SAE International™ SURFACE VEHICLE STANDARD

SAE J2321-1 REAF. JAN2006

Issued 2000-03
Reaffirmed 2006-01

Superseding J2321-1 MAR2000

Disposable Hydraulic Filter Element—115 L/min Flow, 1.0 MPa Collapse Pressure, Filtration Ratio = 75 at 6 and 10 µm

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

In the part number, "J2321/1" is used rather than "J2321-1" to more clearly indicate that the part number is defined in SAE J2321-1 and not in the SAE J2321 General Specification.

1. Scope—This specification sheet establishes requirements for low collapse pressure elements of a specific configuration with various efficiency ratings designed and tested in accordance with SAE J2321 and the requirements of this specification sheet.

1.1 Classification

1.1.1 FILTER ELEMENTS—Filter elements covered by this specification sheet shall be designated using part or identifying numbers (PIN's) as follows:

J2321/1–6–X

J2321/1	Specification Sheet Number (SAE J2321-1) see the Foreword.
–6	Dash No. for Filter Rating (see Table 1)
–X	O-Ring Material (see 1.1.2)

EXAMPLE 1—J2321/1–6–F is an element with the configuration in accordance with SAE J2321-1 with a minimum Filtration Ratio of 75 for particles 6 µm and larger and supplied with fluorocarbon rubber seals.

EXAMPLE 2—J2321/1–10 is an element with the configuration in accordance with SAE J2321-1 with a minimum Filtration Ratio of 75 for particles 10 µm and larger and is supplied without any O-rings.

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TABLE 1—SAE J2321/1 FILTER ELEMENT RATINGS

Dash No.	Micrometer Rating µm(c)	Filtration Ratio (Min)	Minimum Dirt Capacity (grams)	Terminal Pressure 15 mm^2/s Fluid Viscosity (kPa)	Rated Flow with 68 mm^2/s Fluid Viscosity L/min	Rated Flow with 68 mm^2/s Fluid Viscosity gpm
–6	6	75	35	300	115	30
–10	10	75	35	300	115	30

1.1.2 SEAL MATERIALS—The O-rings shall be of a SAE AS568 standard size and the material for the O-ring seals shall be designated as follows:

No designation = Supplied without O-rings
–F = Fluorocarbon rubber (see 3.1.11)
–N = Nitrile per AMS-R-83461/1 (see 3.1.11)
–X = Seal material as designated by purchaser

1.1.3 ELEMENT CONNECTOR—The part number consists of the basic number of this specification sheet number plus a dash and the letter “C” to designate the element connector.

EXAMPLE—SAE J2321/1–C identifies the filter element connector

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.

SAE J2066—Filter and Filter Element for Hydraulic System(s) Used on Manufacturing and Assembly Equipment
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 AS568—Aerospace Size Standard for O-Rings
SAE AS3209—Packing, Preformed – AMS 7276, “O”-Ring
SAE AS4716—Aerospace Standard, Gland Design, O-Ring and Other Elastomeric Seals

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.

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

3. Requirements

3.1 Elements

3.1.1 FILTRATION RATIO—Elements shall be of the applicable minimum Filtration Ratio with performance parameters as listed in Table 1 when tested in accordance with SAE J2321.

3.1.2 CONFIGURATION AND DIMENSIONS—Element configuration and dimensions shall be in accordance with Figure 1 and Table 2.

3.1.3 RATED FLOW—Rated flow with a petroleum base fluid with a viscosity of 68 mm^2/s (68 cSt) shall be in accordance with the requirements of Table 1.

