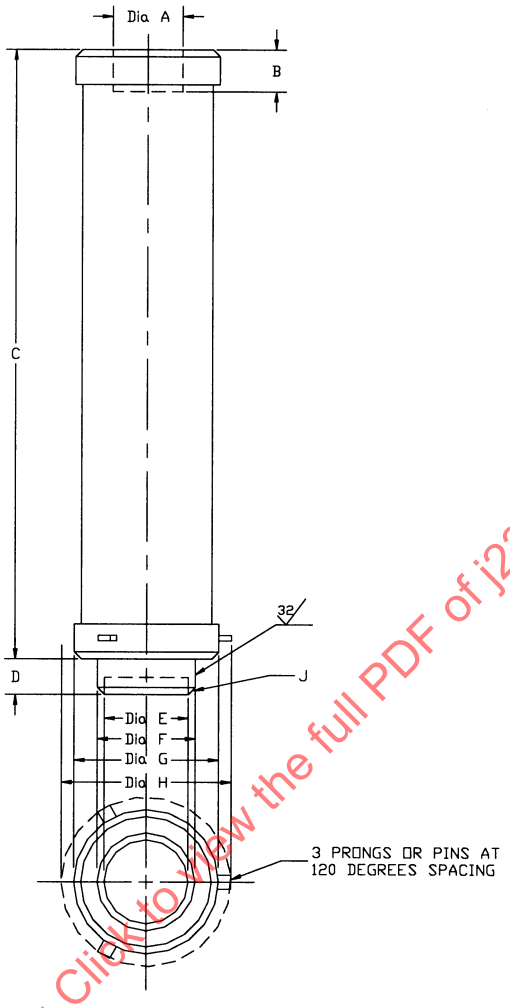

FIGURE 1—J2321/3–A10 FILTER ELEMENT

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

Dimension	Millimeters Minimum	Millimeters Maximum	Inches Minimum	Inches 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 µm	1.6 µm	63 µin	63 µin

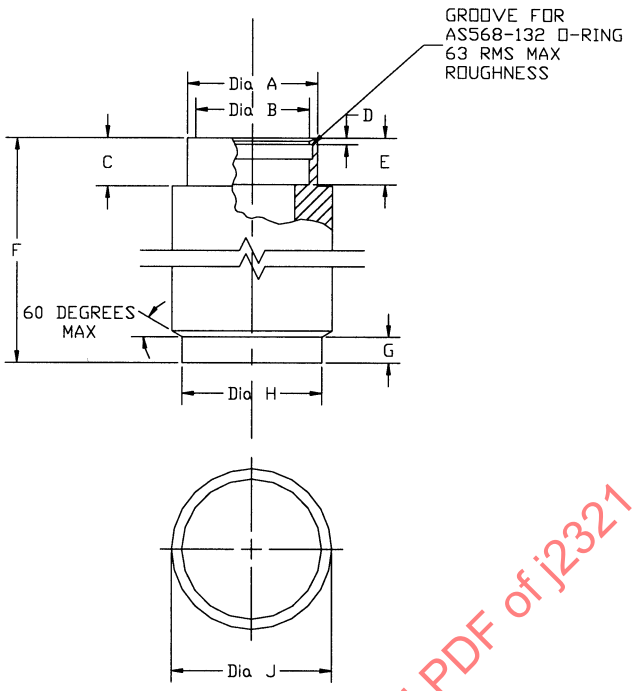

FIGURE 2—J2321/3–C10 FILTER ELEMENT

TABLE 4—DIMENSIONS FOR SAE J2321/3–D10 ELEMENT (FIGURE 3)

Dimension	Millimeters Minimum	Millimeters Maximum	Inches Minimum	Inches Maximum
Dia A	50.04	50.29	1.970	1.980
B	25.27 Min Dia for first 23.8 from end	—	0.995 Min Dia for first .937 from end	—
Dia C	—	46.86	—	1.845
Dia D	34.82	34.87	1.371	1.373
E	1.40	1.47	0.055	0.058
Dia F	29.34	—	1.155	—
Radius G	0.75	—	0.030	—
H	0.75 x 45 degrees Min Cham	—	.030 x 45 degrees Min Cham	—
J	19.3	—	0.760	—
Radius K	—	0.76	—	.030
L	8.38	8.64	0.330	0.340
M	276.5	278.1	10.885	10.949
N	—	48.0	—	1.89
P	—	45.2 Max for first 22.2 from end	—	1.780 Max for first 0.875 from end
R	0.75	1.02 Max	0.030	0.040
Radius S	0.25	0.38	0.010	0.015
Radius T	—	0.13	—	0.005
U	0.30 TIR	0.30 TIR	0.012 TIR	0.012 TIR
V	3.94	4.19	0.155	0.165
Finish	0.8 µm	0.8 µ m	32 µin	32 µin
Finish	1.6 µm	1.6 µm	63 µ in	63 µin