

INCH-POUND

MIL-DTL-24402/2A

11 February 2014

SUPERSEDING

MIL-F-24402/2(SH)

3 April 1990

DETAIL SPECIFICATION SHEET
FILTER HOUSINGS, HYDRAULIC, DUPLEX

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-24402.

CLASSIFICATION. The dual-bowl filter housings covered by this specification sheet shall be designated using part or identifying numbers (PINs) as follows:

<u>M</u>	<u>24402</u>	<u>/2</u>	<u>N</u>	<u>L</u>	:	<u>WXYZ</u>
Prefix to indicate a military specification	Specification number	Applicable specification sheet	Type	Porting		Indicator form

Examples: M24402/2ND-M90 is a dual-bowl housing with selector valve, no bypass relief, left and right hand outlet ports, and mechanical pop-up indicators which actuate at 90 lb/in² differential.

M24402/2RS is a dual-bowl housing with selector valve, bypass relief, standard right hand outlet port, and no differential pressure indicators.

FILTER ASSEMBLY TYPE. The filter assembly type shall be designated by one of the following letters to indicate whether or not a bypass relief is installed:

- N - No bypass relief.
- R - Bypass relief installed.

PORTING.

- S - Standard right hand outlet (see [figure 1](#)).
- L - Left hand outlet (see [figure 1](#)).
- D - Dual outlet (both left and right outlets drilled). Unless otherwise specified (see [figure 1](#)), assembly shall be furnished with blind flange installed on left-hand outlet.

DIFFERENTIAL PRESSURE INDICATOR FORM. This dash number suffix is included in the part number when the filter assembly is to be acquired or used with a specific type of differential pressure indicator. See MIL-DTL-24402/5 for indicator dash numbers. For logistic support purposes, assemblies will be acquired and stocked without differential pressure indicators. In such cases, indicators will be ordered separately using the part number shown on MIL-DTL-24402/5.

PART NUMBER CROSS REFERENCE. [Table I](#) provides a cross reference between old (MIL-F-24402D and earlier) and new part numbers.

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TABLE I. Cross reference of part numbers.

New part numbers	Old part numbers	
	(Fatigue rated) ^{1/}	(Non-fatigue rated) ^{2/}
M24402/2NS	M24402-2N-BF-3 Right-hand outlet (Rev. D and Earlier)	M24402-2N-BF-0
M24402/2NL	M24402-2N-BF-3 Left-hand outlet (Rev. D and Earlier)	M24402-2N-BF-0 Left-hand outlet (configuration not qualified but exists)
M24402/2ND	M24402-2N-BF-3 (Rev. D, Amendment 1)	
M24402/2RS	M24402-2R-BF-3 ^{1/} Right-hand outlet	M24402-2R-BF-0 Right-hand outlet
M24402/2RD	M24402-2R-BF-3 (Rev. D, Amendment 1)	
M24402/2RL		
NOTES: ^{1/} If a differential pressure indicator is to be acquired with the filter assembly, add the appropriate indicator dash number suffix from MIL-DTL-24402/5. ^{2/} Add E, G, or M depending on the form of differential pressure indicator acquired with the filter assembly, as follows: E - Electrical with mechanical pop-up indicator. G - Gauge type indicator. M - Mechanical pop-up indicator.		

SUBSTITUTION OF ASSEMBLIES. Assemblies with new part numbers may be substituted for all assemblies with old part numbers as shown in [table I](#). Only assemblies with old part numbers that are fatigue rated may be substituted for assemblies with new part numbers. Unless prevented by the thickness of the blind flange, the fatigue rated assemblies with left and right dual outlet ports may be substituted for either left or right hand outlet port assemblies.

REQUIREMENTS.

- a. Configuration. The filter assemblies shall meet the dimensional requirements shown on [figure 1](#).
 - (1) Type N assemblies. Type N filter assemblies shall be in accordance with the schematic shown on [figure 2](#).
 - (2) Type R assemblies. Type R filter assemblies shall be in accordance with the schematic shown on [figure 3](#). Type R assemblies shall be similar to Type N assemblies except that they shall include a bypass relief valve which will automatically bypass fluid around the filter elements when a specified differential pressure is reached.
 - (3) Inlet and outlet ports. The inlet and outlet ports of the filter assemblies shall be in accordance with the porting detail dimensions shown on [figure 4](#). For assemblies with two outlet ports, a blind flange in accordance with MIL-DTL-24704 and MIL-F-24704/4 shall be installed on the specified port utilizing an insert sleeve in accordance with MIL-DTL-24704 and MIL-F-24704/5.

