

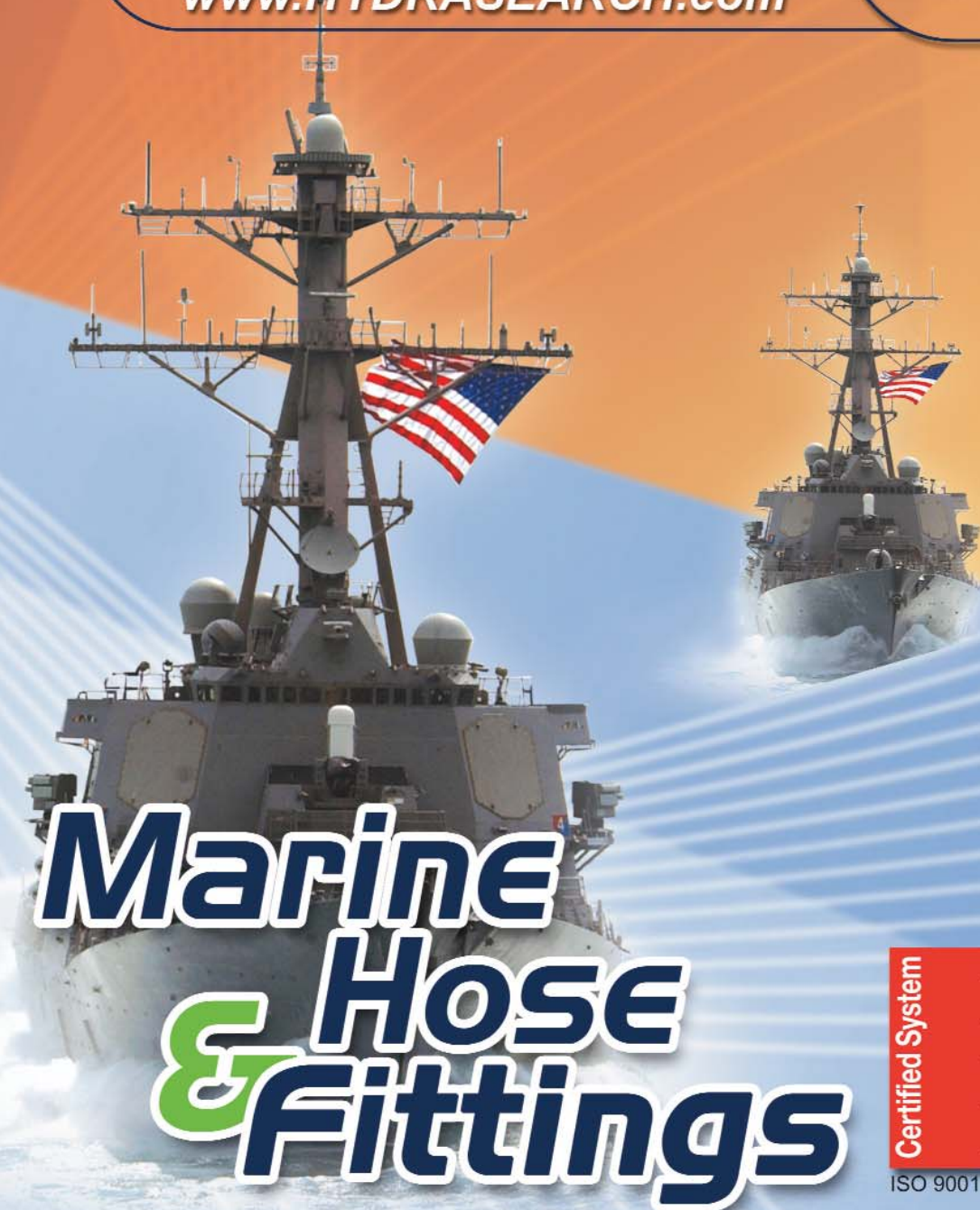


Hydrasearch

**Committed
to Quality
& Innovation!**

**Catalog
109**

www.HYDRASEARCH.com



**Marine
& Hose
Fittings**



Hydrasearch Co., Inc.
Chesapeake Bay Business Park
100 Log Canoe Circle
Stevensville, MD 21666

Ph: 410.643.8900
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Committed to Quality and Innovation

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

Today, Hydrasearch products are found in marine vessels throughout the world. We supply all major shipyards in the U.S., and our market continues to grow internationally.

A Knowledge Base Built on Experience

For Over 40 years, Hydrasearch has focused on the design, development, and manufacture of fluid systems and components. Many of our original products were specially designed hydraulic systems and fueling-at-sea-systems for the U.S. Navy. Our in-depth knowledge of hose fitting designs for demanding applications soon led to the development of innovative hose couplings and related products that are now part of many fuel and water handling systems used by military and commercial customers alike.

Our Mission

Work together to delight our customers and generate a profit.

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About Hydrasearch

Military Qualifications That Build Confidence

In the mid-1980's, Hydrasearch developed its ER512 line of hoses and fittings. Following tests and Qualified Products Listings (QPL) approvals by the Naval Sea Systems Command (NAVSEA), the ER512 line became widely used aboard Navy ships for vibration absorption, sound deadening, and movement of connected equipment. Since then, Hydrasearch has received QPL listings for six additional product lines, plus acceptance of all related accessory equipment.

Many of the products listed in this catalog comply with U.S. Military Specifications MIL-H-24136, and MIL-F-24787. Hydrasearch products are approved under Qualified Products Listings QPL-24135, QPL-24136 and QPL-24787.

Expanding Horizons

Our growth and successful penetration of the market led to the relocation of Hydrasearch's manufacturing activities to larger facilities in 1994. One year later, we acquired Technical Products & Precision Manufacturing Company. Known for its quality line of valves and fittings, the Technical Products acquisition significantly expanded our product offerings to the defense industry, as well as to the select commercial markets worldwide, such as the petrochemical industry. In 1999 Hydrasearch acquired the Aerospace Hose and Fitting Line from Deutsch Metal Components. This acquisition continues our efforts to expand our presence in the military market.

ii

Quality Control Ensures Reliability

Supplying high quality products is our foremost concern at Hydrasearch. We maintain an ISO 9001 registered Quality System which ensures strict adherence to requirements. Many Hydrasearch products contain special codes that can be traced to a specific heat of raw material whose chemical and physical properties have been analyzed, tested, and recorded.

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 help you obtain just what you need, when you need it. If your requirements involve more than a "standard" product, our technical staff will work to satisfy those needs.



Using This Catalog

Dimensions - All dimensions shown are approximate, and subject to change. Please contact Hydrasearch Technical Sales Department at (410) 643-8900 if exact dimensions are required.

Pricing & Availability - Please contact Hydrasearch Technical Sales Department at (410) 643-8900 for pricing and availability information.

NAVSEA Technical Directive - Please refer to the Technical Directive, Piping Devices, Flexible Hose Assemblies S6430-AE-TED-010, Volume 1 for information and guidelines on the selection, fabrication, inspection, installation, and maintenance of flexible hose assemblies used in piping systems aboard U.S. Navy Ships.

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 with such information, so that the necessary changes can be made.

Other Catalogs Available - Please contact our Technical Sales Department at (410) 643-8900 to request other Hydrasearch product literature, free of charge:

- Underway Replenishment Products
- Layflat and Rubber Hoses
- Reattachable Couplings for Layflat & Rubber Hoses
- Tech-O-Seal™ Valves & Fittings
- Aerospace Hose and Fittings

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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 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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Rev. 1

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Marine Hose & Assemblies

Section A

Product Designation	Construction	Sizes	Page No.
HS4182	Synthetic rubber and cover with multiple layer fiber reinforcement	2-1/2' to 4"	2
ER512	Synthetic rubber and cover with multiple layer fiber reinforcement	5" to 12"	3
HS133	Synthetic rubber and cover with multiple layer fiber reinforcement	3/8" to 2"	4
HOS-22240	Synthetic rubber and cover with multiple layer synthetic braided yarn reinforcement for fueling-at-sea applications	2-1/2" to 7"	5
HSSA	Polyurethane elastomer tube and cover reinforced with high-tenacity polyester	1-1/2" & 3"	6
H/A-SNKL-134.5L	HS133 hose with crimped-on monel fittings	1/2"	7

Hose

HS4182 - Large Bore

MIL-H-24136/4

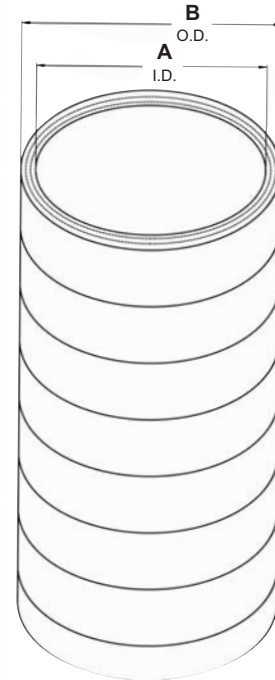
Equal to Aeroquip P/N FC132

Use with Hydrasearch **HS1546** Series Fittings on Pages 31 - 43.

Material: Synthetic rubber tube and cover reinforced with synthetic fiber.

Application: Oil, fuel, fresh and salt water systems.

Operating Temperature Range: -40°F to +200° F



Part Number	Hose I.D.	Pressure (Lb/In ²)		Dimensions (Inches)			
		Working Pressure	Burst Pressure	A		B	
				Min.	Max	Min.	Max
HS4182-40	2-1/2"	1,000	4,000	2.454	2.531	3.230	3.360
HS4182-48	3"	900	3,600	2.954	3.031	3.730	3.860
HS4182-64	4"	600	2,400	3.938	4.062	4.800	5.050

Part Number	Hose Size (Dash No.)	Reinforcement		Minimum Bend Radius (In.)	Wt./Ft. (Lbs.)
		Construction	Layers		
HS4182-40	-40	Braided or Spiral	3 or 6	20	2.25
HS4182-48	-48	Braided or Spiral	3 or 6	24	2.55
HS4182-64	-64	Braided or Spiral	3 or 6	30	3.15

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.

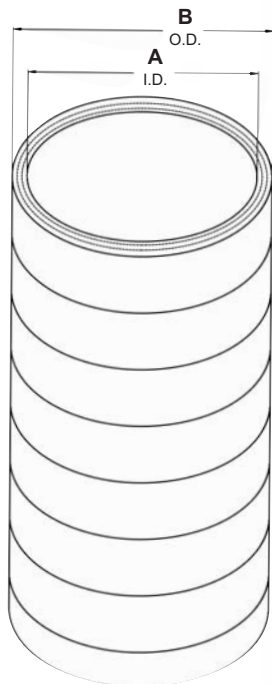
Hose

ER512 - Large Bore

MIL-H-24136/1

Equal to Aeroquip P/N 2580

Use with Hydrasearch **ER512** Series Fittings on Pages 44 - 59.



Materials: Synthetic rubber tube and cover reinforced with synthetic fiber.

Application: Oil, fuel, fresh and salt water systems.

Operating Temperature Range: -40°F to +200° F

Part Number	Hose I.D.	Pressure (Lb/In ²)		Dimensions (Inches)			
		Working Pressure	Burst Pressure	A		B	
				Min.	Max	Min.	Max
HOS-ER512-5	5"	300	1,200	5.050	5.116	5.690	5.878
HOS-ER512-6	6"	300	1,200	6.036	6.110	6.750	6.938
HOS-ER512-8	8"	300	1,200	8.054	8.130	8.781	8.969
HOS-ER512-10	10"	200	800	10.064	10.140	10.781	10.969
HOS-ER512-12	12"	150	600	12.111	12.187	12.925	13.249

Part Number	Hose Size (Dash No.)	Reinforcement		Minimum Bend Radius (In.)	Wt./Ft. (Lbs.)
		Construction	Layers		
HOS-ER512-5	-80	Spiral	6	36	3.71
HOS-ER512-6	-96	Spiral	6	42	4.65
HOS-ER512-8	-128	Spiral	8	54	6.79
HOS-ER512-10	-160	Spiral	8	66	8.5
HOS-ER512-12	-192	Spiral	10	78	12

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.

Hose

HS133 - High Pressure**MIL-H-24136/2**

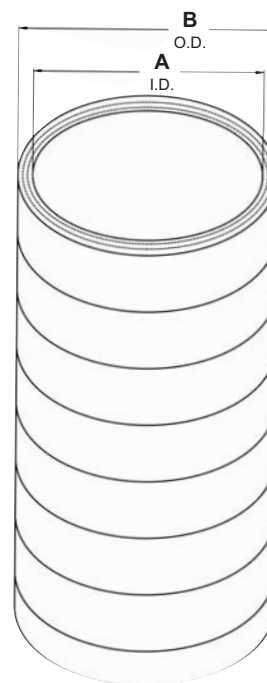
Equal to Aeroquip P/N FC133

Use with Hydrasearch **HS1489** Series Fittings on Pages 60 - 67.

Materials: Synthetic rubber tube and cover reinforced with synthetic fiber.

Application: Fresh and salt water systems, hydraulic systems, fuel systems, oil applications and low pressure air.

Operating Temperature Range: -40°F to +200° F



Part Number	Hose I.D.	Pressure (Lb/In ²) ²		Dimensions (Inches)			
		Working Pressure	Burst Pressure	A		B	
				Min.	Max	Min.	Max
HS133-06	3/8"	2000	8000	.359	.390	.968	1.031
HS133-08	1/2"	2000	8000	.465	.531	1.094	1.156
HS133-12	3/4"	1500	6000	.718	.781	1.469	1.531
HS133-16	1"	1400	5600	.968	1.031	1.750	1.812
HS133-20	1-1/4"	1000	4000	1.211	1.289	1.975	2.069
HS133-24	1-1/2"	1000	4000	1.461	1.539	2.203	2.297
HS133-32	2"	900	3600	1.961	2.039	2.702	2.828

Part Number	Hose Size (Dash No.)	Reinforcement		Minimum Bend Radius (In.)	Wt./Ft. (Lbs.)
		Construction	Layers		
HS133-06	-6	Braided	3	5.00	.46
HS133-08	-8	Braided	3	7.00	.52
HS133-12	-12	Braided	3	9.50	.81
HS133-16	-16	Braided	3	11.00	1.03
HS133-20	-20	Braided	3	16.00	1.26
HS133-24	-24	Braided	3	20.00	1.34
HS133-32	-32	Braided	3	25.00	1.88

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.

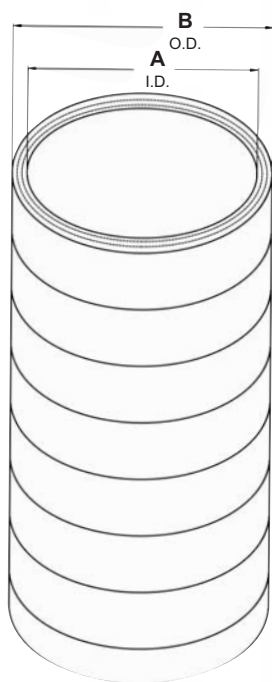


Hose

22240 - Fueling at Sea

MIL-H-22240

For a complete line of fittings and accessories see *Hydrasearch Underway Replenishment Catalog*.



Materials: Synthetic rubber tube and cover reinforced with braided yarn.

Application: Fueling at Sea Hoses come in 2-1/2", 4", 6", and 7" inside diameter sizes and are utilized for various transfer applications. The 4", 6", and 7" type "A" hoses are used only for Alongside Fueling. The 2-1/2" type "C" hoses can be used for Alongside Transfer of water in addition to fuel. The 6" type "B" hose is utilized in Astern Fueling-at-Sea Operations.

Operating Temperature Range: -40°F to +150° F

Part Number	Hose I.D.	Type	Pressure (Lb/In ²)		Dimensions (Inches)		Minimum Tensil (Lbs.)	Wt./Ft. (Lbs.)
			Working Pressure	Burst Pressure	A	B		
HOS-22240-25C	2-1/2"	C	300	600	2.50	3.12	5,000	1.5
HOS-22240-4A	4"	A	300	600	4.00	4.90	5,000	2.25
HOS-22240-6A	6"	A	300	600	6.00	6.90	12,000	4.4
HOS-22240-7A	7"	A	300	600	7.00	7.90	12,000	5
HOS-22240-6B	6"	B	300	600	6.00	7.01	16,000	4

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.

Hose

HSSA - Super Aquaduct Layflat Hose

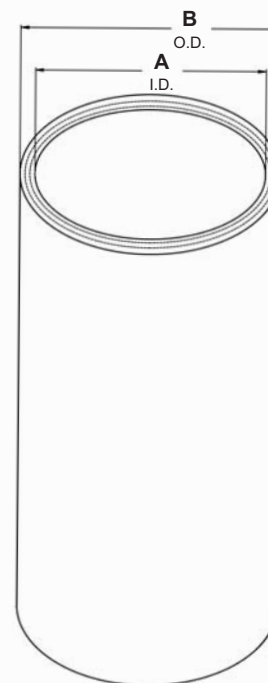
Use with Hydrasearch **LFS** Elbows and End Fittings on Pages 127 - 129.

For a complete line of fittings and accessories see Hydrasearch Layflat & Rubber Hose Catalog.

Materials: Polyurethane elastomer tube and cover reinforced with high tenacity polyester.

Application: Salt and fresh water conveying systems.

Operating Temperature Range: -40°F to +200° F



Part Number	Hose I.D.	Pressure (Lb/In ²)		Dimensions (Inches)			
		Working Pressure	Burst Pressure	A		B	
				Min.	Max	Min.	Max
HSSA-24	1-1/2"	300	600	1.50	1.59	1.64	1.73
HSSA-48	3"	300	600	2.97	3.06	3.15	3.24

Part Number	Hose Size (Dash No.)	Reinforcement		Wt./Ft. (Lbs.)
		Construction	Layers	
HSSA-24	-24	Polyester	1	.144
HSSA-48	-48	Polyester	1	.342

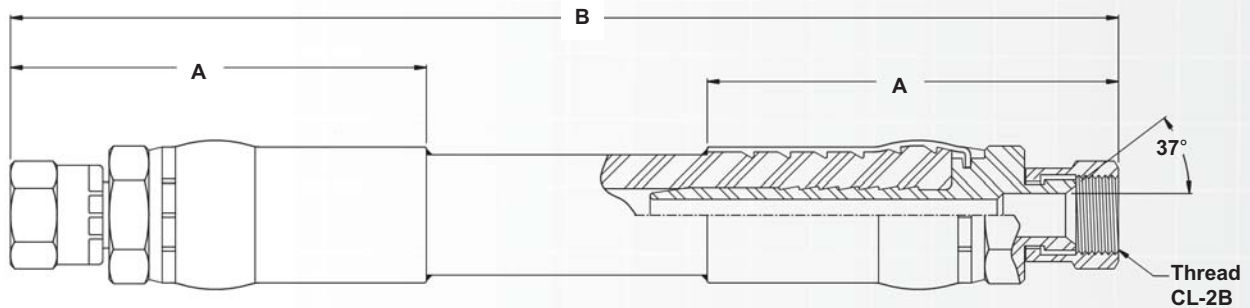
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Snorkel Hose Assembly

H/A-SNKL-134.5L

The Hydrasearch Snorkel Hose Assembly was specially designed for use in the snorkel induction system on nuclear submarines and is approved under NAVSEA Letter 03Y2C/377. The assembly can withstand external pressures associated with deep sea submergence and survive corrosive seawater environments.

The assembly comes standard in 134-1/2" Lengths. Other lengths are available as required. Fittings are constructed of monel and are a welded socket design. This inhibits seawater from entering the assembly. The assembly uses HS133 hose shown on page 4.



Part Number	Hose I.D. (NOM)	Hose O.D. (NOM)	Min. Bend Radius (In.)	Max. Operating Pressure (PSI)	Operating Temp. Range	Thread Size	A (In.)	B (In.)
H/A-SNKL-134.5L	.50	1.12	7.00	2,000	-40°F to +200° F	3/4"-16	3.96	134-1/2"

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.

Notes





Fittings

Section B

Product Designation	Construction	Sizes	Page No.
HS449	Bolt-on-3-piece segment design for use with wire reinforced rubber hoses P/N HS4265 and HS4224	2" - 4"	10
HS1546	Bolt-on-2-piece segment design for use with synthetic yarn reinforced rubber hoses P/N HS4182	2" - 4"	31
ER512	Bolt-on-3-piece segment design for use with synthetic yarn reinforced rubber hoses P/N ER512	5" - 12"	44
HS1489	Bolt-on-2-piece segment design for use with synthetic yarn reinforced rubber hoses P/N HS133	3/8" - 2"	60
HS1488	Solid socket design for use with synthetic yarn and wire reinforced hoses	1/4" - 3"	68
HS1600	Solid socket design for use with wire reinforced hoses	1/4" - 2"	107
HS1602	Solid socket design for use with wire reinforced hoses	1/4" - 1"	119
LFS	Bolt-on-2-piece segment design for use with polyester reinforced polyurethane hoses P/N HSSA	1-1/2", 3"	127

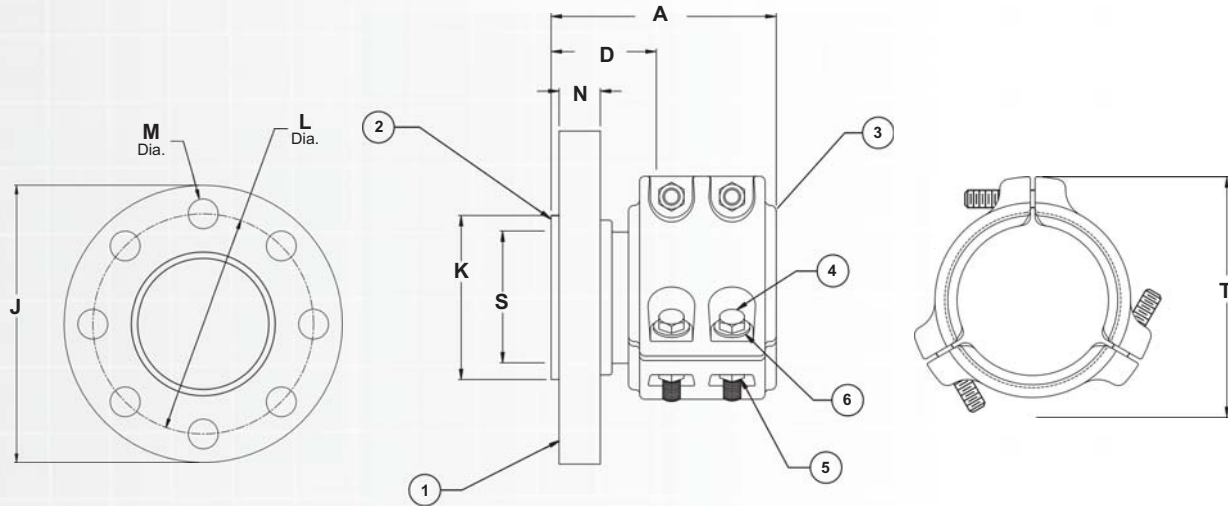
End Fitting - Straight - Hose to Flange

Equal to Aeroquip P/N 375-190752

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

Type F, Group IV, Class I,
400Lb. Flange Per MIL-PRF-20042



Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A1-2-40	2"	7	.69	5.16	2.20	6.50	3.22	5.19	.81	2.24	5.35	12
EF-449A1-2.5-48	2-1/2"	8	.81	5.17	2.20	7.56	3.72	6.00	.94	2.71	5.58	17
EF-449A1-3-48	3"	8	.81	5.17	2.20	8.13	4.44	6.56	.94	3.31	5.58	18
EF-449A1-3.5-64	3-1/2"	9	.81	5.54	2.63	8.69	5.17	7.13	1.00	3.81	6.50	23
EF-449A1-4-64	4"	9	.81	5.54	2.63	9.25	5.22	7.69	1.00	4.28	6.50	26

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17798	C17801	C17802	C17803	C17804	Bronze
② Nipple	1	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

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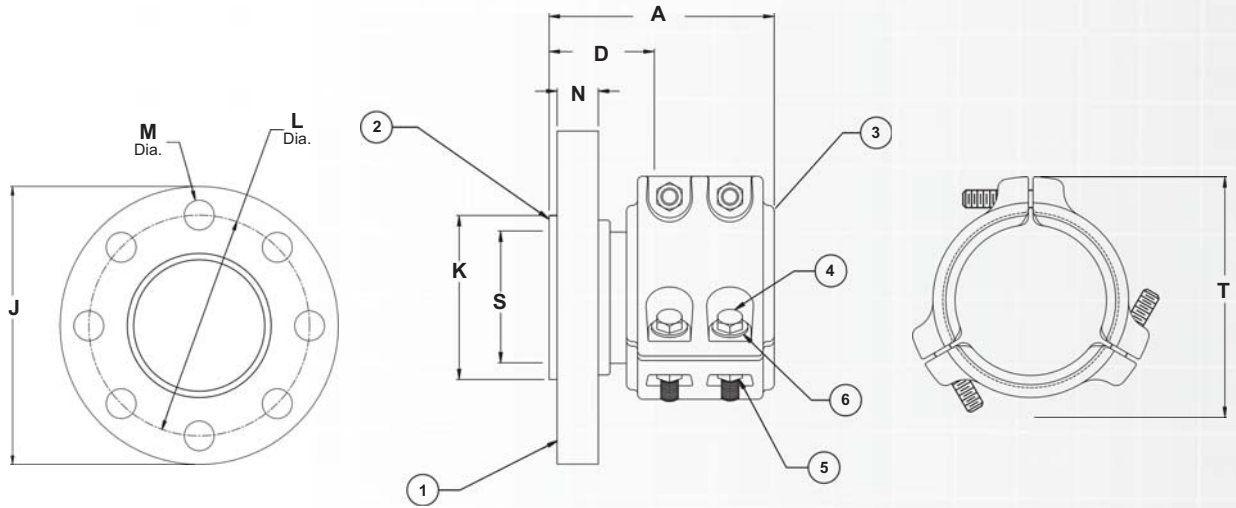


End Fitting - Straight - Hose to Flange

Equal to Aeroquip P/N 412-190814

Use with the following hose: HS4265, HS4224
2652, 150901

400Lb. Flange to Hose



Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A1-2.5-40-SS	2-1/2"	8	.81	5.16	2.20	7.56	3.28	6.00	.94	2.24	5.35	16

Components

Description	Req'd per Ass'y	2.5-40	Material
① Swivel Flange	1	C18156	Stainless Steel
② Nipple	1	C18152	Stainless Steel
③ Segment	3	D17299-1	Aluminum Bronze
④ Bolt	6	B17673-2	Monel
⑤ Lock Nut	6	B18176	Monel
⑥ Washer	6	B18175	Monel

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.

End Fitting - Straight - Hose to Flange

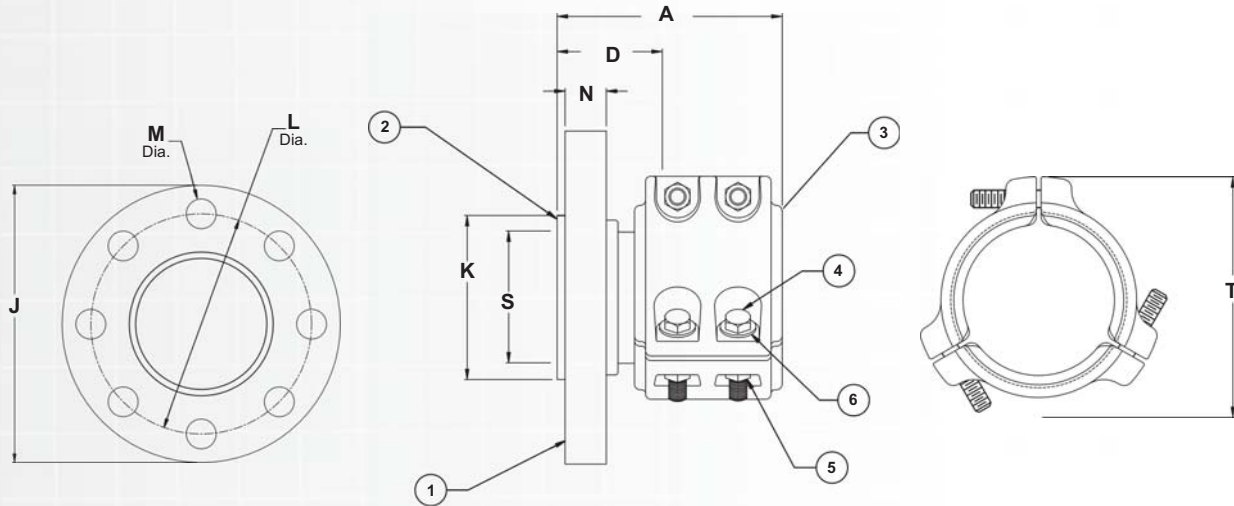
Equal to Aeroquip P/N 375-190751

MIL-F-24787/1,

Use with the following hose: HS4265, HS4224
2652, 150901

**Type F, Group IV, Class II,
150/400Lb. Flange Per MIL-PRF-20042**

Fittings



Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A5-2-40	2"	6	.56	5.16	2.20	5.56	3.28	4.44	.81	2.24	5.35	10
EF-449A5-2.5-40	2-1/2"	6	.56	5.16	2.20	6.13	3.28	5.00	.94	2.24	5.35	12
EF-449A5-2.5-48	2-1/2"	6	.56	5.17	2.20	6.13	3.78	5.00	.94	2.71	5.58	13
EF-449A5-3-48	3"	8	.56	5.17	2.20	6.63	4.50	5.50	.94	3.31	5.58	13
EF-449A5-3.5-64	3-1/2"	8	.56	5.54	2.63	7.19	5.22	6.06	1.00	3.81	6.50	18
EF-449A5-4-64	4"	8	.56	5.54	2.63	7.69	5.22	6.56	1.00	4.28	6.50	20

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17765	C17796	C17795	C17766	C17794	C17767	Bronze
② Nipple	1	C17306	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

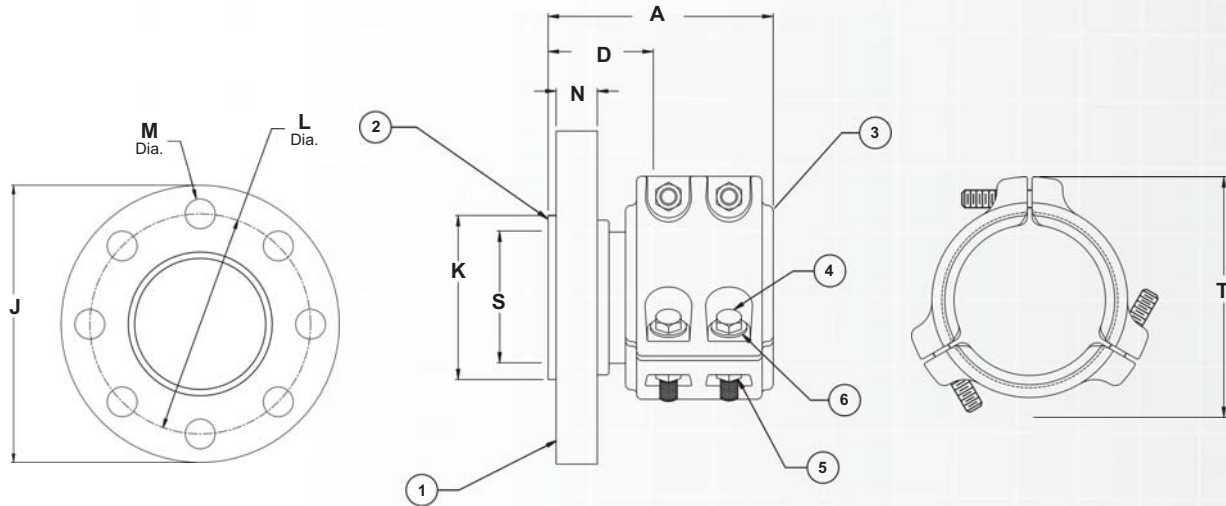
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - Straight - Hose to Flange

Use with the following hose: HS4265,
HS4224 2652, 150901

MIL-F-24787/1,
Type F, Group IV, Class III,
250Lb. Flange Per MIL-PRF-20042



Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A2-2-40	2"	6	.69	5.16	2.20	5.56	3.22	4.44	.81	2.24	5.35	10
EF-449A2-2.5-40	2-1/2"	6	.69	5.16	2.20	6.13	3.22	5.00	.94	2.24	5.35	12
EF-449A2-2.5-48	2-1/2"	6	.69	5.17	2.20	6.13	3.72	5.00	.94	2.71	5.58	13
EF-449A2-3-48	3"	8	.69	5.17	2.20	6.63	4.44	5.50	.94	3.31	5.58	13
EF-449A2-3.5-64	3-1/2"	8	.69	5.54	2.63	7.19	5.17	6.06	1.00	3.81	6.50	18
EF-449A2-4-64	4"	8	.69	5.54	2.63	7.69	5.22	6.56	1.00	4.28	6.50	20

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17812	C17307	C17813	C17309	C17815	C17310	Bronze
② Nipple	1	C17306	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

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.

End Fitting - Straight - Hose to Flange

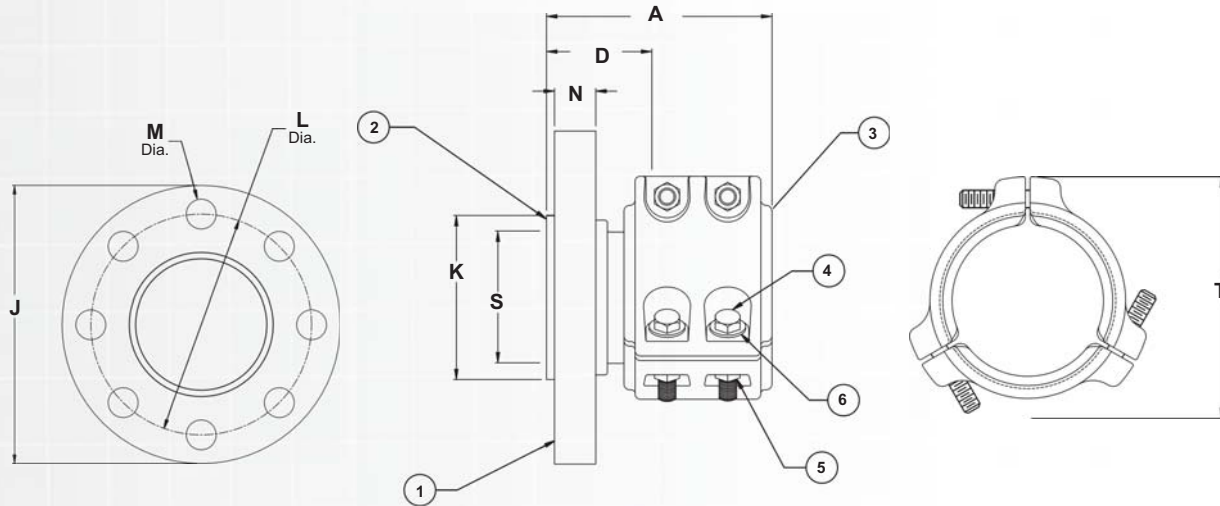
Equal to Aeroquip P/N 375-190655

MIL-F-24787/1,

Use with the following hose: HS4265, HS4224
2652, 150901

**Type F, Group IV, Class IV,
150Lb. Flange Per MIL-PRF-20042**

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A3-2-40	2"	6	.56	5.16	2.20	5.56	3.22	4.44	.44	2.24	5.35	8
EF-449A3-2.5-40	2-1/2"	6	.56	5.16	2.20	6.13	3.22	5.00	.50	2.24	5.35	9
EF-449A3-2.5-48	2-1/2"	6	.56	5.17	2.20	6.13	3.72	5.00	.50	2.71	5.58	10
EF-449A3-3-48	3"	8	.56	5.17	2.20	6.63	4.44	5.50	.50	3.31	5.58	11
EF-449A3-3.5-64	3-1/2"	8	.56	5.54	2.63	7.19	5.17	6.06	.50	3.81	6.50	15
EF-449A3-4-64	4"	8	.56	5.54	2.63	7.69	5.22	6.56	.50	4.28	6.50	16

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17925	C17929	C17931	C17933	C17938	C17940	Bronze
② Nipple	1	C17306	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

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.

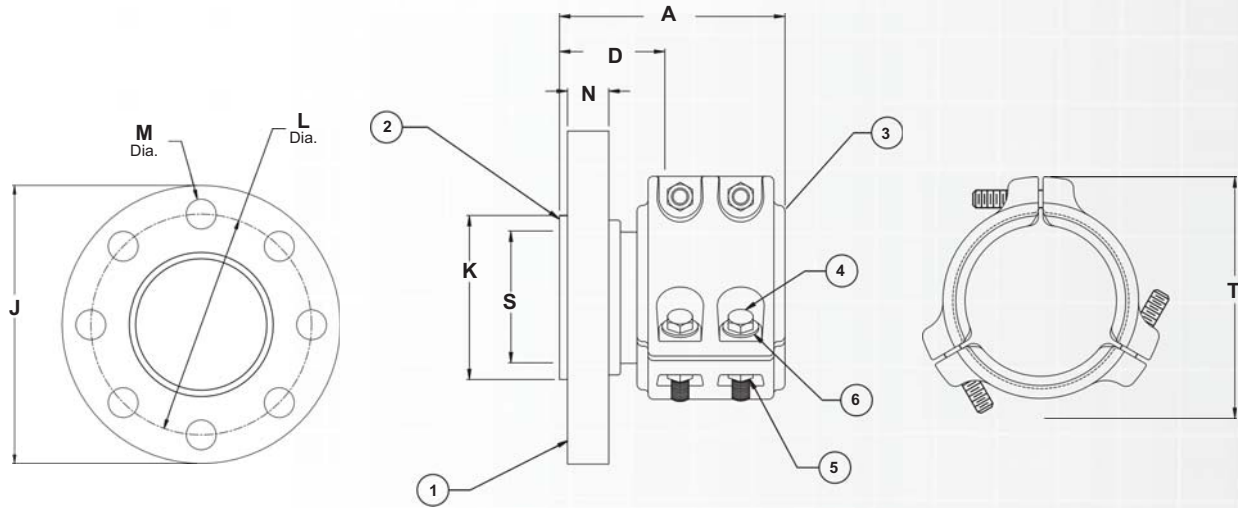
End Fitting - Straight - Hose to Flange

Equal to Aeroquip P/N 375-190767

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

**Type F, Group IV, Class V,
150Lb. Flange Per A.N.S.I. B16.5**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A4-2-40	2"	4	.75	5.16	2.20	6.00	3.22	4.75	.42	2.24	5.35	9
EF-449A4-2.5-40	2-1/2"	4	.75	5.16	2.20	7.00	3.22	5.50	.48	2.24	5.35	11
EF-449A4-2.5-48	2-1/2"	4	.75	5.17	2.20	7.00	3.72	5.50	.48	2.71	5.58	12
EF-449A4-3-48	3"	4	.75	5.17	2.20	7.50	4.44	6.00	.48	3.31	5.58	12
EF-449A4-3.5-64	3-1/2"	8	.75	5.54	2.63	8.50	5.17	7.00	.48	3.81	6.50	17
EF-449A4-4-64	4"	8	.75	5.54	2.63	9.00	5.22	7.50	.48	4.28	6.50	18

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17966	C17968	C17969	C17970	C17971	C17972	Bronze
② Nipple	1	C17306	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

All Dimensions are in Inches.
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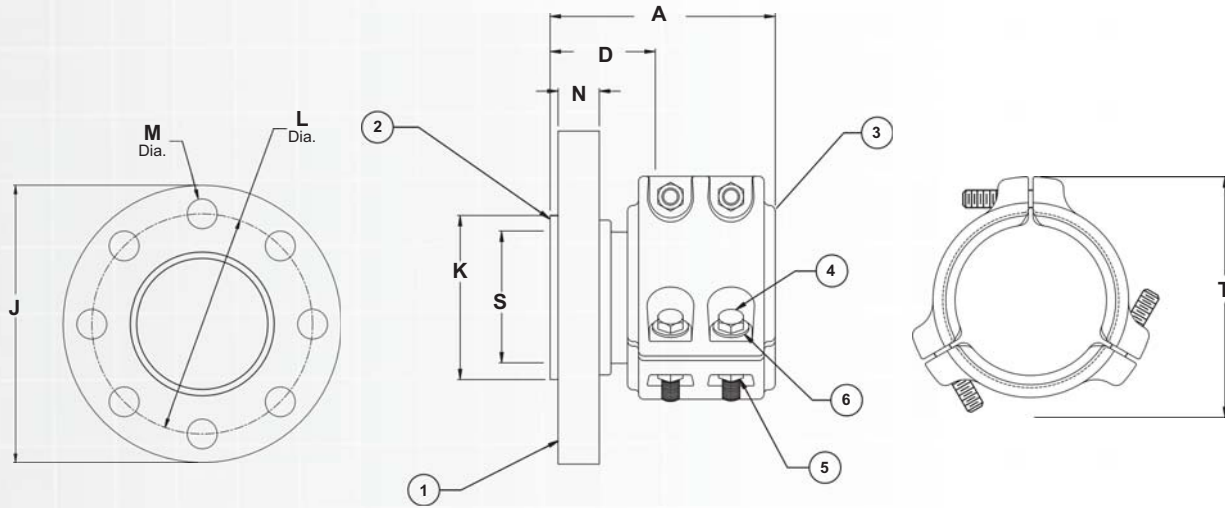
End Fitting - Straight - Hose to Flange

Equal to Aeroquip P/N 412-190767

Use with the following hose: HS4265, HS4224
2652, 150901

150Lb. Flange Per A.N.S.I. B16.5

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A4-2.5-40-SS	2-1/2"	4	.75	5.16	2.20	7.00	3.28	5.50	.48	2.24	5.35	11
EF-449A4-2.5-48-SS	2-1/2"	4	.75	5.17	2.20	7.00	3.78	5.50	.48	2.71	5.58	12
EF-449A4-3-48-SS	3"	4	.75	5.17	2.20	7.50	4.50	6.00	.48	3.31	5.58	13
EF-449A4-4-64-SS	4"	8	.75	5.54	2.63	9.00	5.22	7.50	.48	4.28	6.50	18

Components

Description	Req'd per Ass'y	2.5-40	2.5-48	3-48	4-64	Material
① Swivel Flange	1	C18149	C18150	C18151	C19632	Stainless Steel
② Nipple	1	C18152	C18153	C18154	C19633	Stainless Steel
③ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B171984	Monel
⑥ Washer	6	B18175	B18175	B18175	B17986	Monel

All Dimensions are in Inches.
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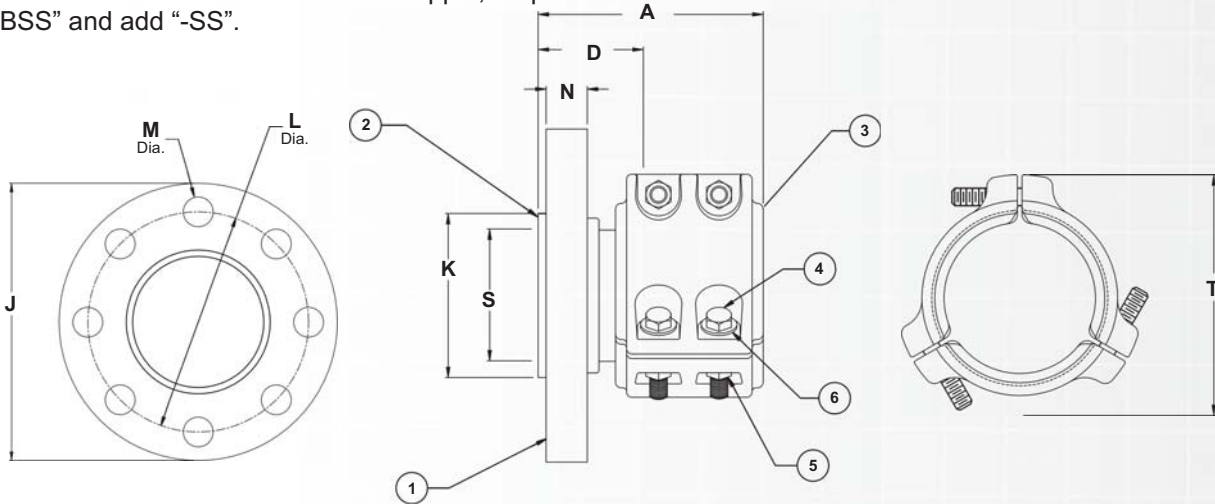
End Fitting - Straight - Hose to Flange

Equal to Aeroquip P/N FJ9477-413

Use with the following hose: HS4265, HS4224
2652, 150901

300Lb. Flange Per A.N.S.I. B16.5

Note: To substitute a stainless steel nipple, drop "-BSS" and add "-SS".



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-449A6-2-40-BSS	2"	8	.75	5.16	2.20	6.50	3.28	5.00	.88	2.24	5.35	9
EF-449A6-2.5-40-BSS	2-1/2"	8	.88	5.16	2.20	7.50	3.28	5.88	1.00	2.24	5.35	11
EF-449A6-2.5-48-BSS	2-1/2"	8	.88	5.17	2.20	7.50	3.78	5.88	1.00	2.71	5.58	12
EF-449A 6-3-48-BSS	3"	8	.88	5.17	2.20	8.25	4.50	6.62	1.12	3.31	5.58	12
EF-449A6-3.5-64-BSS	3-1/2"	8	.88	5.54	2.63	9.00	5.22	7.25	1.19	3.81	6.50	17
EF-449A6-4-64-BSS	4"	8	.88	5.54	2.63	10.00	5.22	7.88	1.25	4.28	6.50	18

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	--	--	C19770	--	C19765	Stainless Steel
② Nipple	1	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
③ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B178175	B18175	B18175	B17986	B17986	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - 90° - Hose to Flange

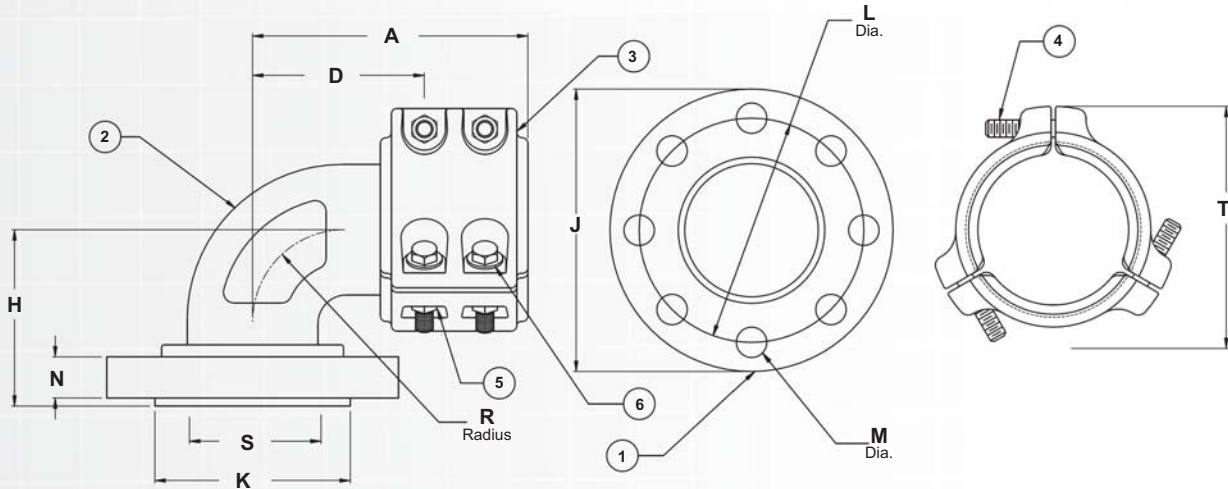
Equal to Aeroquip P/N 375-190758

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

Type FL, Group IV, Class I,
400Lb. Flange Per MIL-PRF-20042

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B1-2-40	2"	7	.69	5.70	2.83	3.50	6.50	3.22	5.19	.81	1.88	2.24	5.35	13
90EF-449B1-2.5-48	2-1/2"	8	.81	5.96	3.09	4.00	7.56	3.72	6.00	.94	2.09	2.71	5.58	18
90EF-449B1-3-48	3"	8	.81	5.96	3.09	4.00	8.13	4.44	6.56	.94	2.09	3.31	5.58	20
90EF-449B1-3.5-64	3-1/2"	9	.81	6.75	3.88	4.62	8.69	5.17	7.13	1.00	2.81	3.81	6.50	27
90EF-449B1-4-64	4"	9	.81	6.75	3.88	4.62	9.25	5.22	7.69	1.00	2.81	4.28	6.50	30

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17798	C17801	C17802	C17803	C17804	Bronze
② Elbow	1	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

All Dimensions are in Inches.
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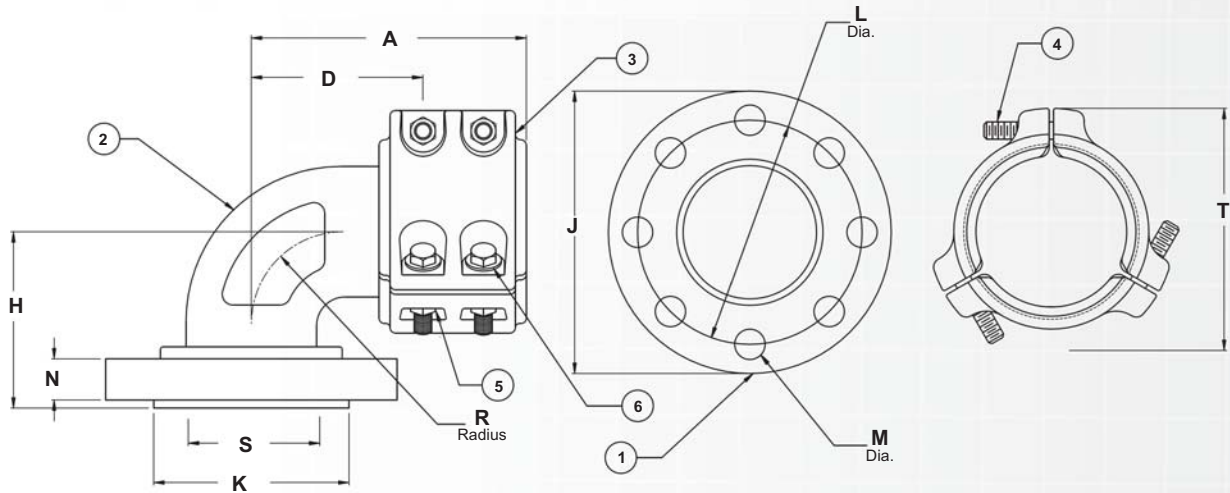
End Fitting - 90° - Hose to Flange

Equal to Aeroquip P/N 375-190757

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

Type FL, Group IV, Class II,
150/400Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B5-2-40	2"	6	.56	5.70	2.83	3.50	5.56	3.28	4.44	.81	1.88	2.24	5.35	11
90EF-449B5-2.5-40	2-1/2"	6	.56	5.70	2.83	3.50	6.13	3.28	5.00	.94	1.88	2.24	5.35	13
90EF-449B5-2.5-48	2-1/2"	6	.56	5.96	3.09	4.00	6.13	3.78	5.00	.94	2.09	2.71	5.58	15
90EF-449B5-3-48	3"	8	.56	5.96	3.09	4.00	6.63	4.50	5.50	.94	2.09	3.31	5.58	16
90EF-449B5-3.5-64	3-1/2"	8	.56	6.75	3.88	4.62	7.19	5.22	6.06	1.00	2.81	3.81	6.50	22
90EF-449B5-4-64	4"	8	.56	6.75	3.88	4.62	7.69	5.22	6.56	1.00	2.81	4.28	6.50	24

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17765	C17796	C17795	C17766	C17794	C17767	Bronze
② Elbow	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

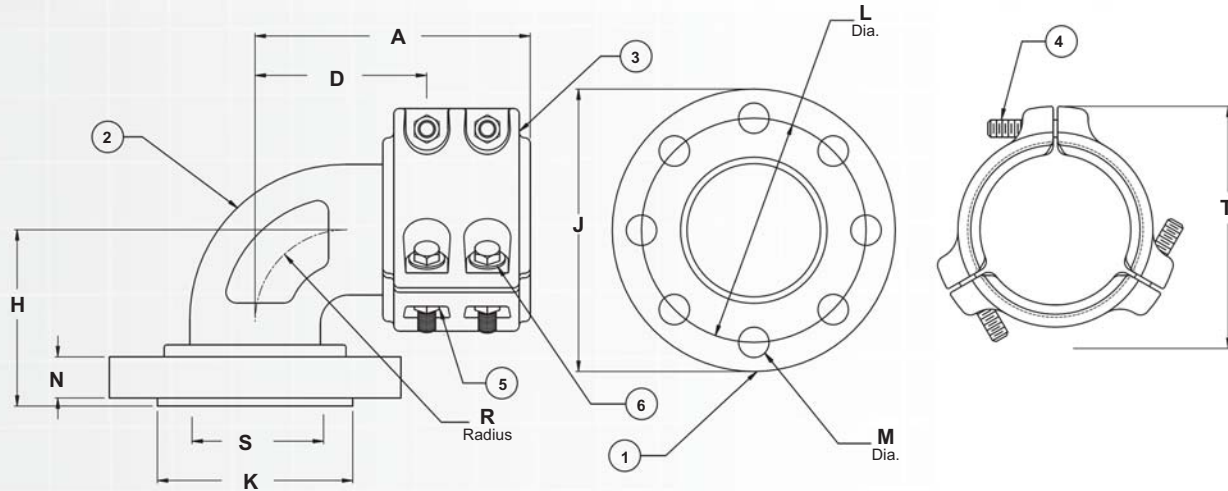
All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - 90° - Hose to Flange

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

Type FL, Group IV, Class III,
250Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B2-2-40	2"	6	.69	5.70	2.83	3.50	5.56	3.22	4.44	.81	1.88	2.24	5.35	16
90EF-449B2-2.5-40	2-1/2"	6	.69	5.70	2.83	3.50	6.13	3.22	5.00	.94	1.88	2.24	5.35	17
90EF-449B2-2.5-48	2-1/2"	6	.69	5.96	3.09	4.00	6.13	3.72	5.00	.94	2.09	2.71	5.58	18
90EF-449B2-3-48	3"	8	.69	5.96	3.09	4.00	6.63	4.44	5.50	.94	2.09	3.31	5.58	19
90EF-449B2-3.5-64	3-1/2"	8	.69	6.75	3.88	4.62	7.19	5.17	6.06	1.00	2.81	3.81	6.50	25
90EF-449B2-4-64	4"	8	.69	6.75	3.88	4.62	7.69	5.22	6.56	1.00	2.81	4.28	6.50	26

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17812	C17307	C17813	C17309	C17815	C17310	Bronze
② Elbow	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18175	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

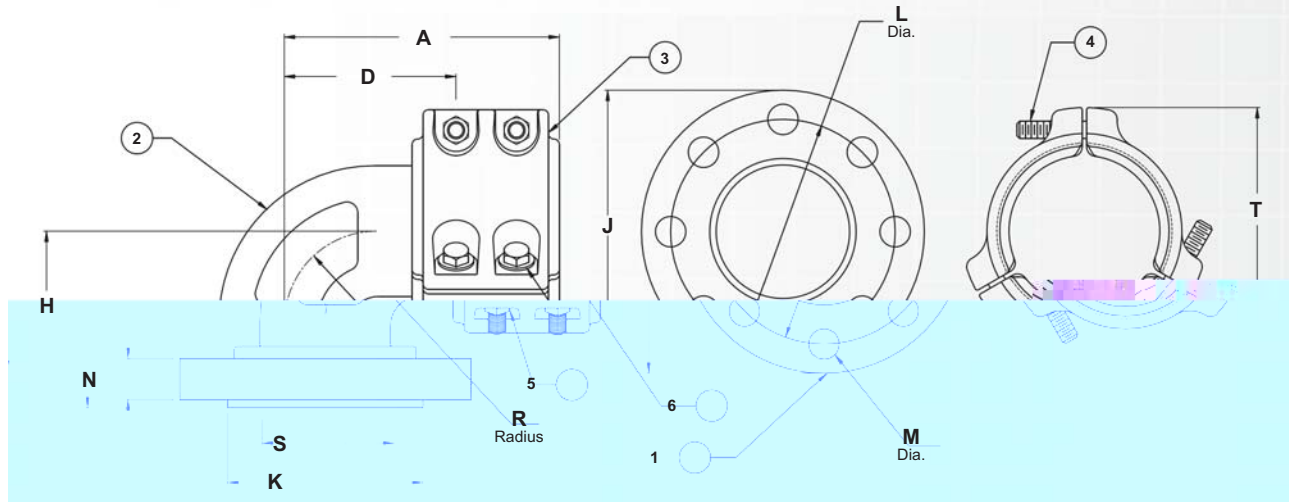
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Hose to Flange

Equal to Aeroquip P/N 375-190656

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,
Type FL, Group IV, Class IV,
150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B3-2-40	2"	6	.56	5.70	2.83	3.50	5.56	3.22	4.44	.44	1.88	2.24	5.35	9
90EF-449B3-2.5-40	2-1/2"	6	.56	5.70	2.83	3.50	6.13	3.22	5.00	.50	1.88	2.24	5.35	10
90EF-449B3-2.5-48	2-1/2"	6	.56	5.96	3.09	4.00	6.13	3.72	5.00	.50	2.09	2.71	5.58	12
90EF-449B3-3-48	3"	8	.56	5.96	3.09	4.00	6.63	4.44	5.50	.50	2.09	3.31	5.58	13
90EF-449B3-3.5-64	3-1/2"	8	.56	6.75	3.88	4.62	7.19	5.17	6.06	.50	2.81	3.81	6.50	19
90EF-449B3-4-64	4"	8	.56	6.75	3.88	4.62	7.69	5.22	6.56	.50	2.81	4.28	6.50	20

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17925	C17929	C17931	C17933	C17938	C17940	Bronze
② Elbow	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

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.

