

**Aerospace
Hose & Fittings**

Hydrasearch

**"Committed to
Quality and
Innovation"**



www.hydrasearch.com

Catalog 209

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Committed to Quality and Innovation

Founded in 1962, Hydrasearch Company, Inc. is dedicated to providing the highest quality products for military and commercial marine vessels, fully compliant with customer requirements.

We have successfully built our business through strict adherence to product design and quality control, interchangeability with existing products, close attention to customer requirements and delivery needs, and competitive pricing. As a result, we have steadily increased our market presence.

With the acquisition of Deutsch flexible fluid system products, Hydrasearch now provides a complete range of proven products to the commercial and military aircraft/aerospace industry.

A Knowledge Base Built on Experience

For over 35 years, Hydrasearch has focused on the design, development, and manufacture of fluid-conveying products and systems. Our first products were specially designed hydraulic systems, and fueling at sea systems for the U.S. Navy. Our indepth knowledge of hose fitting designs for demanding applications soon led to the development of innovative hose and couplings and related products that are now part many diverse fluid handling and fluid power systems. More recently, Hydrasearch products have extended into the aerospace industry, where we support a full range of equipment from helicopters and jets to missiles and rockets.



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Flexible Fluid System Solutions for the Aerospace Industry

Hydrasearch is a leading supplier of fluid system components to the military and commercial aerospace industry. We manufacture a complete range of fitting configurations for a wide variety of hose types, including low, medium, and high pressure rubber hose, lightweight medium pressure rubber hose, and medium and high pressure PTFE hose. Because of the superior design and manufacture of Hydrasearch hose assemblies, customers around the globe use these products to make their flexible fluid systems.

Quality Control Ensures Reliability

Hydrasearch Company, Inc. is ISO 9001 certified. The scope of our registration covers the higher Quality Management System for the design, development, manufacture and distribution of fluid systems and components for Military and Commercial Customers. Calibration of measuring tools and equipment for final acceptance are traceable to the National Institute of Standards and Technology (NIST) and meet the requirements of ANSI/NCSL Z540-1.

Complete Customer Satisfaction

Supplying products that meet strict design and quality standards is only part of our mission. At Hydrasearch, we strive to establish and maintain close relationships with each of our customers. We pay attention to the little details that will help you obtain just what you need, when you need it. If your requirements call for more than a "standard" product, our technical sales staff will work to satisfy those special needs.

Statement of Guaranty

Hydrasearch Company, Inc. guarantees that its own designed and manufactured equipment meets the overall specifications, technical proposals or published catalog data.

Hydrasearch equipment is guaranteed to be free of defects in materials and workmanship for twelve (12) months from date of shipment. Components purchased for the above equipment, and under warranty by another manufacturer, carry that manufacturer's warranty only.

Liabilities under this warranty are limited to the replacement, correction, or repair of the defect at the original place of shipment. No liability can be accepted for the loss of revenues due to non-operation of equipment, nor for the cost of repair beyond those stated above.



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Committed to Quality and Innovation

Dimensions - All dimensions shown are approximate, and are to be used for reference only. Please contact Hydrasearch Technical Sales at (410) 643-8900 if exact dimensions are required.

Accuracy of Information - Every effort has been made to ensure the accuracy of the information contained in this catalog. While we cannot assume liability for any errors or omissions, we encourage you to contact our Customer Service Department (engineering@hydrasearch.com) with such information, so that the necessary changes can be made.

Pricing & Availability - Please contact Hydrasearch Technical Sales at (410) 643-8900 or sales@hydrasearch.com for pricing and availability information.

Ordering Information - When ordering, please note that each part number is broken down into seven elements. (See figure and key descriptions below for explanation of a typical hose assembly part number.)

A	B	C	D	E	F	G
93	B	11	275	08	D	0184

A Type of Hose - Hose type is designated by a two digit number, as follows:

93 = Low pressure, rubber
94 = Medium pressure, rubber
88 = High pressure, rubber
79 = Electrically conductive TFE inner liner with braided stainless steel cover
36 = Seamless CPE compound inner tube

B Type of Fitting - Fitting type is designated by a single letter, as follows:

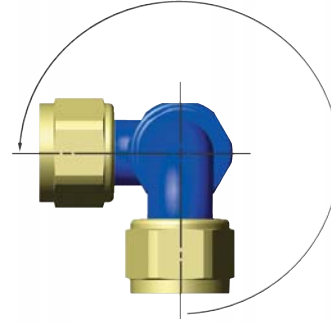
B = Field attachable (Reusable Fittings)
D = Swivel Nuts with lock wire holes
F = Firesleeve - silicone
H = Firesleeve - silicone with lock wire holes in swivel nuts
J = Chafe guard - spiral TFE
L = Chafe guard with lock wire holes in swivel nuts
X = Internal support spring
Z = Internal support spring with lock wire holes in swivel nuts

Note: For TFE hose assemblies, confirm L, X and Z before using. Special number may apply.

C Hose Fitting Combinations - Hose fitting combinations are designated by a two-digit number. (See hose fitting combination chart on page 5).



- D Angular Rotation of Hose Fittings** - Place fitting nearest you at a position of 0° (see illustration). Measure counterclockwise to the desired position of the rear fitting. If the angle between fittings desired is position 0° to position 0°, specify 000.



- E Hose Assembly Size** - Hose assembly size is designated by a two-digit number, as follows:

Note: Size 3/16" code is 34, which consists of a 1/4" hose with 3/16" fittings.

Fitting Tube Size	Size Code Number
3/16"	03
1/4"	04
5/16"	05
3/8"	06
1/2"	08
5/8"	10
3/4"	12
1"	16
1-1/4"	20
1-1/2"	24
2"	32

- F Fitting Material** - Fitting material is designated by one of the following letters:

Rubber and Lightweight Medium Pressure

D = All aluminum

F = Steel with aluminum sockets

X = Steel with aluminum sockets with firesleeve

R = All aluminum with rubber abrasion-resistant sleeve*

P = Steel with aluminum sockets with rubber abrasion-resistant sleeve*

X = 08 aluminum fittings and above with firesleeve

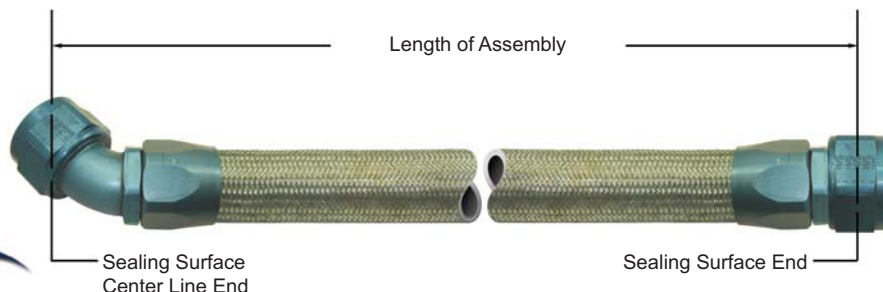
*To order rubber guard, type of fitting designation is J, and fitting material is either R or P.

TFE Hose Assemblies

C = Stainless steel fittings

Z = Stainless steel fittings with silicone fire sleeve

- G Length of Assembly** - Hydrasearch hose assemblies are available in 1/8-inch increments. The first three digits indicate length in inches. The fourth digit indicates fractions of an inch in 8ths. (The example and key description on Page 3 specifies an assembly 18-1/2" in length.) Lengths are specified from centerline to centerline of angular fittings, and from end-of-sealing surface to end-of-sealing surface for straights.



Hydrasearch Hose Fittings Code Chart for Hose Assemblies

Code No.	1st End	Angle	2nd End	Angle	Mfg. Method
01	Flare	Straight to	Flare	Straight	Bar Stock
02	Flare	Straight to	Flare	45°	Forged
03	Flare	Straight to	Flare	90°	Forged
04	Flare	45° to	Flare	45°	Forged
05	Flare	45° to	Flare	90°	Forged
06	Flare	90° to	Flare	90°	Forged
07	Flare	Straight to	Flare	45°	Bent Tube
08	Flare	Straight to	Flare	90°	Bent Tube
09	Flare	45° to	Flare	45°	Bent Tube
10	Flare	45° to	Flare	90°	Bent Tube
11	Flare	90° to	Flare	90°	Bent Tube
20	Flange	Straight to	Flange	Straight	Bar Stock
21	Flange	Straight to	Flange	45°	Forged
22	Flange	Straight to	Flange	90°	Forged
23	Flange	45° to	Flange	45°	Forged
24	Flange	45° to	Flange	90°	Forged
25	Flange	90° to	Flange	90°	Forged
26	Flange	Straight to	Flange	45°	Bent Tube
27	Flange	Straight to	Flange	90°	Bent Tube
28	Flange	45° to	Flange	45°	Bent Tube
29	Flange	45° to	Flange	90°	Bent Tube
30	Flange	90° to	Flange	90°	Bent Tube
40	Flare	Straight to	Flange	Straight	Bar Stock
41	Flare	Straight to	Flange	45°	Forged
42	Flare	Straight to	Flange	90°	Forged
43	Flare	45° to	Flange	Straight	Forged
44	Flare	45° to	Flange	45°	Forged
45	Flare	45° to	Flange	90°	Forged
46	Flare	90° to	Flange	Straight	Forged
47	Flare	90° to	Flange	45°	Forged
48	Flare	90° to	Flange	90°	Forged
49	Flare	Straight to	Flange	45°	Bent Tube
50	Flare	Straight to	Flange	90°	Bent Tube

Code No.	1st End	Angle	2nd End	Angle	Mfg. Method
51	Flare	45° to	Flange	Straight	Bent Tube
52	Flare	45° to	Flange	45°	Bent Tube
53	Flare	45° to	Flange	90°	Bent Tube
54	Flare	90° to	Flange	Straight	Bent Tube
55	Flare	90° to	Flange	45°	Bent Tube
56	Flare	90° to	Flange	90°	Bent Tube
57	Flareless	Straight to	Flareless	Straight	Bar Stock
58	Flareless	Straight to	Flareless	45°	Bent Tube
59	Flareless	Straight to	Flareless	90°	Bent Tube
60	Flareless	45° to	Flareless	45°	Bent Tube
61	Flareless	45° to	Flareless	90°	Bent Tube
62	Flareless	90° to	Flareless	90°	Bent Tube
63	Flareless	Straight to	Flange	Straight	Bar Stock
64	Flareless	Straight to	Flange	45°	Bent Tube
65	Flareless	Straight to	Flange	90°	Bent Tube
66	Flareless	45° to	Flange	Straight	Bent Tube
67	Flareless	45° to	Flange	45°	Bent Tube
68	Flareless	45° to	Flange	90°	Bent Tube
69	Flareless	90° to	Flange	Straight	Bent Tube
71	Flareless	Straight to	Flareless	45°	Forged
72	Flareless	Straight to	Flareless	90°	Forged
73	Flareless	45° to	Flareless	45°	Forged
74	Flareless	45° to	Flareless	90°	Forged
75	Flareless	90° to	Flareless	90°	Forged
82	Flareless	Straight to	Flange	45°	Forged
83	Flareless	Straight to	Flange	90°	Forged
84	Flareless	45° to	Flange	Straight	Forged
85	Flareless	45° to	Flange	45°	Forged
86	Flareless	45° to	Flange	90°	Forged
87	Flareless	90° to	Flange	Straight	Forged
88	Flareless	90° to	Flange	45°	Forged
89	Flareless	90° to	Flange	90°	Forged
98	Flareless	90° to	Flange	45°	Bent Tube
99	Flareless	90° to	Flange	90°	Bent Tube

This Page contains all common combinations of fittings listed in this catalog.
Special combinations are available upon request.

All combinations are not standard in all sizes.

Low Pressure Rubber Hose Assemblies

Low Pressure



Hydrasearch AN-6270 low pressure hose assemblies can be used as flexible connections on low pressure or vacuum systems such as aircraft instrument systems (See SAE-AIR797). It is especially suited for low pressure hydraulic fluids, engine oils, fuels, and coolant fluids. Hydrasearch low pressure hose is used for applications with operating pressures to 250 psi, and having a temperature range of -67°F to +158°F.

Hydrasearch Part No.	AN Part No.	Tube O.D.	Hose I.D.	Thread Size
93B0100003D0000	AN6270-3D-L	.188	.188	3/8-24UNF
93B0100004D0000	AN6270-4D-L	.250	.250	7/16-20 UNF
93B0100006D0000	AN6270-6D-L	.375	.375	9/16-18 UNF
93B0100008D0000	AN6270-8D-L	.500	.500	3/4-16 UNF
93B0100010D0000	AN6270-10D-L	.625	.625	7/8-14 UNF

Specifications for fittings

Materials: Aluminum
2024-T6 per SAE AMS4133 or
2024-T851 per AMS QQ-A-225/6

Finish: Aluminum Alloy,
Anodized in accordance with
MIL-A-8625, Type II.

