

Aluminum Compression Crimp Fittings



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666/667 Medium Pressure PTFE Hose and Aluminum Compression Crimp Fittings

Eaton's Aeroquip lightweight, low profile aluminum compression crimp fittings are available with Eaton's 666/667 medium pressure PTFE hoses. This hose/fitting combination has been qualified and approved to MIL-DTL-25579C through -16 size. Eaton's medium pressure PTFE hoses are widely used in today's aerospace industry. Hose assemblies with aluminum compression crimp fittings are suitable for temperatures ranging from -65°F to +275°F (-18.3°C to +135°C) with various types of fluids.

The unique combination of the "ramped" nipple and the crimping pattern used on the aluminum compression crimp fitting results in superior fitting retention under pressure. Burst pressure tests indicate that extreme pressures will result in "free hose" bursts rather than fitting blow-off. The fitting design effectively traps and holds the wire reinforcement of the hose in the area of the ramp on the fitting nipple. This assures that it will withstand pressures up to 4 times rated operating pressure.

General Characteristics – Chemical Resistance:

Eaton's Aeroquip PTFE hoses are unaffected by all fuels, oils, alcohols, coolants or solvents commonly used in aircraft. In addition, they are inert to acids both concentrated and diluted and propellants used in missiles.

The PTFE liner has sufficient conductivity to prevent electrostatically induced hose failures.

The tube is capable of conducting a direct current equal to or greater than 10 micro-amps in sizes -4,-6,-8 and 20 micro-amps in size -10 and above with a potential of 1000 volts.

The Eaton method of construction of PTFE hose results in a lower volumetric expansion than any elastomer hose. This assures maximum response efficiency in ballistics ejection systems, and brake systems, where there can be no softness under shock load.

Inherent resiliency and toughness are ensured in the extruded tube by close control of factors affecting crystallinity. Additional structural strength is supplied in PTFE hoses by the tightly braided stainless steel wire reinforcement. The result is a lightweight hose able to withstand prolonged flexing and vibration under all service conditions.

The extruded PTFE tube has a tough, smooth, wax-like texture which resists erosion. No materials of a sticky or viscous nature will stick to its surface.

PTFE hose has essentially zero moisture absorption. This together with its chemical inertness and anti-adhesive characteristics make it ideal for missile fluid systems where non-contamination and cleanliness are essential, and for pneumatic systems when maintenance of low dew point is necessary.

Service and shelf life of Eaton's Aeroquip PTFE hose are unlimited for all practical purposes. However, experience has shown that service life on impulsive

applications may eventually be limited by fatigue in the wire reinforcement. Maximum service life on such applications is best determined by the operator, based on his experience.

Application Data:

Eaton's Aeroquip 666/667 medium pressure PTFE hose may be used for all hydrocarbon fuel systems. The rate of effusion of gases and resistance to capillary leakage of fluid through the hose lines is controlled by a proprietary extrusion method used to produce the PTFE hose liners.

Other Special Applications:

The PTFE hose shown in this bulletin is rated according to the listed specifications. These various ratings are for specific service conditions involving specified temperature, pressure and impulse conditions. In many cases a specific rating can be successfully exceeded if other variables are modified. Thus a higher operating pressure might be allowable if temperature and impulse life are modified or, similarly, operating temperature may be raised if pressure or surge conditions are reduced. Our experienced support staff and test facilities are available.

Eaton's 666/667 medium pressure PTFE hose is also used in hydraulic and pneumatic applications at pressures up to 1500 psi. For hose data, see Page 3.

Hose in accordance with MIL-DTL-27267

Operating Temperatures:

-65°F to +275°F (-53.8°C to +135°C) fluid and ambient with aluminum fittings.

Construction:

PTFE inner tube, stainless steel reinforcement.

666 Hose – Type 300 Series stainless steel wire braid outer cover.

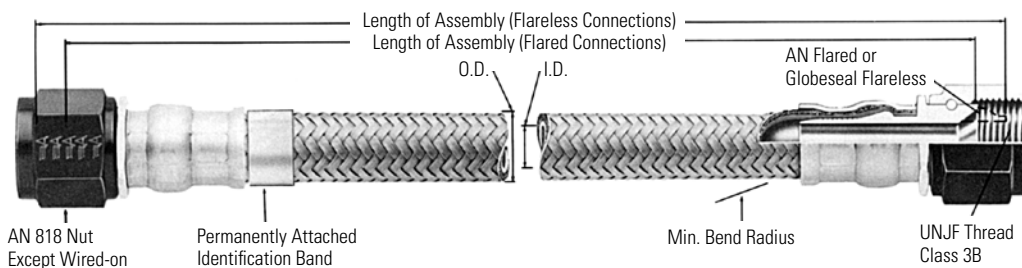
667 Hose – two layers of Type 300 Series stainless steel wire braid.