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- (4) Selector valve cover plate fasteners. A minimum of eight fasteners per MS20008H10 or better with washers per MS14155-8 or better shall be used to secure the selector valve cover plate to the housing. Cover plate fasteners shall be lockwired throughout in accordance with NASM33540. Fastener torque values shall be as specified (see 6.2 of MIL-DTL-24402).
- (5) Filter element size. The filter housings shall utilize Size B elements in accordance with SAE-J2321/2 as identified by PIN J2321/2-7-F.
- b. Maximum rated operating pressure. The filter assemblies shall have a maximum rated operating pressure of 3,000 lb/in².
- c. Rated flow capacity. The filter assemblies shall have a rated flow capacity of 100 gallons per minute.
- d. Performance.
- (1) Bypass relief requirements. Type R assemblies shall have bypass relief valve settings as specified in [table II](#).

TABLE II. Bypass relief valve setting.

Test condition	Pressure (lb/in ²)	Test fluid temperature (°F [°C])	Leakage rate (ounces/min [mL/min])
			MIL-PRF-17331
(a) Cracking pressure			
(1) Qualification	150 minimum	104 (40) maximum	0.34 (10) minimum
(2) Conformance	Not more than 5 lb/in ² higher than the actual cracking pressure for the qualification assembly.	68 to 140 (20 to 60)	0.34 (10) minimum
(b) Full flow (qualification only)	200 maximum	104 (40) maximum	N/A
(c) Reseat pressure			
(1) Qualification	120 minimum	104 (40) minimum	0.14 (4) maximum
(2) Conformance	120 minimum	68 to 140 (20 to 60)	0.14 (4) maximum

- (2) Fatigue impulse rating. The filter assemblies shall have a fatigue impulse rating of 3,000 lb/in² in accordance with NFPA T2.6.1.
- (3) Proof pressure. The filter assemblies shall withstand a proof pressure of 4,500 lb/in².
- (4) Housing pressure drop. At the maximum rated flow with MIL-PRF-17331 fluid, the housing pressure drop with minimum restriction dummy elements installed shall not exceed 35 lb/in² differential. Selector valve may be positioned to allow flow through both filtration circuits to meet this requirement.

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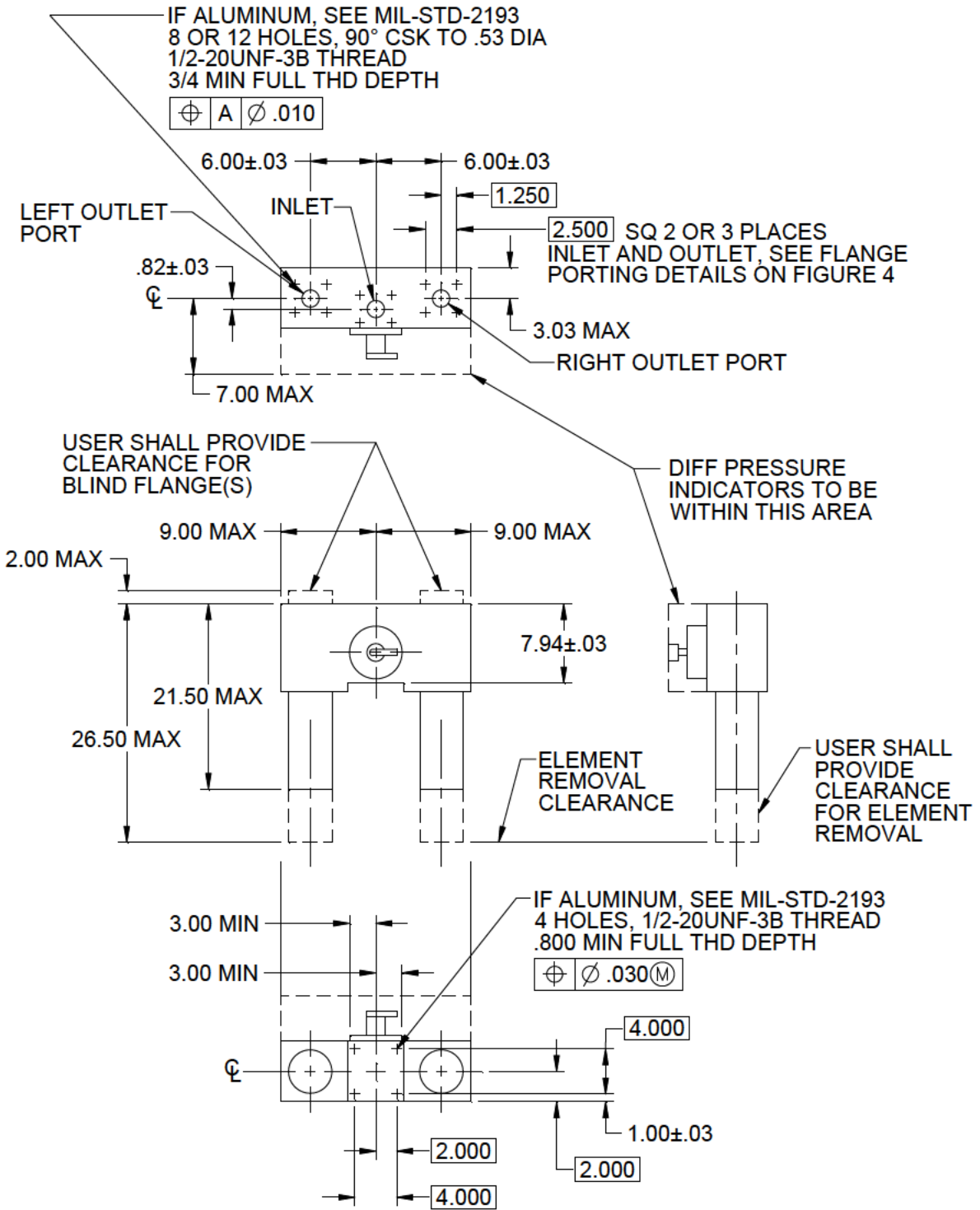


