

RATIONALE

ESTABLISH AS1946 PART SPECIFICATIONS FOR FLARED FITTINGS.

AS645

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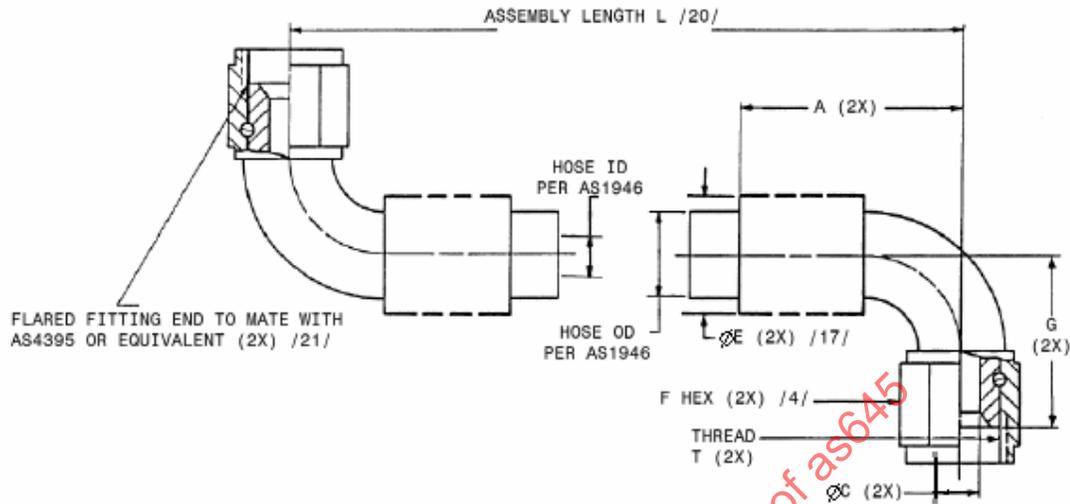


FIGURE 1 - HOSE ASSEMBLY

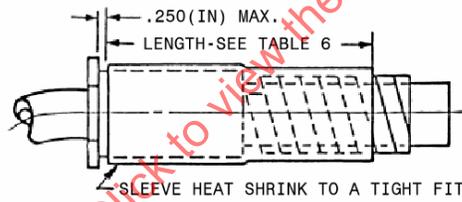


FIGURE 2 - ABRASION SLEEVE ATTACHMENT /7/ /8/

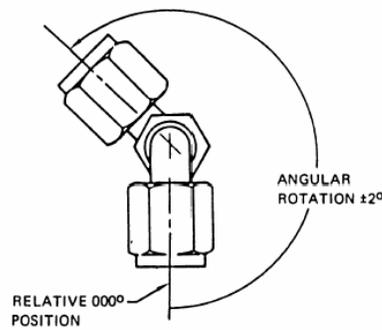
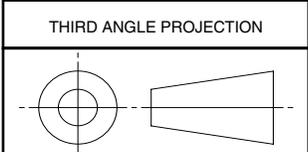


FIGURE 3 - FITTING ANGULAR ORIENTATION /26/



CUSTODIAN: SAE G-3/G-3D

PROCUREMENT SPECIFICATION: /15/ AS1946

**SAE Aerospace**  
An SAE International Group

**AEROSPACE STANDARD**  
HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE,  
METAL BRAID, MEDIUM PRESSURE, FLARED,  
90° TO 90°