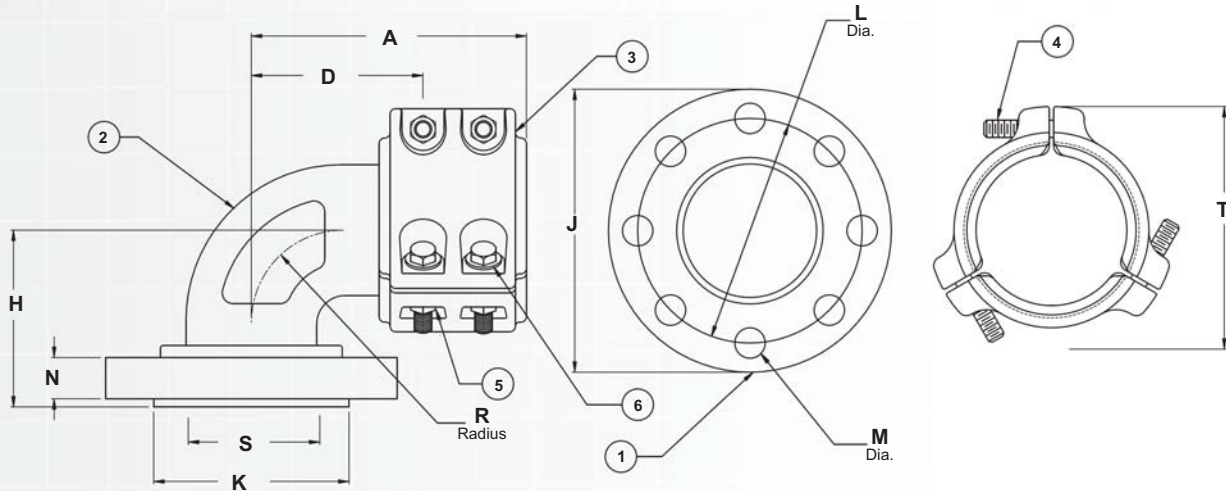
End Fitting - 90° - Hose to Flange

Equal to Aeroquip P/N 375-190769

Use with the following hose: HS4265, HS4224
2652, 150901

MIL-F-24787/1,

**Type FL, Group IV, Class V,
150Lb. Flange Per A.N.S.I. B16.5**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B4-2-40	2"	4	.75	5.70	2.83	3.50	6.00	3.22	4.75	.42	1.88	2.24	5.35	9
90EF-449B4-2.5-40	2-1/2"	4	.75	5.70	2.83	3.50	7.00	3.22	5.50	.48	1.88	2.24	5.35	12
90EF-449B4-2.5-48	2-1/2"	4	.75	5.96	3.09	4.00	7.00	3.72	5.50	.48	2.09	2.71	5.58	13
90EF-449B4-3-48	3"	4	.75	5.96	3.09	4.00	7.50	4.44	6.00	.48	2.09	3.31	5.58	14
90EF-449B4-3.5-64	3-1/2"	8	.75	6.75	3.88	4.62	8.50	5.17	7.00	.48	2.81	3.81	6.50	21
90EF-449B4-4-64	4"	8	.75	6.75	3.88	4.62	9.00	5.44	7.50	.48	2.81	4.28	6.50	22

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17966	C17968	C17969	C17970	C17971	C17310	Bronze
② Elbow	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

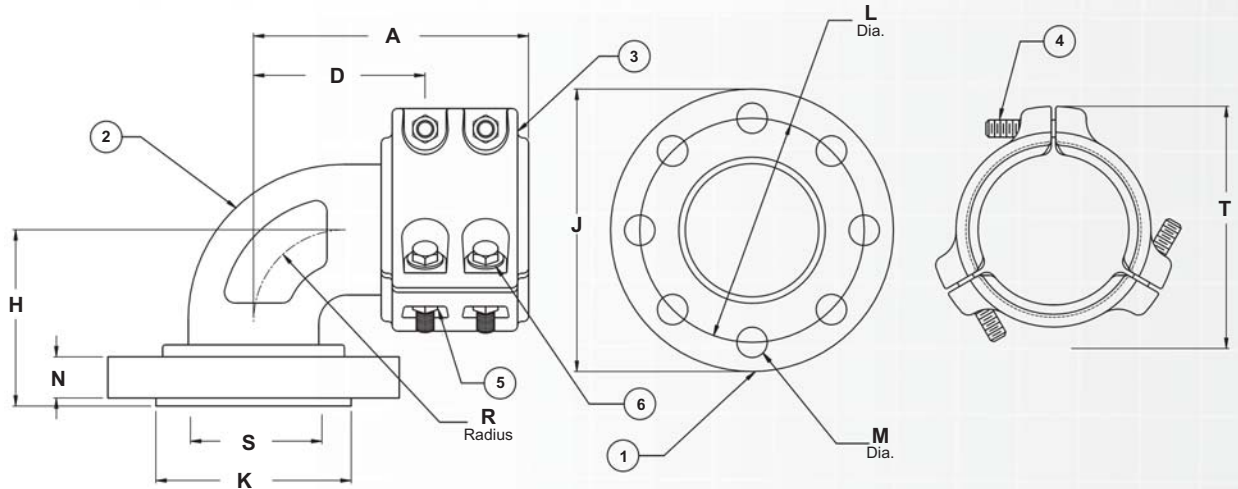
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Hose to Flange

Equal to Aeroquip P/N 413-190769

150Lb. Flange Per A.N.S.I. B16.5

Use with the following hose: HS4265, HS4224
2652, 150901



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-449B4-2-40-BSS	2"	4	.75	5.70	2.83	3.50	6.00	3.22	4.75	.42	1.88	2.24	5.35	9
90EF-449B4-2.5-40-BSS	2-1/2"	4	.75	5.70	2.83	3.50	7.00	3.22	5.50	.48	1.88	2.24	5.35	12
90EF-449B4-2.5-48-BSS	2-1/2"	4	.75	5.96	3.09	4.00	7.00	3.72	5.50	.48	2.09	2.71	5.58	13
90EF-449B4-3-48-BSS	3"	4	.75	5.96	3.09	4.00	7.50	4.44	6.00	.48	2.09	3.31	5.58	14
90EF-449B4-3.5-64-BSS	3-1/2"	8	.75	6.75	3.88	4.62	8.50	5.17	7.00	.48	2.81	3.81	6.50	21
90EF-449B4-4-64-BSS	4"	8	.75	6.75	3.88	4.62	9.00	5.44	7.50	.48	2.81	4.28	6.50	22

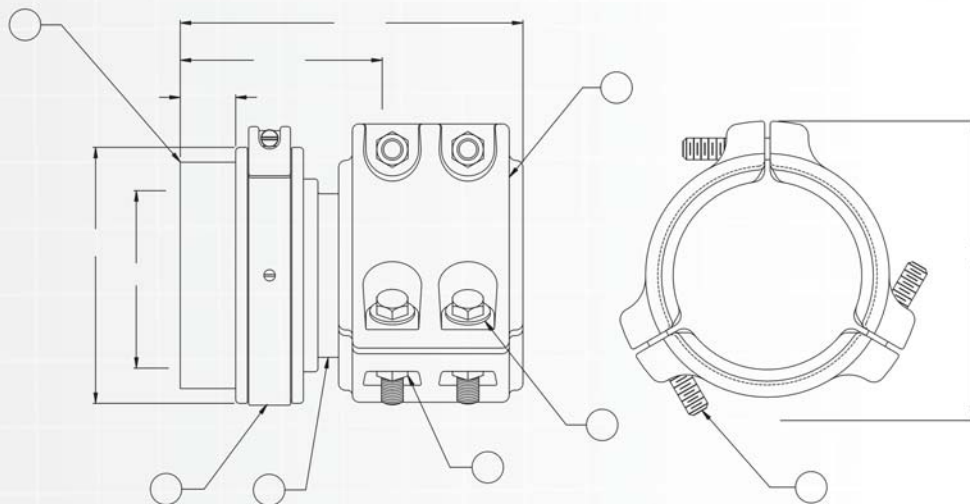
Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	--	C18149	C18150	C18151	--	C19632	Stainless Steel
② Elbow	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
③ Segment	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
④ Bolt	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑤ Lock Nut	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
⑥ Washer	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

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.

Marine Hose & Fittings

End Fitting - Straight - Female Sil-Braze to Hose



Part
Number

I.P.S.
Size

A

D

F

M

Z

T

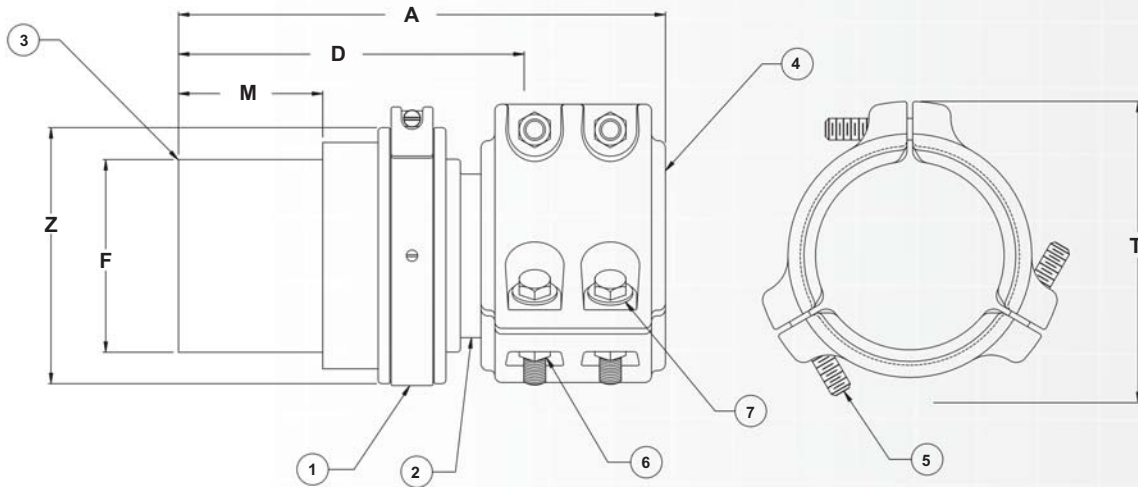
Est. Wt.
Lbs.

End Fitting - Straight - Male Sil-Brze to Hose

Equal to Aeroquip P/N 375-190780
& FC9583-375

MIL-F-24787/4,
Type E, Group IV

Use with the following hose: HS4265, HS4224
2652, 150901



Part Number	I.P.S. Size	A	D	F	M	Z	T	Est. Wt. Lbs.
EF-449CA-2-40	2"	6.51	3.62	2.38	1.31	4.00	5.00	8
EF-449CA-2.5-48	2-1/2"	6.38	3.50	2.88	1.12	4.42	5.50	10
EF-449CA-3-48	3"	7.79	4.90	3.50	2.50	5.19	5.50	13
EF-449CA-3.5-64	3-1/2"	7.86	5.03	4.00	2.50	5.56	6.56	16
EF-449CA-4-64	4"	8.20	5.30	4.50	2.64	6.12	6.56	17

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Clamp Ass'y	1	B-CLMP-2S	B-CLMP-2.5S	B-CLMP-3S	B-CLMP-3.5S	B-CLMP-4S	Bronze
② Nipple	1	C18096	C18097	C18100	C18103	C18105	Alum. Bronze
③ Tailpiece	1	TP-2MSB	TP-2.5MSB	TP-3MSB	TP-3.5MSB	TP-4MSB	Bronze
④ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
⑤ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑥ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑦ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

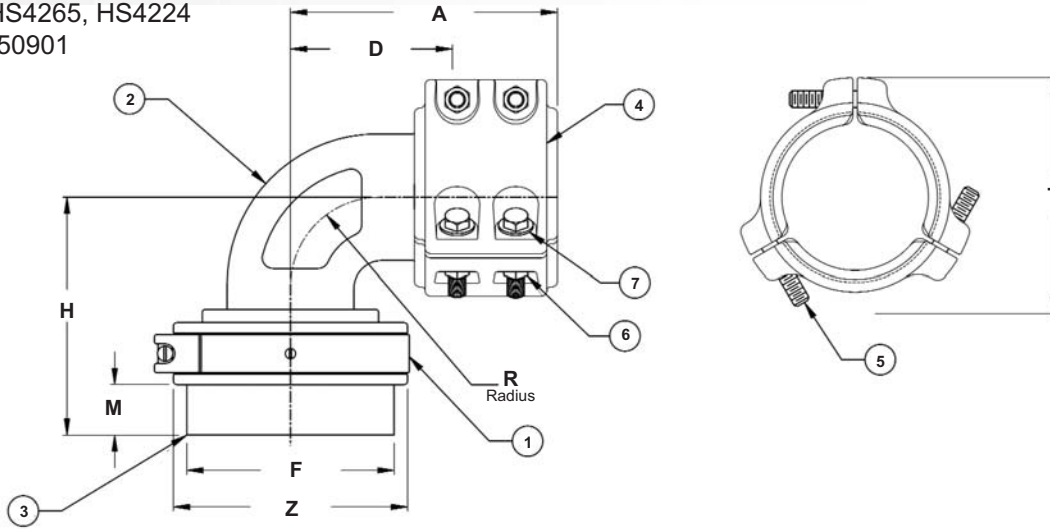
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Female Sil-Braze to Hose

Equal to Aeroquip P/N 375-190785
& FC9074-375

MIL-F-24787/4,
Type EL, Group IV

Use with the following
hose: HS4265, HS4224
2652, 150901



Part Number	I.P.S. Size	A	D	F	H	M	R	Z	T	Est. Wt. Lbs.
90EF-449D-2-40	2"	5.70	2.83	2.38	4.29	.66	1.88	4.00	5.35	10
90EF-449D-2.5-48	2-1/2"	5.88	3.09	2.88	5.04	.78	2.09	4.42	5.58	12
90EF-449D-3-48	3"	6.46	3.09	3.50	4.93	.83	2.09	5.19	5.58	14
90EF-449D-3.5-64	3-1/2"	6.75	3.88	4.00	5.53	.88	2.81	5.56	6.50	20
90EF-449D-4-64	4"	6.75	3.88	4.50	5.58	.91	2.81	6.12	6.50	22

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Clamp Ass'y	1	B-CLMP-2S	B-CLMP-2.5S	B-CLMP-3S	B-CLMP-3.5S	B-CLMP-4S	Bronze
② Elbow	1	D18124	D18125	D18126	D18127	D18128	Alum. Bronze
③ Tailpiece	1	TP-2FSB	TP-2.5FSB	TP-3FSB	TP-3.5FSB	TP-4FSB	Bronze
④ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
⑤ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑥ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑦ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

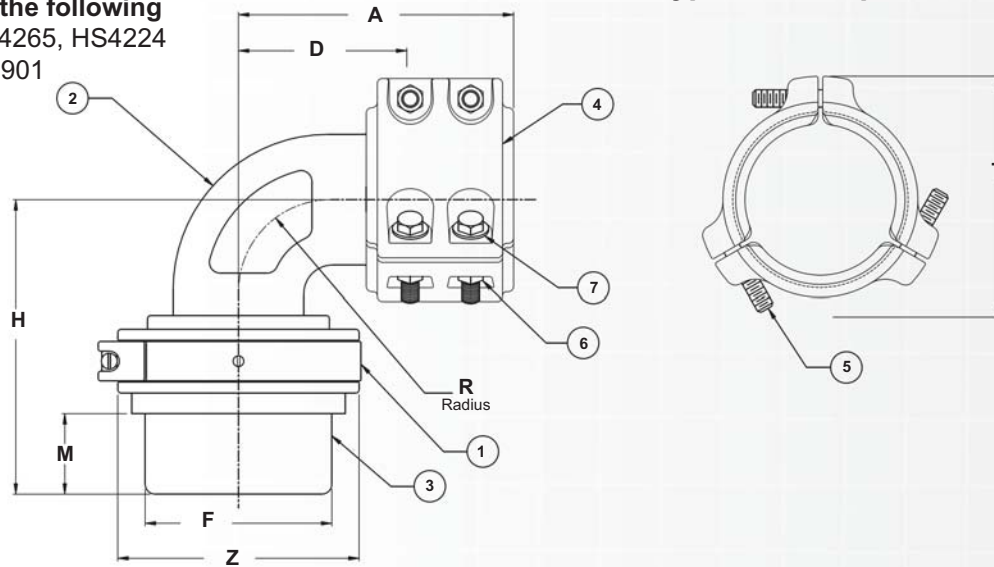
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Male Sil-Braze to Hose

Equal to Aeroquip P/N 375-190784
& FC9589-375

MIL-F-24787/4,
Type EL, Group IV

Use with the following
hose: HS4265, HS4224
2652, 150901



Part Number	I.P.S. Size	A	D	F	H	M	R	Z	T	Est. Wt. Lbs.
90EF-449DA-2-40	2"	5.70	2.83	2.38	4.82	1.31	1.88	4.00	5.35	10
90EF-449DA-2.5-48	2-1/2"	5.88	3.09	2.88	5.22	1.12	2.09	4.42	5.58	12
90EF-449DA-3-48	3"	6.46	3.09	3.50	6.63	2.50	2.09	5.19	5.58	16
90EF-449DA-3.5-64	3-1/2"	6.75	3.88	4.00	7.00	2.50	2.81	5.56	6.50	21
90EF-449DA-4-64	4"	6.75	3.88	4.50	7.15	2.64	2.81	6.12	6.50	24

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Clamp Ass'y	1	B-CLMP-2S	B-CLMP-2.5S	B-CLMP-3S	B-CLMP-3.5S	B-CLMP-4S	Bronze
② Elbow	1	D18124	D18125	D18126	D18127	D18128	Alum. Bronze
③ Tailpiece	1	TP-2MSB	TP-2.5MSB	TP-3MSB	TP-3.5MSB	TP-4MSB	Bronze
④ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
⑤ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑥ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑦ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

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.

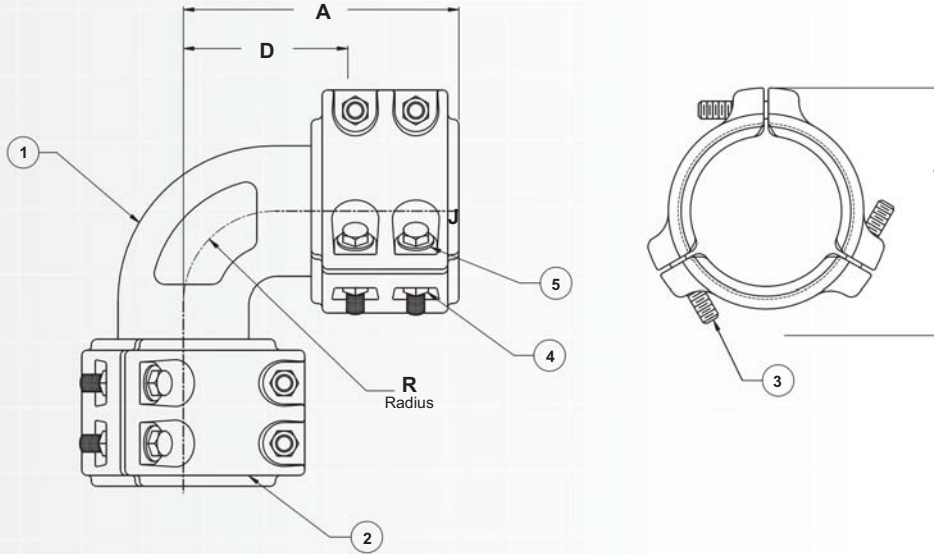
Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 375-190717

MIL-F-24787/5,

Use with the following hose: HS4265, HS4224
2652, 150901

Type D, Group IV



Part Number	Hose Size	A	D	R	T	Est. Wt. Lbs.
90ELB-449E-40	2-1/2"	5.70	2.83	1.88	5.35	12
90ELB-449E-48	3"	5.96	3.09	2.09	5.58	14
90ELB-449E-64	4"	6.75	3.88	2.81	6.50	23

Components

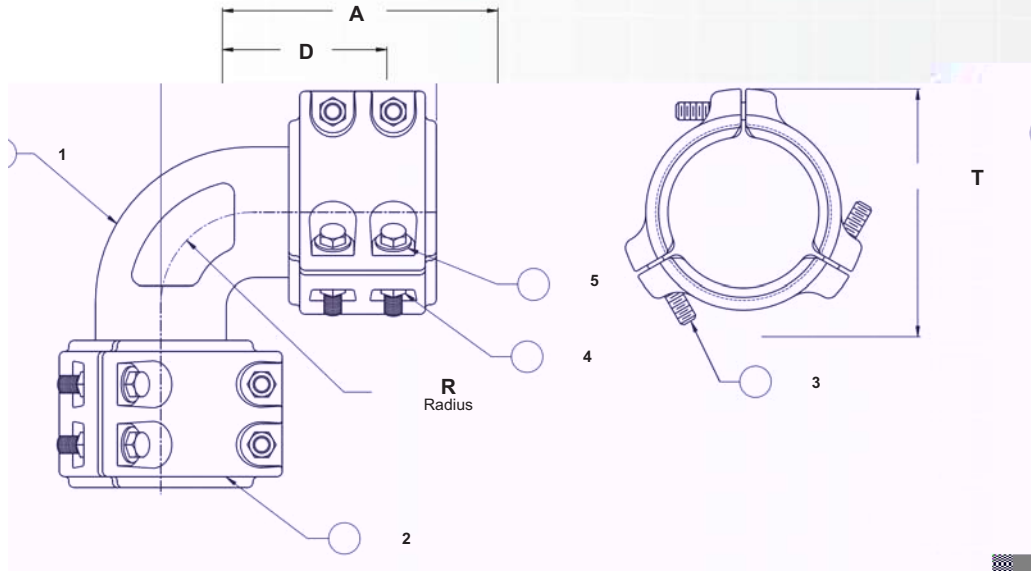
Description	Req'd per Ass'y	40	48	64	Material
① Elbow	1	D19512-2	D19610-2	D20741-2	Alum. Bronze
② Segment	3	D17299-1	D17300-1	D17301-1	Alum. Bronze
③ Bolt	6	B17673-2	B17673-1	B17987	Monel
④ Lock Nut	6	B18176	B18176	B17984	Monel
⑤ Washer	6	B18175	B18175	B17986	Monel

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.

Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 412-190717

Use with the following hose: HS4265, HS4224
2652, 150901



Part Number	Hose Size	A	D	R	T	Est. Wt. Lbs.
90ELB-449E-40-SS	2-1/2"	5.70	2.83	1.88	5.35	12
90ELB-449E-48-SS	3"	5.96	3.09	2.09	5.58	14
90ELB-449E-64-SS	4"	6.75	3.88	2.81	6.50	23

Components

Description	Req'd per Ass'y	40	48	64	Material
① Elbow	1	D19512-1	D19610-1	D20741-1	Stainless Steel
② Segment	3	D17299-1	D17300-1	D17301-1	Alum. Bronze
③ Bolt	6	B17673-2	B17673-1	B17987	Monel
④ Lock Nut	6	B18176	B18176	B17984	Monel
⑤ Washer	6	B18175	B18175	B17986	Monel

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.

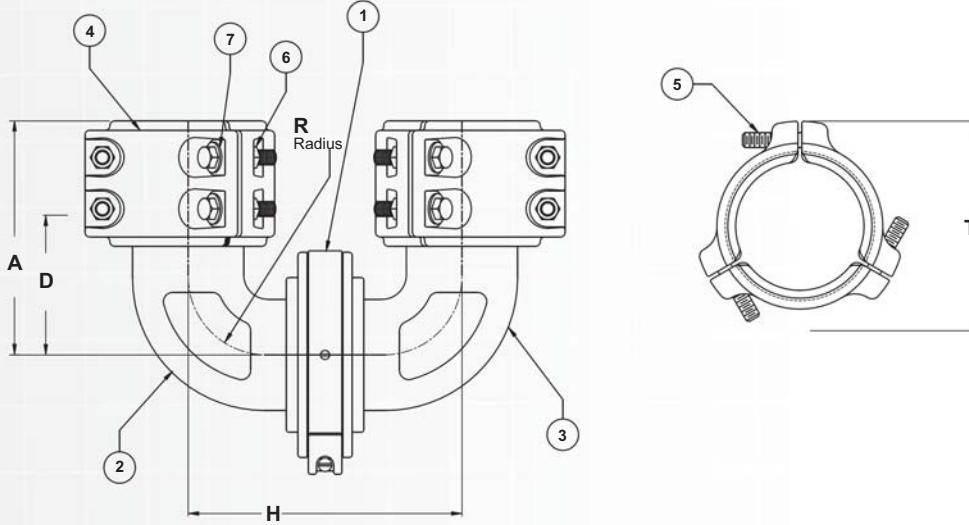
Elbow - 180° - Hose to Hose w/ Split Clamp

Equal to Aeroquip P/N 375-190786

MIL-F-24787/6,

Use with the following hose: HS4265, HS4224
2652, 150901

Type U, Group IV



Part Number	Hose Size	A	D	H	R	T	Est. Wt. Lbs.
180ELB-449F-2-40	2"	5.70	2.83	5.40	1.88	5.35	15
180ELB-449F-2.5-48	2-1/2"	5.96	3.09	5.92	2.09	5.58	21
180ELB-449F-3-48	3"	5.96	3.09	5.95	2.09	5.58	23
180ELB-449F-3.5-64	3-1/2"	6.75	3.88	7.32	2.81	6.50	34
180ELB-449F-4-64	4"	6.75	3.88	7.44	2.81	6.50	36

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Clamp Ass'y	1	B-CLMP-2S	B-CLMP-2.5S	B-CLMP-3S	B-CLMP-3.5S	B-CLMP-4S	Bronze
"O"-Ring	1	R-RNG/O-230	R-RNG/O-234	R-RNG/O-239	R-RNG/O-243	R-RNG/O-247	Buna-N
Back-Up Ring	1	R-RNG/BU-8	R-RNG/BU-12	--	--	--	Buna-N
② Female Elbow	1	D18129	D18130	D18131	D18132	D18133	Alum. Bronze
③ Male Elbow	1	D18124	D18125	D18126	D18127	D18128	Alum. Bronze
④ Segment	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
⑤ Bolt	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
⑥ Lock Nut	6	B18176	B18176	B18176	B17984	B17984	Monel
⑦ Washer	6	B18175	B18175	B18175	B17986	B17986	Monel

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.

End Fitting - Straight - Flange to Hose

MIL-F-24787/1,

Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	T	S	Est. Wt. Lbs.
EF-1546A1-2-40	2"	7	.69	4.40	1.96	6.50	3.28	5.19	.81	6.70	2.24	15
EF-1546A1-2.5-40	2-1/2"	8	.81	4.40	1.96	7.56	3.28	6.00	.94	6.70	2.24	16
EF-1546A1-2.5-48	2-1/2"	8	.81	4.86	1.96	7.56	3.78	6.00	.94	7.65	2.71	22
EF-1546A1-3-48	3"	8	.81	4.86	1.96	8.13	4.50	6.56	.94	7.65	3.31	23
EF-1546A1-3.5-64	3-1/2"	9	.81	5.28	2.37	8.69	5.22	7.13	1.00	8.91	3.81	31
EF-1546A1-4-64	4"	9	.81	5.28	2.37	9.25	5.27	7.69	1.00	8.91	4.28	34

31

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17798	C17799	C17801	C17802	C17803	C17804	Bronze
○ Nipple	1	C17708	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
○ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
○ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

End Fitting - Straight - Flange to Hose

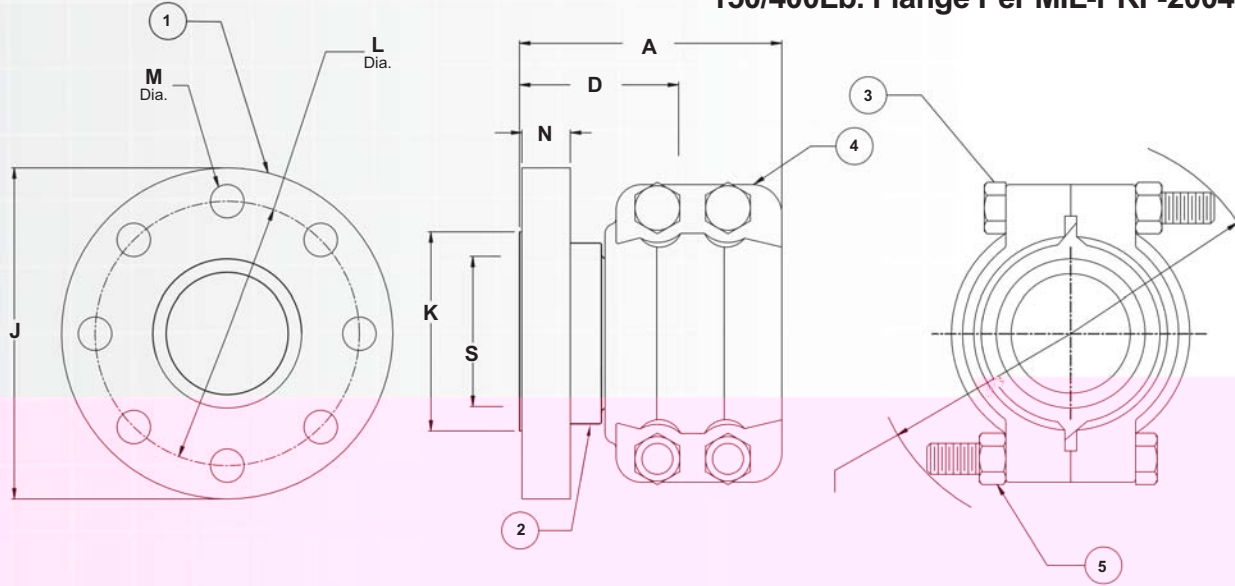
Equal to Aeroquip P/N FC9527-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type F, Group X, Class II,
150/400Lb. Flange Per MIL-PRF-20042**

Fittings



Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17765	C17796	C17795	C17766	C17794	C17767	Bronze
○ Nipple	1	C17708	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

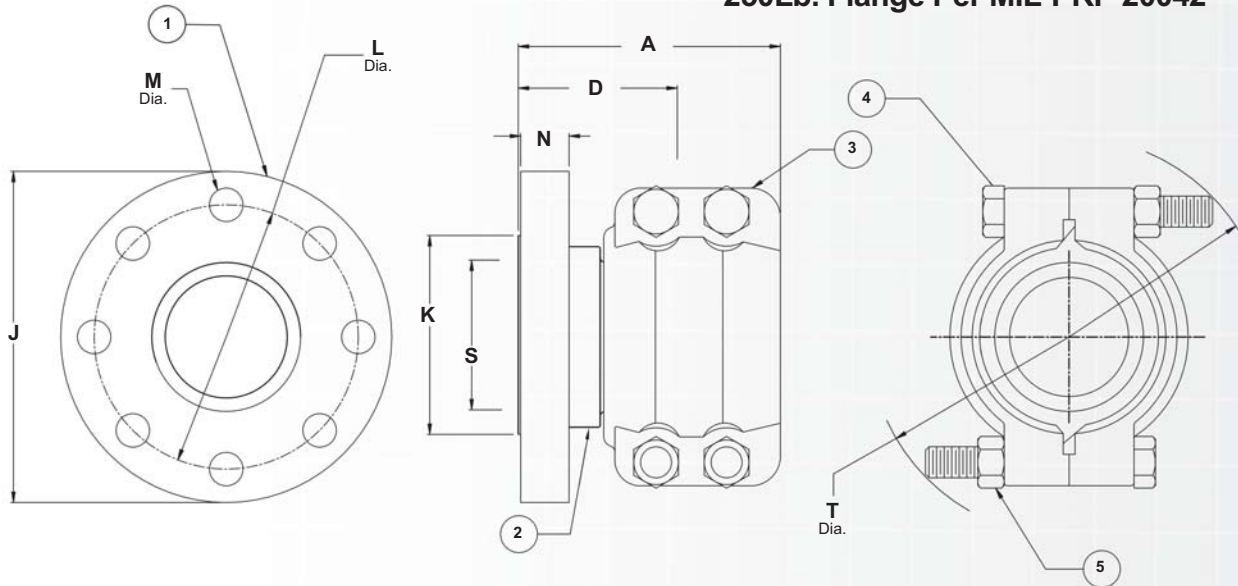
All Dimensions are in Inches.
Dimensional information is for reference only.



End Fitting - Straight

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,
 Type F, Group X, Class III,
 250Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	T	S	Est. Wt. Lbs.
EF-1546A3-2-40	2"	6	.69	4.40	1.96	5.56	3.28	4.44	.81	6.70	2.24	15
EF-1546A3-2.5-40	2-1/2"	6	.69	4.40	1.96	6.13	3.28	5.00	.94	6.70	2.24	16
EF-1546A3-2.5-48	2-1/2"	6	.69	4.86	1.96	6.13	3.78	5.00	.94	7.65	2.71	17
EF-1546A3-3-48	3"	8	.69	4.86	1.96	6.63	4.50	5.50	.94	7.65	3.31	18
EF-1546A3-3.5-64	3-1/2"	8	.69	5.28	2.37	7.19	5.22	6.06	1.00	8.91	3.81	27
EF-1546A3-4-64	4"	8	.69	5.28	2.37	7.69	5.27	6.56	1.00	8.91	4.28	28

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17812	C17307	C17813	C17309	C17815	C17310	Bronze
② Nipple	1	C17708	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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.

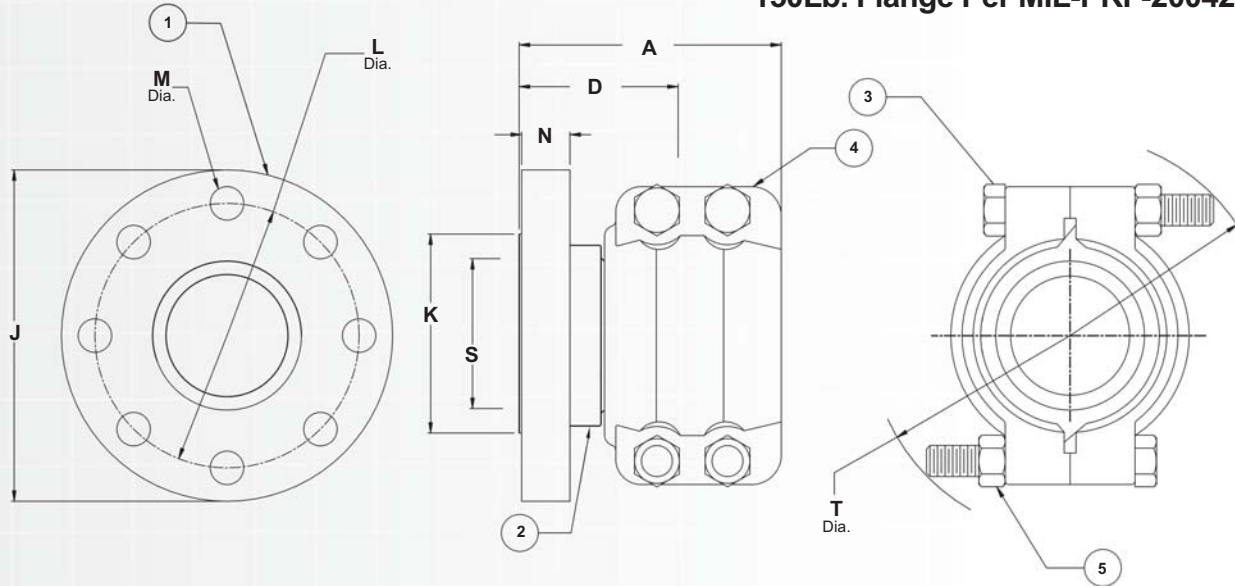
End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N FC5309-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type F, Group X, Class IV,
150Lb. Flange Per MIL-PRF-20042**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	T	S	Est. Wt. Lbs.
EF-1546A4-2-40	2"	6	.56	4.40	1.96	5.56	3.28	4.44	.44	6.70	2.24	12
EF-1546A4-2.5-40	2-1/2"	6	.56	4.40	1.96	6.13	3.28	5.00	.50	6.70	2.24	13
EF-1546A4-2.5-48	2-1/2"	6	.56	4.86	1.96	6.13	3.78	5.00	.50	7.65	2.71	15
EF-1546A4-3-48	3"	8	.56	4.86	1.96	6.63	4.50	5.50	.50	7.65	3.31	16
EF-1546A4-3.5-64	3-1/2"	8	.56	5.28	2.37	7.19	5.22	6.06	.50	8.91	3.81	24
EF-1546A4-4-64	4"	8	.56	5.28	2.37	7.69	5.27	6.56	.50	8.91	4.28	25

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17925	C17929	C17931	C17933	C17938	C17940	Bronze
② Nipple	1	C17708	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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.

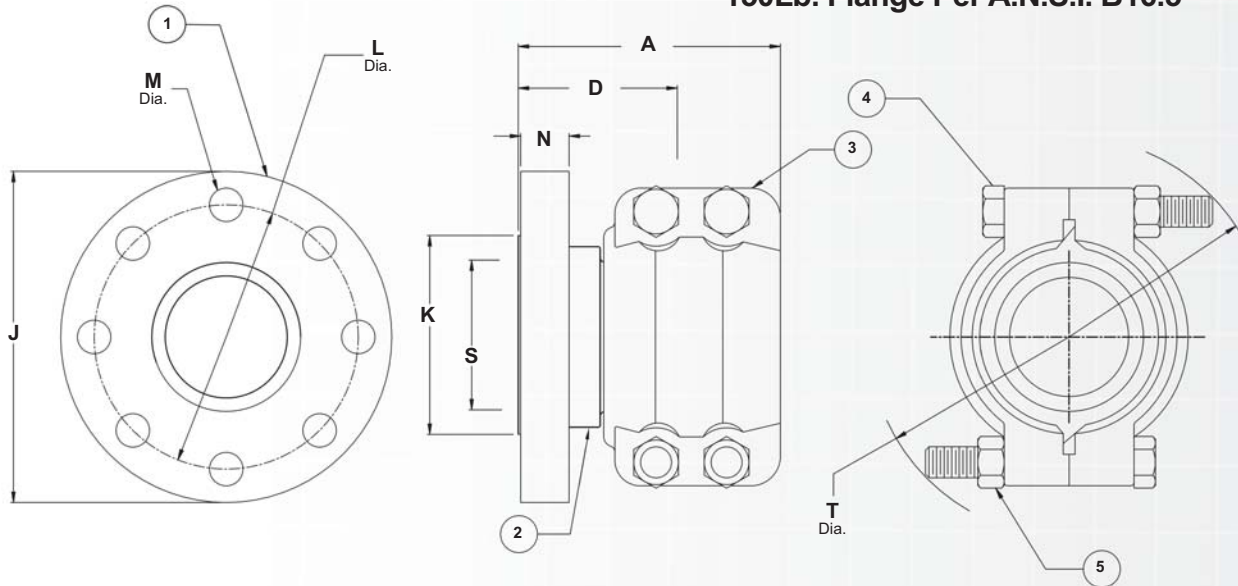
End Fitting - Straight- Flange to Hose

Equal to Aeroquip P/N FC5048-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

Type F, Group X, Class V,
150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	T	S	Est. Wt. Lbs.
EF-1546A5-2-40	2"	4	.75	4.40	1.96	6.00	3.28	4.75	.42	6.70	2.24	12
EF-1546A5-2.5-40	2-1/2"	4	.75	4.40	1.96	7.00	3.28	5.50	.48	6.70	2.24	13
EF-1546A5-2.5-48	2-1/2"	4	.75	4.86	1.96	7.00	3.78	5.50	.48	7.65	2.71	15
EF-1546A5-3-48	3"	4	.75	4.86	1.96	7.50	4.50	6.00	.48	7.65	3.31	16
EF-1546A5-3.5-64	3-1/2"	8	.75	5.28	2.37	8.50	5.22	7.00	.48	8.91	3.81	24
EF-1546A5-4-64	4"	8	.75	5.28	2.37	9.00	5.27	7.50	.48	8.91	4.28	25

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17966	C17968	C17969	C17970	C17971	C17972	Bronze
② Nipple	1	C17708	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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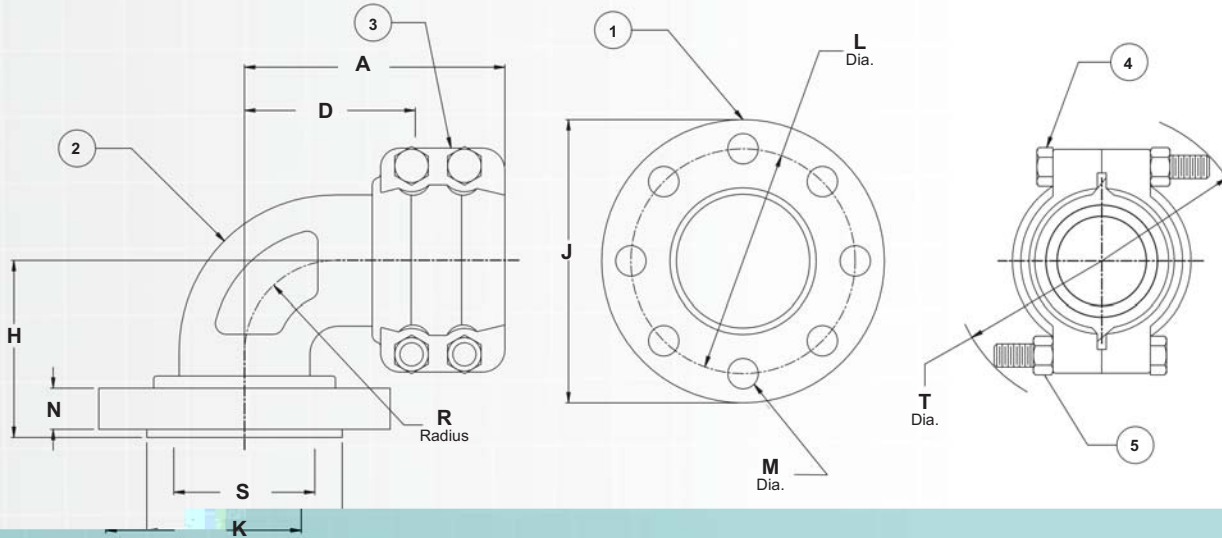
End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N FC9638-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type FL, Group X, Class I,
400Lb. Flange Per MIL-PRF-20042**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	T	R	S	Est. Wt. Lbs.
90EF-1546B1-2-40	2"	7	.69	5.47	2.83	3.50	6.50	3.28	5.19	.81	6.70	1.88	2.24	17
90EF-1546B1-2.5-40	2-1/2"	8	.81	5.47	2.83	3.50	7.56	3.28	6.00	.94	6.70	1.88	2.24	18
90EF-1546B1-2.5-48	2-1/2"	8	.81	5.65	3.09	4.00	7.56	3.78	6.00	.94	7.65	2.09	2.71	24
90EF-1546B1-3-48	3"	8	.81	5.65	3.09	4.00	8.13	4.50	6.56	.94	7.65	2.09	3.31	25
90EF-1546B1-3.5-64	3-1/2"	9	.81	6.48	3.88	4.62	8.69	5.22	7.13	1.00	8.91	2.81	3.81	37
90EF-1546B1-4-64	4"	9	.81	6.48	3.88	4.62	9.25	5.28	7.69	1.00	8.91	2.81	4.28	39

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17798	C17799	C17801	C17802	C17803	C17804	Bronze
② Elbow	1	C18052	C18052	C18305	C18306	C18307	C18308	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

All Dimensions are in Inches.
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End Fitting - 90° - Flange to Hose

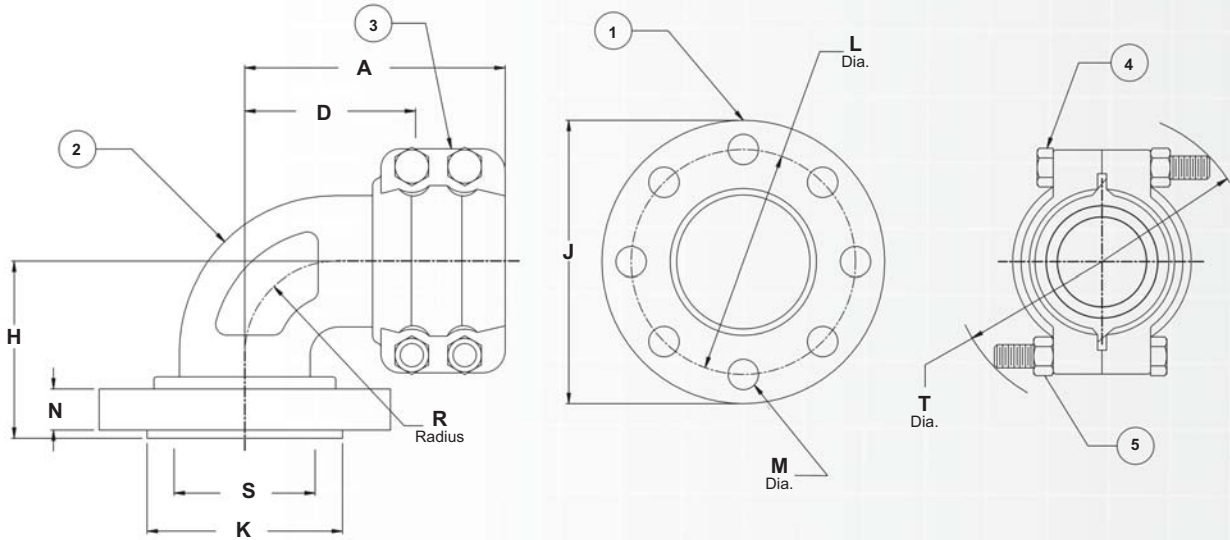
Equal to Aeroquip P/N FC9637-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

Type FL, Group X, Class II,

150/400Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	T	R	S	Est. Wt. Lbs.
90EF-1546B2-2-40	2"	6	.56	5.47	2.83	3.50	5.56	3.28	4.44	.81	6.70	1.88	2.24	16
90EF-1546B2-2.5-40	2-1/2"	6	.56	5.47	2.83	3.50	6.13	3.28	5.00	.94	6.70	1.88	2.24	20
90EF-1546B2-2.5-48	2-1/2"	6	.56	5.65	3.09	4.00	6.13	3.78	5.00	.94	7.65	2.09	2.71	20
90EF-1546B2-3-48	3"	8	.56	5.65	3.09	4.00	6.63	4.50	5.50	.94	7.65	2.09	3.31	20
90EF-1546B2-3.5-64	3-1/2"	8	.56	6.48	3.88	4.62	7.19	5.22	6.06	1.00	8.91	2.81	3.81	32
90EF-1546B2-4-64	4"	8	.56	6.48	3.88	4.62	7.69	5.22	6.56	1.00	8.91	2.81	4.28	33

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17765	C17796	C17795	C17766	C17794	C17767	Bronze
② Elbow	1	C18052	C18052	C18305	C18306	C18307	C18308	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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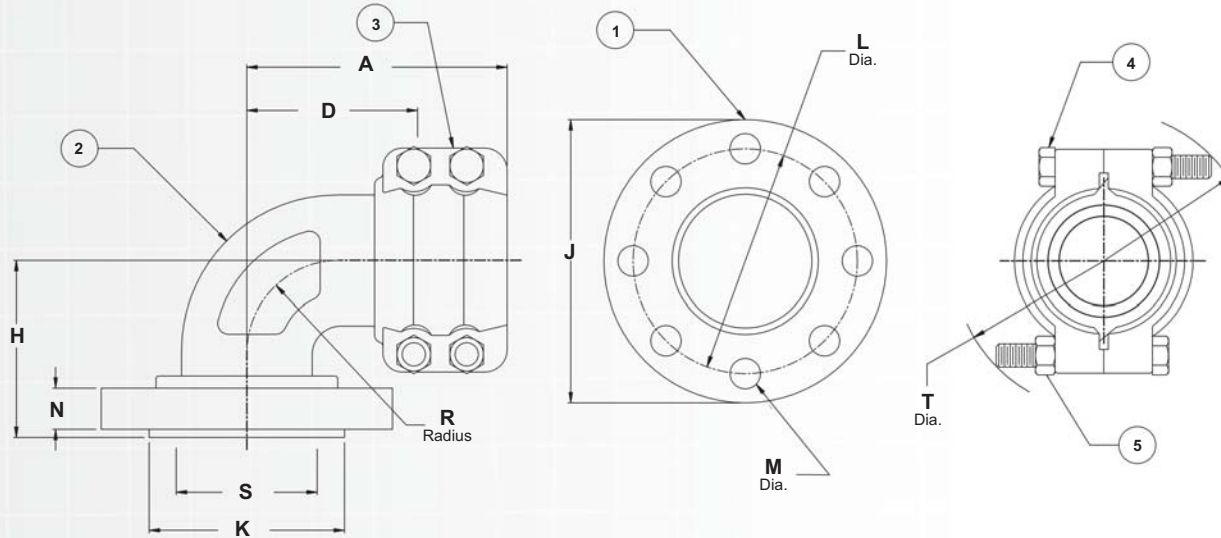
End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N FJ9838-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type FL, Group X, Class III,
250Lb. Flange Per MIL-PRF-20042**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	T	R	S	Est. Wt. Lbs.
90EF-1546B3-2-40	2"	6	.69	5.47	2.83	3.50	5.56	3.28	4.44	.81	6.70	1.88	2.24	17
90EF-1546B3-2.5-40	2-1/2"	6	.69	5.47	2.83	3.50	6.13	3.28	5.00	.94	6.70	1.88	2.24	18
90EF-1546B3-2.5-48	2-1/2"	6	.69	5.65	3.09	4.00	6.13	3.78	5.00	.94	7.65	2.09	2.71	21
90EF-1546B3-3-48	3"	8	.69	5.65	3.09	4.00	6.63	4.50	5.50	.94	7.65	2.09	3.31	22
90EF-1546B3-3.5-64	3-1/2"	8	.69	6.48	3.88	4.62	7.19	5.22	6.06	1.00	8.91	2.81	3.81	31
90EF-1546B3-4-64	4"	8	.69	6.48	3.88	4.62	7.69	5.22	6.56	1.00	8.91	2.81	4.28	32

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17812	C17307	C17813	C17309	C17815	C17310	Bronze
② Elbow	1	C18052	C18052	C18305	C18306	C18307	C18308	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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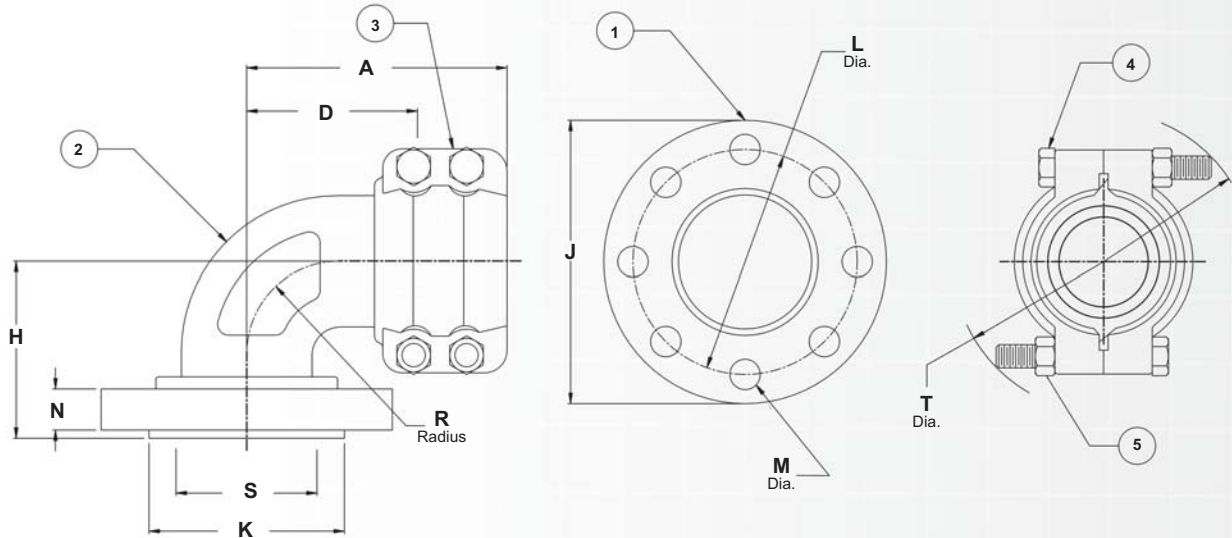


