

INCH-POUND

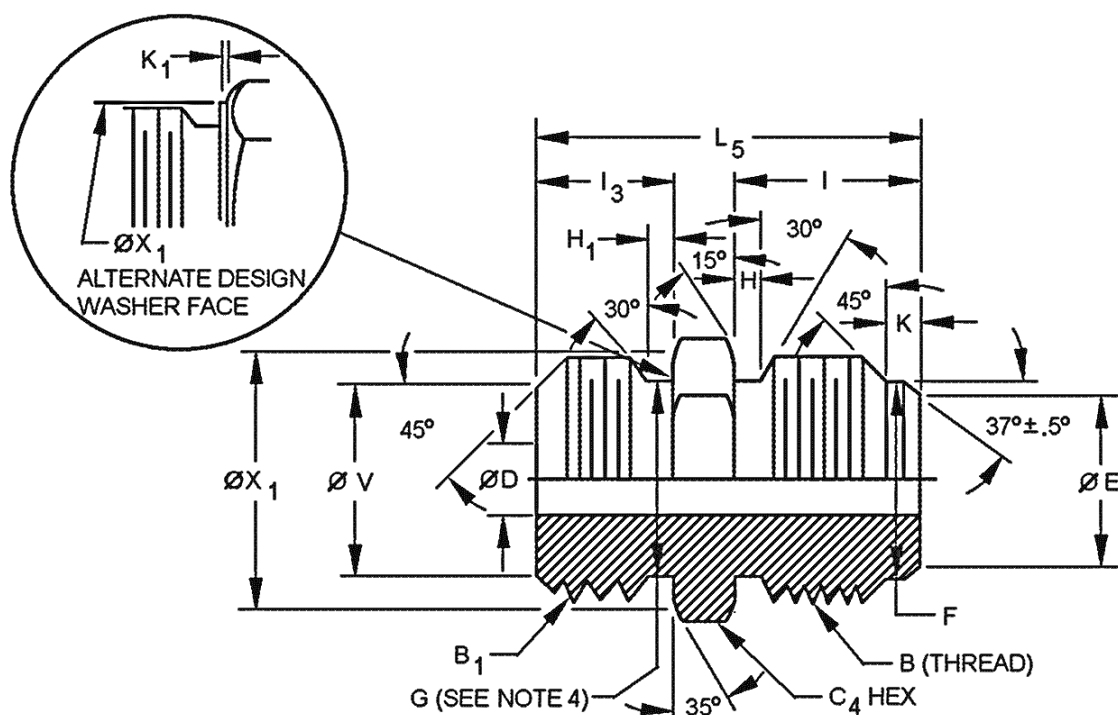
MS39324D
w/AMENDMENT 1
26 September 2025
SUPERSEDING
MS39324D
23 October 2020

DETAIL SPECIFICATION SHEET

FITTINGS, HYDRAULIC TUBE, FLARED 37 DEGREE, ADAPTER TO 45 DEGREE O-RING BOSS

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-18666.



See notes at end of figure.

FIGURE 1. Adapter, 37°, flare to 45° O-ring boss.



