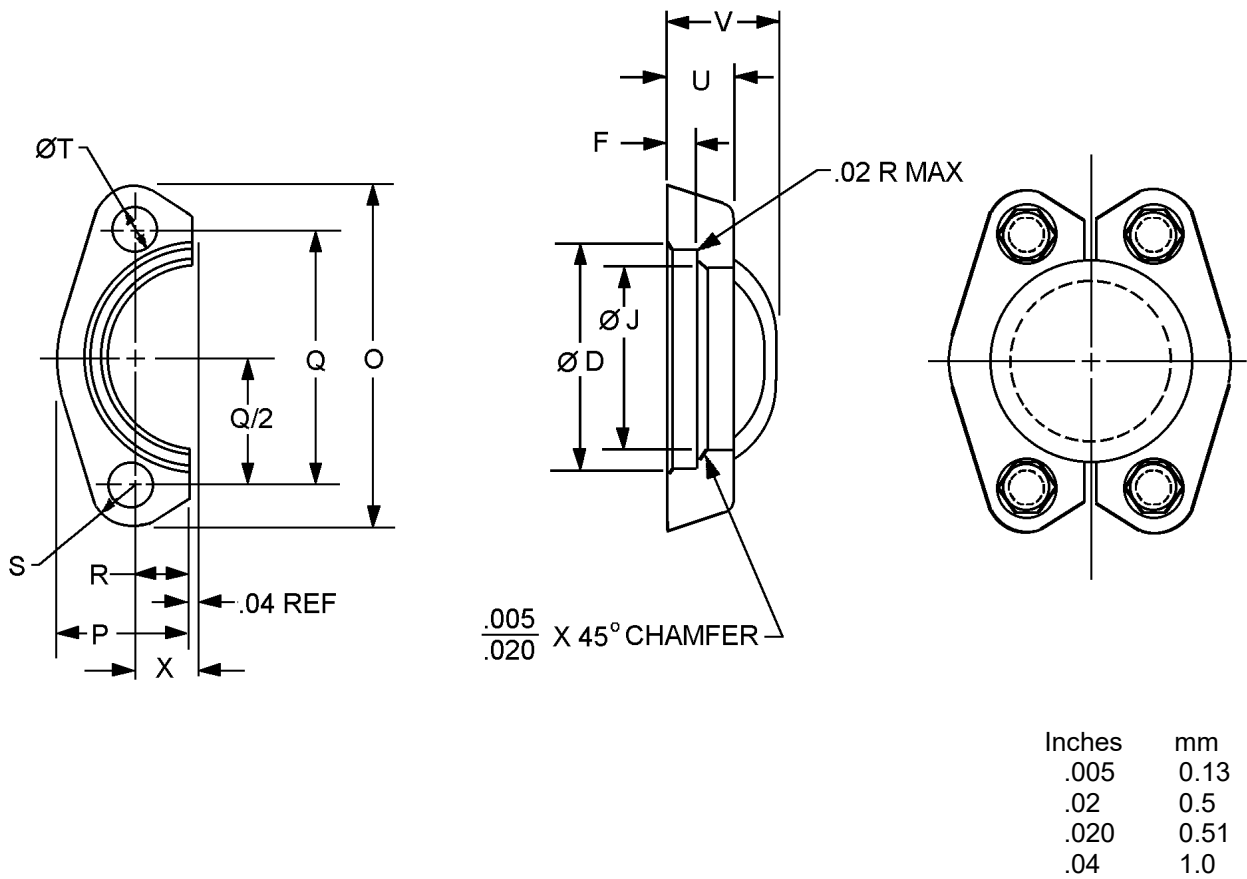


DETAIL SPECIFICATION SHEET

FITTINGS, CLAMP-HALVES, FOR 4-BOLT SPLIT-FLANGE,
SAE-J518-1 OR SAE-J518-2, TYPE SPLIT-FLANGE CLAMP (SFC)

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-52525.



See notes at end of figure.

FIGURE 1. Clamp-half hydraulic 4-bolt split-flange type.