End Fitting - 90° - Flange to Hose

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type FL, Group X, Class IV,
150Lb. Flange Per MIL-PRF-20042**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	T	R	S	Est. Wt. Lbs.
90EF-1546B4-2-40	2"	6	.56	5.47	2.83	3.50	5.56	3.28	4.44	.44	6.70	1.88	2.24	15
90EF-1546B4-2.5-40 2-1/2"	2.5"	6	.56	5.47	2.83	3.50	6.13	3.28	5.00	.50	6.70	1.88	2.24	16
90EF-1546B4-2.5-48 2-1/2"	2.5"	6	.56	5.65	3.09	4.00	6.13	3.78	5.00	.50	7.65	2.09	2.71	19
90EF-1546B4-3-48	3"	8	.56	5.65	3.09	4.00	6.63	4.50	5.50	.50	7.65	2.09	3.31	20
90EF-1546B4-3.5-64 3-1/2"	3.5"	8	.56	6.48	3.88	4.62	7.19	5.22	6.06	.50	8.91	2.81	3.81	29
90EF-1546B4-4-64	4"	8	.56	6.48	3.88	4.62	7.69	5.27	6.56	.50	8.91	2.81	4.28	30

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17925	C17929	C17931	C17933	C17938	C17940	Bronze
② Elbow	1	C18052	C18052	C18305	C18306	C18307	C18308	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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End Fitting - 90° - Flange to Hose

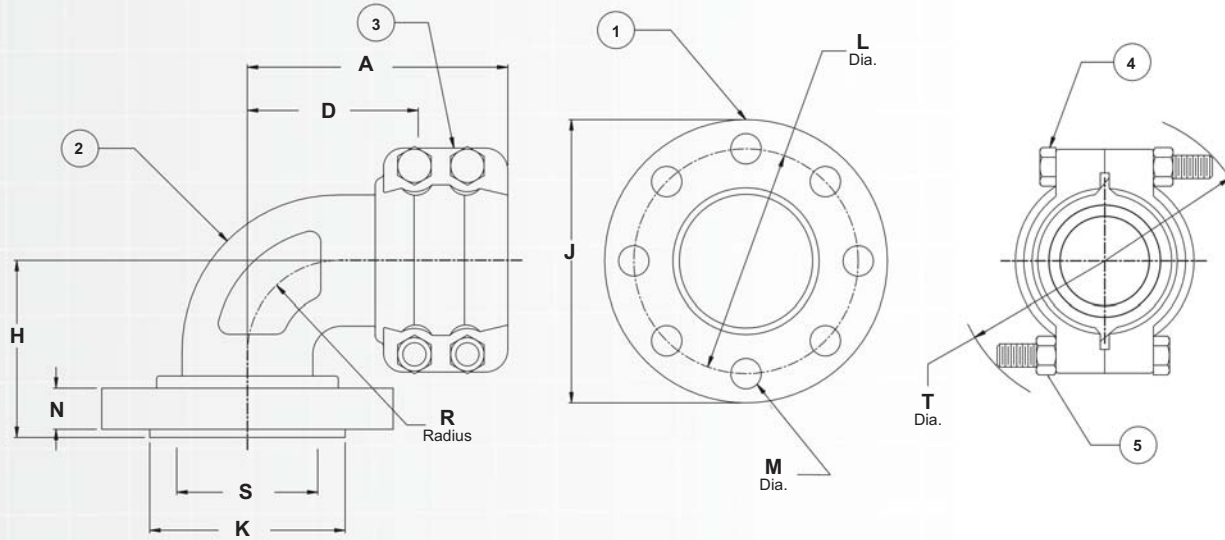
Equal to Aeroquip P/N FC7554-188

Use with the following hose: HS4182 & FC132

MIL-F-24787/1,

**Type FL, Group X, Class V,
150Lb. Flange Per A.N.S.I. B16.5**

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	T	R	S	Est. Wt. Lbs.
90EF-1546B5-2-40	2"	4	.75	5.47	2.83	3.50	6.00	3.28	4.75	.42	6.70	1.88	2.24	15
90EF-1546B5-2.5-40	2-1/2"	4	.75	5.47	2.83	3.50	7.00	3.28	5.50	.48	6.70	1.88	2.24	16
90EF-1546B5-2.5-48	2-1/2"	4	.75	5.65	3.09	4.00	7.00	3.78	5.50	.48	7.65	2.09	2.71	19
90EF-1546B5-3-48	3"	4	.75	5.65	3.09	4.00	7.50	4.50	6.00	.48	7.65	2.09	3.31	20
90EF-1546B5-3.5-64	3-1/2"	8	.75	6.48	3.88	4.62	8.50	5.22	7.00	.48	8.91	2.81	3.81	29
90EF-1546B5-4-64	4"	8	.75	6.48	3.88	4.62	9.00	5.27	7.50	.48	8.91	2.81	4.28	30

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
① Swivel Flange	1	C17966	C17968	C17969	C17970	C17971	C17972	Bronze
② Elbow	1	C18052	C18052	C18305	C18306	C18307	C18308	Alum. Bronze
③ Segment	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
④ Bolt	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
⑤ Nut	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - Straight - Male Split to Hose

MIL-F-24787/4,

Type E, Group X

Part Number	I.P.S. Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ± .006	F +.006 -.000	G +.005 -.000	H +.005 -.000	Est. Wt. Lbs.
EF-1546C-2-40	2"	2.00	6.18	6.75	1.77	3.245	2.495	.332	.317	9
EF-1546C-2.5-48	2-1/2"	2.50	6.18	7.75	1.77	3.745	2.995	.332	.317	13
EF-1546C-3-48	3"	3.00	6.18	7.75	1.77	4.370	3.620	.332	.317	13
EF-1546C-3.5-64	3-1/2"	3.50	6.31	9.00	1.90	4.928	4.120	.332	.317	20
EF-1546C-4-64	4"	4.00	6.31	9.00	2.03	5.428	4.620	.404	.360	21

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Nipple	1	C18325	C18326	C18327	C18328	C18329	Alum. Bronze
Segment	2	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt	4	B17747-1	B17747-1	B17747-1	B17749-1	B17749-1	Monel
Nut	4	B17747-2	B17747-2	B17747-2	B17749-2	B17749-2	Monel

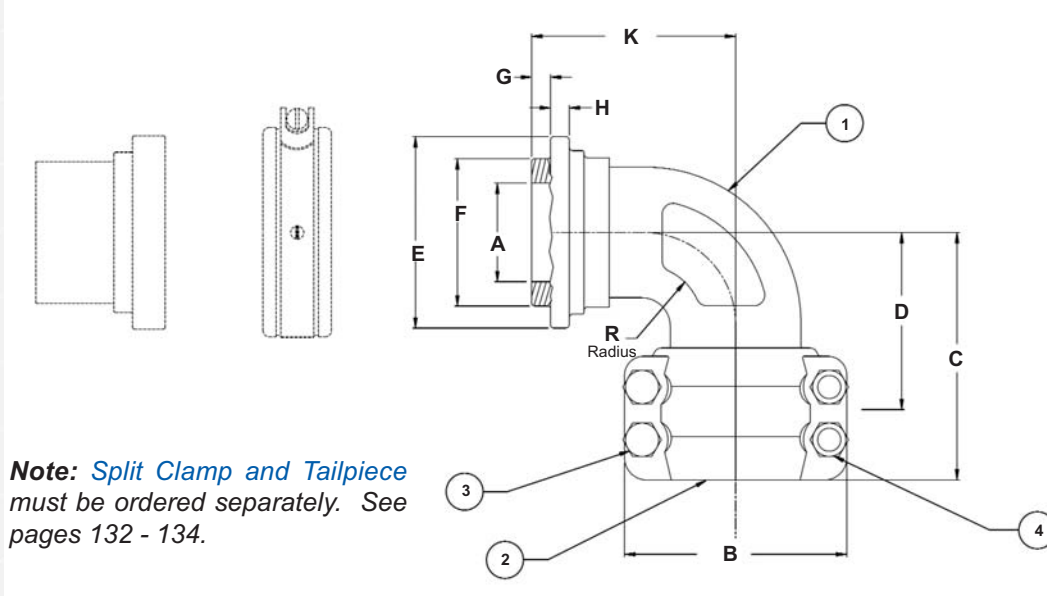
End Fitting - 90° - Male Split to Hose

Equal to Aeroquip P/N FC9636-188

MIL-F-24787/4,

Use with the following hose: HS4182 & FC132

Type EL, Group X



Part Number	IPS Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ± .006	F ^{+0.006} / _{-0.000}	G ^{+0.005} / _{-0.000}	H ^{+0.005} / _{-0.000}	R (Nom.)	K (Nom.)	Est. Wt. Lbs.
90EF-1546D-2-40	2"	2.00	6.75	6.25	2.83	3.245	2.495	.332	.317	2.12	3.50	10
90EF-1546D-2.5-48	2-1/2"	2.50	7.75	6.87	3.09	3.745	2.995	.332	.317	2.50	3.75	13
90EF-1546D-3-48	3"	3.00	7.75	6.87	3.09	4.370	3.620	.332	.317	2.50	3.75	16
90EF-1546D-3.5-64	3-1/2"	3.50	9.00	7.00	3.88	4.928	4.120	.332	.317	3.00	4.50	25
90EF-1546D-4-64	4"	4.00	9.00	7.00	3.88	5.428	4.620	.404	.360	3.00	4.50	26

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
① Elbow	1	C18330	C18331	C18332	C18333	C18334	Alum. Bronze
② Segment	2	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
③ Bolt	4	B17747-1	B17747-1	B17747-1	B17749-1	B17749-1	Monel
④ Nut	4	B17747-2	B17747-2	B17747-2	B17749-2	B17749-2	Monel

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.

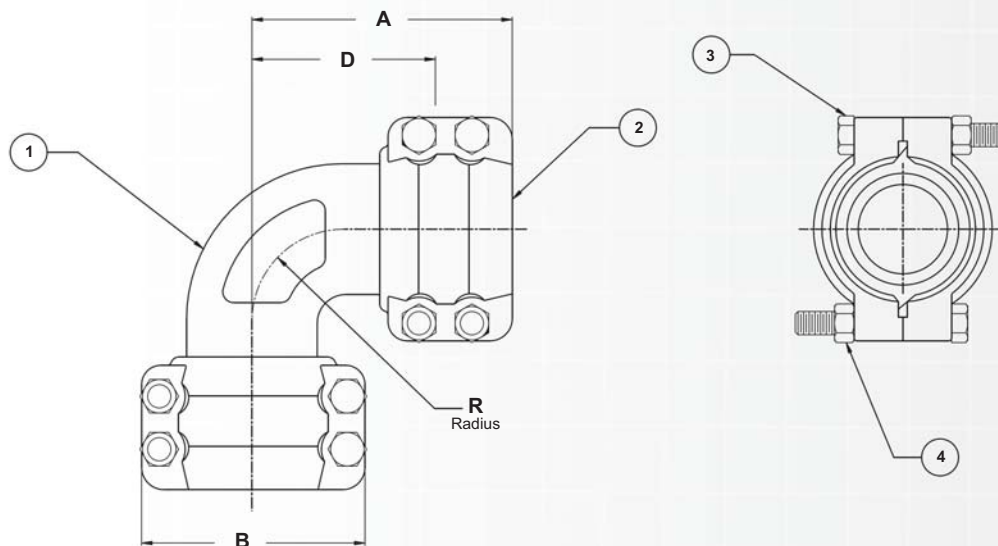
Elbow Fitting - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N FC9528-188

MIL-F-24787/5,

Use with the following hose: HS4182 & FC132

Type D, Group X



Part Number	Hose Size	A (Max.)	B (Max.)	D (Max.)	R (Nom.)	Est. Wt. Lbs.
90ELB-1546E-40	2-1/2"	6.25	6.75	2.83	2.12	15
90ELB-1546E-48	3"	6.87	7.75	3.09	2.50	23
90ELB-1546E-64	4"	7.00	9.00	3.88	3.00	36

Components

Description	Req'd per Ass'y	40	48	64	Material
① Elbow	1	C18051	C18309	D18310	Bronze
② Segment	3	D17739-1	D17743-1	D17726-1	Alum. Bronze
③ Bolt	8	B17747-1	B17748-1	B17749-1	Monel
④ Nut	8	B17747-2	B17748-2	B17749-2	Monel

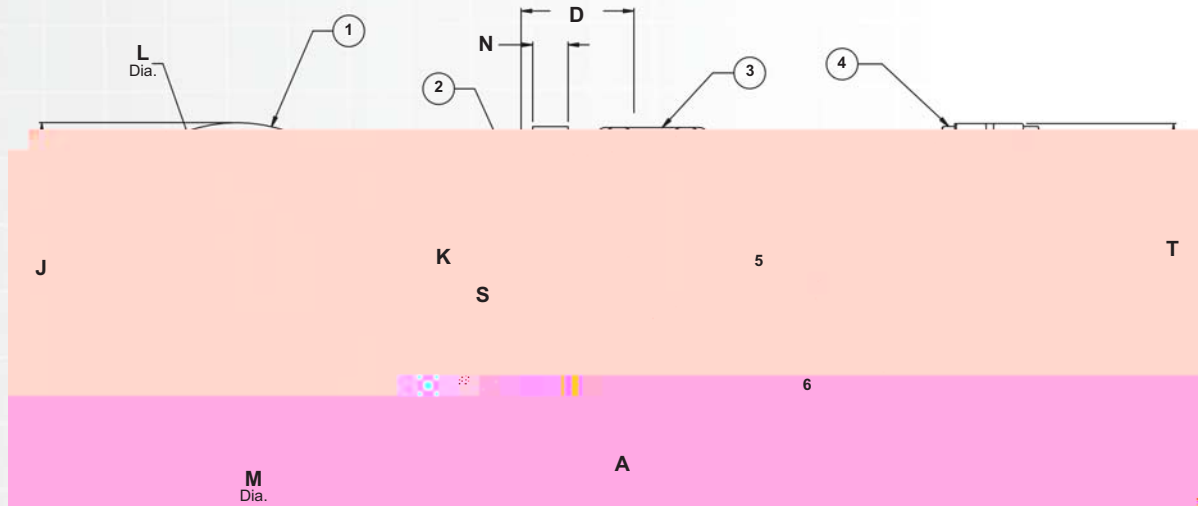
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - Straight - Flange to Hose

Use with the following hose: ER512 & 2580

MIL-F-24787/1,
Type F, Group IX, Class I,
400Lb. Flange Per MIL-PRF-20042

Fittings



Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-5-400F	5"	11	.81	6.75	2.65	10.38	6.37	8.81	1.06	5.32	9.25	50
EF-6-400F	6"	12	.94	6.75	2.65	11.94	7.37	10.19	1.19	6.36	10.38	63
EF-8-400F	8"	13	1.06	7.00	2.65	14.75	9.82	12.75	1.31	8.32	13.00	93
EF-10-400F	10"	15	1.06	7.01	2.89	17.00	12.00	15.00	1.44	10.38	14.50	105

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	Material
① Swivel Flange	1	C16912-1	C16912-2	C16912-3	C18825	Bronze
② Nipple	1	D16195	D16199	D16185	D18324	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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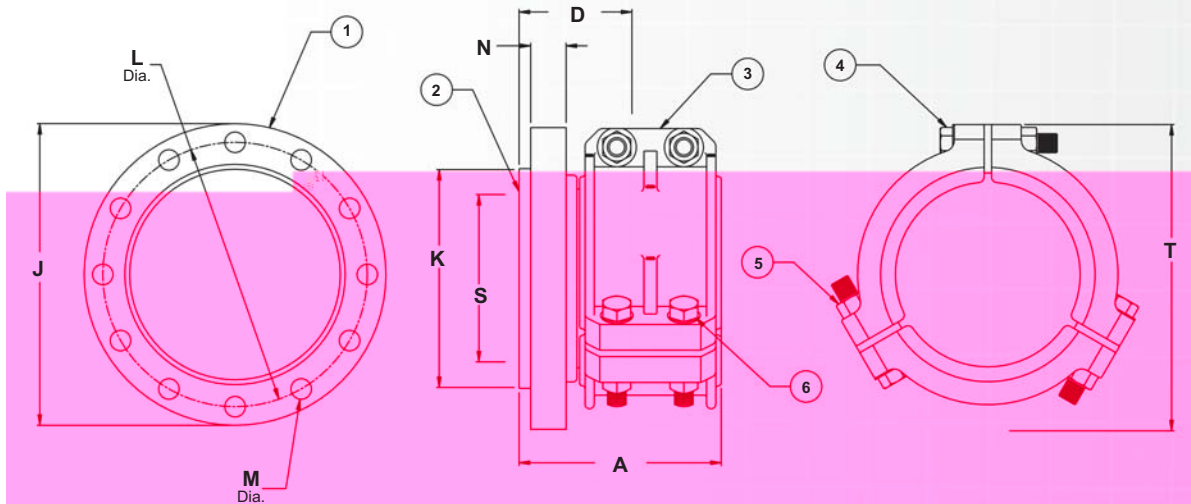
End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N FC7750-188

MIL-F-24787/1,

Type F, Group IX, Class II,
150/400Lb. Flange Per MIL-PRF-20042

Use with the following hose: ER512 & 2580



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-5-150/400F	5"	10	.69	6.75	2.65	9.06	6.37	7.81	1.06	5.32	9.25	46
EF-6-150/400F	6"	12	.69	6.75	2.65	10.13	7.37	8.88	1.19	6.36	10.38	55
EF-8-150/400F	8"	14	.69	7.00	2.65	12.38	9.82	11.06	1.31	8.32	13.00	79
EF-10-150/400F	10"	15	.81	7.01	2.89	15.00	12.00	13.44	1.44	10.38	14.50	95
EF-12-150/400F	12"	18	.81	8.49	3.24	17.62	14.50	16.06	1.48	12.32	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16915-1	C16915-2	C16915-3	C18456	C18257	Bronze
② Nipple	1	D16195	D16199	D16185	D18324	D18319	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

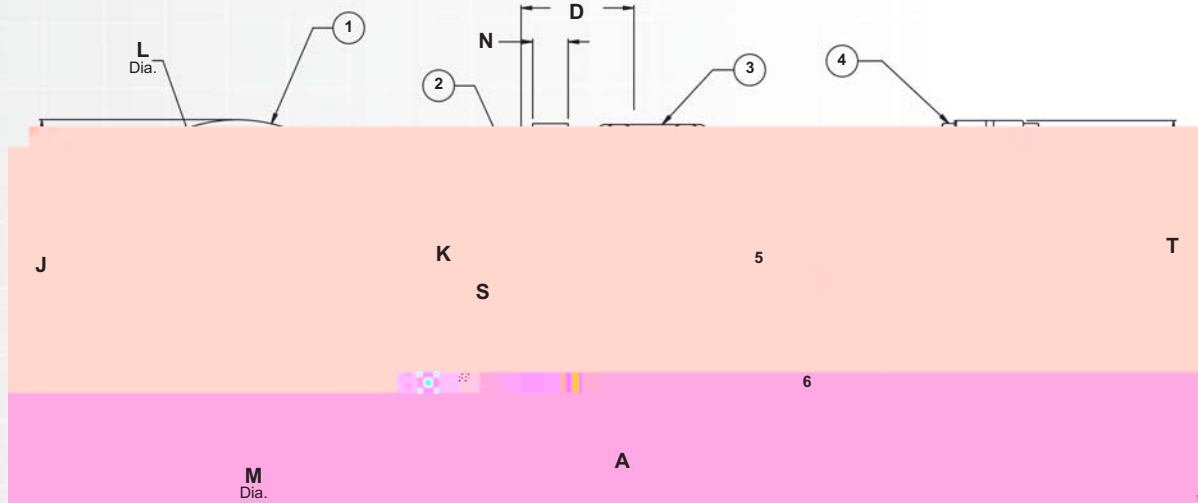
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - Straight - Flange to Hose

Use with the following hose: ER512 & 2580

MIL-F-24787/1,
 Type F, Group IX, Class III,
 250Lb. Flange Per MIL-PRF-20042

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-5-250F	5"	10	.69	6.75	2.65	9.06	6.37	7.81	1.06	5.32	9.25	46
EF-6-250F	6"	12	.69	6.75	2.65	10.13	7.37	8.88	1.19	6.36	10.38	55
EF-8-250F	8"	14	.69	7.00	2.65	12.38	9.82	11.06	1.31	8.32	13.00	79
EF-10-250F	10"	15	.81	7.01	2.89	15.00	12.00	13.44	1.44	10.38	14.50	95
EF-12-250F	12"	18	.81	8.49	3.24	17.63	14.50	16.06	1.50	12.32	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16915-1	C16915-2	C16915-3	C18827	C18828	Bronze
② Nipple	1	D16195	D16199	D16185	D18324	D18319	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

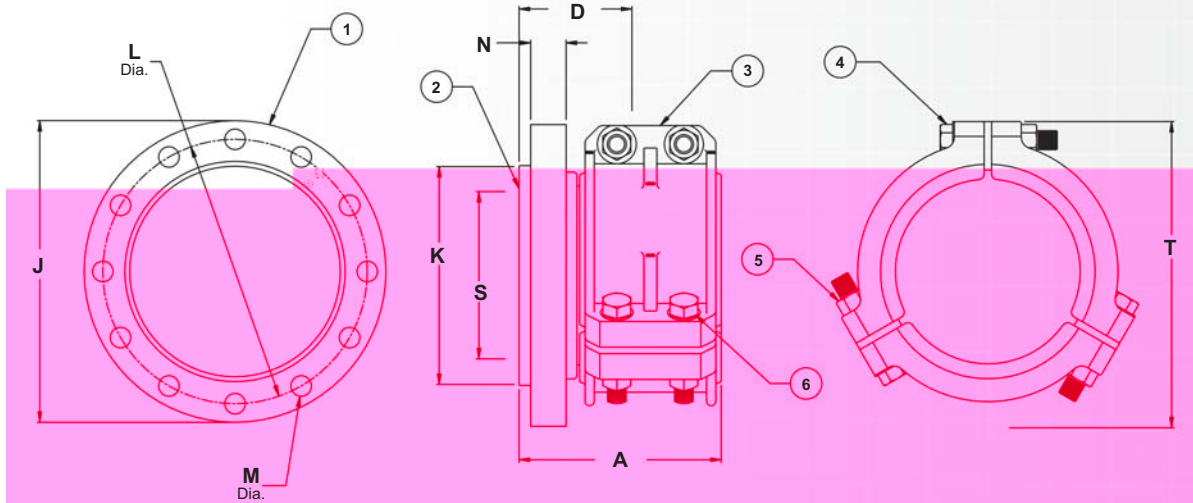
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - Straight - Flange to Hose

Use with the following hose: ER512 & 2580

MIL-F-24787/1,
 Type F, Group IX, Class IV,
 150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-5-150F	5"	10	.69	6.75	2.65	9.06	6.37	7.81	.56	5.32	9.25	47
EF-6-150F	6"	12	.69	6.75	2.65	10.13	7.37	8.88	.56	6.36	10.38	51
EF-8-150F	8"	14	.69	7.00	2.65	12.38	9.82	11.06	.63	8.32	13.00	71
EF-10-150F	10"	15	.81	7.01	2.89	15.00	12.00	13.44	.69	10.38	14.50	--
EF-12-150F	12"	18	.81	8.49	3.24	17.63	14.50	16.00	.75	12.32	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16913-1	C16913-2	C16913-3	C18829	C18830	Bronze
② Nipple	1	D16195	D16199	D16185	D18324	D18319	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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.

End Fitting - Straight - Flange to Hose

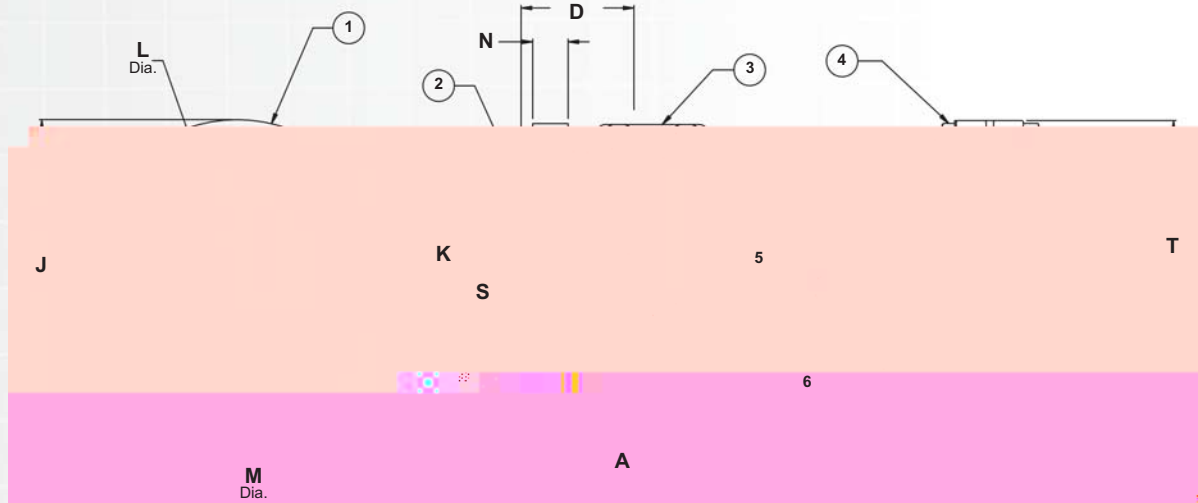
Equal to Aeroquip P/N FC7781-188

MIL-F-24787/1,

Type F, Group IX, Class V,
150Lb. Flange Per A.N.S.I. B16.5

Use with the following hose: ER512 & 2580

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. Lbs.
EF-5-150F-B16.5	5"	8	.88	6.75	2.65	10.00	6.37	8.50	1.05	5.32	9.25	47
EF-6-150F-B16.5	6"	8	.88	6.75	2.65	11.00	7.37	9.50	1.17	6.36	10.38	59
EF-8-150F-B16.5	8"	8	.88	7.00	2.65	13.50	9.82	11.75	1.30	8.32	13.00	82
EF-10-150F-B16.5	10"	12	1.00	7.01	2.89	16.00	12.00	14.25	1.42	10.38	14.50	98
EF-12-150F-B16.5	12"	12	1.00	8.49	3.24	19.00	14.50	17.00	1.48	12.32	17.10	--

Components

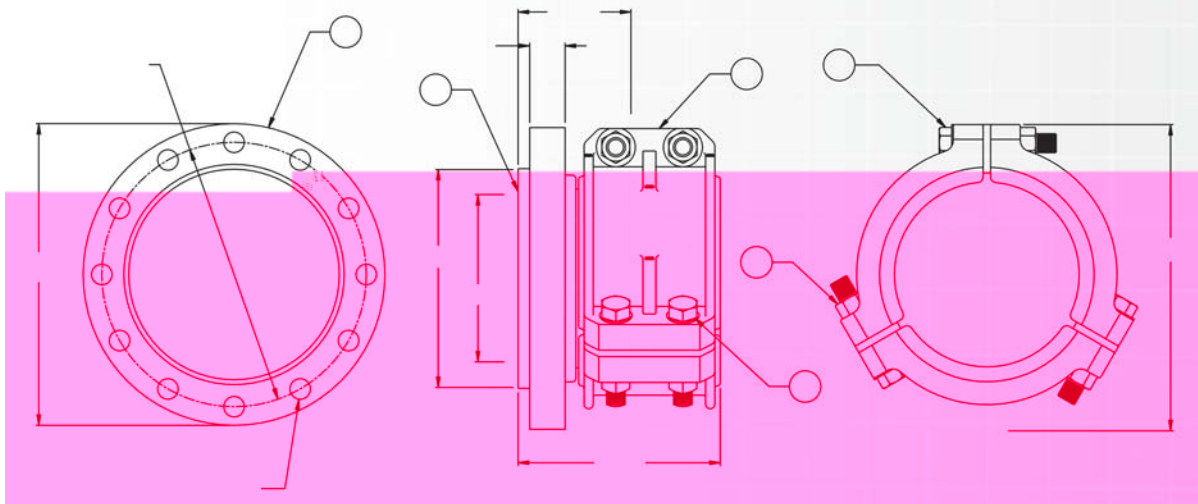
Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16914-1	C16914-2	C16914-3	C18831	C18832	Bronze
② Nipple	1	D16195	D16199	D16185	D18324	D18319	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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.



End Fitting - Straight - Flange to Hose

150Lb. Flange Per MIL-PRF-20042



Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C18361	C17639-1	C17639-2	C18459	--	Stainless Steel
Nipple	1	D18363	D17640	D17744	D18458	--	Stainless Steel
Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

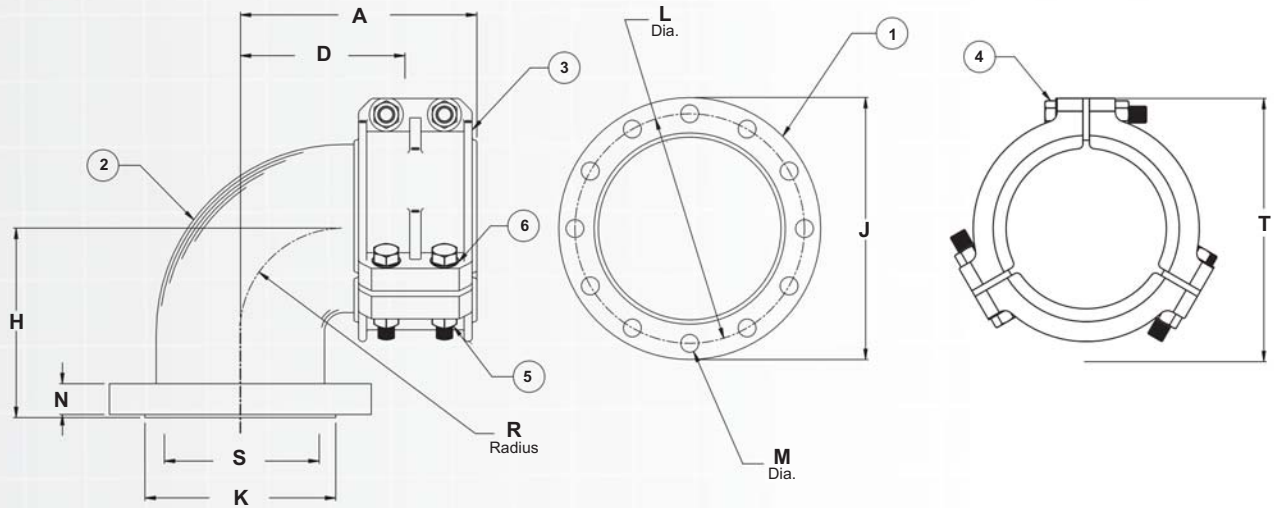
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Flange to Hose

Use with the following hose: ER512 & 2580

MIL-F-24787/1,
Type FL, Group IX, Class I,
400Lb. Flange Per MIL-PRF-20042

Fittings



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-5-400F	5"	11	.81	8.64	4.52	6.81	10.38	6.37	8.81	1.06	3.50	5.32	9.25	59
90EF-6-400F	6"	12	.94	9.14	5.02	7.31	11.94	7.37	10.19	1.19	4.00	6.36	10.38	73
90EF-8-400F	8"	13	1.06	10.34	6.22	8.81	14.75	9.82	12.75	1.31	5.00	8.32	13.00	110
90EF-10-400F	10"	15	1.06	11.89	7.77	9.70	17.00	12.00	15.00	1.44	6.38	10.38	14.50	161

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	Material
① Swivel Flange	1	C16912-1	C16912-2	C16912-3	C18825	Bronze
② Elbow	1	D16920	D16921	D16922	D18826	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	Monel

All Dimensions are in Inches.
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Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



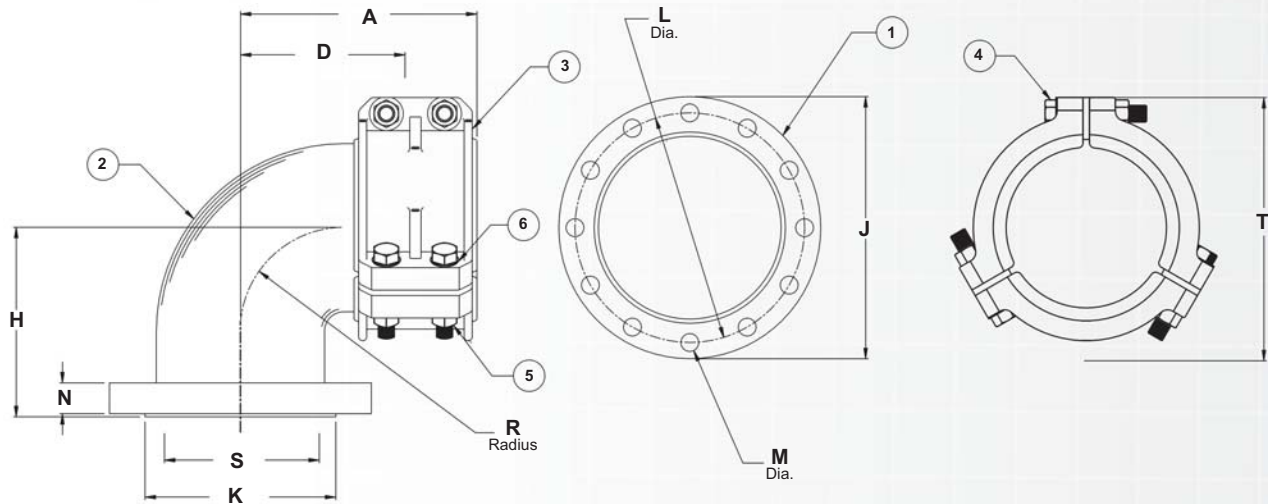
End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N FC7751-188

MIL-F-24787/1,

Type FL, Group IX, Class II,
150/400Lb. Flange Per MIL-PRF-20042

Use with the following hose: ER512 & 2580



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-5-150/400F	5"	10	.69	8.64	4.52	6.81	9.06	6.37	7.81	1.06	3.50	5.32	9.25	59
90EF-6-150/400F	6"	12	.69	9.14	5.02	7.31	10.13	7.37	8.88	1.19	4.00	6.36	10.38	68
90EF-8-150/400F	8"	14	.69	10.34	6.22	8.81	12.38	9.82	11.06	1.31	5.00	8.32	13.00	101
90EF-10-150/400F	10"	15	.81	11.89	7.77	9.70	15.00	12.00	13.44	1.44	6.38	10.38	14.50	147

Components

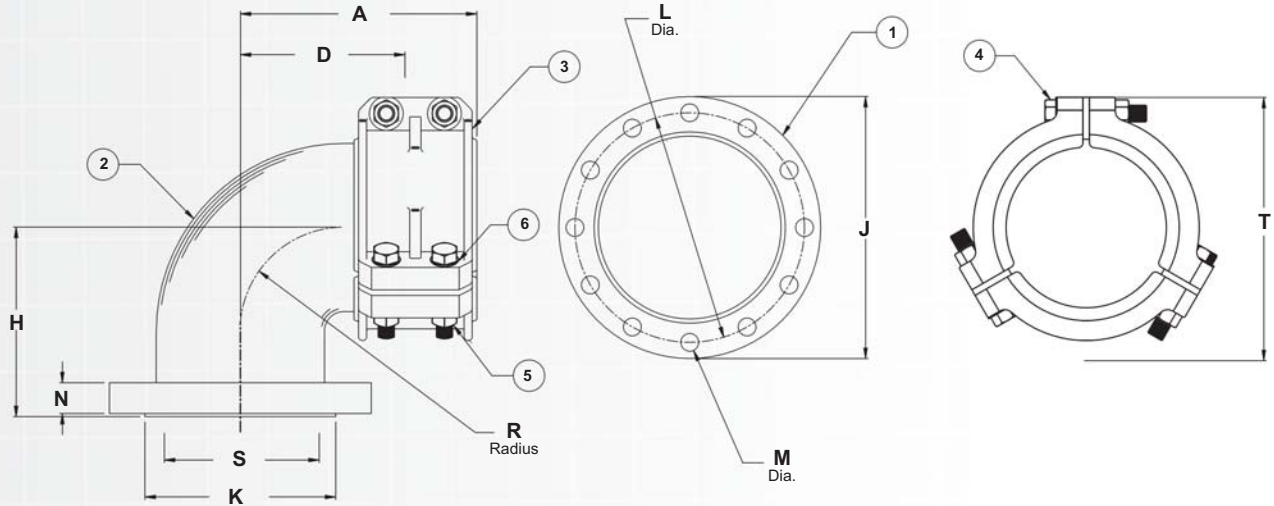
Description	Req'd per Ass'y	5"	6"	8"	10"	Material
① Swivel Flange	1	C16915-1	C16915-2	C16915-3	C18456	Bronze
② Elbow	1	D16920	D16921	D16922	D18826	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	Monel

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.

End Fitting - 90° - Flange to Hose

Use with the following hose: ER512 & 2580

MIL-F-24787/1,
Type FL, Group IX, Class III,
250Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-5-250F	5"	10	.69	8.64	4.52	6.81	9.06	6.37	7.81	1.06	3.50	5.32	9.25	59
90EF-6-250F	6"	12	.69	9.14	5.02	7.31	10.13	7.37	8.88	1.19	4.00	6.36	10.38	68
90EF-8-250F	8"	14	.69	10.34	6.22	8.81	12.38	9.82	11.06	1.31	5.00	8.32	13.00	101
90EF-10-250F	10"	15	.81	11.89	7.77	9.70	15.00	12.00	13.44	1.44	6.38	10.38	14.50	147
90EF-12-250F	12"	18	.81	14.24	9.00	10.70	17.63	14.50	16.06	1.50	7.38	12.32	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16915-1	C16915-2	C16915-3	C18827	C18828	Bronze
② Elbow	1	D16920	D16921	D16922	D18826	D18833	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

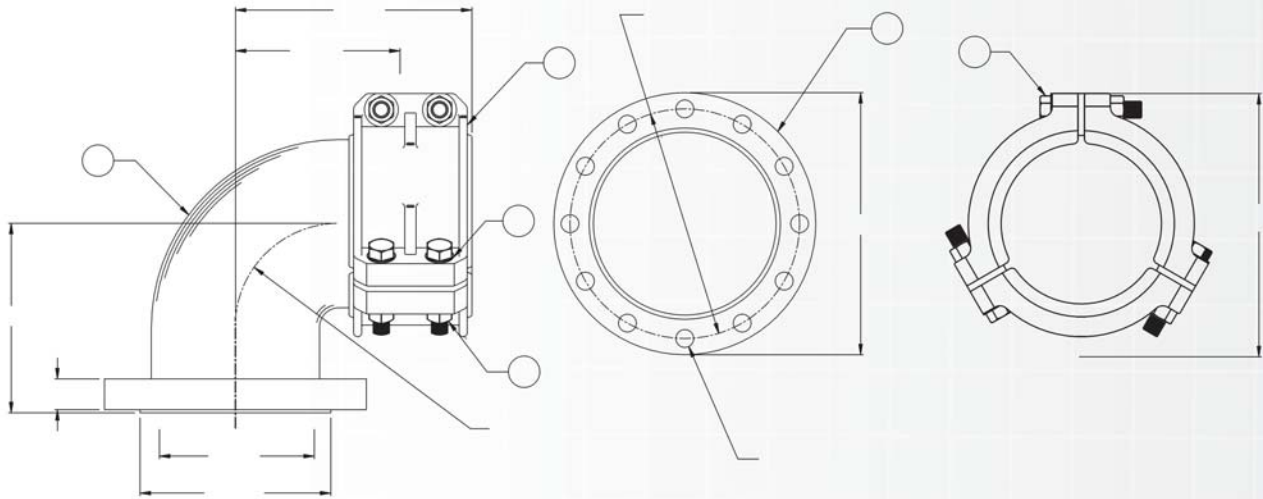
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - 90° - Flange to Hose

MIL-F-24787/1,

Type FL, Group IX, Class IV,
150Lb. Flange Per MIL-PRF-20042



Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16913-1	C16913-2	C16913-3	C18829	C18830	Bronze
○ Elbow	1	D16920	D16921	D16922	D18826	D18833	Alum. Bronze
○ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
○ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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.

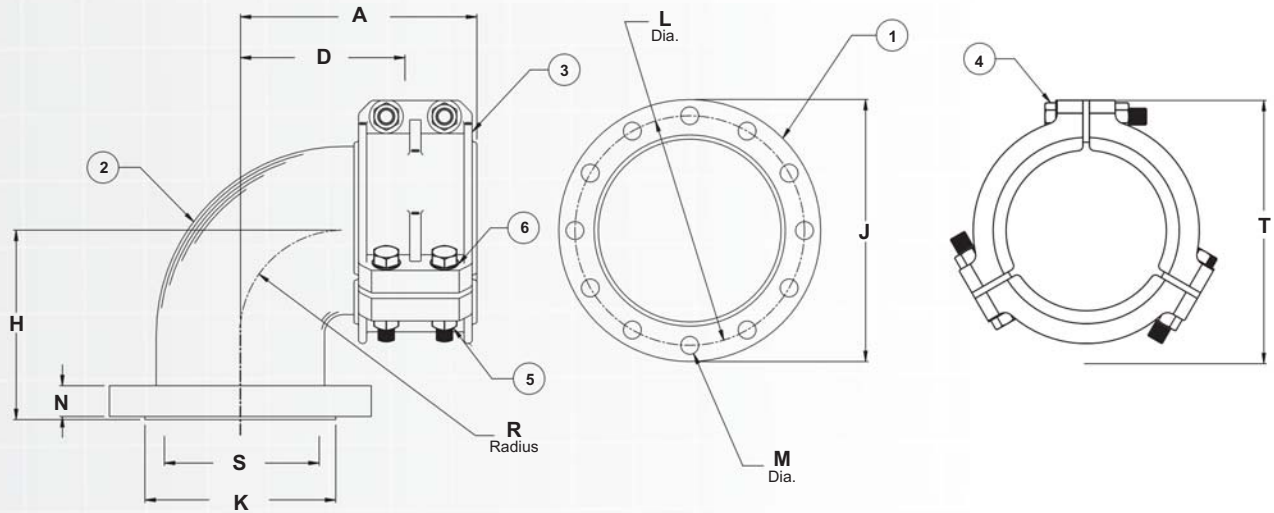
End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N FC7780-188

Use with the following hose: ER512 & 2580

MIL-F-24787/1,

**Type FL, Group IX, Class V,
150Lb. Flange Per A.N.S.I. B16.5**



Part Number	I.P.S. Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. Lbs.
90EF-5-150F-B16.5	5"	8	.88	8.64	4.52	6.81	10.00	6.37	8.50	1.05	3.50	5.32	9.25	59
90EF-6-150F-B16.5	6"	8	.88	9.14	5.02	7.31	11.00	7.37	9.50	1.17	4.00	6.36	10.38	73
90EF-8-150F-B16.5	8"	8	.88	10.34	6.22	8.81	13.50	9.82	11.75	1.30	5.00	8.32	13.00	110
90EF-10-150F-B16.5	10"	12	1.00	11.89	7.77	9.70	16.00	12.00	14.25	1.42	6.38	10.38	14.50	143
90EF-12-150F-B16.5	12"	12	1.00	14.24	9.00	10.70	19.00	14.50	17.00	1.48	7.38	12.32	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Swivel Flange	1	C16914-1	C16914-2	C16914-3	C18831	C18832	Bronze
② Elbow	1	D16920	D16921	D16922	D18826	D18833	Alum. Bronze
③ Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
④ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
⑤ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑥ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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.

End Fitting - Straight - Male Split Clamp to Hose

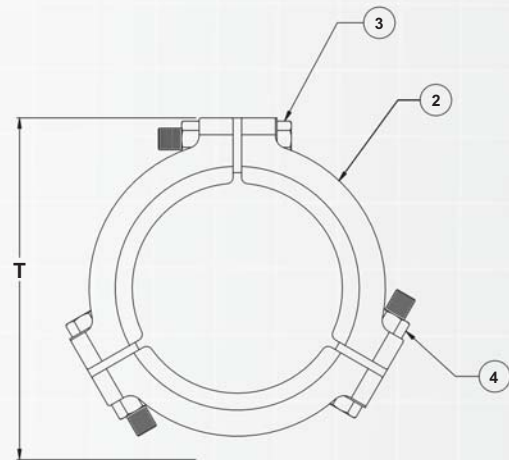
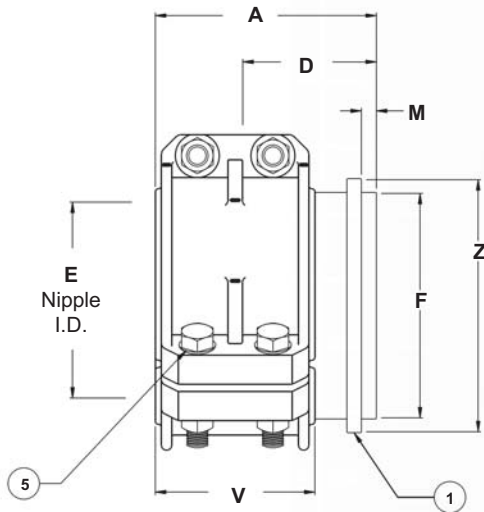
Equal to Aeroquip P/N FC7755-188

MIL-F-24787/4,

Use with the following hose: ER512 & 2580

Type E, Group IX

See pages 132 - 134 for [Split Clamps and Tailpieces](#).



Part Number	I.P.S. Size	A	D	E	F	M	T	V	Z	Est. Wt. Lbs.
EF-5MS-ER512	5"	6.22	2.10	4.38	5.62	.40	9.25	4.75	6.63	36
EF-6MS-ER512	6"	6.58	2.46	5.38	6.75	.45	10.38	4.75	7.57	44
EF-8MS-ER512	8"	7.05	2.86	7.38	9.00	.82	13.00	5.00	9.97	60
EF-10MS-ER512	10"	6.84	2.86	9.40	11.00	.86	14.50	5.00	12.06	77
EF-12MS-ER512	12"	8.16	2.86	11.40	12.00	.86	17.10	5.00	13.38	120

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Nipple	1	D16936	D16937	D16938	D18834	D18835	Alum. Bronze
② Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
③ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
④ Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑤ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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.

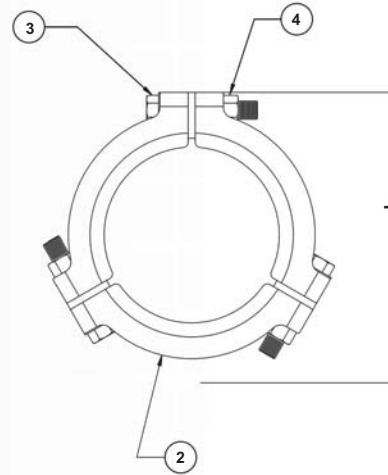
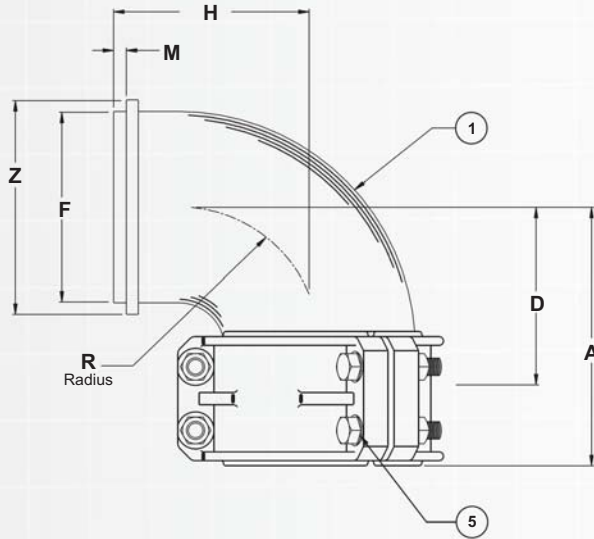
End Fitting - 90° - Male Split Clamp to Hose

Equal to Aeroquip P/N 7752-188

Use with the following hose: ER512 & 2580

See pages 132 - 134 for [Split Clamps and Tailpieces](#).

MIL-F-24787/4,
Type EL, Group IX



Part Number	I.P.S. Size	A	D	F	H	M	R	T	Z	Est. Wt. Lbs.
90EF-5MS-ER512	5"	8.64	4.52	5.62	6.81	.40	3.50	9.25	6.63	46
90EF-6MS-ER512	6"	9.14	5.02	6.75	7.31	.45	4.00	10.38	7.57	56
90EF-8MS-ER512	8"	10.34	6.22	9.00	8.81	.82	5.00	13.00	9.97	83
90EF-10MS-ER512	10"	11.89	7.77	11.00	9.70	.86	6.38	14.50	12.06	115
90EF-12MS-ER512	12"	14.24	9.00	12.00	10.70	.88	7.38	17.10	13.38	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Elbow	1	D16930	D16931	D16932	D18838	D18839	Alum. Bronze
② Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
③ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
④ Lock Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑤ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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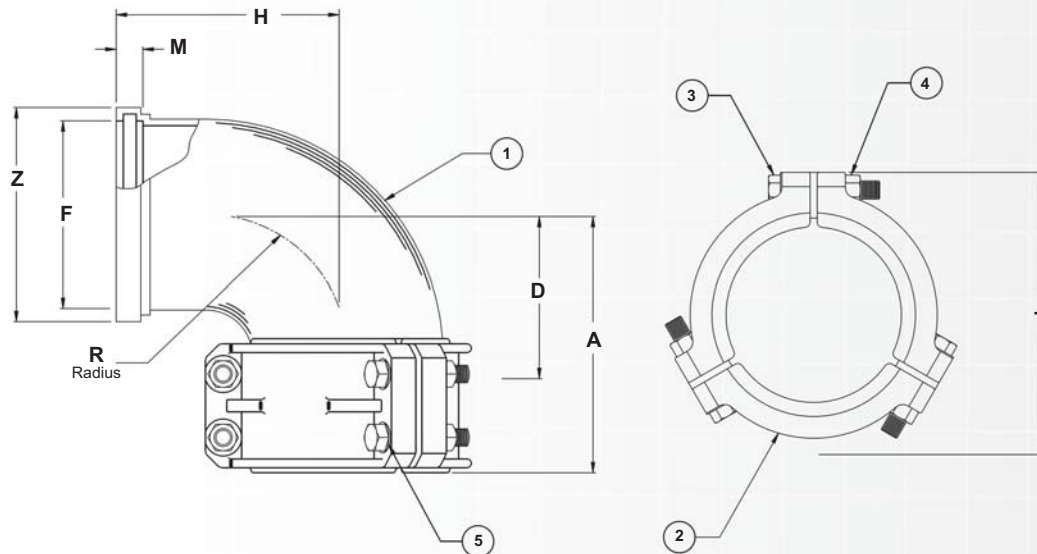
End Fitting - 90° - Female Split Clamp to Hose

Equal to Aeroquip P/N 7753-188

Use with the following hose: ER512 & 2580

See pages 132, 135 & 136 for [Split Clamps and Tailpieces](#).

