Polyhose®

Providing Flexible Solutions Globally

RANGE ★ REACH ★ RELIABILITY ★ SINCE 1996 ★ 25 YEARS

AEROSPACE INDUSTRY

ONE STOP SOLUTION FOR ALL YOUR ENERGY CONVEYANCE NEEDS

ABOUT US

25+ Years

Since 1996 focused mainly on the Design, Development, Manufacturing and Distribution of High-Quality and Reliable Energy Conveyance Products

GLOBAL PRESENCE

9 Countries

INDIA

4 Manufacturing Units
8 Assembly Units

PRODUCTION CAPACITY

HOSE

150 Million Meters / Year

HOSE ASSEMBLIES

9 Million / Year

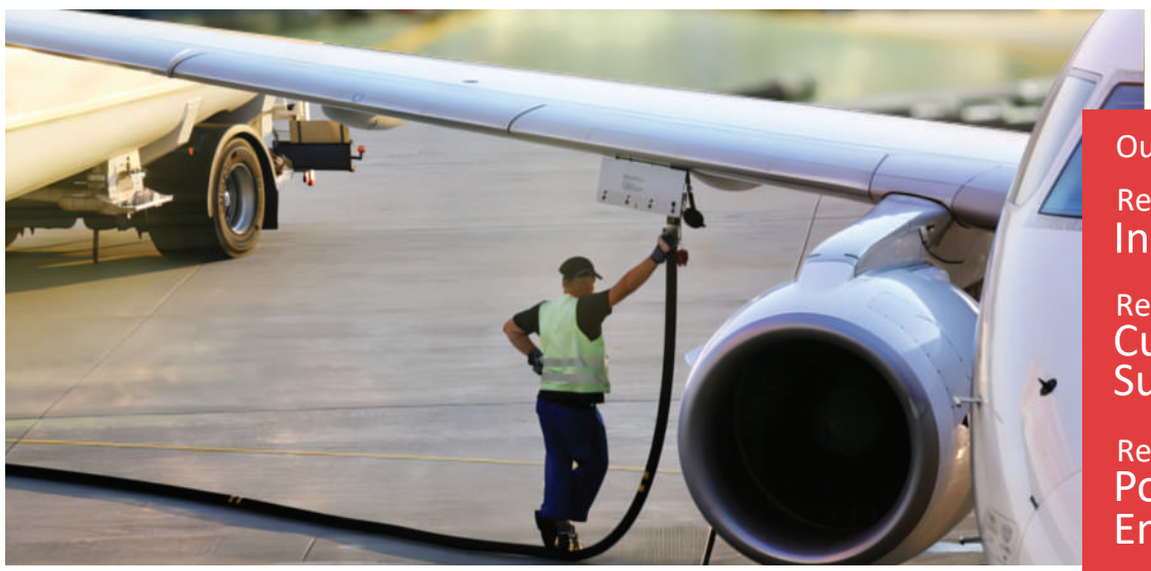
3500+

Employees

CREDENTIALS

POLYHOSE IS COMMITTED TO

- Redefining polymer engineering
- Innovation and Customization
- Quality Excellence as per Global Standards
- Long-term and collaborative partnerships
- On-time Delivery
- Dedicated Customer Support
- Global Presence



Our mantra to success

Redefining
Innovation

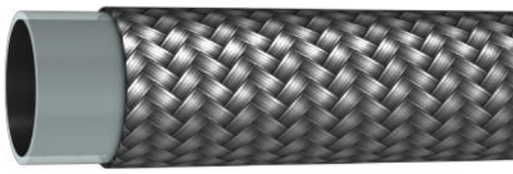
Redefining
Customer
Support

Redefining
Polymer
Engineering

INDEX

PH377 - MEDIUM PRESSURE AEROSPACE HOSE

Applicable Standard: AS1946, MIL-DTL-25579



Construction

Inner tube Sintered tube of polytetrafluoroethylene (Electrical Conductive)

Reinforcement CRES 304 wire braid in a single layer on size -03 through -12, and a double layer (Z) on sizes -16 through -24

Qualifications SAE AS1946, AS1055 TYPE IIa and IIb CLASS A or CLASS B, Integral and slip on firesleeves

Application Hydraulic, fuel, lubricating oil and pneumatic systems

Item Code	Hose Size	ID (min)		OD (min)		OD (max)		WP		BP		BR/r		W (max)	
		inch	mm	inch	mm	inch	mm	psi	bar	psi	bar	inch	mm	lb/inch	kg/m
PH377-03	03	0.110	2.79	0.234	5.9	0.285	7.2	1500	103.4	12000	827.4	2.00	50.8	0.005	0.089
PH377-04	04	0.173	4.39	0.304	7.7	0.374	9.5	1500	103.4	12000	827.4	2.00	50.8	0.007	0.125
PH377-05	05	0.235	5.97	0.367	9.3	0.417	10.6	1500	103.4	10000	690	2.00	50.8	0.008	0.143
PH377-06	06	0.298	7.57	0.430	10.9	0.500	12.7	1500	103.4	9000	621	4.00	101.6	0.010	0.179
PH377-08	08	0.391	9.93	0.546	13.9	0.614	15.6	1500	103.4	8000	552	4.63	117.6	0.013	0.232
PH377-10	10	0.485	12.32	0.641	16.3	0.799	20.3	1500	103.4	7000	483	5.50	139.7	0.017	0.394
PH377-12	12	0.615	15.62	0.766	19.5	0.906	23.0	1000	68.9	5000	345	6.50	165.1	0.027	0.482
PH377-16	16Z	0.851	21.62	1.078	27.4	1.140	29.0	1250	86.1	5000	345	7.38	187.5	0.048	0.857
PH377-20	20Z	1.101	27.97	1.328	33.7	1.390	35.3	1000	68.9	4000	276	11.00	279.4	0.062	1.107
PH377-24	24Z	1.344	34.14	1.637	41.6	1.707	43.4	1000	68.9	4000	276	14.00	355.6	0.084	1.500

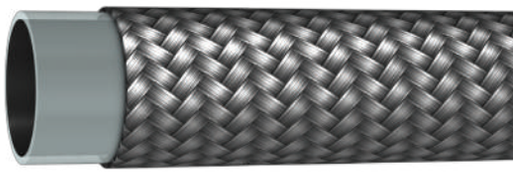
Temperature Range: -54°C to +232°C

Sleeve Code	Sleeve Material
A	ABRASION SLEEVE TUBULAR (PTFE - AS1291 - CODE B)
B	ABRASION SLEEVE COIL (NYLON AS1294)
C	FIRE SLEEVE (AS1072 SIL-FG) (15 MIN)
E	ABRASION SLEEVE SHRINK-ON (FEP)
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B)
G	FIRE SLEEVE (AS1072 SIL-FG) (5 MIN)
H	FIRE SLEEVE INTEGRAL SILICONE (AS1723) (15 MIN)
J	FIRE SLEEVE INTEGRAL SILICONE (5 MIN)
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER
L	ABRASION SLEEVE COIL (PTFE - AS1293)

