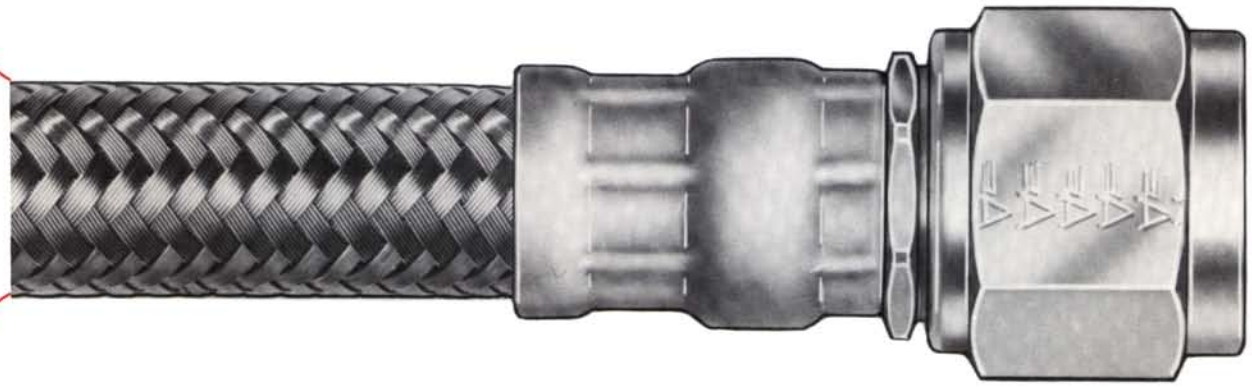
Aeroquip

AEROSPACE ENGINEERING BULLETIN

HOSE/FITTINGS

AA
134

Supersedes AEB-213A



CompressionCrimp FITTINGS...

for use with Aeroquip 666/667 medium pressure Teflon* hose

A new light weight, low profile compression crimp fitting is now available with Aeroquip 666/667 medium pressure Teflon hose. This hose/fitting combination has been qualified and approved to MIL-H-25579E through the –16 size. Aeroquip medium pressure Teflon hose is widely used in today's Aerospace industry for temperature requirements ranging from –65°F. to +450°F. with various types of fluids.

The unique combination of the "ramped" nipple and the crimping pattern used on the 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.

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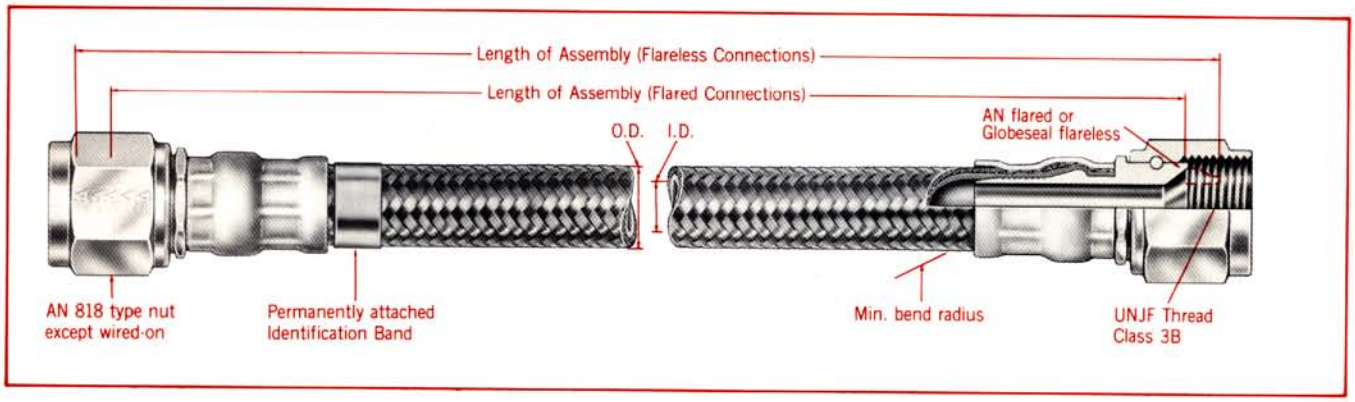
* Teflon is a DuPont trademark.