FIGURE 1. Duplex element filter housing outline dimensions.

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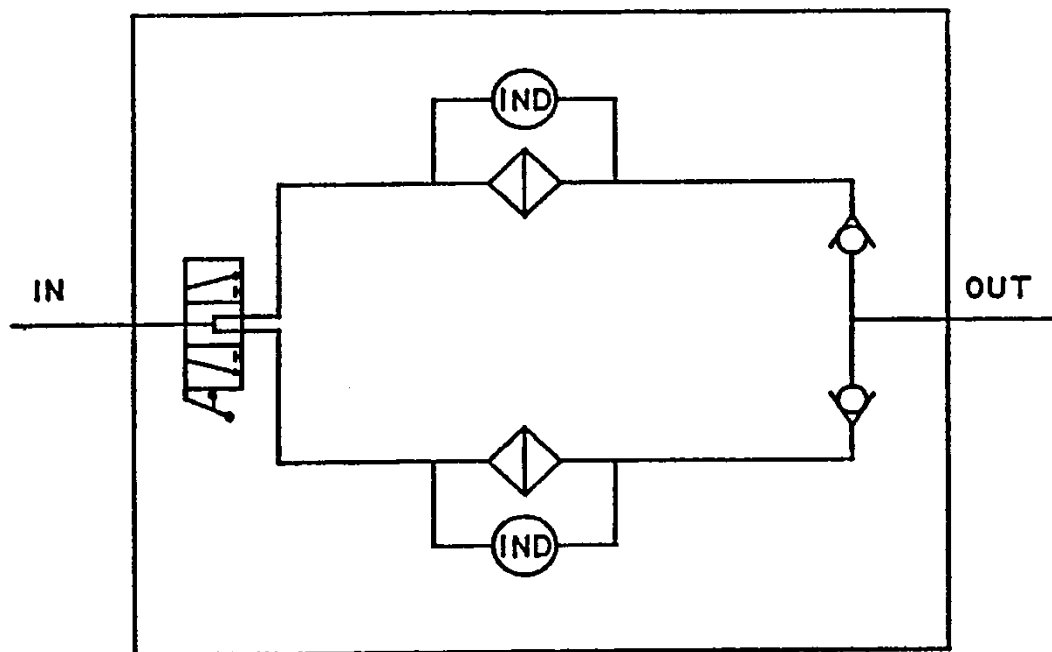


FIGURE 2. Schematic of type "N" filter assembly.