Code	Sleeve Code	-3		-4		-5		-6		-8		-10		-12		-16		-20		-24	
		OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)
		inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch
PH377-Size	-	0.285	0.005	0.347	0.007	0.417	0.008	0.500	0.010	0.614	0.012	0.799	0.016	0.906	0.020	1.140	0.045	1.390	0.058	1.707	0.074
PH377-Size A	A	0.390	0.003	0.473	0.004	0.524	0.004	0.620	0.006	0.715	0.007	0.818	0.008	0.955	0.010	1.295	0.014	1.550	0.020	1.841	0.045
PH377-Size B	B	0.339	0.001	0.409	0.001	0.472	0.002	0.535	0.002	0.669	0.003	0.767	0.004	0.896	0.004	1.224	0.005	1.474	0.006	1.807	0.009
PH377-Size C	C	0.692	0.009	0.692	0.009	0.780	0.011	0.840	0.012	0.970	0.017	1.090	0.018	1.220	0.028	1.590	0.030	1.900	0.040	2.190	0.037
PH377-Size E	E	0.301	0.001	0.375	0.002	0.438	0.002	0.507	0.002	0.635	0.003	0.749	0.004	0.887	0.006	1.288	0.007	1.460	0.007	1.777	0.008
PH377-Size F	F	0.341	0.002	0.411	0.002	0.474	0.002	0.547	0.002	0.663	0.003	0.769	0.003	0.904	0.005	1.244	0.006	1.482	0.006	1.823	0.007
PH377-Size G	G	0.692	0.009	0.692	0.009	0.780	0.011	0.840	0.012	0.970	0.017	1.090	0.018	1.220	0.028	1.590	0.030	1.900	0.040	2.190	0.037
PH377-Size H	H	0.641	0.016	0.641	0.018	0.704	0.020	0.766	0.023	0.891	0.030	1.016	0.037	1.141	0.045	1.454	0.085	1.704	0.107	2.016	0.132
PH377-Size J	J	0.641	0.016	0.641	0.017	0.704	0.018	0.766	0.021	0.891	0.027	1.016	0.035	1.141	0.042	1.454	0.079	1.704	0.100	2.016	0.123
PH377-Size K	K	0.378	0.006	0.430	0.008	0.499	0.009	0.559	0.011	0.665	0.015	0.772	0.018	0.887	0.023	1.210	0.050	1.460	0.063	1.782	0.081
PH377-Size L	L	0.375	0.003	0.445	0.004	0.508	0.004	0.571	0.005	0.687	0.008	0.789	0.009	0.914	0.011	1.242	0.018	1.492	0.022	1.809	0.028

PH376 - HIGH PRESSURE AEROSPACE HOSE

Applicable Standard: AS1339



Construction

Inner tube Sintered tube of polytetrafluoroethylene (Electrical Conductive)

Reinforcement CRES 304 wire braid in a single layer on size -04 through -10, and a double layer on sizes -12 through -16

Qualifications SAE AS1339, AS1055 TYPE IIa and IIb CLASS A or CLASS B, Integral and slip on firesleeves

Application Hydraulic and pneumatic systems

Item Code	Hose Size	ID (min)		OD (min)		OD (max)		WP		BP		BR/r		W (max)	
		inch	mm	inch	mm	inch	mm	psi	bar	psi	bar	inch	mm	lb/inch	kg/m
PH376-04	04	0.212	5.38	0.360	9.1	0.390	9.9	3000	207	16000	1103	1.50	38.1	0.009	0.161
PH376-06	06	0.298	7.57	0.455	11.6	0.490	12.4	3000	207	14000	965	2.50	63.5	0.015	0.268
PH376-08	08	0.391	9.93	0.585	14.9	0.615	15.6	3000	207	14000	965	2.88	73.2	0.020	0.357
PH376-10	10	0.485	12.32	0.690	17.5	0.730	18.5	3000	207	12000	827	3.25	82.6	0.027	0.482
PH376-12	12	0.602	15.29	0.950	24.1	0.990	25.1	3000	207	12000	827	4.00	101.6	0.058	1.036
PH376-16	16	0.852	21.64	1.230	31.2	1.270	32.3	3000	207	12000	827	5.00	127.0	0.085	1.518

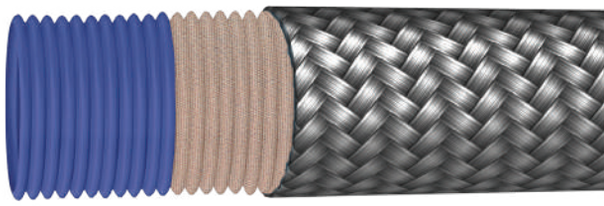
Temperature Range: -54°C to +204°C

Sleeve Code	Sleeve Material
A	ABRASION SLEEVE TUBULAR (PTFE - AS1291 - CODE B)
B	ABRASION SLEEVE COIL (NYLON AS1294)
C	FIRE SLEEVE (AS1072 SIL-FG) (15 MIN)
D	ABRASION SLEEVE INTEGRAL SILICONE COMPOSITE
E	ABRASION SLEEVE SHRINK-ON (FEP)
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B)
G	FIRE SLEEVE (AS1072 SIL-FG) (5 MIN)
H	FIRE SLEEVE INTEGRAL SILICONE (AS1723) (15 MIN)
J	FIRE SLEEVE INTEGRAL SILICONE (5 MIN)
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER
L	ABRASION SLEEVE COIL (PTFE - AS1293)
M	FITTING CAPTURED INTEGRAL ABRASION SLEEVE (BRAIDED) WITH FLUID BARRIER
N	THIN WALL FIRESLEEVE INTEGRAL SILICONE

Code	Sleeve Code	-4		-6		-8		-10		-12		-16	
		OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)	OD (max)	W (max)
		inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch	inch	lb/inch
PH376-Size	-	0.390	0.009	0.490	0.015	0.615	0.020	0.730	0.027	0.990	0.058	1.270	0.085
PH376-Size A	A	0.500	0.003	0.690	0.004	0.730	0.004	0.840	0.005	1.110	0.007	1.400	0.009
PH376-Size B	B	0.450	0.001	0.550	0.002	0.695	0.003	0.810	0.003	1.080	0.004	1.360	0.005
PH376-Size C	C	0.625	0.007	0.750	0.009	0.875	0.011	1.000	0.012	1.250	0.017	1.500	0.021
PH376-Size D	D	0.500	0.012	0.600	0.016	0.700	0.024	0.830	0.034	1.120	0.067	1.400	0.110
PH376-Size E	E	0.424	0.002	0.540	0.003	0.665	0.003	0.790	0.005	1.070	0.006	1.350	0.007
PH376-Size F	F	0.450	0.002	0.560	0.003	0.695	0.003	0.810	0.004	1.080	0.005	1.360	0.006
PH376-Size G	G	0.625	0.007	0.750	0.009	0.875	0.011	1.000	0.012	1.250	0.017	1.500	0.021
PH376-Size H	H	0.660	0.019	0.745	0.027	0.895	0.035	1.005	0.047	1.240	0.099	1.515	0.117
PH376-Size J	J	0.660	0.019	0.745	0.027	0.895	0.035	1.005	0.047	1.240	0.099	1.515	0.117
PH376-Size K	K	0.490	0.012	0.570	0.016	0.695	0.022	0.800	0.030	1.070	0.060	1.350	0.090
PH376-Size L	L	0.500	0.003	0.600	0.004	0.730	0.005	0.862	0.005	1.110	0.006	1.400	0.007
PH376-Size M	M	0.530	0.004	0.610	0.005	0.740	0.006	0.870	0.007	1.105	0.010	1.450	0.015
PH376-Size N	N	0.625	0.018	0.725	0.026	0.850	0.034	0.955	0.045	1.230	0.098	1.515	0.117

PH373 - MEDIUM PRESSURE AEROSPACE HOSE

Applicable Standard: AS620



Construction

Inner tube Convoluted polytetrafluoroethylene (Electrical Conductive) with tape wrap

Reinforcement CRES 304 wire braid

Qualifications SAE AS620, AS1055 TYPE IIa and IIb CLASS A or CLASS B, Integral and slip on firesleeves

