

EAT•N

Aerospace

Fluid Conveyance

TF100-21

Aeroquip® Brand Convuluted
Teflon Hose

**Combines the routing flexibility
of light weight rubber hose with
the temperature range and fluid
compatibility of Teflon® hose.**



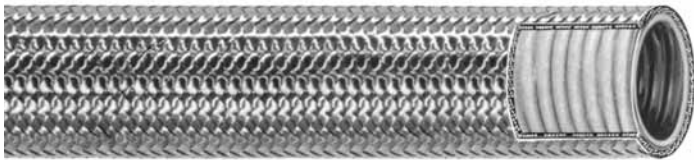
Table of Contents

AE641 Hose, AE441/AE443 Hose, AE541 Hose & AE841 Hose Design Features	2 - 3
Flared Fittings	4
Hose Assemblies/Swivel Flared to Swivel Flared	5
Flareless Fittings	6
Hose Assemblies/Swivel Flareless to Swivel Flareless	7
Assembly Hose Part Number Information	8

Design Features

- Increase flexibility; excellent for use where a tight bend radius is required
- Light weight
- Crimp fitting design provides excellent retention and sealing characteristics
- Operating temperatures: -65 F (-54 C) to +400 F (+204 C)
- TSO C53a, Type A and Type C and TSO C75, Type II-A-S/P approvals
- Available with integral silicone fire protection cover and integral polyester chafeguard
- Available in wide size range, -4 through -32
- Qualified to AS620 and AS1055
- Available with flared and flareless style end fittings (mates with AS4395 and AS33514 end connections)
- Contact Eaton for other end fitting design options.

AE641 Hose



Construction: Convoluted Teflon inner tube with conductive inner liner. Corrosion resistant stainless steel wire braid reinforcement.

Application: Hydraulic return, fuel, engine oil and coolant lines for aircraft and ground support applications.

Operating Temperature Range: -65 F to +400 F (-54 C to +204 C)

Basic Specification: AS620; TSO C53a, Type A; TSO C75, Type II-A-S/P approvals.

AE441/AE443 Hose



Construction: AE641 hose with an integral cover of silicone rubber compound.

Application: Hydraulic return, fuel, engine oil and coolant lines for aircraft and ground support applications.

Operating Temperature Range: -65 F to +400 F (-54 C to +204 C)

Basic Specification: AS620; AS1055, Type IIb, Class B; TSO C53a, Type C and TSO C75, Type II-A-S/P approvals.

AE541 Hose



Construction: AE641 hose overlaid with a blue braided chafeguard cover of tough polyester yarn.

Application: Hydraulic return, fuel, engine oil and coolant lines for aircraft and ground support applications.

Operating Temperature Range: -65 F to +300 F (-54 C to +149 C)

Basic Specification: AS620 standards with the exception of upper temperature range limits; TSO C53a, Type A; TSO C75, Type II-A-S/P approvals.

AE841 Hose



Construction: AE641 hose overlaid with a thin wall integral cover of silicone rubber compound.

Application: Hydraulic return, fuel, engine oil and coolant lines for aircraft and ground support applications.

Operating Temperature Range: -65 F to +400 F (-54 C to +204 C)

Basic Specification: AS620; AS1055, Type IIb, Class B; TSO C53a, Type C; TSO C75, Type II-A-S/P approvals.

Design Features

Minimum Bend Radius Comparison

Hose Size	AS620 (AE641 Hose)	MIL-H-25579 (Conventional Smooth Bore)
-4	1.25	2.00
-6	2.25	4.00
-8	2.88	4.62
-10	3.00	5.50
-12	3.75	6.50
-16	5.00	7.38
-20	6.25	11.00
-24	7.50	14.00
-32	10.00	—

Minimum bend radius values shown are for standard operating pressures. Contact Eaton for reduced bend radius recommendations at lower operating pressures.