MIL-F-24787/4,
Type EL, Group IX



Part Number	I.P.S. Size	A	D	F	H	M	R	T	Z	Est. Wt. Lbs.
90EF-5FS-ER512	5"	8.64	4.52	5.64	6.81	.42	3.50	9.25	6.63	45
90EF-6FS-ER512	6"	9.14	5.02	6.76	7.31	.47	4.00	10.38	7.57	56
90EF-8FS-ER512	8"	10.34	6.22	9.01	8.81	.84	5.00	13.00	9.97	83
90EF-10FS-ER512	10"	11.89	7.77	11.01	9.70	.88	6.38	14.50	12.06	120
90EF-12FS-ER512	12"	14.24	9.00	12.01	10.70	.90	7.38	17.10	13.38	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Elbow	1	D16933	D16934	D16935	D18840	D18841	Alum. Bronze
② Segment	3	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
③ Bolt	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
④ Lock Nut	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑤ Washer	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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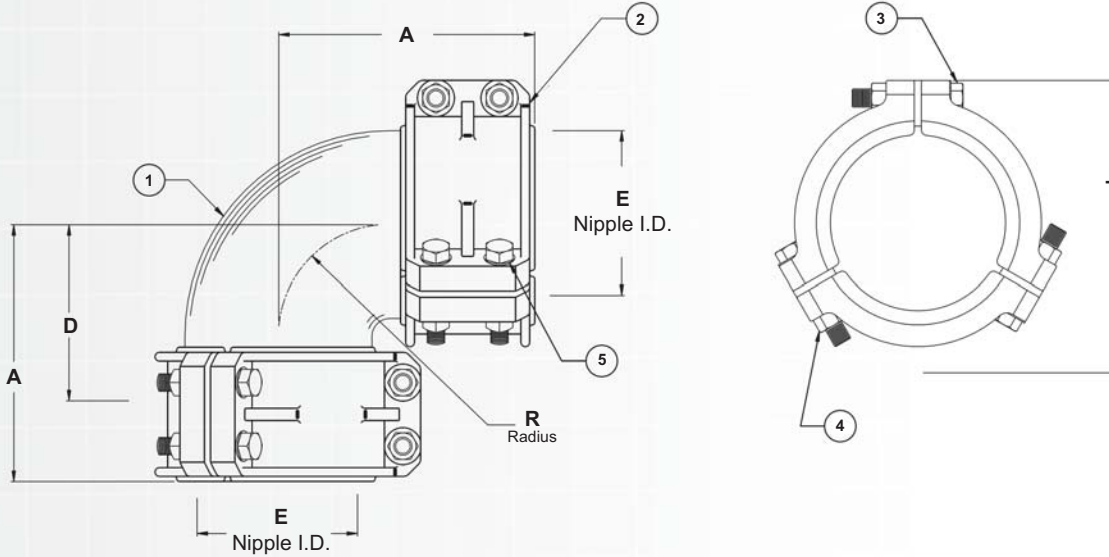
Elbow Fitting - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 7754-188

Use with the following hose: ER512 & 2580

MIL-F-24787/5,
Type D, Group IX

Fittings



Part Number	I.P.S. Size	A	D	E	R	T	Est. Wt. Lbs.
90ELB-5-ER512	5"	8.64	4.52	4.38	3.50	9.25	71
90ELB-6-ER512	6"	9.14	5.02	5.38	4.00	10.38	85
90ELB-8-ER512	8"	10.34	6.22	7.38	5.00	13.00	115
90ELB-10-ER512	10"	11.89	7.77	9.40	6.38	14.50	171
90ELB-12-ER512	12"	14.24	9.00	11.40	7.38	17.10	--

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Elbow	1	D16924	D16925	D16926	D18836	D18837	Alum. Bronze
② Segment	6	D16194	D16198	D16080-1	D18345-1	D18282-1	Alum. Bronze
③ Bolt	12	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
④ Lock Nut	12	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
⑤ Washer	12	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

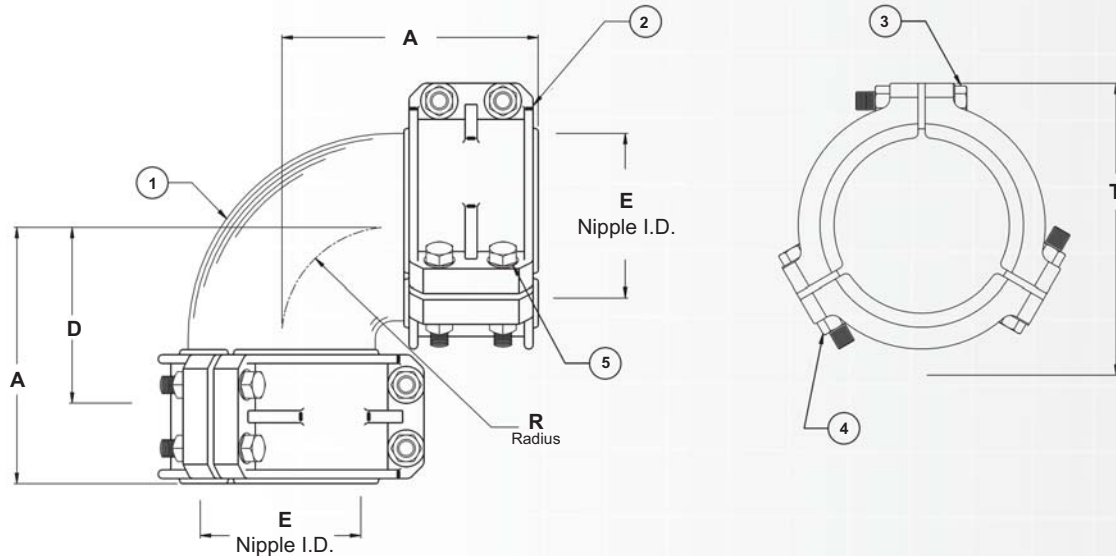
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



Elbow Fitting - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 7754-410

Use with the following hose: ER512 & 2580



Part Number	I.P.S. Size	A	D	E	R	T	Est. Wt. Lbs.
90ELB-5-ER512-SS	5"	8.64	4.52	4.38	3.50	9.25	68
90ELB-6-ER512-SS	6"	9.14	5.02	5.38	4.00	10.38	80
90ELB-8-ER512-SS	8"	10.34	6.22	7.38	5.00	13.00	116
90ELB-10-ER512-SS	10"	11.89	7.77	9.40	6.38	14.50	163

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	Material
① Elbow	1	D18362	D18111	D17759	D18317	Stainless Steel
② Segment	6	D16194	D16198	D16080-1	D18345-1	Alum. Bronze
③ Bolt	12	D16197-4	D16197-4	B16551-1	B16551-1	Monel
④ Lock Nut	12	D16197-6	D16197-6	B16551-3	B16551-3	Monel
⑤ Washer	12	D16197-5	D16197-5	B16551-2	B16551-2	Monel

All Dimensions are in Inches.
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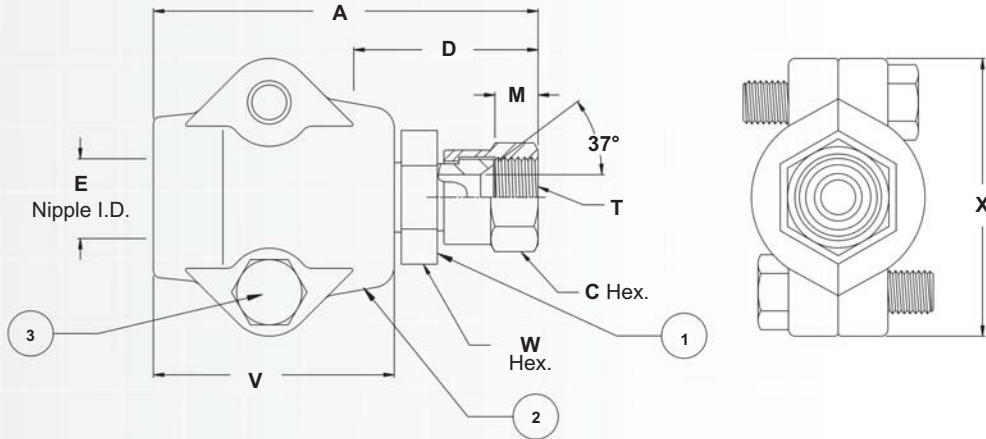
End Fitting - Straight - S.A.E. 37° Flare Swivel (J.I.C.) to Hose

Equal to Aeroquip P/N FC7100-4

MIL-F-24787/2,

Use with the following hose: HS133

Type A, Group XI



Part Number	I.P.S. Size	T Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. Lbs.
EF-1489A-0606	3/8"	9/16"-18	3.10	.69	1.48	.26	.40	2.00	.94	2.34	.8
EF-1489A-0806	3/8"	3/4"-16	3.10	.88	1.48	.26	.44	2.00	.94	2.34	.8
EF-1489A-0808	1/2"	3/4"-16	3.31	.88	1.59	.39	.44	2.10	1.00	2.66	1.1
EF-1489A-1008	1/2"	7/8"-14	3.42	1.00	1.70	.39	.52	2.10	1.00	2.66	1.2
EF-1489A-1208	1/2"	1-1/16"-12	3.52	1.25	1.80	.39	.57	2.10	1.25	2.66	1.5
EF-1489A-1212	3/4"	1-1/16"-12	3.85	1.25	1.95	.61	.57	2.42	1.31	3.27	1.7
EF-1489A-1412	3/4"	1-3/16"-12	3.85	1.50	1.95	.61	.57	2.42	1.25	3.27	1.8
EF-1489A-1612	3/4"	1-5/16"-12	4.05	1.50	2.15	.61	.60	2.42	1.62	3.27	1.9

Components

Description	Req'd per Ass'y	0606	0806	0808	1008	Material
① Nipple Ass'y	1	C18882	C18883	C18884	C18885	Monel
② Segment	2	D18758-1	D18758-1	C18640-1	C18640-1	Monel
③ Bolt	2	B18759	B18759	B18645	B18645	Monel

Description	Req'd per Ass'y	1208	1212	1412	1612	Material
① Nipple Ass'y	1	C18886	C18887	C18888	C18889	Monel
② Segment	2	C18640-1	D18743-1	D18743-1	D18743-1	Monel
③ Bolt	2	B18645	B18745	B18745	B18745	Monel

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.



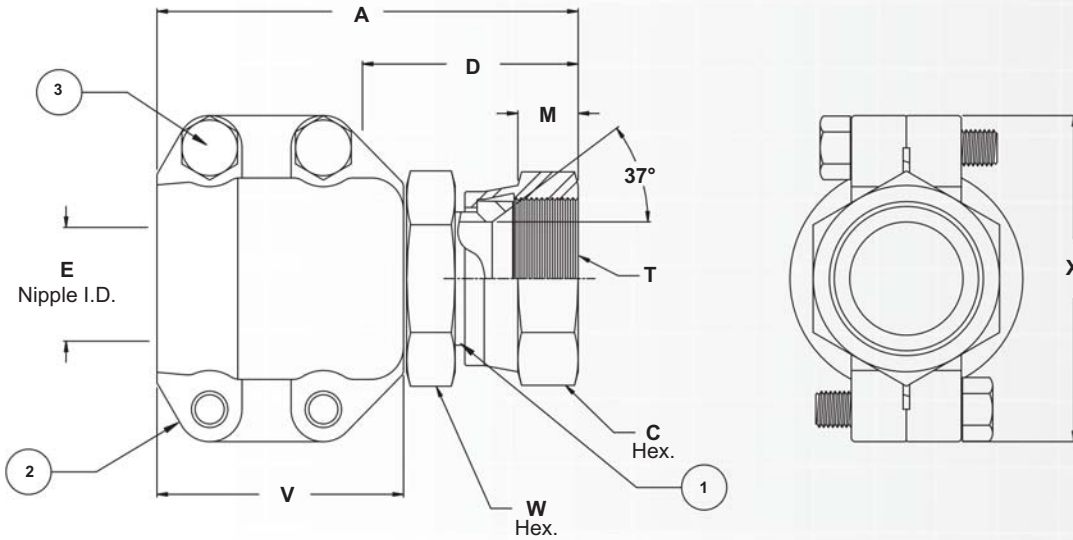
End Fitting - Straight - S.A.E. 37° Flare Swivel (J.I.C.) to Hose

Equal to Aeroquip P/N FC7100-4

MIL-F-24787/2,

Use with the following hose: HS133

Type A, Group XI



Part Number	I.P.S. Size	T Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. Lbs.
EF-1489A-1616	1"	1-5/16"-12	4.05	1.50	2.14	.82	.60	2.42	1.62	4.02	2
EF-1489A-2016	1"	1-5/8"-12	4.05	2.00	2.14	.82	.64	2.42	1.62	4.02	2.5
EF-1489A-2020	1-1/4"	1-5/8"-12	4.62	2.00	2.53	1.05	.64	2.80	2.00	4.31	2.8
EF-1489A-2420	1-1/4"	1-7/8"-12	4.89	2.25	2.80	1.05	.74	2.80	2.25	4.31	3.3
EF-1489A-2424	1-1/2"	1-7/8"-12	5.12	2.25	2.66	1.30	.74	3.00	2.25	4.42	4.5
EF-1489A-3232	2"	2-1/2"-12	6.37	2.88	3.29	1.75	.93	3.88	2.88	5.65	6.3

Components

Description	Req'd per Ass'y	1616	2016	2020	Material
① Nipple Ass'y	1	C18890	C18891	C18892	Monel
② Segment	2	D18747-1	D18747-1	C18748-1	Monel
③ Bolt	4	B18746	B18746	B18746	Monel

Description	Req'd per Ass'y	2420	2424	3232	Material
① Nipple Ass'y	1	C18893	C18894	C18895	Monel
② Segment	2	C18748-1	D18750-1	D18704-1	Monel
③ Bolt	4	B18746	B18755	B18718	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - Straight - Male "O" Ring Seal to Hose

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	M	V	X	Est. Wt. Lbs.
EF-1489C-0406	1/4"	1-3/16"-12	2.90	1.25	1.28	.26	.62	2.00	2.34	1
EF-1489C-0408	1/4"	1-3/16"-12	3.02	1.25	1.30	.31	.62	2.10	2.66	1.3
EF-1489C-0606	3/8"	1-3/8"-12	2.90	1.44	1.28	.26	.62	2.00	2.34	1.3
EF-1489C-0608	3/8"	1-3/8"-12	3.08	1.44	1.36	.39	.62	2.10	2.66	1.4
EF-1489C-0612	3/8"	1-3/8"-12	3.48	1.44	1.58	.50	.62	2.42	3.27	1.6
EF-1489C-0808	1/2"	1-3/4"-12	3.14	1.81	1.32	.39	.62	2.10	2.66	1.7
EF-1489C-0812	1/2"	1-3/4"-12	3.48	1.81	1.58	.50	.62	2.42	3.27	2.2

Components

Description	Req'd per Ass'y	0406	0408	0606	0608	Material
○ Nipple	1	C18842	C18843	C18875	C18844	Monel
Segment	2	C18758-1	C18640-1	D18758-1	C18640-1	Monel
Bolt	2	B18759	B18645	B18759	B18645	Monel

Description	Req'd per Ass'y	0612	0808	0812	Material
Nipple	1	C18876	C18845	C18846	Monel
Segment	2	D18743-1	C18640-1	D18743-1	Monel
Bolt	2	B18745	B18645	B18745	Monel

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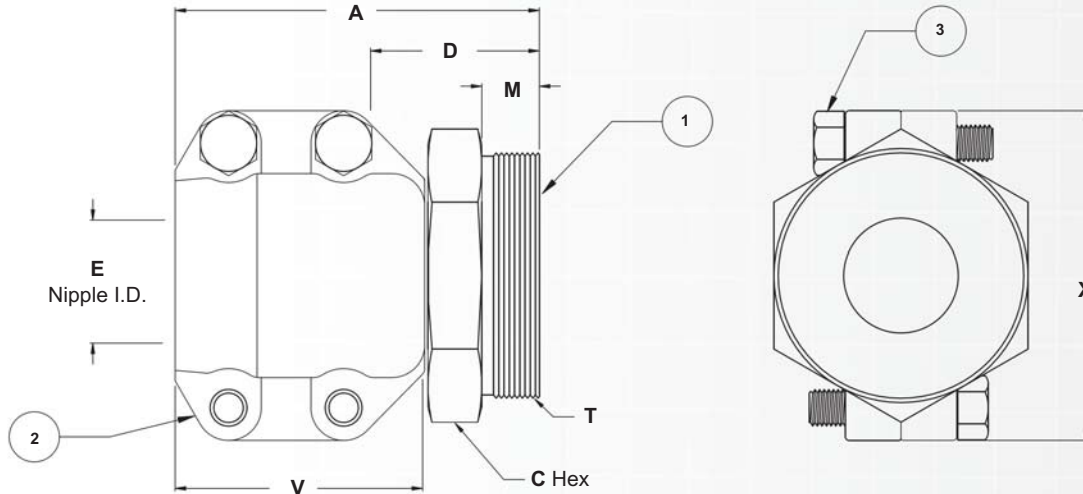
End Fitting - Straight - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N FC7180-4

MIL-F-24787/3,

Use with the following hose: HS133

Type C, Group XI



Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	M	V	X	Est. Wt. Lbs.
EF-1489C-0816	1/2"	1-3/4"-12	3.48	1.81	1.58	.62	.62	2.42	4.02	3.8
EF-1489C-1216	3/4"	2"-12	3.60	2.12	1.69	.62	.62	2.42	4.02	3.8
EF-1489C-1616	1"	2-5/16"-12	3.84	2.38	1.93	.81	.75	2.42	4.02	4.3
EF-1489C-1620	1"	2-5/16"-12	4.20	2.38	2.11	.81	.75	2.80	4.31	5.4
EF-1489C-2016	1-1/4"	2-3/4"-12	4.34	2.88	2.24	.81	.75	2.42	4.02	5.6
EF-1489C-2020	1-1/4"	2-3/4"-12	4.34	2.88	2.24	1.05	.75	2.80	4.31	6
EF-1489C-2024	1-1/4"	2-3/4"-12	4.42	2.88	2.12	1.30	.75	3.01	4.69	7.5
EF-1489C-2424	1-1/2"	3-1/16"-12	4.68	3.12	2.38	1.30	.88	3.01	4.69	8
EF-1489C-2432	1-1/2"	3-1/16"-12	5.56	3.12	2.48	1.39	.88	3.88	5.65	11.4
EF-1489C-3232	2"	3-3/4"-12	5.56	3.88	2.48	1.75	.88	3.88	5.65	12.8

Components

Description	Req'd per Ass'y	0816	1216	1616	1620	2016	Material
① Nipple	1	C18877	C18847	C18848	C18849	C18878	Monel
② Segment	2	D18747-1	D18747-1	D18747-1	D18748-1	D18747-1	Monel
③ Bolt	4	B18746	B18746	B18746	B18746	B18746	Monel

Description	Req'd per Ass'y	2020	2024	2424	2432	3232	Material
① Nipple	1	C18850	C18851	C18852	C18853	C18854	Monel
② Segment	2	D18748-1	D18750-1	D18750-1	D18704-1	D18704-1	Monel
③ Bolt	4	B18746	B18755	B18755	B18718	B18718	Monel

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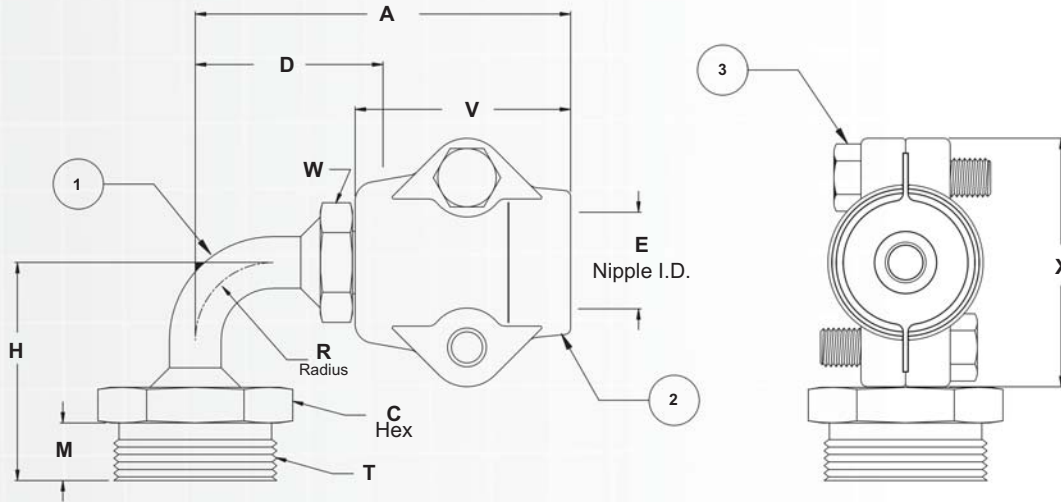
End Fitting - 90° - Male "O"Ring Seal to Hose

Equal to Aeroquip P/N FC7182-4

MIL-F-24787/3,

Use with the following hose: HS133

Type CL, Group XI



Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	H	M	R	V	W	X	Est. Wt. Lbs.
90EF-1489CL-0406	1/4"	1-3/16"-12	3.20	1.25	1.58	.26	1.43	.62	.50	2.00	.94	2.34	1.5
90EF-1489CL-0408	1/4"	1-3/16"-12	3.56	1.25	1.84	.39	1.68	.62	.75	2.10	1.00	2.66	2
90EF-1489CL-0608	3/8"	1-3/8"-12	3.56	1.44	1.84	.39	1.74	.62	.75	2.10	1.00	2.66	2.3
90EF-1489CL-0812	1/2"	1-3/4"-12	4.51	1.81	2.61	.61	2.31	.62	1.25	2.42	1.31	3.27	2.6

Components

Description	Req'd per Ass'y	0406	0408	0608	0812	Material
① Elbow Ass'y	1	C19443	C19444	C19445	C19446	Monel
② Segment	2	D18758-1	C18640-1	C18640-1	D18743-1	Monel
③ Bolt	2	B18759	B18645	B18645	B18745	Monel

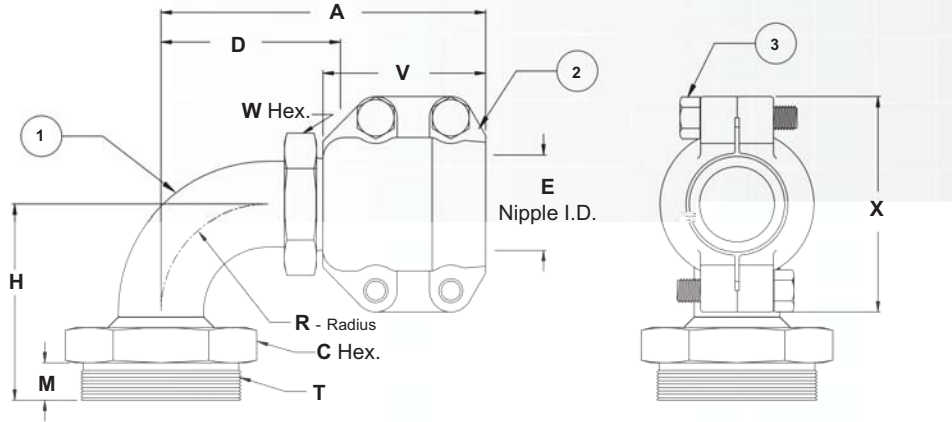
All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N FC7182-4

MIL-F-24787/3,
Type CL, Group XI

Use with the following hose: HS133



Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	H	M	R	V	W	X	Est. Wt. Lbs.
90EF-1489CL-1216	3/4"	2"-12	4.76	2.12	2.85	.82	2.68	.62	1.50	2.42	1.62	4.02	4.5
90EF-1489CL-1616	1"	2-5/16"-12	4.76	2.38	2.85	.82	2.92	.75	1.50	2.42	1.62	4.02	5
90EF-1489CL-1620	1"	2-5/16"-12	5.50	2.38	3.40	1.05	3.17	.75	1.75	2.80	2.00	4.31	6.5
90EF-1489CL-2020	1-1/4"	2-3/4"-12	5.50	2.88	3.40	1.05	3.17	.75	1.75	2.80	2.00	4.31	10
90EF-1489CL-2024	1-1/4"	2-3/4"-12	5.96	2.88	3.66	1.30	3.55	.88	2.00	3.01	2.25	4.69	11
90EF-1489CL-2424	1-1/2"	3-1/16"-12	5.96	3.12	3.66	1.30	3.55	.88	2.00	3.01	2.25	4.69	12
90EF-1489CL-2432	1-1/2"	3-1/16"-12	7.60	3.12	4.52	1.75	4.05	.88	2.50	3.88	2.75	5.65	13.3
90EF-1489CL-3232	2"	3-3/4"-12	7.60	3.88	4.52	1.75	4.05	.88	2.50	3.88	2.75	5.65	15

Components

Description	Req'd per Ass'y	1216	1616	1620	2020	Material
① Elbow Ass'y	1	C19447	C19448	C19449	C19450	See Below
Nipple	1	C18862	C18862	C18864	C18864	Monel
Adapter	1	B19273	B19135	B19274	B19136	Monel
Elbow	1	B18874-1	B18874-1	B18874-2	B18874-2	Copper Nickel
② Segment	2	D18747-1	D18747-1	D18748-1	D18748-1	Monel
③ Bolt	4	B18746	B18746	B18746	B18746	Monel

Description	Req'd per Ass'y	2024	2424	2432	3232	Material
① Elbow Ass'y	1	C19458	C19451	C19452	C19453	See Below
Nipple	1	C18866	C18866	C18868	C18868	Monel
Adapter	1	B19275	B19137	B19276	B19138	Monel
Elbow	1	B18874-3	B18874-3	B18874-4	B18874-4	Copper Nickel
② Segment	2	D18750-1	D18750-1	D18704-1	D18704-1	Monel
③ Bolt	4	B18755	B18755	B18718	B18718	Monel

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.

Elbow - 90° Dogleg - Hose to Hose

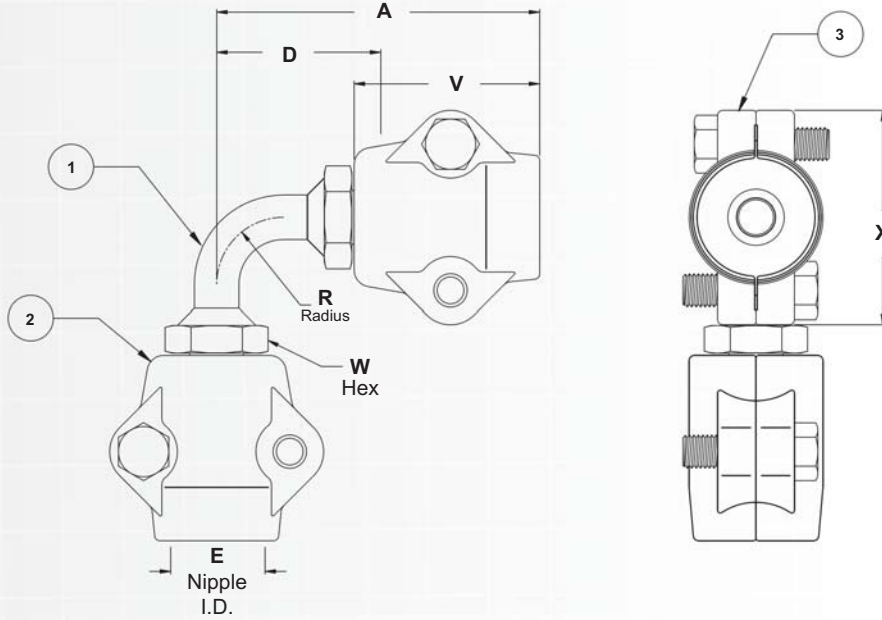
Equal to Aeroquip P/N FC7183-4

MIL-F-24787/5,

Use with the following hose: HS133

Type D, Group XI

Fittings



Part Number	I.P.S. Size	A	D	E	R	X	V	W	Est. Wt. Lbs.
90ELB-1489D-0606	3/8"	3.20	1.58	.26	.50	2.34	2.00	.94	1.2
90ELB-1489D-0808	1/2"	3.56	1.84	.39	.75	2.66	2.10	1.00	2.4
90ELB-1489D-1212	3/4"	4.51	2.61	.61	1.25	3.27	2.42	1.31	3.7

Components

Description	Req'd per Ass'y	0606	0808	1212	Material
① Elbow Ass'y	1	C18857	C18859	C18861	Monel
② Segment	4	D18758-1	C18640-1	D18743-1	Monel
③ Bolt	4	B18759	B18645	B18745	Monel

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.



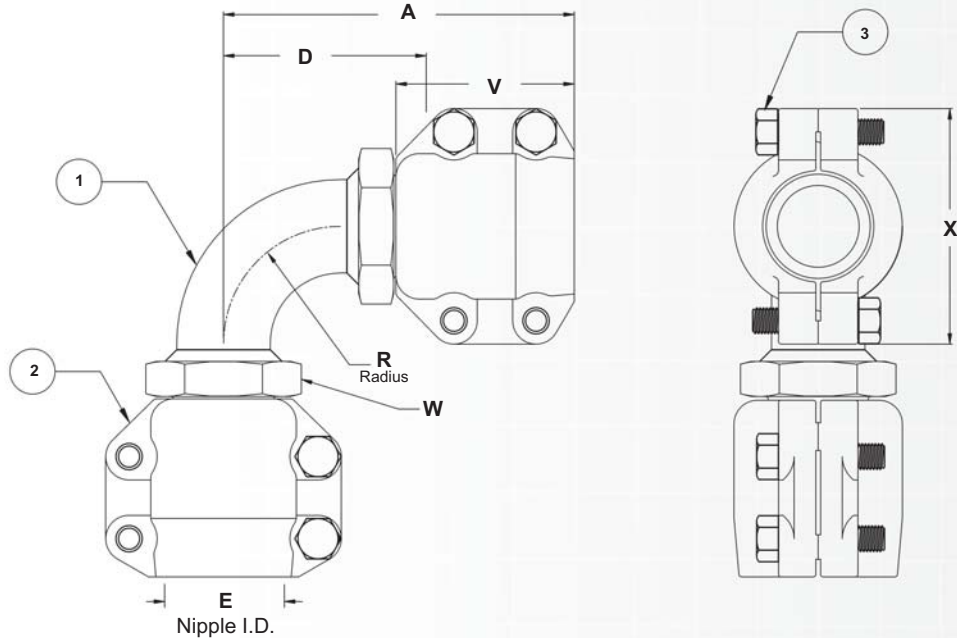
Elbow Fitting - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N FC7183-4

MIL-F-24787/5,

Use with the following hose: HS133

Type D, Group XI



Part Number	I.P.S. Size	A	D	E	R	V	W	X	Est. Wt. Lbs.
90ELB-1489D-1616	1"	4.76	2.85	.82	1.50	2.42	1.62	4.02	6
90ELB-1489D-2020	1-1/4"	5.50	3.40	1.05	1.75	2.80	2.00	4.31	9.3
90ELB-1489D-2424	1-1/2"	5.96	3.66	1.30	2.00	3.01	2.25	4.69	13
90ELB-1489D-3232	2"	7.60	4.52	1.75	2.50	3.88	2.75	5.65	20

Components

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Elbow Ass'y	1	C18863	C18865	C18867	C18869	See Below
Nipple	2	C18862	C18864	C18866	C18868	Monel
Elbow	1	B18874-1	B18874-2	B18874-3	B18874-4	Copper Nickel
② Segment	4	D18747-1	D18748-1	D18750-1	D18704-1	Monel
③ Bolt	8	B18746	B18746	B18755	B18718	Monel

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.

End Fitting - Straight - Hose to Male NPTF

Equal to Aeroquip P/N 412B & 44-412

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

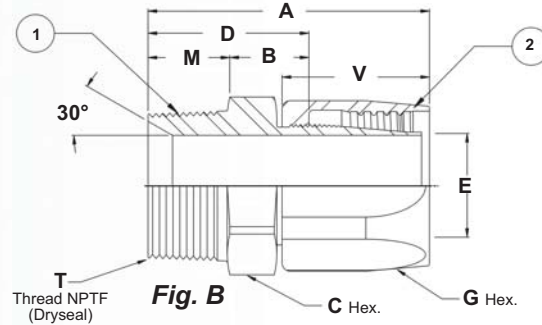
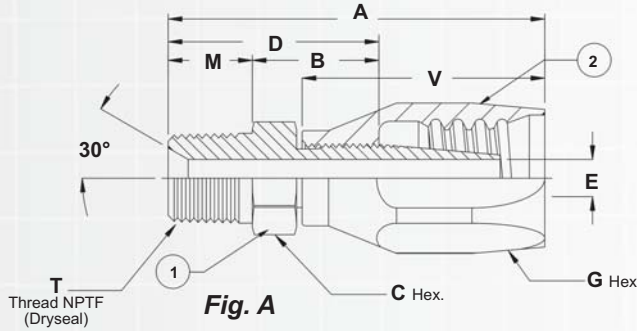


Fig. A Dimensions

Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-B1488MP-0204	1/4"	1/8"-27	1.68	.54	.44	.92	.17	.62	.38	1.10	.08
EF-B1488MP-0404	1/4"	1/4"-18	1.86	.55	.56	1.11	.17	.62	.56	1.10	.09
EF-B1488MP-0405	5/16"	1/4"-18	1.96	.62	.56	1.18	.23	.69	.56	1.20	.11
EF-B1488MP-0406	3/8"	1/4"-18	2.13	.67	.56	1.23	.30	.81	.56	1.30	.16
EF-B1488MP-0608	1/2"	3/8"-18	2.48	.77	.75	1.33	.39	.94	.56	1.65	.23
EF-B1488MP-0810	5/8"	1/2"-14	2.88	.84	.88	1.59	.48	1.12	.75	1.80	.39
EF-B1488MP-1212	3/4"	3/4"-14	3.24	.92	1.06	1.67	.61	1.25	.75	2.10	.5

Fig. B Dimensions

Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-B1488MP-1616	1"	1"-11-1/2	2.99	.78	1.38	1.72	.82	1.44	.94	1.66	.62
EF-B1488MP-2020	1-1/4"	1-1/4"-11-1/2	3.23	.90	1.75	1.87	1.05	1.75	.97	1.75	1.1
EF-B1488MP-2424	1-1/2"	1-1/2"-11-1/2	3.48	1.03	2.00	2.03	1.28	1.94	1.00	1.84	1.3
EF-B1488MP-3232	2"	2"-11-1/2	4.05	1.17	2.44	2.20	1.75	2.44	1.03	2.25	2.3
EF-B1488MP-4040	2-1/2"	2-1/2"-8	5.03	1.61	3.00	3.13	2.12	3.25	1.52	2.50	4.6
EF-B1488MP-4848	3"	3"-8	5.09	1.61	3.88	3.19	2.69	3.88	1.58	2.50	7.3

Components Fig. A

Description	Req'd per Ass'y	0204	0404	0405	0406	0608	0810	1212	Material
① Nipple	1	B19064	B20759	B19065	B19066	C19067	C19068	C19069	Brass
② Socket	1	C18984-1	C18984-1	C18985-1	C18986-1	C18648-1	C18987-1	C18988-1	Brass

Components Fig. B

Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
① Nipple	1	C19070	C18028	C18027	C18026	--	--	Brass
① Nipple	1	--	--	--	--	C19156	C19171	Bronze
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	C18822	C17901	Brass

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.



End Fitting - Straight - S.A.E. 37° Female Flare (J.I.C.) to Hose

Equal to Aeroquip P/N 4-411

**MIL-F-24787/2,
Type A, Group VIII,**

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

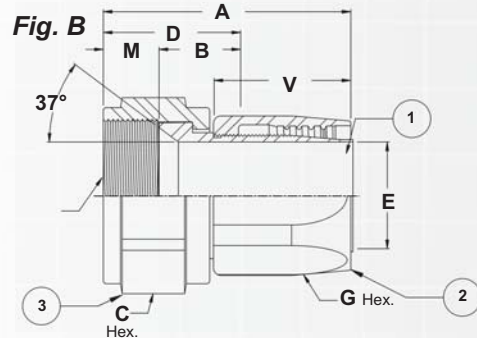
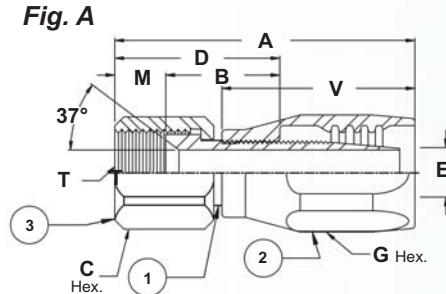


Fig. A Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-1488A-0404	1/4"	7/16"-20	1.75	.65	.56	1.00	.17	.62	.35	1.10	.1
EF-1488A-0505	5/16"	1/2"-20	1.90	.74	.62	1.12	.23	.69	.38	1.20	.1
EF-1488A-0606	3/8"	9/16"-18	2.05	.77	.69	1.15	.30	.81	.38	1.30	.2
EF-1488A-0808	1/2"	3/4"-16	2.52	.95	.88	1.38	.39	.94	.43	1.65	.3
EF-1488A-1010	5/8"	7/8"-14	2.80	1.00	1.00	1.51	.48	1.12	.51	1.80	.4
EF-1488A-1212	3/4"	1-1/16"-12	3.15	1.01	1.25	1.58	.61	1.25	.57	2.10	.6

Fig. B Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-1488A-1616	1"	1-5/16"-12	2.82	.95	1.50	1.55	.82	1.44	.60	1.66	.7
EF-1488A-2020	1-1/4"	1-5/8"-12	3.00	1.00	2.00	1.64	1.05	1.75	.64	1.75	1.3
EF-1488A-2424	1-1/2"	1-7/8"-12	3.28	1.09	2.25	1.83	1.28	1.94	.74	1.84	1.6
EF-1488A-3232	2"	2-1/2"-12	3.88	1.27	2.88	2.03	1.75	2.44	.76	2.25	2.6
EF-1488A-4040	2-1/2"	3"-12	4.16	1.45	3.38	2.25	2.12	3.25	.80	2.50	4.5
EF-1488A-4848	3"	3-1/2"-12	4.28	1.51	4.00	2.38	2.69	3.88	.87	2.50	6.2

Components Fig. A

Description	Req'd per Ass'y	0404	0505	0606	0808	1010	1212	Material
① Nipple	1	B18978-2	B18979-2	C18980-2	C18647-2	B18981-2	B18982-2	Monel
② Socket	1	C18984-2	C18985-2	C18986-2	C18648-2	C18987-2	C18988-2	Monel
③ Nut	1	B18972-2	B18973-2	B18974-2	B18778-2	B18975-2	B18976-2	Monel

Components Fig. B

Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
① Nipple	1	B18668-2	B18675-2	C18983-2	C18654-2	C18995-2	C18996-2	Monel
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	C18991	C18992	Monel
③ Nut	1	B18673-2	C18677-2	C18977-2	C18650-2	C18997-2	C18998-2	Monel

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.



End Fitting - Straight - S.A.E. 37° Female Swivel (J.I.C.) to Hose Equal to Aeroquip P/N 411-B & 44-411

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

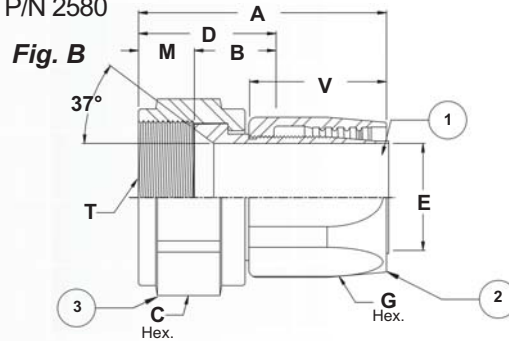
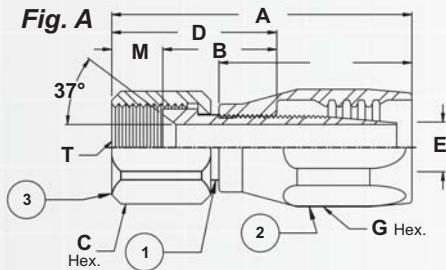


Fig. A Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-B1488A-0404	1/4"	7/16"-20	1.75	.65	.56	1.00	.17	.62	.35	1.10	.1
EF-B1488A-0604	1/4"	9/16"-18	1.85	.65	.69	1.00	.17	.62	.38	1.10	.1
EF-B1488A-0505	5/16"	1/2"-20	1.90	.74	.62	1.12	.23	.69	.38	1.20	.1
EF-B1488A-0606	3/8"	9/16"-18	2.05	.77	.69	1.15	.30	.81	.38	1.30	.2
EF-B1488A-0808	1/2"	3/4"-16	2.52	.95	.88	1.38	.39	.94	.43	1.65	.3
EF-B1488A-1008	1/2"	7/8"-14	2.65	.95	1.00	1.50	.39	.94	.51	1.65	.3
EF-B1488A-1010	5/8"	7/8"-14	2.80	1.00	1.00	1.51	.48	1.12	.51	1.80	.4
EF-B1488A-1210	5/8"	1-1/16"-12	2.85	1.00	1.25	1.56	.48	1.12	.57	1.80	.4
EF-B1488A-1212	3/4"	1-1/16"-12	3.15	1.01	1.25	1.58	.61	1.25	.57	2.10	.5
EF-B1488A-1612	3/4"	1-5/16"-12	3.26	1.01	1.50	1.69	.61	1.25	.60	2.10	.5

Fig. B Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-B1488A-1616	1"	1-5/16"-12	2.82	.95	1.50	1.55	.82	1.44	.60	1.66	.70
EF-B1488A-2020	1-1/4"	1-5/8"-12	3.00	1.00	2.00	1.64	1.05	1.75	.64	1.75	1.30
EF-B1488A-2424	1-1/2"	1-7/8"-12	3.28	1.09	2.25	1.83	1.28	1.94	.74	1.84	1.50
EF-B1488A-3232	2"	2-1/2"-12	3.88	1.27	2.88	2.03	1.75	2.44	.76	2.25	2.70
EF-B1488A-4040	2-1/2"	3"-12	4.16	1.45	3.38	2.25	2.20	3.25	.80	2.50	4.50
EF-B1488A-4848	3"	3-1/2"-12	4.28	1.51	4.00	2.38	2.80	3.88	.87	2.50	6.20

Components Fig. A

Description	Req'd per Ass'y	0404	0604	0505	0606	0808	1008	1010	1210	1212	1612	Material
① Nipple	1	B18978-1	--	B18979-1	B18980-1	C18647-1	--	B18981-1	--	B18982-1	--	Brass
② Socket	1	C18984-1	--	C18985-1	C18986-1	C18648-1	--	C18987-1	--	C18988-1	--	Brass
③ Nut	1	B18972-1	--	B18973-1	B18974-1	B18778-1	--	B18975-1	--	B18976-1	--	Brass

Components Fig. B

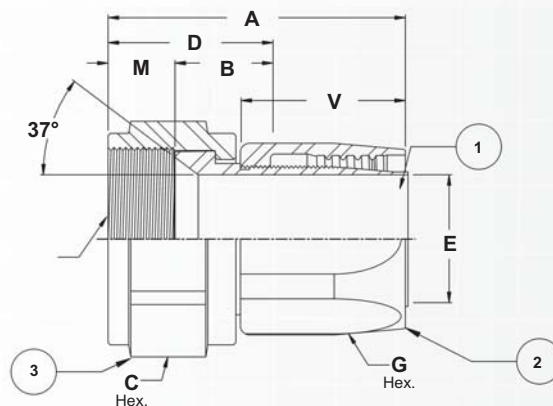
Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
① Nipple	1	B18668-1	B18675-1	C18983-1	C18654-1	--	--	Brass
① Nipple	1	--	--	--	--	C18995-1	C18996	Bronze
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	C18822	C17901	Brass
③ Nut	1	B18673-1	C18677-1	C18977-1	C18650-1	--	--	Brass
③ Nut	1	--	--	--	--	C18997-1	--	Bronze

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.

End Fitting - Straight - S.A.E. 37° Female Swivel (J.I.C.) to Hose

Equal to Aeroquip P/N 23-411

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	IPS Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-MB1488A-1616	1"	1-5/16"-12	2.82	.95	1.50	1.55	.82	1.44	.60	1.66	.7
EF-MB1488A-2020	1-1/4"	1-5/8"-12	3.00	1.00	2.00	1.64	1.05	1.75	.64	1.75	1.3
EF-MB1488A-2424	1-1/2"	1-7/8"-12	3.28	1.09	2.25	1.83	1.28	1.94	.74	1.84	1.5
EF-MB1488A-3232	2"	2-1/2"-12	3.88	1.27	2.88	2.03	1.75	2.44	.76	2.25	2.7

Components

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Nipple	1	B18668-2	B18675-2	C18983-2	C18654-2	Monel
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	Brass
③ Nut	1	B18673-1	C18677-1	C18977-1	C18650-1	Brass

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.

End Fitting - Straight - S.A.E. 37° Female Flare (J.I.C.) to Hose

Equal to Aeroquip P/N 10-411 & 259-411

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

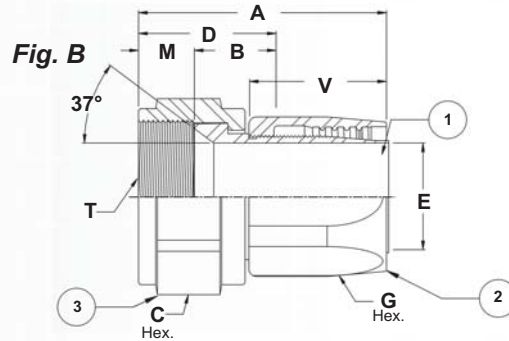
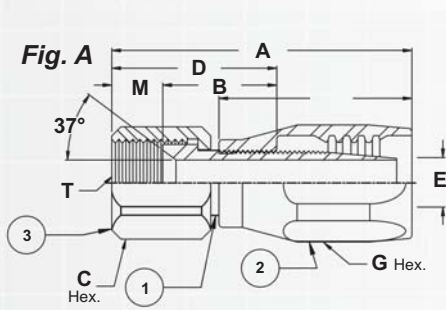


Fig. A Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-SS1488A-0404	1/4"	7/16"-20	1.75	.65	.56	1.00	.17	.62	.35	1.10	.1
EF-SS1488A-0604	1/4"	9/16"-18	1.85	.65	.69	1.00	.17	.62	.38	1.10	.1
EF-SS1488A-0505	5/16"	1/2"-20	1.90	.74	.62	1.12	.23	.69	.38	1.20	.1
EF-SS1488A-0606	3/8"	9/16"-18	2.05	.77	.69	1.15	.30	.81	.38	1.30	.2
EF-SS1488A-0808	1/2"	3/4"-16	2.52	.95	.88	1.38	.39	.94	.43	1.65	.3
EF-SS1488A-1008	1/2"	7/8"-14	2.65	.95	1.00	1.50	.39	.94	.51	1.65	.3
EF-SS1488A-1010	5/8"	7/8"-14	2.80	1.00	1.00	1.51	.48	1.12	.51	1.80	.4
EF-SS1488A-1210	5/8"	1-1/16"-12	2.85	1.00	1.25	1.56	.48	1.12	.57	1.80	.4
EF-SS1488A-1212	3/4"	1-1/16"-12	3.15	1.01	1.25	1.58	.61	1.25	.57	2.10	.5
EF-SS1488A-1612	3/4"	1-5/16"-12	3.26	1.01	1.50	1.69	.61	1.25	.60	2.10	.5

Fig. B Dimensions

Part Number	Hose Size	T Thread CL-2B	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-SS1488A-1616	1"	1-5/16"-12	2.82	.94	1.50	1.54	.82	1.44	.60	1.66	.6
EF-SS1488A-2020	1-1/4"	1-5/8"-12	3.00	1.00	2.00	1.64	1.05	1.75	.64	1.75	1.2
EF-SS1488A-2424	1-1/2"	1-7/8"-12	3.28	1.09	2.25	1.83	1.28	1.94	.74	1.84	1.5
EF-SS1488A-3232	2"	2-1/2"-12	3.88	1.27	2.88	2.03	1.75	2.44	.76	2.25	2.3

Components Fig. A

Description	Req'd per Ass'y	0404	0604	0505	0606	0808	1008	1010	1210	1212	1612	Material
① Nipple	1	B18978-3	--	B18979-3	B18980-3	C18647-3	--	B18981-3	--	B18982-3	--	Stainless Steel
② Socket	1	C18984-3	--	C18985-3	C18986-3	C18648-3	--	C18987-3	--	C18988-3	--	Stainless Steel
③ Nut	1	B18972-3	--	B18973-3	B18974-3	B18778-3	--	B18975-3	--	B18976-3	--	Stainless Steel

Components Fig. B

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Nipple	1	B18668-3	B18675-3	C18983-3	C18654-3	Stainless Steel
② Socket	1	C18667-3	C18703-3	C18990-3	C19132	Stainless Steel
③ Nut	1	B18673-3	C18677-3	C18977-3	C18650-3	Stainless Steel

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.



End Fitting - Straight - Male "O" Ring Seal to Hose

MIL-F-24787/3,
Type C, Group VIII

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

Fig. A

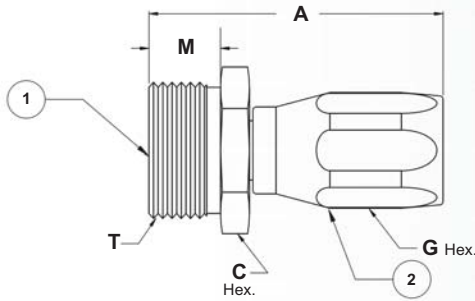


Fig. B

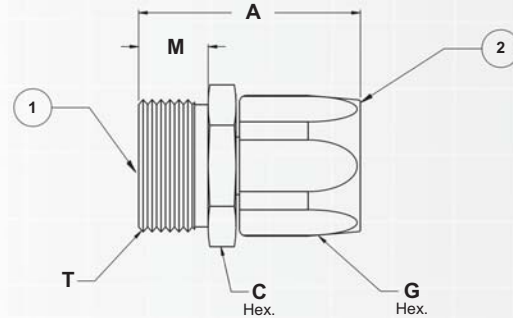


Fig. A Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. Lbs.
EF-1488C-0206	1/8"	1"-14	2.06	1.06	1.00	.81	.50	.3
EF-1488C-0408	1/4"	1-3/16"-12	2.54	1.25	1.12	.94	.62	.5
EF-1488C-0610	3/8"	1-3/8"-12	2.75	1.44	1.15	1.12	.62	.6
EF-1488C-0812	1/2"	1-3/4"-12	3.12	1.81	1.38	1.25	.61	1

Fig. B Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	G	M	Est. Wt. Lbs.
EF-1488C-1216	3/4"	2"-12	2.80	2.12	1.44	.62	1.5
EF-1488C-1620	1"	2-5/16"-12	3.14	2.38	1.75	.75	2.4
EF-1488C-2024	1-1/4"	2-3/4"-12	3.23	2.88	1.94	.75	2.9
EF-1488C-2432	1-1/2"	3-1/16"-12	3.89	3.12	2.44	.88	4.1

Components Fig. A

Description	Req'd per Ass'y	0206	0408	0610	0812	Material
① Nipple	1	C19014	C19015	C19016-1	C19017-1	Monel
② Socket	1	C18986-2	C18648-2	C18987-2	C18988-2	Monel

Components Fig. B

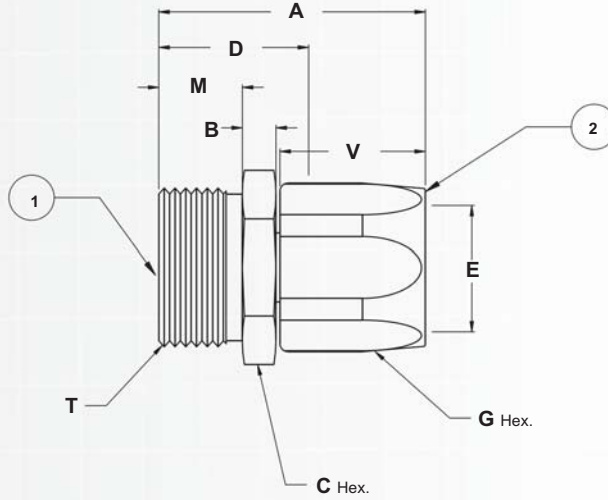
Description	Req'd per Ass'y	1216	1620	2024	2432	Material
① Nipple	1	C19018	C19019	C19020	C19021	Monel
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	Monel

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.

End Fitting - Straight - Male "O"Ring Seal to Hose

Equal to Aeroquip P/N 66-190911

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	T Thread CL-3A	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-B1488C-1216	3/4"	2"-12	2.80	.50	2.12	1.53	.61	1.44	.62	1.66	1.5
EF-B1488C-1620	1"	2-5/16"-12	3.14	.62	2.38	1.77	.81	1.75	.75	1.75	2.4
EF-B1488C-2024	1-1/4"	2-3/4"-12	3.23	.62	2.88	1.78	1.25	1.94	.75	1.84	2.9
EF-B1488C-2432	1-1/2"	3-1/16"-12	3.89	.75	3.12	2.05	1.39	2.44	.88	2.25	4.1

Components

Description	Req'd per Ass'y	1216	1620	2024	2432	Material
① Nipple	1	C19256	C19257	C19258	C19249	Bronze
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	Brass

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.



End Fitting - Straight - Male "O"Ring Seal to Hose



Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

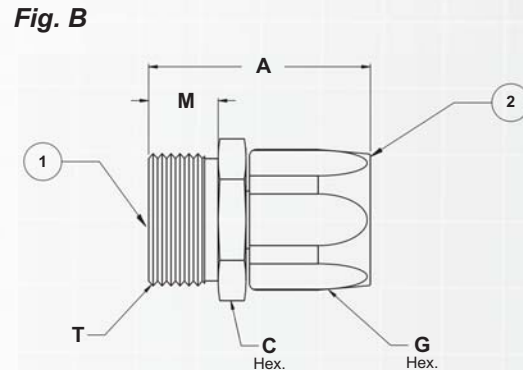
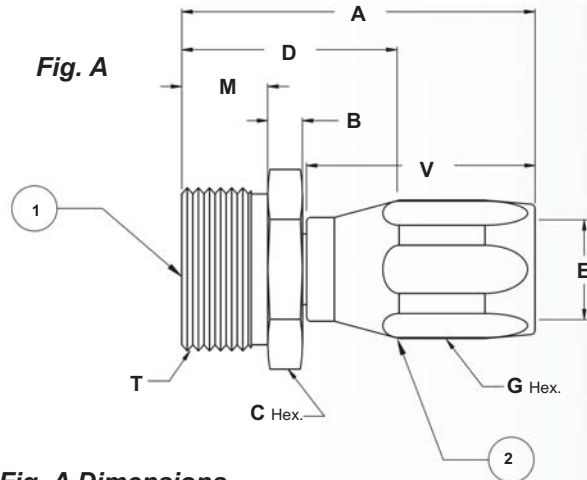


Fig. A Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-MB1488C-0206	1/8"	1"-14	2.06	.25	1.06	1.16	.24	.81	.50	1.30	.3
EF-MB1488C-0408	1/4"	1-3/16"-12	2.54	.25	1.25	1.39	.36	.94	.62	1.65	.5
EF-MB1488C-0610	3/8"	1-3/8"-12	2.75	.31	1.44	1.46	.46	1.12	.62	1.80	.6
EF-MB1488C-0812	1/2"	1-3/4"-12	3.12	.38	1.81	1.55	.55	1.25	.62	2.10	1

Fig. B Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	G	M	Est. Wt. Lbs.
EF-MB1488C-1216	3/4"	2"-12	2.80	2.12	1.44	.62	1.5
EF-MB1488C-1620	1"	2-5/16"-12	3.14	2.38	1.75	.75	2.4
EF-MB1488C-2024	1-1/4"	2-3/4"-12	3.23	2.88	1.94	.75	2.9
EF-MB1488C-2432	1-1/2"	3-1/16"-12	3.89	3.12	2.44	.88	4.1

Components Fig. A

Description	Req'd per Ass'y	0206	0408	0610	0812	Material
① Nipple	1	C19014	C19015	C19016-1	C19017-1	Monel
② Socket	1	C18986-1	C18648-1	C18987-1	C18988-1	Brass

Components Fig. B

Description	Req'd per Ass'y	1216	1620	2024	2432	Material
① Nipple	1	C19256-1	C19257	C19258	C19259	Alum. Bronze
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	Monel

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.

End Fitting - Straight - Male "O"Ring Seal to Hose

Equal to Aeroquip P/N 411-19011

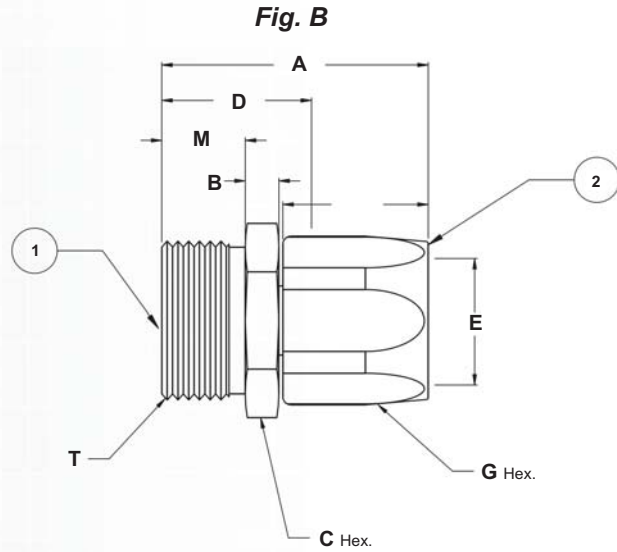
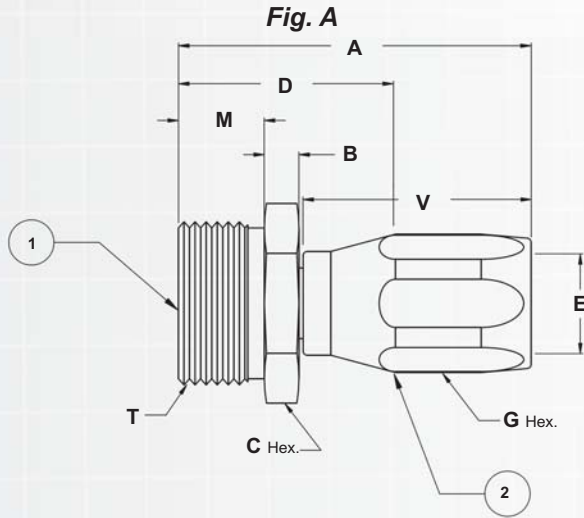


Fig. A Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	B	C	D	E	G	M	V	Est. Wt. Lbs.
EF-MSS1488C-0610	3/8"	1-3/8"-12	2.75	.31	1.44	1.46	.46	1.12	.62	1.80	.7
EF-MSS1488C-0812	1/2"	1-3/4"-12	3.12	.38	1.81	1.55	.55	1.25	.62	2.10	1

Fig. B Dimensions

Components Fig. A

Description	Req'd per Ass'y	0610	0812	Material
① Nipple	1	C19253	C19254	Stainless Steel
② Socket	1	C18987-2	C18988-2	Monel

Components Fig. B

Description	Req'd per Ass'y	1216	1620	Material
① Nipple	1	C19255	C19019-2	Stainless Steel
② Socket	1	C18667-2	C18703-2	Monel

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.



