



Hydrasearch DEFENSE

Marine Hose & Fittings





Committed to Quality and Innovation

Founded in 1962, Hydrasearch is a US-based manufacturer providing mission-critical fluid conveyance solutions for maritime and aerospace markets. We have extensive experience in defense and commercial applications, strategically overcoming technical, regulatory and operational hurdles which others avoid. We support the immediate needs of daily operational logistics, and provide the long-term dependability required to satisfy OEM production.

Over the years, we have built our reputation through strict adherence to product design and quality control, interchangeability with existing products, close attention to customer requirements and delivery needs, and maintaining competitive pricing. Our steadily expanding market presence led to the acquisition of Aeroquip's Marine Military product line in 2023—combining over 120 years of collective experience and innovation in naval fluid conveyance systems.

Today, Hydrasearch products are found in marine vessels and aircraft 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 60 years, Hydrasearch has focused on the design, development, and manufacturing of fluid systems and components. Many of our original products were specifically designed hydraulic systems and Underway Replenishment (UNREP) 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, which are now part of many fuel and water handling systems used by military and commercial customers alike.

Hydrasearch Company, LLC.

203A Log Canoe Circle,
Stevensville, MD 21666

About Hydrasearch

KEY DIFFERENTIATORS

- **Responsive and accessible staff.** Full-time engineering and Sales Quoting Teams providing tailored solutions and proactive communication. Directly available via phone and email, and conveniently located on-site at our production facility.
- **Subject Matter Experts.** Our hand picked team of seasoned authorities and innovators in fluid conveyance is always at the ready. We work tirelessly to identify top talent—and are just as committed to retaining them.
- Over 60 years of manufacturing qualified products for the Defense Industry
- Complete traceability on all defense products
- Rapid Prototyping and Reverse Engineering
- Global Operation

QMS & CERTIFICATIONS

- AS9100D and ISO9001:2015 - Cert. No. US019007



- AS9100D and ISO9001:2015 - Cert. No. US019007
- Level 1/SUBSAFE Program
- NIST Cybersecurity Compliant CMMC
- ITAR Compliant
- Legacy Parts Program

ACTIVE MEMBERSHIPS

- Submarine Industrial Base Council
- Aircraft Carrier Industrial Base Coalition
- Marine Machinery Association
- National Marine Manufacturers Association
- American Society of Naval Engineers

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 you have additional requirements beyond those of our “standard” products, 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 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-10 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.

Additional Literature: Please contact our Sales Department to request additional literature free of charge, or visit our website for free digital downloads:

- Aerospace Hose & Fittings
- Underway Replenishment Products
- Technical Products Vales & Fittings
- Aircraft Ground Refueling Hose Assemblies
- Commercial Products

Legal Policy Information

Right to Warn



In order to ensure proper function of products, it is strongly recommended that each part is inspected and serviced monthly. Inspection should include, but is not limited to, visible damage, excessive wear and proper bonding. Failure to properly maintain your product may result in catastrophic failure and/or loss of life.

Limited Warranty

Hydrasearch Company, LLC (herein called “Hydrasearch”) warrants the products described herein, and manufactured by Hydrasearch to be free from defects in material and workmanship for a period of one (1) year from the date of invoice by Hydrasearch under normal use and service. Hydrasearch’s sole obligation under this warranty is limited to either repairing or replacing, as hereinafter provided, at its option, any product found to Hydrasearch’s satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Hydrasearch’s factory within thirty (30) days after receipt.

The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to parts or products not manufactured by Hydrasearch, the warranty of such items being limited to the actual warranty extended to Hydrasearch by its supplier.

This warranty shall not apply to any product which has been subject to abuse, negligence, accident or misapplication or to any product which has been altered or repaired by anyone other than Hydrasearch nor to normal maintenance services and the replacement of service items (such as washers, gaskets and lubricants) made in connection with such services.

To the extent permitted by law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of warranty. No action may be brought against Hydrasearch for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable law.

Other than the obligation of Hydrasearch expressly set forth herein, Hydrasearch disclaims all warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose, and any other obligation or liability. The foregoing constitutes Hydrasearch’s sole obligation with respect to damages, whether direct, incidental or consequential, resulting from the use or performance of the product.

Proposition 65 Warning

As a company that may sell or distribute Hydrasearch Company, LLC (“Hydrasearch”) products to California consumers or to other persons or entities that may sell such items to California consumers, Hydrasearch is obligated to notify you of the following:

Hydrasearch is in compliance with the California Safe Drinking Water and Toxic Enforcement Act of 1986 and its supporting regulations (“Proposition 65”), as it provides warnings that comply with a 2015 court-approved settlement. All Hydrasearch products are shipped in cartons with the following warning:

“**WARNING:** This product contains lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.”

If you sell or distribute Hydrasearch products to California consumers, or to other persons or entities that may sell such items to California consumers, in quantities fewer than a full carton, you must provide this warning to each consumer, either by labeling each unit with the above warning, by posting a sign at the point of sale, or by another method.

If you sell Hydrasearch products online to California consumers, you should display this warning message on the product display page, by a clearly marked hyperlink on the product display page, or otherwise prominently displayed to the purchaser before the purchaser completes the purchase of the product.

Hydrasearch will defend and indemnify you if there is a claim made under Proposition 65 for listed chemicals being contained in its products, so long as you have provided the warning per the instructions above. If you sell Hydrasearch products without the warnings we have provided, you are at risk of enforcement and significant penalties.

If you would like more information about the chemicals contained in Hydrasearch products, please visit our website at www.hydrasearch.com. Many product display pages contain information about the chemicals contained in our products.

Hydrasearch products made of brass may not be sold to California consumers unless such fittings either contain less than 300 ppm of lead when analyzed pursuant to the EPA test method of 3050B or equivalent or they are sold or distributed with a clear, reasonable and conspicuous warning. So long as it is prominently displayed on the product or the packaging of the product, the above warning complies.

Should you need further explanation or assistance in complying with this notice, please do not hesitate to contact us at compliance@hydrasearch.com

Legal Policy Information

Return Policy

Contact your Hydrasearch Company, LLC customer service representative (information below) to obtain a Return Material Authorization (RMA) form. Original invoice number, purchase order number and date must be provided. Product returned without an RMA number may be refused or returned at the customer’s expense. Hydrasearch is not liable for unauthorized returns.

Return Material Authorization (RMA)

- Authorization must be obtained prior to return
- RMA expires thirty (30) days from the date issued
- One carton must include a copy of the RMA form to ensure prompt evaluation and possible credit on return
- If credit is applicable, credit may take up to thirty (30) days from receipt of the returned product(s)
- Returned merchandise transportation must be prepaid
- Merchandise must be securely packaged to avoid damage during transit
- All cartons must be marked with authorized RMA number (unmarked shipments will be refused by our receiving department)
- Returned goods should be shipped to the following address:

Hydrasearch Company, LLC
Returns Dept. RMA # _____
203A Log Canoe Circle
Stevensville, MD 21666

Nonconforming Products

- All products will be inspected and processed by our quality department for disposition
- Product(s) shipped in error and/or products deemed nonconforming will be credited at the invoice price paid including freight charges for these items

Restocking/Unwanted Products

- All products will be inspected and processed by our quality department for disposition
- Restocking charge will apply at a minimum of 25% for all products returned for any other reason than Hydrasearch shipping and/or nonconforming errors
- Product(s) may not be returned unless they are in marketable condition. Any cost incurred to put product(s) in marketable condition will be charged to the customer.
- Products returned damaged/broken will be credited at scrap value only
- Products returned to Hydrasearch must be prepaid freight at the responsibility of the customer
- Non-inventory products may or may not be authorized for return, based solely on the inventory requirements of Hydrasearch
- Special order product(s) or products that do not have standard requirements, are not eligible for return (unless product is found to be nonconforming by our quality department)
- Shaft couplings must be in original, sealed cartons and in salable condition

Claims

- Claims for damage or loss in transit must be made by customer directly against the carrier. Hydrasearch is not responsible for freight damage
- Photographic evidence is required for all claims
- All claims for defective product or deficient orders must be made in writing by customer within thirty (30) days of receipt

Limits of Liability and Copyright

This catalog is intended as a product offering. It is not intended to be a technical manual. Information in this catalog is subject to change without notice. All users and distributors of products sold through this catalog should contact Hydrasearch with questions of use, compatibilities, coupling procedures and life of product. Our full time engineering and test staff is always available to recommend uses and to assist distributors and users with any questions.

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HS4182 | Equal to Aeroquip
P/N FC132

Large Bore
Hose
MIL-DTL-24136/4



Part Number	Hose I.D.	Hose O.D.	Maximum Operating Pressure	Minimum Burst Pressure	Minimum Bend Radius	Vacuum Service	Weight per Foot
	inches	inches	PSI	PSI	inches	inch/Hg	pounds
HS4182-40	2½"	3.30	1,000	4,000	20.00	Coil	2.25
HS4182-48	3"	3.80	900	3,600	24.00	Coil	2.55
HS4182-64	4"	4.86	600	2,400	30.00	Sleeve	3.15

Fitting Reference	Page	Construction: Synthetic rubber tube and cover with 3 or 6 layers of synthetic yarn reinforcement, in optional braided or spiral construction. Application: Fresh and salt water systems, oil applications and fuel systems. For more specific information on fluid applications, see page ???. Operating Temperature: -40° F to +200° F (-40° C to +100° C)
Flange		
Dogleg		
Split Clamp		
Tailpiece Assembly		

ER512 | Equal to Aeroquip
P/N FC132

Large Bore
Hose
MIL-DTL-24316/1

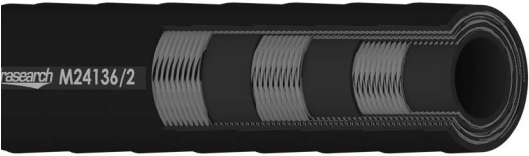


Part Number	Hose I.D.	Hose O.D.	Maximum Operating Pressure	Minimum Burst Pressure	Minimum Bend Radius	Vacuum Service	Weight per Foot
	inches	inches	PSI	PSI	inches	inch/Hg	pounds
HOS-ER512-5	5"	5.88	300	1,200	36.00	Sleeve	3.90
HOS-ER512-6	6"	6.88	300	1,200	42.00	Sleeve	5.00
HOS-ER512-8	8"	8.94	300	1,200	54.00	Sleeve	7.00
HOS-ER512-10	10"	10.94	200	800	66.00	Sleeve	8.50
HOS-ER512-12	12"	13.12	150	600	78.00	Sleeve	12.00

Fitting Reference	Page	Construction: Synthetic rubber tube and cover with 6, 8 or 10 layers of spiraled synthetic yarn reinforcement. Application: Fresh and salt water systems, fuel systems, oil applications and low pressure air. For more specific information on fluid applications, see page ???. Operating Temperature: -40° F to +200° F (-40° C to +100° C)
Flange		
Dogleg		
Split Clamp		

HS133 | Equal to Aeroquip
P/N FC133

High Pressure
Hose
MIL-DTL-24136/2

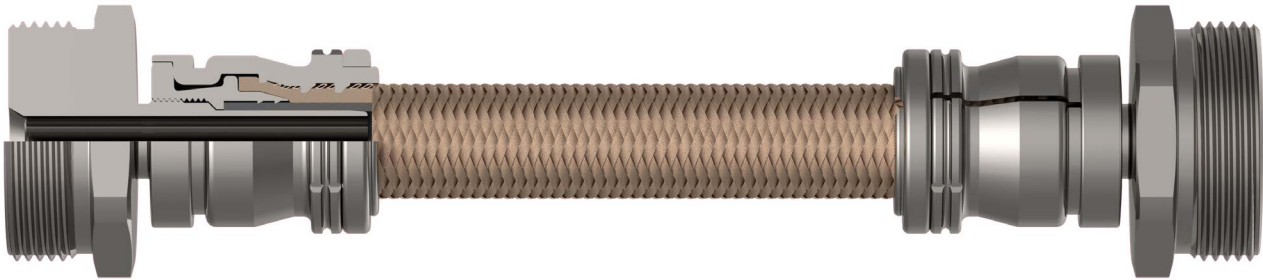


Part Number	Hose I.D.	Hose O.D.	Maximum Operating Pressure	Minimum Burst Pressure	Minimum Bend Radius	Vacuum Service	Weight per Foot
	inches	inches	PSI	PSI	inches	inch/Hg	pounds
HS133-06	¾"	1.03	2,000	8,000	5.00	-	.46
HS133-08	½"	1.15	2,000	8,000	7.00	-	.52
HS133-12	¾"	1.53	1,500	6,000	9.50	-	.81
HS133-16	1"	1.81	1,400	5,600	11.00	-	1.03
HS133-20	1¼"	2.06	1,000	4,000	16.00	-	1.26
HS133-24	1½"	2.29	1,000	4,000	20.00	-	1.34
HS133-32	2"	2.83	900	3,600	25.00	-	1.88

Fitting Reference	Page	Construction: Synthetic rubber tube and cover with 3 layers of braided synthetic yarn reinforcement Application: Fresh and salt water systems, oil applications and fuel systems. For more specific information on fluid applications, see page ???. Operating Temperature: -40° F to +200° F (-40° C to +100° C)
S.A.E. 37°		
O-Ring Seal		
Dogleg		

5,000 PSI Pneumatic Hose Assemblies

C.P.V. Male O-Ring End Fittings -
Reusable or Crimped



Applications:

Hydrasearch’s Aeroquip Pneumatic Teflon* Hose Assemblies are suitable for high pressure service with inert gas systems where operating pressures reach 5,500 psi (351.6 Kg/cm2). The hose is recommended for air, nitrogen and other inert gases, and is also suitable for helium and helium mixtures where a relatively high effusion rate can be accepted. Aeroquip 678 Hose is suitable in a temperature range from -65° F to +450° F. It is NOT recommended for pure oxygen lines without specific engineering approval from Hydrasearch in each case. Primary shipboard applications include compressor discharge lines in H.P. air systems, and charging lines in air and nitrogen systems. The hose is reinforced by multiple spiral layers of 300- series stainless steel wire.

Lengths:

Aeroquip 678619 and AE1000120 Hose Assemblies are available in continuous lengths up to 40 feet. Longer lengths can be assembled using C.P.V. union fittings, or by specifying integral union nipple assemblies.

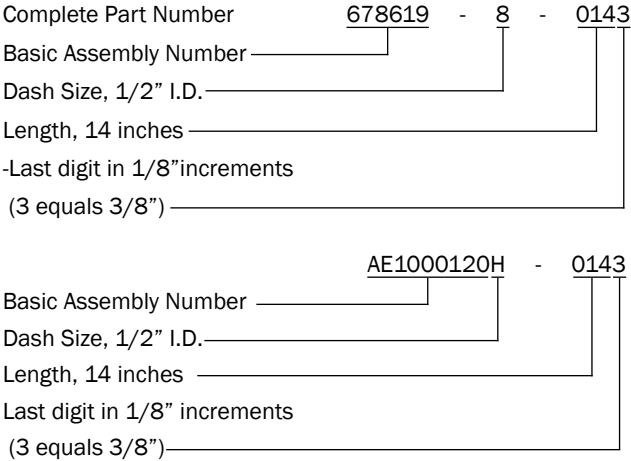
Fittings:

The standard reusable or crimped socket fittings are illustrated above with CRES components. The straight thread male C.P.V. O-Ring style is the standard end configuration. However, a 37° flare swivel fitting and a Walseal male fitting can be supplied on special order.

Certification:

Hose Assemblies are supplied with certification. Traceability documentation to NavShips 0948-045-7010, Level 1, including heat numbers, can be supplied at additional charge when requested.

Example:



How to Order:

The Aeroquip 678619 and AE1000120 Teflon Hose Assemblies should be ordered as detailed below. The complete part number will include the size (-8 only), and the overall length in inches from sealing surface to sealing surface.

Aircraft Ground Refueling Hose Assemblies



Applications:

Hydrasearch’s Aircraft Ground Refueling Hose Assemblies are suitable for medium pressure service with a variety of fixed and rotary wing aircraft. Engineered with integrated electrical grounding systems that prevent static combustion. Common applications include Aircraft Carrier Deck refueling, Field Aviation Refueling Point (FARP) systems, and HEMTT Tanker Aviation Refueling Systems (HTARS).

Military Specifications:

- MIL-DTL-17902G
- MIL-PRF-370J
- MIL-DTL-27516H
- MIL-DTL-6615J
- MIL-PRF-53063B
- MIL-PRF-53064B
- MIL-PRF-53064C

Selection:

- Collapsible and non-collapsible options available
- Available in diameters 1” - 6” according to the military specifications listed below

Certification:

Hose Assemblies can be supplied with various certifications upon request.

How to Order:

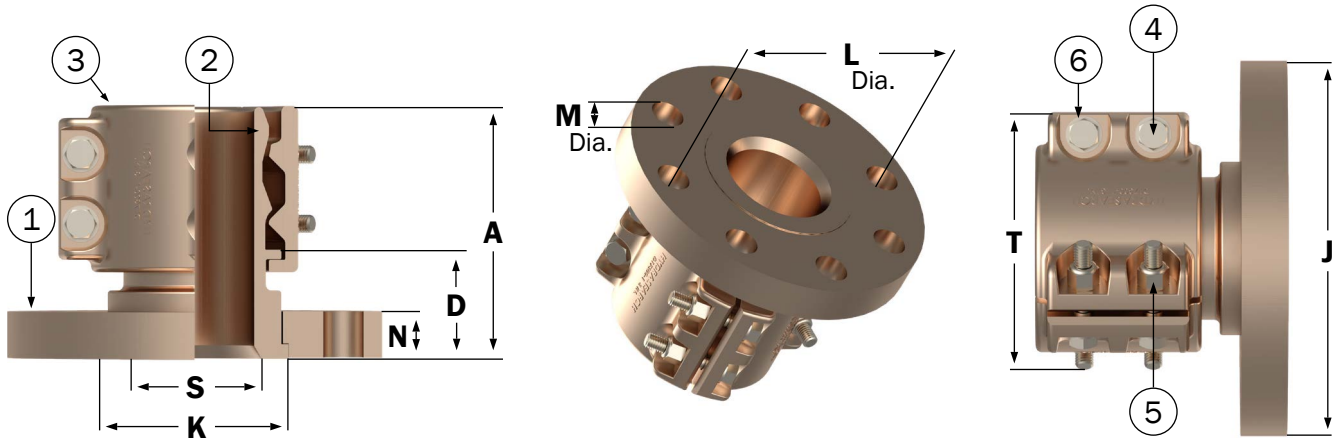
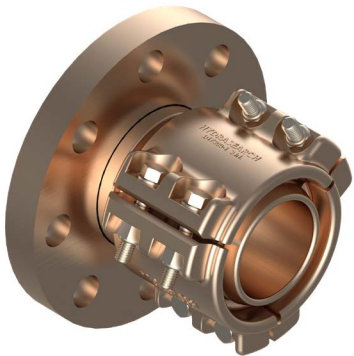
Contact Hydrasearch Sales personnel

Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A1-2-40	C17995	2"	7	0.69	5.11	2.20	6.5	3.22	5.19	0.81	2.24	5.35	12.00
EF-449A1-2.5-48	C17996	2½"	8	0.81	5.11	2.20	7.56	3.78	6.00	0.94	2.71	5.58	17.00
EF-449A1-3-48	C17997	3"	8	0.81	5.11	2.20	8.13	4.44	6.56	0.94	3.31	5.58	18.00
EF-449A1-3.5-64	C17998	3½"	9	0.81	5.54	2.63	8.69	5.22	7.13	1.00	3.81	6.50	23.00
EF-449A1-4-64	C17999	4"	9	0.81	5.54	2.63	9.25	5.22	7.69	1.00	4.28	6.50	26.00

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

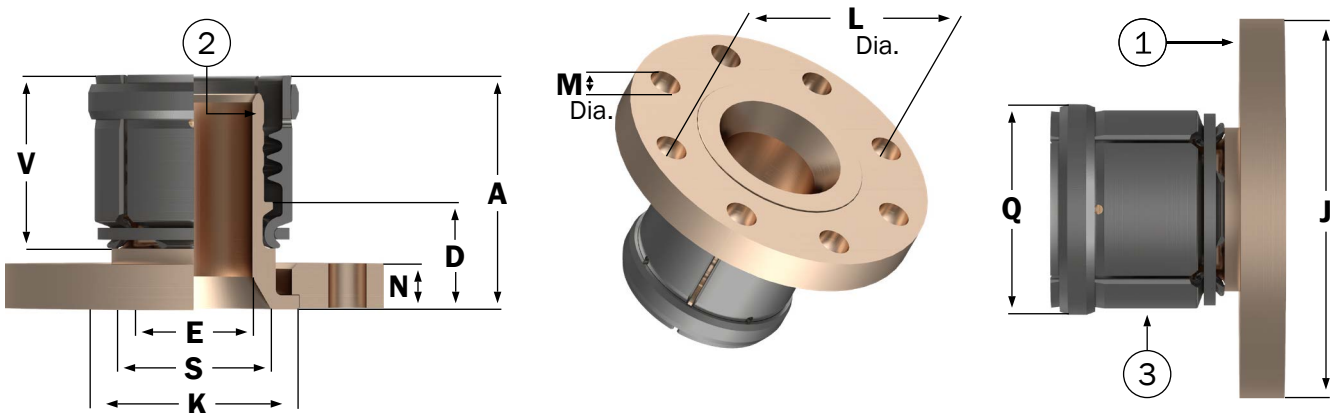
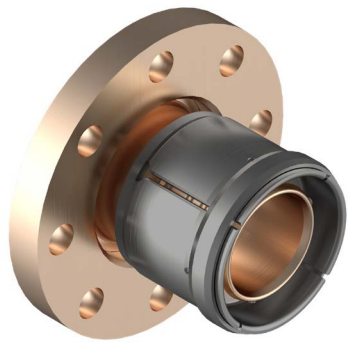
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
375-190752-32-40	2"	7	5.16	2.34	2.06	6.50	3.28	5.19	.69	.83	3.90	2.24	3.69	11.96
375-190752-40-48	2½"	8	5.17	2.30	2.51	7.56	3.78	6.00	.81	.95	4.50	2.71	3.69	16.68
375-190752-48-48	3"	8	5.17	2.30	2.51	8.12	4.50	6.56	.81	.95	4.50	3.31	3.69	17.49
375-190752-56-64	3½"	9	5.54	2.74	3.45	8.69	5.22	7.12	.81	1.02	5.44	3.81	3.69	22.90
375-190752-64-64	4"	9	5.54	2.74	3.45	9.25	5.22	7.69	.81	1.02	5.44	4.28	3.69	25.63

Components		Part Number						Size
Description	Req'd per Ass'y	Base No.	32-40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-74048-	32-40	40-40	48-48	56-48	64-64	Alum. Bronze
Nipple ②	1	188-4112-	40	40	48-48	56-48	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	Monel
Ring	1	4-21004-	40	40	48	48	64	Monel
Band	1	4-2103-	40	40	48	48	64	Monel

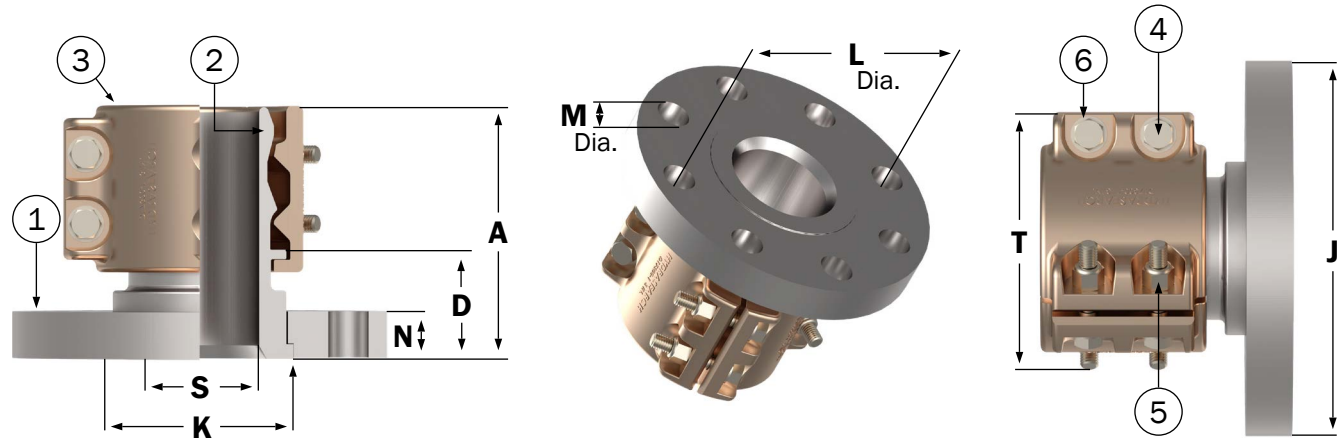
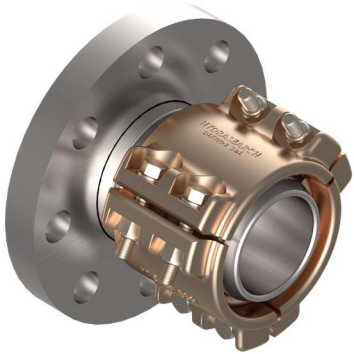
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - Straight

400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing 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	C18581	2½"	8	.81	5.11	2.20	7.56	3.22	6.00	.94	2.24	5.35	16.00

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

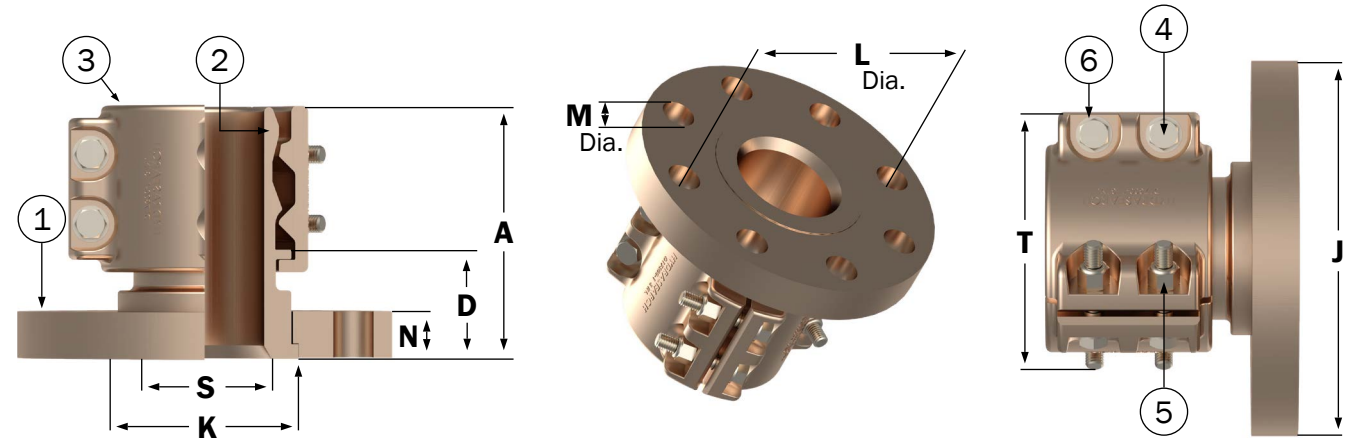
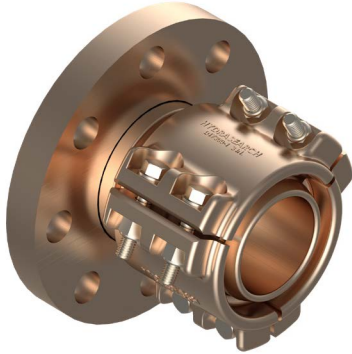
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class III,
250lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A2-2-40	C18000	2"	6	0.69	5.11	2.2	5.56	3.22	4.44	0.81	2.24	5.35	10
EF-449A2-2.5-40	C17089	2½"	6	0.69	5.11	2.2	6.13	3.22	5	0.94	2.24	5.35	12
EF-449A2-2.5-48	C18002	2½"	6	0.69	5.11	2.2	6.13	3.78	5	0.94	2.71	5.58	13
EF-449A2-3-48	C17092	3"	8	0.69	5.11	2.2	6.63	4.44	5.5	0.94	3.31	5.58	13
EF-449A2-3.5-64	C18004	3½"	8	0.69	5.54	2.63	7.19	5.22	6.06	1	3.81	6.5	18
EF-449A2-4-64	C17090	4"	8	0.69	5.54	2.63	7.69	5.22	6.56	1	4.28	6.5	20

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

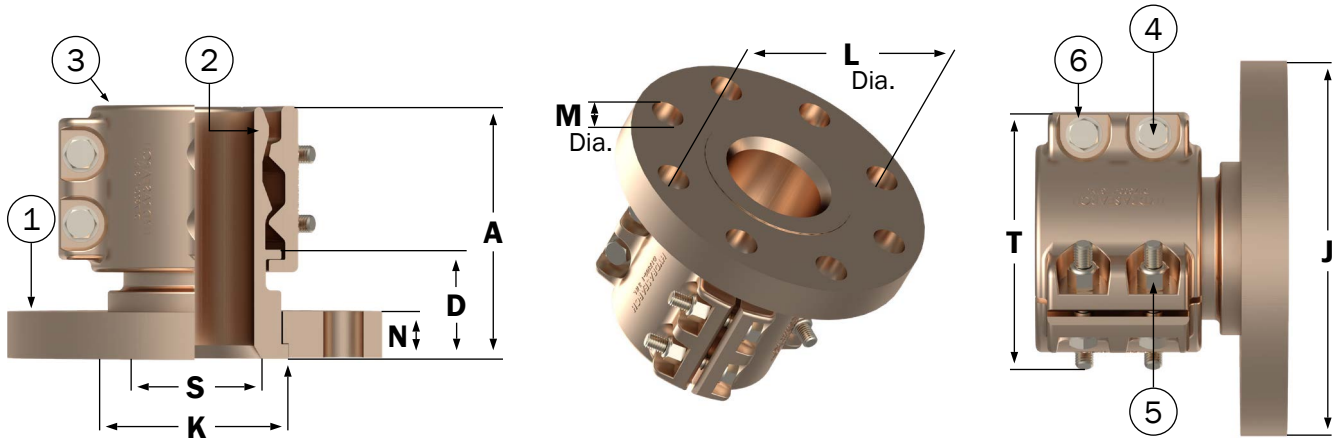
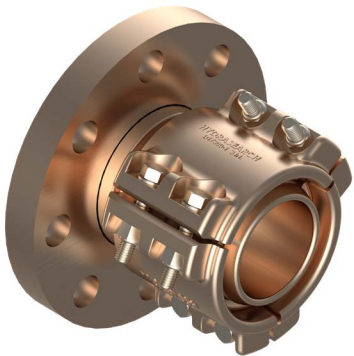
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A5-2-40	C18567	2"	6	0.56	5.11	2.20	5.56	3.22	4.44	0.81	2.24	5.35	10.00
EF-449A5-2.5-40	C18568	2½"	6	0.56	5.11	2.20	6.13	3.22	5.00	0.94	2.24	5.35	12.00
EF-449A5-2.5-48	C18569	2½"	6	0.56	5.11	2.20	6.13	3.78	5.00	0.94	2.71	5.58	13.00
EF-449A5-3-48	C18570	3"	8	0.56	5.11	2.20	6.63	4.44	5.50	0.94	3.31	5.58	13.00
EF-449A5-3.5-64	C18571	3½"	8	0.56	5.54	2.63	7.19	5.22	6.06	1.00	3.81	6.50	18.00
EF-449A5-4-64	C18572	4"	8	0.56	5.54	2.63	7.69	5.22	6.56	1.00	4.28	6.50	20.00

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

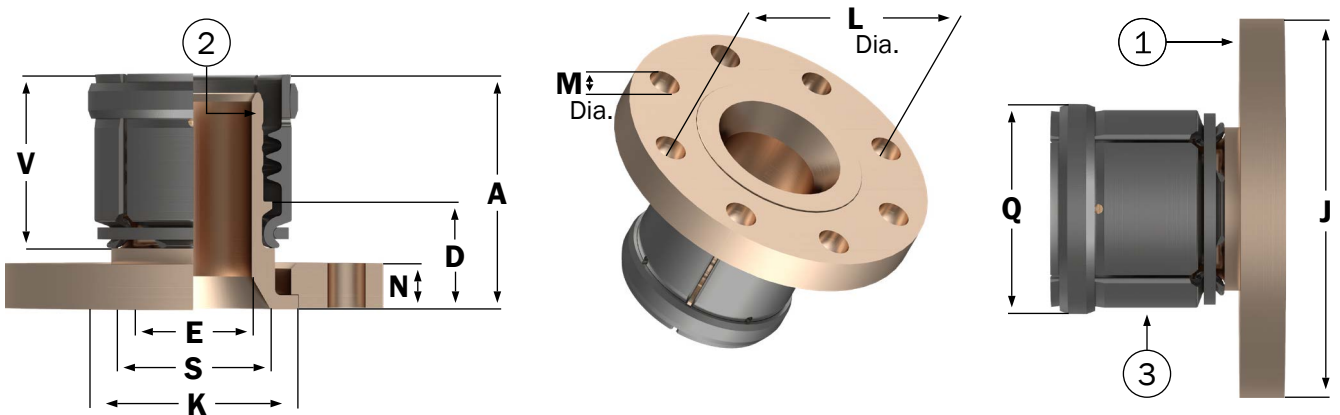
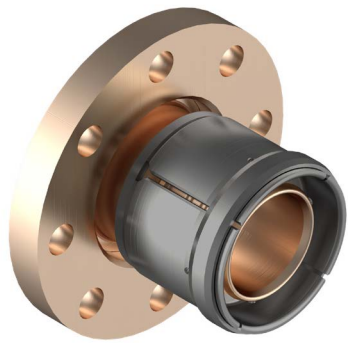
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
375-190751-32-40	2"	6	5.16	2.34	2.06	5.56	3.28	4.44	.56	.81	3.90	2.24	3.69	10.23
375-190751-40-40	2½"	6	5.16	2.34	2.06	6.12	3.28	5.00	.56	.94	3.90	2.24	3.69	11.94
375-190751-40-48	2½"	6	5.17	2.30	2.51	6.12	3.78	5.00	.56	.94	4.50	2.71	3.69	12.81
375-190751-48-48	3"	8	5.17	2.30	2.51	6.62	4.50	5.50	.56	.94	4.50	3.31	3.69	13.04
375-190751-56-64	3½"	8	5.54	2.74	3.45	7.19	5.22	6.06	.56	1.00	5.44	3.81	3.69	17.90
375-190751-64-64	4"	8	5.54	2.74	3.45	7.69	5.22	6.56	.56	1.00	5.44	4.28	3.69	19.80

Components									
Description	Req'd per Ass'y	Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-74045-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Nipple ②	1	1884112-	40	40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-2103-	40	40	48	48	64	64	Monel

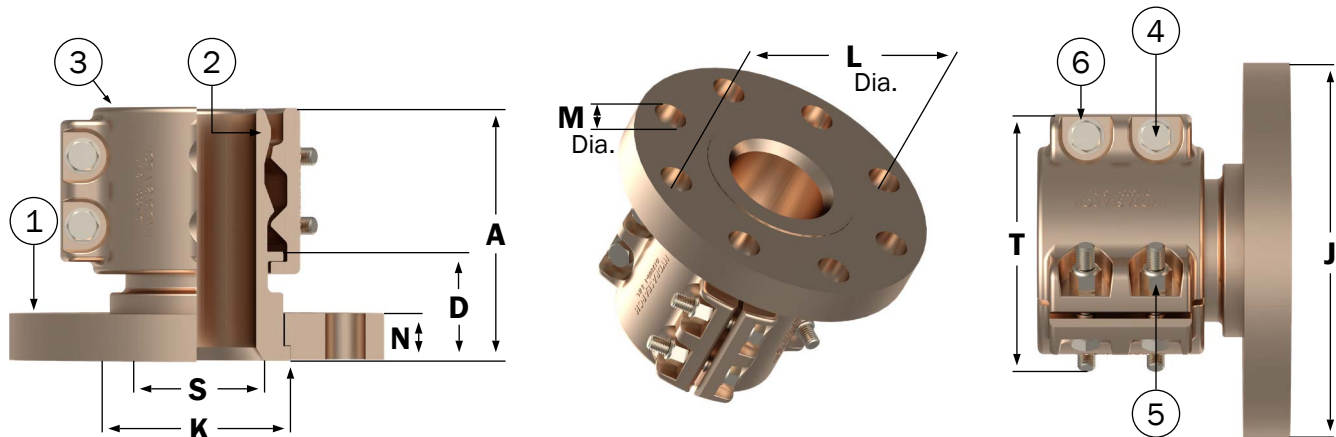
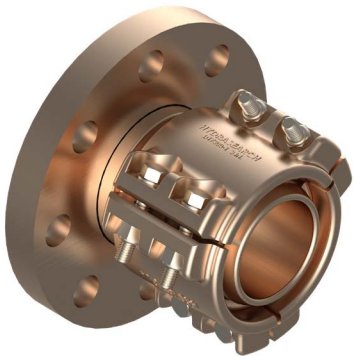
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class IV,
150lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A3-2-40	C17989	2"	6	.56	5.11	2.20	5.56	3.22	4.44	.44	2.24	5.35	8.00
EF-449A3-2.5-40	C17990	2½"	6	.56	5.11	2.20	6.13	3.22	5.00	.50	2.24	5.35	9.00
EF-449A3-2.5-48	C17991	2½"	6	.56	5.11	2.20	6.13	3.78	5.00	.50	2.71	5.58	10.00
EF-449A3-3-48	C17992	3"	8	.56	5.11	2.20	6.63	4.44	5.50	.50	3.31	5.58	11.00
EF-449A3-3.5-64	C17993	3½"	8	.56	5.54	2.63	7.19	5.22	6.06	.50	3.81	6.50	15.00
EF-449A3-4-64	C17994	4"	8	.56	5.54	2.63	7.69	5.22	6.56	.50	4.28	6.50	16.00

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

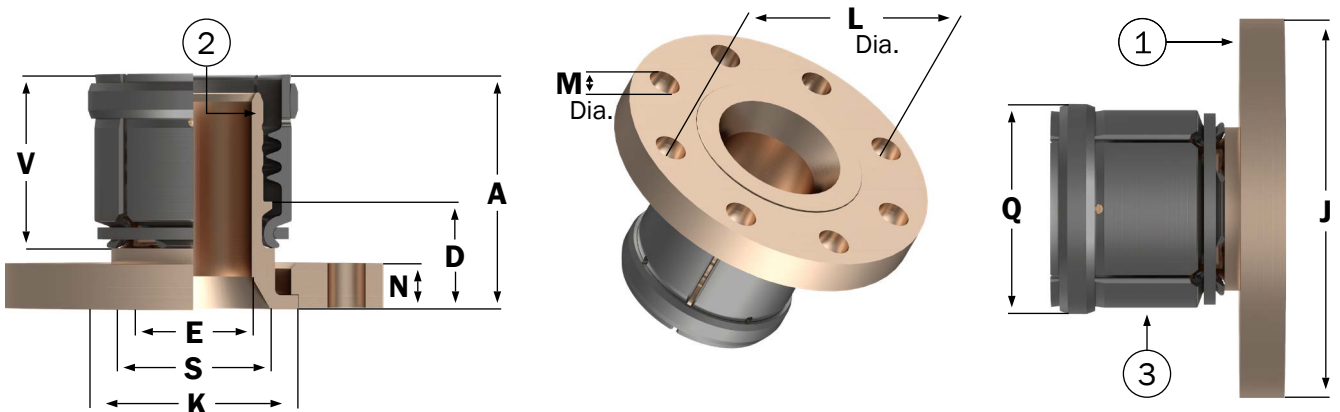
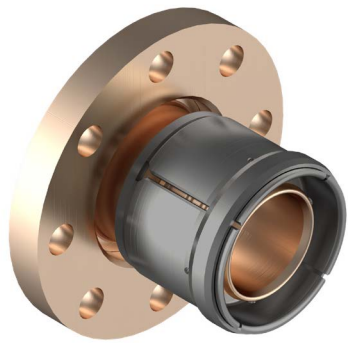
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class IV,
150lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
375-190655-32-40	2"	6	5.16	2.34	2.06	5.56	3.28	4.44	.56	.44	3.90	2.24	3.69	8.12
375-190655-40-40	2½"	6	5.16	2.34	2.06	6.12	3.28	5.00	.56	.50	3.90	2.24	3.69	9.21
375-190655-40-48	2½"	6	5.17	2.30	2.51	6.12	3.78	5.00	.56	.50	4.50	2.71	3.69	10.27
375-190655-48-48	3"	8	5.17	2.30	2.51	6.62	4.50	5.50	.56	.50	4.50	3.31	3.69	10.41
375-190655-56-64	3½"	8	5.54	2.74	3.45	7.19	5.22	6.06	.56	.50	5.44	3.81	3.69	14.62
375-190655-64-64	4"	8	5.54	2.74	3.45	7.69	5.22	6.56	.56	.50	5.44	4.28	3.69	15.61

Components									
Description	Req'd per Ass'y	Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-180005-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Nipple ②	1	188-4112-	40	40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023	40	40	48	48	64	64	Monel

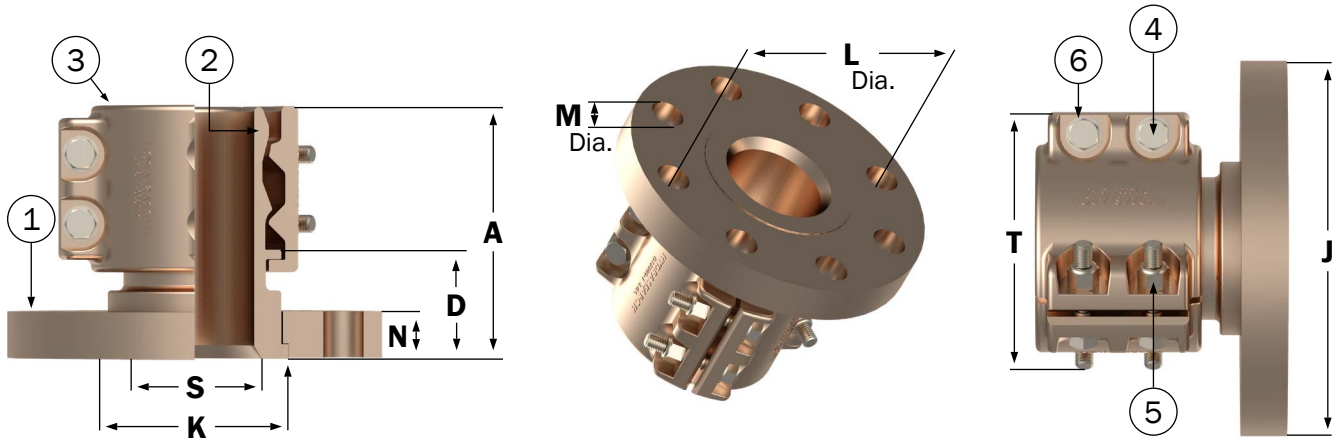
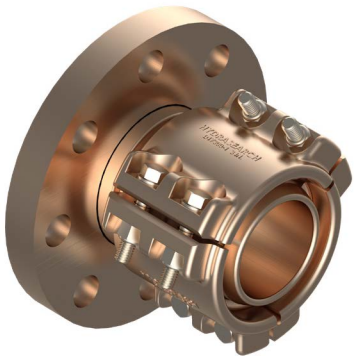
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A4-2-40	C17979	2"	4	.75	5.11	2.2	6.00	3.22	4.75	.42	2.24	5.35	9.00
EF-449A4-2.5-40	C17980	2½"	4	.75	5.11	2.20	7.00	3.22	5.50	.48	2.24	5.35	11.00
EF-449A4-2.5-48	C17981	2½"	4	.75	5.11	2.20	7.00	3.78	5.50	.48	2.71	5.58	12.00
EF-449A4-3-48	C17982	3"	4	.75	5.11	2.20	7.50	4.44	6.00	.48	3.31	5.58	12.00
EF-449A4-3.5-64	C17985	3½"	8	.75	5.54	2.63	8.50	5.22	7.00	.48	3.81	6.50	17.00
EF-449A4-4-64	C17988	4"	8	.75	5.54	2.63	9.00	5.22	7.50	.48	4.28	6.50	18.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17966	C17968	C17969	C17970	C17971	C17972	Alum. Bronze
Nipple ②	1	C17306	C17306	C18016	C17308	C18015	C17210	Alum. Bronze
Segment ③	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ④	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑤	6	B18176	B17176	B18176	B18176	B17984	B17984	Monel
Washer ⑥	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

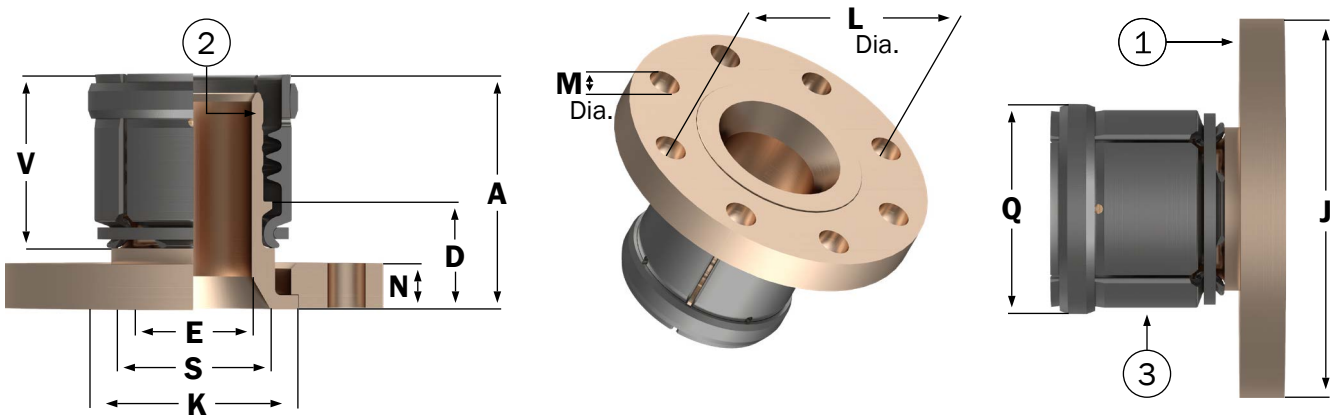
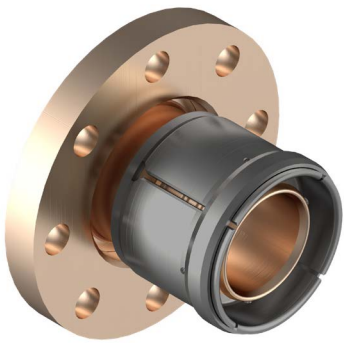
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IV, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
375-190767-32-40	2"	4	5.16	2.34	2.06	6.00	3.28	4.75	.75	.44	3.90	2.24	3.69	8.58
375-190767-40-40	2½"	4	5.16	2.34	2.06	7.00	3.28	5.50	.75	.50	3.90	2.24	3.69	10.81
375-190767-40-48	2½"	4	5.17	2.30	2.51	7.00	3.78	5.50	.75	.50	4.50	2.71	3.69	11.68
375-190767-48-48	3"	4	5.17	2.30	2.51	7.50	4.50	6.00	.75	.50	4.50	3.31	3.69	11.97
375-190767-56-64	3½"	8	5.54	2.74	3.45	8.50	5.22	7.00	.75	.50	5.44	3.81	3.69	17.00
375-190767-64-64	4"	8	5.54	2.74	3.45	9.00	5.22	7.50	.75	.50	5.44	4.28	3.69	18.05

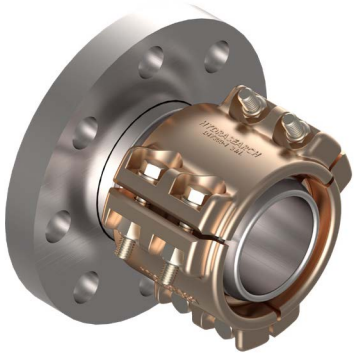
Components									
Description	Req'd per Ass'y	Part Number							
		Size							
		Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-74021-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Nipple ②	1	188-4112-	40	40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023-	40	40	48	48	64	64	Monel

All dimensions are in inches.
Dimensional information is for reference only.
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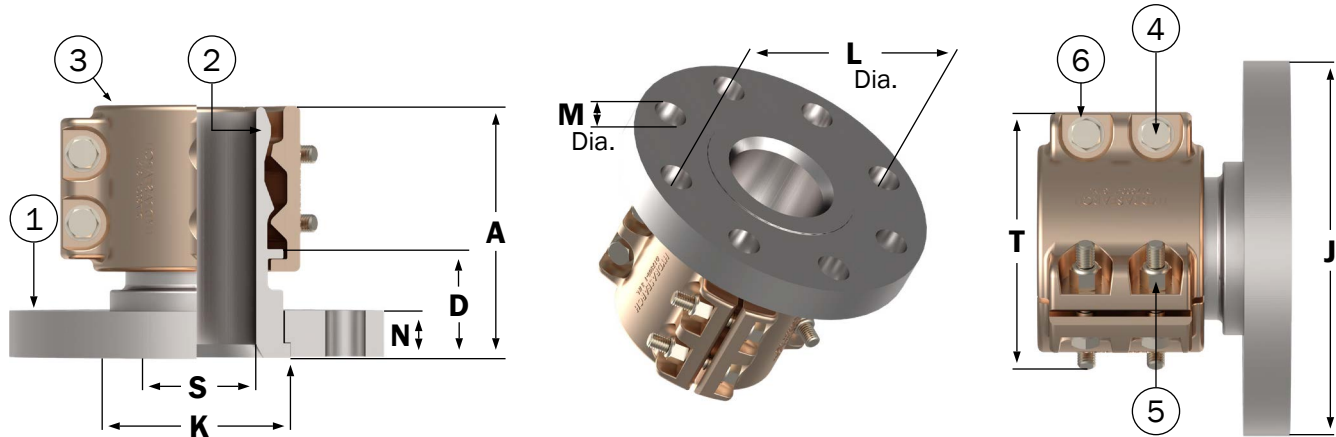
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A4-2.5-40-SS	C18192	2½"	4	.75	5.16	2.20	7.00	3.28	5.50	.48	2.24	5.35	11
EF-449A4-2.5-48-SS	C18193	2½"	4	.75	5.17	2.20	7.00	3.78	5.50	.48	2.71	5.58	12
EF-449A4-3-48-SS	C18194	3"	4	.75	5.17	2.20	7.50	4.50	6.00	.48	3.31	5.58	13
EF-449A4-4-64-SS	C19663	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
Swivel Flange ①	1	C18149	C18150	C18151	C19632	Stainless Steel
Nipple ②	1	C18152	C18153	C18154	C19633	Stainless Steel
Segment ③	3	D17299-1	D17300-1	D17300-1	D17301-1	Alum. Bronze
Bolt ④	6	B17673-2	B17673-1	B17673-1	B17987	Monel
Lock Nut ⑤	6	B18176	B18176	B18176	B17984	Monel
Washer ⑥	6	B18175	B18175	B18175	B17986	Monel

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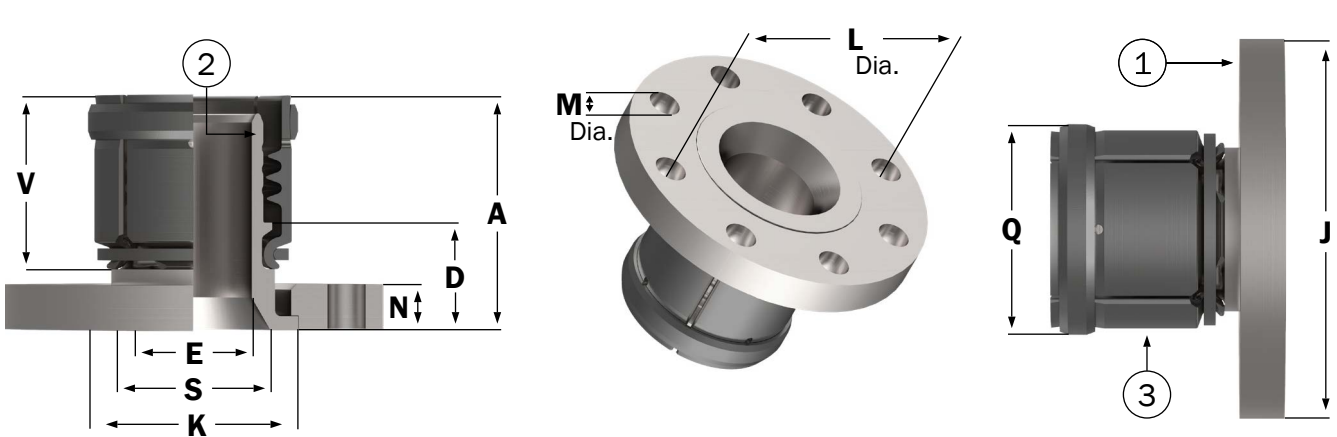
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
412-190767-32-40	2"	4	5.16	2.34	2.06	6.00	3.28	4.75	.75	.44	3.90	2.24	3.69	8.58
412-190767-40-40	2½"	4	5.16	2.34	2.06	7.00	3.28	5.50	.75	.50	3.90	2.24	3.69	10.81
412-190767-40-48	2½"	4	5.17	2.30	2.51	7.00	3.78	5.50	.75	.50	4.50	2.71	3.69	11.68
412-190767-48-48	3"	4	5.17	2.30	2.51	7.50	4.50	6.00	.75	.50	4.50	3.31	3.69	11.97
412-190767-56-64	3½"	8	5.54	2.74	3.45	8.50	5.22	7.00	.75	.50	5.44	3.81	3.69	17.00
412-190767-64-64	4"	8	5.54	2.74	3.45	9.00	5.22	7.50	.75	.50	5.44	4.28	3.69	18.05

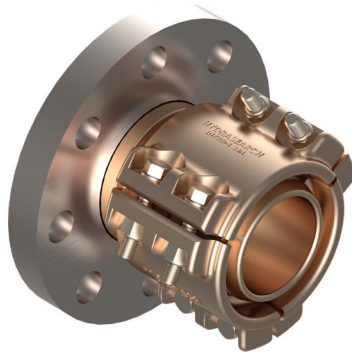
Components									
Description	Req'd per Ass'y	Part Number							
		Size							
		Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	407-74021-	32-40	40-40	40-48	48-48	56-64	64-64	Stainless Steel
Nipple ②	1	407-4112-	40	40	40-48	48-48	56-64	64-64	Stainless Steel
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023-	40	40	48	48	64	64	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.

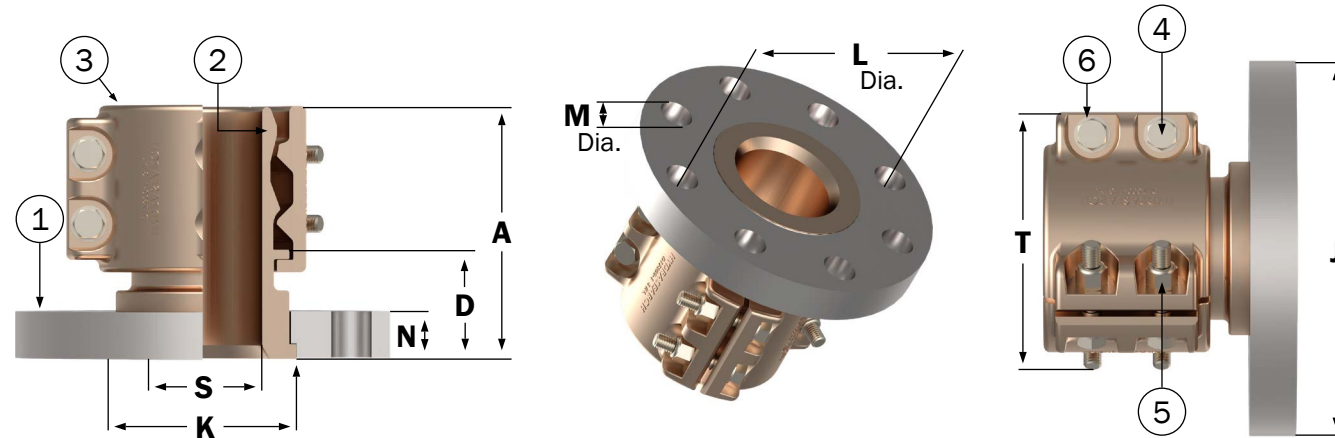
Hose to Flange

End Fitting - Straight

300lb. Flange per A.N.S.I. B16.5



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A6-2-40-BSS	C19756	2"	8	.75	5.11	2.20	6.50	3.22	5.00	.81	2.24	5.35	9.00
EF-449A6-2.5-40-BSS	C19757	2½"	8	.88	5.11	2.20	7.48	3.22	5.87	.94	2.24	5.35	11.00
EF-449A6-2.5-48-BSS	C19758	2½"	8	.88	5.11	2.20	7.48	3.78	5.87	.94	2.71	5.58	12.00
EF-449A6-3-48-BSS	C19759	3"	8	.88	5.20	2.20	8.25	4.44	6.63	1.13	3.31	5.69	12.00
EF-449A6-3.5-64-BSS	C19760	3½"	8	.88	5.54	2.63	9.06	5.22	7.25	1.13	3.81	6.50	17.00
EF-449A6-4-64-BSS	C19727	4"	8	.88	5.54	2.63	10.00	5.22	7.88	1.25	4.28	6.50	18.00

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange (1)	1	C19767	C19769	-	C19770	C19771	C19765	Stainless Steel
Nipple (2)	1	C17306	-	C18016	C17308	C18015	C17210	Alum. Bronze
Segment (3)	3	D17299-1	-	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt (4)	6	B17673-2	-	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut (5)	6	B18176	-	B18176	B18176	B17984	B17984	Monel
Washer (6)	6	B18175	-	B18175	B18175	B17986	B17986	Monel

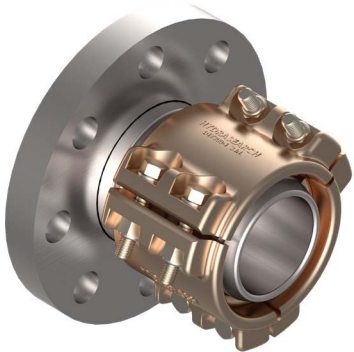
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Notes

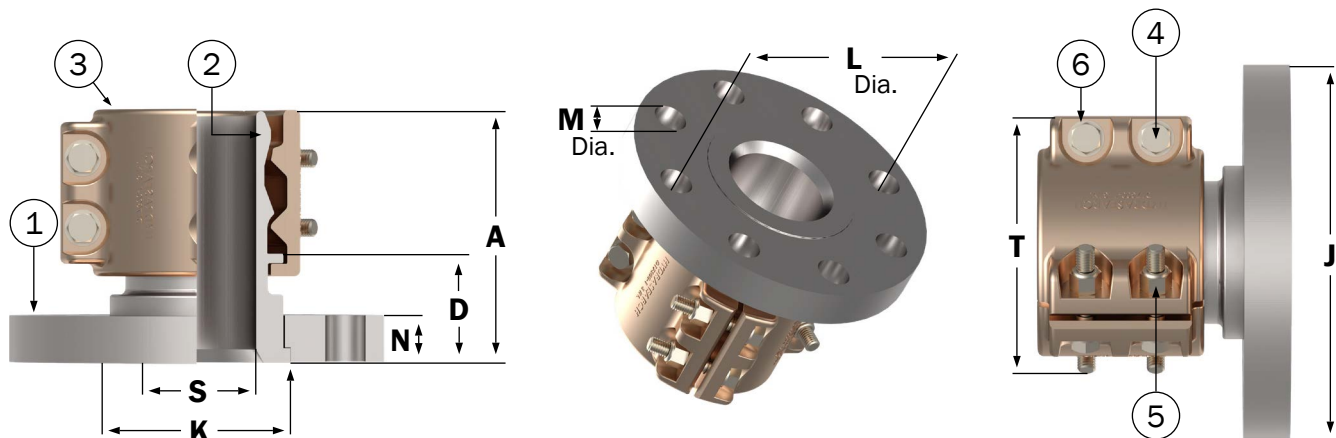
Hose to Flange

End Fitting - Straight

600lb. Flange per A.N.S.I. B16.5



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-449A7-2.5-40-SS	C21183	2½"	8	.88	5.2	2.28	7.5	3.22	5.34	1.12	2.24	5.35	18.90

Components			
Description	Req'd per Ass'y	2.5-40	Material
Swivel Flange ①	1	C21181	Stainless Steel
Nipple ②	1	C18152	Stainless Steel
Segment ③	3	D17299-1	Alum. Bronze
Bolt ④	6	B17673-2	Monel
Lock Nut ⑤	6	B18176	Monel
Washer ⑥	6	B18175	Monel

All dimensions are in inches.
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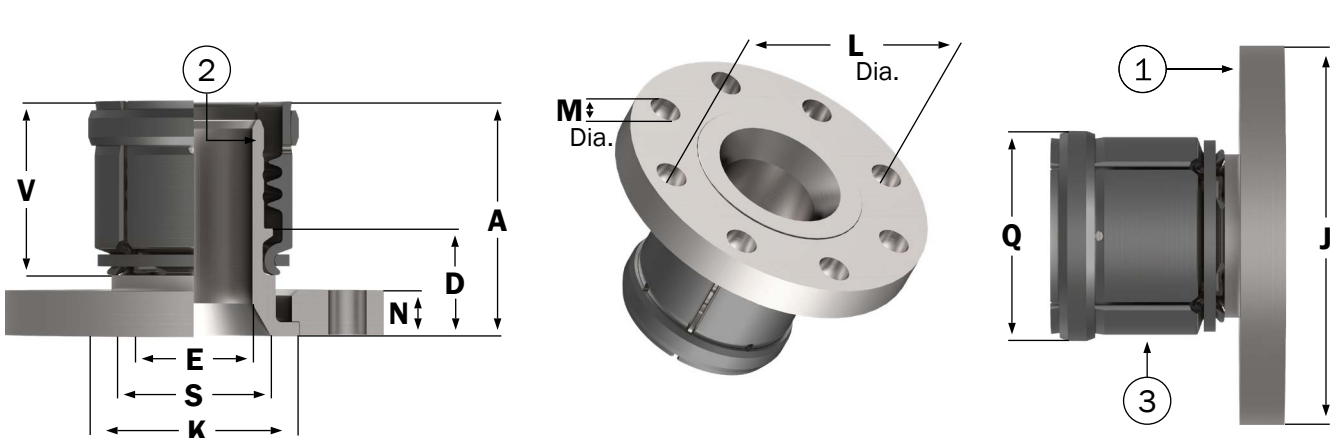
Hose to Flange

End Fitting - Straight

600lb. Flange per A.N.S.I. B16.5



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	E	J	K	L	M	N	Q	S	V	Est. Wt. (lbs.)
412-190814-40-40	2½"	8	5.16	2.34	2.06	7.50	3.28	5.88	.88	.94	3.91	2.24	3.69	-

		Part Number →	Size ↓	
Components		Base No.	40-40	Material
Swivel Flange ①	1	407-74031-	40-40	Alum. Bronze
Nipple ②	1	407-4112-	40	Alum. Bronze
Socket Assembly ③	3	4-1205-	40	Monel
Socket Segment	6	4-1205-1-	40	Monel
Ring	6	4-21004-	40	Monel
Band	6	4-21023-	40	Monel

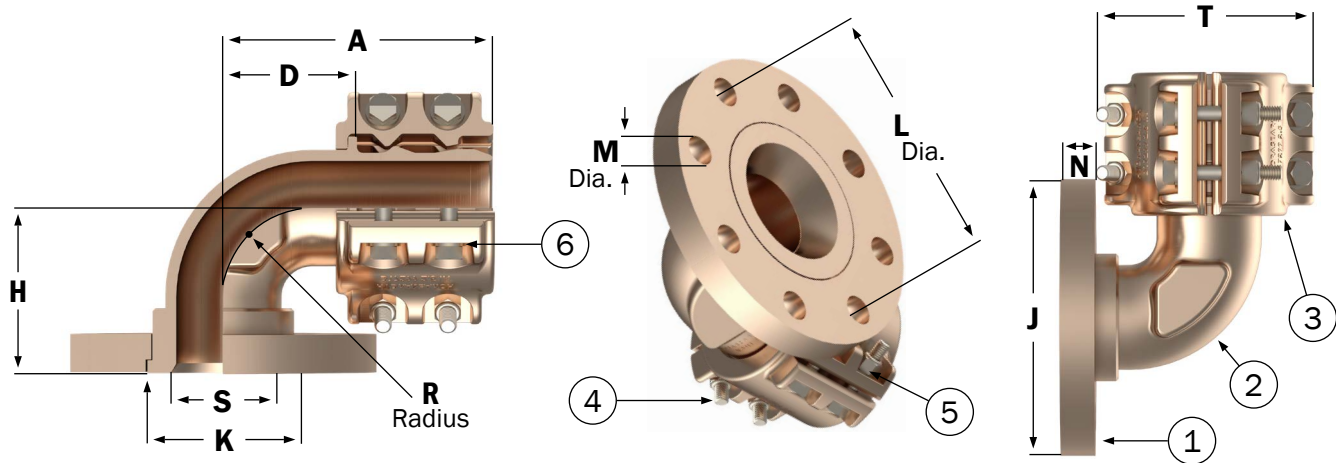
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions														
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	Est. Wt. (lbs.)
90EF-449B1-2-40	D17911	2"	7	.69	5.75	2.83	3.50	6.50	3.22	5.19	.81	1.88	2.24	13.00
90EF-449B1-2.5-48	D17913	2½"	8	.81	6.01	3.09	4.00	7.56	3.78	6.00	.94	2.09	2.71	18.00
90EF-449B1-3-48	D17916	3"	8	.81	6.01	3.09	4.00	8.13	4.44	6.56	.94	2.09	3.31	20.00
90EF-449B1-3.5-64	D17917	3½"	9	.81	6.80	3.88	4.62	8.69	5.22	7.13	1.00	2.81	3.81	27.00
90EF-449B1-4-64	D17924	4"	9	.81	6.80	3.88	4.62	9.25	5.28	7.69	1.00	2.81	4.28	30.00

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

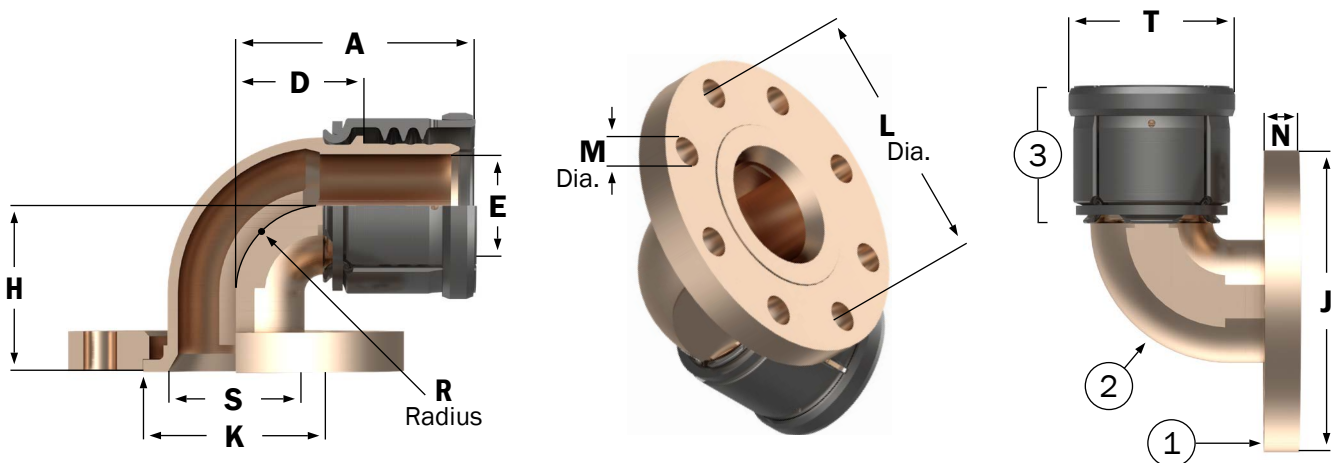
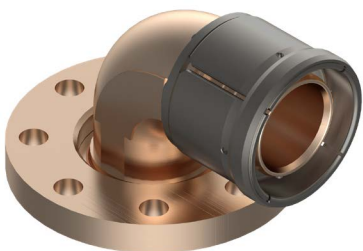
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions																	
Part Number	IPS Size	No. of Bolt Holes	A	D	E	F	H	J	K	L	M	N	Q	R	S	V	Est. Wt. (lbs.)
375-190758-32-40	2"	7	5.70	2.87	2.05	3.00	3.50	6.50	3.28	5.19	.69	.81	3.90	1.88	2.24	3.69	12.87
375-190758-40-48	2½"	8	5.96	3.08	2.50	3.50	4.00	7.56	3.78	6.00	.81	.94	4.50	2.09	2.71	3.69	18.43
375-190758-48-48	3"	8	5.96	3.08	2.50	3.50	4.00	8.12	4.50	6.56	.81	.94	4.50	2.09	3.31	3.69	20.01
375-190758-56-64	3½"	9	6.75	3.94	3.45	4.75	4.62	8.69	5.22	7.12	.81	1.00	5.44	2.81	3.81	3.69	27.34
375-190758-64-64	4"	9	6.75	3.94	3.45	4.75	4.62	9.25	5.22	7.69	.81	1.00	5.44	2.81	4.28	3.69	30.07

Components								
Description	Req'd per Ass'y	Base No.	32-40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-74048-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Elbow ②	1	188-185212-	40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	48	48	64	64	Monel
Ring	1	4-21004-	40	48	48	64	64	Monel
Band	1	4-21023-	40	48	48	64	64	Monel

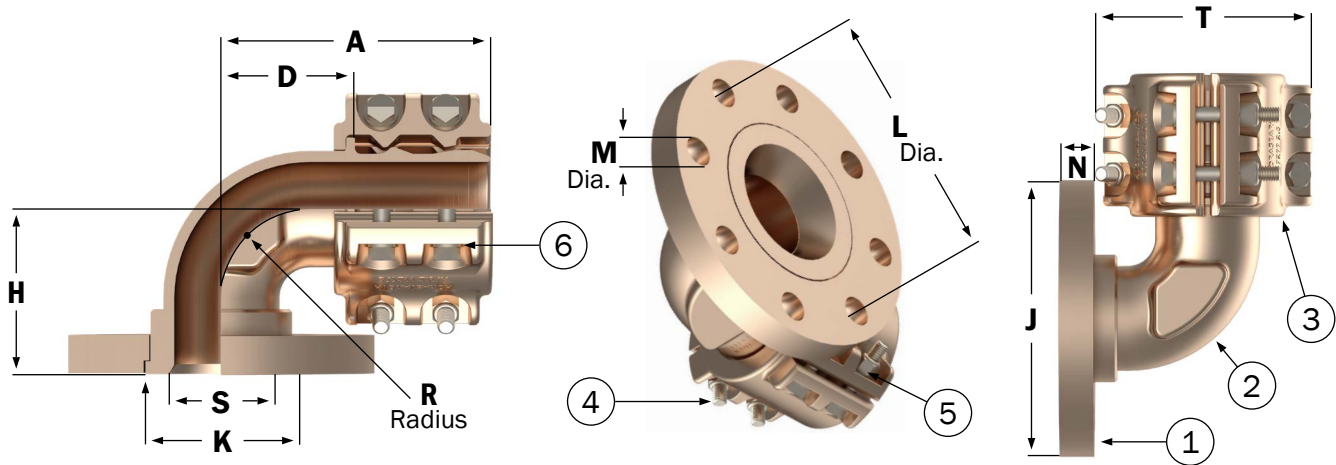
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-449B5-2-40	D18573	2"	6	.56	5.75	2.83	3.50	5.56	3.22	4.44	.81	1.88	2.24	5.35	11.00
90EF-449B5-2.5-40	D18574	2½"	6	.56	5.75	2.83	3.50	6.13	3.22	5.00	.94	1.88	2.24	5.35	13.00
90EF-449B5-2.5-48	D18575	2½"	6	.56	6.01	3.09	4.00	6.13	3.78	5.00	.94	2.09	2.71	5.58	15.00
90EF-449B5-3-48	D18576	3"	8	.56	6.01	3.09	4.00	6.63	4.44	5.50	.94	2.09	3.31	5.58	16.00
90EF-449B5-3.5-64	D18577	3½"	8	.56	6.80	3.88	4.62	7.19	5.22	6.06	1.00	2.81	3.81	6.50	22.00
90EF-449B5-4-64	D18578	4"	8	.56	6.80	3.88	4.62	7.69	5.28	6.56	1.00	2.81	4.28	6.50	24.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17765	C17796	C17795	C17766	C17794	C17767	Alum. Bronze
Elbow ②	1	D17862	D17863	D17870	D17886	D17890	D17896	Alum. Bronze
Segment ③	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ④	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	D17987	Monel
Lock Nut ⑤	6	B18176	B18176	B18176	B18176	B17984	D17984	Monel
Washer ⑥	6	B18175	B18175	B18175	B18175	B17986	D17986	Monel

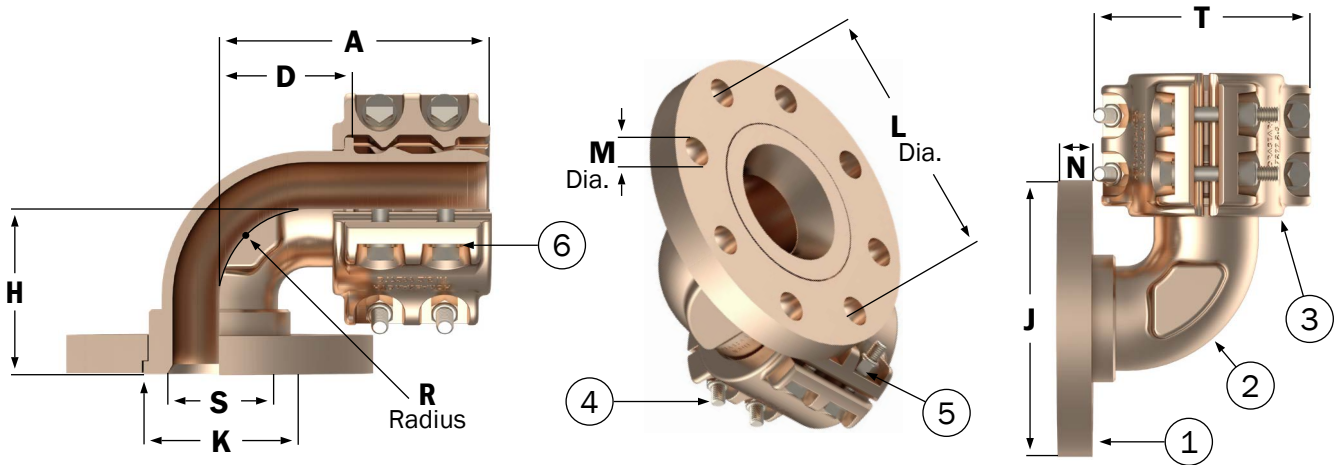
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class III,
250lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-449B2-2-40	D17867	2"	6	.69	5.75	2.83	3.50	5.56	3.22	4.44	.81	1.88	2.24	5.35	16.00
90EF-449B2-2.5-40	D17885	2½"	6	.69	5.75	2.83	3.50	6.13	3.22	5.00	.94	1.88	2.24	5.35	17.00
90EF-449B2-2.5-48	D17877	2½"	6	.69	6.01	3.09	4.00	6.13	3.78	5.00	.94	2.09	2.71	5.58	18.00
90EF-449B2-3-48	D17888	3"	8	.69	6.01	3.09	4.00	6.63	4.44	5.50	.94	2.09	3.31	5.58	19.00
90EF-449B2-3.5-64	D17892	3½"	8	.69	6.80	3.88	4.62	7.19	5.22	6.06	1.00	2.81	3.81	6.50	25.00
90EF-449B2-4-64	D17898	4"	8	.69	6.80	3.88	4.62	7.69	5.28	6.56	1.00	2.81	4.28	6.50	26.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17812	C17307	C17813	C17309	C17815	D17310	Alum. Bronze
Elbow ②	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
Segment ③	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ④	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑤	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑥	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

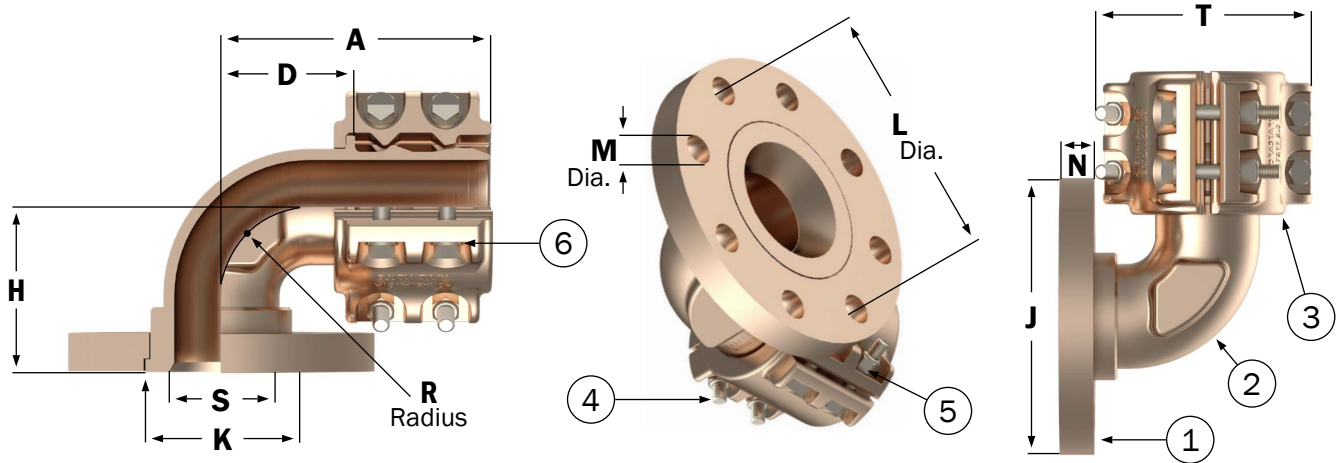
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class IV,
150lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-449B3-2-40	D17928	2"	6	.56	5.75	2.83	3.50	5.56	3.22	4.44	.44	1.88	2.24	5.35	9.00
90EF-449B3-2.5-40	D17930	2½"	6	.56	5.75	2.83	3.50	6.13	3.22	5.00	.50	1.88	2.24	5.35	10.00
90EF-449B3-2.5-48	D17932	2½"	6	.56	6.01	3.09	4.00	6.13	3.78	5.00	.50	2.09	2.71	5.58	12.00
90EF-449B3-3-48	D17937	3"	8	.56	6.01	3.09	4.00	6.63	4.44	5.50	.50	2.09	3.31	5.58	13.00
90EF-449B3-3.5-64	D17939	3½"	8	.56	6.80	3.88	4.62	7.19	5.22	6.06	.50	2.81	3.81	6.50	19.00
90EF-449B3-4-64	D17941	4"	8	.56	6.80	3.88	4.62	7.69	5.28	6.56	.50	2.81	4.28	6.50	20.00

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

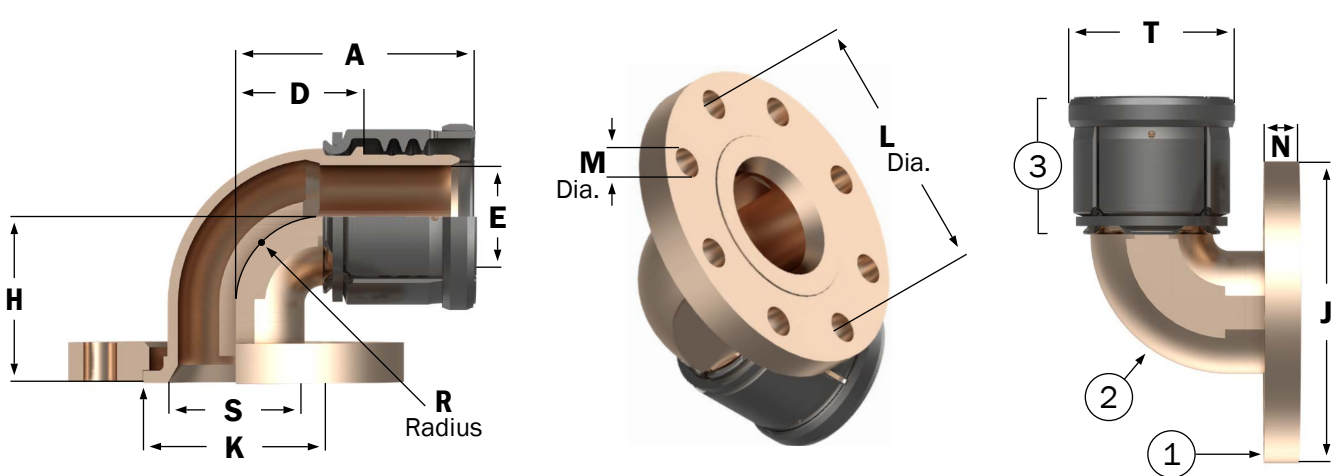
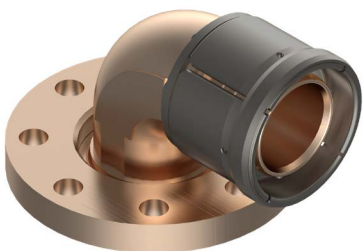
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class IV,
15lb. Flange per MIL-PRF-20042

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions																	
Part Number	IPS Size	No. of Bolt Holes	A	D	E	F	H	J	K	L	M	N	Q	R	S	V	Est. Wt. (lbs.)
375-190656-32-40	2"	6	5.70	2.87	2.05	3.00	3.50	5.56	3.28	4.44	-	.44	3.90	1.88	2.24	3.69	9.02
375-190656-40-40	2½"	6	5.70	2.87	2.05	3.00	3.50	6.12	3.28	5.00	-	.50	3.90	1.88	2.24	3.69	10.12
375-190656-40-48	2½"	6	5.96	3.08	2.50	3.50	4.00	6.12	3.78	5.00	-	.50	4.50	2.09	2.71	3.69	12.02
375-190656-48-48	3"	8	5.96	3.08	2.50	3.50	4.00	6.62	4.50	5.50	-	.50	4.50	2.09	3.31	3.69	12.93
375-190656-56-64	3½"	8	6.75	3.94	3.45	4.75	4.62	7.19	5.22	6.06	-	.50	5.44	2.81	3.81	3.69	19.06
375-190656-64-64	4"	8	6.75	3.94	3.45	4.75	4.62	7.69	5.22	6.56	-	.50	5.44	2.81	4.28	3.69	20.05

Components									
Description	Req'd per Ass'y	Part Number							
		Size							
		Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-80005-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Elbow ②	1	188-185212-	40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023-	40	40	48	48	64	64	Monel

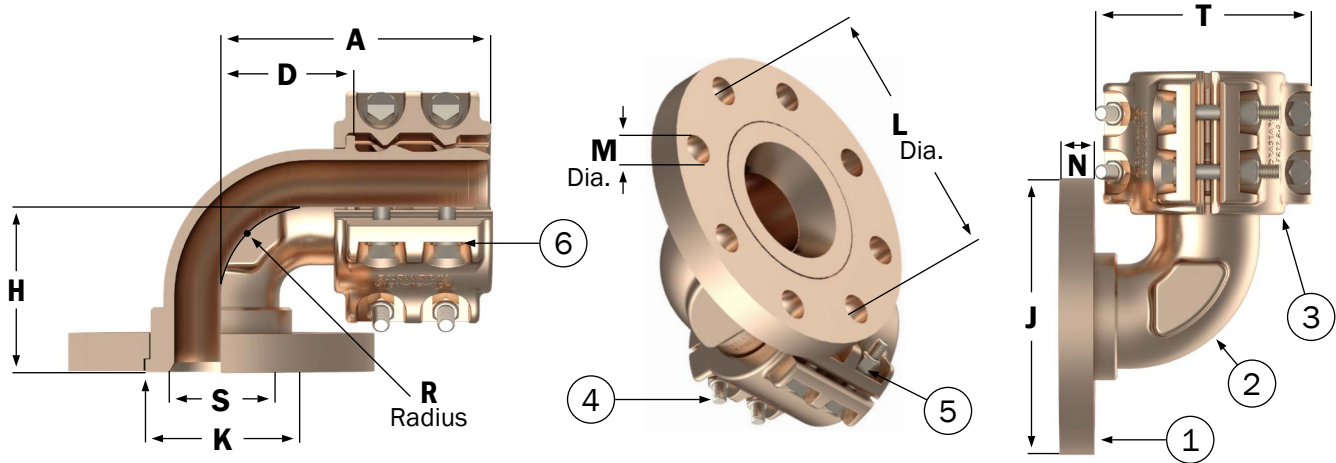
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-449B4-2-40	D17956	2"	4	.75	5.75	2.83	3.50	6.00	3.22	4.75	.42	1.88	2.24	5.35	9.00
90EF-449B4-2.5-40	D17957	2½"	4	.75	5.75	2.83	3.50	7.00	3.22	5.50	.48	1.88	2.24	5.35	12.00
90EF-449B4-2.5-48	D17959	2½"	4	.75	6.01	3.09	4.00	7.00	3.78	5.50	.48	2.09	2.71	5.58	13.00
90EF-449B4-3-48	D17961	3"	4	.75	6.01	3.09	4.00	7.50	4.44	6.00	.48	2.09	3.31	5.58	14.00
90EF-449B4-3.5-64	D17963	3½"	8	.75	6.80	3.88	4.62	8.50	5.22	7.00	.48	2.81	3.81	6.50	21.00
90EF-449B4-4-64	D17964	4"	8	.75	6.80	3.88	4.62	9.00	5.28	7.50	.48	2.81	4.28	6.50	22.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17966	C17968	C17969	C17970	C17971	C17972	Bronze
Elbow ②	1	D17862	D17862	D17870	D17886	D17890	D17896	Alum. Bronze
Segment ③	3	D17299-1	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ④	6	B17673-2	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑤	6	B18176	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑥	6	B18175	B18175	B18175	B18175	B17986	B17986	Monel

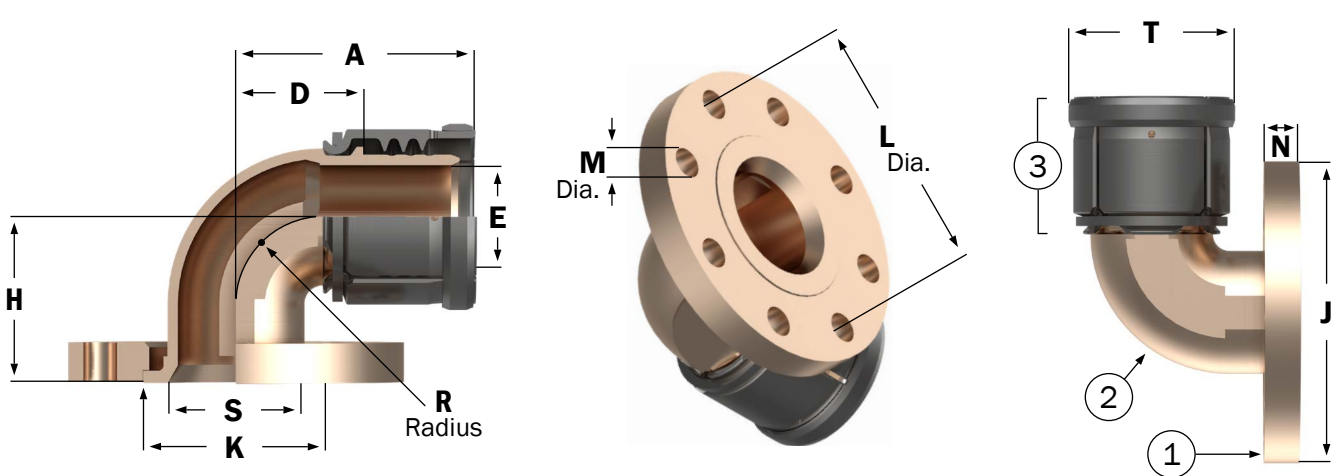
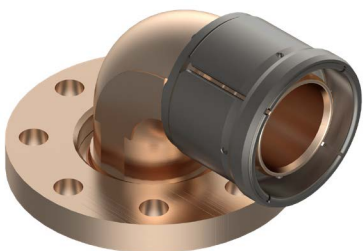
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IV, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions																	
Part Number	IPS Size	No. of Bolt Holes	A	D	E	F	H	J	K	L	M	N	Q	R	S	V	Est. Wt. (lbs.)
375-190769-32-40	2"	4	5.70	2.87	2.05	3.00	3.50	6.00	3.28	4.75	.75	.44	3.90	1.88	2.24	3.69	9.48
375-190769-40-40	2½"	4	5.70	2.87	2.05	3.00	3.50	7.00	3.28	5.50	.75	.50	3.90	1.88	2.24	3.69	11.72
375-190769-40-48	2½"	4	5.96	3.08	2.50	3.50	4.00	7.00	3.78	5.50	.75	.50	4.50	2.09	2.71	3.69	13.43
375-190769-48-48	3"	4	5.96	3.08	2.50	3.50	4.00	7.50	4.50	6.00	.75	.50	4.50	2.09	3.31	3.69	14.49
375-190769-56-64	3½"	8	6.75	3.94	3.45	4.75	4.62	8.50	5.22	7.00	.75	.50	5.44	2.81	3.81	3.69	21.44
375-190769-64-64	4"	8	6.75	3.94	3.45	4.75	4.62	9.00	5.22	7.50	.75	.50	5.44	2.81	4.28	3.69	22.49

Components									
Description	Req'd per Ass'y	Part Number							
		Size							
		Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	188-74021-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Elbow ②	1	188-185212-	40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023-	40	40	48	48	64	64	Monel

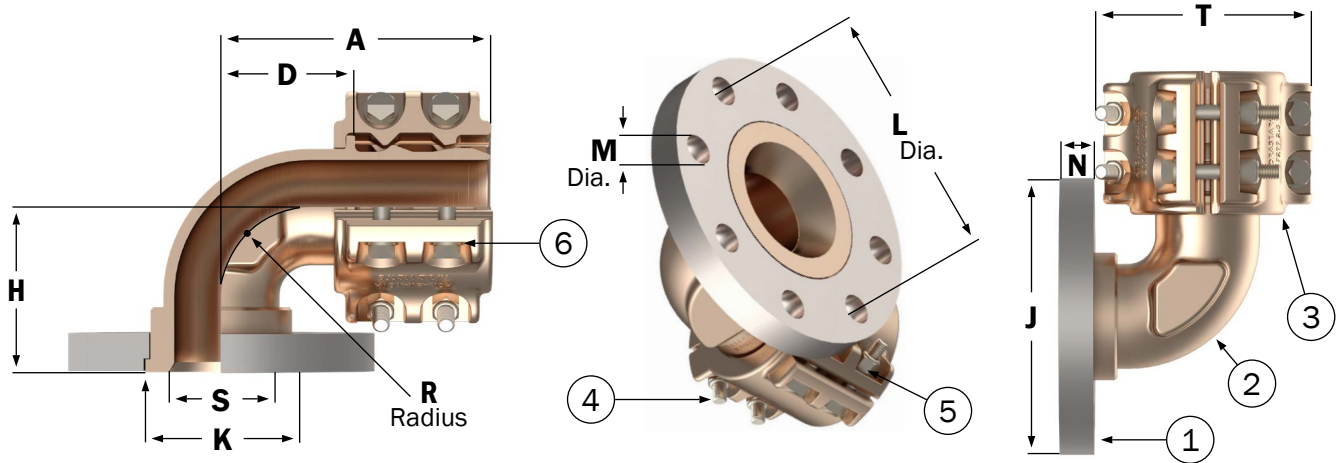
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Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions																
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)	
90EF-449B4-2-40-BSS	D19627	2"	4	.75	5.75	2.83	3.50	6.00	3.22	4.75	.42	1.88	2.24	5.35	9.00	
90EF-449B4-2.5-40-BSS	C19626	2½"	4	.75	5.75	2.83	3.50	7.00	3.22	5.50	.48	1.88	2.24	5.35	12.00	
90EF-449B4-2.5-48-BSS	D19628	2½"	4	.75	6.01	3.09	4.00	7.00	3.78	5.50	.48	2.09	2.71	5.58	13.00	
90EF-449B4-3-48-BSS	D18582	3"	4	.75	6.01	3.09	4.00	7.50	4.44	6.00	.48	2.09	3.31	5.58	14.00	
90EF-449B4-3.5-64-BSS	D19629	3½"	8	.75	6.80	3.88	4.62	8.50	5.22	7.00	.48	2.81	3.81	6.50	21.00	
90EF-449B4-4-64-BSS	D19630	4"	8	.75	6.80	3.88	4.62	9.00	5.28	7.50	.48	2.81	4.28	6.50	22.00	

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

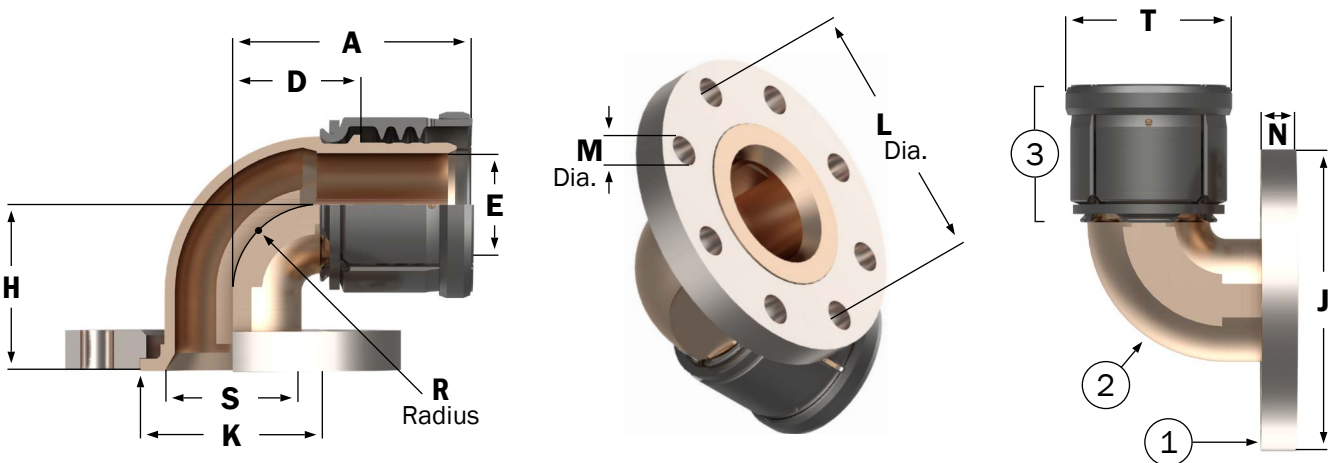
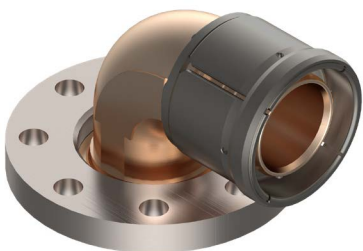
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Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions																	
Part Number	IPS Size	No. of Bolt Holes	A	D	E	F	H	J	K	L	M	N	Q	R	S	V	Est. Wt. (lbs.)
413-190769-32-40	2"	4	5.70	2.87	2.05	3.00	3.50	6.00	3.28	4.75	.75	.44	3.90	1.88	2.24	3.69	9.48
413-190769-40-40	2½"	4	5.70	2.87	2.05	3.00	3.50	7.00	3.28	5.50	.75	.50	3.90	1.88	2.24	3.69	11.72
413-190769-40-48	2½"	4	5.96	3.08	2.50	3.50	4.00	7.00	3.78	5.50	.75	.50	4.50	2.09	2.71	3.69	13.43
413-190769-48-48	3"	4	5.96	3.08	2.50	3.50	4.00	7.50	4.50	6.00	.75	.50	4.50	2.09	3.31	3.69	14.49
413-190769-56-64	3½"	8	6.75	3.94	3.45	4.75	4.62	8.50	5.22	7.00	.75	.50	5.44	2.81	3.81	3.69	21.44
413-190769-64-64	4"	8	6.75	3.94	3.45	4.75	4.62	9.00	5.22	7.50	.75	.50	5.44	2.81	4.28	3.69	22.49

Components									
Description	Req'd per Ass'y	Part Number							
		Size							
		Base No.	32-40	40	40-48	48	56-64	64	Material
Swivel Flange ①	1	407-74021-	32-40	40-40	40-48	48-48	56-64	64-64	Stainless Steel
Elbow ②	1	188-185212-	40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Socket Assy. ③	1	4-1205-	40	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	40	48	48	64	64	Monel
Ring	1	4-21004-	40	40	48	48	64	64	Monel
Band	1	4-21023-	40	40	48	48	64	64	Monel

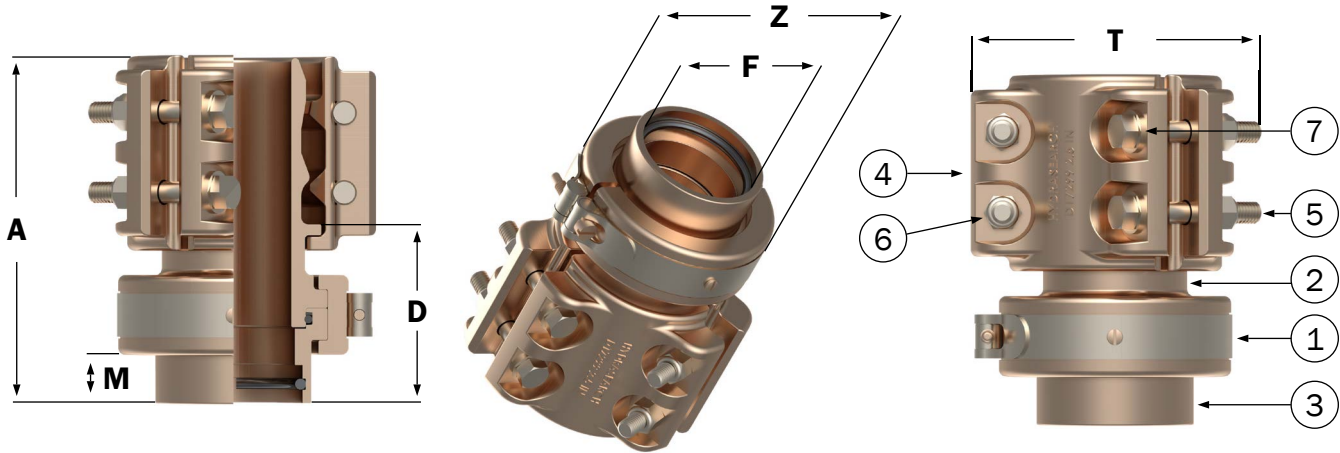
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Female Sil-Braze to Hose

End Fitting - Straight

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

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions

Part Number	Drawing Number	IPS Size	A	D	F	M	Z	T	Est. Wt. (lbs.)
EF-449C-2-40	C18053	2"	6.00	3.09	2.38	.83	4.00	5.35	8.00
EF-449C-2.5-48	C18054	2½"	6.22	3.31	2.88	.99	4.42	5.58	9.00
EF-449C-3-48	C18055	3"	6.11	3.20	3.50	.85	5.19	5.58	12.00
EF-449C-3.5-64	C18056	3½"	6.47	3.56	4.00	1.08	5.56	6.50	14.00
EF-449C-4-64	C18057	4"	6.65	3.73	4.50	1.12	6.12	6.50	16.00

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Clamp Assy. ①	1	C18078	C18079	C18080	C18081	C18082	Alum. Bronze
Nipple ②	1	C18096	C18097	C18100	C18103	C18105	Alum. Bronze
Tailpiece ③	1	C18083	C18084	C18085	C18086	C18087	Alum. Bronze
Grip Segment ④	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ⑤	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑥	6	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑦	6	B18175	B18175	B18175	B17986	B17986	Monel

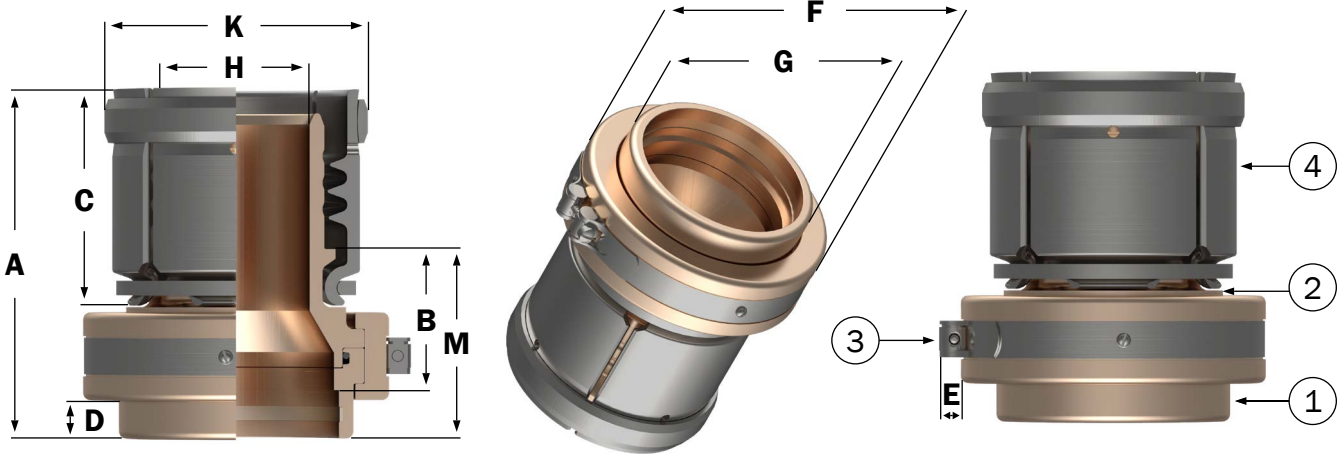
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Female Sil-Braze to Hose

End Fitting - Straight

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

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions

Part Number	IPS Size	A	B	C	D	E	F	G	H	K	M	Est. Wt. (lbs.)
FC9073-3240-375	2"	6.10	2.61	3.69	.66	.39	4.00	2.38	2.06	3.90	3.27	8.49
FC9073-4048-375	2½"	6.42	2.77	3.69	.78	.39	4.42	2.88	2.51	4.50	3.55	9.73
375-190781-48-48	3"	6.11	2.77	3.69	.83	.39	5.19	3.50	2.51	4.50	3.23	11.90
375-190781-56-64	3½"	3.16	2.47	3.69	.88	.39	5.56	4.00	3.45	5.44	3.35	14.48
375-190781-64-64	4"	6.31	2.59	3.69	.91	.39	6.12	4.50	3.45	5.44	3.50	15.93

Part Number Size

Components

Description	Req'd per Ass'y	Base No.	32-40	40-48	48	56-64	64	Material
Tailpiece ①	1	188-500063-FF5001-188-	- 32	- 40	48 -	56 -	64 -	Alum. Bronze
Nipple ②	1	188-1239-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Clamp Assy. ③	1	900758-	2	2.5	3	3.5	4	Alum. Bronze
Socket Assy. ④	1	4-1205-	40	48	48	64	64	Monel
Ring	1	4-21004-	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	48	48	64	64	Monel
Band	1	4-21023-	40	48	48	64	64	Monel

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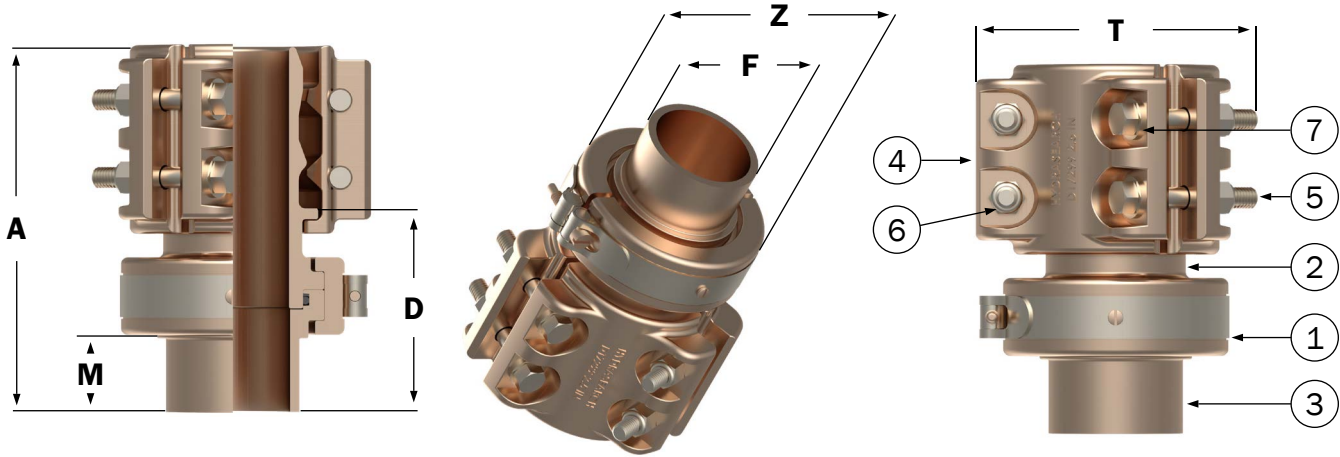
Male Sil-Braze to Hose

End Fitting - Straight

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions									
Part Number	Drawing Number	IPS Size	A	D	F	M	Z	T	Est. Wt. (lbs.)
EF-449CA-2-40	C18058	2"	6.51	3.62	2.38	1.31	4.00	5.00	8.00
EF-449CA-2.5-48	C18059	2½"	6.37	3.52	2.88	1.12	4.42	5.50	10.00
EF-449CA-3-48	C18060	3"	7.81	4.90	3.50	2.55	5.19	5.50	13.00
EF-449CA-3.5-64	C18061	3½"	7.94	5.03	4.00	2.55	5.56	6.56	16.00
EF-449CA-4-64	C18062	4"	8.22	5.30	4.50	2.69	6.12	6.56	17.00

Components							
Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Clamp Assy. ①	1	C18078	C18079	C18080	C18081	C18082	Alum. Bronze
Nipple ②	1	C18096	C18097	C18100	C18103	C18105	Alum. Bronze
Tailpiece ③	1	C18088	C18089	C18090	C18091	C18092	Alum. Bronze
Grip Segment ④	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ⑤	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑥	6	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑦	6	B18175	B18175	B18175	B17986	B17986	Monel