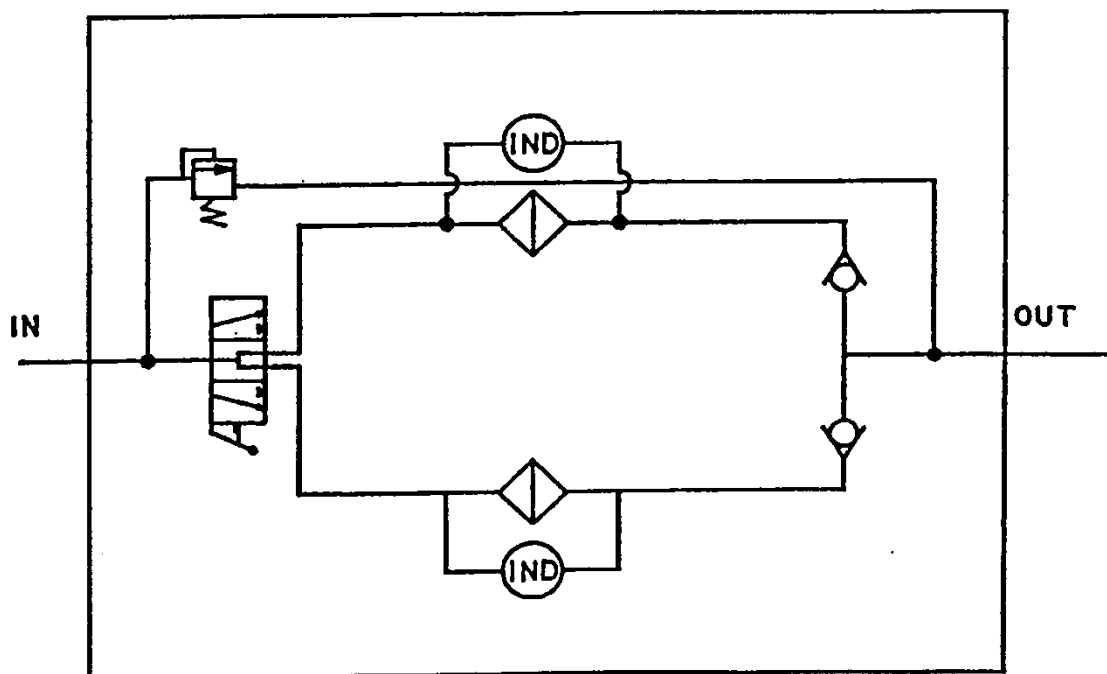
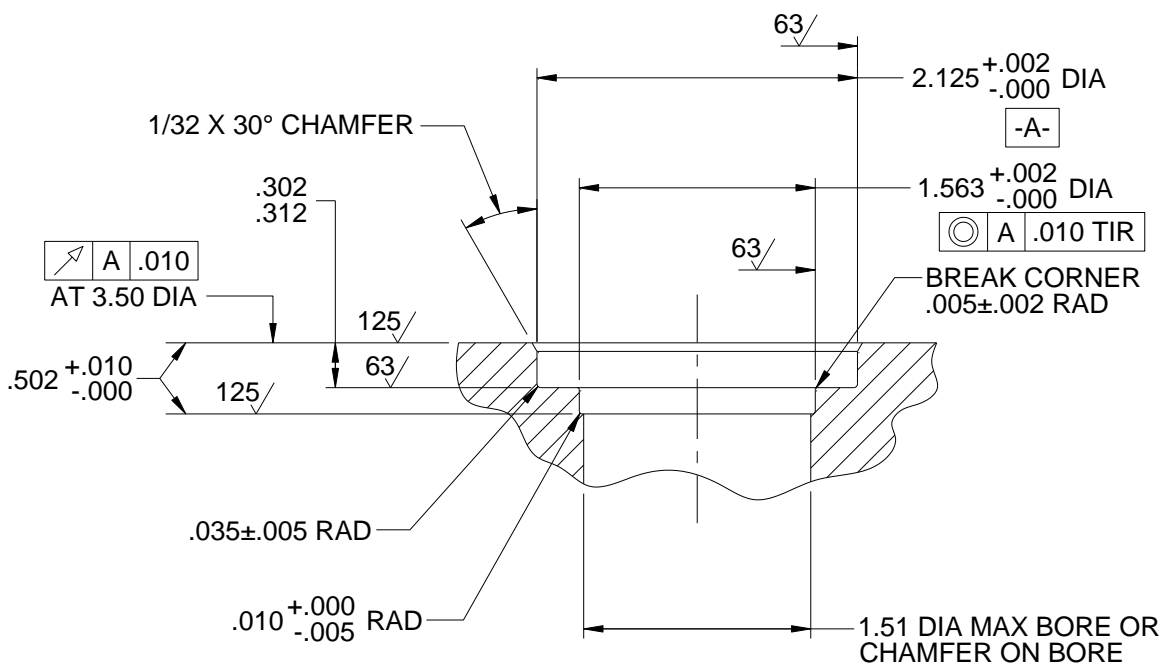


FIGURE 3. Schematic of type "R" filter assembly.

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FIGURE 4. Porting details for mating flanges.

CHANGES FROM PREVIOUS ISSUE. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
Navy – SH
Air Force – 99

Preparing activity:
Navy – SH
(Project 4330-2013-012)

Review activities:
Air Force – 84
DLA – CC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.