End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 4-191301

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/3,
Type CL, Group VIII

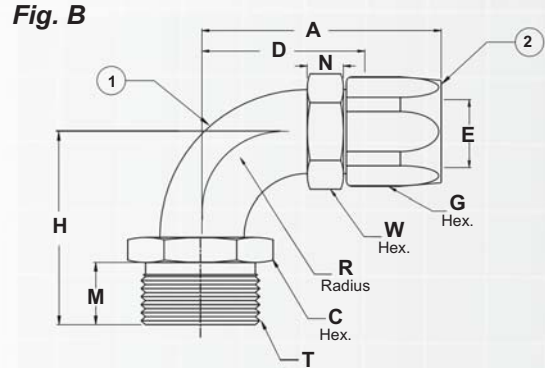
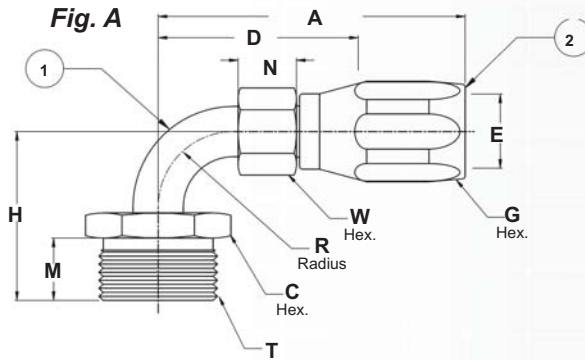


Fig. A Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. Lbs.
90EF-1488CL-0206	1/8"	1"-14	2.45	1.06	1.55	.24	.81	1.30	.50	.58	.50	.56	.4
90EF-1488CL-0408	1/4"	1-3/16"-12	3.05	1.25	1.90	.36	.94	1.68	.62	.58	.75	.75	.6
90EF-1488CL-0610	3/8"	1-3/8"-12	3.57	1.44	2.28	.46	1.12	1.99	.62	.70	1.00	.81	.8
90EF-1488CL-0812	1/2"	1-3/4"-12	4.15	1.81	2.58	.55	1.25	2.31	.62	.74	1.25	1.00	1.3

Fig. B Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. Lbs.
90EF-1488CL-1216	3/4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2
90EF-1488CL-1620	1"	2-5/16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3
90EF-1488CL-2024	1-1/4"	2-3/4"-12	4.65	2.88	3.19	1.28	1.94	3.42	.75	.74	2.00	1.81	4
90EF-1488CL-2432	1-1/2"	3-1/16"-12	5.68	3.12	3.84	1.75	2.44	4.05	.88	.86	2.50	2.38	5.4

Components Fig. A

Description	Req'd per Ass'y	0206	0408	0610	0812	Material
① Elbow Ass'y	1	C19027	C19028	C19029	C19030	Monel
② Socket	1	C18986-2	C18648-2	C18987-2	C18988-2	Monel

Components Fig. B

Description	Req'd per Ass'y	1216	1620	2024	2432	Material
① Elbow Ass'y	1	C19031	C19032	C19033	C19034	See Below
Nipple	1	C19265	C19266	C19267	C19268	Monel
Elbow	1	B19269-1	B19269-2	B19269-3	B19269-4	Copper Nickel
Adapter	1	B19273	B19274	B19275	B19276	Monel
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	Monel

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.

End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 93-191301

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

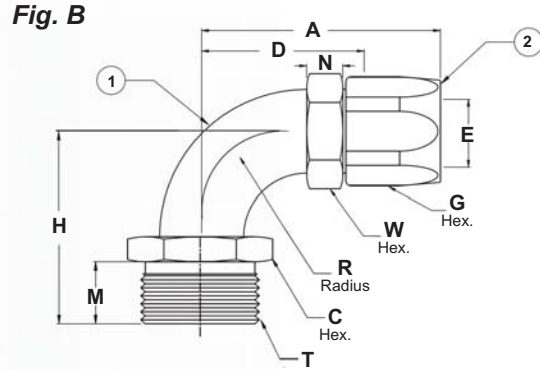
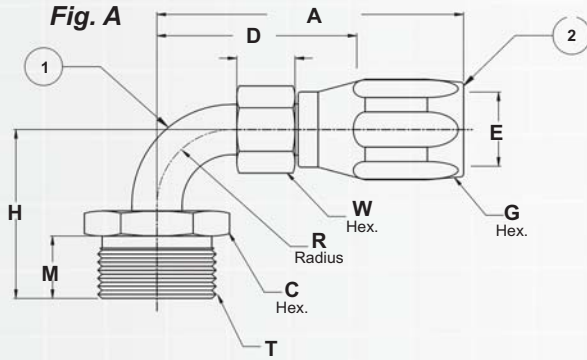


Fig. A Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. Lbs.
90EF-BM1488CL-0206	1/8"	1"-14	2.45	1.06	1.55	.24	.81	1.30	.50	.58	.50	.56	.4
90EF-BM1488CL-0408	1/4"	1-3/16"-12	3.05	1.25	1.90	.36	.94	1.68	.62	.58	.75	.75	.6
90EF-BM1488CL-0610	3/8"	1-3/8"-12	3.57	1.44	2.28	.46	1.12	1.99	.62	.70	1.00	.81	.8
90EF-BM1488CL-0812	1/2"	1-3/4"-12	4.15	1.81	2.58	.55	1.25	2.31	.62	.74	1.25	1.00	1.3

Fig. B Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. Lbs.
90EF-BMC1488CL-1216	3/4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2
90EF-BMC1488CL-1620	1"	2-5/16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3
90EF-BMC1488CL-2024	1-1/4"	2-3/4"-12	4.65	2.88	3.19	1.28	1.94	3.42	.75	.74	2.00	1.81	4
90EF-BMC1488CL-2432	1-1/2"	3-1/16"-12	5.68	3.12	3.84	1.75	2.44	4.05	.88	.86	2.50	2.38	5.4

Components Fig. A

Description	Req'd per Ass'y	0206	0408	0610	0812	Material
① Elbow Ass'y	1	C19027	C19028	C19029	C19030	Monel
② Socket	1	C18986-1	C18648-1	C18987-1	C18988-1	Brass

Components Fig. B

Description	Req'd per Ass'y	1216	1620	2024	2432	Material
① Elbow Ass'y	1	C19031	C19032	C19033	C19034	See Below
Nipple	1	C19265	C19266	C19267	C19268	Monel
Elbow	1	B18874-1	B18874-2	B18874-3	B18874-4	Copper Nickel
Adapter	1	B19273	B19274	B19275	B19276	Monel
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	Brass

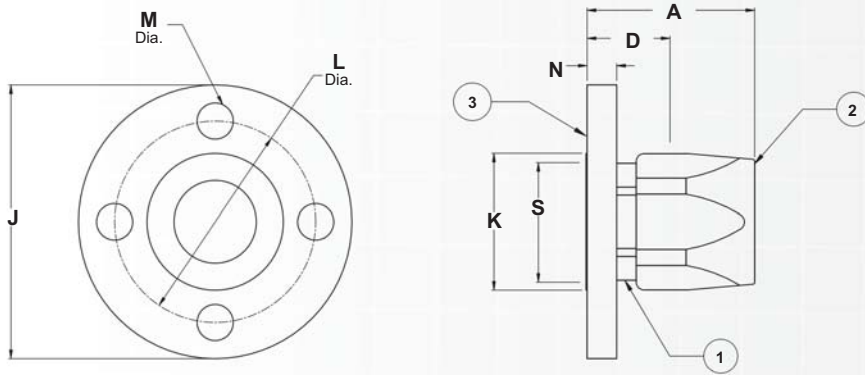
All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - Straight - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type F, Group VIII, Class I,
400Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. Lbs.
F-1488A1-0816	1/2"	4	2.80	1.53	4.00	1.50	2.88	.56	.69	.71	1.9
F-1488A1-1216	3/4"	4	2.80	1.53	4.31	1.50	3.19	.56	.69	.71	2.5
F-1488A1-1616	1"	5	2.80	1.53	5.06	1.50	3.75	.69	.75	.71	2.7
F-1488A1-1220	3/4"	4	2.89	1.53	4.31	1.84	3.19	.56	.69	.92	2.5
F-1488A1-1624	1"	5	2.92	1.47	5.06	2.12	3.75	.69	.75	1.18	3
F-1488A1-2032	1-1/4"	5	3.51	1.66	5.38	2.74	4.06	.69	.81	1.53	3.7
F-1488A1-2432	1-1/2"	6	3.51	1.66	5.94	2.74	4.63	.69	.81	1.77	4.2
F-1488A1-3232	2"	7	3.51	1.66	6.50	2.74	5.19	.69	.81	1.75	5.2

Fittings

Components

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	Req'd per Ass'y	1624	2032	2432	3232	Material
○ Nipple	1	C19043	C19044	C19045	C19046	Monel
○ Socket	1	C18990	C18662	C18662	C18662	Monel
○ Flange	1	C19518	C19519	C19520	C19521	Bronze

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.



Marine Hose & Fittings

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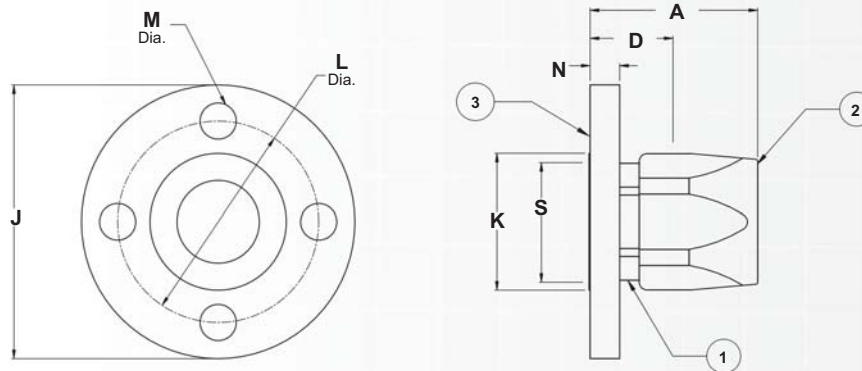
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End Fitting - Straight - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type F, Group VIII, Class III,
250Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. Lbs.
EF-1488A2-0816	1/2"	3	2.80	1.53	3.56	1.50	2.44	.56	.69	.71	1.7
EF-1488A2-1216	3/4"	4	2.80	1.53	3.81	1.50	2.69	.56	.69	.71	2.3
EF-1488A2-1616	1"	4	2.80	1.53	4.25	1.50	3.13	.56	.75	.71	2.5
EF-1488A2-1220	3/4"	4	2.89	1.53	3.81	1.84	2.69	.56	.69	.92	2.3
EF-1488A2-1624	1"	4	2.92	1.47	4.25	2.12	3.13	.56	.75	1.18	2.8
EF-1488A2-2032	1-1/4"	4	3.51	1.66	4.50	2.74	3.38	.56	.81	1.53	3.4
EF-1488A2-2432	1-1/2"	6	3.51	1.66	5.06	2.74	3.94	.56	.81	1.77	3.9
EF-1488A2-3232	2"	6	3.51	1.66	5.06	2.74	4.44	.69	.81	1.75	5

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Nipple	1	C19039	C19040	C19041	C19042	Monel
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C19522	C19523	C19524	C19525	Bronze

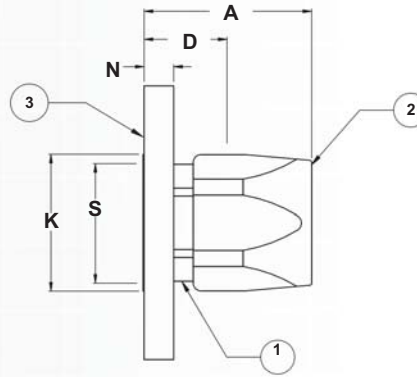
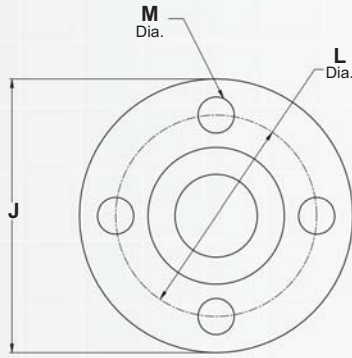
Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Nipple	1	C19043	C19044	C19045	C19046	Monel
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C19526	C19527	C19528	C19179	Bronze

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.

End Fitting - Straight - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type F, Group VIII, Class IV,
150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. Lbs.
EF-1488A3-0816	1/2"	3	2.80	1.53	3.56	1.50	2.44	.56	.38	.71	1.5
EF-1488A3-1216	3/4"	4	2.80	1.53	3.81	1.50	2.69	.56	.44	.71	2.1
EF-1488A3-1616	1"	4	2.80	1.53	4.25	1.50	3.13	.56	.44	.71	2.3
EF-1488A3-1220	3/4"	4	2.89	1.53	3.81	1.84	2.69	.56	.44	.92	2.1
EF-1488A3-1624	1"	4	2.92	1.47	4.25	2.12	3.13	.56	.44	1.18	2.5
EF-1488A3-2032	1-1/4"	4	3.51	1.66	4.50	2.74	3.38	.56	.44	1.53	3.1
EF-1488A3-2432	1-1/2"	6	3.51	1.66	5.06	2.74	3.94	.56	.44	1.77	3.6
EF-1488A3-3232	2"	6	3.51	1.66	5.56	2.74	4.44	.56	.44	1.75	4.7

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Nipple	1	C19039	C19040	C19041	C19042	Monel
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C18817	C18816	C18815	C18814	Bronze

Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Nipple	1	C19043	C19044	C19045	C19046	Monel
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C18813	C18812	C18810	C18809	Bronze

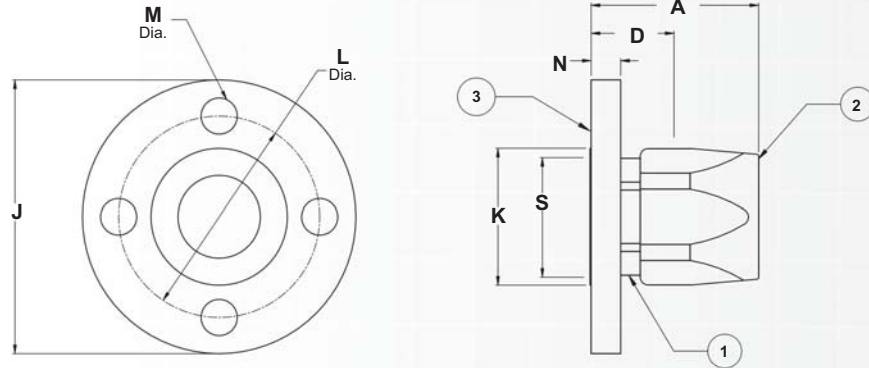
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - Straight - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type F, Group VIII, Class V,
150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. Lbs.
EF-1488A4-0816	1/2"	4	2.80	1.53	3.50	1.50	2.38	.62	.36	.71	1.5
EF-1488A4-1216	3/4"	4	2.80	1.53	3.88	1.50	2.75	.62	.42	.71	2.1
EF-1488A4-1616	1"	4	2.80	1.53	4.25	1.50	3.12	.62	.42	.71	2.5
EF-1488A4-1220	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.42	.92	2.3
EF-1488A4-1624	1"	4	2.92	1.47	4.25	2.12	3.12	.62	.42	1.18	2.7
EF-1488A4-2032	1-1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.42	1.53	3.1
EF-1488A4-2432	1-1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.42	1.77	3.6
EF-1488A4-3232	2"	4	3.51	1.66	6.00	2.74	4.75	.62	.42	1.75	4.7

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Nipple	1	C19039	C19040	C19041	C19042	Monel
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C18803	C18802	C18801	C18800	Bronze

Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Nipple	1	C19043	C19044	C19045	C19046	Monel
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C18799	C18798	C18797	C18796	Bronze

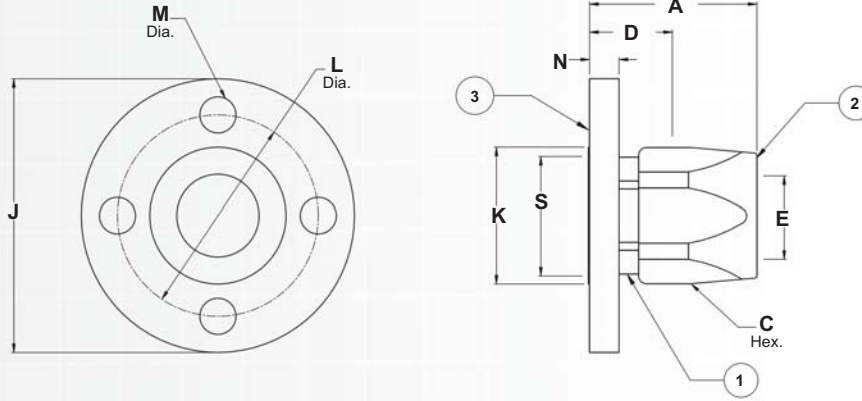
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N 66-190016

150Lb. Flange Per MIL-PRF-20042

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	J	K	L	N	M	S	Est. Wt. Lbs.
EF-B1488F4-0816	1/2"	3	2.80	1.44	1.53	.82	3.56	1.50	2.44	.38	.56	.71	1.5
EF-B1488F4-1220	3/4"	4	2.89	1.75	1.53	1.05	3.81	1.84	2.69	.44	.56	.92	2.1
EF-B1488F4-1624	1"	4	2.92	1.94	1.47	1.28	4.25	2.12	3.13	.44	.56	1.18	2.5
EF-B1488F4-2032	1-1/4"	4	3.51	2.44	1.66	1.75	4.50	2.74	3.38	.44	.56	1.53	3.1
EF-B1488F4-2432	1-1/2"	6	3.51	2.44	1.66	1.75	5.06	2.74	3.94	.44	.56	1.77	3.6
EF-B1488F4-3232	2"	6	3.51	2.44	1.66	1.75	5.56	2.74	4.44	.44	.56	1.77	4.7
EF-B1488F4-3240	2"	6	3.89	3.25	1.98	2.21	5.56	3.28	4.44	.44	.56	2.24	5.8
EF-B1488F4-4040	2-1/2"	6	3.89	3.25	1.98	2.21	6.13	3.28	5.00	.50	.56	2.24	6.9
EF-B1488F4-4048	2-1/2"	6	3.89	3.88	1.98	2.83	6.13	3.78	5.00	.50	.56	2.71	7.4
EF-B1488F4-4848	3"	8	3.89	3.88	1.98	2.83	6.63	4.50	5.50	.50	.56	3.31	7.9

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	2432	Material
① Nipple	1	C18018	C18019	C18020	C19155	C18808	Bronze
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	C18811	Brass
③ Flange	1	C18817	C18814	C18813	C18812	C18810	Bronze

Description	Req'd per Ass'y	3232	3240	4040	4048	4848	Material
① Nipple	1	C18808	C19170	C19170	C17893	C19173	Bronze
② Socket	1	C18811	C18822	C18822	C17901	C17901	Brass
③ Flange	1	C18809	C17925	C17929	C17931	C17933	Bronze

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.

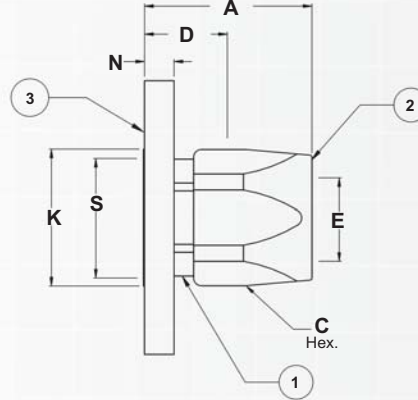
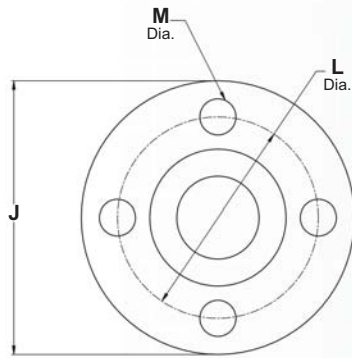


End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N 375-190109

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type F, Group VIII, Class V,
150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	J	K	L	N	M	S	Est. Wt. Lbs.
EF-MB1488F5-0816	1/2"	4	2.80	1.44	1.53	.82	3.50	1.50	2.38	.36	.62	.71	1.4
EF-MB1488F5-1220	3/4"	4	2.89	1.75	1.53	1.05	3.88	1.84	2.75	.42	.62	.92	2.2
EF-MB1488F5-1624	1"	4	2.92	1.94	1.47	1.28	4.25	2.12	3.12	.42	.62	1.18	2.4
EF-MB1488F5-2032	1-1/4"	4	3.51	2.44	1.66	1.75	4.62	2.74	3.50	.42	.62	1.53	3.3
EF-MB1488F5-2432	1-1/2"	4	3.51	2.44	1.66	1.75	5.00	2.74	3.88	.42	.62	1.77	3.9
EF-MB1488F5-3232	2"	4	3.51	2.44	1.66	1.75	6.00	2.74	4.75	.42	.75	1.77	5.4
EF-MB1488F5-3240	2"	4	3.89	3.25	1.98	2.18	6.00	3.28	4.75	.42	.75	2.24	6.3

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	Material
① Nipple	1	C18018	C18019	C18020	C19155	Bronze
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	Monel
③ Flange	1	C18803	C18800	C18799	C18798	Bronze

Description	Req'd per Ass'y	2432	3232	3240	Material
① Nipple	1	C18808	C18808	C19170	Bronze
② Socket	1	C18662	C18662	C18991	Monel
③ Flange	1	C18797	C18796	C17966	Bronze

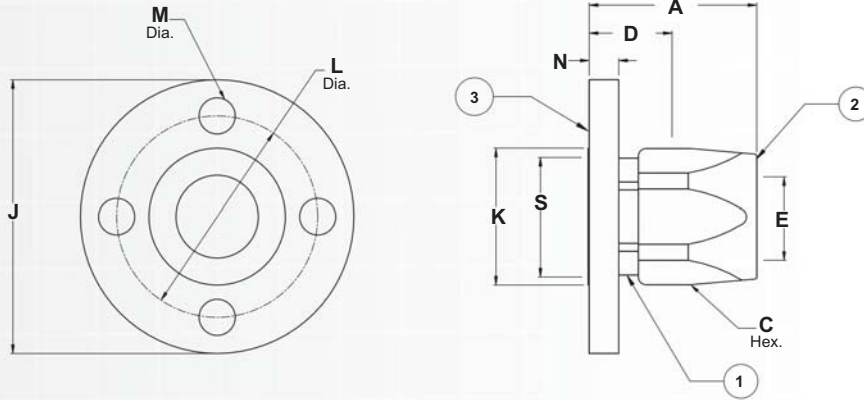
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N 412-190109

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	J	K	L	N	M	S	Est. Wt. Lbs.
EF-MSS1488F5-0816	1/2"	4	2.80	1.44	1.53	.82	3.50	1.50	2.38	.36	.62	.71	1.4
EF-MSS1488F5-1220	3/4"	4	2.89	1.75	1.53	1.05	3.88	1.84	2.75	.42	.62	.92	2.2
EF-MSS1488F5-1624	1"	4	2.92	1.94	1.47	1.28	4.25	2.12	3.12	.42	.62	1.18	2.4
EF-MSS1488F5-2032	1-1/4"	4	3.51	2.44	1.66	1.75	4.62	2.74	3.50	.42	.62	1.53	3.3
EF-MSS1488F5-2432	1-1/2"	4	3.51	2.44	1.66	1.75	5.00	2.74	3.88	.42	.62	1.77	3.6
EF-MSS1488F5-3232	2"	4	3.51	2.44	1.66	1.75	6.00	2.74	4.75	.42	.75	1.77	5.3
EF-MSS1488F5-3240	2"	4	3.89	3.25	1.98	2.18	6.00	3.28	4.75	.42	.75	2.24	6.3

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	Material
① Nipple	1	C19235	C19236	C18020-1	C19237	Stainless Steel
② Socket	1	C18667-2	C18703-2	C18990-2	C18662	Monel
③ Flange	1	C19240	C19241	C18799-1	C19242	Stainless Steel

Description	Req'd per Ass'y	2432	3232	3240	Material
① Nipple	1	C19238	C19238	C19239	Stainless Steel
② Socket	1	C18662	C18662	C18991	Monel
③ Flange	1	C19244	C19243	C19245	Stainless Steel

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.

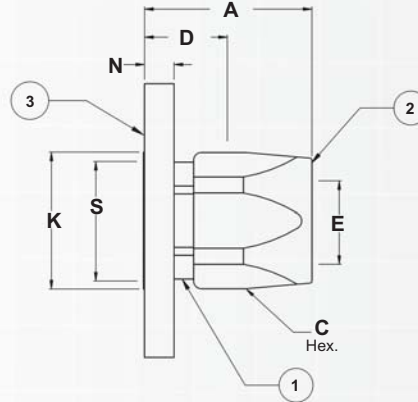
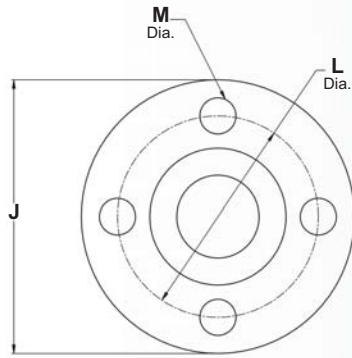


End Fitting - Straight - Flange to Hose

Equal to Aeroquip P/N 66-190109

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	J	K	L	N	M	S	Est. Wt. Lbs.
EF-B1488F5-0816	1/2"	4	2.80	1.44	1.53	.82	3.50	1.50	2.38	.36	.62	.71	1.4
EF-B1488F5-1220	3/4"	4	2.89	1.75	1.53	1.05	3.88	1.84	2.75	.42	.62	.92	2.2
EF-B1488F5-1624	1"	4	2.92	1.94	1.47	1.28	4.25	2.12	3.12	.42	.62	1.18	2.4
EF-B1488F5-2032	1-1/4"	4	3.51	2.44	1.66	1.75	4.62	2.74	3.50	.42	.62	1.53	3.3
EF-B1488F5-2432	1-1/2"	4	3.51	2.44	1.66	1.75	5.00	2.74	3.88	.42	.62	1.77	3.9
EF-B1488F5-3232	2"	4	3.51	2.44	1.66	1.75	6.00	2.74	4.75	.42	.75	1.77	5.4
EF-B1488F5-3240	2"	4	3.89	3.25	1.98	2.21	6.00	3.28	4.75	.42	.75	2.24	6.3
EF-B1488F5-4040	2-1/2"	4	3.89	3.25	1.98	2.21	7.00	3.28	5.50	.48	.75	2.24	8.5
EF-B1488F5-4048	2-1/2"	4	3.89	3.44	1.98	2.83	7.00	3.78	5.50	.48	.75	2.71	8.8
EF-B1488F5-4848	3"	4	3.89	3.44	1.98	2.83	7.50	3.78	6.00	.48	.75	2.71	8.9

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	2432	Material
① Nipple	1	C18018	C18019	C18020	C19155	C18808	Bronze
② Socket	1	C18667-1	C18703-1	C18990-1	C18811	C18811	Brass
③ Flange	1	C18803	C18800	C18799	C18798	C18797	Bronze

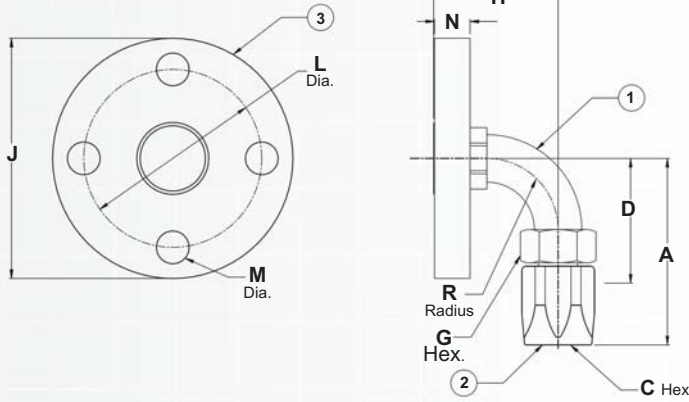
Description	Req'd per Ass'y	3232	3240	4040	4048	4848	Material
① Nipple	1	C18808	C19170	C19170	C17893	C19173	Bronze
② Socket	1	C18811	C18822	C18822	C17901	C17901	Brass
③ Flange	1	C18796	C17966	C17968	C17969	C17970	Bronze

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.

End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type FL, Group VIII, Class I,
400Lb. Flange Per MIL-PRF-20042



Part Number	IPS Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. Lbs.
90EF-1488B1-0816	1/2"	4	3.93	1.44	2.66	1.38	2.62	4.00	2.88	.56	.69	1.50	2.4
90EF-1488B1-1216	3/4"	4	3.93	1.44	2.66	1.38	2.62	4.31	3.19	.56	.69	1.50	3
90EF-1488B1-1616	1"	5	3.93	1.44	2.66	1.38	2.62	5.06	3.75	.69	.75	1.50	3.2
90EF-1488B1-1220	3/4"	4	4.27	1.75	2.91	1.62	2.87	4.31	3.19	.56	.69	1.75	3
90EF-1488B1-1624	1"	5	4.65	1.94	3.19	2.12	3.06	5.06	3.75	.69	.75	2.00	3.5
90EF-1488B1-2032	1-1/4"	5	5.68	2.44	3.84	2.25	3.74	5.38	4.06	.69	.81	2.50	4.2
90EF-1488B1-2432	1-1/2"	6	5.68	2.44	3.84	2.25	3.74	5.94	4.63	.69	.81	2.50	4.7
90EF-1488B1-3232	2"	7	5.68	2.44	3.84	2.69	3.74	6.50	5.19	.69	.81	2.50	5.7

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Elbow Ass'y	1	C19094	C19095	C19096	C19097	Monel/Cuni
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C19514	C19515	C19516	C19517	Bronze

Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Elbow Ass'y	1	C19098	C19099	C19100	C19101	Monel/Cuni
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C19518	C19519	C19520	C19521	Bronze

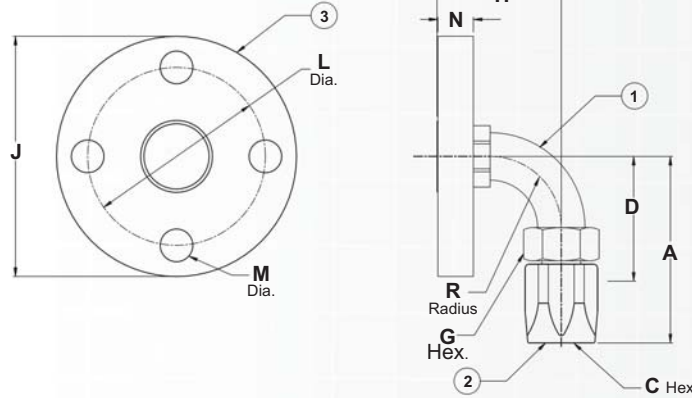
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type FL, Group VIII, Class II,
150/400Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. Lbs.
90EF-1488B5-0816	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.69	1.50	2.2
90EF-1488B5-1216	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.69	1.50	2.8
90EF-1488B5-1616	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.75	1.50	3.0
90EF-1488B5-1220	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.69	1.75	2.8
90EF-1488B5-1624	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.75	2.00	3.3
90EF-1488B5-2032	1-1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.81	2.50	3.9
90EF-1488B5-2432	1-1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.98	.56	.81	2.50	4.4
90EF-1488B5-3232	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.56	.81	2.50	5.5

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Elbow Ass'y	1	C19094	C19095	C19096	C19097	Monel/Cuni
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C19522	C19523	C19524	C19525	Bronze

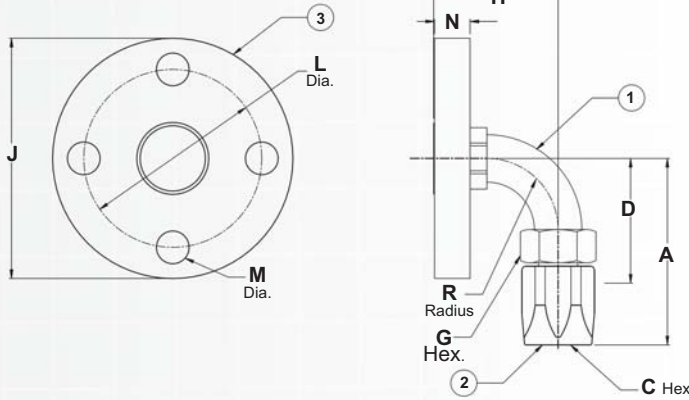
Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Elbow Ass'y	1	C19098	C19099	C19100	C19101	Monel/Cuni
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C19526	C19527	C19528	C19529	Bronze

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.

End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type FL, Group VIII, Class III,
250Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. Lbs.
90EF-1488B2-0816	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.69	1.50	2.2
90EF-1488B2-1216	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.69	1.50	2.8
90EF-1488B2-1616	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.75	1.50	3
90EF-1488B2-1220	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.69	1.75	2.8
90EF-1488B2-1624	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.75	2.00	3.3
90EF-1488B2-2032	1-1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.81	2.50	3.9
90EF-1488B2-2432	1-1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.94	.56	.81	2.50	4.4
90EF-1488B2-3232	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.69	.81	2.50	5.5

Fittings

90

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Elbow Ass'y	1	C19094	C19095	C19096	C19097	Monel/Cuni
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C19522	C19523	C19524	C19525	Bronze

Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Elbow Ass'y	1	C19098	C19099	C19100	C19101	Monel/Cuni
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C19526	C19527	C19528	C19179	Bronze

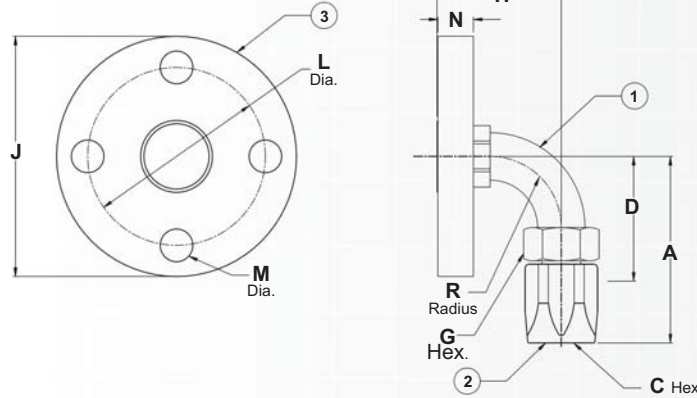
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type FL, Group VIII, Class IV,
150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. Lbs.
90EF-1488B3-0816	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.38	1.50	1.9
90EF-1488B3-1216	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.44	1.50	3.1
90EF-1488B3-1616	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.44	1.50	3.2
90EF-1488B3-1220	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.44	1.75	3.3
90EF-1488B3-1624	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.44	2.00	3.3
90EF-1488B3-2032	1-1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.44	2.50	4.6
90EF-1488B3-2432	1-1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.98	.56	.44	2.50	5.4
90EF-1488B3-3232	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.56	.44	2.50	6.2

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Elbow Ass'y	1	C19094	C19095	C19096	C19097	Monel/Cuni
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C18817	C18816	C18815	C18814	Bronze

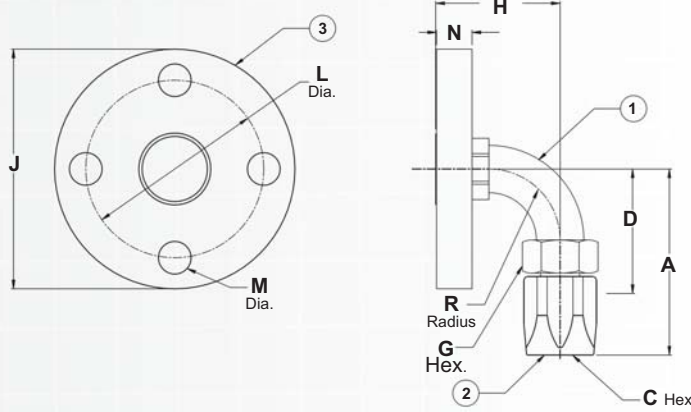
Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Elbow Ass'y	1	C19098	C19099	C19100	C19101	Monel/Cuni
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C18813	C18812	C18810	C18809	Bronze

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.

End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

MIL-F-24787/1,
Type FL, Group VIII, Class V,
150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. Lbs.
90EF-1488B4-0816	1/2"	4	3.93	1.44	2.66	1.38	2.62	3.50	2.38	.62	.36	1.50	1.9
90EF-1488B4-1216	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.88	2.75	.62	.42	1.50	3.2
90EF-1488B4-1616	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.12	.62	.42	1.50	3.3
90EF-1488B4-1220	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.88	2.75	.62	.42	1.75	3.8
90EF-1488B4-1624	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.12	.62	.42	2.00	3.4
90EF-1488B4-2032	1-1/4"	4	5.68	2.44	3.84	2.25	3.74	4.62	3.50	.62	.42	2.50	4.7
90EF-1488B4-2432	1-1/2"	4	5.68	2.44	3.84	2.25	3.74	5.00	3.88	.62	.42	2.50	5.4
90EF-1488B4-3232	2"	4	5.68	2.44	3.84	2.69	3.74	5.00	4.75	.75	.42	2.50	6.2

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	Material
① Elbow Ass'y	1	C19094	C19095	C19096	C19097	Monel/Cuni
② Socket	1	C18989	C18989	C18989	C18703	Monel
③ Flange	1	C18803	C18802	C18801	C18800	Bronze

Description	Req'd per Ass'y	1624	2032	2432	3232	Material
① Elbow Ass'y	1	C19098	C19099	C19100	C19101	Monel/Cuni
② Socket	1	C18990	C18662	C18662	C18662	Monel
③ Flange	1	C18799	C18798	C18797	C18796	Bronze

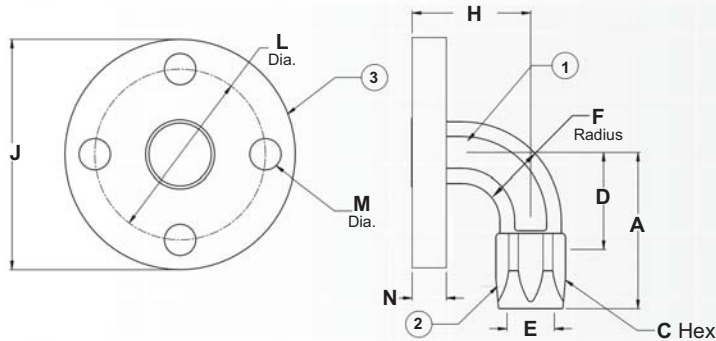
All Dimensions are in Inches.
 Dimensional information is for reference only.
 Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N 66-190103

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	F	H	J	L	M	N	Est. Wt. Lbs.
90EF-B1488FL4-0816	1/2"	3	2.80	1.44	1.53	.75	1.25	2.38	3.56	2.44	.56	.38	1.8
90EF-B1488FL4-1216	3/4"	4	2.80	1.44	1.53	.75	1.25	2.38	3.81	2.69	.56	.44	3
90EF-B1488FL4-1616	1"	4	2.80	1.44	1.53	.75	1.25	2.38	4.25	3.13	.56	.44	3.1
90EF-B1488FL4-1220	3/4"	4	2.98	1.75	1.62	1.00	1.62	2.56	3.81	2.69	.56	.44	3.6
90EF-B1488FL4-1624	1"	4	3.24	1.94	1.78	1.16	1.81	2.75	4.25	3.13	.56	.44	3.2
90EF-B1488FL4-2032	1-1/4"	4	3.89	2.44	2.05	1.69	2.44	3.06	4.50	3.38	.56	.44	4.5
90EF-B1488FL4-2432	1-1/2"	6	3.89	2.44	2.05	1.69	2.44	3.06	5.06	3.94	.56	.44	5.2
90EF-B1488FL4-3232	2"	6	3.89	2.44	2.05	1.69	2.44	3.06	5.56	4.44	.56	.44	5.9
90EF-B1488FL4-3240	2"	6	4.39	3.25	2.48	2.12	3.00	3.50	5.56	4.44	.56	.44	8.2
90EF-B1488FL4-4040	2-1/2"	6	4.39	3.25	2.48	2.12	3.00	3.50	6.13	5.00	.56	.50	9.7
90EF-B1488FL4-4048	2-1/2"	6	4.61	3.88	2.70	2.69	3.50	4.00	6.13	5.00	.56	.50	12.5
90EF-B1488FL4-4848	3"	8	4.61	3.88	2.70	2.69	3.50	4.00	6.63	5.50	.56	.50	13.5

Components

Description	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	Material
① Elbow	1	C19035	C19035	C19035	C19037	C19087	C19102	Bronze
② Socket	1	C18667-1	C18667-1	C18667-1	C18703-1	C18990-1	C18811	Brass
③ Flange	1	C18817	C18816	C18815	C18814	C18813	C18812	Bronze

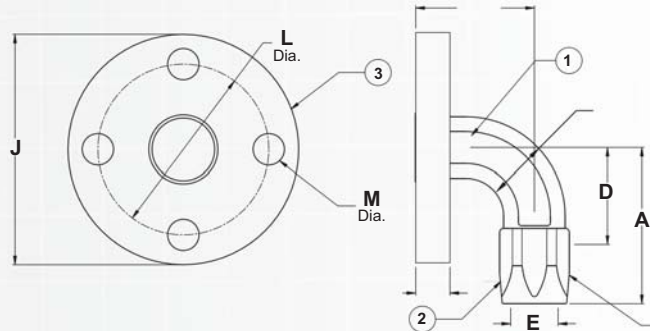
Description	Req'd per Ass'y	2432	3232	3240	4040	4048	4848	Material
① Elbow	1	C19092	C19092	C19103	C19103	C19130	C18114	Bronze
② Socket	1	C18811	C18811	C18822	C18822	C17901	C17901	Brass
③ Flange	1	C18810	C18809	C17925	C17929	C17931	C17933	Bronze

All Dimensions are in Inches.
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Marine Hose & Fittings

End Fitting - 90° - Flange to Hose

Use with the following hose: Synthetic yarn and wire reinforced



Fittings

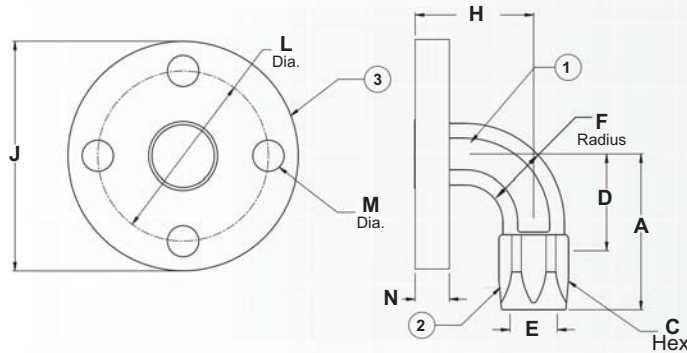
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	F	H	J	L	M	N	Est. Wt. Lbs.
90EF-MB1488FL4-0816	1/2"	3	2.80	1.44	1.53	.75	1.25	2.38	3.56	2.44	.56	.38	1.8
90EF-MB1488FL4-1216	3/4"	4	2.80	1.44	1.53	.75	1.25	2.38	3.81	2.69	.56	.44	3
90EF-MB1488FL4-1616	1"	4	2.80	1.44	1.53	.75	1.25	2.38	4.25	3.13	.56	.44	3.6
90EF-MB1488FL4-1220	3/4"	4	2.98	1.75	1.62	1.00	1.62	2.56	3.81	2.69	.56	.44	3.1
90EF-MB1488FL4-1624	1"	4	3.24	1.94	1.78	1.16	1.81	2.75	4.25	3.13	.56	.44	3.2
90EF-MB1488FL4-2032	1-1/4"	4	3.89	2.44	2.05	1.69	2.44	3.06	4.50	3.38	.56	.44	4.5
90EF-MB1488FL4-2432	1-1/2"	6	3.89	2.44	2.05	1.69	2.44	3.06	5.06	3.94	.56	.44	5.2
90EF-MB1488FL4-3232	2"	6	3.89	2.44	2.05	1.69	2.44	3.06	5.56	4.44	.56	.44	5.9
90EF-MB1488FL4-3240	2"	6	4.39	3.25	2.48	2.12	3.00	3.50	5.56	4.44	.56	.44	8.2
90EF-MB1488FL4-4040	2-1/2"	6	4.39	3.25	2.48	2.12	3.00	3.50	6.13	5.00	.56	.50	9.7
90EF-MB1488FL4-4048	2-1/2"	6	4.61	3.88	2.70	2.69	3.50	4.00	6.13	5.00	.56	.50	12.5
90EF-MB1488FL4-4848	3"	8	4.61	3.88	2.70	2.69	3.50	4.00	6.63	5.50	.56	.50	13.5

End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N 375-190124

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	F	H	J	L	M	N	Est. Wt. Lbs.
90EF-MB1488FL5-0816	1/2"	4	2.80	1.44	1.53	.75	1.25	2.38	3.50	2.38	.62	.36	1.8
90EF-MB1488FL5-1220	3/4"	4	2.98	1.75	1.62	1.00	1.62	2.56	3.88	2.75	.62	.42	3.6
90EF-MB1488FL5-1624	1"	4	3.24	1.94	1.78	1.11	1.81	2.75	4.25	3.12	.62	.42	3.2
90EF-MB1488FL5-2032	1-1/4"	4	3.89	2.44	2.05	1.69	2.44	3.06	4.62	3.50	.62	.42	4.5
90EF-MB1488FL5-2432	1-1/2"	4	3.89	2.44	2.05	1.69	2.44	3.06	5.00	3.88	.62	.42	5.2
90EF-MB1488FL5-3232	2"	4	3.89	2.44	2.05	1.69	2.44	3.06	6.00	4.75	.75	.42	6

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	Material
① Elbow	1	C19035	C19037	C19087	C19087	Bronze
② Socket	1	C18867-2	C18703-2	C18990-2	C18990-2	Monel
③ Flange	1	C18803	C18800	C18799	C18799	Bronze

Description	Req'd per Ass'y	2032	2432	3232	Material
① Elbow	1	C19102	C19092	C19092	Bronze
② Socket	1	C18662	C18662	C18662	Monel
③ Flange	1	C18798	C18797	C18796	Bronze

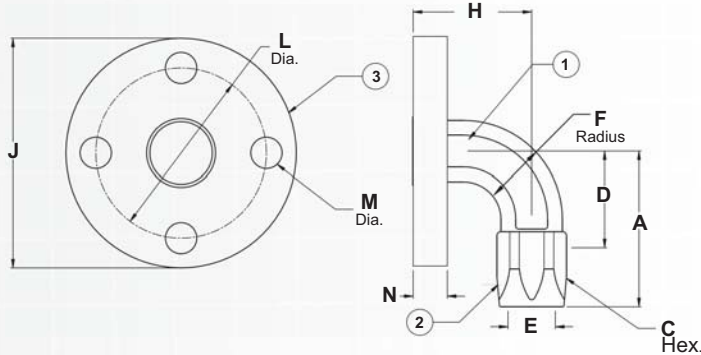
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N 412-190124

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	F	H	J	L	M	N	Est. Wt. Lbs.
90EF-MSS1488FL5-1220	3/4"	4	2.98	1.75	1.62	1.00	1.62	2.56	3.88	2.75	.62	.44	3.6
90EF-MSS1488FL5-2032	1-1/4"	4	3.89	2.44	2.05	1.69	2.44	3.06	4.62	3.50	.62	.44	4.5
90EF-MSS1488FL5-2432	1-1/2"	4	3.89	2.44	2.05	1.69	2.44	3.06	5.00	3.88	.62	.44	5.2
90EF-MSS1488FL5-3232	2"	4	3.89	2.44	2.05	1.69	2.44	3.06	6.00	4.75	.75	.44	6

Components

Description	Req'd per Ass'y	1220	2032	2432	3232	Material
① Elbow	1	C21511	C19246	C19247	C19248	Stainless Steel
② Socket	1	C18703-2	C18662	C18662	C18662	Monel
③ Flange	1	C19241	C19242	C19243	C19244	Stainless Steel

All Dimensions are in Inches.
Dimensional information is for reference only.
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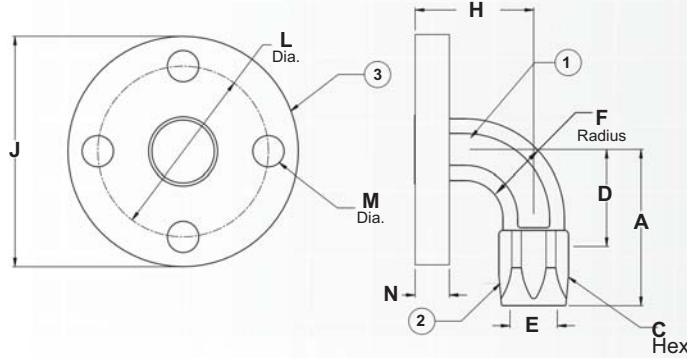


End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N 66-190124

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

150Lb. Flange Per A.N.S.I. B16.5



Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	E	F	H	J	L	M	N	Est. Wt. Lbs.
90EF-B1488FL5-0816	1/2"	4	2.80	1.44	1.53	.75	1.25	2.38	3.50	2.38	.62	.36	1.8
90EF-B1488FL5-1220	3/4"	4	2.98	1.75	1.62	1.00	1.62	2.56	3.88	2.75	.62	.42	3.6
90EF-B1488FL5-1624	1"	4	3.24	1.94	1.78	1.11	1.81	2.75	4.25	3.12	.62	.42	3.2
90EF-B1488FL5-2032	1-1/4"	4	3.89	2.44	2.05	1.69	2.44	3.06	4.62	3.50	.62	.42	4.4
90EF-B1488FL5-2432	1-1/2"	4	3.89	2.44	2.05	1.69	2.44	3.06	5.00	3.88	.62	.42	5
90EF-B1488FL5-3232	2"	4	3.89	2.44	2.05	1.69	2.44	3.06	6.00	4.75	.75	.42	5.9
90EF-B1488FL5-3240	2"	4	4.39	3.25	2.48	2.12	3.00	3.50	6.00	4.75	.75	.42	8.2
90EF-B1488FL5-4040	2-1/2"	4	4.39	3.25	2.48	2.12	3.00	3.50	7.00	5.50	.75	.48	9.7
90EF-B1488FL5-4048	2-1/2"	4	4.61	3.88	2.70	2.69	3.50	4.00	7.00	5.50	.75	.48	12.5
90EF-B1488FL5-4848	3"	4	4.61	3.88	2.70	2.69	3.50	4.00	7.50	6.00	.75	.48	13.5

Components

Description	Req'd per Ass'y	0816	1220	1624	2032	2432	Material
① Elbow	1	C19035	C19037	C19087	C19102	C19092	Bronze
② Socket	1	C18867-1	C18703-1	C18990-1	C18811	C18811	Brass
③ Flange	1	C18803	C18800	C18799	C18798	C18797	Bronze

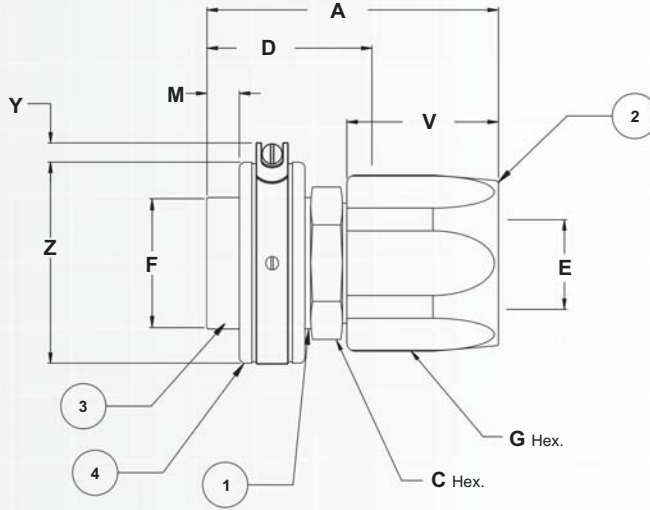
Description	Req'd per Ass'y	3232	3240	4040	4048	4848	Material
① Elbow	1	C19102	C19103	C19103	C19130	C18114	Bronze
② Socket	1	C18811	C18822	C18822	C17901	C17901	Brass
③ Flange	1	C18796	C17966	C17968	C17969	C17970	Bronze

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.

End Fitting - Straight - Female Sil-Braze Split Clamp to Hose

Equal to Aeroquip P/N FC9424-66

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	A	C	D	E	F	G	M	V	Y	Z
EF-B1488EF-2032	1-1/4"	4.98	2.12	3.13	1.53	1.66	2.44	.50	2.25	.39	3.00
EF-B1488EF-2432	1-1/2"	5.03	2.12	3.19	1.75	1.90	2.44	.62	2.25	.39	3.31
EF-B1488EF-3240	2"	5.44	2.62	3.54	2.21	2.38	3.25	.66	2.50	.39	4.00
EF-B1488EF-4048	2-1/2"	5.76	3.25	3.85	2.73	2.88	3.88	.78	2.50	.39	4.42

Components

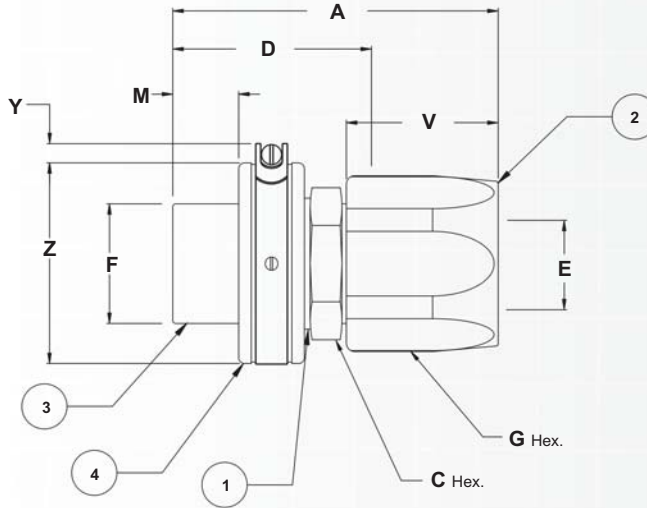
Description	Req'd per Ass'y	2032	2432	3240	4048	Material
① Nipple	1	C19188	C19189	C19190	C19191	Bronze
② Socket	1	C18811	C18811	C18822	C17901	Brass
③ Tailpiece Ass'y	1	TP-1.25FSB	TP-1.5FSB	TP-2FSB	TP-2.5FSB	Bronze
④ Clamp Ass'y	1	B-CLMP-1.25S	B-CLMP-1.5S	B-CLMP-2S	B-CLMP-2.5S	Bronze

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.