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Part or Identifying Number (PIN)	Flange size inches (mm)	D (see note 3) inches (mm) ±.010 (0.25)	F inches (mm) ±.005 (0.13)	J (see note 3) inches (mm) ±.010 (0.25)
M52525/16-8	.500 (12.70)	1.219 (30.96)	.245 (6.22)	.955 (24.26)
M52525/16-12	.750 (19.05)	1.531 (38.89)	.245 (6.22)	1.265 (32.13)
M52525/16-16	1.000 (25.40)	1.781 (45.24)	.295 (7.49)	1.515 (38.48)
M52525/16-20	1.250 (31.75)	2.031 (51.59)	.295 (7.49)	1.720 (43.69)
M52525/16-24	1.500 (38.10)	2.406 (61.11)	.295 (7.49)	2.000 (50.80)
M52525/16-32	2.000 (50.80)	2.844 (72.24)	.355 (9.02)	2.470 (62.74)
M52525/16-40	2.500 (63.50)	3.344 (84.94)	.355 (9.02)	2.950 (74.93)
M52525/16-48	3.000 (76.20)	4.031 (102.39)	.355 (9.02)	3.580 (90.93)
M52525/16-56	3.500 (88.90)	4.531 (115.09)	.422 (10.72)	4.030 (102.36)
M52525/16-64	4.000 (101.60)	5.031 (127.79)	.422 (10.72)	4.530 (115.06)

PIN	O inches (mm)		P inches (mm) ±.030 (0.76)	Q inches (mm) ±.010 (0.25)	R inches (mm)
	max	min			
M52525/16-8	2.16 (54.86)	2.09 (53.09)	.86 (21.84)	1.500 (38.10)	.31 (7.87)
M52525/16-12	2.59 (65.79)	2.53 (64.26)	.98 (24.89)	1.875 (47.63)	.40 (10.16)
M52525/16-16	2.78 (70.61)	2.72 (69.09)	1.11 (28.19)	2.062 (52.37)	.48 (12.19)
M52525/16-20	3.16 (80.26)	3.09 (78.49)	1.39 (35.31)	2.312 (58.72)	.56 (14.22)
M52525/16-24	3.72 (94.49)	3.66 (92.96)	1.58 (40.13)	2.750 (69.85)	.67 (17.02)
M52525/16-32	4.06 (103.12)	3.94 (100.08)	1.86 (47.24)	3.062 (77.77)	.81 (20.57)
M52525/16-40	4.56 (115.82)	4.44 (112.78)	2.09 (53.09)	3.500 (88.90)	.96 (24.38)
M52525/16-48	5.38 (136.65)	5.25 (133.35)	2.53 (64.26)	4.188 (106.38)	1.18 (29.97)
M52525/16-56	6.06 (153.92)	5.94 (150.88)	2.70 (68.58)	4.750 (120.65)	1.34 (34.04)
M52525/16-64	6.44 (163.58)	6.31 (160.27)	2.95 (74.93)	5.125 (130.18)	1.49 (37.85)

PIN	S inches (mm)	T inches (mm) ±.010 (0.25)	U inches (mm)	V inches (mm)	X inches (mm) ±.010 (0.25)
M52525/16-8	.31 (7.87)	.344 (8.74)	.50 (12.70)	.75 (19.05)	.344 (8.74)
M52525/16-12	.34 (8.64)	.406 (10.31)	.56 (14.22)	.88 (22.35)	.438 (11.13)
M52525/16-16	.34 (8.64)	.406 (10.31)	.62 (15.75)	.94 (23.88)	.515 (13.08)
M52525/16-20	.41 (10.41)	.469 (11.91)	.56 (14.22)	.88 (22.35)	.594 (15.09)
M52525/16-24	.47 (11.94)	.531 (13.49)	.62 (15.75)	1.00 (25.40)	.703 (17.86)
M52525/16-32	.47 (11.94)	.531 (13.49)	.62 (15.75)	1.03 (26.16)	.844 (21.44)
M52525/16-40	.50 (12.70)	.531 (13.49)	.75 (19.05)	1.50 (38.10)	1.000 (25.40)
M52525/16-48	.56 (14.22)	.656 (16.66)	.88 (22.35)	1.62 (41.15)	1.219 (30.96)
M52525/16-56	.62 (15.75)	.656 (16.66)	.88 (22.35)	1.12 (28.45)	1.375 (34.93)
M52525/16-64	.62 (15.75)	.656 (16.66)	1.00 (25.40)	1.38 (35.05)	1.531 (38.89)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. D and J to be concentric within .010 inch (0.25 mm) of full indicator movement.
4. All dimensions not shown shall be in accordance with SAE-J518-1 or -2.