666/667 Medium Pressure Teflon Hose and CompressionCrimp Crimped Fittings

Hose assemblies in accordance with MIL-H-25579



General Characteristics—Chemical resistance: Aeroquip Teflon hose is unaffected by all fuels, oils, alcohols, coolants, or solvents commonly used in aircraft. In addition, it is inert to acids both concentrated and diluted, and oxidizers and propellants used in the missile field.

The Teflon 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, –5, –6 & –8, and 20 micro-amps in size –10 and above with a potential of 1000 volts.

The method of construction of Aeroquip Teflon 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 Aeroquip Teflon hose 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 tube has a tough, smooth, wax-like texture which resists erosion. No materials of a sticky or viscous nature will stick to its surface.

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

Service and shelf life of Aeroquip Teflon hose are unlimited for all practical purposes. However, experience has shown that service life on impulsing 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 experience.

Application Data: Aeroquip 666/667 Medium Pressure Teflon Hose may be used for all hydrocarbon fuel systems at pressures to 600 psi without qualification. The rate of effusion of gases and resistance to capillary leakage of fluid through the hose lines is controlled by a patented extrusion method used to produce Aeroquip Teflon hose liners.

Other Special Applications . . . Aeroquip Teflon 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 experience and test facilities are available through trained field engineers to help with recommendations for special applications.

Aeroquip 666/667 medium pressure Teflon 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-H-27267

Operating temperatures . . . –65° to +450°F. fluid and ambient.

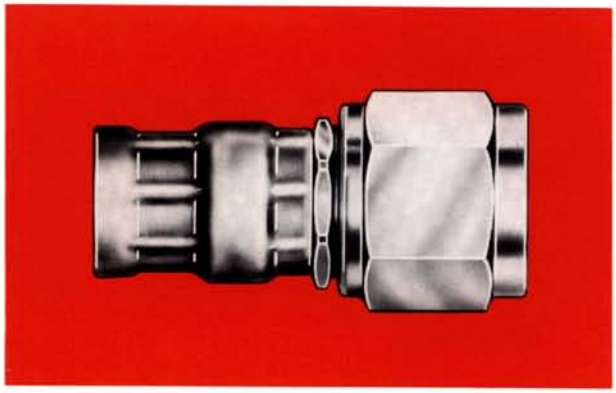
Construction . . . Inner tube . . . Teflon resin. Stainless Steel reinforcement.

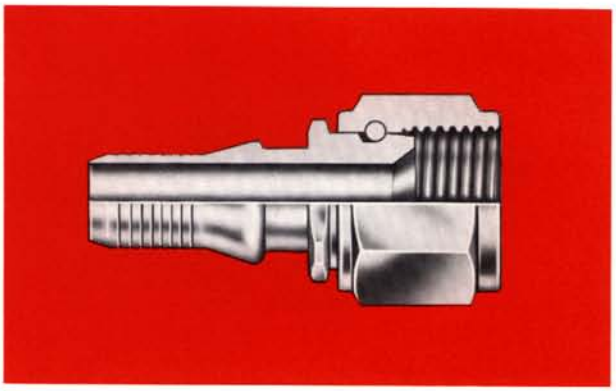
666 Hose—Type 300 Series stainless steel wire braid outer cover.

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

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

Specification . . . Aeroquip medium pressure assemblies with 666 and 667 Teflon hose and Compression Crimp fittings comply with the MIL-H-25579 industry standard for 1500 psi, high temperature lines for aircraft and missile fluid systems and for ground support use.





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.

The unique combination of the "ramped" nipple and the crimping pattern used on the 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.

Fitting Standard Material Specifications:	Nut—Cres., AMS5639 (304).
	Wire—Cres., AMS5685 (305).
	Nipple—Cres., AMS5639 (304).
	Socket—Cres., AMS5565 (304).

666/667 Hose Data

Dash size†→	–3	–4	–5	–6	–8	–10	–12	–16
Part number	AE240–3	666–4	666–5	666–6	666–8	666–10	666–12	667–16
Hose I.D. (min. inches)	.125	.188	.250	.313	.406	.500	.630	.878
Hose O.D. (max. inches)	.268	.343	.406	.469	.585	.687	.812	1.140
Fluid operating pressure (psi)	1500	1500	1500	1500	1500	1500	1000	1250
Vacuum data (max. inches Hg)	28	28	28	28	28	28	28*	28*
Proof pressure (psi)	3000	3000	3000	3000	3000	3000	2000	2500
Min. Burst pressure (psi)	7500	12,000	10,000	9000	8000	7000	5000	5000
Min. bend radius (inches)	1.50	2.00	2.00	4.00	4.62	5.50	6.50	7.38
Weight per inch (lbs.)	.0034	.0068	.0088	.0098	.0136	.0167	.0205	.0438