Military Specifications:

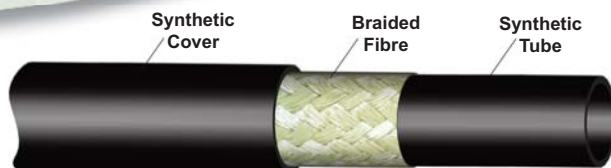
Fitting: MIL-DTL-38726 & MS27404
Hose: MIL-DTL-5593
Hose Assembly: AN6270

Example of military part number:

AN6270-4D-0204

Flareless fittings designator = 93B57

Hydrasearch Low Pressure Hose I.A.W. MIL-DTL-5593



Identification:

Black cover with yellow dot and dash stripe running parallel to bore of hose to indicate natural lay of hose after installing. The letters LP in the stripe indicate low pressure.

Operating Systems

- Severe vibrating and flexing.
- Resistant to engine oil and cleaning solvent externally.
- Internal and external temperatures from -67°F to +158°F
- Internal fluids, hydraulic fluids, engine oil, fuel, coolant fluids, etc.

Construction:

- Inner Tube: Oil and fuel resistant synthetic compound.
- Reinforcement: Single cotton braid embedded in bonding material.
- Outer Cover: Oil and fuel resistant synthetic compound.

Size No.	Tube Size O.D.	Inside Diameter In.	Max. Outside Diameter	Max. Working Pressure PSI	Proof Test Pressure PSI	Min. Burst Pressure PSI	Min. Bend Radius	Hose Weight Lb/Ft.
03	.188	.188	.438	250	500	1700	1	.065
04	.250	.250	.500	200	400	1250	2	.075
06	.375	.375	.625	150	300	1000	2	.094
08	.500	.500	.781	150	250	750	3	.180
10	.625	.625	.906	150	250	700	3	.210

All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



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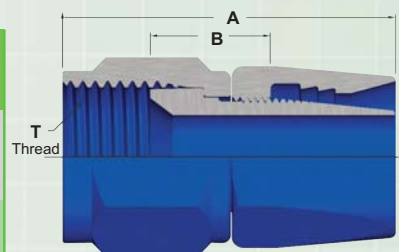
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Low Pressure Rubber Hose Fittings

Straight, Flared

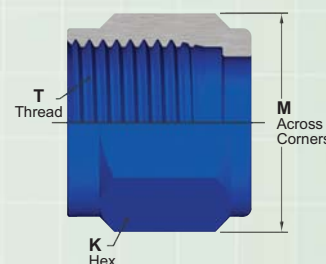
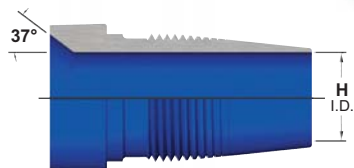
Hydrasearch Part No.	MS Part No.	Tube O.D.	A	B*	T	Weight in Lbs.
147-29033	MS27404-3D	.188	.860	.438	3/8-24	.012
147-29034	MS27404-4D	.250	.908	.449	7/16-20	.020
147-29036	MS27404-6D	.375	1.006	.547	9/16-18	.029
147-29038	MS27404-8D	.500	1.234	.672	3/4-16	.059
147-29040	MS27404-10D	.625	1.432	.719	7/8-14	.074

* Cutoff Factor



Low Pressure

Low Pressure Connector Components



Insert

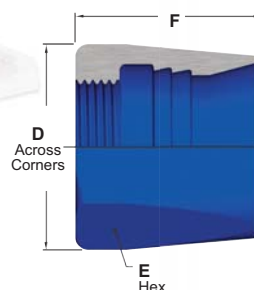
Hydrasearch Part No.	Size	H
147-29233	-03	.125
147-29234	-04	.172
147-29236	-06	.297
147-29238	-08	.391
147-29240	-10	.484

Nut

AN Part No.	K Hex.	M	T
AN818-3D	.437	.506	3/8-24
AN818-4D	.562	.650	7/16-20
AN818-6D	.687	.794	9/16-18
AN818-8D	.875	1.010	3/4-16
AN818-10D	1.00	1.155	7/8-14

Socket

Hydrasearch Part No.	Size	D	E	F
181-00001-03D	-03	.562	.500	.562
181-00001-04D	-04	.625	.563	.625
181-00001-06D	-06	.773	.688	.650
181-00001-08D	-08	.983	.875	.800
181-00001-10D	-10	1.053	.938	.950



All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



Medium Pressure Rubber Hose Assemblies



Specifications for fittings

Materials: Aluminum and Steel i.a.w. Table 1 of MIL-DTL-5070.

Finish: Aluminum Alloy, Anodized in accordance with MIL-A-8625, Type II, Class II. Steel, Cad Plate per SAE-AMS-QQ-P-416, Type II, Class II.

Sizes 3-6 are steel with aluminum sockets; Sizes 8-32 are all aluminum.

Hydrasearch MS28741 medium pressure hose assemblies can be used as flexible connections on medium pressure power plant and airframe applications (See SAE-AIR797). They are especially suited for medium pressure hydraulic fluids, engine oils, fuels, and coolant fluids. Hydrasearch medium pressure hose is used for applications with operating pressures up to 3000 psi, and having a temperature range of -65°F to +250°F. See MIL-DTL-8794 for specific temperature ranges.

Hydrasearch Part No.	MS Part No.	Max. Oper. Pressure P.S.I.	Min. Proof Pressure P.S.I.	Min. Burst Pressure P.S.I.	Min. Bend Radius In.	Tube O.D.	Hose I.D. Min.	Thread Size
94B0100003F0000	MS28741-3-L	3000	6000	12000	3.000	.188	.125	3/8-24
94B0100004F0000	MS28741-4-L	3000	6000	12000	3.000	.250	.188	7/16-20
94B0100005F0000	MS28741-5-L	3000	5000	10000	3.375	.313	.250	1/2-20
94B0100006F0000	MS28741-6-L	2000	4500	9000	4.000	.375	.313	9/16-18
94B0100008D0000	MS28741-8-L	2000	4000	8000	4.625	.500	.406	3/4-16
94B0100010D0000	MS28741-10-L	1750	3500	7000	5.500	.625	.500	7/8-14
94B0100012D0000	MS28741-12-L	1500	3000	6000	6.500	.750	.625	1-1/16-12
94B0100016D0000	MS28741-16-L	800	1600	3200	7.375	1.000	.875	1-5/16-12
94B0100020D0000	MS28741-20-L	600	1250	2500	9.000	1.250	1.125	1-5/8-12
94B0100024D0000	MS28741-24-L	500	1000	2000	11.000	1.500	1.375	1-7/8-12
94B0100032D0000	MS28741-32-L	350	700	1400	13.250	2.000	1.813	2-1/2-12

Note: Flareless hose assembly fitting designator = 93B57.

Example of a Military Part Number: MS28741-4-0204

Hose assembly, flared, straight fittings, 20-1/2" in length, for 1/4" tubing.

Military Specifications:

Fitting: MIL-DTL-5070

Hose: MIL-DTL-8794

Hose Assembly: MIL-DTL-8795

Hydrasearch Medium Pressure Hose I.A.W. MIL-DTL-8794



Operating Systems:

- Severe vibrating and flexing.
- Resistant to engine oil and cleaning solvent externally.
- Internal and external temperatures from -65°F to +250°F.
- Internal fluids, hydraulic fluids, engine oil, fuel, coolant fluids, etc.

Construction:

- Inner Tube: Oil and fuel resistant synthetic compound.
- Reinforcement: Single wire braid and single cotton braid.
- Outer Cover: Oil and fuel resistant synthetic impregnated cotton braid.

Identification:

Black cover with yellow line running parallel to bore of hose to indicate natural lay of hose after installing.

The specification, size number, date of manufacture, and federal supply code form a part of the lay line and are repeated every 12 inches.

Hydrasearch Part No.	Tube Size O.D.	Hose Inside Dia. Min.	Approx. O.D.	Max. Oper. Pressure P.S.I.	Proof Test Pressure P.S.I.	Min. Burst Pressure P.S.I.	Min. Bend Radius	Weight Per Ft. in Lbs.
3H-8794-03	.188	.125	.453	3000	6000	12000	3.000	.12
3H-8794-04	.250	.188	.516	3000	6000	12000	3.000	.16
3H-8794-05	.313	.250	.578	3000	5000	10000	3.375	.20
3H-8794-06	.375	.313	.672	2000	4500	9000	4.000	.23
3H-8794-08	.500	.406	.766	2000	4000	8000	4.625	.27
3H-8794-10	.625	.500	.922	1750	3500	7000	5.500	.36
3H-8794-12	.750	.625	1.078	1500	3000	6000	6.500	.44
3H-8794-16	1.000	.875	1.234	800	1600	3200	7.375	.43
3H-8794-20	1.250	1.125	1.500	600	1250	2500	9.000	.51
3H-8794-24	1.500	1.375	1.750	500	1000	2000	11.000	.62

All Dimensions are in Inches.

Dimensional information is for reference only.

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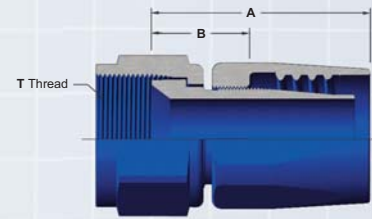
Medium Pressure Rubber Flared Hose Fittings

Straight, Flared

MS24587, Supersedes MS28740 Fitting

Complete Assembly	MS Part No.	Tube O.D.	A	B*	T	Weight (Lbs.)
148-32003	MS24587-3	.188	1.298	.648	3/8-24	.035
148-32004	MS24587-4	.250	1.384	.634	7/16-20	.055
148-32005	MS24587-5	.313	1.516	.736	1/2-20	.070
148-32006	MS24587-6	.375	1.656	.756	9/16-18	.094
148-32008	MS24587-8	.500	2.084	.934	3/4-16	.090
148-32010	MS24587-10	.625	2.282	.992	7/8-14	.137
148-32012	MS24587-12	.750	2.566	.996	1-1/16-12	.191
148-32016	MS24587-16	1.000	2.206	.936	1-5/16-12	.227
148-32020	MS24587-20	1.250	2.347	.984	1-5/8-12	.418
148-32024	MS24587-24	1.500	2.533	1.078	1-7/8-12	.510
148-32032	MS24587-32	2.000	3.074	1.234	2-1/2-12	.865

* Cutoff Factor



Medium Pressure

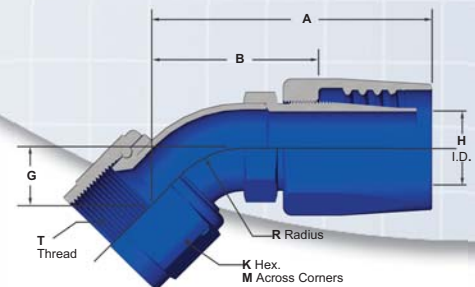
45° Elbow, Flared

MS27226

Insert Assembly Only MS27225

Complete Assembly	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
148-1045-03	148-1145-03	.188	1.80	1.14	.376	.126	.500	.58	.38	3/8-24	.063
148-1045-04	148-1145-04	.250	1.87	1.12	.352	.126	.562	.65	.38	7/16-20	.069
148-1045-05	148-1145-05	.313	2.12	1.34	.415	.172	.625	.72	.44	1/2-20	.107
148-1045-06	148-1145-06	.375	2.28	1.38	.444	.234	.688	.80	.50	9/16-18	.112
148-1045-08D	148-1145-08D	.500	2.70	1.55	.456	.358	.875	1.01	.50	3/4-16	.117
148-1045-10D	148-1145-10D	.625	2.99	1.72	.536	.455	1.000	1.16	.62	7/8-14	.160
148-1045-12D	148-1145-12D	.750	3.46	1.89	.623	.579	1.250	1.45	.84	1-1/16-12	.218
148-1045-16D	148-1145-16D	1.000	3.11	1.84	.660	.815	1.500	1.74	.97	1-5/16-12	.249
148-1045-20D	148-1145-20D	1.250	3.52	2.16	.768	1.047	1.812	2.09	1.19	1-5/8-12	.391
148-1045-24D	148-1145-24D	1.500	3.86	2.40	.867	1.281	2.125	2.45	1.38	1-7/8-12	.541
148-1045-32D	148-1145-32D	2.000	4.68	2.84	1.066	1.750	2.750	3.17	1.75	2-1/2-12	.904