Application Aircraft fluid systems

Item Code	Hose Size	ID (min)		OD (min)		OD (max)		WP		BP		BR/r		W (max)	
		inch	mm	inch	mm	inch	mm	psi	bar	psi	bar	inch	mm	lb/inch	kg/m
PH373-06	06	0.355	9.02	0.523	13.3	0.587	14.9	1000	69	4000	275	2.25	57.2	0.010	0.178

Temperature Range: -54°C to +204°C

Sleeve Code	Sleeve Material
H	Fire sleeve integral silicone (15 min)

Code	Sleeve Code	-6	
		OD (max)	W (Nom)
		inch	lb/inch
PH373-Size H	H	0.862	0.028

RUBBER - INDUSTRIAL HOSE

PH690 - AVIATION FUEL HOSE

Applicable Standard : EI 1529 Type - C / ISO 1825 Type - C

Construction

Inner tube Black colour, Synthetic rubber resistant to oil

Reinforcement Plies of synthetic textile cords

Cover Black colour, synthetic conductive cover resistant to oil, ozone and abrasion

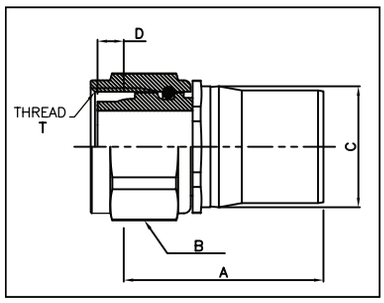
Application Aircraft fuelling with jet fuels. Portability, ease of routing and ease of installation area additional virtues.

Item Code	Dash Size	DN	ID		OD		WP		BP		BR/r		W
			inch	mm	inch	mm	psi	bar	psi	bar	inch	mm	kg/m
PH690-12	-12	19	3/4	19.0	1.38	35.0	300	20	1200	80	3.5	90	0.800
PH690-16	-16	25	1	25.4	1.63	41.5	300	20	1200	80	4.5	115	1.000
PH690-20	-20	32	1.1/4	32.0	1.89	48.0	300	20	1200	80	5.5	140	1.300
PH690-24	-24	38	1.1/2	38.0	2.19	55.5	300	20	1200	80	7.1	180	1.830
PH690-32	-32	50	2	51.0	2.66	67.5	300	20	1200	80	8.5	215	2.580
PH690-40	-40	63	2.1/2	63.0	3.23	82.0	300	20	1200	80	9.1	230	3.100

Temperature Range: Continuous: -30°C to +65°C

STRAIGHT FLARELESS FITTINGS

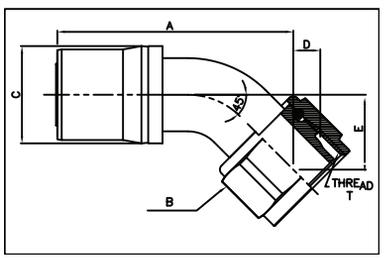
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Weight (cres)
			inch	inch	inch	inch	lb
FTFL0SSST-376-04-001	04	7/16-20	1.560	0.560	0.690	0.160	0.060
FTFL0SSST-376-06-001	06	9/16-18	1.750	0.690	0.800	0.160	0.090
FTFL0SSST-376-08-001	08	3/4-16	2.000	0.880	0.970	0.190	0.150
FTFL0SSST-376-10-001	10	7/8-14	2.250	1.000	1.110	0.200	0.240
FTFL0SSST-376-12-001	12	1.1/16-12	2.50	1.250	1.380	0.230	0.520
FTFL0SSST-376-16-001	16	1.5/16-12	3.00	1.500	1.660	0.300	0.713

45° ELBOW FLARELESS FITTINGS

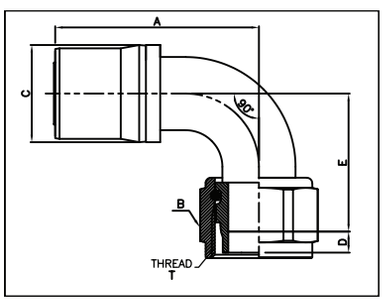
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS45-376-04-001	04	7/16-20	2.120	0.560	0.690	0.110	0.50	0.078
FTFL0SS45-376-06-001	06	9/16-18	2.440	0.690	0.800	0.12	0.62	0.126
FTFL0SS45-376-08-001	08	3/4-16	2.75	0.88	0.970	0.13	0.75	0.218
FTFL0SS45-376-10-001	10	7/8-14	3.25	1.000	1.110	0.14	0.81	0.327
FTFL0SS45-376-12-001	12	1.1/16-12	3.750	1.250	1.380	0.16	0.88	0.597
FTFL0SS45-376-16-001	16	1.5/16-12	4.500	1.500	1.660	0.210	1.09	0.860

90° ELBOW FLARELESS FITTINGS

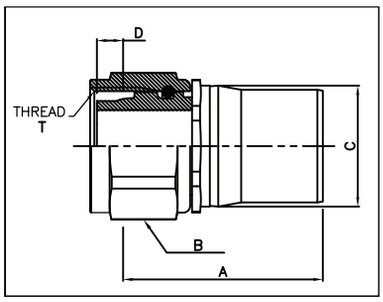
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS90-376-04-001	04	7/16-20	1.750	0.560	0.690	0.160	0.88	0.078
FTFL0SS90-376-06-001	06	9/16-18	2.000	0.690	0.800	0.160	1.09	0.126
FTFL0SS90-376-08-001	08	3/4-16	2.38	0.88	0.970	0.190	1.31	0.218
FTFL0SS90-376-10-001	10	7/8-14	2.81	1.000	1.110	0.200	1.50	0.327
FTFL0SS90-376-12-001	12	1.1/16-12	3.250	1.250	1.380	0.230	1.75	0.615
FTFL0SS90-376-16-001	16	1.5/16-12	4.000	1.500	2.297	0.300	2.06	0.945

STRAIGHT FLARELESS FITTINGS

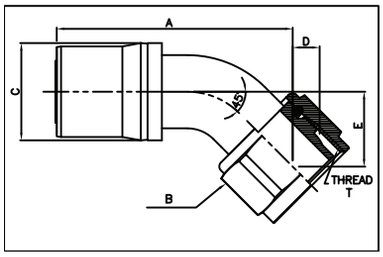
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Weight (cres)
			inch	inch	inch	inch	lb
FTFL0SSST-377-03-001	03	3/8-24	1.20	0.500	0.490	0.140	0.040
FTFL0SSST-377-04-001	04	7/16-20	1.210	0.562	0.550	0.160	0.055
FTFL0SSST-377-05-001	05	1/2-20	1.350	0.625	0.630	0.160	0.075
FTFL0SSST-377-06-001	06	9/16-18	1.450	0.688	0.700	0.160	0.085
FTFL0SSST-377-08-001	08	3/4-16	1.640	0.875	0.830	0.190	0.155
FTFL0SSST-377-10-001	10	7/8-14	1.90	1.000	0.970	0.200	0.235
FTFL0SSST-377-12-001	12	1.1/16-12	2.170	1.250	1.170	0.230	0.330
FTFL0SSST-377-16-001	16	1.15/16-12	2.550	1.500	1.520	0.300	0.535
FTFL0SSST-377-20-001	20	1.5/8-12	2.480	2.000	2.000	0.300	0.995
FTFL0SSST-377-24-001	24	1.7/8-12	2.850	2.125	2.280	0.370	1.370