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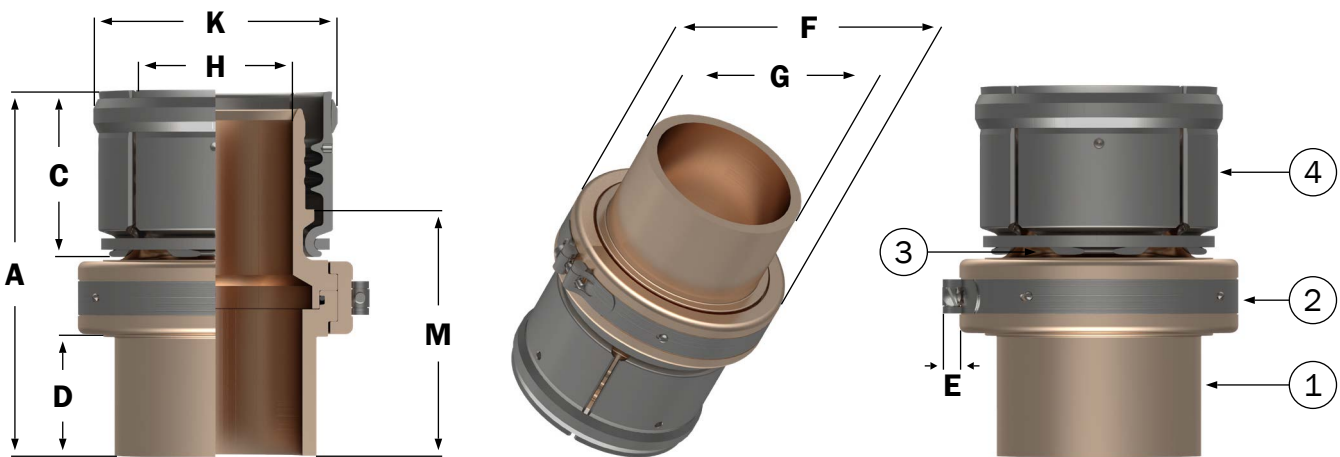
Male Sil-Braze to Hose

End Fitting - Straight

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions											
Part Number	IPS Size	A	C	D	E	F	G	H	K	M	Est. Wt. (lbs.)
FC9583-3240-375	2"	6.61	3.69	1.31	.39	4.00	2.38	2.06	3.90	3.78	8.48
FC9583-4048-375	2½"	6.60	3.69	1.12	.39	4.42	2.88	2.51	4.50	3.73	9.92
375-190780-48-48	3"	8.01	3.69	2.50	.39	5.19	3.50	2.51	4.50	5.14	13.62
375-190780-56-64	3½"	8.02	3.69	2.50	.39	5.56	4.00	3.45	5.44	5.21	16.30
375-190780-64-64	4"	8.38	3.69	2.64	.39	6.12	4.50	3.45	5.44	5.47	17.62

Components								
Description	Req'd per Ass'y	Part Number Size						
		Base No.	32-40	40-48	48	56-64	64	Material
Tailpiece ①	1	188-500189-FF5002-188-	- 32	- 40	48 -	56 -	64 -	Alum. Bronze
Nipple ②	1	188-1239-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Clamp Assy. ③	1	900758-	2	2.5	3	3.5	4	Alum. Bronze
Socket Assy. ④	1	4-1205-	40	48	48	64	64	Monel
Ring	1	4-1205-1-	40	48	48	64	64	Monel
Grip Segment	4	4-21004-	40	48	48	64	64	Monel
Band	1	4-21023-	40	48	48	64	64	Monel

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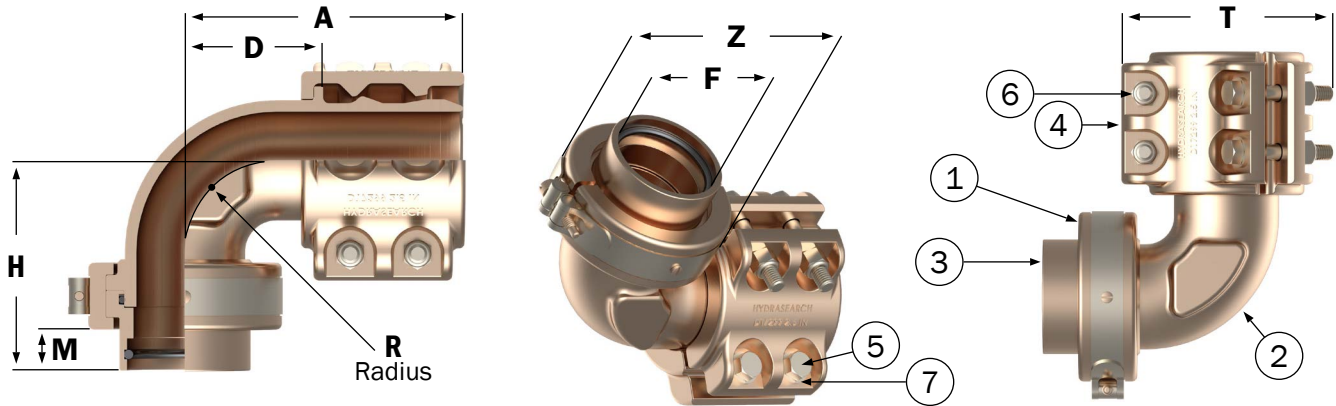
Female Sil-Braze to Hose

End Fitting - 90°

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions											
Part Number	Drawing Number	IPS Size	A	D	F	H	M	R	Z	T	Est. Wt. (lbs.)
90EF-449D-2-40	D18063	2"	5.75	2.84	2.38	4.31	.83	1.88	5.35	4.00	10.00
90EF-449D-2.5-48	D18064	2½"	6.01	3.09	2.88	5.06	.99	2.09	4.42	5.58	12.00
90EF-449D-3-48	D18065	3"	6.01	3.09	3.50	4.95	.85	2.09	5.19	5.58	14.00
90EF-449D-3.5-64	D18066	3½"	6.76	3.85	4.00	5.55	1.08	2.81	5.56	6.50	20.00
90EF-449D-4-64	D18067	4"	6.80	3.89	4.50	5.66	1.12	2.81	6.12	6.50	22.00

Components							
Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Clamp Assy. ①	1	C18078	C18079	C18080	C18081	C18082	Alum. Bronze
Elbow ②	1	D18124	D18125	D18126	D18127	D18128	Alum. Bronze
Tailpiece ③	1	C18083	C18084	C18085	C18086	C18087	Alum. Bronze
Grip Segment ④	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ⑤	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑥	6	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑦	6	B18175	B18175	B18175	B17986	B17986	Monel

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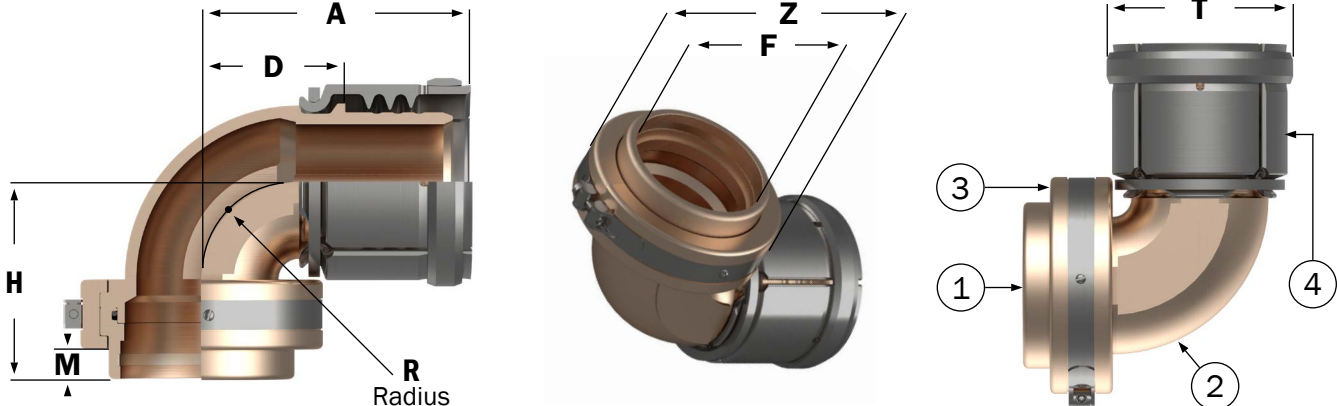
Female Sil-Braze to Hose

End Fitting - 90°

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions										
Part Number	IPS Size	A	D	F	H	M	R	Z	T	Est. Wt. (lbs.)
FC9074-3240-375	2"	5.56	2.87	2.38	4.21	.66	1.88	4.00	3.90	9.81
FC9074-4048-375	2½"	5.88	3.18	2.88	4.51	.78	2.09	4.12	4.50	11.82
375-190785-48-48	3"	6.46	3.58	3.50	4.25	.83	2.09	5.19	4.50	14.75
375-190785-56-64	3½"	6.75	3.94	4.00	5.14	.88	2.81	5.56	5.44	19.83
375-190785-64-64	4"	6.75	3.94	4.50	5.27	.91	2.81	6.12	5.44	22.23

Components			Part Number					
Description	Req'd per Ass'y	Base No.	Size					
			32-40	40-48	48	56-64	64	Material
Tailpiece ①	1	188-500063- FF5001-188-	- 32	- 40	48 -	56 -	64 -	Alum. Bronze
Nipple ②	1	188-185203-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Clamp Assy. ③	1	900758-	2	2.5	3	3.5	4	Alum. Bronze
Socket Assy. ④	1	4-1205-	40	48	48	64	64	Monel
Ring	1	4-21004-	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	48	48	64	64	Monel
Band	1	4-21023-	40	48	48	64	64	Monel

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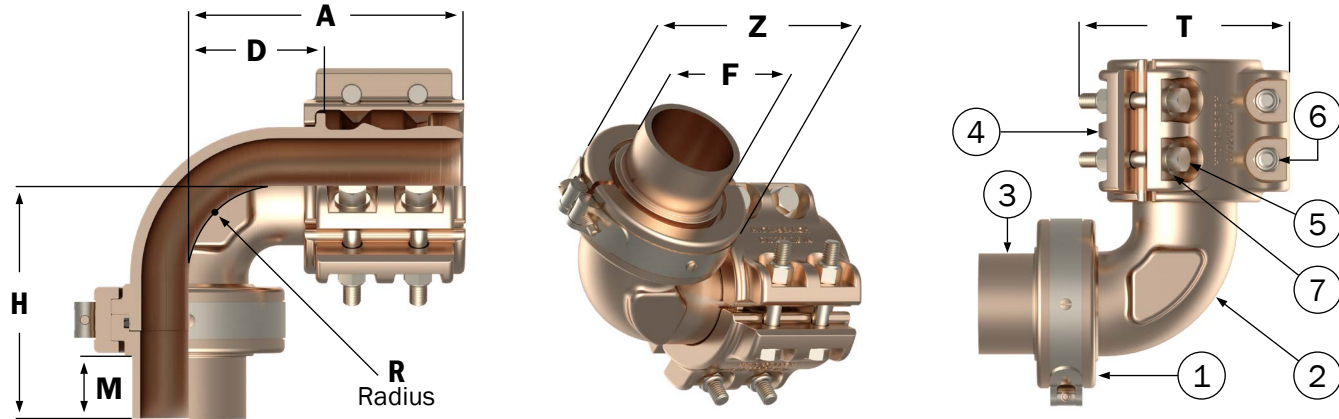
Male Sil-Braze to Hose

End Fitting - 90°

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions											
Part Number	Drawing Number	IPS Size	A	D	F	H	M	R	Z	T	Est. Wt. (lbs.)
90EF-449DA-2-40	D18068	2"	5.70	2.83	2.38	4.82	1.31	1.88	4.00	5.35	10.00
90EF-449DA-2.5-48	D18069	2½"	6.01	3.09	2.88	5.19	1.12	2.09	4.42	5.58	12.00
90EF-449DA-3-48	D18070	3"	6.01	3.09	3.50	6.65	2.55	2.09	5.19	5.58	16.00
90EF-449DA-3.5-64	D18071	3½"	6.76	3.85	4.00	7.02	2.55	2.81	5.56	6.50	21.00
90EF-449DA-4-64	D18072	4"	6.80	3.89	4.50	7.23	2.69	2.81	6.12	6.50	24.00

Components							
Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Clamp Assy. ①	1	C18078	C18079	C18080	C18081	C18082	Alum. Bronze
Elbow ②	1	D18124	D18125	D18126	D18127	D18128	Alum. Bronze
Tailpiece ③	1	C18088	C18089	C18090	C18091	C18092	Alum. Bronze
Grip Segment ④	3	D17299-1	D17300-1	D17300-1	D17301-1	D17301-1	Alum. Bronze
Bolt ⑤	6	B17673-2	B17673-1	B17673-1	B17987	B17987	Monel
Lock Nut ⑥	6	B18176	B18176	B18176	B17984	B17984	Monel
Washer ⑦	6	B18175	B18175	B18175	B17986	B17986	Monel

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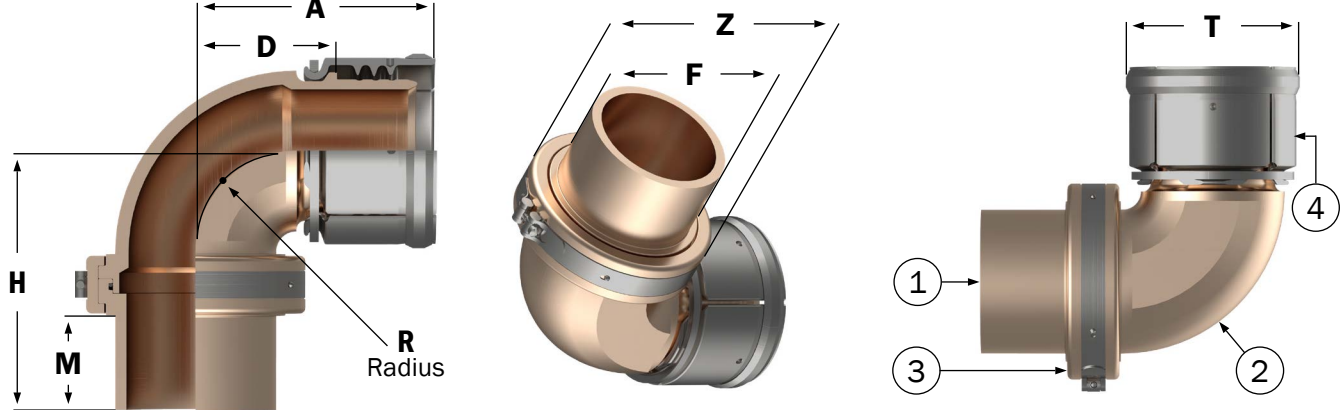
Male Sil-Braze to Hose

End Fitting - 90°

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



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions										
Part Number	IPS Size	A	D	F	H	M	R	Z	T	Est. Wt. (lbs.)
FC9589-3240-375	2"	5.70	2.87	2.38	4.76	1.31	1.88	4.00	3.90	9.80
FC9589-4048-375	2½"	5.88	3.18	2.88	4.71	1.12	2.09	4.42	4.50	12.01
375-190784-48-48	3"	6.46	3.58	3.50	6.15	2.50	2.09	5.19	4.50	16.47
375-190784-56-64	3½"	6.75	3.94	4.00	6.99	2.50	2.81	5.56	5.44	21.67
375-190784-64-64	4"	6.75	3.94	4.50	7.24	2.64	2.81	6.12	5.44	23.92

Components		Part Number	Size					
Description	Req'd per Ass'y	Base No.	32-40	40-48	48	56-64	64	Material
Tailpiece ①	1	188-500189- FF5002-188-	- 32	- 40	48 -	56 -	64 -	Alum. Bronze
Nipple ②	1	188-185203-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Clamp Assy. ③	1	900758-	2	2.5	3	3.5	4	Alum. Bronze
Socket Assy. ④	1	4-1205-	40	48	48	64	64	Monel
Ring	1	4-21004-	40	48	48	64	64	Monel
Grip Segment	4	4-1205-1-	40	48	48	64	64	Monel
Band	1	4-21023-	40	48	48	64	64	Monel

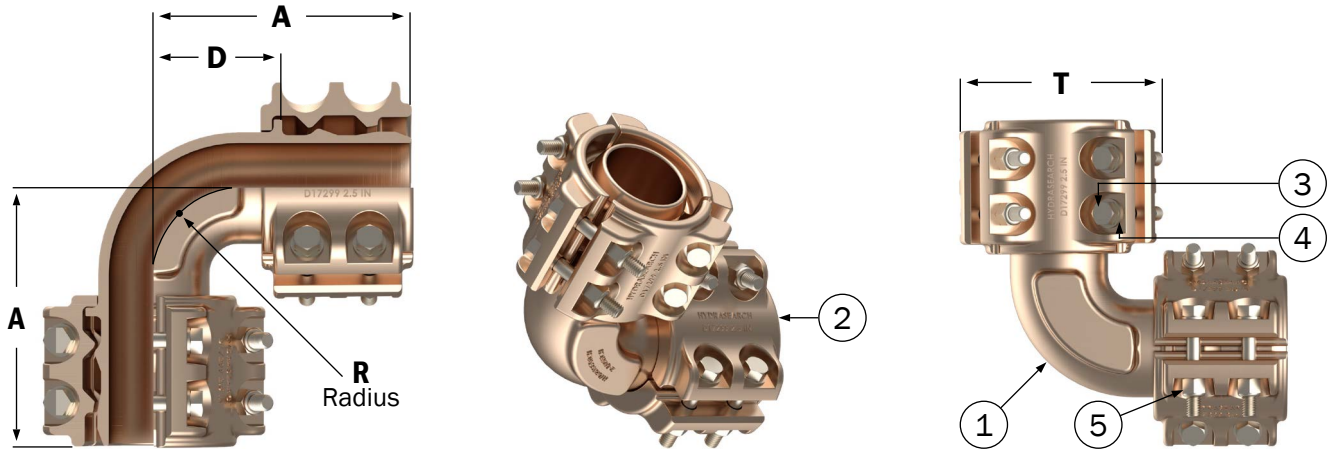
All dimensions are in inches.
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Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group IV

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions							
Part Number	Drawing Number	IPS Size	A	D	R	T	Est. Wt. (lbs.)
90ELB-449E-40	D17856	2½"	5.75	2.84	1.88	5.35	12.00
90ELB-449E-48	D17859	3"	5.96	3.04	2.09	5.58	14.00
90ELB-449E-64	D17860	4"	6.80	3.89	2.81	6.50	23.00

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

All dimensions are in inches.
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Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group IV

For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions						
Part Number	IPS Size	A	D	R	T	Est. Wt. (lbs.)
375-190717-40	2½"	5.70	2.87	1.88	3.90	11.60
375-190717-48	3"	5.96	3.08	2.09	4.50	14.50
375-190717-64	4"	6.75	3.94	2.81	5.44	22.50

Components						
Description	Req'd per Ass'y	Base No.	40	48	64	Material
Elbow ①	1	188-185215-	40	48	64	Alum. Bronze
Socket Assembly ②	2	4-1205-	40	48	64	Monel
Ring	8	4-21004-	40	48	64	Monel
Grip Segment	2	4-1205-1-	40	48	64	Monel
Band	2	4-21023-	40	48	64	Monel

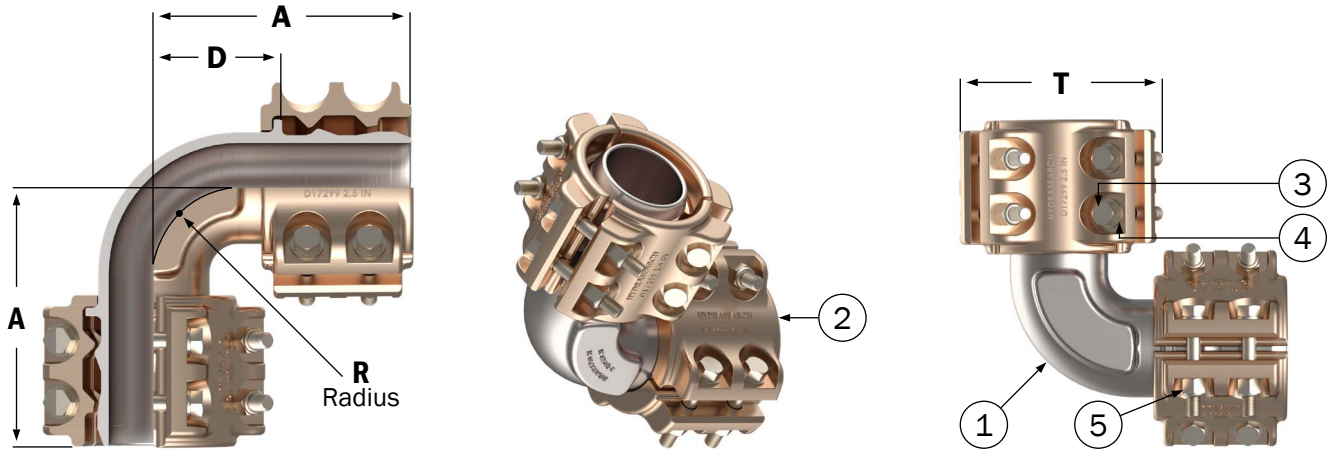
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Hose to Hose

Elbow - 90° Dogleg



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions							
Part Number	Drawing Number	IPS Size	A	D	R	T	Est. Wt. (lbs.)
90ELB-449E-40-SS	D18506	2½"	5.75	2.84	1.88	5.35	12.00
90ELB-449E-48-SS	D18475	3"	5.96	3.04	2.09	5.58	14.00
90ELB-449E-64-SS	D21693	4"	6.80	3.89	2.81	6.50	23.00

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

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Hose to Hose

Elbow - 90° Dogleg



For use with the following hose: HS4265, HS4224, 2562, 150901



Dimensions						
Part Number	IPS Size	A	D	R	T	Est. Wt. (lbs.)
412-190717-40	2½"	5.70	2.87	1.88	3.90	11.60
412-190717-48	3"	5.96	3.08	2.09	4.50	14.50
412-190717-64	4"	6.75	3.94	2.81	5.44	22.50

Components						
Description	Req'd per Ass'y	Base No.	40	48	64	Material
Elbow ①	1	-	40	48	64	Stainless Steel
Socket Assembly ②	2	4-1205-	40	48	64	Monel
Ring	8	4-21004-	40	48	64	Monel
Grip Segment	2	4-1205-1-	40	48	64	Monel
Band	2	4-21023-	40	48	64	Monel

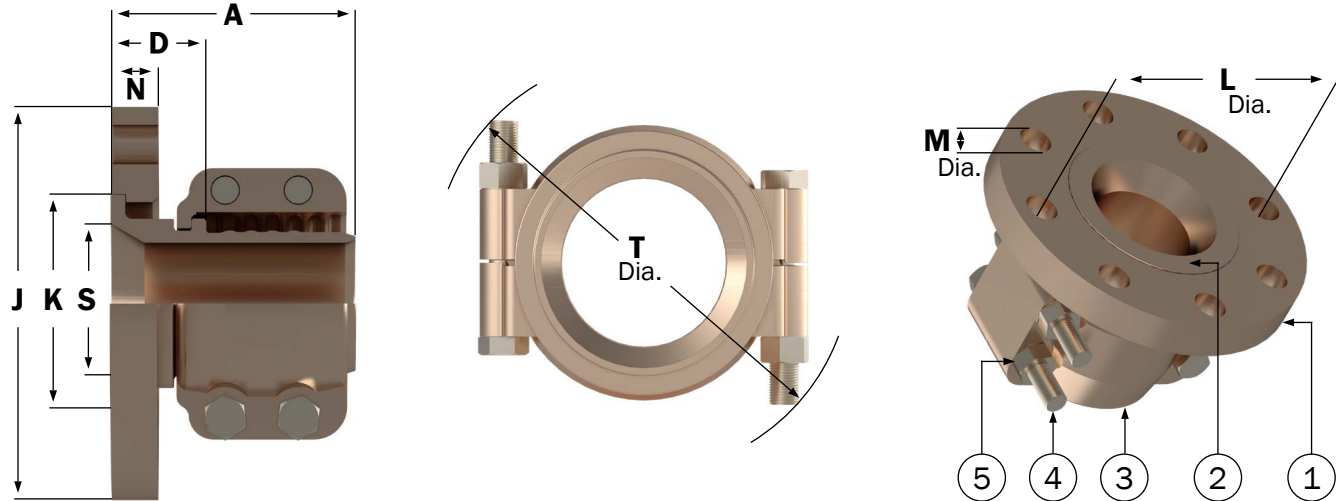
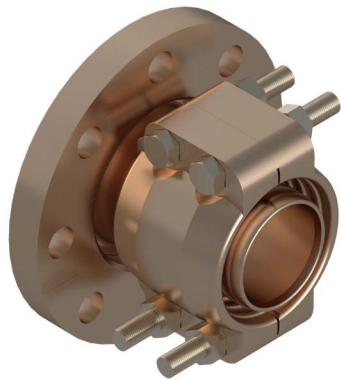
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-1546A1-2-40	C18411	2"	7	.69	4.37	1.96	6.50	3.28	5.19	.81	2.25	6.70	15.00
EF-1546A1-2.5-40	C18696	2½"	8	.81	4.87	2.46	7.56	3.28	6.00	.94	2.25	6.70	16.00
EF-1546A1-2.5-48	C18412	2½"	8	.81	5.44	2.55	7.56	3.78	6.00	.94	2.71	7.65	22.00
EF-1546A1-3-48	C18413	3"	8	.81	4.85	1.96	8.13	4.50	6.56	.94	3.31	7.65	23.00
EF-1546A1-3.5-64	C18414	3½"	9	.81	5.24	2.37	8.69	5.22	7.13	1.00	3.81	8.91	31.00
EF-1546A1-4-64	C18415	4"	9	.81	5.24	2.37	9.25	5.22	7.69	1.00	4.28	8.91	34.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17798	C17799	C17801	C17802	C17803	C17804	Alum. Bronze
Nipple ②	1	C23042-1	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

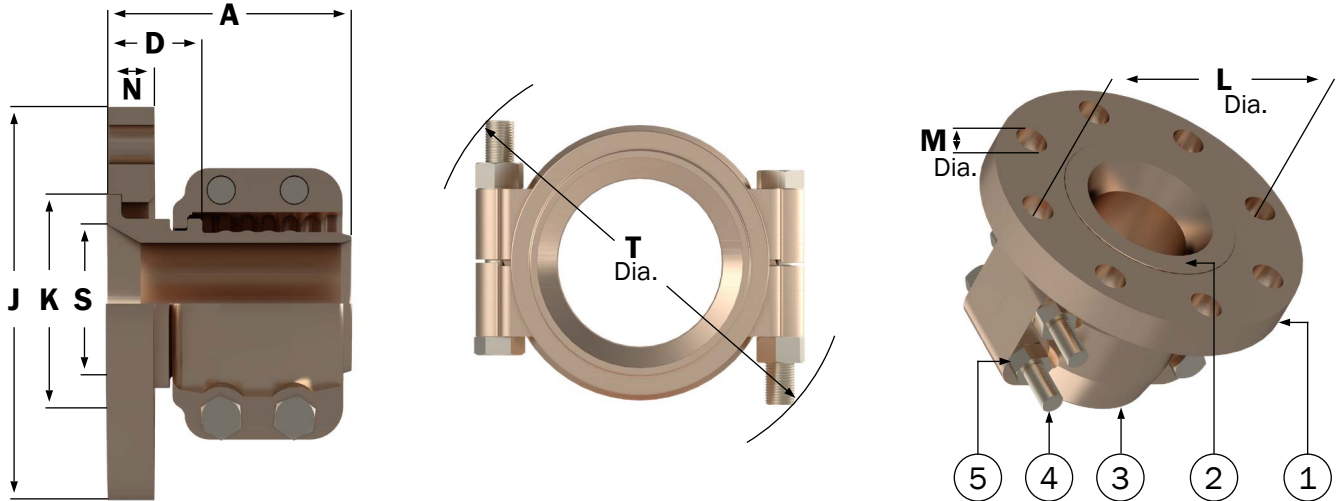
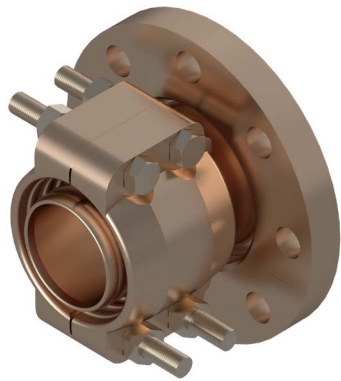
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class I,
400lb Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC9568-3240-188	2"	7	.69	4.40	1.96	6.50	3.28	5.19	.81	2.24	6.70	15.20
FC9568-4048-188	2½"	8	.81	4.86	1.96	7.56	3.78	6.00	.94	2.71	7.65	22.40
FC9568-4848-188	3"	8	.81	4.86	1.96	8.12	4.50	6.56	.94	3.31	7.65	23.20
FC9568-5664-188	3½"	9	.81	5.28	2.37	8.69	5.22	7.12	1.00	3.81	8.91	30.90
FC9568-6464-188	4"	9	.81	5.28	2.37	9.25	5.22	7.69	1.00	4.28	8.91	33.70

Components								
		Part Number	Size					
Description	Req'd per Ass'y	Base No.	3240	4048	4848	5664	6464	Material
Swivel Flange ①	1	188-74048-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Nipple ②	1	FC3478-	3240-188	4048-188	4848-188	5664-188	6464-188	Alum. Bronze
Grip Segment ③	2	FC3476-	40-188	48-188	48-188	64-188	64-188	Alum. Bronze
Bolt ④	4	FF9142	0856-4	0964-4	0964-4	1072-4	1072-4	Monel
Nut ⑤	4	4-222048-	8	9	9	10	10	Monel

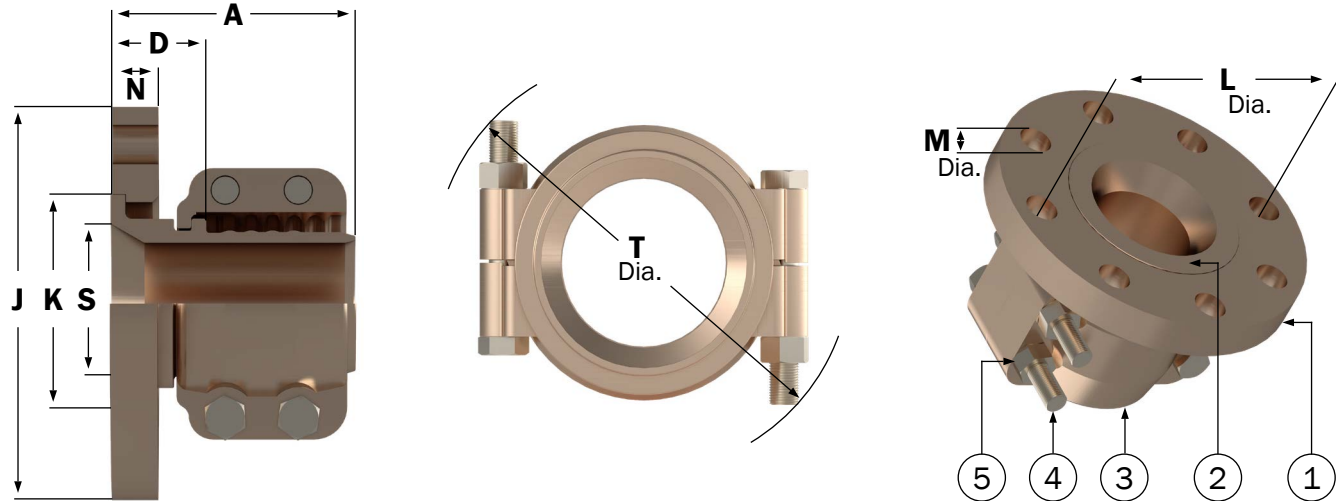
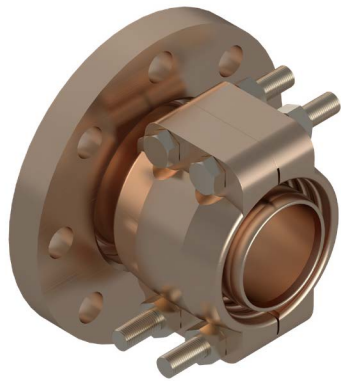
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-1546A2-2-40	C18352	2"	6	.56	4.37	1.96	5.56	3.28	4.44	.81	2.25	3.70	15.00
EF-1546A2-2.5-40	C18695	2½"	6	.56	4.87	2.46	6.13	3.28	5.00	.94	2.25	6.70	16.00
EF-1546A2-2.5-48	C18351	2½"	6	.56	5.44	2.55	6.13	3.78	5.00	.94	2.71	7.65	18.00
EF-1546A2-3-48	C18350	3"	8	.56	4.85	1.96	6.63	4.50	5.50	.94	3.31	7.65	18.00
EF-1546A2-3.5-64	C18416	3½"	8	.56	5.24	2.37	7.19	5.22	6.06	1.00	3.81	8.91	26.00
EF-1546A2-4-64	C17768	4"	8	.56	5.24	2.37	7.69	5.22	6.56	1.00	4.28	8.91	28.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17765	C17796	C17795	C17766	C17794	C17767	Alum. Bronze
Nipple ②	1	C23042-1	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

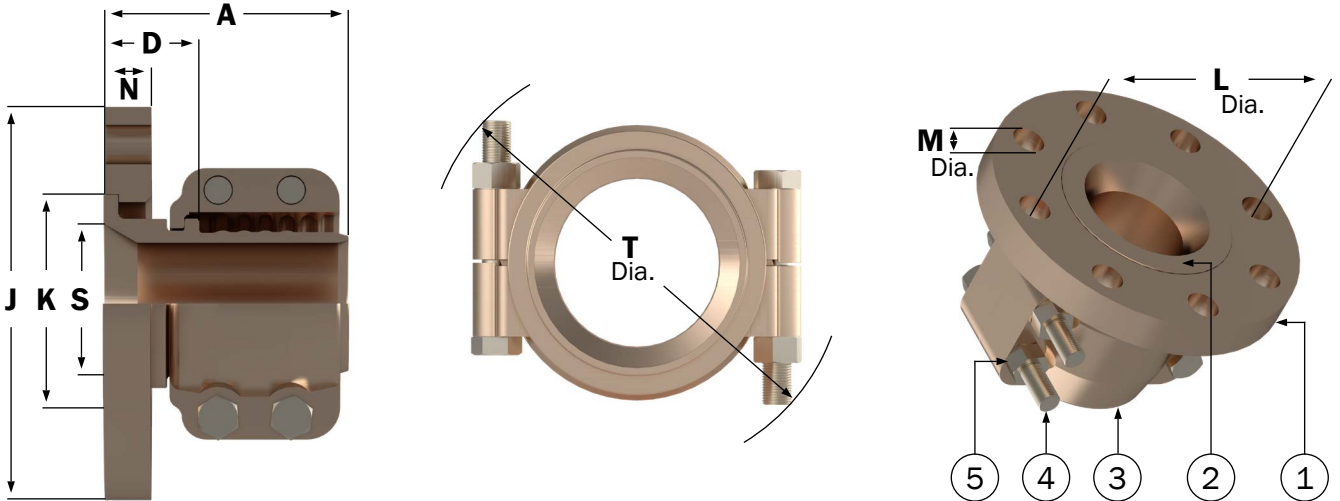
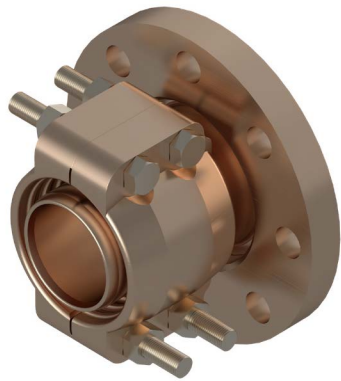
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC9527-3240-188	2"	6	.56	4.40	1.96	5.56	3.28	4.44	.83	2.24	6.70	14.60
FC9527-4048-188	2½"	6	.56	4.86	1.96	6.12	3.78	5.00	.95	2.71	7.65	17.60
FC9527-4848-188	3"	8	.56	4.86	1.96	6.62	4.50	5.50	.95	3.31	7.65	17.90
FC9527-5664-188	3½"	8	.56	5.28	2.37	7.19	5.22	6.06	1.02	3.81	8.91	25.90
FC9527-6464-188	4"	8	.56	5.28	2.37	7.69	5.22	6.56	1.02	4.28	8.91	27.80

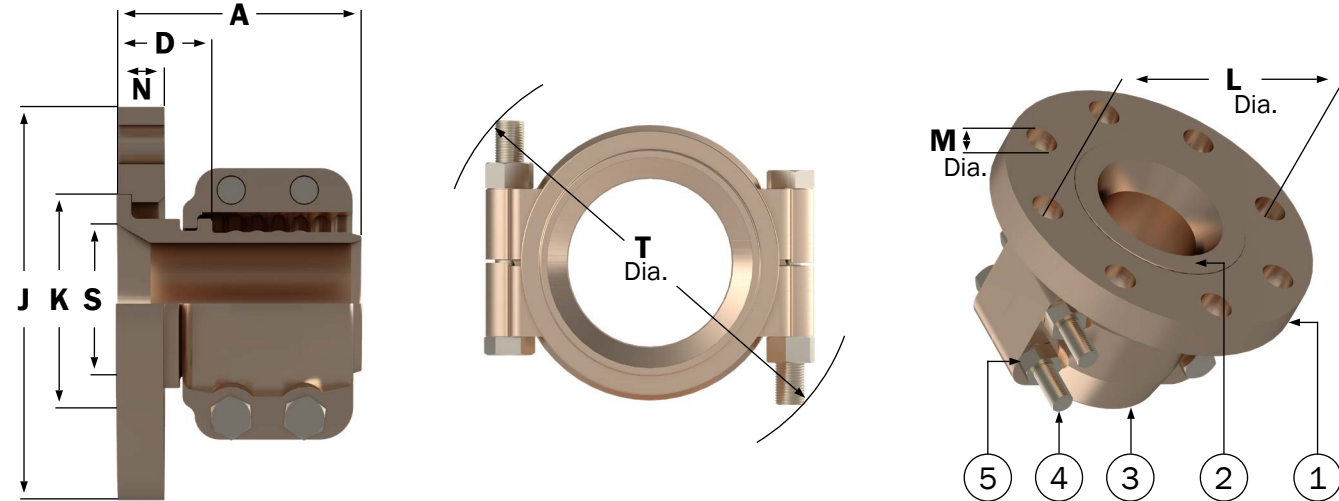
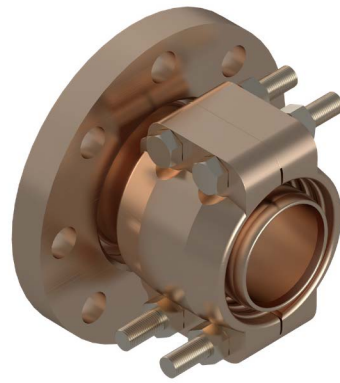
Components								
		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	3240	4048	4848	5664	6464	Material
Swivel Flange ①	1	188-74045-	32-40	40-48	48-48	56-64	64-64	Alum. Bronze
Nipple ②	1	FC3478-	3240-188	4048-188	4848-188	5664-188	6464-188	Alum. Bronze
Grip Segment ③	2	FC3476-	40-188	48-188	48-188	64-188	64-188	Alum. Bronze
Bolt ④	4	FF9142-	0856-4	0964-4	0964-4	1072-4	1072-4	Monel
Nut ⑤	4	4-222048-	8	9	9	10	10	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

**MIL-DTL-24787/1,
Type F, Group X, Class III,
250lb. Flange per MIL-PRF-20042**

For use with the following hose: HS4182 & FC132



Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-1546A3-2-40	C18694	2"	6	.69	4.37	1.96	5.56	3.28	4.44	.81	2.25	6.70	15.00
EF-1546A3-2.5-40	C18534	2½"	6	.69	4.87	2.46	6.13	3.28	5.00	.94	2.25	6.70	16.00
EF-1546A3-2.5-48	C18702	2½"	6	.69	5.44	2.55	6.13	3.78	5.00	.94	2.71	7.65	17.00
EF-1546A3-3-48	C18533	3"	8	.69	4.85	1.96	6.63	4.50	5.50	.94	3.31	7.65	18.00
EF-1546A3-3.5-64	C18707	3½"	8	.69	5.24	2.37	7.19	5.22	6.06	1.00	3.81	8.91	27.00
EF-1546A3-4-64	C18376	4"	8	.69	5.24	2.37	7.69	5.22	6.56	1.00	4.28	8.91	28.00

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17812	C17307	C17813	C17309	C17815	C17310	Alum. Bronze
Nipple ②	1	C232042-1	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	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.

Notes

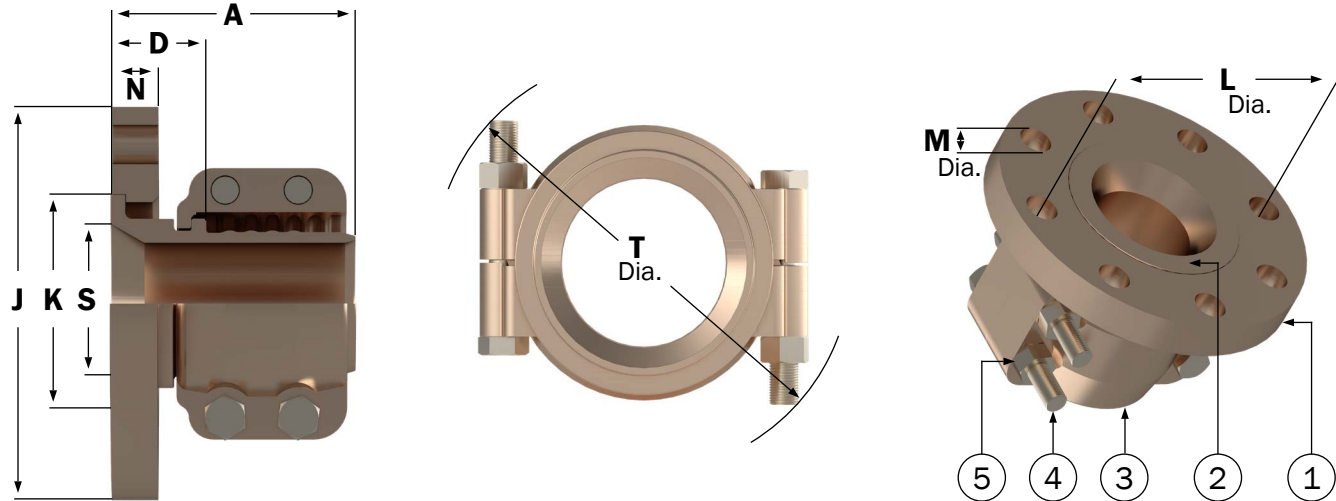
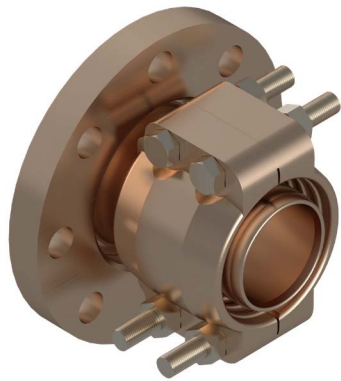
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class IV,
150lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-1546A4-2-40	C18687	2"	6	.56	4.37	1.96	5.56	3.28	4.44	.44	2.25	6.70	12.00
EF-1546A4-2.5-40	C18688	2½"	6	.56	4.87	2.46	6.13	3.28	5.00	.50	2.25	6.70	13.00
EF-1546A4-2.5-48	C18689	2½"	6	.56	5.44	2.55	6.13	3.78	5.00	.50	2.71	7.65	15.00
EF-1546A4-3-48	C18690	3"	8	.56	4.85	1.96	6.63	4.50	5.50	.50	3.31	7.65	16.00
EF-1546A4-3.5-64	C18691	3½"	8	.56	5.24	2.37	7.19	5.22	6.06	.50	3.81	8.91	24.00
EF-1546A4-4-64	C18692	4"	8	.56	5.24	2.37	7.69	5.22	6.56	.50	4.28	8.91	25.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17925	C17929	C17931	C17933	C17938	C17940	Alum. Bronze
Nipple ②	1	C23042-1	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

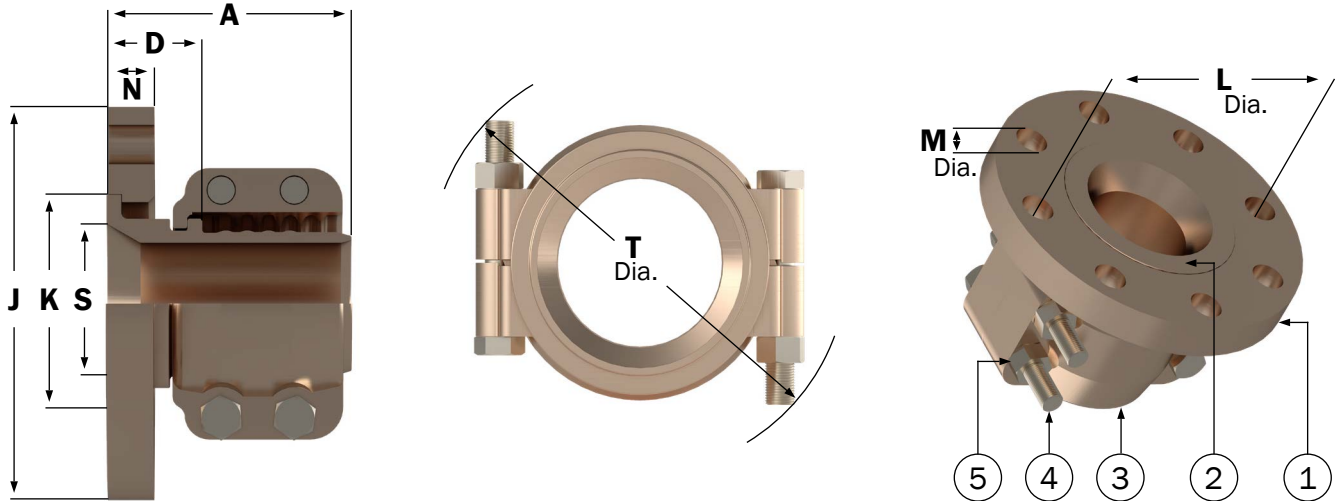
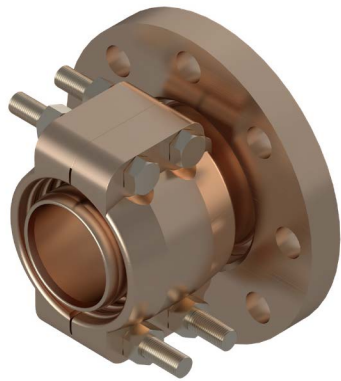
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class IV,
150lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC5309-3240-188	2"	6	.56	4.37	1.96	5.56	3.28	4.44	.44	2.25	6.70	12.00
FC5309-4040-188	2½"	6	.56	4.87	2.46	6.13	3.28	5.00	.50	2.25	6.70	13.00
FC5309-4048-188	2½"	6	.56	5.44	2.55	6.13	3.78	5.00	.50	2.71	7.65	15.00
FC5309-4848-188	3"	8	.56	4.85	1.96	6.63	4.50	5.50	.50	3.31	7.65	16.00
FC5309-5664-188	3½"	8	.56	5.24	2.37	7.19	5.22	6.06	.50	3.81	8.91	24.00
FC5309-6464-188	4"	8	.56	5.24	2.37	7.69	5.22	6.56	.50	4.28	8.91	25.00

Components								
Description	Req'd per Ass'y	Part Number						Material
		Base No.	3240	4048	4848	5664	6464	
Swivel Flange ①	1	-	-	-	-	-	-	Alum. Bronze
Nipple ②	1	-	-	-	-	-	-	Alum. Bronze
Grip Segment ③	2	FC3476-	-	-	48-188	-	-	Alum. Bronze
Bolt ④	4	FF9142-	-	-	0964-4	-	-	Monel
Nut ⑤	4	4-222048-	-	-	9	-	-	Monel

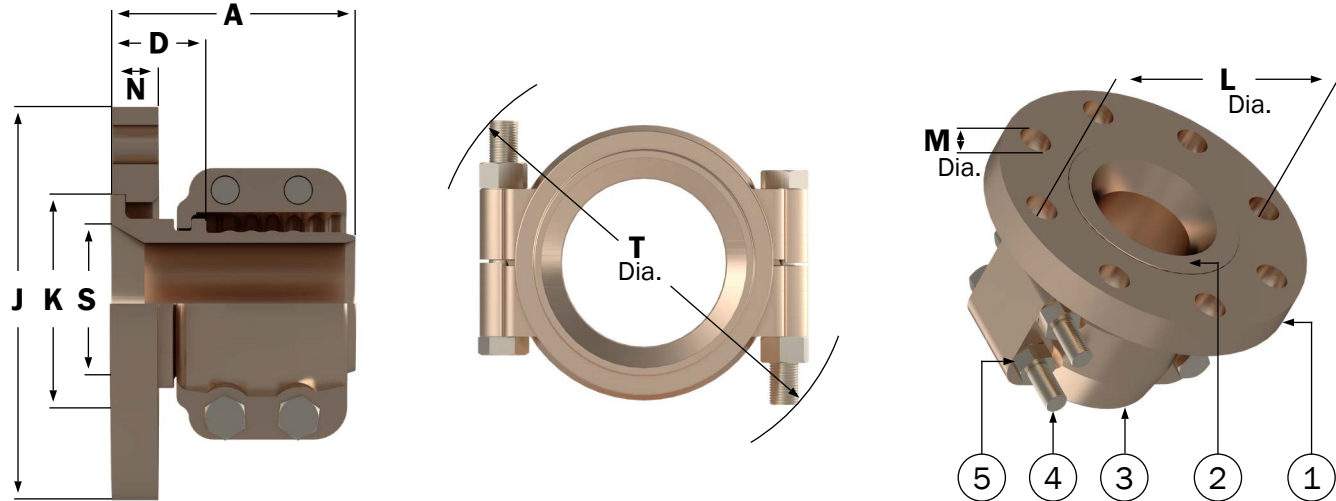
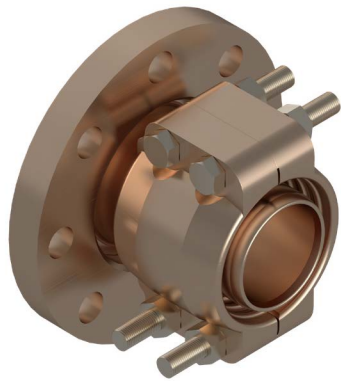
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4182 & FC132



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-1546A5-2-40	C18681	2"	4	.75	4.37	1.96	6.00	3.28	4.75	.42	2.25	6.70	12.00
EF-1546A5-2.5-40	C18682	2½"	4	.75	4.87	2.46	7.00	3.28	5.50	.48	2.25	6.70	13.00
EF-1546A5-2.5-48	C18683	2½"	4	.75	5.44	2.55	7.00	3.78	5.50	.48	2.71	7.65	15.00
EF-1546A5-3-48	C18684	3"	4	.75	4.85	1.96	7.50	4.50	6.00	.48	3.31	7.65	16.00
EF-1546A5-3.5-64	C18685	3½"	8	.75	5.24	2.37	8.50	5.22	7.00	.48	3.81	8.91	24.00
EF-1546A5-4-64	C18686	4"	8	.75	5.24	2.37	9.00	5.22	7.50	.48	4.28	8.91	25.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17966	C17968	C17969	C17970	C17971	C17972	Alum. Bronze
Nipple ②	1	C23042-1	C17708	C17857	C17706	C17858	C17707	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

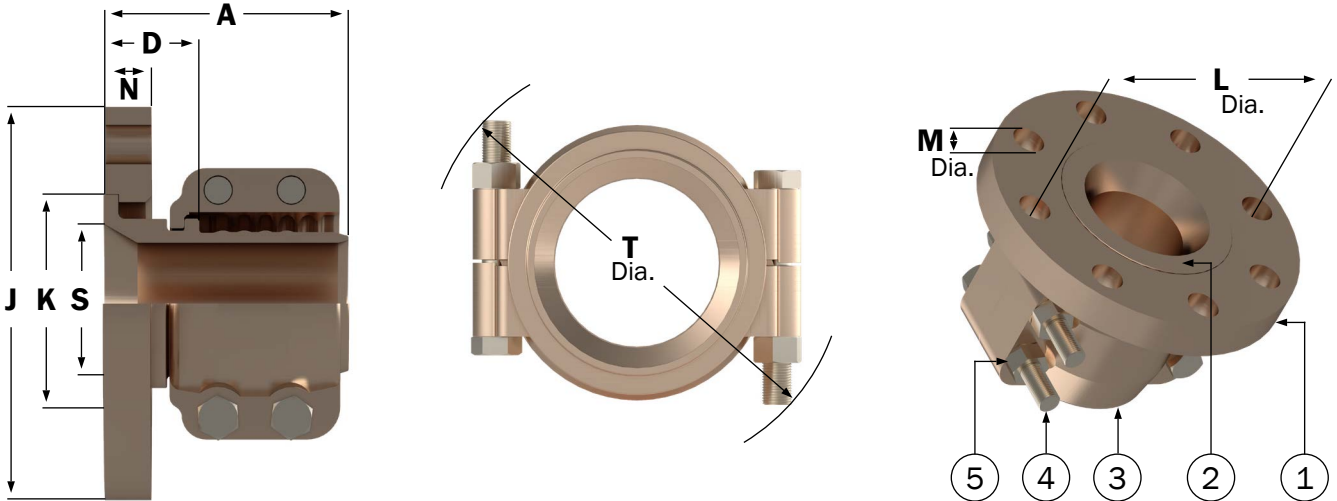
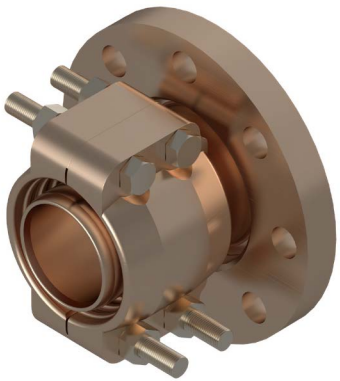
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group X, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4182 & FC132



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC5048-3240-188	2½"	4	.75	4.40	1.96	6.00	3.28	4.75	.44	2.24	6.70	12.00
FC5048-4040-188	2½"	4	.75	4.40	1.96	7.00	3.28	5.50	.50	2.24	6.70	13.00
FC5048-4048-188	2½"	4	.75	4.86	1.96	7.00	3.78	5.50	.50	2.71	7.65	15.00
FC5048-4848-188	3"	4	.75	4.86	1.96	7.50	4.50	6.00	.50	3.31	7.65	16.00
FC5048-6464-188	4"	8	.75	5.28	2.37	9.00	5.22	7.50	.50	4.28	8.91	25.00

Components								
		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	3240	4040	4048	4848	6464	Material
Swivel Flange ①	1	188-74021-	32-40	40-40	40-48	48-48	64-64	Alum. Bronze
Nipple ②	1	FC3478-	3240-188	3240-188	4048-188	4848-188	6464-188	Alum. Bronze
Grip Segment ③	2	FC3476-	40-188	40-188	48-188	48-188	64-188	Alum. Bronze
Bolt ④	4	FF9142-	0856-4	0856-4	0964-4	0964-4	1072-4	Monel
Nut ⑤	4	4-222048-	8	8	9	9	10	Monel

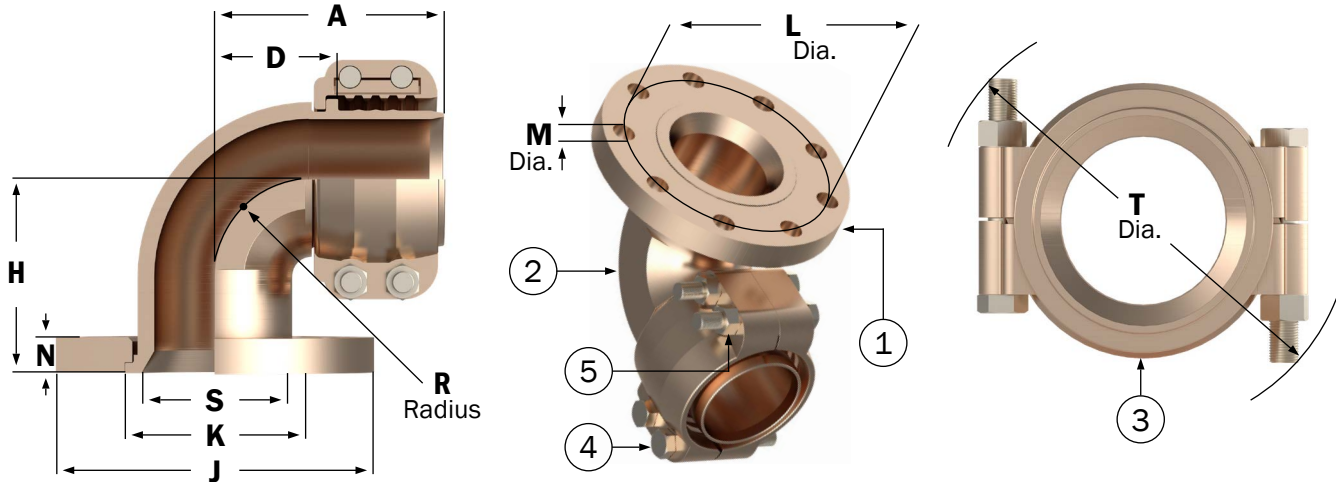
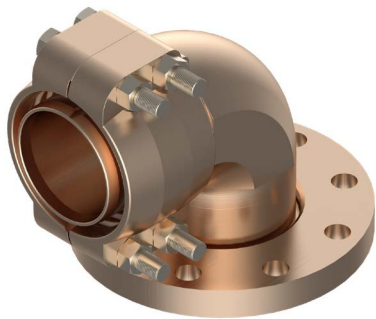
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-1546B1-2-40	C18417	2"	7	.69	5.25	2.84	3.50	6.50	3.22	5.18	.81	1.88	2.24	6.70	17.00
90EF-1546B1-2.5-40	C18717	2½"	8	.81	5.25	2.84	3.50	7.56	3.22	6.00	.94	1.88	2.24	6.70	18.00
90EF-1546B1-2.5-48	C18418	2½"	8	.81	5.78	2.89	3.87	7.56	3.78	6.00	.94	2.09	2.71	7.65	24.00
90EF-1546B1-3-48	C18419	3"	8	.81	5.78	2.89	4.00	8.13	4.50	6.56	.94	2.09	3.31	7.65	25.00
90EF-1546B1-3.5-64	C18420	3½"	9	.81	6.78	3.91	4.62	8.69	5.22	7.13	1.00	2.81	3.81	8.91	37.00
90EF-1546B1-4-64	C18421	4"	9	.81	6.78	3.91	4.62	9.25	5.28	7.69	1.00	2.81	4.28	8.91	39.00

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17798	C17799	C17801	C17802	C17803	C17804	Alum. Bronze
Elbow ②	1	C18052	C18052	D18305	D18306	D18307	D18308	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

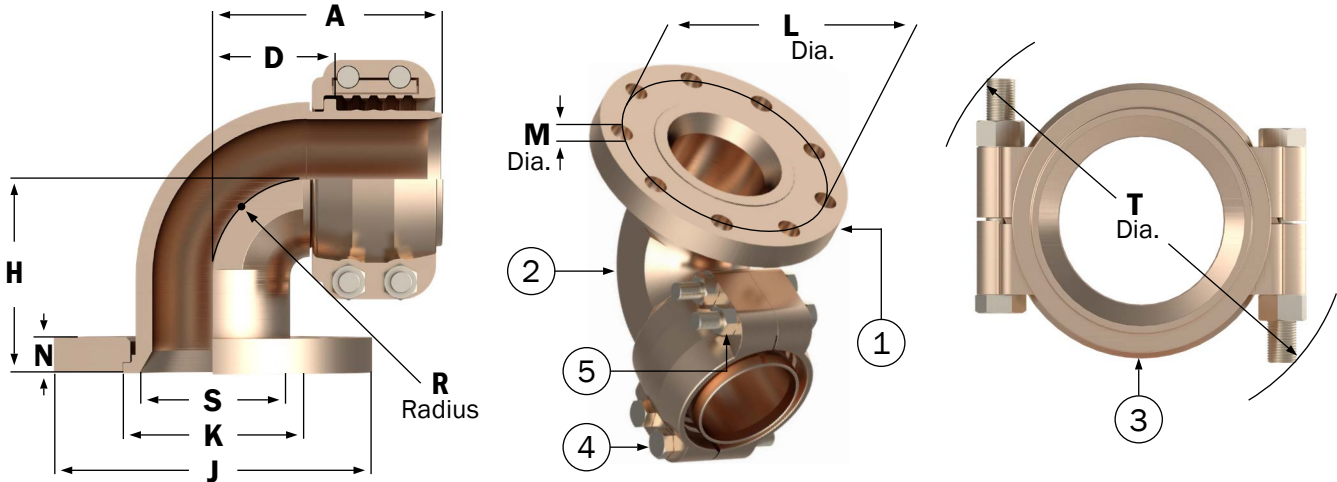
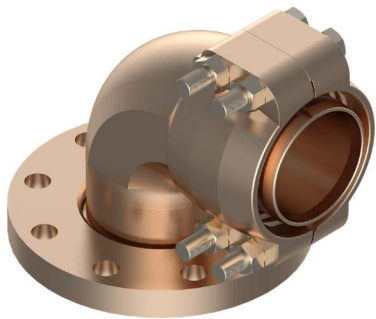
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	A	D	H	J	K	L	M	N	R	S	T	Est. Wt. (lbs.)
FC9638-3240-188	2"	7	4.92	2.50	4.00	6.50	3.28	5.19	.69	.83	1.88	2.24	6.70	17.10
FC9638-4048-488	2½"	8	5.65	2.75	4.50	7.56	3.78	6.00	.81	.95	2.09	2.71	7.65	23.70
FC9638-4848-188	3"	8	5.65	2.75	4.50	8.12	4.50	6.56	.81	.95	2.09	3.31	7.65	24.80
FC9638-6464-188	4"	9	6.48	3.57	5.62	9.25	5.22	7.69	.81	1.02	2.81	4.28	8.91	39.30

Components						
Description	Req'd per Ass'y	Part Number	Size			
		Base No.	3240	4048	4848	6464
Swivel Flange ①	1	188-74048-	32-40	40-48	48-48	64-64
Elbow ②	1	FC3558-	3240-188	4048-188	4848-188	6464-188
Grip Segment ③	2	FC3476-	40-188	48-188	48-188	64-188
Bolt ④	4	FF9142-	0856-4	0964-4	0964-4	1072-4
Nut ⑤	4	4-222048-	8	9	9	10

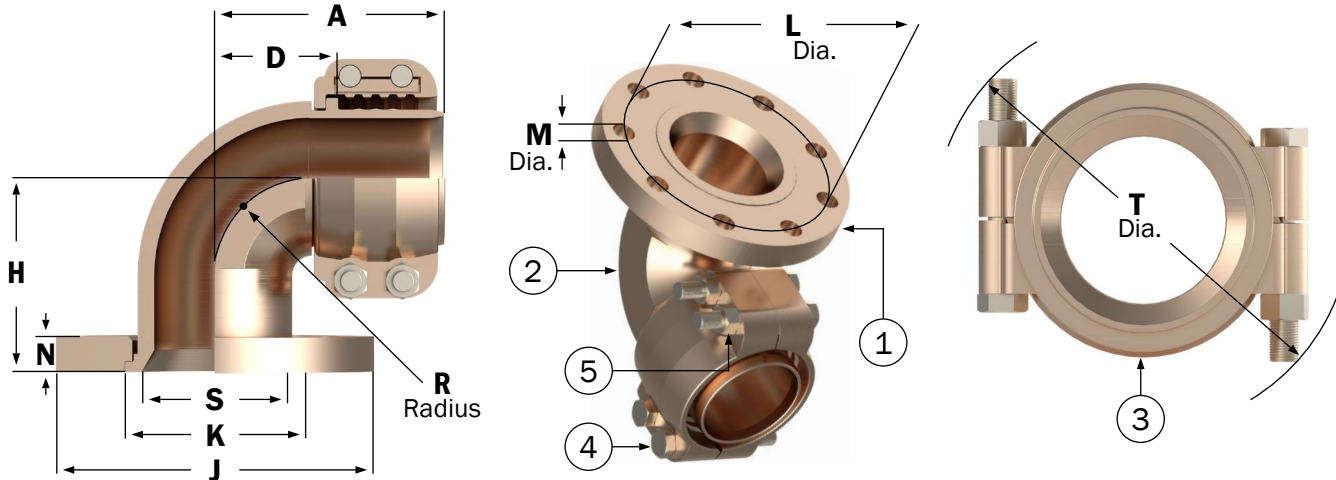
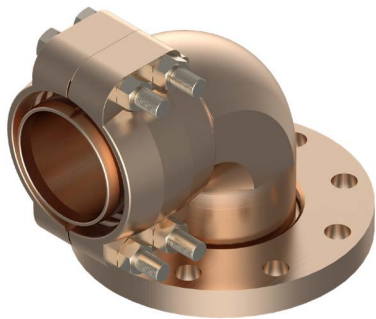
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-1546B2-2-40	C18422	2"	6	.56	5.25	2.84	3.50	5.56	3.22	4.44	.81	1.88	2.24	6.70	16.00
90EF-1546B2-2.5-40	C18423	2½"	6	.56	5.25	2.84	3.50	6.13	3.22	5.00	.94	1.88	2.24	6.70	20.00
90EF-1546B2-2.5-48	C18424	2½"	6	.56	5.78	2.89	3.87	6.13	3.78	5.00	.94	2.09	2.71	7.65	20.00
90EF-1546B2-3-48	D18358	3"	8	.56	5.78	2.89	4.00	6.63	4.50	5.50	.94	2.09	3.31	7.65	20.00
90EF-1546B2-3.5-64	C18425	3½"	8	.56	6.78	3.91	4.62	7.19	5.22	6.06	1.00	2.81	3.81	8.91	32.00
90EF-1546B2-4-64	C18426	4"	8	.56	6.78	3.91	4.62	7.69	5.28	6.56	1.00	2.81	4.28	8.91	33.00

Components

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17765	C17796	C17795	C17766	C17794	C17767	Alum. Bronze
Elbow ②	1	C18052	C18052	D18305	D18306	D18307	D18308	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

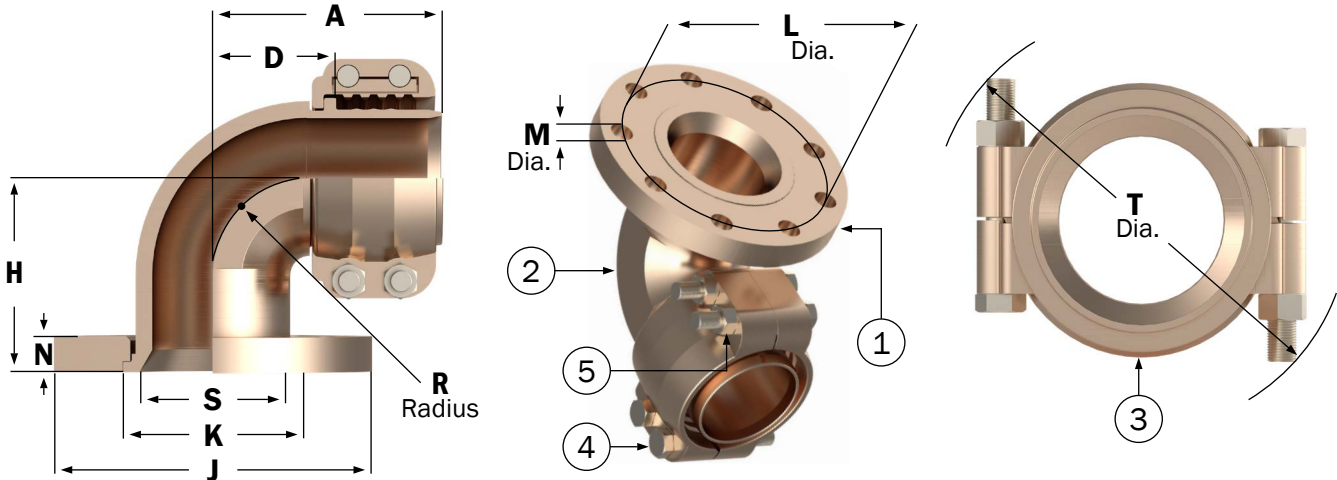
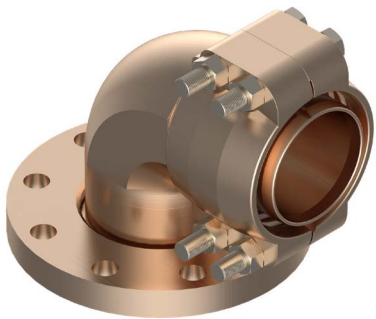
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions

Part Number	IPS Size	No. of Bolt Holes	A	D	H	J	K	L	M	N	R	S	T	Est. Wt. (lbs.)
FC9637-3240-188	2"	6	4.92	2.50	4.00	5.56	3.28	4.44	.56	.83	1.88	2.24	6.70	15.50
FC9637-4040-188	2½"	6	4.92	2.50	4.00	6.12	3.28	5.00	.56	.95	2.09	2.24	6.70	19.80
FC9637-4048-188	2½"	6	5.65	2.75	4.50	6.12	3.78	5.00	.56	.95	2.09	2.71	7.65	19.80
FC9637-4848-188	3"	8	5.65	2.75	4.50	6.62	4.50	5.50	.56	.95	2.09	3.31	7.65	20.30
FC9637-5664-188	3½"	8	6.48	3.57	5.62	7.19	5.22	6.06	.56	1.02	2.81	3.81	8.91	31.50
FC9637-6464-188	4"	8	6.48	3.57	5.62	7.69	5.22	6.56	.56	1.02	2.81	4.28	8.91	33.40

Part Number _____
Size _____

Components

Description	Req'd per Ass'y	Base No.	3240	4040	4048	4848	5664	6464	Material
Swivel Flange ①	1	188-74045-	32-40	40-40	40-48	48-48	56-64	64-64	Alum. Bronze
Elbow ②	1	FC3558-	3240-188	4040-188	4048-188	4848-188	5664-188	6464-188	Alum. Bronze
Grip Segment ③	2	FC3476-	40-188	40-188	48-188	48-188	64-188	64-188	Alum. Bronze
Bolt ④	4	FF9142-	0856-4	0856-4	0964-4	0964-4	1072-4	1072-4	Monel
Nut ⑤	4	4-222048-	8	8	9	9	10	10	Monel

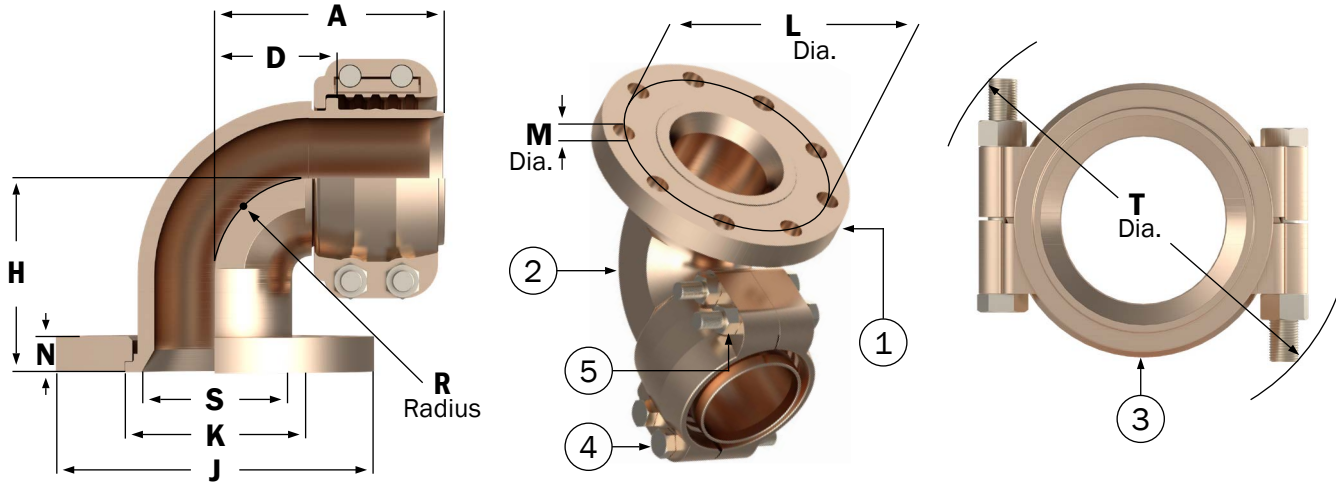
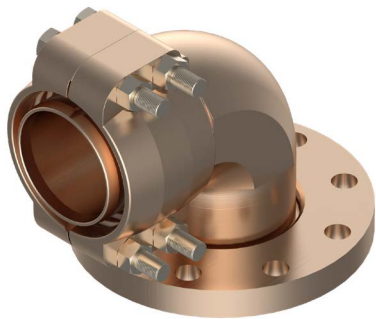
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class III,
250lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions																
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)	
90EF-1546B3-2-40	C18710	2"	6	.69	5.25	2.84	3.50	5.56	3.22	4.44	.81	1.88	2.24	6.70	17.00	
90EF-1546B3-2.5-40	C18535	2½"	6	.69	5.25	2.84	3.50	6.13	3.22	5.00	.94	1.88	2.24	6.70	18.00	
90EF-1546B3-2.5-48	C18494	2½"	6	.69	5.78	2.89	3.87	6.13	3.78	5.00	.94	2.09	2.71	7.65	21.00	
90EF-1546B3-3-48	C18716	3"	8	.69	5.78	2.89	4.00	6.63	4.50	5.50	.94	2.09	3.31	7.65	22.00	
90EF-1546B3-3.5-64	D18721	3½"	8	.69	6.78	3.91	4.62	7.19	5.22	6.06	1.00	2.81	3.81	8.91	31.00	
90EF-1546B3-4-64	D18724	4"	8	.69	6.78	3.91	4.62	7.69	5.28	6.56	1.00	2.81	4.28	8.91	32.00	

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17812	C17307	C17813	C17309	C17815	C17310	Alum. Bronze
Elbow ②	1	C18052	C18052	D18305	D18306	D18307	C18308	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

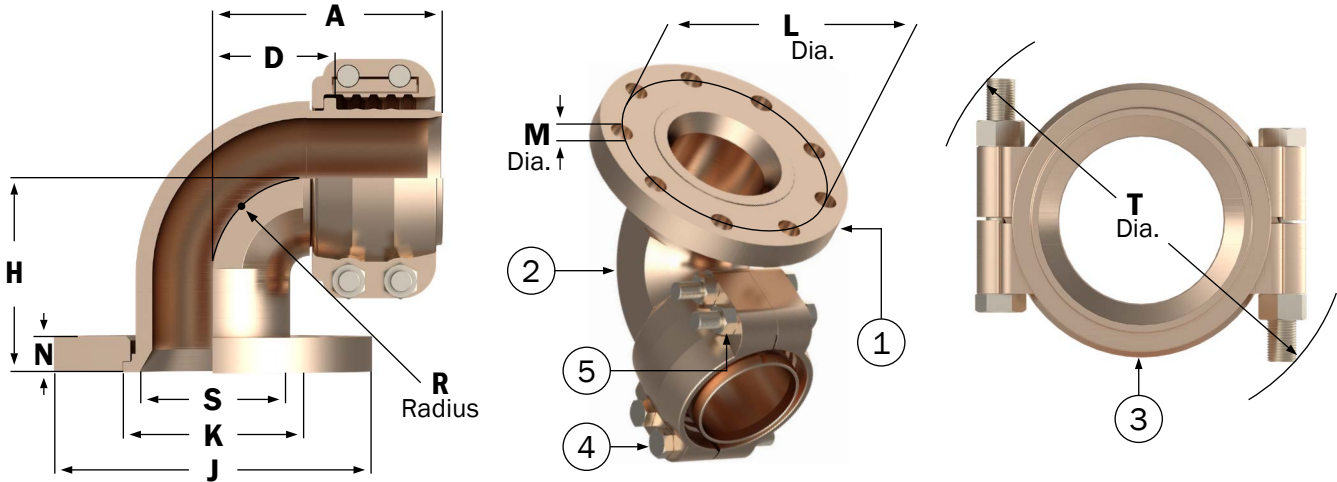
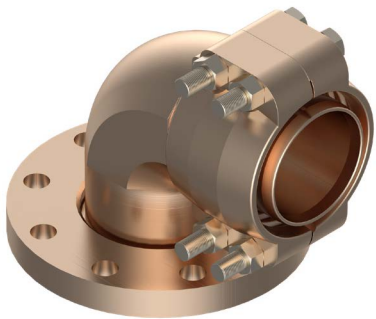
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class III,
250lb. Flange per MIL-PRF-20042

For use with the following hose: HS4182 & FC132



Dimensions																
Part Number	IPS Size	No. of Bolt Holes	A	D	H	J	K	L	M	N	R	S	T	Est. Wt. (lbs.)		
FJ9838-3240-188	2	6	5.25	2.84	3.50	5.56	3.22	4.44	.69	.81	1.88	2.24	6.70	17.00		
FJ9838-4040-188	2½	6	4.92	2.50	4.00	6.12	3.28	5.00	.69	.95	1.88	2.24	6.70	17.00		
FJ9838-4048-188	2½	6	5.78	2.89	3.87	6.13	3.78	5.00	.69	.94	2.09	2.71	7.65	21.00		
FJ9838-4848-188	3	8	5.65	2.75	4.50	6.62	4.50	5.50	.69	.95	2.09	3.31	7.65	22.00		
FJ9838-5664-188	3½	8	6.78	3.91	4.62	7.19	5.22	6.06	.69	1.00	2.81	3.81	8.91	31.00		
FJ9838-6464-188	4	8	6.78	3.91	4.62	7.69	5.28	6.56	.69	1.00	2.81	4.28	8.91	32.00		

Components					
Description	Req'd per Ass'y	Part Number		Size	
		Base No.		4040	4848
Swivel Flange ①	1	188-74414-		2.5-40	3-48
Elbow ②	1	FC3558-		3240-188	4848-188
Grip Segment ③	2	FC3476-		40-188	48-188
Bolt ④	4	FF9142-		0856-4	0964-4
Nut ⑤	4	4-222048-		8	9

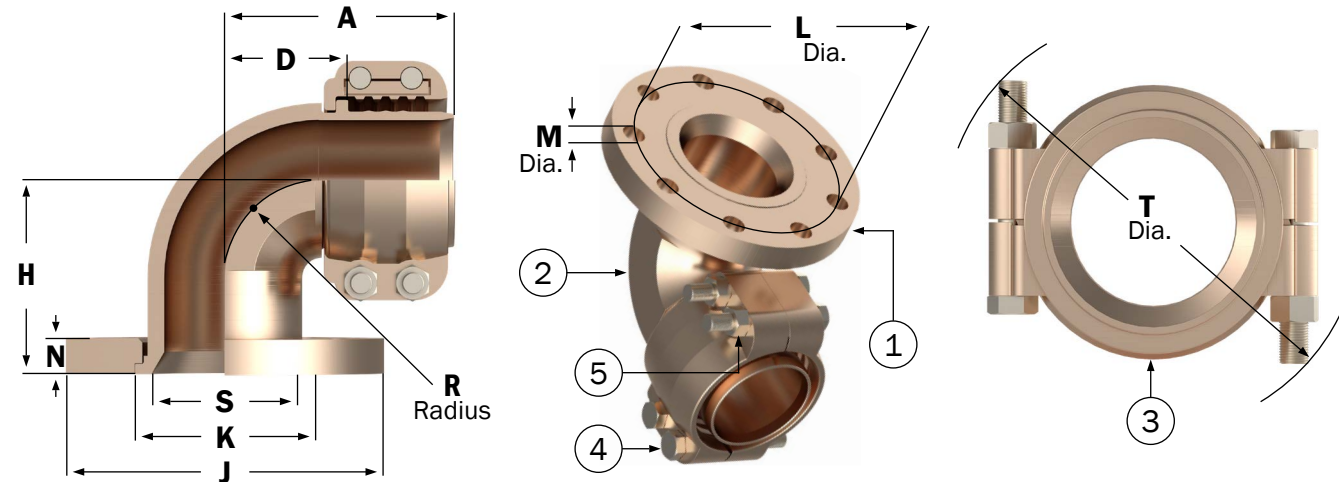
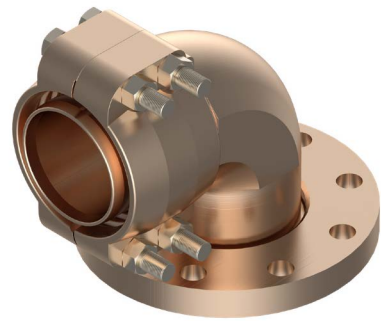
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

**MIL-DTL-24787/1,
Type FL, Group X, Class IV,
150lb. Flange per MIL-PRF-20042**

For use with the following hose: HS4182 & FC132



Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-1546B4-2-40	C18709	2"	6	.56	5.25	2.84	3.50	5.56	3.22	4.44	.44	1.88	2.24	6.70	15.00
90EF-1546B4-2.5-40	C18714	2½"	6	.56	5.25	2.84	3.50	6.13	3.22	5.00	.50	1.88	2.24	6.70	16.00
90EF-1546B4-2.5-48	C18495	2½"	6	.56	5.78	2.89	3.87	6.13	3.78	5.00	.50	2.09	2.71	7.65	19.00
90EF-1546B4-3-48	C18715	3"	8	.56	5.78	2.89	4.00	6.63	4.50	5.50	.50	2.09	3.31	7.65	20.00
90EF-1546B4-3.5-64	D18720	3½"	8	.56	6.78	3.91	4.62	7.19	5.22	6.06	.50	2.81	3.81	8.91	29.00
90EF-1546B4-4-64	D18723	4"	8	.56	6.78	3.91	4.62	7.69	5.28	6.56	.50	2.81	4.28	8.91	30.00

Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17925	C17929	C17931	C17933	C17938	C17940	Alum. Bronze
Elbow ②	1	C18052	C18052	D18305	D18306	D18307	D18308	Alum. Bronze
Grip Segment ③	2	D17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	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.

Notes

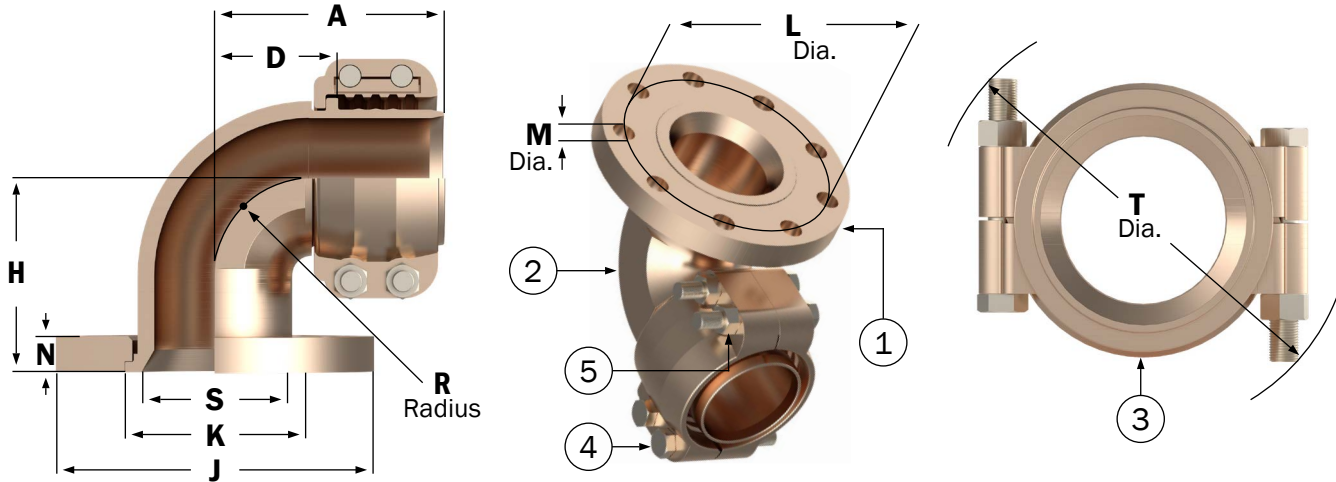
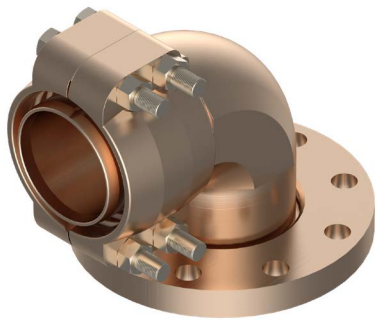
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group X, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4182 & FC132



Dimensions																
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)	
90EF-1546B5-2-40	C18708	2"	4	.75	5.25	2.84	3.50	6.00	3.22	4.75	.42	1.88	2.24	3.70	15.00	
90EF-1546B5-2.5-40	C18711	2½"	4	.75	2.25	2.84	3.50	7.00	3.22	5.50	.48	1.88	2.24	6.70	16.00	
90EF-1546B5-2.5-48	C18496	2½"	4	.75	5.78	2.89	3.87	7.00	3.78	5.50	.48	2.09	2.71	7.65	19.00	
90EF-1546B5-3-48	C18712	3"	4	.75	5.78	2.89	4.00	7.50	4.50	6.00	.48	2.09	3.31	7.65	20.00	
90EF-1546B5-3.5-64	D18713	3½"	8	.75	6.78	3.91	4.62	8.50	5.22	7.00	.48	2.81	3.81	8.91	29.00	
90EF-1546B5-4-64	D18722	4"	8	.75	6.78	3.91	4.62	9.00	5.28	7.50	.48	2.81	4.28	8.91	30.00	

Components								
Description	Req'd per Ass'y	2-40	2.5-40	2.5-48	3-48	3.5-64	4-64	Material
Swivel Flange ①	1	C17966	C17968	C17969	C17970	C17971	C17972	Alum. Bronze
Elbow ②	1	C18052	C18052	D18305	D18306	D18307	D18308	Alum. Bronze
Grip Segment ③	2	C17739-1	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ④	4	B17747-1	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ⑤	4	B17747-2	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

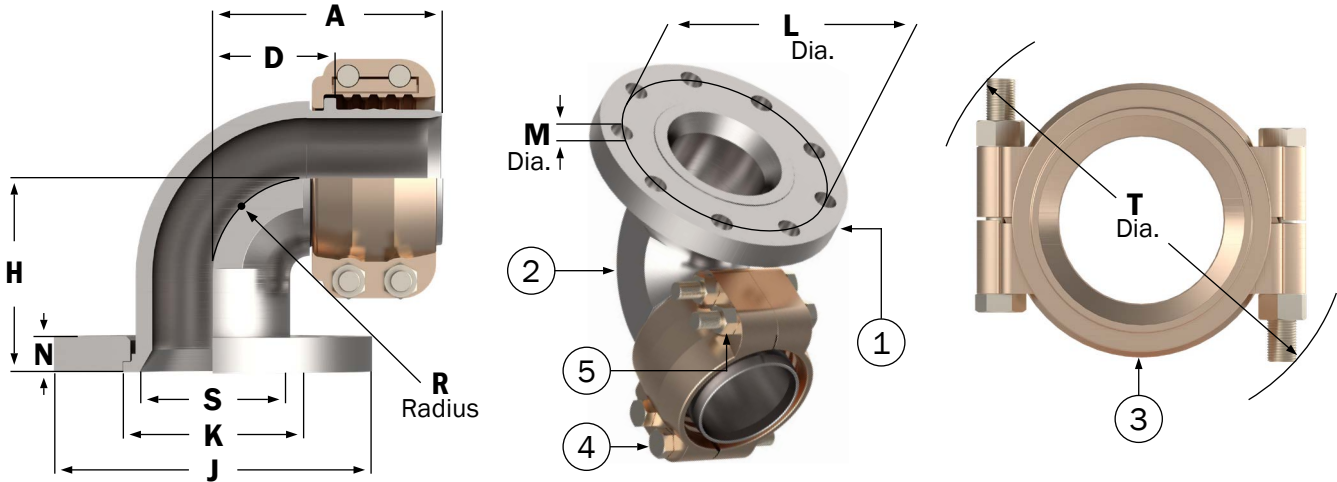
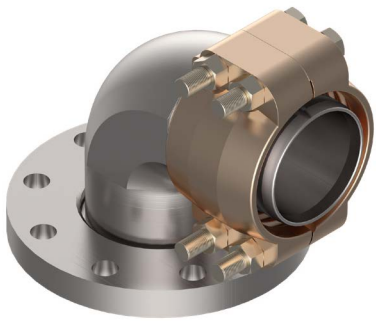
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5

For use with the following hose: HS4182 & FC132



Dimensions																
Part Number	IPS Size	No. of Bolt Holes	A	D	H	J	K	L	M	N	R	S	T	Est. Wt. (lbs.)		
FC7554-4848-410	3"	4	5.78	2.89	4.00	7.50	4.50	6.00	.75	.48	2.09	3.31	7.65	20.00		
FC7554-6464-410	4"	8	6.48	3.57	5.62	9.00	5.22	7.50	.75	.50	2.81	4.28	8.91	30.00		

Components					
		Part Number	Size		
Description	Req'd per Ass'y	Base No.	4848	6464	Material
Swivel Flange ①	1	407-74021-	48-48	64-64	Stainless Steel
Elbow ②	1	FC3558-	4848-407	6464-407	Stainless Steel
Grip Segment ③	2	FC3476-	48-188	64-188	Alum. Bronze
Bolt ④	4	FF9142-	0964-4	1072-4	Monel
Nut ⑤	4	4-222048-	9	10	Monel

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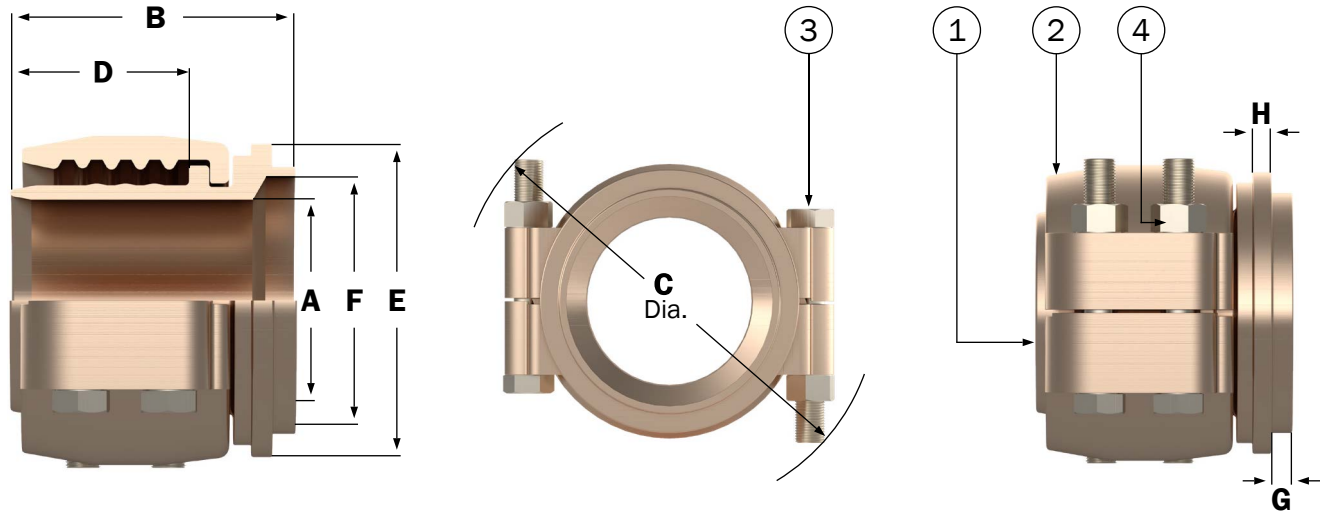
Hose to Split Clamp - Male

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group X



For use with the following hose: HS4182 & FC132



Dimensions											
Part Number	Drawing Number	IPS Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ±.006	F +.006 -0.00	G +.006 -0.00	H +.006 -0.00	Est. Wt. (lbs.)
EF-1546C-2-40	C18356	2"	2.00	4.08	6.75	1.67	3.245	2.500	.332	.317	9.00
EF-1546C-2.5-48	C18427	2½"	2.50	4.64	7.75	1.75	3.745	3.000	.332	.317	13.00
EF-1546C-3-48	C18355	3"	2.50	4.59	7.75	1.70	4.370	3.625	.332	.317	13.00
EF-1546C-3.5-64	C18428	3½"	3.40	4.74	9.00	1.87	4.928	4.125	.332	.317	20.00
EF-1546C-4-64	C18429	4"	3.40	4.74	9.00	1.87	5.428	4.625	.404	.360	21.00

Components							
Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Nipple ①	1	C18325	C18326	C18327	C18328	C18329	Alum. Bronze
Grip Segment ②	2	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ③	4	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ④	4	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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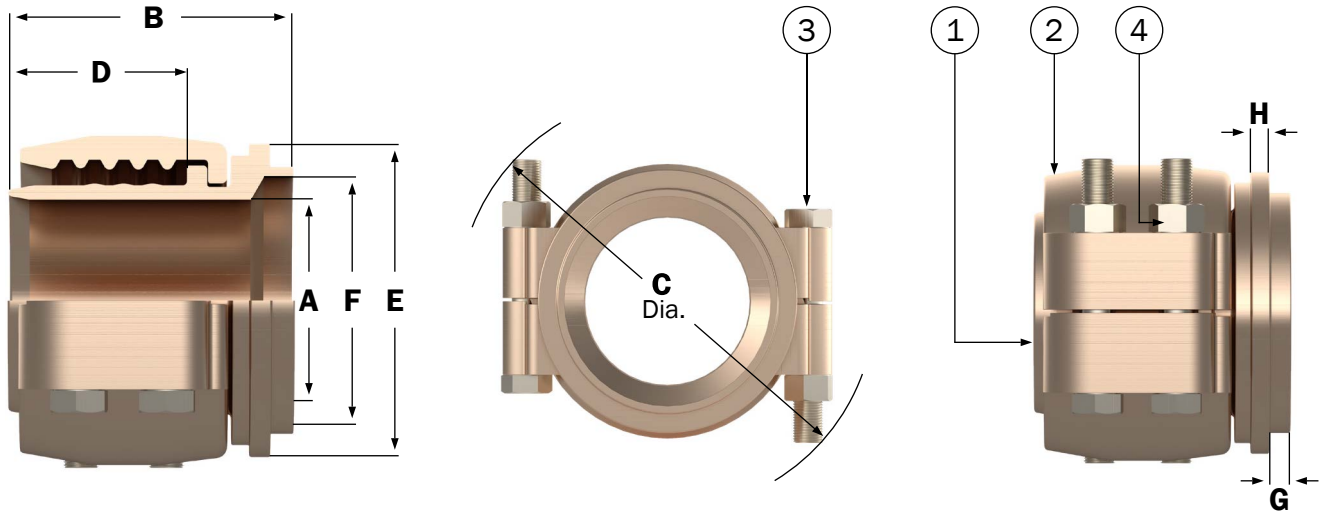
Hose to Split Clamp - Male

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group X



For use with the following hose: HS4182 & FC132



Dimensions										
Part Number	IPS Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ±.006	F +.006 -0.00	G +.006 -0.00	H +.006 -0.00	Est. Wt. (lbs.)
FC9635-3240-188	2"	2.06	4.02	6.70	3.00	3.24	2.50	.33	.317	8.80
FC9635-4048-188	2½"	2.51	4.59	7.65	3.50	3.74	3.00	.33	.317	12.50
FC9635-4848-188	3"	2.51	4.59	7.65	3.50	4.37	3.62	.33	.317	13.00
FC9635-5664-188	3½"	3.50	4.64	8.91	3.59	4.93	4.12	.33	.317	19.50
FC9365-6464-188	4"	3.50	4.75	8.91	3.59	5.43	4.62	.40	.360	20.50

		Part Number								
		Size								
Description	Req'd per Ass'y	Base No.	3240	4048	4848	5664	6464	Material		
Nipple ①	1	FC3555-	3240-188	4048-188	4848-188	5664-188	6464-188	Alum. Bronze		
Grip Segment ②	2	FC3476-	40-188	48-188	48-188	64-188	64-188	Alum. Bronze		
Bolt ③	4	FF9142-	0856-4	0964-4	0964-4	1072-4	1072-4	Monel		
Nut ④	4	4-222048-	8	9	9	10	10	Monel		

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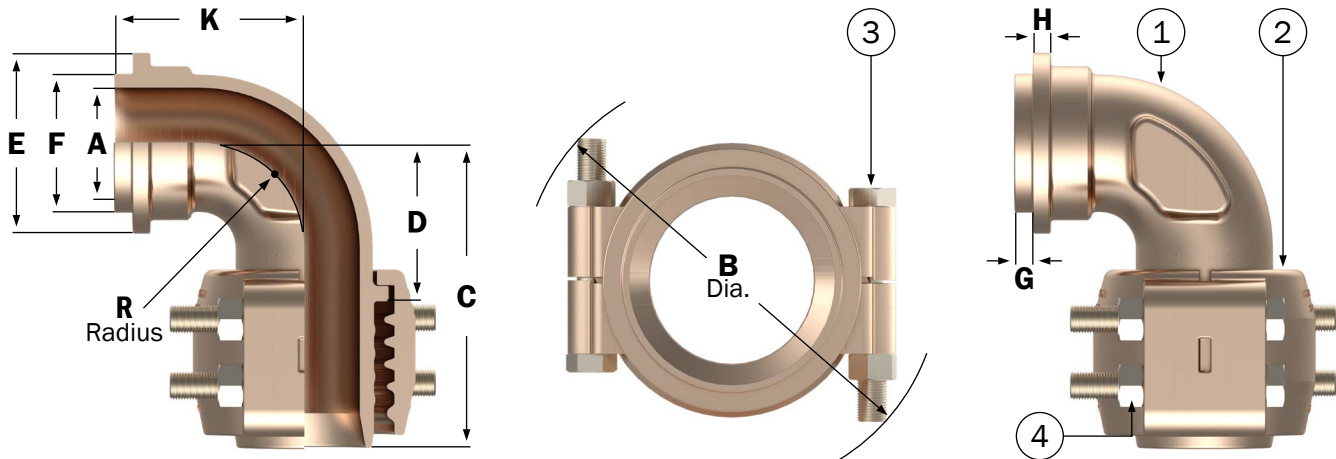
Hose to Split Clamp - Male

End Fitting - 90°

MIL-DTL-24787/4,
Type EL, Group X



For use with the following hose: HS4182 & FC132



Dimensions

Part Number	Drawing Number	IPS Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ±.006	F +.006 -0.00	G +.006 -0.00	H +.006 -0.00	K (Nom.)	R (Nom.)	Est. Wt. (lbs.)
90EF-1546D-2-40	C18430	2"	2.00	5.22	5.25	2.84	3.245	2.500	.332	.317	3.41	1.88	10.00
90EF-1546D-2.5-48	C18431	2½"	2.35	5.60	5.72	2.83	3.745	3.000	.332	.317	3.75	2.09	13.00
90EF-1546D-3-48	D18357	3"	2.35	5.60	5.72	2.83	4.370	3.625	.332	.317	3.75	2.09	16.00
90EF-1546D-3.5-64	C18432	3½"	3.40	7.00	6.78	3.91	4.928	4.125	.332	.317	3.90	2.81	25.00
90EF-1546D-4-64	C18433	4"	3.40	7.00	6.78	3.91	5.428	4.625	.404	.360	3.96	2.81	26.00

Components

Description	Req'd per Ass'y	2-40	2.5-48	3-48	3.5-64	4-64	Material
Elbow ①	1	C18330	C18331	C18332	D18333	D18334	Alum. Bronze
Grip Segment ②	2	D17739-1	D17743-1	D17743-1	D17726-1	D17726-1	Alum. Bronze
Bolt ③	4	B17747-1	B17748-1	B17748-1	B17749-1	B17749-1	Monel
Nut ④	4	B17747-2	B17748-2	B17748-2	B17749-2	B17749-2	Monel

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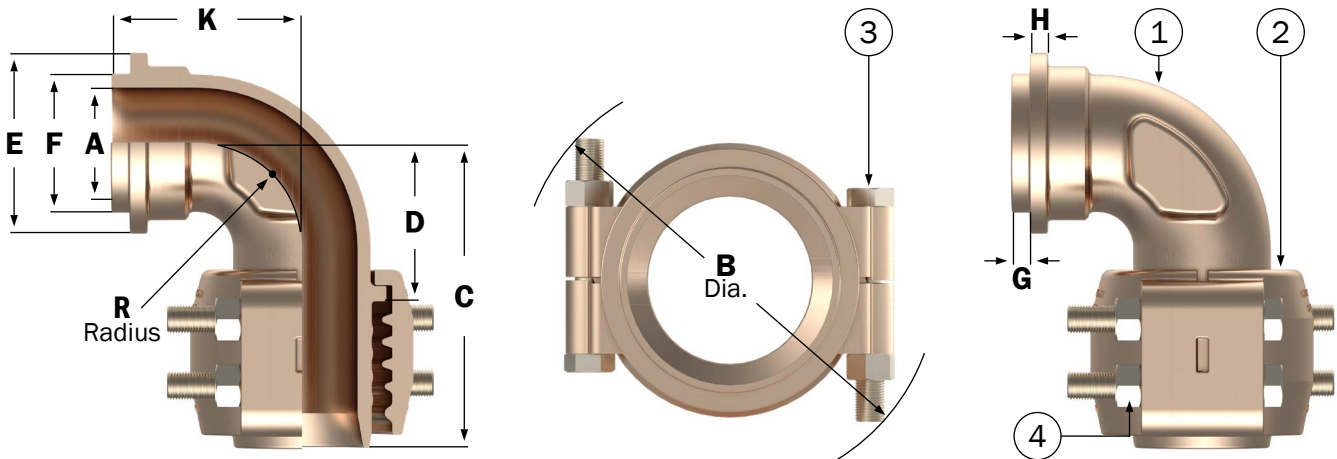
Hose to Split Clamp - Male

End Fitting - 90°

MIL-DTL-24787/4,
Type EL, Group X



For use with the following hose: HS4182 & FC132



Dimensions

Part Number	IPS Size	A (Max.)	B (Max.)	C (Max.)	D (Max.)	E ±.006	F +.006 -0.00	G +.006 -0.00	H +.006 -0.00	K (Nom.)	R (Nom.)	Est. Wt. (lbs.)
FC9636-3240-188	2"	2.06	6.70	4.92	2.50	3.24	2.50	.33	.317	3.09	1.88	9.50
FC9636-4048-188	2½"	2.51	7.65	5.75	2.85	3.74	3.00	.33	.317	3.17	2.09	12.60
FC9636-4848-188	3"	2.51	7.65	6.15	3.25	4.37	3.62	.33	.317	3.20	2.09	15.70
FC9636-5664-188	3½"	3.50	8.91	6.48	3.57	4.93	4.04	.33	.317	4.04	2.81	25.10
FC9636-6464-188	4"	3.50	8.91	6.48	3.57	5.43	4.62	.40	.360	4.06	2.81	26.00

Components

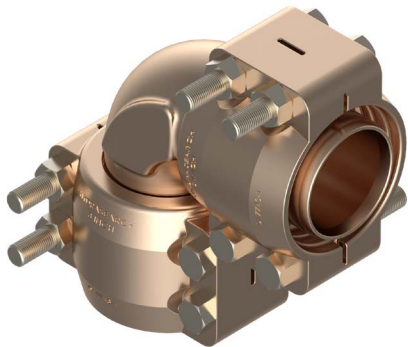
Description	Req'd per Ass'y	Base No.	3240	4048	4848	5664	6464	Material
Elbow ①	1	FC3555-	3240-188	4048-188	4848-188	5664-188	6464-188	Alum. Bronze
Grip Segment ②	2	FC3476-	40-188	48-188	48-188	64-188	64-188	Alum. Bronze
Bolt ③	4	FF9142-	0856-4	0964-4	0964-4	1072-4	1072-4	Monel
Nut ④	4	4-222048-	8	9	9	10	10	Monel

All dimensions are in inches.
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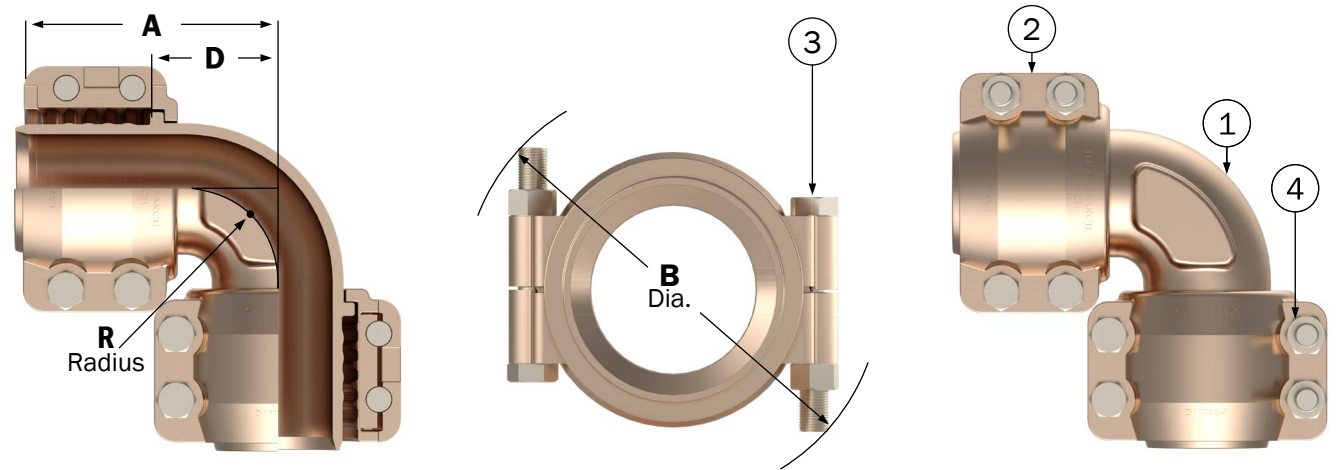
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group X



For use with the following hose: HS4182 & FC132



Dimensions							
Part Number	Drawing Number	IPS Size	A (Max.)	B (Max.)	D (Max.)	R (Nom.)	Est. Wt. (lbs.)
90ELB-1546E-40	D18354	2½"	3.25	6.75	2.83	2.12	15.00
90ELB-1546E-48	D18353	3"	3.87	7.75	3.09	2.50	23.00
90ELB-1546E-64	D18434	4"	7.00	9.00	3.88	3.00	36.00

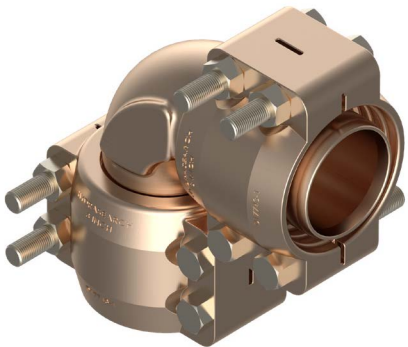
Components					
Description	Req'd per Ass'y	40	48	64	Material
Elbow ①	1	C18051	C18309	D18310	Alum. Bronze
Grip Segment ②	4	D17739-1	D17743-1	D17726-1	Alum. Bronze
Bolt ③	8	B17747-1	B17748-1	B17749-1	Monel
Nut ④	8	B17747-2	B17748-2	B17749-2	Monel

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.