**AS645**  
SHEET 1 OF 7

TABLE 1 - DIMENSIONS

HOSE ASSEMBLY NO. & SIZE /24/	HOSE SIZE (REF)	FITTING TYPE /25/	FITTING MATL /5/	THREAD T PER AS8879 (REF)	HOSE ID MIN (REF)	A MAX	C MIN BALL DIA /16/	E MAX WITHOUT SLEEVEING /17/	F HEX (REF)	G MIN	G MAX
AS645D (-03)	.188	-	-	-	-	-	-	-	-	-	-
AS645D (-03)	.188	S	CRES	.3750-24UNJF-3B	.110	1.56	.068	.49	.500	.510	.680
			AL	.3750-24UNJF-3B	.110	1.56	.068	.49	.500	.510	.680
			TI	.3750-24UNJF-3B	.110	1.56	.068	.49	.500	.510	.680
AS645D (-03)	.188	E	CRES	.4375-20UNJF-3B	.110	1.56	.068	.49	.562	.510	.635
			AL	.4375-20UNJF-3B	.110	1.56	.068	.49	.562	.510	.635
			TI	.4375-20UNJF-3B	.110	1.56	.068	.49	.562	.510	.635
AS645E (-04)	.250	R	CRES	.3750-24UNJF-3B	.173	1.56	.068	.55	.500	.510	.685
			AL	.3750-24UNJF-3B	.173	1.56	.068	.55	.500	.510	.685
			TI	.3750-24UNJF-3B	.173	1.56	.068	.55	.500	.510	.685
AS645E (-04)	.250	S	CRES	.4375-20UNJF-3B	.173	1.56	.112	.55	.562	.560	.685
			AL	.4375-20UNJF-3B	.173	1.56	.112	.55	.562	.560	.685
			TI	.4375-20UNJF-3B	.173	1.56	.112	.55	.562	.560	.685
AS645E (-04)	.250	E	CRES	.5000-20UNJF-3B	.173	1.62	.112	.55	.625	.560	.840
			AL	.5000-20UNJF-3B	.173	1.62	.112	.55	.625	.560	.840
			TI	.5000-20UNJF-3B	.173	1.62	.112	.55	.625	.560	.840
AS645F (-05)	.313	R	CRES	.4375-20UNJF-3B	.235	1.62	.112	.63	.562	.560	.840
			AL	.4375-20UNJF-3B	.235	1.62	.112	.63	.562	.560	.840
			TI	.4375-20UNJF-3B	.235	1.62	.112	.63	.562	.560	.840
AS645F (-05)	.313	S	CRES	.5000-20UNJF-3B	.235	1.62	.164	.63	.625	.635	.840
			AL	.5000-20UNJF-3B	.235	1.62	.164	.63	.625	.635	.840
			TI	.5000-20UNJF-3B	.235	1.62	.164	.63	.625	.635	.840
AS645F (-05)	.313	E	CRES	.5625-18UNJF-3B	.235	1.81	.164	.63	.688	.635	.885
			AL	.5625-18UNJF-3B	.235	1.81	.164	.63	.688	.635	.885
			TI	.5625-18UNJF-3B	.235	1.81	.164	.63	.688	.635	.885
AS645G (-06)	.375	R	CRES	.5000-20UNJF-3B	.298	1.81	.164	.70	.625	.635	.885
			AL	.5000-20UNJF-3B	.298	1.81	.164	.70	.625	.635	.885
			TI	.5000-20UNJF-3B	.298	1.81	.164	.70	.625	.635	.885
AS645G (-06)	.375	S	CRES	.5625-18UNJF-3B	.298	1.81	.218	.70	.688	.700	.885
			AL	.5625-18UNJF-3B	.298	1.81	.218	.70	.688	.700	.885
			TI	.5625-18UNJF-3B	.298	1.81	.218	.70	.688	.700	.885
AS645G (-06)	.375	E	CRES	.7500-16UNJF-3B	.298	1.99	.218	.70	.875	.700	1.060
			AL	.7500-16UNJF-3B	.298	1.99	.218	.70	.875	.700	1.060
			TI	.7500-16UNJF-3B	.298	1.99	.218	.70	.875	.700	1.060
AS645H (-08)	.500	R	CRES	.5625-18UNJF-3B	.391	1.99	.218	.83	.688	.700	1.060
			AL	.5625-18UNJF-3B	.391	1.99	.218	.83	.688	.700	1.060
			TI	.5625-18UNJF-3B	.391	1.99	.218	.83	.688	.700	1.060
AS645H (-08)	.500	S	CRES	.7500-16UNJF-3B	.391	1.99	.289	.83	.875	.810	1.060
			AL	.7500-16UNJF-3B	.391	1.99	.289	.83	.875	.810	1.060
			TI	.7500-16UNJF-3B	.391	1.99	.289	.83	.875	.810	1.060
AS645H (-08)	.500	E	CRES	.8750-14UNJF-3B	.391	2.38	.289	.83	1.000	.810	1.341
			AL	.8750-14UNJF-3B	.391	2.38	.289	.83	1.000	.810	1.341
			TI	.8750-14UNJF-3B	.391	2.38	.289	.83	1.000	.810	1.341
AS645J (-10)	.625	R	CRES	.7500-16UNJF-3B	.485	2.38	.289	.97	.875	.810	1.341
			AL	.7500-16UNJF-3B	.485	2.38	.289	.97	.875	.810	1.341
			TI	.7500-16UNJF-3B	.485	2.38	.289	.97	.875	.810	1.341
AS645J (-10)	.625	S	CRES	.8750-14UNJF-3B	.485	2.38	.366	.97	1.000	1.091	1.341
			AL	.8750-14UNJF-3B	.485	2.38	.366	.97	1.000	1.091	1.341
			TI	.8750-14UNJF-3B	.485	2.38	.366	.97	1.000	1.091	1.341
AS645J (-10)	.625	E	CRES	1.0625-12UNJ-3B	.485	2.99	.366	.97	1.250	1.091	1.591
			AL	1.0625-12UNJ-3B	.485	2.99	.366	.97	1.250	1.091	1.591
			TI	1.0625-12UNJ-3B	.485	2.99	.366	.97	1.250	1.091	1.591