45° ELBOW FLARELESS FITTINGS

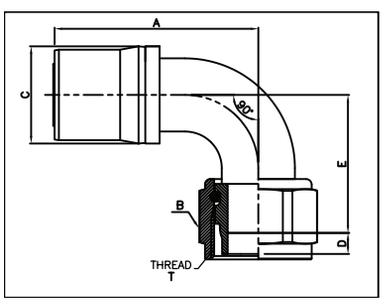
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS45-377-03-001	03	3/8-24	1.660	0.500	0.490	0.100	0.477	0.051
FTFL0SS45-377-04-001	04	7/16-20	1.730	0.562	0.550	0.110	0.485	0.065
FTFL0SS45-377-05-001	05	1/2-20	1.910	0.625	0.630	0.110	0.512	0.080
FTFL0SS45-377-06-001	06	9/16-18	2.120	0.688	0.700	0.120	0.589	0.112
FTFL0SS45-377-08-001	08	3/4-16	2.380	0.875	0.830	0.130	0.744	0.172
FTFL0SS45-377-10-001	10	7/8-14	2.850	1.000	0.970	0.140	0.822	0.266
FTFL0SS45-377-12-001	12	1.1/16-12	3.120	1.250	1.170	0.160	0.903	0.360
FTFL0SS45-377-16-001	16	1.15/16-12	3.500	1.500	1.520	0.210	0.976	0.590
FTFL0SS45-377-20-001	20	1.5/8-12	4.325	2.000	2.000	0.210	1.513	1.110
FTFL0SS45-377-24-001	24	1.7/8-12	4.966	2.125	2.280	0.260	1.729	1.540

90° ELBOW FLARELESS FITTINGS

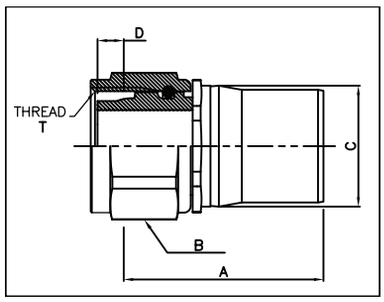
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS90-377-03-001	03	3/8-24	1.340	0.500	0.490	0.140	0.761	0.053
FTFL0SS90-377-04-001	04	7/16-20	1.410	0.562	0.550	0.160	0.768	0.065
FTFL0SS90-377-05-001	05	1/2-20	1.580	0.625	0.630	0.160	0.917	0.080
FTFL0SS90-377-06-001	06	9/16-18	1.700	0.688	0.700	0.160	1.023	0.099
FTFL0SS90-377-08-001	08	3/4-16	1.960	0.875	0.830	0.190	1.218	0.231
FTFL0SS90-377-10-001	10	7/8-14	2.370	1.000	0.970	0.200	1.529	0.328
FTFL0SS90-377-12-001	12	1.1/16-12	2.650	1.250	1.170	0.230	1.772	0.425
FTFL0SS90-377-16-001	16	1.15/16-12	3.340	1.500	1.520	0.300	1.859	0.659
FTFL0SS90-377-20-001	20	1.5/8-12	4.400	2.000	2.000	0.300	3.641	1.419
FTFL0SS90-377-24-001	24	1.7/8-12	5.170	2.125	2.280	0.370	4.292	1.854

STRAIGHT FLARELESS FITTINGS

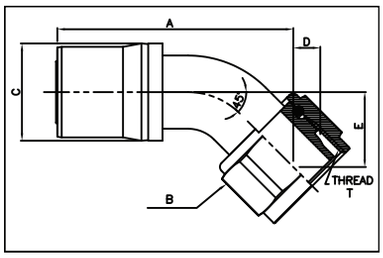
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Weight (cres)
			inch	inch	inch	inch	lb
FTFL0SSST-373-06-001	06	9/16-18	1.34	0.690	0.680	0.164	0.110

45° ELBOW FLARELESS FITTINGS

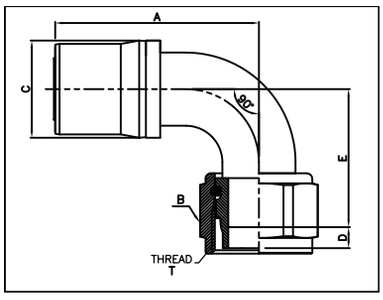
MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS45-373-06-001	06	9/16-18	1.930	0.690	0.680	0.120	0.579	0.110

90° ELBOW FLARELESS FITTINGS

MATES WITH AS4375, AS5863 OR AS33514



Item Code	Hose Size	Thread Size (T)	Length (A)(max)	Nut Hex (B)	Socket OD (C)	D (ref)	Length (E)(max)	Weight (cres)
			inch	inch	inch	inch	inch	lb
FTFL0SS90-373-06-001	06	9/16-18	1.630	0.690	0.680	0.164	1.031	0.120

1.HOSE SELECTION AND ROUTING

A wide variety of interacting factors influence hose service life and the ability of each hydraulic fluid-power system to operate satisfactorily, and the combined effects of these factors on service life are often unpredictable. Therefore, hydraulic hose specification documents should not be construed as design standards. For applications outside the specifications in SAE J517, SAE J514, or other relevant design standards, performance of hose assemblies should be determined by appropriate testing.

Carefully analyze each system. Then design routings and select hose and related components to meet the system-performance and hose-service-life requirements, and to minimize the risks of personal injury and/or property damage. Consider the following factors:

1.1 System Pressures

Excessive pressure can accelerate hose assembly failure. Analyze the steady-state pressures, and the frequency and amplitude of pressure surges, such as pulses and spikes. These are rapid and transient rises in pressure which may not be indicated on many common pressure gages and can be identified best on high-frequency-response electronic measuring instruments.

For maximum hose assembly service life, hose selection should be based on a system pressure, including surges, that is less than the hose assembly maximum working pressure.

The maximum working pressure of a hose assembly comprised of hose and hose fittings shall not exceed the lower of the maximum working pressure specified for the respective hose and the connection end of the hose fittings.

1.2 Suction

For suction applications, such as inlet flow to pumps, select hose to withstand both the negative and positive pressures the system imposes on the hose.

1.3 External Pressure

In certain applications, such as in autoclaves or under water, the external environmental pressures may exceed the fluid pressure inside the hose. In these applications, consider the external pressures, and if necessary, consult the hose manufacturers.

1.4 Temperature

Exceeding hose temperature ratings may significantly reduce hose life. Select hose so the fluid and ambient temperatures, both static and transient, fall within the hose ratings. The effects of external heat sources should not raise the temperature of the hose above its maximum operating temperature. Select hose, heat shields, sleeving, and other methods for these requirements, and route or shield hose to avoid hose damage from external heat sources.

1.5 Permeation

Permeation, or effusion, is seepage of fluid through the hose. Certain materials in hose construction are more permeable than others. Consider the effects of permeation when selecting hose, especially with gaseous fluids. Consult the hose and fluid manufacturers for permeability information.

1.6 Compatibility Between Hose Materials and Hydraulic Fluids

Variables that can affect compatibility of system fluids with hose materials include, but are not limited to:

i. Chemical properties
ii. Fluid pressure
iii. Temperature
iv. Concentration level
v. Exposure duration

Because of permeation, consider compatibility of system fluids with the hose, tube, cover, reinforcement, and fittings. Consult the fluid and hose manufacturers for compatibility information.

Rubber hoses should not be painted without consulting the hose manufacturer.

NOTE: Many fluid/elastomer compatibility tables in manufacturers' catalogs show ratings based on fluids at 21 °C, room temperature. These ratings may change at other temperatures. Carefully read the notes on the compatibility tables, and if in doubt, consult the manufacturer.

