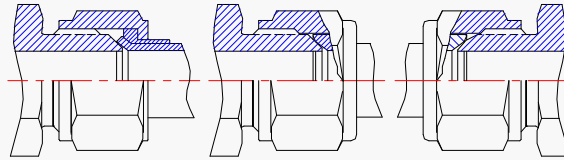


## FLARED SEPARABLE FITTING



### DESIGN CONCEPT:

The concept of Flared connection is to flare the tube end forming an internal 37 degree cone while supported by the AN818 nut and MS20819 sleeve behind the flared portion. It mates with a 37 degree fitting nose inserted into the flared tube end with external threads on the fitting to secure with the AN818 nut to maintain sealing.

When working with high strength tube materials or thick tube wall which makes it difficult to flare the tube end. The option of using a machined 37 degree single fitting cone or a double cone of a different design option will take place to mate with the conventional 37 degree fitting nose. The angle on the outer cone of 38-½ degree slightly larger than the 37 degree fitting nose is for alignment support and the 25 degree on the inner cone angle is for clearance purposes. The intersection of the two cone angles formed a sealing point landed on the mid section of the 37 degree fitting nose assures positive sealing. Thus, it eliminates undesirable sealing locations at extreme upper or lower edges of contacts between the 37 degree fitting nose and the single flared cone depending on the tolerance of 37 +/- ½ degree on both mating angles. It also eliminates sensitive nut binding and leakage as a result from nut over torque.

Another design option is to use the Seal Ring concept on the conventional 37 degree fitting nose. Sealing takes place with the Teflon ring compressed against the mating 37 degree cone. The Seal Ring connection assures positive sealing under tolerable misalignment conditions.

Both design options offer high degree of sealing reliability for repeated usage. It is however not recommended using double cone and Seal Ring nose to mate with each other.

## DESIGN ADVANTAGES:

- X Sealing efficiency eliminates down time and high repair cost.
- X Assembly of Flared connections can be made in place for production and repair applications.
- X Fittings are available in Cres, Titanium Alloy and Aluminum Alloy materials which are virtually compatible for use with just about any tube materials.
- C No special tooling is required except standard torque wrenches for fitting installation.

## STANDARD PROCUREMENT SPECIFICATION FOR FLARED FITTINGS

SAE AS4841 or Military MIL-F-5509 specifications define Form, Fit, Function and Procurement requirements for Flared fittings.

## APPROVAL STATUS

Airdrome fittings are approved for use in various military and commercial programs at Boeing, General Electric, Honeywell, Pratt & Whitney, Sikorsky, etc.

## FITTING MATERIAL SELECTION

Fittings and nuts are offered in the following materials for use with varies tubing materials, fluid and operating temperature:

### MATERIAL AND CODING

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Titanium Alloy	Code T	Indicates 6AL-4V per AMS4928.
Cres	Code J	Indicates 304 per AMS-QQ-S-763.
	Code K	Indicates 316 per AMS-QQ-S-763.
	Code R	Indicates 321 per AMS-QQ-S-763.
	Code S	Indicates 347 per AMS-QQ-S-763.
Carbon steel	Code -	Indicates 4130 per MIL-S-6758 or 4140 per MIL-S-5626.
Aluminum Alloy	Code D	Indicates 2024-T6 or T851 per QQ-A-225/6 for bar/plate stock materials or 2014-T6 per qQ-A-367 for forging material.
	Code W	Indicates 7075-T73 per QQ-A-225/9 for bar/plate stock materials or per QQ-A-367 for forging material.