AS645

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HOSE ASSEMBLY NO. & SIZE /24/	HOSE SIZE (REF) /25/	FITTING TYPE /5/	FITTING MATL /5/	THREAD T PER AS8879 (REF)	HOSE ID MIN (REF)	A MAX	C MIN BALL DIA /16/	E MAX WITHOUT SLEEVING /17/	F HEX (REF)	G MIN	G MAX
AS645K (-12)	.750	R	CRES	.8750-14UNJF-3B	.615	2.99	.366	1.17	1.000	1.091	1.591
			AL	.8750-14UNJF-3B	.615	2.99	.366	1.17	1.000	1.091	1.591
			TI	.8750-14UNJF-3B	.615	2.99	.366	1.17	1.000	1.091	1.591
AS645K (-12)	.750	S	CRES	1.0625-12UNJ-3B	.615	2.99	.466	1.17	1.250	1.341	1.591
			AL	1.0625-12UNJ-3B	.615	2.99	.466	1.17	1.250	1.341	1.591
			TI	1.0625-12UNJ-3B	.615	2.99	.466	1.17	1.250	1.341	1.591
AS645K (-12)	.750	E	CRES	1.3125-12UNJ-3B	.615	3.24	.466	1.17	1.500	1.341	1.715
			AL	1.3125-12UNJ-3B	.615	3.24	.466	1.17	1.500	1.341	1.715
			TI	1.3125-12UNJ-3B	.615	3.24	.466	1.17	1.500	1.341	1.715
AS645M (-16)	1.000	R	CRES	1.0625-12UNJ-3B	.851	3.24	.466	1.52	1.250	1.341	1.715
			AL	1.0625-12UNJ-3B	.851	3.24	.466	1.52	1.250	1.341	1.715
			TI	1.0625-12UNJ-3B	.851	3.24	.466	1.52	1.250	1.341	1.715
AS645M (-16)	1.000	S	CRES	1.3125-12UNJ-3B	.851	3.24	.661	1.52	1.500	1.465	1.715
			AL	1.3125-12UNJ-3B	.851	3.24	.661	1.52	1.500	1.465	1.715
			TI	1.3125-12UNJ-3B	.851	3.24	.661	1.52	1.500	1.465	1.715
AS645M (-16)	1.000	E	CRES	1.6250-12UNJ-3B	.851	3.68	.661	1.52	1.812	1.465	2.122
			AL	1.6250-12UNJ-3B	.851	3.68	.661	1.52	1.812	1.465	2.122
			TI	1.6250-12UNJ-3B	.851	3.68	.661	1.52	1.812	1.465	2.122
AS645N (-20)	1.250	R	CRES	1.3125-12UNJ-3B	1.101	3.68	.661	2.00	1.500	1.465	2.122
			AL	1.3125-12UNJ-3B	1.101	3.68	.661	2.00	1.500	1.465	2.122
			TI	1.3125-12UNJ-3B	1.101	3.68	.661	2.00	1.500	1.465	2.122
AS645N (-20)	1.250	S	CRES	1.6250-12UNJ-3B	1.101	3.68	.850	2.00	1.812	1.747	2.122
			AL	1.6250-12UNJ-3B	1.101	3.68	.850	2.00	1.812	1.747	2.122
			TI	1.6250-12UNJ-3B	1.101	3.68	.850	2.00	1.812	1.747	2.122
AS645N (-20)	1.250	E	CRES	1.8750-12UNJ-3B	1.101	4.17	.850	2.00	2.125	1.747	2.372
			AL	1.8750-12UNJ-3B	1.101	4.17	.850	2.00	2.125	1.747	2.372
			TI	1.8750-12UNJ-3B	1.101	4.17	.850	2.00	2.125	1.747	2.372
AS645P (-24)	1.500	R	CRES	1.6250-12UNJ-3B	1.344	4.17	.850	2.28	1.812	1.747	2.372
			AL	1.6250-12UNJ-3B	1.344	4.17	.850	2.28	1.812	1.747	2.372
			TI	1.6250-12UNJ-3B	1.344	4.17	.850	2.28	1.812	1.747	2.372
AS645P (-24)	1.500	S	CRES	1.8750-12UNJ-3B	1.344	4.17	1.063	2.28	2.125	1.997	2.372
			AL	1.8750-12UNJ-3B	1.344	4.17	1.063	2.28	2.125	1.997	2.372
			TI	1.8750-12UNJ-3B	1.344	4.17	1.063	2.28	2.125	1.997	2.372
AS645P (-24)	1.500	-	-	-	-	-	-	-	-	-	