Standard Fitting Material Specifications	Nut — CRES, AMS 5639 (304)
	Wire — CRES, AMS 5685 (305)
	Nipple — CRES, AMS 5639 (304 for sizes -6 through -10)
	Nipple — CRES, AMS 5659 (15 - 5PH) for sizes -12 through -32
	Socket — CRES, AMS 5639 (304)

Contact Eaton for alternative fitting materials.

Hose Dimensions and Performance Data

	HOSE FITTING								
	-4	-6	-8	-10	-12	-16	-20	-24	-32
AE641 Hose O.D. (Max.)	.477	.587	.787	.882	10.92	1.325	1.558	1.820	2.357
AE441 Hose O.D. (Max.)	.76	.860	1.055	1.150	1.385	1.610	1.840	2.120	—
AE443 Hose O.D. (Max.)	—	—	—	—	—	—	—	—	2.520
AE841 Hose O.D. (Max.)	.693	.803	1.003	1.098	1.308	1.485	1.774	1.980	—
AE541 Hose O.D. (Max.)	.532	.640	.840	.950	1.150	1.377	1.625	1.900	2.400
Hose I.D. (Min.)	2.75	.355	.520	.600	.790	.990	1.220	1.490	1.980
Minimum Bend Radius (inches)	1.25	2.25	2.88	3.00	3.75	5.00	6.25	7.50	10.00
Vacuum Data (max. inches Hg.)	28	28	28	28	28	28	20	12	5
Operating Pressure (PSI/MPa)	1000 6,89	1000 6,89	1000 6,89	1000 6,89	1000 6,89	1000 6,89	1000 6,89	750 5,17	250 1,72
Proof Pressure (PSI/MPa)	2000 13,79	2000 13,79	3600 13,79	3600 12,41	3600 12,41	3600 12,41	3600 12,41	3000 10,34	1000 3,45
Minimum Burst Pressure (PSI/MPa)	4000 27,58	4000 27,58	2000 27,58	1800 24,82	1800 24,82	1800 24,85	1800 24,82	1500 20,68	500 6,89
AE641 Hose Wt. (Lb./In.) (Kgs/M)	.008 ,143	.008 ,142	.013 ,231	.017 ,303	.026 ,463	.032 ,570	.040 ,712	.050 ,890	.066 1,775
AE441 Hose Wt. (Lb./In.) (Kgs/M)	.022 ,393	.025 ,445	.035 ,625	.041 ,729	.055 ,979	.068 1,214	.075 1,335	.090 1,607	—
AE443 Hose Wt. (Lb./In.) (Kgs/M)	—	—	—	—	—	—	—	.113 2,014	—
AE841 Hose Wt. (Lb./In.) (Kgs/M)	.017 ,304	.019 ,341	.028 ,500	.032 ,570	.043 ,770	.049 ,876	.068 1,216	.070 1,240	—
AE541 Hose Wt. (Lb./In.) (Kgs/M)	.009 ,161	.013 ,232	.018 ,329	.019 ,339	.035 ,625	.044 ,786	.054 ,964	.057 1,018	.072 1,286

All dimensions in inches.

Flared Fittings

Fittings are ordered by combining a nipple assembly and socket. order each by part number. Example:

AE24850G + AE24204G

Nipple Assembly Part Number _____
 Socket Part Number _____



Socket must be ordered under Eaton's part number AE24204/AE33767 (letter size code is the same as nipple assembly).

Socket AE24204 (Size code: E through J)
 Socket AE33767 (Size code: K through R)

