

INCH- POUND

MIL-S-24235/16B(SH)

28 December 1992

SUPERSEDING

MIL-S-24235/16A(SH)

21 August 1989

## MILITARY SPECIFICATION

STUFFING TUBES, METAL, AND PACKING ASSEMBLIES FOR  
ELECTRIC CABLES, CABLE SHEARING VALVE, HULL, PRESSUREPROOF,  
SYMBOLS 512, 512.1, 513, AND 513.1

This specification is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available 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 the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-S-24235.

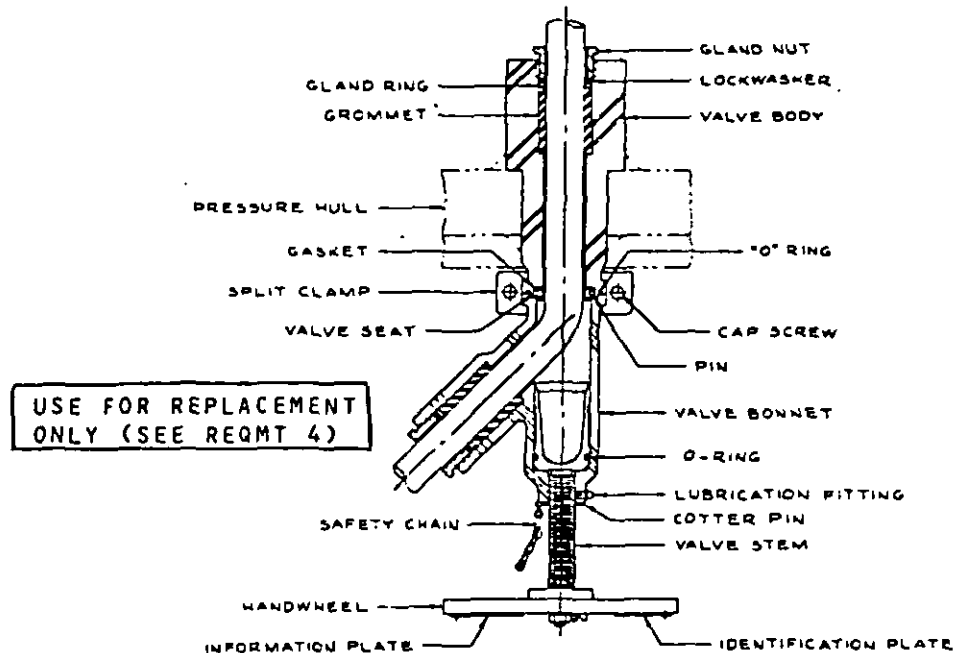


FIGURE 1. Cable shearing valve. (01)

## NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerances shall be as follows:
  - Decimals - plus or minus 0.005 inch.
  - Fractions - plus or minus 1/64 inch.
  - Angular dimensions - plus or minus 30 minutes.
  - Molded parts shall conform to MIL-HDBK-149.

AMSC N/A

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DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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TABLE I. Part or identifying numbers.

Assembly part or identifying number	Symbol number
M24235/16-001	512
M24235/16-002	512.1
M24235/16-003	513
M24235/16-004	513.1

TABLE II. Quantities for one assembly.

Assembly part or identifying number	Part or identifying numbers of components								
	Valve body 1 re- quired	Valve bonnet 1 re- quired	Valve stem 1 re- quired	Gland nut 2 re- quired	Lock-washer 2 re- quired	Split clamp 2 re- quired	Valve seat 1 re- quired	Hand-wheel 1 re- quired	O-ring 1 each
M24235/16-001	M24235 16-005	M24235 16-009	M24235 16-013	M24235 16-015	5/8 ID	M24235 16-019	M24235 16-021	M24235 16-023	ARP508-222
M24235/16-002	M24235 16-006	M24235 16-010		M24235 16-016	3/8 ID		M24235 16-020	M24235 16-022	M24235 16-024
M24235/16-003	M24235 16-007	M24235 16-011	M24235 16-014	M24235 16-017	7/8 ID	M24235 16-020	M24235 16-022	M24235 16-024	ARP568-226
M24235/16-004	M24235 16-008	M24235 16-012		M24235 16-018	1-1/8 ID		M24235 16-020	M24235 16-022	M24235 16-024

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TABLE III. Cable assignment and packing data.

Shear valve assembly part or identifying no.	Cable type	Cable (outside diameter)	Grommet part or identifying no. 2 required	Gland ring part or identifying no. 2 required
M24235/16-001	12 A/U	0.475	M24235/16-025	M24235/16-038
	MCOS-4	.510	M24235/16-026	M24235/16-039
	MHFF-4	.520		
	14 A/U	.545	M24235/16-027	M24235/16-040
M24235/16-002	MHFF-7	.627	M24235/16-028	M24235/16-041
	TTRS-2	.632		
	TTRS-4	.720	M24235/16-029	M24235/16-042
	28 B/U	.750	M24235/16-030	M24235/16-043
M24235/16-003	MHFF-10	.795	M24235/16-031	M24235/16-044
	28/U	.805		
	TTRS-6	.830	M24235/16-032	M24235/16-045
	MHFF-14	.844		
M24235/16-004	17 A/U	.870	M24235/16-033	M24235/16-046
	MHFF-19	.995	M24235/16-034	M24235/16-047
	TTRS-8	1.020	M24235/16-035	M24235/16-048
	MHFF-22	1.115	M24235/16-036	M24235/16-049
	MHFF-24	1.120		
	TTRS-10	1.150	M24235/16-037	M24235/16-050
	MHFF-26	1.156		