* Cutoff Factor



9

90° Elbow, Flared

MS27224

Insert Assembly Only MS27223

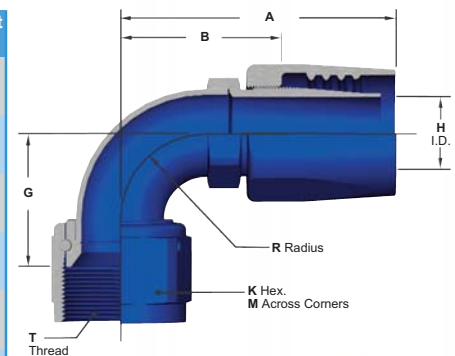
Complete Assembly	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
148-1090-03	148-1190-03	.188	1.64	.99	.752	.126	.500	.58	.38	3/8-24	.065
148-1090-04	148-1190-04	.250	1.74	.99	.718	.126	.562	.65	.38	7/16-20	.070
148-1090-05	148-1190-05	.313	1.96	1.18	.844	.172	.625	.72	.44	1/2-20	.112
148-1090-06	148-1190-06	.375	2.13	1.23	.922	.234	.688	.80	.50	9/16-18	.132
148-1090-08D	148-1190-08D	.500	2.54	1.39	.938	.358	.875	1.01	.50	3/4-16	.115
148-1090-10D	148-1190-10D	.625	2.82	1.52	1.126	.455	1.000	1.16	.62	7/8-14	.165
148-1090-12D	148-1190-12D	.750	3.34	1.76	1.376	.579	1.250	1.45	.84	1-1/16-12	.226
148-1090-16D	148-1190-16D	1.00	3.02	1.75	1.500	.815	1.500	1.74	.97	1-5/16-12	.262
148-1090-20D	148-1190-20D	1.250	3.45	2.09	1.782	1.047	1.812	2.09	1.19	1-5/8-12	.413
148-1090-24D	148-1190-24D	1.500	3.80	2.34	2.032	1.281	2.125	2.45	1.38	1-7/8-12	.575
148-1090-32D	148-1190-32D	2.000	4.64	2.80	2.532	1.750	2.750	3.17	1.75	2-1/2-12	.972

* Cutoff Factor

All Dimensions are in Inches.

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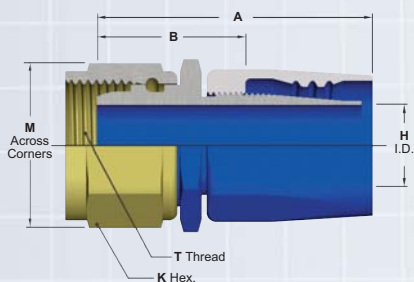


Hydrasearch

Medium Pressure Rubber Flareless Hose Fittings

Medium
Pressure

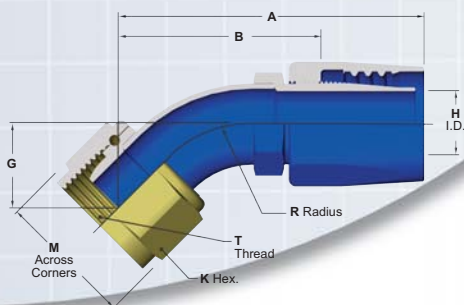
Straight, Flareless



Complete Assembly	Insert Assembly	Socket	A	B*	H	K	M	T	Weight (Lbs.)
148-2000-03	148-2100-03	148-32103	1.63	.98	.126	.500	.58	3/8-24	.053
148-2000-04	148-2100-04	148-32104	1.68	.94	.126	.562	.65	7/16-20	.070
148-2000-05	148-2100-05	148-32105	1.83	1.05	.172	.625	.72	1/2-20	.090
148-2000-06	148-2100-06	148-32106	2.01	1.11	.234	.688	.80	9/16-18	.125
148-2000-08D	148-2100-08D	148-32108	2.48	1.33	.358	.875	1.01	3/4-16	.124
148-2000-10D	148-2100-10D	148-32110	2.75	1.46	.455	1.000	1.16	7/8-14	.161
148-2000-12D	148-2100-12D	148-32112	3.04	1.47	.579	1.250	1.45	1-1/16-12	.230
148-2000-16D	148-2100-16D	148-32116	2.72	1.45	.815	1.500	1.74	1-5/16-12	.269
148-2000-20D	148-2100-20D	148-32120	2.92	1.56	1.047	1.812	2.09	1-5/8-12	.408

* Cutoff Factor

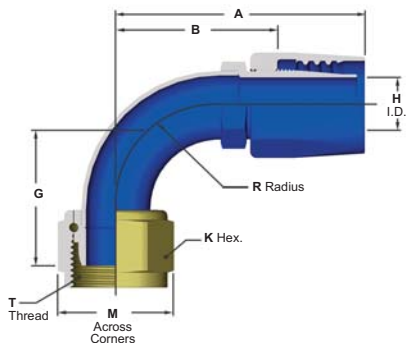
45° Elbow, Flareless



Complete Assembly	Insert Assembly	A	B*	G	H	K	M	R	T	Weight (Lbs.)
148-2045-03	148-2145-03	1.95	1.29	.528	.126	.500	.58	.38	3/8-24	.063
148-2045-04	148-2145-04	2.10	1.22	.452	.126	.562	.65	.38	7/16-20	.070
148-2045-05	148-2145-05	2.35	1.45	.525	.172	.625	.72	.44	1/2-20	.106
148-2045-06	148-2145-06	2.55	1.51	.578	.234	.688	.80	.50	9/16-18	.131
148-2045-08D	148-2145-08D	3.00	1.71	.610	.358	.875	1.01	.50	3/4-16	.115
148-2045-10D	148-2145-10D	3.30	1.88	.725	.455	1.000	1.16	.62	7/8-14	.156
148-2045-12D	148-2145-12D	4.05	2.36	.919	.579	1.250	1.45	1.25	1-1/16-12	.233
148-2045-16D	148-2145-16D	3.80	2.41	1.010	.815	1.500	1.74	1.50	1-5/16-12	.270
148-2045-20D	148-2145-20D	4.05	2.58	1.053	1.047	1.812	2.01	1.50	1-5/8-12	.410

* Cutoff Factor

90° Elbow, Flareless



Complete Assembly	Insert Assembly	A	B*	G	H	K	M	R	T	Weight (Lbs.)
148-2090-03	148-2190-03	1.64	.99	.966	.126	.500	.58	.38	3/8-24	.065
148-2090-04	148-2190-04	1.74	.99	.860	.126	.562	.65	.38	7/16-20	.071
148-2090-05	148-2190-05	1.97	1.18	1.000	.172	.625	.72	.44	1/2-20	.121
148-2090-06	148-2190-06	2.13	1.23	1.112	.234	.688	.80	.50	9/16-18	.136
148-2090-08D	148-2190-08D	2.54	1.39	1.156	.358	.875	1.01	.50	3/4-16	.118
148-2090-10D	148-2190-10D	2.82	1.52	1.392	.455	1.000	1.16	.62	7/8-14	.170
148-2090-12D	148-2190-12D	3.74	2.17	2.032	.579	1.250	1.45	1.25	1-1/16-12	.247
148-2090-16D	148-2190-16D	3.55	2.28	2.306	.815	1.500	1.74	1.50	1-5/16-12	.292
148-2090-20D	148-2190-20D	3.76	2.40	2.368	1.047	1.812	2.09	1.50	1-5/8-12	.438

* Cutoff Factor



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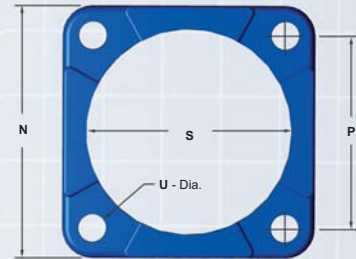
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Cat. 209

Medium Pressure Rubber Flanged Hose Fittings

Flange

Part No.	N	P	S	U
MS20756-D12	1.594	1.156	1.125	.210
MS20756-D16	1.750	1.312	1.375	.210
MS20756-D20	2.188	1.656	1.688	.271
MS20756-D24	2.375	1.812	1.938	.271
MS20756-D32	3.000	2.375	2.563	.333

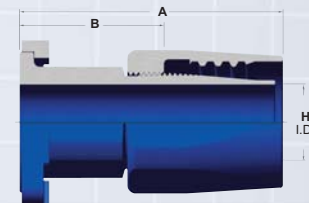


Straight, Flanged MS27232

Insert Assembly Only MS27231

Complete Assembly	Insert Assembly	Tube O.D.	A	B*	H	Weight (Lbs.)
148-3000-12D	148-3100-12D	.750	3.34	1.67	.579	.208
148-3000-16D	148-3100-16D	1.000	2.90	1.53	.815	.228
148-3000-20D	148-3100-20D	1.250	2.98	1.53	1.047	.347
148-3000-24D	148-3100-24D	1.500	3.02	1.47	1.281	.403
148-3000-32D	148-3100-32D	2.000	3.60	1.66	1.750	.692

* Cutoff Factor

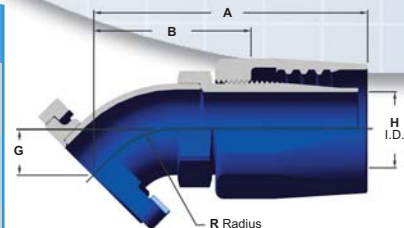


45° Elbow, Flanged MS27230

Insert Assembly Only MS27229

Complete Assembly	Insert Assembly	Tube O.D.	A	B*	G	H	R	Weight (Lbs.)
148-3045-12D	148-3145-12D	.750	3.43	1.74	.468	.579	.84	.194
148-3045-16D	148-3145-16D	1.000	3.08	1.69	.505	.815	.97	.206
148-3045-20D	148-3145-20D	1.250	3.45	1.96	.569	1.047	1.19	.337
148-3045-24D	148-3145-24D	1.500	3.74	2.16	.624	1.281	1.38	.427
148-3045-32D	148-3145-32D	2.000	4.47	2.50	.734	1.750	1.75	.754

* Cutoff Factor

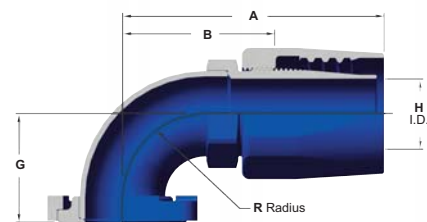


90° Elbow, Flanged MS27228

Insert Assembly Only MS27227

Complete Assembly	Insert Assembly	Tube O.D.	A	B*	G	H	R	Weight (Lbs.)
148-3090-12D	148-3190-12D	.750	3.46	1.76	1.156	.579	.84	.204
148-3090-16D	148-3190-16D	1.000	3.14	1.75	1.282	.815	.97	.229
148-3090-20D	148-3190-20D	1.250	3.57	2.09	1.500	1.047	1.19	.354
148-3090-24D	148-3190-24D	1.500	3.92	2.34	1.688	1.281	1.38	.468
148-3090-32D	148-3190-32D	2.000	4.76	2.80	2.062	1.750	1.75	.821

* Cutoff Factor



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Medium Pressure Rubber Fitting Components

Medium
Pressure



Used for the straight flared fittings seen on page 9.

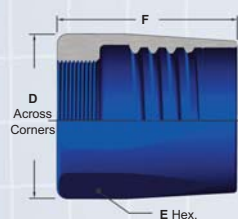
Insert

MS24588 (-3 to -12) - MS24589 (-16 to -32)

Hydrasearch Part No.	H
148-32203	.125
148-32204	.172
148-32205	.234
148-32206	.297
148-32208	.392
148-32210	.486
148-32212	.610
148-32216	.815
148-32220	1.047
148-32224	1.281
148-32232	1.750

Socket

MS24590 (-3 to -12) - MS24591 (-16 to -32)

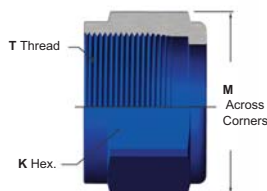


Used for all fitting types seen on pages 9 - 11.

Hydrasearch Part No.	D	E	F
148-32103	.625	.563	1.000
148-32104	.688	.625	1.100
148-32105	.750	.688	1.200
148-32106	.875	.813	1.300
148-32108	1.000	.938	1.650
148-32110	1.219	1.125	1.800
148-32112	1.344	1.250	2.100
148-32116	1.531	1.438	1.661
148-32120	1.906	1.750	1.750
148-32124	2.109	1.938	1.845
148-32132	2.625	2.438	2.250

Nut

AN818



Used for the straight flared fittings seen on page 9.