	Hose Size	Nipple Assembly	Max. A	C	Nom. D	Min. H	R*	Thread T	Hex Y	Weight** (lbs.)
Straight AE24850 E, G, H, J	-4	AE24850E	1.19	.37	—	.170	—	.4375-20UNJF	.56	.16
	-6	AE24850G	1.27	.38	—	.271	—	.5625-18UNJF	.69	.10
	-8	AE24850H	1.41	.43	—	.360	—	.7500-16UNJF	.88	.17
	-10	AE24850J	1.58	.50	—	.479	—	.8750-14UNJF	1.00	.22
Straight AE36900 K through R	-12	AE36900K	1.67	.57	—	.650	—	1.0625-12UNJF	1.25	.35
	-16	AE36900M	1.75	.60	—	.854	—	1.3125-12UNJF	1.50	.48
	-20	AE36900N	2.09	.64	—	1.100	—	1.6250-12UNJF	1.81	.71
	-24	AE36900P	2.19	.74	—	1.325	—	1.8750-12UNJF	2.13	1.08
	-32	AE36900R	2.33	.92	—	1.840	—	2.5000-12UNJF	2.75	1.71
45° Elbow AE25093 E, G, H, J	-4	AE25093E	1.75	.37	.389	.170	.375	.4375-20UNJF	.56	.07
	-6	AE25093G	1.82	.38	.479	.271	.500	.5625-18UNJF	.69	.10
	-8	AE25093H	1.90	.44	.509	.360	.500	.7500-16UNJF	.88	.17
	-10	AE25093J	2.15	.50	.573	.479	.625	.8750-14UNJF	1.00	.23
45° Elbow AE37091 K through R	-12	AE37091K	2.39	.57	.625	.596	.844	1.0625-12UNJ	1.25	.36
	-16	AE37091M	2.50	.63	.682	.795	.969	1.3125-12UNJ	1.50	.52
	-20	AE37091N	3.00	.64	.802	1.026	1.188	1.6250-12UNJ	1.81	.74
	-24	AE37091P	3.15	.77	.868	1.258	1.375	1.8750-12UNJ	2.12	1.10
	-32	AE37091R	3.47	.92	1.032	1.720	1.750	2.5000-12UNJ	2.75	1.67
90° Elbow AE25092 E, G, H, J	-4	AE25092E	1.58	.37	.770	.170	.375	.4375-20UNJF	.56	.07
	-6	AE25092G	1.63	.38	.971	.271	.500	.5625-18UNJF	.69	.11
	-8	AE25092H	1.69	.44	1.014	.360	.500	.7500-16UNJF	.88	.17
	-10	AE25092J	1.94	.50	1.176	.479	.625	.8750-14UNJF	1.00	.27
90° Elbow AE36902 K through R	-12	AE36902K	2.26	.57	1.378	.596	.844	1.0625-12UNJ	1.25	.38
	-16	AE36902M	2.39	.63	1.532	.795	.969	1.3125-12UNJ	1.50	.56
	-20	AE36902N	2.90	.64	1.830	1.026	1.188	1.6250-12UNJ	1.81	.80
	-24	AE36902P	3.08	.77	2.033	1.258	1.375	1.8750-12UNJ	2.12	1.19
	-32	AE36902R	3.46	.92	2.484	1.720	1.750	2.5000-12UNJ	2.75	1.98

All dimensions in inches.

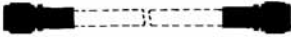
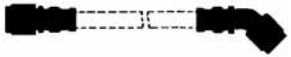
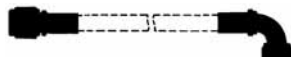
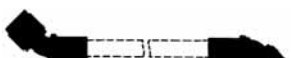
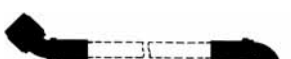

Max. A = Maximum length of fitting, including socket, when fitting is assembled on hose.

Nom. D = Nominal drop dimensions. Tolerance is ± .035" on bent tube fittings.

*R = Radius of elbow measured to centerline.