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Dash number	Tube O.D. nom	B Straight thread Nom size ASME B1.1	B ₁ Straight Thread Nom size ASME B1.1	C ₄	D dia.		E dia.	
				Hex Nom	Inches ±.003	mm ±0.08	Inches ±.003	mm ±0.08
-4-4	1/4 - 1/4	.4375-20 UNF-2A	.4375-20 UNF-2A	9/16	.172	4.37	.193	4.90
-5-4	5/16 - 1/4	.5000-20 UNF-2A	.4375-20 UNF-2A	9/16	.172	4.37	.255	6.48
-6-4	3/8 - 1/4	.5625-18 UNF-2A	.4375-20 UNF-2A	5/8	.172	4.37	.318	8.08
-8-4	1/2 - 1/4	.7500-16 UNF-2A	.4375-20 UNF-2A	13/16	.172	4.37	.426	10.82
-10-4	5/8 - 1/4	.8750-14 UNF-2A	.4375-20 UNF-2A	15/16	.172	4.37	.539	13.69
-12-4	3/4 - 1/4	1.0625-12 UN-2A	.4375-20 UNF-2A	1 1/8	.172	4.37	.664	16.87
-5-5	5/16 - 5/16	.5000-20 UNF-2A	.5000-20 UNF-2A	5/8	.234	5.94	.255	6.48
-6-5	3/8 - 5/8	.5625-18 UNF-2A	.5000-20 UNF-2A	5/8	.234	5.94	.318	8.08
-8-5	1/2 - 5/16	.7500-16 UNF-2A	.5000-20 UNF-2A	13/16	.234	5.94	.426	10.82
-10-5	5/8 - 5/16	.8750-14 UNF-2A	.5000-20 UNF-2A	15/16	.234	5.94	.539	13.69
-12-5	3/4 - 5/16	1.0625-12 UN-2A	.5000-20 UNF-2A	1 1/8	.234	5.94	.664	16.87
-6-6	3/8 - 3/8	.5625-18 UNF-2A	.5625-18 UNF-2A	11/16	.297	7.54	.318	8.08
-8-6	1/2 - 3/8	.7500-16 UNF-2A	.5625-18 UNF-2A	13/16	.297	7.54	.426	10.82
-10-6	5/8 - 3/8	.8750-14 UNF-2A	.5625-18 UNF-2A	15/16	.297	7.54	.539	13.69
-12-6	3/4 - 3/8	1.0625-12 UN-2A	.5625-18 UNF-2A	1 1/8	.297	7.54	.664	16.87
-8-8	1/2 - 1/2	.7500-16 UNF-2A	.7500-16 UNF-2A	7/8	.391	9.93	.426	10.82
-10-8	5/8 - 1/2	.8750-14 UNF-2A	.7500-16 UNF-2A	1 1/8	.391	9.93	.539	13.69
-12-8	3/4 - 1/2	1.0625-12 UN-2A	.7500-16 UNF-2A	1 1/4	.391	9.93	.664	16.87
-10-10	5/8 - 5/8	.8750-14 UNF-2A	.8750-14 UNF-2A	1	.484	12.29	.539	13.69
-12-10	3/4 - 5/8	1.0625-12 UN-2A	.8750-14 UNF-2A	1 1/8	.484	12.29	.664	16.87
-12-12	3/4 - 3/4	1.0625-12 UN-2A	1.0625-12 UN-2A	1 1/4	.609	15.47	.664	16.87
-12-16	3/4 - 1	1.0625-12 UN-2A	1.3125-12 UN-2A	1 1/2	.609	15.47	.664	16.87

See notes at end of figure.

FIGURE 1. Adapter, 37°, flare to 45° O-ring boss - Continued.

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Dash number	F		G		H		H ₁	
	Inches ±.005	mm ±0.13	Inches ±.002	mm ±0.05	Inches +.015 -.000	mm +0.38 -0.00	Inches +.015 -.000	mm +0.38 -0.00
-4-4	.359	9.12	.364	9.25	.075	1.91	.075	1.91
-5-4	.421	10.69	.364	9.25	.075	1.91	.075	1.91
-6-4	.476	12.09	.364	9.25	.083	2.11	.075	1.91
-8-4	.654	16.61	.364	9.25	.094	2.39	.075	1.91
-10-4	.767	19.48	.364	9.25	.107	2.72	.075	1.91
-12-4	.938	23.83	.364	9.25	.125	3.18	.075	1.91
-5-5	.421	10.69	.427	10.85	.075	1.91	.075	1.91
-6-5	.476	12.09	.427	10.85	.083	2.11	.075	1.91
-8-5	.654	16.61	.427	10.85	.094	2.39	.075	1.91
-10-5	.767	19.48	.427	10.85	.107	2.72	.075	1.91
-12-5	.938	23.83	.427	10.85	.125	3.18	.075	1.91
-6-6	.476	12.09	.482	12.24	.083	2.11	.083	2.11
-8-6	.654	16.61	.482	12.24	.094	2.39	.083	2.11
-10-6	.767	19.48	.482	12.24	.107	2.72	.083	2.11
-12-6	.938	23.83	.482	12.24	.125	3.18	.083	2.11
-8-8	.654	16.61	.660	16.76	.094	2.39	.094	2.39
-10-8	.767	19.48	.660	16.76	.107	2.72	.094	2.39
-12-8	.938	23.83	.660	16.76	.125	3.18	.094	2.39
-10-10	.767	19.48	.773	19.63	.107	2.72	.107	2.72
-12-10	.938	23.83	.773	19.63	.125	3.18	.107	2.72
-12-12	.938	23.83	.945	24.00	.125	3.18	.125	3.18
-12-16	.938	23.83	1.195	30.35	.125	3.18	.125	3.18

See notes at end of figure.