Hydrasearch Part No.	K	M	T
AN818-3	.437	.506	3/8-24
AN818-4	.562	.650	7/16-20
AN818-5	.625	.722	1/2-20
AN818-6	.687	.794	9/16-18
AN818-8D	.875	1.010	3/16-16
AN818-10D	1.000	1.155	7/8-14
AN818-12D	1.250	1.442	1-1/16-12
AN818-16D	1.500	1.730	1-5/16-12
AN818-20D	2.000	2.305	1-5/8-12
AN818-24D	2.250	2.590	1-7/8-12
AN818-32D	2.875	3.310	2-1/2-12



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Cat. 209

High Pressure Rubber Hose Assemblies



Specifications for fittings:

Materials: Aluminum and Steel i.a.w. Table I of MIL-DTL-8789.

Finish: Steel, Cadmium Plate i.a.w. AMS-QQ-P-416, Type II, Class 3. Aluminum Alloy, Anodized i.a.w. MIL-A-8625, Type II, Class 2.

Sizes 3-6 are steel with aluminum sockets; Sizes 8-32 are all aluminum.

Hydrasearch MS28759, flared, high pressure hose assemblies can be used as flexible connections on high pressure power plant and airframe applications (See SAE-AIR797). They are especially suited for high pressure hydraulic fluids, engine oils, fuels, and coolant fluids. Hydrasearch high pressure hose is used for applications with operating pressures to 3000 psi, and having a temperature range of -65°F to +275°F (See MIL-DTL-8788 for specific temperature ranges).

Hydrasearch Part No.	MS Part No.	Size	Tube Size O.D.	Hose Size I.D.	Max. Operating Pressure P.S.I.	T Thread
88B010004F0000	MS28759-4L	-04	.250	.219	3000	7/16-20
88B010005F0000	MS28759-5L	-05	.313	.281	3000	1/2-20
88B010006F0000	MS28759-6L	-06	.375	.344	3000	9/16-18
88B010008F0000	MS28759-8L	-08	.500	.438	3000	3/4-16
88B0100010F0000	MS28759-10L	-10	.625	.563	3000	7/8-14
88B0100012F0000	MS28759-12L	-12	.750	.688	3000	1-1/16-12
88B0100016F0000	MS28759-16L	-16	1.000	.875	3000	1-5/16-12

MS to Hydrasearch Hose Assembly Part Number Cross Reference Chart

MS Part No.	Fitting Combination	Hydrasearch Part No.
MS28759	Str. to Str.	88B01000XXFL
MS28762*	Str. to Str.	88B57000XXFL
MS28920	Str. to 45°	88B07000XXFL
MS28921	Str. to 90°	88B08000XXFL
MS28922	45° to 45°	88B09000XXFL
MS28923	45° to 90°	88B10000XXFL
MS28924	90° to 90°	88B11000XXFL

"XX" is hose dash size

* Flareless

Example of a Military Part Number: MS28759-40204

Hose assembly, flared, straight fittings, 20-1/2" in length, for 1/4" tubing, steel with aluminum sockets.

Military Specifications:

Fitting: MIL-DTL-8789 (Also MS28760, MS28761, MS28780, MS28781)

Hose: MIL-DTL-8788

Hose Ass'y: MIL-DTL-8790

Hydrasearch High Pressure Hose I.A.W. MIL-DTL-8788



Identification: Black cover with yellow lay line indicating specification number, size, cure date, and manufacturer's code running parallel to bore of hose to indicate natural lay of hose after installing.

Operating Conditions:

- Severe vibrating and flexing.
- Resistant to engine oil and cleaning solvent externally.
- Internal and external temperatures from -65°F to +160°F.
- Internal fluids, hydraulic fluids, engine oil, fuel, coolant fluids, etc.

Hydrasearch Part No.	Tube Size O.D.	Hose Inside Dia.	Approx. Outside Dia.	Max. Oper. Pressure P.S.I.	Proof Pressure P.S.I.	Min. Burst Pressure P.S.I.	Min. Bend Radius	Weight Per Ft. in Lbs.
3H-8788-04	.250	.219	.625	3000	6000	12000	3.000	.25
3H-8788-05	.313	.281	.703	3000	6000	12000	3.375	.30
3H-8788-06	.375	.344	.750	3000	6000	12000	5.000	.37
3H-8788-08	.500	.438	.859	3000	6000	12000	5.750	.54
3H-8788-10	.625	.563	1.031	3000	6000	12000	6.500	.66
3H-8788-12	.750	.688	1.219	3000	6000	12000	7.750	.81
3H-8788-16	1.000	.875	1.500	3000	6000	12000	9.625	1.30

Construction:

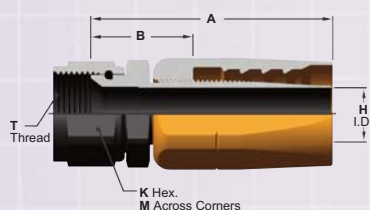
- Inner Tube: Oil and fuel resistant synthetic compound.
- Reinforcement: Sizes 4 - 12 are double wire braided. Size 16 is triple wire braided.
- Outer Cover: Oil and fuel resistant synthetic compound.

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High Pressure Rubber Flared Hose Fittings

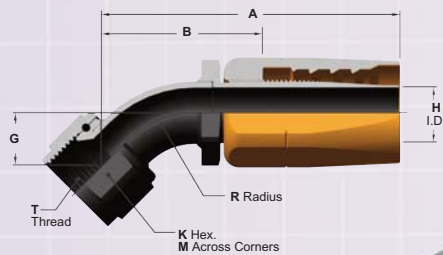
Straight, Flared MS28760



Complete Fitting	Insert Assembly	Tube O.D.	A	B*	H	K	M	T	Weight (Lbs.)
149-39270-04	149-39124	.250	1.99	.82	.159	.562	.65	7/16-20	.103
149-39270-05	149-39125	.313	2.13	.88	.218	.625	.72	1/2-20	.127
149-39270-06	149-39126	.375	2.34	.97	.281	.688	.80	9/16-18	.152
149-39270-08	149-39128	.500	2.68	1.10	.375	.875	1.01	3/4-16	.231
149-39270-10	149-39130	.625	2.88	1.31	.468	1.000	1.16	7/8-14	.358
149-39270-12	149-39132	.750	3.08	1.39	.578	1.250	1.45	1-1/16-12	.555
149-39270-16	149-39136	1.000	3.74	1.56	.812	1.500	1.74	1-5/16-12	.825

* Cutoff Factor

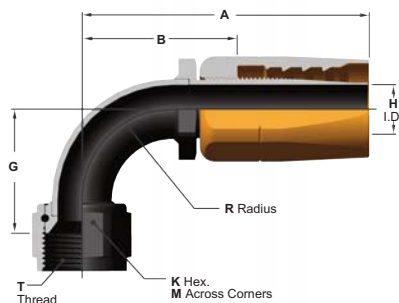
45° Elbow, Flared MS28780



Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
149-1045-04	149-1145-04	.250	2.27	1.10	.353	.159	.562	.65	.38	7/16-20	.115
149-1045-05	149-1145-05	.313	2.45	1.20	.415	.218	.625	.72	.44	1/2-20	.140
149-1045-06	149-1145-06	.375	2.64	1.26	.444	.281	.688	.80	.50	9/16-18	.160
149-1045-08	149-1145-08	.500	3.02	1.44	.455	.375	.875	1.01	.50	3/4-16	.240
149-1045-10	149-1145-10	.625	3.25	1.69	.536	.468	1.000	1.16	.62	7/8-14	.350
149-1045-12	149-1145-12	.750	3.94	2.25	.742	.578	1.250	1.45	1.25	1-1/16-12	.510
149-1045-16	149-1145-16	1.000	4.64	2.45	.815	.812	1.500	1.74	1.50	1-5/16-12	.840

* Cutoff Factor

90° Elbow, Flared MS28781



Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
149-1090-04	149-1190-04	.250	2.14	.97	.719	.159	.562	.65	.38	7/16-20	.116
149-1090-05	149-1190-05	.313	2.29	1.04	.844	.218	.625	.72	.44	1/2-20	.150
149-1090-06	149-1190-06	.375	2.52	1.14	.928	.281	.688	.80	.50	9/16-18	.170
149-1090-08	149-1190-08	.500	2.87	1.29	.938	.375	.875	1.01	.50	3/4-16	.255
149-1090-10	149-1190-10	.625	3.08	1.52	1.125	.468	1.000	1.16	.62	7/8-14	.375
149-1090-12	149-1190-12	.750	3.93	2.24	1.782	.578	1.250	1.45	1.25	1-1/16-12	.615
149-1090-16	149-1190-16	1.000	4.70	2.52	2.032	.812	1.500	1.74	1.50	1-5/16-12	.910

* Cutoff Factor



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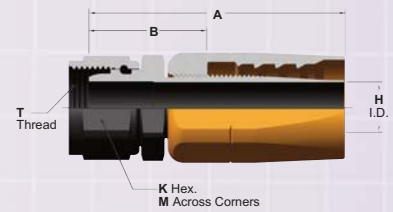
Cat. 209

High Pressure Rubber Flareless Hose Fittings

Straight, Flareless MS28761

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	H	K	M	T	Weight (Lbs.)
149-39273-04	149-39104	.250	2.14	.98	.159	.562	.65	7/16-20	.104
149-39273-05	149-39105	.313	2.31	1.06	.218	.625	.72	1/2-20	.125
149-39273-06	149-39106	.375	2.55	1.17	.281	.688	.80	9/16-18	.141
149-39273-08	149-39108	.500	2.91	1.33	.375	.875	1.01	3/4-16	.242
149-39273-10	149-39110	.625	3.15	1.59	.468	1.000	1.16	7/8-14	.379
149-39273-12	149-39112	.750	3.36	1.67	.578	1.250	1.45	1-1/16-12	.578
149-39273-16	149-39115	1.000	4.02	1.84	.812	1.500	1.74	1-5/16-12	.858

* Cutoff Factor

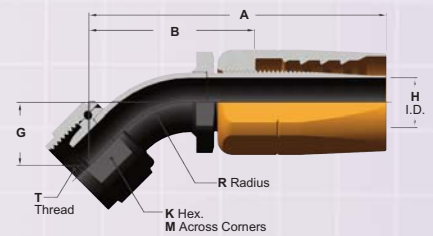


High
Pressure

45° Elbow, Flareless

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
149-2045-04	149-2145-04	.250	2.37	1.20	.452	.159	.562	.65	.38	7/16-20	.115
149-2045-05	149-2145-05	.313	2.57	1.32	.525	.218	.625	.72	.44	1/2-20	.143
149-2045-06	149-2145-06	.375	2.80	1.43	.578	.281	.688	.80	.50	9/16-18	.167
149-2045-08	149-2145-08	.500	3.18	1.61	.610	.375	.875	1.01	.50	3/4-16	.255
149-2045-10	149-2145-10	.625	3.44	1.87	.725	.468	1.000	1.16	.62	7/8-14	.370
149-2045-12	149-2145-12	.750	4.12	2.43	.919	.578	1.250	1.45	1.25	1-1/16-12	.595
149-2045-16	149-2145-16	1.000	4.83	2.65	1.010	.812	1.500	1.74	1.50	1-5/16-12	.890

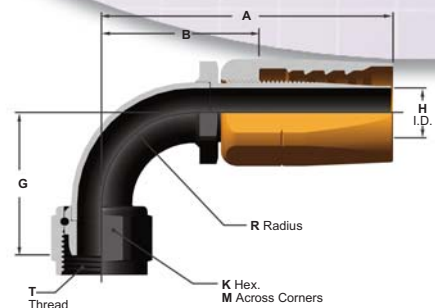
* Cutoff Factor



90° Elbow, Flareless

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
149-2090-04	149-2190-04	.250	2.13	.97	.763	.159	.562	.65	.38	7/16-20	.118
149-2090-05	149-2190-05	.313	2.30	1.05	.998	.218	.625	.72	.44	1/2-20	.153
149-2090-06	149-2190-06	.375	2.52	1.14	.978	.281	.688	.80	.50	9/16-18	.175
149-2090-08	149-2190-08	.500	2.87	1.29	1.156	.375	.875	1.01	.50	3/4-16	.260
149-2090-10	149-2190-10	.625	3.08	1.52	1.392	.468	1.000	1.16	.62	7/8-14	.395
149-2090-12	149-2190-12	.750	3.93	2.24	1.875	.578	1.250	1.45	1.25	1-1/16-12	.640
149-2090-16	149-2190-16	1.000	4.70	2.52	2.143	.812	1.500	1.74	1.50	1-5/16-12	.950

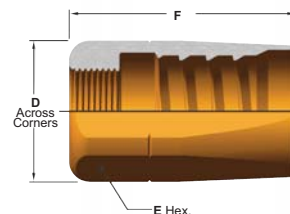
* Cutoff Factor



High Pressure Hose Socket

Part Number	D	E	F
149-39254	.813	.750	1.495
149-39255	.876	.812	1.600
149-39256	.943	.875	1.750
149-39258	1.003	.938	1.975
149-39260	1.178	1.125	2.062
149-39262	1.391	1.312	2.290
149-39266	1.750	1.625	2.810

* Cutoff Factor

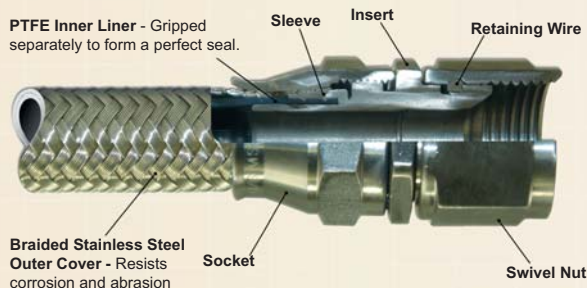


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Medium Pressure PTFE Hose Assemblies

Medium
Pressure PTFE



Hose assemblies may be ordered factory assembled. Bulk hose and fittings are available for customer fabricated hose assemblies. Standard hand tools can be used for low volume assembly.