FIGURE 1. Clamp-half hydraulic 4-bolt split-flange type - Continued.

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REQUIREMENTS:

Fittings shall be as specified on figure 1 and in tables I and II.

The clamp-halves described herein are for use with MIL-DTL-52471/7, type 100R(X), double wire braid hose and clamp-halves, flange to port in accordance with MIL-DTL-52525/17.

If fittings are to be used on an oxygen hose see, MIL-DTL-52525.

Materials and finishes shall be in accordance with MIL-DTL-52525 and in table I.

Finish. Finishes shall be in accordance with table I.

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.

MIL-DTL-52525/16E
TABLE I. Material and finish identification codes.

PIN code material/plating finish	Material	Plating finish
A	Aluminum alloy 6061 or 7075	Anodize in accordance with MIL-A-8625, type II.
AN		Anodize in accordance with MIL-A-8625, type II and NAVAIR trivalent chromium pretreatment (TCP) in accordance with MIL-DTL-81706, type II, class 1A. TCP Applied after anodizing.
BN		Bare aluminum with NAVAIR TCP in accordance with MIL-DTL-81706, type II, class 1A.
C	Steel <u>2/</u>	Cadmium plating in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II, class 2. <u>1/ 5/ 8/</u>
YC	Chrome-molybdenum steel alloy 4130	Cadmium plating in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II, class 2. <u>1/ 5/ 8/</u>
G	Steel <u>2/</u>	Zinc plating with colorless passivate in accordance with ASTM B633, type V, Fe/Zn 25. <u>3/ 4/</u>
YG	Chrome-molybdenum steel alloy 4130	
H	Steel <u>2/</u>	Zinc phosphate finish in accordance MIL-DTL-16232, type Z, class1.
YH	Chrome-molybdenum steel alloy 4130	
J	Steel <u>2/</u>	Zinc plating with a colored chromate conversion in accordance with ASTM B633; type II, Fe/Zn 8, or ASTM B695, type II, class 8. <u>3/ 5/</u>
YJ	Chrome-molybdenum steel alloy 4130	
K	Nickel-copper alloy UNS N04400	No additional finish.
M	High-chromium nickel alloy UNS N06690	No additional finish.
N	Steel <u>2/</u>	Zinc-aluminum in accordance with ASTM F1136/F1136M, grade 3, NC. <u>4/</u>
YA	Chrome-molybdenum steel alloy 4130	
YN	Chrome-molybdenum steel alloy 4130	Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B. <u>4/ 7/</u> .
P	Steel <u>2/</u>	Zinc plating with colorless passivate in accordance with ASTM B633, type V, Fe/Zn 8. <u>3/ 4/</u>
YP	Chrome-molybdenum steel alloy 4130	
S	Corrosion resistant steel	No additional finish. Passivation in accordance with SAE-AMS2700, type 6 or 7.
T	Titanium	Anodize in accordance with SAE-AMS2488, type 2. <u>6/ 9/</u>
TF		Fluoride phosphate in accordance with SAE-AMS2486. <u>6/ 9/</u>
U	Steel <u>2/</u>	Zinc-aluminum in accordance with ASTM F1136/F1136M, grade 3, NC. <u>4/</u>
V		Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B. <u>4/ 7/</u> .
W	Steel <u>2/</u>	Any zinc plating above. <u>3/</u>
YW	Chrome-molybdenum steel alloy 4130	
Z	Steel	Zinc plating in accordance with ASTM B695, type II, class 8. <u>3/ 5/</u>

1/ Embrittlement test need not be run.

2/ All steels except 4130.

3/ Not for use in aircraft. Requires approval from the Program Office for all applications. Zinc-plated materials should be avoided in hydraulic systems with water-glycol fluids. Reference ASTM MNL37 - Fuels and Lubricants Handbook.

4/ Hexavalent chromium free. Finish shall be RoHS compliant.

5/ These finishes have a chromate conversion coating or chromic acid rinse which includes hexavalent chromium and are not recommended. The use of coatings depositing hexavalent chromium for Army vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement.

6/ A pretreatment, a modification of the fluoride treatment, or a post treatment shall be applied so the final color of the fittings shall be similar to SAE-AMS-STD-595 colors 36076 through 36293.