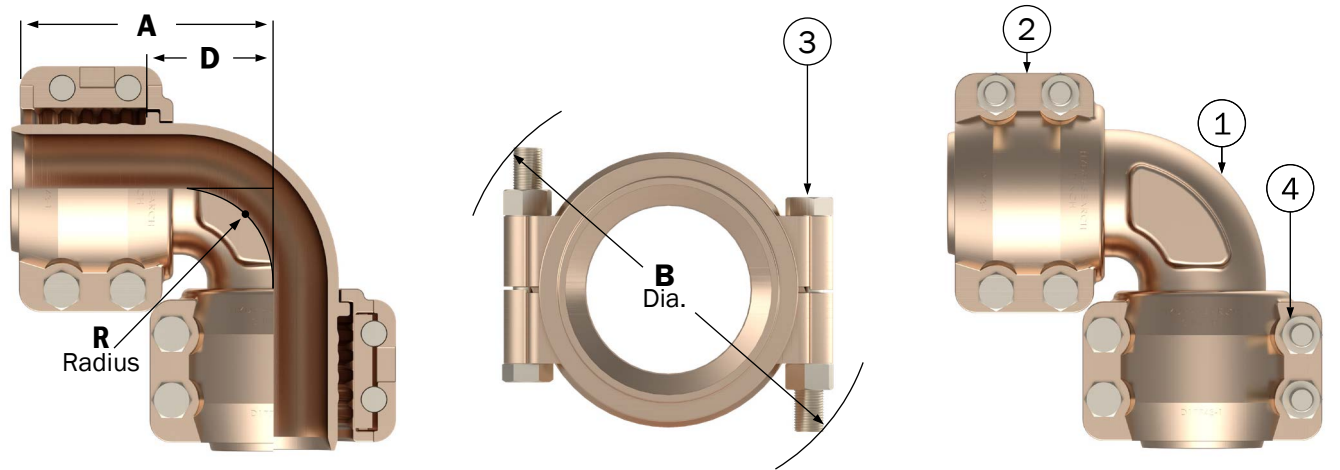
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group X



For use with the following hose: HS4182 & FC132



Dimensions						
Part Number	IPS Size	A (Max.)	B (Max.)	D (Max.)	R (Nom.)	Est. Wt. (lbs.)
FC9528-4040-188	2½"	4.92	6.70	2.50	1.88	15.80
FC9528-4848-188	3"	5.65	7.65	2.75	2.09	23.30
FC9528-6464-188	4"	6.48	8.91	3.57	2.81	36.50

Components		Part Number				Size
Description	Req'd per Ass'y	Base No.	4040	4848	6464	Material
Elbow ①	1	FC3479-	4040-188	4848-188	6464-188	Alum. Bronze
Grip Segment ②	4	FC3477-	40-188	48-188	64-188	Alum. Bronze
Bolt ③	8	FF9142-	0856-4	0964-4	1072-4	Monel
Nut ④	8	4-222048-	8	9	10	Monel

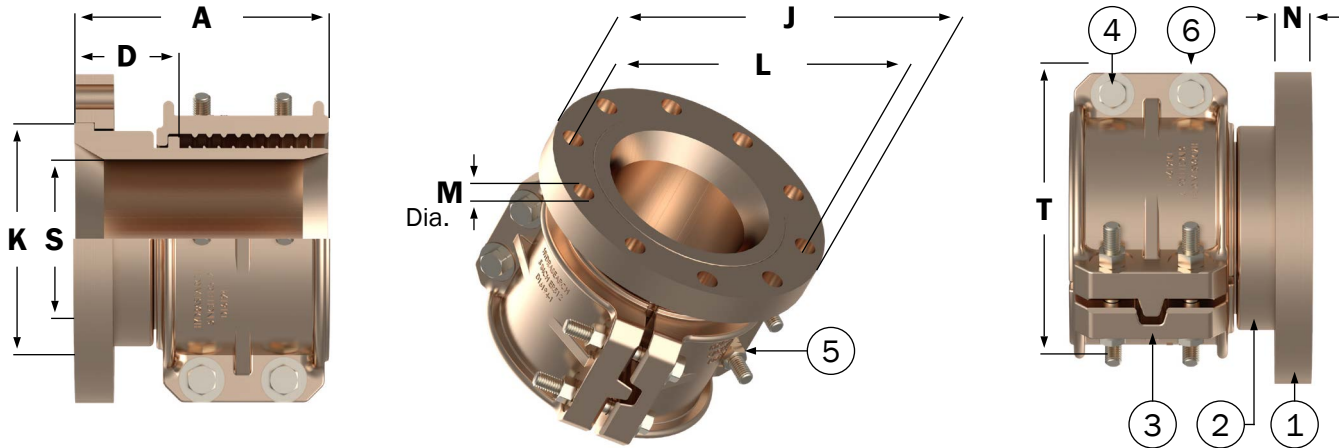
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class I,
400lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-5-400F	D17131	5"	11	.81	7.03	2.90	10.38	6.38	8.81	1.06	5.31	9.25	50.00
EF-6-400F	D17132	6"	12	.94	7.03	2.90	11.94	7.38	10.19	1.19	6.31	10.38	63.00
EF-8-400F	D17133	8"	13	1.06	7.28	2.90	14.75	9.83	12.75	1.31	8.31	13.00	93.00
EF-10-400F	D19735	10"	15	1.06	7.00	2.65	17.00	12.04	15.00	1.06	10.31	14.50	105.00

Components

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

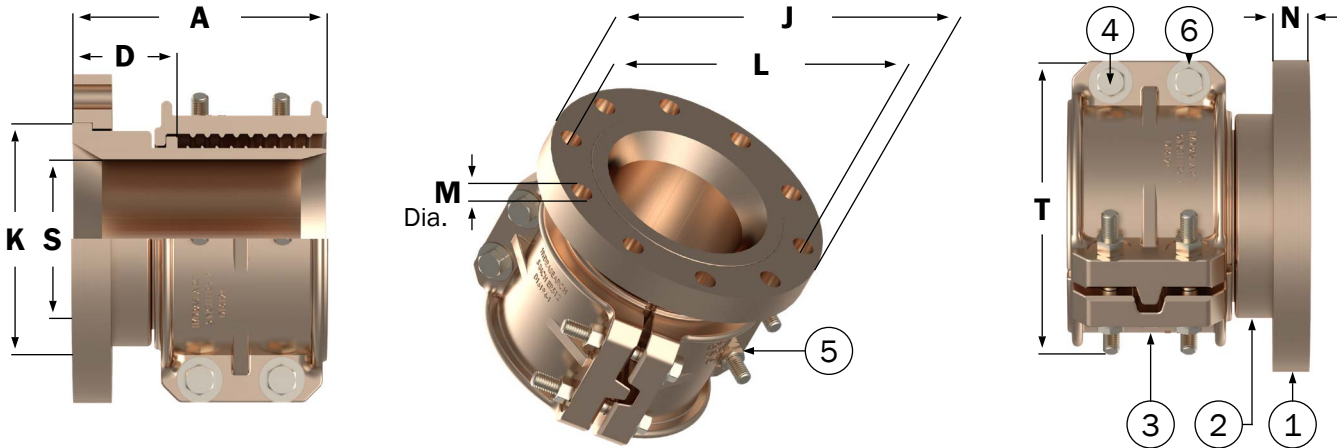
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class III,
250lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-5-250F	D16193	5"	10	.69	7.03	2.90	9.06	6.38	7.81	1.06	5.31	9.25	46.00
EF-6-250F	D16197	6"	12	.69	7.03	2.90	10.13	7.38	8.88	1.19	6.31	10.38	55.00
EF-8-250F	D16188	8"	14	.69	7.28	2.90	12.38	9.83	11.06	1.31	8.31	13.00	79.00
EF-10-250F	D19733	10"	15	.81	7.00	2.65	15.00	12.04	13.44	1.44	10.31	14.50	95.00
EF-12-250F	D19734	12"	18	.81	8.52	3.24	17.63	14.48	16.06	1.50	12.12	17.10	-

Components

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

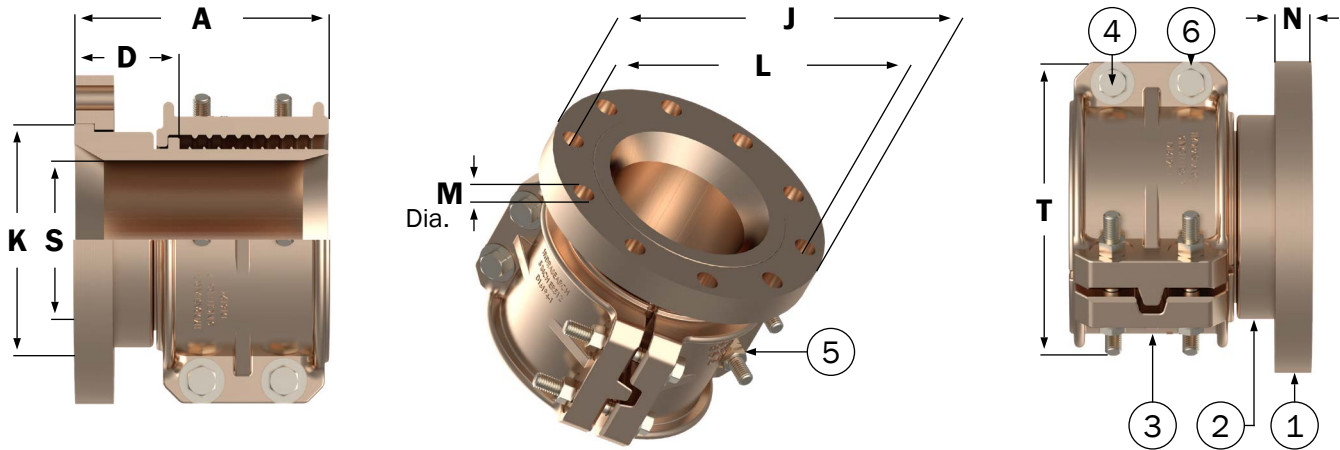
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-5-150/400F	D17095	5"	11	.69	7.03	2.90	9.06	6.38	7.81	1.06	5.31	9.25	46.00
EF-6-150/400F	D17088	6"	12	.69	7.03	2.90	10.13	7.38	8.88	1.19	6.31	10.38	55.00
EF-8-150/400F	D17096	8"	13	.69	7.28	2.90	12.38	9.83	11.06	1.31	8.31	13.00	79.00
EF-10-150/400F	D18457	10"	15	.81	7.00	2.65	15.00	12.04	13.44	1.44	10.31	14.50	95.00
EF-12-150/400F	D18379	12"	18	.81	8.52	3.24	17.63	14.48	16.06	1.50	12.33	17.10	-

Components

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

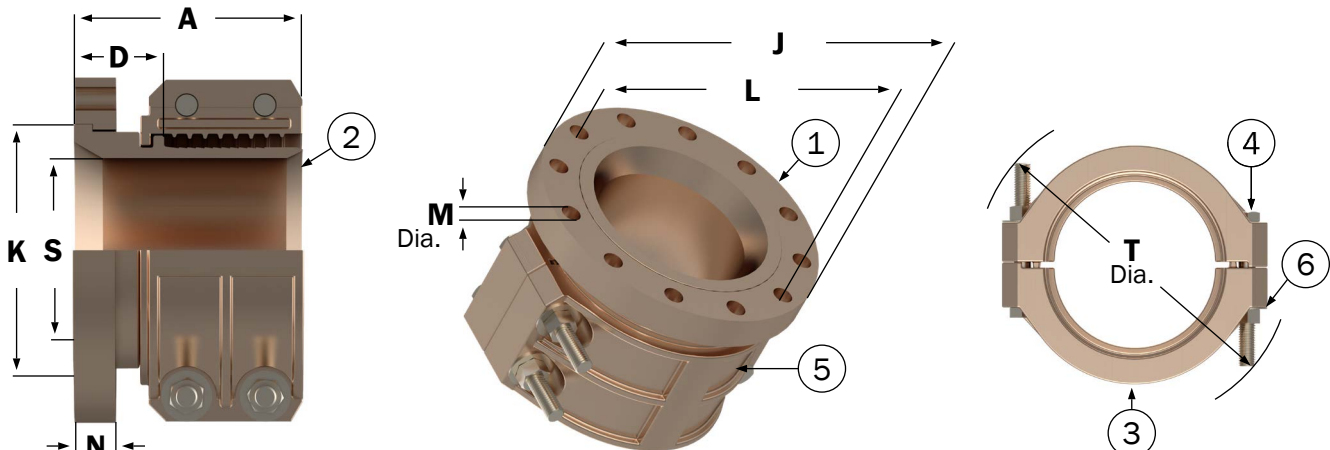
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions

Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC7750-8080-188	5"	10	.69	6.75	2.64	9.06	6.37	7.81	1.08	5.32	11.44	45.00
FC7750-9696-188	6"	12	.69	6.75	2.64	10.12	7.37	8.88	1.20	6.36	11.98	58.70
FC7750-0808-188	8"	14	.69	6.75	2.64	12.38	9.82	11.06	1.33	8.32	13.89	80.10
FC7750-1010-188	10"	15	.81	7.01	2.89	15.00	12.00	13.44	1.45	10.38	16.48	108.50
FC7750-1212-188	12"	18	.81	8.49	3.24	17.04	14.50	16.06	1.52	12.32	17.04	-

Components

Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	Material
Swivel Flange ①	1	188-74045-18874021-	5-80	6-96	8-8	10-10	Alum. Bronze
Nipple ②	1	FC2463-	8080-188	9696-188	0808-188	1010-188	Alum. Bronze
Grip Segment ③	2	FC2457-1	80-188	96-188	08-188	10-188	Alum. Bronze
Bolt ④	4	FF9411-	10-88	10-88	12-88	12-100	Monel
Nut ⑤	4	FF9033-	10-4	10-4	12-4	12-4	Monel
Washer ⑥	4	FF9412-	1001-4	1001-4	1201-4	1201-4	Monel

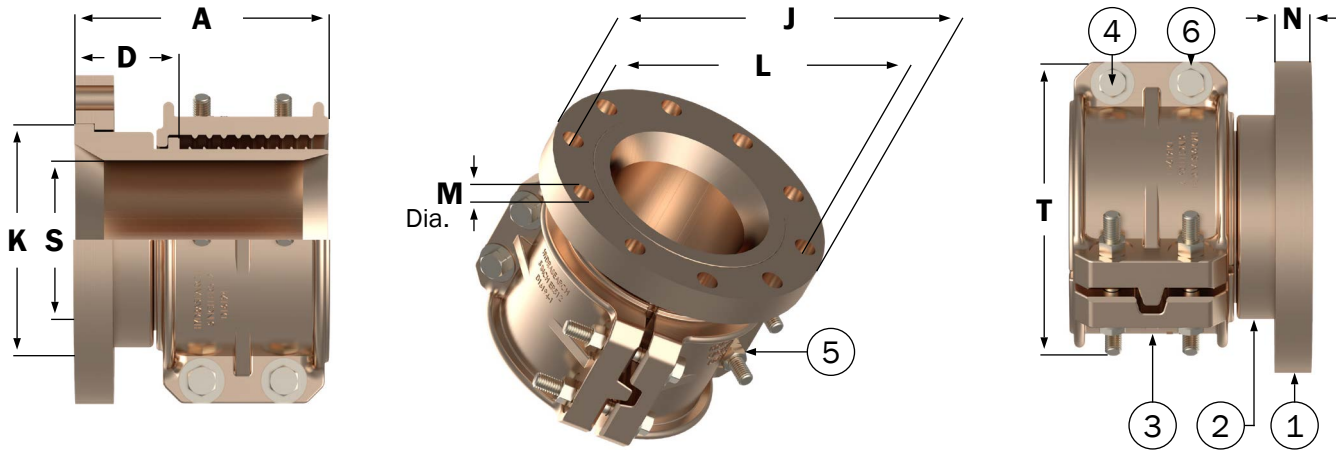
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: ER512 & 2580



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-5-150F-B16.5	D17125	5"	8	.88	7.03	2.90	10.00	6.38	8.50	1.05	5.31	9.25	47.00
EF-6-150F-B16.5	D17126	6"	8	.88	7.03	2.90	11.00	7.38	9.50	1.17	6.31	10.38	59.00
EF-8-150F-B16.5	C22207	8"	8	.88	7.28	2.90	13.50	9.83	11.75	1.30	8.31	13.21	82.00
EF-10-150F-B16.5	D19090	10"	12	1.00	7.00	2.65	16.00	12.04	14.25	1.42	10.31	14.50	98.00
EF-12-150F-B16.5	D19730	12"	12	1.00	8.52	3.24	19.00	14.48	17.00	1.48	12.33	17.10	-

Components							
Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
Swivel Flange ①	1	C16914-1	C16114-2	C16914-3	C18831	C18832	Alum. Bronze
Nipple ②	1	D16195	D16199	D16185	D18324	D18319	Alum. Bronze
Grip Segment ③	3	D16194-1	D16198-1	C22160	D18345-1	D18282-1	Alum. Bronze
Bolt ④	6	D16197-4	D16197-4	C22173-2	B16551-1	B18346	Monel
Nut ⑤	6	D16197-6	D16197-6	B18347	B16551-3	B18347	Monel
Washer ⑥	6	D16197-5	D16197-5	B18348	B16551-2	B18348	Monel

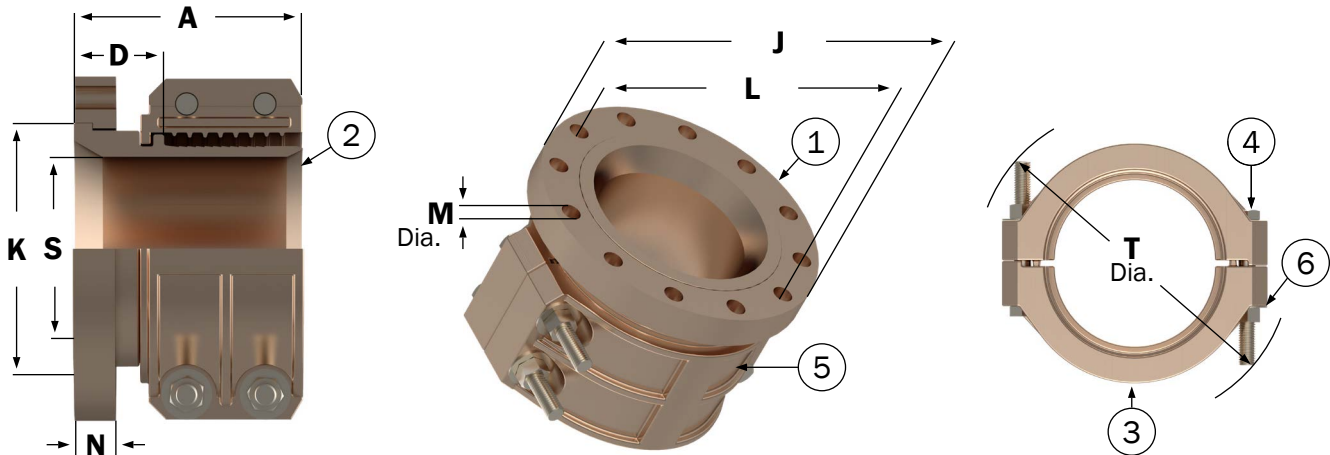
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group IX, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: ER512 & 2580



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC7781-8080-188	5"	8	.88	6.75	2.64	10.00	6.37	8.50	1.06	5.32	11.44	40.40
FC7781-9696-188	6"	8	.88	6.75	2.64	11.00	7.37	9.50	1.19	6.36	11.98	53.40
FC7781-0808-188	8"	8	.88	6.75	2.64	13.50	9.82	11.75	1.31	8.32	13.89	70.50
FC7781-1010-188	10"	12	1.00	7.01	2.89	16.00	12.00	14.25	1.44	10.38	16.48	95.00

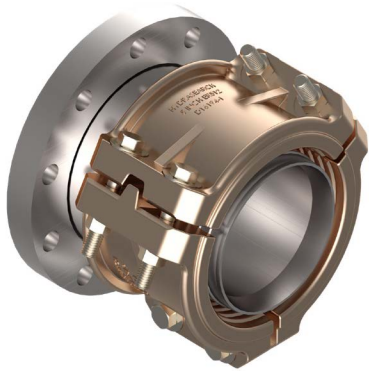
Components							
Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	Material
Swivel Flange ①	1	188-74045-18874020-	5-80	6-96	8-8	10-10	Alum. Bronze
Nipple ②	1	FC2463-	8080-188	9696-188	0808-188	1010-188	Alum. Bronze
Grip Segment ③	2	FC2457-1-	80-188	96-188	08-188	10-188	Alum. Bronze
Bolt ④	4	FF9411-	10-88	10-88	12-88	12-100	Monel
Nut ⑤	4	FF9033-	10-4	10-4	12-4	12-4	Monel
Washer ⑥	4	FF9412-	1001-4	1001-4	1201-4	1201-4	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.

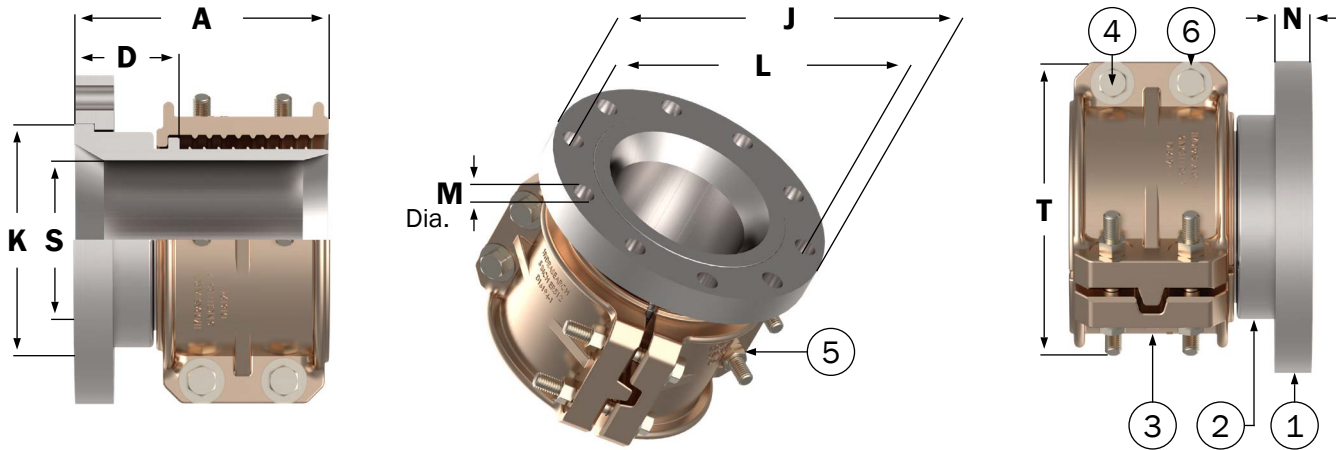
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



For use with the following hose: ER512 & 2580



Dimensions													
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
EF-5-150F-B16.5-SS	D18756	5"	8	.88	7.03	2.90	10.00	6.38	8.50	1.05	5.31	9.25	47.00
EF-6-150F-B16.5-SS	D17638	6"	8	.88	7.03	2.90	11.00	7.38	9.50	1.17	6.31	10.38	59.00
EF-8-150F-B16.5-SS	D17742	8"	8	.88	7.28	2.90	13.50	9.83	11.75	1.30	8.31	13.21	82.00
EF-10-150F-B16.5-SS	D18439	10"	12	1.00	7.00	2.65	16.00	12.04	14.25	1.42	10.31	14.50	98.00
EF-12-150F-B16.5-SS	-	12"	12	1.00	8.52	3.24	19.00	14.48	17.00	1.48	12.33	17.10	-

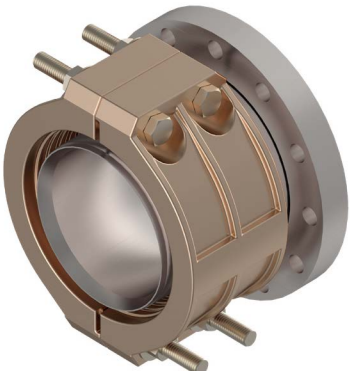
Components							
Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
Swivel Flange ①	1	C18361	C17629-1	C17639-2	C18459	-	Stainless Steel
Nipple ②	1	D18363	D17640	D17744	D18458	-	Stainless Steel
Grip Segment ③	3	D16194-1	D16198-1	C22160	D18345-1	D18282-1	Alum. Bronze
Bolt ④	6	D16197-4	D16197-4	C22173-2	B16551-1	B18346	Monel
Nut ⑤	6	D16197-6	D16197-6	B18347	B16551-3	B18347	Monel
Washer ⑥	6	D16197-5	D16197-5	B18348	B16551-2	B18348	Monel

All dimensions are in inches.
Dimensional information is for reference only.
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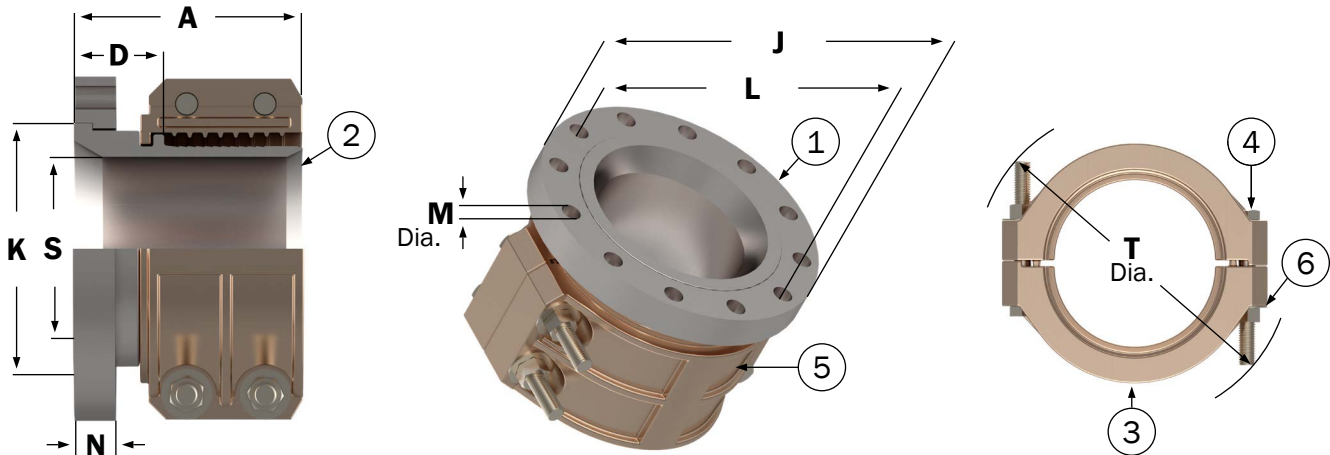
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



For use with the following hose: ER512 & 2580



Dimensions												
Part Number	IPS Size	No. of Bolt Holes	M	A	D	J	K	L	N	S	T	Est. Wt. (lbs.)
FC7781-9696-410	6"	8	.88	6.75	2.64	11.00	7.37	9.50	1.19	6.36	11.98	53.40
FC7781-0808-410	8"	8	.88	6.75	2.64	13.50	9.82	11.75	1.31	8.32	13.89	70.50
FC7781-1010-410	10"	12	1.00	7.01	2.89	16.00	12.00	14.25	1.44	10.38	16.48	95.00

		Part Number			Size	
Components						
Description	Req'd per Ass'y	Base No.	9696	0808	1010	Material
Swivel Flange ①	1	407-74021-	6-96	8-8	10-10	Stainless Steel
Nipple ②	1	FC2463-	9696-188	0808-188	1010-188	Stainless Steel
Grip Segment ③	2	FC2457-1-	96-188	08-188	10-188	Alum. Bronze
Bolt ④	4	FF9411-	10-88	12-88	12-100	Monel
Nut ⑤	4	FF9033-	10-4	12-4	12-4	Monel
Washer ⑥	4	FF9412-	1001-4	1201-4	1201-4	Monel

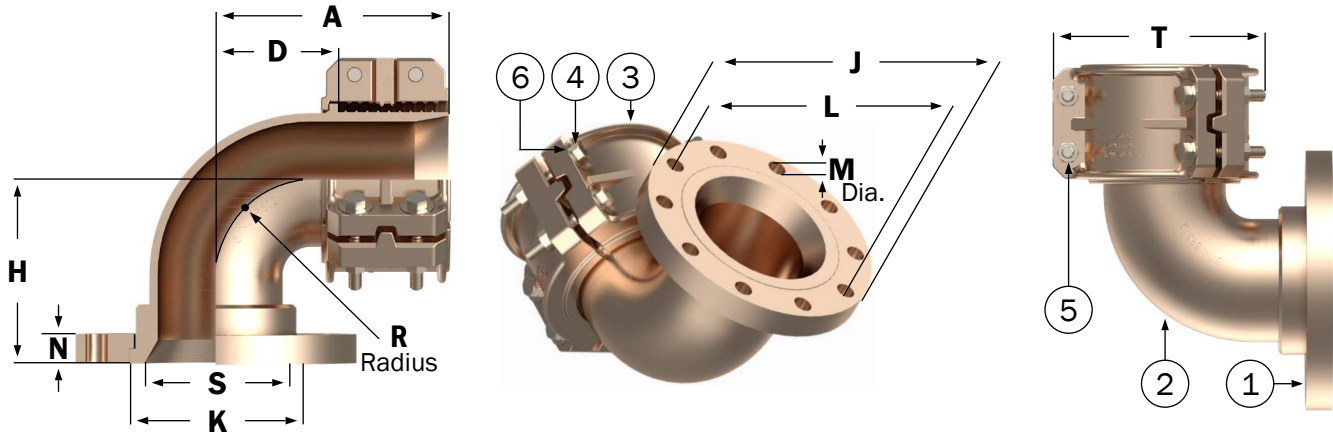
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IX, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-5-150/400F	D17085	5"	10	.69	8.63	4.50	6.76	9.06	6.38	7.81	1.06	3.50	5.31	9.25	59.00
90EF-6-150/400F	D17086	6"	12	.69	9.20	5.07	7.34	10.13	7.38	8.88	1.19	4.00	6.31	10.38	68.00
90EF-8-150/400F	D17110	8"	14	.69	10.56	6.18	8.67	12.38	9.83	11.06	1.31	5.00	8.31	13.00	101.00
90EF-10-150/400F	D19638	10"	15	.81	12.10	7.75	9.80	15.00	12.04	13.44	1.44	6.38	10.31	14.50	147.00

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

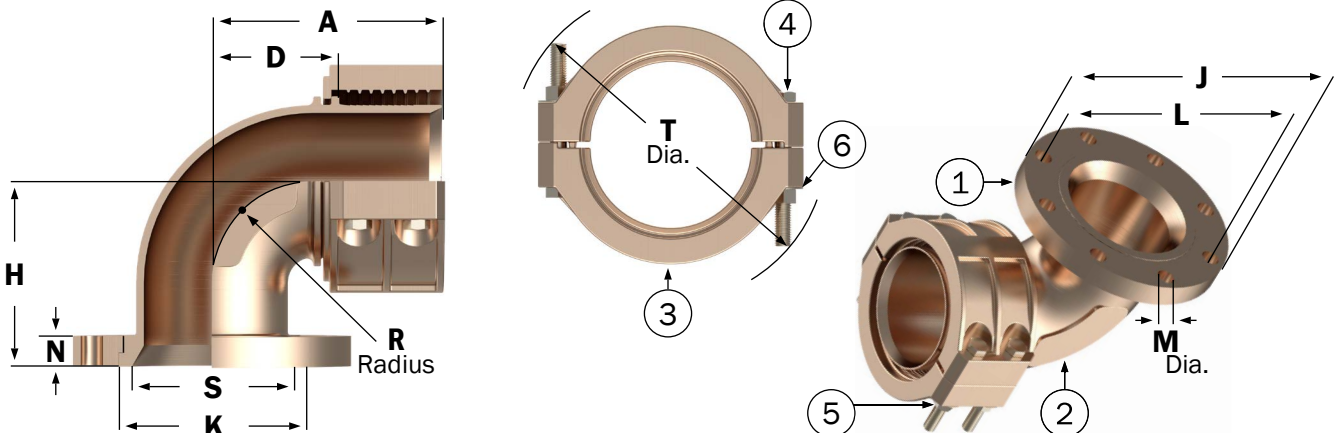
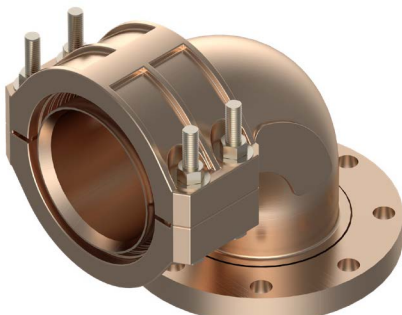
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IX, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: ER512 & 2580



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
FC7751-8080-188	5"	10	.69	8.64	4.52	6.81	9.06	6.37	7.81	1.08	3.50	5.32	11.44	55.00
FC7751-9696-188	6"	12	.69	9.14	5.02	7.31	10.12	7.37	8.88	1.20	4.00	6.36	11.98	71.10
FC7751-0808-188	8"	14	.69	10.34	6.22	8.81	12.38	9.82	11.06	1.33	5.00	8.32	13.89	102.60
FC7751-1010-188	10"	15	.81	11.89	7.77	9.70	15.00	12.00	13.44	1.45	6.38	10.38	16.48	147.10
FC7751-1212-188	12"	18	.81	14.24	9.00	10.70	17.50	14.50	16.06	1.52	7.38	12.32	17.04	-

Components								
Description	Req'd per Ass'y	Part Number						
		Size						
		Base No.	8080	9696	0808	1010	1212	Material
Swivel Flange ①	1	188-74045-	5-80	6-96	8-8	10-10	12-12	Alum. Bronze
Elbow ②	1	FC2464-	8080-188	9696-188	0808-188	1010-188	1212-188	Alum. Bronze
Grip Segment ③	2	FC2457-1-	80-188	96-188	08-188	10-188	12-188	Alum. Bronze
Bolt ④	4	FF9411-	10-88	10-88	12-88	12-100	12-48	Monel
Nut ⑤	4	FF9033-	10-4	10-4	12-4	12-4	12-4	Monel
Washer ⑥	4	FF9412-	1001-4	1001-4	1201-4	1201-4	1201-4	Monel

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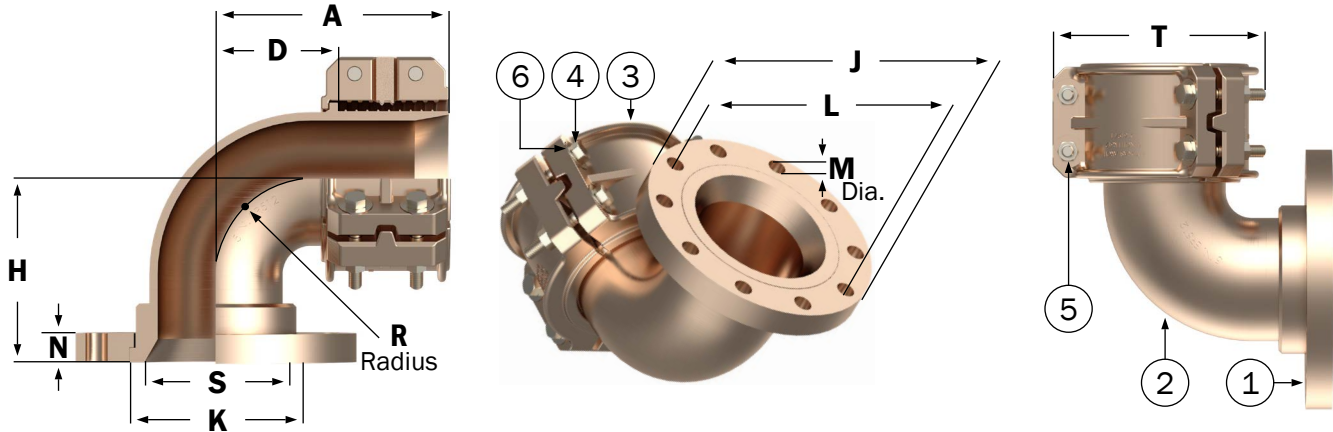
Notes

Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IX, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: ER512 & 2580



Dimensions															
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
90EF-5-150F-B16.5	D17104	5"	8	.88	8.63	4.50	6.76	10.00	6.38	8.50	1.05	3.50	5.31	9.25	59.00
90EF-6-150F-B16.5	D17105	6"	8	.88	9.20	5.07	7.34	11.00	7.38	9.00	1.17	4.00	6.31	10.38	73.00
90EF-8-150F-B16.5	D17106	8"	8	.88	10.56	6.18	8.67	13.50	9.83	11.75	1.30	5.00	8.31	13.00	110.00
90EF-10-150F-B16.5	D19089	10"	12	1.00	12.10	7.75	9.80	16.00	12.04	14.25	1.42	6.38	10.31	14.50	143.00
90EF-12-150F-B16.5	D19736	12"	12	1.00	14.32	9.04	10.70	19.00	14.48	17.00	1.48	7.38	12.33	17.10	-

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

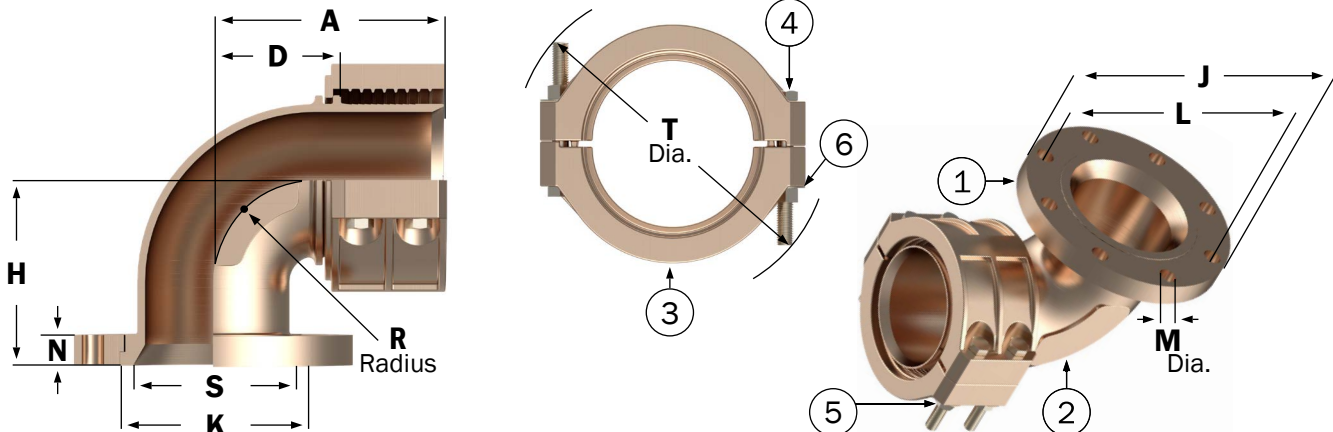
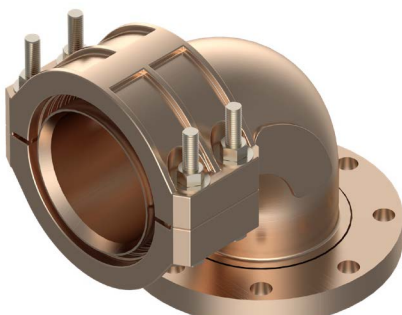
All dimensions are in inches.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group IX, Class V,
150lb. Flange per A.N.S.I. B16.5

For use with the following hose: ER512 & 2580



Dimensions														
Part Number	IPS Size	No. of Bolt Holes	M	A	D	H	J	K	L	N	R	S	T	Est. Wt. (lbs.)
FC7780-8080-188	5"	8	.88	8.64	4.52	6.81	10.00	6.37	8.50	1.06	3.50	5.32	11.44	50.40
FC7780-9696-188	6"	8	.88	9.14	5.02	7.31	11.00	7.37	9.50	1.19	4.00	6.36	11.98	65.80
FC7780-0808-188	8"	8	.88	10.34	6.22	8.81	13.50	9.82	11.75	1.31	5.00	8.32	13.89	93.10
FC7780-1010-188	10"	12	1.00	11.89	7.77	9.70	16.00	12.00	14.25	1.44	6.38	10.38	16.48	134.00
FC7780-1212-188	12"	12	1.00	14.24	9.00	10.70	17.62	14.50	17.00	1.48	7.38	12.32	17.04	-

Components		Part Number						Material
		Size						
Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	1212	
Swivel Flange ①	1	188-74021-	5-80	6-96	8-8	10-10	12-12	Alum. Bronze
Elbow ②	1	FC2464-	8080-188	9696-188	0808-188	1010-188	1212-188	Alum. Bronze
Grip Segment ③	2	FC2457-1-	80-188	96-188	08-188	10-188	12-188	Alum. Bronze
Bolt ④	4	FF9411-	10-88	10-88	12-88	12-100	12-48	Monel
Nut ⑤	4	FF9033-	10-4	10-4	12-4	12-4	12-4	Monel
Washer ⑥	4	FF9412-	1001-4	1001-4	1201-4	1201-4	1201-4	Monel

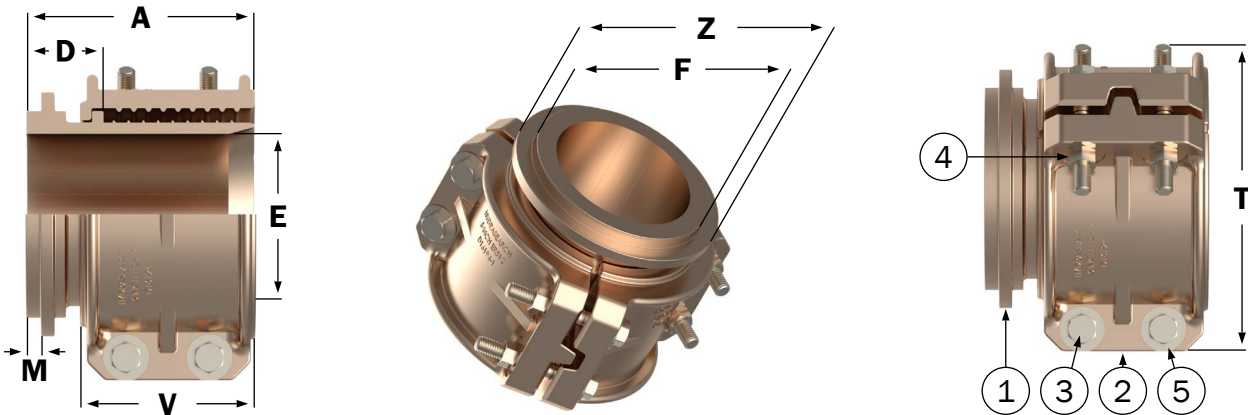
All dimensions are in inches.
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Hose to Split Clamp - Male

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group IX

For use with the following hose: ER512 & 2580



Dimensions

Part Number	Drawing Number	IPS Size	A	D	E	F	M	T	V	Z	Est. Wt. (lbs.)
EF-5MS-ER512	D17134	5"	6.22	2.09	5.12	5.62	.40	9.25	4.75	6.63	36.00
EF-6MS-ER512	D17135	6"	6.58	2.45	6.64	6.75	.45	10.38	4.75	7.57	44.00
EF-8MS-ER512	D17136	8"	7.25	2.86	8.67	9.00	.82	13.00	5.00	9.97	60.00
EF-10MS-ER512	D19742	10"	7.09	2.74	10.67	11.00	.86	14.50	4.97	12.06	77.00
EF-12MS-ER512	D19743	12"	8.24	2.96	12.89	12.00	.88	17.10	6.00	13.38	120.00

Components

Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
Nipple ①	1	D16936	D16937	D16938	D18834	D18835	Alum. Bronze
Grip Segment ②	3	D16194-1	D16198-1	D16080-1	D13845-1	D18282-1	Alum. Bronze
Bolt ③	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
Nut ④	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
Washer ⑤	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

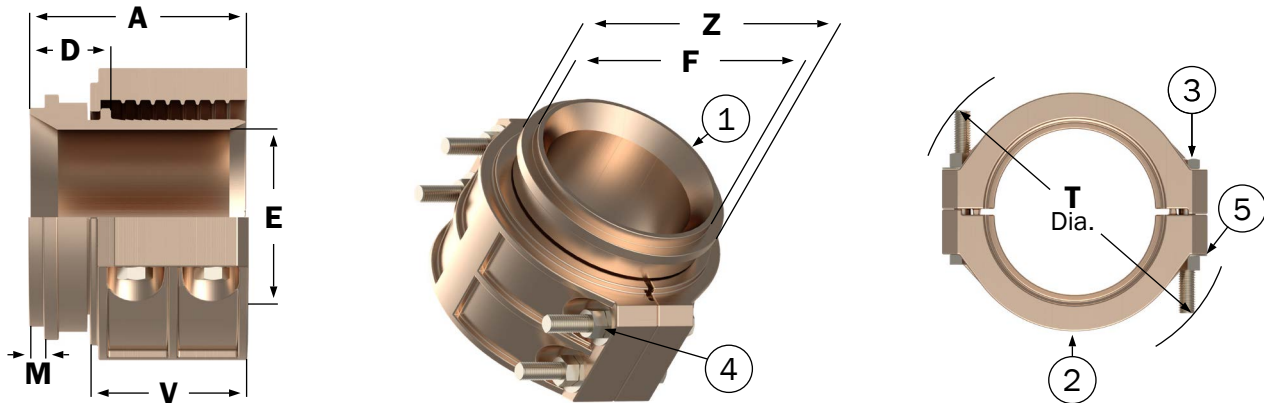
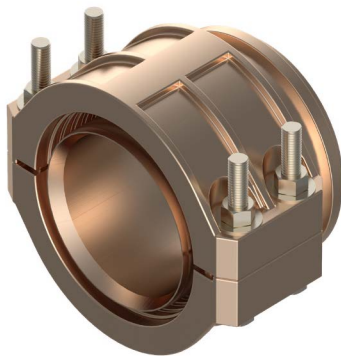
All dimensions are in inches.
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Hose to Split Clamp - Male

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group IX

For use with the following hose: ER512 & 2580



Dimensions

Part Number	IPS Size	A	D	E	F	M	T	V	Z	Est. Wt. (lbs.)
FC7755-8080-188	5"	6.22	2.10	4.40	5.62	.40	11.44	4.75	6.63	36.70
FC7755-9696-188	6"	6.58	2.46	5.40	6.75	.45	11.98	4.75	7.57	45.40
FC7755-0808-188	8"	6.80	2.68	7.40	9.00	.82	13.89	4.75	9.97	63.40
FC7755-1010-188	10"	6.84	2.72	9.40	11.00	.86	16.48	4.75	12.06	77.00
FC7755-1212-188	12"	8.16	2.91	11.40	12.00	.88	17.04	6.00	13.38	119.00

Components

Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	1212	Material
Nipple ①	1	FC2468-	8080-188	9696-188	0808-188	1010-188	1212-188	Alum. Bronze
Grip Segment ②	2	FC2457-1-	80-188	96-188	08-188	10-188	12-188	Alum. Bronze
Bolt ③	4	FF9411-	10-88	10-88	12-88	12-100	12-48	Monel
Nut ④	4	FF9033-	10-4	10-4	12-4	12-4	12-4	Monel
Washer ⑤	4	FF9412-	1001-4	1001-4	1201-4	1201-4	1201-4	Monel

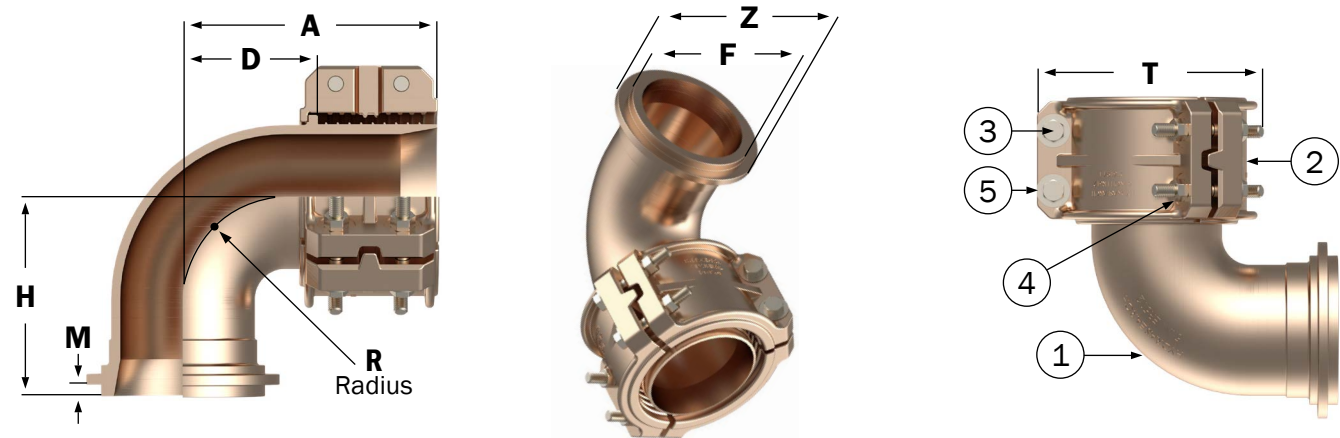
All dimensions are in inches.
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Hose to Split Clamp - Male

End Fitting - 90°

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

For use with the following hose: ER512 & 2580



Dimensions											
Part Number	Drawing Number	IPS Size	A	D	F	H	M	R	T	Z	Est. Wt. (lbs.)
90EF-5MS-ER512	D17122	5"	10.78	6.65	5.62	6.82	.40	3.50	9.25	6.63	46.00
90EF-6MS-ER512	D17123	6"	9.25	5.12	6.75	7.31	.45	4.00	10.38	7.57	56.00
90EF-8MS-ER512	D17124	8"	15.34	10.96	9.00	8.81	.82	5.00	13.00	9.97	83.00
90EF-10MS-ER512	D19744	10"	12.13	7.78	11.00	9.70	.86	6.38	14.50	12.06	115.00
90EF-12MS-ER512	D19745	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
Elbow ①	1	D16930	D16931	D16932	D18838	D18839	Alum. Bronze
Grip Segment ②	3	D16194-1	D16198-1	D16080-1	D13845-1	D18282-1	Alum. Bronze
Bolt ③	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
Nut ④	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
Washer ⑤	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

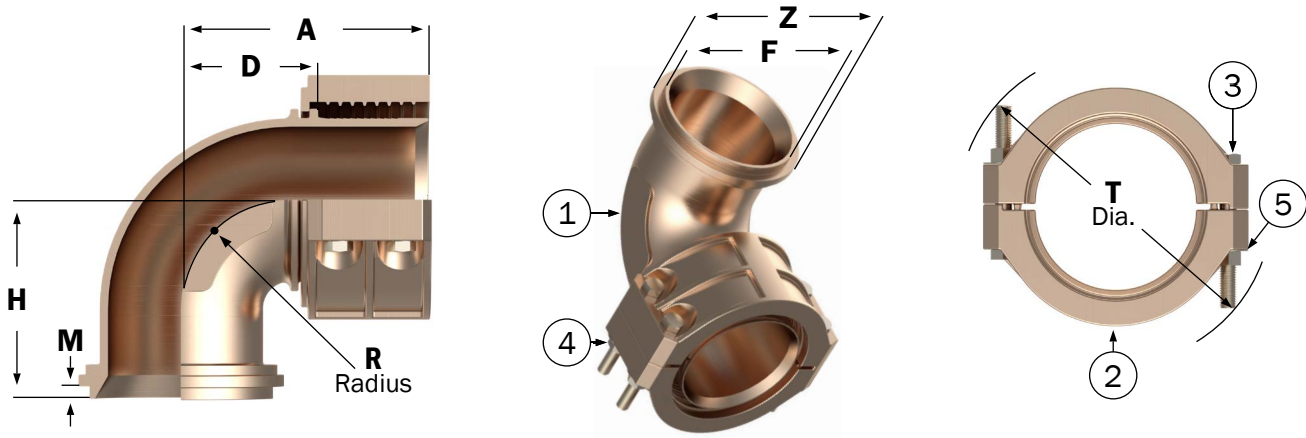
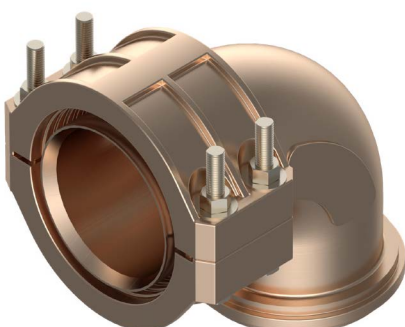
All dimensions are in inches.
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Hose to Split Clamp - Male

End Fitting - 90°

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

For use with the following hose: ER512 & 2580



Dimensions										
Part Number	IPS Size	A	D	F	H	M	R	T	Z	Est. Wt. (lbs.)
FC7752-8080-188	5"	8.64	4.52	5.62	6.81	.40	3.50	11.44	6.63	46.00
FC7752-9696-188	6"	9.14	5.02	6.75	7.31	.45	4.00	11.98	7.57	57.80
FC7752-1010-188	10"	11.89	7.77	11.00	9.70	.86	6.38	16.48	12.06	115.00

Components						
		Part Number		Size		
Description	Req'd per Ass'y	Base No.	8080	9696	1010	Material
Elbow ①	1	FC2465-	8080-188	9696-188	1010-188	Alum. Bronze
Grip Segment ②	2	FC2457-1-	80-188	96-188	10-188	Alum. Bronze
Bolt ③	4	FF9411-	10-88	10-88	12-100	Monel
Nut ④	4	FF9033-	10-4	10-4	12-4	Monel
Washer ⑤	4	FF9412-	1001-4	1001-4	1201-4	Monel

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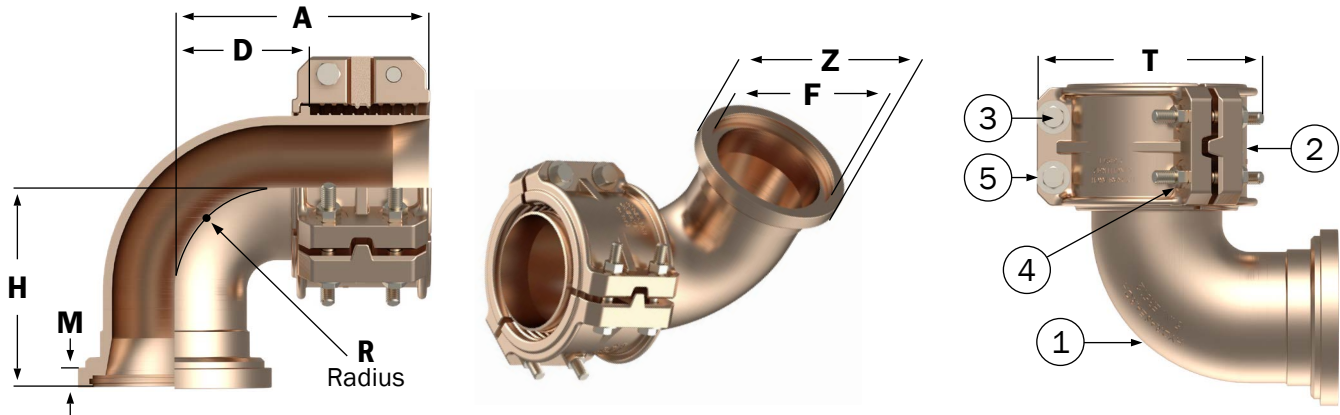
Hose to Split Clamp - Female

End Fitting - 90°

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



For use with the following hose: ER512 & 2580



Dimensions											
Part Number	Drawing Number	IPS Size	A	D	F	H	M	R	T	Z	Est. Wt. (lbs.)
90EF-5FS-ER512	D17117	5"	11.95	7.82	5.36	6.81	.68	3.50	9.25	6.63	45.00
90EF-6FS-ER512	D17118	6"	12.95	8.79	6.75	7.31	.87	4.00	10.38	7.57	56.00
90EF-8FS-ER512	D17119	8"	15.31	10.93	9.00	8.81	1.15	5.00	13.00	9.97	83.00
90EF-10FS-ER512	D17946	10"	12.13	7.78	11.00	9.70	.86	6.38	14.50	12.06	120.00
90EF-12FS-ER512	D19747	12"	14.24	9.00	12.01	10.70	.90	7.38	17.10	13.38	-

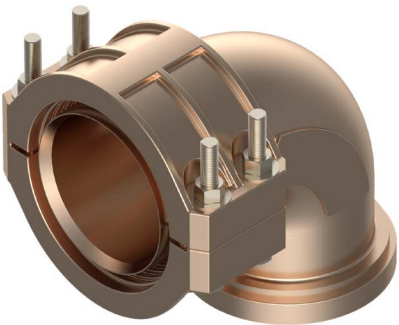
Components							
Description	Req'd per Ass'y	5"	6"	8"	10"	12"	Material
Elbow ①	1	D16933	D16934	D16935	D18840		Alum. Bronze
Grip Segment ②	3	D16194-1	D16198-1	D16080-1	D13845-1	D18282-1	Alum. Bronze
Bolt ③	6	D16197-4	D16197-4	B16551-1	B16551-1	B18346	Monel
Nut ④	6	D16197-6	D16197-6	B16551-3	B16551-3	B18347	Monel
Washer ⑤	6	D16197-5	D16197-5	B16551-2	B16551-2	B18348	Monel

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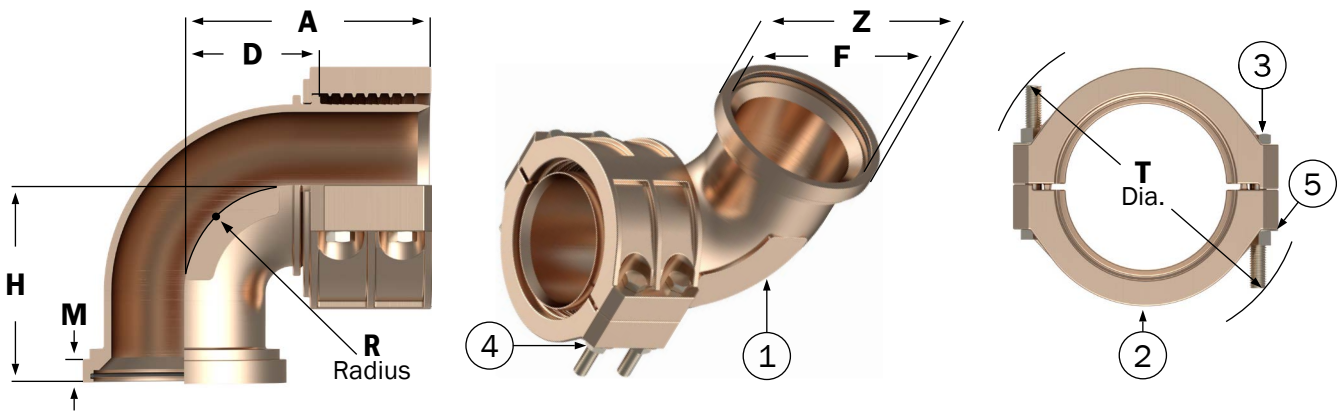
Hose to Split Clamp - Female

End Fitting - 90°

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



For use with the following hose: ER512 & 2580



Dimensions										
Part Number	IPS Size	A	D	F	H	M	R	T	Z	Est. Wt. (lbs.)
FC7753-8080-188	5"	8.64	4.52	5.64	6.81	.42	3.50	11.44	6.63	45.10
FC7753-9696-188	6"	9.14	5.02	6.76	7.31	.47	4.00	11.98	7.57	57.80
FC7753-0808-188	8"	10.34	6.22	9.01	8.81	.84	5.00	13.89	9.97	85.90
FC7753-1010-188	10"	11.89	7.77	11.01	9.70	.88	6.38	16.48	12.06	120.00
FC7753-1212-188	12"	14.24	9.00	12.01	10.70	.90	7.38	17.04	13.38	-

Components								
		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	1212	Material
Elbow ①	1	FC2466	8080-188	9696-188	0808-188	1010-188	1212-188	Alum. Bronze
Grip Segment ②	2	FC2457-1-	80-188	96-188	08-188	10-188	12-188	Alum. Bronze
Bolt ③	4	FF9411-	10-88	10-88	12-88	12-100	12-48	Monel
Nut ④	4	FF9033-	10-4	10-4	12-4	12-4	12-4	Monel
Washer ⑤	4	FF9412-	1001-4	1001-4	1201-4	1201-4	1201-4	Monel

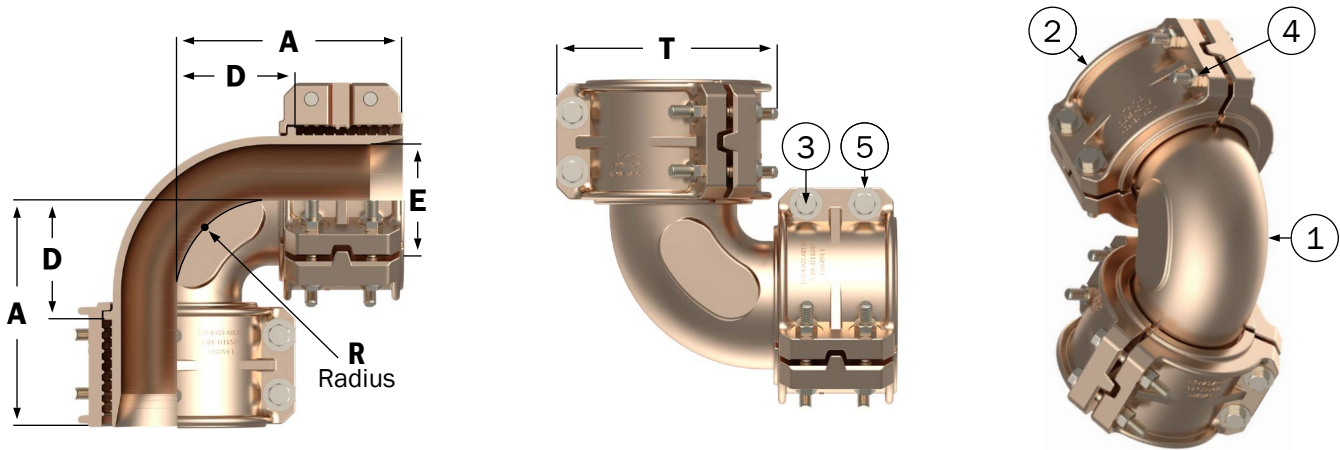
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Hose to Hose

Elbow - 90° Dogleg

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

For use with the following hose: ER512 & 2580



Dimensions								
Part Number	Drawing Number	IPS Size	A	D	E	R	T	Est. Wt. (lbs.)
90ELB-5-ER512	D17120	5"	8.64	4.51	4.31	3.50	9.25	71.00
90ELB-6-ER512	D17087	6"	9.18	5.05	5.40	4.00	10.38	85.00
90ELB-8-ER512	D17121	8"	10.58	6.20	7.40	5.00	13.00	115.00
90ELB-10-ER512	D19748	10"	12.10	7.75	9.31	6.38	14.50	171.00
90ELB-12-ER512	D19749	12"	14.32	9.09	11.40	7.38	17.10	-

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

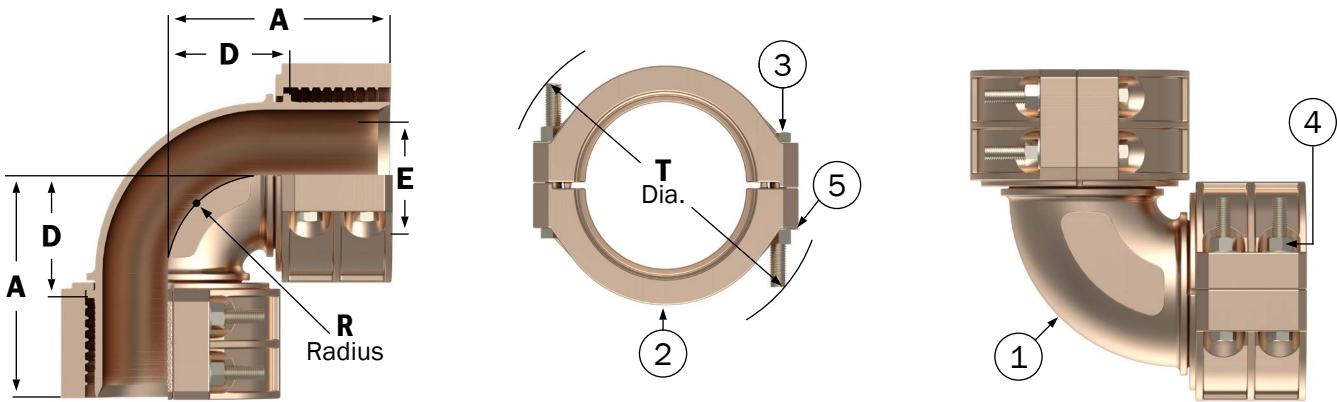
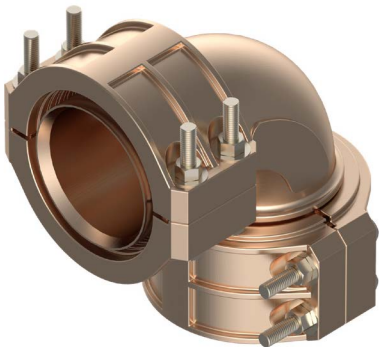
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Hose to Hose

Elbow - 90° Dogleg

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

For use with the following hose: ER512 & 2580



Dimensions							
Part Number	IPS Size	A	D	E	R	T	Est. Wt. (lbs.)
FC7754-8080-188	5"	8.64	4.52	4.40	3.50	11.44	69.90
FC7754-9696-188	6"	9.14	5.02	5.40	4.00	11.98	86.90
FC7754-0808-188	8"	10.34	6.22	7.40	5.00	13.89	122.00
FC7754-1010-188	10"	11.89	7.77	9.40	6.38	16.48	171.00
FC7754-1212-188	12"	14.24	9.00	11.40	7.38	17.04	-

Components		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	8080	9696	0808	1010	1212	Material
Elbow ①	1	FC2467-	8080-188	9696-188	0808-188	1010-188	1212-188	Alum. Bronze
Grip Segment ②	4	FC2457-1-	80-188	96-188	08-188	10-188	12-188	Alum. Bronze
Bolt ③	8	FF9411-	10-88	10-88	12-88	12-100	12-48	Monel
Nut ④	8	FF9033-	10-4	10-4	12-4	12-4	12-4	Monel
Washer ⑤	8	FF9412-	1001-4	1001-4	1201-4	1201-4	1201-4	Monel

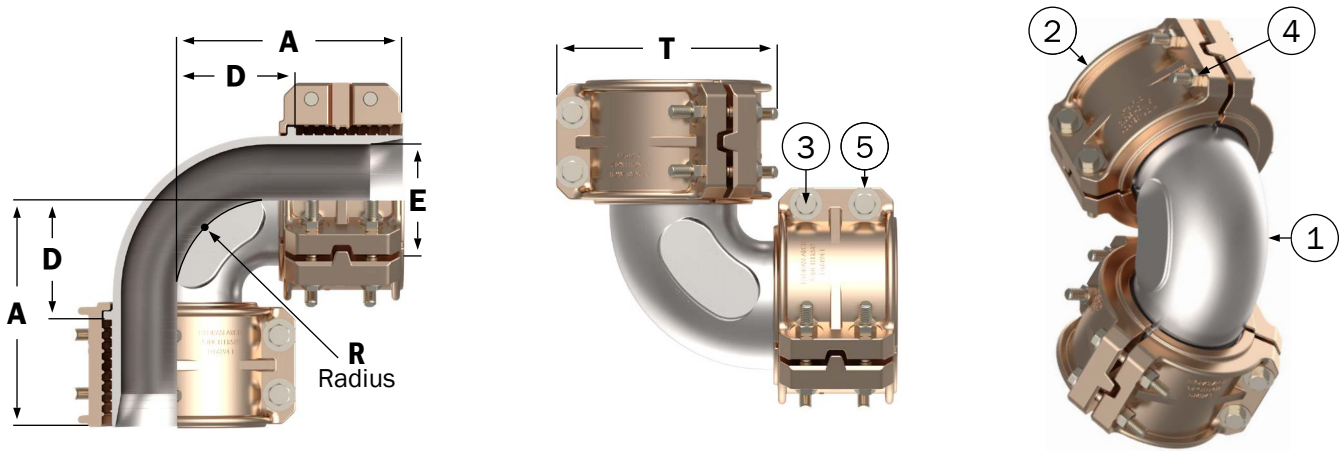
All dimensions are in inches.
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Hose to Hose

Elbow - 90° Dogleg

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

For use with the following hose: ER512 & 2580



Dimensions								
Part Number	Drawing Number	IPS Size	A	D	E	R	T	Est. Wt. (lbs.)
90ELB-5-ER512-SS	D18757	5"	8.64	4.51	4.31	3.50	9.25	71.00
90ELB-6-ER512-SS	D17681	6"	9.18	5.05	5.40	4.00	10.38	85.00
90ELB-8-ER512-SS	D17738	8"	10.58	6.20	7.40	5.00	13.00	115.00
90ELB-10-ER512-SS	D18440	10"	12.10	7.75	9.31	6.38	14.50	171.00

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

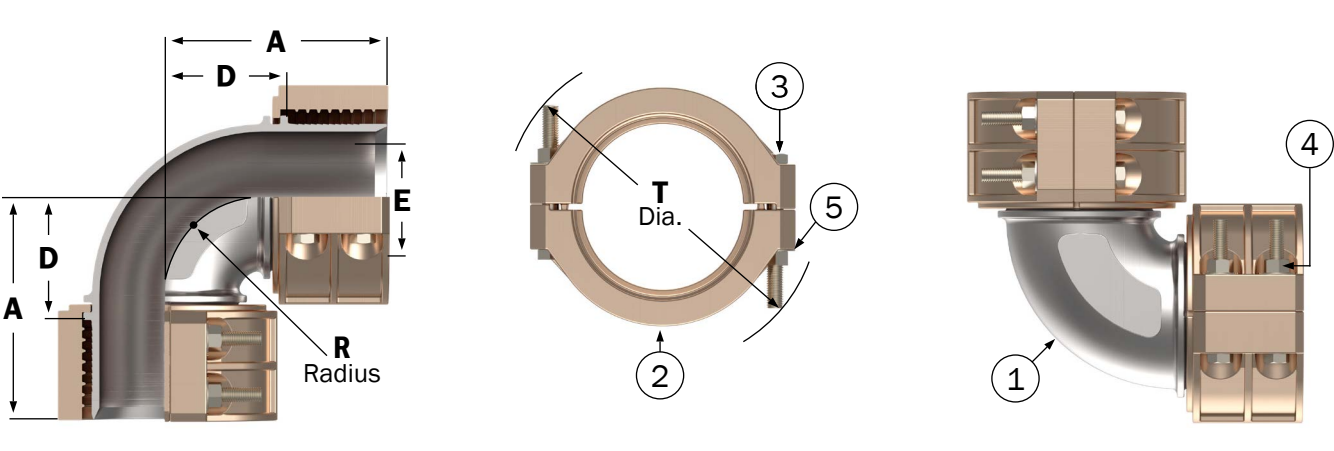
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Hose

Elbow - 90° Dogleg

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

For use with the following hose: ER512 & 2580



Dimensions							
Part Number	IPS Size	A	D	E	R	T	Est. Wt. (lbs.)
FC7754-9696-410	6"	9.14	5.02	5.40	4.00	11.98	86.90
FC7754-0808-410	8"	10.34	6.22	7.40	5.00	13.89	122.00
FC7754-1010-410	10"	11.89	7.77	9.40	6.38	16.48	171.00

Components		Part Number				Size
Description	Req'd per Ass'y	Base No.	9696	0808	1010	Material
Elbow ①	1	FC2467-	9696-407	0808-407	1010-407	Stainless Steel
Grip Segment ②	4	FC2457-1-	96-188	08-188	10-188	Alum. Bronze
Bolt ③	8	FF9411-	10-88	12-88	12-100	Monel
Nut ④	8	FF9033-	10-4	12-4	12-4	Monel
Washer ⑤	8	FF9412-	1001-4	1201-4	1201-4	Monel

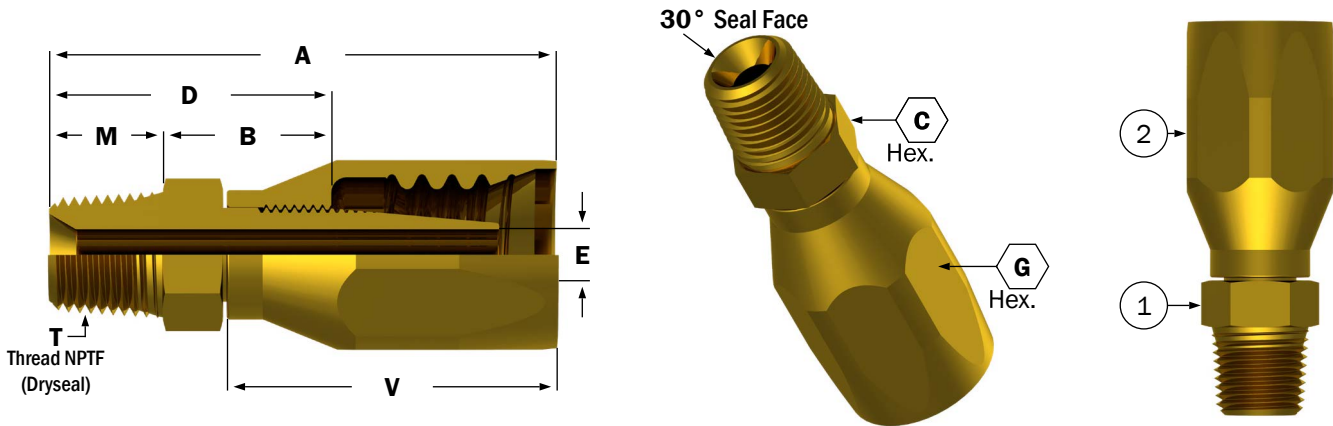
All dimensions are in inches.
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Hose to Male NPTF

End Fitting - Straight



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread NPTF	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-B1488MP-0204	C19142	1/4"	1/8"-27	1.68	.55	.44	.93	.17	.63	.38	1.10	.08
EF-B1488MP-0404	C20761	1/4"	1/4"-18	1.86	.55	.56	1.11	.17	.63	.56	1.10	.09
EF-B1488MP-0405	C19143	5/16"	1/4"-18	1.96	.62	.56	1.18	.23	.69	.56	1.20	.11
EF-B1488MP-0406	C19144	3/8"	1/4"-18	2.14	.67	.56	1.23	.30	.81	.56	1.30	.16
EF-B1488MP-0608	C19145	1/2"	3/8"-18	1.51	.77	.75	1.33	.36	.94	.56	1.51	.23
EF-B1488MP-0810	C19146	5/8"	1/2"-14	2.89	.84	.88	1.59	.48	1.12	.75	1.80	.39
EF-B1488MP-1212	C19147	3/4"	3/4"-14	3.15	.91	1.06	1.66	.61	1.25	.75	2.02	.50

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

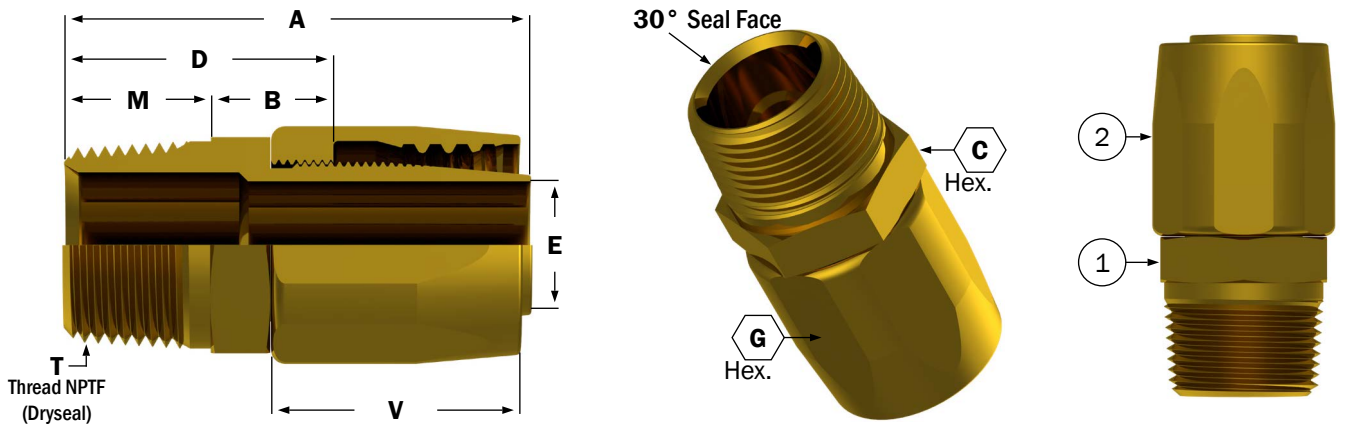
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Hose to Male NPTF

End Fitting - Straight



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread NPTF	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-B1488MP-1616	C19148	1"	1"-11 1/2	2.92	.78	1.38	1.72	.93	1.44	.94	1.60	.62
EF-B1488MP-2020	C19149	1 1/4"	1 1/4"-11 1/2	3.22	.83	1.75	1.86	1.05	1.75	1.03	1.75	1.10
EF-B1488MP-2424	C19150	1 1/2"	1 1/2"-11 1/2	3.49	1.04	2.00	2.04	1.28	2.00	1.00	1.85	1.30
EF-B1488MP-3232	C19151	2"	2"-11 1/2	4.03	1.16	2.50	2.19	1.75	2.50	1.03	2.25	2.30
EF-B1488MP-4040	C19152	2 1/2"	2 1/2"-8	5.04	1.61	3.00	3.13	2.12	3.25	1.52	2.50	4.60
EF-B1488MP-4848	C19153	3"	3"-8	5.10	1.58	3.88	3.16	2.69	3.88	1.58	2.47	7.30

Components								
Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
Nipple ①	1	C19070	C18028	C18027	C18026	-	-	Brass
Nipple ①	1	-	-	-	-	C19156	C19171	Alum. Bronze
Socket ②	1	C18867-1	C18703-1	C18990-1	C18811	C18822	C17901	Brass

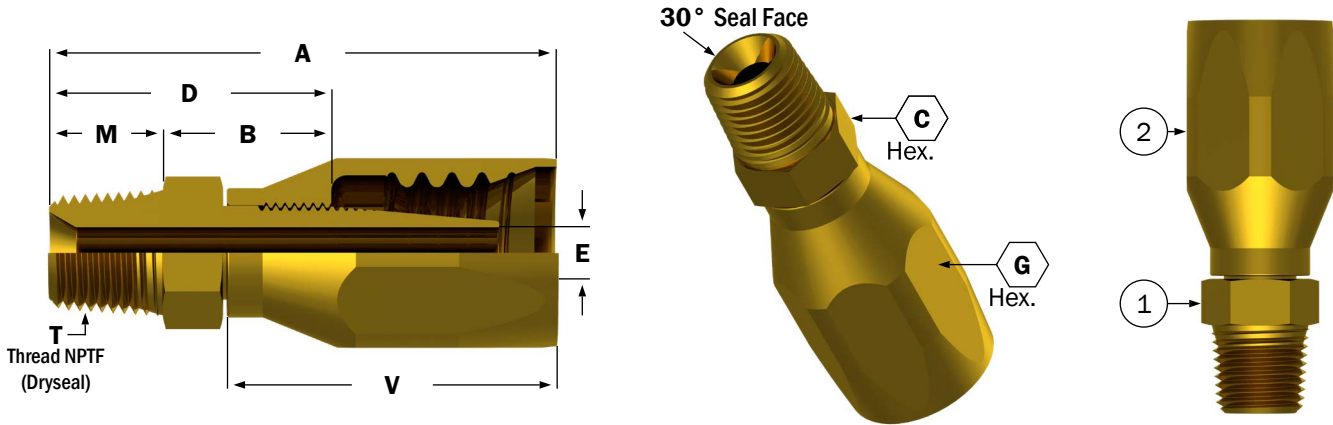
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Hose to Male NPTF

End Fitting - Straight



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



Dimensions											
Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
4-412-2-4B	1/4"	1/8"-27	1.68	.55	.44	.92	.17	.62	.38	1.10	-
4-412-4-4B	1/4"	1/4"-18	1.86	.55	.56	1.11	.17	.62	.56	1.10	-
4-412-2-5B	5/16"	1/8"-27	1.78	-	-	1.00	.23	-	-	-	-
4-412-4-5B	3/8"	1/4"-18	1.96	.62	.56	1.18	.23	.69	.56	1.20	-
4-412-4-6B	3/8"	1/4"-18	2.13	.67	.56	1.23	.30	.81	.56	1.30	-
4-412-6-6B	3/8"	3/8"-18	2.13	-	-	1.23	.24	-	-	-	-
4-412-6-8B	1/2"	3/8"-18	2.48	.77	.75	1.33	.39	.94	.56	1.65	-
4-412-8-10B	5/8"	1/2"-14	2.88	.84	.88	1.59	.48	1.12	.75	1.80	-
4-412-12-12B	3/4"	3/4"-14	3.24	.92	1.06	1.67	.61	1.25	.75	2.10	-

Components												
		Part Number										
		Size										
Description	Req'd per Ass'y	Base No.	-2-4	-4-4	-2-5	-4-5	-4-6	-6-6	-6-8	-8-10	-12-12	Material
Nipple ①	1	4-1252-	2-4	4-4	2-5	4-5	4-6	6-6	6-8	8-10	12-12	Brass
Socket ②	1	4-1210-	4	4	5	5	6	6	8	10	12	Brass

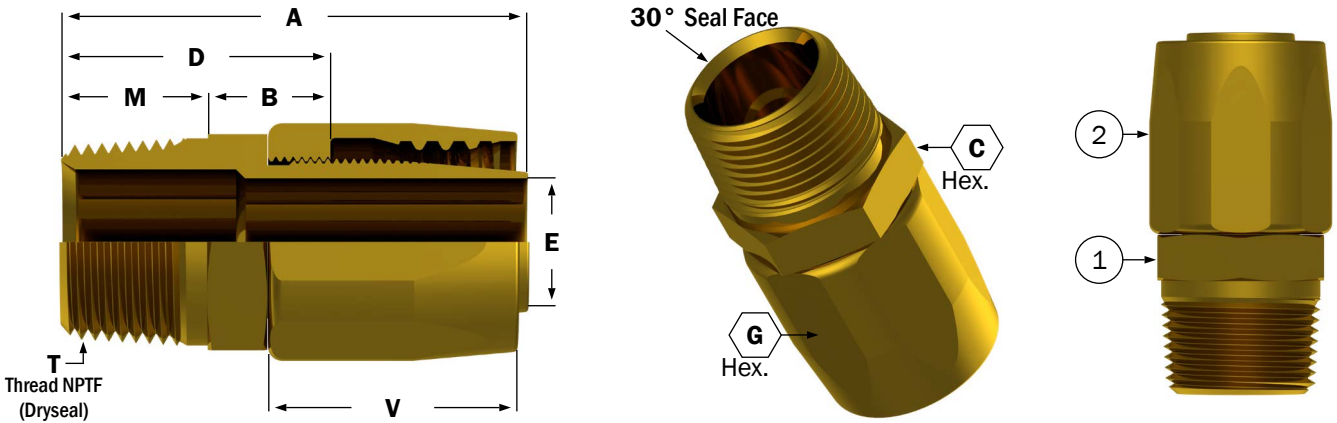
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Hose to Male NPTF

End Fitting - Straight



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



Dimensions											
Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
4-412-12-16B	1"	1"-11-1/2	2.80	-	-	1.53	.82	-	-	-	-
4-412-16-16B	1"	1 1/4"-11 1/2	2.99	.78	1.38	1.72	.82	1.44	.94	1.66	-
4-412-20-20B	1 1/4"	1 1/2"-11 1/2	3.23	.90	1.75	1.87	1.05	1.75	.97	1.75	-
4-412-24-24B	1 1/2"	2"-11 1/2	3.48	1.03	2.00	2.03	1.28	1.84	1.00	1.84	-
4-412-32-32B	2"	2 1/2"-8	4.05	1.17	2.44	2.20	1.75	2.25	1.03	2.25	-
44-412-40-40	2 1/2"	2 1/2"-8	5.03	1.61	3.00	3.13	2.12	3.25	1.52	2.50	-
44-412-48-48	3"	3"-8	5.09	1.61	3.88	3.19	2.69	3.88	1.58	2.50	-

Components (4-412)								
		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	-12-16	-16-16	-20-20	-24-24	-32-32	Material
Nipple ①	1	4-1252-	12-16	16-16	20-20	24-24	32-32	Brass
Socket ②	1	4-1212-	16	16	20	24	32	Brass

Components (44-412)					
		Part Number			
		Size			
Description	Req'd per Ass'y	Base No.	-40-40	-48-48	Material
Nipple ①	1	3-1252-	-40-40	-48-48	Brass
Socket ②	1	1212-	-40B	-48B	Brass

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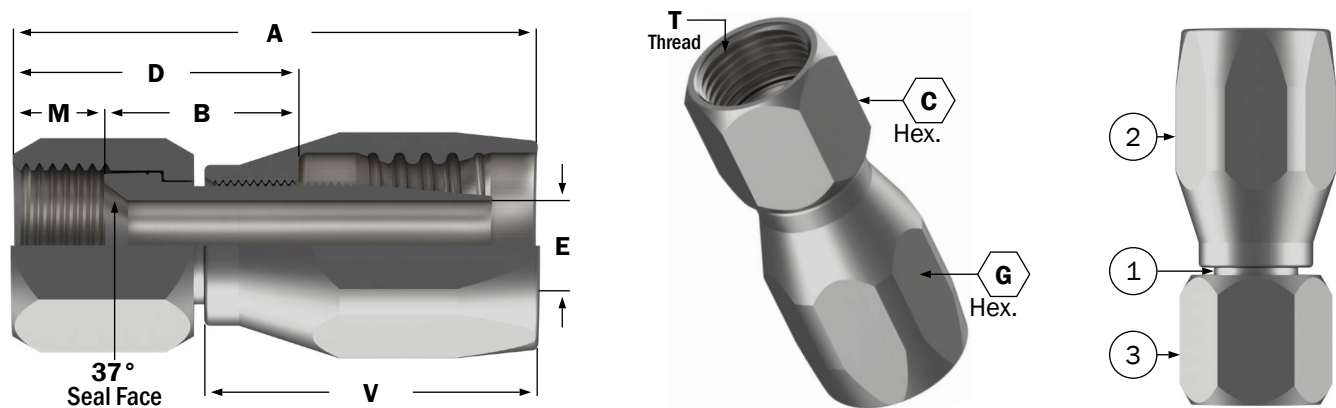
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group VIII



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-1488A-0404	C19219	1/4"	7/16"-20	1.82	.85	.56	1.20	.17	.63	.35	1.10	.10
EF-1488A-0505	C19220	5/16"	1/2"-20	2.00	1.01	.63	1.39	.23	.69	.38	1.20	.10
EF-1488A-0606	C19221	3/8"	9/16"-48	2.15	1.01	.69	1.39	.30	.81	.38	1.30	.20
EF-1488A-0808	C19222	1/2"	3/4"-16	2.49	1.09	.88	1.51	.38	.94	.42	1.52	.30
EF-1488A-1010	C19223	5/8"	7/8"-14	2.90	1.09	1.00	1.60	.48	1.12	.51	1.80	.40
EF-1488A-1212	C19224	3/4"	1 1/16"-12	3.17	1.11	1.25	1.68	.60	1.25	.57	2.02	.60

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

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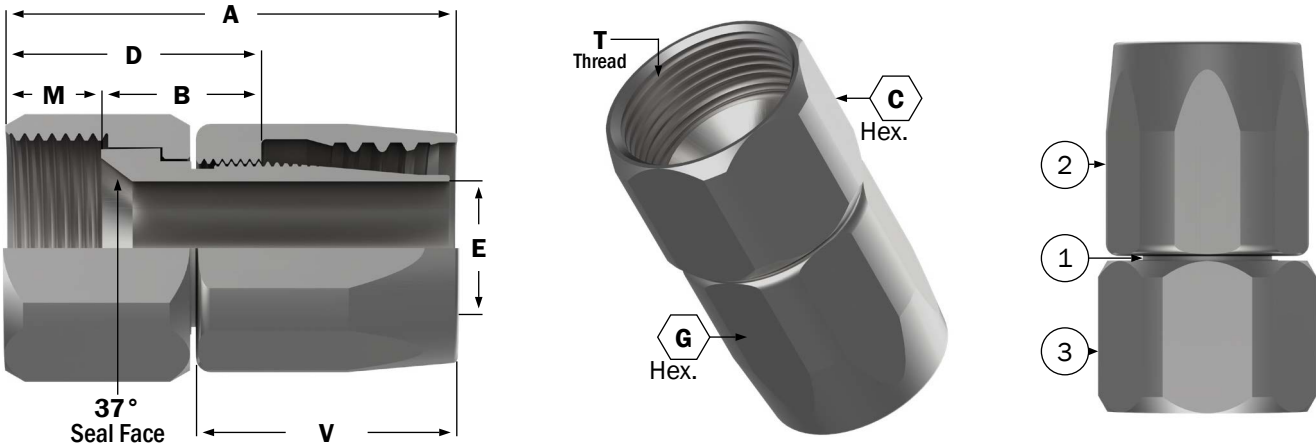
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group VIII



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-1488A-1616	C19225	1"	1 5/16"-12	2.87	1.09	1.50	1.69	.82	1.44	.63	1.60	.70
EF-1488A-2020	C19226	1 1/4"	1 7/8"-12	3.13	1.16	2.00	1.81	1.05	1.75	.65	1.75	1.30
EF-1488A-2424	C19227	1 1/2"	1 7/8"-12	3.42	1.23	2.25	1.97	1.28	2.00	.74	1.85	1.60
EF-1488A-3232	C19228	2"	2 1/2"-12	4.12	1.42	3.00	2.33	1.75	2.50	.91	2.25	2.60
EF-1488A-4040	C19229	2 1/2"	3"-12	4.37	1.71	3.38	2.50	2.21	3.13	.79	2.50	4.50
EF-1488A-4848	C19230	3"	3 1/2"-12	4.50	1.73	4.00	2.60	2.80	3.88	.87	2.50	6.20

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

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HS1488 Equivalent | P/N 4-411

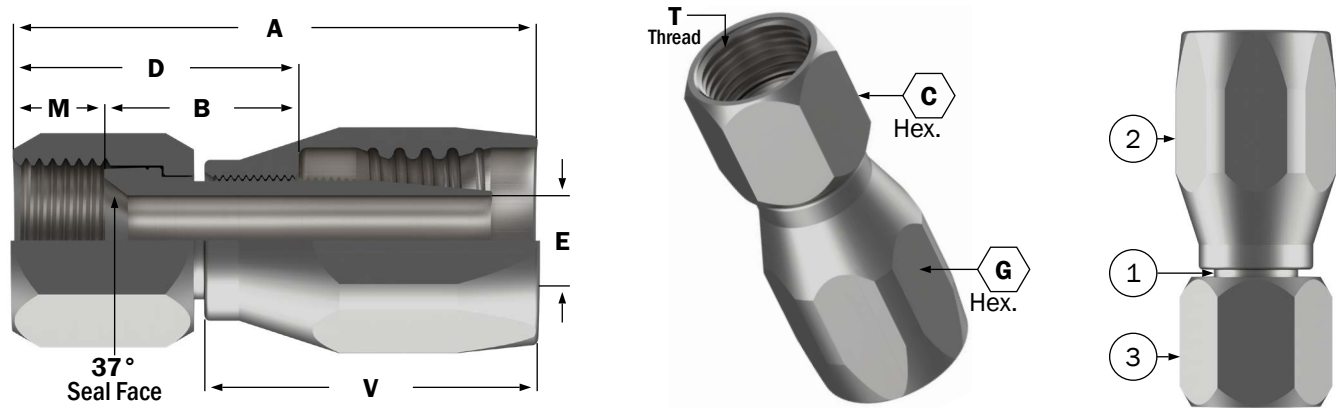
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group VIII



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



Dimensions											
Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
4-411-4	1/4"	7/16"-20	1.75	.65	.56	1.00	.17	.62	.35	1.10	.10
4-411-5	5/16"	1/2"-20	1.90	.74	.62	1.12	.23	.69	.38	1.20	.10
4-411-6	3/8"	9/16"-18	2.05	.77	.69	1.15	.30	.81	.38	1.30	.20
4-411-8	1/2"	3/4"-16	2.52	.95	.88	1.38	.39	.94	.43	1.65	.30
4-411-10	5/8"	7/8"-14	2.80	1.00	1.00	1.51	.48	1.12	.51	1.80	.40
4-411-12	3/4"	1 1/16"-12	3.15	1.01	1.25	1.58	.61	1.25	.57	2.10	.60

Components		Part Number							
			Size						
Description	Req'd per Ass'y	Base No.	-4	-5	-6	-8	-10	-12	Material
Nipple ①	1	4-1251-	4	5	6	8	10	12	Monel
Socket ②	1	4-1210-	4	5	6	8	10	12	Monel
Nut ③	1	4-1290-	4	5	6	8	10	12	Monel

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HS1488 Equivalent | P/N 4-411

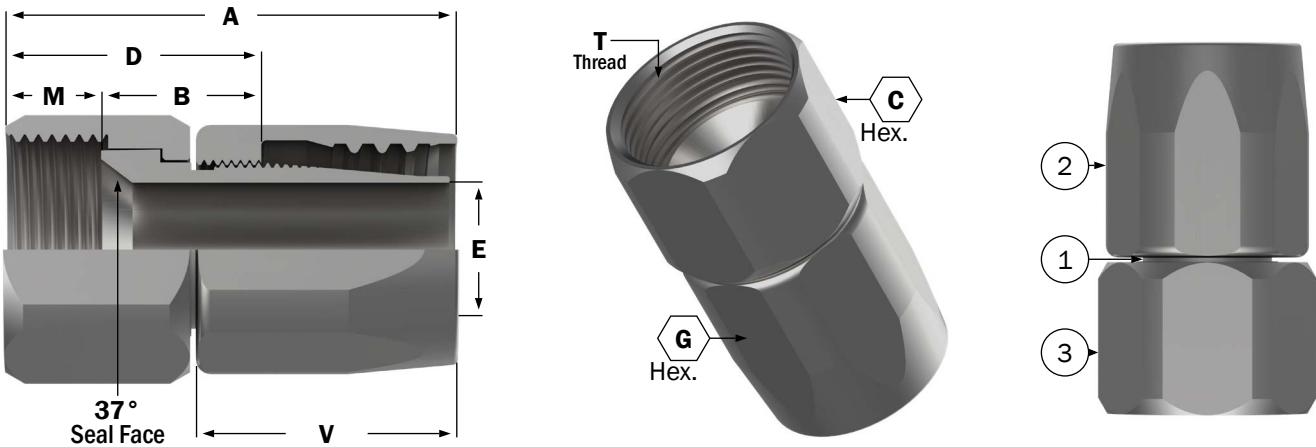
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

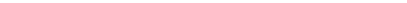
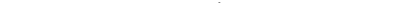
MIL-DTL-24787/2,
Type A, Group VIII



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



Dimensions											
Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
4-411-16	1"	1 5/16"-12	2.82	.95	1.50	1.55	.82	1.44	.60	1.66	.70
4-411-20	1 1/4"	1 5/8"-12	3.00	1.00	2.00	1.64	1.05	1.75	.64	1.75	1.30
4-411-24	1 1/2"	1 7/8"-12	3.28	1.09	2.25	1.83	1.28	1.94	.74	1.84	1.60
4-411-32	2"	2 1/2"-12	4.02	1.24	2.88	2.18	1.75	2.44	.94	2.25	2.60

Components (4-412)		Part Number 					
		Size 					
Description	Req'd per Ass'y	Base No.	-16	-20	-24	-32	Material
Nipple ①	1	4-1251-	16	20	24	32	Monel
Socket ②	1	4-1212-	16	20	24	32	Monel
Nut ③	1	4-1290-	16	20	24	32	Monel

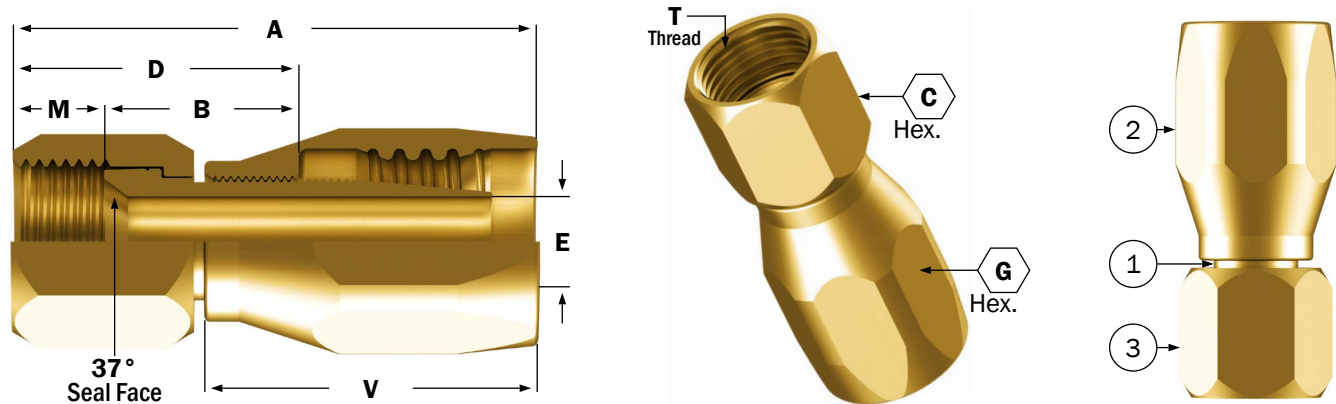
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-B1488A-0404	C19207	1/4"	7/16"-20	1.82	.85	.56	1.20	.17	.63	.35	1.10	.10
EF-B1488A-0604	C20670	1/4"	9/16"-18	1.85	.65	.69	1.00	.17	.62	.38	1.10	.10
EF-B1488A-0505	C19208	5/16"	1/2"-20	2.00	1.01	.63	1.39	.23	.69	.38	1.20	.10
EF-B1488A-0606	C19209	3/8"	9/16"-18	2.15	1.01	.69	1.39	.30	.81	.38	1.30	.20
EF-B1488A-0808	C19210	1/2"	3/4"-16	2.49	1.09	.88	1.51	.38	.94	.42	1.52	.30
EF-B1488A-1008	C20671	1/2"	7/8"-14	2.65	.95	1.00	1.50	.39	.94	.51	1.65	.30
EF-B1488A-1010	C19211	5/8"	7/8"-14	2.90	1.09	1.00	1.60	.48	1.12	.51	1.80	.40
EF-B1488A-1210	C20672	5/8"	1 1/16"-12	2.85	1.00	1.25	1.56	.48	1.12	.57	1.80	.40
EF-B1488A-1212	C19212	3/4"	1 1/16"-12	3.17	1.11	1.25	1.68	.60	1.25	.57	2.10	.50
EF-B1488A-1612	C20673	3/4"	1 5/16"-12	3.26	1.01	1.50	1.69	.61	1.25	.60	2.10	.50

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

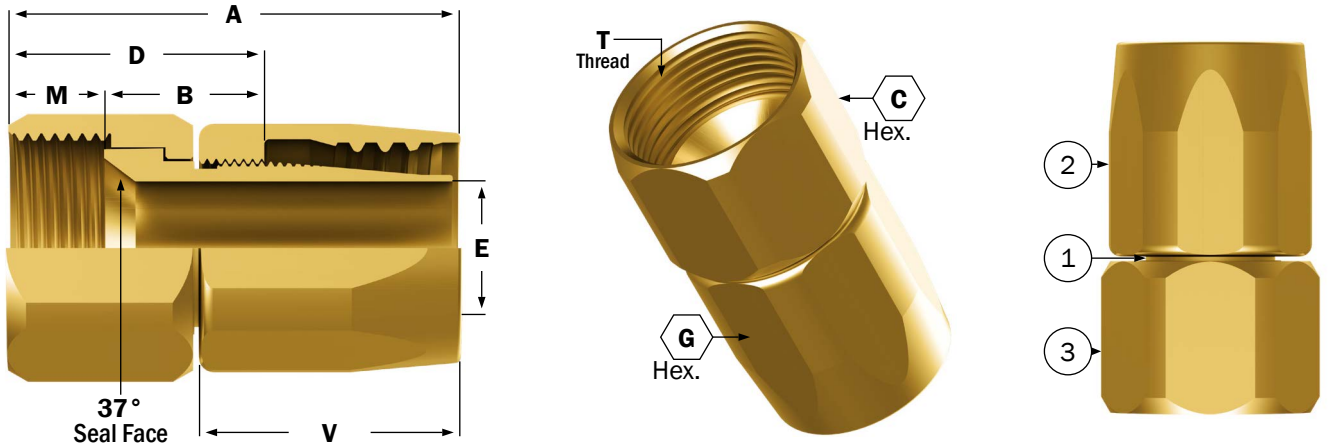
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



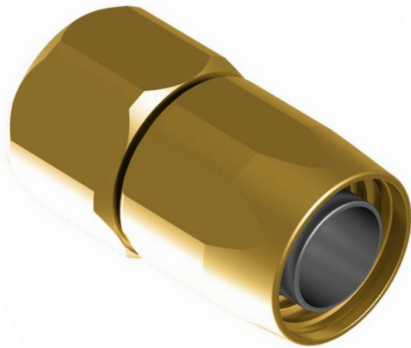
Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-B1488A-1616	C19213	1"	1 5/16"-12	2.87	1.09	1.50	1.69	.82	1.44	.60	1.60	.70
EF-B1488A-2020	C19214	1 1/4"	1 5/8"-12	3.13	1.16	2.00	1.81	1.05	1.75	.65	1.75	1.30
EF-B1488A-2424	C19215	1 1/2"	1 7/8"-12	3.42	1.23	2.25	1.97	1.28	2.00	.74	1.85	1.60
EF-B1488A-3232	C19216	2"	2 1/2"-12	4.12	1.42	3.00	2.33	1.75	2.50	.91	2.25	2.60
EF-B1488A-4040	C19217	2 1/2"	3"-12	4.37	1.71	3.38	2.15	2.21	3.25	.79	2.50	4.50
EF-B1488A-4848	C19218	3"	3 1/2"-12	4.28	1.51	4.00	2.38	2.80	3.88	.87	2.50	6.20

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

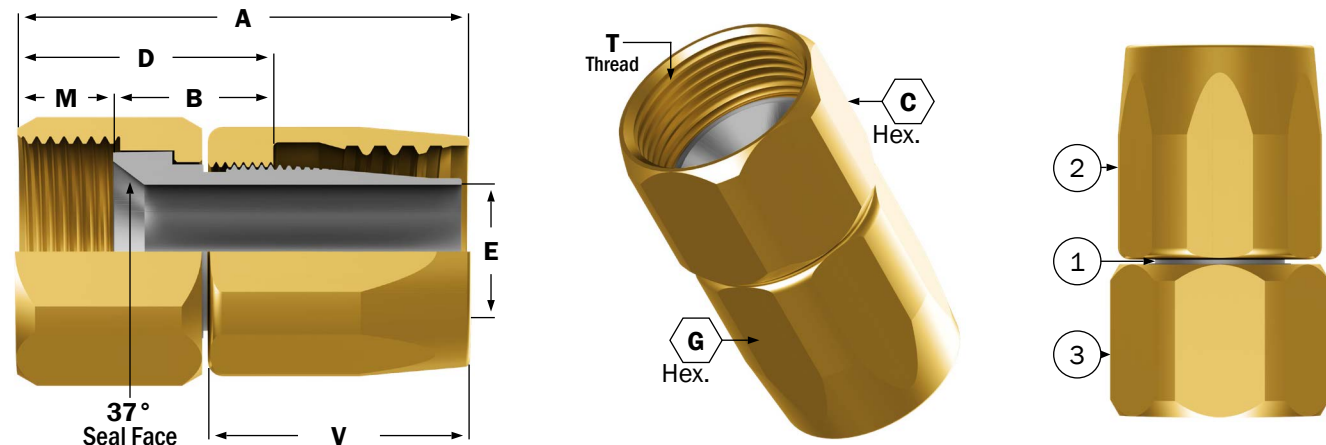
All dimensions are in inches.
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



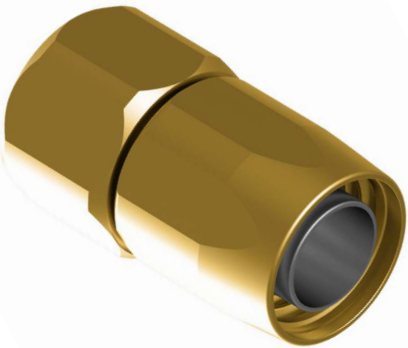
Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-MB1488A-1212	C19289	¾"	1½"-12	3.15	1.01	1.25	1.58	.61	1.25	.57	2.10	.60
EF-MB1488A-1616	C19290	1"	1½"-12	2.73	1.09	1.50	1.69	.82	1.44	.60	1.60	.70
EF-MB1488A-2020	C19291	1¼"	1½"-12	3.13	1.16	2.00	1.81	1.05	1.75	.65	1.75	1.30
EF-MB1488A-2424	C19292	1½"	1½"-12	3.42	1.23	1.25	1.97	1.28	2.00	.74	1.85	1.50
EF-MB1488A-3232	C19293	2"	2½"-12	4.12	1.42	3.00	2.33	1.75	2.50	.91	2.25	2.70