**Weight = nipple assembly plus socket (nominal).

Hose Assemblies/Swivel Flared to Swivel Flared

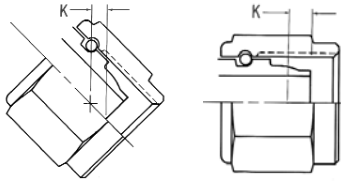
Configurations A B	Hose Size	AE641 Hose Assembly Base No.	AE441 Hose (Silicone Cover) Assembly Base No.	AE541 Hose (Polyester Chafeguard) Assembly Base No.	AE841 Hose (Thin Wall Silicone Cover) Assembly Base No.	Nipple A Part No.	Nipple B Part No.
 <p>Straight to Straight</p>	-4 thru -32	AE1010556	AE1010565*	AE1010573	AE1014077**	AE24850 (-4 thru -10) AE36900 (-12 thru -32)	AE24850 (-4 thru -10) AE36900 (-12 thru -32)
 <p>Straight to 45°</p>	-4 thru -32	AE1010557	AE1010566*	AE1010651	AE1014078**	AE24850 (-4 thru -10) AE36900 (-12 thru -32)	AE25093 (-4 thru -10) AE37091 (-12 thru -32)
 <p>Straight to 90°</p>	-4 thru -32	AE1010558	AE1010567*	AE1010652	AE1014079**	AE24850 (-4 thru -10) AE36900 (-12 thru -32)	AE25092 (-4 thru -10) AE36902 (-12 thru -32)
 <p>45° to 45°</p>	-4 thru -32	AE3948	AE3954*	AE3972	AE5553**	AE25093 (-4 thru -10) AE37091 (-12 thru -32)	AE25093 (-4 thru -10) AE37091 (-12 thru -32)
 <p>45° to 90°</p>	-4 thru -32	AE3949	AE3955*	AE3973	AE5554**	AE25093 (-4 thru -10) AE37091 (-12 thru -32)	AE25092 (-4 thru -10) AE36902 (-12 thru -32)
 <p>90° to 90°</p>	-4 thru -32	AE3950	AE3956*	AE3974	AE5555**	AE25092 (-4 thru -10) AE36902 (-12 thru -32)	AE25092 (-4 thru -10) AE36902 (-12 thru -32)

*Contact Eaton for -32 (AE443) hose assembly part numbers.

** Not available in -32 size.

Flareless Fittings (NAS 1760)

Distance to Sealing Point



Socket must be ordered separately under Eaton's part number AE24204/AE33767 (letter size code is the same as nipple assembly).

Socket AE24204 (Size code: E through J)
Socket AE33767 (Size code: K through R)