End Fitting - Straight - Male Sil-Braze Split Clamp to Hose

Equal to Aeroquip P/N FC9423-66

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	A	C	D	E	F	G	M	V	Y	Z
EF-B1488EM-2032	1-1/4"	5.44	2.12	3.60	1.53	1.66	2.44	1.12	2.25	.39	3.00
EF-B1488EM-2432	1-1/2"	5.53	2.12	3.69	1.75	1.90	2.44	1.25	2.25	.39	3.31
EF-B1488EM-3232	2"	5.91	2.62	4.07	1.69	2.38	3.25	1.31	2.25	.39	4.00
EF-B1488EM-3240	2"	5.97	2.62	4.07	2.21	2.38	3.25	1.31	2.50	.39	4.00
EF-B1488EM-4048	2-1/2"	5.94	3.25	4.04	2.73	2.88	3.88	1.12	2.50	.39	4.42

Components

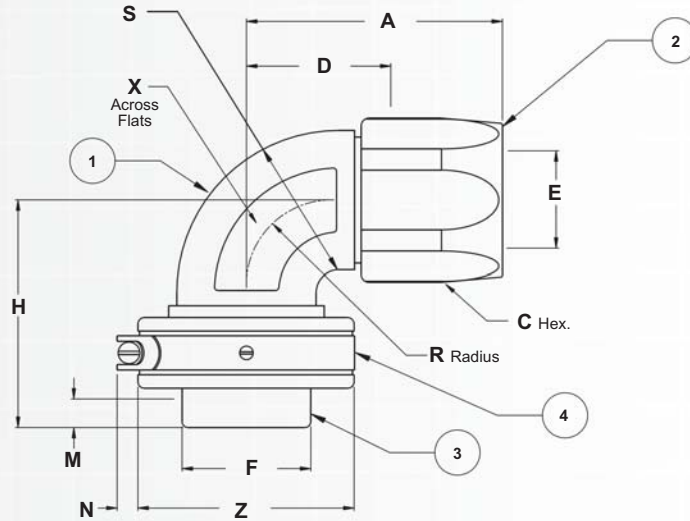
Description	Req'd per Ass'y	2032	2432	3232	3240	4048	Material
① Nipple	1	C19188	C19189	--	C19190	C19191	Bronze
② Socket	1	C18811	C18811	--	C18822	C17901	Brass
③ Tailpiece Ass'y	1	TP-1.25MSB	TP-1.5MSB	--	TP-2MSB	TP-2.5MSB	Bronze
④ Clamp Ass'y	1	B-CLMP-1.25SB	B-CLMP-1.5S	--	B-CLMP-2S	B-CLMP-2.5S	Bronze

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.

End Fitting - 90° - Female Sil-Braze Split Clamp to Hose

Equal to Aeroquip P/N FC9426-66

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	A	C	D	E	F	H	M	N	R	S	X	Z
90ELB-B1488ELF-2032	1-1/4"	3.89	2.44	2.05	1.69	1.66	3.71	.50	.39	1.62	2.44	2.25	3.00
90ELB-B1488ELF-2432	1-1/2"	3.59	2.44	2.05	1.69	1.90	3.80	.62	.39	1.62	2.44	2.25	3.31
90ELB-B1488ELF-3240	2"	4.39	3.25	2.48	2.12	2.38	4.23	.66	.39	1.88	3.00	2.75	4.00
90ELB-B1488ELF-4048	2-1/2"	4.61	3.88	2.70	2.69	2.88	4.52	.78	.39	2.09	3.50	3.19	4.42

Components

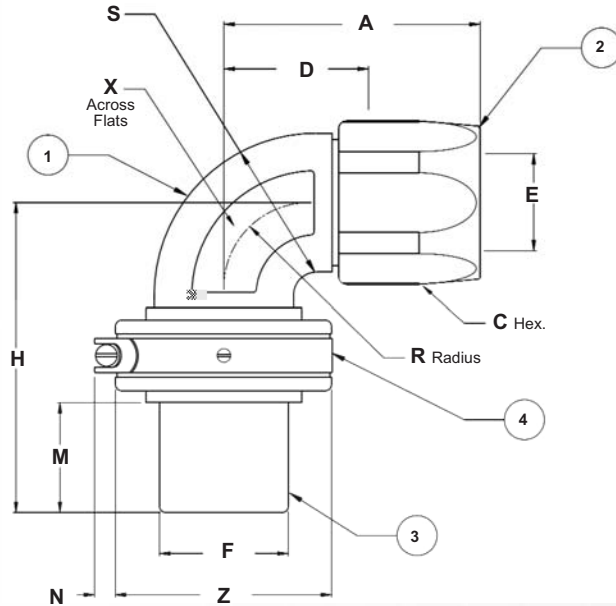
Description	Req'd per Ass'y	2032	2432	3240	4048	Material
① Elbow	1	C19196	C19197	C19198	C19199	Bronze
② Socket	1	C18811	C18811	C18822	C17901	Brass
③ Tailpiece Ass'y	1	TP-1.25FSB	TP-1.5FSB	TP-2FSB	TP-2.5FSB	Bronze
④ Clamp Ass'y	1	B-CLMP-1.25S	B-CLMP-1.5S	B-CLMP-2S	B-CLMP-2.5S	Bronze

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.

End Fitting - 90° - Male Sil-Braze Split Clamp to Hose

Equal to Aeroquip P/N FC9425-66

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	A	C	D	E	F	H	M	N	R	S	X	Z
90ELB-B1488ELM-2032	1-1/4"	3.89	2.44	2.05	1.69	1.66	4.18	1.12	.39	1.62	2.44	2.25	3.00
90ELB-B1488ELM-2432	1-1/2"	3.59	2.44	2.05	1.69	1.90	4.30	1.25	.39	1.62	2.44	2.25	3.31
90ELB-B1488ELM-3240	2"	4.39	3.25	2.48	2.12	2.38	4.76	1.31	.39	1.88	3.00	2.75	4.00
90ELB-B1488ELM-4048	2-1/2"	4.61	3.88	2.70	2.69	2.88	4.71	1.12	.39	2.09	3.50	3.19	4.42

Components

Description	Req'd per Ass'y	2032	2432	3240	4048	Material
① Elbow	1	C19196	C19197	C19198	C19199	Bronze
② Socket	1	C18811	C18811	C18822	C17901	Brass
③ Tailpiece Ass'y	1	TP-1.25MSB	TP-1.5MSB	TP-2MSB	TP-2.5MSB	Bronze
④ Clamp Ass'y	1	B-CLMP-1.25S	B-CLMP-1.5S	B-CLMP-2S	B-CLMP-2.5S	Bronze

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.

Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 4-191302

MIL-F-24787/5,
Type D, Group VIII

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

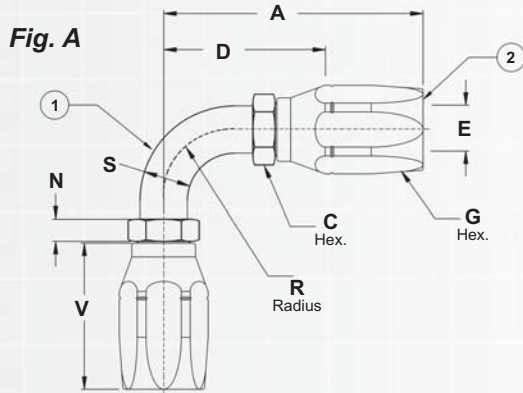


Fig. A Dimensions

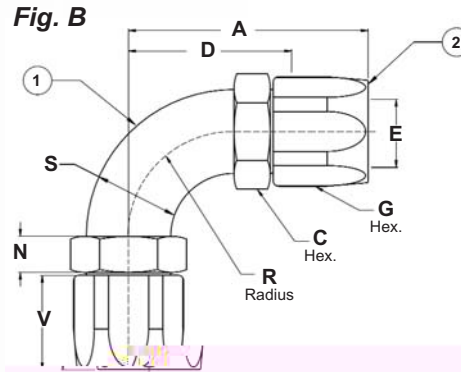


Fig. B Dimensions

Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-1488D-0606	3/8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.2
90ELB-1488D-0808	1/2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.4
90ELB-1488D-1010	5/8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.6
90ELB-1488D-1212	3/4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.9

Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-1488D-1616	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.3
90ELB-1488D-2020	1-1/4"	4.27	1.62	2.91	1.05	1.75	.70	1.75	1.25	1.75	1.8
90ELB-1488D-2424	1-1/2"	4.65	1.81	3.19	1.28	1.94	.74	2.00	1.50	1.84	2.3
90ELB-1488D-3232	2"	5.68	2.38	3.84	1.75	2.44	.86	2.50	2.00	2.25	3.2

Components Fig. A

Description	Req'd per Ass'y	0606	0808	1010	1212	Material
① Elbow Ass'y	1	C19104	C19105	C19106	C19107	Monel
② Socket	2	C18986-2	C18648-2	C18987-2	C18988-2	Monel

Components Fig. B

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Elbow Ass'y	1	C19108	C19109	C19110	C19111	See Below
Nipple	2	C19265	B19266	B19267	B19268	Monel
Elbow	1	B18874-1	B18874-2	B18874-3	B18874-4	Copper Nickel
② Socket	2	C18667-2	C18703-2	C18990-2	C18662	Monel

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.



Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 93-191302

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

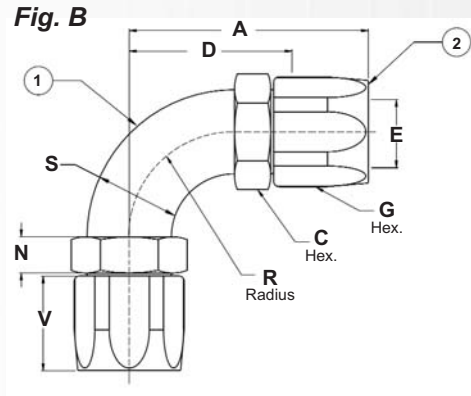
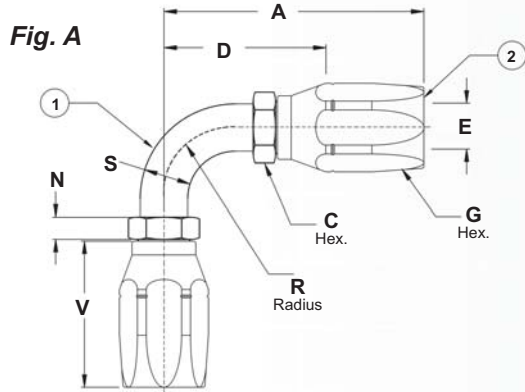


Fig. A Dimensions

Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-BMC1488D-0606	3/8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.2
90ELB-BMC1488D-0808	1/2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.4
90ELB-BMC1488D-1010	5/8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.6
90ELB-BMC1488D-1212	3/4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.9

Fig. B Dimensions

Part Number	IPS Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-BMC1488D-1616	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.30

Components Fig. A

Description	Req'd per Ass'y	0606	0808	1010	1212	Material
① Elbow Ass'y	1	C19104	C19105	C19106	C19107	Monel
② Socket	2	C18986-1	C18648-1	C18987-1	C18988-1	Brass

Components Fig. B

Description	Req'd per Ass'y	1616	Material
① Elbow Ass'y	1	C19108	See Below
Nipple	2	C19265	Monel
Elbow	1	B18874-1	Copper Nickel
② Socket	2	C18667-1	Brass

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.

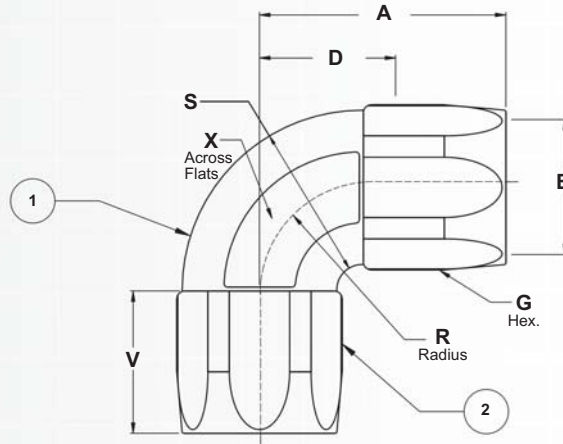
Elbow - 90° Dogleg- Hose to Hose

Equal to Aeroquip P/N 375-190093

**MIL-F-24787/5,
Type D, Group VIII**

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

Fittings



Part Number	I.P.S. Size	A	D	E	G	R	S	V	X	Est. Wt. Lbs.
90ELB-MB1488D-1616	1"	2.80	1.53	.75	1.44	1.12	1.25	1.66	1.19	1.2
90ELB-MB1488D-2020	1-1/4"	2.98	1.62	1.00	1.75	1.22	1.62	1.75	1.44	1.8
90ELB-MB1488D-2424	1-1/2"	3.24	1.78	1.16	1.94	1.38	1.81	1.84	1.69	2.3
90ELB-MB1488D-3232	2"	3.89	2.05	1.69	2.44	1.62	2.44	2.25	2.25	3.2
90ELB-MB1488D-4040	2-1/2"	4.39	2.48	2.12	3.25	1.88	3.00	2.50	2.75	5.6
90ELB-MB1488D-4848	3"	4.70	2.80	2.69	3.88	2.19	3.50	2.50	3.19	10.4

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Components

Description	Req'd per Ass'y	1616	2020	2424	Material
① Elbow	1	C18121	C19007	C19012	Bronze
② Socket	2	C18667-2	C18703-2	C18990-2	Monel

Description	Req'd per Ass'y	3232	4040	4848	Material
① Elbow	1	C18804	C19025	C18117	Bronze
② Socket	2	C18662	C18991	C18992	Monel

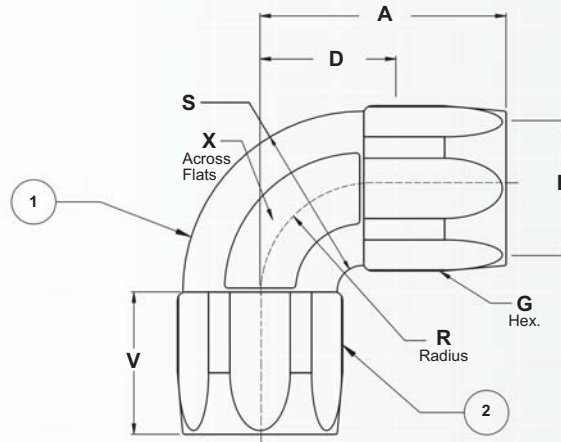
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 66-190093

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580



Part Number	I.P.S. Size	A	D	E	G	R	S	V	X	Est. Wt. Lbs.
90ELB-B1488D-1616	1"	2.80	1.53	.75	1.44	1.12	1.25	1.66	1.19	1.2
90ELB-B1488D-2020	1-1/4"	2.98	1.62	1.00	1.75	1.22	1.62	1.75	1.44	1.8
90ELB-B1488D-2424	1-1/2"	3.24	1.78	1.16	1.94	1.38	1.81	1.84	1.69	2.3
90ELB-B1488D-3232	2"	3.89	2.05	1.69	2.44	1.62	2.44	2.25	2.25	3.2
90ELB-B1488D-4040	2-1/2"	4.39	2.48	2.12	3.25	1.88	3.00	2.50	2.75	5.6
90ELB-B1488D-4848	3"	4.70	2.80	2.69	3.88	2.19	3.50	2.50	3.19	10.4

Components

Description	Req'd per Ass'y	1616	2020	2424	Material
① Elbow	1	C18121	C19007	C19012	Bronze
② Socket	2	C18667-1	C18703-1	C18990-1	Brass

Description	Req'd per Ass'y	3232	4040	4848	Material
① Elbow	1	C18804	C19025	C18117	Bronze
② Socket	2	C18811	C18822	C17901	Brass

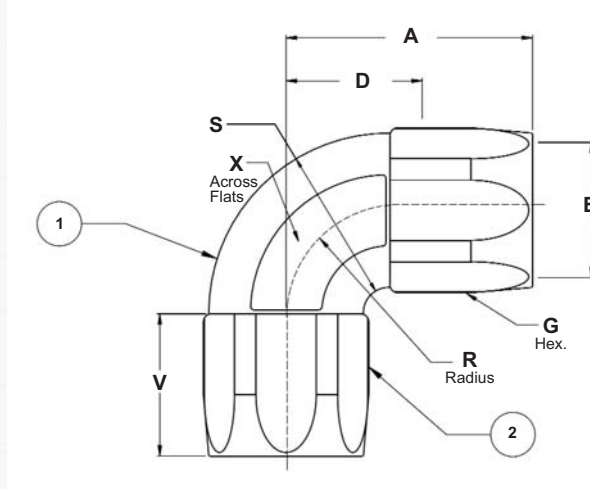
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Elbow - 90° - Hose to Hose

Equal to Aeroquip P/N 412-190093

Use with the following hose: Synthetic yarn and wire reinforced hoses i.a.w. MIL-H-24136/3, MIL-H-24135/10/12, e.g. HS P/N 2580

Fittings



Part Number	I.P.S. Size	A	D	E	G	R	S	V	X	Est. Wt. Lbs.
90ELB-MSS1488D-1616	1"	2.80	1.53	.75	1.44	1.12	1.25	1.66	1.19	1.2
90ELB-MSS1488D-2020	1-1/4"	2.98	1.62	1.00	1.75	1.22	1.62	1.75	1.44	1.8
90ELB-MSS1488D-3232	2"	3.89	2.05	1.69	2.44	1.62	2.44	2.25	2.25	3.3
90ELB-MSS1488D-4040	2-1/2"	4.39	2.48	2.12	3.25	1.88	3.00	2.50	2.75	5.8

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Components

Description	Req'd per Ass'y	1616	2020	3232	4040	Material
① Elbow	1	C19249	C19250	C19251	C19252	Stainless Steel
② Socket	2	C18667-2	C18703-2	C18662	C18991	Monel

All Dimensions are in Inches.
Dimensional information is for reference only.
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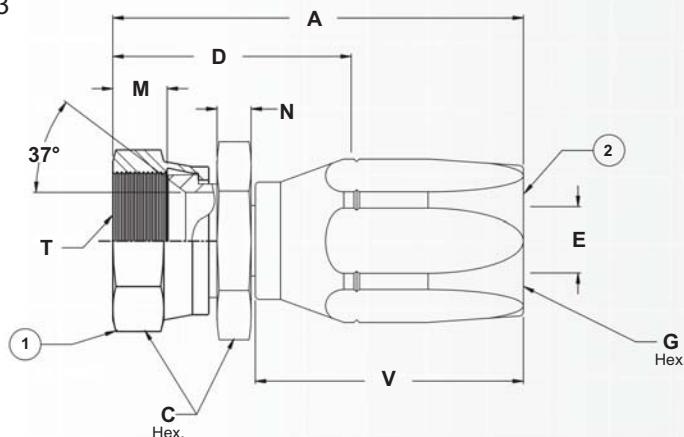
End Fitting - Straight - S.A.E. 37° Female Flare Swivel to Hose

Equal to Aeroquip P/N 4-4721

MIL-F-24787/2,

Type A, Group I

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	Hose I.D.	T Thread CL-2B	A (Max.)	C (Nom.)	D	E	G (Nom.)	M (Ref.)	N	V	Est. Wt. Lbs.
EF-1600A-0404	1/4"	7/16"-20	2.75	.56	1.41	.17	1.00	.37	.22	1.73	.22
EF-1600A-0504	1/4"	1/2"-20	2.75	.63	1.49	.17	1.00	.40	.25	1.73	.26
EF-1600A-0604	1/4"	9/16"-18	3.00	.69	1.56	.17	1.25	.40	.28	1.73	.35
EF-1600A-0606	3/8"	9/16"-18	3.00	.69	1.51	.31	1.25	.40	.28	1.92	.40
EF-1600A-0806	3/8"	3/4"-16	3.21	.88	1.64	.31	1.25	.44	.31	1.92	.47
EF-1600A-0808	1/2"	3/4"-16	3.50	.88	1.68	.39	1.50	.44	.31	2.01	.53
EF-1600A-1008	1/2"	7/8"-14	3.50	1.00	1.80	.39	1.50	.52	.31	2.01	.62
EF-1600A-1208	1/2"	1-1/16"-12	3.50	1.25	1.90	.39	1.50	.57	.38	2.47	.75
EF-1600A-1010	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-1600A-1212	3/4"	1-1/16"-12	4.00	1.25	1.99	.61	1.75	.57	.38	2.47	1.10
EF-1600A-1616	1"	1-5/16"-12	4.50	1.50	2.43	.82	2.25	.60	.38	2.95	1.72
EF-1600A-2020	1-1/4"	1-5/8"-12	5.25	2.00	2.78	1.05	2.75	.74	.38	3.42	3.38
EF-1600A-2424	1-1/2"	1-7/8"-12	5.75	2.25	2.92	1.28	3.00	.74	.38	3.34	4.10
EF-1600A-3232	2"	2-1/2"-12	6.75	2.88	3.46	1.75	3.50	.93	.50	3.70	6.27

Components

Description	Req'd per Ass'y	0404	0504	0604	0606	0806	0808	1008	Material
① Nipple Ass'y	1	C19863	C19902	C19864	C19865	C19903	C19866	C19904	Monel
② Socket	1	C19794-1	C19794-1	C19794-1	C19795-1	C19795-1	C19680-1	C19680-1	Monel

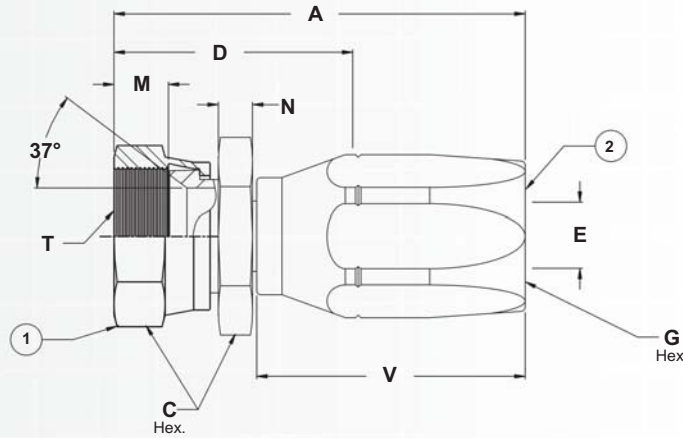
Description	Req'd per Ass'y	1208	1010	1212	1616	2020	2424	3232	Material
① Nipple Ass'y	1	C19905	C19867	C19868	C19847	C19869	C19870	C19871	Monel
② Socket	1	C19680-1	C19796-1	C19797-1	C19700-1	C19798-1	C19799-1	C19694-1	Monel

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.

End Fitting - Straight - S.A.E. 37° Female Flare Swivel to Hose

Equal to Aeroquip P/N 41-4721

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Part Number	Hose I.D.	T Thread CL-2B	A (Max.)	C (Nom.)	D	E	G (Nom.)	M (Ref.)	N	V	Est. Wt. Lbs.
EF-SM1600A-0404	1/4"	7/16"-20	2.75	.56	1.41	.17	1.00	.37	.22	1.73	.22
EF-SM1600A-0504	1/4"	1/2"-20	2.75	.63	1.49	.17	1.00	.40	.25	1.73	.26
EF-SM1600A-0604	1/4"	9/16"-18	3.00	.69	1.56	.17	1.25	.40	.28	1.73	.35
EF-SM1600A-0606	3/8"	9/16"-18	3.00	.69	1.51	.31	1.25	.40	.28	1.92	.40
EF-SM1600A-0806	3/8"	3/4"-16	3.21	.88	1.64	.31	1.25	.44	.31	1.92	.47
EF-SM1600A-0808	1/2"	3/4"-16	3.50	.88	1.68	.39	1.50	.44	.31	2.01	.53
EF-SM1600A-1008	1/2"	7/8"-14	3.50	1.00	1.80	.39	1.50	.52	.31	2.01	.62
EF-SM1600A-1208	1/2"	1-1/16"-12	3.50	1.25	1.90	.39	1.50	.57	.38	2.47	.75
EF-SM1600A-1010	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-SM1600A-1212	3/4"	1-1/16"-12	4.00	1.25	1.99	.61	1.75	.57	.38	2.47	1.10
EF-SM1600A-1616	1"	1-5/16"-12	4.50	1.50	2.43	.82	2.25	.60	.38	2.95	1.72
EF-SM1600A-2020	1-1/4"	1-5/8"-12	5.25	2.00	2.78	1.05	2.75	.74	.38	3.42	3.38
EF-SM1600A-2424	1-1/2"	1-7/8"-12	5.75	2.25	2.92	1.28	3.00	.74	.38	3.34	4.10
EF-SM1600A-3232	2"	2-1/2"-12	6.75	2.88	3.46	1.75	3.50	.93	.50	3.70	6.27

Components

Description	Req'd per Ass'y	0404	0504	0604	0606	0806	0808	1008	1208	Material
① Nipple Ass'y	1	C19863	C19902	C19864	C19865	C19903	C19866	C19904	C19905	Monel
② Socket	1	C19794-2	C19794-2	C19794-2	C19795-2	C19795-2	C19680-2	C19680-2	C19680-2	Stainless Steel

Description	Req'd per Ass'y	1010	1212	1616	2020	2424	3232	Material
① Nipple Ass'y	1	--	--	--	--	--	--	Stainless Steel
② Socket	1	--	--	--	--	--	--	Stainless Steel

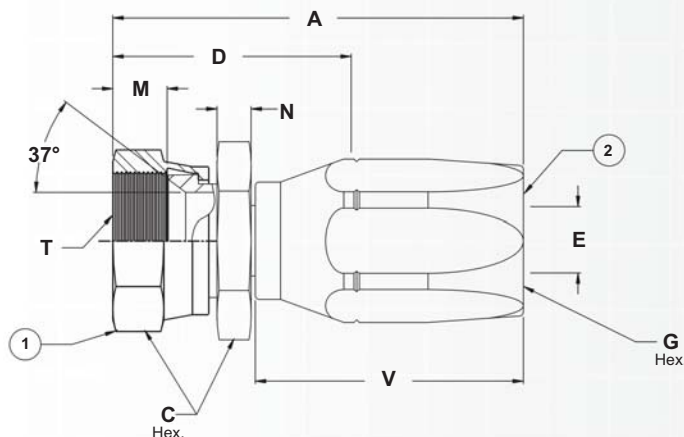
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - Straight - S.A.E. 37° Female Flare Swivel to Hose

Equal to Aeroquip P/N 259-4721

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Part Number	Hose I.D.	T Thread CL-2B	A (Max.)	C (Nom.)	D	E	G	M (Ref.)	N	V	Est. Wt. Lbs.
EF-SS1600A-0404	1/4"	7/16"-20	2.75	.56	1.41	.17	1.00	.37	.22	1.73	.22
EF-SS1600A-0504	1/4"	1/2"-20	2.75	.63	1.49	.17	1.00	.40	.25	1.73	.26
EF-SS1600A-0604	1/4"	9/16"-18	3.00	.69	1.56	.17	1.25	.40	.28	1.73	.35
EF-SS1600A-0606	3/8"	9/16"-18	3.00	.69	1.51	.31	1.25	.40	.28	1.92	.40
EF-SS1600A-0806	3/8"	3/4"-16	3.21	.88	1.64	.31	1.25	.44	.31	1.92	.47
EF-SS1600A-0808	1/2"	3/4"-16	3.50	.88	1.68	.39	1.50	.44	.31	2.01	.53
EF-SS1600A-1008	1/2"	7/8"-14	3.50	1.00	1.80	.39	1.50	.52	.31	2.01	.62
EF-SS1600A-1208	1/2"	1-1/16"-12	3.50	1.25	1.90	.39	1.50	.57	.38	2.47	.75
EF-SS1600A-1010	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-SS1600A-1212	3/4"	1-1/16"-12	4.00	1.25	1.99	.61	1.75	.57	.38	2.47	1.10
EF-SS1600A-1616	1"	1-5/16"-12	4.50	1.50	2.43	.82	2.25	.60	.38	2.95	1.72
EF-SS1600A-2020	1-1/4"	1-5/8"-12	5.25	2.00	2.78	1.05	2.75	.74	.38	3.42	3.38
EF-SS1600A-2424	1-1/2"	1-7/8"-12	5.75	2.25	2.92	1.28	3.00	.74	.38	3.34	4.10
EF-SS1600A-3232	2"	2-1/2"-12	6.75	2.88	3.46	1.75	3.50	.93	.50	3.70	6.27

Components

Description	Req'd per Ass'y	0404	0504	0604	0606	0806	0808	1008	Material
① Nipple Ass'y	1	C20433	C20434	C20435	C20436	C20441	C20442	C20443	Stainless Steel
② Socket	1	C19794-3	C19794-3	C19794-3	C19795-3	C19795-3	C19680-3	C19680-3	Stainless Steel

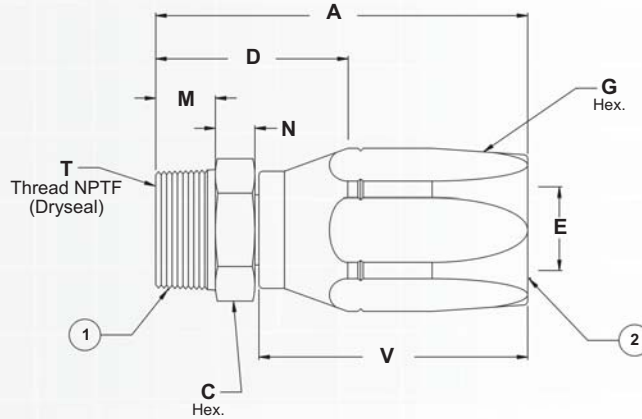
Description	Req'd per Ass'y	1208	1010	1212	1616	2020	2424	3232	Material
① Nipple Ass'y	1	C20444	C20445	C20446	C20450	C20451	C20452	C20453	Stainless Steel
② Socket	1	C19680-3	C19796-3	C19796-3	C19700-3	C1978-3	C19799-3	C19694-3	Stainless Steel

All Dimensions are in Inches.
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End Fitting - Straight - Male NPTF to Hose

Equal to Aeroquip P/N 4-4722

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Fittings

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Part Number	Hose I.D.	T Thread NPTF	A	C	D	E	G	M	N	V	Est. Wt. Lbs.
EF-1600MP-0404	1/4"	1/4"-18	2.50	.56	1.26	.17	.81	.56	.19	1.73	.26
EF-1600MP-0604	1/4"	3/8"-18	2.56	.56	1.32	.17	.81	.56	.19	1.73	.31
EF-1600MP-0606	3/8"	3/8"-18	2.75	.69	1.28	.31	1.00	.56	.25	1.92	.36
EF-1600MP-0608	1/2"	3/8"-18	2.84	.88	1.32	.39	1.12	.56	.25	2.01	.42
EF-1600MP-0808	1/2"	1/2"-14	3.09	.88	1.58	.39	1.12	.56	.25	2.01	.57
EF-1600MP-0810	5/8"	1/2"-14	3.18	.94	1.63	.50	1.25	.75	.31	2.10	.62
EF-1600MP-1212	3/4"	3/4"-14	3.61	1.06	1.74	.61	1.50	.75	.38	2.47	.75
EF-1600MP-1612	3/4"	1"-11-1/2	3.92	1.06	2.06	.61	1.50	.75	.38	2.47	1.08
EF-1600MP-1616	1"	1"-11-1/2	4.40	1.38	2.36	.82	1.75	.94	.50	2.95	1.79
EF-1600MP-2020	1-1/4"	1-1/4"-11-1/2	4.90	1.75	2.59	1.05	2.25	.97	.50	3.42	2.74
EF-1600MP-2424	1-1/2"	1-1/2"-11-1/2	4.98	2.00	2.74	1.28	2.50	1.00	.62	3.34	3.31
EF-1600MP-3232	2"	2"-11-1/2	5.50	2.50	3.05	1.75	3.00	1.03	.75	3.70	5.21

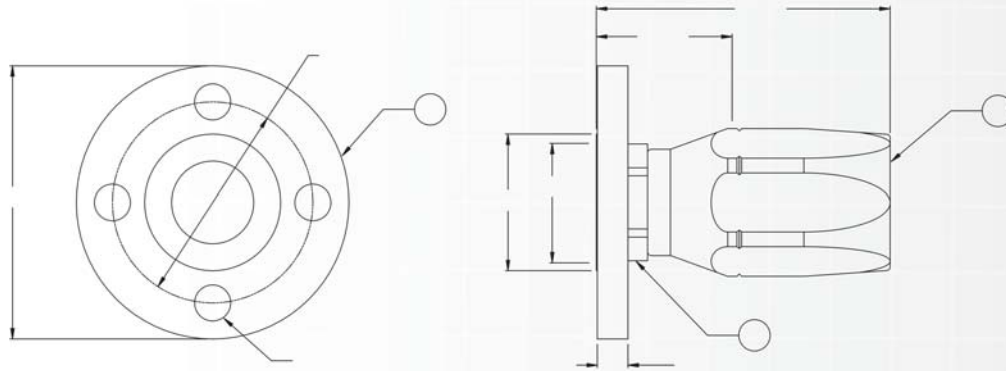
Components

Description	Req'd per Ass'y	0404	0604	0606	0608	0808	0810	Material
① Nipple	1	C19957-1	C20385-1	C19958-1	C20247-1	C19959-1	C19960-1	Monel
② Socket	1	C19794-1	C19794-1	C19795-1	C19680-1	C19680-1	C19796-1	Monel

Description	Req'd per Ass'y	1212	1612	1616	2020	2424	3232	Material
① Nipple	1	C19961-1	C20386-1	C19962-1	C19963-1	C19964-1	C19965-1	Monel
② Socket	1	C19797-1	C19797-1	C19700-1	C19798-1	C19799-1	C19694-1	Monel

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.





Description	Req'd per Ass'y	0812	0816	1216	1220	1616	1620	Material
Nipple	1	C19839-1	C20022	C19840-1	C20023	C20024	C19841-1	Monel
Socket	1	C19797-1	C19700-1	C19700-1	C19798-1	C19700-1	C19798-1	Monel
Flange	1	C19522	C19522	C19525	C19525	C19526	C19526	Bronze

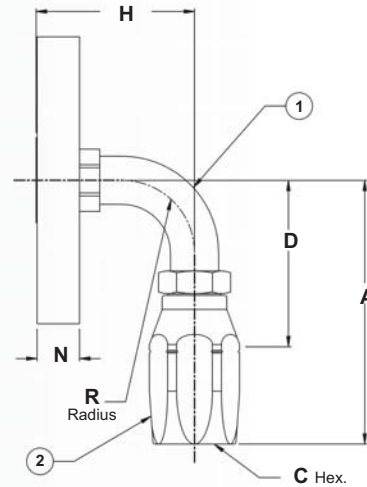
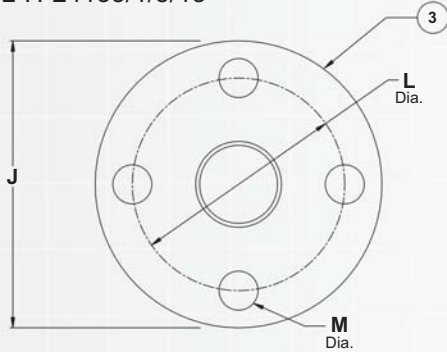
All Dimensions are in Inches.
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End Fitting - 90° - Flange to Hose

Equal to Aeroquip P/N FC9224-463

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13

150/400Lb. Flange Per MIL-PRF-20042



Fittings

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Part Number	I.P.S. Size	No. of Bolt Holes	M	A	C	D	H	J	L	N	R	Est. Wt. Lbs.
90EF-1600B5-0812	1/2"	3	.56	4.52	1.50	2.65	2.19	3.56	2.44	.69	1.25	2.47
90EF-1600B5-0816	1/2"	3	.56	5.25	1.81	3.20	2.19	3.56	2.44	.69	1.25	2.78
90EF-1600B5-1216	3/4"	4	.56	5.25	1.81	3.20	2.49	3.81	2.69	.69	1.50	2.95
90EF-1600B5-1220	3/4"	4	.56	6.10	2.25	3.78	2.49	3.81	2.69	.69	1.50	3.61
90EF-1600B5-1616	1"	4	.56	5.25	1.81	3.20	2.69	4.25	3.13	.75	1.75	5.00
90EF-1600B5-1620	1"	4	.56	6.10	2.25	3.78	2.69	4.25	3.13	.75	1.75	5.75
90EF-1600B5-1624	1"	4	.56	6.31	2.50	4.09	2.69	4.25	3.13	.75	1.75	6.00
90EF-1600B5-2024	1-1/4"	4	.56	6.31	2.50	4.09	3.13	4.50	3.38	.81	2.00	7.00
90EF-1600B5-2032	1-1/4"	4	.56	7.38	3.00	4.94	3.13	4.50	3.38	.81	2.00	8.25
90EF-1600B5-2432	1-1/2"	6	.56	7.38	3.00	4.94	3.00	5.06	3.94	.81	2.50	8.75
90EF-1600B5-3232	2"	6	.56	7.38	3.00	4.94	3.35	5.06	4.44	.81	2.50	10.75

Components

Description	Req'd per Ass'y	0812	0816	1216	1220	1616	1620	Material
① Nipple	1	C19857	C20026	C19858	C20027	C20028	C19859	Monel/Cuni 0812 - Monel Only
② Socket	1	C19797-1	C19700-1	C19700-1	C19798-1	C19700-1	C19798-1	Monel
③ Flange	1	C19522	C19522	C19525	C19525	C19526	C19526	Bronze

Description	Req'd per Ass'y	1624	2024	2032	2432	3232	Material
① Nipple	1	C20029	C19860	C19861	C19861	C19862	Monel/Cuni
② Socket	1	C19799-1	C19799-1	C19694-1	C19694-1	C19694-1	Monel
③ Flange	1	C19526	C19527	C19527	C19528	C17765	Bronze

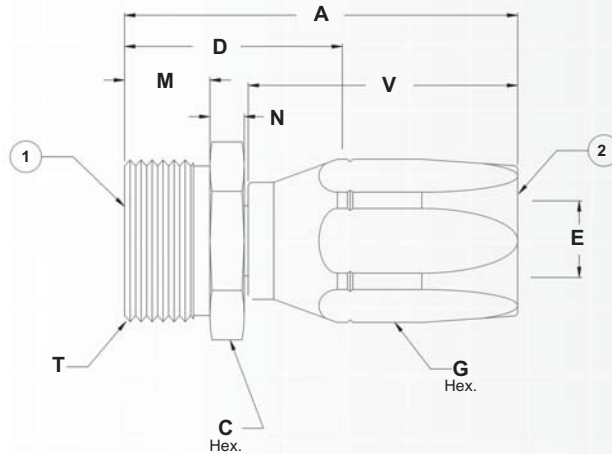
All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - Straight - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 41-190909

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	T Thread CL-3A	A	C (Nom.)	D	E	G	M	N	V	Est. Wt. Lbs.
EF-SM1600C-0204	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
EF-SM1600C-0406	1/4"	1-3/16"-12	2.82	1.25	1.34	.31	1.25	.62	.25	1.92	.54
EF-SM1600C-0606	3/8"	1-3/8"-12	2.96	1.44	1.45	.31	1.25	.62	.31	1.92	.62
EF-SM1600C-0608	3/8"	1-3/8"-12	2.96	1.44	1.45	.39	1.50	.62	.31	2.01	.76
EF-SM1600C-0812	1/2"	1-3/4"-12	3.49	1.81	1.62	.50	1.75	.62	.38	2.47	1.47
EF-SM1600C-1216	3/4"	2"-12	4.09	2.12	2.04	.62	2.25	.62	.50	2.95	2.34
EF-SM1600C-1616	1"	2-5/16"-12	4.34	2.38	2.28	.82	2.25	.75	.62	2.95	2.81
EF-SM1600C-2016	1-1/4"	2-3/4"-12	4.34	2.88	2.28	.82	2.25	.75	.62	2.95	3.56
EF-SM1600C-1620	1"	2-5/16"-12	4.80	2.38	2.48	.81	2.75	.75	.62	3.42	4.03
EF-SM1600C-2020	1-1/4"	2-3/4"-12	4.80	2.88	2.48	.81	2.75	.75	.62	3.42	4.75
EF-SM1600C-2024	1-1/4"	2-3/4"-12	4.72	2.88	2.48	1.21	3.00	.75	.62	3.34	5.50
EF-SM1600C-2432	1-1/2"	3-1/16"-12	5.34	3.12	2.90	1.39	3.50	.88	.75	3.70	7.38
EF-SM1600C-3232	2"	3-3/4"-12	5.34	3.88	2.90	1.75	3.50	.88	.75	3.70	9.64

Components

Description	Req'd per Ass'y	0204	0406	0606	0608	0812	1216	1616	Material
① Nipple	1	C19802-1	C19803-1	C19906-1	C19804-1	C19805-1	C19807-1	C19808-1	Monel
② Socket	1	C19794-2	C19795-2	C19795-2	C19680-2	C19797-2	C19700-2	C19700-2	Steel

Description	Req'd per Ass'y	2016	1620	2020	2024	2432	3232	Material
① Nipple	1	C19908-1	C19809-1	C19909-1	C19810-1	C19811-1	C19812	Monel
② Socket	1	C19700-2	C19798-2	C19798-2	C19799-2	C19694-2	C19694-2	Steel

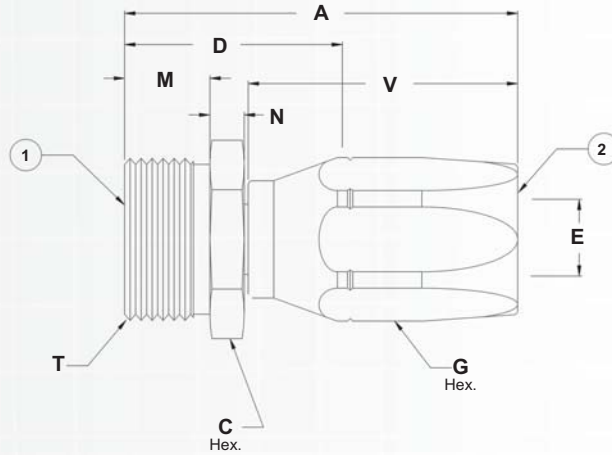
All Dimensions are in Inches.
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End Fitting - Straight - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 4-190909

**MIL-F-24787/3,
Type C, Group I**

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	T Thread CL-3A	A	C (Nom.)	D	E	G	M	N	V	Est. Wt. Lbs.
EF-1600C-0204	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
EF-1600C-0406	1/4"	1-3/16"-12	2.82	1.25	1.34	.31	1.25	.62	.25	1.92	.54
EF-1600C-0606	3/8"	1-3/8"-12	2.96	1.44	1.45	.31	1.25	.62	.31	1.92	.62
EF-1600C-0608	3/8"	1-3/8"-12	2.96	1.44	1.45	.39	1.50	.62	.31	2.01	.76
EF-1600C-0812	1/2"	1-3/4"-12	3.49	1.81	1.62	.50	1.75	.62	.38	2.47	1.47
EF-1600C-1216	3/4"	2"-12	4.09	2.12	2.04	.62	2.25	.62	.50	2.95	2.34
EF-1600C-1616	1"	2-5/16"-12	4.34	2.38	2.28	.82	2.25	.82	.62	2.95	2.81
EF-1600C-2016	1-1/4"	2-3/4"-12	4.34	2.88	2.28	.82	2.25	.82	.62	2.95	3.56
EF-1600C-1620	1"	2-5/16"-12	4.80	2.38	2.48	.81	2.75	.81	.62	3.42	4.03
EF-1600C-2020	1-1/4"	2-3/4"-12	4.80	2.88	2.48	.81	2.75	.81	.62	3.42	4.75
EF-1600C-2024	1-1/4"	2-3/4"-12	4.72	2.88	2.48	1.21	3.00	1.21	.62	3.34	5.50
EF-1600C-2432	1-1/2"	3-1/16"-12	5.34	3.12	2.90	1.39	3.50	1.39	.75	3.70	7.38
EF-1600C-3232	2"	3-3/4"-12	5.34	3.88	2.90	1.75	3.50	1.75	.75	3.70	9.64

Components

Description	Req'd per Ass'y	0204	0406	0606	0608	0812	1216	1616	Material
① Nipple	1	C19802-1	C19803-1	C19906-1	C19804-1	C19805-1	C19807-1	C19808-1	Monel
② Socket	1	C19794-1	C19795-1	C19795-1	C19680-1	C19797-1	C19700-1	C19700-1	Monel

Description	Req'd per Ass'y	2016	1620	2020	2024	2432	3232	Material
① Nipple	1	C19908-1	C19809-1	C19909-1	C19810-1	C19811-1	C19812	Monel
② Socket	1	C19700-1	C19798-1	C19798-1	C19799-1	C19694-1	C19694-1	Monel

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.

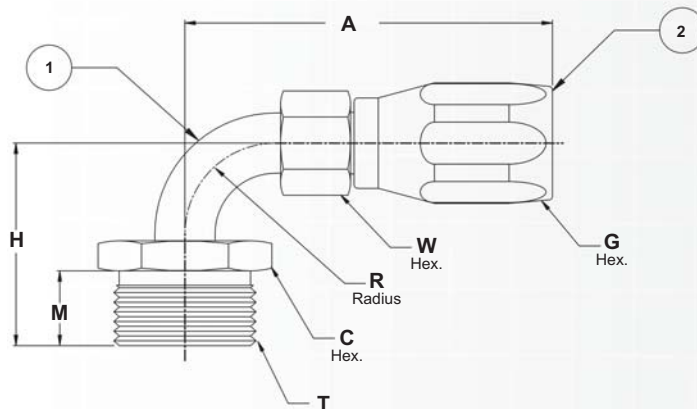


End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 4-191304

MIL-F-24787/3,
Type CL, Group I

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	T Thread CL-3A	A	C	G	H	M	R	W	Est. Wt. Lbs.
90EF-1600CL-0406	1/4"	1-3/16"-12	3.11	1.25	1.00	1.43	.62	.50	.81	.62
90EF-1600CL-0608	3/8"	1-3/8"-12	3.44	1.44	1.12	1.74	.62	.75	.81	.92
90EF-1600CL-0812	1/2"	1-3/4"-12	4.52	1.81	1.50	2.31	.62	1.25	1.20	1.71
90EF-1600CL-1216	3/4"	2"-12	5.25	2.12	1.81	2.68	.62	1.50	1.44	2.87
90EF-1600CL-1616	1"	2-5/16"-12	5.25	2.38	1.81	2.92	.75	1.50	1.44	3.44
90EF-1600CL-1620	1"	2-5/16"-12	6.10	2.38	2.25	3.17	.75	1.75	1.62	5.03
90EF-1600CL-2020	1-1/4"	2-3/4"-12	6.10	2.88	2.25	3.17	.77	1.75	1.62	5.03
90EF-1600CL-2024	1-1/4"	2-3/4"-12	6.32	2.88	2.50	3.42	.75	2.00	1.88	6.02
90EF-1600CL-2432	1-1/2"	3-1/16"-12	7.38	3.12	3.00	4.05	.88	2.50	2.50	8.49
90EF-1600CL-3232	2"	3-3/4"-12	7.38	3.88	3.00	4.05	.88	2.50	2.50	10.64

Components

Description	Req'd per Ass'y	0406	0608	0812	1216	1616	Material
① Elbow Ass'y	1	C19910	C19911	C19912	C19914	C19915	Monel* Monel/Cuni**
② Socket	1	C19795-1	C19680-1	C19797-1	C19700-1	C19700-1	Monel

Description	Req'd per Ass'y	1620	2020	2024	2432	3232	Material
① Elbow Ass'y	1	C19916	C19917	C19918	C19919	C19920	Monel/Cuni
② Socket	1	C19798-1	C19798-1	C19799-1	C19694-1	C19694-1	Monel

* Sizes 1/4" thru 1/2" is Monel.

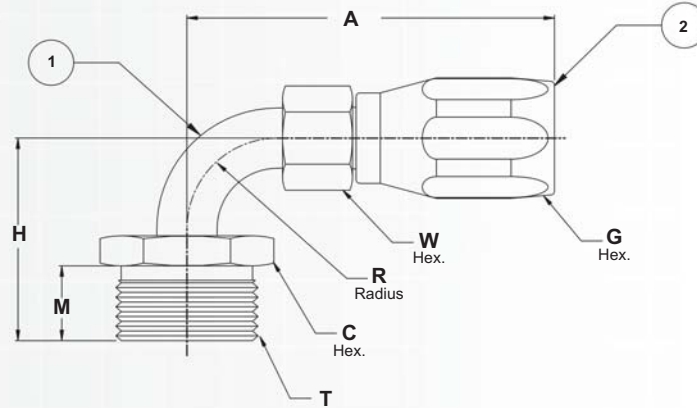
** Sizes 3/4" thru 2" is Monel/Cuni.

All Dimensions are in Inches.
Dimensional information is for reference only.
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End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 41-191304

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	T Thread CL-3A	A	C	G	H	M	R	W	Est. Wt. Lbs.
90EF-SM1600CL-0406	1/4"	1-3/16"-12	3.11	1.25	1.00	1.43	.62	.50	.81	.62
90EF-SM1600CL-0608	3/8"	1-3/8"-12	3.44	1.44	1.12	1.74	.62	.75	.81	.92
90EF-SM1600CL-0812	1/2"	1-3/4"-12	4.52	1.81	1.50	2.31	.62	1.25	1.20	1.71
90EF-SM1600CL-1216	3/4"	2"-12	5.25	2.12	1.81	2.68	.62	1.50	1.44	2.87
90EF-SM1600CL-1616	1"	2-5/16"-12	5.25	2.38	1.81	2.92	.75	1.50	1.44	3.44
90EF-SM1600CL-1620	1"	2-5/16"-12	6.10	2.38	2.25	3.17	.75	1.75	1.62	5.03
90EF-SM1600CL-2020	1-1/4"	2-3/4"-12	6.10	2.88	2.25	3.17	.77	1.75	1.62	5.03
90EF-SM1600CL-2024	1-1/4"	2-3/4"-12	6.32	2.88	2.50	3.42	.75	2.00	1.88	6.02
90EF-SM1600CL-2432	1-1/2"	3-1/16"-12	7.38	3.12	3.00	4.05	.88	2.50	2.50	8.49
90EF-SM1600CL-3232	2"	3-3/4"-12	7.38	3.88	3.00	4.05	.88	2.50	2.50	10.64

Components

Description	Req'd per Ass'y	0406	0608	0812	1216	1616	Material
① Elbow Ass'y	1	C19910	C19911	C19912	C19914	C19915	Monel* Monel/Cuni**
② Socket	1	C19795-2	C19680-2	C19797-2	C19700-2	C19700-2	Steel

Description	Req'd per Ass'y	1620	2020	2024	2432	3232	Material
① Elbow Ass'y	1	C19916	C19917	C19918	C19919	C19920	Monel/Cuni
② Socket	1	C19798-2	C19798-2	C19799-2	C19694-2	C19694-2	Steel

* Sizes 1/4" thru 1/2" is Monel.

** Sizes 3/4" thru 2" is Monel/Cuni.

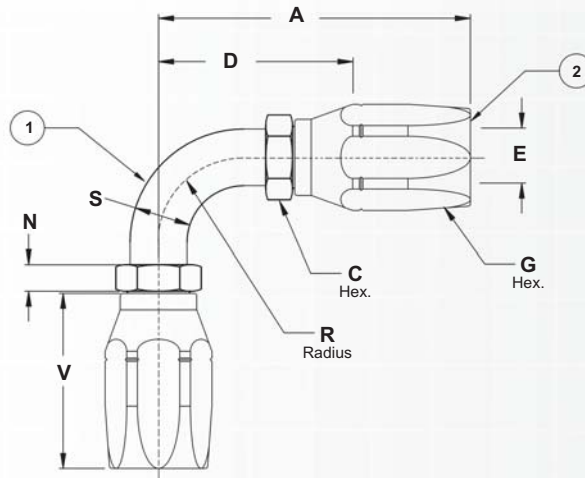
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 41-191305

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-SM1600D-0606	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	.38	1.92	.76
90ELB-SM1600D-0808	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	.50	2.01	1.12
90ELB-SM1600D-1212	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	.75	2.47	2.03
90ELB-SM1600D-1616	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	1.00	2.95	3.77
90ELB-SM1600D-2020	1-1/4"	6.09	1.62	3.78	1.05	2.25	.86	1.75	1.25	3.42	6.31
90ELB-SM1600D-2424	1-1/2"	6.32	1.88	4.09	1.28	2.50	.86	2.00	1.50	3.34	7.85
90ELB-SM1600D-3232	2"	7.38	2.50	4.94	1.75	3.00	1.12	2.50	2.00	3.70	11.43

Components

Description	Req'd per Ass'y	0606	0808	1212	Material
① Elbow Ass'y	1	C19851	C19852	C19853	Monel
② Socket	2	C19795-2	C19680-2	C19797-2	Steel

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Elbow Ass'y	1	C20244	C19854	C19855	C19856	Monel/Cuni
② Socket	2	C19700-2	C19798-2	C19799-2	C19694-2	Steel

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.

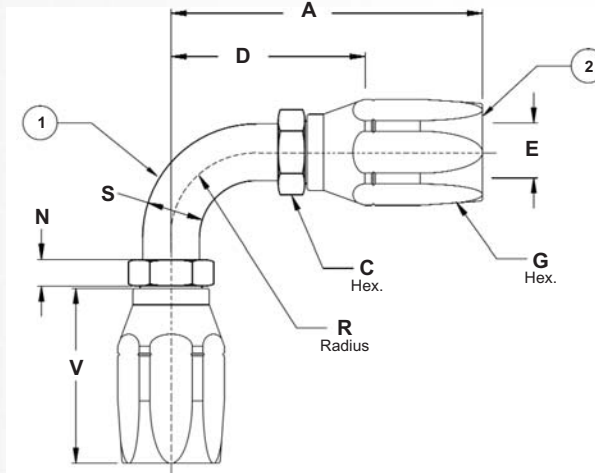
Elbow - 90° Dogleg- Hose to Hose

Equal to Aeroquip P/N 4-191305

**MIL-F-24787/5,
Type D, Group I**

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13

Fittings



Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-1600D-0606	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	.38	1.92	.76
90ELB-1600D-0808	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	.50	2.01	1.12
90ELB-1600D-1212	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	.75	2.47	2.03
90ELB-1600D-1616	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	1.00	2.95	3.77
90ELB-1600D-2020	1-1/4"	6.09	1.62	3.78	1.05	2.25	.86	1.75	1.25	3.42	6.31
90ELB-1600D-2424	1-1/2"	6.32	1.88	4.09	1.28	2.50	.86	2.00	1.50	3.34	7.85
90ELB-1600D-3232	2"	7.38	2.50	4.94	1.75	3.00	1.12	2.50	2.00	3.70	11.43

Components

Description	Req'd per Ass'y	0606	0808	1212	Material
① Elbow Ass'y	1	C19851	C19852	C19853	Monel
② Socket	2	C19795-1	C19680-1	C19797-1	Monel

Description	Req'd per Ass'y	1616	2020	2424	3232	Material
① Elbow Ass'y	1	C20244	C19854	C19855	C19856	Monel/Cuni
② Socket	2	C19700-1	C19798-1	C19799-1	C19694-1	Monel

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.