Components							
Description	Req'd per Ass'y	1212	1616	2020	2424	3232	Material
Nipple ①	1	B18982-2	B18668-2	B18675-2	C18983-2	C18654-2	Monel
Socket ②	1	C18988-1	C18667-1	C18703-1	C18990-1	C18811	Brass
Nut ③	1	B18976-1	B18673-1	C18677-1	C18977-1	C18650-1	Brass

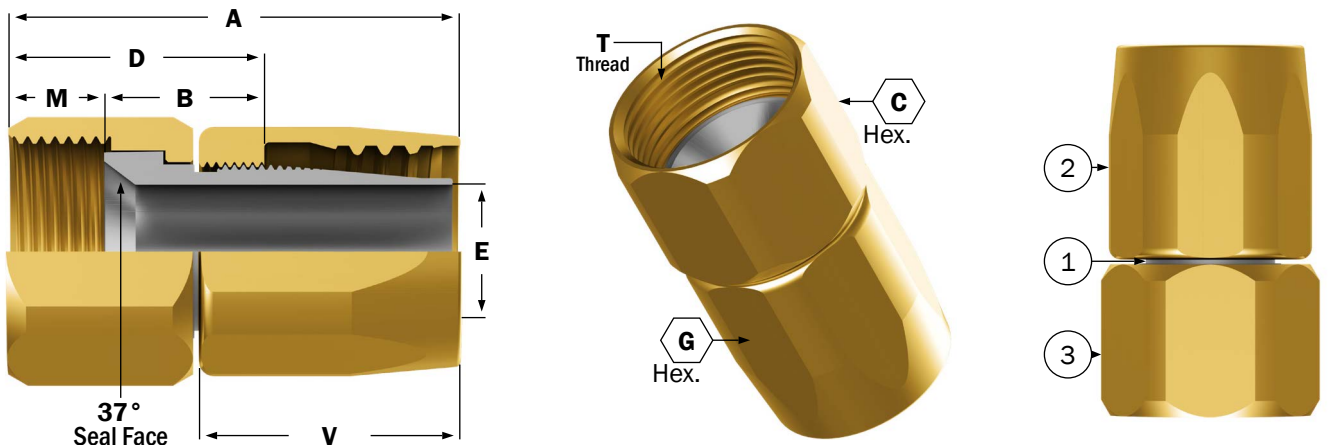
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



Dimensions											
Part Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
23-411-16	1"	1 ⁵ / ₁₆ "-12	2.73	1.09	1.50	1.69	.82	1.44	.60	1.60	.70
23-411-20	1 ¹ / ₄ "	1 ⁵ / ₈ "-12	3.13	1.16	2.00	1.81	1.05	1.75	.65	1.75	1.30
23-411-24	1 ¹ / ₂ "	1 ⁷ / ₈ "-12	3.42	1.23	1.25	1.97	1.28	2.00	.74	1.85	1.50
23-411-32	2"	2 ¹ / ₂ "-12	4.12	1.42	3.00	2.33	1.75	2.50	.91	2.25	2.70

Components (4-412)		Part Number					
		Size					
Description	Req'd per Ass'y	Base No.	-16	-20	-24	-32	Material
Nipple ①	1	4-1251-	16	20	24	32	Monel
Socket ②	1	-	16	20	24	32	Brass
Nut ③	1	-	16	20	24	32	Brass

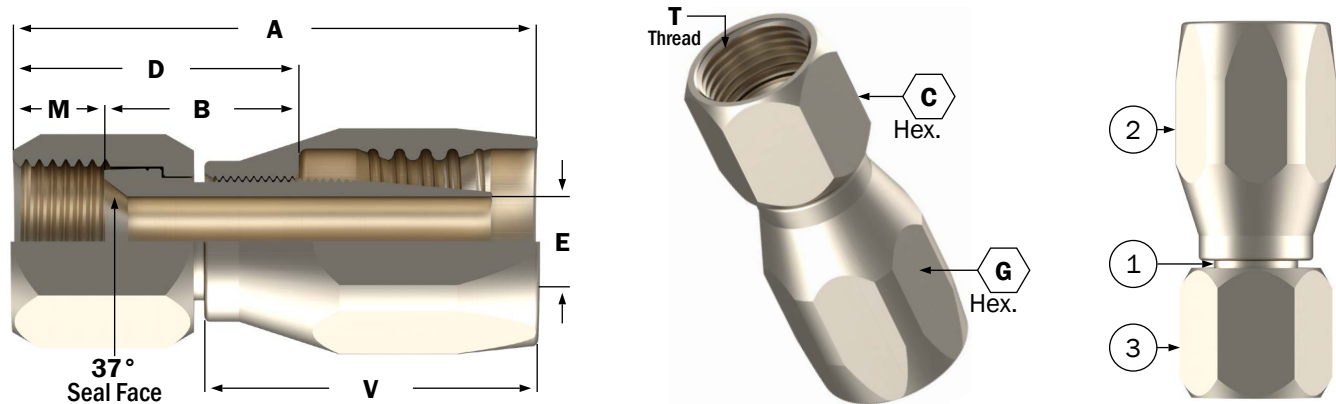
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-SS1488A-0404	C19261	1/4"	7/16"-20	1.82	.85	.56	1.20	.17	.63	.35	1.10	.10
EF-SS1488A-0604	C20674	1/4"	9/16"-18	1.85	.65	.69	1.00	.17	.62	.38	1.10	.10
EF-SS1488A-0505	C19262	5/16"	1/2"-20	2.00	1.01	.63	1.39	.23	.69	.38	1.20	.10
EF-SS1488A-0606	C19263	3/8"	9/16"-18	2.15	1.01	.69	1.39	.30	.81	.38	1.30	.20
EF-SS1488A-0808	C19264	1/2"	3/4"-16	2.49	1.09	.88	1.51	.38	.94	.42	1.52	.30
EF-SS1488A-1008	C20675	1/2"	7/8"-14	2.65	.95	1.00	1.50	.39	.94	.51	1.65	.30
EF-SS1488A-1010	C19269	5/8"	7/8"-14	2.90	1.09	1.00	1.60	.48	1.12	.51	1.80	.40
EF-SS1488A-1210	C20676	5/8"	1 1/16"-12	2.85	1.00	1.25	1.56	.48	1.12	.57	1.80	.40
EF-SS1488A-1212	C19270	3/4"	1 1/16"-12	3.17	1.11	1.25	1.68	.60	1.25	.57	2.02	.50
EF-SS1488A-1612	C20677	3/4"	1 5/16"-12	3.26	1.01	1.50	1.69	.61	1.25	.60	2.10	.50

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

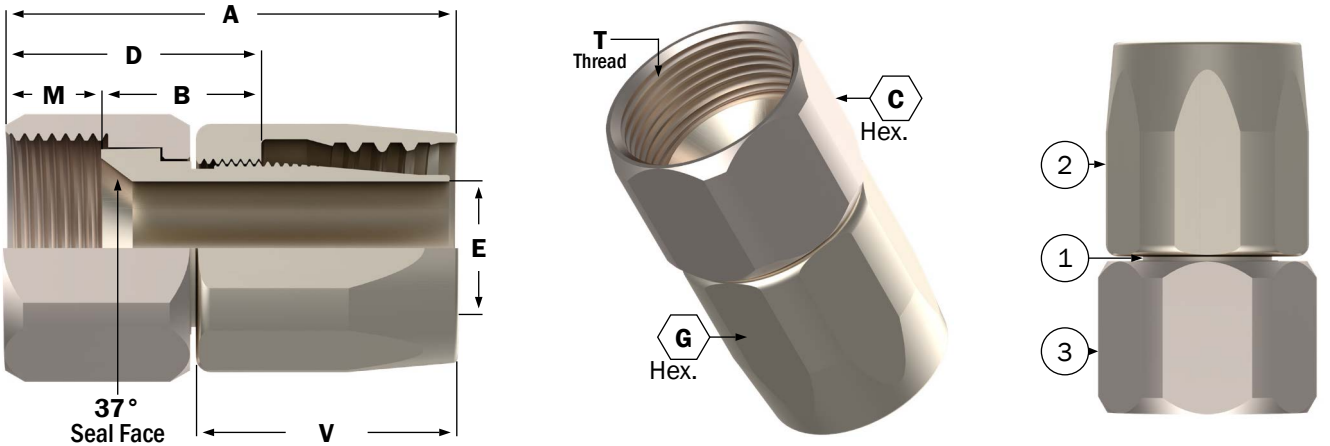
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



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



Dimensions												
Part Number	Drawing Number	Hose Size	T Thread CL-2A	A	B	C	D	E	G	M	V	Est. Wt. (lbs.)
EF-SS1488A-1616	C19271	1"	1 5/16"-12	2.87	1.09	1.50	1.69	.82	1.44	.60	1.60	.70
EF-SS1488A-2020	C19272	1 1/4"	1 5/8"-12	3.13	1.16	2.00	1.81	1.05	1.75	.65	1.75	1.30
EF-SS1488A-2424	C19282	1 1/2"	1 7/8"-12	3.42	1.23	2.25	1.97	1.28	2.00	.74	1.85	1.60
EF-SS1488A-3232	C19283	2"	2 1/2"-12	4.12	1.42	3.00	2.33	1.75	2.50	.91	2.25	2.60

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

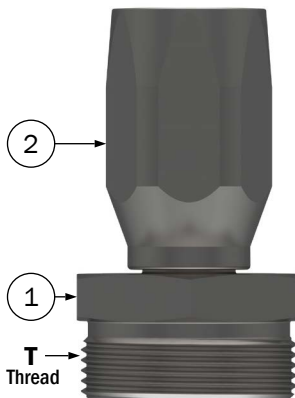
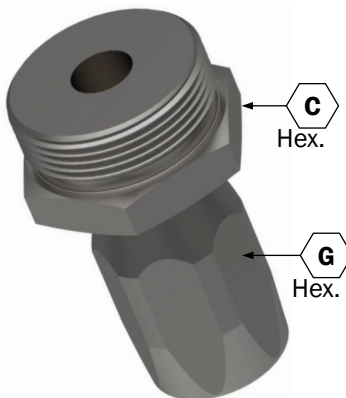
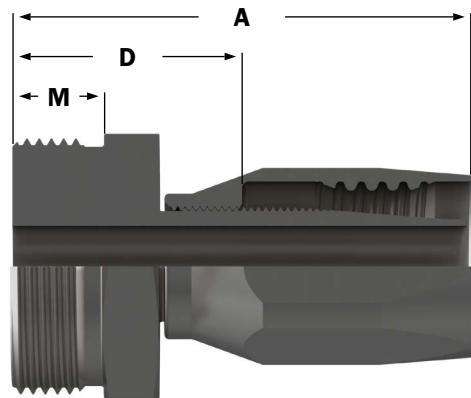
Hose to Male “O” Ring Seal

End Fitting - Straight

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



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



Dimensions

Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
EF-1488C-0206	C19319	1/8"	1"-14	2.05	1.06	1.00	.81	.50	.30
EF-1488C-0408	C19320	1/4"	1 3/16"-12	2.39	1.25	1.12	.94	.62	.50
EF-1488C-0610	C19321	3/8"	1 3/8"-12	2.73	1.44	1.15	1.12	.62	.60
EF-1488C-0812	C19322	1/2"	1 3/4"-12	3.02	1.80	1.38	1.25	.62	1.00

Components

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

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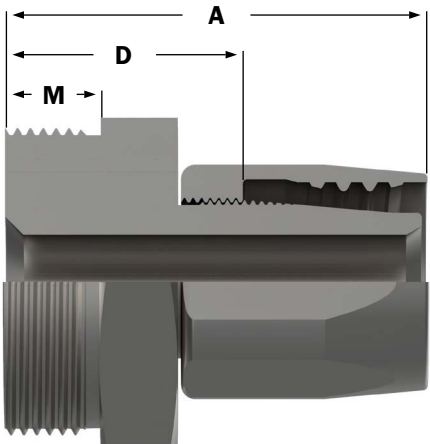
Hose to Male “O” Ring Seal

End Fitting - Straight

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



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



Dimensions

Part Number	Drawing Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
EF-1488C-1216	C19719	3/4"	2"-12	2.72	2.13		1.44	.62	1.50
EF-1488C-1620	-	1"	1 5/16"-12	3.12	2.38		1.75	.75	-
EF-1488C-2024	C19721	1 1/4"	2 3/4"-12	3.22	3.00		2.00	.75	2.90
EF-1488C-2432	-	1 1/2"	3 1/4"-12	3.88	3.12		2.50	.88	-

Components

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

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HS1488 Equivalent | P/N 4-190911

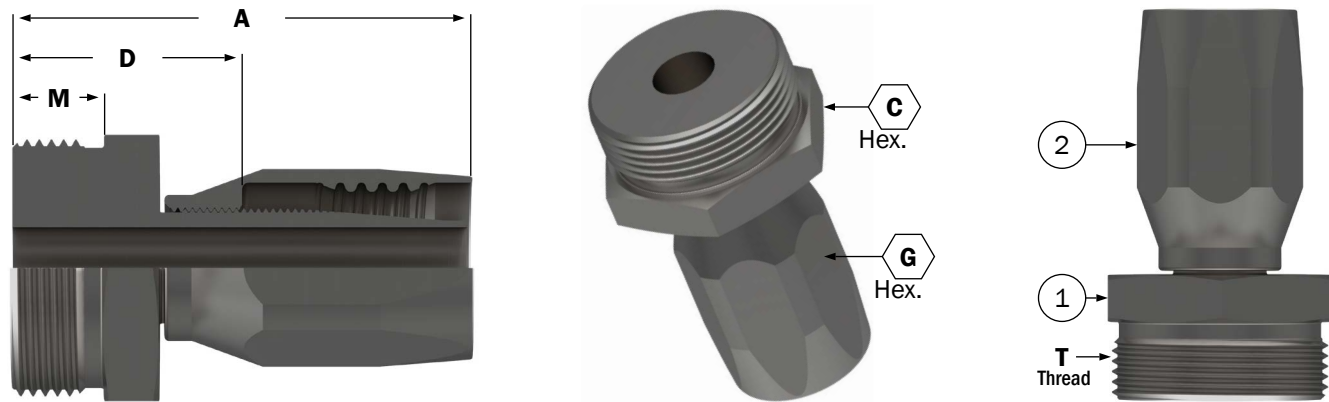
Hose to Male “O” Ring Seal

End Fitting - Straight

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



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



Dimensions

Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
4-190911-1/8-6	1/8"	1"-14	2.06	1.06	1.16	.81	.50	.28
4-190911-1/4-8	1/4"	1 3/16"-12	2.54	1.25	1.39	.94	.62	.46
4-190911-3/8-10	3/8"	1 3/8"-12	2.75	1.44	1.46	1.12	.62	.65
4-190911-1/2-12	1/2"	1 3/4"-12	3.12	1.81	1.55	1.25	.62	1.03

Components		Part Number					
			Size				
Description	Req'd per Ass'y	Base No.	1/8-6	1/4-8	3/8-10	1/2-12	Material
Nipple ①	1	4-220779-	1/8-6	1/4-8	3/8-10	1/2-12	Monel
Socket ②	1	4-1210-	6	8	10	12	Monel

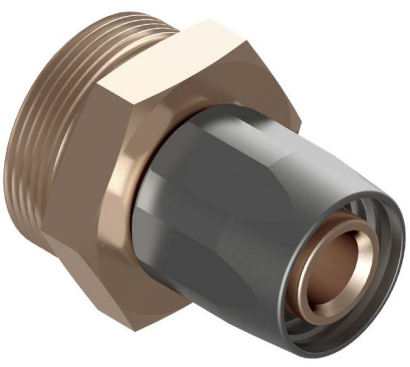
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HS1488 Equivalent | P/N 375-190911

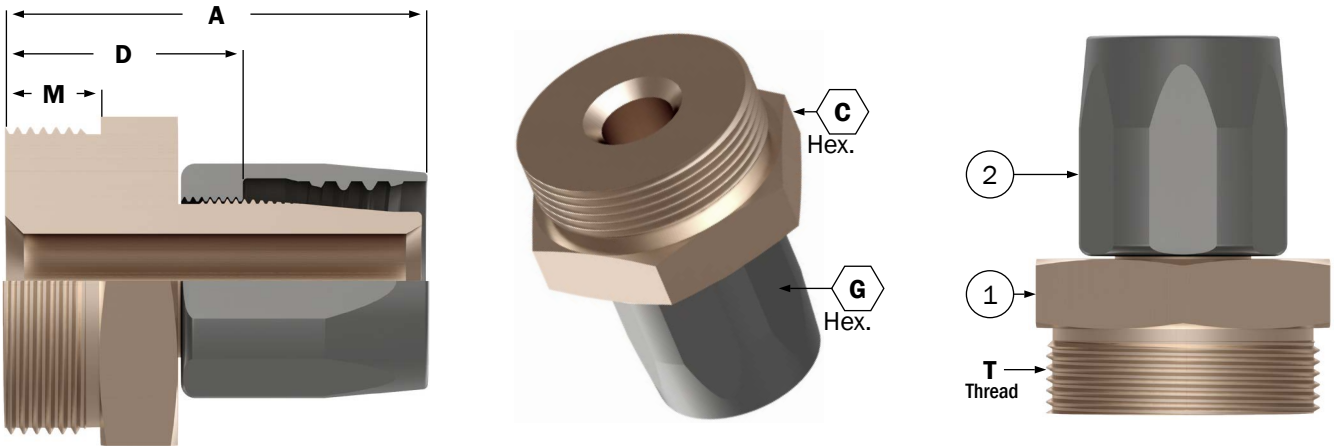
Hose to Male “O” Ring Seal

End Fitting - Straight

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



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



Dimensions

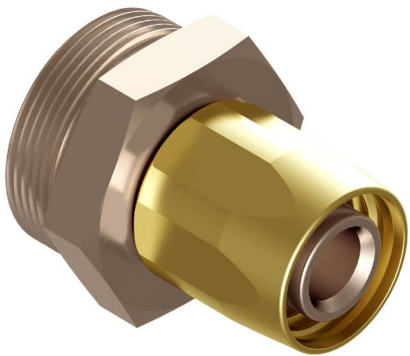
Part Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
375-190911-3/4-16	3/4"	2"-12	2.80	2.12	1.53	1.44	.62	1.54
375-190911-1-20	1"	2 5/16"-12	3.14	2.38	1.77	1.75	.75	2.38
375-190911-1 1/4-24	1 1/4"	2 3/4"-12	3.23	2.88	1.78	1.94	.75	3.06
375-190911-1 1/2-32	1 1/2"	3 1/16"-12	3.89	3.12	2.05	2.44	.88	4.36

Components		Part Number					
		Size					
Description	Req'd per Ass'y	Base No.	¾-16	1-20	1¼-24	1½-32	Material
Nipple ①	1	188-220779-	¾-16	1-20	1¼-24	1½-32	Alum. Bronze
Socket ②	1	4-1212-	16	20	24	32	Monel

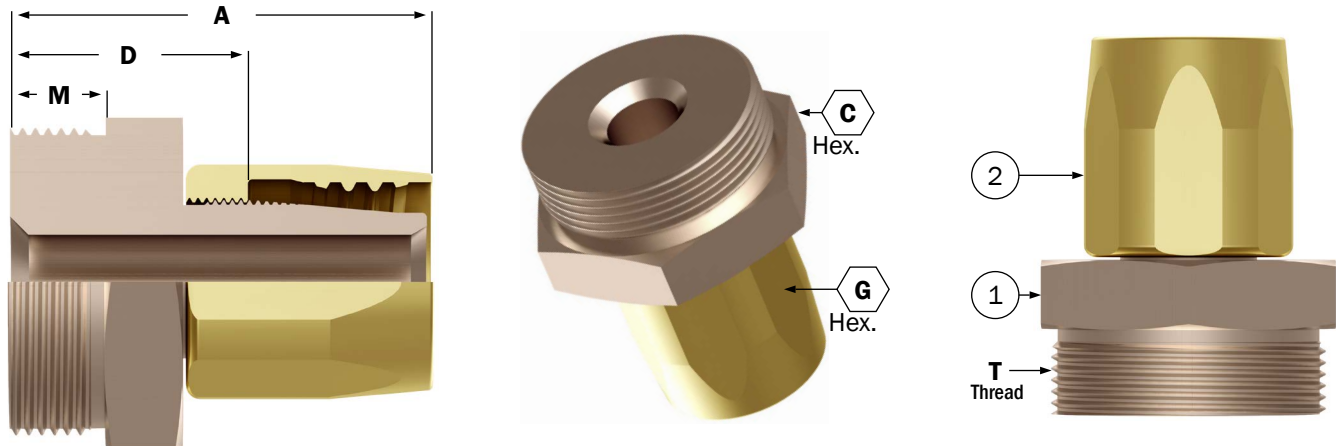
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Hose to Male “O” Ring Seal

End Fitting - Straight



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



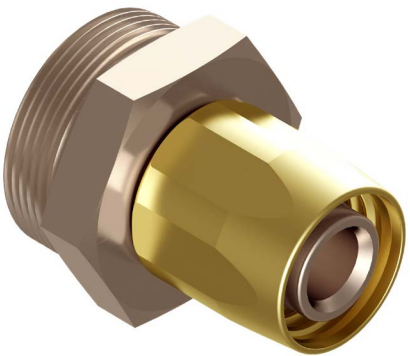
Dimensions									
Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
EF-B1488C-1216	C19307	¾"	2"-12	2.72	2.13	1.52	1.44	.62	1.60
EF-B1488C-1620	C19308	1"	2⅝"-12	3.12	2.38	1.76	1.75	.75	2.40
EF-B1488C-2024	C19309	1¼"	2¾"-12	3.22	2.88	1.77	2.00	.75	2.90
EF-B1488C-2432	C19310	1½"	3⅛"-12	3.78	3.12	2.04	2.50	.88	4.10

Components						
Description	Req'd per Ass'y	1216	1620	2024	2432	Material
Nipple ①	1	C19256-1	C19257	C19258	C19259	Alum. Bronze
Socket ②	1	C18667-1	C18703-1	C18990-1	C18811	Brass

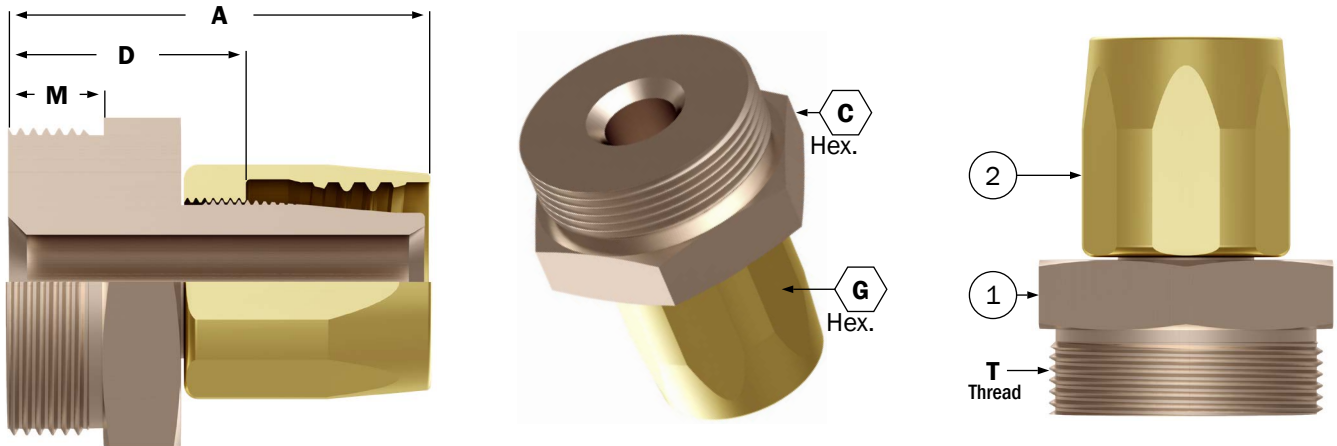
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Hose to Male “O” Ring Seal

End Fitting - Straight



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



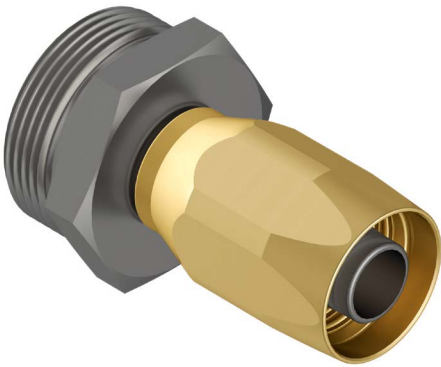
Dimensions								
Part Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
66-190911-¾-16	¾"	2"-12	2.80	2.12	1.53	1.44	.62	1.52
66-190911-1-20	1"	2⅝"-12	3.14	2.38	1.77	1.75	.75	2.35
66-190911-1¼-24	1¼"	2¾"-12	3.23	2.88	1.78	1.94	.75	2.91
66-190911-1½-32	1½"	3⅛"-12	3.89	3.12	2.05	2.44	.88	4.10

Components							
Description	Req'd per Ass'y	Part Number Base No.	Size				Material
			¾-16	1-20	1¼-24	1½-32	
Nipple ①	1	188-220779-	¾-16	1-20	1¼-24	1½-32	Alum. Bronze
Socket ②	1	1212-	16B	20B	24B	32B	Brass

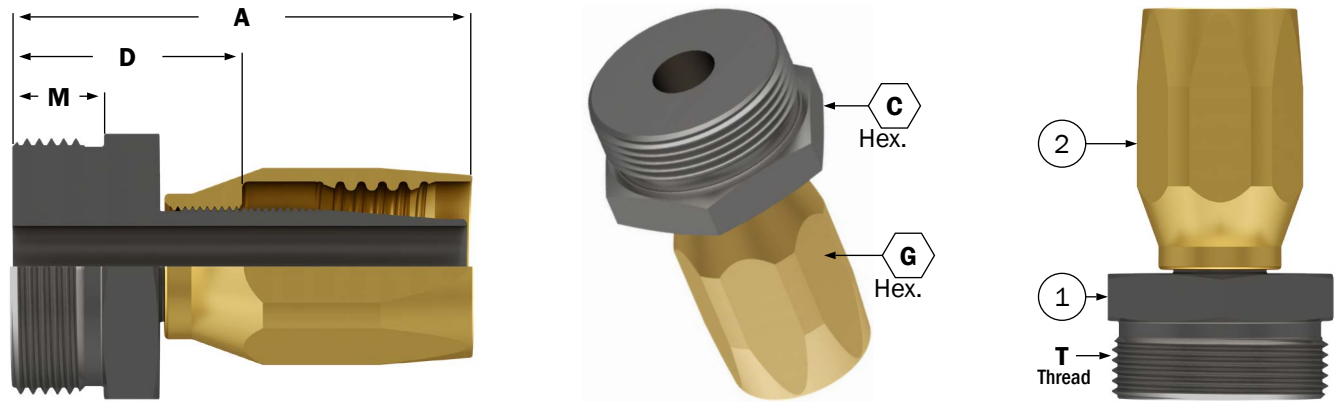
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Hose to Male “O” Ring Seal

End Fitting - Straight



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



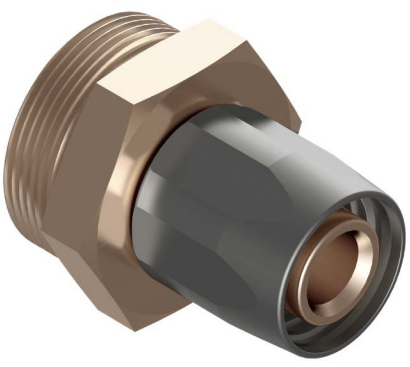
Dimensions									
Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
EF-MB1488C-0206	C19231	1/8"	1"-14	2.05	1.06	1.14	.81	.50	.30
EF-MB1488C-0408	C19232	1/4"	1 3/16"-12	2.41	1.25	1.36	.94	.62	.50
EF-MB1488C-0610	C19233	3/8"	1 3/8"-12	2.73	1.44	1.43	1.12	.62	.60
EF-MB1488C-0812	C19234	1/2"	1 3/4"-12	3.02	1.80	1.54	1.25	.62	1.00

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

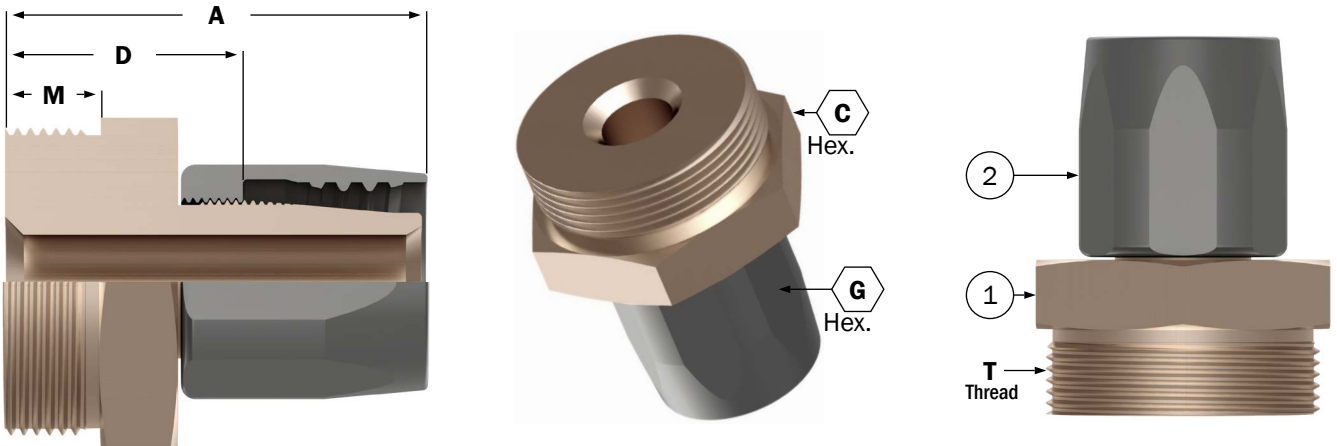
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Hose to Male “O” Ring Seal

End Fitting - Straight



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



Dimensions									
Part Number	Drawing Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
EF-MB1488C-1216	C19323	3/4"	2"-12	2.72	2.12	1.52	1.44	.62	1.50
EF-MB1488C-1620	C19324	1"	1 5/16"-12	3.12	2.38	1.76	1.75	.75	2.40
EF-MB1488C-2024	C19325	1 1/4"	2 3/4"-12	3.22	2.88	1.77	2.00	.75	2.90
EF-MB1488C-2432	C19326	1 1/2"	3 1/4"-12	3.78	3.12	2.04	2.50	.88	4.10

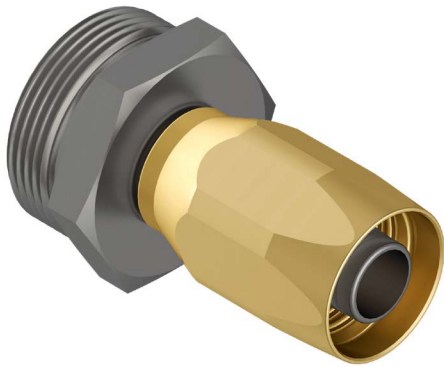
Components						
Description	Req'd per Ass'y	1216	1620	2024	2432	Material
Nipple ①	1	C19256-1	C19257	C19258	C19259	Alum. Bronze
Socket ②	1	C18667-2	C18703-2	C18990-2	C18662	Monel

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.

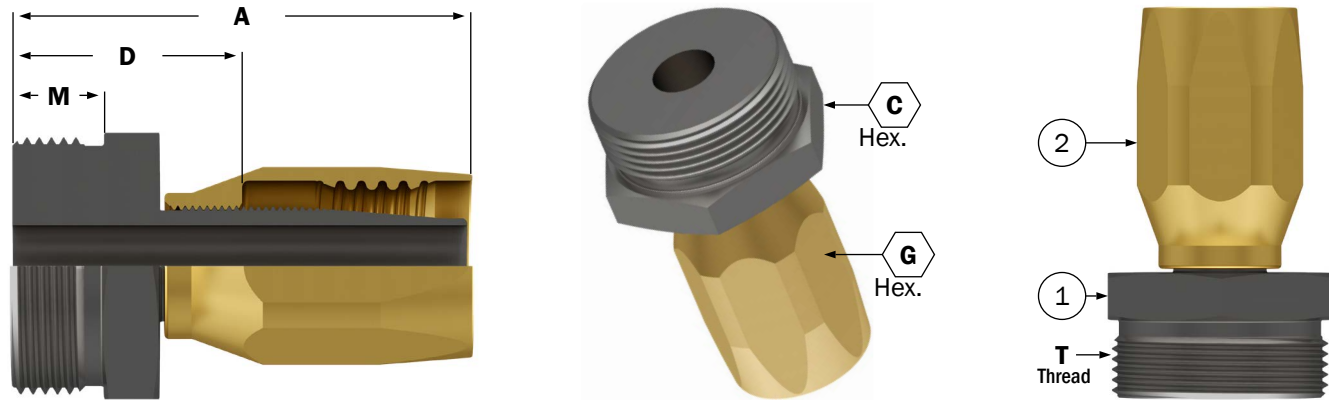
HS1488 Equivalent | P/N 93-190911

Hose to Male “O” Ring Seal

End Fitting - Straight



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



Dimensions								
Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
93-190911-1/8-6	1/8"	1"-14	2.06	1.06	1.16	.81	.50	.28
93-190911-1/4-8	1/4"	1 3/16"-12	2.54	1.25	1.39	.94	.62	.46
93-190911-3/8-10	3/8"	1 3/8"-12	2.75	1.44	1.46	1.12	.62	.65
93-190911-1/2-12	1/2"	1 3/4"-12	3.12	1.81	1.55	1.25	.62	1.03

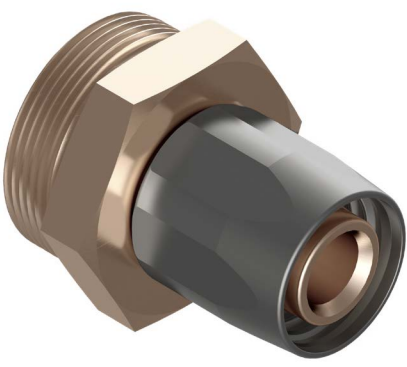
Components		Part Number					Material
Description	Req'd per Ass'y	Base No.	1/8-6	1/4-8	3/8-10	1/2-12	
Nipple ①	1	4-220779-	1/8-6	1/4-8	3/8-10	1/2-12	Monel
Socket ②	1	4-1210-	6B	8B	10B	12B	Brass

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.

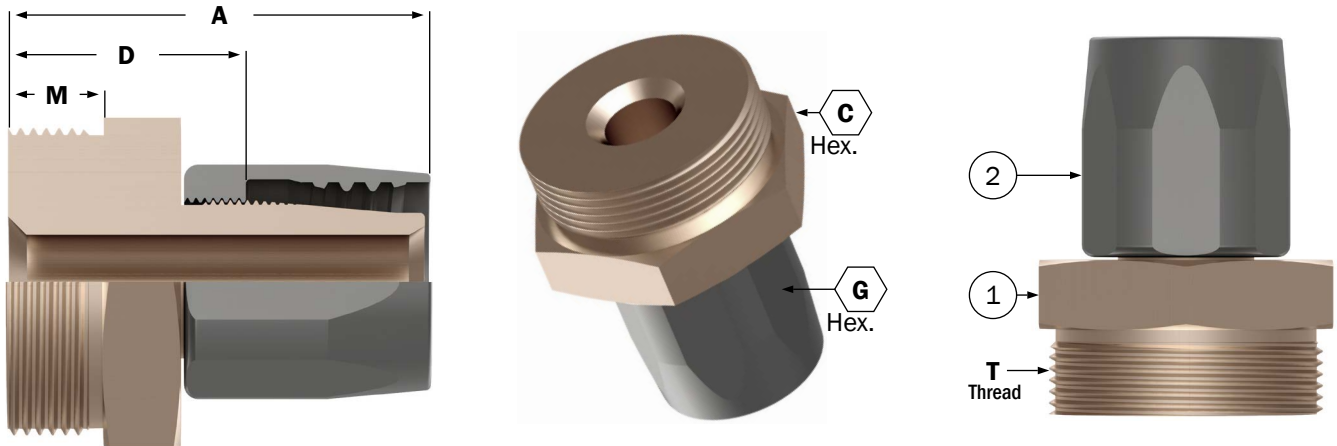
HS1488 Equivalent | P/N 375-190911

Hose to Male “O” Ring Seal

End Fitting - Straight



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



Dimensions								
Part Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
375-190911-3/4-16	3/4"	2"-12	2.80	2.12	1.53	1.44	.62	1.52
375-190911-1-20	1"	2 5/16"-12	3.14	2.38	1.77	1.75	.75	2.35
375-190911-1.25-24	1 1/4"	2 3/4"-12	3.23	2.88	1.78	1.94	.75	2.91
375-190911-1.5-32	1 1/2"	3 1/16"-12	3.89	3.12	2.05	2.44	.88	4.10

Components		Part Number					
		Size					
Description	Req'd per Ass'y	Base No.	¾-16	1-20	1¼-24	1½-32	Material
Nipple ①	1	188-220779-	¾-16	1-20	1¼-24	1½-32	Alum. Bronze
Socket ②	1	4-1212-	16	20	24	32	Monel

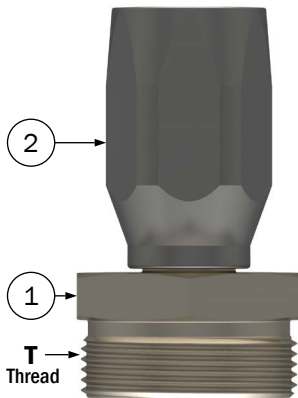
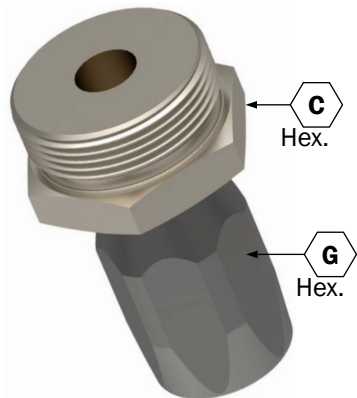
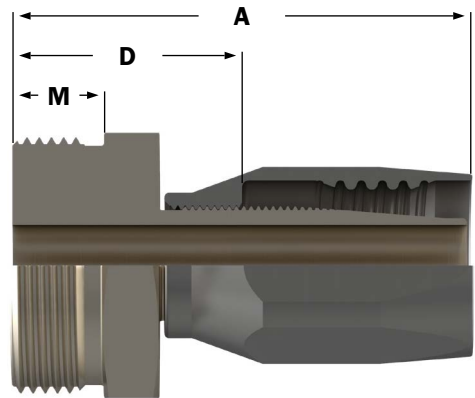
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male “O” Ring Seal

End Fitting - Straight



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



Dimensions									
Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	G	M	Est. Wt. (lbs.)
EF-MSS1488C-0610	C19304	3/8"	1 3/8"-12	2.73	1.44	1.43	1.12	.62	.60
EF-MSS1488C-0812	C19305	1/2"	1 3/4"-12	3.02	1.80	1.54	1.25	.62	1.00

Components				
Description	Req'd per Ass'y	0610	0812	Material
Nipple ①	1	C19016-2	C19017-2	Stainless Steel
Socket ②	1	C18987-2	C18988-2	Monel

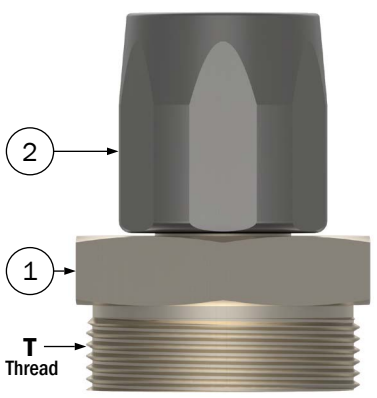
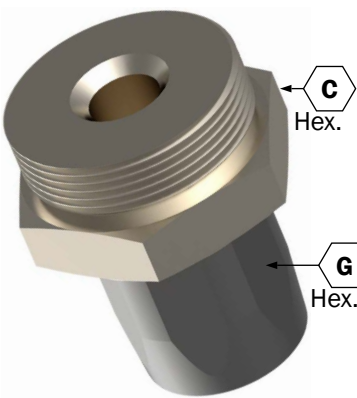
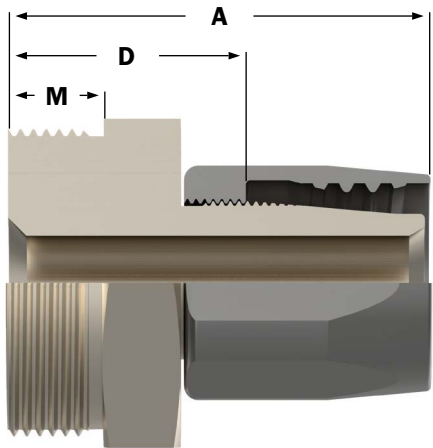
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male “O” Ring Seal

End Fitting - Straight



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



Dimensions									
Part Number	Drawing Number	I.P.S. Size	T Thread CL-2A	A	C	D	G	M	Est. Wt. (lbs.)
EF-MSS1488C-1216	C19306	3/4"	2"-12	2.72	2.12	1.52	1.44	.62	1.50
EF-MSS1488C-1620	-	1	1 5/16"-12	3.12	2.38	1.76	1.75	.75	2.40

Components				
Description	Req'd per Ass'y	1216	1620	Material
Nipple ①	1	C19256-2	C19019-2	Stainless Steel
Socket ②	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.

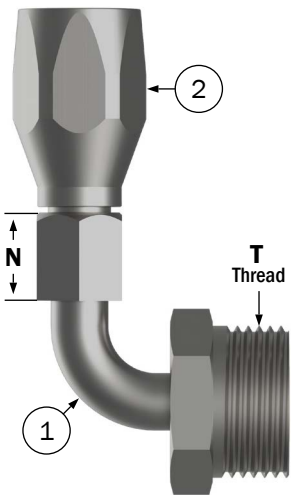
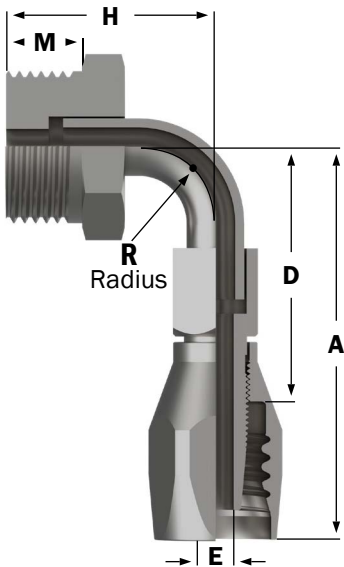
Hose to Male “O” Ring Seal

End Fitting - 90°

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



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



Dimensions

Part Number	Drawing 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	C19311	1⁄8"	1"-14	2.57	1.06	1.66	.24	.81	1.28	.50	.58	.50	.56	.40
90EF-1488CL-0408	C19312	1⁄4"	1 3⁄16"-12	2.92	1.25	1.89	.34	.94	1.68	.62	.58	.75	.75	.60
90EF-1488CL-0610	C19313	3⁄8"	1 3⁄8"-12	3.62	1.44	2.32	.46	1.12	2.00	.62	.70	1.00	.81	.80
90EF-1488CL-0812	C19314	1⁄2"	1 3⁄4"-12	4.07	1.81	2.59	.50	1.25	2.31	.32	.74	1.25	1.00	1.30

Components

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

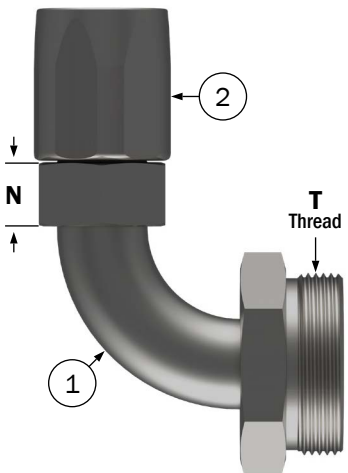
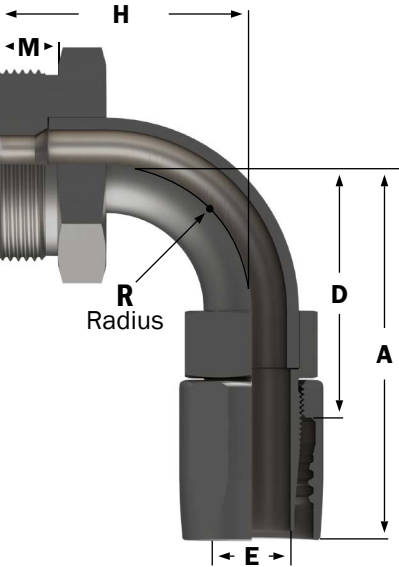
Hose to Male “O” Ring Seal

End Fitting - 90°

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



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



Dimensions

Part Number	Drawing 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	C19315	3⁄4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2.00
90EF-1488CL-1620	C19316	1"	2 5⁄16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3.00
90EF-1488CL-2024	C19317	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	4.00
90EF-1488CL-2432	C19318	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	5.40

Components

Description	Req'd per Ass'y	1216	1620	2024	2432	Material
Elbow ①	1	C19031	C19032	C19033	C19034	Copper Nickel & Monel
Socket ②	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.

HS1488 Equivalent | P/N 4-191301

Hose to Male “O” Ring Seal

End Fitting - 90°

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



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



Dimensions													
Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
4-191301-1/8-6	1/8"	1"-14	2.45	1.06	1.55	.24	.81	1.30	.50	.58	.50	.56	.35
4-191301-1/4-8	1/4"	1 3/16"-12	3.05	1.25	1.90	.36	.94	1.68	.62	.58	.75	.75	.57
4-191301-3/8-10	3/8"	1 3/8"-12	3.57	1.44	2.28	.46	1.12	1.99	.62	.70	1.00	.81	.83
4-191301-1/2-12	1/2"	1 3/4"-12	4.15	1.81	2.58	.55	1.25	2.31	.62	.74	1.25	1.00	1.34

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	1/8-6	1/4-8	3/8-10	1/2-12	Material		
Elbow ①	1	4-186301-	1/8-6	1/4-8	3/8-10	1/2-12	Monel		
Socket ②	1	4-1210-	6	8	10	12	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.

HS1488 Equivalent | P/N 4-191301

Hose to Male “O” Ring Seal

End Fitting - 90°

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



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



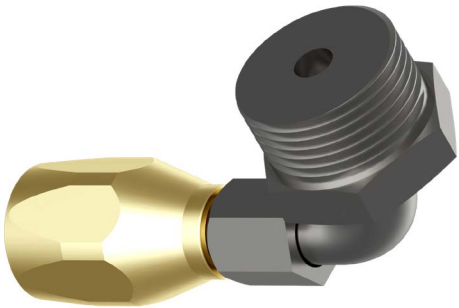
Dimensions													
Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
4-191301-3/4-16	3/4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2.01
4-191301-1-20	1"	2 5/16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3.03
4-191301-1 1/4-24	1 1/4"	2 3/4"-12	4.65	2.88	3.19	1.28	1.94	3.42	.75	.74	2.00	1.81	3.95
4-191301-1 1/2-32	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	5.42

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	3/4-16	1-20	1 1/4-24	1 1/2-32	Material		
Elbow ①	1	4-186301-	3/4-16	1-20	1 1/4-24	1 1/2-32	Copper Nickel & Monel		
Socket ②	1	4-1212-	16	20	24	32	Monel		

All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Male “O” Ring Seal

End Fitting - 90°



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



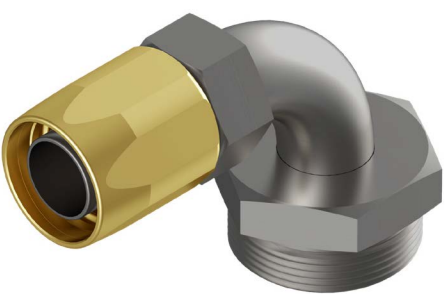
Dimensions														
Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
90EF-BM1488CL-0206	C19333	1/8"	1"-14	2.57	1.06	1.66	.24	.81	1.28	.50	.58	.50	.56	.40
90EF-BM1488CL-0408	C19334	1/4"	1 3/16"-12	2.92	1.25	1.89	.34	.94	1.68	.62	.58	.75	.75	.60
90EF-BM1488CL-0610	C19335	3/8"	1 3/8"-12	3.62	1.44	2.32	.46	1.12	2.00	.62	.70	1.00	.81	.80
90EF-BM1488CL-0812	C19336	1/2"	1 3/4"-12	4.07	1.81	2.59	.50	1.25	2.31	.32	.74	1.25	1.00	1.30

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

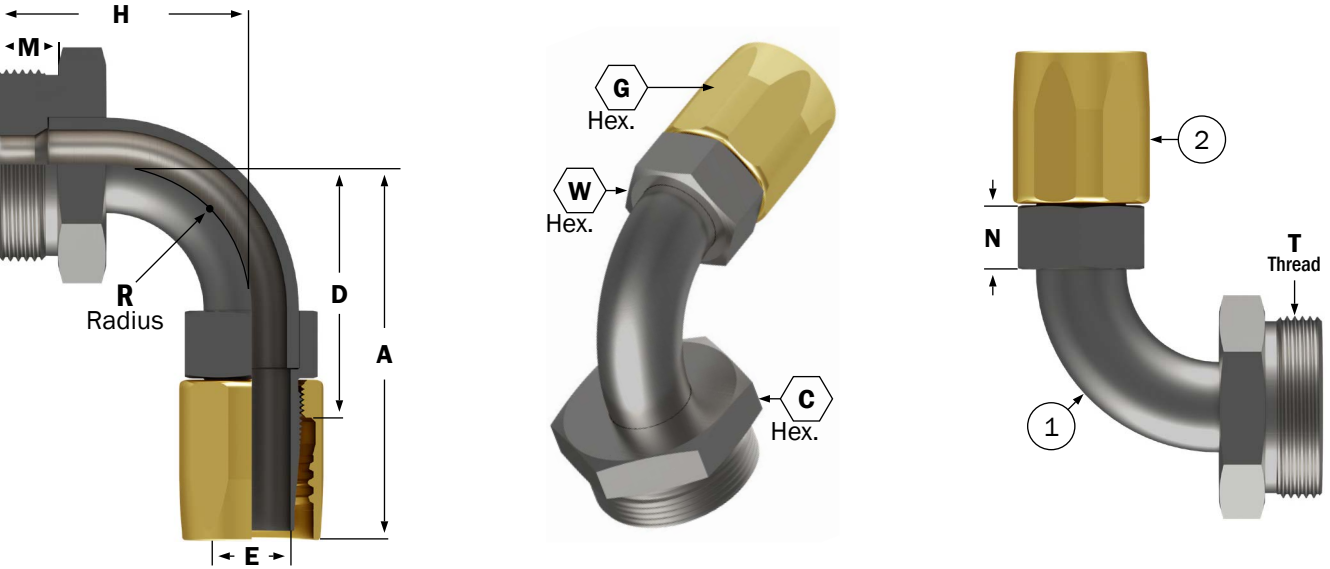
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male “O” Ring Seal

End Fitting - 90°



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



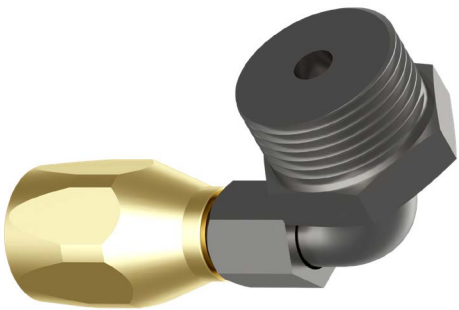
Dimensions														
Part Number	Drawing Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
90EF-BMC1488CL-1216	C19337	3/4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2.00
90EF-BMC1488CL-1620	C19338	1"	2 5/16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3.00
90EF-BMC1488CL-2024	C19339	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	4.00
90EF-BMC1488CL-2432	C19340	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	5.40

Components						
Description	Req'd per Ass'y	1216	1620	2024	2432	Material
Elbow ①	1	C19031	C19032	C19033	C19034	Copper Nickel & Monel
Socket ②	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.

Hose to Male “O” Ring Seal

End Fitting - 90°



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



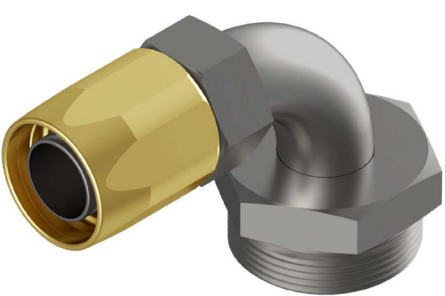
Dimensions													
Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
93-191301-1/8-6	1/8"	1"-14	2.45	1.06	1.55	.24	.81	1.30	.50	.58	.50	.56	.35
93-191301-1/4-8	1/4"	1 3/16"-12	3.05	1.25	1.90	.36	.94	1.68	.62	.58	.75	.75	.57
93-191301-3/8-10	3/8"	1 3/8"-12	3.57	1.44	2.28	.46	1.12	1.99	.62	.70	1.00	.81	.83
93-191301-1/2-12	1/2"	1 3/4"-12	4.15	1.81	2.58	.55	1.25	2.31	.62	.74	1.25	1.00	1.34

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	1/8-6	1/4-8	3/8-10	1/2-12	Material		
Elbow ①	1	4-186301-	1/8-6	1/4-8	3/8-10	1/2-12	Monel		
Socket ②	1	1210-	6B	8B	10B	12B	Brass		

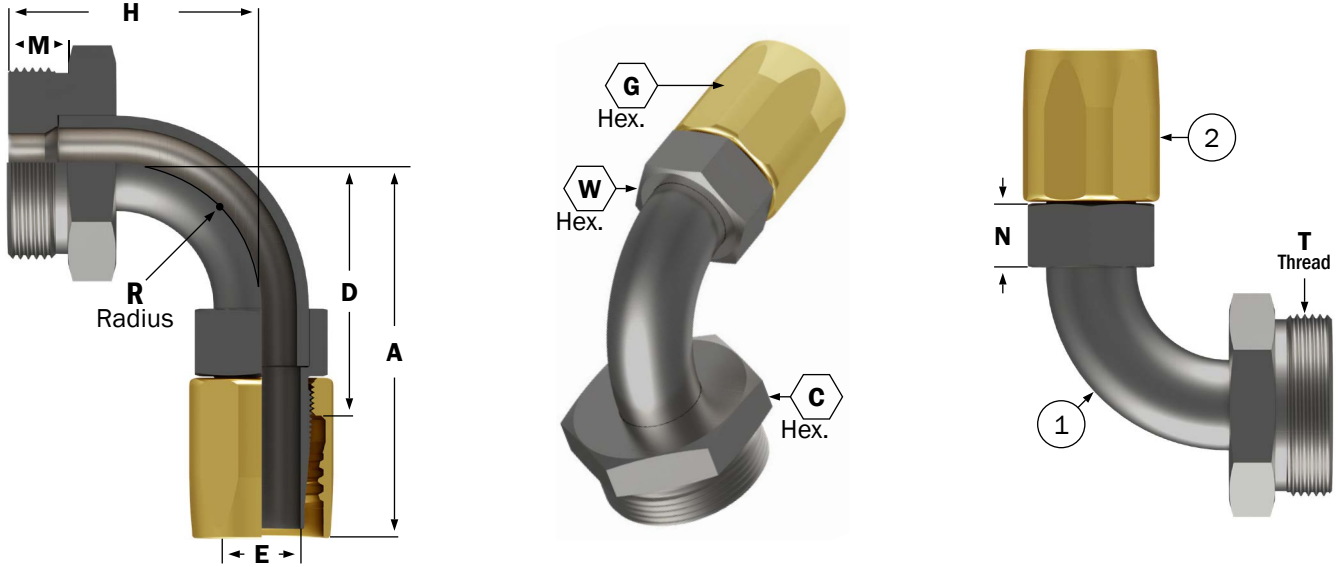
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Hose to Male “O” Ring Seal

End Fitting - 90°



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



Dimensions													
Part Number	I.P.S. Size	T Thread CL-3A	A	C	D	E	G	H	M	N	R	W	Est. Wt. (lbs.)
93-191301-3/4-16	3/4"	2"-12	3.93	2.12	2.66	.82	1.44	2.68	.62	.70	1.50	1.38	2.01
93-191301-1-20	1"	2 5/16"-12	4.27	2.38	2.91	1.05	1.75	3.17	.75	.70	1.75	1.62	3.03
93-191301-1.25-24	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	3.95
93-191301-1.5-32	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	5.42

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	3/4-16	1-20	1 1/4-24	1 1/2-32	Material		
Elbow ①	1	4-186301-	3/4-16	1-20	1 1/4-24	1 1/2-32	Copper Nickel & Monel		
Socket ②	1	1212-	16B	20B	24B	32B	Brass		

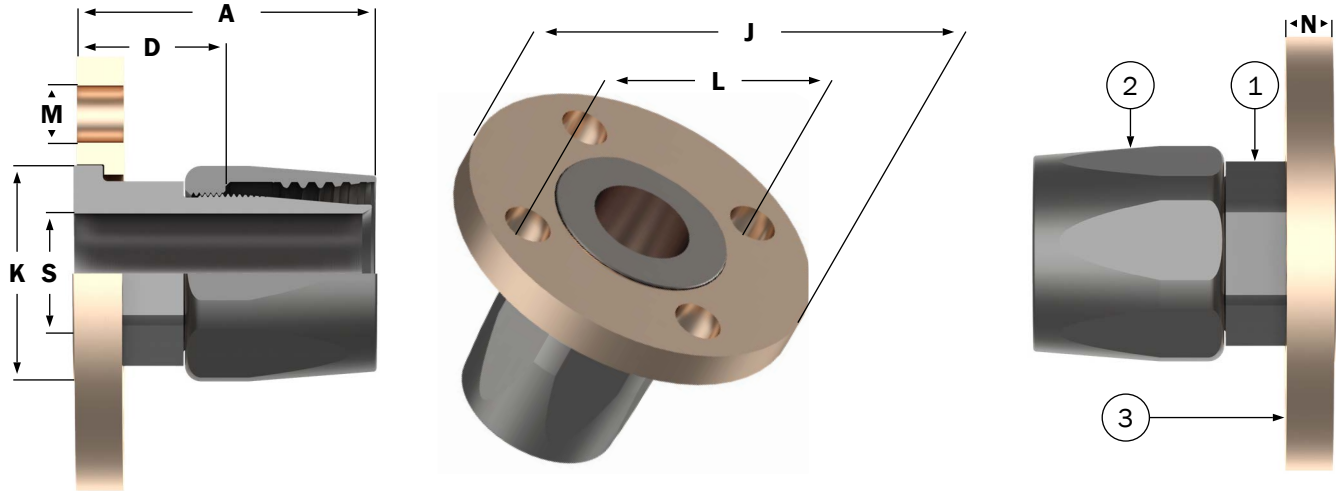
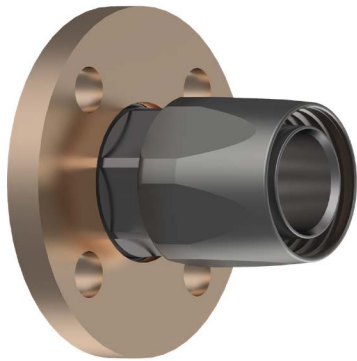
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group VIII, Class I,
400lb Flange per MIL-PRF-20042

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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1488A1-0816	C19562	1/2"	4	2.80	1.53	4.00	1.50	2.88	.56	.69	.71	1.90
EF-1488A1-1216	C19563	3/4"	4	2.80	1.53	4.31	1.50	3.19	.56	.69	.71	2.50
EF-1488A1-1220	C19565	3/4"	4	2.89	1.53	4.31	1.84	3.19	.56	.69	.92	2.50
EF-1488A1-1616	C19564	1"	5	2.80	1.53	5.06	1.50	3.75	.69	.75	.71	2.70
EF-1488A1-1624	C19566	1"	5	2.91	1.46	4.25	2.12	3.13	.56	.75	1.18	3.00
EF-1488A1-2032	C19567	1 1/4"	5	3.49	1.65	4.50	2.75	3.38	.56	.81	1.53	3.70
EF-1488A1-2432	C19568	1 1/2"	6	3.51	1.66	5.94	2.74	4.63	.69	.81	1.77	4.20
EF-1488A1-3232	C19569	2"	7	3.50	1.65	6.50	2.75	5.19	.69	.81	1.69	5.20

Components										
Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	Material
Nipple ①	1	C19235-2	C19235-2	C19236-2	C19235-2	C19043	C19237-2	C19046	C19046	Monel
Socket ②	1	C18667-2	C18667-2	C18703-2	C18667-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19514	C19515	C19517	C19516	C19518	C19519	C19520	C19521	Alum. Bronze

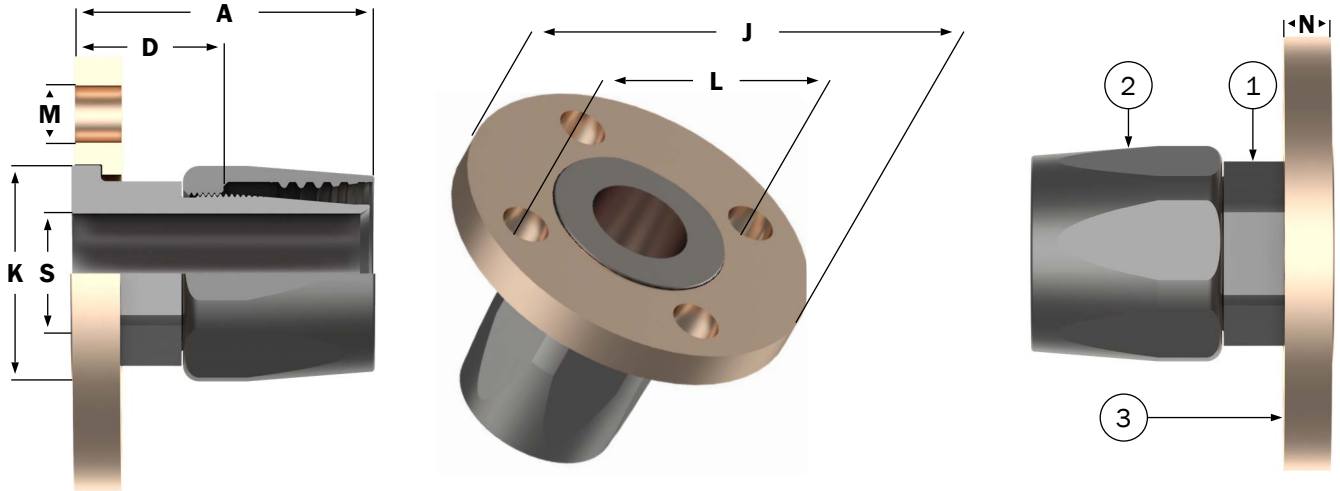
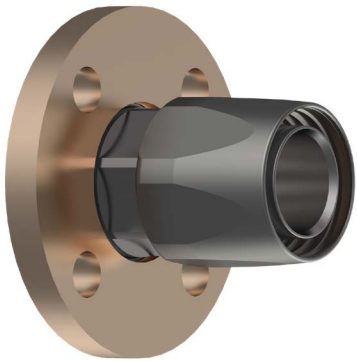
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group VIII, Class II,
150/400lb. Flange per MIL-PRF-20042

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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1488A5-0816	C19554	1/2"	3	2.80	1.53	4.00	1.50	2.88	.56	.69	.71	1.90
EF-1488A5-1216	C19555	3/4"	4	2.80	1.53	4.31	1.50	3.19	.56	.69	.71	2.50
EF-1488A5-1220	C19557	3/4"	4	2.89	1.53	4.31	1.84	3.19	.56	.69	.92	2.50
EF-1488A5-1616	C19556	1"	4	2.80	1.53	5.06	1.50	3.75	.69	.75	.71	2.70
EF-1488A5-1624	C19558	1"	4	2.91	1.46	4.25	2.12	3.13	.56	.75	1.18	3.00
EF-1488A5-2032	C19559	1 1/4"	4	3.49	1.65	4.50	2.75	3.38	.56	.81	1.53	3.70
EF-1488A5-2432	C19560	1 1/2"	6	3.51	1.66	5.94	2.74	4.63	.69	.81	1.77	4.20
EF-1488A5-3232	C19561	2"	6	3.50	1.65	6.50	2.75	5.19	.69	.81	1.69	5.20

Components										
Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	Material
Nipple ①	1	C19235-2	C19235-2	C19236-2	C19235-2	C19043	C19237-2	C19046	C19046	Monel
Socket ②	1	C18667-2	C18667-2	C18703-2	C18667-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19522	C19523	C19525	C19524	C19526	C19527	C19528	C19529	Alum. Bronze

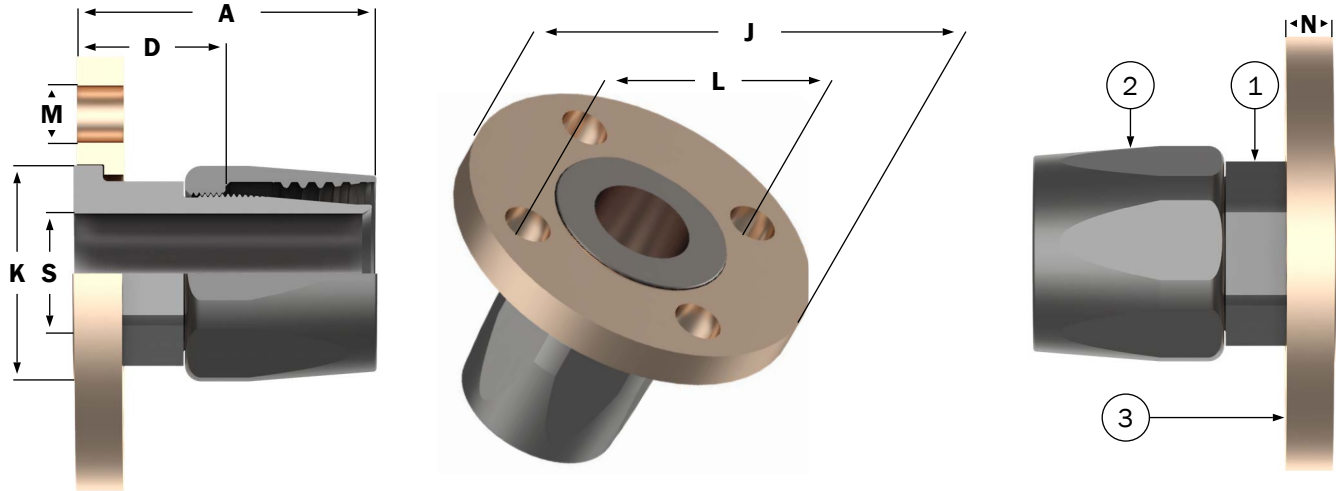
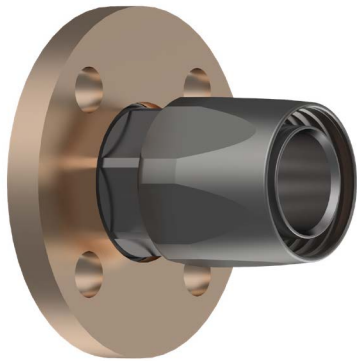
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group VIII, Class III,
250lb Flange per MIL-PRF-20042

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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1488A2-0816	C19538	1/2"	3	2.80	1.53	3.56	1.50	2.44	.56	.69	.71	1.70
EF-1488A2-1216	C19539	3/4"	4	2.80	1.53	3.81	1.50	2.69	.56	.69	.71	2.30
EF-1488A2-1220	C19541	3/4"	4	2.89	1.53	3.81	1.84	2.69	.56	.69	.92	2.30
EF-1488A2-1616	C19540	1"	5	2.80	1.53	4.25	1.50	3.13	.56	.75	.71	2.50
EF-1488A2-1624	C19542	1"	5	2.92	1.47	4.25	2.12	3.13	.56	.75	1.18	2.80
EF-1488A2-2032	C19543	1 1/4"	5	3.51	1.66	4.50	2.74	3.38	.56	.81	1.53	3.40
EF-1488A2-2432	C19544	1 1/2"	6	3.51	1.66	5.06	2.74	3.94	.56	.81	1.77	3.90
EF-1488A2-3232	C19545	2"	7	3.49	1.65	5.56	2.75	4.44	.69	.81	2.30	5.00

Components										
Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	Material
Nipple ①	1	C19235-2	C19235-2	C19236-2	C19235-2	C19043	C19237-2	C19046	C19046	Monel
Socket ②	1	C18667-2	C18667-2	C18703-2	C18667-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19522	C19523	C19525	C19524	C19526	C19527	C19528	C19179	Alum. Bronze

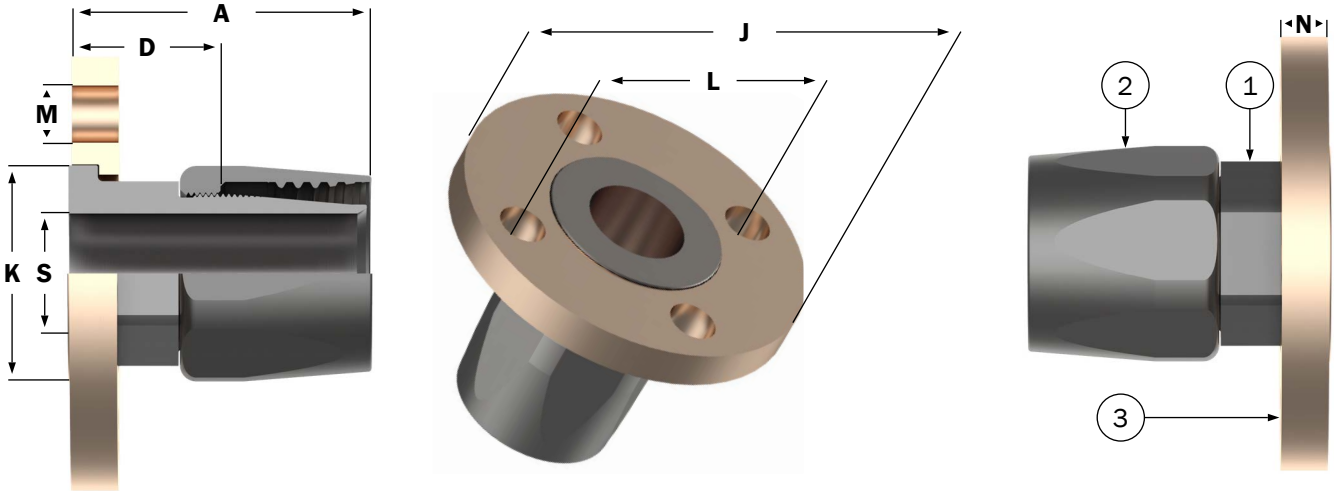
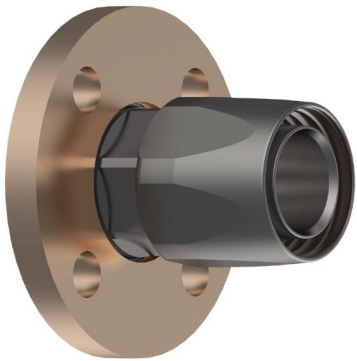
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group VIII, Class IV,
150lb. Flange per MIL-PRF-20042

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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1488A3-0816	C19546	1/2"	3	2.80	1.53	4.00	1.50	2.88	.56	.38	.71	1.90
EF-1488A3-1216	C19547	3/4"	4	2.80	1.53	4.31	1.50	3.19	.56	.44	.71	2.50
EF-1488A3-1220	C19549	3/4"	4	2.89	1.53	4.31	1.84	3.19	.56	.44	.92	2.50
EF-1488A3-1616	C19548	1"	4	2.80	1.53	5.06	1.50	3.75	.56	.44	.71	2.70
EF-1488A3-1624	C19550	1"	4	2.91	1.46	4.25	2.12	3.13	.56	.44	1.18	3.00
EF-1488A3-2032	C19551	1 1/4"	4	3.49	1.65	4.50	2.75	3.38	.56	.44	1.53	3.70
EF-1488A3-2432	C19552	1 1/2"	6	3.51	1.66	5.94	2.74	4.63	.69	.44	1.77	4.20
EF-1488A3-3232	C19553	2"	6	3.50	1.65	6.50	2.75	5.19	.69	.44	1.69	5.20

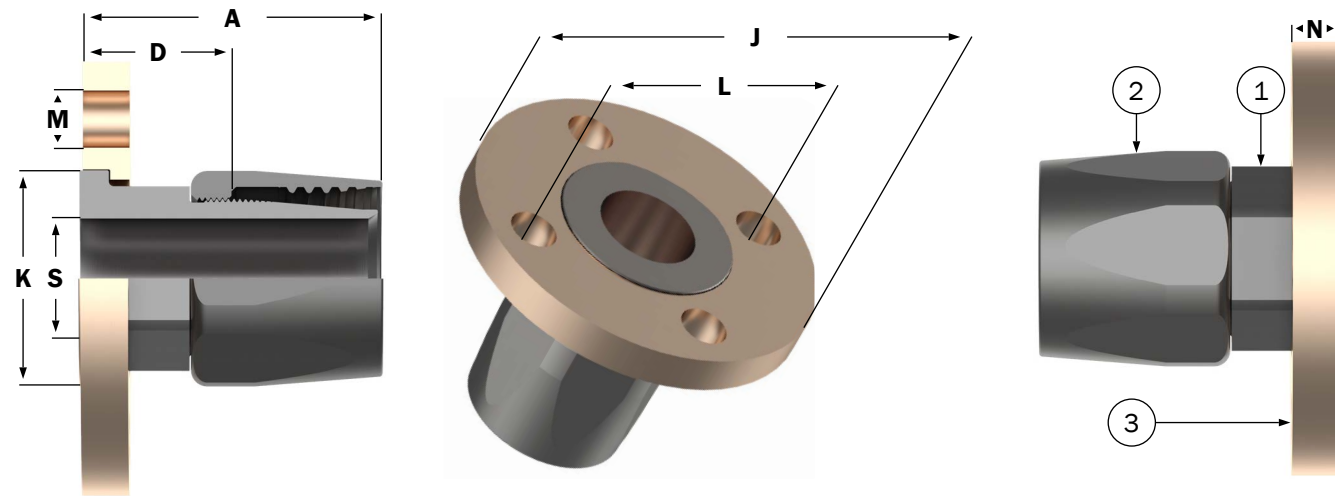
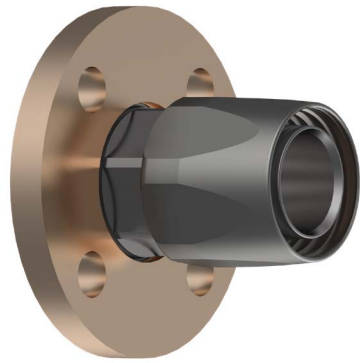
Components										
Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	Material
Nipple ①	1	C19235-2	C19235-2	C19236-2	C19235-2	C19043	C19237-2	C19046	C19046	Monel
Socket ②	1	C18667-2	C18667-2	C18703-2	C18667-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C18817	C18816	C18814	C18815	C18813	C18812	C18810	C18810	Alum. 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

**MIL-DTL-24787/1,
Type F, Group VIII, Class V,
150lb Flange per A.N.S.I. B16.5**

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



Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1488A4-0816	C19530	1/2"	4	2.80	1.53	3.50	1.50	2.38	.62	.36	.71	1.50
EF-1488A4-1216	C19531	3/4"	4	2.80	1.53	3.88	1.50	2.75	.62	.42	.71	2.10
EF-1488A4-1220	C19533	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.42	.92	2.30
EF-1488A4-1616	C19532	1"	4	2.72	1.52	4.25	1.50	3.13	.63	.42	.71	2.50
EF-1488A4-1624	C19534	1"	4	2.91	1.46	4.25	2.12	3.13	.63	.42	1.18	2.70
EF-1488A4-2032	C19535	1 1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.42	1.53	3.10
EF-1488A4-2432	C19536	1 1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.42	1.77	3.60
EF-1488A4-3232	C19537	2"	4	3.49	1.65	6.00	2.75	4.75	.75	.42	1.69	4.70

Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	Material
Nipple ①	1	C19235-2	C19235-2	C19236-2	C19235-2	C19043	C19237-2	C19046	C19046	Monel
Socket ②	1	C18667-2	C18667-2	C18703-2	C18667-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C18803	C18802	C18800	C18801	C18799	C18798	C18797	C18796	Alum. Bronze

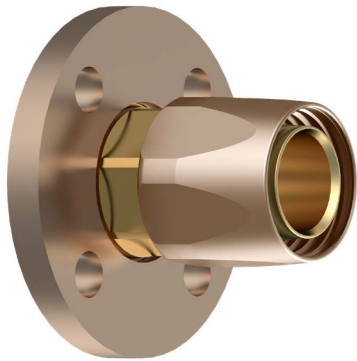
All dimensions are in inches.
Dimensional information is for reference only.
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Notes

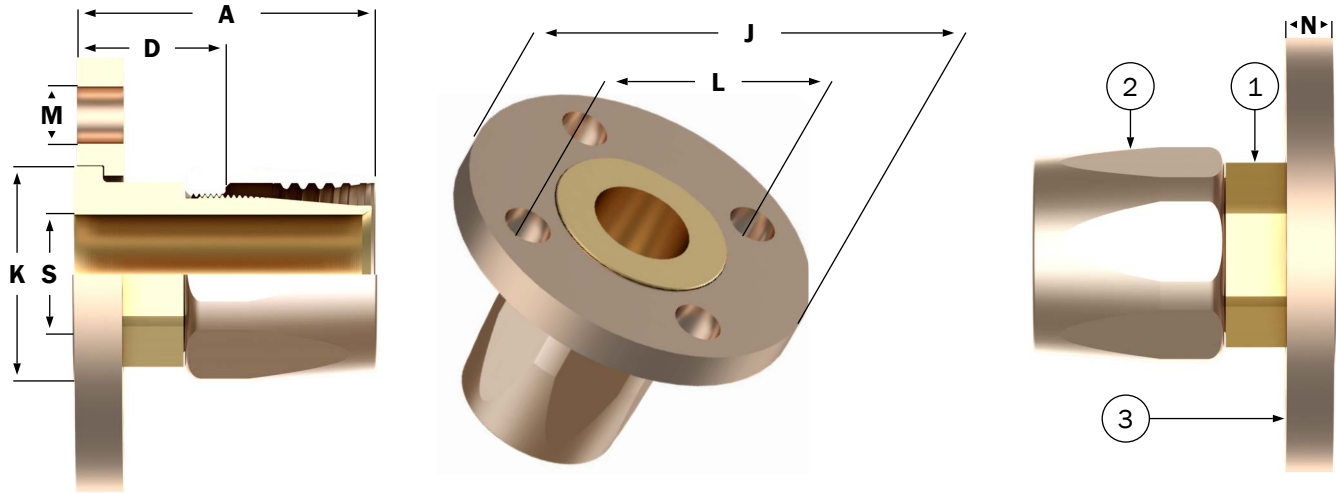
Hose to Flange

End Fitting - Straight

150lb Flange per MIL-PRF-20042



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



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-B1488F4-0816	C19376	1/2"	3	2.72	1.52	3.56	1.50	2.44	.56	.38	.71	1.50
EF-B1488F4-1220	C19377	3/4"	4	2.87	1.52	3.81	1.84	2.69	.56	.44	.92	2.10
EF-B1488F4-1624	C19378	1"	4	2.91	1.46	4.25	2.12	3.13	.56	.44	1.18	2.50
EF-B1488F4-2032	C19379	1 1/4"	4	3.51	1.66	4.50	2.74	3.38	.56	.44	1.53	3.10
EF-B1488F4-2432	C19380	1 1/2"	6	3.51	1.66	5.06	2.74	3.94	.56	.44	1.77	3.60
EF-B1488F4-3232	C19381	2"	6	3.51	1.66	5.56	2.74	4.44	.56	.44	1.77	4.70
EF-B1488F4-3240	C19382	2"	6	3.88	1.97	5.56	3.28	4.44	.56	.44	2.24	5.80
EF-B1488F4-4040	C19383	2 1/2"	6	3.89	1.98	6.13	3.28	5.00	.56	.50	2.24	6.90
EF-B1488F4-4048	C19384	2 1/2"	6	3.89	1.98	6.13	3.78	5.00	.56	.50	2.71	7.40
EF-B1488F4-4848	C19385	3"	8	3.89	1.98	6.63	4.50	5.50	.56	.50	3.31	7.90

Components

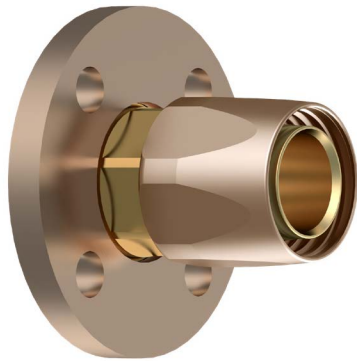
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	3240	4040	4048	4848	Material
Nipple ①	1	C18018	C18019	C18020	C19155	C18808	C18808	C19170	C19170	C17893	C19173	Brass
Socket ②	1	C18667-1	C18703-1	C18990-1	C18811	C18811	C18811	C18822	C18822	C17901	C17901	Alum. Bronze
Flange ③	1	C18817	C18814	C18813	C18812	C18810	C18809	C17925	C17929	C17931	C17933	Alum. Bronze

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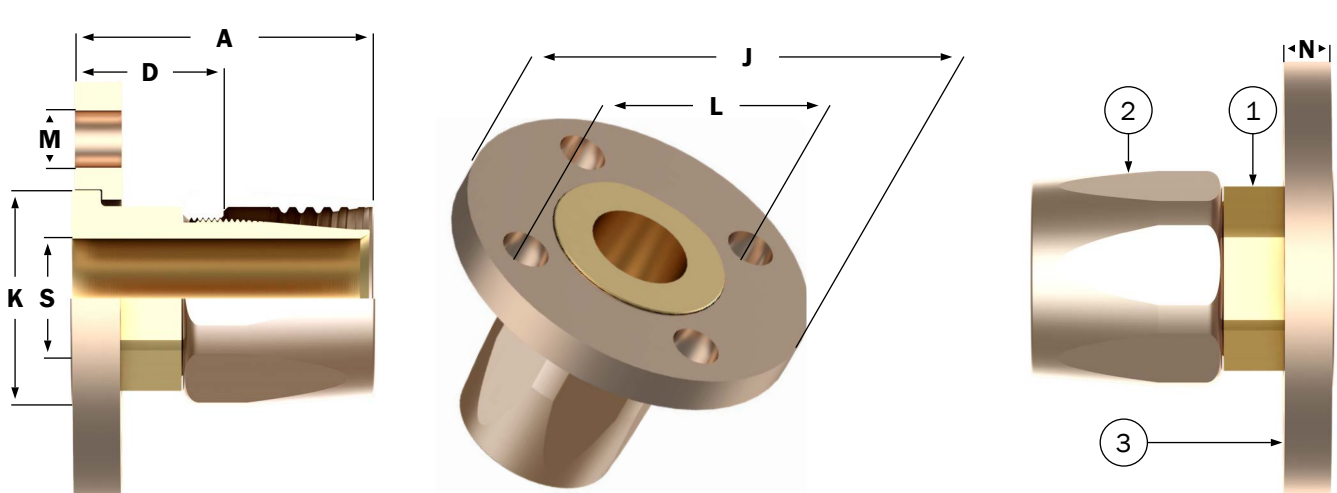
Hose to Flange

End Fitting - Straight

150lb. Flange per MIL-PRF-20042



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



Dimensions

Part Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
66-190016-1/2-16	1/2"	3	2.80	1.53	3.56	1.50	2.44	.56	.38	.71	1.52
66-190016-3/4-20	3/4"	4	2.89	1.53	3.81	1.84	2.69	.56	.44	.92	2.07
66-190016-1-24	1"	4	2.92	1.47	4.25	2.12	3.12	.56	.44	1.18	2.45
66-190016-1 1/4-32	1 1/4"	4	3.51	1.66	4.50	2.74	3.38	.56	.44	1.53	3.14
66-190016-1 1/2-32	1 1/2"	6	3.51	1.66	5.06	2.74	3.94	.56	.44	1.77	3.64
66-190016-2-32	2"	6	3.51	1.66	5.56	2.74	4.44	.56	.44	1.77	4.69
66-190016-2-40	2"	6	3.89	1.98	5.56	3.28	4.44	.56	.44	2.24	5.75
66-190016-2 1/2-40	2 1/2"	6	3.89	1.98	6.12	3.28	5.00	.56	.50	2.24	6.85
66-190016-2 1/2-48	2 1/2"	6	3.89	1.98	6.12	3.78	5.00	.56	.50	2.71	7.42
66-190016-3-48	3"	8	3.89	1.98	6.62	4.50	5.00	.56	.50	3.31	7.87

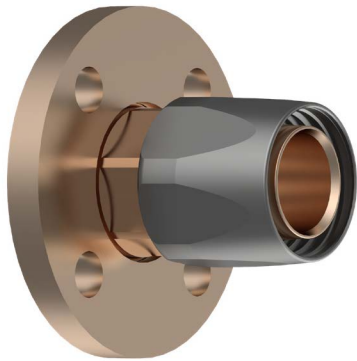
Components	Part Number												Material
	Req'd per Ass'y	Base No.	Size										
Description			1/2-16	3/4-20	1-24	1 1/4-32	1 1/2-32	2-32	2-40	2 1/2-40	2 1/2-48	3-48	
Nipple ①	1	188-185109-	1/2-16	3/4-20	1-24	1.25-32	1.5-32	2-32	2-40	2.5-40	2.5-48	3-48	Brass
Socket ②	1	1212-	16B	20B	24B	32B	32B	32B	40B	40B	48B	48B	Alum. Bronze
Flange ③	1	188-180005-	1/2-16	3/4-20	1-24	1.25-32	1.5-32	2-32	2-40	2.5-40	2.5-48	3-48	Alum. Bronze

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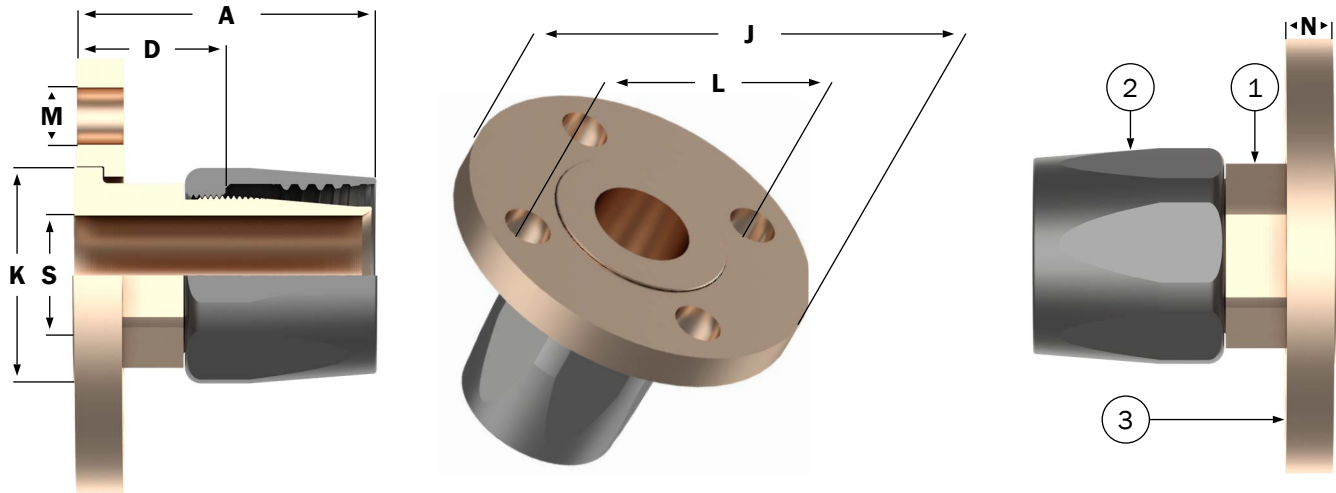
Hose to Flange

End Fitting - Straight

150lb Flange per A.N.S.I. B16.5



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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-MB1488F5-0816	C21535	1/2"	4	2.80	1.53	3.50	1.50	2.38	.62	.36	.71	1.40
EF-MB1488F5-1220	C19433	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.42	.92	2.20
EF-MB1488F5-1624	C19434	1"	4	2.92	1.47	4.25	2.12	3.12	.62	.42	1.18	2.40
EF-MB1488F5-2032	C19435	1 1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.42	1.53	3.30
EF-MB1488F5-2432	C19436	1 1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.42	1.81	3.90
EF-MB1488F5-3232	C19437	2"	4	3.51	1.66	6.00	2.74	4.75	.75	.42	1.77	5.40
EF-MB1488F5-3240	C21254	2"	4	3.88	1.978	6.00	3.28	4.75	.75	.42	2.24	6.30
EF-MB1488F5-4040	C21569	2 1/2"	4	3.89	1.98	7.00	3.28	5.50	.75	.50	2.24	7.00

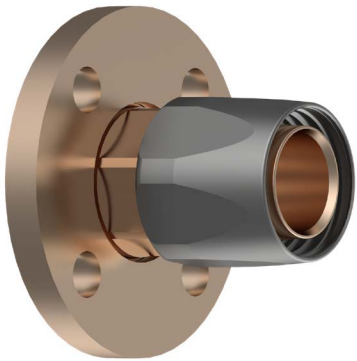
Components										
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	3240	4040	Material
Nipple ①	1	C18018	C18019	C18020	C19155	C18808	C18808	C19170	C21572	Alum. Bronze
Socket ②	1	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	C18991	C18991	Monel
Flange ③	1	C18803	C18800	C18799	C18798	C18797	C18796	C17966	C17968	Alum. 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.

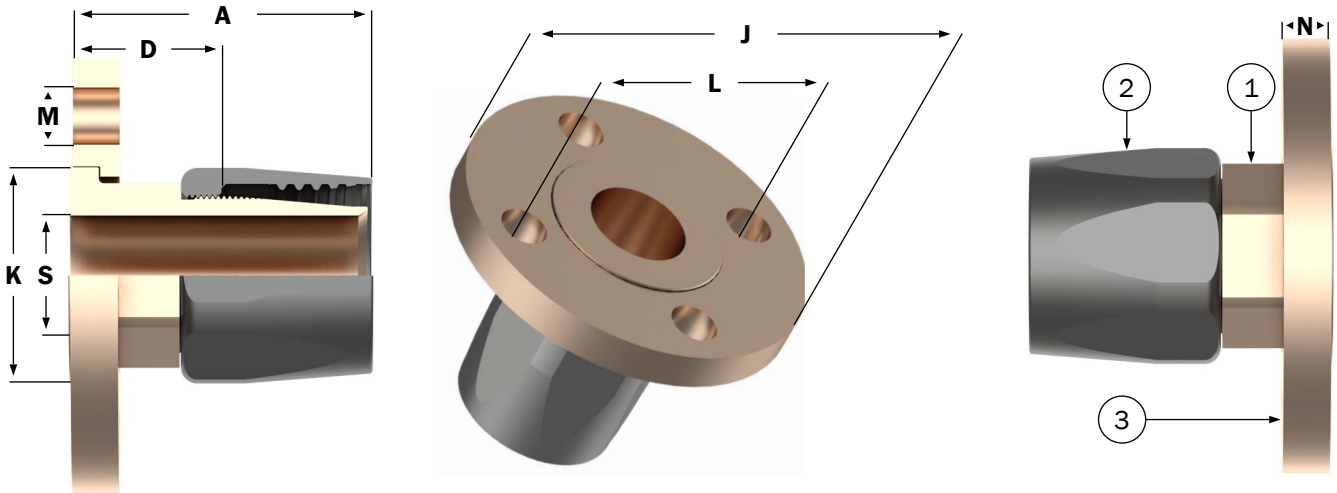
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



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



Dimensions											
Part Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
375-190109-3/4-20	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.44	.92	3.22
375-190109-1-24	1"	4	2.92	1.47	4.25	2.12	3.12	.62	.44	1.18	2.41
375-190109-1 1/4-32	1 1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.44	1.53	3.28
375-190109-1 1/2-32	1 1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.44	1.77	3.92
375-190109-2-32	2"	4	3.51	1.66	6.00	2.74	4.75	.75	.44	1.77	5.38

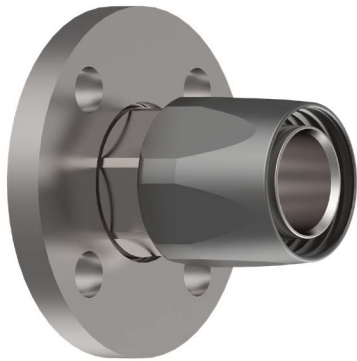
Components		Part Number						Material
		Size						
Description	Req'd per Ass'y	Base No.	¾-20	1-24	1¼-32	1½-32	2-32	
Nipple ①	1	188-185109-	¾-20	1-24	1¼-32	1½-32	2-32	Alum. Bronze
Socket ②	1	4-1212-	20	24	32	32	32	Monel
Flange ③	1	188-74021-	¾-20	1-24	1¼-32	1½-32	2-32	Alum. Bronze

All dimensions are in inches.
Dimensional information is for reference only.
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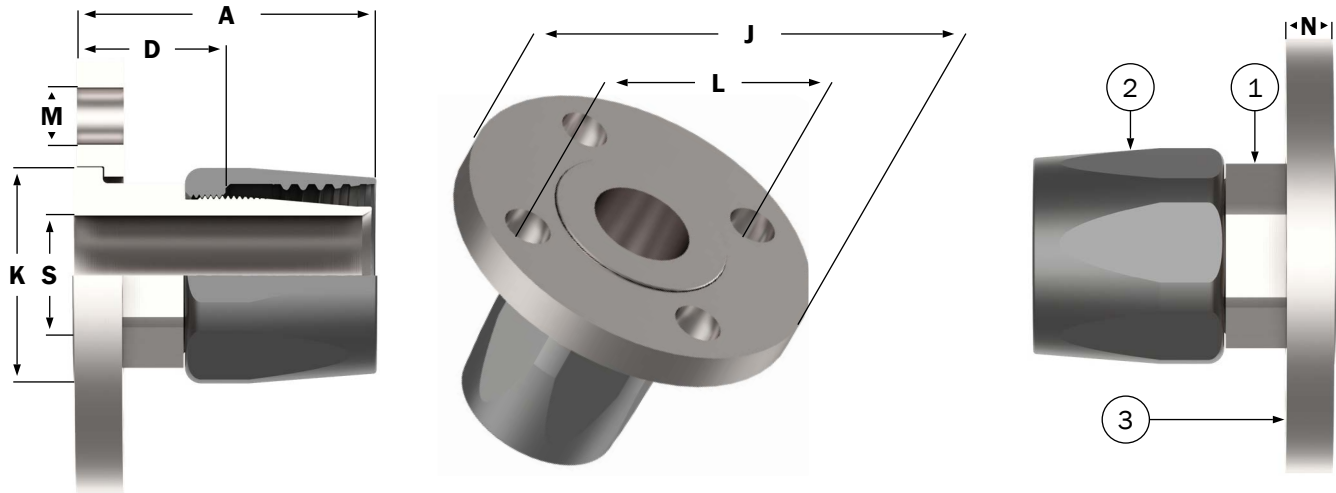
Hose to Flange

End Fitting - Straight

150lb Flange per A.N.S.I. B16.5



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



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-MSS1488F5-0816	C19361	1/2"	4	2.80	1.53	3.50	1.50	2.38	.62	.36	.71	1.40
EF-MSS1488F5-1220	C19362	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.42	.92	2.20
EF-MSS1488F5-1624	C19669	1"	4	2.92	1.47	4.25	2.12	3.12	.62	.42	1.18	2.40
EF-MSS1488F5-2032	C19363	1 1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.42	1.53	3.30
EF-MSS1488F5-2432	C19364	1 1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.42	1.81	3.90
EF-MSS1488F5-3232	C19365	2"	4	3.51	1.66	6.00	2.74	4.75	.75	.42	1.77	5.40
EF-MSS1488F5-3240	C19366	2"	4	3.88	1.978	6.00	3.28	4.75	.75	.42	2.24	6.30

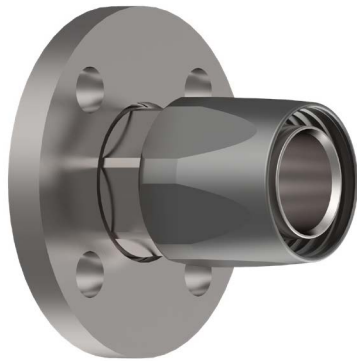
Components										
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	3240	Material	
Nipple ①	1	C19235-1	C19236-1	C18020-1	C19237-1	C19238	C19238	C19239-1	Stainless Steel	
Socket ②	1	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	C18991	Monel	
Flange ③	1	C19240	C19241	C18799-1	C19242	C19243	C19244	C19245	Stainless Steel	

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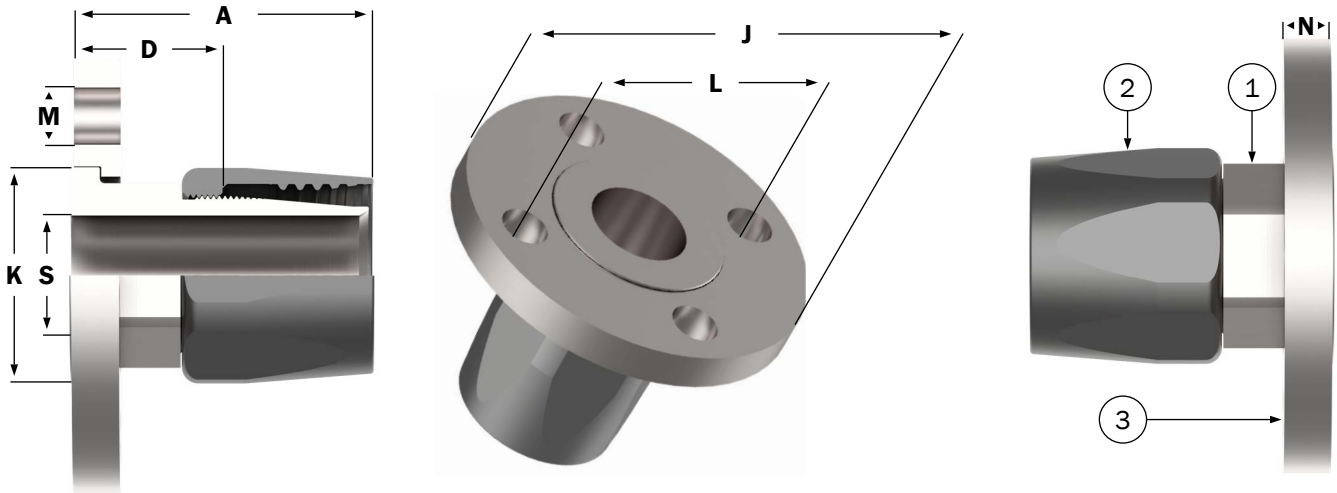
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



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



Dimensions											
Part Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
412-190109-1/2-16	1/2"	4	2.80	1.53	3.50	1.50	2.38	.62	.38	.71	1.68
412-190109-3/4-20	3/4"	4	2.89	1.53	3.88	1.84	2.75	.62	.44	.92	1.75
412-190109-1 1/4-32	1 1/4"	4	3.51	1.66	4.62	2.74	3.50	.62	.44	1.53	2.25
412-190109-1 1/2-32	1 1/2"	4	3.51	1.66	5.00	2.74	3.88	.62	.44	1.77	2.25
412-190109-2-32	2"	4	3.51	1.66	6.00	2.74	4.75	.75	.44	1.77	2.25
412-190109-2-40	2"	4	3.89	1.98	6.00	3.28	4.75	.75	.44	2.24	2.50

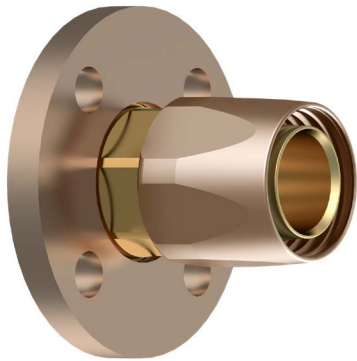
Components		Part Number							Material
		Size							
Description	Req'd per Ass'y	Base No.	1/2-16	3/4-20	1 1/4-32	1 1/2-32	2-32	2-40	
Nipple ①	1	407-185109-	1/2-16	3/4-20	1 1/4-32	1 1/2-32	2-32	2-40	Stainless Steel
Socket ②	1	4-1212-	16	20	32	32	32	40	Monel
Flange ③	1	407-74021-	1/2-16	3/4-20	1 1/4-32	1 1/2-32	2-32	2-40	Stainless Steel

All dimensions are in inches.
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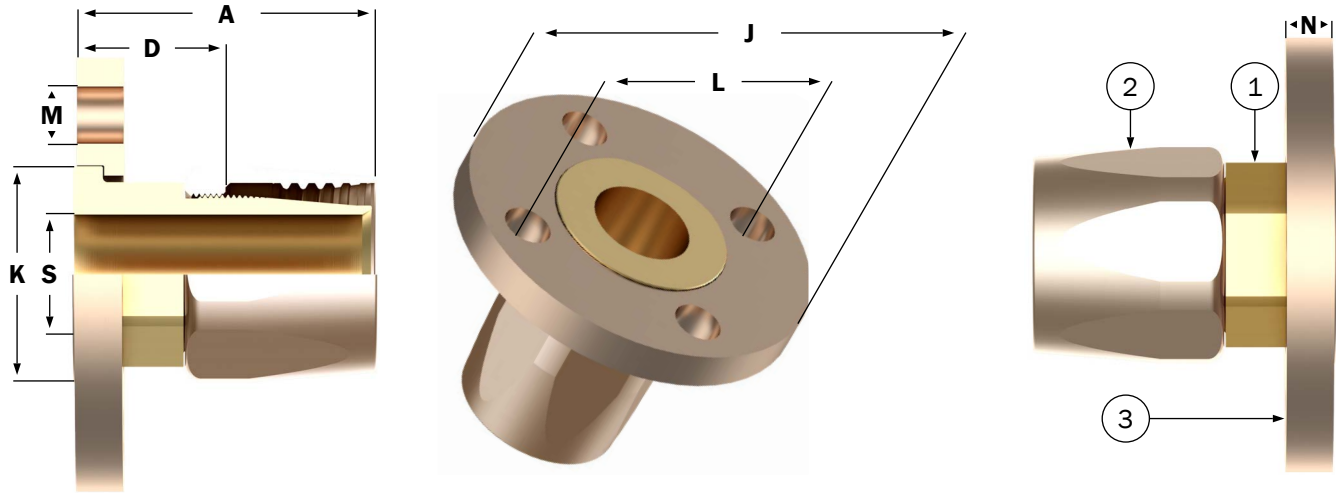
Hose to Flange

End Fitting - Straight

150lb Flange per A.N.S.I. B16.5



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



Dimensions

Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-B1488F5-0816	C19367	½"	4	2.80	1.53	3.50	1.50	2.38	.62	.36	.71	1.40
EF-B1488F5-1220	C19368	¾"	4	2.89	1.53	3.88	1.84	2.75	.62	.42	.92	2.20
EF-B1488F5-1624	C19369	1"	4	2.92	1.47	4.25	2.12	3.12	.62	.42	1.18	2.40
EF-B1488F5-2032	C19370	1¼"	4	3.51	1.66	4.62	2.74	3.50	.62	.42	1.53	3.30
EF-B1488F5-2432	C19371	1½"	4	3.51	1.66	5.00	2.74	3.88	.62	.42	1.81	3.90
EF-B1488F5-3232	C19372	2"	4	3.51	1.66	6.00	2.74	4.75	.75	.42	1.77	5.40
EF-B1488F5-3240	C19373	2"	4	3.88	1.97	6.00	3.28	4.75	.75	.42	2.24	6.30
EF-B1488F5-4040	C19374	2½"	4	3.89	1.98	7.00	3.28	5.50	.75	.48	2.24	8.50
EF-B1488F5-4048	C19375	2½"	4	3.89	1.98	7.00	3.78	5.50	.75	.48	2.71	8.80
EF-B1488F5-4848	C20899	3"	4	3.89	1.98	7.50	3.78	6.00	.75	.48	2.71	8.90

Components

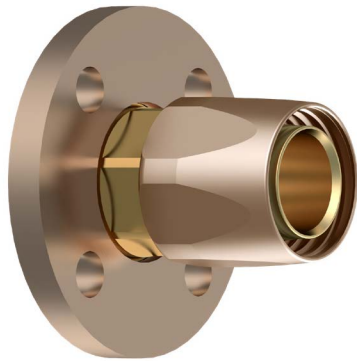
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	3240	4040	4048	4848	Material
Nipple ①	1	C18018	C18019	C18020	C19155	C18808	C18808	C19170	C19170	C17893	C19173	Brass
Socket ②	1	C18667-1	C18703-1	C18990-1	C18811	C18811	C18811	C18822	C18822	C17901	C17901	Alum. Bronze
Flange ③	1	C18803	C18800	C18799	C18798	C18797	C18796	C17966	C17968	C17969	C17970	Alum. Bronze