Medium pressure PTFE fittings are available in a complete range of sizes and styles including straights, 45°, and 90° elbows, with flared, flareless, and flanged type connections. Size -03 fittings adapt to size -04 hose and are identified by either -3/-4 or 34. Reuse of sleeves is not recommended.

Example of a Military Part Number:

MS8000 E 18 5 F A 270
A. B. C. D. E. F.

A Base Assembly Number:
MS8000 flared to flared
MS8001 flareless to flareless
MS8002 flared to flange
MS8003 flareless to flange
MS8004 flange to flange

B Size Code:
B = -3, -4 H = -08
E = -04 J = -10
F = -05 K = -12
G = -06 M = -16

C Length of Assembly:
First two digits indicate inches.
Third digit indicates fraction of
an inch in 1/8ths.

D Style:
Fitting configuration and
material - See applicable MS
specification.

**E Protective sleeve type (as
required, see Table III of ap-
plicable MS sheet). Leave
blank if not required.**

**F Angular rotation of fittings
in degrees.**

**High Pressure PTFE hose assemblies
are available upon request.**
Fittings: MIL-DTL-83296
Hose: MIL-DTL-83298

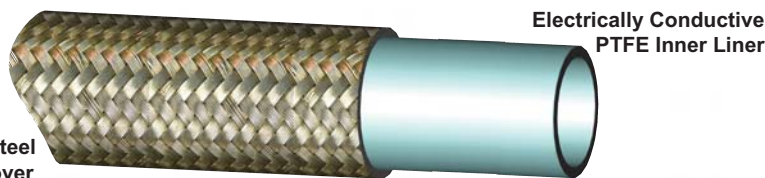
Specifications for Fittings:

Material: Corrosion resistant steel i.a.w.
MIL-DTL-25579
Finish: Passivate per AMS-QQ-P-35.
Design: Flared and flareless fittings -
Sizes -3 through -8 are forged
design. Sizes 10 through 16 are
bent tube design. Hydrasearch
field-attachable elbow fittings are
adjustable in angular rotation
through 360°.

Military Specifications:

Fitting: MIL-DTL-27272
Hose: MIL-DTL-27267
Hose Ass'y: MIL-DTL-25579, MS8000 - MS8004

Hydrasearch Medium Pressure PTFE Hose I.A.W. MIL-DTL-27267



Unlimited Shelf Life.

Hydrasearch medium pressure hose is used for applications on aerospace hydraulic and pneumatic systems with operating pressures 1500 psi, and temperatures ranging from -65°F to +450°F.

Hydrasearch PTFE hose is unaffected by most aircraft or missile fuels, oils, alcohols, acids, alkalies, coolants, solvents, oxidizers, propellants, and high temperature steam used in most aerospace applications. The smooth extruded PTFE tube is non-adhesive and has low fluid friction. Additional strength is provided by the tightly braided layers of wire reinforcement.

Part No.	Nominal Hose I.D.	Nominal Hose O.D.	Max. Oper. Pressure	Min. Proof Pressure	Min. Burst Pressure	Min. High Temp Burst Pressure	Min. Bend Radius In.	Approx. Wt./In. (Lbs.)
3H-379-04	.188	.312	1500	3000	12000	7000	2.00	.0070
3H-379-05	.250	.375	1500	3000	10000	6500	2.00	.0076
3H-379-06	.313	.446	1500	3000	9000	6500	4.00	.0092
3H-379-08	.406	.566	1500	3000	8000	6000	4.63	.0125
3H-379-10	.500	.660	1500	3000	7000	5500	5.50	.0157
3H-379-12	.625	.785	1000	2000	5000	3500	6.50	.0197
3H-379-16	.875	1.109	1250	2500	5000	3500	7.38	.0437



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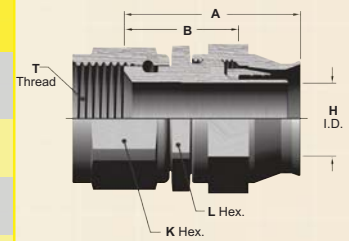
Medium Pressure PTFE Flared Hose Fittings

Straight, Flared

MS27053, Insert assembly only MS27061

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	H	K	L	T	Weight (Lbs.)
148-05200-3/-4	148-33291	.188	1.24	.72	.110	.500	.562	3/8-24	.065
148-05200-04	148-54757	.250	1.26	.74	.163	.562	.562	7/16-20	.071
148-05200-05	148-54758	.313	1.32	.77	.226	.625	.625	1/2-20	.086
148-05200-06	148-54759	.375	1.38	.81	.263	.688	.688	9/16-18	.121
148-05200-08	148-54760	.500	1.60	.94	.348	.875	.875	3/4-16	.225
148-05200-10	148-54761	.625	1.77	1.06	.443	1.000	1.000	7/8-14	.262
148-05200-12	148-54762	.750	1.84	1.14	.563	1.250	1.250	1-1/16-12	.419
148-05200-16	148-33300	1.000	2.05	1.31	.831	1.500	1.500	1-5/16-12	.642

* Cutoff Factor



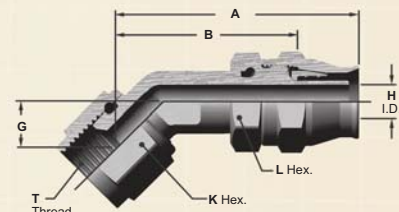
Medium
Pressure PTFE

45° Elbow, Flared, Forged

MS27059, Insert assembly only MS27067

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	T	Weight (Lbs.)
148-05212-3/-4	148-33274	.188	1.66	1.15	.283	.120	.500	.562	3/8-24	.088
148-05212-04	148-31969	.250	1.70	1.18	.322	.163	.562	.562	7/16-20	.097
148-05212-05	148-31970	.313	1.76	1.22	.340	.226	.625	.625	1/2-20	.116
148-05212-06	148-31971	.375	1.86	1.29	.389	.263	.688	.688	9/16-18	.136
148-05212-08	148-31992	.500	2.45	1.81	.465	.348	.875	.875	3/4-16	.269

* Cutoff Factor

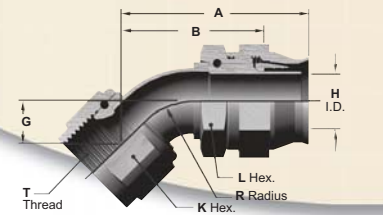


45° Elbow, Flared, Bent Tube

MS27055, Insert assembly only MS27063

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	R	T	Weight (Lbs.)
148-05204-10	148-32775	.625	2.29	1.58	.536	.443	1.000	1.000	.62	7/8-14	.287
148-05204-12	148-32776	.750	2.76	2.06	.623	.563	1.250	1.125	.84	1-1/16-12	.462
148-05204-16	148-33368	1.000	2.99	2.14	.660	.831	1.500	1.500	.97	1-5/16-12	.717

* Cutoff Factor



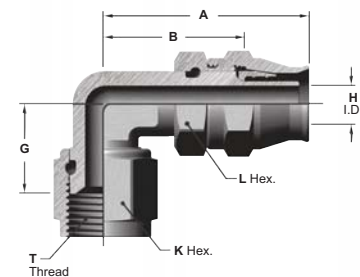
17

90° Elbow, Flared, Forged

MS27060, Insert assembly only MS27068

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	T	Weight (Lbs.)
148-05214-3/-4	148-33282	.188	1.43	.90	.530	.120	.500	.562	3/8-24	.089
148-05214-04	148-31981	.250	1.43	.90	.580	.163	.562	.562	7/16-20	.100
148-05214-05	148-31982	.313	1.51	.97	.655	.226	.625	.625	1/2-20	.139
148-05214-06	148-31983	.375	1.60	1.03	.720	.263	.688	.688	9/16-18	.167
148-05214-08	148-31993	.500	1.97	1.31	.830	.348	.875	.875	3/4-16	.277

* Cutoff Factor

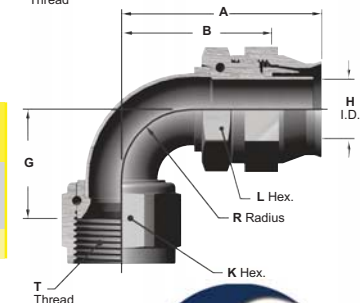


90° Elbow, Flared, Bent Tube

MS27057, Insert assembly only MS27065

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	R	T	Weight (Lbs.)
148-05208-10	148-32655	.625	2.12	1.41	1.126	.443	1.000	1.000	.62	7/8-14	.296
148-05208-12	148-32656	.750	2.63	1.93	1.376	.563	1.250	1.125	.84	1-1/16-12	.485
148-05208-16	148-33348	1.000	2.77	2.06	1.500	.831	1.500	1.500	.97	1-5/16-12	.744

* Cutoff Factor



All Dimensions are in Inches.

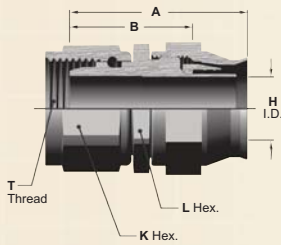
Dimensional information is for reference only.

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Hydrasearch

Medium Pressure PTFE Flareless Hose Fittings

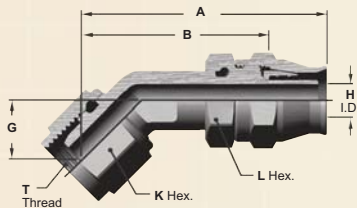
Medium
Pressure PTFE



Straight, Flareless MS27381, Insert assembly only MS27386

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	H	K	L	T	Weight (Lbs.)
148-05216-3/-4	148-33279	.188	1.46	.96	.120	.500	.562	3/8-24	.067
148-05216-04	148-30341	.250	1.41	.89	.163	.562	.562	7/16-20	.074
148-05216-05	148-30342	.313	1.50	.93	.226	.625	.625	1/2-20	.089
148-05216-06	148-30343	.375	1.59	1.02	.265	.688	.688	9/16-18	.121
148-05216-08	148-30344	.500	1.83	1.16	.343	.875	.875	3/4-16	.225
148-05216-10	148-30345	.625	2.04	1.33	.443	1.000	1.000	7/8-14	.262
148-05216-12	148-30346	.750	2.11	1.40	.563	1.250	1.250	1-1/16-12	.419
148-05216-16	148-30347	1.000	2.33	1.59	.831	1.500	1.500	1-5/16-12	.642

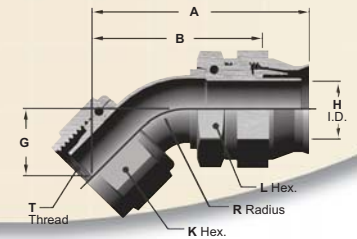
* Cutoff Factor



45° Elbow, Flareless, Forged MS27384, Insert assembly only MS27389

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	T	Weight (Lbs.)
148-05217-3/-4	148-33174	.188	1.81	1.14	.432	.120	.500	.562	3/8-24	.090
148-05217-04	148-07078	.250	1.80	1.29	.424	.163	.562	.562	7/16-20	.097
148-05217-05	148-07079	.313	1.87	1.33	.448	.226	.625	.625	1/2-20	.105
148-05217-06	148-07080	.375	1.99	1.43	.526	.265	.688	.688	9/16-18	.139
148-05217-08	148-07081	.500	2.62	1.95	.622	.343	.875	.875	3/4-16	.263