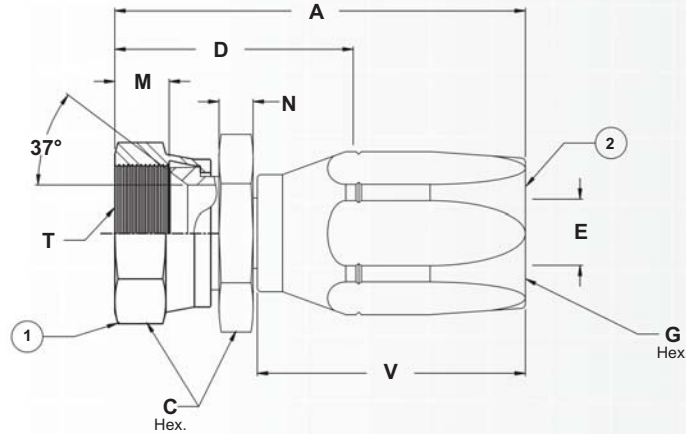
End Fitting - Straight - S.A.E. 37° Female Flare Swivel to Hose

Equal to Aeroquip P/N 4-4730

MIL-F-24787/2,

Type A, Group II

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. Lbs.
EF-1602A-0606	3/8"	9/16"-18	2.98	.69	1.51	.31	1.00	.40	.28	1.92	.40
EF-1602A-0808	1/2"	3/4"-16	3.20	.88	1.68	.39	1.12	.44	.31	2.01	.53
EF-1602A-1008	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.12	.52	.31	2.01	.62
EF-1602A-1010	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-1602A-1212	3/4"	1-1/16"-12	4.00	1.25	1.99	.61	1.50	.57	.38	2.47	1.10
EF-1602A-1616	1"	1-5/16"-12	4.49	1.50	2.43	.82	1.81	.60	.38	2.95	1.72

Components

Description	Req'd per Ass'y	0606	0808	1008	Material
① Nipple Ass'y	1	C19865	C19866	C19904	Monel
② Socket	1	C19845-1	C19699-1	C19699-1	Monel

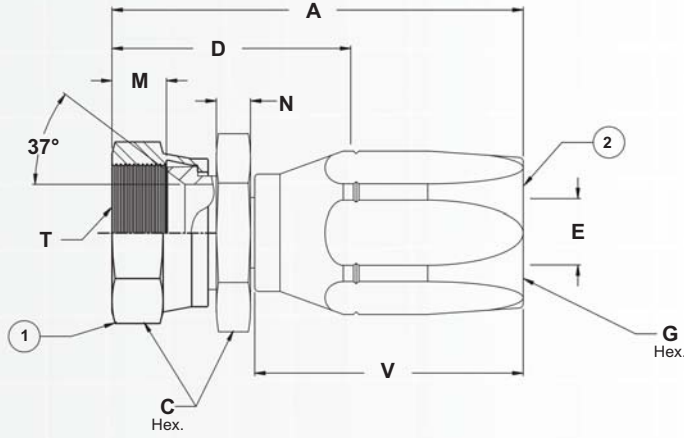
Description	Req'd per Ass'y	1010	1212	1616	Material
① Nipple Ass'y	1	C19867	C19868	C19847	Monel
② Socket	1	C19926-1	C19846-1	C19700-1	Monel

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.

End Fitting - Straight - S.A.E. 37° Female Flare Swivel to Hose

Equal to Aeroquip P/N 41-4730

Use with the following hose: Wire reinforced hoses i.a.w. MIL-H-24135/1/5/13



Fittings

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Part Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. Lbs.
EF-SM1602A-0606	3/8"	9/16"-18	2.98	.69	1.51	.31	1.00	.40	.28	1.92	.40
EF-SM1602A-0808	1/2"	3/4"-16	3.20	.88	1.68	.39	1.12	.44	.31	2.01	.53
EF-SM1602A-1008	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.12	.52	.31	2.01	.62
EF-SM1602A-1010	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-SM1602A-1212	3/4"	1-1/16"-12	4.00	1.25	1.99	.61	1.50	.57	.38	2.47	1.10
EF-SM1602A-1616	1"	1-5/16"-12	4.49	1.50	2.43	.82	1.81	.60	.38	2.95	1.72

Components

Description	Req'd per Ass'y	0606	0808	1008	Material
① Nipple Ass'y	1	C19865	C19866	C19904	Monel
② Socket	1	C19845-2	C19699-2	C19699-2	Steel

Description	Req'd per Ass'y	1010	1212	1616	Material
① Nipple Ass'y	1	C19867	C19868	C19847	Monel
② Socket	1	C19926-2	C19846-2	C19700-2	Steel

All Dimensions are in Inches.
Dimensional information is for reference only.
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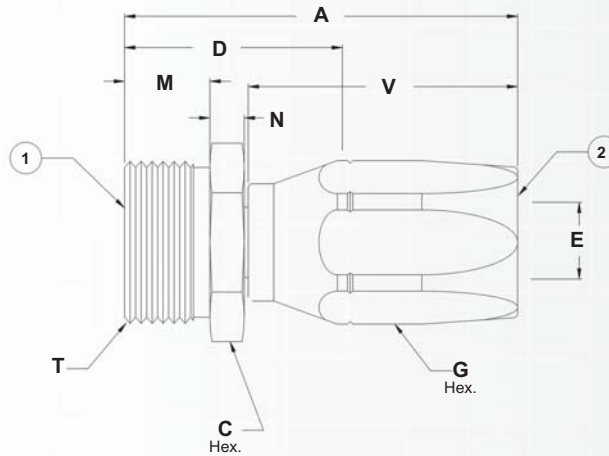


End Fitting - Straight - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 4-190885

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13

MIL-F-24787/3,
Type C, Group II



Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. Lbs.
EF-1602C-0406	1/4"	1-3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.54
EF-1602C-0606	3/8"	1-3/8"-12	2.91	1.44	1.45	.31	1.00	.62	.31	1.92	.62
EF-1602C-0608	3/8"	1-3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.76
EF-1602C-0812	1/2"	1-3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.47
EF-1602C-1212	3/4"	2"-12	3.61	2.12	1.74	.61	1.50	.62	.50	2.47	1.77
EF-1602C-1216	3/4"	2"-12	4.09	2.12	2.04	.62	1.75	.62	.50	2.95	1.57
EF-1602C-1616	1"	2-5/16"-12	4.34	2.38	2.28	.82	1.75	.75	.62	2.95	2.78

Components

Description	Req'd per Ass'y	0406	0606	0608	0812	Material
① Nipple	1	C19803-1	C19906-1	C19804-1	C19805-1	Monel
② Socket	1	C19845-1	C19845-1	C19699-1	C19846-1	Monel

Description	Req'd per Ass'y	1212	1216	1616	Material
① Nipple	1	C19806-1	C19807-1	C19808-1	Monel
② Socket	1	C19846-1	C19700-1	C19700-1	Monel

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.

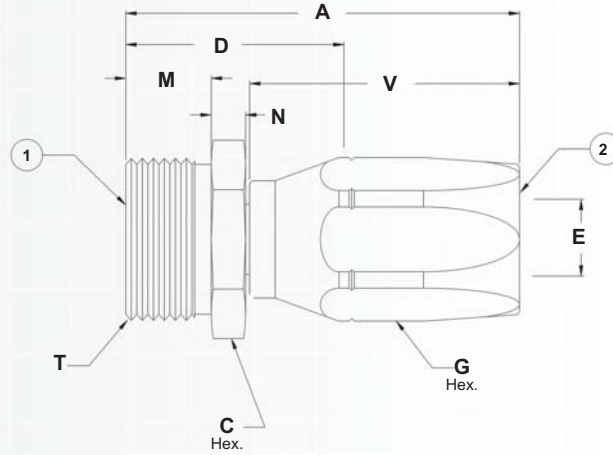
End Fitting - Straight - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 41-190885

Use with the following hose: Wire reinforced hoses

i.a.w. MIL-H-24135/1/5/13

Fittings



Part Number	IPS Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. Lbs.
EF-SM1602C-0406	1/4"	1-3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.54
EF-SM1602C-0606	3/8"	1-3/8"-12	2.91	1.44	1.45	.31	1.00	.62	.31	1.92	.62
EF-SM1602C-0608	3/8"	1-3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.76
EF-SM1602C-0812	1/2"	1-3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.47
EF-SM1602C-1212	3/4"	2"-12	3.61	2.12	1.74	.61	1.50	.62	.50	2.47	1.77
EF-SM1602C-1216	3/4"	2"-12	4.09	2.12	2.04	.62	1.75	.62	.50	2.95	1.57
EF-SM1602C-1616	1"	2-5/16"-12	4.34	2.38	2.28	.82	1.75	.75	.62	2.95	2.78

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Components

Description	Req'd per Ass'y	0406	0606	0608	0812	Material
① Nipple	1	C19803-1	C19906-1	C19804-1	C19805-1	Monel
② Socket	1	C19845-2	C19845-2	C19699-2	C19846-2	Steel

Description	Req'd per Ass'y	1212	1216	1616	Material
① Nipple	1	C19806-1	C19807-1	C19808-1	Monel
② Socket	1	C19846-2	C19700-2	C19700-2	Steel

All Dimensions are in Inches.
Dimensional information is for reference only.
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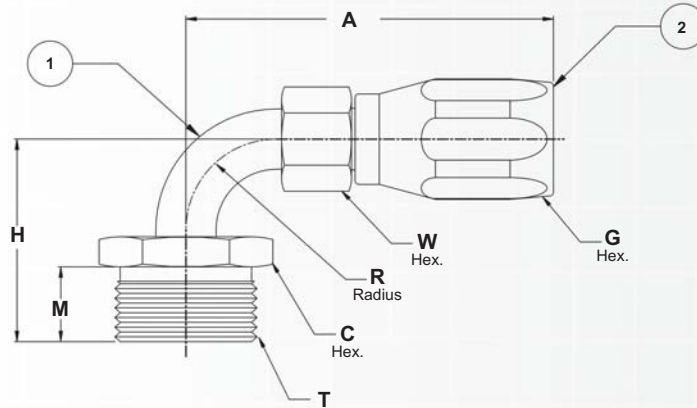


End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 4-191307

MIL-F-24787/3,
Type CL, Group II

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	IPS Size	T Thread CL-3A	A	C	G	H	R	W	Est. Wt. Lbs.
90EF-1602CL-0406	1/4"	1-3/16"-12	3.11	1.25	1.00	1.43	.50	.69	.62
90EF-1602CL-0608	3/8"	1-3/8"-12	3.44	1.44	1.12	1.74	.75	.81	.92
90EF-1602CL-0812	1/2"	1-3/4"-12	4.52	1.81	1.50	2.31	1.25	1.06	1.71
90EF-1602CL-1212	3/4"	2"-12	4.52	2.12	1.50	2.43	1.25	1.06	2.13
90EF-1602CL-1216	3/4"	2"-12	5.25	2.12	1.81	2.60	1.50	1.38	2.87
90EF-1602CL-1616	1"	2-5/16"-12	5.25	2.38	1.81	2.92	1.50	1.38	3.44

Components

Description	Req'd per Ass'y	0406	0608	0812	1212	Material
① Elbow Ass'y	1	C19910	C19911	C19912	C19913	Monel
② Socket	1	C19845-1	C19699-1	C19846-1	C19846-1	Monel

Description	Req'd per Ass'y	1216	1616	Material
① Elbow Ass'y	1	C19914	C19915	Monel/Cuni
② Socket	1	C19700-1	C19700-1	Monel

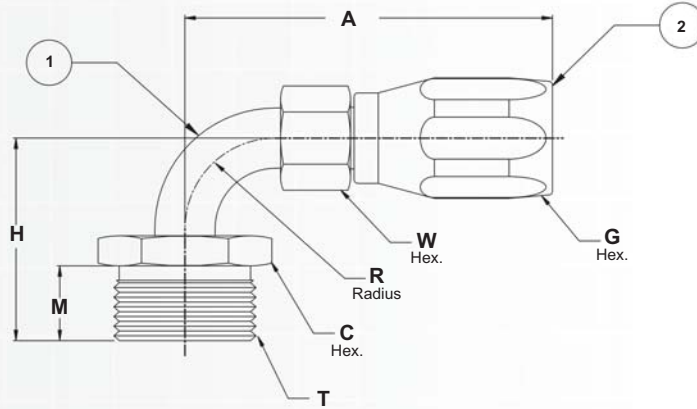
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

End Fitting - 90° - Male "O" Ring Seal to Hose

Equal to Aeroquip P/N 41-191307

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13

Fittings



Part Number	I.P.S. Size	T Thread CL-3A	A	C	G	H	R	W	Est. Wt. Lbs.
90EF-SM1602CL-0406	1/4"	1-3/16"-12	3.11	1.25	1.00	1.43	.50	.69	.62
90EF-SM1602CL-0608	3/8"	1-3/8"-12	3.44	1.44	1.12	1.74	.75	.81	.92
90EF-SM1602CL-0812	1/2"	1-3/4"-12	4.52	1.81	1.50	2.31	1.25	1.06	1.71
90EF-SM1602CL-1212	3/4"	2"-12	4.52	2.12	1.50	2.43	1.25	1.06	2.13
90EF-SM1602CL-1216	3/4"	2"-12	5.25	2.12	1.81	2.60	1.50	1.38	2.87
90EF-SM1602CL-1616	1"	2-5/16"-12	5.25	2.38	1.81	2.92	1.50	1.38	3.44

Components

Description	Req'd per Ass'y	0406	0608	0812	1212	Material
① Elbow Ass'y	1	C19910	C19911	C19912	C19913	Monel
② Socket	1	C19845-2	C19699-2	C19846-2	C19846-2	Steel

Description	Req'd per Ass'y	1216	1616	Material
① Elbow Ass'y	1	C19914	C19915	Monel/Cuni
② Socket	1	C19700-2	C19700-2	Steel

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.

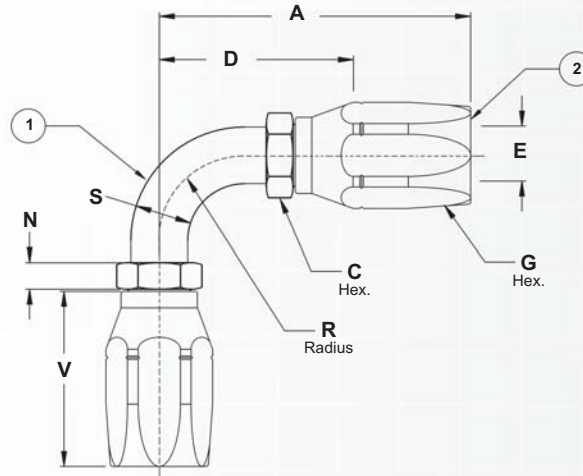


Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 4-191308

MIL-F-24787/5,
Type D, Group II

Use with the following hose: Wire reinforced hoses
i.a.w. MIL-H-24135/1/5/13



Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-1602D-0606	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	.38	1.92	.76
90ELB-1602D-0808	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	.50	2.01	1.12
90ELB-1602D-1212	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	.75	2.47	2.03
90ELB-1602D-1616	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	1.00	2.95	3.77

Components

Description	Req'd per Ass'y	0606	0808	1212	Material
① Elbow Ass'y	1	C19851	C19852	C19853	Monel
② Socket	2	C19845-1	C19699-1	C19846-1	Monel

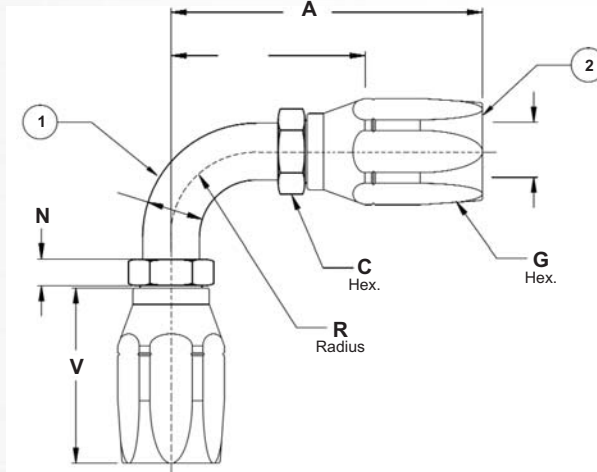
Description	Req'd per Ass'y	1616	Material
① Elbow Ass'y	1	C20244	Monel/Cuni
② Socket	2	C19700-1	Monel

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.

Marine Hose & Fittings

Elbow - 90° Dogleg - Hose to Hose

Equal to Aeroquip P/N 41-191308



Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. Lbs.
90ELB-SM1602D-0606	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	.38	1.92	.76
90ELB-SM1602D-0808	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	.50	2.01	1.12
90ELB-SM1602D-1212	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	.75	2.47	2.03
90ELB-SM1602D-1616	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	1.00	2.95	3.77

Components

Description	Req'd per Ass'y	0606	0808	1212	Material
① Elbow Ass'y	1	C19851	C19852	C19853	Monel
② Socket	2	C19845-2	C19699-2	C19846-2	Steel

Description	Req'd per Ass'y	1616	Material
① Elbow Ass'y	1	C20244	Monel/Cuni
② Socket	2	C19700-2	Steel

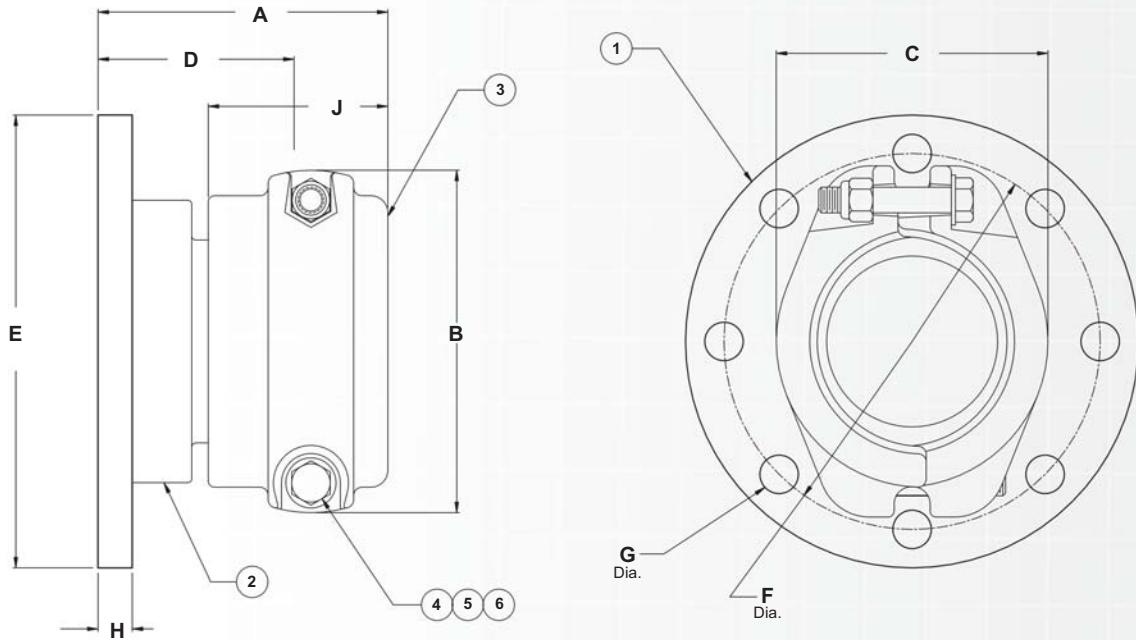
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



End Fitting - Straight - Hose to Hose

Use with the following hose: Polyester reinforced polyurethane hose P/N HSSA

150Lb. Flange Per MIL-PRF-20042



Part Number	I.P.S. Size	No. of Bolts	A	B	C	D	E	F	G	H	J	Est. Wt. Lbs.
EF-LFS-48	3"	8	4.41	5.50	3.81	2.00	6.62	5.50	.56	.50	2.62	13

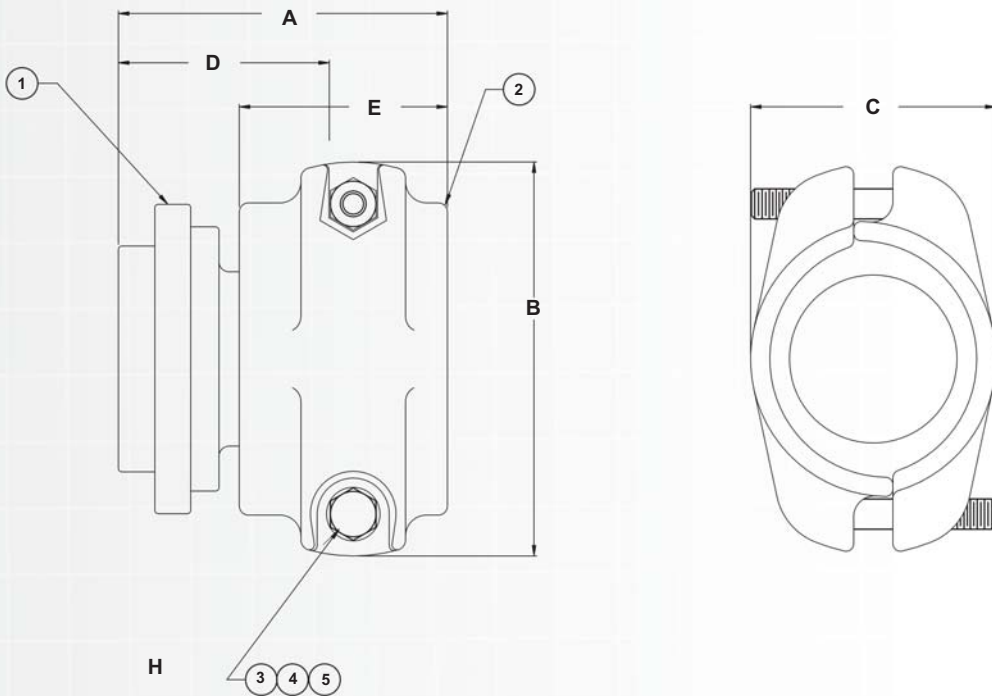
Components

Description	Req'd per Ass'y	3"	Material
① Swivel Flange	1	C17933	Bronze
② Nipple	1	C18298	Bronze
③ Segment	2	D18261	Bronze
④ Bolt	2	B17673-1-MP	Monel
⑤ Nut	2	B18176-MP	Monel
⑥ Washer	2	B18175-MP	Monel
Gasket	1	C18278-4	Buna-N

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.

End Fitting - Straight - Male Split Clamp to Hose

Use with the following hose: Polyester reinforced polyurethane hose P/N HSSA



Fittings

128

Part Number	I.P.S. Size	A	B	C	D	E	Est. Wt. Lbs.
EF-LFS-24MS	1-1/2"	3.68	3.50	2.35	1.44	2.62	5

Components

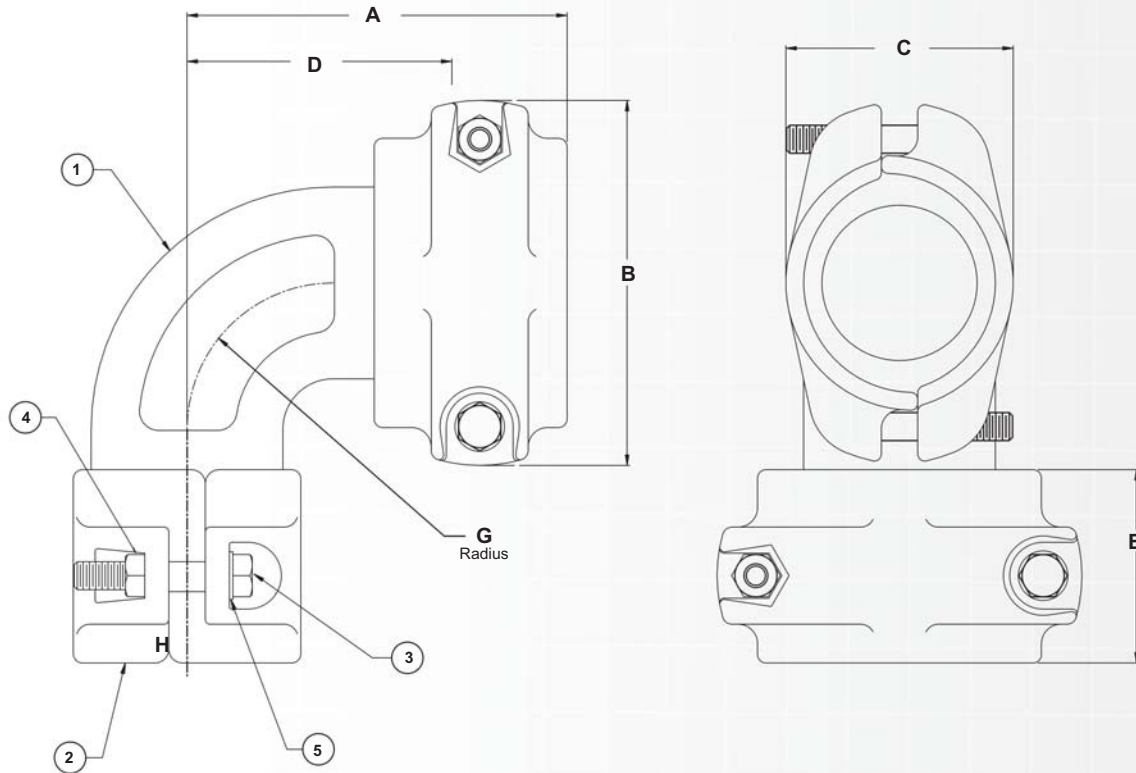
Description	Req'd per Ass'y	1-1/2"	Material
① Nipple	1	C18304	Bronze
② Segment	2	C18259	Bronze
③ Bolt	2	B17673-1-MP	Monel
④ Nut	2	B18176-MP	Monel
⑤ Washer	2	B18175-MP	Monel
Gasket	1	C18280-6	Buna-N

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.



End Fitting - 90° - Hose to Hose

Use with the following hose: Polyester reinforced polyurethane hose P/N HSSA



Part Number	I.P.S. Size	A	B	C	D	E	R	Est. Wt. Lbs.
90ELB-LFS-24	1-1/2"	4.68	3.50	2.35	2.44	2.62	2.00	7
90ELB-LFS-48	3"	5.18	5.50	3.81	2.94	2.62	2.09	15

129

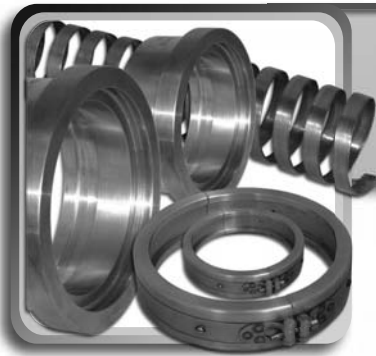
Components

Description	Req'd per Ass'y	1-1/2"	3"	Material
① Elbow	1	C18263	C18297	Bronze
② Segment	4	C18259	D18261	Bronze
③ Bolt	4	B17673-1-MP	B17673-1-MP	Monel
④ Nut	4	B18176-MP	B18176-MP	Monel
⑤ Washer	4	B18175-MP	B18175-MP	Monel
Gasket	2	C18280-6	C18278-4	Buna-N

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.

Notes





Split Clamps, Sil-Braze Tailpieces and Accessories

Section C

Product Designation	Page No.
Split Clamps	132
Tailpieces	133
“O” Rings	137
Back-Up Rings	137
Internal Support Coil	138
Internal Support Sleeve	140



Marine Hose & Fittings

Clamp, Split

Equal to Aeroquip P/N 900758

MIL-F-24787/4

Type SC

For use with male and female split clamp end fittings.

Split Clamps

132

Part



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

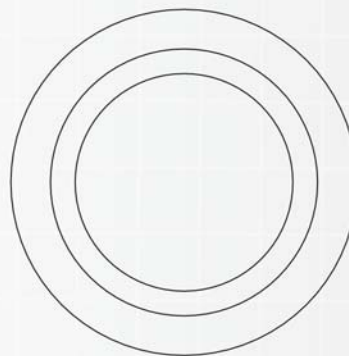
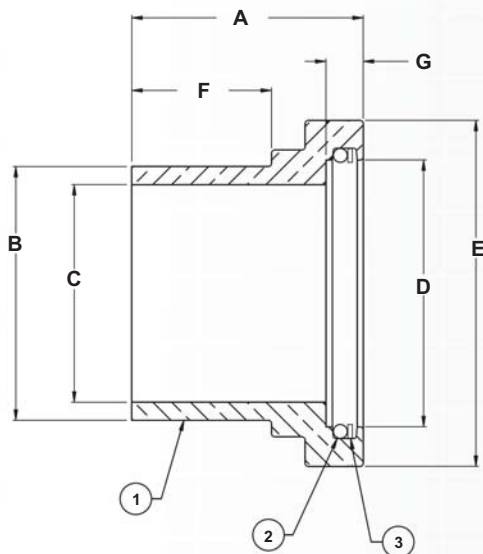
www.HYDRASEARCH.com

Cat.109

Tailpiece - Sil-Braze, Male

Equal to Aeroquip P/N 188-500189 / FF5002

MIL-F-24787/4,
Type TM, Group IV



Sil-Braze Tailpieces

Part Number	I.P.S. Size	A	B	C	D	E	F	G
TP-2MSB	2"	2.17	2.38	2.04	2.51	3.24	1.31	.35
TP-2.5MSB	2-1/2"	2.04	2.88	2.59	3.01	3.74	1.12	.35
TP-3MSB	3"	3.45	3.50	3.00	3.63	4.37	2.50	.35
TP-3.5MSB	3-1/2"	3.45	4.00	3.50	4.13	4.93	2.50	.35
TP-4MSB	4"	3.67	4.50	3.88	4.63	5.43	2.64	.42

133

Components

Description	Req'd per Ass'y	2"	2-1/2"	3"	3-1/2"	4"	Material
① Tailpiece	1	C18098	C18099	C18144	C18145	C18101	Bronze
② "O"-Ring	1	R-RNG/O-230	R-RNG/O-25-234	R-RNG/O-239	R-RNG/O-243	R-RNG00-247	Buna-N
③ Back-Up Ring	1	R-RNG/BU-8	R-RNG/BU-12	--	--	--	Buna-N

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.



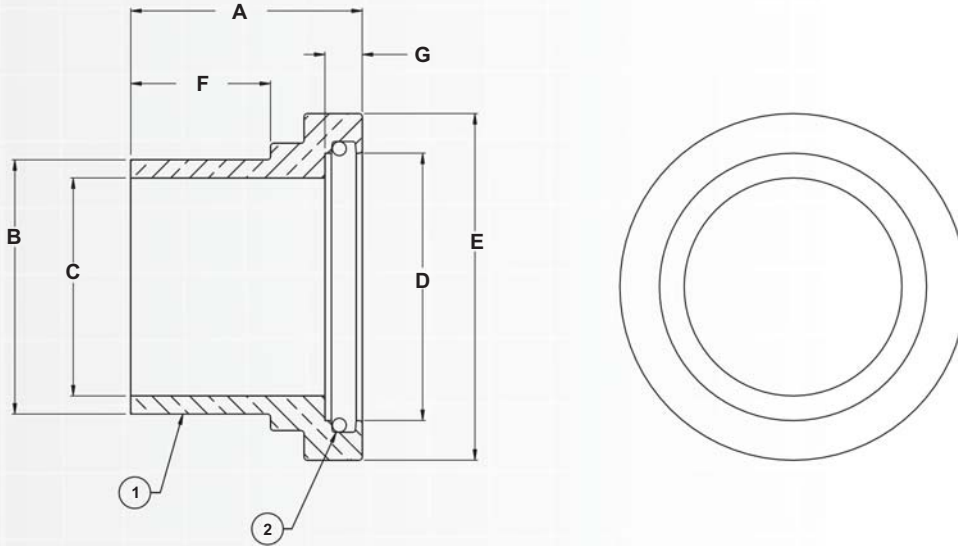
Marine Hose & Fittings

Sil-Braze Tailpieces

Tailpiece - Sil-Braze, Male

Equal to Aeroquip P/N 188-500189 / FF5002

MIL-F-24787/4,
Type TM, Group IX



Part Number	I.P.S. Size	A	B	C	D	E	F	G
TP-5MSB	5"	3.80	5.56	4.94	5.63	6.62	2.77	.42
TP-6MSB	6"	3.87	6.62	5.96	6.76	7.75	2.67	.47
TP-8MSB	8"	4.37	8.62	7.88	9.01	9.97	2.82	.84
TP-10MSB	10"	4.55	10.47	9.52	11.01	12.06	3.00	.88
TP-12MSB	12"	4.75	12.25	11.76	12.01	13.38	3.10	.90

134

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Tailpiece	1	C16944	C18405	C18406	C18407	C18408	Bronze
② "O"-Ring	1	R-RNG/O-5-255	R-RNG/O-261	R-RNG/O-447	R-RNG/O-451	R-RNG/O-453	Buna-N

All Dimensions are in Inches.
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Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



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Cat.109

Marine Hose & Fittings

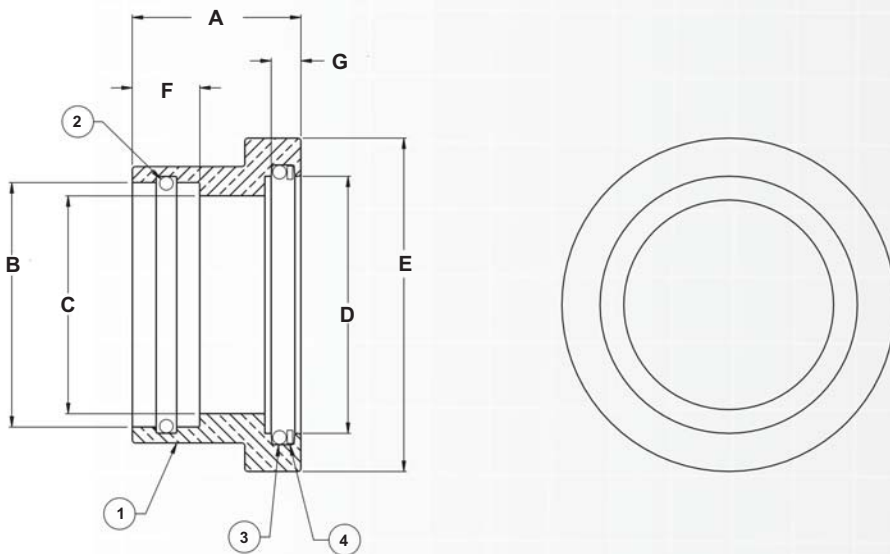


Tailpiece - Sil-Braze, Female

Equal to Aeroquip P/N 188-500063/ FF5001

MIL-F-24787/4,
Type TF, Group IV

Sil-Braze Tailpieces



Part Number	I.P.S. Size	A	B	C	D	E	F	E
TP-2FSB	2"	1.64	2.38	2.12	2.51	3.25	.66	.35
TP-2.5FSB	2-1/2"	1.86	2.88	2.59	3.01	3.75	.78	.35
TP-3FSB	3"	1.55	3.50	3.17	3.64	4.36	.83	.35
TP-3.5FSB	3-1/2"	1.98	4.00	3.63	4.14	4.93	.88	.35
TP-4FSB	4"	1.70	4.50	4.11	4.64	5.43	.91	.42

135

Components

Description	Req'd per Ass'y	2"	2-1/2"	3"	3-1/2"	4"	Material
① Tailpiece	1	C18102	C18140	C18141	C18142	C18143	Bronze
② Braze-Ring	1	B18134-1	B18134-2	B18134-3	B18134-4	B18134-5	Silver Alloy
③ "O"-Ring	1	R-RNG/O-230	R-RNG/O-25-234	R-RNG/O-239	R-RNG/O-243	R-RNG/O-247	Buna-N
④ Back-Up Ring	1	R-RNG/BU-8	R-RNG/BU-12	--	--	--	Buna-N

All Dimensions are in Inches.
Dimensional information is for reference only.
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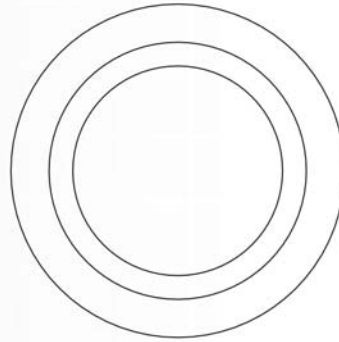
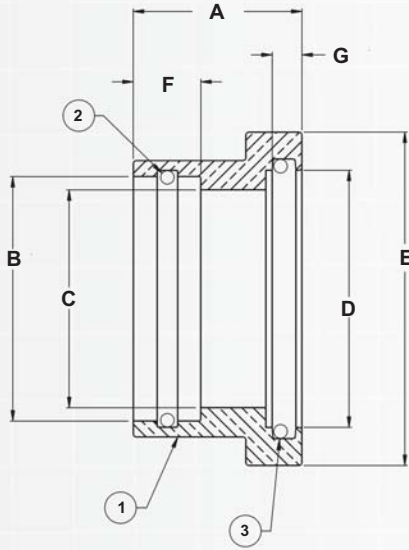
Marine Hose & Fittings

Sil-Braze Tailpieces

Tailpiece - Sil-Braze, Female

Equal to Aeroquip P/N 188-500063

MIL-F-24787/4,
Type TF, Group IX



Part Number	I.P.S. Size	A	B	C	D	E	F	G
TP-5FSB	5"	1.80	5.57	5.30	5.64	6.63	1.00	.42
TP-6FSB	6"	1.95	6.63	6.38	6.76	7.57	1.11	.47
TP-8FSB	8"	2.50	8.81	8.40	9.01	9.97	1.31	.84
TP-10FSB	10"	2.75	10.75	10.53	11.01	12.06	1.49	.88
TP-12FSB	12"	3.00	12.75	12.58	12.01	13.38	3.10	.90

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
① Tailpiece	1	C17848	C18401	C18402	C18403	C18404	Bronze
② Braze Ring	1	C16947-2	B18134-8	B18134-9	B18134-10	B18134-11	Silver Alloy
③ "O"-Ring	1	R-RNG/O-5-255	R-RNG/O-261	R-RNG/O-447	R-RNG/O-451	R-RNG/O-453	Buna-N

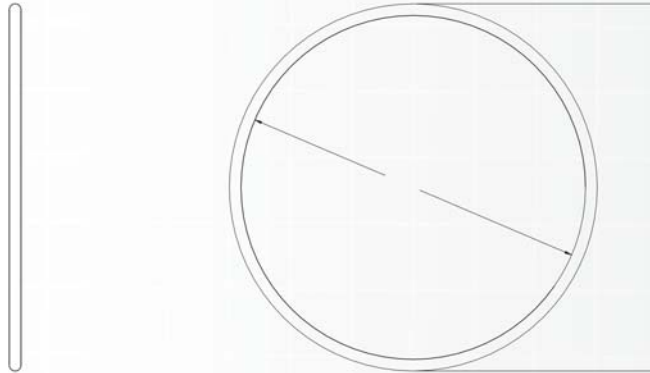
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.



“O”-Rings

Equal to Aeroquip P/N 22020

“O”-Ring: Viton



Part Number	Size	I.D.	O.D.
R-RNG/O-224	1-1/4"	1.75	2.00
R-RNG/O-226	1-1/2"	2.00	2.25
R-RNG/O-230	2"	2.50	2.75
R-RNG/O-234	2-1/2"	3.00	3.25
R-RNG/O-239	3"	3.62	3.88
R-RNG/O-243	3-1/2"	4.12	4.38
R-RNG/O-247	4"	4.62	4.88
R-RNG/O-255	5"	5.62	5.88
R-RNG/O-261	6"	6.75	7.00
R-RNG/O-447	8"	9.00	9.50
R-RNG/O-451	10"	11.00	11.50

Back-Up Rings

Equal to Aeroquip P/N 22006

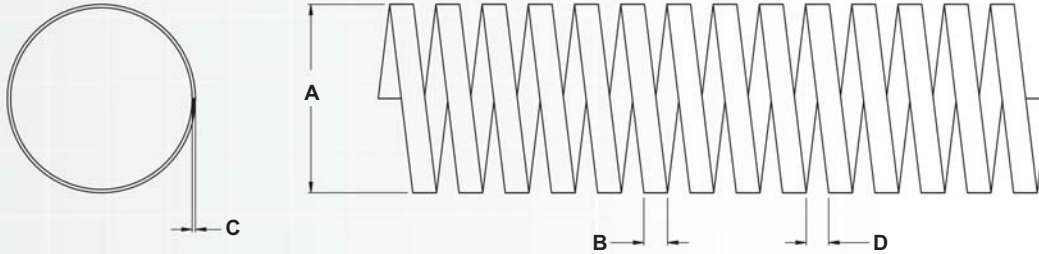
Back-UpRing: Buna-N

Part Number	Size	I.D.	O.D.
R-RNG/BU-2	1-1/4"2.00		
R-RNG/B4-2	1-2/4"		
R-RNG/B80022.507.25			

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.

Coil - Internal Support

Internal Support Coil is approved for use per
NAVSEA LTR. OPR. 3Y231 Serial No. 03Y23/252 DTD 02 AUG.93.



Beryllium Copper

Part Number	Equal to A/Q P/N	A	B	C	D
ISC-12C	FC137-12	.82	.125	.025	.180
ISC-16C	FC137-16	1.09	.125	.025	.180
ISC-20C	FC137-20	1.38	.250	.025	.280
ISC-21C	12-222022-20	1.25	.250	.025	.280
ISC-24C	FC137-24	1.62	.250	.025	.280
ISC-32C	FC137-32	2.16	.375	.048	.250
ISC-40C	12-222022-40	2.67	.500	.048	.250
ISC-48C	12-222022-48	3.27	.500	.048	.375
ISC-64C	12-222022-64	4.28	.500	.060	.437

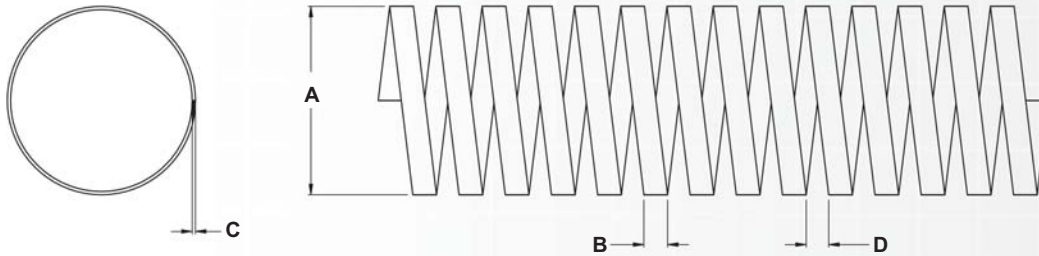
Monel

Part Number	Equal to A/Q P/N	A	B	C	D
ISC-15M	N/A	1.19	.250	.025	.280
ISC-21M	N/A	1.25	.250	.025	.280
ISC-40M	FF090505-2671-501	2.67	.500	.048	.250
ISC-48M	FF090505-3266-501	3.27	.500	.048	.375
ISC-16MR	FF090505-0969-501	1.00	.125	.025	.180
ISC-32MR	FF090505-1969-501	2.00	.250	.025	.280

All Dimensions are in Inches.
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Coil - Internal Support

Internal Support Coil is approved for use per
NAVSEA LTR. OPR. 3Y231 Serial No. 03Y23/252 DTD 02 AUG.93.



Stainless Steel

Part Number	Equal to A/Q P/N	A	B	C	D
ISC-10SS	222005-10C	.42	.125	.025	.180
ISC-11SS	222005-11C	.60	.125	.025	.180
ISC-13SS	222005-13C	.73	.125	.025	.180
ISC-14SS	222005-14C	.94	.125	.025	.180
ISC-15SS	222005-15C	1.19	.250	.025	.280
ISC-17SS	222005-17C	1.44	.250	.025	.280
ISC-18SS	222005-18C	1.88	.250	.025	.280
ISC-19SS	222005-19C	2.44	.500	.048	.250
ISC-21SS	222005-21C	.51	.125	.025	.180
ISC-22SS	222005-22C	1.97	.250	.025	.280
ISC-23SS	222005-23C	.34	.125	.025	.180
ISC-32SS	222005-32C	2.16	.375	.048	.250
ISC-40SS	222022-40C	2.67	.500	.048	.250
ISC-48SS	222022-48C	3.27	.500	.048	.375
ISC-64SS	222022-64C	4.28	.500	.060	.437

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.

Sleeve - Internal Support

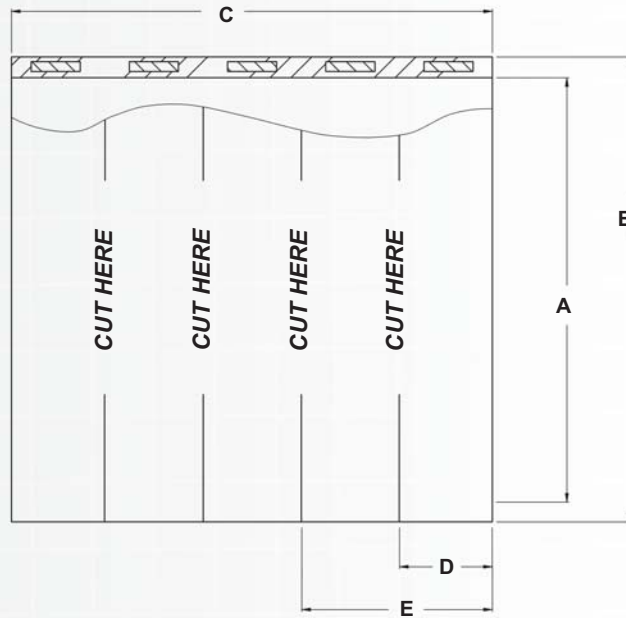
Equal to Aeroquip P/N FF9700

Material: Nickel-Aluminum Bronze - Rings
Buna-N - Bonding

The Internal Support Sleeve provides support for large diameter hose subjected to vacuum service. The Support Sleeve is stacked in the hose assembly after one fitting is attached and provides vacuum protection while maintaining flexibility.

Hydrasearch Internal Support Sleeves are approved for use by various NAVSEA letters.

Internal Support Sleeves are to be used in hoses 4" (-64) and larger per NAVSEA technical directive S6430-AE-TED-010.



Part Number	Hose Size	No. of Rings	A	B	C	D	E
ISS-64	4"	4	3.50	3.91	4.00	1.00	2.00
ISS-80	5"	4	4.40	4.93	4.88	1.17	2.44
ISS-96	6"	5	5.40	5.93	6.12	1.19	2.44
ISS-128	8"	6	7.40	7.93	7.50	1.15	2.45
ISS-160	10"	6	9.40	9.93	7.50	1.15	2.45
ISS-192	12"	6	11.40	11.93	7.50	1.15	2.45

All Dimensions are in Inches.
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Adapters

Section D

Product Designation	Construction	Sizes	Page No.
8652	Solder Port x 37° Flare	1/2" to 1-5/8"	142
8651	Sil-Braze Tube x 37° Male Flare	1/4" to 2"	143
8640	Sil-Braze Tube x 37° Str. Thd.	1/4" to 2"	144
4307	Sil-Braze Pipe x 37° Male Flare	1/8" to 2"	145
4238	37° Flare x Socketweld Pipe	1/4" to 1-1/2"	146
8635	Female Sil-Braze Pipe x 37° Male Flare	1/8" to 2"	147
6728	S.A.E. "O"-Ring Tube to 37° Flare	1/4" to 1"	148
8641	S.A.E. 37° Flare Union	1/4" to 1-1/4"	149
8636	Internal Pipe x 37° Flare	3/16" to 2-1/2"	150
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8638	External Pipe x 37° Flare	1/4" to 1"	152
8637	37° Flare Internal x 37° Flare	5/16" to 1-1/4"	153
8639	37° Female Swivel x 37° Male Flare	1/4" to 1"	154
8643	37° Flare Swivel x 37° Flare	1/4" to 1"	155
8647	37° Flare Plug	1/8" to 1"	156
8644	Male External Plug NPTF x Plug	1/4" to 1/2"	156
8646	Reducer-Ext. Pipe x Internal Pipe	1/4" to 1/2"	157
8645	External Pipe x Plug	1/8" to 3/4"	157

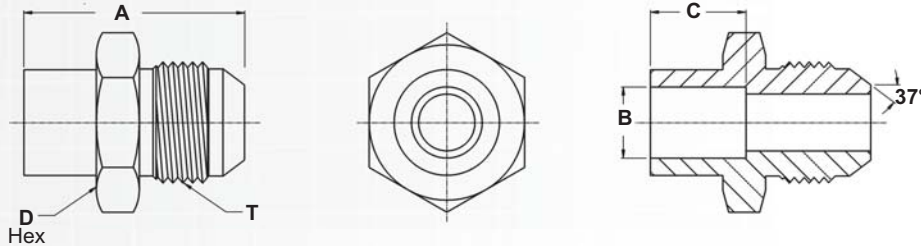
Solder Port x 37° Male Flare

8652

Equal to Aeroquip P/N 202123

Material:Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	T	A	B	C	D
8652-8-10-SS	1/2"	7/8"-14	1.59	.51	.69	1.12
8652-10-10-SS	5/8"	7/8"-14	1.59	.63	.69	1.12
8652-10-12-SS	5/8"	1-1/16"-12	1.91	.63	.81	1.25
8652-12-10-SS	3/4"	7/8"-14	1.59	.76	.69	1.12
8652-12-12-SS	3/4"	1-1/6"-12	1.91	.76	.81	1.25
8652-14-10-SS	7/8"	7/8"-14	1.59	.88	.69	1.12
8652-14-12-SS	7/8"	1-1/16"-12	1.91	.88	.81	1.25
8652-14-16-SS	7/8"	1-5/16"-12	2.03	.88	.88	1.38
8652-16-16-SS	1"	1-5/16"-12	2.03	1.01	.88	1.38
8652-18-16-SS	1-1/8"	1-5/16"-12	2.03	1.13	.88	1.38
8652-18-20-SS	1-1/8"	1-5/8"-12	2.20	1.13	1.00	1.75
8652-20-24-SS	1-1/4"	1-7/8"-12	2.33	1.26	1.00	2.00
8652-22-20-SS	1-3/8"	1-5/8"-12	2.20	1.38	1.00	1.75
8652-22-24-SS	1-3/8"	1-7/8"-12	2.33	1.38	1.00	2.00
8652-26-24-SS	1-5/8"	1-7/8"-12	2.33	1.63	1.00	2.00
8652-26-32-SS	1-5/8"	2-1/2"-12	2.70	1.63	1.12	2.25

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.

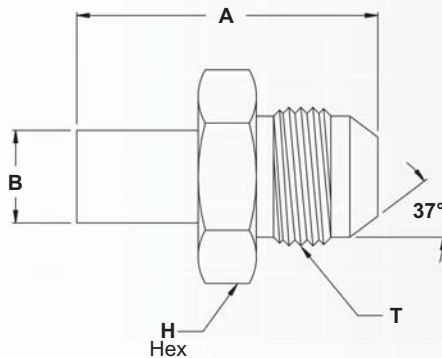
Male Sil-Braze Tube x 37° Male Flare

8651

Equal to Aeroquip P/N 202140

Material:Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	A	B	H	T
8651-4-4-SS	1/4"	1.36	.25	.50	7/16"-20
8651-6-6-SS	3/8"	1.43	.38	.62	9/16"-18
8651-8-8-SS	1/2"	1.63	.50	.81	3/4"-16
8651-12-12-SS	3/4"	2.06	.75	1.12	1-1/16"-12
8651-16-16-SS	1"	2.35	1.00	1.38	1-5/16"-12
8651-20-20-SS	1-1/4"	2.59	1.25	1.69	1-5/8"-12
8651-24-24-SS	1-1/2"	3.02	1.50	2.00	1-7/8"-12
8651-32-32-SS	2"	3.58	2.00	2.62	2-1/2"-12

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.

Marine Hose & Fittings

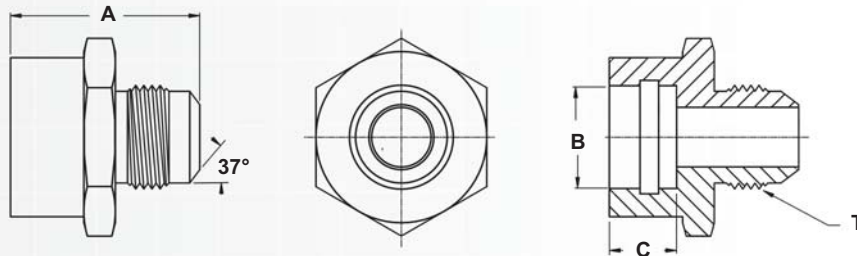
Female Sil-Braze Tube x 37° Male Flare

8640

Equal to Aeroquip P/N 202240

Material: Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	A	B	C	T
8640-4-4-SS	1/4"	1.05	.25	.25	7/16"-20
8640-6-6-SS	3/8"	1.24	.39	.31	9/16"-18
8640-8-8-SS	1/2"	1.41	.50	.47	3/4"-16
8640-12-12-SS	3/4"	2.04	.75	.56	1-1/16"-12
8640-16-16-SS	1"	2.21	1.00	.69	1-5/16"-12
8640-20-20-SS	1-1/4"	2.44	1.25	.81	1-5/8"-12
8640-24-24-SS	1-1/2"	2.88	1.50	.94	1-7/8"-12
8640-32-32-SS	2"	3.33	2.00	1.06	2-1/2"-12

All Dimensions are in Inches.
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Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Male Sil-Braze Pipe x 37° Male Flare

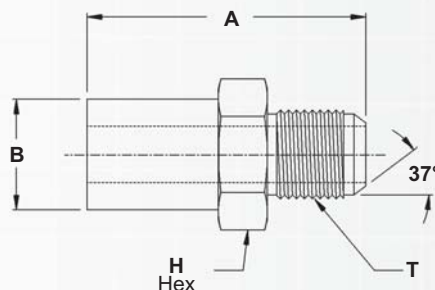
4307

Equal to Aeroquip P/N 202142

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)

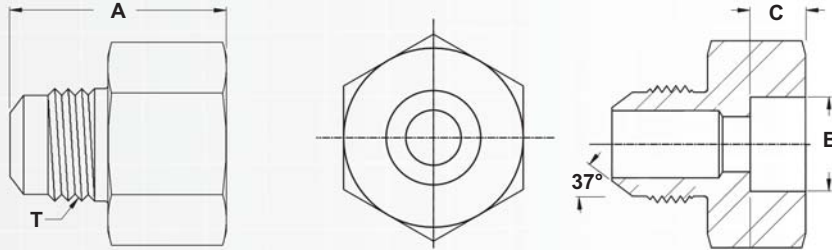


Part Number	Pipe Size	A	B	H	T
4307-0-4-SS	1/8"	1.36	.40	.50	7/16"-20
4307-1-6-SS	1/4"	1.43	.54	.62	9/16"-18
4307-1-8-SS	1/4"	1.53	.54	.81	3/4"-16
4307-2-6-SS	3/8"	1.52	.67	.69	9/16"-18
4307-2-8-SS	3/8"	1.63	.67	.81	3/4"-16
4307-2-10-SS	3/8"	1.79	.67	.94	7/8"-14
4307-3-6-SS	1/2"	1.67	.84	.94	9/16"-18
4307-3-8-SS	1/2"	1.78	.84	.94	3/4"-16
4307-3-10-SS	1/2"	1.88	.84	.94	7/8"-14
4307-3-12-SS	1/2"	2.06	.84	1.12	1-1/16"-12
4307-3-16-SS	1/2"	2.10	.84	1.38	1-5/16"-12
4307-4-12-SS	3/4"	2.30	1.05	1.38	1-1/16"-12
4307-4-16-SS	3/4"	2.35	1.05	1.38	1-5/16"-12
4307-4-20-SS	3/4"	2.46	1.05	1.69	1-5/8"-12
4307-5-20-SS	1"	2.59	1.31	1.69	1-5/8"-12
4307-5-24-SS	1"	2.77	1.31	1.94	1-7/8"-12
4307-6-24-SS	1-1/4"	3.02	1.66	1.94	1-7/8"-12
4307-7-24-SS	1-1/2"	3.14	1.90	2.00	1-7/8"-12
4307-7-32-SS	1-1/2"	3.58	1.90	2.56	2-1/2"-12
4307-8-32-SS	2"	3.77	2.38	2.56	2-1/2"-12

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.