All dimensions are in inches.
Dimensional information is for reference only.
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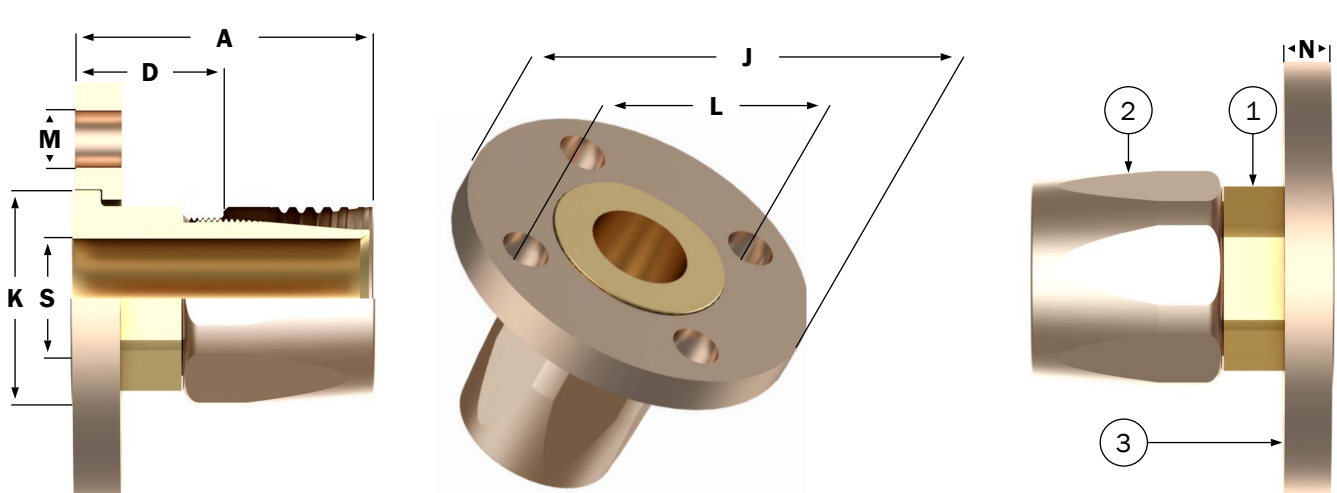
Hose to Flange

End Fitting - Straight

150lb. Flange per A.N.S.I. B16.5



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



Dimensions

Part Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
66-190016-½-16	½"	4	2.80	1.53	3.56	1.50	2.44	.56	.38	.71	1.52
66-190016-¾-20	¾"	4	2.89	1.53	3.81	1.84	2.69	.56	.44	.92	2.07
66-190016-1-24	1"	4	2.92	1.47	4.25	2.12	3.12	.56	.44	1.18	2.45
66-190016-1¼-32	1¼"	4	3.51	1.66	4.50	2.74	3.38	.56	.44	1.53	3.14
66-190016-1½-32	1½"	4	3.51	1.66	5.06	2.74	3.94	.56	.44	1.77	3.64
66-190016-2-32	2"	4	3.51	1.66	5.56	2.74	4.44	.56	.44	1.77	4.69
66-190016-2-40	2"	4	3.89	1.98	5.56	3.28	4.44	.56	.44	2.24	5.75
66-190016-2½-40	2½"	4	3.89	1.98	6.12	3.28	5.00	.56	.50	2.24	6.85
66-190016-2½-48	2½"	4	3.89	1.98	6.12	3.78	5.00	.56	.50	2.71	7.42

Components

Description	Req'd per Ass'y	Base No.	½-16	¾-20	1-24	1¼-32	1½-32	2-32	2-40	2½-40	2.5-48	Material
Nipple ①	1	66-185109-	½-16	¾-20	1-24	1¼-32	1½-32	2-32	2-40	2½-40	2½-48	Brass
Socket ②	1	1212-	16B	20B	24B	32B	32B	32B	40B	40B	48B	Alum. Bronze
Flange ③	1	66-74021-	½-16	¾-20	1-24	1¼-32	1½-32	2-32	2-40	2½-40	2½-48	Alum. Bronze

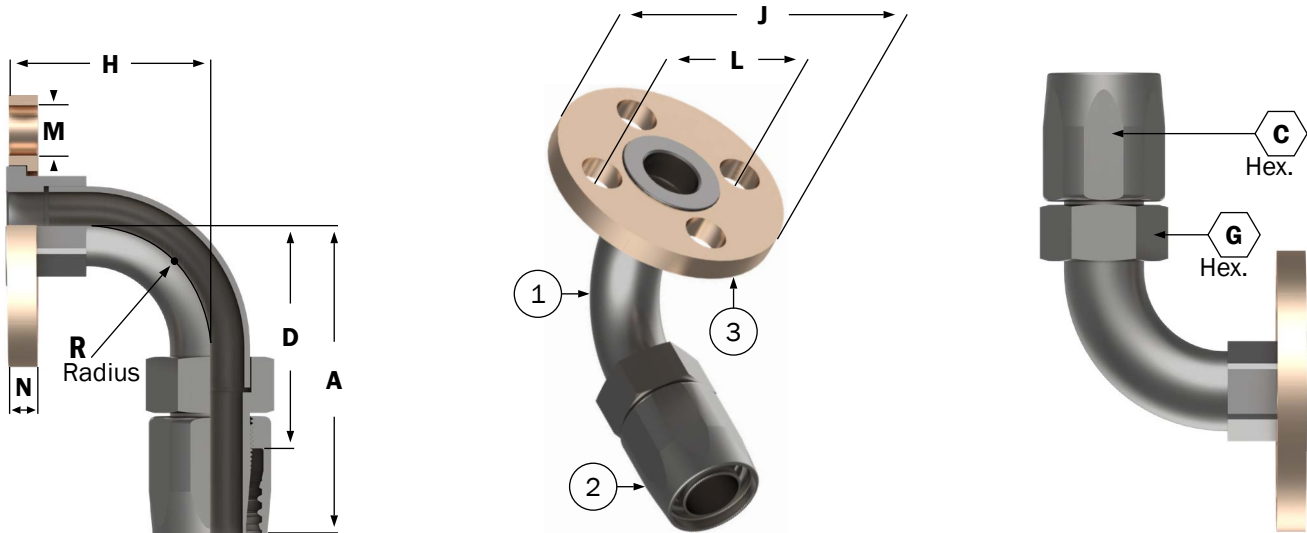
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class I,
400lb. Flange per MIL-PRF-20042

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



Dimensions														
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	G	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-1488B1-0816	C19602	1/2"	4	3.93	1.44	2.66	1.38	2.62	4.00	2.88	.56	.69	1.50	2.40
90EF-1488B1-1216	C19603	3/4"	4	3.93	1.44	2.66	1.38	2.62	4.31	3.19	.56	.69	1.50	3.00
90EF-1488B1-1616	C19604	1"	5	3.93	1.44	2.66	1.38	2.62	5.06	3.75	.69	.75	1.50	3.20
90EF-1488B1-1220	C19605	3/4"	4	4.27	1.75	2.91	1.62	2.87	4.31	3.19	.56	.69	1.75	3.00
90EF-1488B1-1624	C19606	1"	5	4.65	1.94	3.19	2.12	3.06	5.06	3.75	.69	.75	2.00	3.50
90EF-1488B1-2032	C19607	1 1/4"	5	5.68	2.44	3.84	2.25	3.74	5.38	4.06	.69	.81	2.50	4.20
90EF-1488B1-2432	C19608	1 1/2"	6	5.68	2.44	3.84	2.25	3.74	5.94	4.63	.69	.81	2.50	4.70
90EF-1488B1-3232	C19609	2"	7	5.68	2.44	3.84	2.69	3.74	6.50	5.19	.69	.81	2.50	5.70

Components										
Description	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	2432	3232	Material
Elbow ①	1	C19094	C19095	C19096	C19097	C19098	C19099	C19100	C19101	Monel/Cop-per-Nickel
Socket ②	1	C18667-2	C18667-2	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19514	C19515	C19516	C19517	C19518	C19519	C19520	C19521	Alum. Bronze

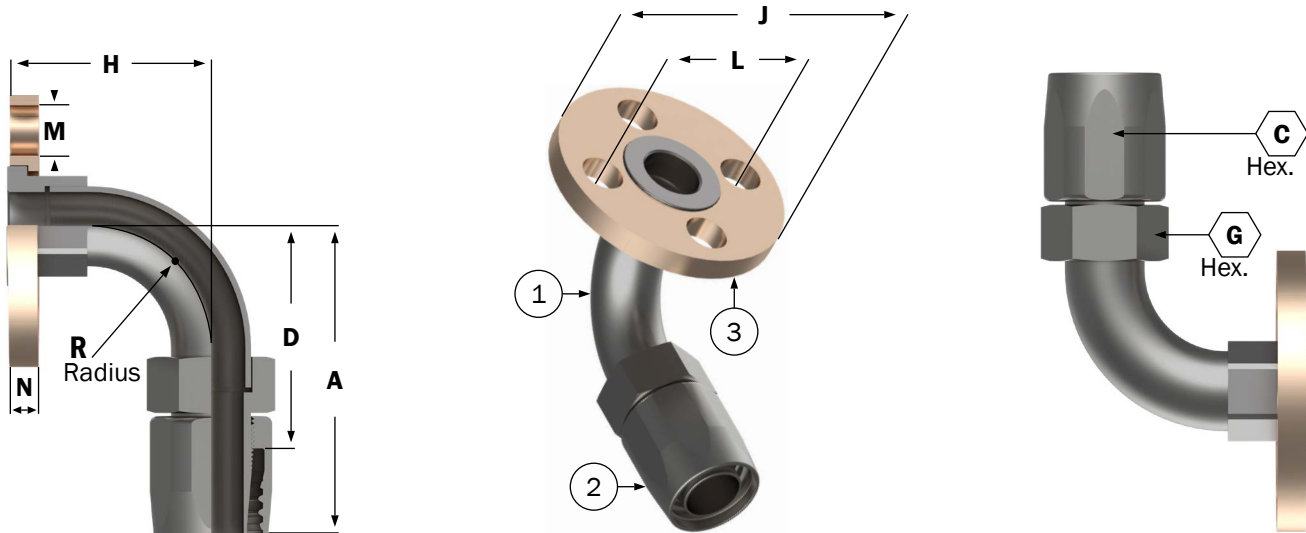
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class II,
150/400lb. Flange per MIL-PRF-20042

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



Dimensions														
Part Number	Drawing 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	C19494	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.69	1.50	2.40
90EF-1488B5-1216	C19595	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.69	1.50	3.00
90EF-1488B5-1616	C19596	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.75	1.50	3.20
90EF-1488B5-1220	C19597	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.69	1.75	3.00
90EF-1488B5-1624	C19598	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.75	2.00	3.50
90EF-1488B5-2032	C19599	1 1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.81	2.50	4.20
90EF-1488B5-2432	C19600	1 1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.98	.56	.81	2.50	4.70
90EF-1488B5-3232	C19601	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.56	.81	2.50	5.70

Components										
Description	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	2432	3232	Material
Elbow ①	1	C19094	C19095	C19096	C19097	C19098	C19099	C19100	C19101	Monel/Cop-per-Nickel
Socket ②	1	C18667-2	C18667-2	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19522	C19523	C19524	C19525	C19526	C19527	C19528	C19529	Alum. Bronze

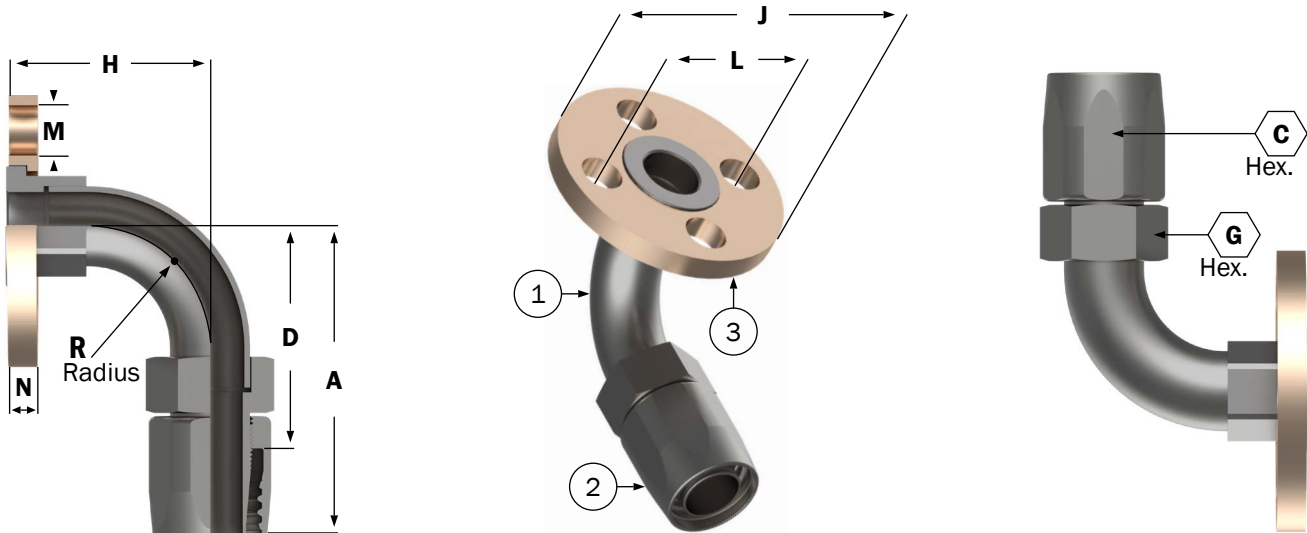
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class III,
250lb. Flange per MIL-PRF-20042

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



Dimensions														
Part Number	Drawing 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	C19586	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.69	1.50	2.40
90EF-1488B2-1216	C19587	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.69	1.50	3.00
90EF-1488B2-1616	C19588	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.75	1.50	3.20
90EF-1488B2-1220	C19589	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.69	1.75	3.00
90EF-1488B2-1624	C19590	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.75	2.00	3.50
90EF-1488B2-2032	C19591	1 1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.81	2.50	4.20
90EF-1488B2-2432	C19592	1 1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.94	.56	.81	2.50	4.70
90EF-1488B2-3232	C19593	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.69	.81	2.50	5.70

Components										
Description	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	2432	3232	Material
Elbow ①	1	C19094	C19095	C19096	C19097	C19098	C19099	C19100	C19101	Monel/Cop-per-Nickel
Socket ②	1	C18667-2	C18667-2	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C19522	C19523	C19524	C19525	C19526	C19527	C19528	C19179	Alum. Bronze

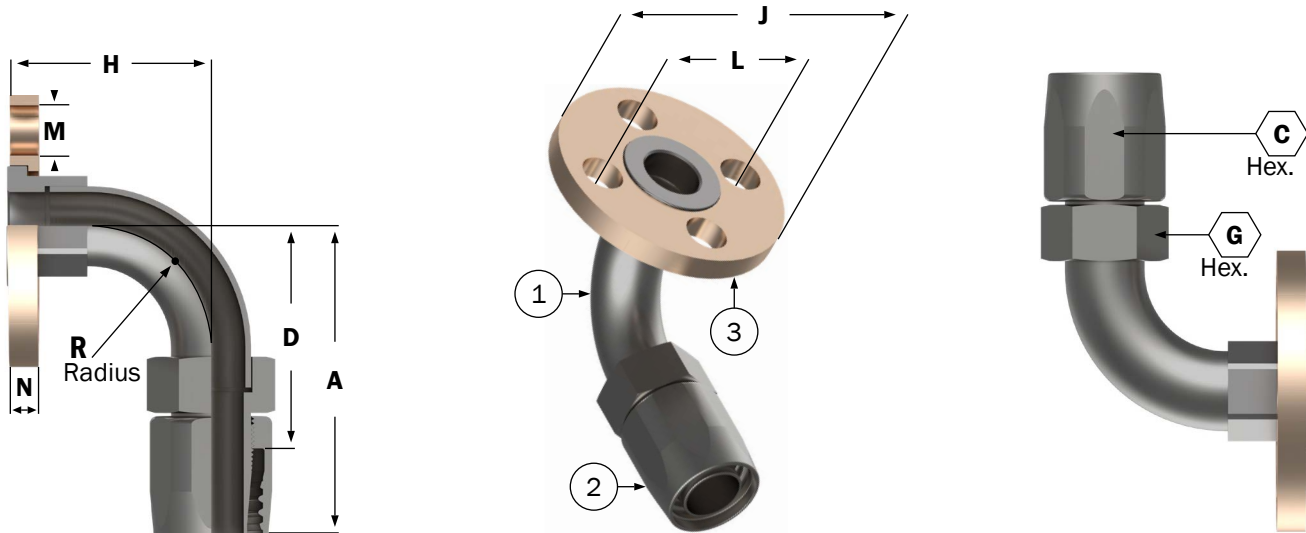
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class IV,
150lb. Flange per MIL-PRF-20042

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



Dimensions														
Part Number	Drawing 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	C19578	1/2"	3	3.93	1.44	2.66	1.38	2.62	3.56	2.44	.56	.38	1.50	2.40
90EF-1488B3-1216	C19579	3/4"	4	3.93	1.44	2.66	1.38	2.62	3.81	2.69	.56	.44	1.50	3.00
90EF-1488B3-1616	C19580	1"	4	3.93	1.44	2.66	1.38	2.62	4.25	3.13	.56	.44	1.50	3.20
90EF-1488B3-1220	C19581	3/4"	4	4.27	1.75	2.91	1.62	2.87	3.81	2.69	.56	.44	1.75	3.00
90EF-1488B3-1624	C19582	1"	4	4.65	1.94	3.19	2.12	3.06	4.25	3.13	.56	.44	2.00	3.50
90EF-1488B3-2032	C19583	1 1/4"	4	5.68	2.44	3.84	2.25	3.74	4.50	3.38	.56	.44	2.50	4.20
90EF-1488B3-2432	C19584	1 1/2"	6	5.68	2.44	3.84	2.25	3.74	5.06	3.98	.56	.44	2.50	4.70
90EF-1488B3-3232	C19585	2"	6	5.68	2.44	3.84	2.69	3.74	5.56	4.44	.56	.44	2.50	5.70

Components										
Description	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	2432	3232	Material
Elbow ①	1	C19094	C19095	C19096	C19097	C19098	C19099	C19100	C19101	Monel/Cop-per-Nickel
Socket ②	1	C18667-2	C18667-2	C18667-2	C18703-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C18817	C18816	C18815	C18814	C18813	C18812	C18810	C18809	Alum. 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.

Hose to Flange

**MIL-DTL-24787/1,
Type FL, Group VIII, Class V,
150lb. Flange per A.N.S.I B16.5**



Dimensions

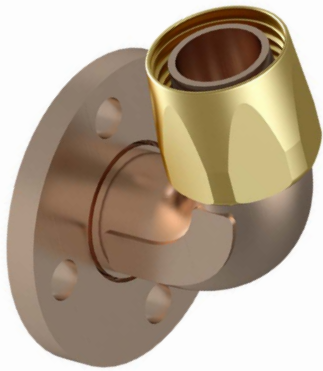
Components

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.

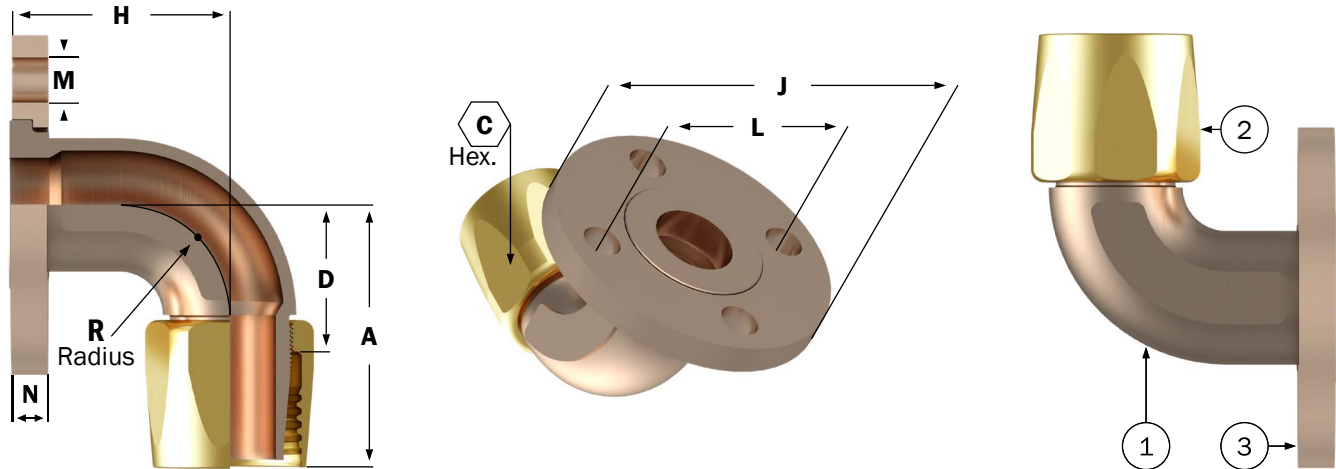
Hose to Flange

End Fitting - 90°

150lb. Flange per MIL-PRF-20042



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



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-B1488FL4-0816	C19405	1/2"	3	2.80	1.44	1.53	2.38	3.56	2.44	.56	.38	1.25	1.80
90EF-B1488FL4-1216	C19406	3/4"	4	2.80	1.44	1.53	2.38	3.81	2.69	.56	.44	1.25	3.00
90EF-B1488FL4-1616	C19408	1"	4	2.80	1.44	1.53	2.38	4.25	3.13	.56	.44	1.25	3.10
90EF-B1488FL4-1220	C19407	3/4"	4	2.98	1.75	1.62	2.56	3.81	2.69	.56	.44	1.62	3.60
90EF-B1488FL4-1624	C19409	1"	4	3.24	1.94	1.78	2.75	4.25	3.13	.56	.44	1.81	3.20
90EF-B1488FL4-2032	C19410	1 1/4"	4	3.89	2.44	2.05	3.06	4.50	3.38	.56	.44	2.44	4.50
90EF-B1488FL4-2432	C19411	1 1/2"	6	3.89	2.50	2.05	3.06	5.06	3.94	.56	.44	2.44	5.20
90EF-B1488FL4-3232	C19412	2"	6	3.89	2.50	2.05	3.06	5.56	4.44	.56	.44	2.44	5.90
90EF-B1488FL4-3240	C19413	2"	6	4.39	3.25	2.48	3.50	5.56	4.44	.56	.44	3.00	8.20
90EF-B1488FL4-4040	C19414	2 1/2"	6	4.39	3.25	2.48	3.50	6.13	5.00	.56	.50	3.00	9.70
90EF-B1488FL4-4048	C19415	2 1/2"	6	4.61	3.88	2.70	4.00	6.13	5.00	.56	.50	3.50	12.50
90EF-B1488FL4-4848	C19416	3"	6	4.61	3.88	2.70	4.00	6.63	5.50	.56	.50	3.50	13.50

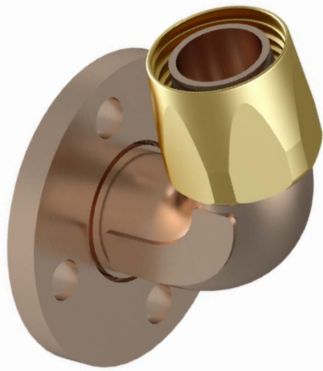
Components														
Description	Req'd per Ass'y	0816	1216	1220	1616	1624	2032	2432	3232	3240	4040	4048	4848	Material
Elbow ①	1	C19035	C19035	C19035	C19037	C19087	C19102	C19092	C19092	C19103	C19103	C19130	C18114	Alum. Bronze
Socket ②	1	C18667 -1	C18667 -1	C18667 -1	C18703 -1	C18990 -1	C18811	C18811	C18811	C18822	C18822	C17901	C17901	Brass
Flange ③	1	C18817	C18816	C18815	C18814	C18813	C18812	C18810	C18809	C17925	C17929	C17931	C17933	Alum. Bronze

All dimensions are in inches.
Dimensional information is for reference only.
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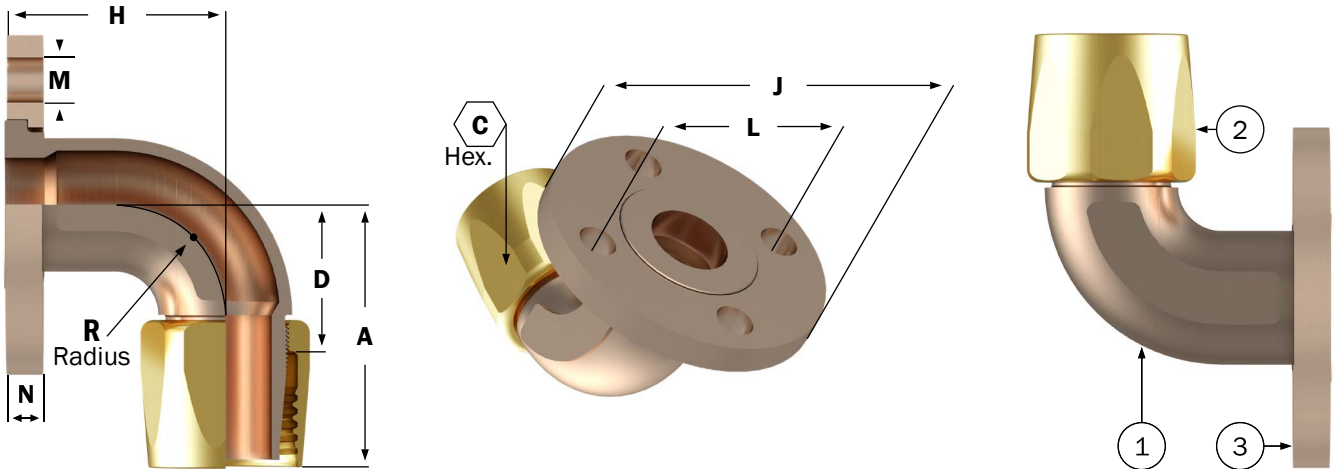
Hose to Flange

End Fitting - 90°

150lb. Flange per MIL-PRF-20042



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



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
66-190103-1/2-16	1/2"	3	2.80	1.44	1.53	2.38	3.56	2.44	.56	.38	1.25	1.80
66-190103-3/4-16	3/4"	4	2.80	1.44	1.53	2.38	3.81	2.69	.56	.44	1.25	3.00
66-190103-3/4-20	3/4"	4	2.98	1.75	1.62	2.56	3.81	2.69	.56	.44	1.62	3.60
66-190103-1-16	1"	4	2.80	1.44	1.53	2.38	4.25	3.12	.56	.44	1.25	3.10
66-190103-1-24	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.56	.44	1.81	3.20
66-190103-1 1/4-32	1 1/4"	4	3.89	2.44	2.05	3.06	4.50	3.38	.56	.44	2.44	4.50
66-190103-1 1/2-32	1 1/2"	6	3.89	2.44	2.05	3.06	5.06	3.94	.56	.44	2.44	5.20
66-190103-2-32	2"	6	3.89	2.44	2.05	3.06	5.06	4.44	.56	.44	2.44	5.90

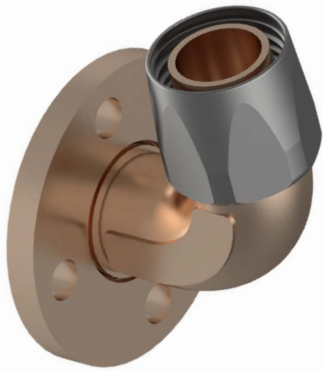
Components												Part Number	
			Size										
Description	Req'd per Ass'y	Base No.	1/2-16	3/4-16	3/4-20	1-16	1-24	1 1/4-32	1 1/2-32	2-32	Material		
Elbow ①	1	188-185029-	1/2-16	1/2-16	3/4-20	1-16	1-24	1 1/4-32	1 1/2-32	2-32	Alum. Bronze		
Socket ②	1	1212-	16B	16B	20B	16B	24B	32B	32B	32B	Brass		
Flange ③	1	188-180005-	1/2-16	1/2-16	3/4-20	1-16	1-24	1 1/4-32	1 1/2-32	2-32	Alum. 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.

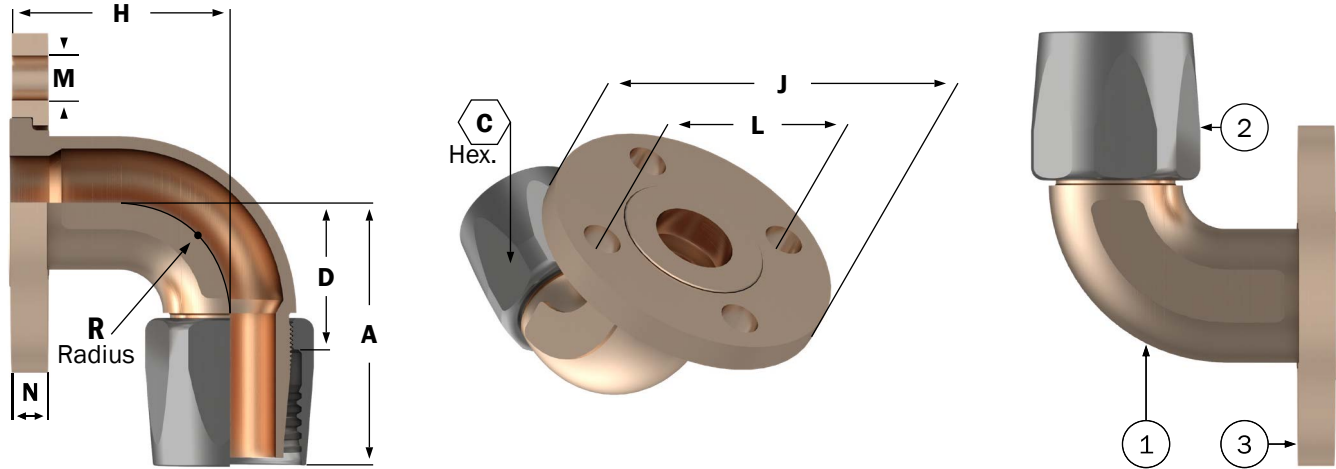
Hose to Flange

End Fitting - 90°

150lb. Flange per MIL-PRF-20042



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



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-MB1488FL4-0816	-	1/2	3	2.80	1.44	1.53	2.38	3.56	2.44	.56	.38	1.12	1.80
90EF-MB1488FL4-1216	-	3/4	4	2.80	1.44	1.53	2.38	3.81	2.69	.56	.44	-	3.00
90EF-MB1488FL4-1616	-	1	4	2.80	1.44	1.53	2.38	4.25	3.13	.56	.44	-	3.10
90EF-MB1488FL4-1220	C21146	3/4	4	2.98	1.75	1.62	2.56	3.81	2.69	.56	.44	1.22	3.60
90EF-MB1488FL4-1624	C21540	1	4	3.24	1.94	1.78	2.75	4.25	3.13	.56	.44	1.38	3.20
90EF-MB1488FL4-2032	C22698	1 1/4	4	3.89	2.44	2.05	3.06	4.50	3.38	.56	.44	1.62	4.50
90EF-MB1488FL4-2432	C20900	1 1/2	6	3.89	2.50	2.05	3.06	5.06	3.94	.56	.44	1.62	5.20
90EF-MB1488FL4-3232	C21555	2	6	3.89	2.50	2.05	3.06	5.56	4.44	.56	.44	1.62	5.90
90EF-MB1488FL4-3240	-	2	6	4.39	3.25	2.48	3.50	5.56	4.44	.56	.44	-	8.20
90EF-MB1488FL4-4040	-	2 1/2	6	4.39	3.25	2.48	3.50	6.13	5.00	.56	.50	-	9.70
90EF-MB1488FL4-4048	-	2 1/2	6	4.61	3.88	2.70	4.00	6.13	5.00	.56	.50	-	12.50
90EF-MB1488FL4-4848	-	3	6	4.61	3.88	2.70	4.00	6.63	5.50	.56	.50	-	13.50

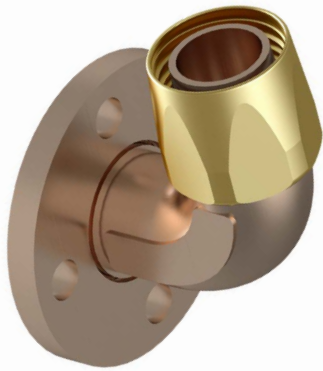
Components														
Desc.	Req'd per Ass'y	0816	1216	1616	1220	1624	2032	2432	3232	3240	4040	4048	4848	Material
Elbow ①	1	C19035	C19035	C19035	C19037	C19087	C19102	C19092	C19092	C19103	C19103	C19130	C18114	Alum. Bronze
Socket ②	1	C18667 -2	C18667 -2	C18667 -2	C18703 -2	C18990 -2	C18662	C18662	C18662	-	-	-	-	Monel
Flange ③	1	C18817	C18816	C18815	C18814	C18813	C18812	C18810	C18809	C17925	C17929	C17931	C17933	Alum. 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.

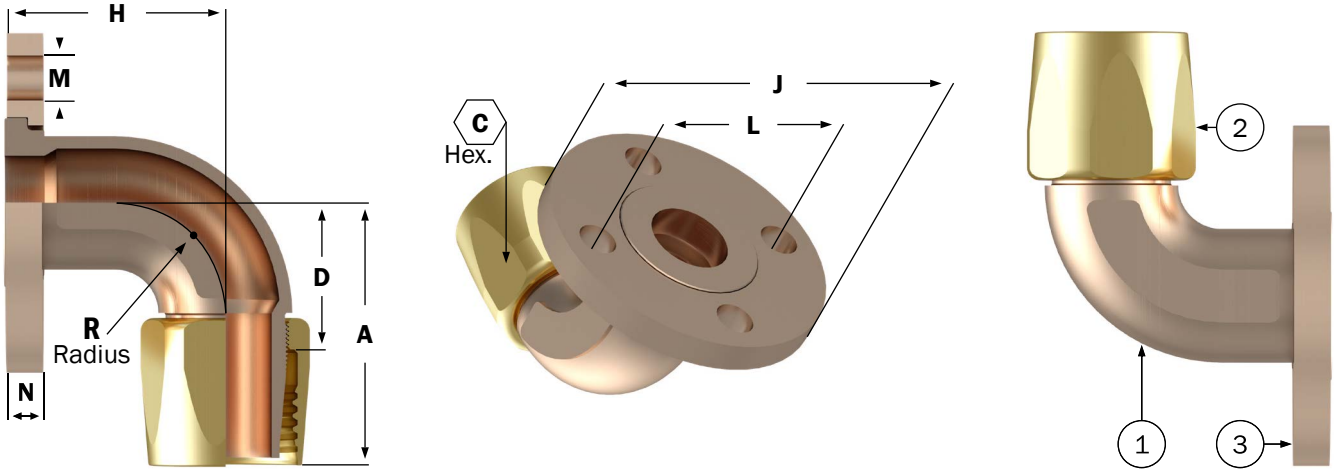
Hose to Flange

End Fitting - 90°

150lb. Flange per MIL-PRF-20042



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



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
66-190103-12-20	3/4"	4	2.98	1.75	1.62	2.56	3.81	2.69	.56	.44	1.22	3.60
66-190103-16-24	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.56	.44	1.38	3.20
66-190103-20-32	1 1/4"	4	3.89	2.44	2.05	3.06	4.50	3.38	.56	.44	1.62	4.50
66-190103-24-32	1 1/2"	6	3.89	2.44	2.05	3.06	5.06	3.94	.56	.44	1.62	5.20
66-190103-32-40	2"	4.39	3.25	2.48	3.50	5.56	4.44	.56	.44	-	8.20	-

Components		Part Number			Size				
Description	Req'd per Ass'y	Base No.	12-20	16-24	20-32	24-32	32-40	Material	
Elbow ①	1	188-185029-	12-20	16-24	20-32	24-32	32-40	Brass	
Socket ②	1	1212-	20B	24B	32B	32B	40B	Brass	
Flange ③	1	188-180005-	12-20	16-24	20-32	24-32	32-40	Alum. Bronze	

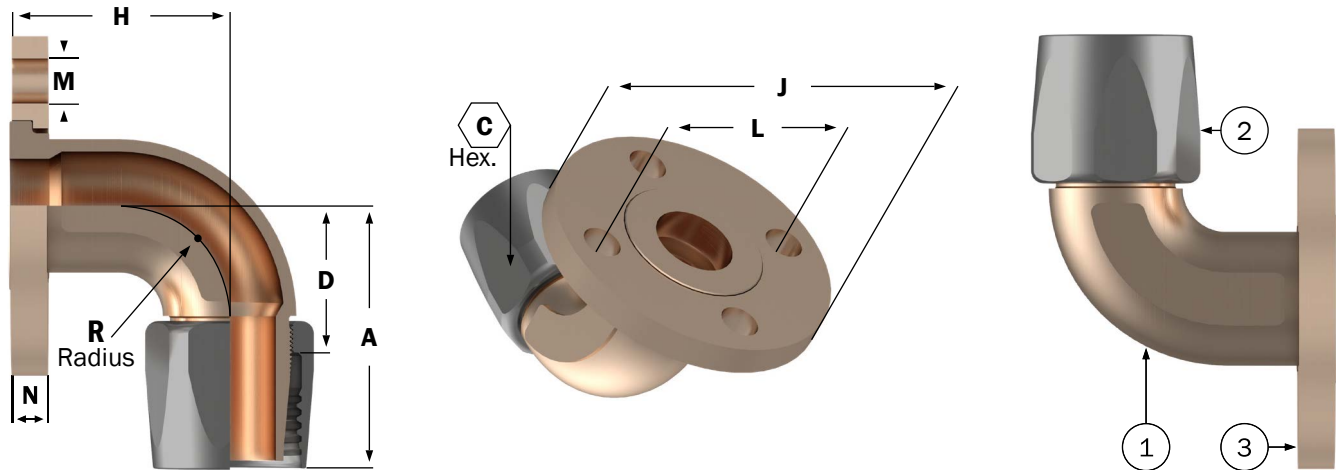
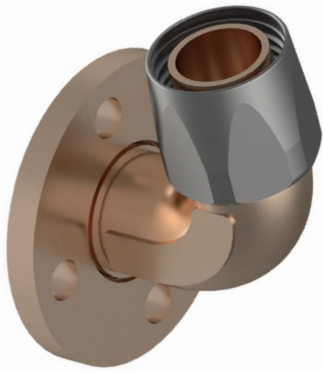
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class V,
150lb. Flange per A.N.S.I. B16.5

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



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-MB1488FL5-0816	C19399	1/2"	4	2.80	1.44	1.53	2.38	3.50	2.38	.62	.36	1.12	1.80
90EF-MB1488FL5-1220	C19400	3/4"	4	2.98	1.75	1.62	2.56	3.88	2.75	.62	.42	1.22	3.60
90EF-MB1488FL5-1624	C19401	1"	4	3.30	2.00	1.85	2.75	4.25	3.12	.62	.42	1.38	3.20
90EF-MB1488FL5-2032	C19402	1 1/4"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.42	1.62	4.50
90EF-MB1488FL5-2432	C19403	1 1/2"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.42	1.62	5.20
90EF-MB1488FL5-3232	C19404	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.42	1.62	6.00

Components								
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	Material
Elbow ①	1	C19035	C19037	C19087	C19102	C19092	C19092	Alum. Bronze
Socket ②	1	C18867-2	C18703-2	C18990-2	C18662	C18662	C18662	Monel
Flange ③	1	C18803	C18800	C18799	C18798	C18797	C18796	Alum. Bronze

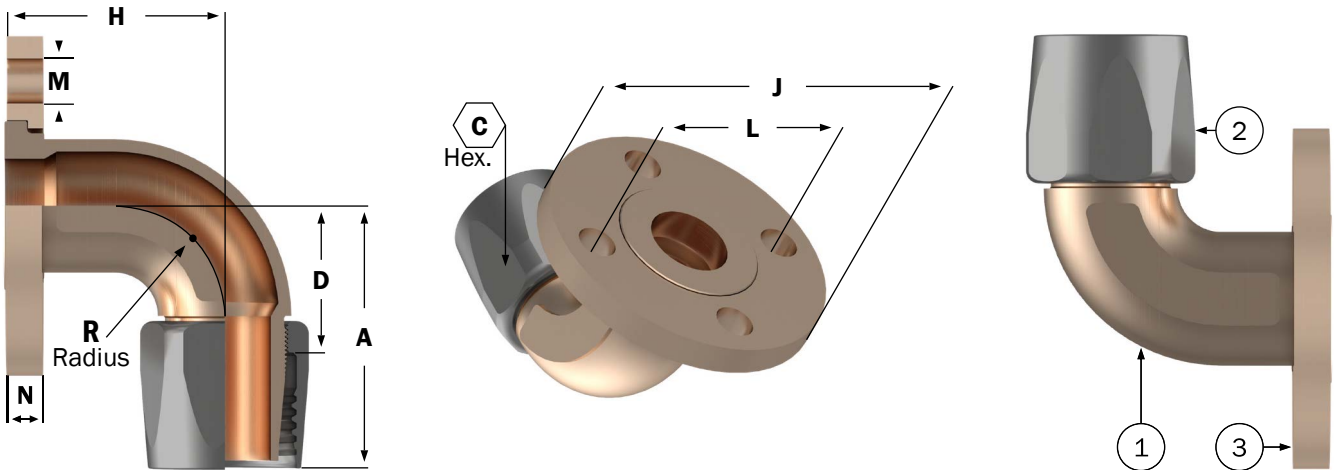
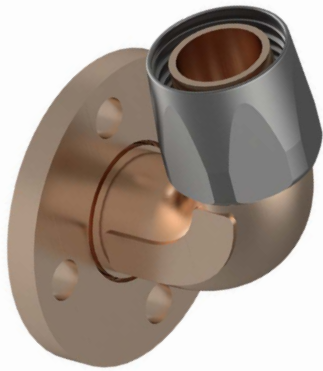
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Flange

End Fitting - 90°

MIL-DTL-24787/1,
Type FL, Group VIII, Class V,
150lb. Flange per A.N.S.I. B16.5

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



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
375-190124-1/2-16	½"	4	2.80	1.44	1.53	2.38	3.50	2.38	.62	.38	1.12	1.77
375-190124-3/4-20	¾"	4	2.98	1.75	1.62	2.56	3.88	2.75	.62	.44	1.22	3.63
375-190124-1-24	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.62	.44	1.38	3.22
375-190124-1.25-32	1¼"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.44	1.62	4.50
375-190124-1.5-32	1½"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.44	1.62	5.15
375-190124-2-32	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.44	1.62	-

Components		Part Number							Material
		Size							
Description	Req'd per Ass'y	Base No.	1/2-16	3/4-20	1-24	1 1/4-32	1 1/2-32	2-32	
Elbow ①	1	188-185029-	1/2-16	3/4-20	1-24	1 1/4-32	1 1/2-32	2-32	Alum. Bronze
Socket ②	1	4-1212-	16	20	24	32	32	32	Monel
Flange ③	1	188-74021-	1/2-16	3/4-20	1-24	1 1/4-32	1 1/2-32	2-32	Alum. 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.

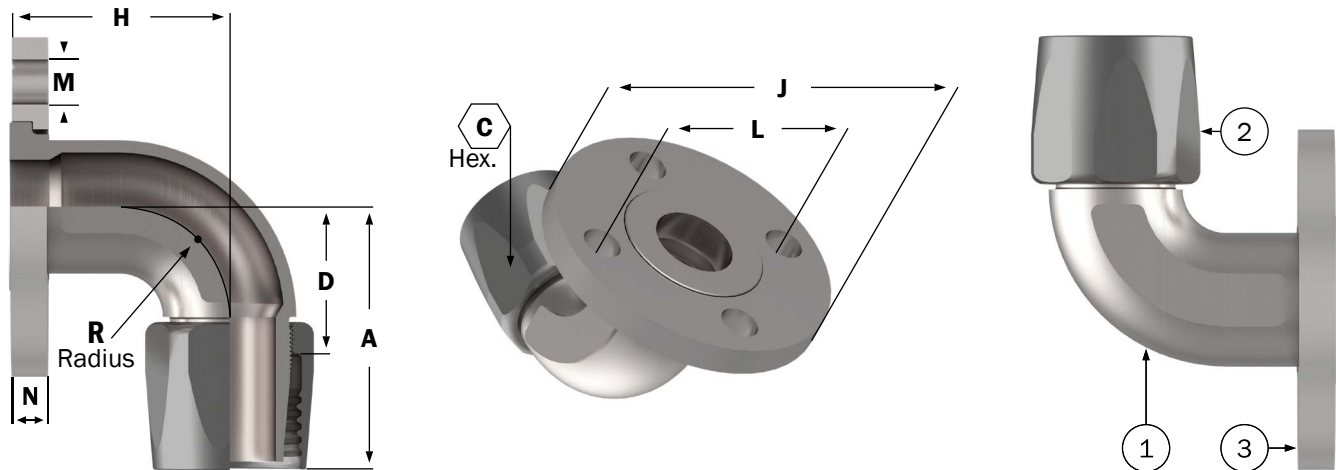
Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5



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



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-MSS1488FL5-1220	-	¾"	4	2.98	1.75	1.62	2.56	3.88	2.75	.62	.42	1.22	3.60
90EF-MSS1488FL5-2032	-	1¼"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.42	1.62	4.50
90EF-MSS1488FL5-2432	-	1½"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.42	1.62	5.20
90EF-MSS1488FL5-3232	-	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.42	1.62	6.00

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

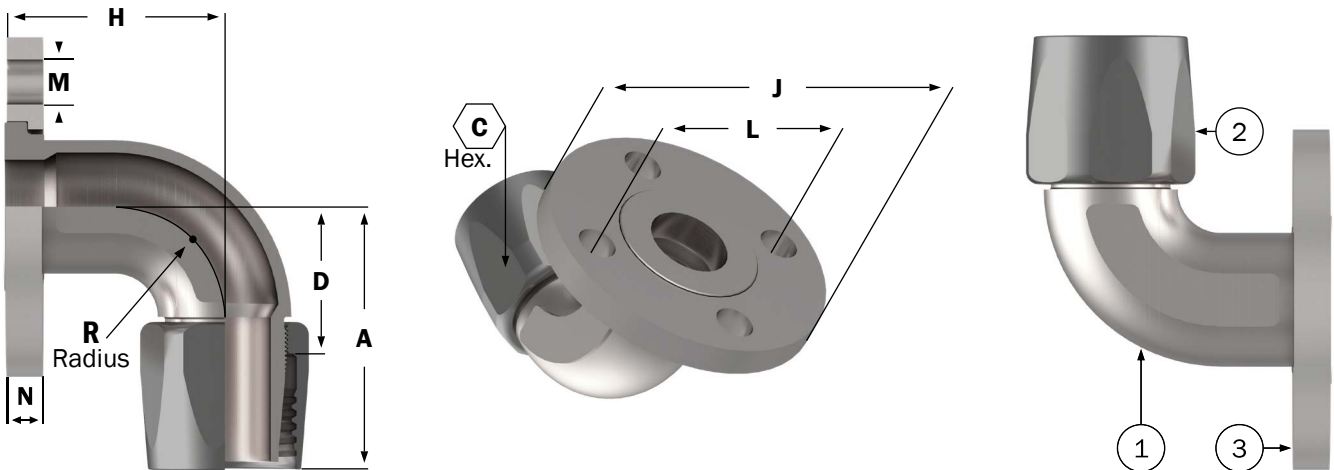
Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5



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



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
412-190124-16-24	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.62	.44	1.38	3.19
412-190124-20-32	1¼"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.44	1.62	4.50
412-190124-24-32	1½"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.44	1.62	5.15
412-190124-32-32	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.44	1.62	-

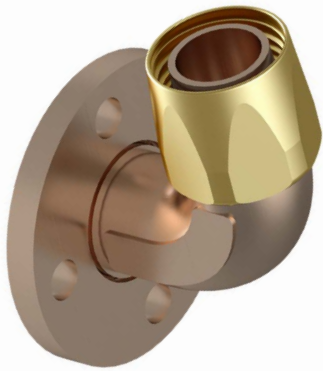
Components		Part Number					Material
		Size					
Description	Req'd per Ass'y	Base No.	16-24	20-32	24-32	32-32	
Elbow ①	1	407-185029-	16-24	20-32	24-32	32-32	Stainless Steel
Socket ②	1	4-1212-	24	32	32	32	Monel
Flange ③	1	407-74021-	16-24	20-32	24-32	32-32	Stainless Steel

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.

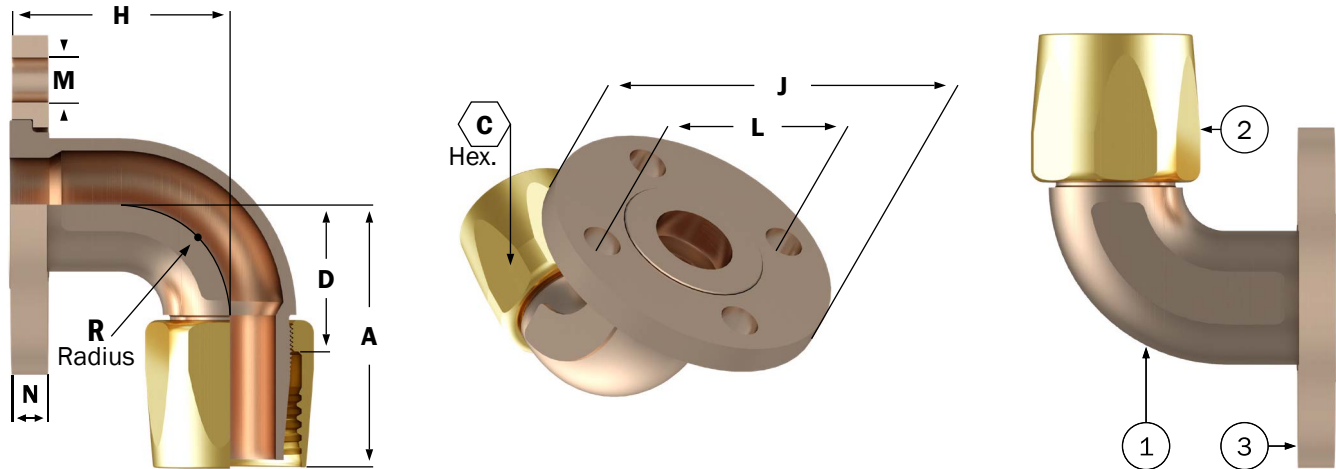
Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5



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



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-B1488FL5-0816	C19389	1/2"	4	2.80	1.44	1.53	2.38	3.50	2.38	.62	.36	-	1.80
90EF-B1488FL5-1220	C19390	3/4"	4	2.98	1.75	1.62	2.56	3.88	2.75	.62	.42	-	3.60
90EF-B1488FL5-1624	C19391	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.62	.42	-	3.20
90EF-B1488FL5-2032	C19392	1 1/4"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.42	-	4.50
90EF-B1488FL5-2432	C19393	1 1/2"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.42	-	5.20
90EF-B1488FL5-3232	C19394	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.42	-	5.90
90EF-B1488FL5-3240	C19395	2"	4	4.39	3.25	2.48	3.50	6.00	4.75	.75	.42	-	8.20
90EF-B1488FL5-4040	C19396	2 1/2"	4	4.39	3.25	2.48	3.50	7.00	5.50	.75	.48	-	9.70
90EF-B1488FL5-4048	C19397	2 1/2"	4	4.61	3.88	2.70	4.00	7.00	5.50	.75	.48	-	12.50
90EF-B1488FL5-4848	C19398	3"	4	4.61	3.88	2.70	4.00	7.50	6.00	.75	.48	-	13.50

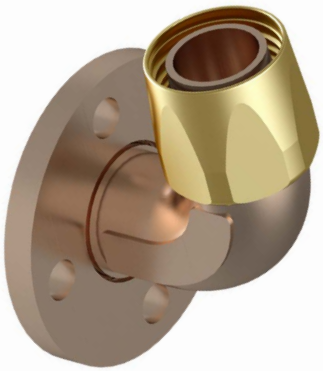
Components												
Description	Req'd per Ass'y	0816	1220	1624	2032	2432	3232	3240	4040	4048	4848	Material
Elbow ①	1	C19035	C19037	C19087	C19102	C19092	C19092	C19103	C19103	C19130	C18114	Alum. Bronze
Socket ②	1	C18867	C18703 -1	C18990 -1	C18811	C18811	C18811	C18822	C18822	C17901	C17901	Brass
Flange ③	1	C18803	C18800	C18799	C18798	C18797	C18796	C17966	C17968	C17969	C17970	Alum. 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.

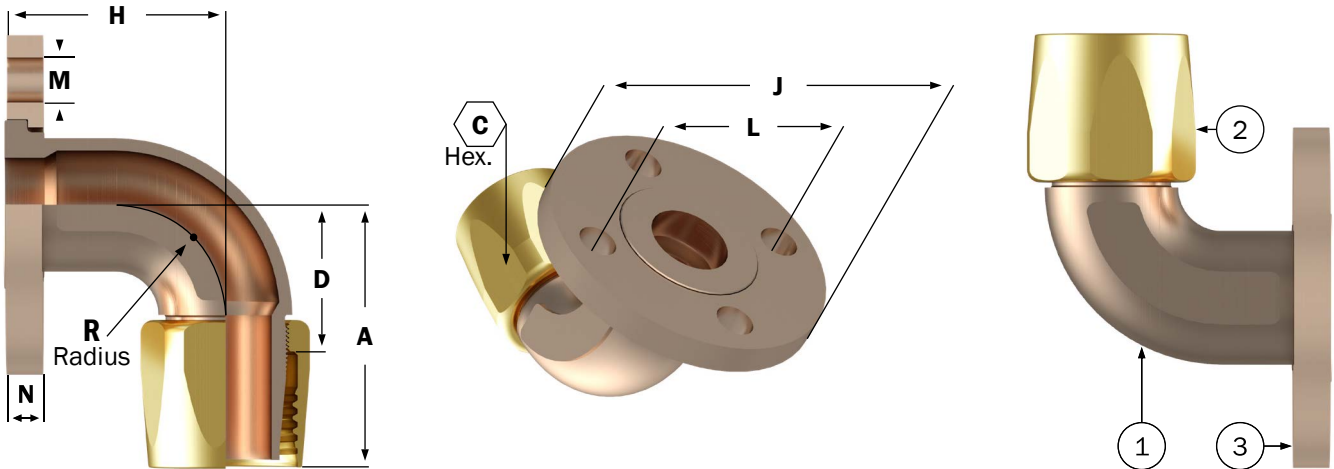
Hose to Flange

End Fitting - 90°

150lb. Flange per A.N.S.I. B16.5



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



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
66-190124-8-16	1/2"	4	2.80	1.44	1.53	2.38	3.50	2.38	.62	.38	1.12	1.77
66-190124-12-20	3/4"	4	2.98	1.75	1.62	2.56	3.88	2.75	.62	.44	1.22	3.62
66-190124-16-24	1"	4	3.24	1.94	1.78	2.75	4.25	3.12	.62	.44	1.38	3.19
66-190124-20-32	1 1/4"	4	3.89	2.44	2.05	3.06	4.62	3.50	.62	.44	1.62	4.38
66-190124-24-32	1 1/2"	4	3.89	2.44	2.05	3.06	5.00	3.88	.62	.44	1.62	5.02
66-190124-32-32	2"	4	3.89	2.44	2.05	3.06	6.00	4.75	.75	.42	-	5.90
66-190124-32-40	2"	4	4.39	3.25	2.48	3.50	6.00	4.75	.75	.42	-	8.20
66-190124-48-48	3"	4	4.61	3.88	2.70	4.00	7.50	6.00	.75	.48	-	13.50

Components		Part Number									Material
		Size									
Description	Req'd per Ass'y	Base No.	8-16	12-20	16-24	20-32	24-32	32-32	32-40	48-48	
Elbow ①	1	188-185029-	8-16	12-20	16-24	20-32	24-32	32-32	32-40	48-48	Alum. Bronze
Socket ②	1	1212-	16B	20B	24B	32B	32B	32B	40B	48B	Brass
Flange ③	1	188-74021-	8-16	12-20	16-24	20-32	24-32	32-32	32-40	48-48	Alum. 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.

P/N FC9424-375

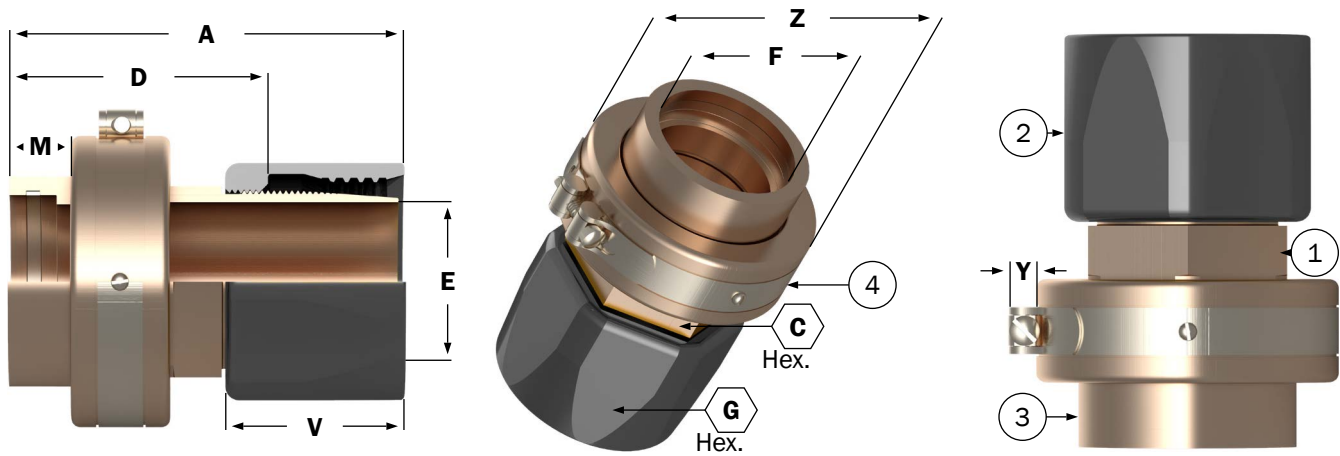
Hose to Female Sil-Braze Tailpiece

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group VIII



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



Dimensions												
Part Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
FC9424-2032-375	1¼"	4.98	2.12	3.13	1.53	1.66	1.44	.50	2.25	.39	3.00	-
FC9424-2432-375	1½"	5.03	2.12	3.19	1.75	1.90	2.44	.62	2.25	.39	3.31	-
FC9424-3240-375	2"	5.44	2.62	3.54	2.21	2.38	3.25	.66	2.50	.39	4.00	-
FC9424-4048-375	2½"	5.76	3.25	3.85	2.73	2.88	3.88	.78	2.50	.39	4.42	-

Components		Part Number		Size				
Description	Req'd per Ass'y	Base No.	2032	2432	3240	4048	Material	
Nipple ①	1	188-1237-	1.25-32	1.5-32	2-40	2.5-48	Alum. Bronze	
Socket ②	1	4-1212-	32	32	40	48	Monel	
Tailpiece ③	1	FF5001-188	20	24	32	40	Alum. Bronze	
Split Clamp ④	1	900758-	1.25	1.5	2	2.5	Alum. Bronze	

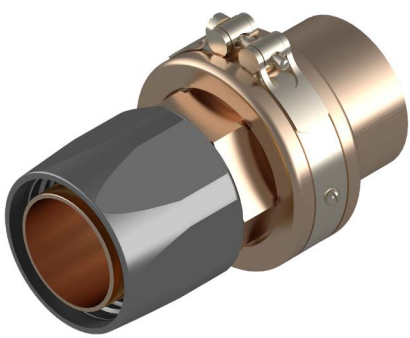
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

P/N FC9423-375

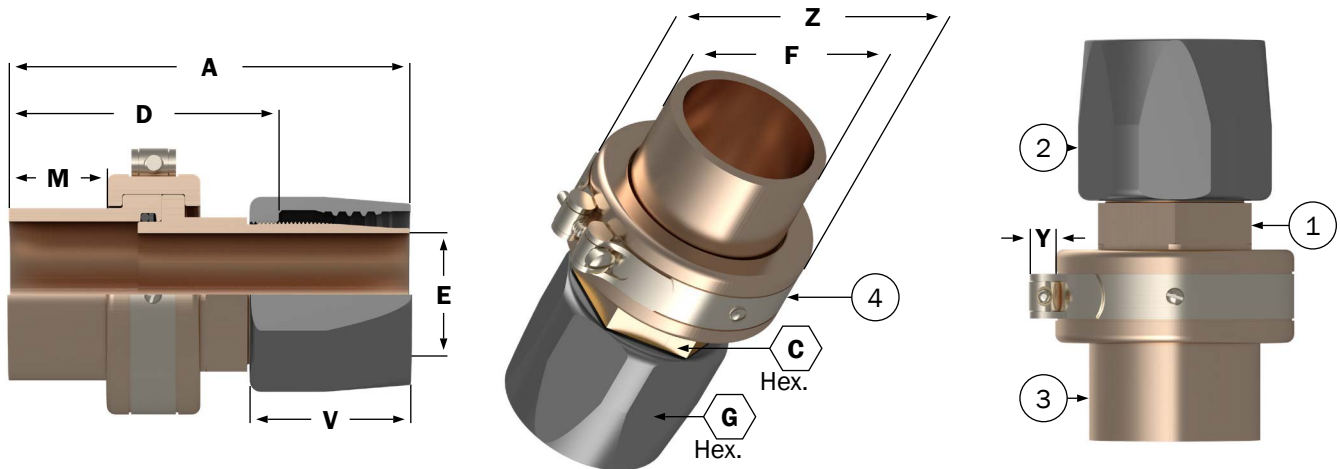
Hose to Male Sil-Braze Tailpiece

End Fitting - Straight

MIL-DTL-24787/4,
Type E, Group VIII



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



Dimensions												
Part Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
FC9423-2032-375	1¼"	5.44	2.12	3.60	1.53	1.66	2.44	1.12	2.25	.39	3.00	-
FC9423-2432-375	1½"	5.53	2.12	3.69	1.75	1.90	2.44	1.25	2.25	.39	3.31	-
FC9423-3240-375	2"	5.97	2.62	4.07	2.21	2.38	3.25	1.31	2.50	.39	4.00	-
FC9423-4048-375	2½"	5.94	3.25	4.04	2.73	2.88	3.88	1.12	2.50	.39	4.42	-

Components		Part Number		Size				
Description	Req'd per Ass'y	Base No.	2032	2432	3240	4048	Material	
Nipple ①	1	188-1237-	1¼-32	1½-32	2-40	2½-48	Alum. Bronze	
Socket ②	1	4-1212-	32	32	40	48	Monel	
Tailpiece ③	1	FF5002-188	20	24	32	40	Alum. Bronze	
Split Clamp ④	1	900758-	1¼	1½	2	2½	Alum. 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.

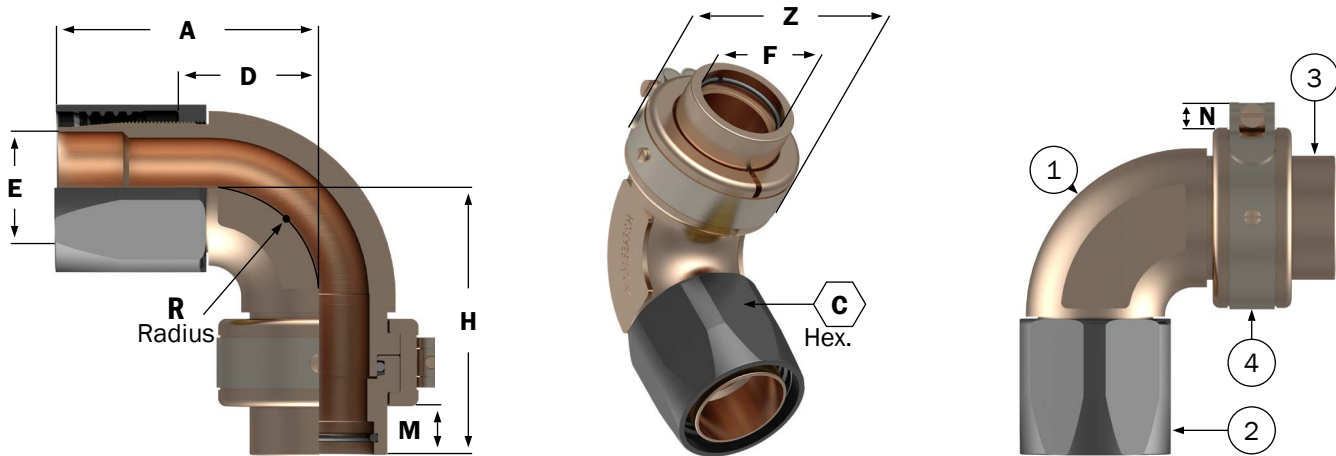
P/N FC9426-375

Hose to Female Sil-Braze Tailpiece

Elbow - 90°

MIL-DTL-24787/4,
Type EL, Group VIII

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



Dimensions

Part Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
FC9426-2032-66	1¼"	3.89	2.44	2.05	1.69	1.66	3.71	.50	.39	1.62	3.00	-
FC9426-2432-66	1½"	3.89	2.44	2.05	1.69	1.90	3.80	.62	.39	1.62	3.31	-
FC9426-3240-66	2"	4.39	3.25	2.48	2.12	2.38	4.23	.66	.39	1.88	4.00	-
FC9426-4048-66	2½"	4.61	3.88	2.70	2.69	2.88	4.52	.78	.39	2.09	4.42	-

Components		Part Number		Size				Material
		Req'd per Ass'y	Base No.	2032	2432	3240	4048	
Elbow	1	188-185249-		1.25-32	1.5-32	2-40	2.5-48	Alum. Bronze
Socket	1	1212-		32B	32B	40B	48B	Brass
Tailpiece	1	FF5001-188		20	24	32	40	Alum. Bronze
Split Clamp	1	900758		1.25	1.5	2	2.5	Alum. 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.

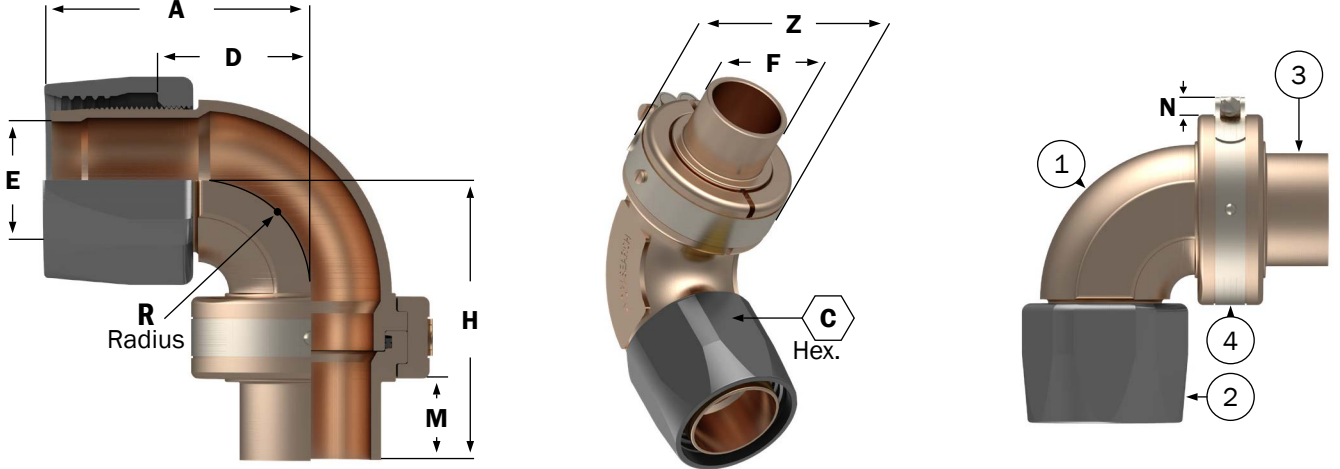
P/N FC9425-375

Hose to Male Sil-Braze Tailpiece

Elbow - 90°

MIL-DTL-24787/4,
Type EL, Group VIII

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



Dimensions

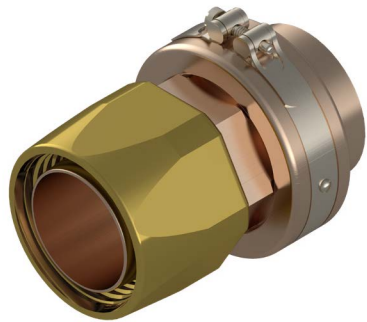
Part Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
FC9425-2032-375	1¼"	3.89	2.44	2.05	1.69	1.66	4.18	1.12	.39	1.62	3.00	-
FC9425-2432-375	1½"	3.89	2.44	2.05	1.69	1.90	4.30	1.25	.39	1.62	3.31	-
FC9425-3240-375	2"	4.39	3.25	2.48	2.12	2.38	4.76	1.31	.39	1.88	4.00	-
FC9425-4048-375	2½"	4.61	3.88	2.70	2.69	2.88	4.71	1.12	.39	2.09	4.42	-

Components		Part Number		Size				Material
		Req'd per Ass'y	Base No.	2032	2432	3240	4048	
Elbow	1	188-185249-		1.25-32	1.5-32	2-40	2.5-48	Alum. Bronze
Socket	1	4-1212-		32	32	40	48	Monel
Tailpiece	1	FF5002-188		20	24	32	40	Alum. Bronze
Split Clamp	1	900758		1.25	1.5	2	2.5	Alum. Bronze

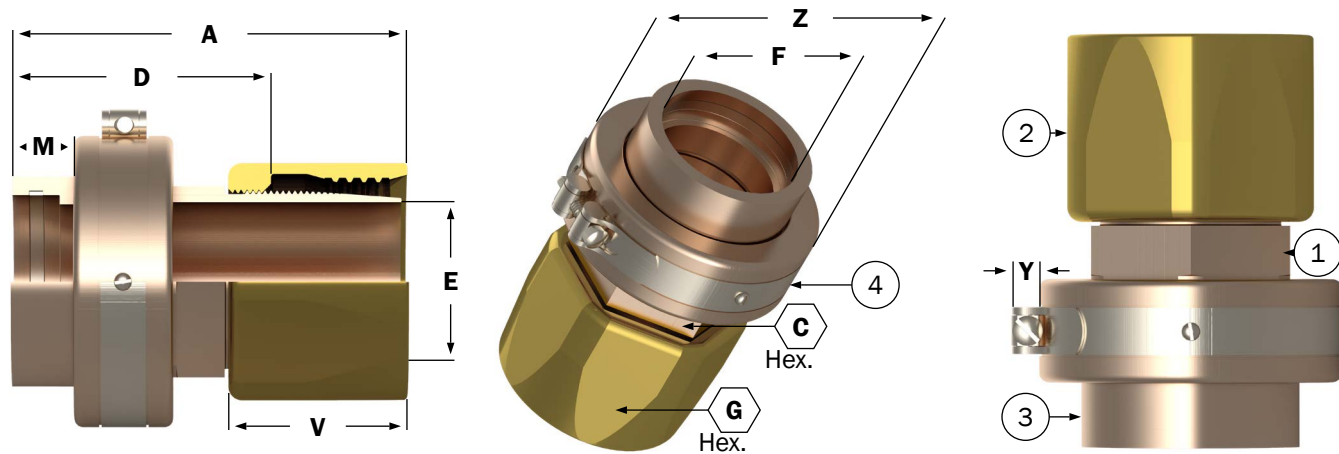
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Female Sil-Braze Tailpiece

End Fitting - Straight



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



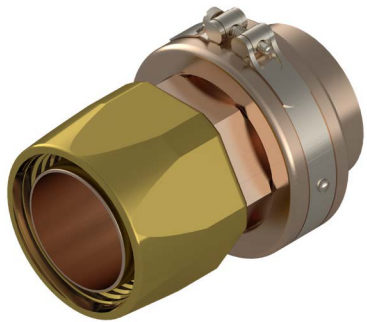
Dimensions													
Part Number	Drawing Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
EF-B1488EF-2032	C19417	1¼"	4.98	2.12	3.13	1.53	1.66	1.44	.50	2.25	.39	3.00	-
EF-B1488EF-2432	C19418	1½"	5.03	2.12	3.19	1.75	1.90	2.44	.62	2.25	.39	3.31	-
EF-B1488EF-3240	C19419	2"	5.44	2.62	3.54	2.21	2.38	3.25	.66	2.50	.39	4.00	-
EF-B1488EF-4048	C19420	2½"	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
Nipple ①	1	C19188	C19189	C19190	C19191	Alum. Bronze
Socket ②	1	C18811	C18811	C18822	C17901	Brass
Tailpiece ③	1	C19193	C19194	C18083	C18084	Alum. Bronze
Split Clamp ④	1	C18160	C18294	C18078	C18079	Alum. Bronze

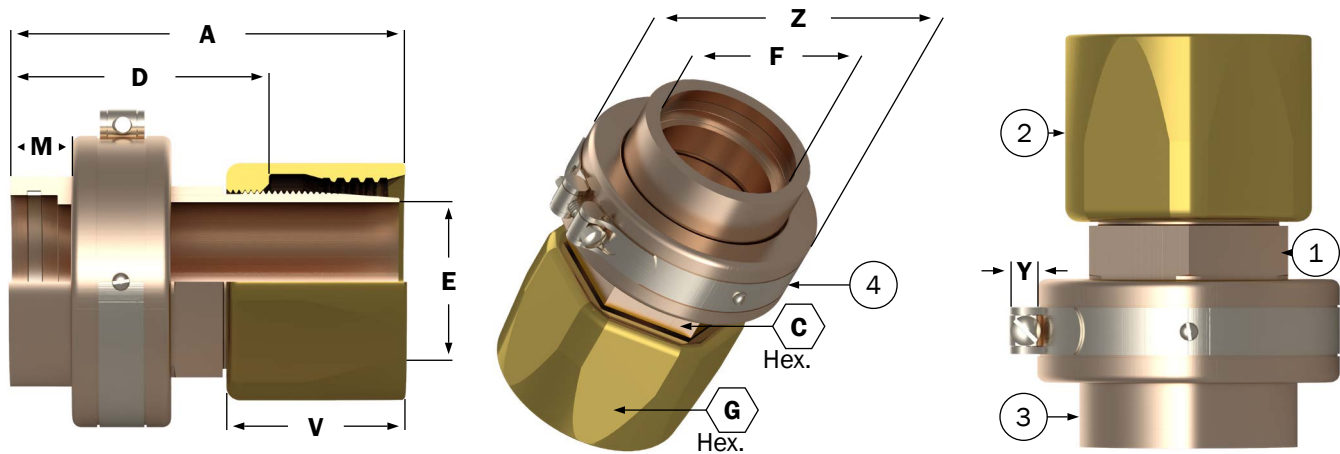
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Female Sil-Braze Tailpiece

End Fitting - Straight



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



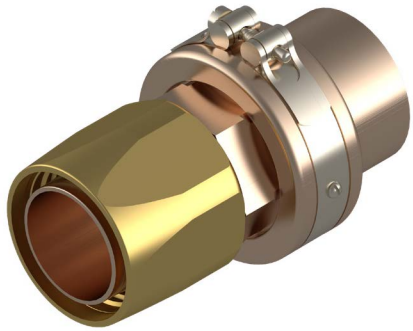
Dimensions												
Part Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
FC9424-2032-44	1¼"	4.98	2.12	3.13	1.53	1.66	1.44	.50	2.25	.39	3.00	-

Components				
Description	Req'd per Ass'y	Part Number		Material
		Base No.	Size	
Nipple ①	1	188-185249-	2032	Alum. Bronze
Socket ②	1	4-1212-	32B	Brass
Tailpiece ③	1	FF5001-188	20	Alum. Bronze
Split Clamp ④	1	900758	1¼	Alum. Bronze

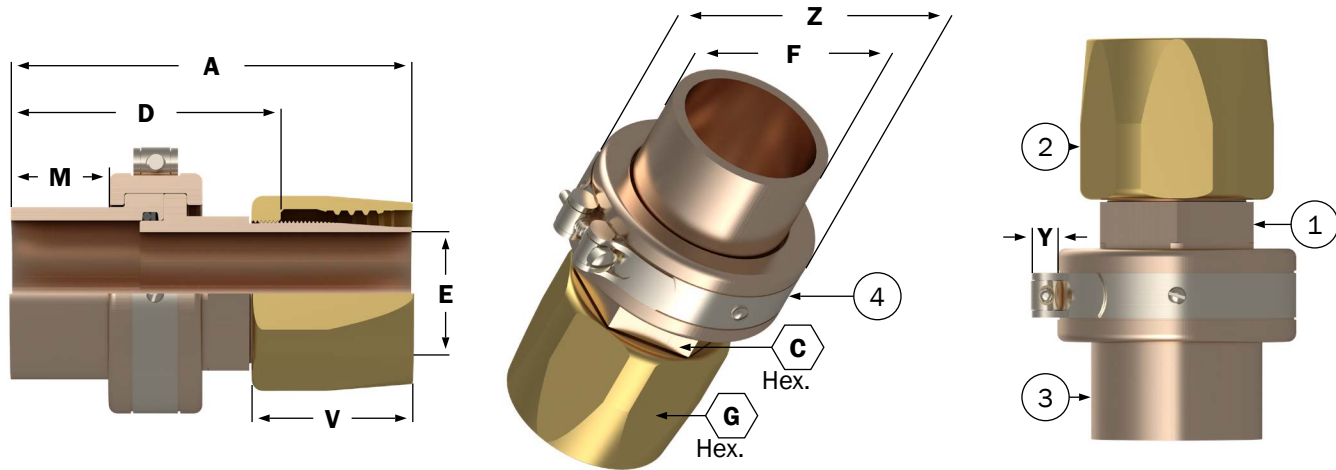
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male Sil-Braze Tailpiece

End Fitting - Straight



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



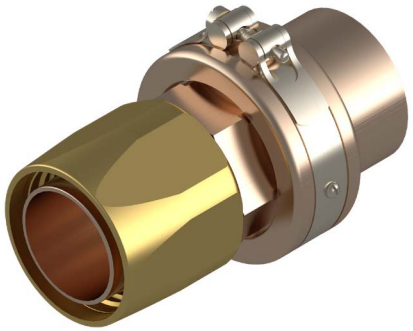
Dimensions													
Part Number	Drawing Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
EF-B1488EM-2032	C19421	1¼"	5.44	2.12	3.60	1.53	1.66	2.44	1.12	2.25	.39	3.00	-
EF-B1488EM-2432	C19422	1½"	5.53	2.12	3.69	1.75	1.90	2.44	1.25	2.25	.39	3.31	-
EF-B1488EM-3232	-	2"	5.91	2.62	4.07	1.69	2.38	3.25	1.31	2.25	.39	3.25	-
EF-B1488EM-3240	C19423	2"	5.97	2.62	4.07	2.21	2.38	3.25	1.31	2.50	.39	4.00	-
EF-B1488EM-4048	C19424	2½"	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
Nipple ①	1	C19188	C19189	-	C19190	C19191	Alum. Bronze
Socket ②	1	C18811	C18811	-	C18822	C17901	Brass
Tailpiece ③	1	C19192	C18285	-	C18088	C18089	Alum. Bronze
Split Clamp ④	1	C18160	C18294	-	C18078	C18079	Alum. Bronze

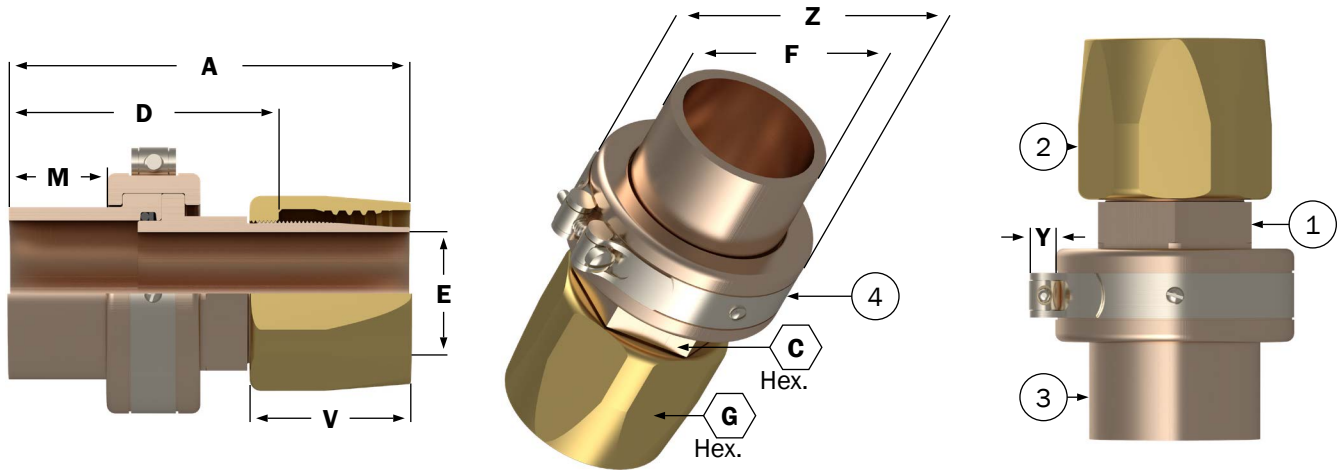
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male Sil-Braze Tailpiece

End Fitting - Straight



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



Dimensions												
Part Number	IPS Size	A	C	D	E	F	G	M	V	Y	Z	Est. Wt. (lbs.)
FC9423-2032-66	1¼"	5.44	2.12	3.60	1.53	1.66	2.44	1.12	2.25	.39	3.00	-

Components		Part Number	Size	
Description	Req'd per Ass'y	Base No.	2032	Material
Nipple ①	1	188-185249-	2032	Alum. Bronze
Socket ②	1	4-1212-	32B	Brass
Tailpiece ③	1	FF5002-188	20	Alum. Bronze
Split Clamp ④	1	900758	1¼	Alum. Bronze

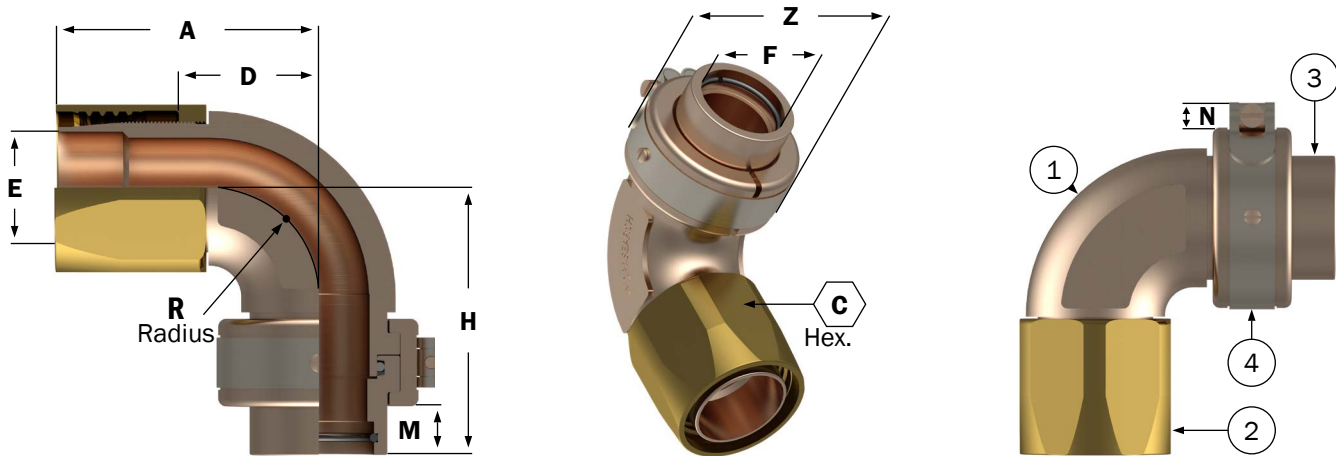
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Female Sil-Braze Tailpiece

Elbow - 90°



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



Dimensions													
Part Number	Drawing Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
90ELB-B1488ELF-2032	C19429	1¼"	3.89	2.44	2.05	1.69	1.66	3.71	.50	.39	1.62	3.00	-
90ELB-B1488ELF-2432	C19430	1½"	3.59	2.44	2.05	1.69	1.90	3.80	.62	.39	1.62	3.31	-
90ELB-B1488ELF-3240	C19431	2"	4.39	3.25	2.48	2.12	2.38	4.23	.66	.39	1.88	4.00	-
90ELB-B1488ELF-4048	C19432	2½"	4.61	3.88	2.70	2.69	2.88	4.52	.78	.39	2.09	4.42	-

Components						
Description	Req'd per Ass'y	2032	2432	3240	4048	Material
Elbow ①	1	C19196	C19197	C19198	C19199	Alum. Bronze
Socket ②	1	C18811	C18811	C18822	C17901	Brass
Tailpiece ③	1	C19193	C19194	C18083	C18084	Alum. Bronze
Split Clamp ④	1	C18160	C18294	C18087	C18079	Alum. Bronze

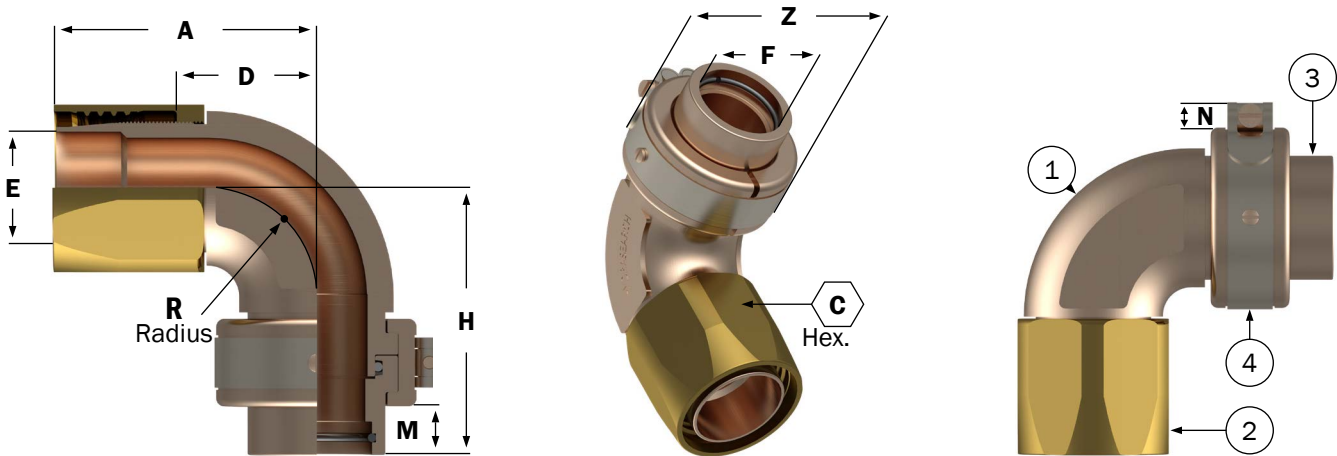
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Female Sil-Braze Tailpiece

Elbow - 90°



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



Dimensions												
Part Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
FC9426-2032-66	1¼"	3.89	2.44	2.05	1.69	1.66	3.71	.50	.39	1.62	3.00	-
FC9426-2432-66	1½"	3.89	2.44	2.05	1.69	1.90	3.80	.62	.39	1.62	3.31	-
FC9426-3240-66	2"	4.39	3.25	2.48	2.12	2.38	4.23	.66	.39	1.88	4.00	-
FC9426-4048-66	2½"	4.61	3.88	2.70	2.69	2.88	4.52	.78	.39	2.09	4.42	-

Components		Part Number					Material
Description	Req'd per Ass'y	Base No.	2032	2432	3240	4048	
Elbow ①	1	188-185249-	1¼-32	1½-32	2-40	2½-48	Alum. Bronze
Socket ②	1	1212-	32B	32B	40B	48B	Brass
Tailpiece ③	1	FF5001-188	20	24	32	40	Alum. Bronze
Split Clamp ④	1	900758	1¼	1½	2	2½	Alum. Bronze

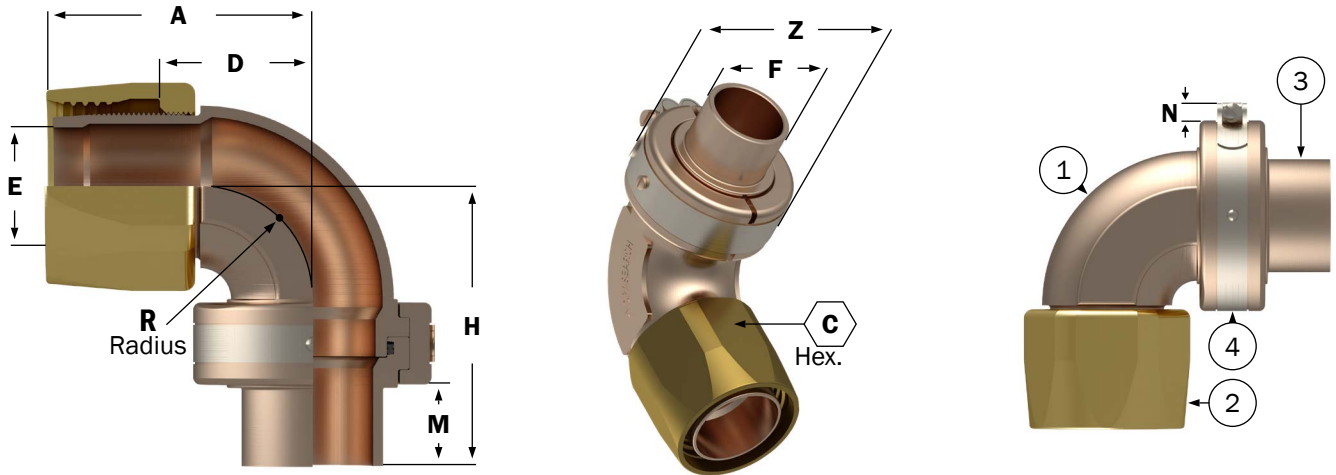
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male Sil-Braze Tailpiece

Elbow - 90°



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



Dimensions													
Part Number	Drawing Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
90ELB-B1488ELM-2032	C19425	1¼"	3.89	2.44	2.05	1.69	1.66	4.18	1.12	.39	1.62	3.00	-
90ELB-B1488ELM-2432	C19426	1½"	3.59	2.44	2.05	1.69	1.90	4.30	1.25	.39	1.62	3.31	-
90ELB-B1488ELM-3240	C19427	2"	4.39	3.25	2.48	2.12	2.38	4.76	1.31	.39	1.88	4.00	-
90ELB-B1488ELM-4048	C19428	2½"	4.61	3.88	2.70	2.69	2.88	4.71	1.12	.39	2.09	4.42	-

Components						
Description	Req'd per Ass'y	2032	2432	3240	4048	Material
Elbow ①	1	C19196	C19197	C19198	C19199	Alum. Bronze
Socket ②	1	C18811	C18811	C18822	C17901	Brass
Tailpiece ③	1	C19192	C18285	C18088	C18089	Alum. Bronze
Split Clamp ④	1	C18160	C18294	C18087	C18079	Alum. Bronze

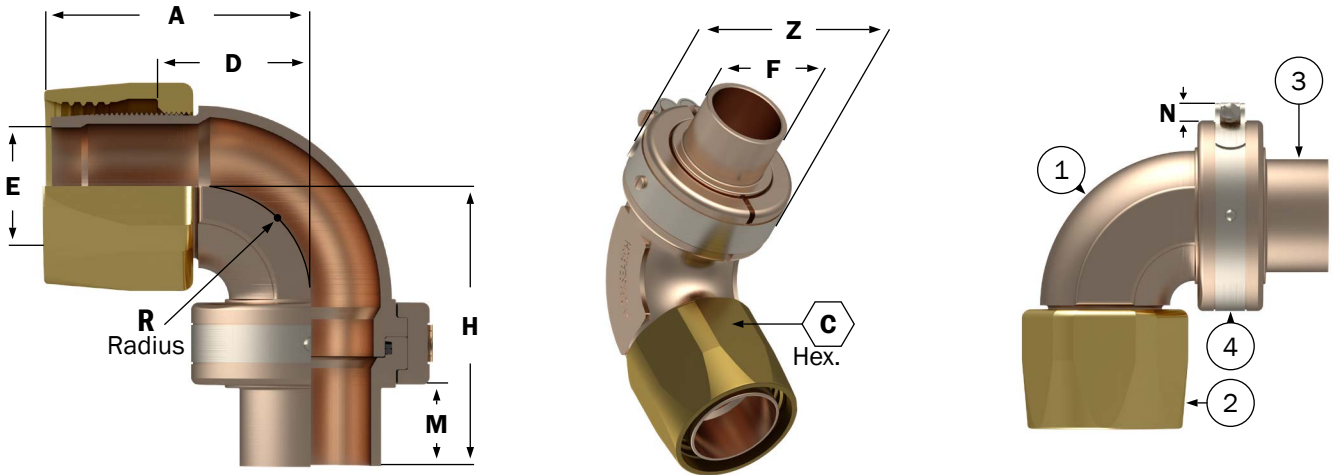
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Male Sil-Braze Tailpiece

Elbow - 90°



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



Dimensions												
Part Number	IPS Size	A	C	D	E	F	H	M	N	R	Z	Est. Wt. (lbs.)
FC9425-2032-66	1¼	3.89	2.44	2.05	1.69	1.66	4.18	1.12	.39	1.62	3.00	-
FC9425-2432-66	1½	3.89	2.44	2.05	1.69	1.90	4.30	1.25	.39	1.62	3.31	-
FC9425-3240-66	2	4.39	3.25	2.48	2.12	2.38	4.76	1.31	.39	1.88	4.00	-
FC9425-4048-66	2½	4.61	3.88	2.70	2.69	2.88	4.71	1.12	.39	2.09	4.42	-

Components		Part Number	Size				Material
Description	Req'd per Ass'y	Base No.	2032	2432	3240	4048	
Elbow ①	1	188-185249-	1.25-32	1.5-32	2-40	2.5-48	
Socket ②	1	1212-	32B	32B	40B	48B	
Tailpiece ③	1	FF5002-188	20	24	32	40	
Split Clamp ④	1	900758	1.25	1.5	2	2.5	

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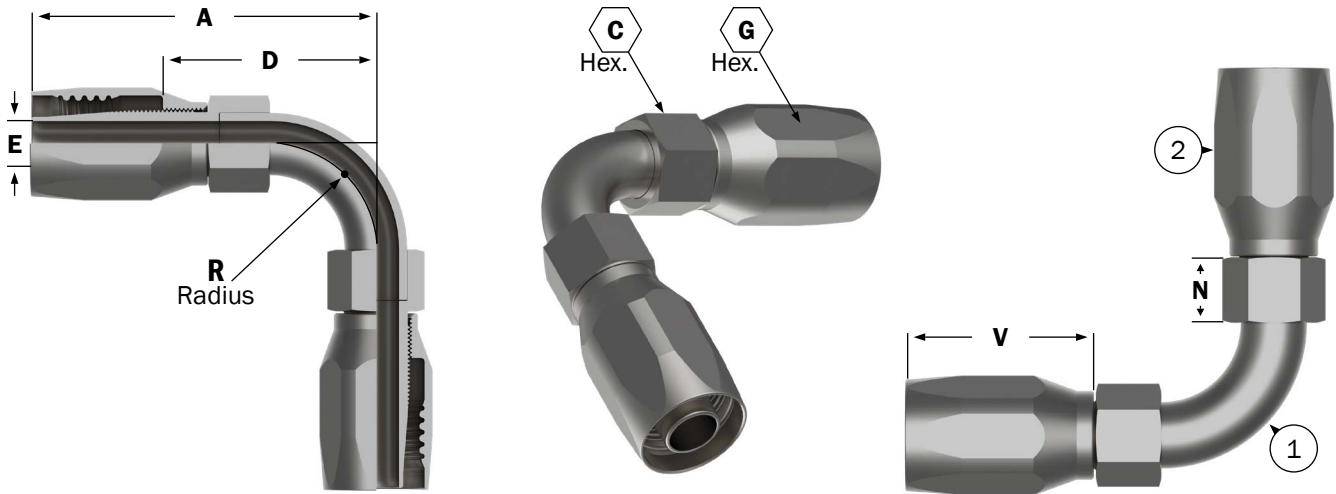
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions												
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
90ELB-1488D-0606	C19356	3⁄8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.20
90ELB-1488D-0808	C19357	1⁄2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.40
90ELB-1488D-1010	C19358	5⁄8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.60
90ELB-1488D-1212	C19359	3⁄4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.90

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

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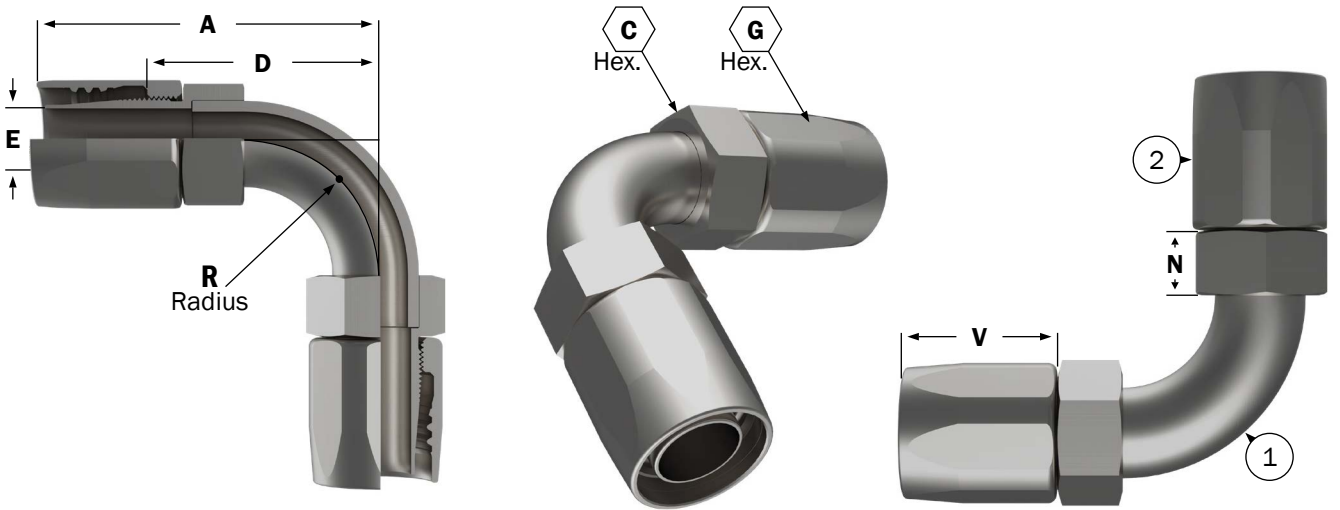
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions												
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
90ELB-1488D-1616	C19360	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.30
90ELB-1488D-2020	C19692	1 1⁄4"	4.27	1.62	2.91	1.05	1.75	.70	1.75	1.25	1.75	1.80
90ELB-1488D-2424	C19693	1 1⁄2"	4.65	1.81	3.19	1.28	1.94	.74	2.00	1.50	1.84	2.30
90ELB-1488D-3232	C19691	2"	5.68	2.38	3.84	1.75	2.44	.86	2.50	2.00	2.25	3.20

Components						
Description	Req'd per Ass'y	1616	2020	2424	3232	Material
Elbow ①	1	C19108	C19109	C19110	C19111	Monel
Socket ②	2	C18667-2	C18703-2	C18990-2	C18662	Monel

All dimensions are in inches.
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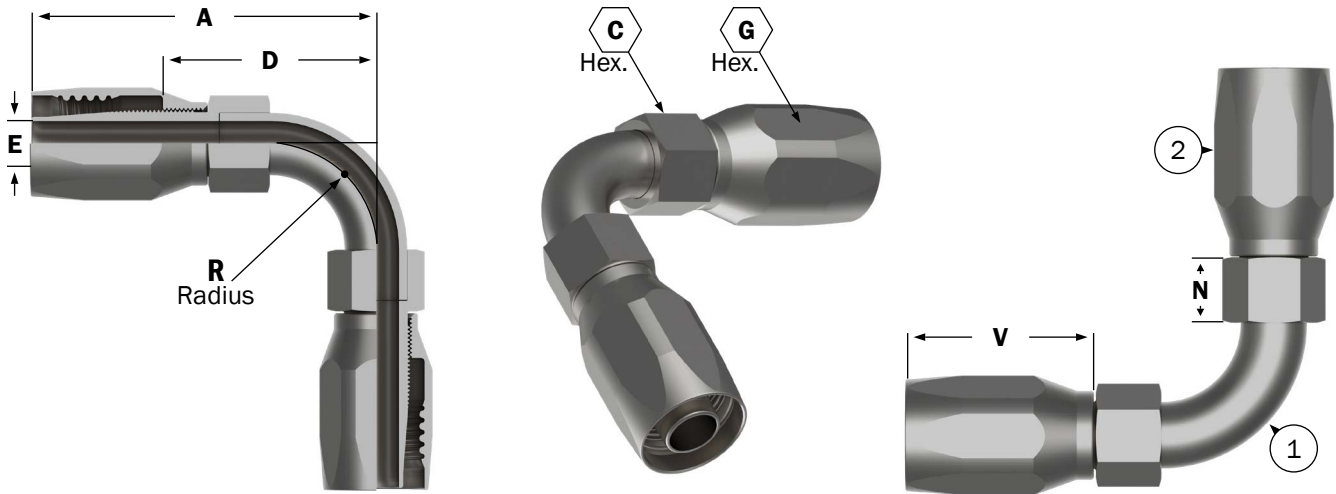
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions											
Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
4-191302-6	3/8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.24
4-191302-8	1/2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.41
4-191302-10	5/8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.59
4-191302-12	3/4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.90

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	0606	0808	1010	1212	Material		
Elbow ①	1	4-419037-	6	8	10	12	Monel		
Socket ②	2	4-1210-	6	8	10	12	Monel		

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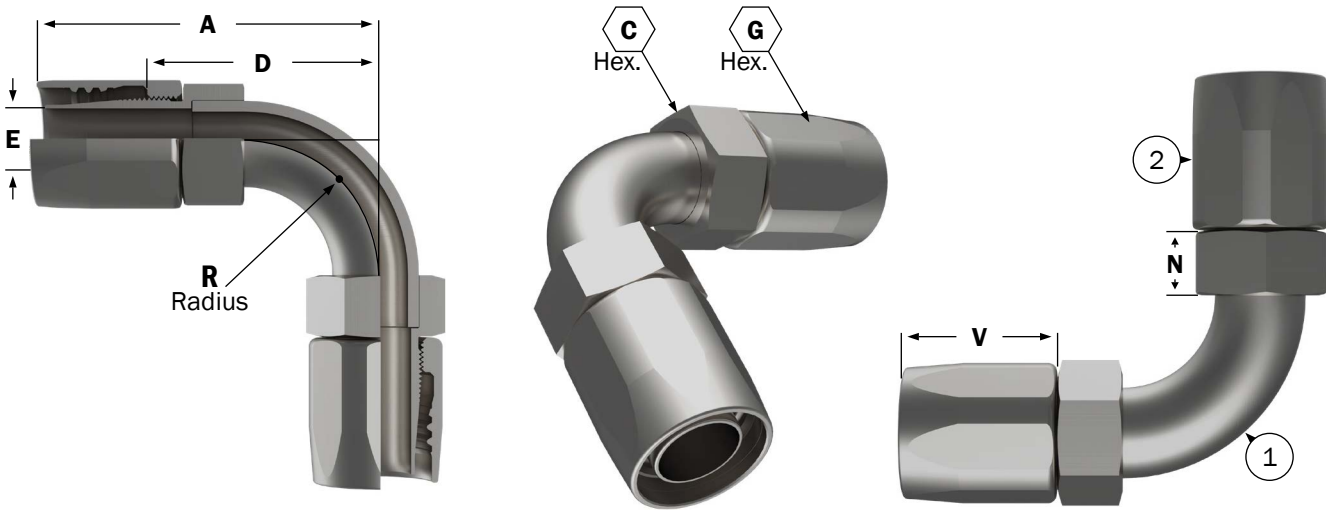
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions											
Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
4-191302-16	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.31
4-191302-32	2"	5.68	2.38	3.84	1.75	2.44	.86	2.50	2.00	2.25	3.20

Components		Part Number				Size	
Description	Req'd per Ass'y	Base No.	1616	3232	Material		
Elbow ①	1	15-419037-	16	32	Monel		
Socket ②	2	4-1212-	16	32	Monel		

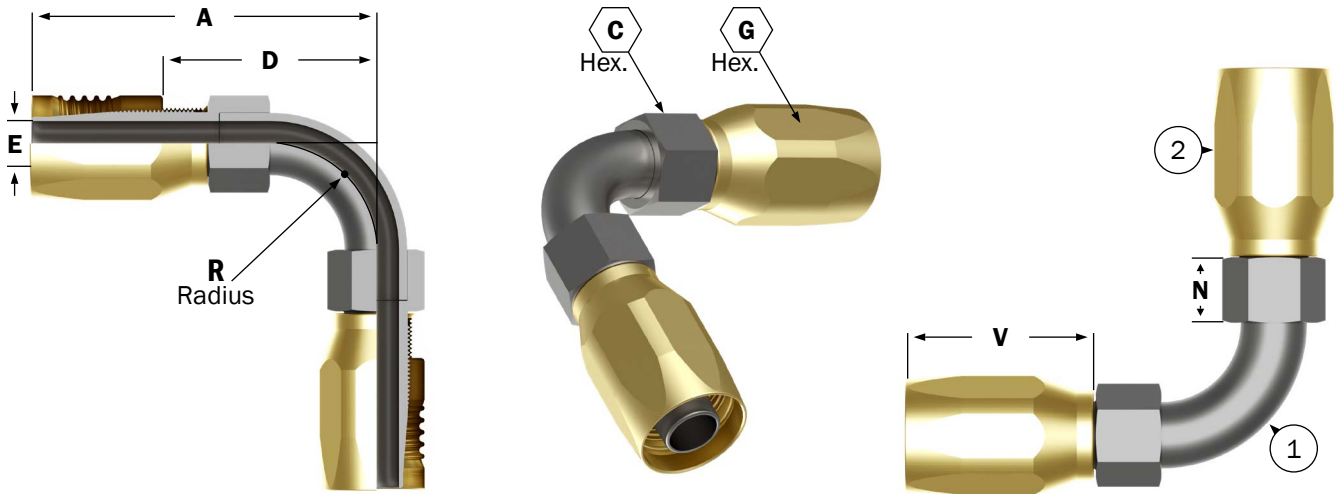
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Hose to Hose

Elbow - 90° Dogleg



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



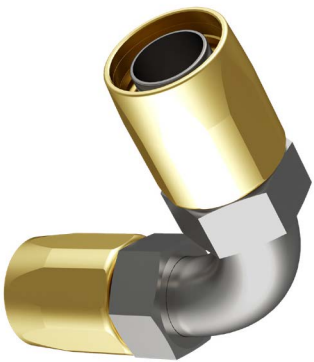
Dimensions												
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
90ELB-BMC1488D-0606	C19351	3/8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.20
90ELB-BMC1488D-0808	C19352	1/2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.40
90ELB-BMC1488D-1010	C19353	5/8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.60
90ELB-BMC1488D-1212	C19354	3/4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.90