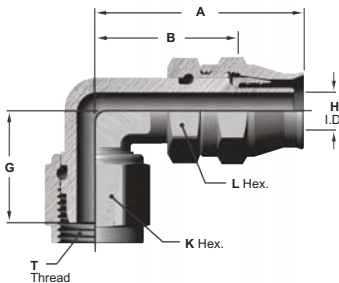
* Cutoff Factor



45° Elbow, Flareless, Bent Tube MS27382, Insert assembly only MS27387

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	R	T	Weight (Lbs.)
148-05219-10	148-30415	.625	2.48	.91	.729	.443	1.000	1.000	.63	7/8-14	.302
148-05219-12	148-30416	.750	2.93	1.03	.915	.563	1.250	1.125	.84	1-1/16-12	.482
148-05219-16	148-30417	1.000	3.06	1.31	1.052	.831	1.500	1.500	.97	1-5/16-12	.722

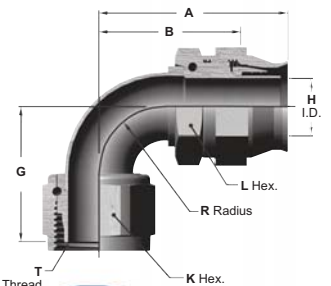
* Cutoff Factor



90° Elbow, Flareless, Forged MS27385, Insert assembly only MS27390

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	T	Weight (Lbs.)
148-05218-3/-4	148-33175	.188	1.43	.90	.741	.120	.500	.562	3/8-24	.094
148-05218-04	148-07082	.250	1.43	.90	.725	.163	.562	.562	7/16-20	.103
148-05218-05	148-07083	.313	1.51	.97	.808	.226	.625	.625	1/2-20	.141
148-05218-06	148-07084	.375	1.60	1.03	.915	.265	.688	.688	9/16-18	.170
148-05218-08	148-07085	.500	1.97	1.31	1.052	.343	.875	.875	3/4-16	.279

* Cutoff Factor



90° Elbow, Flareless, Bent Tube MS27383, Insert assembly only MS27388

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	K	L	R	T	Weight (Lbs.)
148-05220-10	148-30475	.625	2.12	1.41	1.392	.443	1.000	1.000	.62	7/8-14	.311
148-05220-12	148-30476	.750	2.63	1.93	1.626	.563	1.250	1.125	.84	1-1/16-12	.507
148-05220-16	148-30477	1.000	2.77	2.06	1.776	.831	1.500	1.500	.97	1-5/16-12	.749

* Cutoff Factor

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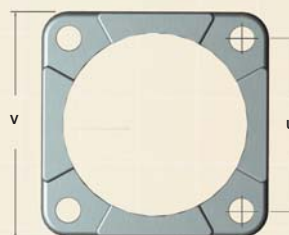
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Cat. 209

Medium Pressure PTFE Flanged Hose Fittings

Flange MS27077

Size	Part Number	U	V	Bolt Hole Dia.
-08	MS27077-08	.950	1.39	.210
-10	MS27077-10	1.038	1.47	.210
-12	MS27077-12	1.156	1.59	.210
-16	MS27077-16	1.312	1.75	.210

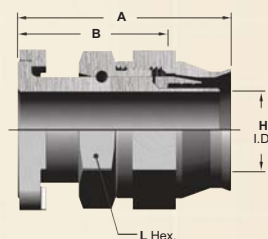


Straight, Flanged

MS27054, Insert assembly only MS27062

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	H	L	Weight (Lbs.)
148-05202-08	148-07045	.500	1.94	1.27	.348	.875	.353
148-05202-10	148-07046	.625	2.06	1.35	.443	1.000	.361
148-05202-12	148-07047	.750	2.25	1.55	.563	1.125	.377
148-05202-16	148-07048	1.000	2.34	1.62	.831	1.500	.634

* Cutoff Factor

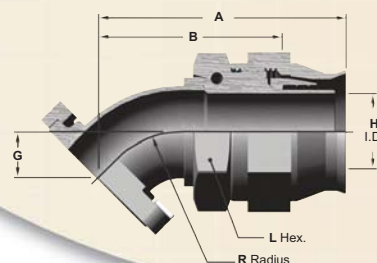


45° Elbow, Flanged, Bent Tube

MS27056, Insert assembly only MS27064

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	L	R	Weight (Lbs.)
148-05206-08	148-33960	.500	1.92	1.25	.338	.348	.875	.500	.231
148-05206-10	148-33961	.625	2.13	1.42	.375	.443	1.000	.625	.299
148-05206-12	148-33916	.750	2.60	1.90	.468	.563	1.125	.844	.429
148-05206-16	148-33917	1.000	2.71	2.00	.505	.831	1.500	.969	.635

* Cutoff Factor

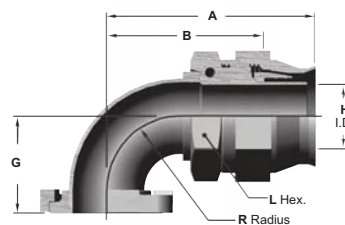


90° Elbow, Flanged, Bent Tube

MS27058, Insert assembly only MS27066

Complete Fitting	Insert Assembly	Tube O.D.	A	B*	G	H	L	R	Weight (Lbs.)
148-05210-08	148-33964	.500	1.87	1.21	.772	.348	.875	.500	.247
148-05210-10	148-33965	.625	2.12	1.41	.896	.443	1.000	.625	.307
148-05210-12	148-33924	.750	2.63	1.92	1.156	.563	1.125	.844	.431
148-05210-16	148-33925	1.000	2.77	2.05	1.282	.831	1.500	.969	.654

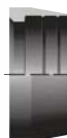
* Cutoff Factor



Medium Pressure PTFE Socket Assembly Components

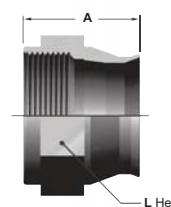
Hose Size	Part Number
-04	148-32911
-05	148-32912
-06	148-32913
-08	148-32914
-10	148-32915
-12	148-32916
-16	148-32917

Sleeve MS27070



Hose Size	Part Number	L Hex.	A Length
-04	148-07032	.56	.806
-05	148-07033	.62	.834
-06	148-07034	.69	.853
-08	148-07035	.88	.979
-10	148-07036	1.00	1.080
-12	148-07037	1.13	1.152
-16	148-07038	1.50	1.255

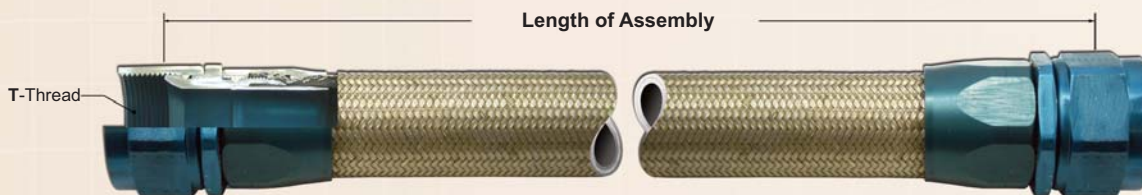
Socket MS27069



All Dimensions are in Inches.
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Hydrasearch

Lightweight Medium Pressure Hose Assemblies



Hydrasearch Hose Assembly Part No.	Tube Size O.D.	Weight 12" Ass'y. (Lbs.)	T Thread Size
38B0100003F0000	.188	.184	3/8-24
38B0100004F0000	.250	.229	7/16-20
38B0100005F0000	.313	.284	1/2-20
38B0100006D0000	.325	.229	9/16-18
38B0100008D0000	.500	.298	3/4-16
38B0100010D0000	.625	.387	7/8-14
38B0100012D0000	.750	.576	1-1/16-12
38B0100016D0000	1.000	.789	1-5/16-12
38B0100020D0000	1.250	1.126	1-5/8-12
38B0100024D0000	1.500	1.518	1-7/8-12
38B0100032D0000	2.000	2.456	2-1/2-12

Example of Military Part Number: M83796/1E185A

Hose assembly, flared straight fittings. 18-5/8" long, for 1/4" tubing, fitting material steel with aluminum sockets.

Military Specifications:

Fitting: MIL-DTL-83798

Hose: MIL-DTL-83797

Hose Ass'y: MIL-DTL-83796

Hydrasearch lightweight hose assemblies can be used as flexible connections on medium pressure airframe applications where flexibility, weight, and fire resistance are important. Hydrasearch lightweight hose is used for applications with operating pressures up to 1000 psi, and having a temperature range of -65°F to +250°F.* (See MIL-DTL-83797 for specific temperature ranges).

Not recommended for hydraulic impulse applications or vacuum without internal support spring.

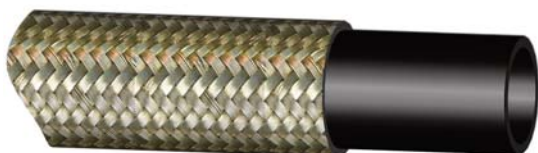
Specifications for Fittings:

Materials: Straight and Bent Tube configurations: Sizes 3,4,5 are steel insert assemblies with aluminum sockets. Sizes 6 and up are all aluminum.
Steel and Aluminum to be i.a.w. Table I of MIL-DTL-83798.

Finish: Aluminum Alloy, Anodized in accordance with MIL-A-8625, Type II, Class 2.
Steel, Cad Plate i.a.w. AMS-QQ-P-416.

* Consult with Hydrasearch Engineering for hose applications at higher temperatures.

Hydrasearch Light Medium Pressure Hose I.A.W. MIL-DTL-83797



Identification:

Bright wire braid outer cover. Stainless Steel.

Applications:

Aircraft power plant and airframe oil and fuel lines.
Hydraulic applications must have Hydrasearch approval.

Operating Conditions:

- Severe vibrating and flexing.
- Resistant to engine oil and cleaning solvent externally.
- Internal fluids, hydraulic fluids, engine oil, fuel, coolant fluids, etc.

Construction:

- Inner Tube: Seamless, oil and fuel resistant synthetic compound.
- Reinforcement: Stainless steel wire braid (partial inner braid).
- Outer Cover: Full coverage, stainless steel outer braid.

Hydrasearch Part No.*	MIL Hose Part No.**	Hose I.D.	Hose O.D.	Max. Oper. P.S.I.	Proof P.S.I.	Min. Burst P.S.I.	Min. Bend Radius	Weight Lb./In.
3H-238-03	M83797/1-03-XXXX	.156	.376	1000	3000	6000	1.75	.008
3H-238-04	M83797/1-04-XXXX	.219	.440	1000	3000	6000	2.00	.010
3H-238-05	M83797/1-05-XXXX	.281	.486	1000	3000	6000	2.25	.012
3H-238-06	M83797/1-06-XXXX	.344	.549	1000	3000	6000	2.50	.013
3H-238-08	M83797/1-08-XXXX	.438	.651	1000	2500	5000	3.50	.014
3H-238-10	M83797/1-10-XXXX	.562	.797	1000	2500	5000	4.00	.017
3H-238-12	M83797/1-12-XXXX	.688	.938	1000	2000	4000	4.50	.024
3H-238-16	M83797/1-16-XXXX	.875	1.156	750	1500	3000	5.50	.032
3H-238-20	M83797/1-20-XXXX	1.125	1.437	500	1300	2000	8.00	.041
3H-238-24	M83797/1-24-XXXX	1.375	1.703	250	800	1750	9.00	.056
3H-238-32	M83797/1-32-XXXX	1.773	2.101	200	600	1200	12.50	.082

* For 36-series hose substitute "236" for "238".