1.7 Environment

Environmental conditions can cause hose and fitting degradation. Conditions to evaluate include, but are not limited to:

1. Ultraviolet light
2. Saltwater
3. Air pollutants
4. Temperature (see 5.4)
5. Ozone
6. Chemicals
7. Electricity
8. Abrasion
9. Paint

If necessary, consult the manufacturers for more information about the effect of these and other environmental conditions.

1.8 Static-Electric Discharge

Fluid passing through hose can generate static electricity resulting in static-electric discharge. This may create sparks that can puncture hose. If this potential exists, select hose with sufficient conductivity to carry the static-electric charge to ground.

1.9 Sizing

The power transmitted by pressurized fluid varies with pressure and rate of flow. Select hose with adequate size to minimize pressure loss, and to avoid hose damage from heat generation or excessive velocity. Conduct calculations, or consult the manufacturers for sizing at flow velocities.

1.10 Unintended Uses

Hose assemblies are designed for the internal forces of conducted fluids. Do not pull hose or use it for purposes that may apply external forces for which the hose or fittings were not designed.

1.11 Specifications and Standards

When selecting hose and fittngs for specific applications, refer to applicable government, industry, and manufacturer's specifications and standards.

1.12 Unusual Applications

Applications not addressed by the manufacturer or by industry standards may require special testing prior to selecting hose.

1.13 Hose Cleanliness

The cleanliness requirements of system components, other than hose assemblies, will determine the cleanliness requirements of the application. Consult the component manufacturers' cleanliness information for all components in the system. Hose assemblies vary in cleanliness levels; therefore, specify hose assemblies with adequate cleanliness for the system.

1.14 Hose Fittings

Selection of the proper hose fittings for the hose and application is essential for proper operation and safe use of hose and related assembly equipment. Hose fittings are qualified with the hose. Therefore, select only hose fittings compatible with the hose for the applications.

Improper selection of hose fittings or related assembly equipment for the application can result in injury or damage from leaks, or from hose assemblies blowing apart

1.15 Vibration

Vibration can reduce hose service life. If required, conduct tests to evaluate the effects of frequency and amplitude of system vibration on a hose assembly. Clamps or other means may be used to reduce the effects of vibration. Consider the vibration requirements when selecting hose and predicting service life.

1.16 Hose Cover Protection

Protect the hose cover from abrasion, erosion, snagging, and cutting. Special abrasion-resistant hoses and hose guards are available for additional protection. Route hose to reduce abrasion from hose rubbing other hose or objects that may abrade it. (See Figure 1.)

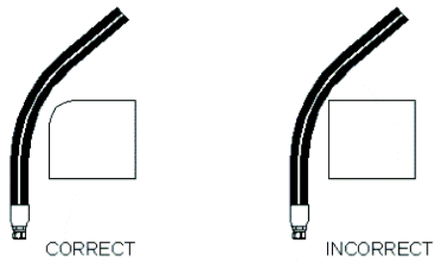


Figure 1.1 - Prevention of external damage

1.17 External Physical Abuse

Route hose to avoid:

a. Tensile loads
b. Side loads
c. Flattening
d. Thread damage
e. Kinking
f. Damage to sealing surfaces
g. Abrasion
h. Twistting

1.18 Swivel-Type Adapters

Swivel-type fittings or adapters do not transfer torque to hose while being toghtened. Use these as needed to prevent twisting during installation.

1.19 Live Swivels

If two components in the system are rotating in relation to each other, live swivels may be necessary. These connectors reduce the torque transmitted to the hose.

1.20 Slings and Clamps

Use slings and clamps to support heavy or long hose and to keep it away from moving parts. Use clamps that prevent hose movement that will cause abrasion. Care shall be taken to prevent the sling clamp from abraiding the hose. Avoid overthightening of slings or clamps.

1.21 Minimum Bend Radius

The minimum bend radius (R) of a hose is defined in relevant hose standards and hose manufacturer's product literature. Routing during assembly and use at less than minimum bend radius may reduce hose life. Sharp bending at the hose/fitting juncture may result in leaking, hose rupturing, or the hose assembly blowing apart (see 4.2 and Figures 2A and 2B). A minimum straight length (L) of 1.5 times the hose's outside diameter shall be allowed between the hose fitting and the point at which the bend starts.

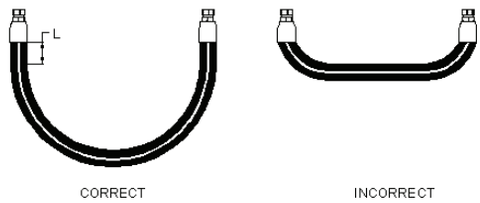


Figure 1.2A - Minimum bend radius

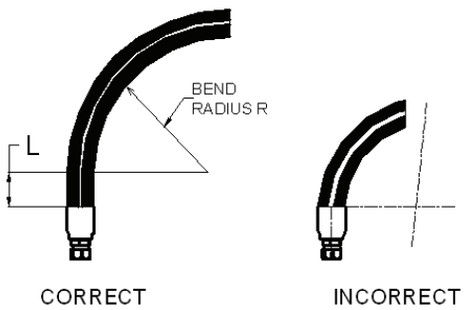


Figure 1.2B - Minimum bend radius

1.22 Elbows and Adapters

In special cases, use elbows or adapters to relieve hose strain (see Figure 3).

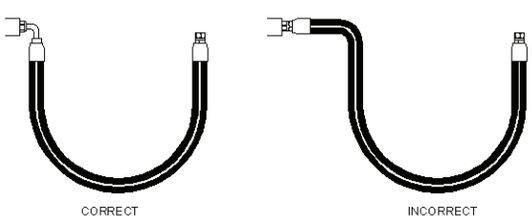


Figure 1.3 - Elbows and adapters

1.23 Lengths

Unnecessarily long hose can increase pressure drop and affect system performance. When pressurized, hose that is too short may pull loose from its fittings, or stress the hose fitting connections, causing premature metallic or seal failures. When establishing hose length, see Figures 4, 5, and 6, and use the following practices:

1.23.1 Motion Absorption

Provide adequate hose length to distribute movement and prevent bends smaller than the minimum bend radius.

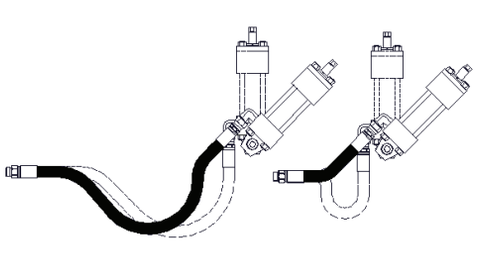


Figure 1.4 - Motion absorption

1.23.2 Hose and Machine Tolerances

Design hose to allow for changes in length due to machine motion and tolerances.

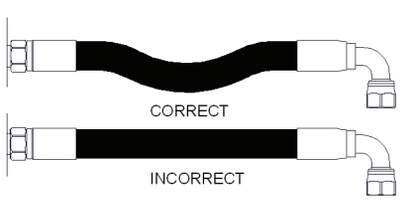


Figure 1.5 - Hose and machine tolerances

1.23.3 Hose Length Change Due to Pressure

Design hose to accommodate length changes from changing pressures. Do not cross or clamp together high- and low pressure hoses. The difference in length changes could wear the hose covers.