TABLE 2 - TOLERANCES

HOSE ASSEMBLY LENGTH	TOLERANCE
UNDER 18 IN	±.125
18 TO 36 IN EXCLUSIVE	±.250
36 TO 50 IN EXCLUSIVE	±.500
50 IN AND OVER	±1%

TABLE 3 - HOSE AND SLEEVE CODES

HOSE OR SLEEVE CODE	SLEEVE MATERIAL	TEMP. LIMIT °F
-	(-) INDICATES HOSE ONLY, NO SLEEVE (AS1946)	450
A	ABRASION SLEEVE TUBULAR (PTFE - AS1291 - CODE B) /7/	450
B	ABRASION SLEEVE COIL (NYLON AS1294) /8/	275
C	FIRE SLEEVE (AS1072 SIL-FG) (15 MIN) /9/ /10/ /14/	450
E	ABRASION SLEEVE SHRINK-ON (FEP) /12/	350
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B) /12/	275
G	FIRE SLEEVE (AS1072 SIL-FG) (5 MIN) /9/ /10/ /13/	450
H	FIRE SLEEVE INTEGRAL SILICONE (AS1723) (15 MIN) /14/	450
J	FIRE SLEEVE INTEGRAL SILICONE (5 MIN) /13/	450
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER /11/	300
L	ABRASION SLEEVE COIL (PTFE - AS1293) /8/	450

TABLE 4 - HOSE AND OUTSIDE SLEEVE DIAMETERS

HOSE OR SLEEVE CODE	TOLERANCE	HOSE SIZE /6/									
-	MAX	.285	.347	.417	.500	.614	.799	.906	1.140	1.390	1.707
-	MIN	.234	.304	.367	.430	.546	.641	.766	1.078	1.328	1.637
A	MAX	.390	.473	.524	.620	.715	.818	.955	1.295	1.550	1.841
A	MIN	.320	.393	.454	.515	.645	.748	.870	1.210	1.450	1.771
B	MAX	.339	.409	.472	.535	.669	.767	.896	1.224	1.474	1.807
B	MIN	.260	.330	.393	.456	.590	.681	.810	1.122	1.372	1.681
C	MAX	.692	.692	.780	.840	.970	1.090	1.220	1.590	1.900	2.190
C	MIN	.487	.533	.598	.658	.778	.891	1.016	1.288	1.578	1.887
E	MAX	.301	.375	.438	.507	.635	.749	.887	1.288	1.460	1.777
E	MIN	.248	.320	.383	.452	.578	.679	.811	1.146	1.358	1.667
F	MAX	.341	.411	.474	.547	.663	.769	.904	1.244	1.482	1.823
F	MIN	.278	.348	.411	.484	.600	.699	.834	1.158	1.396	1.729
G	MAX	.692	.692	.780	.840	.970	1.090	1.220	1.590	1.900	2.190
G	MIN	.487	.533	.598	.658	.778	.891	1.016	1.288	1.578	1.887
H	MAX	.641	.641	.704	.766	.891	1.016	1.141	1.454	1.704	2.016
H	MIN	.537	.594	.657	.719	.844	.949	1.074	1.394	1.649	1.957
J	MAX	.641	.641	.704	.766	.891	1.016	1.141	1.454	1.704	2.016
J	MIN	.450	.550	.595	.670	.775	.875	.995	1.310	1.508	1.815
K	MAX	.378	.430	.499	.559	.665	.772	.887	1.210	1.460	1.782
K	MIN	.320	.390	.450	.510	.625	.726	.841	1.148	1.398	1.712
L	MAX	.375	.445	.508	.571	.687	.789	.914	1.242	1.492	1.809
L	MIN	.267	.333	.407	.470	.586	.681	.828	1.138	1.388	1.697