Identification:

Identification bands show specification number, manufacturers code number, operating pressure and other required information.

Specification:

Eaton's Aeroquip medium pressure assemblies with 666 and 667 PTFE hose and Aluminum Compression Crimp fittings comply with the MIL-DTL-25579 industry standard for 1500 psi, high temperature lines for aircraft and missile fluid systems and for ground support use where temperatures do not exceed +275°F (+135°C).



Aluminum Crimp Fittings



The unique combination of the “ramped” nipple and the crimping pattern used on the aluminum compression crimp fitting results in superior fitting retention under pressure. The fitting design effectively traps and holds the wire reinforcement of the hose in the area of the ramp on the fitting nipple.

Eaton’s aluminum compression crimp fittings are available in both flared and flareless types to mate with MS33656 and MS33514 end connections.

In addition, elbow fittings are available in standard 45° and 90° styles. Special elbows, crosses, tees, wyes, adapters, bosses, etc. may be made for custom installations.

Fitting Standard Material Specifications

	Material	Specification
Nut	2024-T851 Alum.	QQ-A-2256
Shoulder (flareless)	6061-T651 or T6 Alum.	QQ-A-2258
Wire	CRES (305)	AMS5685
Elbow	6061-T6 Alum.	
Bent Tube	6061-T6 Alum.	WW-T-7006
Forged	6061-T6 Alum.	QQ-A-367
Nipple		
Straight	2024-T851 Alum.	QQ-A-2256
Elbow	6061-T651 or T6 Alum.	QQ-A-2258
Socket	CRES (304)	QQ-S-763

Matched for Matchless Performance

Eaton’s Aeroquip fitting tolerances are engineered to match Eaton’s Aeroquip hose tolerances, therefore the use of Eaton’s fittings and/ or the use of Eaton’s hoses with fittings supplied by other manufacturers, expressly voids any responsibility on the part of Eaton for performance of the complete hose line assembly.

666/667 Hose Data

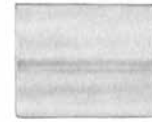


Also available in Non-Conductive Hose for gaseous and liquid oxidizing systems.

*With internal support coil, contact Eaton

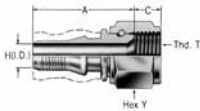
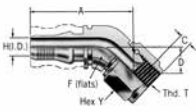
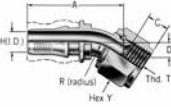
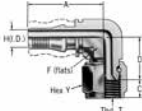
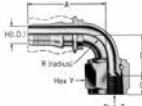
Dash Size	-8	-10	-12	-16
Part Number	666-8	666-10	666-12	667-16
Hose I.D. (inches)	.406	.500	.625	.875
Hose O.D. (Max. inches)	.585	.687	.812	1.140
Fluid Operating Pressure (psi)	1500	1500	1000	1250
Vacuum Data (max. inches Hg)	28	28	28*	28*
Proof Pressure (psi)	3000	3000	2000	2500
Min. Burst Pressure (psi)	8000	7000	5000	5000
Min. Bend Radius (inches)	4.62	5.50	6.50	7.38
Weight per Inch (lbs.)	.0121	.0166	.0205	.0431

Flared Fittings



Socket must be ordered separately under Eaton's Part Number AE21498 (letter size code same as nipple assembly).

Socket AE21498 (Code)

	HOSE	NIPPLE ASSEMBLY	MAX.		NOM. D	MIN. H	F/R*	THREAD "T"	HEX Y	WEIGHT LBS.
			A	C						
Straight 	666-8	AE23649H	1.61	.43	.340			.750-16UNJF-3B	.88	.064
	666-10	AE23649J	1.80	.50	.430			.875-14UNJF-3B	1.00	.088
	666-12	AE23649K	1.96	.57	.548			1.062-12UNJF-3B	1.25	.134
	667-16	AE23649M	2.32	.60	.778			1.3125-12UNJF-3B	1.50	.205
Forged 	666-8	AE23653H	2.27	.43	.465	.340	.625	.750-16UNJF-3B	.88	.080
AE23653H-45°										
Bent Tube 	666-10	AE23653J	2.30	.50	.536	.430	.625	.875-14UNJF-3B	1.00	.094
	666-12	AE23653K	2.74	.57	.623	.548	.844	1.0625-12UNJF-3B	1.25	.145
	667-16	AE23653M	3.10	.63	.660	.778	.969	1.3125-12UNJF-3B	1.50	.228
AE23653J, K, M, 45° Bent Tube Elbow										
Forged 	666-8	AE23657H	1.80	.43	.830	.340	.625	.750-16UNJF-3B	.88	.084
AE23657H 90°										
Bent Tube 	666-10	AE23657J	2.12	.50	1.126	.430	.625	.875-14UNJF-3B	1.00	.098
	666-12	AE23657K	2.61	.57	1.376	.548	.844	1.062-12UNJF-3B	1.25	.156
	667-16	AE23657M	3.02	.63	1.500	.778	.969	1.3125-12UNJF-3B	1.50	.238
AE23657J, K, M, Bent Tube Elbow										