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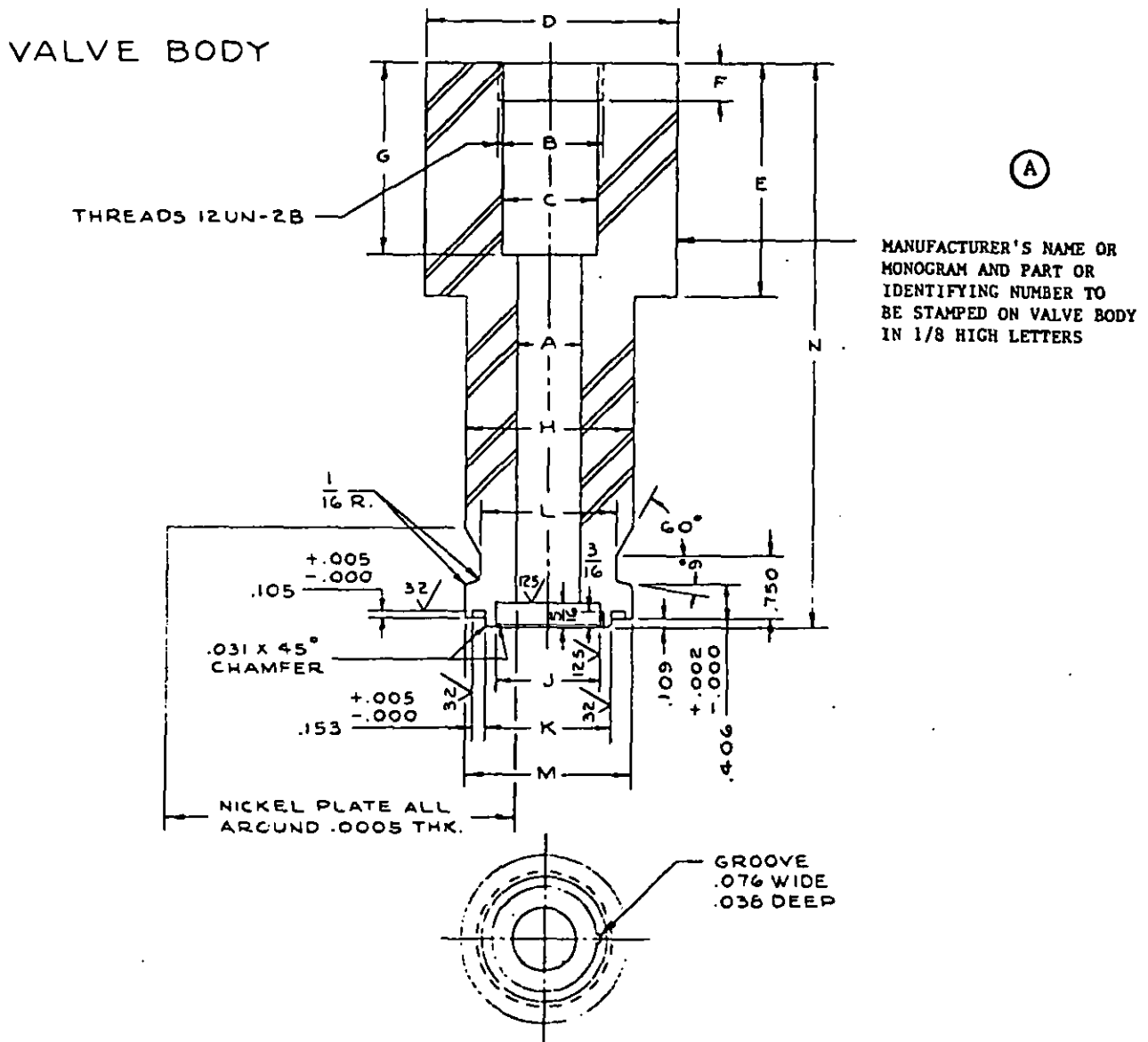