** XXXX: First 3 digits are length in inches, 4th digit is length in 1/8th inches.

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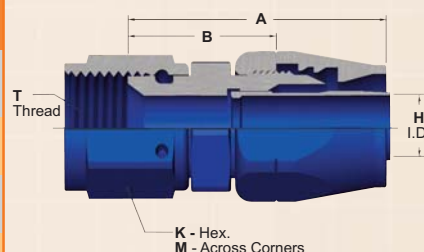
Cat. 209

Lightweight Medium Pressure Flared Hose Fittings

Straight, Flared M83798/1

Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	H	K	M	T	Weight (Lbs.)
136-1000-03	137-1000-03	136-900-03D	.188	1.21	.64	.103	.500	.58	3/8-24	.049
136-1000-04	137-1000-04	136-900-04D	.250	1.23	.65	.150	.562	.65	7/16-20	.061
136-1000-05	137-1000-05	136-900-05D	.313	1.29	.70	.211	.625	.72	1/2-20	.078
136-1000-06D	137-1000-06D	136-900-06D	.375	1.41	.76	.274	.688	.80	9/16-18	.046
136-1000-08D	137-1000-08D	136-900-08D	.500	1.70	.94	.366	.875	1.01	3/4-16	.078
136-1000-10D	137-1000-10D	136-900-10D	.625	1.85	.99	.472	1.000	1.16	7/8-14	.108
136-1000-12D	137-1000-12D	136-900-12D	.750	1.92	1.00	.576	1.250	1.45	1-1/16-12	.160
136-1000-16D	137-1000-16D	136-900-16D	1.000	2.27	1.16	.781	1.500	1.74	1-5/16-12	.240
136-1000-20D	137-1000-20D	136-900-20D	1.250	2.55	1.34	1.026	1.812	2.11	1-5/8-12	.372
136-1000-24D	137-1000-24D	136-900-24D	1.500	2.69	1.44	1.264	2.125	2.48	1-7/8-12	.504
136-1000-32D	137-1000-32D	136-900-32D	2.000	3.06	1.62	1.684	2.750	3.20	2-1/2-12	.900

* Cutoff Factor

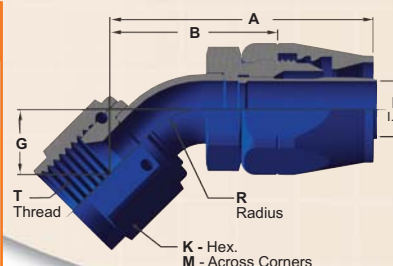


Lightweight
Medium Pressure

45° Elbow, Flared, Bent Tube M83798/2

Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
136-1045-03	137-1045-03	136-900-03D	.188	1.587	1.02	.376	.103	.500	.58	.375	3/8-24	.054
136-1045-04	137-1045-04	136-900-04D	.250	1.573	.99	.352	.150	.562	.65	.375	7/16-20	.073
136-1045-05	137-1045-05	136-900-05D	.313	1.682	1.09	.415	.211	.625	.72	.438	1/2-20	.090
136-1045-06D	137-1045-06D	136-900-06D	.375	1.848	1.19	.446	.274	.688	.80	.500	9/16-18	.049
136-1045-08D	137-1045-08D	136-900-08D	.500	2.048	1.30	.457	.366	.875	1.01	.500	3/4-16	.081
136-1045-10D	137-1045-10D	136-900-10D	.625	2.297	1.44	.536	.472	1.000	1.16	.625	7/8-14	.118
136-1045-12D	137-1045-12D	136-900-12D	.750	2.575	1.66	.623	.576	1.250	1.45	.844	1-1/16-12	.180
136-1045-16D	137-1045-16D	136-900-16D	1.000	2.904	1.80	.660	.781	1.500	1.74	.969	1-5/16-12	.263
136-1045-20D	137-1045-20D	136-900-20D	1.250	3.300	2.10	.768	1.026	1.812	2.11	1.188	1-5/8-12	.438
136-1045-24D	137-1045-24D	136-900-24D	1.500	3.526	2.28	.867	1.264	2.125	2.48	1.375	1-7/8-12	.604
136-1045-32D	137-1045-32D	136-900-32D	2.000	4.136	2.69	1.065	1.684	2.750	3.20	1.750	2-1/2-12	1.032

* Cutoff Factor



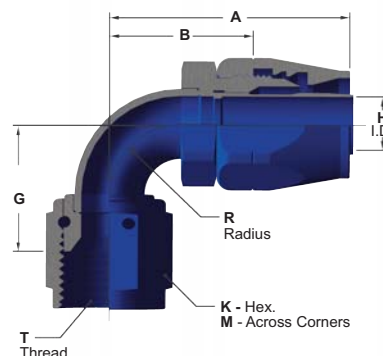
21

90° Elbow, Flared, Bent Tube M83798/3

Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
136-1090-03	137-1090-03	136-900-03D	.188	1.43	.86	.752	.103	.500	.58	.375	3/8-24	.057
136-1090-04	137-1090-04	136-900-04D	.250	1.44	.86	.718	.150	.562	.65	.375	7/16-20	.071
136-1090-05	137-1090-05	136-900-05D	.313	1.53	.93	.844	.211	.625	.72	.438	1/2-20	.094
136-1090-06D	137-1090-06D	136-900-06D	.375	1.70	1.04	.922	.274	.688	.80	.500	9/16-18	.053
136-1090-08D	137-1090-08D	136-900-08D	.500	1.89	1.14	.938	.366	.875	1.01	.500	3/4-16	.088
136-1090-10D	137-1090-10D	136-900-10D	.625	2.13	1.27	1.126	.472	1.000	1.16	.625	7/8-14	.124
136-1090-12D	137-1090-12D	136-900-12D	.750	2.45	1.53	1.376	.576	1.250	1.45	.844	1-1/16-12	.189
136-1090-16D	137-1090-16D	136-900-16D	1.000	2.82	1.71	1.500	.781	1.500	1.74	.969	1-5/16-12	.267
136-1090-20D	137-1090-20D	136-900-20D	1.250	3.23	2.03	1.782	1.026	1.812	2.11	1.188	1-5/8-12	.399
136-1090-24D	137-1090-24D	136-900-24D	1.500	3.47	2.22	2.032	1.264	2.125	2.48	1.375	1-7/8-12	.538
136-1090-32D	137-1090-32D	136-900-32D	2.000	4.10	2.65	2.532	1.680	2.750	3.20	1.750	2-1/2-12	.953

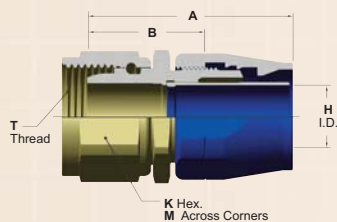
* Cutoff Factor

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Lightweight Medium Pressure Flareless Hose Fittings

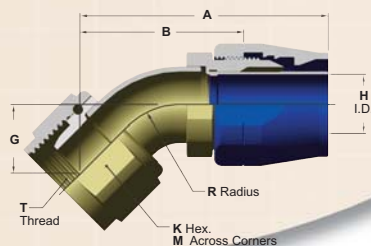
Straight, Flareless M83798/4



Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	H	K	M	T	Weight (Lbs.)
136-2000-03	137-2000-03	136-900-03D	.188	1.43	.85	.103	.500	.58	3/8-24	.051
136-2000-04	137-2000-04	136-900-04D	.250	1.39	.81	.150	.562	.65	7/16-20	.064
136-2000-05	137-2000-05	136-900-05D	.313	1.46	.87	.211	.625	.72	1/2-20	.080
136-2000-06D	137-2000-06D	136-900-06D	.375	1.62	.96	.274	.688	.80	9/16-18	.048
136-2000-08D	137-2000-08D	136-900-08D	.500	1.93	1.17	.366	.875	1.01	3/4-16	.082
136-2000-10D	137-2000-10D	136-900-10D	.625	2.12	1.27	.472	1.000	1.16	7/8-14	.115
136-2000-12D	137-2000-12D	136-900-12D	.750	2.19	1.27	.516	1.250	1.45	1-1/16-12	.175
136-2000-16D	137-2000-16D	136-900-16D	1.000	2.55	1.44	.781	1.500	1.74	1-5/16-12	.254
136-2000-20D	137-2000-20D	136-900-20D	1.250	2.83	1.62	1.026	1.812	2.11	1-5/8-12	.368
136-2000-24D	137-2000-24D	136-900-24D	2.500	3.10	1.85	1.264	2.125	2.48	1-7/8-12	.513

* Cutoff Factor

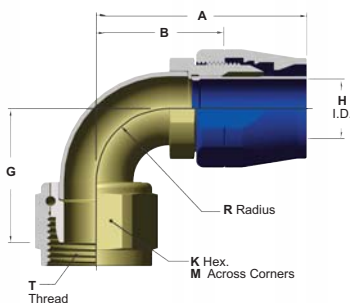
45° Elbow, Flareless, Bent Tube M83798/5



Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
136-2045-03	137-2045-03	136-900-03D	.188	1.74	1.17	.529	.103	.500	.58	.375	3/8-24	.059
136-2045-04	137-2045-04	136-900-04D	.250	1.68	1.09	.450	.150	.562	.65	.375	7/16-20	.081
136-2045-05	137-2045-05	136-900-05D	.313	1.80	1.30	.525	.211	.625	.72	.438	1/2-20	.099
136-2045-06D	137-2045-06D	136-900-06D	.375	1.99	1.33	.578	.274	.688	.80	.500	9/16-18	.054
136-2045-08D	137-2045-08D	136-900-08D	.500	2.21	1.45	.610	.366	.875	1.01	.500	3/4-16	.088
136-2045-10D	137-2045-10D	136-900-10D	.625	2.49	1.63	.725	.472	1.000	1.16	.625	7/8-14	.125
136-2045-12D	137-2045-12D	136-900-12D	.750	2.76	1.84	.800	.576	1.250	1.45	.844	1-1/16-12	.189
136-2045-16D	137-2045-16D	136-900-16D	1.000	3.10	1.99	.854	.781	1.500	1.74	.969	1-5/16-12	.270
136-2045-20D	137-2045-20D	136-900-20D	1.250	3.50	2.29	.962	1.026	1.812	2.11	1.188	1-5/8-12	.460
136-2045-24D	137-2045-24D	136-900-24D	1.500	3.82	2.57	1.155	1.264	2.125	2.48	1.375	1-7/8-12	.635

* Cutoff Factor

90° Elbow, Flareless, Bent Tube M83798/6



Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	K	M	R	T	Weight (Lbs.)
136-2090-03	137-2090-03	136-900-03D	.188	1.43	.86	.956	.103	.500	.58	.375	3/8-24	.061
136-2090-04	137-2090-04	136-900-04D	.250	1.44	.86	.860	.150	.562	.65	.375	7/16-20	.075
136-2090-05	137-2090-05	136-900-05D	.313	1.53	.93	1.000	.211	.625	.72	.438	1/2-20	.100
136-2090-06D	137-2090-06D	136-900-06D	.375	1.70	1.04	1.112	.274	.688	.80	.500	9/16-18	.057
136-2090-08D	137-2090-08D	136-900-08D	.500	1.89	1.14	1.156	.366	.875	1.01	.500	3/4-16	.092
136-2090-10D	137-2090-10D	136-900-10D	.625	2.13	1.27	1.392	.472	1.000	1.16	.625	7/8-14	.130
136-2090-12D	137-2090-12D	136-900-12D	.750	2.45	1.53	1.626	.576	1.250	1.45	.844	1-1/16-12	.199
136-2090-16D	137-2090-16D	136-900-16D	1.000	2.82	1.71	1.776	.781	1.500	1.74	.969	1-5/16-12	.282
136-2090-20D	137-2090-20D	136-900-20D	1.250	3.23	2.03	2.056	1.026	1.812	2.11	1.188	1-5/8-12	.431
136-2090-24D	137-2090-24D	136-900-24D	1.500	3.47	2.22	2.440	1.264	2.125	2.48	1.375	1-7/8-12	.559

* Cutoff Factor



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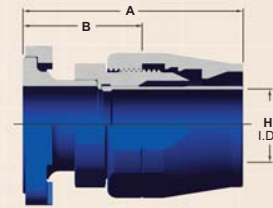
Cat. 209

Lightweight Medium Pressure Flanged Hose Fittings

Straight, Flanged M83798/7

Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	H	Weight (Lbs.)
136-3000-12D	138-3000-12D	136-900-12D	.750	2.29	1.25	.576	.153
136-3000-16D	138-3000-16D	136-900-16D	1.000	2.53	1.30	.781	.206
136-3000-20D	138-3000-20D	136-900-20D	1.250	2.82	1.50	1.026	.316
136-3000-24D	138-3000-24D	136-900-24D	1.500	2.71	1.34	1.264	.364
136-3000-32D	138-3000-32D	136-900-32D	2.000	3.08	1.52	1.684	.646

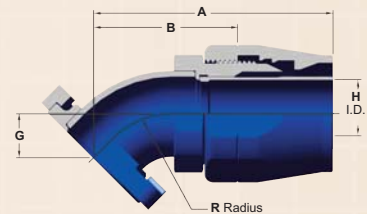
* Cutoff Factor



45° Elbow, Flanged, Bent Tube M83798/8

Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	R	Weight (Lbs.)
136-3045-12D	138-3045-12D	136-900-12D	.750	2.42	1.50	.468	.576	.844	.157
136-3045-16D	138-3045-16D	136-900-12D	1.000	2.75	1.64	.505	.781	.969	.208
136-3045-20D	138-3045-20D	136-900-12D	1.250	3.10	1.90	.569	1.026	1.188	.321
136-3045-24D	138-3045-24D	136-900-12D	1.500	3.28	2.03	.625	1.264	1.375	.386
136-3045-32D	138-3045-32D	136-900-12D	2.000	3.80	2.36	.734	1.684	1.750	.672

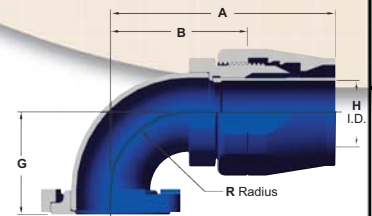
* Cutoff Factor



90° Elbow, Flanged, Bent Tube M83798/9

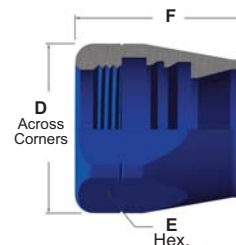
Complete Fitting	Insert Assembly	Socket	Tube O.D.	A	B*	G	H	R	Weight (Lbs.)
136-3090-12D	138-3090-12D	138-900-12D	.750	2.45	1.53	1.156	.576	.844	.164
136-3090-16D	138-3090-16D	138-900-16D	1.000	2.82	1.71	1.282	.781	.969	.222
136-3090-20D	138-3090-20D	138-900-20D	1.250	3.23	2.03	1.500	1.026	1.188	.344
136-3090-24D	138-3090-24D	138-900-24D	1.500	3.47	2.22	1.688	1.264	1.375	.448
136-3090-32D	138-3090-32D	138-900-32D	2.000	4.10	2.65	2.062	1.682	1.750	.732

* Cutoff Factor



Lightweight Medium Pressure Hose Socket

Part No.	D	E	F
136-900-03D	.635	.562	.790
136-900-04D	.688	.625	.800
136-900-05D	.750	.688	.820
136-900-06D	.812	.750	.900
136-900-08D	.969	.875	1.090
136-900-10D	1.156	1.062	1.175
136-900-12D	1.281	1.188	1.245
136-900-16D	1.593	1.500	1.485
136-900-20D	1.891	1.750	1.650
136-900-24D	2.094	1.938	1.700
136-900-32D	2.703	2.500	1.895



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Hydrasearch

Hose Protectants, Coils and Sleeves

Chafe Guard, Black TFE



Resistant to most oils, fuels, and acids. Temperature range -65°F to +450°F. Conforms to AS1291 Code B.