7/ The zinc-nickel alloy plate shall contain 12% to 16% nickel. The coating thickness shall be 315µ inches (8µm) minimum.

8/ Cadmium shall not be used in oxygen or potable water systems. 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. The use of cadmium plating for Army vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement.

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9/ Titanium shall not be used in oxygen or potable water systems.

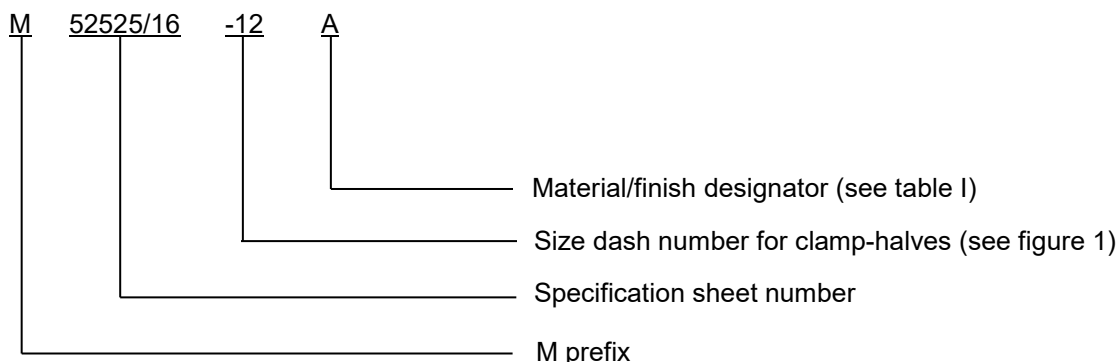
Maximum operating pressure shall be as specified in table II. Maximum operating pressures are for low carbon steel fittings consult manufacturer for values on other materials.

TABLE II. Maximum operating pressures of fittings. 1/

SAE dash size	PIN	Working pressure (max)		Burst pressure	
		psi	MPa	psi	MPa
-8	M52525/16-8	5000	34.5	10000	69
-12	M52525/16-12	5000	34.5	10000	69
-16	M52525/16-16	5000	34.5	10000	69
-20	M52525/16-20	4000	27.6	10000	69
-24	M52525/16-24	3000	20.7	10000	69
-32	M52525/16-32	3000	20.7	10000	69
-40	M52525/16-40	2500	17.3	7100	49
-48	M52525/16-48	2000	13.8	6000	41.4
-56	M52525/16-56	500	3.4	2000	13.8
-64	M52525/16-64	500	3.4	2000	13.8

1/ Metric equivalents are given for information only.

PIN: The PIN consists of the letter "M" the specification sheet number, a dash, a number for clamp size, and a material finish designator.



PIN example: M52525/16-12A, describes a 4-bolt split-flange .750 inch (19.05 mm), aluminum with an anodized finish.

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

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.

The use of cadmium plating or coatings depositing hexavalent chromium for Army vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement.

Class I and II ozone depleting substances (ODS) shall not be used in MIL-DTL-52525/16 or any referenced procedures.

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

Color identification. Color identification shall be in accordance with SAE-AS4841.

Marking shall include the manufacturer's name or trademark, size, and hose identifier R10. Location of marking is optional.

Supersession data in table III is for reference only. SAE style fittings may not have the same material/finish as specified in MIL-DTL-52525.

TABLE III. Supersession data. ^{1/}

PIN	SAE PIN
M52525/16-8	SAE J518 -08-1161
M52525/16-12	SAE J518 -12-1161
M52525/16-16	SAE J518 -16-1161
M52525/16-20	SAE J518 -20-1161
M52525/16-24	SAE J518 -24-1161
M52525/16-32	SAE J518 -32-1161
M52525/16-40	SAE J518 -40-1161
M52525/16-48	SAE J518 -48-1161
M52525/16-56	SAE J518 -56-1161
M52525/16-64	SAE J518 -64-1161

^{1/} Material and finish designators are omitted from PIN's see table I, SAE-J518-1, and SAE-J846.

Legacy O-ring information. Table IV lists legacy information to help in determining the correct O-ring to use on 4-bolt split flange fittings and clamp halves.

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TABLE IV. O-ring legacy table.