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

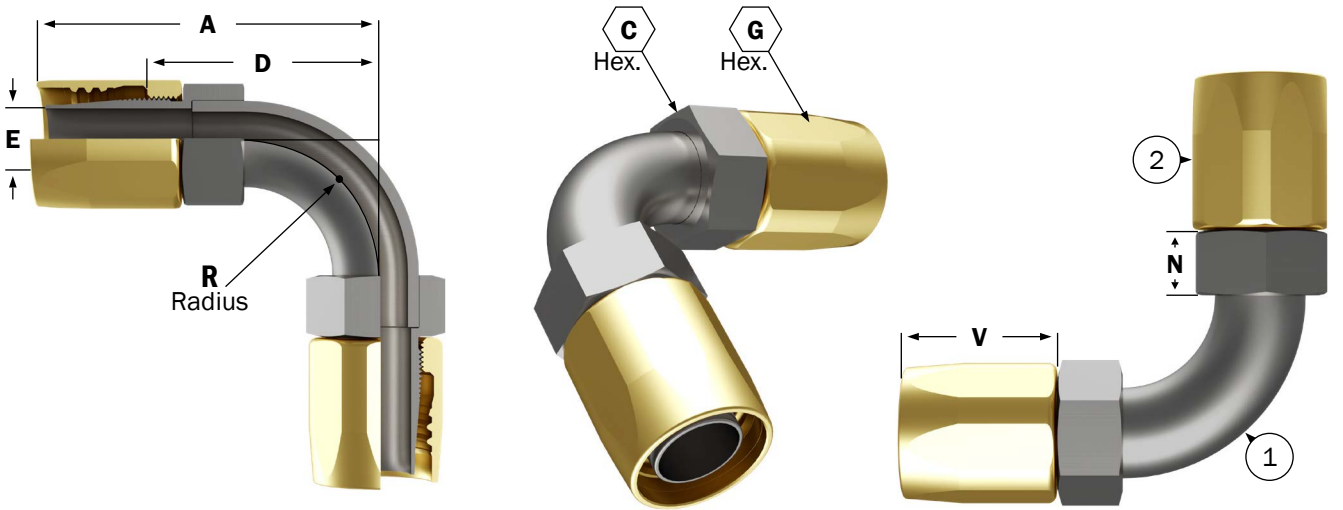
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions												
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
90ELB-BMC1488D-1616	C19355	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.30

Components			
Description	Req'd per Ass'y	1616	Material
Elbow ①	1	C19108	Monel
Socket ②	2	C18667-1	Brass

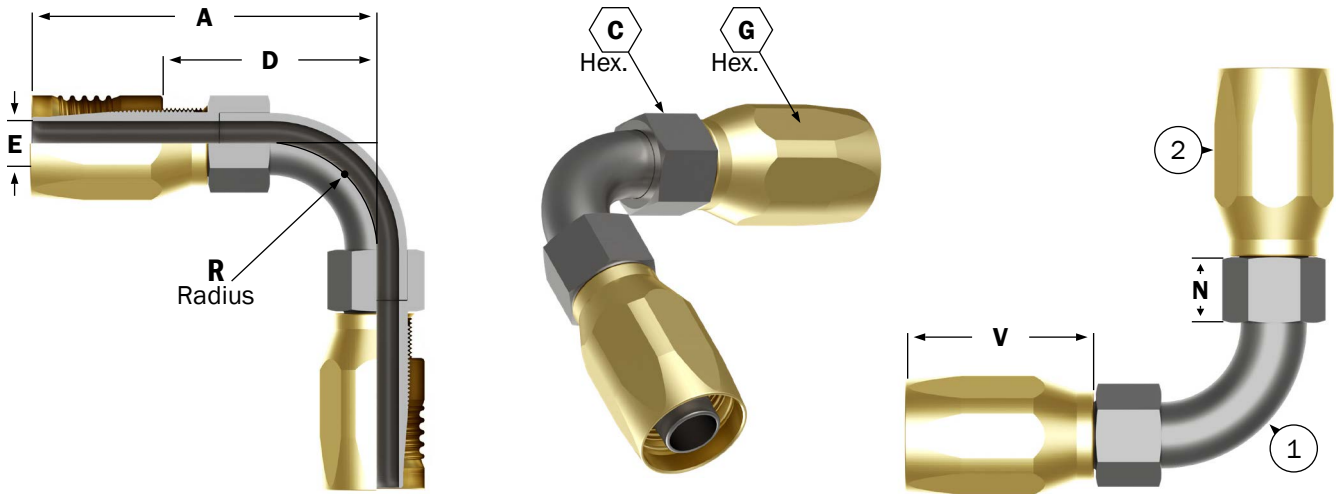
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Hose to Hose

Elbow - 90° Dogleg



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



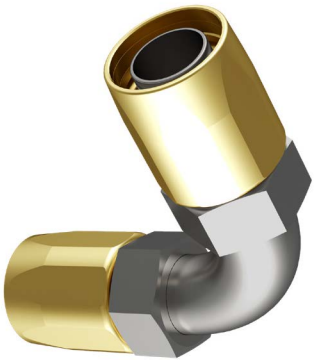
Dimensions											
Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
93-191302-6	3/8"	2.45	.56	1.55	.24	.81	.58	.50	.38	1.30	.24
93-191302-8	1/2"	3.05	.75	1.90	.36	.94	.58	.75	.50	1.65	.41
93-191302-10	5/8"	3.57	.81	2.28	.46	1.12	.70	1.00	.62	1.80	.59
93-191302-12	3/4"	4.15	1.00	2.58	.55	1.25	.74	1.25	.75	2.10	.90

Components		Part Number						Size	
Description	Req'd per Ass'y	Base No.	0606	0808	1010	1212			Material
Elbow ①	1	4-419037-	6	8	10	12			Monel
Socket ②	2	1210-	6B	8B	10B	12B			Monel

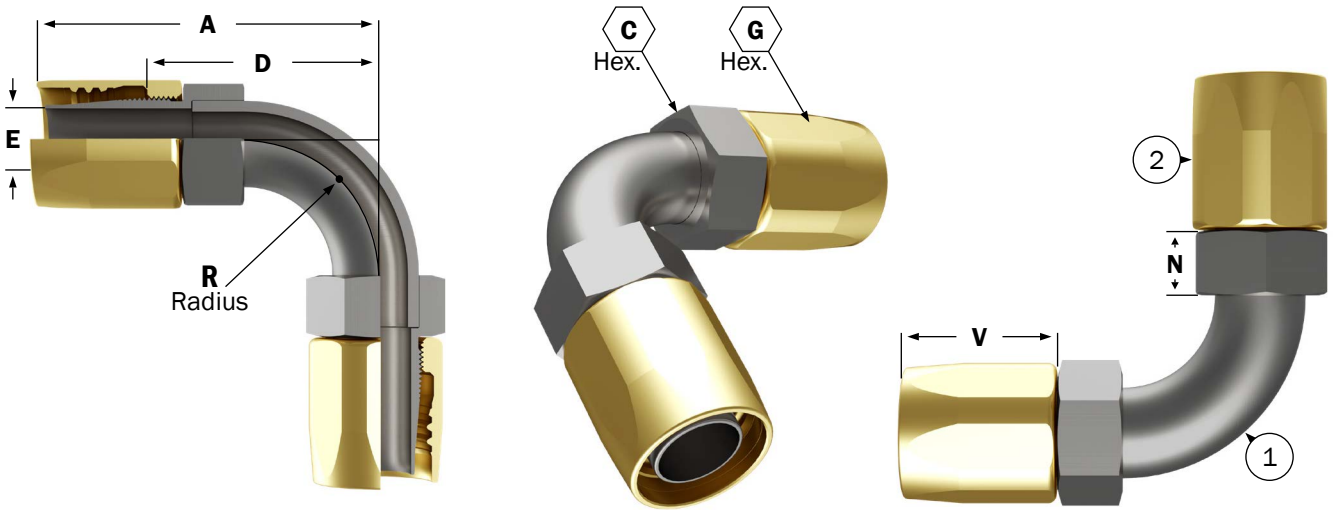
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions											
Part Number	I.P.S. Size	A	C	D	E	G	N	R	S	V	Est. Wt. (lbs.)
93-191302-16	1"	3.93	1.38	2.66	.82	1.44	.70	1.50	1.00	1.66	1.31

Components		Part Number			Size	
Description	Req'd per Ass'y	Base No.	1616			Material
Elbow ①	1	15-419037-	16			Monel
Socket ②	2	1212-	16B			Monel

All dimensions are in inches.
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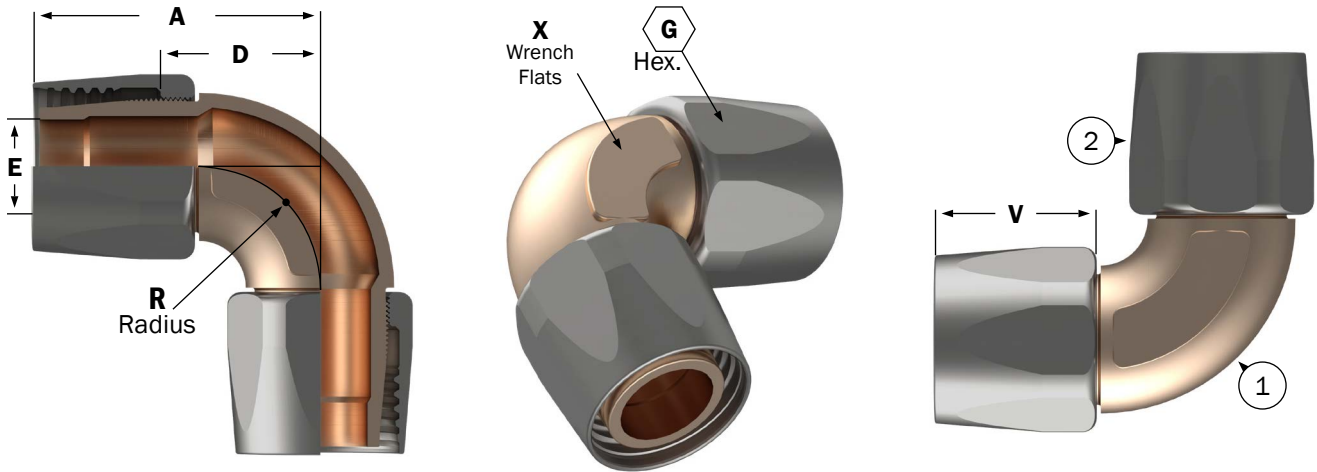
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions										
Part Number	Drawing Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)
90ELB-MB1488D-1616	C19341	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.20
90ELB-MB1488D-2020	C19342	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.80
90ELB-MB1488D-2424	C19343	1½"	3.24	1.78	1.16	1.94	1.38	1.84	1.69	2.30
90ELB-MB1488D-3232	C19344	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.20
90ELB-MB1488D-4040	C19345	2½"	4.39	2.48	2.12	3.25	1.88	2.50	2.75	5.60
90ELB-MB1488D-4848	C19346	3"	4.70	2.80	2.69	3.88	2.19	2.50	3.19	10.40

Components								
Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
Elbow ①	1	C18121	C19007	C19012	C18804	C19025	C18117	Alum. Bronze
Socket ②	2	C18667-2	C18703-2	C18990-2	C18662	C18991	C18992	Monel

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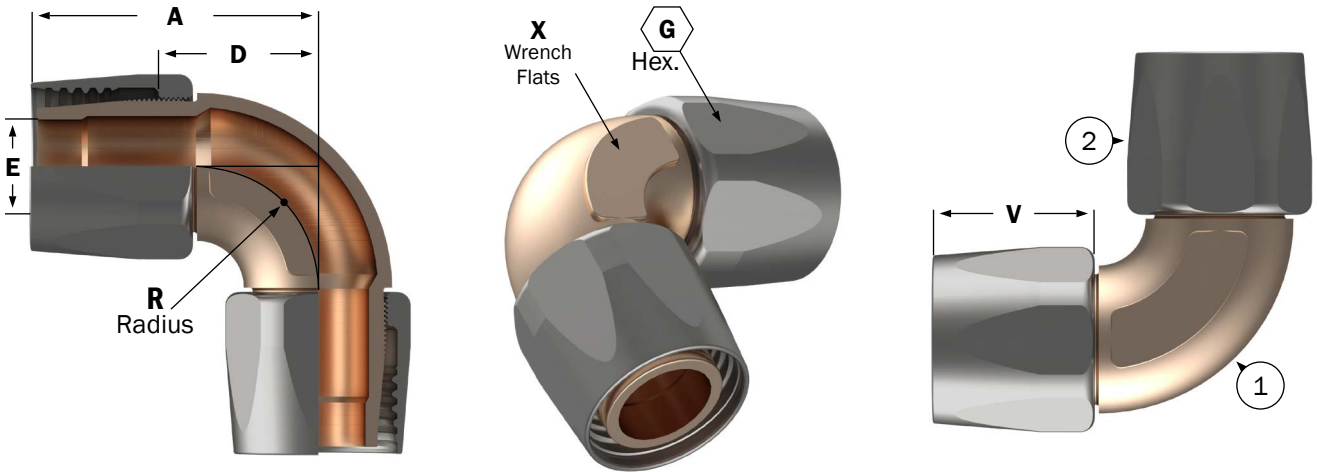
Hose to Hose

Elbow - 90° Dogleg

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



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



Dimensions										
Part Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)	
375-190093-16	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.17	
375-190093-20	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.79	
375-190093-24	1½"	3.24	1.78	1.161	1.94	1.38	1.84	1.69	2.30	
375-190093-32	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.25	
375-190093-40	2½"	4.39	2.48	2.12	3.25	1.88	3.00	2.75	5.62	
375-190093-48	3"	4.70	2.80	2.69	3.88	2.19	3.50	3.19	10.35	

Components		Part Number							Material
		Size							
Description	Req'd per Ass'y	Base No.	-16	-20	-24	-32	-40	-48	Material
Elbow ①	1	188-185093-	16	20	24	32	40	48	Alum. Bronze
Socket ②	2	4-1212-	16	20	24	32	40	48	Monel

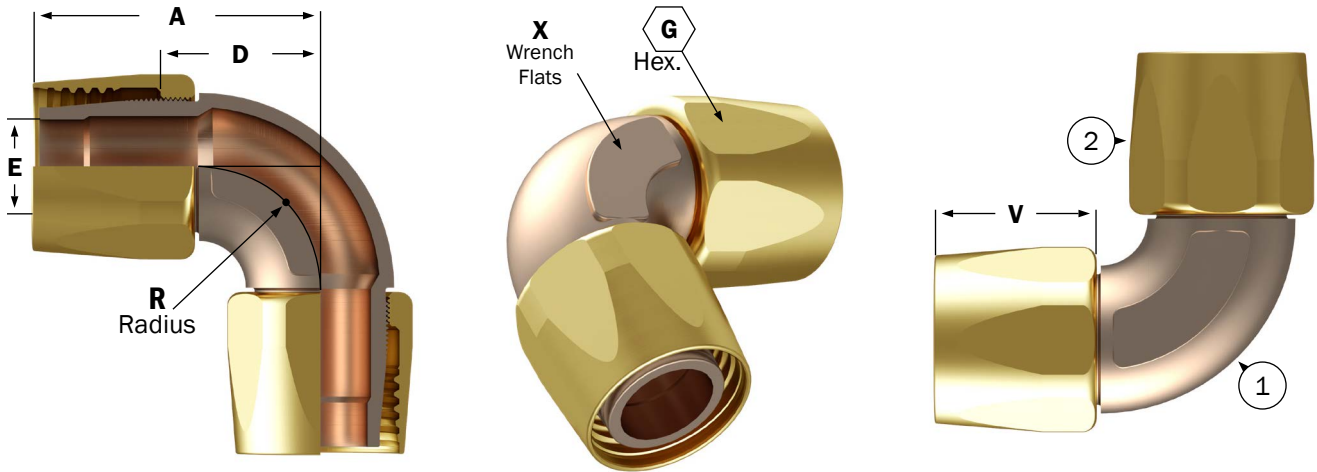
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions										
Part Number	Drawing Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)
90ELB-B1488D-1616	C19327	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.20
90ELB-B1488D-2020	C19328	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.80
90ELB-B1488D-2424	C19329	1½"	3.24	1.78	1.16	1.94	1.38	1.84	1.69	2.30
90ELB-B1488D-3232	C19330	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.20
90ELB-B1488D-4040	C19331	2½"	4.39	2.48	2.12	3.25	1.88	2.50	2.75	5.60
90ELB-B1488D-4848	C19332	3"	4.70	2.80	2.69	3.88	2.19	2.50	3.19	10.40

Components								
Description	Req'd per Ass'y	1616	2020	2424	3232	4040	4848	Material
Elbow ①	1	C18121	C19007	C19012	C18804	C19025	C18117	Alum. Bronze
Socket ②	2	C18667-1	C18703-1	C18990-1	C18811	C18822	C17901	Brass

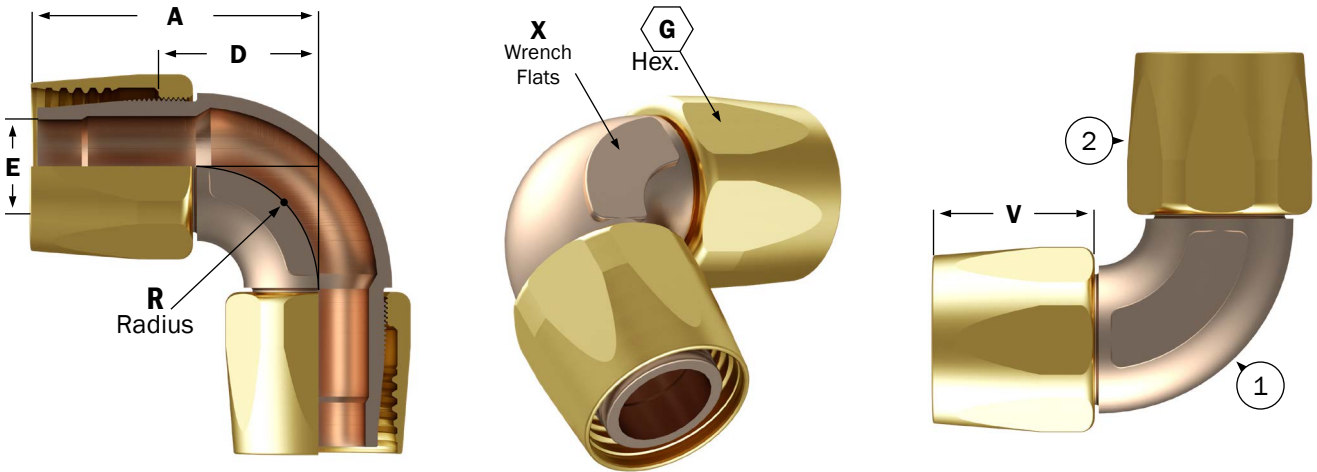
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions										
Part Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)	
66-190093-16	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.17	
66-190093-20	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.79	
66-190093-24	1½"	3.24	1.78	1.161	1.94	1.38	1.84	1.69	2.30	
66-190093-32	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.25	
66-190093-40	2½"	4.39	2.48	2.12	3.25	1.88	3.00	2.75	5.62	
66-190093-48	3"	4.70	2.80	2.69	3.88	2.19	3.50	3.19	10.35	

Components		Part Number							Material
		Size							
Description	Req'd per Ass'y	Base No.	-16	-20	-24	-32	-40	-48	Material
Elbow ①	1	188-185093-	16	20	24	32	40	48	Alum. Bronze
Socket ②	2	1212-	16B	20B	24B	32B	40B	48B	Brass

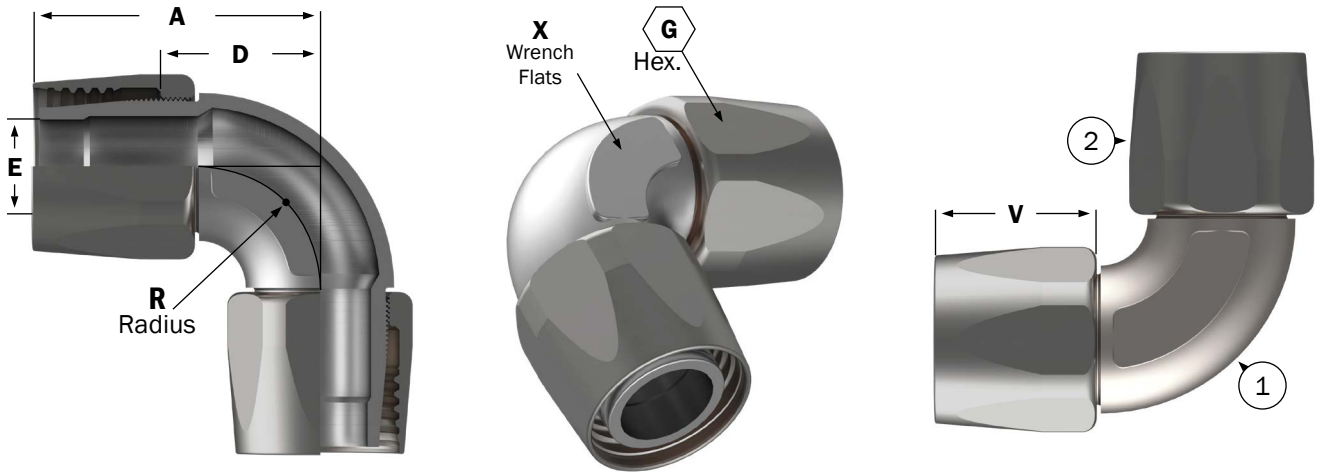
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions										
Part Number	Drawing Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)
90ELB-MSS1488D-1616	C19347	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.20
90ELB-MSS1488D-2020	C19348	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.80
90ELB-MSS1488D-2424	C21627	1½"	3.24	1.78	1.16	1.94	1.38	1.84	1.69	2.30
90ELB-MSS1488D-3232	C19349	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.20
90ELB-MSS1488D-4040	C19350	2½"	4.39	2.48	2.12	3.25	1.88	2.50	2.75	5.60

Components							
Description	Req'd per Ass'y	1616	2020	2424	3232	4040	Material
Elbow ①	1	C19249	C19250	C21628	C19251	C19252	Stainless Steel
Socket ②	2	C18667-2	C18703-2	C18990-2	C18662	C18991	Monel

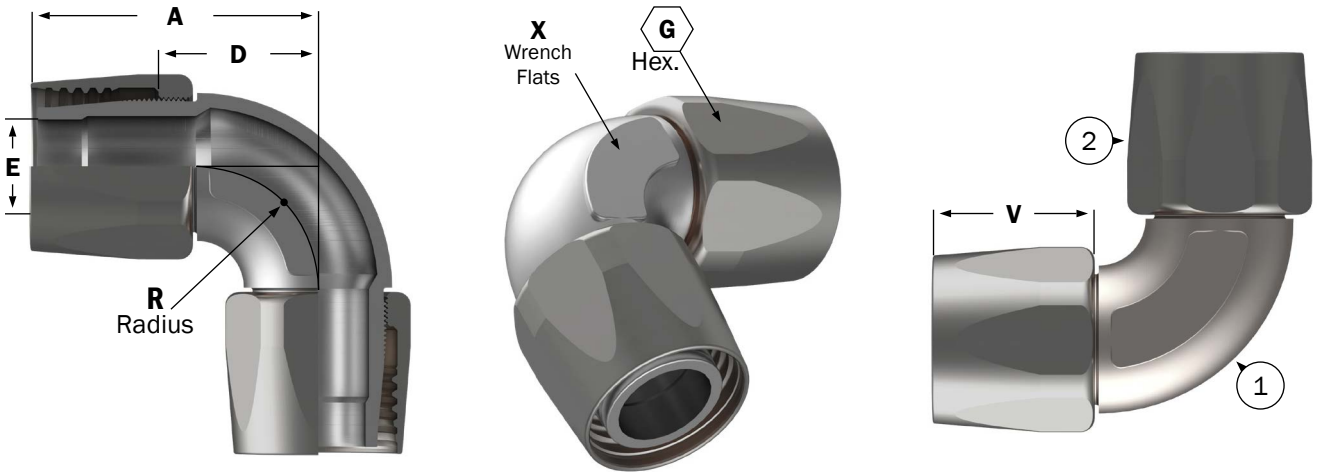
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Hose to Hose

Elbow - 90° Dogleg



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



Dimensions										
Part Number	I.P.S. Size	A	D	E	G	R	V	X	Est. Wt. (lbs.)	
412-190093-16	1"	2.80	1.53	.75	1.44	1.12	1.66	1.19	1.17	
412-190093-20	1¼"	2.98	1.62	1.00	1.75	1.22	1.75	1.44	1.79	
412-190093-24	1½"	3.24	1.78	1.161	1.94	1.38	1.84	1.69	2.30	
412-190093-32	2"	3.89	2.05	1.69	2.44	1.62	2.25	2.25	3.25	
412-190093-40	2½"	4.39	2.48	2.12	3.25	1.88	3.00	2.75	5.62	

		Part Number								
		Size								
Description	Req'd per Ass'y	Base No.	-16	-20	-24	-32	-40		Material	
Elbow ①	1	407-185093	16	20	24	32	40		Stainless Steel	
Socket ②	2	4-1212-	16	20	24	32	40		Monel	

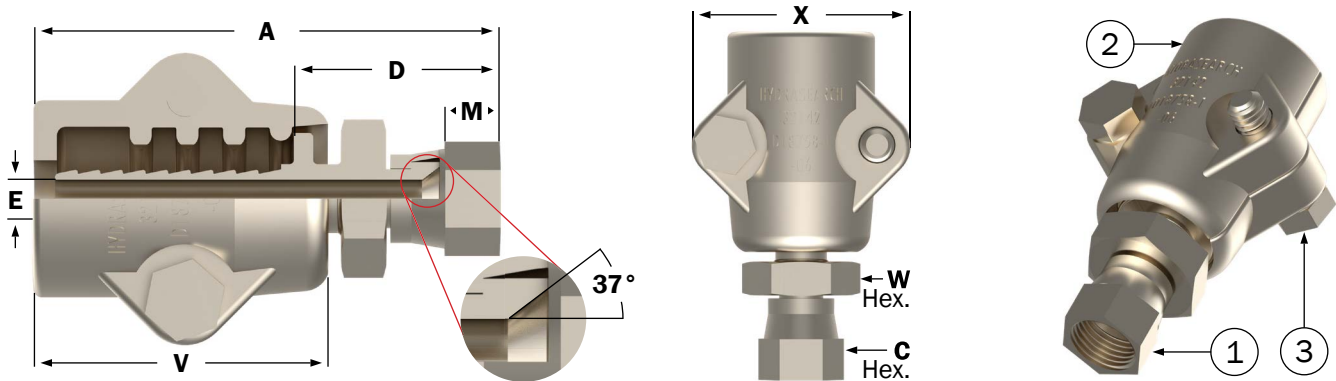
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S.A.E. 37° Flare Swivel to Hose

J.I.C. End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group XI

For use with the following hose: HS133



Dimensions

Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. (lbs.)
EF-1489A-0606	C18930	3/8"	9/16"-18	3.06	.69	1.33	.26	.33	2.02	.94	2.00	.80
EF-1489A-0806	C18931	3/8"	3/4"-16	3.25	.88	1.52	.26	.40	2.02	.94	2.00	.80
EF-1489A-0808	C18932	1/2"	3/4"-16	3.34	.88	1.52	.39	.40	2.08	1.00	2.40	1.10
EF-1489A-1008	C18933	1/2"	7/8"-14	3.41	1.00	1.58	.39	.50	2.08	1.00	2.40	1.20
EF-1489A-1208	C18934	1/2"	1 1/16"-12	3.56	1.25	1.74	.39	.47	2.08	1.25	2.40	1.50
EF-1489A-1212	C18935	3/4"	1 1/16"-12	3.86	1.25	1.81	.61	.47	2.43	1.25	2.93	1.70
EF-1489A-1412	C18936	3/4"	1 3/16"-12	3.85	1.50	1.95	.61	.57	2.42	1.25	3.27	1.80
EF-1489A-1612	C18937	3/4"	1 5/16"-12	3.97	1.50	1.93	.61	.55	2.43	1.63	2.93	1.90

Components

Description	Req'd per Ass'y	0606	0806	0808	1008	1208	1212	1412	1612	Mat'l
Nipple Ass'y ①	1	C18882	C18883	C18884	C18885	C18886	C18887	C18888	C18889	Monel
Segment ②	2	D18758-1	D18758-1	C18640-1	C18640-1	C18640-1	D18743-1	D18743-1	D18743-1	Monel
Bolt ③	2	B18759	B18759	B18645	B18645	B18645	B18745	B18745	B18745	Monel

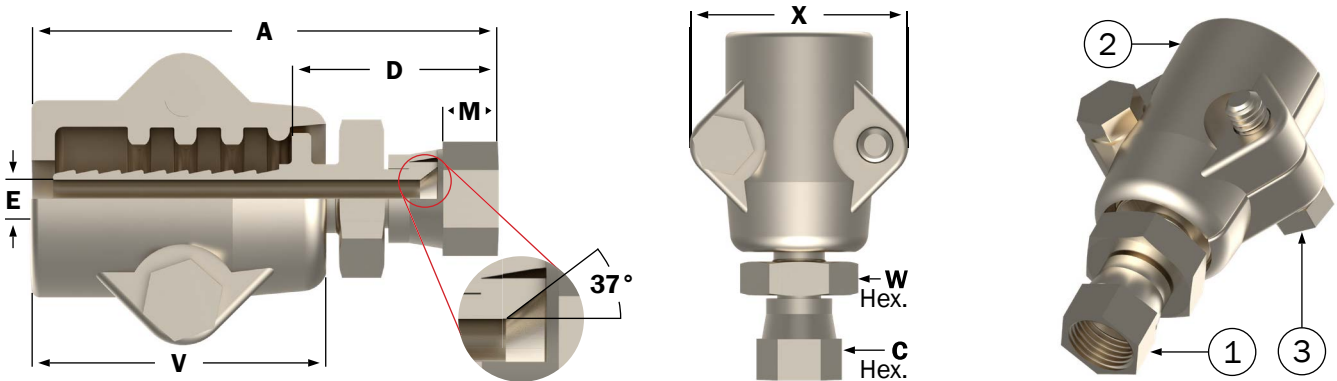
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S.A.E. 37° Flare Swivel to Hose

J.I.C. End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group XI

For use with the following hose: HS133



Dimensions

Part Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. (lbs.)
FC7100-0606-4	3/8"	9/16"-18	3.10	.69	1.48	.26	.40	2.00	.94	2.34	.80
FC7100-0808-4	1/2"	3/4"-16	3.31	.88	1.59	.39	.44	2.10	1.00	2.66	1.10
FC7100-1008-4	1/2"	7/8"-14	3.42	1.00	1.70	.39	.52	2.10	1.00	2.66	1.20
FC7100-1208-4	1/2"	1 1/16"-12	3.52	1.25	1.80	.39	.57	2.10	1.25	2.66	1.50
FC7100-1212-4	3/4"	1 1/16"-12	3.85	1.25	1.95	.61	.57	2.42	1.31	3.27	1.70
FC7100-1612-4	3/4"	1 1/16"-12	4.05	1.50	2.15	.61	.60	2.42	1.62	3.27	1.90

Components

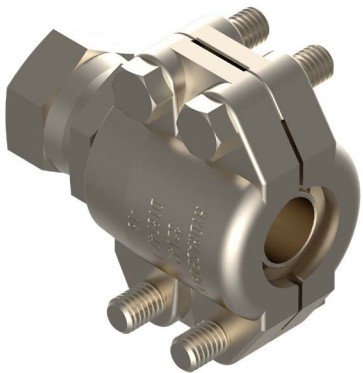
Description	Req'd per Ass'y	Base No.	0606	0808	1008	1208	1212	1612	Mat'l
Nipple Ass'y ①	1	FC6100-	0606-4	0808-4	1008-4	1208-4	1212-4	1612-4	Monel
Segment ②	2	FC2057-	1-06-4	1-08-4	1-08-4	1-08-4	1-12-4	1-12-4	Monel
Bolt ③	2	FF9032-	05-18-4	06-20-4	06-20-4	06-20-4	07-24-4	07-24-4	Monel

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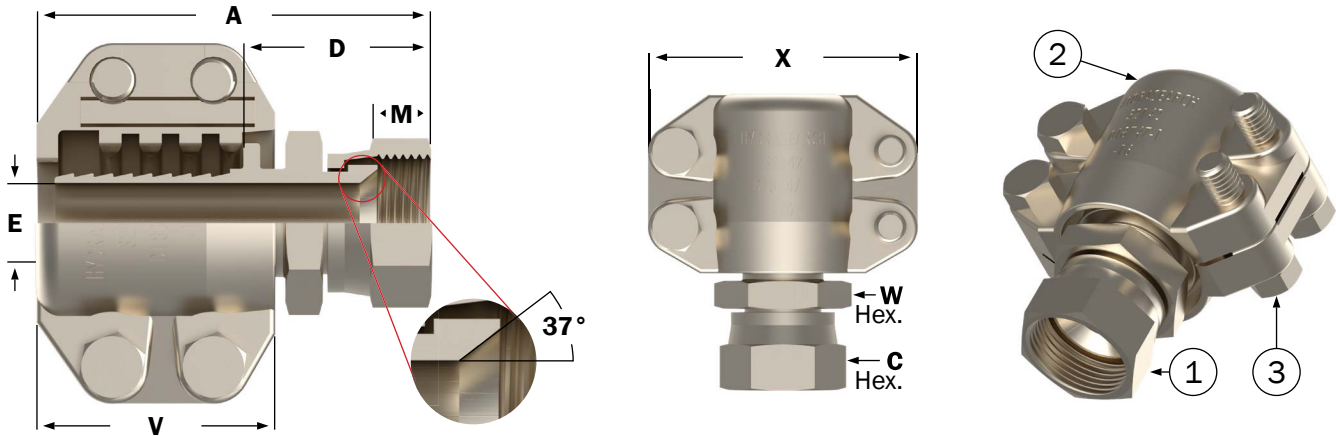
S.A.E. 37° Flare Swivel to Hose

J.I.C. End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group XI



For use with the following hose: HS133



Dimensions												
Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. (lbs.)
EF-1489A-1616	C18938	1"	1½"-12	3.97	1.50	1.92	.82	.55	2.44	1.63	3.75	2.00
EF-1489A-2016	C18939	1"	1⅝"-12	4.02	2.00	1.97	.82	.54	2.44	1.62	3.75	2.50
EF-1489A-2020	C18940	1¼"	1⅝"-12	4.62	2.00	2.29	1.05	.54	2.81	2.00	4.00	2.80
EF-1489A-2420	C18941	1¼"	1⅞"-12	5.00	2.25	2.67	1.05	.67	2.81	2.25	4.00	3.30
EF-1489A-2424	C18942	1½"	1⅞"-12	5.19	2.25	2.69	1.30	.67	3.00	2.25	4.42	4.50
EF-1489A-3232	C18943	2"	2½"-12	6.19	3.00	2.89	1.75	.86	3.81	3.00	5.04	6.30

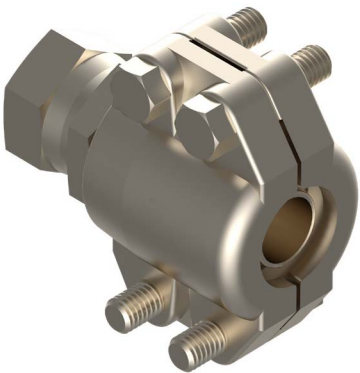
Components								
Description	Req'd per Ass'y	1616	2016	2020	2420	2424	3232	Mat'l
Nipple Ass'y ①	1	C18890	C18891	C18892	C18893	C18894	C18895	Monel
Segment ②	2	D18747-1	D18747-1	D18748-1	D18748-1	D18750-1	D18704-1	Monel
Bolt ③	4	B18746	B18746	B18746	B18746	B18755	B18718	Monel

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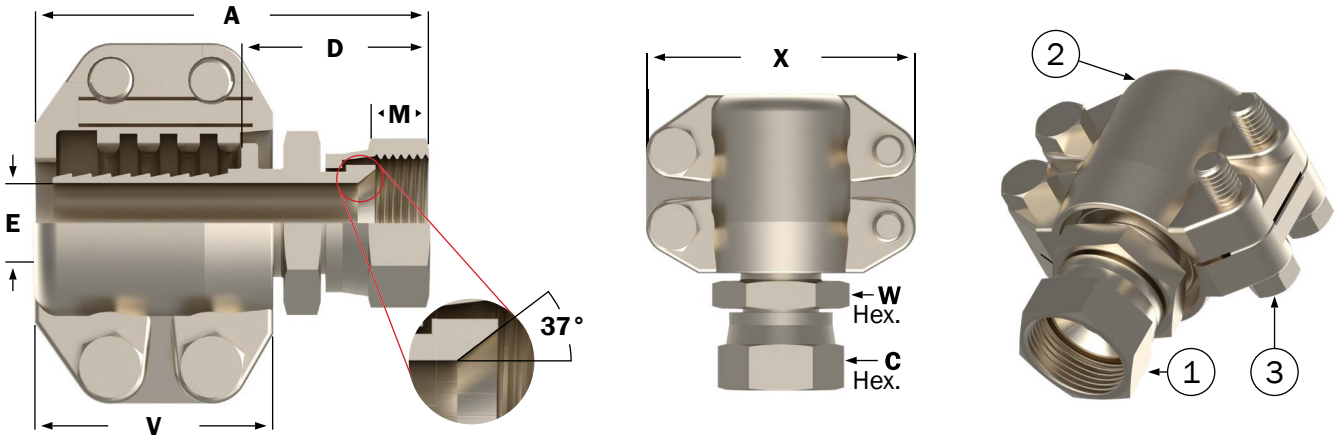
S.A.E. 37° Flare Swivel to Hose

J.I.C. End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group XI



For use with the following hose: HS133



Dimensions											
Part Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	W	X	Est. Wt. (lbs.)
FC7100-1616-4	1"	1⅝"-12	4.05	1.50	2.14	.82	.60	2.42	1.62	4.02	2.00
FC7100-2020-4	1¼"	1⅝"-12	4.62	2.00	2.53	1.05	.64	2.80	2.00	4.31	2.80
FC7100-2420-4	1¼"	1⅞"-12	4.89	2.25	2.80	1.05	.74	2.80	2.25	4.31	3.30
FC7100-2424-4	1½"	1⅞"-12	5.10	2.25	2.60	1.30	.74	3.01	2.25	4.69	4.50
FC7100-3232-4	2"	2½"-12	6.37	2.88	3.29	1.75	.93	3.88	2.88	5.65	6.30

Components								
Description	Req'd per Ass'y	Part Number Base No.	Size					Mat'l
			1616	2020	2420	2424	3232	
Nipple Ass'y ①	1	FC6100-	1616-4	2020-4	2420-4	2424-4	3232-4	Monel
Segment ②	2	FC2057-	1-16-4	1-20-4	1-20-4	1-24-4	1-32-4	Monel
Bolt ③	4	FC9032-	07-28-4	07-28-4	07-28-4	08-28-4	09-36-4	Monel

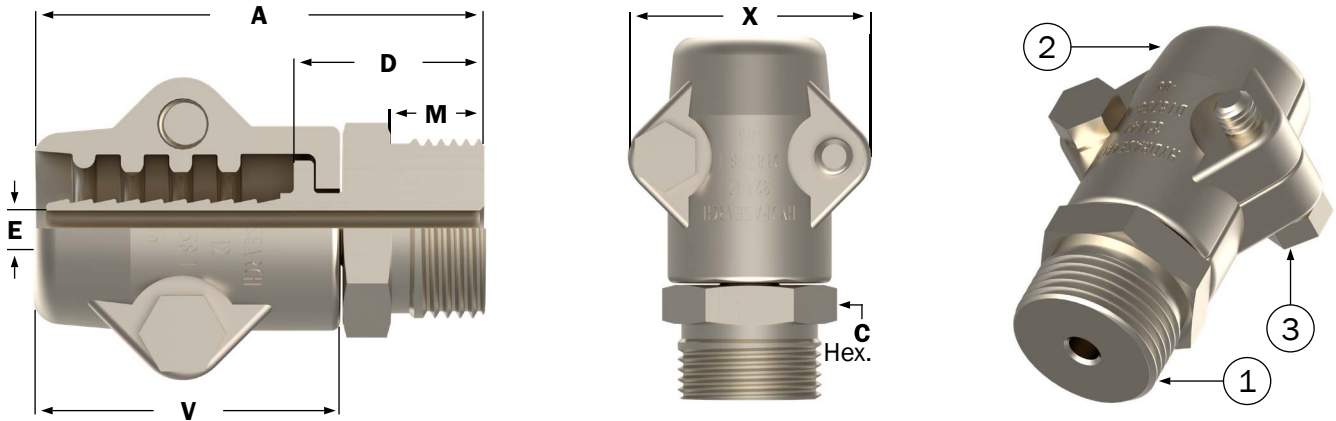
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Male “O” Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group XI

For use with the following hose: HS133



Dimensions											
Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	X	Est. Wt. (lbs.)
EF-1489C-0406	C18950	1/4"	1 3/16"-12	2.99	1.25	1.26	.25	.62	2.02	2.00	1.00
EF-1489C-0408	C18951	1/4"	1 3/16"-12	3.10	1.25	1.28	.31	.62	2.08	2.40	1.30
EF-1489C-0606	C18952	3/8"	1 3/8"-12	2.90	1.44	1.28	.26	.62	2.00	2.34	1.30
EF-1489C-0608	C18953	3/8"	1 3/8"-12	3.10	1.44	1.28	.380	.62	2.08	2.40	1.40
EF-1489C-0612	C18954	3/8"	1 3/8"-12	3.48	1.44	1.58	.50	.62	2.42	3.27	1.60
EF-1489C-0808	C18955	1/2"	1 3/4"-12	3.15	1.81	1.44	.380	.62	2.08	2.40	1.70
EF-1489C-0812	C18956	1/2"	1 3/4"-12	3.62	1.81	1.58	.50	.62	2.43	2.93	2.20

Components									
Description	Req'd per Ass'y	0406	0408	0606	0608	0612	0808	0812	Mat'l
Nipple ①	1	C18842	C18843	C18875	C18844	C18876	C18845	C18846	Monel
Segment ②	2	C18758-1	C18640-1	D18758-1	C18640-1	D18743-1	C18640-1	D18743-1	Monel
Bolt ③	2	B18759	B18645	B18759	B18645	B18745	B18645	B18745	Monel

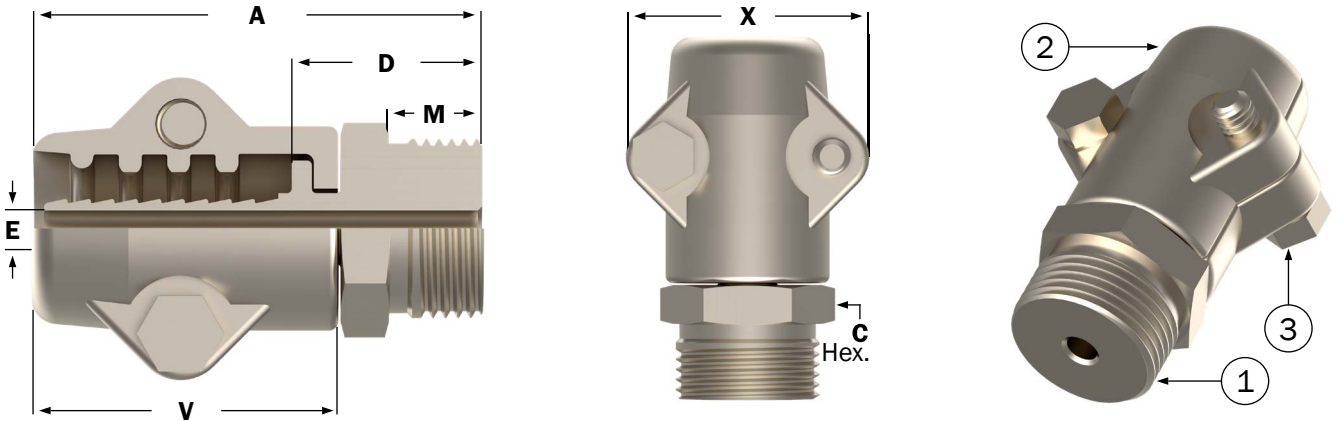
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Male “O” Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group XI

For use with the following hose: HS133



Dimensions										
Part Number	IPS Size	Thread CL-3A	A	C	D	E	M	V	X	Est. Wt. (lbs.)
FC7180-0406-4	1/4"	1 3/16"-12	2.90	1.25	1.28	.26	.62	2.00	2.34	1.00
FC7180-0408-4	1/4"	1 3/16"-12	3.02	1.25	1.30	.31	.62	2.10	2.66	1.30
FC7180-0608-4	3/8"	1 3/8"-12	3.08	1.44	1.36	.39	.62	2.10	2.66	1.40
FC7180-0808-4	1/2"	1 3/4"-12	3.14	1.81	1.32	.39	.62	2.10	2.66	1.70
FC7180-0812-4	1/2"	1 3/4"-12	3.48	1.81	1.58	.50	.62	2.42	3.27	2.20

Components								
		Part Number	Size					
Description	Req'd per Ass'y	Base No.	0406	0408	0608	0808	0812	Mat'l
Nipple ①	1	FC2074-	0406-4	0408-4	0608-4	0808-4	0812-4	Monel
Segment ②	2	FC2057-	1-06-4	1-08-4	1-08-4	1-08-4	1-12-4	Monel
Bolt ③	2	FF9032-	05-18-4	06-20-4	06-20-4	06-20-4	07-24-4	Monel

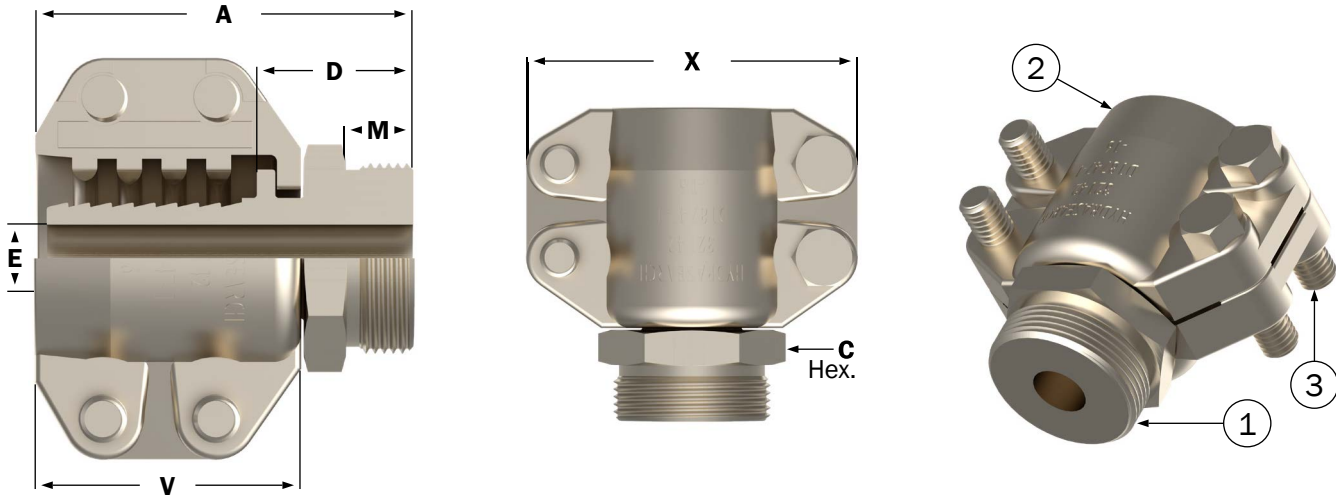
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Male “O” Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group XI

For use with the following hose: HS133



Dimensions											
Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	M	V	X	Est. Wt. (lbs.)
EF-1489C-0816	C18957	½"	1¾"-12	3.49	1.81	1.44	.620	.62	2.44	3.75	3.80
EF-1489C-1216	C18847	¾"	2"-12	3.74	2.12	1.69	.620	.62	2.44	3.75	3.80
EF-1489C-1616	C18959	1"	2⅝"-12	3.85	2.38	1.80	.81	.75	2.44	3.75	4.30
EF-1489C-1620	C18960	1"	2⅝"-12	4.21	2.38	1.91	1.05	.75	2.81	4.00	5.40
EF-1489C-2016	C18961	1¼"	2¾"-12	3.89	3.00	1.93	.81	.75	2.44	3.75	5.60
EF-1489C-2020	C18962	1¼"	2-¾"-12	4.34	3.00	2.04	1.06	.75	2.81	4.00	6.00
EF-1489C-2024	C18963	1¼"	2¾"-12	4.41	3.00	1.88	1.31	.75	3.00	4.42	7.50
EF-1489C-2424	C18964	1½"	3⅛"-12	4.67	3.12	2.14	1.31	.88	3.00	4.42	8.00
EF-1489C-2432	C18965	1½"	3⅛"-12	5.36	3.12	2.06	1.39	.88	3.81	5.04	11.40
EF-1489C-3232	C18966	2"	3¾"-12	5.36	3.88	2.06	1.75	.88	3.81	5.04	12.80

Components												
Description	Req'd per Ass'y	0816	1216	1616	1620	2016	2020	2024	2424	2432	3232	Mat'l
Nipple ①	1	C18877	C18847	C18848	C18849	C18878	C18850	C18851	C18852	C18853	C18854	Monel
Segment ②	2	D18747-1	D18747-1	D18747-1	D18748-1	D18747-1	D18748-1	D18750-1	D18750-1	D18704-1	D18704-1	Monel
Bolt ③	4	B18746	B18746	B18746	B18746	B18746	B18746	B18755	B18755	B18718	B18718	Monel

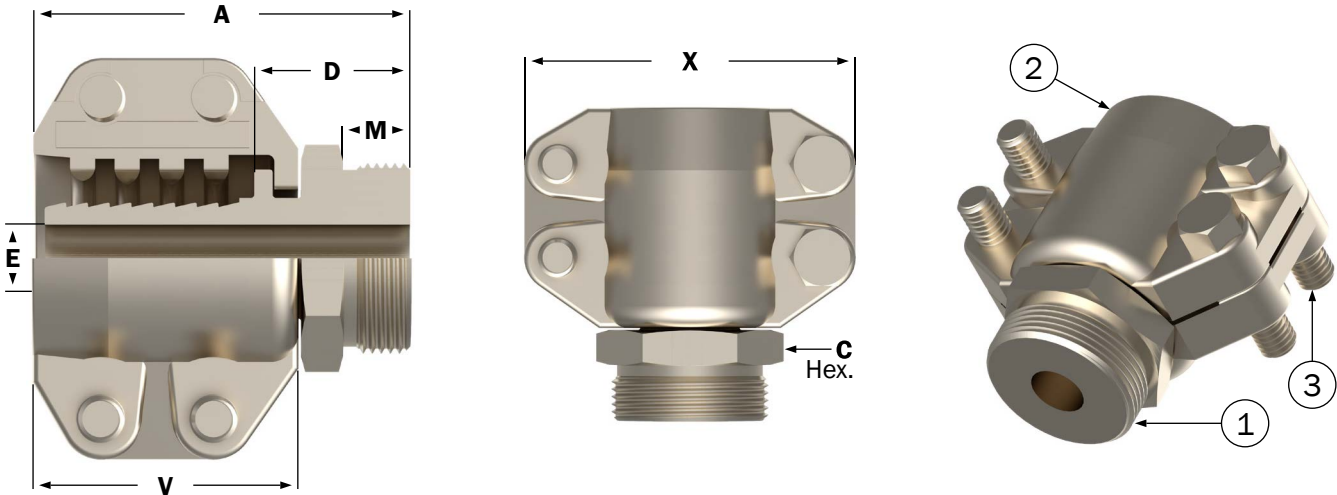
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Male “O” Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group XI

For use with the following hose: HS133



Dimensions										
Part Number	IPS Size	Thread CL-3A	A	C	D	E	M	V	X	Est. Wt. (lbs.)
FC7180-1216-4	¾"	2"-12	3.60	2.12	1.69	.62	.62	2.42	4.02	3.80
FC7180-1616-4	1"	2⅝"-12	3.84	2.38	1.93	.81	.75	2.42	4.02	4.30
FC7180-1620-4	1"	2⅝"-12	4.20	2.38	2.11	.81	.75	2.80	4.31	5.40
FC7180-2020-4	1¼"	2¾"-12	4.34	2.88	2.24	1.05	.75	2.80	4.31	6.00
FC7180-2024-4	1¼"	2¾"-12	4.42	2.88	2.12	1.30	.75	3.01	4.69	7.50
FC7180-2424-4	1½"	3⅛"-12	4.68	1.30	2.38	1.30	.88	3.01	4.69	8.00
FC7180-2432-4	1½"	3⅛"-12	5.56	3.12	2.48	1.39	.88	3.88	5.65	11.40
FC7180-3232-4	2"	3¾"-12	5.56	3.88	2.48	1.75	.88	3.88	5.65	12.80

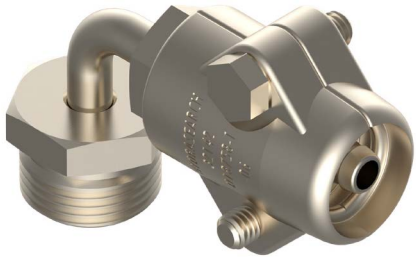
Components											
Description	Req'd per Ass'y	Part Number Base No.	Size								
			1216	1616	1620	2020	2024	2424	2432	3232	Mat'l
Nipple ①	1	FC2074-	1216-4	1616-4	1620-4	2020-4	2024-4	2424-4	2432-4	3232-4	Monel
Segment ②	2	FC2057-	1-16-4	1-16-4	1-20-4	1-20-4	1-24-4	1-24-4	1-32-4	1-32-4	Monel
Bolt ③	4	FF9032-	07-28-4	07-28-4	07-28-4	07-28-4	08-28-4	08-24-4	09-36-4	09-36-4	Monel

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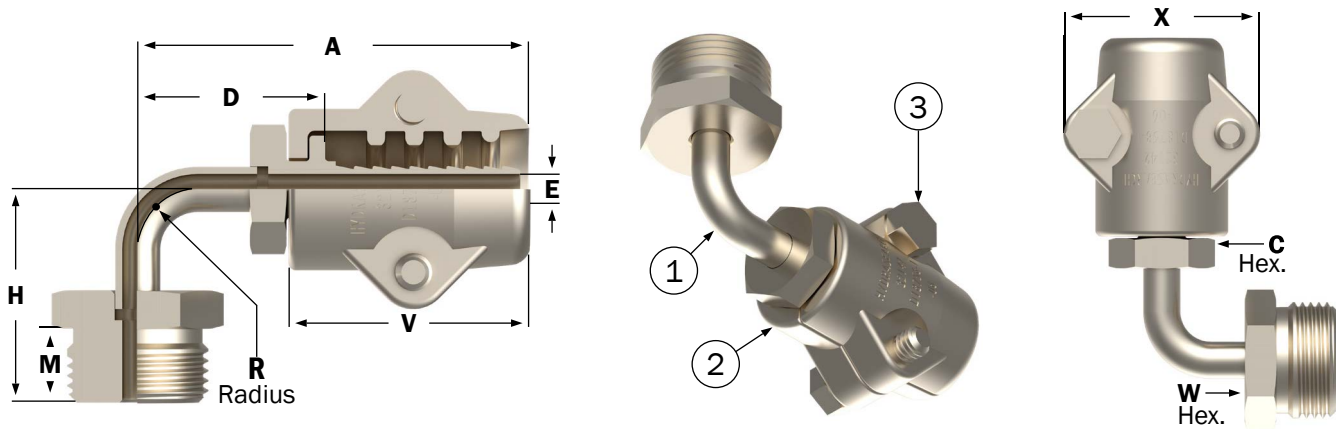
Male “O” Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: HS133



Dimensions														
Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	H	M	R	V	W	X	Est. Wt. (lbs.)
90EF-1489CL-0406	C18896	1/4"	1 3/16"-12	3.20	1.25	1.48	.26	1.69	.62	.50	2.02	.94	2.00	1.50
90EF-1489CL-0408	C18897	1/4"	1 3/16"-12	3.47	1.25	1.65	.39	1.68	.62	.75	2.08	1.00	2.40	2.00
90EF-1489CL-0608	C18898	3/8"	1 3/8"-12	3.47	1.44	1.65	.39	1.91	.62	.75	2.08	1.00	2.40	2.30
90EF-1489CL-0812	C18899	1/2"	1 3/4"-12	4.48	1.81	1.82	.61	2.31	.62	1.25	2.43	1.38	2.93	2.60

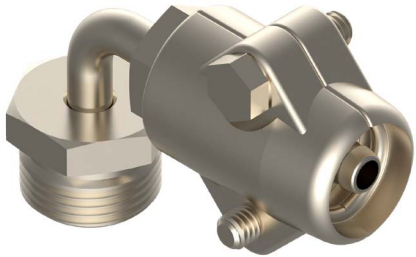
Components						
Description	Req'd per Ass'y	0406	0408	0608	0812	Mat'l
Elbow ①	1	C19443	C19444	C19445	C19446	Monel
Segment ②	2	D18758-1	C18640-1	C18640-1	D18743-1	Monel
Bolt ③	2	B18759	B18645	B18645	B18745	Monel

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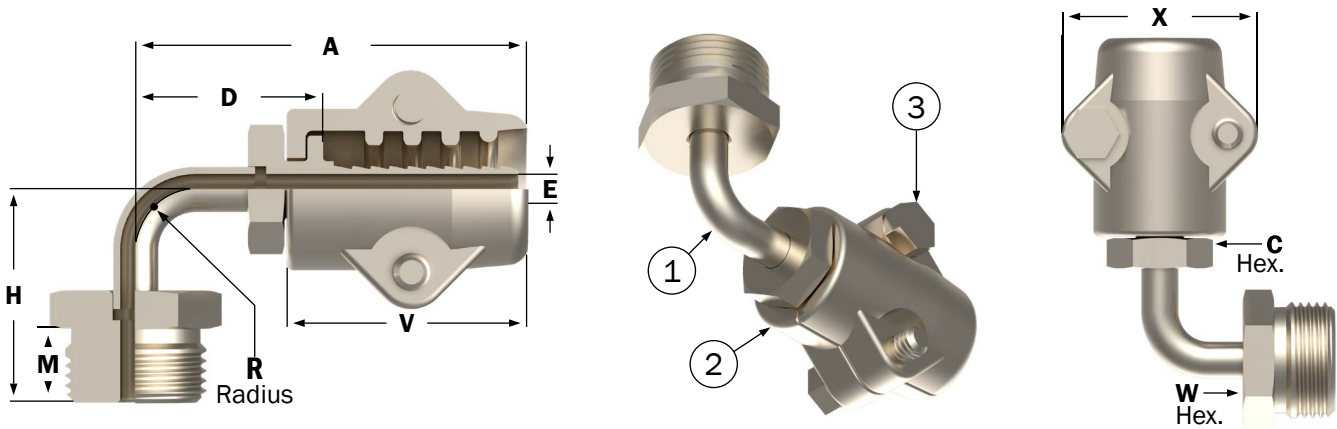
Male “O” Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: HS133



Dimensions													
Part Number	IPS Size	Thread CL-3A	A	C	D	E	H	M	R	V	W	X	Est. Wt. (lbs.)
FC7182-0406-4	¼"	1⅜"-12	3.20	.94	1.58	.24	1.43	.62	.50	2.00	1.25	2.34	1.50
FC7182-0812-4	½"	1¾"-12	4.51	1.31	2.61	.56	2.31	.62	1.25	2.42	1.81	3.27	2.60

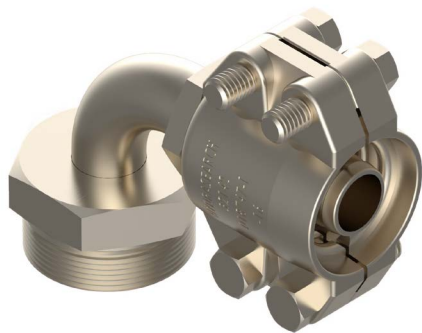
Components					
Description	Req'd per Ass'y	Part Number	Size		
			Base No.	0406	0812
Elbow ①	1	FC6182-		0406-4	0812-4
Segment ②	2	FC2057-		1-06-4	1-12-4
Bolt ③	2	FF9032-		05-18-4	07-24-4

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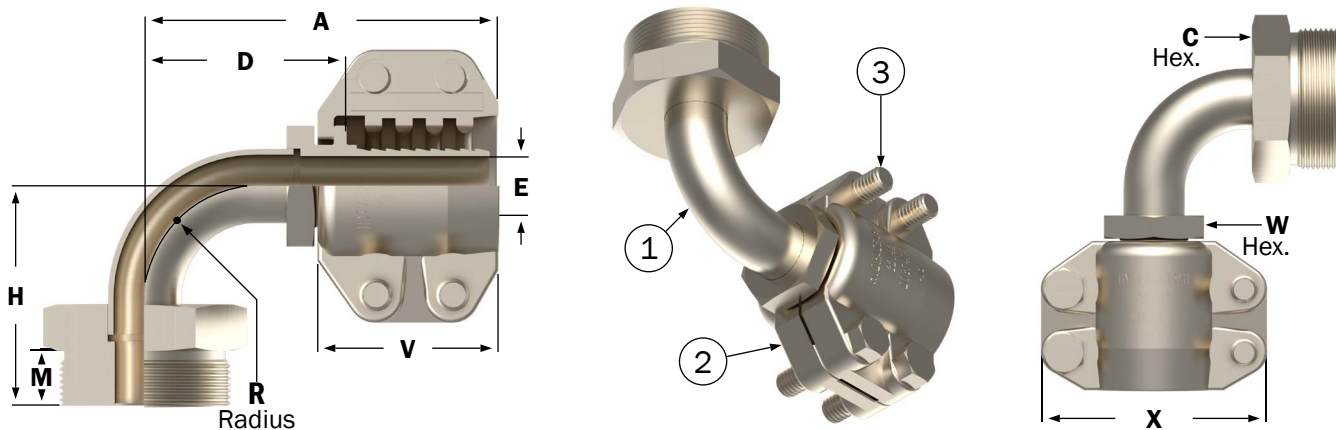
Male “O” Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: HS133



Dimensions														
Part Number	Drawing Number	IPS Size	Thread CL-2B	A	C	D	E	H	M	R	V	W	X	Est. Wt. (lbs.)
90EF-1489CL-1216	C18900	¾"	2"-12	4.67	2.12	2.62	.81	2.68	.62	1.50	2.44	1.63	3.75	4.50
90EF-1489CL-1616	C18901	1"	2⅝"-12	4.67	2.38	2.62	.81	2.87	.75	1.50	2.44	1.63	3.75	5.00
90EF-1489CL-1620	C18902	1"	2⅝"-12	5.45	2.38	3.15	1.05	3.17	.75	1.75	2.81	2.00	4.00	6.50
90EF-1489CL-2020	C18903	1¼"	2¾"-12	5.45	3.00	3.15	1.05	3.30	.75	1.75	2.81	2.00	4.00	10.00
90EF-1489CL-2024	C18904	1¼"	2¾"-12	5.94	3.00	3.41	1.30	3.42	.75	2.00	3.00	2.25	4.42	11.00
90EF-1489CL-2424	C18905	1½"	3⅛"-12	5.94	3.13	3.41	1.30	3.66	.88	2.00	3.00	2.25	4.42	12.00
90EF-1489CL-2432	C18906	1½"	3⅛"-12	7.38	3.12	4.08	1.75	4.05	.88	2.50	3.81	2.75	5.04	13.30
90EF-1489CL-3232	C18907	2"	3¾"-12	7.38	3.88	4.08	1.75	4.15	.88	2.50	3.81	2.75	5.04	15.00

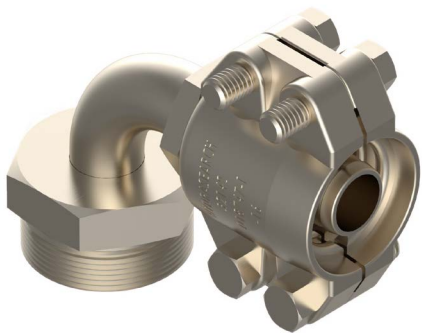
Components										
Description	Req'd per Ass'y	1216	1616	1620	2020	2024	2424	2432	3232	Mat'l
Elbow ①	1	C19447	C19448	C19449	C19450	C19458	C19451	C19452	C19453	Monel
Segment ②	2	D18747-1	D18747-1	D18748-1	D18748-1	D18750-1	D18750-1	D18704-1	D18704-1	Monel
Bolt ③	4	B18746	B18746	B18746	B18746	B18755	B18755	B18718	B18718	Monel

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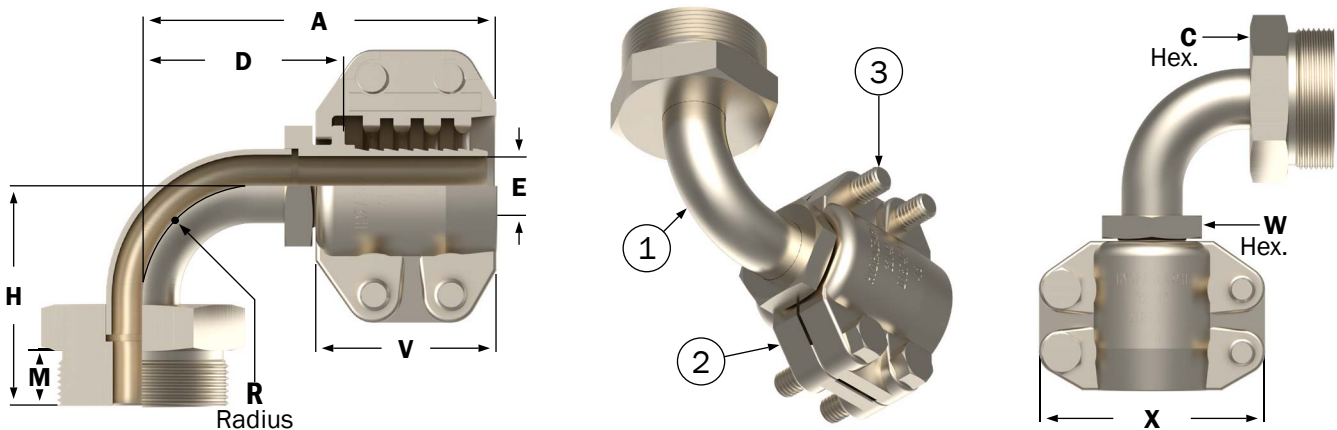
Male “O” Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: HS133



Dimensions													
Part Number	IPS Size	Thread CL-3A	A	C	D	E	H	M	R	V	W	X	Est. Wt. (lbs.)
FC7182-1616-4	1"	2⅝"-12	4.67	2.38	2.85	.75	2.92	.75	1.50	2.42	1.62	4.02	5.00
FC7182-1620-4	1"	2⅝"-12	5.50	2.38	3.40	.81	3.17	.75	1.75	2.80	2.00	4.31	6.50
FC7182-2020-4	1¼"	2¾"-12	5.50	2.88	3.40	1.03	3.17	.75	1.75	2.80	2.00	4.31	10.00
FC7182-2424-4	1½"	3-⅛"-12	5.96	3.12	3.66	1.28	3.55	.88	2.00	3.01	2.25	4.69	12.00
FC7182-2432-4	1½"	3⅛"-12	7.60	3.12	4.52	1.39	4.05	.88	2.50	3.88	2.75	5.65	13.30
FC7182-3232-4	2"	3¾"-12	7.60	3.88	4.52	1.75	4.05	.88	2.50	3.88	2.75	5.65	15.00

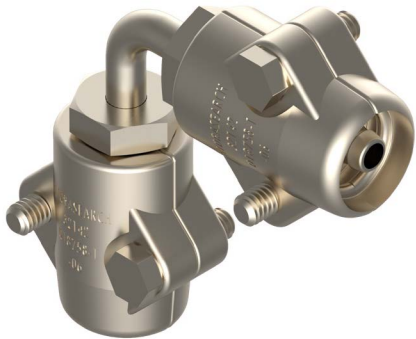
Components		Part Number								
		Size								
Description	Req'd per Ass'y	Base No.	1616	1620	2020	2424	2432	3232	Mat'l	
Elbow ①	1	FC6182-	1616-4	1620-4	2020-4	2424-4	2432-4	3232-4	Monel	
Segment ②	2	FC2057-	1-16-4	1-20-4	1-20-4	1-24-4	1-32-4	1-32-4	Monel	
Bolt ③	2	FF9032-	07-28-4	07-28-4	07-28-4	08-28-4	09-36-4	09-36-4	Monel	

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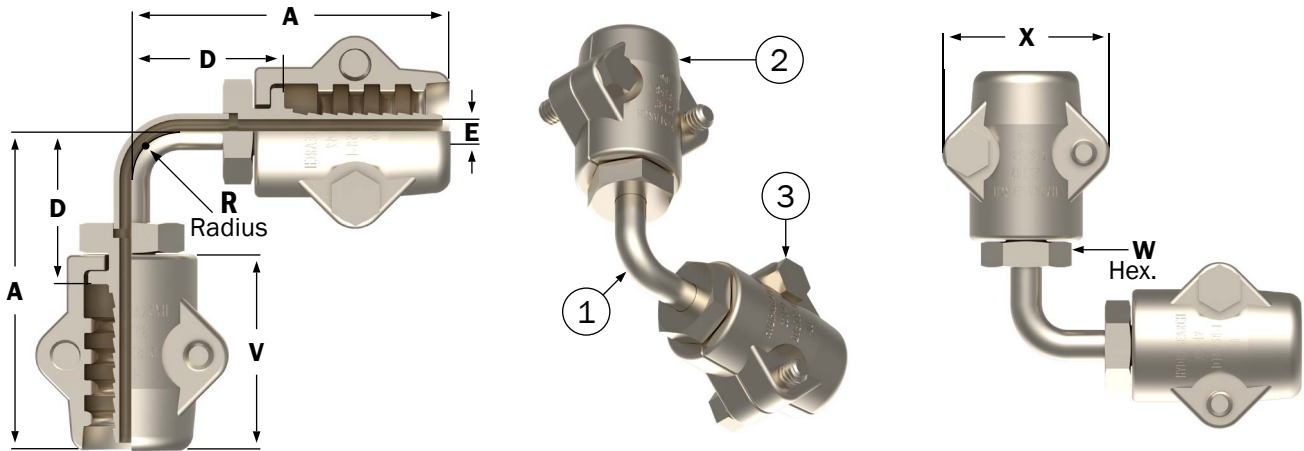
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group XI



For use with the following hose: HS133



Dimensions										
Part Number	Drawing Number	IPS Size	A	D	E	R	V	W	X	Est. Wt. (lbs.)
90ELB-1489D-0606	C18917	3⁄8	3.20	1.48	.26	.50	2.02	.94	2.00	1.20
90ELB-1489D-0808	C18918	1⁄2	3.47	1.65	.39	.75	2.08	1.00	2.40	2.40
90ELB-1489D-1212	C18919	3⁄4	4.50	2.45	.61	1.25	2.43	1.38	2.93	3.70

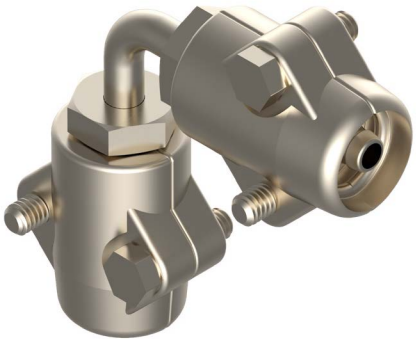
Components					
Description	Req'd per Ass'y	0606	0808	1212	Mat'l
Elbow ①	1	C18857	C18859	C18861	Monel
Segment ②	4	D18758-1	C18640-1	D18743-1	Monel
Bolt ③	4	B18759	B18640	B18745	Monel

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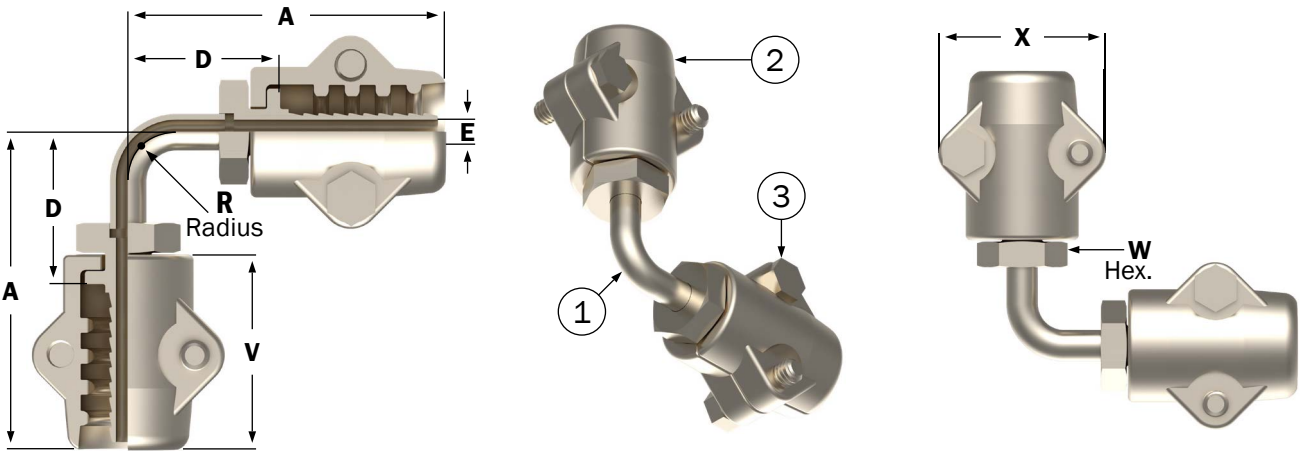
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group XI



For use with the following hose: HS133



Dimensions									
Part Number	IPS Size	A	D	E	R	V	W	X	Est. Wt. (lbs.)
FC7183-0606-4	3⁄8	3.20	1.58	.24	.50	2.00	.94	2.34	1.20
FC7183-1212-4	3⁄4	4.51	2.61	.56	1.25	2.42	1.38	3.27	3.70

Components					
Description	Req'd per Ass'y	Part Number		Mat'l	
		Base No.	Size		
Elbow ①	1	FC6183-	0606-4	1212-4	Monel
Segment ②	2	FC2057-	1-06-4	1-12-4	Monel
Bolt ③	2	FF9032-	05-18-4	07-24-4	Monel

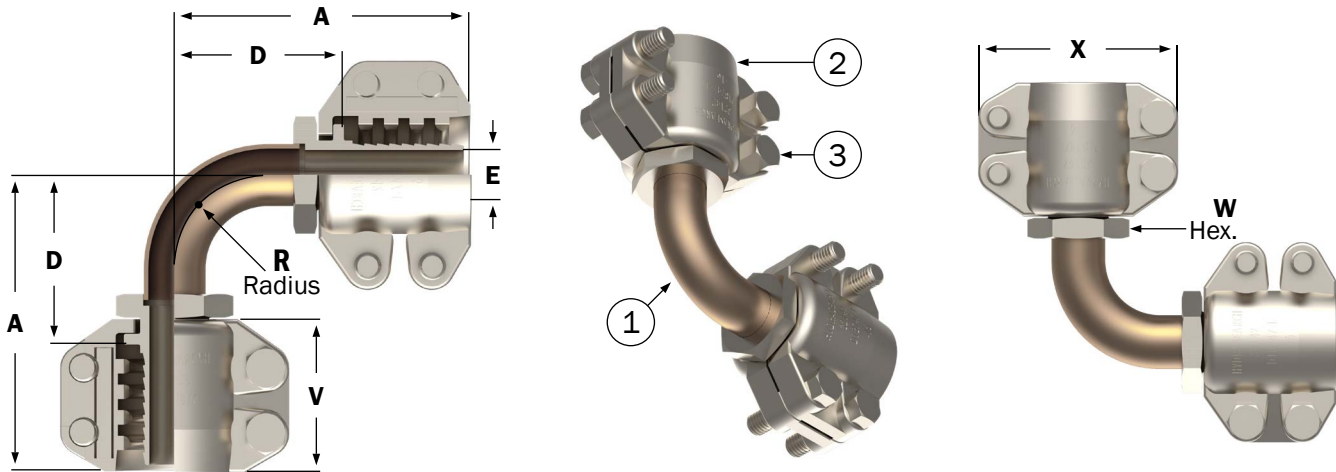
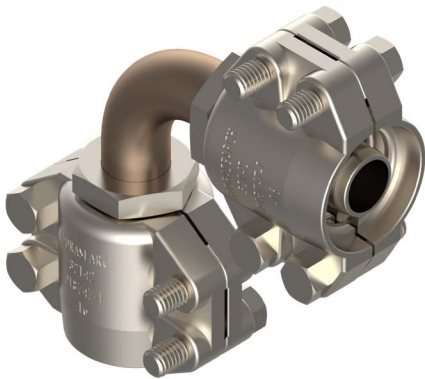
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group XI

For use with the following hose: HS133



Dimensions										
Part Number	Drawing Number	IPS Size	A	D	E	R	V	W	X	Est. Wt. (lbs.)
90ELB-1489D-1616	C18920	1	4.67	2.62	.81	1.50	2.44	1.62	3.75	6.00
90ELB-1489D-2020	C18921	1¼	5.45	3.15	1.05	1.75	2.81	2.00	4.00	9.30
90ELB-1489D-2424	C18922	1½	5.94	3.41	1.30	2.00	3.00	2.25	4.42	13.00
90ELB-1489D-3232	C18923	2	7.38	4.66	1.75	2.50	3.81	2.75	5.04	20.00

Components						
Description	Req'd per Ass'y	1616	2020	2424	3232	Mat'l
Elbow ①	1	C18863	C18865	C18867	C18869	Monel
Segment ②	4	D18747-1	D18748-1	D18750-1	D18704-1	Monel
Bolt ③	8	B18746	B18746	B18755	B18718	Monel

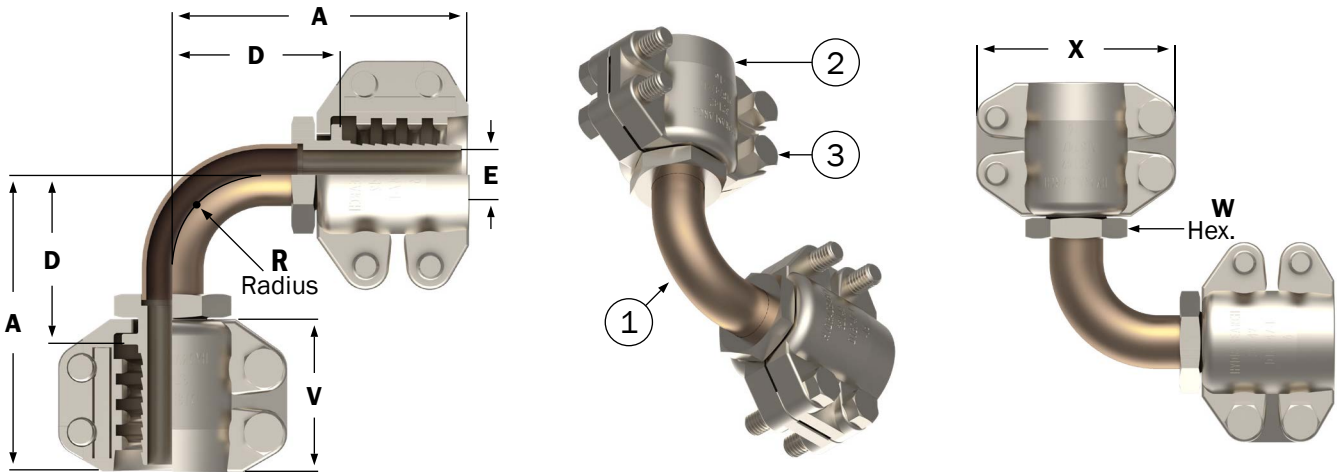
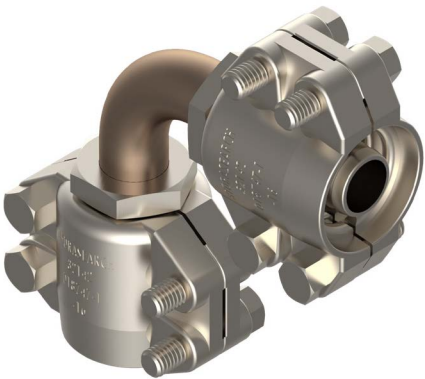
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Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group XI

For use with the following hose: HS133



Dimensions									
Part Number	IPS Size	A	D	E	R	V	W	X	Est. Wt. (lbs.)
FC7183-1616-4	1	4.76	2.85	.75	1.50	2.42	1.62	4.02	6.00
FC7183-2424-4	1½	5.96	3.66	1.28	2.00	3.01	2.25	4.69	13.00
FC7183-3232-4	2	7.60	4.52	1.75	2.50	3.88	2.75	5.65	20.00

Components		Part Number				
Description	Req'd per Ass'y	Base No.	Size			Mat'l
			1616	2424	3232	
Elbow ①	1	FC6183-	1616-4	2424-4	3232-4	Monel
Segment ②	2	FC2057-	1-16-4	1-24-4	1-32-4	Monel
Bolt ③	2	FF9032-	07-28-4	08-28-4	09-36-4	Monel

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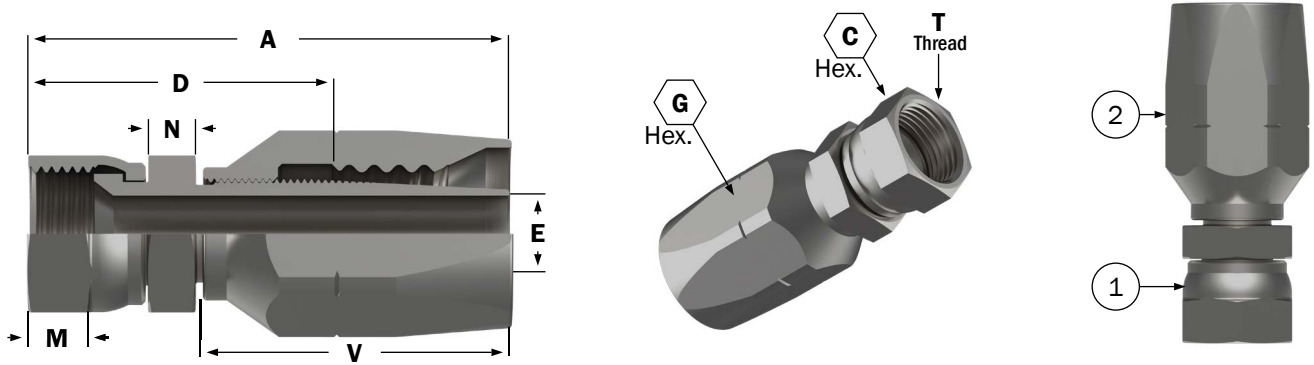
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-1600A-0404	C20031	1/4"	7/16"-20	2.75	.56	1.41	.17	1.00	.37	.22	1.73	.22
EF-1600A-0504	C20032	1/4"	1/2"-20	2.75	.63	1.49	.17	1.00	.40	.25	1.73	.26
EF-1600A-0604	C20033	1/4"	9/16"-18	3.00	.69	1.56	.17	1.25	.40	.28	1.73	.35
EF-1600A-0606	C20034	3/8"	9/16"-18	3.00	.69	1.51	.31	1.25	.40	.28	1.92	.40
EF-1600A-0806	C20035	3/8"	3/4"-16	3.21	.88	1.64	.31	1.25	.44	.31	1.92	.47
EF-1600A-0808	C20036	1/2"	3/4"-16	3.50	.88	1.68	.39	1.50	.44	.31	2.01	.53
EF-1600A-1008	C20037	1/2"	7/8"-14	3.50	1.00	1.80	.39	1.50	.52	.31	2.01	.62
EF-1600A-1208	C20038	1/2"	1 1/16"-12	3.50	1.25	1.90	.39	1.50	.57	.38	2.47	.75
EF-1600A-1010	C20039	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-1600A-1212	C20040	3/4"	1 1/16"-12	4.00	1.25	1.99	.61	1.75	.57	.38	2.47	1.10
EF-1600A-1616	C20043	1"	1 5/16"-12	4.50	1.50	2.43	.82	2.25	.60	.38	2.95	1.72
EF-1600A-2020	C20045	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	C20047	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	C19818	2"	2 1/2"-12	6.75	2.88	3.46	1.75	3.50	.93	.50	3.70	6.27

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

Components, continued									
Desc.	Req'd per Ass'y	1208	1010	1212	1616	2020	2424	3232	Mat'l
Nipple ①	1	C19905	C19867	C19868	C19847	C19869	C19870	C19871	Monel
Socket ②	1	C19680-1	C19796-1	C19797-1	C19700-1	C19798-1	C19799-1	C19694-1	Monel

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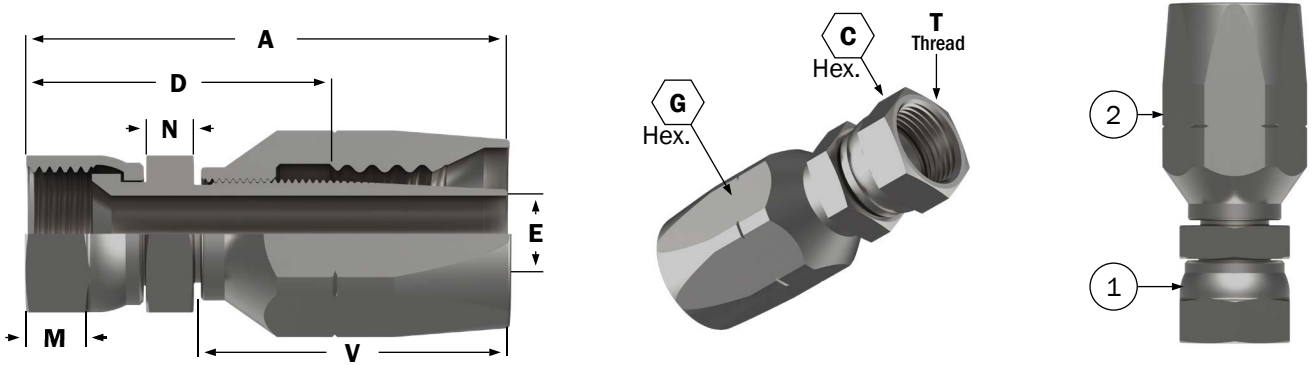
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
4-4721-4-4	1/4"	7/16"-20	2.64	.56	1.41	.17	1.00	.37	.22	1.73	.24
4-4721-5-4	1/4"	1/2"-20	2.72	.63	1.49	.17	1.00	.40	.25	1.73	.26
4-4721-6-4	1/4"	9/16"-18	2.79	.69	1.56	.17	1.25	.40	.28	1.73	.28
4-4721-6-6	3/8"	9/16"-18	2.98	.69	1.51	.31	1.25	.40	.28	1.92	.37
4-4721-8-6	3/8"	3/4"-16	3.11	.88	1.64	.31	1.25	.44	.31	1.92	.44
4-4721-8-8	1/2"	3/4"-16	3.20	.88	1.68	.39	1.50	.44	.31	2.01	.68
4-4721-10-8	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.50	.52	.31	2.01	.59
4-4721-10	5/8"	7/8"-14	3.40	1.25	1.85	.50	1.50	.57	.38	2.47	.61
4-4721-12	3/4"	1 1/16"-12	3.86	1.00	1.99	.61	1.50	.52	.31	2.10	1.12
4-4721-16	1"	1 5/16"-12	4.48	1.25	2.43	.82	1.75	.57	.38	2.47	1.91
4-4721-20	1 1/4"	1 5/8"-12	5.10	1.50	2.78	1.05	2.25	.60	.38	2.95	3.38
4-4721-24	1 1/2"	1 7/8"-12	5.16	2.00	2.92	1.28	2.75	.74	.38	3.42	4.10
4-4721-32	2"	2 1/2"-12	5.90	2.25	3.46	1.75	3.00	.74	.38	3.34	6.27

Components		Part Number														
		Size														
Description	Req'd per Ass'y	Base No.	4-4	5-4	6-4	6-6	8-6	8-8	10-8	10	12	16	20	24	32	Mat'l
Nipple ①	1	4-4103-	4-4	5-4	6-4	6-6	8-6	8-8	10-8	10	12	16	20	24	32	Monel
Socket ②	1	4-4010- 4-4013-	4 -	4 -	4 -	6 -	6 -	8 -	8 -	10 -	12 -	- 16	20 -	24 -	32 -	Monel

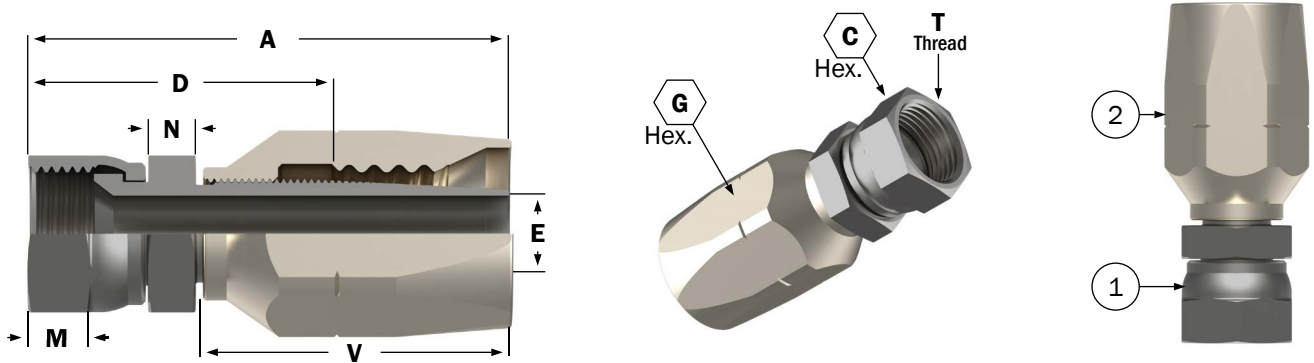
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

Part Number	Drawing Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-SM1600A-0404	C20489	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	C20491	1/4"	9/16"-18	3.00	.69	1.56	.17	1.25	.40	.28	1.73	.35
EF-SM1600A-0606	C20492	3/8"	9/16"-18	3.00	.69	1.51	.31	1.25	.40	.28	1.92	.40
EF-SM1600A-0806	C20493	3/8"	3/4"-16	3.21	.88	1.64	.31	1.25	.44	.31	1.92	.47
EF-SM1600A-0808	C20494	1/2"	3/4"-16	3.50	.88	1.68	.39	1.50	.44	.31	2.01	.53
EF-SM1600A-1008	C20495	1/2"	7/8"-14	3.50	1.00	1.80	.39	1.50	.52	.31	2.01	.62
EF-SM1600A-1208	C20496	1/2"	1 1/16"-12	3.50	1.25	1.90	.39	1.50	.57	.38	2.47	.75
EF-SM1600A-1010	C20440	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-SM1600A-1212	C20497	3/4"	1 1/16"-12	4.00	1.25	1.99	.61	1.75	.57	.38	2.47	1.10
EF-SM1600A-1616	C20500	1"	1 5/16"-12	4.50	1.50	2.43	.82	2.25	.60	.38	2.95	1.72
EF-SM1600A-2020	C20502	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	C20504	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	C20505	2"	2 1/2"-12	6.75	2.88	3.46	1.75	3.50	.93	.50	3.70	6.27

Components

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

Components, continued

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

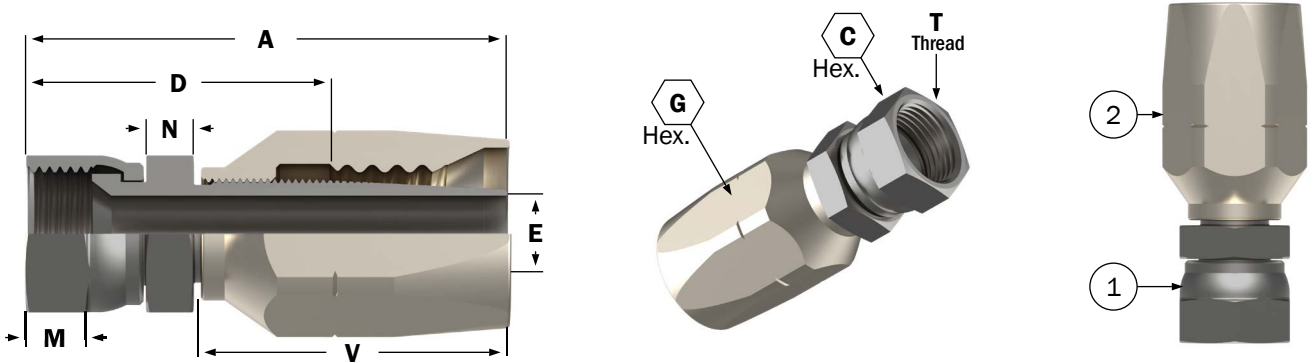
All dimensions are in inches.
Dimensional information is for reference only.
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

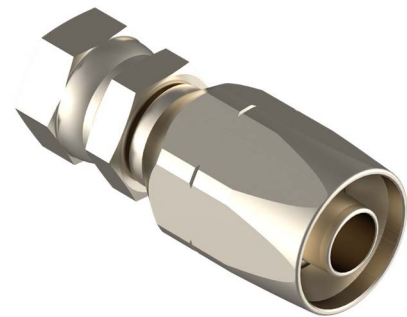
Part Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
41-4721-4-4	1/4"	7/16"-20	2.64	.56	1.41	.17	1.00	.37	.22	1.73	.24
41-4721-5-4	1/4"	1/2"-20	2.72	.63	1.49	.17	1.00	.40	.25	1.73	.26
41-4721-6-4	1/4"	9/16"-18	2.79	.69	1.56	.17	1.25	.40	.28	1.73	.28
41-4721-6-6	3/8"	9/16"-18	2.98	.69	1.51	.31	1.25	.40	.28	1.92	.37
41-4721-8-6	3/8"	3/4"-16	3.11	.88	1.64	.31	1.25	.44	.31	1.92	.44
41-4721-8-8	1/2"	3/4"-16	3.20	.88	1.68	.39	1.50	.44	.31	2.01	.68
41-4721-10-8	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.50	.52	.31	2.01	.59
41-4721-10	5/8"	7/8"-14	3.40	1.25	1.85	.50	1.50	.57	.38	2.47	.61
41-4721-12	3/4"	1 1/16"-12	3.86	1.00	1.99	.61	1.50	.52	.31	2.10	1.12
41-4721-16	1"	1 5/16"-12	4.48	1.25	2.43	.82	1.75	.57	.38	2.47	1.91
41-4721-20	1 1/4"	1 5/8"-12	5.10	1.50	2.78	1.05	2.25	.60	.38	2.95	3.38
41-4721-24	1 1/2"	1 7/8"-12	5.16	2.00	2.92	1.28	2.75	.74	.38	3.42	4.10
41-4721-32	2"	2 1/2"-12	5.90	2.25	3.46	1.75	3.00	.74	.38	3.34	6.27

Components		Part Number														
		Size														
Description	Req'd per Ass'y	Base No.	4-4	5-4	6-4	6-6	8-6	8-8	10-8	10	12	16	20	24	32	Mat'l
Nipple ①	1	4-4103-	4-4	5-4	6-4	6-6	8-6	8-8	10-8	10	12	16	20	24	32	Monel
Socket ②	1	4-4010- 4-4013-	4 -	4 -	4 -	6 -	6 -	8 -	8 -	10 -	12 -	- 16	20 -	24 -	32 -	Steel

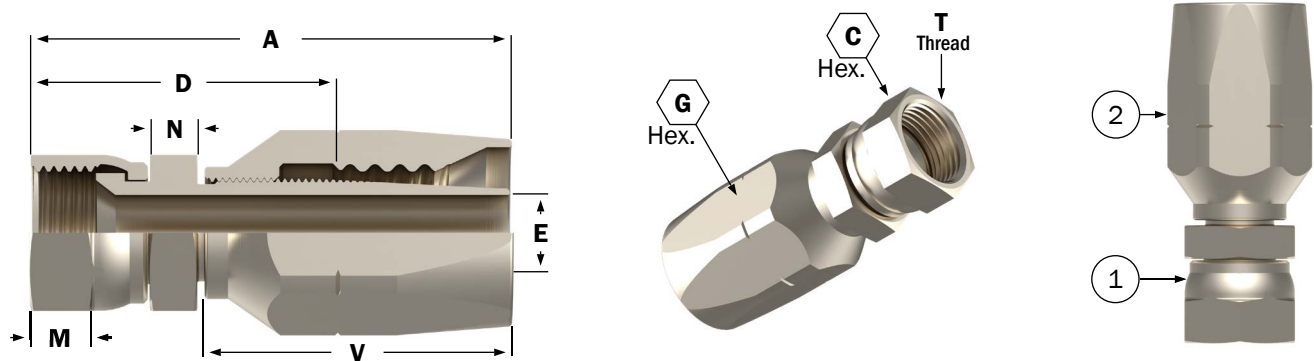
All dimensions are in inches.
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Hose to Female J.I.C. (37°) Flare

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

Part Number	Drawing Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	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

Desc.	Req'd per Ass'y	0404	0504	0604	0606	0806	0808	1008	Mat'l
Nipple ①	1	C19863	C19902	C19864	C19865	C19903	C19866	C19904	S.S.
Socket ②	1	C19794-2	C19794-2	C19794-2	C19795-2	C19795-2	C19680-2	C19680-2	S.S.

Components, continued

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

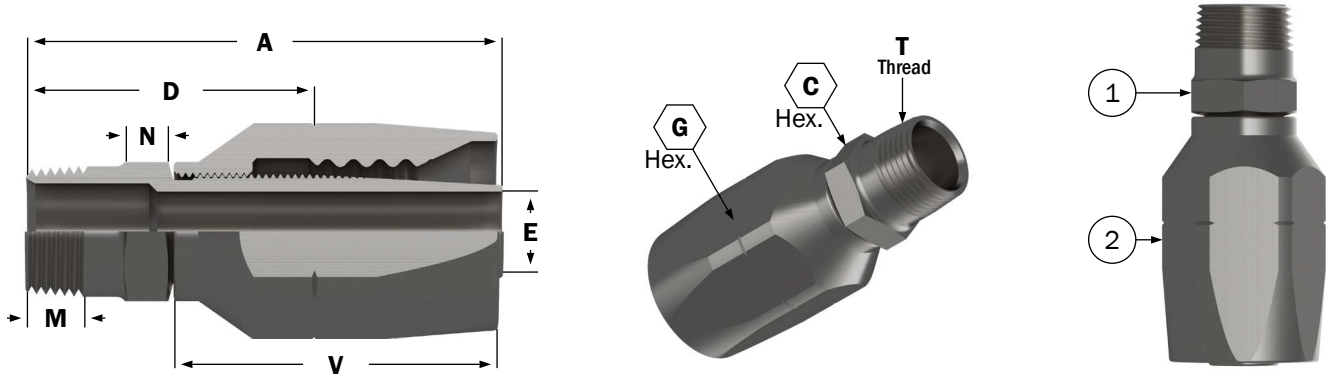
All dimensions are in inches.
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Notes

Hose to Male NPTF
End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	Hose I.D.	T Thread NPTF	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-1600MP-0404	C20556	1/4"	1/4"-18	2.5	.56	1.26	.17	.81	.56	.19	1.73	.26
EF-1600MP-0604	C20557	1/4"	3/8"-18	2.56	.56	1.32	.17	.81	.56	.19	1.73	.31
EF-1600MP-0606	C20558	3/8"	3/8"-18	2.75	.69	1.28	.31	1.00	.56	.25	1.92	.36
EF-1600MP-0608	C20559	1/2"	3/8"-18	2.84	.88	1.32	.39	1.12	.56	.25	2.01	.42
EF-1600MP-0808	C20560	1/2"	1/2"-14	3.09	.88	1.58	.39	1.12	.56	.25	2.01	.57
EF-1600MP-0810	C20561	5/8"	1/2"-14	3.18	.94	1.63	.50	1.25	.75	.31	2.10	.62
EF-1600MP-1212	C20562	3/4"	3/4"-14	3.61	1.06	1.74	.61	1.50	.75	.38	2.47	.75
EF-1600MP-1612	C20563	3/4"	1"-11 1/2	3.92	1.06	2.06	.61	1.50	.75	.38	2.47	1.08
EF-1600MP-1616	C20564	1"	1"-11 1/2	4.40	1.38	2.36	.82	1.75	.94	.50	2.95	1.79
EF-1600MP-2020	C20565	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	C20566	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	C20567	2"	2"-11 1/2	5.50	2.50	3.05	1.75	3.00	1.03	.75	3.70	5.21

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

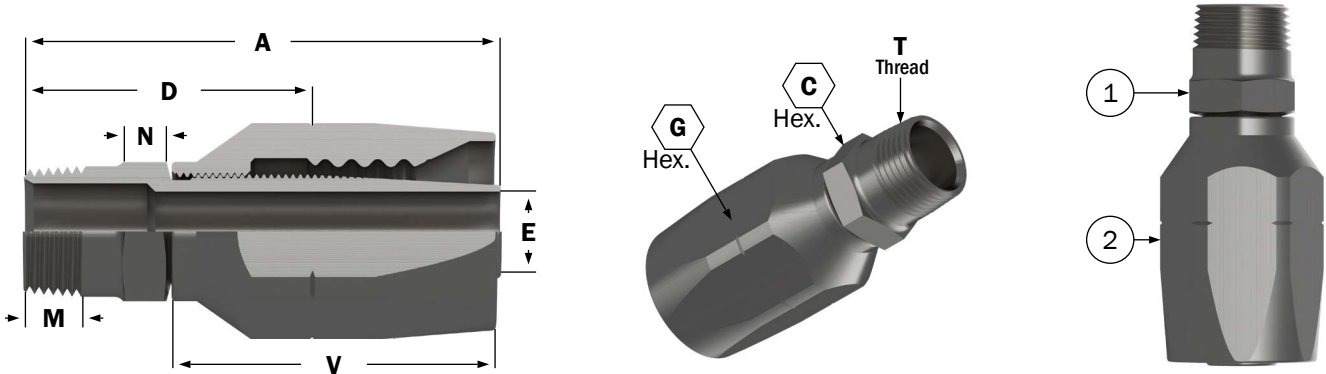
Components, continued								
Desc.	Req'd per Ass'y	1212	1612	1616	2020	2424	3232	Mat'l
Nipple ①	1	C19961-1	C20386-1	C19962-1	C19963-1	C19964-1	C19965-1	Monel
Socket ②	1	C19797-1	C19797-1	C19700-1	C19798-1	C19799-1	C19694-1	Monel

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.