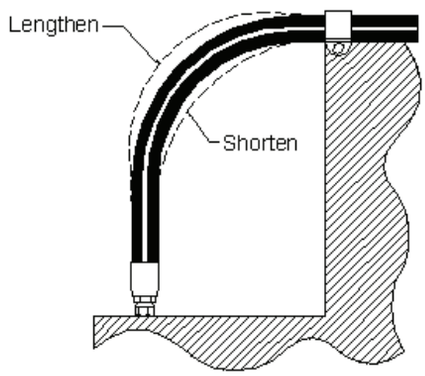


Figure 1.6 - Hose length change due to pressure

1.24 Hose Movement and Bending

Hose allows relative motion between system components. Analyze this motion when designing hose systems. The number of cycles per day may significantly affect hose life. Also avoid multiple planes of motion and twisting motion. Consider the motion of the hose when selecting hose and predicting service life. In applications that require hose to move or bend, see Figures 7A, 7B, and 8, and use these practices:

1.24.1 Bend in Only One Plane to Avoid Twisting

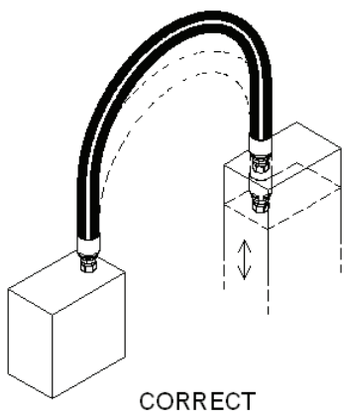


Figure 1.7A - Bend in only one plane to avoid twisting

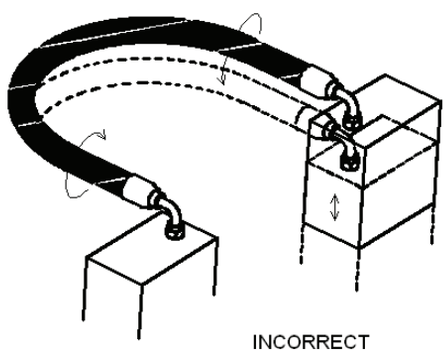


Figure 1.7B - Bend in only one plane to avoid twisting

1.24.2 Prevent Hose Bending in More Than One Plane

If hose follows a compound bend, couple it into separate segments, or clamp it into segments that each flex in only one plane.

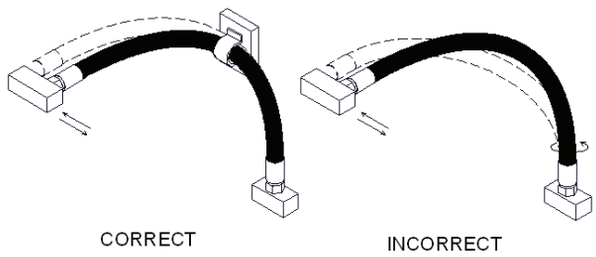


Figure 1. 8 - Prevent hose bending in more than one plane

2.SAFETY CONSIDERATIONS

Listed in 2.1 to 2.7 are some potential conditions and situations that may lead to personal injury and/or property damage. This list is not necessarily all inclusive. Consider reasonable and feasible means, including those described in this section, to reduce the risk of injuries or property damage.

Training, including the information in this document, for operators, maintenance personnel, and other individuals working with hose assemblies under pressure is encouraged.

2.1 Fluid Injections

Fine streams of escaping pressurized fluid can penetrate skin and enter a human body. These fluid injections may cause severe tissue damage and loss of limb.

Consider various means to reduce the risk of fluid injections, particularly in areas normally occupied by operators. Such means include: careful routing, adjacent components, warnings, guards, shields, and training programs.

Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Avoid contact with escaping fluids. Treat all leaks as though pressurized and hot enough to burn skin. Never use any part of your body to check a hose for leaks.

If a fluid-injection accident occurs, see a doctor immediately. **DO NOT DELAY OR TREAT AS A SIMPLE CUT!** Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should consult a knowledgeable medical source.

2.2 Whipping Hose

If a pressurized hose assembly blows apart, the fittings can be thrown off at high speed, and the loose hose can flail or whip with great force. This is particularly true in compressible-fluid systems.

When this risk exists, consider guards and restraints to protect against injury.

2.3 Burns from Conveyed Fluids

Fluid-power media may reach temperatures that can burn human skin. If there is risk of burns from escaping fluid, consider guards and shields to prevent injury, particularly in areas normally occupied by operators.

2.4 Fire and Explosions from Conveyed Fluids

Most fluid-power media (hydraulic fluid), including fire-resistant hydraulic fluids, will burn under certain conditions. Fluids which escape from pressurized systems may form a mist or fine spray which can flash or explode upon contact with an ignition source.

Consider selecting, guarding, and routing hose to minimize the risk of combustion (see Section 5 and ISO 3457).

2.5 Fire and Explosions from Static-Electric Discharge

Fluid passing through hose can generate static electricity, resulting in static-electric discharge. This may create sparks that can ignite system fluids or gases in the surrounding atmosphere.

When this potential exists, select hose specifically designed to carry the static-electric charge to ground.

2.6 Electrical Shock

Electrocution could occur if hose conducts electricity through a person. Most hoses are conductive. Many contain metal or have metal hose fittings attached. Even nonconductive hoses can be conduits for electricity if they carry conductive fluids.

Be aware of routing or using hose near electrical sources. When this cannot be avoided, select appropriate hose. Nonconductive hoses should be considered. SAE J517 - 100R7 and 100R8 hoses, with orange covers marked “nonconductive” are available for applications requiring nonconductive hose.

2.7 Mechanisms Controlled by Fluid Power

Mechanisms controlled by fluids in hoses can become hazardous when a hose fails. For example, when a hose bursts, objects supported by fluid pressure may fall, or vehicles or machines may lose their brakes or steering.

If mechanisms are controlled by fluid power, consider safe modes of failure that minimize risks of injury or damage

3.HOSE STORAGE

Age control and the manner of storage can affect hose life. Use the following practices when storing hose.

3.1 Age Control

Maintain a system of age control to determine that hose is used before its shelf life has expired. Shelf life is the period of time when it is reasonable to expect the hose to retain full capabilities for rendering the intended service.

Store hose in a manner that facilitates age control and first-in, first-out usage based on manufacturing date on hose or hose assembly.

For long-term storage, the following maximum storage periods are recommended, unless otherwise specified in the respective product standard or as specified by the hose supplier:

a. For bulk hoses (without fittings attached), maximum of 4 years from the date of manufacture, if stored in accordance with ISO 8331.

b. For hose assemblies, maximum of 2 years.
These two periods can be interpreted as consecutive for a maximum storage duration of 6 years (4 years as bulk hose plus 2 years as hose assembly).

3.2 Storage

Hose and hose assemblies shall be stored in accordance with the storage conditions defined in ISO 8331. When storing hose, take care to avoid damage that could reduce hose life, and follow the manufacturers' information for storage and shelf life. Examples of factors that can adversely affect hose products in storage are:

a. Temperature
b. Ozone
c. Oils, gasoline, kerosene, or their vapors
d. Corrosive liquids and fumes
e. Rodents
f. Humidity
g. Ultraviolet light
h. Solvents
i. Insects
j. Radioactive materials
k. Direct sun or heat rays
l. Acids, alkalis
m. Sharp edges and abrasive surfaces
n. Electric or strong magnetic fields
o. Mold and fungi

If there are questions regarding the quality or usability of hose or hose assemblies, evaluate appropriately:

a. Flex the hose to the minimum bend radius and compare it with new hose. After flexing, examine the cover and tube for cracks. If any appear, no matter how small, reject the hose.

b. If the hose is wire reinforced, and the hose is unusually stiff, or a cracking sound is heard during flexing, check for corrosion by cuttng away a section of the cover from a sample. Corrosion would be another reason for rejection.

c. If doubt still persists, contact hose assembler to conduct proof-pressure tests or any other tests needed to verify hose quality.