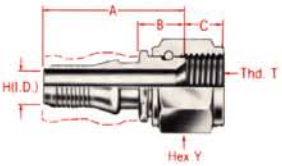
**With internal support coil, contact Aeroquip*

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

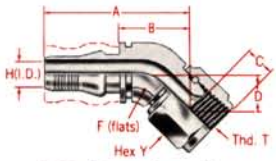
Flared Fittings

Socket
AE21498 (Code)

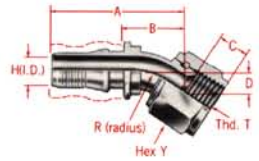
Socket must be ordered separately under Aeroquip Part Number AE21498 (letter size code same as nipple assembly)



Straight

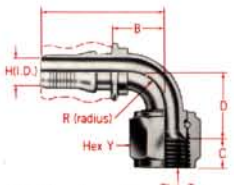


45° elbow forged



45° elbow bent tube

90° elbow forged



90° elbow bent tube

	HOSE	Nipple assembly	max A	B	C	nom D	min H	F/R**	thread T	hex Y	Weight lbs.
	AE240-3	AE21496B	1.12	.24	.34		.090		.3750-24	.50	.039
	666-4*	AE21740E	1.10	.24	.34		.110		.3750-24	.50	.050
	666-4	AE21496E	1.12	.25	.37		.132		.4375-20	.56	.050
	666-5	AE21496F	1.26	.31	.38		.193		.5000-20	.62	.065
	666-6	AE21496G	1.37	.34	.38		.256		.5625-18	.69	.078
	666-8	AE21496H	1.53	.44	.43		.340		.7500-16	.88	.137
	666-10	AE21496J	1.75	.56	.50		.430		.875-14	1.00	.191
	666-12	AE21496K	1.96	.46	.57		.548		1.0625-12	1.25	.297
	667-16	AE21496M	2.32	.60	.60		.778		1.3125-12	1.50	.464
FORGED	AE240-3	AE21508B	1.53	.64	.34	.283	.090	.438	.3750-24	.50	.054
FORGED	666-4*	AE21924E	1.50	.62	.34	.283	.110	.438	.3750-24	.50	.055
FORGED	666-4	AE21508E	1.54	.66	.37	.322	.132	.438	.4375-20	.56	.065
FORGED	666-5	AE21508F	1.70	.74	.38	.334	.193	.562	.5000-20	.62	.098
FORGED	666-6	AE21508G	2.06	1.02	.38	.412	.256	.562	.5625-18	.69	.122
FORGED	666-8	AE21508H	2.19	1.08	.43	.465	.340	.625	.7500-16	.88	.185
BENT TUBE	666-10	AE21508J	2.24	1.03	.50	.536	.430	.562	.875-14	1.00	.208
BENT TUBE	666-12	AE21508K	2.74	1.22	.57	.623	.548	.750	1.0625-12	1.25	.329
BENT TUBE	667-16	AE21508M	3.11	1.36	.63	.660	.778	.906	1.3125-12	1.50	.492
FORGED	AE240-3	AE21514B	1.30	.41	.34	.530	.090	.438	.3750-24	.50	.060
FORGED	666-4*	AE21744E	1.28	.40	.34	.565	.110	.438	.3750-24	.50	.064
FORGED	666-4	AE21514E	1.28	.40	.37	.580	.132	.438	.4375-20	.56	.071
FORGED	666-5	AE21514F	1.57	.61	.38	.691	.193	.562	.5000-20	.62	.123
FORGED	666-6	AE21514G	1.65	.61	.38	.750	.256	.562	.5625-18	.69	.132
FORGED	666-8	AE21514H	1.72	.62	.43	.830	.340	.625	.7500-16	.88	.197
BENT TUBE	666-10	AE21514J	2.07	.86	.50	1.126	.430	.562	.875-14	1.00	.220
BENT TUBE	666-12	AE21514K	2.61	1.09	.57	1.376	.548	.750	1.0625-12	1.25	.359
BENT TUBE	667-16	AE21514M	3.01	1.27	.63	1.500	.778	.906	1.3125-12	1.50	.523