FIGURE 2. Valve body configuration. 02

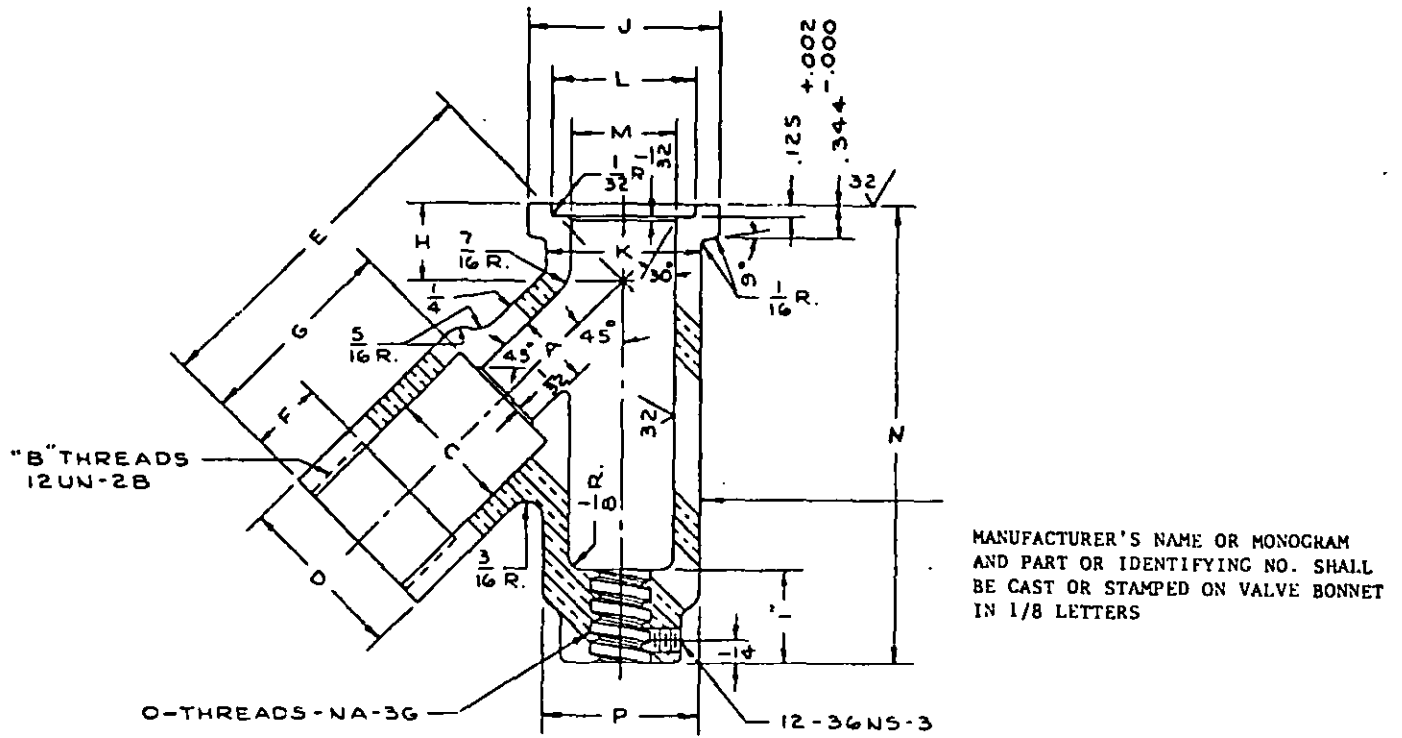
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TABLE IV. Valve body dimensions.

Part or identi- fying number	A <u>1</u> / DIA	B THDS	C DIA	D DIA	E	F	G	H DIA	J DIA	K DIA	L DIA	M DIA	N
M24235/ 16-005	0.515 .562 .593 .678	1.250	1.109			11/16	1-7/8						
M24235/ 16-006	.781 .812	1.438	1.327	3	2-3/4	3/4	2-3/16	2.055	1.200 +.000 -.004	1.500 1.502	1.625	2.000	6-11/ 16
M24235/ 16-007	.859 .890 .921 1.046	1.750	1.600			13/16	2-1/2						
M24235/ 16-008	1.078 1.171 1.203	2.000	1.892	3-1/2	3-3/8	7/8	2-13/16	2.555	1.780 +.000 -.004	2.000 2.002	2.125	2.500	7-5/ 16

1/ To suit cable outside diameter - see cable assignment chart (table III).

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FIGURE 3. Valve bonnet configuration. (03)

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TABLE V. Valve bonnet dimensions.

Part or identifying number	A DIA	B THDS	C DIA	D DIA	E	F	G	H	J DIA	K DIA	L DIA	M DIA	N	O THDS	P DIA
M24235/16-009	0.515 .562 .593	1.250	1.109			11/16	1-7/8								
M24235/16-010	.687 .781 .812	1.438	1.327	1-13/16	3-15/16	3/4	2-3/16	13/16	2.000	1.625	1.505	1.094 +.001	4.875	5/8-8	1-5/8
M24235/16-011	.859 .890 .921	1.750	1.600			13/16	2-1/2								
M24235/16-012	1.046 1.078 1.171 1.203	2.000	1.892	2-3/8	5-15/16	7/8	2-13/16	31/32	2.500	2.125	2.005	1.625 +.001	6.406	3/4-62	1-1/8
											1.507	-.000			
											2.007	-.000			