K = Gauge point location per NAS 1760

	Hose Size	Nipple Assembly	Max. A	C	Nom. D	Min. H	K	R*	Thread T	Hex Y	Weight** (lbs.)
<p>Straight</p> <p>AE24851 E, G, H, J</p>	-4	AE24851E	1.27	.17	—	.170	.16	—	.5625-18UNJF	.56	.06
	-6	AE24851G	1.34	.16	—	.271	.16	—	.7500-16UNJF	.69	.11
	-8	AE24851H	1.52	.18	—	.360	.19	—	.8750-14UNJF	.88	.18
	-10	AE24851J	1.70	.20	—	.479	.20	—	.4375-20UNJF	1.00	.24
<p>Straight</p> <p>AE34231 K through R</p>	-12	AE34231K	1.88	.20	—	.646	.23	—	1.0625-12UNJF	1.25	.38
	-16	AE34231M	1.98	.13	—	.854	.30	—	1.3125-12UNJF	1.50	.53
	-20	AE34231N	2.52	.14	—	1.088	.30	—	1.6250-12UNJF	1.81	.81
	-24	AE34231P	2.50	.07	—	1.325	.37	—	1.8750-12UNJF	2.13	1.16
	-32	AE34231R	2.61	.28	—	1.808	.37	—	2.5000-12UNJF	2.75	1.81
<p>45° Elbow</p> <p>AE25094 E, G, H, J</p>	-4	AE25094E	1.84	.17	.484	.170	.11	.375	.4375-20UAJF	.56	.05
	-6	AE25094G	1.84	.16	.540	.271	.12	.375	.5625-18UNJF	.69	.11
	-8	AE25094H	2.03	.18	.606	.360	.13	.500	.7500-16UNJF	.88	.20
	-10	AE25094J	2.36	.20	.736	.479	.14	.625	.8750-14UNJF	1.00	.27
<p>45° Elbow</p> <p>AE36007 K through R</p>	-12	AE36007K	2.47	.20	.739	.596	.16	.750	1.0625-12UNJ	1.25	.42
	-16	AE36007M	2.91	.13	.937	.795	.21	.969	1.3125-12UNJ	1.50	.57
	-20	AE36007N	3.40	.14	1.05	1.026	.21	1.188	1.6250-12UNJ	1.81	.84
	-24	AE36007P	3.80	.07	1.274	1.258	.26	1.375	1.8750-12UNJ	2.13	1.28
	-32	AE36007R	4.09	.28	1.407	1.720	.26	1.750	2.5000-12UNJ	2.75	1.71
<p>90° Elbow</p> <p>AE24981 E, G, H, J</p>	-4	AE24981E	1.58	.17	.899	.170	.16	.375	.4375-20UNJF	.56	.06
	-6	AE24981G	1.53	.16	1.000	.271	.16	.375	.5625-18UNJF	.69	.12
	-8	AE24981H	1.72	.18	1.149	.360	.19	.500	.7500-16UNJF	.88	.19
	-10	AE24981J	2.00	.20	1.413	.479	.20	.625	.8750-14UNJF	1.00	.27
<p>90° Elbow</p> <p>AE36008 K through R</p>	-12	AE36008K	2.17	.20	1.480	.596	.23	.750	1.0625-12UNJ	1.25	.43
	-16	AE36008M	2.57	.13	1.912	.795	.30	.969	1.3125-12UNJ	1.50	.62
	-20	AE36008N	3.09	.14	2.218	1.026	.30	1.188	1.6250-12UNJ	1.81	.91
	-24	AE36008P	3.41	.07	2.683	1.258	.37	1.375	1.8750-12UNJ	2.13	1.38
	-32	AE36008R	3.71	.28	3.012	1.720	.37	1.750	2.5000-12UNJ	2.75	1.86

All dimensions in inches.

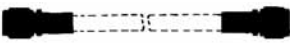
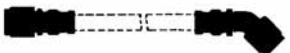
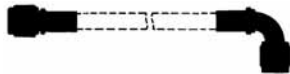
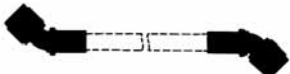
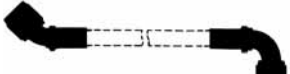

Max. A = Maximum length of fitting, including socket, when fitting is assembled on hose.

Nom. D = Nominal drop dimensions. Tolerance is $\pm .035$ " on bent tube fittings.

*R = Radius of elbow measured to centerline.

**Weight = nipple assembly plus socket (nominal).

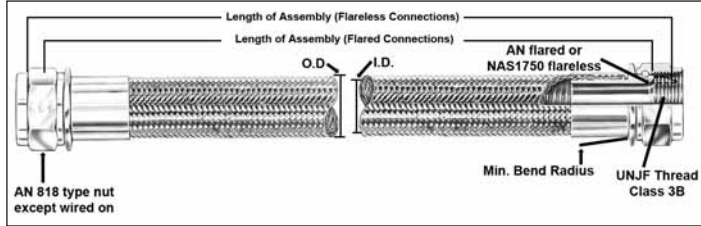
Hose Assemblies/Swivel Flareless to Swivel Flareless (NAS 1760)