FIGURE 1. Adapter, 37°, flare to 45° O-ring boss - Continued.

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Dash number	I		I ₃		K		K ₁	
	Inches ±.005	mm ±0.13	Inches ±.005	mm ±0.13	Inches +.015 -.000	mm +0.38 -0.00	Inches +.015 -.000	mm +0.38 -0.00
-4-4	.550	13.97	.360	9.14	.193	4.90	---	---
-5-4	.550	13.97	.360	9.14	.193	4.90	---	---
-6-4	.556	14.12	.360	9.14	.198	5.03	.062	1.57
-8-4	.657	16.69	.360	9.14	.253	6.43	.062	1.57
-10-4	.758	19.25	.360	9.14	.266	6.76	.062	1.57
-12-4	.864	21.95	.360	9.14	.315	8.00	.062	1.57
-5-5	.550	13.97	.360	9.14	.193	4.90	---	---
-6-5	.556	14.12	.360	9.14	.198	5.03	---	---
-8-5	.657	16.69	.360	9.14	.253	6.43	.062	1.57
-10-5	.758	19.25	.360	9.14	.266	6.76	.062	1.57
-12-5	.864	21.95	.360	9.14	.315	8.00	.062	1.57
-6-6	.556	14.12	.391	9.93	.198	5.03	---	---
-8-6	.657	16.69	.391	9.93	.253	6.43	.062	1.57
-10-6	.758	19.25	.391	9.93	.266	6.76	.062	1.57
-12-6	.864	21.95	.391	9.93	.315	8.00	.062	1.57
-8-8	.657	16.69	.438	11.13	.253	6.43	---	---
-10-8	.758	19.25	.438	11.13	.266	6.76	.094	2.39
-12-8	.864	21.95	.438	11.13	.315	8.00	.094	2.39
-10-10	.758	19.25	.500	12.70	.266	6.76	---	---
-12-10	.864	21.95	.500	12.70	.315	8.00	---	---
-12-12	.864	21.95	.594	15.09	.315	8.00	---	---
-12-16	.864	21.95	.594	15.09	.315	8.00	---	---

See notes at end of figure.

FIGURE 1. Adapter, 37°, flare to 45° O-ring boss - Continued.

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Dash number	L ₅		V dia.		X ₁ dia.	
	Inches ±.002	mm ±0.05	Inches ±.005	mm ±0.13	Inches +.015 -.000	mm +0.38 -0.00
-4-4	1.23	31.24	.365	9.27	.563	14.30
-5-4	1.23	31.24	.365	9.27	.563	14.30
-6-4	1.23	31.24	.365	9.27	.563	14.30
-8-4	1.34	34.04	.365	9.27	.563	14.30
-10-4	1.47	37.34	.365	9.27	.563	14.30
-12-4	1.64	41.66	.365	9.27	.563	14.30
-5-5	1.23	31.24	.425	10.80	.625	15.88
-6-5	1.23	31.24	.425	10.80	.625	15.88
-8-5	1.34	34.04	.425	10.80	.625	15.88
-10-5	1.47	37.34	.425	10.80	.625	15.88
-12-5	1.64	41.66	.425	10.80	.625	15.88
-6-6	1.29	32.77	.480	12.19	.688	17.48
-8-6	1.40	35.56	.480	12.19	.688	17.48
-10-6	1.50	38.10	.480	12.19	.688	17.48
-12-6	1.67	42.42	.480	12.19	.688	17.48
-8-8	1.48	37.59	.660	16.76	.875	22.23
-10-8	1.58	40.13	.660	16.76	.875	22.23
-12-8	1.72	43.69	.660	16.76	.875	22.23
-10-10	1.70	43.18	.775	19.69	1.000	25.40
-12-10	1.80	45.72	.775	19.69	1.000	25.40
-12-12	1.97	50.04	.945	24.00	1.250	31.75
-12-16	2.00	50.80	1.195	30.35	1.550	39.37

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Break all sharp edges and remove all burrs and slivers.
4. "O" ring groove shall be smooth and free from tool marks 100μ inches (2.54 μm) maximum.
5. Procure the O-ring separately and install before installation of the fitting, see SAE AS28778.

FIGURE 1. Adapter, 37°, flare to 45° O-ring boss - Continued.

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REQUIREMENTS:

Fittings shall be as specified on figure 1.

Materials shall be in accordance with MIL-DTL-18866.