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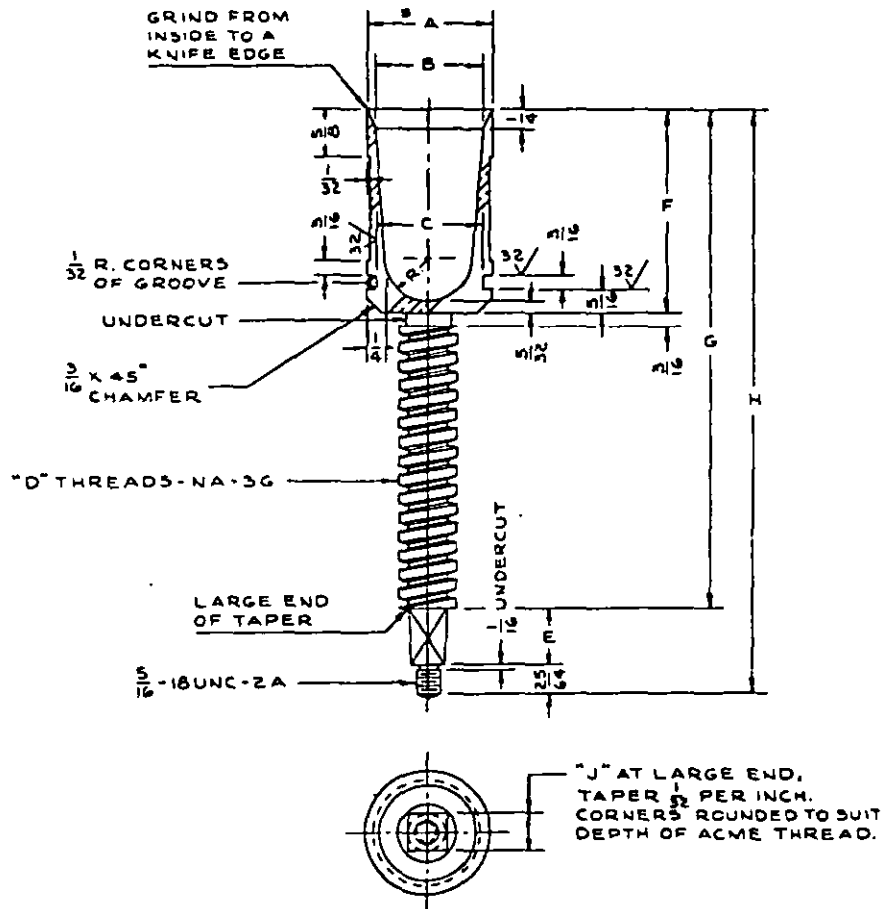


FIGURE 4. Valve stem configuration. (04)

TABLE VI. Valve stem dimensions.

Part or identifying number	A $\frac{1}{16}$ DIA	B DIA	C DIA	D THDS	E	F	G	H	J square
M24235/16-013	1.093 +.000 -.001	7/8	0.849 +.002 -.000	5/8-8	39/64	1-7/8	4.937	5-15/16	0.375
M24235/16-014	1.623 +.000 -.001	1-13/32	1.381 +.002 -.000	3/4-6	47/64	2-11/16	6.593	7-23/32	0.500

$\frac{1}{16}$  This dimension to be concentric within 0.001 indicated reading with outside diameter (od).