Configurations A B	Hose Size	AE641 Hose Assembly Base No.	AE441 Hose (Silicone Cover) Assembly Base No.	AE541 Hose (Polyester Chafeguard) Assembly Base No.	AE841 Hose (Thin Wall Silicone Cover) Assembly Base No.	Nipple A Part No.	Nipple B Part No.
 <p>Straight to Straight</p>	-4 thru -32	AE1010559	AE1010562*	AE1010653	AE1014089**	AE24851 (-4 thru -10) AE34231 (-12 thru -32)	AE24851 (-4 thru -10) AE34231 (-12 thru -32)
 <p>Straight to 45°</p>	-4 thru -32	AE1010560	AE1010563*	AE1010654	AE1014090**	AE24851 (-4 thru -10) AE34231 (-12 thru -32)	AE25094 (-4 thru -10) AE36007 (-12 thru -32)
 <p>Straight to 90°</p>	-4 thru -32	AE1010561	AE1010564*	AE1010655	AE1014091**	AE24851 (-4 thru -10) AE34231 (-12 thru -32)	AE24981 (-4 thru -10) AE36008 (-12 thru -32)
 <p>45° to 45°</p>	-4 thru -32	AE3951	AE3957*	AE3975	AE5565**	AE25094 (-4 thru -10) AE36007 (-12 thru -32)	AE25094 (-4 thru -10) AE36007 (-12 thru -32)
 <p>45° to 90°</p>	-4 thru -32	AE3952	AE3958*	AE3976	AE5566**	AE25094 (-4 thru -10) AE36007 (-12 thru -32)	AE24981 (-4 thru -10) AE36008 (-12 thru -32)
 <p>90° to 90°</p>	-4 thru -32	AE3953	AE3959*	AE3977	AE5567**	AE24981 (-4 thru -10) AE36008 (-12 thru -32)	AE24981 (-4 thru -10) AE36008 (-12 thru -32)

*Contact Eaton for -32 (AE443) hose assembly part numbers.

** Not available in -32 size.

Hose Assembly Part Number Information



Hose Assemblies

To properly specify the correct hose assembly, use the simple numbering system below. Straight and single elbow assemblies are identified by the number beginning with AE101 and double elbow assemblies are identified by a number beginning with AE39XX or AE55XX. Any assembly can be ordered using these numbers.

Examples:

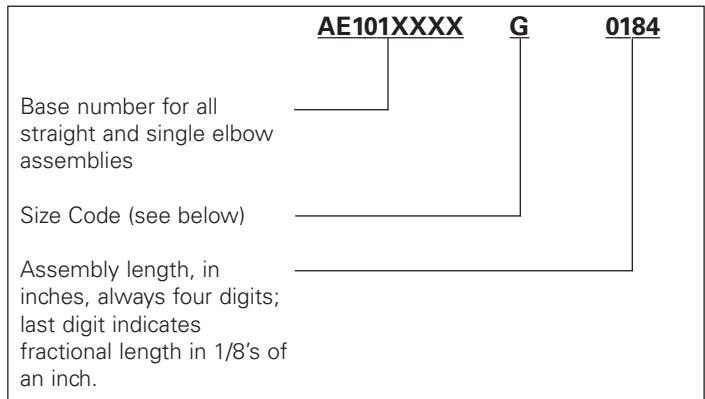
Assembly Length

Assembly length is measured from sealing surface to sealing surface. When defining the part number length, measure the length from gauge point to gauge point of NAS 1760 flareless fittings. The "K" dimensions on page 6 show the difference between overall length and length to gauge point. With elbow fittings, the measuring point is the intersection of the centerline of the elbow with the face of the sealing surface.

Assembly Length Tolerances

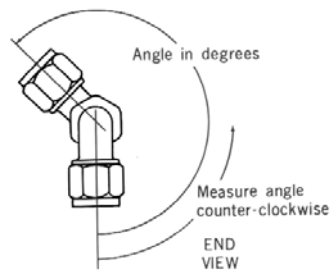
Up to and including 18 inches:	±.125
Above 18 inches, to and including 36 inches:	±.250
Above 36 inches, to and including 50 inches:	±.500
Above 50 inches:	±1% of length