Hose to Male NPTF
End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Hose I.D.	T Thread NPTF	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
4-4722-4-4	1/4"	1/4"-14	2.50	.56	1.27	.17	.81	.56	.19	1.73	.26
4-4722-6-6	3/8"	3/8"-18	2.75	.69	1.28	.31	1.00	.56	.25	1.92	.36
4-4722-8-8	1/2"	1/2"-14	3.09	.88	1.58	.39	1.12	.56	.25	2.01	.57
4-4722-8-10	5/8"	1/2"-14	3.18	.94	1.62	.48	1.25	.75	.31	2.10	.57
4-4722-12-12	3/4"	3/4"-14	3.61	1.06	1.74	.61	1.50	.75	.38	2.47	1.08
4-4722-16-16	1"	1"-11½	4.90	1.38	2.35	.82	1.75	.94	.50	2.95	1.79
4-4722-20-20	1¼"	1¼"-11½	4.90	1.75	2.58	1.05	2.25	.97	.50	3.42	2.74
4-4722-24-24	1½"	1½"-11½	4.98	2.00	2.74	1.28	2.50	1.00	.62	3.34	3.31
4-4722-32-32	2"	2"-11½	5.50	2.50	3.06	1.75	3.00	1.03	.75	3.70	5.21

Components		Part Number										
		Size										
Description	Req'd per Ass'y	Base No.	4-4	6-6	8-8	8-10	12	16	20	24	32	Mat'l
Nipple ①	1	4-4202-	4-4	6-6	8-8	8-10	12-12	16-16	20-20	24-24	32-32	Monel
Socket ②	1	4-4010- 4-4013-	4	6	8	10	12	- 16	20	24	32	Monel

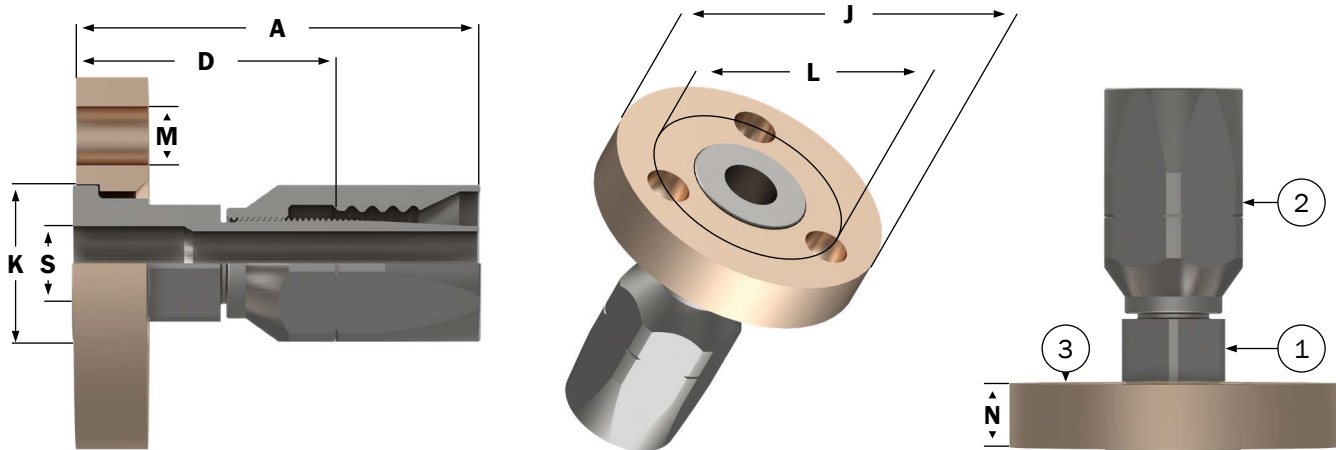
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group I, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
EF-1600A5-0812	C20128	1/2"	3	3.92	2.05	3.56	1.50	2.44	.56	.69	.71	3.25
EF-1600A5-0816	C20129	1/2"	3	4.34	2.29	3.56	1.50	2.44	.56	.69	.71	3.50
EF-1600A5-1216	C20130	3/4"	4	4.34	2.29	3.81	1.84	2.69	.56	.69	.92	4.11
EF-1600A5-1220	C20131	3/4"	4	4.81	2.49	3.81	1.84	2.69	.56	.69	.92	4.25
EF-1600A5-1616	C20132	1"	4	4.34	2.29	4.25	1.50	3.13	.56	.75	1.18	4.62
EF-1600A5-1620	C20133	1"	4	4.81	2.49	4.25	2.12	3.13	.56	.75	1.18	6.05
EF-1600A5-1624	C20134	1"	4	4.97	2.73	4.25	2.12	3.13	.56	.75	1.18	6.50
EF-1600A5-2024	C20135	1 1/4"	4	4.97	2.73	4.50	2.74	3.38	.56	.81	1.53	7.25
EF-1600A5-2032	C20136	1 1/4"	4	5.33	2.89	4.50	2.74	3.38	.56	.81	1.53	8.00
EF-1600A5-2432	C20137	1 1/2"	6	5.33	2.89	5.06	2.74	3.94	.56	.81	1.77	9.14
EF-1600A5-3232	C20138	2"	6	5.33	2.89	5.06	3.28	4.44	.56	.81	1.77	11.06

Components								
Desc.	Req'd per Ass'y	0812	0816	1216	1220	1616	1620	Mat'l
Nipple ①	1	C19839-1	C20022	C19840-1	C20023	C20024	C19841-1	Monel
Socket ②	1	C19797-1	C19700-1	C19700-1	C19798-1	C19700-1	C19798-1	Monel
Flange ③	1	C19522	C19522	C19525	C19525	C19526	C19526	Alum. Bronze

Components, continued								
Desc.	Req'd per Ass'y	1624	2024	2032	2432	3232	Mat'l	
Nipple ①	1	C20025	C19842-1	C19843-1	C19843-1	C19844-1	Monel	
Socket ②	1	C19799-1	C19799-1	C19694-1	C19694-1	C19694-1	Monel	
Flange ③	1	C19526	C19527	C19527	C19528	C17765	Alum. Bronze	

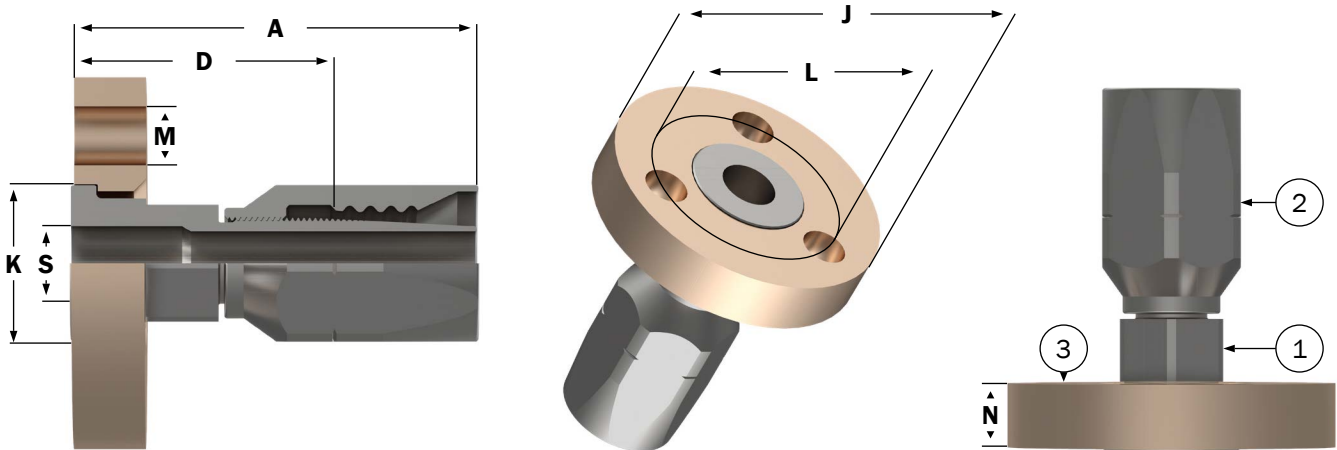
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type F, Group I, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	IPS Size	No. of Bolt Holes	A	D	J	K	L	M	N	S	Est. Wt. (lbs.)
FC9056-0812-463	1/2"	3	3.92	2.05	3.56	1.50	2.44	.56	.70	.71	2.78
FC9056-1216-463	3/4"	4	4.34	2.29	3.81	1.84	2.69	.56	.70	.92	3.61
FC9056-1620-463	1"	4	4.81	2.49	4.25	2.12	3.12	.56	.77	1.18	5.55
FC9056-2024-463	1 1/4"	4	4.97	2.73	4.50	2.74	3.38	.56	.83	1.53	6.75
FC9056-2432-463	1 1/2"	6	5.33	2.89	5.06	2.74	3.94	.56	.83	1.77	8.64
FC9056-3232-463	2"	6	5.33	2.89	5.56	3.28	4.44	.56	.83	2.24	10.56

Components		Part Number							
		Size							
Description	Req'd per Ass'y	Base No.	0812	1216	1620	2024	2432	3232	Material
Nipple ①	1	FC3056-	1612-4	2016-4	2420-4	3224-4	3232-4	4032-4	Monel
Socket ②	1	4-4010-4-4013-	12-	-16	20-	24-	32-	32-	Monel
Flange ③	1	188-74045-	1/2-16	3/4-16	1-24	1 1/4-32	1 1/2-32	2-40	Alum. Bronze

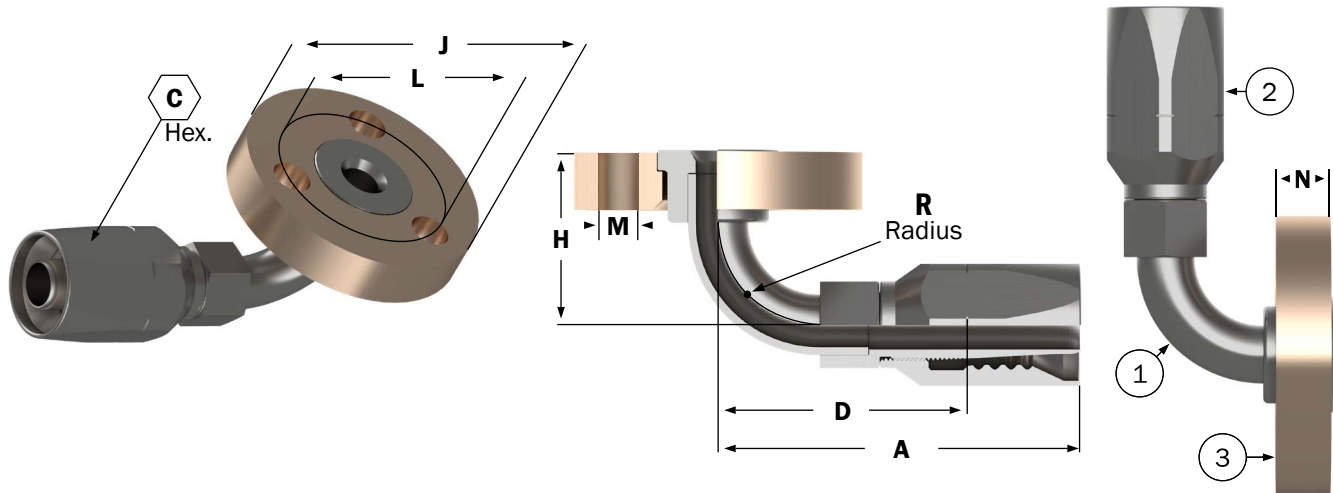
All dimensions are in inches.
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type FL, Group I, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions													
Part Number	Drawing Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
90EF-1600B5-0812	C20183	1/2"	3	4.52	1.50	2.65	2.19	3.56	2.44	.56	.69	1.25	2.47
90EF-1600B5-0816	C20184	1/2"	3	5.25	1.81	3.20	2.19	3.56	2.44	.56	.69	1.25	2.78
90EF-1600B5-1216	C20185	3/4"	4	5.25	1.81	3.20	2.49	3.81	2.69	.56	.69	1.50	2.95
90EF-1600B5-1220	C20186	3/4"	4	6.10	2.25	3.78	2.49	3.81	2.69	.56	.69	1.50	3.61
90EF-1600B5-1616	C20187	1"	4	2.25	1.81	3.20	2.69	4.25	3.13	.56	.75	1.75	5.00
90EF-1600B5-1620	C20188	1"	4	6.10	2.25	3.78	2.69	4.25	3.13	.56	.75	1.75	5.75
90EF-1600B5-1624	C20189	1"	4	6.31	2.50	4.09	2.69	4.25	3.13	.56	.75	1.75	6.00
90EF-1600B5-2024	C20190	1 1/4"	4	6.31	2.50	4.09	3.13	4.50	3.38	.56	.81	2.00	7.00
90EF-1600B5-2032	C20191	1 1/4"	4	7.38	3.00	4.94	3.13	4.50	3.38	.56	.81	2.00	8.25
90EF-1600B5-2432	C20192	1 1/2"	6	7.38	3.00	4.94	3.00	5.06	3.94	.56	.81	2.50	8.75
90EF-1600B5-3232	C20193	2"	6	7.38	3.00	4.94	3.35	5.06	4.44	.56	.81	2.50	10.75

Components								
Desc.	Req'd per Ass'y	0812	0816	1216	1220	1616	1620	Mat'l
Elbow ①	1	C19857	C20026	C19858	C20027	C20028	C19859	Monel
Socket ②	1	C19797-1	C19700-1	C19700-1	C19798-1	C19700-1	C19798-1	Monel
Flange ③	1	C19522	C19522	C19525	C19525	C19526	C19526	Alum. Bronze

Components, continued							
Desc.	Req'd per Ass'y	1624	2024	2032	2432	3232	Mat'l
Elbow ①	1	C20029	C19860	C19861	C19861	C19862	Monel
Socket ②	1	C19799-1	C19799-1	C19694-1	C19694-1	C19694-1	Monel
Flange ③	1	C19526	C19527	C19527	C19528	C17765	Alum. Bronze

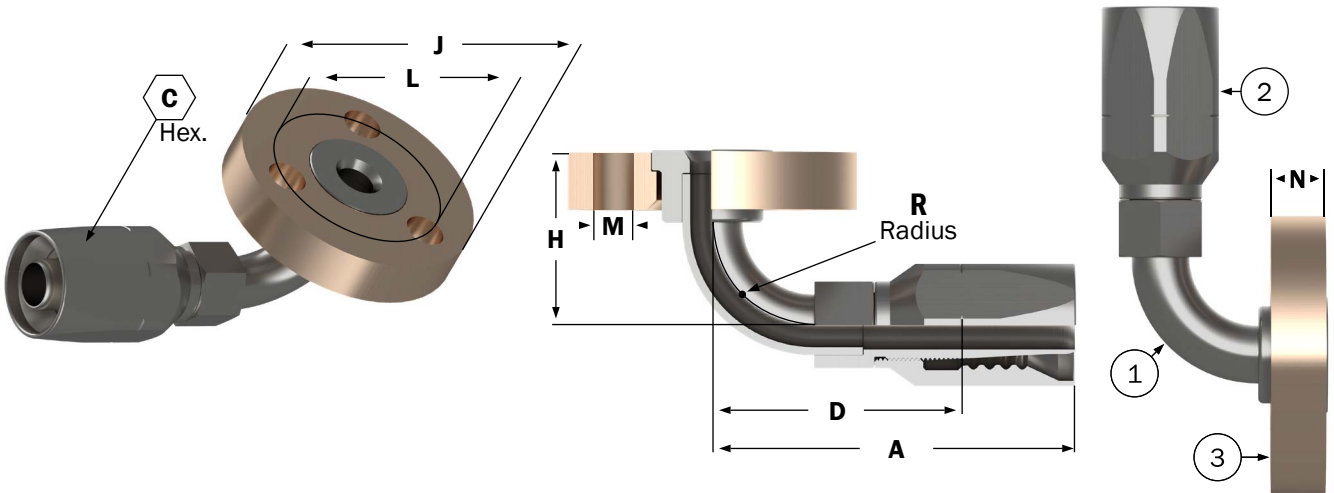
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Hose to Flange

End Fitting - Straight

MIL-DTL-24787/1,
Type FL, Group I, Class II,
150/400lb. Flange per MIL-PRF-20042

For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	I.P.S. Size	No. of Bolt Holes	A	C	D	H	J	L	M	N	R	Est. Wt. (lbs.)
FC9224-0812-463	1/2"	3	4.52	1.50	2.65	2.19	3.56	2.44	.56	.70	1.25	2.47
FC9224-1216-463	3/4"	4	5.25	1.81	3.20	2.49	3.81	2.69	.56	.70	1.50	2.95
FC9224-1620-463	1"	4	6.10	2.25	3.78	2.69	4.25	3.12	.56	.77	1.75	5.75
FC9224-2024-463	1 1/4"	4	6.32	2.50	4.09	3.13	4.50	3.38	.56	.83	2.00	7.00
FC9224-2432-463	1 1/2"	6	7.38	3.0	4.94	3.35	5.06	3.94	.56	.83	2.50	8.75
FC9224-3232-463	2"	6	7.38	6.00	4.94	3.35	5.56	4.44	.56	.83	2.50	10.75

Components		Part Number							
		Size							
Description	Req'd per Ass'y	Base No.	0812	1216	1620	2024	2432	3232	Material
Elbow ①	1		1612-4	2016-4	2420-4	3224-4	3232-4	4032-4	Monel
Socket ②	1	4-4010-4-4013-	12-	-16	20-	24-	32-	32-	Monel
Flange ③	1	188-74045-	1/2-16	3/4-16	1-24	1.25-32	1.5-32	2-40	Alum. Bronze

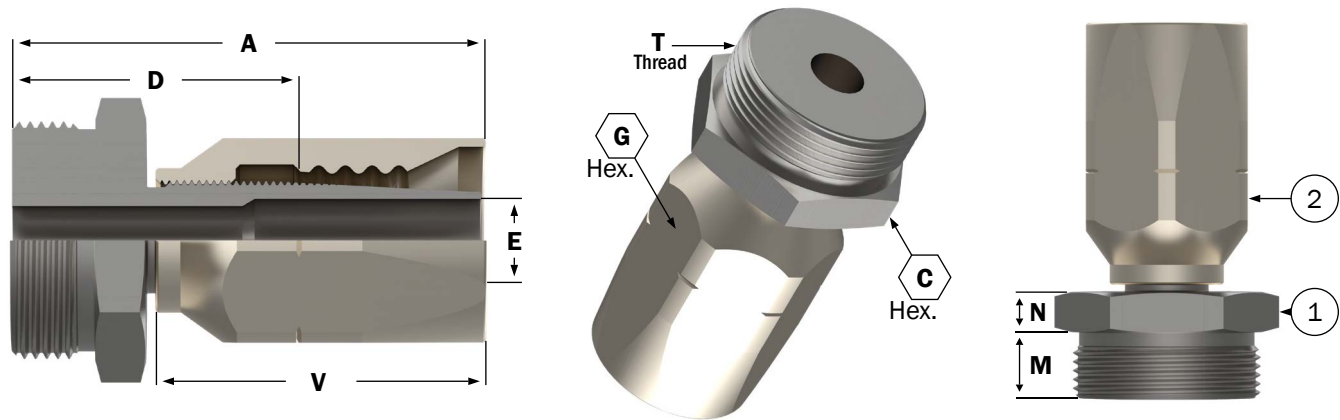
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Male O-Ring Seal to Hose

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	IPS Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-SM1600C-0204	C20506	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
EF-SM1600C-0406	C20507	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.25	.62	.25	1.92	.54
EF-SM1600C-0606	C20508	3/8"	1 3/8"-12	2.96	1.44	1.45	.31	1.25	.62	.31	1.92	.62
EF-SM1600C-0608	C20509	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.50	.62	.31	2.01	.76
EF-SM1600C-0812	C20510	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.75	.62	.38	2.47	1.47
EF-SM1600C-1216	C20511	3/4"	2"-12	4.09	2.12	2.04	.62	2.25	.62	.50	2.95	2.34
EF-SM1600C-1616	C20512	1"	2 5/16"-12	4.34	2.38	2.28	.82	2.25	.75	.62	2.95	2.81
EF-SM1600C-2016	C20513	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	C20514	1"	2 5/16"-12	4.80	2.38	2.48	.81	2.75	.75	.62	3.42	4.03
EF-SM1600C-2020	C20515	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	C20516	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	C20517	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	C20518	2"	3 3/4"-12	5.34	3.88	2.90	1.75	3.50	.88	.75	3.70	9.64

Components										
Desc.		Req'd per Ass'y	0204	0406	0606	0608	0812	1216	Mat'l	
Nipple	①	1	C19802-1	C19803-1	C19906-1	C19804-1	C19805-1	C19807-1	Monel	
Socket	②	1	C19794-2	C19795-2	C19795-2	C19680-2	C19797-2	C19700-2	Steel	
Components, continued										
Desc.		Req'd per Ass'y	1616	2016	1620	2020	2024	2432	3232	Mat'l
Nipple	①	1	C19808-1	C19908-1	C19809-1	C19909-1	C19810-1	C19811-1	C19812	Monel
Socket	②	1	C19700-2	C19700-2	C19798-2	C19798-2	C19799-2	C19694-2	C19694-1	Steel

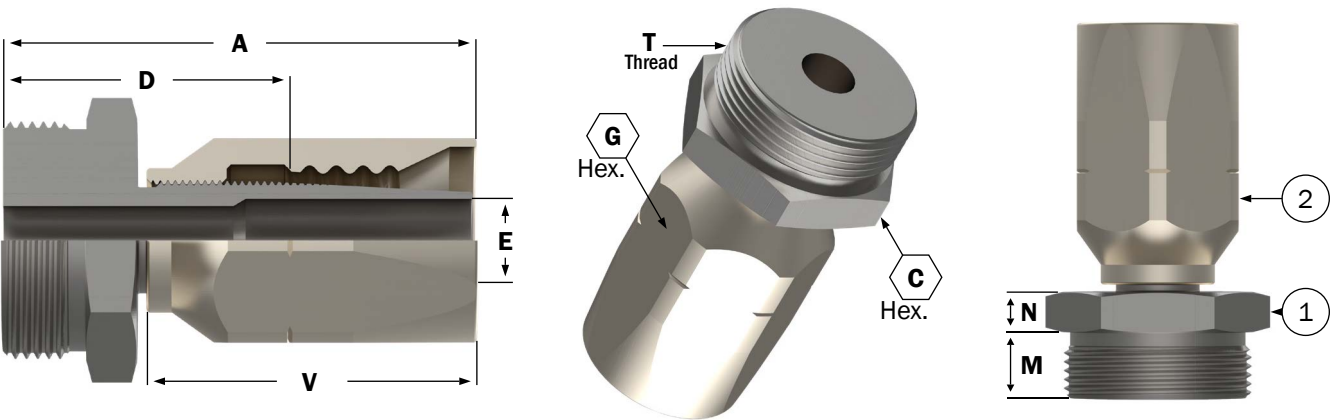
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Male O-Ring Seal to Hose

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	IPS Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
41-190909-1/8-4	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
41-190909-1/4-6	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.59
41-190909-3/8-8	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.86
41-190909-1/2-12	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.56
41-190909-3/4-16	3/4"	2"-12	4.09	2.12	2.04	.62	1.81	.62	.50	2.95	2.34
41-190909-1-16	1"	2 5/16"-12	4.34	2.38	2.28	.82	1.81	.75	.62	2.95	2.81
41-190909-1-20	1"	2 5/16"-12	4.80	2.38	2.48	.81	2.25	.75	.62	3.42	4.03
41-190909-1 1/4-32	1 1/4"	2 3/4"-12	4.72	2.88	2.48	1.21	2.50	.75	.62	3.34	5.50
41-190909-1 1/2-32	1 1/2"	3 1/16"-12	5.34	3.12	2.90	1.39	3.00	.88	.75	3.70	7.38
41-190909-2-32	2"	3 3/4"-12	5.34	3.88	2.90	1.75	3.00	.88	.75	3.70	9.64

Components													
		Part Number											
		Size											
Description	Req'd per Ass'y	Base No.	1/8-4	1/4-6	3/8-8	1/2-12	3/4-16	1-16	1-20	1 1/4-32	1 1/2-32	2-32	Mat'l
Nipple ①	1	4-220643-	1/8-4	1/4-6	3/8-8	1/2-12	3/4-16	1-16	1-20	1 1/4-32	1 1/2-32	2-32	Monel
Socket ②	1	-	-	-	-	-	-	-	-	-	-	-	Steel

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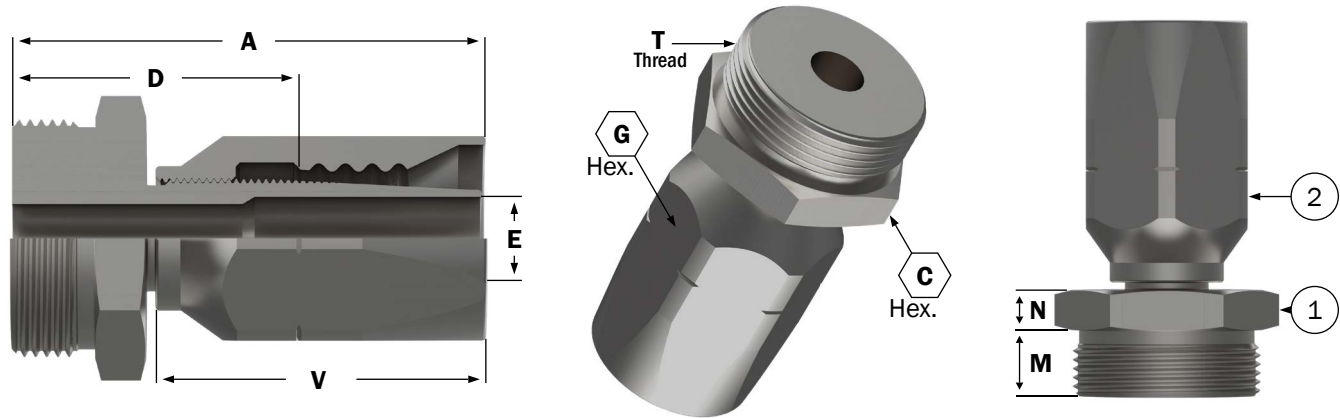
Male O-Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	IPS Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-1600C-0204	C20061	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
EF-1600C-0406	C20062	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.25	.62	.25	1.92	.54
EF-1600C-0606	C20063	3/8"	1 3/8"-12	2.96	1.44	1.45	.31	1.25	.62	.31	1.92	.62
EF-1600C-0608	C20064	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.50	.62	.31	2.01	.76
EF-1600C-0812	C20065	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.75	.62	.38	2.47	1.47
EF-1600C-1216	C20066	3/4"	2"-12	4.09	2.12	2.04	.62	2.25	.62	.50	2.95	2.34
EF-1600C-1616	C20067	1"	2 5/16"-12	4.34	2.38	2.28	.82	2.25	.75	.62	2.95	2.81
EF-1600C-2016	C20068	1 1/4"	2 3/4"-12	4.34	2.88	2.28	.82	2.25	.75	.62	2.95	3.56
EF-1600C-1620	C20069	1"	2 5/16"-12	4.80	2.38	2.48	.81	2.75	.75	.62	3.42	4.03
EF-1600C-2020	C20070	1 1/4"	2 3/4"-12	4.80	2.88	2.48	.81	2.75	.75	.62	3.42	4.75
EF-1600C-2024	C20071	1 1/4"	2 3/4"-12	4.72	2.88	2.48	1.21	3.00	.75	.62	3.34	5.50
EF-1600C-2432	C20072	1 1/2"	3 1/16"-12	5.34	3.12	2.90	1.39	3.50	.88	.75	3.70	7.38
EF-1600C-3232	C20073	2"	3 3/4"-12	5.34	3.88	2.90	1.75	3.50	.88	.75	3.70	9.64

Components								
Desc.	Req'd per Ass'y	0204	0406	0606	0608	0812	1216	Mat'l
Nipple ①	1	C19802-1	C19803-1	C19906-1	C19804-1	C19805-1	C19807-1	Monel
Socket ②	1	C19794-1	C19795-1	C19795-1	C19680-1	C19797-1	C19700-1	Monel

Components, continued									
Desc.	Req'd per Ass'y	1616	2016	1620	2020	2024	2432	3232	Mat'l
Nipple ①	1	C19808-1	C19908-1	C19809-1	C19909-1	C19810-1	C19811-1	C19812	Monel
Socket ②	1	C19700-1	C19700-1	C19798-1	C19798-1	C19799-1	C19694-1	C19694-1	Monel

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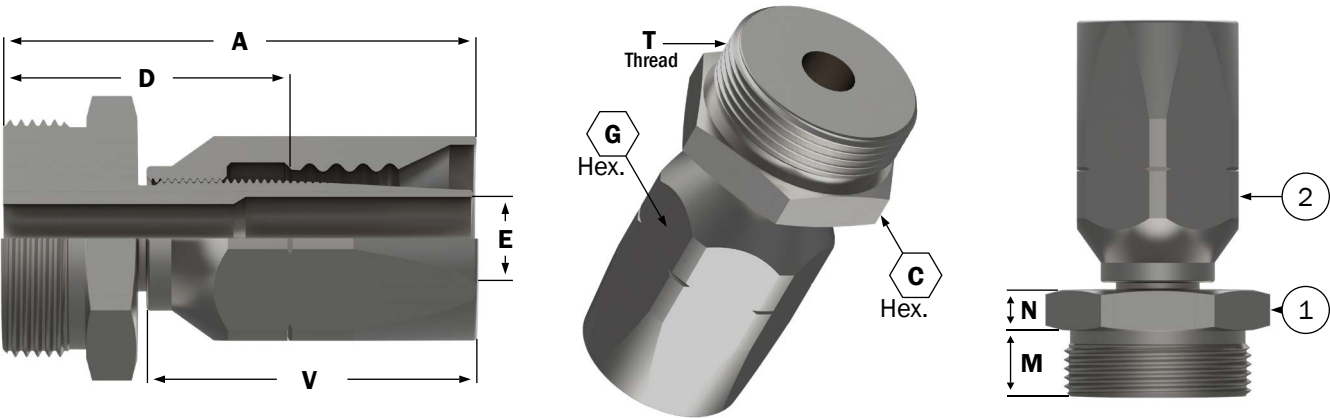
Male O-Ring Seal to Hose

End Fitting - Straight

MIL-DTL-24787/3,
Type C, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	IPS Size	T Thread CL-3A	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
4-190909-1/8-4	1/8"	1"-14	2.50	1.06	1.26	.17	.81	.50	.25	1.73	.38
4-190909-1/4-6	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.59
4-190909-3/8-8	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.86
4-190909-1/2-12	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.56
4-190909-3/4-16	3/4"	2"-12	4.09	2.12	2.04	.62	1.81	.62	.50	2.95	2.34
4-190909-1-16	1"	2 5/16"-12	4.34	2.38	2.28	.82	1.81	.75	.62	2.95	2.81
4-190909-1-20	1"	2 5/16"-12	4.80	2.38	2.48	.81	2.25	.75	.62	3.42	4.03
4-190909-1 1/4-32	1 1/4"	2 3/4"-12	4.72	2.88	2.48	1.21	2.50	.75	.62	3.34	5.50
4-190909-1 1/2-32	1 1/2"	3 1/16"-12	5.34	3.12	2.90	1.39	3.00	.88	.75	3.70	7.38
4-190909-2-32	2"	3 3/4"-12	5.34	3.88	2.90	1.75	3.00	.88	.75	3.70	9.64

Components		Part Number											
		Size	1/8-4	1/4-6	3/8-8	1/2-12	3/4-16	1-16	1-20	1 1/4-32	1 1/2-32	2-32	Mat'l
Nipple ①		Req'd per Ass'y	1	1	1	1	1	1	1	1	1	1	Monel
Base No.			4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	4-220643-	
Socket ②		Req'd per Ass'y	1	1	1	1	1	1	1	1	1	1	Monel
Base No.			4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	4-4010-	

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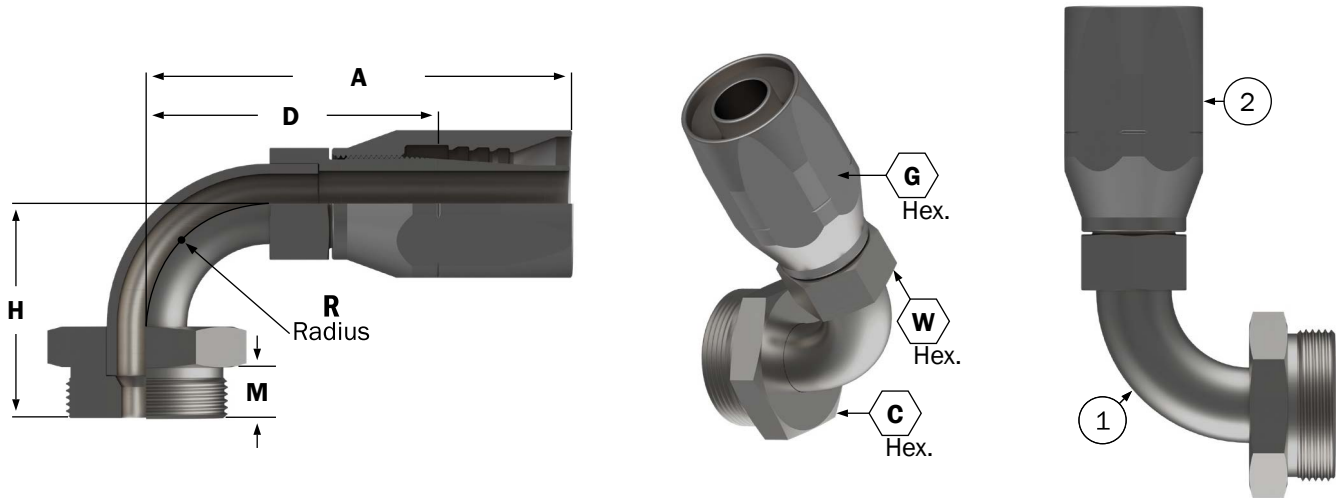
Male O-Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
90EF-1600CL-0406	C20051	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.81	.62
90EF-1600CL-0608	C20052	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
90EF-1600CL-0812	C20053	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.20	1.71
90EF-1600CL-1216	C20054	3/4"	2"-12	5.25	2.12	3.20	1.81	2.68	.62	1.50	1.44	2.87
90EF-1600CL-1616	C20055	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.44	3.44
90EF-1600CL-1620	C20056	1"	2 5/16"-12	6.10	2.38	3.78	2.25	3.17	.75	1.75	1.62	5.03
90EF-1600CL-2020	C20057	1 1/4"	2 3/4"-12	6.10	2.88	3.78	2.25	3.17	.77	1.75	1.62	5.03
90EF-1600CL-2024	C20058	1 1/4"	2 3/4"-12	6.32	2.88	4.09	2.50	3.42	.75	2.00	1.88	6.02
90EF-1600CL-2432	C20059	1 1/2"	3 1/16"-12	7.38	3.12	4.94	3.00	4.05	.88	2.50	2.50	8.49
90EF-1600CL-3232	C20060	2"	3 3/4"-12	7.38	3.88	4.94	3.00	4.05	.88	2.50	2.50	10.64

Components							
Desc.	Req'd per Ass'y	0406	0608	0812	1216	1616	Mat'l
Elbow ①	1	C19910	C19911	C19912	C19914	C19915	Monel
Socket ②	1	C19795-1	C19680-1	C19797-1	C19700-1	C19700-1	Monel

Components, continued							
Desc.	Req'd per Ass'y	1620	2020	2024	2432	3232	Mat'l
Elbow ①	1	C19916	C19917	C19918	C19919	C19920	Monel
Socket ②	1	C19798-1	C19798-1	C19799-1	C19694-1	C19694-1	Monel

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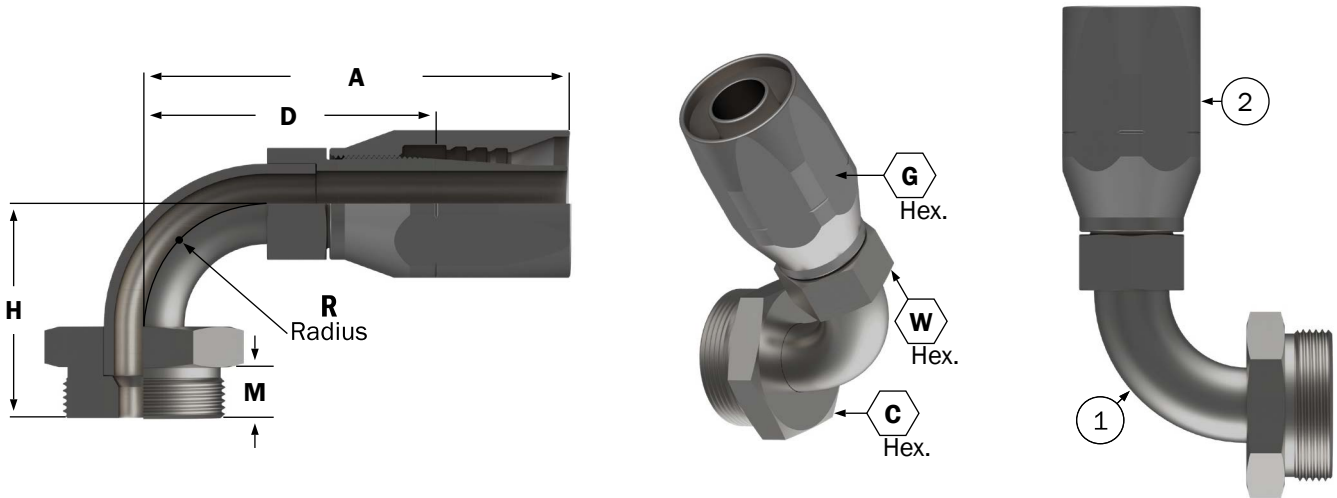
Male O-Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)	
4-191304-1/4-6	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.69	.62	
4-191304-3/8-8	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92	
4-191304-1/2-12	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.06	1.71	
4-191304-3/4-16	3/4"	2"-12	5.25	2.12	3.20	1.81	2.68	.62	1.50	1.38	2.87	
4-191304-1-16	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.38	3.44	
4-191304-1-20	1"	2 5/16"-12	6.10	2.38	3.78	2.25	3.17	.75	1.75	1.62	5.03	
4-191304-1 1/4-20	1 1/4"	2 3/4"-12	6.10	2.88	3.78	2.25	3.17	.75	1.75	1.62	5.03	
4-191304-1 1/4-24	1 1/4"	2 3/4"-12	6.32	2.88	4.09	2.50	3.42	.75	2.00	1.88	6.02	
4-191304-1 1/2-32	1 1/2"	3 1/16"-12	7.38	3.12	4.94	3.00	4.05	.88	2.50	2.50	8.49	
4-191304-2-32	2"	3 3/4"-12	7.38	3.88	4.94	3.00	4.88	1.12	2.50	4.05	10.64	

Components		Part Number											
		Size											
Description	Req'd per Ass'y	Base No.	1/4-6	3/8-8	1/2-12	3/4-16	1-16	1-20	1 1/4-20	1 1/4-24	1 1/2-32	2-32	Mat'l
Elbow ①	1	4-419037-15-419037-	6	8	12	-	-	20	20	24	32	32	Monel CUNI
Socket ②	1	4-4010-4-4013-	6	8	12	-	-	20	20	24	32	32	Monel Monel

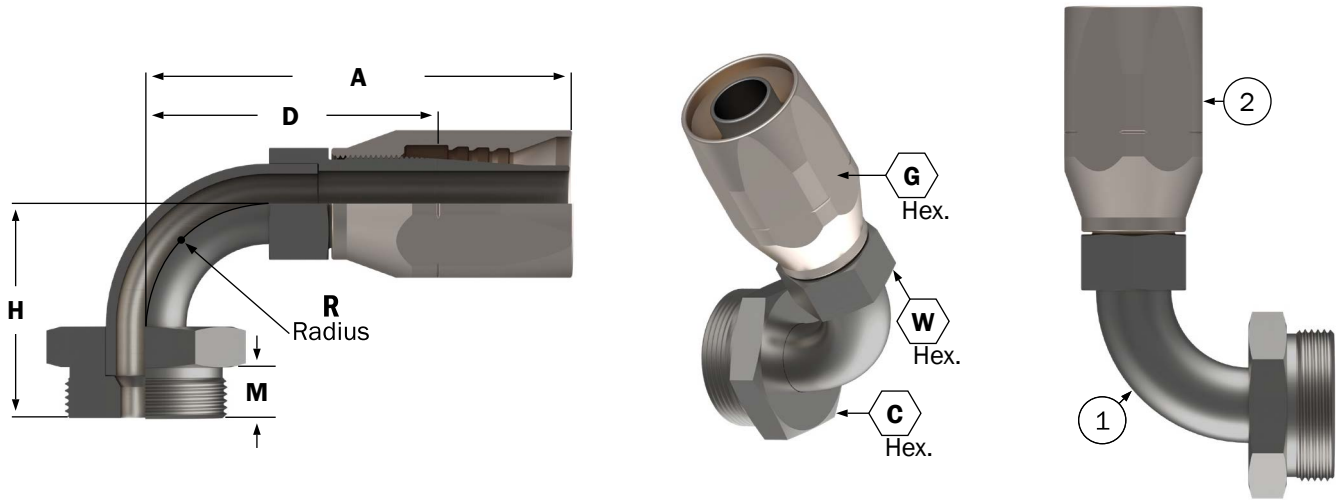
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Male O-Ring Seal to Hose

End Fitting - 90°



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

Part Number	Drawing Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
90EF-SM1600CL-0406	C20519	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.81	.62
90EF-SM1600CL-0608	C20520	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
90EF-SM1600CL-0812	C20521	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.20	1.71
90EF-SM1600CL-1216	C20522	3/4"	2"-12	5.25	2.12	3.20	1.81	2.68	.62	1.50	1.44	2.87
90EF-SM1600CL-1616	C20523	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.44	3.44
90EF-SM1600CL-1620	C20524	1"	2 5/16"-12	6.10	2.38	3.78	2.25	3.17	.75	1.75	1.62	5.03
90EF-SM1600CL-2020	C20525	1 1/4"	2 3/4"-12	6.10	2.88	3.78	2.25	3.17	.77	1.75	1.62	5.03
90EF-SM1600CL-2024	C20526	1 1/4"	2 3/4"-12	6.32	2.88	4.09	2.50	3.42	.75	2.00	1.88	6.02
90EF-SM1600CL-2432	C20527	1 1/2"	3 1/16"-12	7.38	3.12	4.94	3.00	4.05	.88	2.50	2.50	8.49
90EF-SM1600CL-3232	C20528	2"	3 3/4"-12	7.38	3.88	4.94	3.00	4.05	.88	2.50	2.50	10.64

Components

Desc.	Req'd per Ass'y	0406	0608	0812	1216	1616	Mat'l
Elbow ①	1	C19910	C19911	C19912	C19914	C19915	Monel
Socket ②	1	C19795-2	C19680-2	C19797-2	C19700-2	C19700-2	Steel

Components, continued

Desc.	Req'd per Ass'y	1620	2020	2024	2432	3232	Mat'l
Elbow ①	1	C19916	C19917	C19918	C19919	C19920	Monel
Socket ②	1	C19798-2	C19798-2	C19799-2	C19694-2	C19694-2	Steel

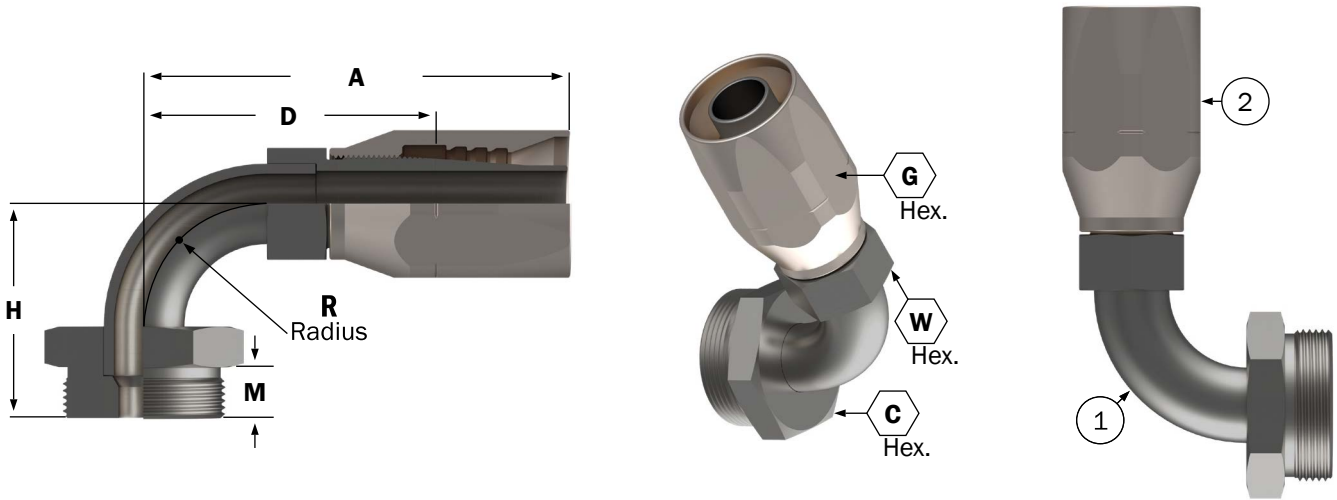
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Male O-Ring Seal to Hose

End Fitting - 90°



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

Part Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
41-191304-1/4-6	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.69	.62
41-191304-3/8-8	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
41-191304-1/2-12	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.06	1.71
41-191304-3/4-16	3/4"	2"-12	5.25	2.12	3.20	1.81	2.68	.62	1.50	1.38	2.87
41-191304-1-16	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.38	3.44
41-191304-1-20	1"	2 5/16"-12	6.10	2.38	3.78	2.25	3.17	.75	1.75	1.62	5.03
41-191304-1 1/4-20	1 1/4"	2 3/4"-12	6.10	2.88	3.78	2.25	3.17	.75	1.75	1.62	5.03
41-191304-1 1/4-24	1 1/4"	2 3/4"-12	6.32	2.88	4.09	2.50	3.42	.75	2.00	1.88	6.02
41-191304-1 1/2-32	1 1/2"	3 1/16"-12	7.38	3.12	4.94	3.00	4.05	.88	2.50	2.50	8.49
41-191304-2-32	2"	3 3/4"-12	7.38	3.88	4.94	3.00	4.88	1.12	2.50	4.05	10.64

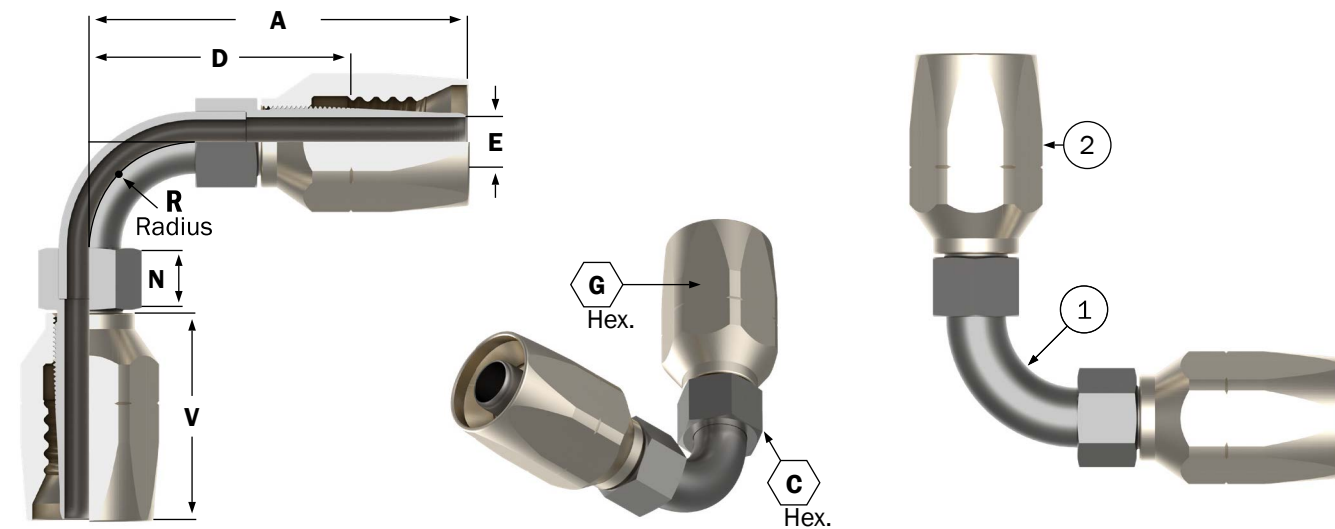
Components		Part Number											
		Size											
Description	Req'd per Ass'y	Base No.	1/4-6	3/8-8	1/2-12	3/4-16	1-16	1-20	1 1/4-20	1 1/4-24	1 1/2-32	2-32	Material
Elbow ①	1	4-419037-15-419037-	6	8	12	-	-	20	20	24	32	32	Monel CUNI
Socket ②	1	-	-	-	-	-	-	-	-	-	-	-	Steel

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions

Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
90ELB-SM1600D-0606	C20529	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.76
90ELB-SM1600D-0808	C20530	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.12
90ELB-SM1600D-1212	C20531	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	2.03
90ELB-SM1600D-1616	C20532	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.77
90ELB-SM1600D-2020	C20533	1 1/4"	6.09	1.62	3.78	1.05	2.25	.86	1.75	3.42	6.31
90ELB-SM1600D-2424	C20534	1 1/2"	6.32	1.88	4.09	1.28	2.50	.86	2.00	3.34	7.85
90ELB-SM1600D-3232	C20535	2"	7.38	2.50	4.94	1.75	3.00	1.12	2.50	3.70	11.43

Components

Description	Req'd per Ass'y	0606	0808	1212	1616	2020	2424	3232	Material
Elbow ①	1	C19851	C19852	C19853	C20244	C19854	C19855	C19856	Monel
Socket ②	2	C19795-2	C19680-2	C19797-2	C19700-2	C19798-2	C19799-2	C19694-2	Steel

All dimensions are in inches.
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Notes

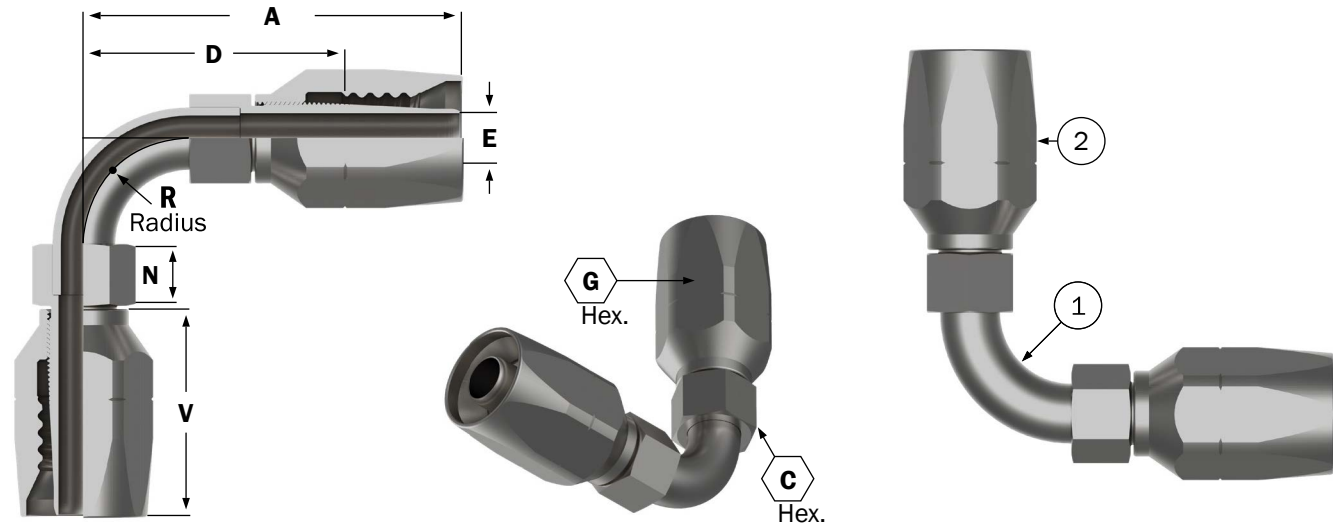
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
90ELB-1600D-0606	C20074	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.76
90ELB-1600D-0808	C20075	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.12
90ELB-1600D-1212	C20076	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	2.03
90ELB-1600D-1616	C20077	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.77
90ELB-1600D-2020	C20078	1 1/4"	6.09	1.62	3.78	1.05	2.25	.86	1.75	3.42	6.31
90ELB-1600D-2424	C20079	1 1/2"	6.32	1.88	4.09	1.28	2.50	.86	2.00	3.34	7.85
90ELB-1600D-3232	C20080	2"	7.38	2.50	4.94	1.75	3.00	1.12	2.50	3.70	11.43

Components										
Description	Req'd per Ass'y	0606	0808	1212	1616	2020	2424	3232	Material	
Elbow ①	1	C19851	C19852	C19853	C20244	C19854	C19855	C19856	Monel	
Socket ②	2	C19795-1	C19680-1	C19797-1	C19700-1	C19798-1	C19799-1	C19694-1	Monel	

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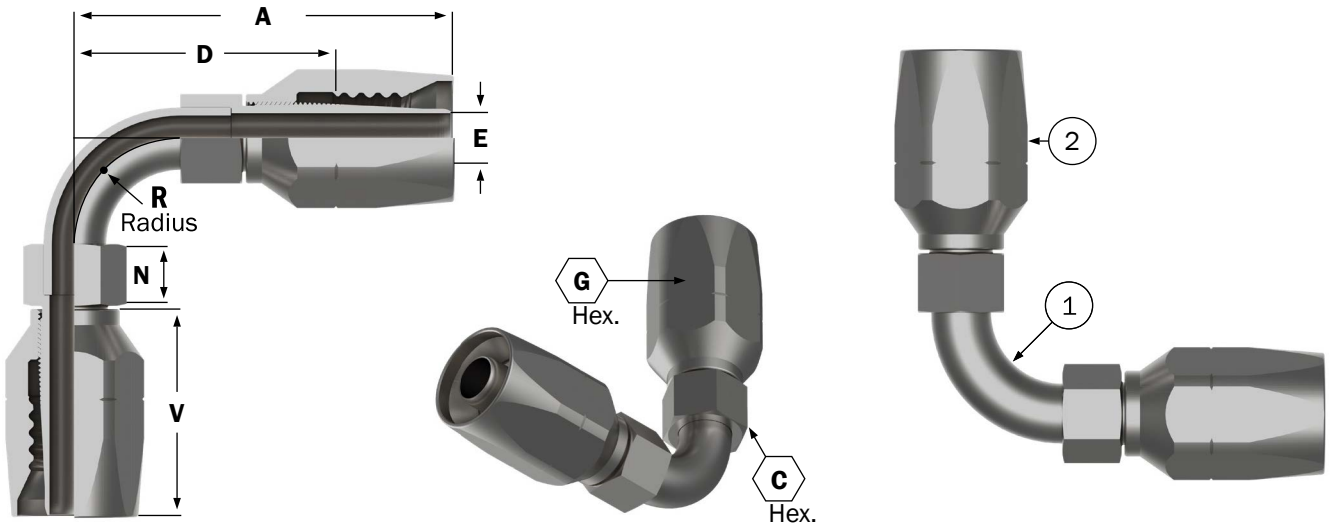
Hose to Hose

Elbow - 90° Dogleg

MIL-DTL-24787/5,
Type D, Group I



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions										
Part Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
4-191305-6	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.76
4-191305-8	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.12
4-191305-12	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	2.03
4-191305-16	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.77
4-191305-20	1 1/4"	6.09	1.62	3.78	1.05	2.25	.86	1.75	3.42	6.31
4-191305-24	1 1/2"	6.32	1.88	4.09	1.28	2.50	.92	2.00	3.34	7.85
4-191305-32	2"	7.38	2.50	4.94	1.75	3.00	1.12	2.50	3.70	11.43

Components										
Description	Req'd per Ass'y	Part Number								Material
		Base No.	Size	-6	-8	-12	-16	-20	-24	-32
Elbow ①	1	4-186305-	6	8	12	16	20	24	32	Monel
Socket ②	2	4-4010- 4-4013-	6	8	12	- 16	20	24	32	Monel

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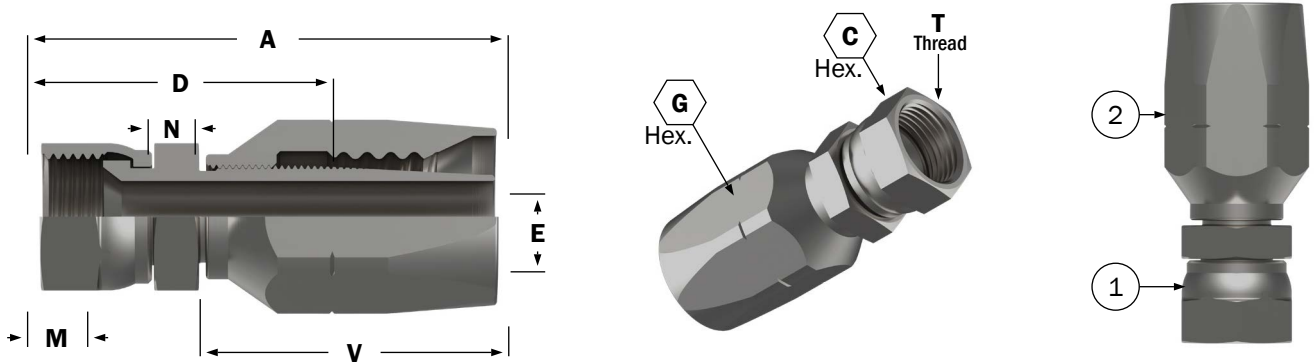
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group II



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-1602A-0606	C20197	3/8"	9/16"-18	2.98	.69	1.51	.31	1.00	.40	.28	1.92	.40
EF-1602A-0808	C19876	1/2"	3/4"-16	3.20	.88	1.68	.39	1.12	.44	.31	2.01	.53
EF-1602A-1008	C20199	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.12	.52	.31	2.01	.62
EF-1602A-1010	C20201	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-1602A-1212	C20202	3/4"	1 1/16"-12	4.00	1.25	1.99	.61	1.50	.57	.38	2.47	1.10
EF-1602A-1616	C19882	1"	1 5/16"-12	4.49	1.50	2.43	.82	1.81	.60	.38	2.95	1.72

Components								
Desc.	Req'd per Ass'y	0606	0808	1008	1010	1212	1616	Mat'l
Nipple ①	1	C19865	C19866	C19904	C19867	C19868	C19847	Monel
Socket ②	1	C19845-1	C19699-1	C19699-1	C19926-1	C19846-1	C19700-1	Monel

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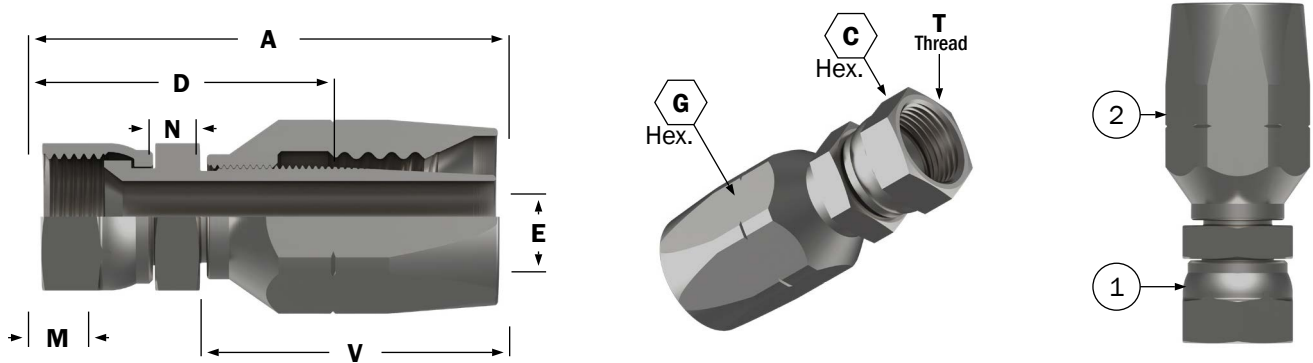
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group II



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
4-4730-6-6	3/8"	3/16"-18	2.98	.69	1.50	.31	1.00	.40	.28	1.92	.35
4-4730-8-8	1/2"	3/4"-16	3.20	.88	1.68	.39	1.12	.44	.31	2.01	.53
4-4730-10-8	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.12	.52	.31	2.01	.58
4-4730-12	3/4"	1 1/16"-12	3.86	1.25	1.99	.61	1.50	.57	.38	2.47	1.10
4-4730-16	1"	1 5/16"-12	4.48	1.50	2.43	.82	1.81	.60	.38	2.95	1.72

Components		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	6-6	8-8	10-8	12	16	Mat'l
Nipple ①	1	4-4103-	6	8	8	12	16	Monel
Socket ②	1	4-4013-	6	8	8	12	16	Monel

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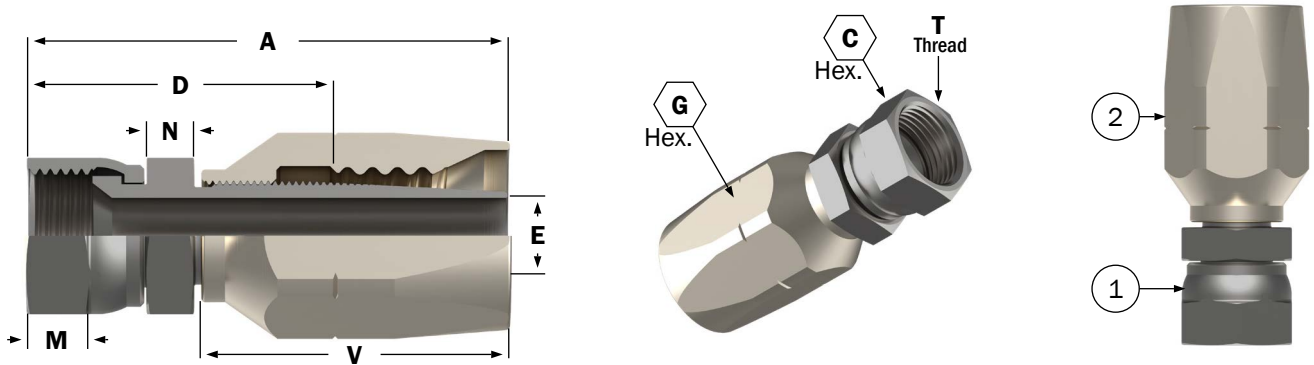
Hose to Female J.I.C. (37°) Flare

End Fitting - Straight

MIL-DTL-24787/2,
Type A, Group II



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	Hose I.D.	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-SM1602A-0606	C20329	3/8"	9/16"-18	2.98	.69	1.51	.31	1.00	.40	.28	1.92	.40
EF-SM1602A-0808	C20331	1/2"	3/4"-16	3.20	.88	1.68	.39	1.12	.44	.31	2.01	.53
EF-SM1602A-1008	C20332	1/2"	7/8"-14	3.31	1.00	1.80	.39	1.12	.52	.31	2.01	.62
EF-SM1602A-1010	C20334	5/8"	7/8"-14	3.50	1.00	1.85	.50	1.50	.52	.31	2.10	.78
EF-SM1602A-1212	C20335	3/4"	1 1/16"-12	4.00	1.25	1.99	.61	1.50	.57	.38	2.47	1.10
EF-SM1602A-1616	C20338	1"	1 5/16"-12	4.49	1.50	2.43	.82	1.81	.60	.38	2.95	1.72

Components								
Desc.	Req'd per Ass'y	0606	0808	1008	1010	1212	1616	Mat'l
Nipple ①	1	C19865	C19866	C19904	C19867	C19868	C19847	Monel
Socket ②	1	C19845-2	C19699-2	C19699-2	C19926-2	C19846-2	C19700-2	Steel

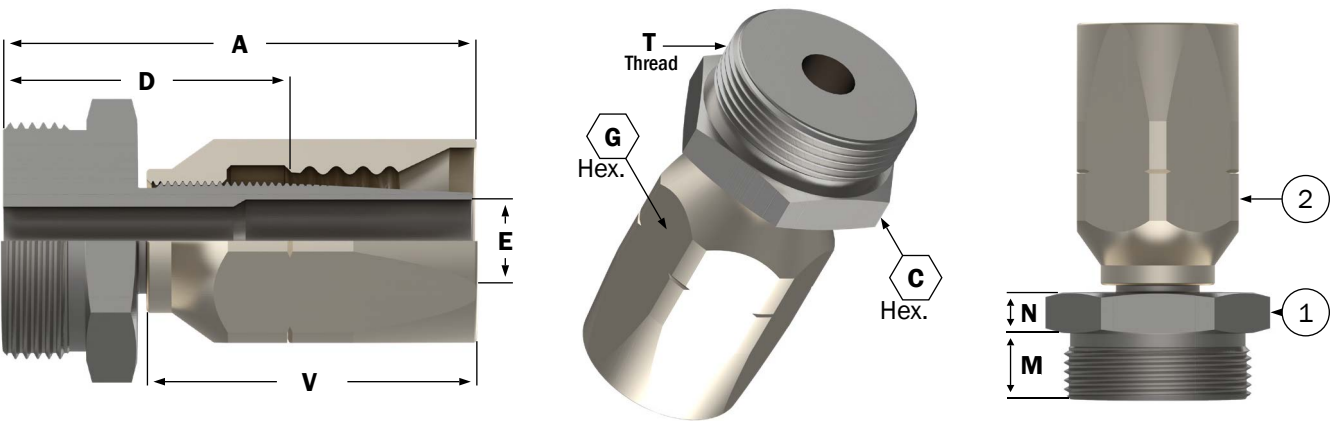
All dimensions are in inches.
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Male O-Ring Seal to Hose

End Fitting - Straight



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	I.P.S. Size	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-SM1602C-0406	C20351	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.54
EF-SM1602C-0606	C20352	3/8"	1 3/8"-12	2.91	1.44	1.45	.31	1.00	.62	.31	1.92	.62
EF-SM1602C-0608	C20353	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.76
EF-SM1602C-0812	C20354	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.47
EF-SM1602C-1212	C20668	3/4"	2"-12	3.61	2.12	1.74	.61	1.50	.62	.50	2.47	1.77
EF-SM1602C-1216	C20355	3/4"	2"-12	4.09	2.12	2.04	.62	1.75	.62	.50	2.95	1.57
EF-SM1602C-1616	C20356	1"	2 5/16"-12	4.34	2.38	2.28	.82	1.75	.75	.62	2.95	2.78

Components									
Desc.	Req'd per Ass'y	0406	0606	0608	0812	1212	1216	1616	Mat'l
Nipple ①	1	C19803-1	C19906-1	C19804-1	C19805-1	C19806-1	C19807-1	C19808-1	Monel
Socket ②	1	C19845-2	C19845-2	C19699-2	C19846-2	C19846-2	C19700-2	C19700-2	Steel

All dimensions are in inches.
Dimensional information is for reference only.
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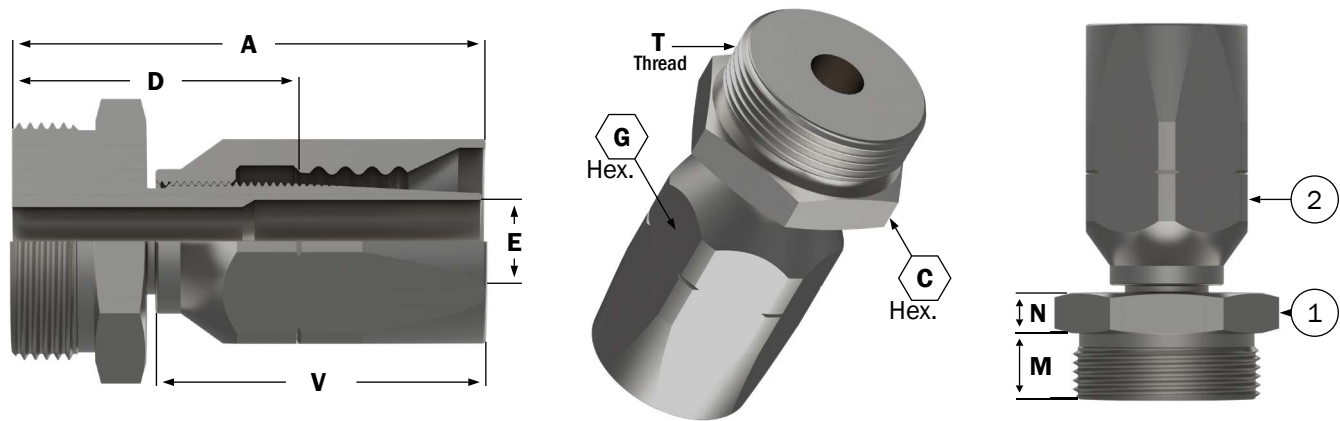
Male O-Ring Seal to Hose

End Fitting - Straight

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	I.P.S. Size	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
EF-1602C-0406	C20217	1/4"	1¾"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.92	.54
EF-1602C-0606	C20218	3/8"	1⅝"-12	2.91	1.44	1.45	.31	1.00	.62	.31	1.92	.62
EF-1602C-0608	C20219	3/8"	1⅝"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.76
EF-1602C-0812	C20220	1/2"	1¾"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.47
EF-1602C-1212	C20669	3/4"	2"-12	3.61	2.12	1.74	.61	1.50	.62	.50	2.47	1.77
EF-1602C-1216	C20221	3/4"	2"-12	4.09	2.12	2.04	.62	1.75	.62	.50	2.95	1.57
EF-1602C-1616	C20222	1"	2⅝"-12	4.34	2.38	2.28	.82	1.75	.75	.62	2.95	2.78

Components									
Desc.	Req'd per Ass'y	0406	0606	0608	0812	1212	1216	1616	Mat'l
Nipple ①	1	C19803-1	C19906-1	C19804-1	C19805-1	C19806-1	C19807-1	C19808-1	Monel
Socket ②	1	C19845-1	C19845-1	C19699-1	C19846-1	C19846-1	C19700-1	C19700-1	Monel

All dimensions are in inches.
Dimensional information is for reference only.
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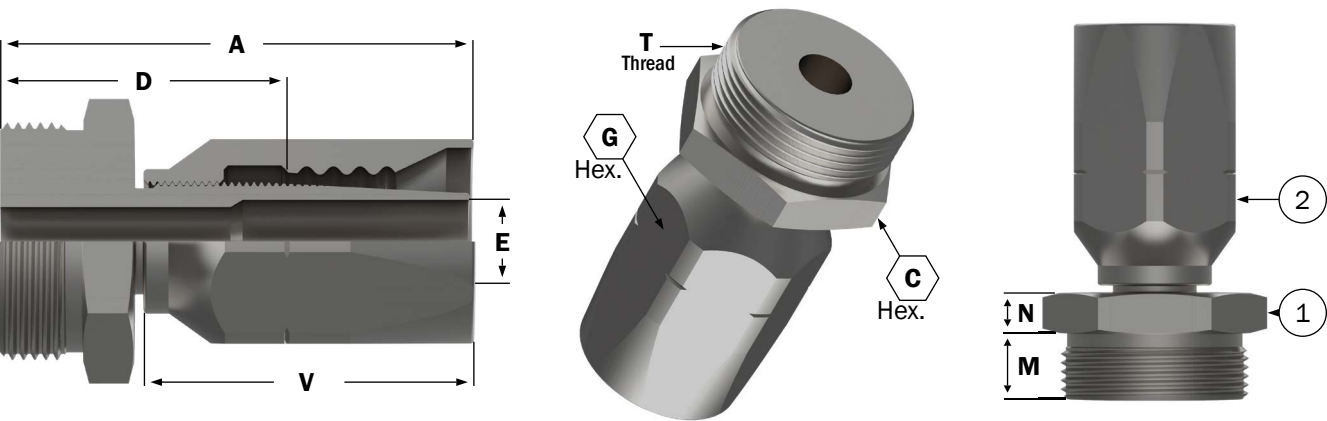
Male O-Ring Seal to Hose

End Fitting - Straight

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	I.P.S. Size	T Thread CL-2B	A	C	D	E	G	M	N	V	Est. Wt. (lbs.)
4-190885-1/4-6	1/4"	1 3/16"-12	2.82	1.25	1.34	.31	1.00	.62	.25	1.95	.54
4-190885-3/8-8	3/8"	1 3/8"-12	2.96	1.44	1.45	.39	1.12	.62	.31	2.01	.76
4-190885-1/2-12	1/2"	1 3/4"-12	3.49	1.81	1.62	.50	1.50	.62	.38	2.47	1.47
4-190885-3/4-12	3/4"	2"-12	3.61	2.12	1.74	.61	1.50	.62	.50	2.47	1.78
4-190885-3/4-16	3/4"	2"-12	4.09	2.12	2.04	.62	1.81	.62	.50	2.95	1.57
4-190885-1-16	1"	2 5/16"-12	4.34	2.38	2.28	.82	1.81	.75	.62	2.95	2.78

Components		Part Number	Size						
Description	Req'd per Ass'y	Base No.	1/4-6	3/8-8	1/2-12	3/4-12	3/4-16	1-16	Mat'l
Nipple ①	1	4-220643-	1/4-6	3/8-8	1/2-12	3/4-12	3/4-16	1-16	Monel
Socket ②	1	4-4013-	6	8	12	12	16	16	Monel

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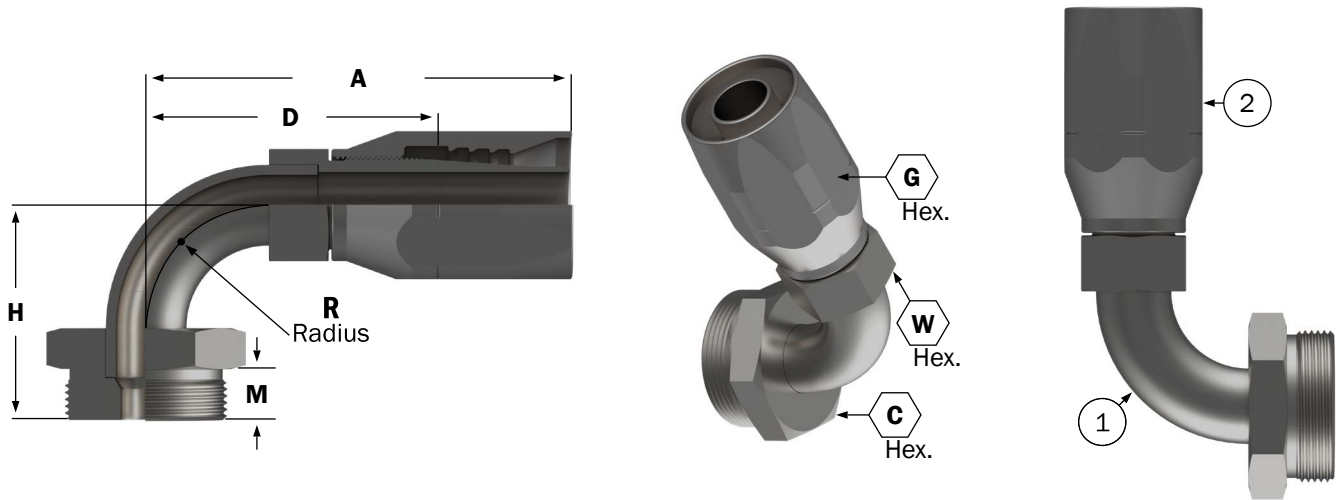
Male O-Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
90EF-1602CL-0406	C20206	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.69	.62
90EF-1602CL-0608	C20207	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
90EF-1602CL-0812	C20208	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.06	1.71
90EF-1602CL-1212	C20209	3/4"	2"-12	4.52	2.12	2.65	1.50	2.43	.62	1.25	1.06	2.13
90EF-1602CL-1216	C20210	3/4"	2"-12	5.25	2.12	3.20	1.81	2.60	.62	1.50	1.38	2.87
90EF-1602CL-1616	C20211	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.38	3.44

Components								
Description	Req'd per Ass'y	0406	0608	0812	1212	1216	1616	Material
Elbow ①	1	C19910	C19911	C19912	C19913	C19914	C19915	Monel
Socket ②	1	C19845-1	C19699-1	C19846-1	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.

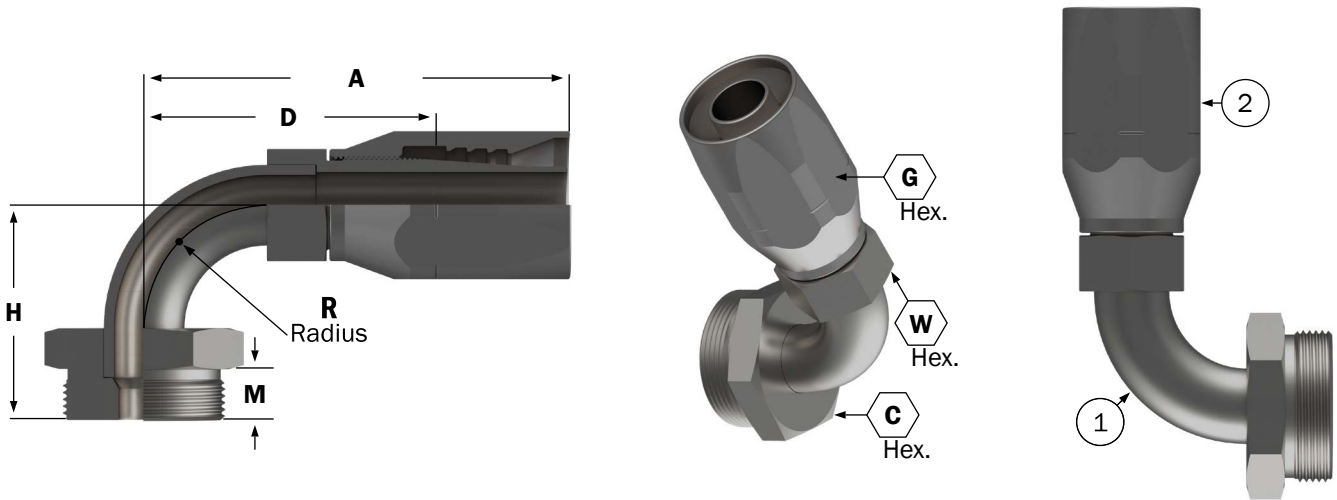
Male O-Ring Seal to Hose

End Fitting - 90°

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
4-191307-1/4-6	1/4"	13/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.69	.62
4-191307-3/8-8	3/8"	13/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
4-191307-1/2-12	1/2"	13/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.06	1.71
4-191307-3/4-12	3/4"	2"-12	4.52	2.12	2.65	1.50	2.43	.62	1.25	1.06	2.13
4-191307-3/4-16	3/4"	2"-12	5.25	2.12	3.20	1.81	2.68	.62	1.50	1.38	2.82
4-191307-1-16	1"	25/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.38	3.44

Components		Part Number							
		Size							
Description	Req'd per Ass'y	Base No.	1/4-6	3/8-8	1/2-12	3/4-12	3/4-16	1-16	Material
Elbow ①	1	4-186304-	1/4-6	3/8-8	1/2-12	3/4-12	3/4-16	1-16	Monel
Socket ②	1	4-4013-	6	8	12	12	16	16	Monel

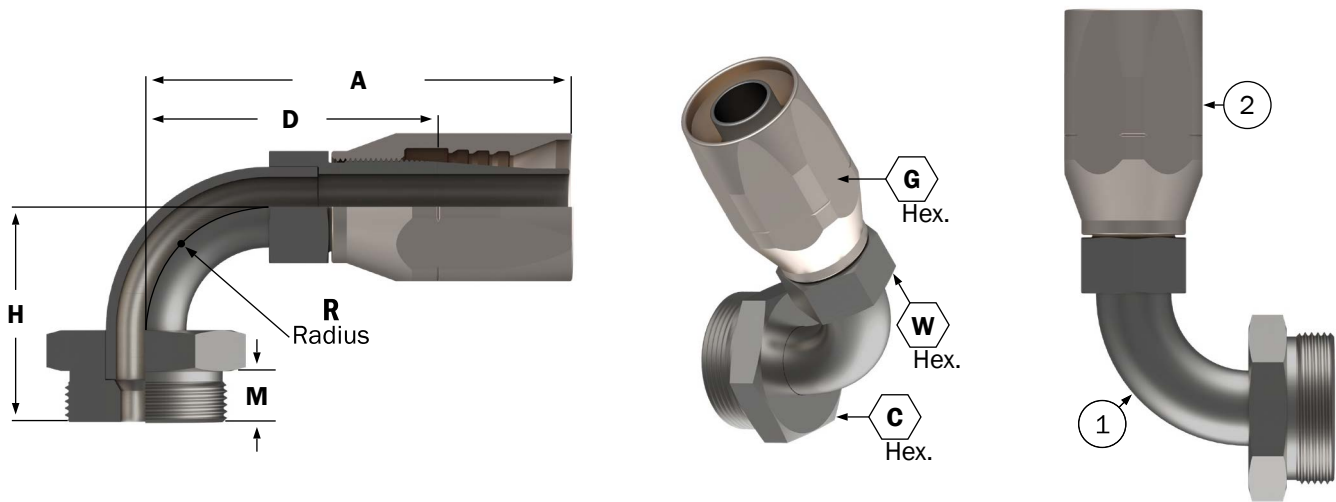
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Male O-Ring Seal to Hose

End Fitting - 90°



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions												
Part Number	Drawing Number	I.P.S. Size	Thread CL-3A	A	C	D	G	H	M	R	W	Est. Wt. (lbs.)
90EF-SM1602CL-0406	C20340	1/4"	1 3/16"-12	3.11	1.25	1.63	1.00	1.43	.62	.50	.69	.62
90EF-SM1602CL-0608	C20341	3/8"	1 3/8"-12	3.44	1.44	1.93	1.12	1.74	.62	.75	.81	.92
90EF-SM1602CL-0812	C20342	1/2"	1 3/4"-12	4.52	1.81	2.65	1.50	2.31	.62	1.25	1.06	1.71
90EF-SM1602CL-1212	C20343	3/4"	2"-12	4.52	2.12	2.65	1.50	2.43	.62	1.25	1.06	2.13
90EF-SM1602CL-1216	C20344	3/4"	2"-12	5.25	2.12	3.20	1.81	2.60	.62	1.50	1.38	2.87
90EF-SM1602CL-1616	C20345	1"	2 5/16"-12	5.25	2.38	3.20	1.81	2.92	.75	1.50	1.38	3.44

Components								
Description	Req'd per Ass'y	0406	0608	0812	1212	1216	1616	Material
Elbow ①	1	C19910	C19911	C19912	C19913	C19914	C19915	Monel
Socket ②	1	C19845-2	C19699-2	C19846-2	C19846-2	C19700-2	C19700-2	Steel

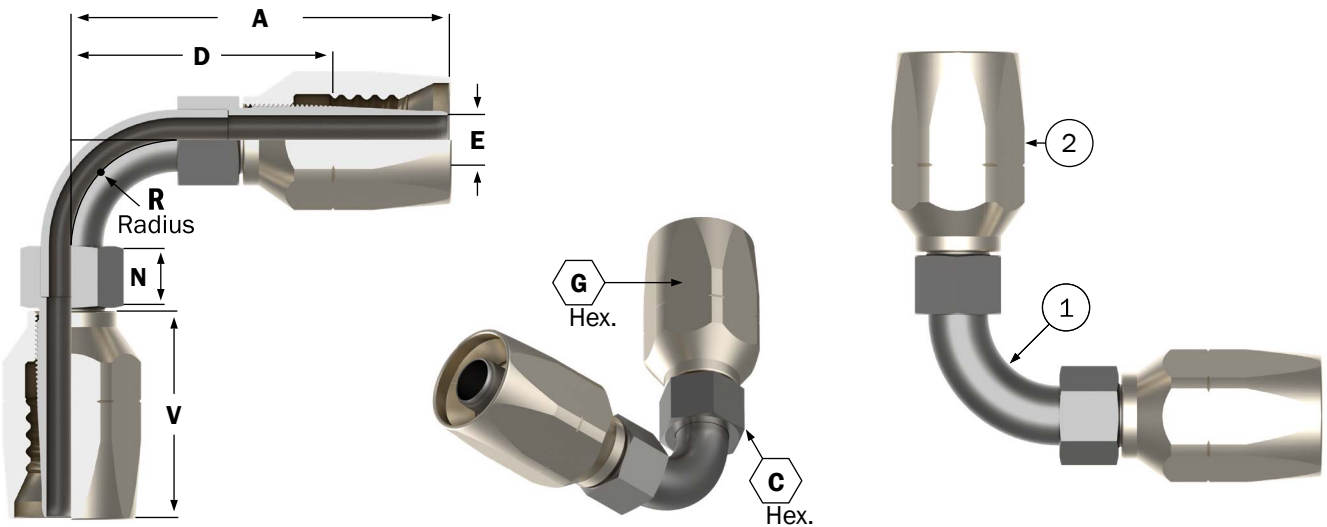
All dimensions are in inches. Dimensional information is for reference only. Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Hose to Hose

Elbow - 90° Dogleg



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
90ELB-SM1602D-0606	C20346	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.76
90ELB-SM1602D-0808	C20347	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.12
90ELB-SM1602D-1212	C20348	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	2.03
90ELB-SM1602D-1616	C20349	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.77

Components						
Description	Req'd per Ass'y	0606	0808	1212	1616	Material
Elbow ①	1	C19851	C19852	C19853	C20244	Monel
Socket ②	2	C19845-2	C19699-2	C19846-2	C19700-2	Steel

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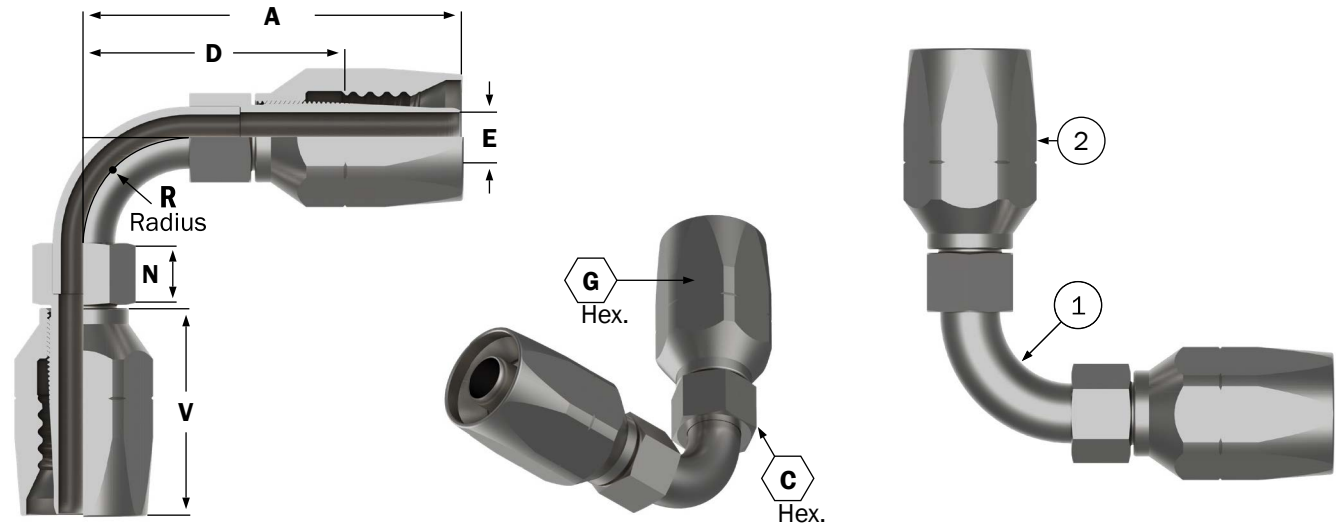
Hose to Hose

Elbow - 90° Dogleg

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions											
Part Number	Drawing Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
90ELB-1602D-0606	C20212	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.76
90ELB-1602D-0808	C20213	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.12
90ELB-1602D-1212	C20214	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	2.03
90ELB-1602D-1616	C20215	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.77

Components						
Description	Req'd per Ass'y	0606	0808	1212	1616	Material
Elbow ①	1	C19851	C19852	C19853	C20244	Monel
Socket ②	2	C19845-1	C19699-1	C19846-1	C19700-1	Monel

All dimensions are in inches.
Dimensional information is for reference only.
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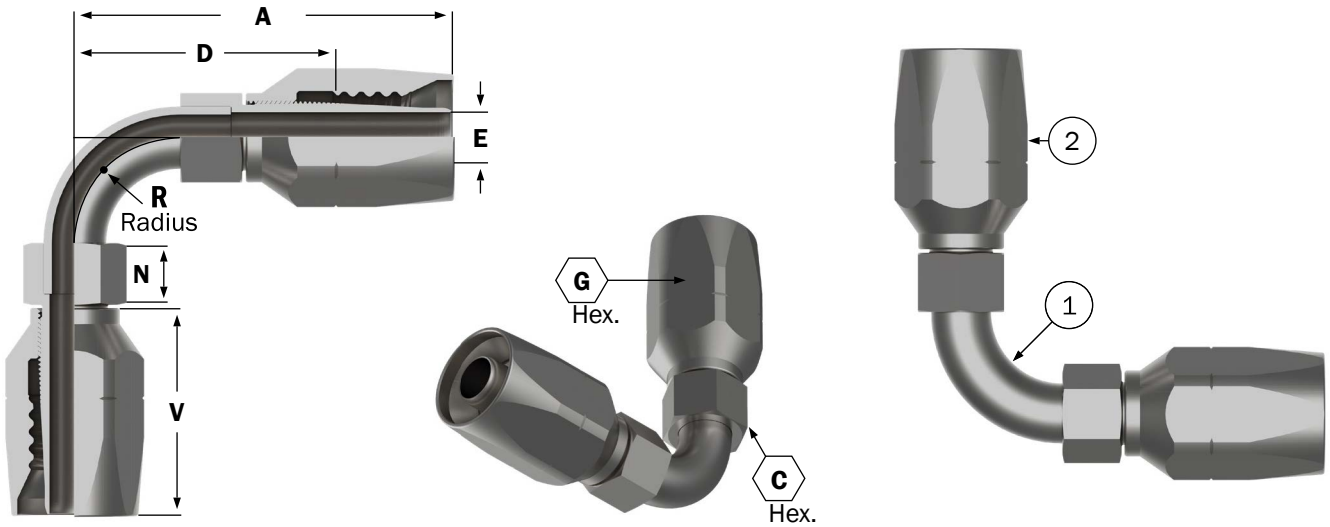
Hose to Hose

Elbow - 90° Dogleg

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



For use with the following hose: Wire reinforced hoses i.a.w. MIL-DTL-24135/1/5/13



Dimensions										
Part Number	I.P.S. Size	A	C	D	E	G	N	R	V	Est. Wt. (lbs.)
4-191308-6	3/8"	3.11	.69	1.63	.31	1.00	.62	.50	1.92	.69
4-191308-8	1/2"	3.44	.81	1.93	.39	1.12	.62	.75	2.01	1.00
4-191308-12	3/4"	4.52	1.06	2.65	.61	1.50	.74	1.25	2.47	1.98
4-191308-16	1"	5.25	1.38	3.20	.82	1.81	.74	1.50	2.95	3.43

		Part Number						
		Size						
Description	Req'd per Ass'y	Base No.	-6	-8	-12	-16	Material	
Elbow ①	1	4-186305-	6	8	12	16	Monel	
Socket ②	2	4-4013-	6	8	12	16	Monel	

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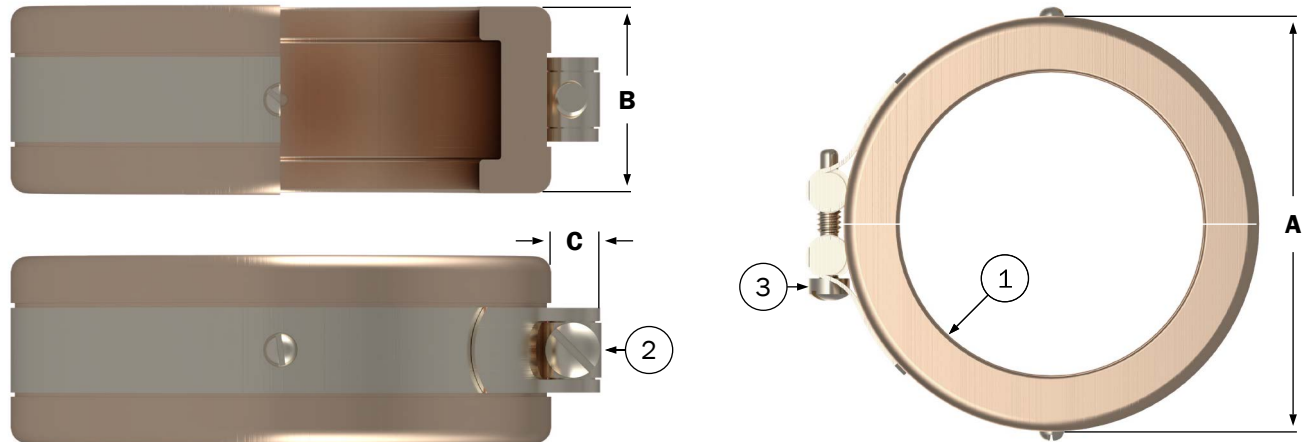
Split Clamp

MIL-DTL-24787/4,
Type SC

For use with male and female split clamp end fittings.

Clamp: Aluminum Bronze

Hardware & Band: Monel



Part Number	Drawing Number	I.P.S. Size	A	B	C	① Split Clamp	② Band Ass'y	③ Screw	④ Screw	Est. Wt. (lbs.)
B-CLMP-1.25S	C18160	1¼"	3.00	1.31	.39	C18384	C18380	B18289	C18080-3	1.03
B-CLMP-1.5S	C18294	1½"	3.31	1.31	.39	C18286	C18293	B18289	C18080-3	1.12
B-CLMP-2S	C18078	2"	4.00	1.38	.39	C18300	C18302	B18289	C18080-3	1.82
B-CLMP-2.5S	C18079	2½"	4.42	1.44	.39	C18337	C18335	B18289	C18080-3	1.90
B-CLMP-3S	C18080	3"	5.19	1.50	.39	C18177	C18290	B18289	C18080-3	2.81
B-CLMP-3.5S	C18081	3½"	5.56	1.50	.39	C18385	C18381	B18289	C18080-3	2.44
B-CLMP-4S	C18082	4"	6.12	1.62	.39	C18338	C18336	C18289	C18080-3	3.15
B-CLMP-5S	C18248	5"	7.31	1.62	.39	C18191	C18364	B18289	C18080-3	3.83
B-CLMP-6S	C18322	6"	8.25	1.94	.39	C18386	C18382	B18289	C18080-3	5.08
B-CLMP-8S	C18323	8"	10.78	2.38	.39	C18387	C18383	B18388	C18080-3	7.00
B-CLMP-10S	C18389	10"	12.88	2.38	.39	C18393	C18391	B18388	C18080-3	9.00
B-CLMP-12S	C18390	12"	14.98	2.38	.39	C18394	C18392	B18388	C18080-3	11.00

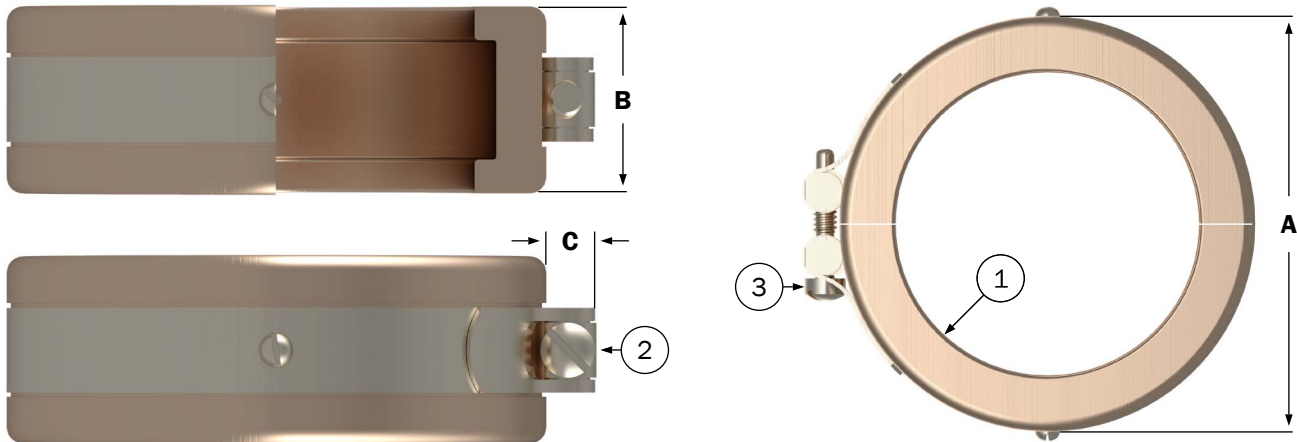
All dimensions are in inches.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

P/N 900758
Split Clamp
MIL-DTL-24787/4,
Type SC

For use with male and female split clamp end fittings.

Clamp: Aluminum Bronze

Hardware & Band: Monel



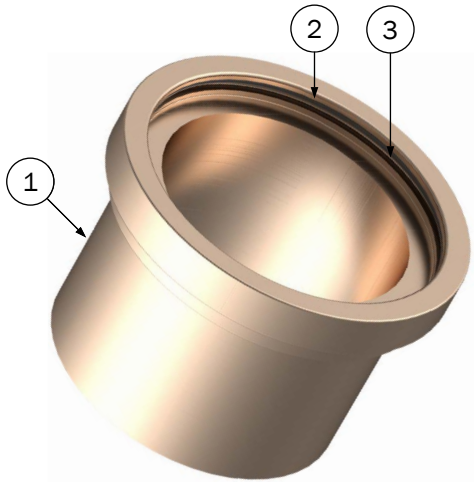
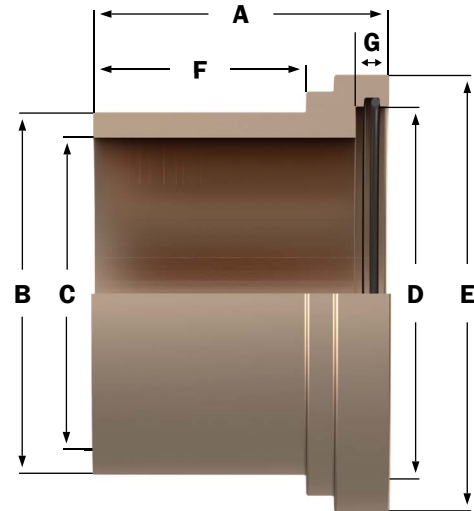
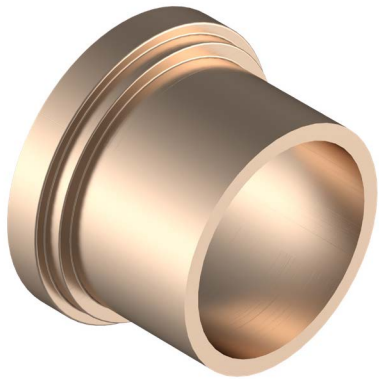
Part Number	I.P.S. Size	A	B	C	① Split Clamp	② Band Ass'y	③ Screw	④ Screw	Est. Wt. (lbs.)
900758-1.25	1¼"	3.00	1.31	.39	115-900757-1.25	FH9515-0420-14	14-21002-1-6-4	900762-15	1.03
900758-1.5	1½"	3.31	1.31	.39	115-900757-1.5	FH9515-0420-14	14-21002-1-6-4	900762-17	1.12
900758-2	2"	4.00	1.38	.39	115-900757-2	FH9515-0420-14	14-21002-1-6-4	900762-18	1.82
900758-2.5	2½"	4.42	1.44	.39	115-900757-2.5	FH9515-0420-14	14-21002-1-6-4	900762-19	1.90
900758-3	3"	5.19	1.50	.39	115-900757-3	FH9515-0420-14	14-21002-1-6-4	900762-21	2.81
900758-3.5	3½"	5.56	1.50	.39	115-900757-3.5	FH9515-0420-14	14-21002-1-6-4	900762-22	2.44
900758-4	4"	6.12	1.62	.39	115-900757-4	FH9515-0420-14	14-21002-1-6-4	900762-23	3.15
900758-5	5"	7.31	1.62	.39	115-900757-5	FH9515-0420-14	14-21002-1-6-4	900762-26	3.83
900758-6	6"	8.25	1.94	.39	115-900757-6	FH9515-0420-14	14-21002-1-6-4	900762-27	5.08
900758-8	8"	10.78	2.38	.39	115-900757-8	FH9515-0420-14	14-21002-1-6-4	900762-28	7.00
900758-10	10"	12.88	2.38	.39	115-900757-10	FH9515-0420-14	14-21002-1-6-4	900762-29	9.00
900758-12	12"	14.28	2.10	.39	115-900757-12	FH9515-0420-14	14-21002-1-6-4	900762-30	11.00

All dimensions are in inches.
Dimensional information is for reference only.
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Male Sil-Braze Tailpiece

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

For use with female split clamp end fittings.



Dimensions

Part Number	Drawing Number	I.P.S. Size	A	B	C	D	E	F	G	Est. Wt. (lbs.)
TP-2MSB	C18088	2"	2.17	2.38	2.04	2.51	3.24	1.31	.35	-
TP-2.5MSB	C18089	2½"	2.04	2.88	2.59	3.01	3.74	1.12	.35	-
TP-3MSB	C18090	3"	3.45	3.50	3.00	3.63	4.37	2.50	.35	-
TP-3.5MSB	C18091	3½"	3.45	4.00	3.50	4.13	4.93	2.50	.35	-
TP-4MSB	C18092	4"	3.67	4.50	3.88	4.63	5.43	2.64	.35	-
TP-5MSB	C16944	5"	3.80	5.56	4.94	5.63	6.62	2.77	.42	-
TP-6MSB	C17549	6"	3.87	6.62	5.96	6.76	7.75	2.67	.47	-
TP-8MSB	C17550	8"	4.37	8.62	7.88	9.01	9.97	2.82	.84	-
TP-10MSB	C18399	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	-

Components

Description	Req'd per Ass'y	2	2.5	3	3.5	4	5	6	8	10	12	Material
Tailpiece ①	1	C18098	C18099	C18144	C18145	C18101	C16944	C18405	C18406	C18407	C18408	Alum. Bronze
O-Ring ②	1	R-RNG/ O-230	R-RNG/ O-25-234	R-RNG/ O-239	R-RNG/ O-243	R-RNG/ O-247	R-RNG/ O-5-255	R-RNG/ O-261	R-RNG/ O-447	R-RNG/ O-451	R-RNG/ O-453	Buna-N
Back-Up Ring ③	1	R-RNG/ BU-8	R-RNG/ BU-12	-	-	-	-	-	-	-	-	Buna-N

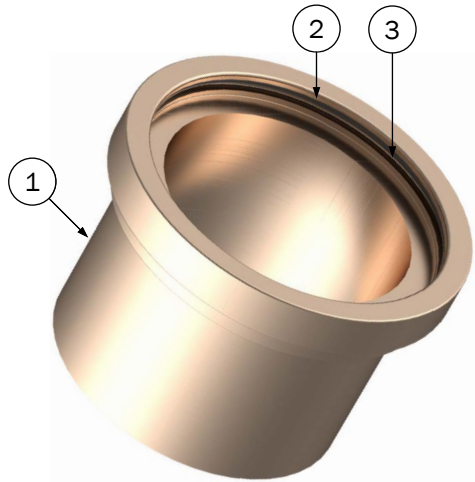
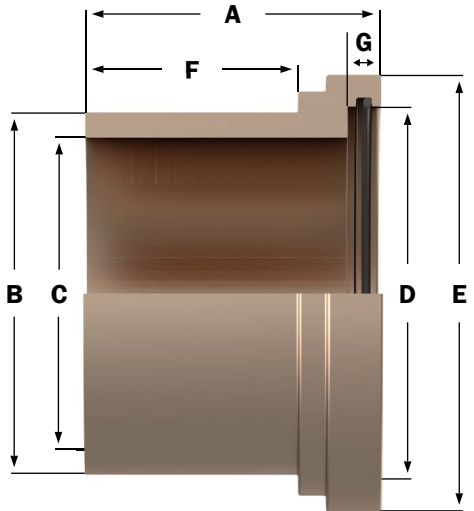
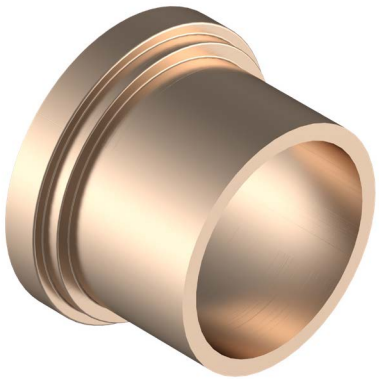
All dimensions are in inches.
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P/N 188-500189 & FF5002

Male Sil-Braze Tailpiece

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

For use with female split clamp end fittings.



Dimensions

Part Number	I.P.S. Size	A	B	C	D	E	F	G	Est. Wt. (lbs.)
FF5002-20-188	1¼"	1.95	1.66	1.41	1.76	2.43	1.12	.35	-
FF5002-24-188	1½"	2.07	1.90	1.62	2.01	2.74	1.25	.35	-
FF5002-32-188	2"	2.17	2.38	2.04	2.51	3.24	1.31	.35	-
FF5002-40-188	2½"	2.04	2.88	2.59	3.01	3.74	1.12	.35	-
188-500189-3	3"	3.45	3.50	3.00	3.63	4.37	2.50	.35	-
188-500189-3.5	3½"	3.45	4.00	3.50	4.13	4.93	2.50	.35	-
188-500189-4	4"	3.67	4.50	3.88	4.63	5.43	2.64	.42	-
188-500189-5	5"	3.80	5.56	4.94	5.63	6.62	2.77	.42	-
188-500189-6	6"	3.87	6.62	5.96	6.76	7.57	2.67	.47	-

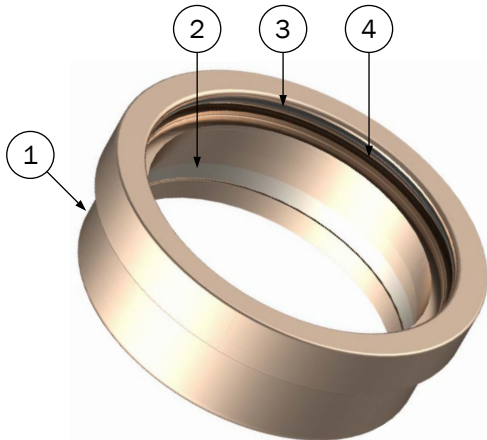
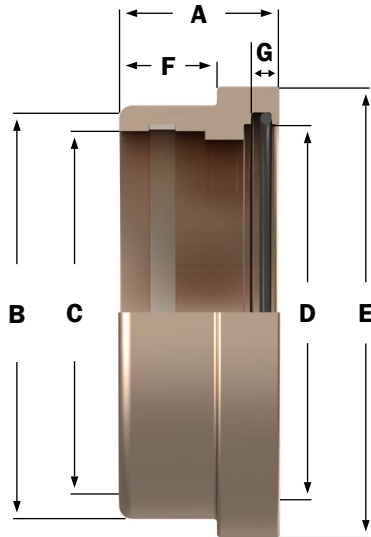
Components		Part Number										Material
		Size										
Description	Req'd per Ass'y	Base No.	-20	-24	-32	-40	-3	-3.5	-4	-5	-6	
Tailpiece ①	1	188-72463- 188-72039-	1.25 -	1.5 -	2 -	2.5 -	- 3	- 3.5	- 4	- 5	- 6	Alum. Bronze
O-Ring ②	1	22020-	224	226	230	234	239	243	247	255	261	Buna-N
Back-Up Ring ③	1	22006-	2	4	8	12	-	-	-	-	-	Leather

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 Tailpiece

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

For use with male split clamp end fittings.



Dimensions

Part Number	Drawing Number	I.P.S. Size	A	B	C	D	E	F	G	Est. Wt. (lbs.)
TP-2FSB	C18083	2"	1.64	2.38	2.12	2.51	3.25	.66	.35	-
TP-2.5FSB	C18084	2½"	4.86	2.88	2.59	3.01	3.75	.78	.35	-
TP-3FSB	C18085	3"	1.55	3.50	3.17	3.64	4.36	.83	.35	-
TP-3.5FSB	C18086	3½"	1.98	4.00	3.63	4.14	4.93	.88	.35	-
TP-4FSB	C18087	4"	1.70	4.50	4.11	4.64	5.43	.91	.42	-
TP-5FSB	C16947	5"	1.80	5.57	5.30	5.64	6.63	1.00	.42	-
TP-6FSB	C18395	6"	1.95	6.63	6.38	6.76	7.57	1.11	.47	-
TP-8FSB	C18396	8"	2.50	8.81	8.40	9.01	9.97	1.31	.84	-
TP-10FSB	C18397	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

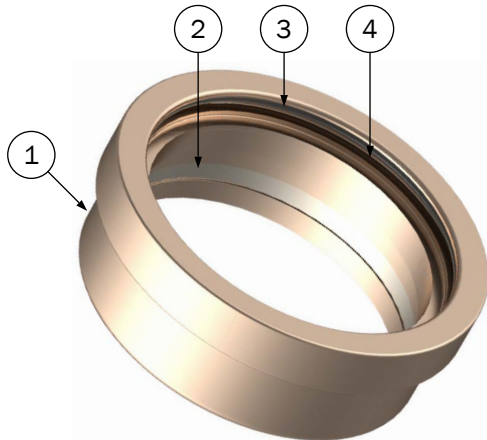
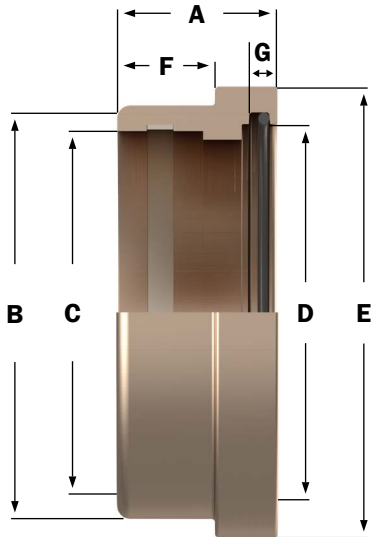
Description	Req'd per Ass'y	2	2.5	3	3.5	4	5	6	8	10	12	Material
Tailpiece ①	1	C18102	C18140	C18141	C18142	C18143	C17848	C18401	C18402	C18403	C18404	Alum. Bronze
Braze-Ring ②	1	B18134-1	B18134-2	B18134-3	B18134-4	B18134-5	C16947-2	B18134-8	B18134-9	B18134-10	B18134-11	Silver Alloy
O-Ring ③	1	R-RNG/O-230	R-RNG/O-25-234	R-RNG/O-239	R-RNG/O-243	R-RNG/O-247	R-RNG/O-5-255	R-RNG/O-261	R-RNG/O-447	R-RNG/O-451	R-RNG/O-453	Buna-N
Back-Up Ring ④	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.