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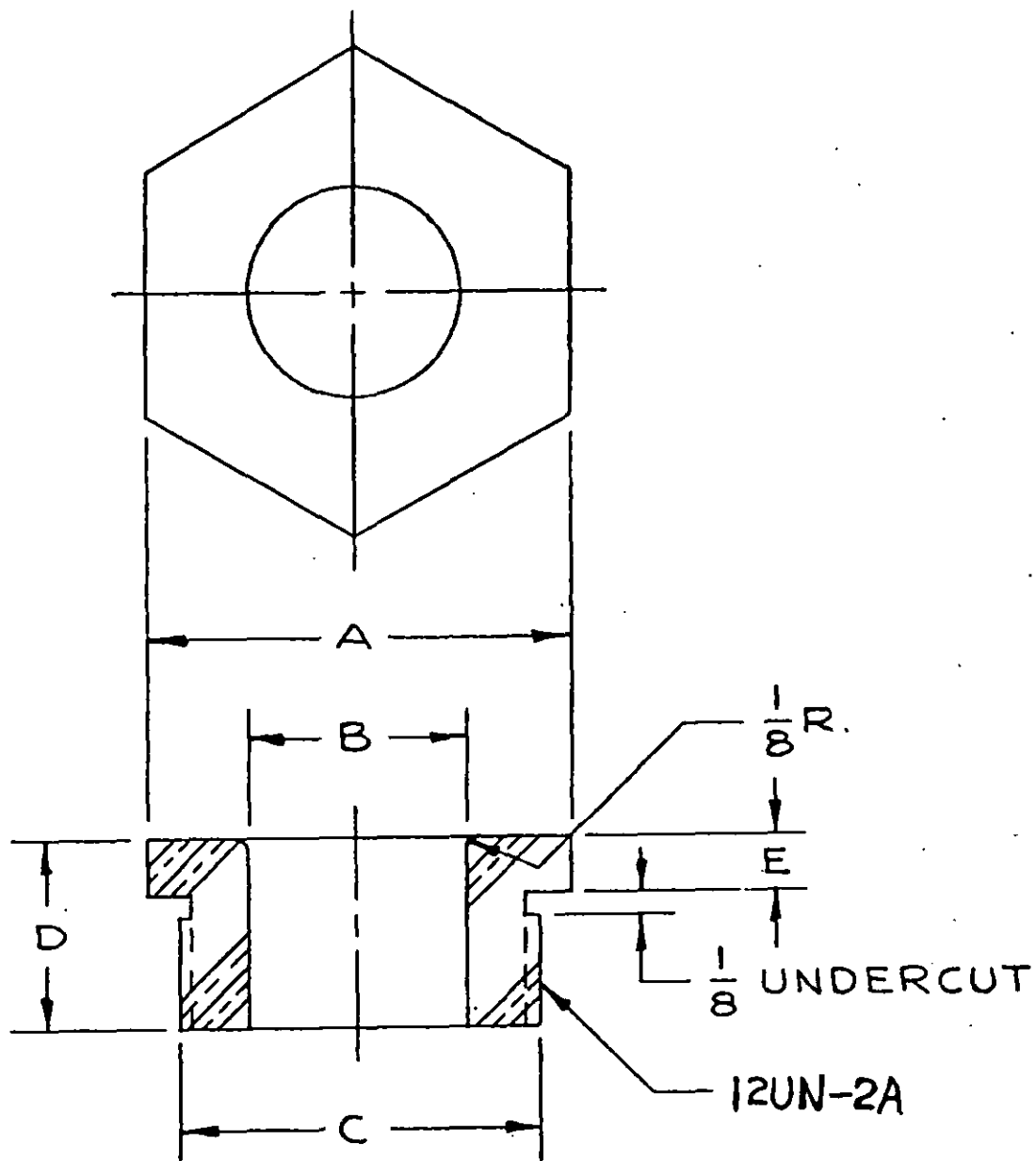
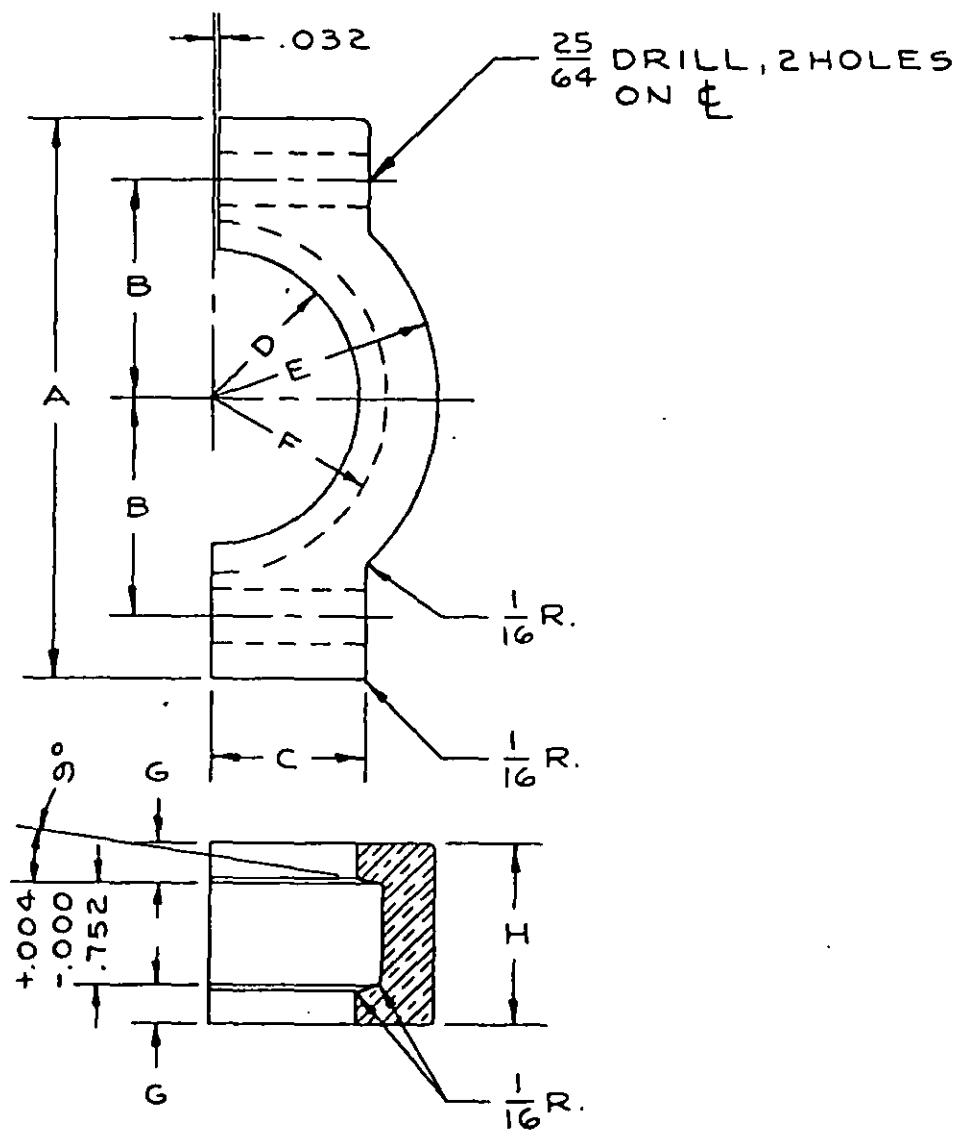


FIGURE 5. Gland nut configuration. (05)

TABLE VII. Gland nut dimensions.

Part or identifying number	A HEX	B DIA	C THDS	D	E
M24235/16-015	1-3/8	39/64	1.250	3/4	3/16
M24235/16-016	1-1/2	53/64	1.438	13/16	3/16
M24235/16-017	1-7/8	15/16	1.750	15/16	1/4
M24235/16-018	2-3/8	1-7/32	2.000	1-1/16	5/16

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FIGURE 6. Split clamp configuration. (06)TABLE VIII. Split clamp dimensions.