Straight and Single Elbow Hose Assemblies

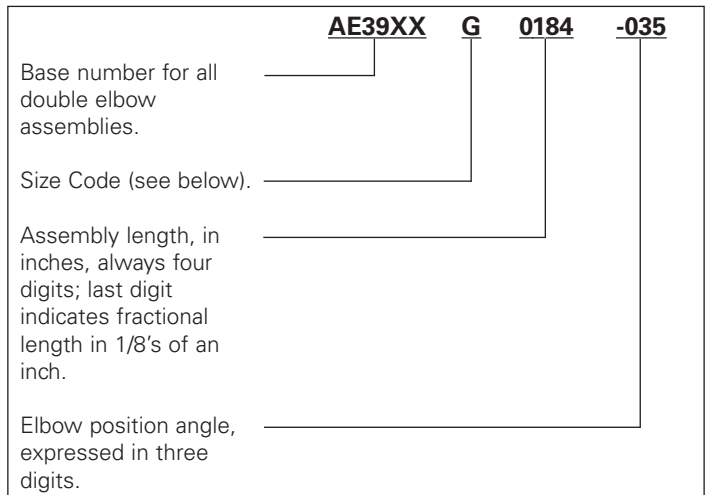


Rotational Angle Measurement

On assemblies with an elbow fitting on each end, measure the rotation angle as shown. The index angle will follow the basic style hose assembly part number indicated (see example for "double elbow" assemblies). 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.



Double Elbow Hose Assemblies



Hose Dash Size	4	6	8	10	12	16	20	24	32
Letter Code	E	G	H	J	K	M	N	P	R

FAILURE OR IMPROPER SELECTION, USE, OR ASSEMBLY OF THE PRODUCTS AND COMPONENTS FOR APPLICATIONS DESCRIBED HEREIN CAN RESULT IN POSSIBLE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

This document and any other related information from Eaton® Aeroquip® or its affiliates and authorized distributors, provide product options for consideration by Users having technical expertise with these products. Due to the wide variety of applications and operating conditions for these products and components, the User is solely responsible for making the final selection of the products and ensuring that all performance, safety and warning requirements for the User's intended application are met. Eaton® Aeroquip® recommends that Eaton® Aeroquip® hose, fittings or assembly equipment must be used only with other Eaton® Aeroquip® hose, fittings or assembly equipment, and Eaton

Aeroquip and/or its affiliates disclaim any obligation or liability (including all incidental and consequential damages) to the extent Eaton® Aeroquip® hose, fittings or assembly equipment is used with any other manufacturer's hose, fittings or assembly equipment or in the event that Eaton® Aeroquip® recommended processes and product instructions for hose assemblies are not followed. The products described herein, including product features, specifications, designs, and availability are subject to change at any time without notice.

Eaton Corporation
Fluid Conveyance
300 South East Avenue
Jackson, Michigan 49203-1972
Phone: (517) 787-8121
Fax: (517) 787-5758
www.aerospace.eaton.com

Eaton Corporation
Fluid Conveyance
2500 W. Argyle St.
P.O. Box 1845
Jackson, Michigan 49202-1845
Phone: (517) 787-8121
Fax: (517) 789-4716
www.aerospace.eaton.com

Eaton Corporation
Fluid Conveyance
Meadowbrook Road
P.O. Box 819
Toccoa, Georgia 30577-0819
Phone: (706) 779-3351
Fax: (706) 779-2638
www.aerospace.eaton.com

Eaton LTD
Fluid Conveyance
Posttack 1026
Carl-Benz-Strasse 9
D-82205 Gilching
Germany
Phone: (49) 810-575-0
Fax: (49) 810-575-27
www.aerospace.eaton.com

Eaton LTD
Fluid Conveyance
Chemin De Pau
64121 Serres-Castet
France
Phone: (33) 559-333-864
Fax: (33) 559-333-865
www.aerospace.eaton.com

Eaton LTD
Fluid Conveyance
Broad Ground Road
Lakeside
Redditch
Worcs B98 8YS
England
Phone: (44) 152-751-7555
Fax: (44) 152-751-7556
www.aerospace.eaton.com

EATON

Aerospace

©2004 Eaton Corporation
Teflon® is a registered trademark of DuPont.
All Rights Reserved
Printed In USA
Copying or Editing is Forbidden
Form No. TF100-21
(supercedes AA42A)
August, 2004