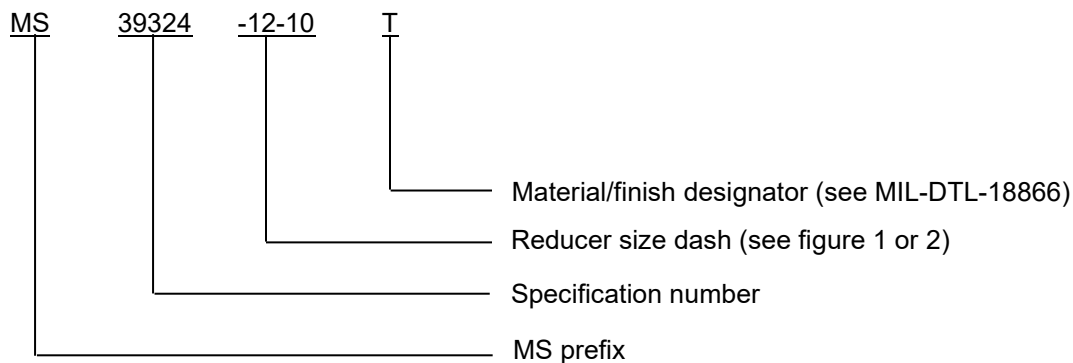
O-rings shall not be furnished with the fittings.

Finish and finish designators shall be in accordance with MIL-DTL-18866.

Unless otherwise specified in MIL-DTL-18866, all plating's shall be capable of meeting 96-hour salt spray test in accordance with ASTM B117. The fittings shall show no evidence of red corrosion after 96 hours of salt spray. Fluid passages, other openings, and internal threads shall not be subject to the plating thickness requirement and may have bare areas provided they are protected with a light film of oil.

Maximum operating pressure. Maximum operating pressure shall be in accordance with SAE-J514/1.

PIN: The PIN consists of the letters "MS", the specification number, a dash, number for adapter size, and a letter for material finish designator.



PIN example: MS39324-12-10T indicates an adapter 3/4 to 5/8 inch (19.05 to 15.88 mm), titanium anodized.

Marking shall be in accordance with MIL-DTL-18866.

Class I and II ozone depleting substances (ODS) shall not be used in MS39324 or any referenced procedures.

Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Referenced documents shall be of the issue in effect on date of invitations for bid.

Material designator "SS" has been replaced by "S".

Phosphate coating finish "P" has been replaced by "KA".

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NOTE: The following restrictions do not apply to manufacturers of the fittings and is applicable only to OEM's and users.

Cadmium is not recommended. To the users of this document, it is recommended that the use of carbon steel material with cadmium plating be used only when other materials and finishes specified in this document cannot meet performance requirements.

Army and Marine ground forces zinc plating's. PIN codes FC, FD, Z, and ZC finishes have a chromate conversion coating which includes hexavalent chromium and are not recommended for Army and Marine ground systems. The use of coatings depositing hexavalent chromium for Army vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement. For new designs PIN codes FC, FD, Z, and ZC are not to be supplied to Army and Marine ground forces. MIL-PRF-32647 Type KA is intended as a hazardous free plating material and is a direct replacement for zinc plating with a hexavalent chromium conversion coating. KA has an equivalent torque/tension as the plating's replaced.

Army and Marine ground vehicles. The use of cadmium plating for Army and Marine ground vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement.

Army ground vehicle applications cadmium plating. Pin code J or KB may be substituted for cadmium ("Blank" PIN code) for Army ground vehicle applications. MIL-PRF-32647 Type KB is intended as a hazardous free plating material and is a direct replacement for cadmium plating ("Blank" PIN code). KB has an equivalent torque/tension as cadmium.

NAVSEA shipboard owned equipment. Cadmium is prohibited from use in NAVSEA-owned shipboard systems in accordance with the requirements of T9070-AL-DPC-020/077-2, unless otherwise approved by NAVSEA.

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.

Referenced documents. In addition to MIL-DTL-18666, this document references the following:

MIL-PRF-32647	SAE AS28778
ASME B1.1	SAE-J514/1
ASTM B117	T9070-AL-DPC-020/077-2

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CONCLUDING MATERIAL

Custodians:

Army - AT
Navy - SH
Air Force - 71

Preparing activity:

DLA - CC

(Project 4730-2025-071)

Review activities:

Army - AR, MI
Navy - CG, MC, SA

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>.