Part or identifying number	A	B	C	D RAD	E RAD	F RAD	G	H
M24235/16-019	3-1/2	1-5/16	1-1/16	0.828	1-3/8	1.015	1/4	1-1/4
M24235/16-020	4	1-9/16	1-1/8	1.078	1-5/8	1.265	9/32	1-5/16

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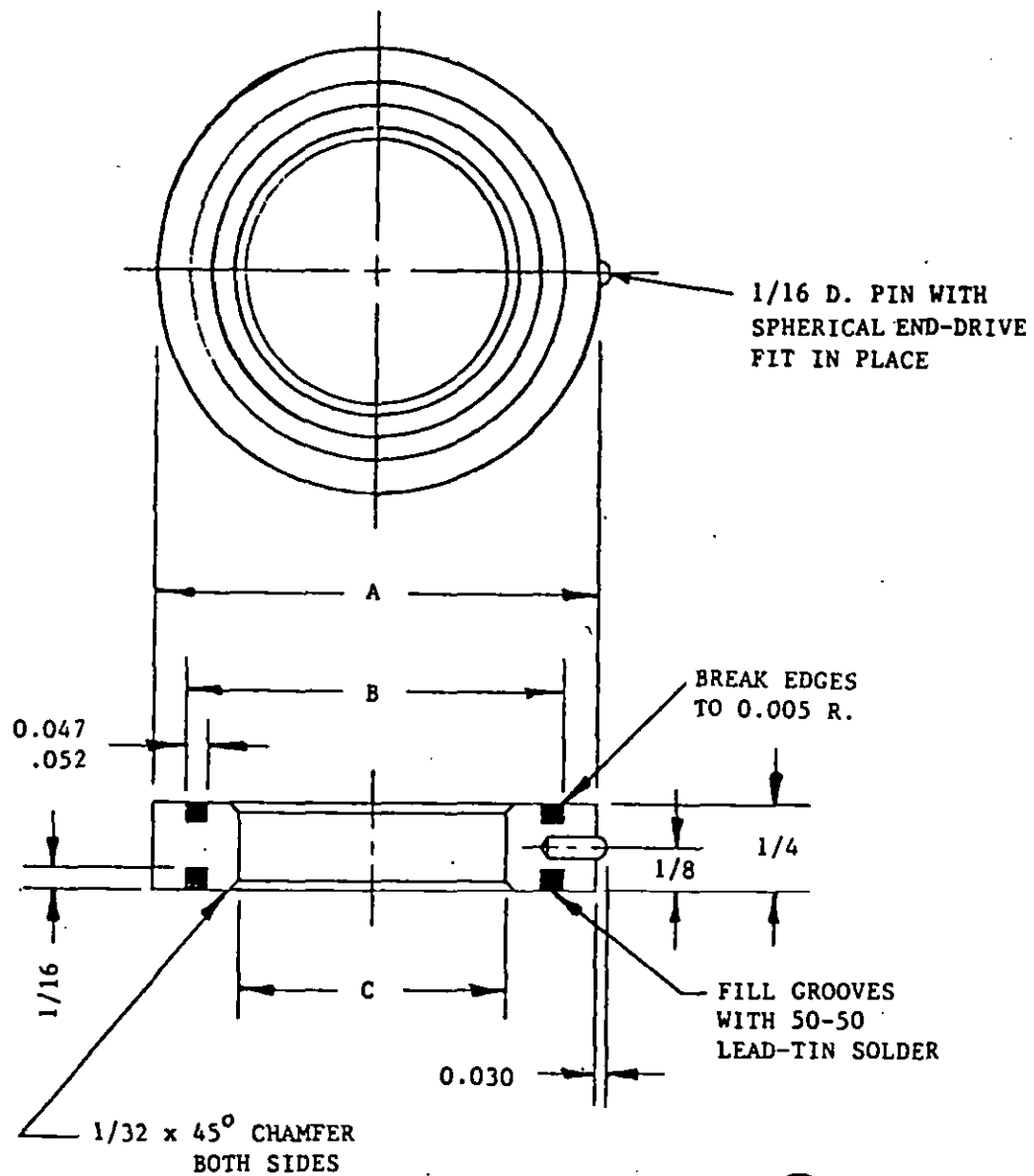
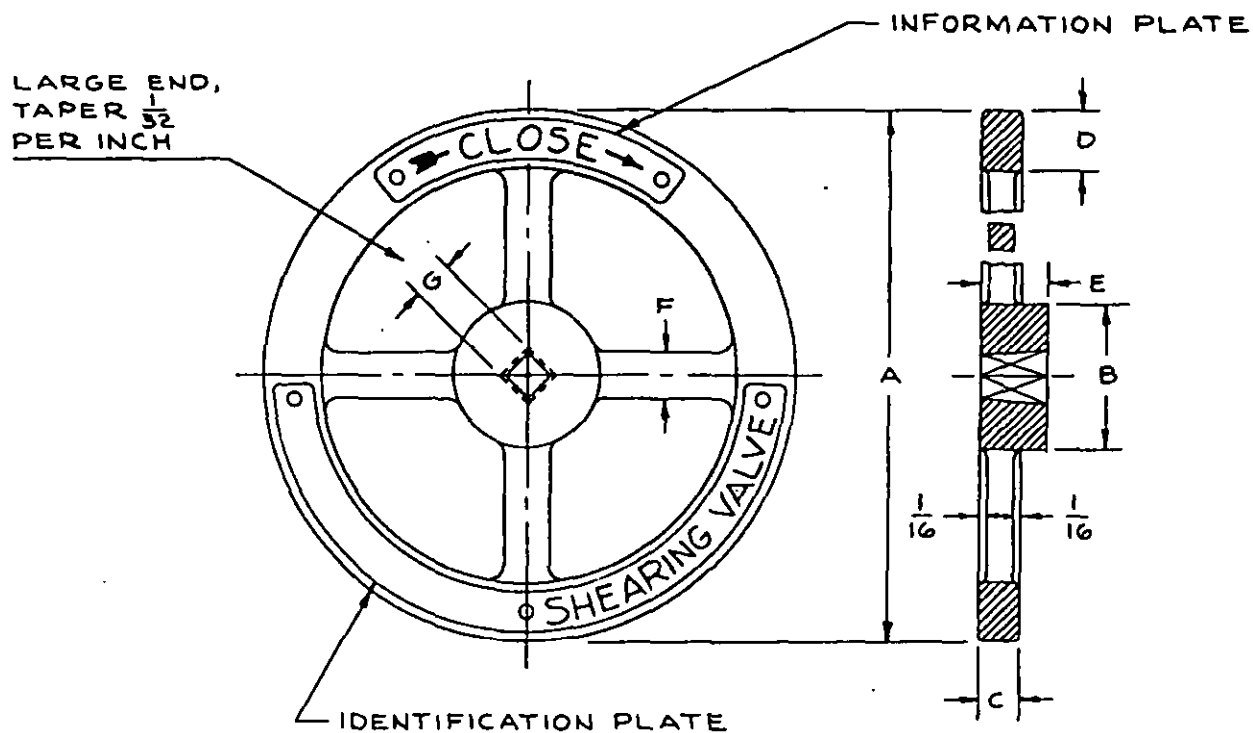