4.Hose Installation and Replacement

Use the following practices when installing hose assemblies in new systems or replacing hose assemblies in existing systems: The manufacturer should make available additional instructions on mounting, storage, and operating conditions.

4.1 Pre-Installation Inspection

Before installing hose assemblies, examine:

a. Hose length and routing for compliance with original design

b. Assemblies for correct style, size, length, and visible nonconformities

c. Fitting sealing surfaces for burrs, nicks, or other damage

NOTE: When replacing hose assemblies in existing systems, verify that the replacement is of equal quality to the original assembly.

4.2 Handling During Installation

Handle hose with care during installation. Kinking hose, or bending at less than minimum bend radius may reduce hose life. Avoid sharp bending at the hose/fitting juncture (see 5.21). Before and during installation, hose assemblies should be at a temperature above 0 °C.

4.3 Twist Angle and Orientation

Pressure applied to a twisted hose may shorten the life of the hose or loosen the connections. To avoid twisting, the hose layline or marking can be used as a reference (see Figure 9) if the layline or marking is parallel to the axis of the hose. Twisting can also be avoided through the use of two wrenches during the installation of swivel connectors.

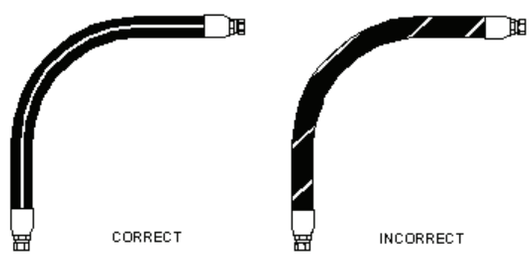


Figure 9 - Twist angle and orientation

4.4 Securement and Protection

Install necessary restraints and protective devices. Determine that such devices do not create additional stress or wear points.

4.5 Routing

Review proper routing practices provided in Section 5 and make appropriate corrections to obtain optimum performance.

4.6 Assembly Torque

The connection end of a hose fitting is normally threaded to obtain a tight pressure seal when attached to a port, an adapter, or another fitting. Sometimes bolts or screws provide the threaded connection. Each size and type of connection requires different torque values, and these may vary due to type of material, exterior coating, and/or lubrication.

Follow appropriate torquing instructions to obtain a proper pressure seal without over-torquing. A properly calibrated torque wrench should be used to tighten each connection, except when the hose fitting manufacturer specifies tightening a specified number of hex flat turns beyond finger tight to obtain a seal.

4.7 System Checkouts

In hydraulic or other liquid systems, eliminate all air entrapment after completing the installation. Follow manufacturers' instructions to test the system for possible malfunctions and leaks.

4.7.1 To avoid injury during system checkouts:

a. Do not touch any part of the system when checking for leaks (see 4.1)

b. Stay out of potentially hazardous areas while testing hose systems (see Section 4)

c. Relieve system pressure before tightening connections

Selection of Hose Diameter from Flow Rate and Velocity

The Fluid Velocity Nomogram gives the velocity of a liquid or gas as a function of flow rate and inside diameter of the fluid line. The commonly recommended maximum velocities for hydraulic oil systems at 200°F or less are indicated for guidance.

Example: At 10 gpm, what is the minimum size within the recommended velocity range for a hydraulic pressure line? The dashed line drawn from the 10 gpm mark on the left hand line to the maximum velocity of 20 fps intersects the middle line at .438 " (7/16" I. D. hose or tubing).
For a hose application, use 1/2" I. D., the nearest common standard size.

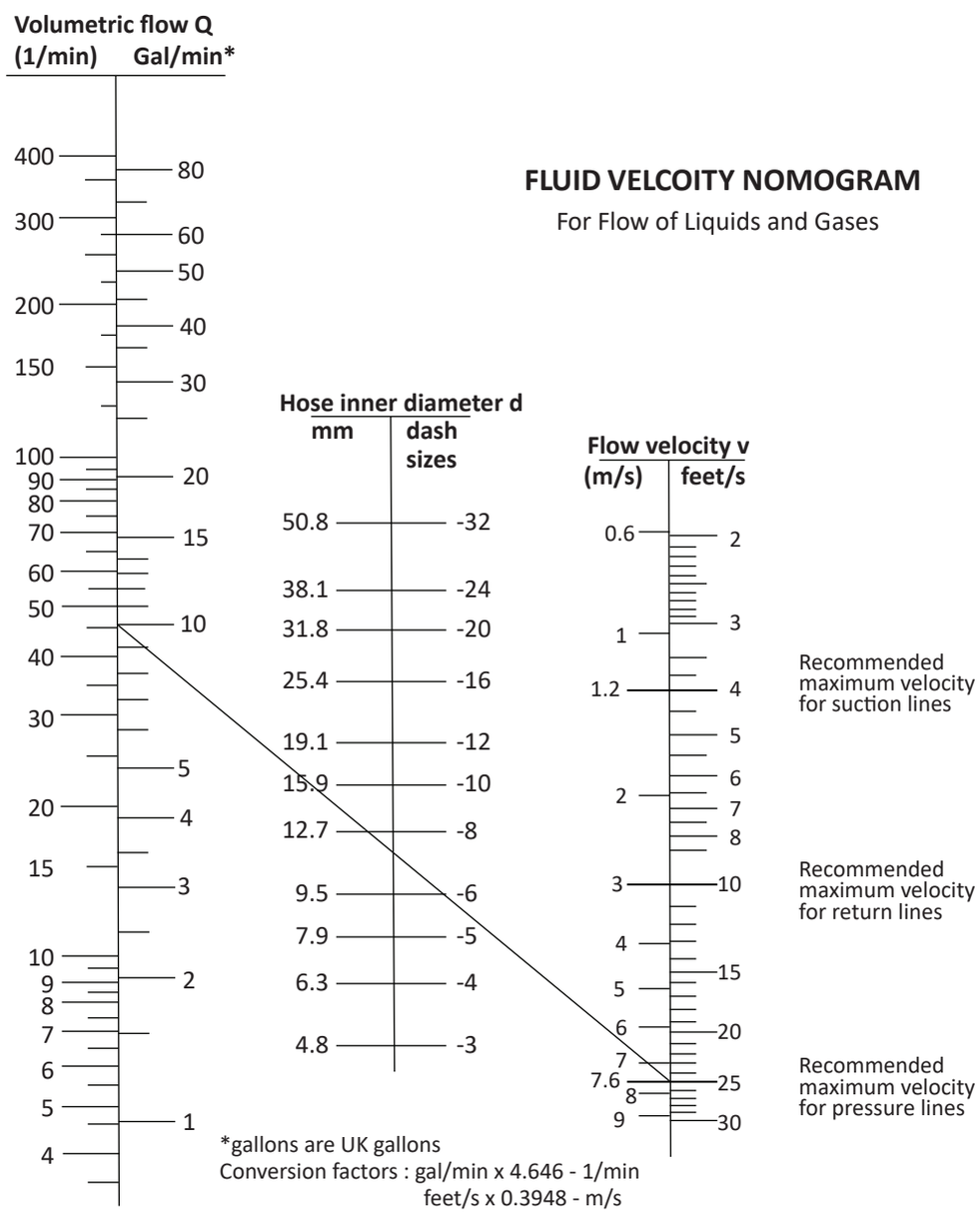
This chart is based on the following formulas: $V_{fps} = \dfrac{.321Q}{\frac{pd^2}{4}}$

Q = gal per min

d = hose or tube I. D. (inch)

cu. ft./min. = .1337 Q

The cu. ft. per min. value is the actual Volume flow rate under flowing conditions.
For air, standard cfm of free air = 7.81 actual cfm when the inlet air is at 100 PSIg 68°F.