All dimensions in inches

NOTE:

Fitting weights include sockets

max. A= maximum length of fitting including socket when fitting is assembled on hose.

nom. D= nominal drop dimensions-

Tolerance is ±.020" on forged fittings and ±.035" on bent tube fittings.

*R= radius of elbow measured to centerline (bent tube)

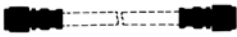
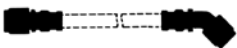
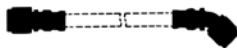
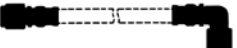
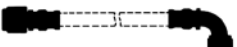

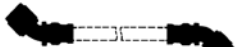
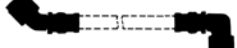
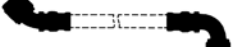
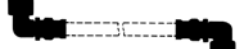
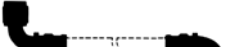
F= distance across flats (forged)

Socket must be ordered separately under Eaton's Part Number AE21498 (letter size code same as nipple assembly)

Flared Fitting Hose Assemblies Part Numbers

Swivel to Swivel

(Per MIL-DTL-25579 and MIL-DTL-27267)

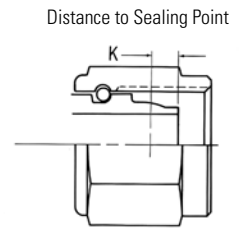
		DASH		ASSEMBLY	NIPPLE A	NIPPLE B
A	B	SIZE	MATERIAL	BASE NO.	PART NO.	PART NO.
		-8 thru -16	Alum.	AE3660340	AE23649	AE23649
Forged						
		-8	Alum.	AE3660360	AE23649	AE23653
Bent Tube						
		-10 thru -16	Alum.	AE3660360	AE23649	AE23653
Forged						
		-8	Alum.	AE3660350	AE23649	AE23657
Bent Tube						
		-10 thru -16	Alum.	AE3660350	AE23649	AE23657
Forged						
		-8	Alum.	AE6279	AE23653	AE23653
Bent Tube						
		-10 thru -16	Alum.	AE6279	AE23653	AE23653
Forged						
		-8	Alum.	AE6280	AE23653	AE23657
Bent Tube						
		-10 thru -16	Alum.	AE6280	AE23653	AE23657
Forged						
		-8	Alum.	AE6281	AE23657	AE23657
Bent Tube						
		-10 thru -16	Alum.	AE6281	AE23657	AE23657

Globeseal™ Flareless Fittings



Socket AE21498 (Code)

Socket must be ordered separately under Eaton's Part Number AE21498 (letter size code same as nipple assembly)



K = gauge point location per NAS 1760

	HOSE	NIPPLE ASSEMBLY	MAX.		NOM. D	MIN. H	K	F/R*	THREAD "T"	HEX Y	WEIGHT LBS.
			A	C							
Straight 	666-8	AE23651H	1.90	.15	.340	.189		.750-16UNJF-38	.88	.063	
	666-10	AE23651J	2.10	.22	.430	.201		.875-14UNJF-3B	1.00	.095	
	666-12	AE23651K	2.40	.15	.548	.228		1.0625-12UNJF-3B	1.25	.152	
	667-16	AE23651M	2.84	.08	.778	.297		1.3125-12UNJF-3B	1.50	.236	
Forged 	666-8	AE23655H	2.47	.15	.668	.340	.134	.625	.750-16UNJF-3B	.88	.083
AE23655H-45°											
Bent Tube 	666-10	AE23655J	2.55	.22	.793	.430	.142	.625	.875-14UNJF-3B	1.00	.101
	666-12	AE23655K	3.05	.15	.934	.548	.161	.844	1.0625-12UNJF-3B	1.25	.158
	667-16	AE23655M	3.50	.08	1.051	.778	.210	.969	1.3125-12UNJF-3B	1.50	.243
AE23655J, K, M, 45° Bent Tube Elbow											
Forged 	666-8	AE23659H	1.80	.15	1.121	.340		.625	.750-16UNJF-3B	.88	.086
AE23659H 90°											
Bent Tube 	666-10	AE23659J	2.12	.22	1.488	.430		.625	.875-14UNJF-3B	1.00	.104
	666-12	AE23659K	2.61	.15	1.816	.548		.844	1.0625-12UNJF-3B	1.25	.166
	667-16	AE23659M	3.01	.08	2.054	.778		.969	1.3125-12UNJF-3B	1.50	.252
AE23659J, K, M, Bent Tube Elbow											