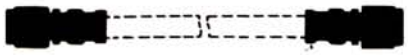
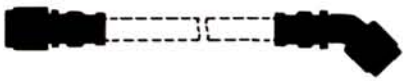
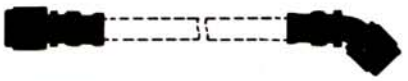
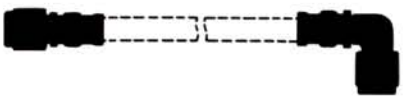
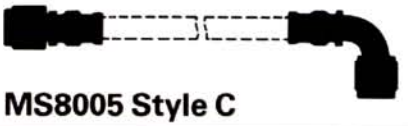
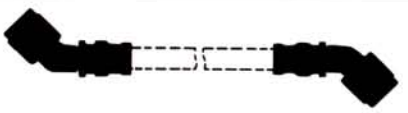
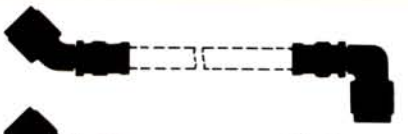
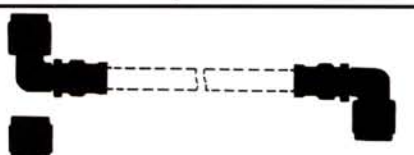
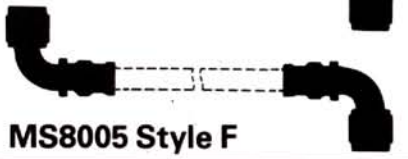
All dimensions in inches

Note: Fitting weights include sockets.

max. A = maximum length of fitting including socket when fitting is assembled on hose
B = dimension used to determine length of hose (hose cut factor)
nom. D = nominal drop dimensions—
Tolerance is ±.020" on forged fittings and ±.035" on bent tube fittings.
* Jump Size. For use with -4 hose to mate with -3 connector
** R = radius of elbow measured to centerline (bent tube)
F = distance across flats (forged)

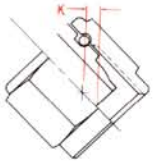
Hose assemblies/Swivel flared to swivel flared

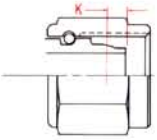
All hose assemblies shown on this page conform to MS8005.
MS style code indicates configuration and material.
In accordance with MIL-H-25579

A B		Dash size	Material	Assembly base no.	MS style code	Nipple A part no.	Nipple B part no.
 **MS8005 Style A**		–3–4	CRES	AE3660240	A	AE21740	AE21740
		–4 thru –12	CRES	AE3660000	A	AE21496	AE21496
		–16	CRES	AE3660000	A	AE21496	AE21496
  **MS8005 Style B**	FORGED	–3–4	CRES	AE3660250	B	AE21740	AE21924
	FORGED	–4 thru –8	CRES	AE3660060	B	AE21496	AE21508
	BENT TUBE	–10 thru –16	CRES	AE3660060	B	AE21496	AE21508
  **MS8005 Style C**	FORGED	–3–4	CRES	AE3660300	C	AE21740	AE21744
	FORGED	–4 thru –8	CRES	AE3660120	C	AE21496	AE21514
	BENT TUBE	–10 thru –16	CRES	AE3660120	C	AE21496	AE21514
  **MS8005 Style D**	FORGED	–3–4	CRES	AE6139	D	AE21924	AE21924
	FORGED	–4 thru –8	CRES	AE6000	D	AE21508	AE21508
	BENT TUBE	–10 thru –16	CRES	AE6000	D	AE21508	AE21508
  **MS8005 Style E**	FORGED	–3–4	CRES	AE6140	E	AE21924	AE21744
	FORGED	–4 thru –8	CRES	AE6020	E	AE21508	AE21514
	BENT TUBE	–10 thru –16	CRES	AE6020	E	AE21508	AE21514
  **MS8005 Style F**	FORGED	–3–4	CRES	AE6141	F	AE21744	AE21744
	FORGED	–4 thru –8	CRES	AE6040	F	AE21514	AE21514
	BENT TUBE	–10 thru –16	CRES	AE6040	F	AE21514	AE21514