TABLE 5 - HOSE WEIGHT MAX - ALL OTHERS REF

HOSE OR SLEEVE CODE OR FITTING	FITTING TYPE /25/	UNITS	HOSE SIZE									
			.188	.250	.313	.375	.500	.625	.750	1.000	1.250	1.500
-		LB/IN	.005	.007	.008	.010	.012	.016	.020	.045	.058	.074
A		LB/IN	.003	.004	.004	.006	.007	.008	.010	.014	.020	.045
B		LB/IN	.001	.001	.002	.002	.003	.004	.004	.005	.006	.009
C		LB/IN	.009	.009	.011	.012	.017	.018	.028	.030	.040	.047
E		LB/IN	.001	.002	.002	.002	.003	.004	.006	.007	.007	.008
F		LB/IN	.002	.002	.002	.002	.003	.003	.005	.006	.006	.007
G		LB/IN	.009	.009	.011	.012	.017	.018	.028	.030	.040	.047
H		LB/IN	.016	.018	.020	.023	.030	.037	.045	.085	.107	.132
J		LB/IN	.016	.017	.018	.021	.027	.035	.042	.079	.100	.123
K		LB/IN	.006	.008	.009	.011	.015	.018	.023	.050	.063	.081
L		LB/IN	.003	.004	.004	.005	.008	.009	.011	.018	.022	.028
FIRESLEEVE CLAMP		LB/EA	.015	.016	.018	.019	.021	.023	.025	.029	.033	.037
FITTING END												
A/D - CRES	R, S, E	LB/EA	.040	.055	.075	.085	.155	.235	.330	.535	.995	1.370
B/E - AL	R, S, E	LB/EA	---	.019	.026	.029	.053	.080	.112	.182	.338	.466
C/F - TI	R, S, E	LB/EA	.024	.033	.045	.051	.093	.141	.198	.321	.597	.822

TABLE 6 - SLEEVE LENGTH

HOSE SIZE	LENGTH
.188, .250, .313, .375	2.00 ± .25
.500, .625	2.50 ± .25
.750, 1.000	3.00 ± .25
1.250, 1.500	4.00 ± .25

## NOTES:

1. CONSTRUCTION AND PERFORMANCE: AS1946, FITTINGS SHALL BE PERMANENTLY ATTACHED TO THE HOSE.
2. OPERATING CHARACTERISTICS: SEE AS1946.
3. MATERIALS:
  - a. HOSE AND FITTINGS - PER AS1946 /5/
  - b. SLEEVES - SEE APPLICABLE STANDARDS, TABLE 3
- /4/ STANDARD COUPLING NUTS SHALL BE IN ACCORDANCE WITH AN818, AS1790, OR AS4370 (AS1791 WIRE AS APPLICABLE) AND MATE WITH AS4395 OR AS5309 FITTING ENDS. NONSTANDARD COUPLING NUTS MAY BE USED, PROVIDED THEY ARE FUNCTIONALLY EQUIVALENT, AND PROVIDED THEY CANNOT BE REMOVED FROM THE FITTING. NUTS SHALL MEET THE TORQUE TEST REQUIREMENTS PER AS1946.