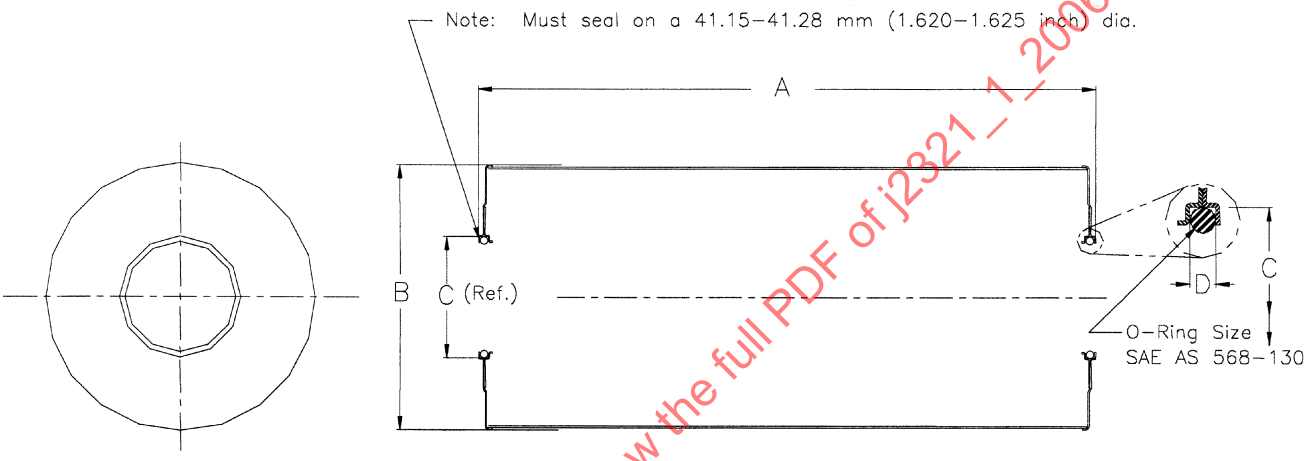

FIGURE 1—FILTER ELEMENT CONFIGURATION

TABLE 2—DIMENSIONS OF FILTER ELEMENTS

	A Min	A Max	B Min	B Max	C(1) Min	C(1) Max	D(1) Min	D(1) Max
Inch	9.19	9.31	—	3.97				
Millimeter	233.4	236.5	—	101.0				
Inch	Gland for SAE AS568–130 O-ring				1.79	1.80	0.14	0.15
Millimeter	Gland for SAE AS568–130 O-ring				45.5	45.7	3.5	3.8
Inch	Alternate Gland for SAE AS568–223 O-ring				1.86	1.87	0.19	0.20
Millimeter	Alternate Gland for SAE AS568–223 O-ring				47.2	47.5	4.8	5.1

1. Gland Dimensions “C” and “D” are suggested for two standard O-ring sizes. Other gland dimensions and O-ring sizes can be used provided that a minimum squeeze of 0.125 mm (0.005 in) is obtained under the most adverse tolerances conditions of the gland, mating connector tube and the seal dimensions when calculated in accordance with SAE AS4716.

3.1.4 DIRT HOLDING CAPACITY—The apparent dirt holding capacity when tested with ISO 12103-1 A3 Medium Test Dust shall be in accordance with Table 1.

3.1.5 TERMINAL PRESSURE DROP—The specified terminal pressure drop for determining compliance with the dirt holding capacity shall be in accordance with Table 1.

3.1.6 CLEAN ELEMENT PRESSURE DROP—Clean element pressure differential at rated flow with 68 mm^2/s (68 cSt) fluid shall not exceed 70 kPa (10 lb/in^2).

3.1.7 COLLAPSE PRESSURE—The minimum differential collapse pressure of the elements shall not be less than 1.000 MPa (145 lb/in^2).

3.1.8 REVERSE FLOW PRESSURE—The elements shall withstand a minimum differential pressure in the reverse flow direction of 100 kPa (14.5 lb/in^2).

3.1.9 MEDIA MIGRATION/VIBRATION TESTING—When subjected to vibration testing, media migration and built-in contamination shall not exceed 5.0 mg.

3.1.10 FLOW FATIGUE CYCLES—The element shall be subject to 50 000 cycles at the terminal pressure (differential specified) in Table 1.

3.1.11 O-RINGS—Fluorocarbon O-rings shall be in accordance with SAE AS3209. Nitrile O-rings shall be in accordance with SAE AMS-P-83461/1. Purchaser must specify seal material when "–X" suffix is used to designate the material.

3.2 Elements Connectors

3.2.1 Element connector shall be as specified on Figure 2 and in Table 3.

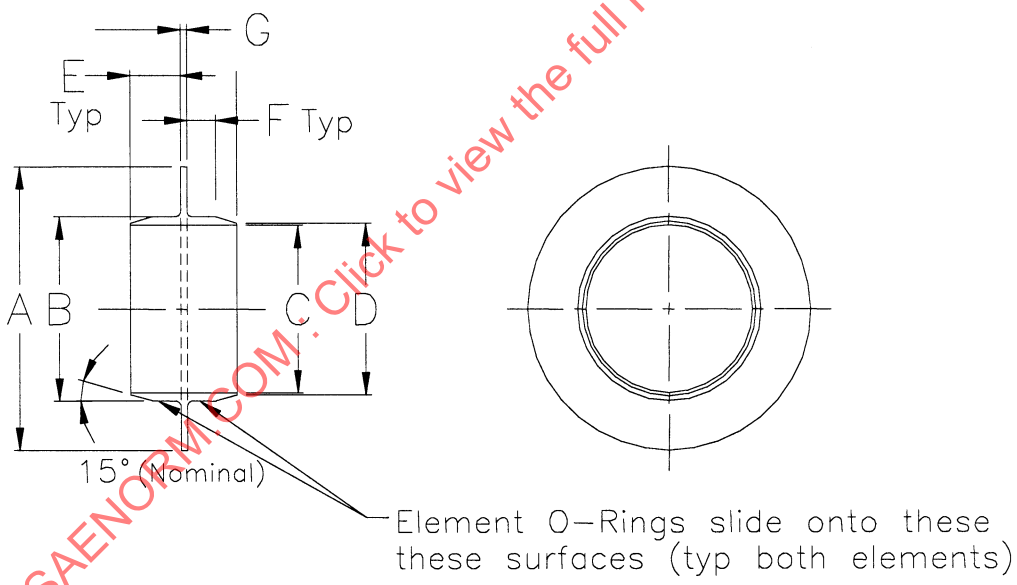

FIGURE 2—ELEMENT CONNECTOR

TABLE 3—DIMENSIONS OF ELEMENTS CONNECTORS

	A	B Min	B Max	C Min	C Max	D Min	D Max	E	F	G Nominal
Inches	2.50	1.62	1.63	1.47	1.48	1.50	1.51	0.44	0.25	0.06
Millimeters	63.5	41.2	41.3	37.3	37.6	38.1	38.4	11.2	6.4	1.5

3.2.2 Material shall be nylon or other non-metallic material shown to be compatible with the fluids when tested as specified in 5.6.8 of SAE J2321.