Globeseal™ Flareless Fittings

DISTANCE TO SEALING POINT

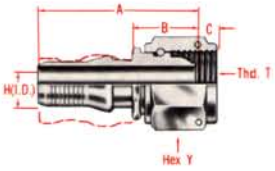
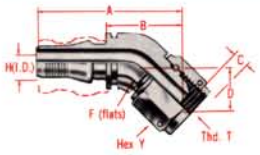
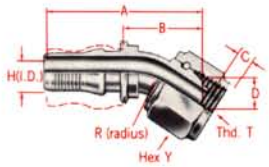
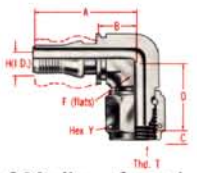
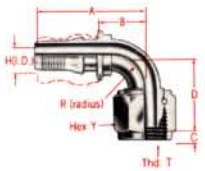




K = gauge point location per NAS 1760

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

Socket
AE21498 (Code)

		HOSE	Nipple assembly	max A	B	C	nom D	min H	K	F/R**	thread T	hex Y	Weight lbs.
 Straight		AE240-3	AE21502B	1.34	.47	.12		.090	.14		.3750-24	.50	.038
		666-4*	AE21742E	1.34	.48	.12		.112	.14		.3750-24	.50	.040
		666-4	AE21502E	1.34	.47	.17		.132	.16		.4375-20	.56	.055
		666-5	AE21502F	1.49	.54	.15		.193	.16		.5000-20	.62	.068
		666-6	AE21502G	1.60	.57	.16		.256	.16		.5625-18	.69	.095
		666-8	AE21502H	1.82	.73	.18		.340	.19		.7500-16	.88	.157
		666-10	AE21502J	2.06	.88	.20		.430	.20		.875-14	1.00	.211
		666-12	AE21502K	2.40	.91	.20		.548	.23		1.0625-12	1.25	.347
		667-16	AE21502M	2.84	1.12	.13		.778	.30		1.3125-12	1.50	.496
 45° elbow forged	FORGED	AE240-3	AE21511B	1.70	.82	.12	.455	.090	.10	.438	.3750-24	.50	.052
	FORGED	666-4*	AE21925E	1.67	.79	.12	.451	.112	.10	.438	.3750-24	.50	.059
	FORGED	666-4	AE21511E	1.70	.82	.17	.480	.132	.11	.438	.4375-20	.56	.077
	FORGED	666-5	AE21511F	1.87	.90	.15	.499	.193	.11	.562	.5000-20	.62	.102
	FORGED	666-6	AE21511G	2.22	1.18	.16	.570	.256	.12	.562	.5625-18	.69	.142
	FORGED	666-8	AE21511H	2.39	1.28	.18	.668	.340	.13	.625	.7500-16	.88	.214
 45° elbow bent tube	BENT TUBE	666-10	AE21511J	2.49	1.29	.20	.793	.430	.14	.562	.875-14	1.00	.222
	BENT TUBE	666-12	AE21511K	3.05	1.53	.20	.934	.548	.16	.750	1.0625-12	1.25	.352
	BENT TUBE	667-16	AE21511M	3.50	1.75	.13	1.051	.778	.21	.906	1.3125-12	1.50	.540
 90° elbow forged	FORGED	AE240-3	AE21517B	1.30	.41	.12	.773	.090		.438	.3750-24	.50	.058
	FORGED	666-4*	AE21926E	1.28	.40	.12	.808	.112		.438	.3750-24	.50	.068
	FORGED	666-4	AE21517E	1.28	.40	.17	.800	.132		.438	.4375-20	.56	.082
	FORGED	666-5	AE21517F	1.57	.61	.15	.924	.193		.562	.5000-20	.62	.126
	FORGED	666-6	AE21517G	1.65	.61	.16	.978	.256		.562	.5625-18	.69	.153
	FORGED	666-8	AE21517H	1.72	.62	.18	1.121	.340		.625	.7500-16	.88	.224
 90° elbow bent tube	BENT TUBE	666-10	AE21517J	2.07	.86	.20	1.488	.430		.562	.875-14	1.00	.238
	BENT TUBE	666-12	AE21517K	2.61	1.09	.20	1.816	.548		.750	1.0625-12	1.25	.401
	BENT TUBE	667-16	AE21517M	3.01	1.27	.13	2.054	.778		.906	1.3125-12	1.50	.572