FIGURE 7. Valve seat configuration. (07)

TABLE IX. Valve seat dimensions.

Part or identifying number	A DIA	B DIA	C DIA
M24235/16-021	1.274 +.000 -.004	1.103 +.005 -.000	3/4
M24235/16-022	1.774 +.000 -.004	1.633 +.005 -.000	1-7/32

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FIGURE 8. Handwheel configuration. (08)TABLE X. Handwheel dimensions.

Part or identifying number	A DIA	B DIA	C	D	E	F	G square
M24235/16-023	5	1-3/8	3/8	9/16	5/8	7/16	0.375
M24235/16-024	7	1-7/8	7/16	11/16	3/4	1/2	0.500

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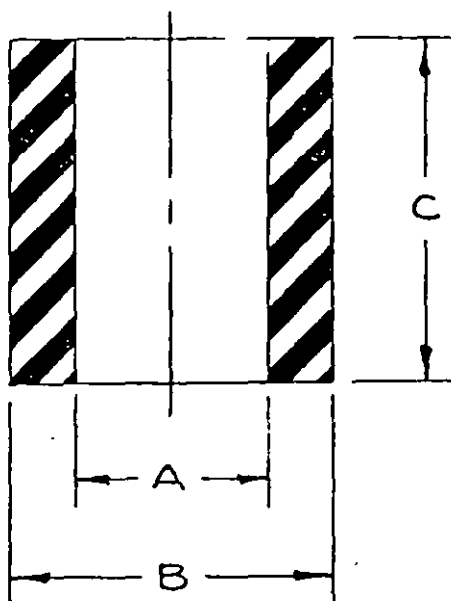
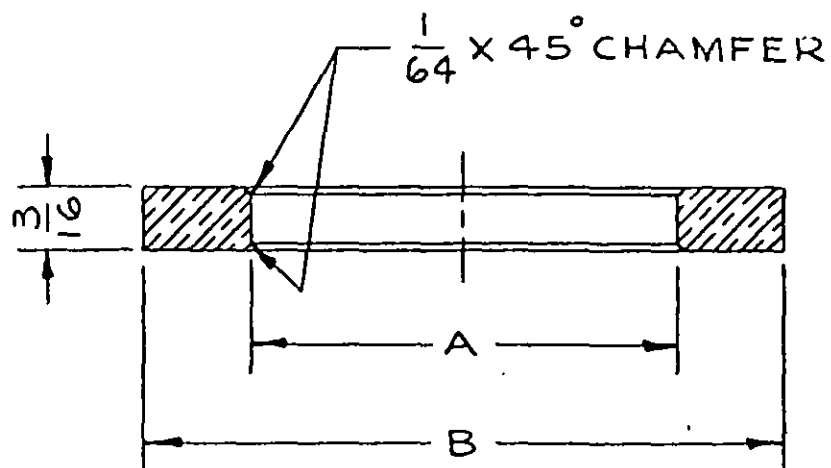


FIGURE 9. Grommet configuration. (09)

TABLE XI. Grommet dimensions.

Part or identifying number	A DIA	B DIA	C
M24235/16-025	0.475	1.109	1-1/4
M24235/16-026	.515		
M24235/16-027	.545		
M24235/16-028	.630	1.327	1-1/2
M24235/16-029	.720		
M24235/16-030	.750		
M24235/16-031	.800	1.600	1-3/4
M24235/16-032	.840		
M24235/16-033	.870		
M24235/16-034	.995	1.892	2
M24235/16-035	1.020		
M24235/16-036	1.118		
M24235/16-037	1.153		

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FIGURE 10. Gland ring configuration. (10)TABLE XII. Gland ring dimensions.