Female Socketweld Pipe x 37° Male Flare

4238

*Equal to Aeroquip P/N 202232***Material:**Stainless Steel*(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)*

Part Number	Pipe Size	A	B	C	T
4238-4-1-SS	1/4"	1.09	.56	.38	7/16"-20
4238-6-1-SS	1/4"	1.10	.56	.38	9/16"-18
4238-8-1-SS	1/4"	1.20	.56	.38	3/4"-16
4238-6-2-SS	3/8"	1.50	.69	.38	9/16"-18
4238-6-3-SS	1/2"	1.20	.86	.50	9/16"-18
4238-8-3-SS	1/2"	1.31	.86	.50	1-5/16"-12
4238-10-3-SS	1/2"	1.43	.86	.50	7/8"-14
4238-12-3-SS	1/2"	1.54	.86	.50	1-1/16"-12
4238-16-3-SS	1/2"	1.58	.86	.50	1-5/16"-12
4238-12-4-SS	3/4"	2.38	1.07	.56	1-1/16"-12
4238-16-4-SS	3/4"	2.42	1.07	.56	1-5/16"-12
4238-16-5-SS	1"	2.63	1.33	.63	1-5/16"-12
4238-20-5-SS	1"	1.81	1.34	.63	1-5/8"-12
4238-24-5-SS	1"	1.93	1.34	.63	1-7/8"-12
4238-24-6-SS	1-1/4"	2.12	1.68	.69	1-7/8"-12
4238-24-7-SS	1-1/2"	3.00	1.92	.75	1-7/8"-12

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.

Female Sil-Braze Pipe x 37° Male Flare

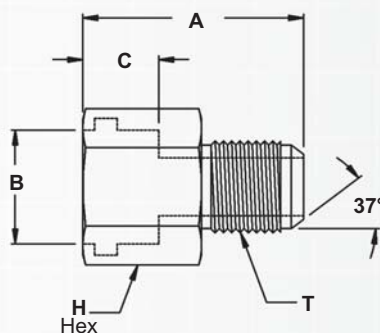
8635

Equal to Aeroquip P/N 202242

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Pipe Size	A	B	C	H	T
8635-0-4-SS	1/8"	1.05	.41	.38	.69	7/16"-20
8635-1-6-SS	1/4"	1.24	.54	.38	.88	9/16"-18
8635-1-8-SS	1/4"	1.34	.54	.38	.88	3/4"-16
8635-2-6-SS	3/8"	1.31	.68	.47	1.00	9/16"-18
8635-2-8-SS	3/8"	1.41	.68	.47	1.00	3/4"-16
8635-2-10-SS	3/8"	1.51	.68	.47	1.00	7/8"-14
8635-3-8-SS	1/2"	1.80	.84	.56	1.44	3/4"-16
8635-3-10-SS	1/2"	1.93	.84	.56	1.44	7/8"-14
8635-3-12-SS	1/2"	2.04	.84	.56	1.44	1-1/16"-12
8635-3-16-SS	1/2"	2.08	.84	.56	1.44	1-5/16"-12
8635-4-12-SS	3/4"	2.16	1.05	.69	1.69	1-1/16"-12
8635-4-16-SS	3/4"	2.21	1.05	.69	1.69	1-5/16"-12
8635-4-20-SS	3/4"	2.26	1.05	.69	1.69	1-5/8"-12
8635-5-16-SS	1"	2.40	1.32	.81	2.00	1-5/16"-12
8635-5-20-SS	1"	2.44	1.32	.81	2.00	1-5/8"-12
8635-5-24-SS	1"	2.57	1.32	.81	2.00	1-7/8"-12
8635-6-24-SS	1-1/4"	2.90	1.66	.88	2.00	1-7/8"-12
8635-7-24-SS	1-1/2"	3.02	1.90	1.00	2.12	1-7/8"-12
8635-7-32-SS	1-1/2"	3.38	1.90	1.00	2.62	2-1/2"-12
8635-8-32-SS	2"	3.64	2.38	1.25	2.62	2-1/2"-12

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.

S.A.E. Male "O"-Ring Tube to 37° Male Flare

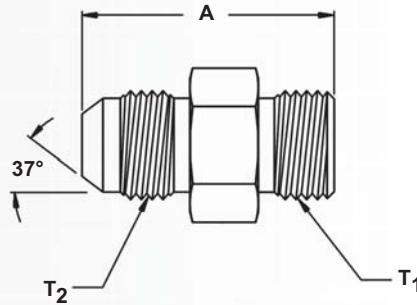
6728

Equal to Aeroquip P/N 202702

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	A	T ₁	T ₂
6728-4-4-SS	1/4"	1.23	7/16"-20	7/16"-20
6728-4-6-SS	3/8"	1.24	7/16"-20	9/16"-18
6728-4-8-SS	1/2"	1.39	7/16"-20	3/4"-16
6728-5-5-SS	5/16"	1.23	1/2"-20	1/2"-20
6728-5-6-SS	3/8"	1.24	1/2"-20	9/16"-18
6728-6-4-SS	1/4"	1.29	9/16"-18	7/16"-20
6728-6-6-SS	3/8"	1.30	9/16"-18	9/16"-18
6728-6-8-SS	1/2"	1.42	9/16"-18	3/4"-16
6728-6-10-SS	5/8"	1.56	9/16"-18	7/8"-14
6728-8-4-SS	1/4"	1.37	3/4"-16	7/16"-20
6728-8-5-SS	5/16"	1.37	3/4"-16	1/2"-20
6728-8-6-SS	3/8"	1.37	3/4"-16	9/16"-18
6728-8-8-SS	1/2"	1.48	3/4"-16	3/4"-16
6728-8-10-SS	5/8"	1.61	3/4"-16	7/8"-14
6728-8-12-SS	3/4"	1.78	3/4"-16	1-1/16"-12
6728-10-4-SS	1/4"	1.49	7/8"-14	7/16"-20
6728-10-6-SS	3/8"	1.50	7/8"-14	9/16"-18
6728-10-8-SS	1/2"	1.60	7/8"-14	3/4"-16
6728-10-10-SS	5/8"	1.70	7/8"-14	7/8"-14
6728-10-12-SS	3/4"	1.84	7/8"-14	1-1/16"-12
6728-10-16-SS	1"	1.92	7/8"-14	1-5/16"-12
6728-12-6-SS	3/8"	1.66	1-1/16"-12	9/16"-18
6728-12-8-SS	1/2"	1.76	1-1/16"-12	3/4"-16
6728-12-12-SS	3/4"	1.97	1-1/16"-12	1-1/16"-12
6728-16-12-SS	3/4"	1.99	1-5/16"-12	1-1/16"-12
6728-16-16-SS	1"	2.04	1-5/16"-12	1-5/16"-12
6728-20-20-SS	1-1/4"	2.17	1-5/8"-12	1-5/8"-12
6728-20-24-SS	1-1/2"	2.37	1-5/8"-12	1-7/8"-12

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.

S.A.E. 37° Male Flare Union

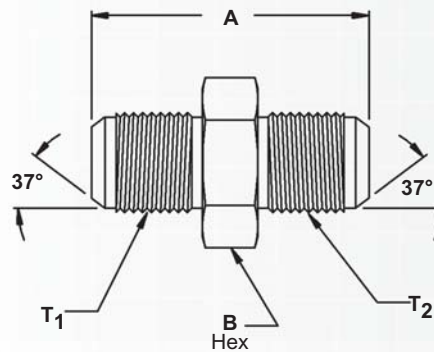
8641

Equal to Aeroquip P/N 2027

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	A	B	T ₁	T ₂
8641-4-4-SS	1/4"	1.37	.50	7/16"-20	7/16"-20
8641-6-6-SS	3/8"	1.41	.62	9/16"-18	9/16"-18
8641-8-8-SS	1/2"	1.62	.81	3/4"-16	3/4"-16
8641-10-10-SS	5/8"	1.88	.94	7/8"-14	7/8"-14
8641-12-12-SS	3/4"	2.16	1.12	1-1/16"-12	1-1/16"-12
8641-16-12-SS	3/4"	2.20	1.38	1-5/16"-12	1-1/16"-12
8641-16-16-SS	1"	2.25	1.38	1-5/16"-12	1-5/16"-12
8641-20-20-SS	1-1/4"	2.43	1.68	1-5/8"-12	1-5/8"-12

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.

Female NPTF x 37° Male Flare

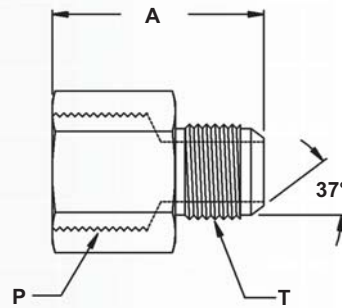
8636

Equal to Aeroquip P/N 2022

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix
and add NICU. To order Copper
Nickel, drop "SS" suffix and add
CUNI.)



Part Number	Tube O.D.	A	P (N.P.T.F.)	T
8636-2-3-SS	3/16"	1.13	1/8"-27	3/8"-24
8636-2-4-SS	1/4"	1.19	1/8"-27	7/16"-20
8636-2-5-SS	5/16"	1.17	1/8"-27	1/2"-20
8636-4-3-SS	3/16"	1.32	1/4"-18	3/8"-24
8636-4-4-SS	1/4"	1.39	1/4"-18	7/16"-20
8636-4-5-SS	5/16"	1.39	1/4"-18	1/2"-20
8636-4-6-SS	3/8"	1.40	1/4"-18	9/16"-18
8636-4-8-SS	1/2"	1.55	1/4"-18	3/4"-16
8636-6-6-SS	3/8"	1.46	3/8"-18	9/16"-18
8636-6-8-SS	1/2"	1.56	3/8"-18	3/4"-16
8636-8-6-SS	3/8"	1.69	1/2"-14	9/16"-18
8636-8-8-SS	1/2"	1.79	1/2"-14	3/4"-16
8636-8-10-SS	5/8"	1.89	1/2"-14	7/8"-14
8636-8-12-SS	3/4"	2.05	1/2"-14	1-1/16"-12
8636-12-8-SS	1/2"	1.85	3/4"-14	3/4"-16
8636-12-10-SS	5/8"	1.95	3/4"-14	7/8"-14
8636-12-12-SS	3/4"	2.06	3/4"-14	1-1/16"-12
8636-16-16-SS	1"	2.35	1"-11-1/2	1-5/16"-12
8636-20-16-SS	1"	2.44	1-1/4"-11-1/2	1-5/16"-12
8636-20-20-SS	1-1/4"	2.49	1-1/4"-11-1/2	1-5/8"-12
8636-24-24-SS	1-1/2"	2.62	1-1/2"-11-1/2	1-7/8"-12
8636-32-32-SS	2"	2.97	2"-11-1/2	2-1/2"-12
8636-40-40-SS	2-1/2"	3.25	2-1/2"-8	3"-12

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.

Female NPTF x 45° Male Flare

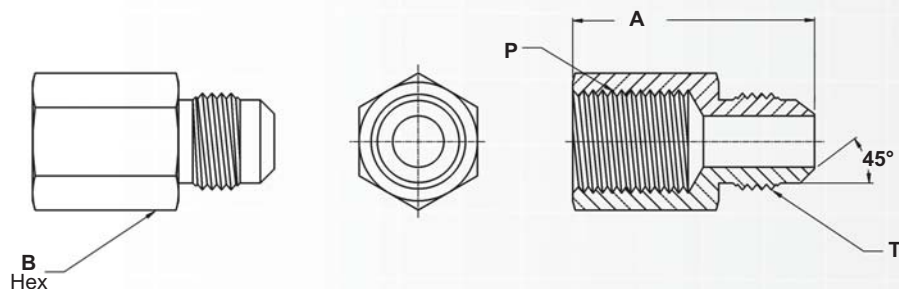
8650

Equal to Aeroquip P/N 2001

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	P (N.P.T.F.)	T	A	B
8650-2-4-SS	1/4"	1/8"-27	7/16"-20	1.06	.56
8650-2-5-SS	5/16"	1/8"-27	1/2"-20	1.16	.56
8650-4-4-SS	1/4"	1/4"-18	7/16"-20	1.19	.69
8650-4-5-SS	5/16"	1/4"-18	1/2"-20	1.25	.69
8650-4-6-SS	3/8"	1/4"-18	5/8"-18	1.31	.69
8650-6-6-SS	3/8"	3/8"-18	5/8"-18	1.31	.81
8650-6-8-SS	1/2"	3/8"-18	3/4"-16	1.56	.81
8650-8-8-SS	1/2"	1/2"-14	3/4"-16	1.62	1.00
8650-8-10-SS	5/8"	1/2"-14	7/8"-14	1.81	1.00
8650-8-12-SS	3/4"	1/2"-14	1-1/16"-14	2.00	1.06
8650-12-10-SS	5/8"	3/4"-14	7/8"-14	1.81	1.25
8650-12-12-SS	3/4"	3/4"-14	1-1/16"-14	1.94	1.25

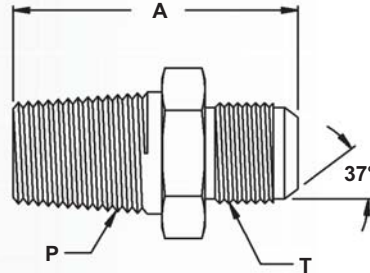
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Male NPTF x 37° Male Flare

8638

*Equal to Aeroquip P/N 2021***Material:**

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)

Part Number	Tube O.D.	A	P (N.P.T.F.)	T
8638-2-4-SS	1/4"	1.22	1/8"-27	7/16"-20
8638-4-4-SS	1/4"	1.42	1/4"-18	7/16"-20
8638-4-6-SS	3/8"	1.43	1/4"-18	9/16"-18
8638-4-8-SS	1/2"	1.53	1/4"-18	3/4"-16
8638-6-6-SS	3/8"	1.43	3/8"-18	9/16"-18
8638-6-8-SS	1/2"	1.53	3/8"-18	3/4"-16
8638-6-10-SS	5/8"	1.70	3/8"-18	7/8"-14
8638-6-12-SS	3/4"	1.86	3/8"-18	1-1/16"-12
8638-8-4-SS	1/4"	1.68	1/2"-14	7/16"-20
8638-8-6-SS	3/8"	1.69	1/2"-14	9/16"-18
8638-8-8-SS	1/2"	1.79	1/2"-14	3/4"-16
8638-8-10-SS	5/8"	1.89	1/2"-14	7/8"-14
8638-8-12-SS	3/4"	2.06	1/2"-14	1-1/16"-12
8638-12-8-SS	1/2"	1.85	3/4"-14	3/4"-16
8638-12-12-SS	3/4"	2.06	3/4"-14	1-1/16"-14
8638-16-16-SS	1"	2.30	1"-11-1/2	1-5/16"-12

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.

37° Female Flare Internal x 37° Male Flare

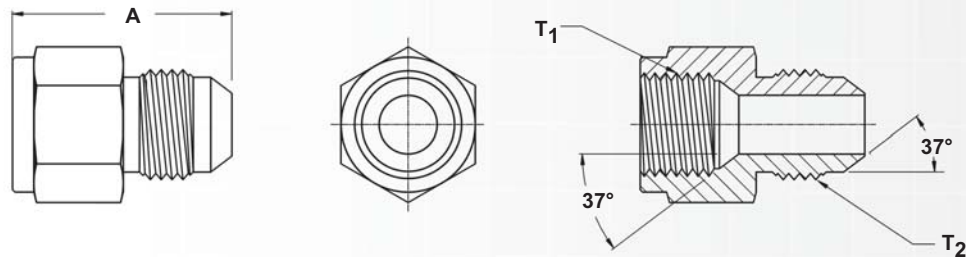
8637

Equal to Aeroquip P/N 2215

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Tube O.D.	A	T ₁	T ₂
8637-5-8-SS	1/2"	1.31	1/2"-20	3/4"-16
8637-6-5-SS	5/16"	1.18	9/16"-18	1/2"-20
8637-8-10-SS	5/8"	1.53	3/4"-16	7/8"-14
8637-8-12-SS	3/4"	1.64	3/4"-16	1-1/16"-12
8637-10-8-SS	1/2"	1.53	7/8"-14	3/4"-16
8637-10-12-SS	3/4"	1.74	7/8"-14	1-1/16"-12
8637-12-10-SS	5/8"	1.73	1-1/16"-12	7/8"-14
8637-12-16-SS	1"	2.00	1-1/16"-12	1-5/16"-12
8637-16-20-SS	1-1/4"	2.30	1-5/16"-12	1-5/8"-12
8637-24-20-SS	1-1/4"	2.30	1-7/8"-12	1-5/8"-12

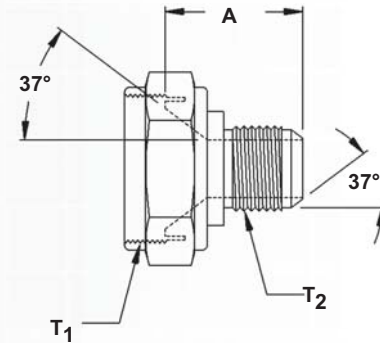
All Dimensions are in Inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

37° Female Swivel x 37° Male Flare

8639

*Equal to Aeroquip P/N 221501***Material:**

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)

Part Number	Tube O.D.	A	T ₁	T ₂
8639-6-4-SS	1/4"	.97	9/16"-18	7/16"-20
8639-8-4-SS	1/4"	1.00	3/4"-16	7/16"-20
8639-8-6-SS	3/8"	1.00	3/4"-16	9/16"-18
8639-10-6-SS	3/8"	1.03	7/8"-14	9/16"-18
8639-12-6-SS	3/8"	1.09	1-1/16"-12	9/16"-18
8639-12-8-SS	1/2"	1.19	1-1/16"-12	3/4"-16
8639-16-6-SS	3/8"	1.16	1-5/16"-12	9/16"-18
8639-16-8-SS	1/2"	1.26	1-5/16"-12	3/4"-16
8639-16-10-SS	5/8"	1.36	1-5/16"-12	7/8"-14
8639-16-12-SS	3/4"	1.47	1-5/16"-12	1-1/16"-12
8639-20-16-SS	1"	1.52	1-5/8"-12	1-5/16"-12

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.

37° Female Flare Swivel x 37° Male Flare

8643

Equal to Aeroquip P/N FF1066

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



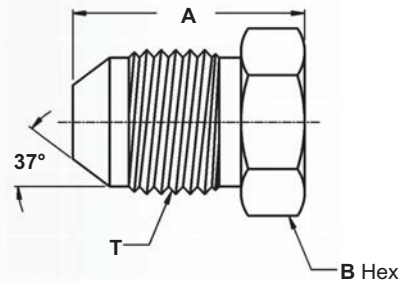
Part Number	Tube O.D.	T	A
8643-6-4-SS	1/4"	7/16"-20	.97
8643-8-4-SS	1/4"	7/16"-20	1.00
8643-8-6-SS	3/8"	9/16"-18	1.00
8643-10-6-SS	3/8"	9/16"-18	1.03
8643-12-6-SS	3/8"	9/16"-18	1.09
8643-12-8-SS	1/2"	3/4"-16	1.19
8643-16-6-SS	3/8"	9/16"-18	1.16
8643-16-8-SS	1/2"	3/4"-16	1.26
8643-16-10-SS	5/8"	7/8"-14	1.36
8643-16-12-SS	3/4"	1-1/16"-12	1.47
8643-20-16-SS	1"	1-5/16"-12	1.52

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.

37° Male Flare Plug

8647*Equal to Aeroquip P/N 900599***Material:**

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)

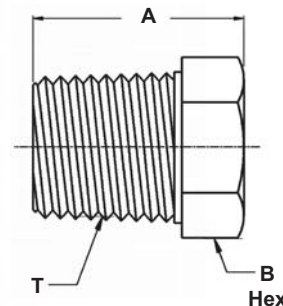
Part Number	Tube O.D.	T	A	B
8647-2-SS	1/8"	5/16"-24	.70	.44
8647-4-SS	1/4"	7/16"-20	.80	.50
8647-6-SS	3/8"	9/16"-18	.84	.62
8647-8-SS	1/2"	3/4"-16	.94	.81
8647-10-SS	5/8"	7/8"-14	1.10	.94
8647-12-SS	3/4"	1-1/16"-12	1.28	1.12
8647-16-SS	1"	1-5/16"-12	1.33	1.38

156

37° Male External N.P.T.F. x Plug

8644*Equal to Aeroquip P/N 2082***Material:**

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)

Part Number	Pipe O.D.	A	B	T
8644-2-SS	1/8"	.56	.44	1/8"-27
8644-4-SS	1/4"	.75	.56	1/4"-18
8644-6-SS	3/8"	.78	.69	3/8"-18
8644-8-SS	1/2"	.97	.88	1/2"-14

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.

Male External NPTF x Female Internal NPTF

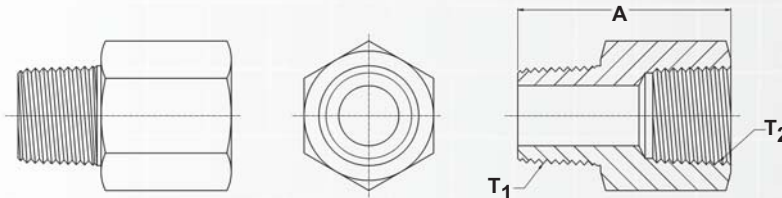
8646

Equal to Aeroquip P/N 2041

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Pipe Size	T ₁	T ₂	A
8646-4-4-SS	1/4"	7/16"-20	7/16"-20	2.07
8646-6-6-SS	3/8"	9/16"-18	9/16"-18	2.18
8646-8-8-SS	1/2"	3/4"-16	3/4"-16	2.44

Reducer-Male External NPTF x Female Internal NPTF

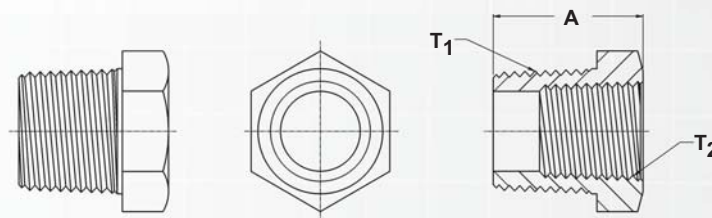
8645

Equal to Aeroquip P/N 2081

Material:

Stainless Steel

(To order Monel, Drop "SS" suffix and add NICU. To order Copper Nickel, drop "SS" suffix and add CUNI.)



Part Number	Pipe Size	T ₁	T ₂	A
8645-4-2-SS	1/8"	1/4"-18	1/8"-27	.85
8645-6-4-SS	1/4"	3/8"-18	1/4"-18	.85
8645-8-4-SS	1/4"	1/2"-14	1/4"-18	1.10
8645-8-6-SS	3/8"	1/2"-14	3/8"-18	1.10
8645-12-8-SS	1/2"	3/4"-14	1/2"-14	1.17
8645-16-8-SS	1/2"	1"-11-1/2	1/2"-14	1.36
8645-16-12-SS	3/4"	1"-11-1/2	3/4"-14	1.36

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.

Notes



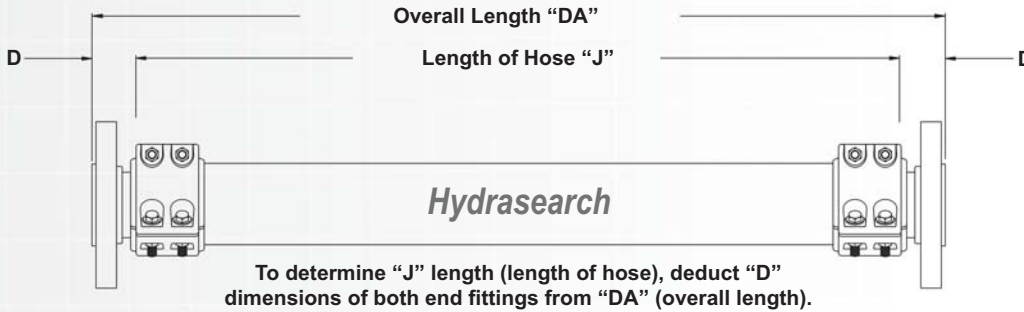
Assembly Instructions

Section E

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Hydrasearch HS449 End Fittings

Hydrasearch HS449 End Fittings are manufactured to military specifications MIL-F-24787/1,4,5 and 6. These fittings are reusable and can be installed by using a socket and a box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 10 thru 30 to the HS4265 and HS4224 hose.



Step 1:

Cut hose squarely to desired length using a high-speed abrasive wheel or steel cut off wheel. Hose may also be cut with a fine toothed hacksaw. Hose should be bent so that the outside of the bend contacts the wheel to prevent binding. Do not feed the hose to the cutting edge too fast as it may tend to loosen the wire reinforcement or cause unraveling. After the cutting operation is complete, thoroughly clean all residue from inside and outside of the hose. If cutting the end to neck down slightly, it can be flared with a smooth tool to allow proper insertion of the nipple.

Step 2:

Apply a thin coat of end sealing compound to the hose ends and to the outer cover which will be covered by the segments, and allow to dry for about a 1/2 hour. Immediately before installing the nipple, apply a second thin coat of end sealing compound over the first thin coat. Do not allow end sealant to enter hose bore. The end sealing compound is available from Hydrasearch as part number ESC 32.

Step 3:

Place segments around the hose so that the lip on the segment captures the shoulder on the nipple (see figure 1). Be sure the bolts are facing the same direction in the bolt holes to ensure even gripping on the hose.

Step 4:

Tighten bolts at random starting with back bolts closest to the hose, taking care to maintain an even spacing between the segments. Never tighten one set of bolts completely without tightening the other bolts, this will cause an uneven gripping of the hose.

Step 5:

Continue tightening the bolts alternately to maintain even spacing between segments until the torque specified in the table below is achieved. Assembly speeds should not exceed 100RPM. Preferred speeds are 40 to 50 RPM. Bolts should be retorqued after 24 hours to compensate for natural cold flow of rubber.

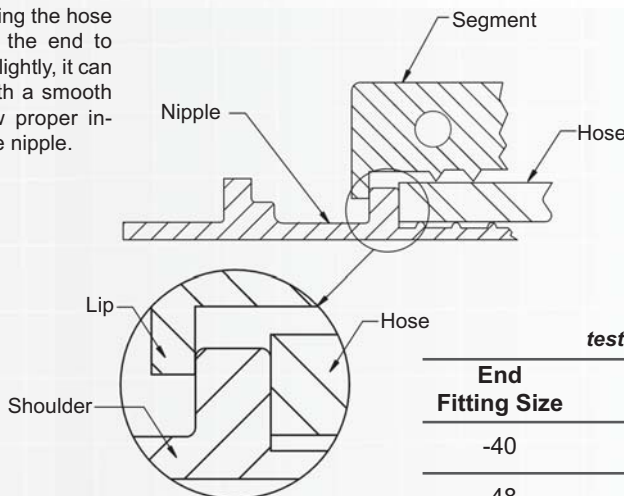


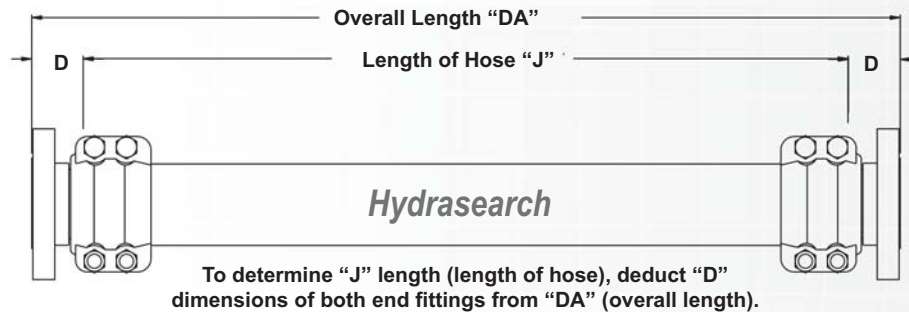
Figure 1

All hose assemblies should be hydrostatically tested to proof pressure before being put into service.

End Fitting Size	Bolt Size	Wrench Size	Torque Requirements
-40	3/8"	9/16"	35 ft. lbs.
-48	3/8"	9/16"	35 ft. lbs.
-64	7/16"	5/8"	35 ft. lbs.

Hydrasearch HS1546 End Fittings

Hydrasearch HS1546 End Fittings are manufactured to military specifications MIL-F-24787/1,4,5 and 6. These fittings are reusable and can be installed by using a socket and/or box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 31 thru 43 to HS4182 shown on page 2.



Step 1:

Cut hose squarely to desired length using a sharp knife or cut off saw. Hose should be bent slightly away from the cutting edge to prevent binding. A water soluble oil may be used to cool the blade. Clean hose bore.

Step 2:

Insert the nipple into the hose bottoms squarely against the nipple shoulder. Apply a light coat of hose lubricant P/N DCL10 or DCL80 to the exterior of the hose, covering the last 5 inches of each end.

Step 3:

Place segments around the hose so that the lip on the segment captures the shoulder on the nipple (see figure 1). Be sure the bolts are facing the same direction in the bolt holes to ensure even gripping on the hose.

Step 4:

Insert the 4 bolts through the matching segment holes. Start the nuts, and holding the segment parallel, tighten the bolts alternately keeping gaps between segments equal, until the segment stops meet, or torque values listed below are reached, whichever occurs first. Assembly speeds should not exceed 100 RPM. Preferred speeds are 40 to 50 RPM. Bolts should be re-torqued after 24 hours to compensate for natural cold flow of rubber.

All hose assemblies should be hydrostatically tested to proof pressure before being put into service.

End Fitting Size	Bolt Size	Wrench Size	Torque Requirements
-40	1/2"	3/4"	80-90 ft. lbs.
-48	9/16"	13/16"	120-130 ft. lbs.
-64	5/8"	15/16"	170-180 ft. lbs.

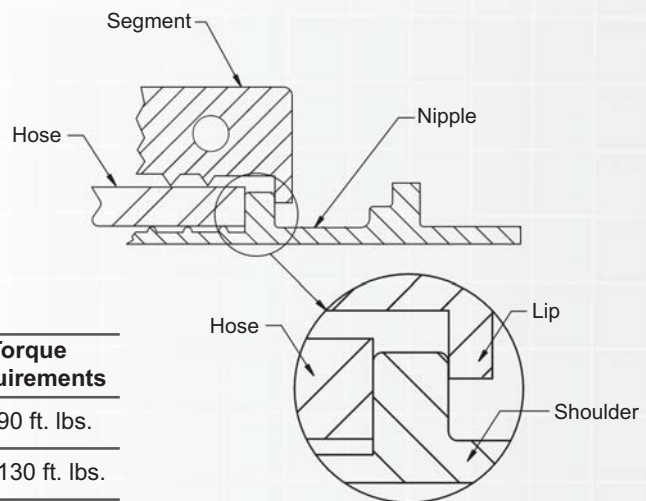
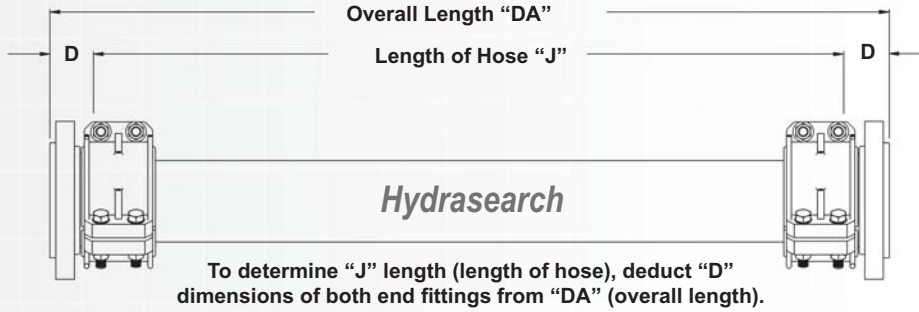


Figure 1

Hydrasearch ER512 End Fittings

Hydrasearch ER512 End Fittings are manufactured to military specifications MIL-F-24787/1,4,5 and 6. These fittings are reusable and can be installed by using a socket and/or box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 44 thru 59 to ER512 hose shown on page 3.



Step 1:

Cut hose squarely to desired length using a sharp knife.

Step 2:

Insert the nipple into the hose until the hose meets the shoulder on the nipple.

Step 3:

Place segments around the hose so that the lip on the segment captures the shoulder on the nipple (see figure 1). Be sure the bolts are facing the same direction in the bolt holes to ensure even gripping on the hose.

Step 4:

Tighten bolts at random starting with back bolts closest to the hose, taking care to maintain an even spacing between the segments. Never tighten one set of bolts completely without tightening the other bolts, this will cause an uneven gripping of the hose.

Step 5:

Continue tightening the bolts alternately to maintain even spacing between segments until the torque specified in the table below is achieved. Assembly speeds should not exceed 100RPM. Preferred speeds are 40 to 50 RPM. Bolts should be retorqued after 24 hours to compensate for natural cold flow of rubber.

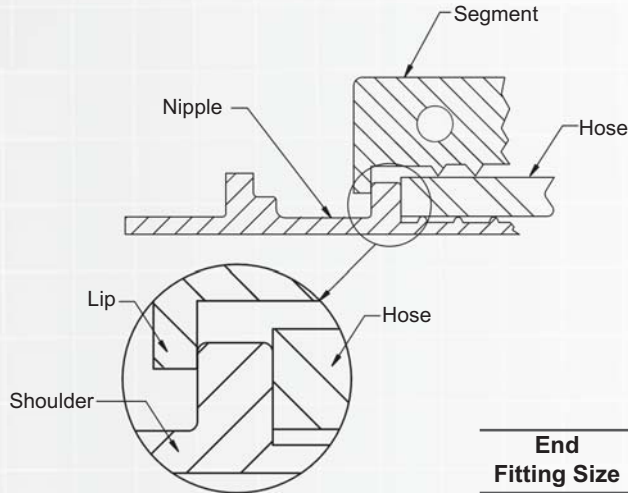


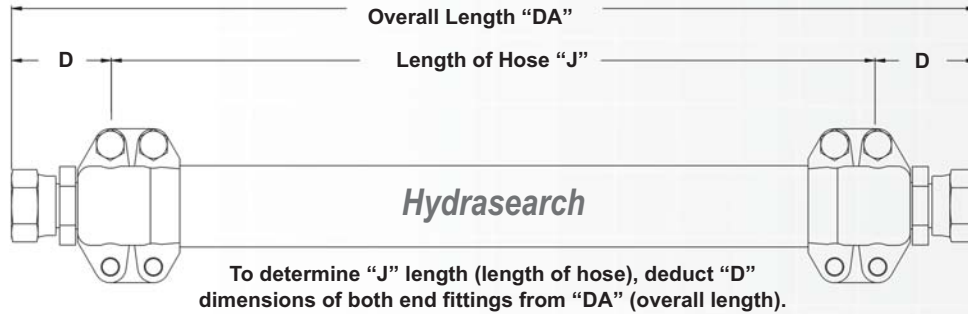
Figure 1

All hose assemblies should be hydrostatically tested to proof pressure before being put into service.

End Fitting Size	Bolt Size	Wrench Size	Torque Requirements
5" & 6"	1/2"	3/4"	75-80 ft. lbs.
8" & 10"	5/8"	15/16"	130-140 ft. lbs.
12"	3/4"	1-1/8"	185-200 ft. lbs.

Hydrasearch HS1489 End Fittings

Hydrasearch HS1489 End Fittings are manufactured to military specifications MIL-F-24787/1,4,5 and 6. These fittings are reusable and can be installed by using a socket and/or box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 60 thru 67, to HS133 hose shown on page 4.



Step 1:

Cut hose squarely to desired length using a high-speed abrasive wheel or steel cut off wheel. After cutting, clean all residue from the inside and outside of the hose. Lubricate inside and outside of hose and nipple nose and grooves liberally. Use heavy oil.

Step 2:

Insert the nipple into the hose until the hose bottoms squarely against the nipple shoulder. (See Figure 1)

Step 3:

Place the shoulder of each segment into the nipple groove (See Figure 1). Insert a bolt through the under-threaded hole of one segment and thread it finger tight into the threaded hole of the other segment. Insert the following bolt in a similar manner.

Step 4:

Torque the bolts alternately, a little each time, until the segments meet.

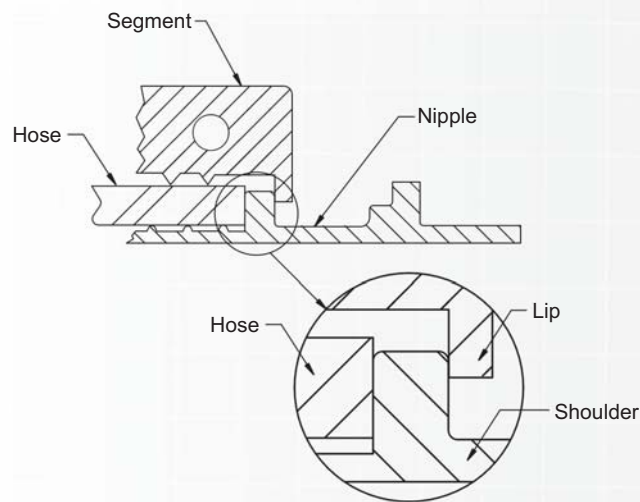
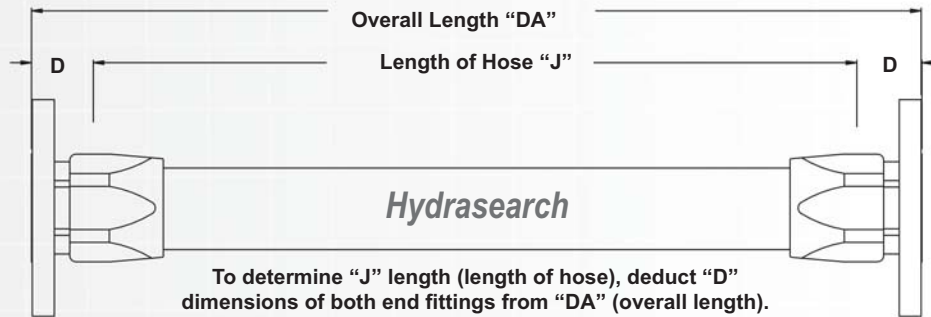


Figure 1

Hydrasearch HS1488 End Fittings

Hydrasearch HS1488 Solid Socket End Fittings are reusable and can be installed by using an open end or adjustable wrench. Please follow these instructions to ensure proper installation of the end fittings shown on pages 68 thru 106.



Step 1:

Cut hose squarely to desired length using a high speed abrasive wheel or steel cut off wheel. Hose may also be cut with a fine tooth hacksaw. Hose should be bent so that the outside of the bend contacts the wheel to prevent unraveling. After the cutting operation is complete, thoroughly clean all residue from the inside and outside of the hose. If cutting the hose has caused the end to neck down slightly, it can be flared with a smooth tool to allow proper insertion of the nipple.

Step 2:

Apply a thin coat of end sealing compound to the ends and to the cover which will be covered by the fitting socket, allow to dry for about 1/2 hour. Do not allow end sealant to enter hose bore. Immediately before installing socket, apply second thin coat of end sealing compound over the first thin coat. The end sealing compound is available from Hydrasearch as part number ESC32.

Step 3:

Put fitting socket in vise and screw hose counter-clockwise into socket until hose bottoms, then back off 1/4 turn.

Step 4:

Oil nipple threads and inside of hose liberally with a petroleum based oil.

Step 5:

a. For male end fittings insert nipple into socket, screw nipple counter-clockwise into socket using wrench on male end hex. Tighten nipple to within 1/32" to 1/16" of the socket. Do not tighten against socket.

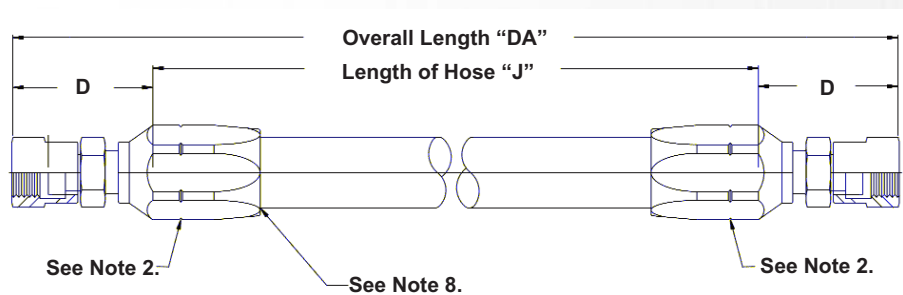
b. For female swivel end fittings insert male plug into swivel and tighten onto plug. Insert nipple into socket and screw clockwise using wrench on swivel hex. Leave 1/32" to 1/16" clearance between nut and socket so that nut can swivel freely. Do not tighten against socket.

Step 6:

Remove assembly plug and add a fillet of sealing compound to hose end of socket. Clean, inspect, and proof test.

Hydrasearch HS1600 & 1602 End Fittings

Hydrasearch HS1600 and HS1602 End Fittings are reusable and can be installed by using an open end or adjustable wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 107 thru 126.



To determine "J" length (length of hose), deduct "D" dimensions of both end fittings from "DA" (overall length).

Step 1:

Cut hose squarely to desired length using a high-speed abrasive wheel or steel cut off wheel. Do not feed the hose to the cutting edge too fast as it may tend to loosen the wire reinforcement or cause unraveling. After the cutting operation is complete, clean all residue from the inside and outside of the hose.

Step 2:

Use notch on socket to determine length of cover to be stripped.

Step 3:

Strip off cover. Cut around hose through cover to wire braid. Slit cover lengthwise. Be sure cut is down to wire braid.

Step 4:

Use the correct size skiving tool. Insert mandrel into the hose and rotate clockwise until the proper length is skived.

Step 5:

Apply coating of sealing compound, Hydrasearch part number ESC-800, to ends of hose and to skived portion to cover all exposed wire surfaces and wire ends, allow to dry for about 1/2 hour. Do not allow end sealant to enter hose bore. Immediately before installing socket, apply a second coat of sealing compound over the first coat.

Step 6:

Place fitting socket in a vice and screw hose counter-clockwise into the end of the socket until it bottoms. After starting the socket onto the hose it may be tapped on with a rawhide or lead hammer to avoid damage to the threads.

Step 7:

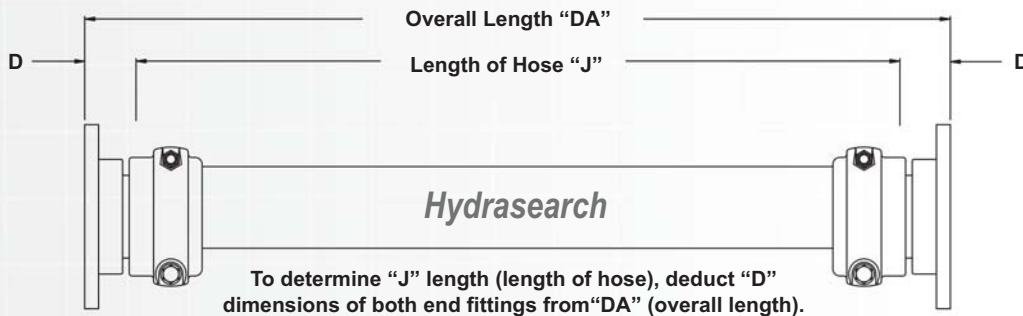
Oil nipple threads and inside of hose liberally with a petroleum based oil. Use Tylube Anti-Gall compound for monel fittings.

Step 8:

Screw nipple clockwise into socket and hose. Leave a 1/32" to 1/16" clearance between the nipple hex and the socket. Place a fillet of sealing compound around the hose end of the socket and hose.

Hydrasearch LFS End Fittings

Hydrasearch LFS End Fittings are manufactured to be used with layflat hose. These fittings are reusable and can be installed by using a socket wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages 127 thru 129, to the HSSA layflat hose on page 6.



Step 1:

Cut hose squarely to desired length using a sharp knife

Step 2:

Make sure the rubber gasket is installed on the hose nipple. (See Figure 2)

Step 3:

Insert the nipple into the hose until the hose bottoms squarely against the nipple shoulder.

Step 4:

Place the segments around the hose so that the lip on the segments capture the shoulder on the nipple. (See Figure 1)

Step 5:

Insert bolts into round pocket and hex nuts into other adjacent pockets.

Step 6:

Tighten bolts at random taking care to maintain an even spacing between the segments. Never tighten one set of bolts completely without tightening the other bolts. This will cause uneven gripping of the hose.

Step 7:

Continue tightening bolts alternatively to maintain even spacing between segments until the torque specified in the table below is achieved.

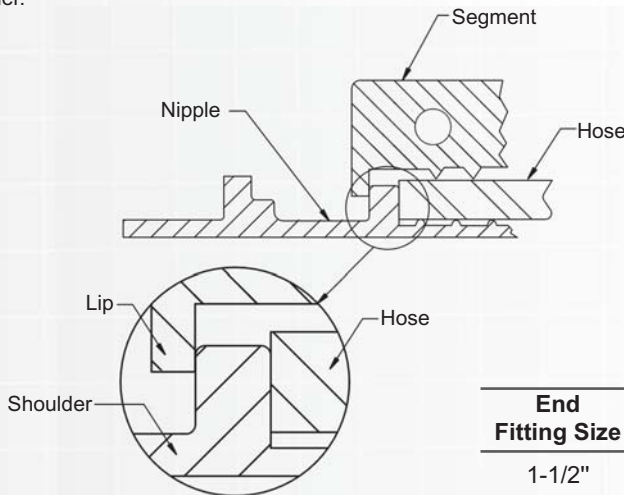


Figure 1

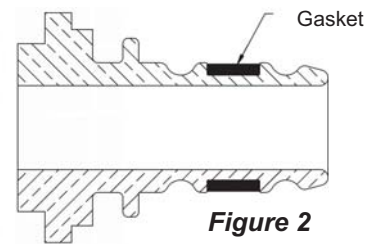


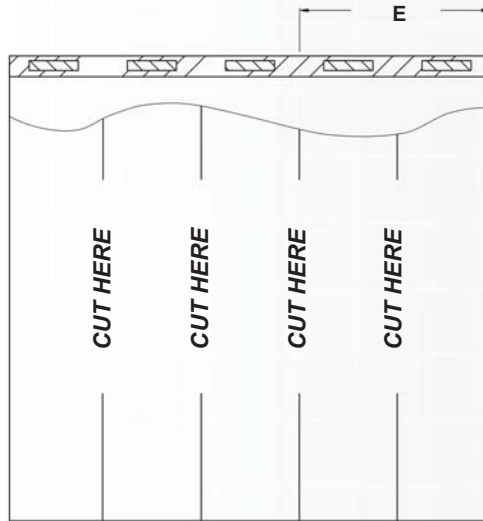
Figure 2

All hose assemblies should be hydrostatically tested to proof pressure before being put into service.

End Fitting Size	Bolt Size	Wrench Size	Torque Requirements
1-1/2"	3/8"	9/16"	35 ft. lbs.
3"	3/8"	9/16"	35 ft. lbs.



Internal Support Sleeves

**Step 1:**

Cut hose to required length and assemble one end fitting.

Step 2:

On the remaining fitting, measure the distance from the end of the nipple to the nipple shoulder, add 1/4" to this dimension and mark this distance on the inside of the hose.

Step 3:

Install internal support sleeves up to, but not past the mark and no more than 3/4" below the mark.

Step 4:

Measure the distance from the end of the last sleeve selection to the mark. If this dimension is greater than 3/4", one or possibly two sleeves must be cut to obtain the optimum supported length within the hose.

Step 5:*One Sleeve Cut*

a. Cut sections of sleeve must contain at least two bronze rings. If the sleeve section needed is greater than "E" in the dimension chart, make a clean, straight cut in the area between the rib indicators where stenciling is present (with hacksaw or band saw).

b. Make sure the cut section is free of foreign particles and rubber dust.

c. Make sure a full sleeve is at each end of the hose assembly by placing the cut section below the last full section installed in the hose.

Step 6:*Two Sleeve Cut*

a. If the cut section needed is less than dimension "E" add the measured distance in step 4 to the length of one sleeve, and make cuts in two sleeves so their total length will equal this distance. Remember, neither cut section can be less than dimension E because no cut section should contain less than two bronze rings. Cuts must be made between the rib indicators where stenciling is present.

b. Complete the installation following *b* and *c* in step 5.

Step 7:

Assemble the other end fitting on the hose.

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Fraction-Decimal Conversion

	<u>Inches</u>	<u>Millimeters</u>		<u>Inches</u>	<u>Millimeters</u>
$\frac{1}{32}$	$\frac{1}{64}$.015625	.3969	$\frac{17}{32}$	$\frac{33}{64}$.515625	13.0969
$\frac{1}{16}$	$\frac{3}{64}$.046875	1.1906	$\frac{9}{16}$	$\frac{35}{64}$.546875	13.8907
$\frac{1}{8}$	$\frac{5}{64}$.078125	1.9844	$\frac{19}{32}$	$\frac{37}{64}$.578125	14.6844
$\frac{3}{32}$	$\frac{7}{64}$.109375	2.7781	$\frac{5}{8}$	$\frac{39}{64}$.609375	15.4782
$\frac{1}{4}$	$\frac{9}{64}$.140625	3.5719	$\frac{21}{32}$	$\frac{41}{64}$.640625	16.2719
$\frac{5}{32}$	$\frac{11}{64}$.171875	4.3656	$\frac{11}{16}$	$\frac{43}{64}$.671875	17.0657
$\frac{3}{16}$	$\frac{13}{64}$.203125	5.1594	$\frac{23}{32}$	$\frac{45}{64}$.703125	17.8594
$\frac{7}{32}$	$\frac{15}{64}$.234375	5.9531	$\frac{3}{4}$	$\frac{47}{64}$.734375	18.6532
$\frac{1}{2}$	$\frac{17}{64}$.265625	6.7469	$\frac{25}{32}$	$\frac{49}{64}$.765625	19.4470
$\frac{1}{2}$	$\frac{19}{64}$.296875	7.5406	$\frac{13}{16}$	$\frac{51}{64}$.796875	20.2407
$\frac{1}{2}$	$\frac{21}{64}$.328125	8.3344	$\frac{27}{32}$	$\frac{53}{64}$.828125	21.0345
$\frac{1}{2}$	$\frac{23}{64}$.359375	9.1282	$\frac{7}{8}$	$\frac{55}{64}$.859375	21.8282
$\frac{1}{2}$	$\frac{25}{64}$.390625	9.9219	$\frac{15}{16}$	$\frac{57}{64}$.890625	22.6220
$\frac{1}{2}$	$\frac{27}{64}$.421875	10.7157	$\frac{29}{32}$	$\frac{59}{64}$.921875	23.4157
$\frac{1}{2}$	$\frac{29}{64}$.453125	11.5094	$\frac{15}{16}$	$\frac{61}{64}$.953125	24.2095
$\frac{1}{2}$	$\frac{31}{64}$.484375	12.3032	$\frac{31}{32}$	$\frac{63}{64}$.984375	25.0032
$\frac{1}{2}$		12.7001	1		25.4001

Conversions

Pressure Conversions

PSI to Bar

100 PSI = 6.9 Bars

250 PSI = 17.25 Bars

600 PSI = 41.4 Bars

Bar to PSI

5 Bars = 72.5 PSI

10 Bars = 145 PSI

25 Bars = 362.5 PSI

Measurement Conversions

1 Pound Per Square Inch (PSI) Is equal To:

.068947 Bar

.068045 Atmosphere

144 Pounds Per Square Foot

2.042 Inches of Mercury at 62°F

27.7 Inches of Water at 62°F

2.31 Feet of Water at 62°F

1 Atmosphere Is Equal To:

30 Inches of Mercury at 62°F

33.95 Feet of Water at 62°F

14.7 Pounds Per Square Inch

2116.3 Pounds Per Square Foot

1 Inch Of Mercury At 62°F is Equal To:

1.132 Feet of Water

13.58 Inches of Water

.491 Pounds Per Square Inch

Column of Water 12 Inches High, 1 Inch in Diameter Is Equal To :

.341 Pounds

190

Length Conversion Constants

Millimeters x .039370 = Inches

Meters x 39.370 = Inches

Meters x 3.2808 = Feet

Meters x 1.09361 = Yards

Kilometers x 3,280.8 = Feet

Kilometers x .62137 = Statute Mile

Kilometers x .53959 = Nautical Miles

Inches x 25.4 = Millimeters

Inches x .0254 = Meters

Feet x .30480 = Meters

Yards x .91440 = Meters

Feet x .0003048 = Kilometers

Statute Miles x 1.60935 = Kilometers

Nautical Miles x 1.85325 = Kilometers

Weight Conversion Constants

Grams x .03527 = Ounces (Avd.)

Grams x .033818 = Fluid Ounces(Water)

Kilograms x 35.27 = Ounces (Avd.)

Kilograms x 2.20462 = Pounds (Avd.)

Ounces (Avd.) x 28.35 = Grams

Fluid Ounces(Water) x 29.57 = Grams

Ounces (Avd.) x .02835 = Kilograms

Pounds (Avd.) x .45359 = Kilograms



Notes




Notes



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