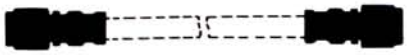
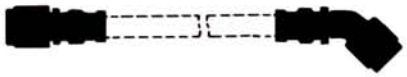
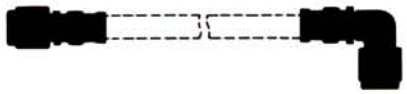
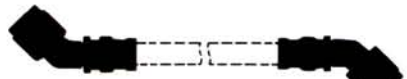
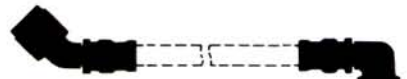
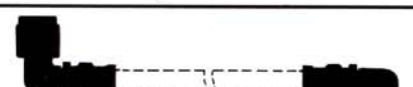
All dimensions in inches

Note: Fitting weights include sockets.

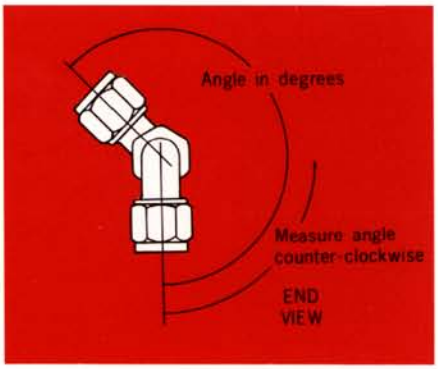
max. A = maximum length of fitting including socket when fitting is assembled on hose
B = dimension used to determine length of hose (hose cut factor).
nom. D = nominal drop dimensions—
Tolerance is ±.020" on forged fittings and ±.035" on bent tube fittings.
* Jump Size. For use with -4 hose to mate with -3 connector.
** R = radius of elbow measured to centerline (bent tube)
F = distance across flats (forged)

Hose assemblies/Swivel flareless to swivel flareless

All hose assemblies shown on this page conform to MS8006.
MS style code indicates configuration and material.
In accordance with MIL-H-25579

A B		Dash size	Material	Assembly base no.	MS style code	Nipple A part no.	Nipple B part no.
 **MS8006 Style A**		–3–4	CRES	AE3660310	A	AE21742	AE21742
		–4 thru –12	CRES	AE3660010	A	AE21502	AE21502
		–16	CRES	AE3660010	A	AE21502	AE21502
 **MS8006 Style B**	FORGED	–3–4	CRES	AE3660315	B	AE21742	AE21925
	FORGED	–4 thru –8	CRES	AE3660070	B	AE21502	AE21511
	BENT TUBE	–10 thru –16	CRES	AE3660070	B	AE21502	AE21511
 **MS8006 Style C**	FORGED	–3–4	CRES	AE3660325	C	AE21742	AE21926
	FORGED	–4 thru –8	CRES	AE3660130	C	AE21502	AE21517
	BENT TUBE	–10 thru –16	CRES	AE3660130	C	AE21502	AE21517
 **MS8006 Style D**	FORGED	–3–4	CRES	AE6138	D	AE21925	AE21925
	FORGED	–4 thru –8	CRES	AE6060	D	AE21511	AE21511
	BENT TUBE	–10 thru –16	CRES	AE6060	D	AE21511	AE21511
 **MS8006 Style E**	FORGED	–3–4	CRES	AE6137	E	AE21925	AE21926
	FORGED	–4 thru –8	CRES	AE6080	E	AE21511	AE21517
	BENT TUBE	–10 thru –16	CRES	AE6080	E	AE21511	AE21517
 **MS8006 Style F**	FORGED	–3–4	CRES	AE6136	F	AE21926	AE21926
	FORGED	–4 thru –8	CRES	AE6100	F	AE21517	AE21517
	BENT TUBE	–10 thru –16	CRES	AE6100	F	AE21517	AE21517

How to complete hose assembly part 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.

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

Sample part number:
Straight and single elbow assemblies.

AE3660000 E 0184

- Basic style number
- Hose letter Code
- Assembly length Always four digits, last digit indicates fractional length in ⅛'s of an inch.

Double elbow assemblies

AE6000 G 0184-180

- Basic style number
- Hose letter Code
- Assembly length Always four digits, last digit indicates fractional length in ⅛'s of an inch.
- Position angle (angle of rotation)

Hose Dash Size	3	4	5	6	8	10	12	16
Letter Code	B	E	F	G	H	J	K	M

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