P/N 188-500063 & FF5001
Female Sil-Braze Tailpiece

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

For use with male split clamp end fittings.



Dimensions

Part Number	I.P.S. Size	A	B	C	D	E	F	G	Est. Wt. (lbs.)
FF5001-20-188	1¼"	1.48	1.66	1.46	1.76	2.43	.50	.35	-
FF5001-24-188	1½"	1.57	1.90	1.67	2.01	2.75	.62	.35	-
FF5001-32-188	2"	1.64	2.38	2.12	2.51	3.25	.66	.35	-
FF5001-40-188	2½"	1.86	2.88	2.59	3.01	3.75	.78	.35	-
188-500063-3	3"	1.55	3.50	3.33	3.64	4.36	.83	.35	-
188-500063-3.5	3½"	1.59	4.00	3.81	4.14	4.93	.88	.35	-
188-500063-4	4"	1.70	4.50	4.31	4.64	5.43	.91	.42	-
188-500063-5	5"	1.80	5.57	5.30	5.64	6.63	1.00	.42	-
188-500063-6	6"	1.95	6.63	6.38	6.76	7.57	1.11	.47	-

Components

Components		Part Number	Size									Material
Description	Req'd per Ass'y	Base No.	-20	-24	-32	-40	-3	-3.5	-4	-5	-6	
Tailpiece ①	1	188-72462- 188-72019-	1.25 -	1.5 -	2 -	2.5 -	- 3	- 3.5	- 4	- 5	- 6	Alum. Bronze
Braze-Ring ②	1	FF9003-	1.25-1	1.5-1	2-1	2.5-1	3-1	3.5-1	4-1	5-1	6-1	Silver Alloy
O-Ring ③	1	22020-	224	226	230	234	239	243	247	255	261	Buna-N
Back-Up Ring ④	1	22006-	2	4	8	12	-	-	-	-	-	Leather

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.

Equal to Aeroquip P/N 22020

O-Rings

For use with male and female tailpieces.

O-Ring: Viton



Dimensions			
Part Number	Size	I.D.	O.D.
R-RNG/O-224	1¼"	1.75	2.00
R-RNG/O-226	1½"	2.00	2.25
R-RNG/O-230	2"	2.50	2.75
R-RNG/O-234	2½"	3.00	3.25
R-RNG/O-239	3"	3.62	3.88
R-RNG/O-243	3½"	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

Equal to Aeroquip P/N 22006

Back-Up Rings

For use with male and female tailpieces.

Back-Up Ring: Buna-N



Dimensions			
Part Number	Size	I.D.	O.D.
R-RNG/BU-2	1¼"	1.75	2.00
R-RNG/BU-4	1½"	2.00	2.25
R-RNG/BU-8	2"	2.50	2.75
R-RNG/BU-12	2½"	3.00	3.25

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.

P/N 22020

O-Rings

For use with male and female tailpieces.

O-Ring: Buna-N



Dimensions			
Part Number	Size	I.D.	O.D.
22020-230	2"	2.50	2.75
22020-234	2½"	3.00	3.25
22020-239	3"	3.62	3.88
22020-243	3½"	4.12	4.38
22020-247	4"	4.62	4.88
22020-255	5"	5.62	5.88
22020-261	6"	6.75	7.00

P/N 22006

Back-Up Rings

For use with male and female tailpieces.

Back-Up Ring: Commercial-grade Leather

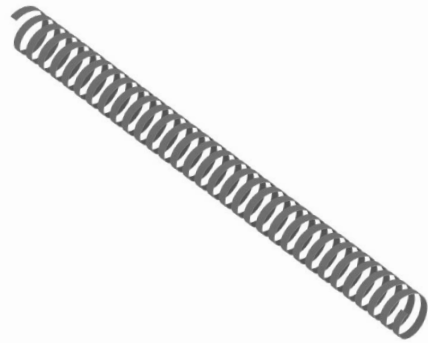


Dimensions			
Part Number	Size	I.D.	O.D.
22020-447	8½"	9.00	9.50
22020-451	10½"	11.00	11.50
22006-2	1¼"	1.75	2.00
22006-4	1½"	2.00	2.25
22006-8	2"	2.50	2.75
22006-12	2½"	3.00	3.25

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.

Internal Support Coil

Approved for use per NAVSEA LTR. OPR. 3Y231
Serial No. 03Y23/252 DTD 02 AUG. 93



Monel				
Part Number	A	B	C	Material Thickness
ISC-15M	1.19	.250	.280	.025
ISC-21M	1.25	.250	.280	.025
ISC-40M	2.67	.500	.250	.048
ISC-48M	3.27	.500	.375	.048
ISC-16MR	1.00	.125	.180	.025
ISC-32MR	2.00	.250	.280	.025

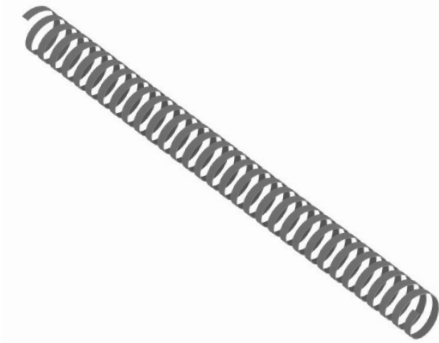
Stainless Steel				
Part Number	A	B	C	Material Thickness
ISC-10SS	.42	.125	.180	.025
ISC-11SS	.60	.125	.180	.025
ISC-13SS	.73	.125	.180	.025
ISC-14SS	.94	.125	.180	.025
ISC-15SS	1.19	.250	.280	.025
ISC-17SS	1.44	.250	.280	.025
ISC-18SS	1.88	.250	.280	.025
ISC-19SS	2.44	.500	.250	.048
ISC-21SS	.51	.125	.180	.025
ISC-22SS	1.97	.250	.280	.025
ISC-23SS	.34	.125	.180	.025
ISC-32SS	2.16	.375	.250	.048
ISC-40SS	2.67	.500	.250	.048
ISC-48SS	3.27	.500	.375	.048
ISC-64SS	4.28	.500	.437	.060

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.

P/N FF90505 & 222005

Internal Support Coil

Approved for use per NAVSEA LTR. OPR. 3Y231
Serial No. 03Y23/252 DTD 02 AUG. 93



Monel				
Part Number	A	B	C	Material Thickness
FF90505-0809-501	.81	.125	.312	.017
FF90505-1092-501	1.09	.187	.375	.020
FF90505-1375-501	1.38	.250	.500	.025
FF90505-1619-501	1.62	.250	.500	.025
FF90505-2157-501	2.16	.250	.500	.025
FF90505-0695-501	.70	.125	.312	.017
FF90505-0969-501	.97	.187	.375	.020
FF90505-1250-501	1.25	.250	.500	.025
FF90505-1499-501	1.50	.250	.500	.025
FF90505-1969-501	1.97	.250	.500	.025
FF90505-2671-501	2.67	.500	.750	.047
FF90505-3266-501	3.27	.500	1.000	.063

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.

Internal Support Sleeve

Application: Internal support for marine hose subjected to vacuum conditions

Material: Nickel-Aluminum Bronze rings with Buna-N bonding

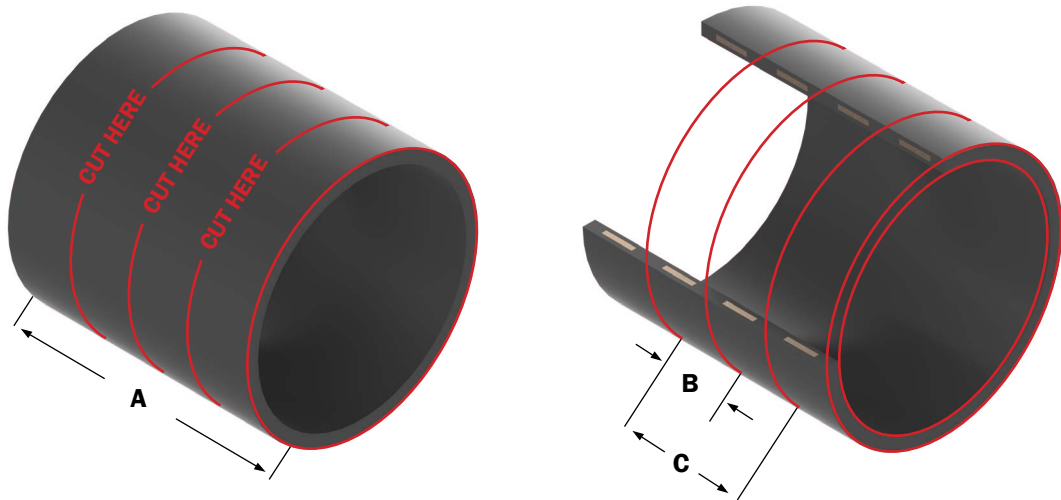
Temperature Range: -40° to +200° F.

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

The smooth surface of Internal Support Sleeves reduces the turbulent flow produced by alternative Metal Support Coils.

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



Dimensions							
Part Number	Hose Size	No. of Rings	I.D.	O.D.	A	B	C
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.
Dimensional information is for reference only.
Variations from these dimensions, on actual parts, may occur as the result of engineering revisions.

Internal Support Sleeve

Application: Internal support for marine hose subjected to vacuum conditions

Material: Nickel-Aluminum Bronze rings with Buna-N bonding

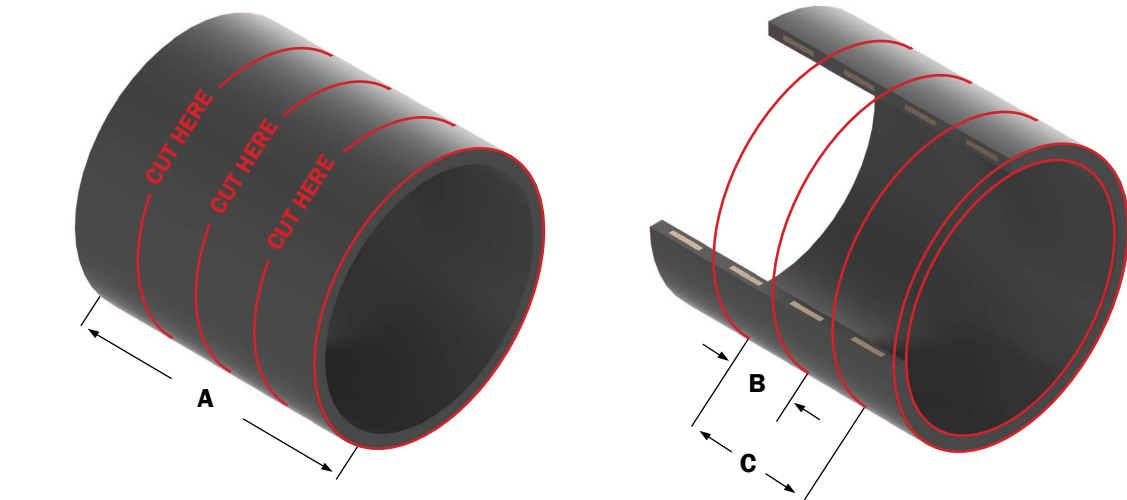
Temperature Range: -40° to +200° F.

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

The smooth surface of Internal Support Sleeves reduces the turbulent flow produced by alternative Metal Support Coils.

Aeroquip FF9700 Series 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



Dimensions							
Part Number	Hose Size	No. of Rings	A	B	C	D	E
FF9700-64-262	4	4	3.50	3.91	4.00	.78	1.78
FF9700-80-262	5	4	4.40	4.93	4.88	.91	2.16
FF9700-96-262	6	5	5.40	5.93	6.12	.91	2.16
FF9700-128-262	8	6	7.40	7.93	7.50	1.04	2.28
FF9700-160-262	10	6	9.40	9.93	7.50	1.04	2.28

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.

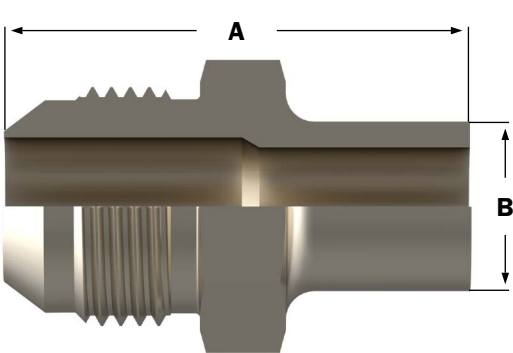
Male Sil-Braze Tube x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



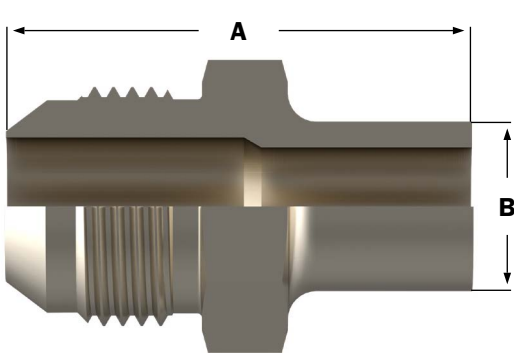
Dimensions					
Part/DWG Number	Tube O.D.	Thread	A	B	C
8651-4-4	1/4"	7/16"-20	1.36	.25	.50
8651-6-6	3/8"	9/16"-18	1.43	.38	.62
8651-8-8	1/2"	3/4"-16	1.63	.50	.81
8651-12-12	3/4"	1 1/16"-12	2.06	.75	1.12
8651-16-16	1"	1 5/16"-12	2.35	1.00	1.38
8651-20-20	1 1/4"	1 5/8"-12	2.59	1.25	1.69
8651-24-24	1 1/2"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

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

Material (Part Number Suffix):

Monel (-NICU)



Dimensions					
Part Number	Tube O.D.	Thread	A	B	C
4-202140-8-8	1/2"	3/4"-16	1.63	.50	.81
4-202140-12-12	3/4"	1 1/16"-12	2.06	.75	1.12

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.

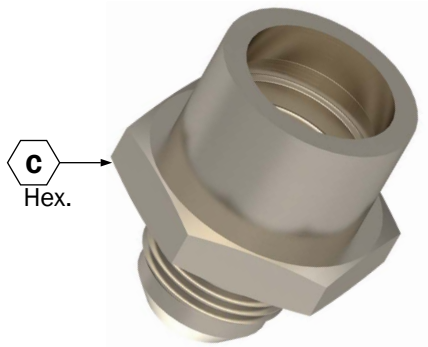
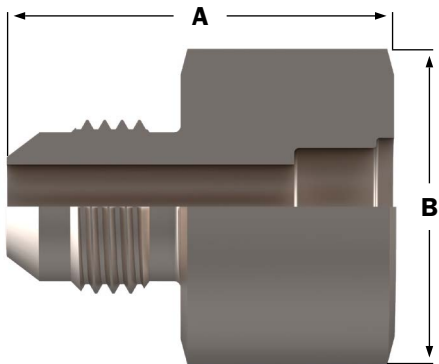
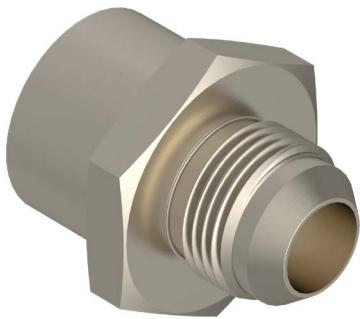
Female Sil-Braze Tube x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



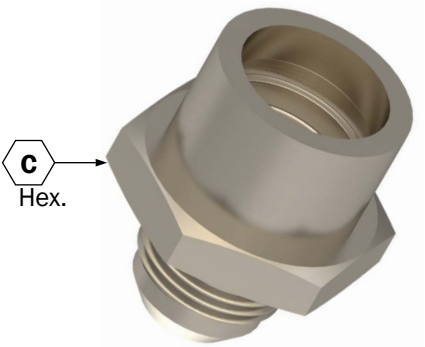
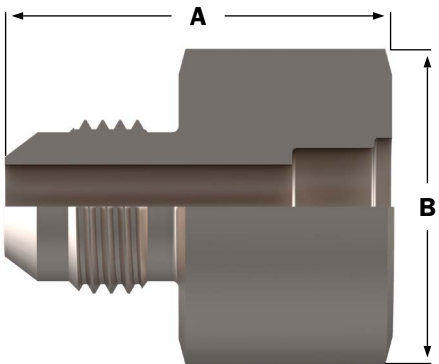
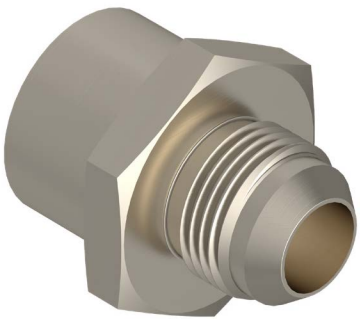
Dimensions					
Part/DWG Number	Tube O.D.	Thread	A	B	C
8640-4-4	1/4"	7/16"-20	1.05	.25	.25
8640-6-6	3/8"	9/16"-18	1.24	.39	.31
8640-8-8	1/2"	3/4"-16	1.41	.50	.47
8640-12-12	3/4"	1 1/16"-12	2.04	.75	.56
8640-16-16	1"	1 5/16"-12	2.21	1.00	.69
8640-20-20	1 1/4"	1 5/8"-12	2.44	1.25	.81
8640-24-24	1 1/2"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

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 Tube x 37° Male Flare

Material (Part Number Suffix):

Monel (-NICU)



Dimensions					
Part Number	Tube O.D.	Thread	A	B	C
4-202240-4-4	1/4"	7/16"-20	1.05	.25	.69
4-202240-6-6	3/8"	9/16"-18	1.24	.38	.88
4-202240-8-8	1/2"	3/4"-16	1.63	.50	1.00
4-202240-12-12	3/4"	1 1/16"-12	2.06	.75	1.44
4-202240-32-32	2"	2 1/2"-12	3.33	2.00	2.88

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.

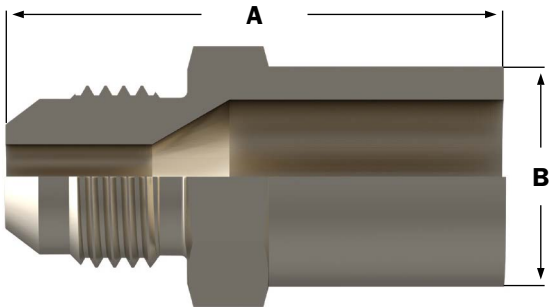
Male Sil-Braze Pipe x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



Dimensions

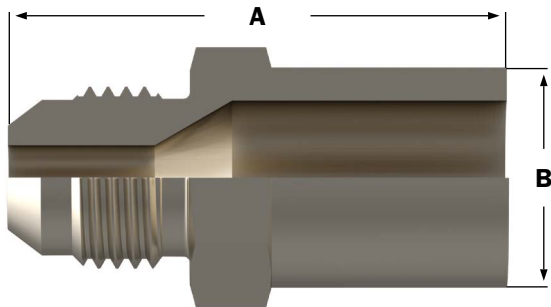
Part/DWG Number	Tube O.D.	Thread	A	B	C
4307-0-4	1⁄8"	7⁄16"-20	1.36	.40	.50
4307-1-6	1⁄4"	9⁄16"-18	1.43	.54	.62
4307-1-8	1⁄4"	3⁄4"-16	1.53	.54	.81
4307-2-6	3⁄8"	9⁄16"-18	1.52	.67	.69
4307-2-8	3⁄8"	3⁄4"-16	1.63	.67	.81
4307-2-10	3⁄8"	7⁄8"-14	1.79	.67	.94
4307-3-6	1⁄2"	9⁄16"-18	1.67	.84	.94
4307-3-8	1⁄2"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

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 Pipe x 37° Male Flare

Material (Part Number Suffix):

Monel (-NICU)



Dimensions

Part Number	Pipe Size	Thread	A	B	C
4-202142-2-4	1⁄8"	7⁄16"-20	1.36	.40	.50
4-202142-4-6	1⁄4"	9⁄16"-18	1.43	.54	.62
4-202142-4-8	1⁄4"	3⁄4"-16	1.53	.54	.81
4-202142-6-6	3⁄8"	9⁄16"-18	1.52	.67	.69
4-202142-6-8	3⁄8"	3⁄4"-16	1.63	.67	.81
4-202142-6-10	3⁄8"	7⁄8"-14	1.79	.67	.94
4-202142-8-8	1⁄2"	9⁄16"-18	1.78	.84	.94
4-202142-8-10	1⁄2"	3⁄4"-16	1.88	.84	.94
4-202142-8-12	1⁄2"	7⁄8"-14	2.06	.84	.94
4-202142-8-16	1⁄2"	1 1⁄16"-12	2.10	.84	1.12
4-202142-12-16	3⁄4"	1 5⁄16"-12	2.35	.84	1.38
4-202142-12-20	3⁄4"	1 1⁄16"-12	2.46	1.05	1.38
4-202142-16-20	1"	1 5⁄16"-12	2.59	1.05	1.38
4-202142-16-24	1"	1 5⁄8"-12	2.77	1.05	1.69
4-202142-20-24	1 1⁄4"	1 5⁄8"-12	3.02	1.31	1.69
4-202142-24-24	1 1⁄2"	1 7⁄8"-12	3.14	1.31	1.94
4-202142-24-32	1 1⁄2"	1 7⁄8"-12	3.58	1.66	1.94

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.

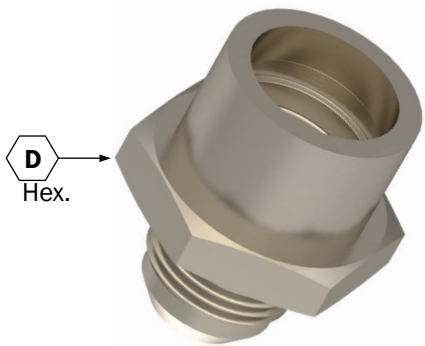
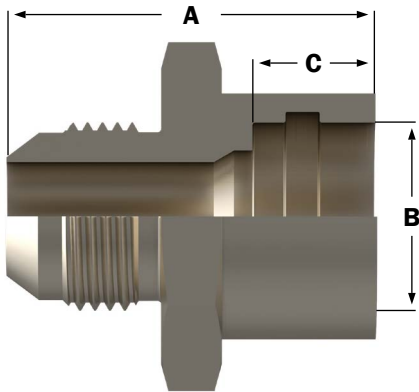
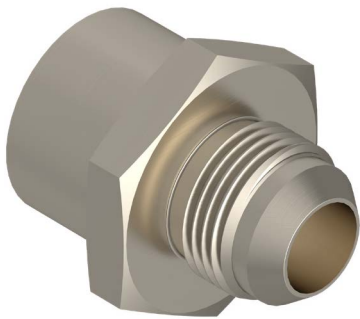
Female Sil-Braze Pipe x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



Dimensions

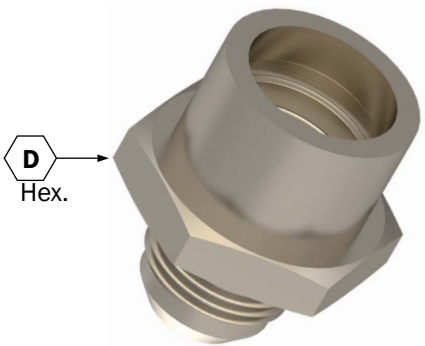
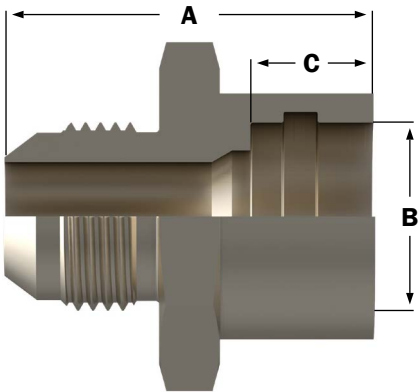
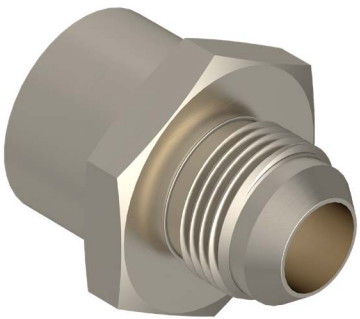
Part/DWG Number	Pipe Size	Thread	A	B	C	D
8635-0-4	1/8"	7/16"-20	1.05	.41	.68	.69
8635-1-6	1/4"	9/16"-18	1.24	.54	.68	.88
8635-1-8	1/4"	3/4"-16	1.34	.54	.68	.88
8635-2-6	3/8"	9/16"-18	1.31	.68	.47	1.00
8635-2-8	3/8"	3/4"-16	1.41	.68	.47	1.00
8635-2-10	3/8"	7/8"-14	1.51	.68	.47	1.00
8635-3-6	1/2"	9/16"-18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

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

Material (Part Number Suffix):

Monel (-NICU)



Dimensions

Part Number	Pipe Size	Thread	A	B	C	D
4-202242-2-4	1/8"	7/16"-20	1.05	.41	.68	.69
4-202242-4-6	1/4"	9/16"-18	1.24	.54	.68	.88
4-202242-4-8	1/4"	3/4"-16	1.34	.54	.68	.88
4-202242-6-6	3/8"	9/16"-18	1.31	.68	.47	1.00
4-202242-6-8	3/8"	3/4"-16	1.41	.68	.47	1.00
4-202242-6-10	3/8"	7/8"-14	1.51	.68	.47	1.00
4-202242-8-8	1/2"	9/16"-18	1.80	.84	.56	1.44
4-202242-8-10	1/2"	3/4"-16	1.93	.84	.56	1.44
4-202242-8-12	1/2"	7/8"-14	2.04	.84	.56	1.44
4-202242-8-16	1/2"	1 1/16"-12	2.08	.84	.56	1.44
4-202242-12-16	3/4"	1 5/16"-12	2.16	1.05	.69	1.69
4-202242-12-20	3/4"	1 1/16"-12	2.21	1.05	.69	1.69
4-202242-16-20	1"	1 5/16"-12	2.26	1.05	.69	1.69
4-202242-16-24	1"	1 5/8"-12	2.40	1.32	.81	2.00
4-202242-20-24	1 1/4"	1 5/8"-12	2.44	1.32	.81	2.00
4-202242-24-24	1 1/2"	1 7/8"-12	2.57	1.32	.81	2.00
4-202242-24-32	1 1/2"	1 7/8"-12	2.90	1.66	.88	2.00

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.

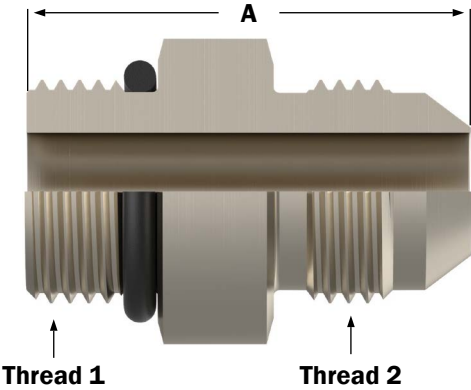
S.A.E. Male O-Ring Tube to 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



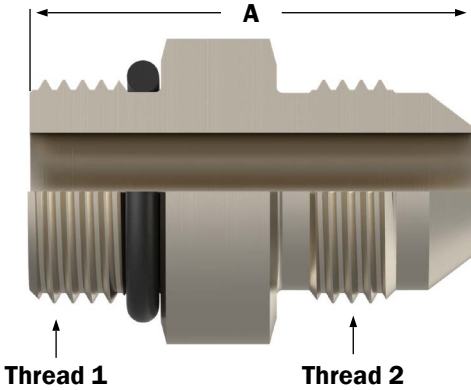
Dimensions				
Part/DWG Number	Tube O.D.	A	Thread 1	Thread 2
6728-4-4	1/4"	1.23	7/16"-20	7/16"-20
6728-4-6	3/8"	1.24	7/16"-20	9/16"-18
6728-4-8	1/2"	1.39	7/16"-20	3/4"-16
6728-5-5	5/16"	1.23	1/2"-20	1/2"-20
6728-5-6	3/8"	1.24	1/2"-20	9/16"-18
6728-6-4	1/4"	1.29	9/16"-18	7/16"-20
6728-6-6	3/8"	1.30	9/16"-18	9/16"-18
6728-6-8	1/2"	1.42	9/16"-18	3/4"-16
6728-6-10	5/8"	1.56	9/16"-18	7/8"-14
6728-8-4	1/4"	1.37	3/4"-16	7/16"-20
6728-8-5	5/16"	1.37	3/4"-16	1/2"-20
6728-8-6	3/8"	1.37	3/4"-16	9/16"-18
6728-8-8	1/2"	1.48	3/4"-16	3/4"-16
6728-8-10	5/8"	1.61	3/4"-16	7/8"-14
6728-8-12	3/4"	1.78	3/4"-16	1 1/16"-12
6728-10-4	1/4"	1.49	7/8"-14	7/16"-20
6728-10-6	3/8"	1.50	7/8"-14	9/16"-18
6728-10-8	1/2"	1.60	7/8"-14	3/4"-16
6728-10-10	5/8"	1.70	7/8"-14	7/8"-14
6728-10-12	3/4"	1.84	7/8"-14	1 1/16"-12
6728-10-16	1"	1.92	7/8"-14	1 5/16"-12
6728-12-6	3/8"	1.66	1 1/16"-12	9/16"-18
6728-12-8	1/2"	1.76	1 1/16"-12	3/4"-16
6728-12-12	3/4"	1.97	1 1/16"-12	1 1/16"-12
6728-16-12	3/4"	1.99	1 5/16"-12	1 1/16"-12
6728-16-16	1"	2.04	1 5/16"-12	1 5/16"-12
6728-20-20	1 1/4"	2.17	1 5/8"-12	1 5/8"-12
6728-20-24	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. Male O-Ring Tube to 37° Male Flare

Material (Part Number Suffix):

Monel (-NICU)



Part/DWG Number	Tube O.D.	A	Thread 1	Thread 2
4-202702-8-8	1/2"	1.48	3/4"-16	3/4"-16
4-202702-16-16	1"	2.04	1 5/16"-12	1 5/16"-12
4-202702-20-20	1 1/4"	2.17	1 5/8"-12	1 5/8"-12
4-202702-20-24	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.

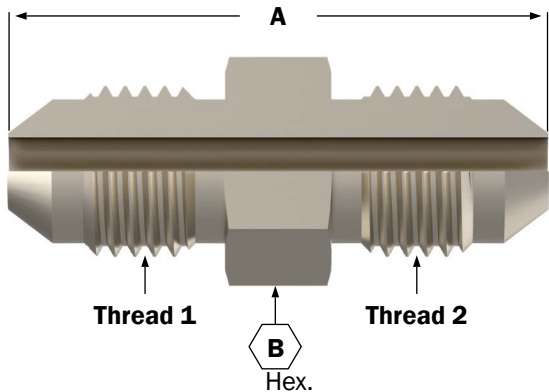
S.A.E. 37° Male Flare Union

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



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

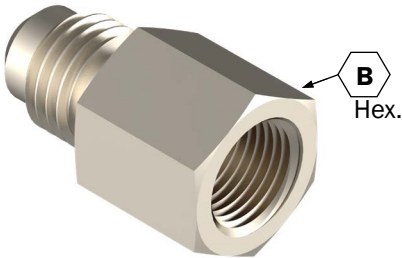
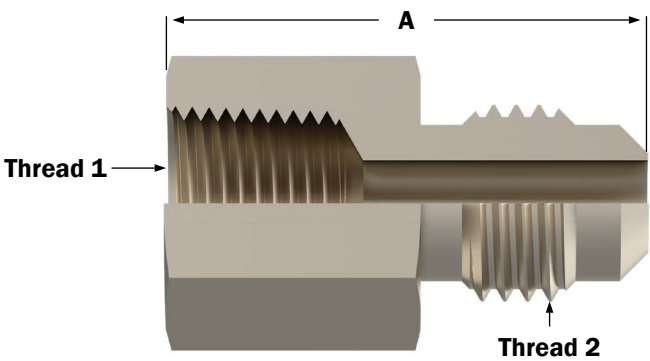
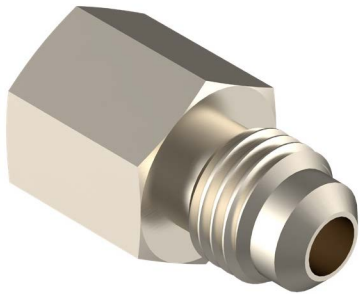
Female NPTF x 45° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



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

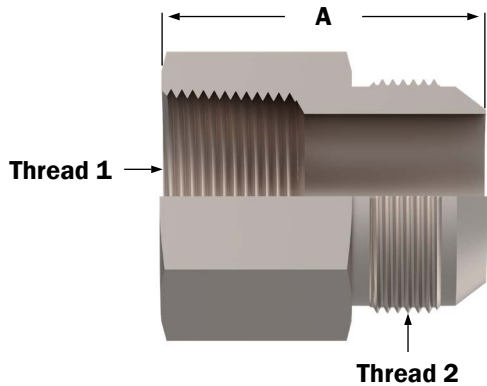
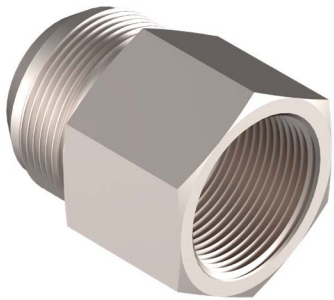
Female NPTF x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



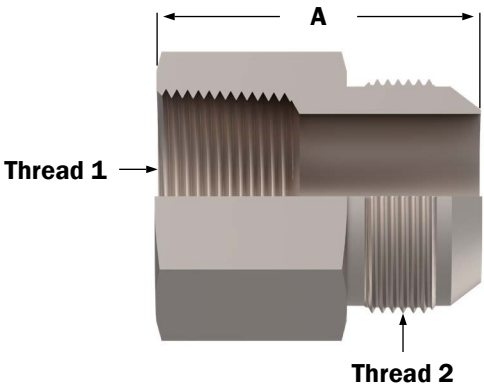
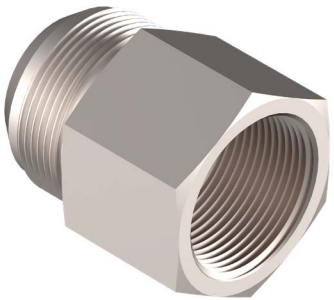
Dimensions				
Part/DWG Number	Tube O.D.	A	Thread 1	Thread 2
8636-2-3	3⁄16"	1.13	1⁄8"-27	3⁄8"-24
8636-2-4	1⁄4"	1.19	1⁄8"-27	7⁄16"-20
8636-2-5	5⁄16"	1.17	1⁄8"-27	1⁄2"-20
8636-4-3	3⁄16"	1.32	1⁄4"-18	3⁄8"-24
8636-4-4	1⁄4"	1.39	1⁄4"-18	7⁄16"-20
8636-4-5	5⁄16"	1.39	1⁄4"-18	1⁄2"-20
8636-4-6	3⁄8"	1.40	1⁄4"-18	9⁄16"-18
8636-4-8	1⁄2"	1.55	1⁄4"-18	3⁄4"-16
8636-6-6	3⁄8"	1.46	3⁄8"-18	9⁄16"-18
8636-6-8	1⁄2"	1.56	3⁄8"-18	3⁄4"-16
8636-8-6	3⁄8"	1.69	1⁄2"-14	9⁄16"-18
8636-8-8	1⁄2"	1.79	1⁄2"-14	3⁄4"-16
8636-8-10	5⁄8"	1.89	1⁄2"-14	7⁄8"-14
8636-8-12	3⁄4"	2.05	1⁄2"-14	1¹⁄₁₆"-12
8636-12-8	1⁄2"	1.85	3⁄4"-14	3⁄4"-16
8636-12-10	5⁄8"	1.95	3⁄4"-14	7⁄8"-14
8636-12-12	3⁄4"	2.06	3⁄4"-14	1¹⁄₁₆"-12
8636-16-16	1"	2.35	1"-11½	1⁵⁄₁₆"-12
8636-20-16	1"	2.44	1¹⁄₄"-11½	1⁵⁄₁₆"-12
8636-20-20	1¹⁄₄"	2.49	1¹⁄₄"-11½	1⁵⁄₈"-12
8636-24-24	1½"	2.62	1½"-11½	1⁷⁄₈"-12
8636-32-32	2"	2.97	2"-11½	2¹⁄₂"-12
8636-40-40	2½"	3.25	2½"-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 37° Male Flare

Material:

Titanium



Dimensions				
Part/DWG Number	Tube O.D.	A	Thread 1	Thread 2
394-2022-20-24	1¾"	2.62	1¼"-11½	1⁷⁄₈"-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.

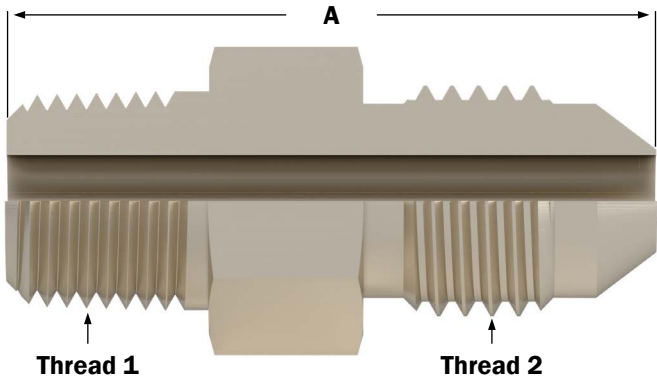
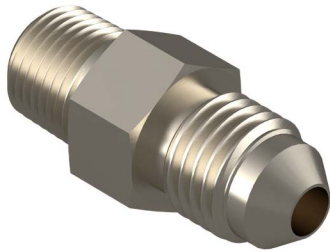
Male NPTF x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



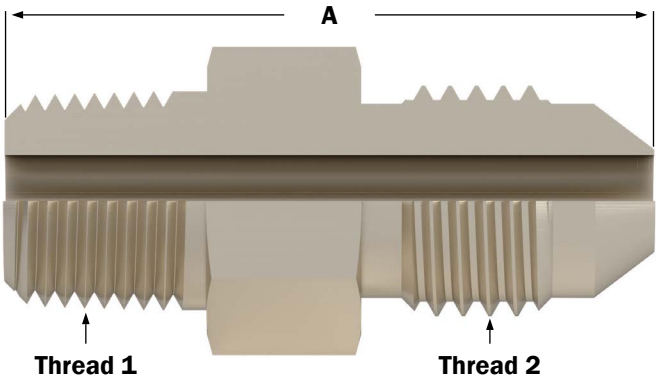
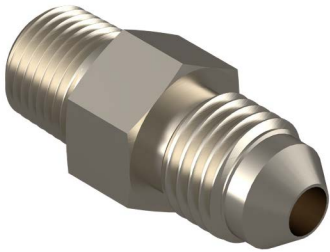
Dimensions				
Part/ DWG Number	Tube O.D.	A	Thread 1	Thread 2
8638-2-4	1/4"	1.22	1/8"-27	7/16"-20
8638-4-4	1/4"	1.42	1/4"-18	7/16"-20
8638-4-6	3/8"	1.43	1/4"-18	9/16"-18
8638-4-8	1/2"	1.53	1/4"-18	3/4"-16
8638-6-6	3/8"	1.43	3/8"-18	9/16"-18
8638-6-8	1/2"	1.53	3/8"-18	3/4"-16
8638-6-10	5/8"	1.70	3/8"-18	7/8"-14
8638-6-12	3/4"	1.86	3/8"-18	1 1/16"-12
8638-8-4	1/4"	1.68	1/2"-14	7/16"-20
8638-8-6	3/8"	1.69	1/2"-14	9/16"-18
8638-8-8	1/2"	1.79	1/2"-14	3/4"-16
8638-8-10	5/8"	1.89	1/2"-14	7/8"-14
8638-8-12	3/4"	2.06	1/2"-14	1 1/16"-12
8638-12-8	1/2"	1.85	3/4"-14	3/4"-16
8638-12-12	3/4"	2.06	3/4"-14	1 1/16"-14
8638-16-16	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.

Male NPTF x 37° Male Flare

Material (Part Number Suffix):

Monel (-NICU)



Dimensions				
Part/ DWG Number	Tube O.D.	A	Thread 1	Thread 2
4-2021-6-8	1/2"	1.53	3/8"-18	3/4"-16
4-2021-8-8	1/2"	1.79	1/2"-14	3/4"-16
4-2021-8-10	5/8"	1.89	1/2"-14	7/8"-14
4-2021-8-12	3/4"	2.06	1/2"-14	1 1/16"-12
4-2021-12-12	3/4"	2.06	3/4"-14	1 1/16"-12
4-2021-16-16	1"	2.30	1"-11 1/2	1 5/16"-12
4-2021-20-20	1 1/4"	2.45	1 1/4"-11 1/2	1 5/8"-12
4-2021-24-24	1 1/2"	2.68	1 1/2"-11 1/2	1 7/8"-12
4-2021-32-32	2"	3.11	2"-11 1/2	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.

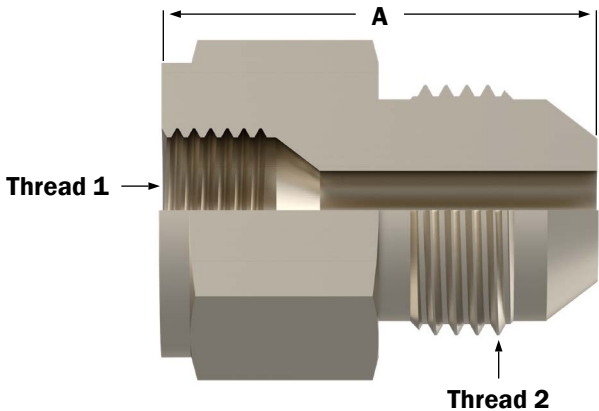
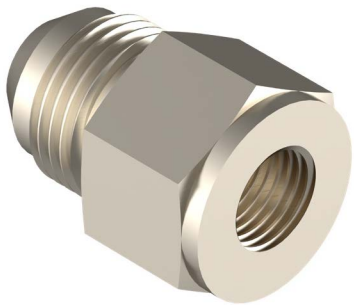
37° Female Flare Internal x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



Dimensions

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

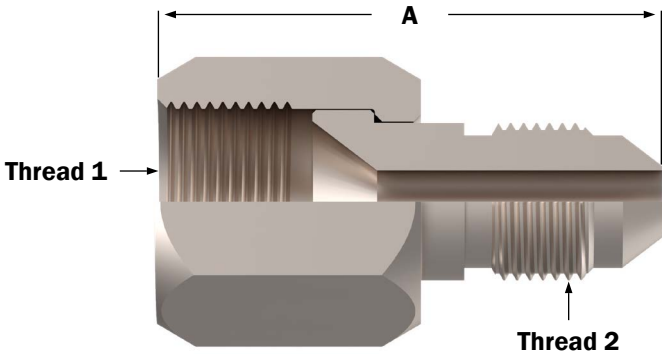
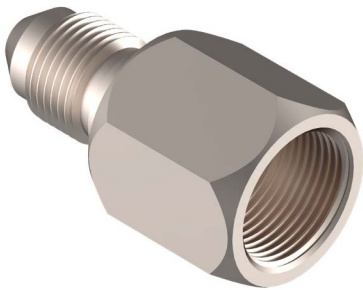
37° Female Swivel x 37° Male Flare

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



Dimensions

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

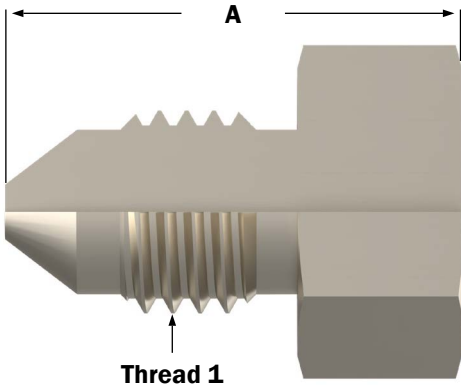
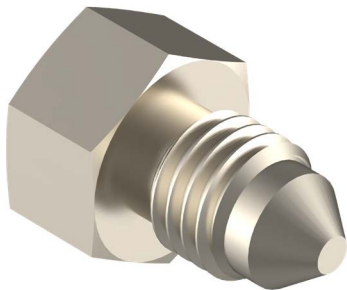
37° Male Flare Plug

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

Copper Nickel (-CUNI)



Dimensions			
Part/DWG Number	Pipe Size	A	Thread 1
8647-2	1/8"	.70	5/16"-24
8647-4	1/4"	.80	7/16"-20
8647-6	3/8"	.84	9/16"-18
8647-8	1/2"	.94	3/4"-16
8647-10	5/8"	1.10	7/8"-14
8647-12	3/4"	1.28	1 1/16"-12
8647-16	1"	1.33	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.

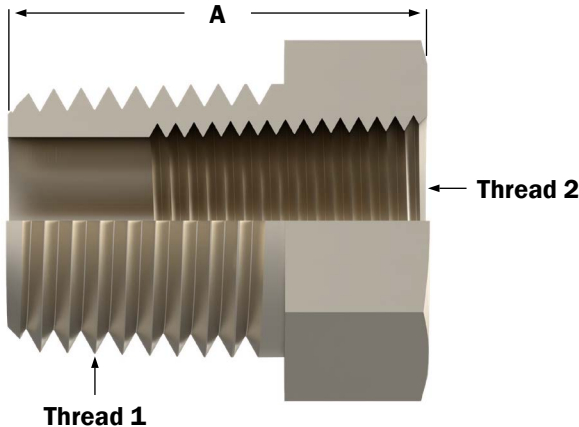
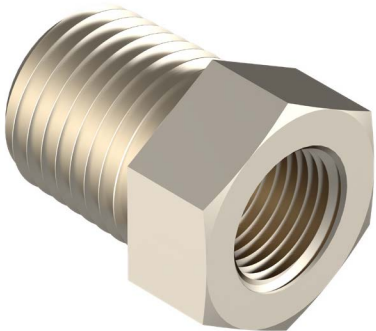
Reducer-Male External NPTF x Female Internal NPTF

Material (Part Number Suffix):

Stainless Steel (-SS)

Monel (-NICU)

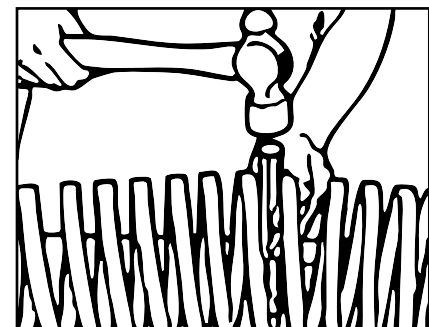
Copper Nickel (-CUNI)



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

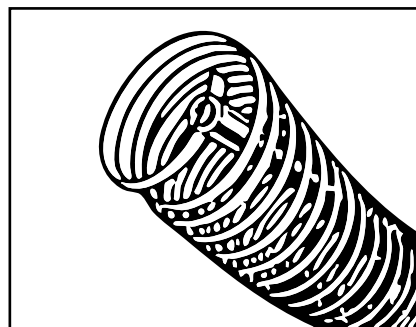
Internal Support Coil Installation Instructions



Step 1

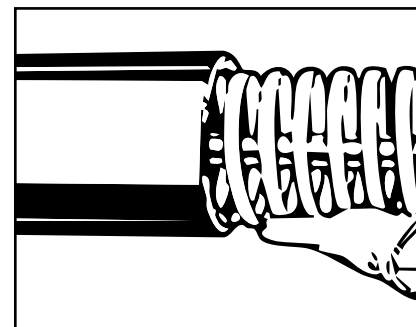
Cut coil length. The coils should be cut to the hose length, minus the nipple intrusion. For any given hose assembly the support coil length equals the overall hose assembly length minus the sum of the overall lengths of each end fitting ("A" dimensions).

Small size of the coil can usually be cut with strap cutters or sheet metal shears. The larger sizes are best cut with a heavy sharp chisel or bolt cutter. With small sizes, skip directly to Step 3.



Step 2

Compress the coil (large sizes only). It is necessary to reduce the coil diameter slightly in order to insert it into the hose. The easiest approach is to use a length of pipe with a notch cut in one end. Clamp the plain end of the pipe in a vise, slide the coil over the pipe and insert the free end of the coil into the notched end of the pipe. Then clamp the coil and pipe firmly together. Twist the coil to compress it prior to installation into the hose.



Step 3

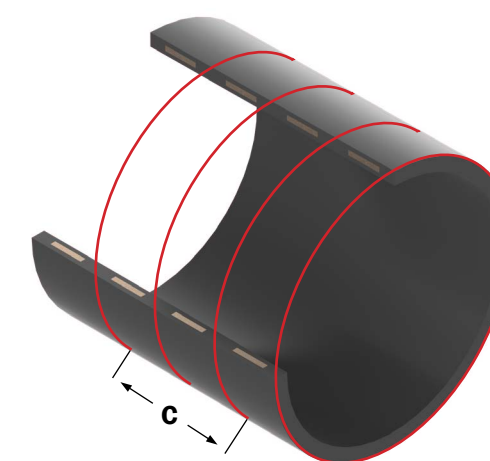
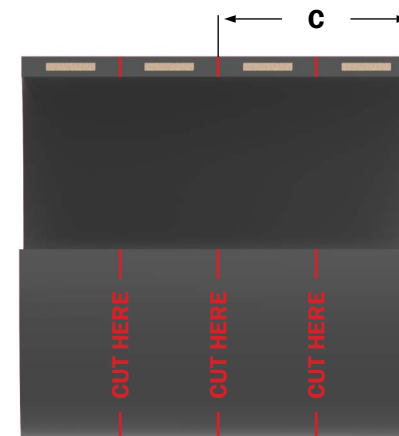
Small sizes:

The coil can be worked into the hose by hand without difficulty. Remove all burrs from the coil prior to insertion. This will prevent cutting of the hose tube. Position the coil mid-way between hose ends.

Large sizes:

With the pipe still in position, as in Step 2, assemble the hose over the coil. With the coil fully centered in the hose, remove the pipe and clamp.

Internal Support Sleeve Installation Instructions



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 section to the mark. If this dimension is greater than 3/4", one or possibly 2 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 "C" in the dimension chart, make a clean, straight cut in the are 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.

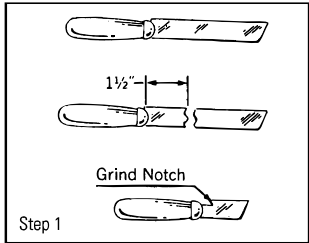
b. Complete the installation following "b." and "c." in Step 5.

Step 7

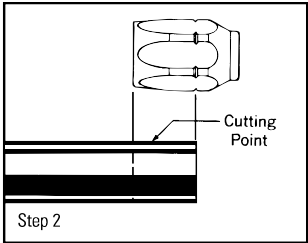
Assemble the other end fitting on the hose.

Hose Skiving Instructions

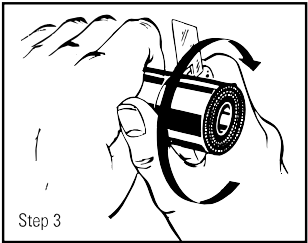
For Hoses FC162, FC163, AE373, AE371



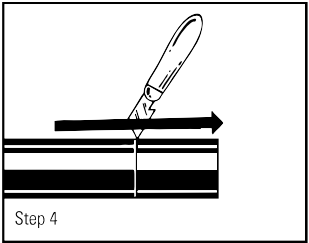
Step 1
By Hand: break off and grind smooth the blade of a leather knife as shown. Grind notch where blade enters handle and sharpen rear edge of notch. Keep knife sharp for easy stripping.



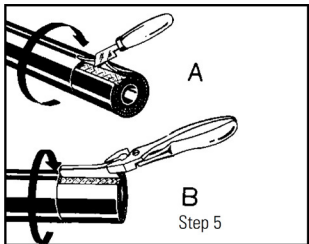
Step 2
Use notch on socket to determine length of cover to be stripped.



Step 3
Cut around hose through cover to wire braid. Use sharpened rear edge of knife as shown.



Step 4
Slit cover lengthwise. Be sure cut is down to wire braid.

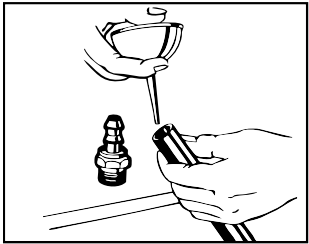


Step 5
Working clockwise, pry up cover as shown (A), twist off cover with pliers (B).

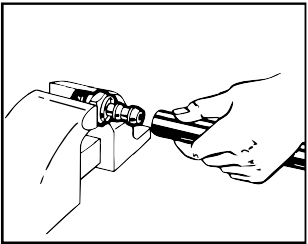
Hose Assembly Instructions

For Hoses 2556, 2565

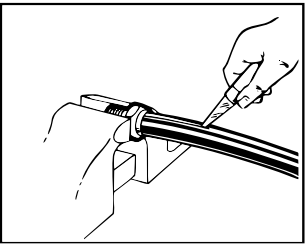
To determine "J" length (length of hose): Deduct both "D" dimensions from "OA" (overall length), then add 1/2 inch; the hose tends to shorten when fittings are inserted.



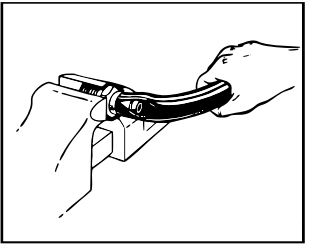
Assembly
Step 1
Cut hose to required length with a sharp knife. Oil inside of hose and outside of nipple liberally. Use Aeroquip 222070 hose assembly lube or heavy oil. Note: Where oil cannot be used for lubrication, a liquid soap may be used.



Step 2
Tighten nipple in vise as shown. Push hose on fitting until hose end bottoms underneath protective cap. Clean, Inspect and Proof Test.



Disassembly
Step 1
With a sharp knife, slit hose lengthwise from protective cap to end of nipple. Be careful not to damage the nipple.

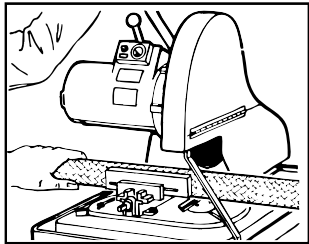


Step 2
Bend hose, then snap hose off with a quick tug.

Hose Assembly Instructions

For Hoses FC234, AE372, 302A, 303 AE369, AE370

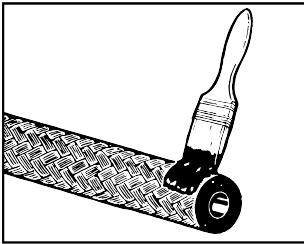
To determine “J” length (length of hose): Deduct both “D” dimensions from “OA” (overall length).



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 the inside and outside of the hose.

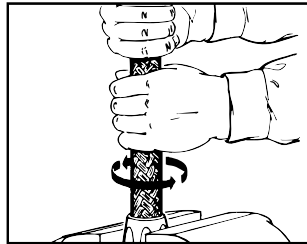
If cutting the hose has caused the end to neck down slightly, it can be flared with a smooth tool to allow proper insertion of the nipple.



Step 2

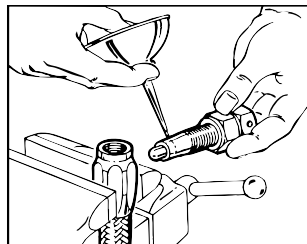
Apply thin coat of end sealing compound to the ends and to the cover which will be covered by the fitting socket, and allow to dry for about 1/2 hour. Do not allow end sealant to enter hose bore.

Immediately before installing socket, apply a second thin coat of end sealing compound over the first thin coat.



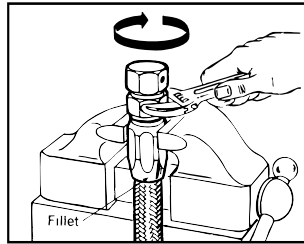
Step 3

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



Step 4

Oil nipple threads and inside of hose liberally with a petroleum base oil such as Aeroquip LUBE 222070.



Step 5

a) For male end fittings insert assembly mandrel into nipple. Screw nipple clockwise into socket. Tighten nipple to within 1/32” to 1/16” of the socket. Do not tighten against socket.

b) For swivel end fittings (Aeroquip styles 401 and 411) insert mandrel into nipple and tighten nut onto mandrel. Screw nipple into socket and hose clockwise using wrench on assembly mandrel hex. Leave 1/32” to 1/16” clearance between nut and socket so that nut can swivel freely.

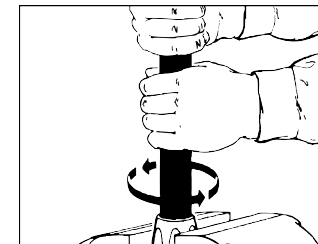
Step 6

Remove assembly mandrel and add a fillet of sealing compound to hose end of socket. Clean, Inspect, and Proof Test.

Hose Assembly Instructions

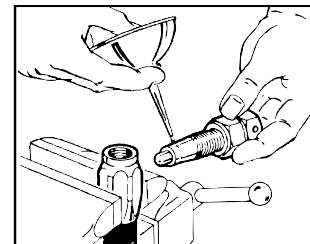
For Hoses 2580 (size -4 through -32) with standard reusable fittings

To determine “J” length (length of hose): Deduct both “D” dimensions from “OA” (overall length).



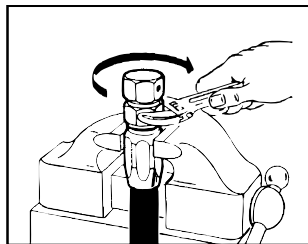
Step 1

Cut hose square with knife or cut-off wheel. Clean hose bore. Put socket in vise and screw hose counterclockwise into socket until it bottoms. Back off 1/4 turn.



Step 2

Oil nipple threads, assembly tool mandrel, and inside of hose LIBERALLY. Use heavy oil or Aeroquip Lube Oil.



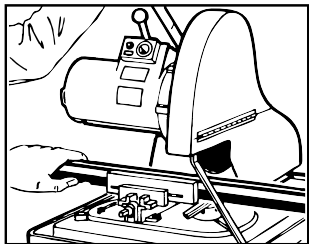
Step 3

MALE ENDS: Push assembly tool into nipple. Oil. Screw nipple clockwise into socket and hose. Tighten nipple leaving 1/32” to 1/16” clearance between nipple hex and socket. **SWIVEL ENDS:** Tighten nipple and nut on assembly tool. Oil. Screw nipple clockwise into socket and hose. Leave 1/32” to 1/16” clearance between nut and socket.

Hose Assembly Instructions

For Hoses 2766, FC162, FC163, AE373, AE371

To determine “J” length (length of hose): Deduct both “D” dimensions from “OA” (overall length).

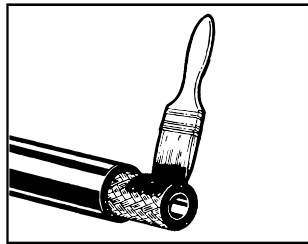
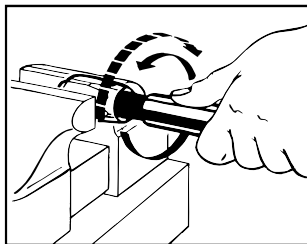


Step 1

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, 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

Strip off cover.

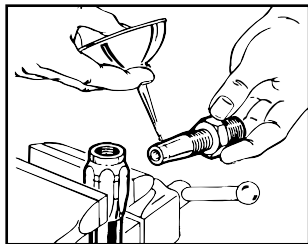


Step 3

Apply coating of sealing compound to ends of hose and to skived portion to cover all exposed wire surfaces and wire ends, and allow to dry for about one half 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.

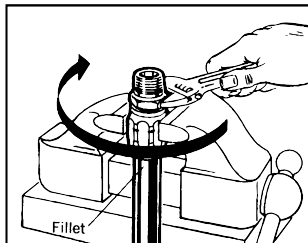
Step 4

For multiple wire braid reinforced hose, except sizes -16, -24, -32 (FC163, AE371) place fitting socket in a vise and screw hose counter-clockwise into the end of socket until it bottoms. For spiral reinforced hose and multiple wire braid reinforced hose, sizes -16, -24, and -32, place hose in vise and push socket onto it while rocking and twisting socket until it bottoms onto the hose. 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 5

Oil nipple threads and inside of hose liberally with a petroleum base oil such as Aeroquip LUBE 222070. Use Molykote Type G for monel fittings.



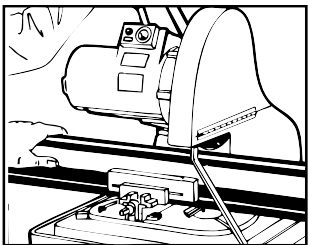
Step 6

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 the hose.

Hose Assembly Instructions

For Hose Assemblies with band type Segmented Socket Fittings — i.e. Hose AE370, AE374, AE150901

To determine “J” length (length of hose): Deduct both “D” dimensions from “OA” (overall length).

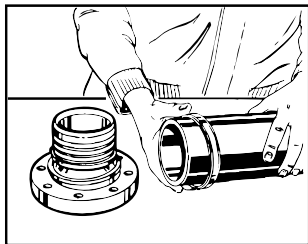


Step 1

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, clean all residue from the inside and outside of the hose. If cutting the hose has caused the end to neck down slightly, it must be flared out to allow proper insertion of the nipple. An open end wrench can be used to flare the hose out.

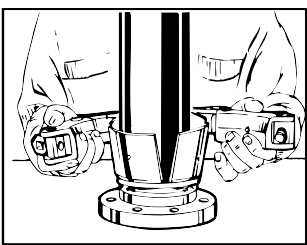
Step 2

Apply thin coat of end sealing compound to the hose ends and to the outer cover which will be covered by the fitting socket, and allow to dry for about 1/2 hour. Immediately before installing nipple, apply a second thin coat of end sealing compound over the first thin coat. Do not allow end sealant to enter hose bore.



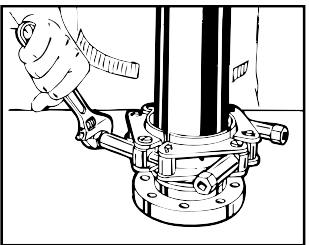
Step 3

Place retaining ring over nipple and segment band over hose. In case of flanged ends, be sure the flange is in place on the nipple before putting retaining ring on and inserting nipple into hose. Push nipple all the way into hose until stopped by nipple shoulder.



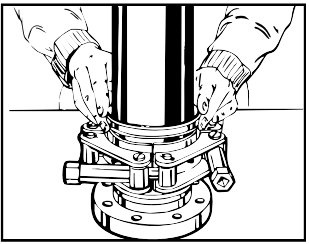
Step 4

Hook socket segments into retaining ring and space segments evenly around hose. Place assembly tool around segments so the locating pins of the tool fit the corresponding hoses in each segment. Make sure locating pins are tight in assembly tool before proceeding.



Step 5

a. Alternately and uniformly tighten the nuts on assembly tool until the segment securing band slips over the end of the segments.



b. The convex inner surface of the band must seat squarely into the grooves of the segments. Do not compress segments more than necessary to slip the securing band in place over the segments. If necessary, the band may be tapped lightly into place with a plastic or rubber mallet.

Hose Assembly Instructions

For HS449 End Fittings on HS4265 & HS4224 Hose

Hydrasearch HS449 End Fittings are manufactured to military specifications MIL-DTL-24787/1, 4, 5, and 6. These fittings are reusable and can be installed by using a socket and box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages (??) through (??).



To determine "J" length (length of hose), deduct "D" dimesnions 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. Hose may also be cut with a fine tooled 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 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 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 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	3/8"	9/16"	35 ft. lbs.
-48	3/8"	9/16"	35 ft. lbs.
-64	7/16"	5/8"	35 ft. lbs.

Hose Assembly Instructions

For HS1546 End Fittings on HS4182 Hose

Hydrasearch HS1546 End Fittings are manufactured to military specifications MIL-DTL-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 (??) through (??).



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

- 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, ensuring the hose end sits 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 the gaps between segments equal, until the segment stops meet, or the torque values listed below are achieved, whichever occurs first. Assembly speeds should not exceed 100 RPM. Preferred assembly 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.

Hose Assembly Instructions

For ER512 End Fittings on ER512 Hose

Hydrasearch ER512 End Fittings are manufactured to military specifications MIL-DTL-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 (??) through (??).



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 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 segments 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 the back bolts closest to the hose, taking care to maintain 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 100 RPM. Preferred assembly 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
5" & 6"	1/2"	3/4"	75-80 ft. lbs.
8" & 10"	5/8"	1 5/16"	130-140 ft. lbs.
12"	3/4"	1 1/8"	185-200 ft. lbs.

Hose Assembly Instructions

For HS1489 End Fittings on HS133 Hose

Hydrasearch HS1489 End Fittings are manufactured to military specifications MIL-DTL-24787/1, 4, 5, and 6. These fittings are reusable and can be installed using a socket and/or box end wrench. Please follow these instructions to ensure proper installation of the end fittings, shown on pages (??) through (??).



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. After cutting, clean all residue from the inside and outside of the hose, Lubricate the inside and outside of the hose, and the nose and grooves of the nipple 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 un-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.

Hose Assembly Instructions

For 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 (??) through (??).



To determine "J" length (length of hose), deduct "D" dimesnions 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. 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 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, and allow to dry for about 1/2 an hour. Do not allow end sealant to enter hose bore. Immediately before installing the socket, apply a second thin coat of end sealing compound over the first thin coat. The end sealing compound is available from Hydrasearch as P/N ESC 32.

Step 3

Put fitting socket in vise and screw hose counter-clockwise into socket until the 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 socket. Clean, inspect, and proof test.

Hose Assembly Instructions

For HS1600 & HS1602 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 (??) through (??).



To determine "J" length (length of hose), deduct "D" dimesnions 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 the notch on socket to determine length of cover to be stripped.

Step 4

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

Step 3

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

Step 5

Apply coating of sealing compound, Hydrasearch P/N ESC-32, to ends of hose and to skived portion to cover all exposed wire surfaces and wire ends, and allow to dry for about 1/2 an hour. Do not allow end sealant to enter hose bore. Immediately before installing the socket, apply a second coat of end sealing compound over the first coat.

Step 6

Place fitting socket in a vise and screw hose counter-clockwise into the 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 the hose.

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	Inches	Millimeters		Inches	Millimeters
$\frac{1}{64}$	.015625	.3969	$\frac{33}{64}$	.515625	13.0969
$\frac{1}{32}$	.03125	.7938	$\frac{17}{32}$	.53125	13.4938
$\frac{3}{64}$	.046875	1.1906	$\frac{35}{64}$	.546875	13.8907
$\frac{1}{16}$	.0625	1.5875	$\frac{9}{16}$	.5625	14.2876
$\frac{5}{64}$	.078125	1.9844	$\frac{37}{64}$	.578125	14.6844
$\frac{3}{32}$	.09375	2.3813	$\frac{19}{32}$	.59375	15.0813
$\frac{7}{64}$	.109375	2.7781	$\frac{39}{64}$	.609375	15.4782
$\frac{1}{8}$	.125	3.1750	$\frac{5}{8}$	.625	15.8751
$\frac{9}{64}$	.140625	3.5719	$\frac{41}{64}$	.640625	16.2719
$\frac{5}{32}$	.15625	3.9688	$\frac{21}{32}$	.65625	16.6688
$\frac{11}{64}$	.171875	4.3656	$\frac{43}{64}$	.671875	17.0657
$\frac{3}{16}$	.1875	4.7625	$\frac{11}{16}$	.6875	17.4626
$\frac{13}{64}$	.203125	5.1594	$\frac{45}{64}$	.703125	17.8594
$\frac{7}{32}$	.21875	5.5563	$\frac{23}{32}$	.71875	18.2563
$\frac{15}{64}$	.234375	5.9531	$\frac{47}{64}$	.734375	18.6532
$\frac{1}{4}$	.250	6.3500	$\frac{3}{4}$	.750	19.0501
$\frac{17}{64}$	.265625	6.7469	$\frac{49}{64}$	.765625	19.4470
$\frac{9}{32}$	.28125	7.1438	$\frac{25}{32}$	.78125	19.8438
$\frac{19}{64}$	.296875	7.5406	$\frac{51}{64}$	.796875	20.2407
$\frac{5}{16}$	.3125	7.9375	$\frac{13}{16}$	.8125	20.6376
$\frac{21}{64}$	.328125	8.3344	$\frac{53}{64}$	.828125	21.0345
$\frac{11}{32}$	.34375	8.7313	$\frac{27}{32}$	.84375	21.4313
$\frac{23}{64}$	.359375	9.1282	$\frac{55}{64}$	.859375	21.8282
$\frac{3}{8}$	.375	9.5250	$\frac{7}{8}$	.875	22.2251
$\frac{25}{64}$	.390625	9.9219	$\frac{57}{64}$	.890625	22.6220
$\frac{13}{32}$	.40625	10.3188	$\frac{29}{32}$	.90625	23.0188
$\frac{27}{64}$	.421875	10.7157	$\frac{59}{64}$	.921875	23.4157
$\frac{7}{16}$	.4375	11.1125	$\frac{15}{16}$	.9375	23.8126
$\frac{29}{64}$	.453125	11.5094	$\frac{61}{64}$	.953125	24.2095
$\frac{15}{32}$	.46875	11.9063	$\frac{31}{32}$	.96875	24.6063
$\frac{31}{64}$	.484375	12.3032	$\frac{63}{64}$	.984375	25.0032
$\frac{1}{2}$	.500	12.7001	1	1.000	25.4001

Fluid Compatibility

E = Excellent G = Good C = Conditional U = Unsatisfactory																
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals						Metal				
Acetaldehyde	U	E	G	U	E	U	C	C	U	U	G	G	E	E	E	E
Acetic Acid, 10%	U	E	C	G	C	U	U	E	G	U	C	U	U	C	C	U
Acetic Acid, Glacial	U	E	C	G	E	U	U	C	U	U	C	U	U	C	C	C
Acetone	U	E	G	G	E	U	U	G	U	U	G	E	E	E	E	E
Acetophenone	U	E	-	C	E	U	U	E	U	U	-	E	E	E	C	E
Acetyl Acetone	U	E	G	G	E	U	U	G	U	U	G	U	C	C	C	C
Acetyl Chloride	U	E	U	G	U	U	U	U	E	U	U	C	C	C	U	E
Acetylene	U	E	G	G	E	U	U	G	E	G	G	E	E	E	E	E
Air, Hot (Up to 160°F)	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Air, Hot (161°F - 200°F)	C	E	G	E	C	G	G	E	E	G	G	E	E	E	E	E
Air, Hot (201°F - 300°F)	U	E	U	C	U	U	U	G	E	U	U	E	E	E	E	E
Air, Wet	E	E	C	E	E	E	E	E	E	G	C	U	G	E	E	E
Aluminum Chloride	E	E	E	E	E	E	E	E	E	G	E	U	U	U	U	U
Aluminum Fluoride	E	E	E	E	E	E	E	E	E	G	E	U	U	U	E	C
Aluminum Nitrate	E	E	E	E	E	E	E	E	E	G	E	U	U	C	C	C
Aluminum Sulfate	E	E	G	E	E	E	E	E	E	-	G	U	C	E	C	C
Alums	E	E	E	E	E	E	E	E	E	E	E	U	C	E	C	C
Ammonia, Cold	U	G	U	U	E	E	E	E	U	-	-	E	U	E	E	E
Ammonia, Hot	U	G	U	U	E	U	G	G	U	-	-	E	U	E	E	E
Ammonia, Anhydrous	U	G	U	U	U	E	E	E	U	-	-	E	U	E	E	E
Ammonia, Aqueous	U	G	U	U	E	E	E	E	U	-	-	E	U	E	E	E
Ammonium Carbonate	U	E	C	G	E	U	E	E	U	-	C	C	U	C	C	C
Ammonium Chloride	E	E	C	G	E	E	E	E	U	-	-	U	U	C	U	C
Ammonium Hydroxide	C	E	U	C	E	C	C	E	C	U	U	G	U	C	C	U
Ammonium Nitrate	G	E	C	G	E	E	G	E	U	G	C	G	U	G	G	U
Ammonium Phosphate	E	E	C	E	E	E	E	E	-	G	C	U	C	G	U	G
Ammonium Sulfate/Sulfide	E	E	C	E	E	E	E	E	U	G	C	U	U	G	U	G
Amyl Acetate	U	E	U	U	E	U	U	G	U	U	U	E	E	E	E	E
Amyl Alcohol	G	E	E	E	E	G	C	E	G	C	E	G	G	E	U	G
Aniline, Aniline Oil	U	E	U	C	E	U	U	G	U	U	U	E	U	E	G	G
Aniline Dyes	U	E	U	C	E	U	G	G	G	U	U	U	C	G	C	G
Arsenic Acid	E	E	G	C	E	E	E	E	E	C	G	U	U	G	U	C
Asphalt	C	E	G	E	E	G	C	U	E	G	G	E	G	E	C	E
ASTM #1	E	E	E	E	U	E	E	C	E	E	E	E	E	E	E	E
ASTM #2	G	E	E	E	U	E	G	U	E	G	E	E	E	E	E	E
ASTM #3	G	E	E	E	U	E	G	U	E	G	E	E	E	E	E	E
Automatic Transmission Fluid	G	E	G	E	U	E	G	U	E	C	G	E	E	E	E	E
Barium Chloride	E	E	C	E	E	E	E	E	E	G	C	U	G	G	G	G
Barium Hydroxide	E	E	G	E	E	E	E	E	E	E	G	G	U	G	U	G
Barium Sulfide	E	E	C	E	E	E	E	E	E	G	C	C	U	G	U	U
Benzene, Benzol	U	E	C	C	U	U	U	U	E	U	C	G	E	E	G	E
Benzin	G	E	C	C	U	E	U	U	E	U	C	E	E	E	E	E
Benzoic Acid	U	E	C	C	U	U	U	U	E	C	C	U	G	G	G	G
Benzyl Alcohol	U	E	C	G	E	U	G	G	E	C	C	E	G	E	G	G
Black Sulfate Liquor	G	E	C	C	E	C	C	C	E	U	C	E	C	E	U	U
Blast Furnace Gas	U	U	C	G	U	U	U	U	E	U	C	E	C	E	U	U
Borax	G	E	G	G	E	G	G	E	E	G	G	E	E	E	G	-
Boric Acid	G	E	G	E	E	G	G	G	E	G	G	U	G	C	C	C

Fluid Compatibility

E = Excellent G = Good C = Conditional U = Unsatisfactory																
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals						Metal				
Brine	G	E	C	E	E	E	G	E	E	G	C	U	G	G	U	E
Bromine	U	E	U	U	U	U	U	U	E	U	U	U	C	U	C	C
Butane	LPG Approved Hose Only					E	E	U	E	-	-	E	E	E	E	E
Butyl Acetate	U	E	C	C	U	U	U	G	U	U	C	E	E	E	E	E
Butyl Alcohol	E	E	G	E	E	E	E	G	E	G	G	G	G	G	G	G
Butyl Cellosolve	U	E	C	G	E	U	U	G	U	U	C	E	E	E	E	E
Butylene	U	E	-	C	U	C	U	U	E	U	-	E	E	E	E	E
Butyl Stearate	U	E	-	G	U	G	U	U	E	-	-	G	G	G	G	G
Butyraldehyde	U	E	-	C	E	U	U	G	U	U	-	E	E	E	E	G
Calcium Acetate	G	E	C	E	E	G	G	E	U	U	C	G	G	G	C	G
Calcium Bisulfate	E	E	G	G	U	E	E	U	E	G	G	U	C	C	U	U
Calcium Chloride	E	E	E	E	E	E	E	E	E	E	E	G	G	G	C	G
Calcium Hydroxide	E	E	C	E	E	E	E	E	E	U	C	G	G	G	U	G
Calcium Hypochlorite	U	E	C	E	E	U	U	E	E	U	C	U	G	C	U	U
Calcium Nitrate	E	E	E	E	E	E	E	E	E	E	E	G	G	G	G	G
Cane Sugar Liquors	E	E	E	E	E	E	E	E	E	U	E	E	G	E	E	E
Carbitol	G	E	G	E	E	G	G	G	G	U	G	E	E	E	E	E
Carbolic Acid	U	E	U	E	E	U	U	G	E	U	U	U	E	E	-	-
Carbonic Acid	G	E	C	E	E	G	E	E	E	C	C	U	C	E	G	E
Carbon Dioxide	G	E	E	E	E	G	G	E	E	G	E	E	E	E	E	E
Carbon Disulfide	U	E	C	C	U	U	U	U	E	C	C	G	G	G	E	G
Carbon Monoxide	G	E	E	E	E	G	G	E	E	G	E	E	E	E	E	E
Carbon Tetrachloride	U	E	U	C	U	U	U	U	E	U	U	U	G	G	U	E
Castor Oil	E	E	G	E	E	E	E	G	E	G	G	E	E	E	E	E
Cellosolve Acetate	U	E	U	C	E	U	U	G	U	U	U	U	U	E	G	E
China Wood Oil (Tung Oil)	G	E	C	G	U	G	G	U	E	U	C	E	G	E	E	E
Chlorine	U	U	U	U	U	U	U	U	G	U	U	C	C	C	C	C
Chloroacetic Acid	U	E	U	C	E	U	U	G	U	U	U	U	U	U	U	G
Chloroacetone	U	E	U	U	E	U	U	E	U	U	U	G	G	G	U	G
Chlorobenzene	U	E	U	C	U	U	U	U	G	U	U	G	G	G	G	G
Chloroform	U	E	U	C	U	U	U	U	E	U	U	G	G	G	G	G
O-Chlorophenol	U	E	U	C	U	U	U	U	E	U	U	G	G	G	U	G
Chlosulfonic Acid	U	E	U	U	U	U	U	U	U	U	U	G	U	G	G	C
Chrome Plating Solution	U	E	-	U	E	U	U	G	E	U	-	C	U	U	U	U
Chromic Acid	U	E	-	C	E	U	U	C	E	U	-	C	U	U	U	U
Citric Acid	E	E	C	E	E	E	E	E	E	E	C	C	C	C	C	C
Coke Oven Gas	U	E	-	G	U	U	U	U	E	U	-	E	C	E	U	U
Copper Chloride	E	E	E	E	E	E	E	E	E	G	E	U	U	U	U	U
Copper Cyanide	E	E	-	E	E	E	E	E	E	E	-	E	U	G	U	G
Copper Sulfate	E	E	G	E	E	E	E	E	E	G	G	U	C	G	U	G
Cotton Seed Oil	G	E	E	E	U	E	G	C	E	E	E	E	E	E	E	E
Creosote (Coal Tar)	C	E	U	G	U	G	C	U	E	U	U	E	C	E	E	E
Crude Oil	G	E	C	E	U	E	G	U	E	G	C	G	U	G	U	U
Cyclohexanol	G	E	C	E	U	E	G	U	E	C	C	E	E	E	C	E
Cyclohexanone	U	E	G	C	E	U	U	G	U	G	G	E	E	E	C	E
Detergent/Water Solution	E	E	C	E	E	E	E	E	E	C	C	G	E	E	E	E
Diacetone Alcohol (Acetol)	U	E	C	E	E	U	U	E	U	C	C	E	E	E	E	E
Dibenzyl Ether	U	E	-	C	E	U	U	G	U	-	-	G	G	G	G	G

Fluid Compatibility

	E = Excellent G = Good C = Conditional U = Unsatisfactory															
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals						Metal				
Diesel Oil	C	E	C	G	U	E	C	U	E	C	C	E	E	E	E	E
Diethylamine	G	E	-	C	E	G	G	G	U	-	-	E	U	E	-	E
Diocetyl Phthalate (DOP)	U	E	C	C	E	U	U	G	G	C	C	E	E	E	E	E
Dowtherm A&E	U	E	-	C	U	U	U	U	E	-	-	G	U	E	E	E
Dowtherm 209	C	E	-	E	E	C	G	E	U	-	-	-	-	-	-	-
Ester Blend	C	E	C	E	E	E	U	U	E	U	E	E	E	E	E	E
Ethyl Alcohol (Ethanol)	E	E	C	E	E	E	E	E	E	C	C	E	E	E	G	E
Ethyl Acetate	U	E	C	C	E	U	U	G	U	C	C	E	E	E	E	E
Ethyl Benzene	U	E	-	C	E	U	U	U	E	U	-	E	G	G	G	E
Ethyl Cellulose	G	E	C	C	E	G	G	G	U	C	C	E	G	G	G	G
Ethyl Chloride	U	E	U	C	E	U	U	U	E	U	U	E	E	E	G	G
Ethylene Dichloride	U	E	U	C	U	U	U	U	G	U	U	G	C	G	G	G
Ethylene Glycol	E	E	C	E	E	E	E	E	E	C	C	U	G	E	E	E
Ferric Chloride	G	E	-	E	E	E	G	E	E	-	-	U	U	U	U	U
Ferric Nitrate	E	E	C	E	E	E	E	E	E	C	C	U	U	U	U	U
Ferric Sulfate	G	E	C	G	E	G	G	G	E	C	C	U	U	E	U	U
Formeldehyde	C	E	C	G	E	C	C	G	G	C	C	E	E	E	G	G
Formic Acid	C	E	U	E	E	C	G	E	U	U	U	U	C	C	C	C
Fuel Oil	G	E	E	E	U	E	G	U	E	G	G	E	E	E	E	E
Furfural	C	E	-	E	E	C	C	G	U	U	-	G	G	G	G	G
Gallic Acid	G	E	-	E	E	G	G	G	E	U	-	U	-	G	C	G
Gasoline	C	E	E	E	U	E	C	U	E	E	E	E	E	E	E	E
Gasohol	U	E	G	E	U	G	G	U	E	E	E	E	E	E	G	E
Glycerine/Glycerol	E	E	E	E	E	E	E	E	E	G	E	E	G	E	E	E
Green Sulfate Liquor	G	E	-	E	E	G	G	E	E	-	-	U	U	E	U	U
Helium	C	G	C	C	E	E	E	E	E	E	E	E	E	E	E	E
Heptane	G	E	E	E	U	E	G	U	E	G	G	E	E	E	E	E
Hexaldehyde	C	E	-	C	E	U	G	G	U	U	-	G	G	E	E	G
Hexane	G	E	E	E	U	E	G	U	E	G	G	E	E	E	E	E
Hydraulic Oils																
Ester Blend	C	E	C	E	E	E	U	U	E	U	E	E	E	E	E	E
Phos. Ester/Petroleum Blend	U	E	C	E	-	U	U	U	C	U	G	E	E	E	E	E
Silicone Oils	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Straight Petroleum Base	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E
Straight Phosphate Ester	U	E	C	C	E	U	U	G	C	U	G	E	E	E	E	E
Water Glycol	E	E	C	E	E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion	G	E	C	E	U	E	G	U	E	C	C	C	E	E	G	E
Hydrobromic Acid	U	E	U	C	E	U	U	E	E	U	U	E	U	E	E	U
Hydrochloric Acid	U	E	U	C	C	U	U	G	E	U	U	U	U	U	U	U
Hydrocyanic Acid	C	E	-	C	E	C	C	E	E	-	-	E	E	G	E	G
Hydrofluoric Acid	U	E	U	C	C	U	U	C	U	U	U	U	U	U	U	C
Hydrofluorosilic Acid	G	E	-	G	E	G	G	E	E	-	-	U	U	U	U	U
Hydrogen	C	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide	G	E	G	E	C	G	G	G	E	G	G	U	U	G	E	U
Hydrogen Sulfide, Dry	U	C	C	G	E	U	G	E	U	-	G	E	G	G	G	G
Isocyanate	U	E	U	C	U	U	U	G	E	U	U	G	-	G	-	-
Iso Octane	G	E	E	E	U	E	G	U	E	G	E	E	E	E	E	E
Isopropyl Acetate	U	E	C	U	E	U	U	G	U	U	C	E	-	E	E	E

Fluid Compatibility

	E = Excellent G = Good C = Conditional U = Unsatisfactory															
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals						Metal				
Isopropyl Alcohol	G	E	C	E	E	G	G	E	E	U	C	E	E	E	G	E
Isopropyl Ether	C	E	-	C	U	G	U	U	U	C	-	G	G	G	-	-
JP-4, JP-5	C	E	G	G	U	E	U	U	E	U	G	E	E	E	E	E
Kerosene	C	E	G	G	U	E	U	U	E	U	G	E	E	E	E	E
Lacquer/Lacquer Solvents	U	E	C	C	U	U	U	U	U	U	G	U	E	E	E	E
Lime Sulfur	C	E	C	E	E	U	E	E	E	C	C	G	U	G	-	U
Linseed Oil	G	E	G	E	U	E	G	U	E	G	G	E	E	E	E	E
LPG	C	-	-	-	U	E	G	U	E	-	-	E	E	E	E	E
Lubricating Oils	See Hydraulic Oils															
Magnesium Chloride	E	E	C	E	E	E	E	E	E	C	C	E	C	C	G	G
Magnesium Hydroxide	G	E	C	E	E	G	G	E	E	C	C	E	G	E	G	G
Magnesium Sulfate	E	E	C	E	E	E	E	E	E	C	C	E	E	E	E	E
Maleic Acid	U	E	C	G	E	U	U	U	E	C	C	E	G	G	G	G
Maleic Anhydride	U	E	C	G	U	U	U	U	E	C	C	G	U	E	G	E
Malic Acid	G	E	-	G	U	G	G	U	G	-	-	U	-	E	G	E
Mercuric Chloride	E	E	E	E	E	E	E	E	E	E	E	U	U	U	U	U
Mercury	E	E	E	E	E	E	E	E	E	E	E	E	U	E	U	G
Methanol	G	E	C	G	E	G	G	E	U	C	C	G	G	E	C	E
Methyl Bromide	U	E	U	C	U	G	U	U	E	U	U	E	E	G	U	E
Methyl Chloride	U	E	U	C	U	U	U	U	E	U	U	E	E	E	U	G
Methyl Butyl Ketone	U	E	C	C	E	U	U	E	U	C	C	E	E	E	-	E
Methyl Ethyl Ketone	U	E	C	C	E	U	U	E	U	U	G	G	G	G	G	G
Methylene Chloride	U	E	U	C	G	U	U	U	G	U	U	G	G	G	G	G
Methyl Isobutyl Ketone	U	E	U	C	G	U	U	U	U	U	U	G	G	G	G	G
Methyl Isopropyl Ketone	U	E	U	C	G	U	U	U	U	U	U	G	G	G	G	G
Methyl Salicylate	U	E	-	U	C	U	U	C	U	-	-	E	G	G	E	G
MIL-L-2104	E	E	E	E	U	E	G	U	E	E	E	E	E	E	-	E
MIL-H-5606	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E
MIL-H-6083	E	E	E	E	U	E	E	U	E	E	E	E	E	E	-	E
MIL-L-7808	C	E	G	G	U	G	U	U	E	G	G	G	G	E	-	-
MIL-L-23699	C	E	-	G	U	G	U	U	E	-	-	E	E	E	E	E
MIL-H-46170	G	E	-	G	C	E	G	U	E	-	-	E	E	E	-	E
MIL-H-83282	C	E	-	G	U	E	U	U	E	-	-	E	E	E	-	E
Mineral Oils	C	E	G	E	U	E	G	U	E	G	G	E	E	E	E	E
Naphtha	U	E	G	C	U	C	U	U	E	C	G	-	-	-	-	-
Naphthalene	U	E	G	C	U	U	U	U	E	C	G	E	G	E	G	G
Naphthenic Acid	U	E	-	C	U	C	U	U	E	-	-	-	G	E	G	G
Natural Gas	C	U	U	U	U	E	E	U	E	-	-	G	G	G	G	G
Nickel Acetate	U	E	U	G	E	C	C	E	G	U	U	G	C	E	G	E
Nickel Chloride	G	E	U	E	E	E	G	E	E	U	U	U	U	G	U	G
Nickel Sulfate	E	E	U	E	E	E	E	E	E	U	U	U	G	G	U	G
Nitric Acid, up to 10%	U	E	C	C	U	U	U	U	E	U	C	U	U	E	U	U
Nitric Acid, over 10%	U	E	U	U	U	U	U	U	G	U	U	U	U	E	C	U
Nitrobenzene	U	E	U	C	E	U	U	U	G	U	U	E	G	E	E	E
Nitrogen	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Octyl Alcohol	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Oleic Acid	U	E	G	C	U	U	U	C	G	G	E	C	E	G	C	G
Oleum (Fuming Sulfuric Acid)	U	E	U	U	U	U	U	U	E	U	U	G	U	G	U	U

Fluid Compatibility

E = Excellent G = Good C = Conditional U = Unsatisfactory																
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals						Metal				
Oleum (Mineral Spirits)	E	E	G	E	U	E	G	U	E	G	G	E	E	E	E	E
Ortho-Dichlorobenzene	U	E	-	U	U	U	U	U	E	-	-	G	G	G	G	G
Oxalic Acid	G	E	C	G	E	G	G	E	E	C	C	U	C	C	C	C
Oxygen	U	U	U	U	U	-	-	-	-	-	-	G	G	G	G	G
Palmitic Acid	G	E	E	-	E	E	G	G	E	-	E	G	-	E	G	G
Para-Dichlorobenzene	U	E	-	U	U	U	U	U	E	-	-	G	G	G	G	G
Pentane	E	E	G	E	U	E	E	U	E	U	G	G	G	G	E	G
Perchloric Acid	C	E	U	G	E	E	G	G	E	U	U	U	U	U	U	U
Perchloroethylene	U	E	U	U	U	U	U	U	E	U	U	C	G	G	G	E
Phenol (Carbolic Acid)	U	E	U	E	U	U	U	G	E	U	U	U	E	E	E	G
Phos. Ester/Petroleum Blend	U	E	C	E	-	U	U	U	C	U	G	E	E	E	E	E
Phosphoric Acid	U	E	U	C	E	U	U	G	E	U	U	U	E	U	C	E
Phosphorous Trichloride	U	E	U	C	E	U	U	E	E	U	U	C	U	C	E	E
Potassium Acetate	G	E	-	E	E	G	G	E	U	-	-	C	G	C	U	G
Potassium Chloride	E	E	E	E	E	E	E	E	E	E	E	E	C	E	U	G
Potassium Cyanide	E	E	E	E	E	E	E	E	E	E	E	C	U	G	U	C
Potassium Dichromate	E	E	E	E	E	E	E	E	E	E	E	C	C	C	C	C
Potassium Hydroxide, up to 10%	G	E	C	E	E	G	G	E	G	C	C	G	G	G	U	E
Potassium Hydroxide, over 10%	C	E	U	C	E	C	C	E	U	U	U	G	G	G	U	E
Potassium Nitrate	E	E	E	E	E	E	E	E	E	E	E	G	G	E	G	-
Potassium Sulfate	E	E	E	E	E	E	E	E	E	E	E	-	-	-	-	-
Propane	C	-	-	-	U	C	-	-	-	-	-	E	E	E	E	E
Propyl Acetate	U	E	-	G	E	U	U	G	U	-	-	E	-	E	E	E
Propyl Alcohol	E	E	U	E	E	E	E	E	E	U	U	E	E	E	E	E
Propylene	U	E	-	U	U	U	U	U	E	-	-	E	E	E	E	E
Refrigerant R-12	C	-	G	U	U	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-13	C	-	G	U	U	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-22	U	C	U	U	U	U	E	C	U	U	U	E	E	E	E	E
Refrigerant R-134a	U	C	U	U	U	E	C	U	U	U	E	E	E	E	E	E
Sewage	E	E	E	E	E	E	E	E	E	U	E	G	G	G	G	G
Silicone Oils	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Soap (Water Solutions)	E	E	C	E	E	E	E	E	E	C	C	E	E	E	U	E
Sodium Acetate	G	E	-	E	E	G	G	E	U	-	-	E	E	G	E	E
Sodium Bicarbonate	E	E	E	E	E	E	E	E	E	E	E	G	G	E	G	E
Sodium Borate	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	-
Sodium Carbonate	E	E	E	E	E	E	E	E	E	E	E	E	G	E	U	E
Sodium Chloride	E	E	E	E	E	E	E	E	E	E	E	U	C	C	C	E
Sodium Cyanide	E	E	E	E	E	E	E	E	E	E	E	E	-	C	U	U
Sodium Hydroxide, up to 10%	C	E	G	C	E	U	G	E	E	G	G	C	G	C	U	C
Sodium Hydroxide, over 10%	U	E	C	C	E	U	U	G	E	C	C	C	C	C	U	C
Sodium Hypochlorite	C	E	C	G	C	C	C	E	C	C	C	U	U	U	U	C
Sodium Metaphosphate	E	E	E	E	E	E	E	E	E	E	E	E	G	G	U	G
Sodium Nitrate	G	E	E	E	E	G	G	E	-	E	E	E	C	E	E	E
Sodium Perborate	G	E	-	E	E	G	G	E	E	-	-	C	U	C	U	C
Sodium Peroxide	G	E	-	E	E	G	G	E	E	U	-	U	U	C	C	C
Sodium Phosphates	E	E	E	E	E	E	E	E	E	E	E	U	E	G	U	E
Sodium Silicate	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfate	E	E	E	E	E	E	E	E	E	E	E	C	G	G	G	G

Fluid Compatibility

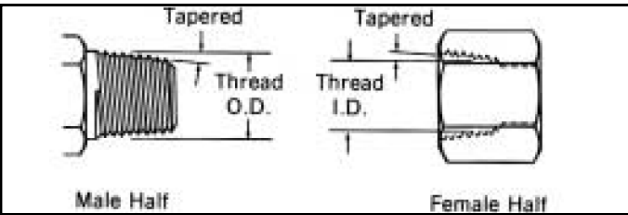
E = Excellent G = Good C = Conditional U = Unsatisfactory																
	Synthetic Rubber	PTFE	Thermoplastic Elastomer	AQP	EPDM	BUNA-N	Neoprene	EPR	Viton*	Urethane	Hytel	Steel	Brass	Stainless Steel	Aluminum	Monel
Fluid	Hose					Seals										Metal
Sodium Sulfide	E	E	E	E	E	E	E	E	E	E	E	C	U	C	U	G
Sodium Thiosulfate	G	E	E	E	E	G	E	E	E	E	E	U	U	C	G	E
Soy Bean Oil	G	E	G	E	U	E	G	U	E	G	G	E	E	E	E	E
Stannic Chloride	E	E	C	E	E	E	G	E	E	C	C	U	U	U	U	U
Steam (up to 388°F)	U	E	U	U	C	U	U	C	C	U	U	E	E	E	G	E
Stearic Acid	G	E	G	G	E	G	G	G	E	G	G	C	C	E	C	E
Stoddard Solvent	G	E	U	E	U	E	G	U	E	U	U	E	E	E	E	E
Straight Petroleum Base	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E
Straight Phosphate Ester	U	E	C	C	E	U	U	G	C	U	G	E	E	E	E	E
Styrene	U	E	U	C	U	U	U	U	G	U	U	E	E	E	E	E
Sulfur	C	E	G	G	E	U	E	E	E	G	G	E	U	G	E	E
Sulfur Chloride	U	E	-	C	U	U	U	U	E	-	-	G	-	G	G	U
Sulfur Dioxide	U	E	U	C	E	U	U	G	E	U	U	E	G	G	E	G
Sulfur Trioxide	U	E	U	C	E	U	U	G	E	U	U	G	C	G	G	G
Sulfuric Acid, up to 10%	U	E	U	U	E	U	G	U	E	C	C	U	G	C	-	E
Sulfuric Acid, over 10%	U	E	U	U	U	U	U	U	G	U	U	C	C	C	U	C
Sulfurous Acid	C	E	U	G	E	C	C	U	U	U	U	U	C	C	C	U
Tannic Acid	E	E	G	E	E	E	E	E	E	G	G	E	E	E	C	E
Tar (Bituminous)	C	E	G	C	U	G	U	U	E	G	G	E	G	E	E	E
Tartaric Acid	G	E	G	E	E	E	G	G	E	G	G	U	C	C	E	E
Tertiary Butyl Alcohol	G	E	G	G	E	G	G	G	E	G	G	G	G	G	G	G
Titanium Tetrachloride	U	E	-	U	U	C	U	U	E	-	-	E	U	G	U	G
Toluene (Toluol)	U	E	U	U	U	U	U	U	E	U	U	E	E	E	E	E
Thrichlorethylene	U	E	U	U	E	U	U	U	E	U	U	E	G	E	E	E
Tricresyl Phosphate	U	E	U	G	E	U	U	E	G	U	U	E	-	C	-	G
Trianthanolamine	C	E	U	E	E	E	U	E	U	U	U	E	U	E	E	E
Tung Oil	G	E	C	G	U	G	G	U	E	U	C	E	G	E	E	E
Turpentine	C	E	G	E	U	G	U	U	E	G	G	G	G	G	G	G
Varnish	C	E	G	-	U	G	U	U	E	G	G	E	G	E	E	E
Vinyl Chloride	U	E	U	U	U	U	U	U	E	U	U	E	U	C	E	E
Water (up to 150°F)	E	E	E	E	E	E	E	E	E	E	E	C	G	E	G	E
Water (151°F - 200°F)	G	E	U	G	E	E	E	E	E	U	U	C	G	E	G	E
Water (201°F - 350°F)	U	E	U	U	E	U	U	U	G	U	U	C	G	E	G	E
Water Glycol	E	E	C	E	E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion	G	E	C	E	U	E	G	U	E	C	C	C	E	E	G	E
Xylene	U	E	E	U	U	U	U	U	E	U	C	E	E	E	E	E
Zinc Chloride	E	E	E	E	E	E	E	E	E	E	E	E	U	U	C	G
Zinc Sulfate	E	E	-	E	E	E	E	E	E	-	-	U	C	G	C	G

How to Identify Fluid Connectors

How to Measure Non-Threaded Connections

Flanges: Use calipers to measure the port hole diameter, and the flange head diameter.

NPTF (National Pipe Tapered Fuel)



This connection utilizes tapered threads which become deformed when tightened, creating its own seal without any added sealants. Not recommended for use in hydraulic applications.

NPTF Threads

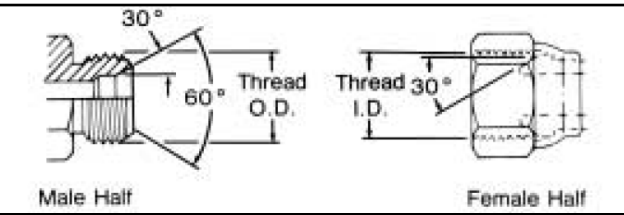
Measure the thread diameter and subtract 1/4-inch to find the nominal pipe size.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inches)		Female Thread I.D. (inches)	
			Fraction	Dec.	Fraction	Dec.
1/8	-02	1/8"-27	13/32	.41	3/8	.38
1/4	-04	1/4"-18	17/32	.54	1/2	.49
3/8	-06	3/8"-18	11/16	.68	5/8	.63
1/2	-08	1/2"-14	27/32	.84	25/32	.77
3/4	-12	3/4"-14	11/16	1.05	1	.98
1	-16	1"-11 1/2	15/16	1.32	1 1/4	1.25
1 1/4	-20	1 1/4"-11 1/2	121/32	1.66	1 19/32	1.58
1 1/2	-24	1 1/2"-11 1/2	129/32	1.90	1 13/16	1.82
2	-32	2"-11 1/2	23/8	2.38	2 5/16	2.30

Dash Numbers

Most fluid piping system sizes in the United States are measured in dash numbers. These are universally used abbreviations for the size of the component, indicating its size in sixteenths of an inch. For example, -04 equates to 4/16 or 1/4-inch. Dash numbers are usually nominal (existing in name only) abbreviations that make it easier to order components.

NPSM (National Pipe Straight Mechanical)

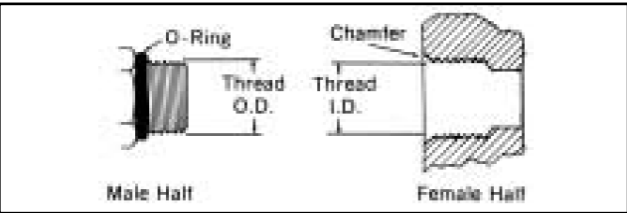


This connection utilizes straight threaded female and male end fittings. The female end has an inverted 30° seat, while the male end has a 30° internal chamfer. The seal takes place by compression of the 30° seat on the chamfer, and is held mechanically by the threads.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inches)		Female Thread I.D. (inches)	
			Fraction	Dec.	Fraction	Dec.
1/8	-02	1/8"-27	13/32	.41	3/8	.38
1/4	-04	1/4"-18	17/32	.54	1/2	.49
3/8	-06	3/8"-18	11/16	.68	5/8	.63
1/2	-08	1/2"-14	27/32	.84	25/32	.77
3/4	-12	3/4"-14	11/16	1.05	1	.98
1	-16	1"-11 1/2	15/16	1.32	1 1/4	1.25
1 1/4	-20	1 1/4"-11 1/2	1-21/32	1.66	1 19/32	1.58
1 1/2	-24	1 1/2"-11 1/2	129/32	1.90	1 13/16	1.82
2	-32	2"-11 1/2	23/8	2.38	2 5/16	2.30

How to Identify Fluid Connectors

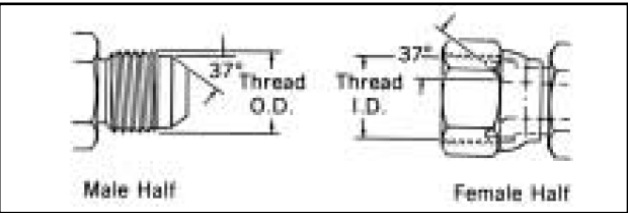
SAE J1926 Straight Thread O-Ring Boss (ORB)



This connection utilizes a straight threaded male connector with an O-Ring, and a straight threaded female connector with a machined, chamfered surface. The seal takes place by compressing the O-Ring into the chamfer. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inches)		Female Thread I.D. (inches)	
			Fraction	Dec.	Fraction	Dec.
1/8	-02	5/16"-24	5/16	.31	9/32	.27
3/16	-03	3/8"-24	3/8	.38	11/32	.34
1/2	-04	7/16"-20	7/16	.44	13/32	.39
5/16	-05	1/2"-20	1/2	.50	15/32	.45
3/8	-06	9/16"-18	9/16	.56	17/32	.51
1/2	-08	3/4"-16	3/4	.75	3/4	.69
5/8	-10	7/8"-14	7/8	.88	13/16	.81
3/4	-12	1 1/16"-12	1 1/16	1.06	1	.98
7/8	-14	1 3/16"-12	1 3/16	1.19	1 1/8	1.13
1	-16	1 5/16"-12	1 5/16	1.31	1 1/4	1.23
1 1/4	-20	1 5/8"-12	1 5/8	1.63	1 9/16	1.54
1 1/2	-24	1 7/8"-12	1 7/8	1.88	1 13/16	1.79
2	-32	2 1/2"-12	2 1/2	2.50	2 7/16	2.42

SAE J514 37° (J.I.C.) Hydraulic



This connection utilizes a male fitting with a 37° flare, and a female fitting with a 37° cone. The seal takes place by compressing the 37° seats together. The connection is held mechanically by the threads.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inches)		Female Thread I.D. (inches)	
			Fraction	Dec.	Fraction	Dec.
1/8	-02	5/16"-24	5/16	.31	9/32	.27
5/16	-03	3/8"-24	3/8	.38	11/32	.34
1/4	-04	7/16"-20	7/16	.44	13/32	.39
5/16	-05	1/2"-20	1/2	.50	15/32	.45
3/8	-06	9/16"-18	9/16	.56	17/32	.51
1/2	-08	3/4"-16	3/4	.75	11/16	.69
5/8	-10	7/8"-14	7/8	.88	13/16	.81
3/4	-12	1 1/16"-12	1 1/16	1.06	1	.98
1	-16	1 5/16"-12	1 5/16	1.31	1 1/4	1.23
1 1/4	-20	1 5/8"-12	1 5/8	1.63	1 9/16	1.54
1 1/2	-24	1 7/8"-12	1 7/8	1.88	1 13/16	1.79
2	-32	2 1/2"-12	2 1/2	2.50	2 7/16	2.42

Notes

[illegible]

Notes

[illegible]

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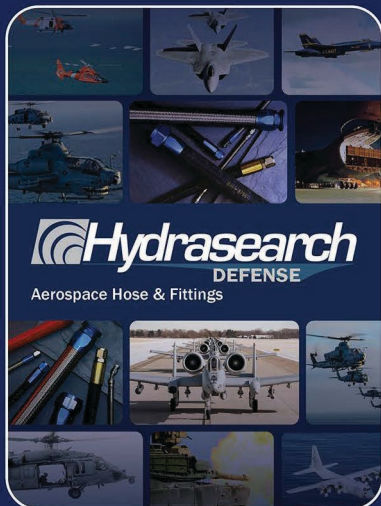
DEFENSE

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Additional Literature



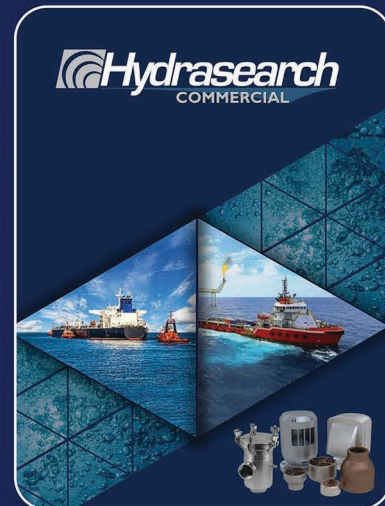
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