Also Available:

White TFE chafe guard, AS1291 Code A
Clear FEP chafe guard, AS1291 Code C

Part No.	I.D. Nom. +/- .015	I.D. Min. (Ref.)	O.D. Nom. (Ref.)
150-60000-01	.295	.280	.355
150-60000-02	.368	.353	.428
150-60000-03	.429	.414	.489
150-60000-04	.495	.480	.555
150-60000-05	.620	.605	.680
150-60000-06	.723	.708	.783
150-60000-07	.767	.752	.827
150-60000-08	.845	.830	.905
150-60000-09	.940	.925	1.000
150-60000-10	1.097	1.082	1.157
150-60000-11	1.185	1.170	1.245
150-60000-12	1.378	1.363	1.438
150-60000-13	1.425	1.410	1.485
150-60000-14	1.746	1.731	1.806

Chafe Guard, Rubber Neoprene

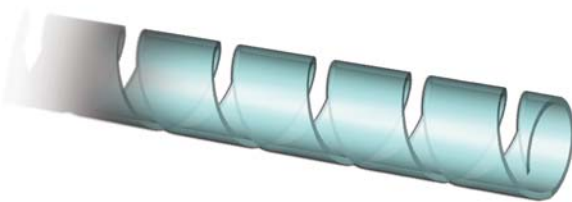


Hydrasearch 148-14593 protective sleeve is a tough, fuel, oil and ozone resistant, Neoprene chafe guard. The sleeve protects hose assemblies from abrasion and scuffing in ground servicing or airborne applications through a temperature range of -65°F to +250°F.

Chafe Guard Size

148-14593	-6	-8	-10	-12	-14	-16	-18	-20	-22	-24	-26	-28	-30	-34	-36
I.D.	.39	.46	.49	.57	.63	.68	.72	.80	.85	.94	1.03	1.22	1.29	1.44	1.65
Wall Thickness	.035	.035	.040	.040	.040	.040	.050	.050	.050	.050	.050	.050	.060	.070	.070

Spiral Protective Coil



May be applied to hoses in the field by spirally wrapping or winding around the hose. The natural grab between coils reduces the possibility of entrapped moisture. One size covers hose sizes through -20.

Required Inches of
Spiral Chafe
Guard =
Per Inch of
Covered Hose

$$= \frac{\text{O.D. OF HOSE}}{0.190} \times \frac{.375}{.75 + \text{GAP}}$$

White TFE spiral protective coil is resistant to most oils, fuels, and acids. Temperature range -450°F to +500°F.

Installed gap of 0.250 recommended.

Also Available:

Black Nylon spiral protective coil resistant to most oils, fuels, and weak acids. Temperature range -145°F to +230°F.



All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

410.643.8900

www.HYDRASEARCH.com

Cat. 209

Hose Protectants, Coils and Sleeves

Firesleeves

Part No.	I.D. Nom.	I.D. Min.	Weight Lb./Ft.	AS1072 Size
148-14503F	.50	.47	.122	-08
148-14504F	.56	.53	.129	-09
148-14505F	.62	.59	.156	-10
148-14506F	.69	.66	.176	-11
148-14507F	.75	.72	.178	-12
148-14508F	.88	.85	.183	-14
148-14509F	1.00	.97	.190	-16
148-14510F	1.13	1.10	.205	-18
148-14511F	1.25	1.22	.270	-20
148-14512F	1.38	1.35	.284	-22
148-14513F	1.50	1.47	.308	-24
148-14514F	1.63	1.59	.493	-26
148-14515F	1.75	1.71	.527	-28
148-14516F	1.88	1.84	.562	-30
148-14517F	2.00	1.96	.593	-32
148-14518F	2.63	2.59	.780	None



I.A.W. AS1072. Meets FAA TSO C53, TSO C75, and FAA TSO C42 standards.

Silicone impregnated fiberglass braid provides increased service life under conditions of ambient temperatures up to +500°F and is resistant to most aircraft fuels, oils, and hydraulic fluids, including Skydrol 500*.

*Skydrol is a Monsanto trademark

Hose
Protectants

Heat Shrink Chafe Guard

Type	Hose Type Used On	Hydrasearch Number	Military/Aerospace Part Number
Polyolefin Black	3H-379 3H-236 3H-238	148-46150	AS1073-__-B
Polyolefin Clear	3H-379 3H-236 3H-238	148-47470	AS1073-__-A
F.E.P. Black	3H-379	148-47870	MIL-I-23053/11-**-D
F.E.P. Clear	3H-379	150-60001	MIL-I-23053/11-**-C

* Size indicated here

** Indicate class and size



Provides hose assemblies with skin-tight protection against heat, corrosion, shock, moisture and other conditions. Prolongs the service life of the assembly.

25

Internal Support Spring

Spring Assembly Part Number	Spring O.D.
148-14599	.630
148-14595	.890
148-14596	1.140
148-14597	1.398
148-14598	1.796



Used to prevent damage to assemblies subject to mishandling, high vacuum, or tight bend installations. Made of flat helically wound type 302 stainless steel.

Sleeves spot welded to end of spring to prevent damage of I.D. of hoses. Internal Support Springs are supplied as assemblies of fixed length and diameter and are available from the factory only. Specify type and size of hose, configuration of hose fittings, and length of assembly.

All Dimensions are in Inches.

Dimensional information is for reference only.

Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

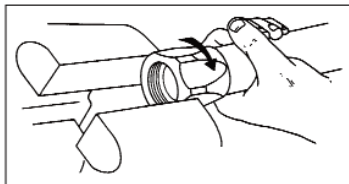


How to Assemble Rubber Hose Assemblies

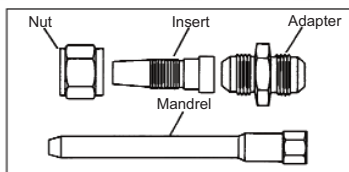
Low & Medium Pressure Straight Fittings

Low pressure MS27404 fittings with
MIL-DTL-5593 hose

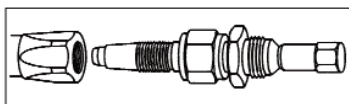
Medium pressure MS24587 fittings
with MIL-DTL-8794



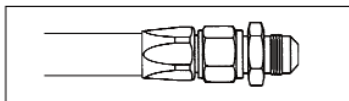
- 1 After cutting hose squarely to proper length (**Do NOT remove cover**), screw hose into socket (left hand thread) until it bottoms. Back out hose 1/4 turn.



- 2 Assemble insert and nut on adapter and slide onto mandrel. Tighten nut until assembly is rigid, (Sizes 16 and over do not require a mandrel).



- 3 Lubricate hose I.D. and the insert of the sub-assembly (step 2) with lubricating oil or light grease.



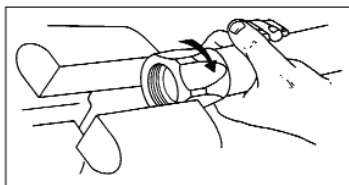
- 4 Screw sub-assembly (step 2) into hose and socket (step 1). Leave 1/16" clearance so nut is free to swivel.

Clean, Inspect and Test. Clean hose assembly by blowing out with air. Inspect hose by looking through assembly for any possible obstructions or foreign matter.

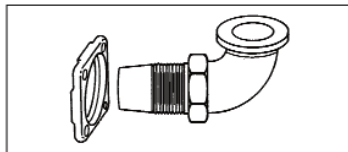
Pressure test at proof pressure shown on page 5.

Medium Pressure Elbow Fittings

For use with MIL-DTL-8794 hose

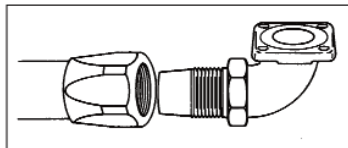


- 1 After cutting hose squarely to proper length with hacksaw or cutting wheel (**Do NOT remove cover**), screw hose into socket (left hand thread) until it bottoms. Back out hose 1/4 turn.

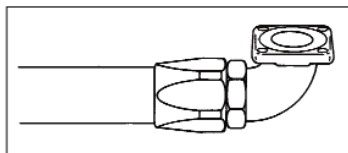


- 2 FLANGE TYPE ENDS ONLY. Assemble flange over threaded end of insert. Insert shoulder must seat in counter bore of flange.

Note: Step 2 not required for flared/flareless fittings.



- 3 Lubricate hose I.D. and insert threads with lubricating oil or light grease.



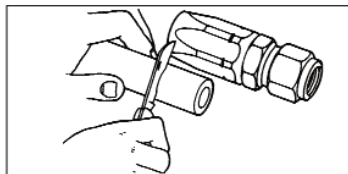
- 4 Using hex on elbows, screw insert sub-assembly into hose and socket (step 1) until insert hex bottoms against socket.

Note: On size -32 screw insert into hose and socket until binding occurs. Un screw and re-lubricate and continue screwing until insert bottoms against socket.

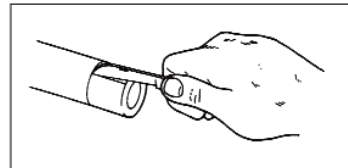
Clean and Test. Clean hose assembly by blowing out with air. Pressure test at proof pressure shown on page 8.

High Pressure All Fittings

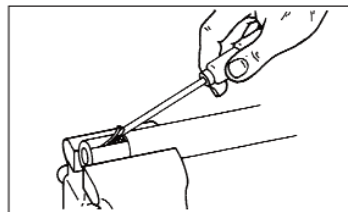
For field attachable MS28760 and
MS28761 fittings on
MIL-DTL-8788 hose



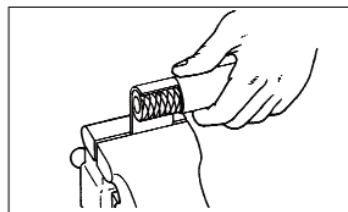
- 1 Cut hose as squarely as possible to proper length with hacksaw or cutting wheel. Match end of hose with notch in hex of socket, measuring back from end of hose the same distance. Cut around hose through cover to wire braid, away from notch in socket.



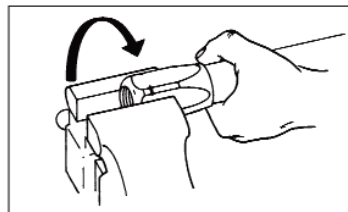
- 2 Cut lengthwise from cut (step 1) to end of hose.



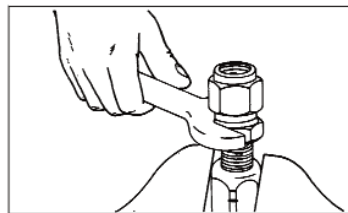
- 3 Pry up cover at intersection of two cuts with a screw driver.



- 4 Strip off cover with pliers or vise.



- 5 Screw hose into socket until hose bottoms. (Socket has a left hand thread). Back out 1/4 turn.



- 6 Lubricate insert and hose I.D. with oil. Insert is then threaded into socket and hose until the hex of the insert just touches the socket.

Clean and Test. Clean hose assembly by blowing out with air. Pressure test at proof pressure shown on page 13.

Aerospace Hose & Fittings

Notes





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