Part or identifying number	A DIA	B DIA
M24235/16-038	0.515	1-3/32
M24235/16-039	.562	
M24235/16-040	.593	
M24235/16-041	.687	1-5/16
M24235/16-042	.781	
M24235/16-043	.812	
M24235/16-044	.859	1-37/64
M24235/16-045	.890	
M24235/16-046	.921	
M24235/16-047	1.046	1-7/8
M24235/16-048	1.078	
M24235/16-049	1.171	
M24235/16-050	1.203	

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## REQUIREMENTS:

1. Assembly instructions:
  - (a) O-rings shall be coated with a thin coating of silicone compound as specified in MIL-S-8660.
  - (b) The threads in the valve and the rubbing surfaces shall be greased at assembly with graphite grease in accordance with VV-G-671.
  - (c) Assembly valve seat and rubber gasket shall be secured in place with rubber cement at assembly.
  - (d) After assembly, with valve in full, open position, drill hole in valve stem for cotter pin.
2. Inspection: The material shall be subjected to ultrasonic inspection and proven free of harmful laminations or inclusions.
3. Tests:
  - (a) HI shock: The HI shock test shall be for determining satisfactory assembly and shall be in accordance with grade A, class I, type A of MIL-S-901.
  - (b) Strength: Valves are to be tested to 2000 pounds per square inch hydrostatic for 30 minutes, in open and closed positions.
  - (c) Vibration: The equipment shall meet without failure or disruption of service; the type I vibration test of MIL-STD-167-1.
4. Intended use: The stuffing tubes are for passing electric cables in accordance with MIL-C-915 and MIL-C-17, through the pressure hull. They are not for new construction.

TABLE XIII. Parts list.

Item no.	Description <sup>1</sup> /	Qty <sup>2</sup> /	Material and specification	Remarks
01	Cable shearing valves	---	----	See figure 1 and tables I and II
02	Valve body	1	Steel, grade 8620, ASTM A 322; or grade 8620, ASTM A 331; or grade AH-36S, MIL-S-22698; or grade 8620, <u>3</u> / MIL-S-16974	See figure 2 and table IV
03	Valve bonnet	1	Copper alloy 86500, QQ-C-390	See figure 3 and table V
04	Valve stem	1	Ni-Cu, QQ-N-286	See figure 4 and table VI

See footnotes at end of table.

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TABLE XIII. Parts list. - Continued

Item no.	Description <sup>1/</sup>	Qty <sup>2/</sup>	Material and specification	Remarks
05	Gland nut	2	Aluminum bronze, QQ-C-465	See figure 5 and table VII
06	Split clamp	2	Copper alloy 865, QQ-C-390	See figure 6 and table VIII
07	Valve seat	1	Copper, HT, QQ-C-502	See figure 7 and table IX
08	Handwheel	1	Copper alloy 865, QQ-C-390	See figure 8 and table X
09	Grommet (40 to 50 durometer)	1	Neoprene, class 1, MIL-R-15624	See figure 9 and table XI
10	Gland ring	2	Aluminum bronze, QQ-C-465	See figure 10 and tables III and XII
11	Lockwasher	2	Ni-Cu-Al, class G, style 2, FF-W-84	See table II
12	O-ring	2	MS28775	See table II
13	Pin, 1/16 Dia	1	CRES, coml	See figure 1
14	Lubrication fitting, 1/8 nps	1	Steel, coml	See figure 1
15	Cotter pin, 1/16 Dia x 1-1/4 Lg	1	Ni-Cu, coml	For item 18
16	Identification plate	1	Al or brass, normal service, MIL-P-15024/5	See figure 8
17	Information plate	1	Al or brass, normal service, MIL-P-15024/5	See figure 8
18	Safety chain, weldless, 5 Lg	1	Brass, coml	See figure 1
19	Gasket, 1.280 od x 3/4 id x 1/16 THK	1	Rubber, MIL-R-900	Symbols 512 and 512.1
20	Gasket, 1.780 od x 1-7/32 id x 1/17 Thk	1	Rubber, MIL-R-900	Symbols 513 and 513.1



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TABLE XIII. Parts list. - Continued

Item no.	Description <sup>1/</sup>	Qty <sup>2/</sup>	Material and specification	Remarks
21	Cap screw, Sch, 0.375-16 UNC-3A, 2-3/4 Lg	2	Steel alloy, coml, zinc plate <sup>4/</sup>	See figure 1
22	Rubber cement	AR	Coml grade	For items 19 and 20
23	Lockwasher	2	CRES, coml	For item 21
24	Nut, Hex 0.375-16UNC-3B	2	CRES, coml	For item 21
25	Lockwasher	1	CRES, coml	For item 4
26	Nut, Hex, 0.312-18NC-3B	1	Al-Brz, coml	For item 4
27	Screw, size AR	1	CRES, coml	For item 18
28	Screw, size AR	5	CRES, coml	For items 16 and 17

<sup>1/</sup> See applicable table listed in "Remarks" column for part numbers and dimensions.

<sup>2/</sup> Quantity is for one complete assembly of each size (see table II).

<sup>3/</sup> MIL-S-16974 steel shall be heat treated to obtain the physical properties of class F of MIL-S-24093 or class 2 of MIL-S-23284.

<sup>4/</sup> Zinc plate as specified in ASTM B 633.

Revision letters are not used to denote changes due to the extensiveness of the changes.

Preparing activity:  
Navy - SH  
(Project 5975-N078-16)