Determination of Pressure Drop in the Line

Velocity: v = $0.409 = \frac{Q}{d^2} = 0.0509 = \frac{W}{pd^2} = \frac{q}{.785d^2}$

Reynold's Number: Re = $124\,{}^{dvp}/_{\mu} = 6.31\,{}^{W}/_{d\mu} = 378\,{}^{qp}/_{d\mu}$

Pressure Drop, Isothermal, Incompressible Flow (Liquids):

$$\Delta P = .001\ 294 = \frac{fLpv^2}{d} = .000\ 00336 = \frac{fLW^2}{pd^5} = .0121\ \frac{fL\,q^2}{.d^5}$$

Pressure Drop, Isothermal, Compressible, Long Lines (Gases and Vapors):

$$\frac{\Delta P}{P1} = 1 - \sqrt{1 - \frac{fLp\ 1^V 1^2}{12\ g\ d\ P_1}}$$

Symbols and Units for Listed Formulas

d = inside diameter of hose, inches

f = friction coefficient, dimensionless

g = gravitational constant, 32.2 ft./sec²

P1 = input pressure, PSI

ΔP = pressure difference, PSI

q = rate of flow at flowing condition cu. ft./min

Q = rate of rate of flow, gals/min

Re = Reynolds number, dimensionless

v = flow velocity, ft./sec.

W = rate of flow, lbs./hr.

p = density weight of fluid, lbs./cu. ft.

μ = absolute (dynamic) viscosity, centipoises

Temperature Correction Chart for PTFE hoses :

As the operating temperature of a hose assembly increases the Maximum Working Pressure of the assembly decreases. The material and method of fitting attachment determine the maximum pressure at which an assembly can be used. By using the factors given in the chart below, the approximate safe working pressure at elevated temperatures can be calculated for assemblies with crimped fittings.

To use this chart :

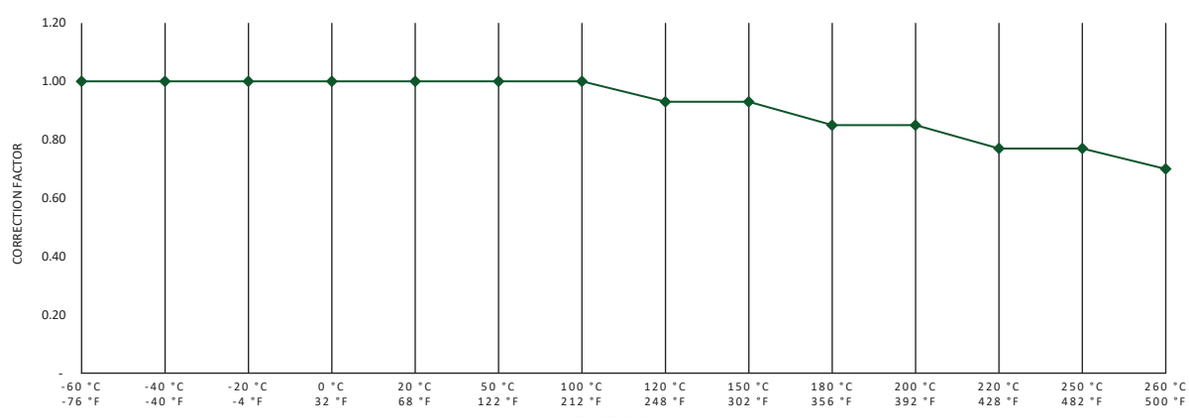
1 - Determine the maximum working temperature of the application

2 - Locate this temperature on the chart and select corresponding correct factor

3 - Multiply this factor by the Maximum Working Pressure as specified in Polyhose product specification table

4 - The resulted number is the approximate maximum safe working pressure at that elevated temperature.

Temperature (°C)	-60 °C -76 °F	-40 °C -40 °F	-20 °C -4 °F	0 °C 32 °F	20 °C 68 °F	50 °C 122 °F	100 °C 212 °F	120 °C 248 °F	150 °C 302 °F	180 °C 356 °F	200 °C 392 °F	220 °C 428 °F	250 °C 482 °F	260 °C 500 °F
Correction factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.85	0.85	0.77	0.77	0.70



Key Manufacturing Units :

Polyhose India Pvt Ltd
1/119, Kelambakkam – Vandalur Road
Pudupakkam PO, Kanchipuram Dist,
Tamil Nadu, 603103,
India.

Polyhose India (Rubber) Pvt Ltd
Plot No. F28-F29, F37-F42, F48-F55,
SIPCOT Industrial Park, Irunkattukottai,
Sriperumbudur Taluk,
Tamil Nadu, 602117,
India.

Polyhose Tofle Pvt Ltd
Survey No 249/1, Polyhose Green Park
Block C, Kadambathur Panchayat Union,
Nayapakkam, Thiruvallur,
Tamil Nadu, 602023,
India.

Polyhose India Pvt Ltd – Unit IV
1/160, Kannivakkam Village, Via
Guduvancherry, Chengalpattu
Dist, Tamil Nadu, 603202,
India.

Global Presence :

POLYHOSE (UK) LTD
3 Airfield Road, Airfield Ind. Estate.
Christchurch, Dorset BH23 3TG, United Kingdom
E-mail: uk@polyhose.com,
phuk.sales@polyhose.com
Tel: +44 (0) 1202 478334

POLYHOSE SWEDEN AB
Varlabergsvägen 24 B S-434
39 Kungsbacka, Sweden
E-mail: patrick.g@polyhose.com
Tel: +46 300 31970

POLYHOSE INC
353 Acme way,
Wilmington, North Carolina - 28401
Email: phus.sales@polyhose.com
Tel: +1 732 512 9141

POLYHOSE GERMANY GmbH
Am Keuper 16 90475 Nuremberg
Germany
E-mail: phde.info@polyhose.com
Tel: +49 9128 72132 40

EXITFLEX SA
2, Chemin de la Crétaux 1196 Gland (VD)
Switzerland
E-mail: info@exitflex.com
Tel: +41 22 999 92 99

POLYHOSE POLAND Sp. z o.o
81-509 Gdynia, Plac Górnośląski 20,
Poland
E-mail: biuro@polyhose.pl
Tel: +48 58620 7041

POLYHOSE EAST AFRICA LTD
P.O.Box – 17616-00500. No. 69, Godown No. 5,
(Consolidated Timbers Pvt Limited Premises)
Enterprise Road, Industrial Area, Nairobi
E-mail: farooq.a@polyhose.com
Tel: +254 738661080 / 743566187

POLYHOSE BANGLADESH LTD
53C Nasirabad Industrial Area
Baizid Bostami Road, Chattogram
Bangladesh
Email: farooq.a@polyhose.com
Tel: +88 01324 247303

POLYHOSE ASIA PTE LTD
1, Venture Avenue
#04-12 Singapore 608521
E-mail: lorenzo.c@polyhose.com
Tel: +65 6914 9150

Head Office:

POLYHOSE INDIA PVT LTD
Polyhose Towers, No 86 Mount Road, 8th Floor - Western Wing,
Guindy, Chennai, Tamil Nadu - 600 032, India.
Tel : +91 44 22200275
✉ : aerospace@polyhose.com
: www.polyhose.com

ISO 9001 : 2015
IATF 16949 : 2016
ISO 14001 : 2015
AS 9100D : 2016
ISO 13485 : 2016

Accredited Nadcap™