Dash	PIN's	Width (T or d2)	ID (d1)	Comments
-8	AN6227-15	.0934	.750	Original MS28755 call out which is cancelled to SAE-AS28775
-12	AN6227-19	.0934	1.000	Original MS28755 call out which is cancelled to SAE-AS28775
-16	AN6227-24	.125	1.313	Original MS28755 call out which is cancelled to SAE-AS28775
-20	AN6227-27	.125	1.500	Original MS28755 call out which is cancelled to SAE-AS28775
-24	AN6230-3	.125	1.875	Original MS28755 call out which is cancelled to SAE-AS28775
-32	AN6230-6	.125	2.250	Original MS28755 call out which is cancelled to SAE-AS28775
-8	SAE-J120-210	.139 +/- .004	.734	Cancelled without replacement should be cancelled to SAE-J515.
-12	SAE-J120-214	.139 +/- .004	.984	Cancelled without replacement should be cancelled to SAE-J515.
-16	SAE-J120-219	.139 +/- .004	1.296	Cancelled without replacement should be cancelled to SAE-J515.
-20	SAE-J120-222	.139 +/- .004	1.484	Cancelled without replacement should be cancelled to SAE-J515.
-24	SAE-J120-225	.139 +/- .004	1.859	Cancelled without replacement should be cancelled to SAE-J515.
-32	SAE-J120-228	.139 +/- .004	2.234	Cancelled without replacement should be cancelled to SAE-J515
-8	SAE-J515-210	.1389 +/- .004	.734	Replacement for SAE-J120
-12	SAE-J515-214	.1389 +/- .004	.98	Replacement for SAE-J120
-16	SAE-J515-219	.1389 +/- .004	1.296	Replacement for SAE-J120
-20	SAE-J515-222	.1389 +/- .004	1.484	Replacement for SAE-J120
-24	SAE-J515-225	.1389 +/- .004	1.859	Replacement for SAE-J120
-32	SAE-J515-228	.1389 +/- .004	2.234	Replacement for SAE-J120

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TABLE IV. O-ring legacy table - Continued.

Dash	PIN's	Width (T or d2)	ID (d1)	Comments
-8	SAE-AS28775-210	.135-.143	.728-.0740	Replacement for SAE-AS6227 and SAE-AS6230
-12	SAE-AS28775-214	.135-.143	.978-.0990	Replacement for SAE-AS6227 and SAE-AS6230
-16	SAE-AS28775-219	.135-.143	1.290-1.302	Replacement for SAE-AS6227 and SAE-AS6230
-20	SAE-AS28775-222	.135-.143	1.478-1.490	Replacement for SAE-AS6227 and SAE-AS6230
-24	SAE-AS28775-328	.205-.215	1.840-1.860	Replacement for SAE-AS6227 and SAE-AS6230
-32	SAE-AS28775-331	.205-.215	2.215-2.235	Replacement for SAE-AS6227 and SAE-AS6230

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-52525, this document references the following:

MIL-A-8625	SAE-AMS-STD-595/36118	SAE-AMS2417
MIL-DTL-16232	SAE-AMS-STD-595/36134	SAE-AMS2488
MIL-DTL-52471/7	SAE-AMS-STD-595/36152	SAE-AMS2486
MIL-DTL-52525/17	SAE-AMS-STD-595/36170	SAE-AMS2700
MIL-DTL-81706	SAE-AMS-STD-595/36173	SAE-AS4841
ASTM B117	SAE-AMS-STD-595/36176	SAE-AS28775
ASTM B633	SAE-AMS-STD-595/36231	SAE-J515
ASTM B695	SAE-AMS-STD-595/36251	SAE J518-1
ASTM F1136/F1136M	SAE-AMS-STD-595/36270	SAE-J518-2
ASTM MNL37	SAE-AMS-STD-595/36280	SAE-J846
SAE-AMS-STD-595/36076	SAE-AMS-STD-595/36293	T9070-AL-DPC-020/077-2
SAE-AMS-STD-595/36081	SAE-AMS-C-81562	
SAE-AMS-STD-595/36099	SAE-AMS-QQ-P-416	

MIL-DTL-52525/16E

CONCLUDING MATERIAL

Custodians:

Army - AT
Navy - SH
Air Force - 71
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-2020-001)

Review activities:

Army - CR4
Navy - AS, CG, SA, YD

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>.