All dimensions in inches

NOTE:

Fitting weights include sockets

max. A= maximum length of fitting including socket when fitting is assembled on hose.

nom. D= nominal drop dimensions-

Tolerance is ±.020" on forged fittings and ±.035" on bent tube fittings.

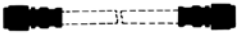
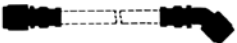
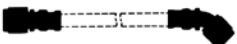
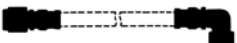
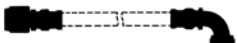
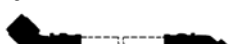





*R= radius of elbow measured to centerline (bent tube)

F= distance across flats (forged)

Flareless Fitting Hose Assemblies Part Numbers

Swivel to Swivel

(Per MIL-DTL-25579 and MIL-DTL-27267)

A	B	DASH SIZE	MATERIAL	ASSEMBLY BASE NO.	NIPPLE A PART NO.	NIPPLE B PART NO.
		-8 thru -16	Alum.	AE3660370	AE23651	AE23651
Forged						
		-8	Alum.	AE3660390	AE23651	AE23655
Bent Tube						
		-10 thru -16	Alum.	AE3660390	AE23651	AE23655
Forged						
		-8	Alum.	AE3660380	AE23651	AE23659
Bent Tube						
		-10 thru -16	Alum.	AE3660380	AE23651	AE23659
Forged						
		-8	Alum.	AE6282	AE23655	AE23655
Bent Tube						
		-10 thru -16	Alum.	AE6282	AE23655	AE23655
Forged						
		-8	Alum.	AE6283	AE23655	AE23659
Bent Tube						
		-10 thru -16	Alum.	AE6283	AE23655	AE23659
Forged						
		-8	Alum.	AE6284	AE23659	AE23659
Bent Tube						
		-10 thru -16	Alum.	AE6284	AE23659	AE23659

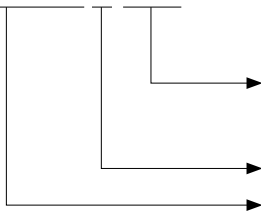
For complete ordering instructions, see next page.

How to Order Hose, Fittings and Assemblies

Basic assembly numbers

The basic part numbers shown here represent standard configurations with materials, markings, and cleaning requirements conforming to MIL-DTL-25579. If your requirements differ from these standards, the hose assemblies you order will be assigned new numbers by Eaton.

AE3660000 E 0184

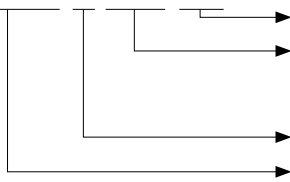


Sample part number:

Straight and single elbow assemblies:

- Assembly length. Always four digits; last digit indicates fractional length in 1/8's of an inch.
- Hose Letter Code
- Basic Style number

AE6000 G 0184 180

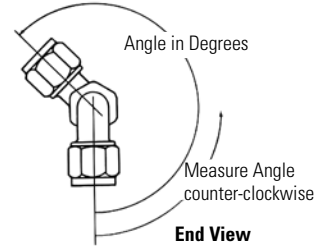


Double elbow assemblies:

- Position angle (angle of rotation)
- Assembly Length. Always four digits, last digit indicates fractional length in 1/8's of an inch.
- Hose letter Code
- Basic Style Number

Position angle

On assemblies with an elbow fitting on each end, measure the position angle as shown above and suffix the angle to the basic style number. In all cases, the angle should be expressed in 3 digits. For example, 35° should be written as 035. If the angle desired is 0°, specify 000.



Fittings

AE21502 H

Basic Fitting Number	←	AE21502	→	Hose Dash Size	-8	-10	-12	-16
				Letter Code	H	J	K	M

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