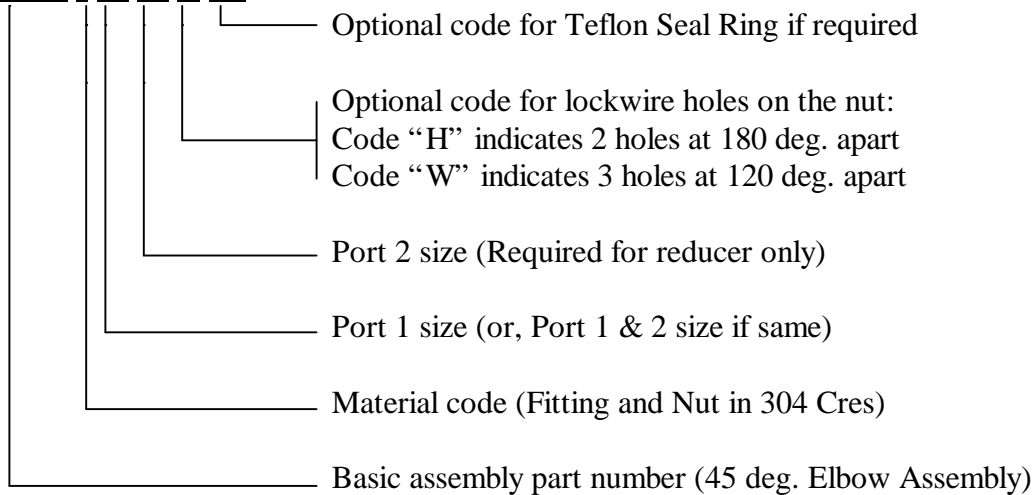
## SIZE AND MATERIAL VERSUS OPERATING PRESSURE

Fitting/tubing operating pressures vary according to size and material. The following shows standard size range and corresponding operating pressures:














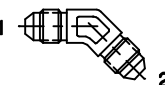
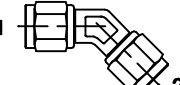
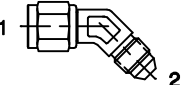
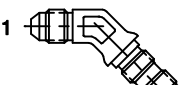
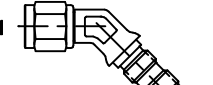
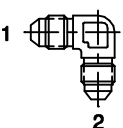
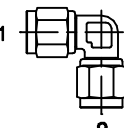
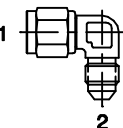
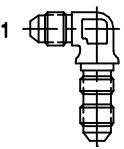
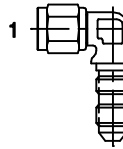
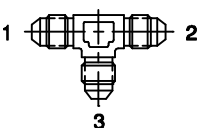
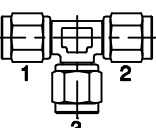
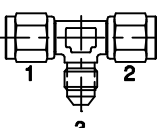
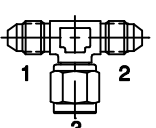
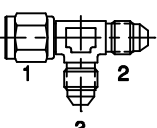
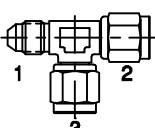
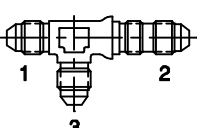
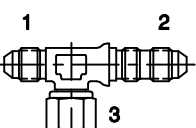
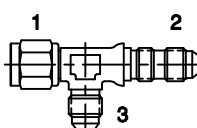
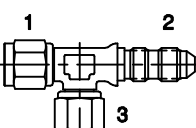
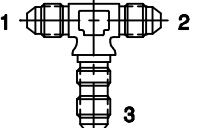
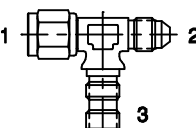
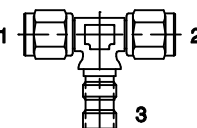
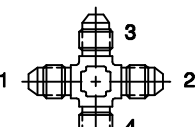
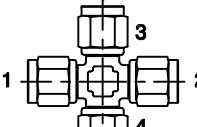
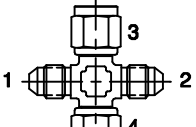
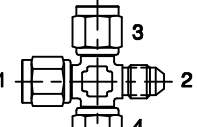
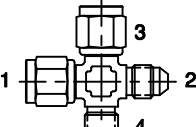
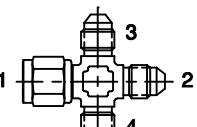
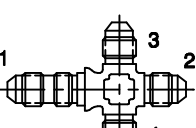
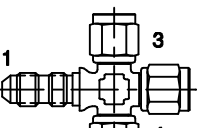
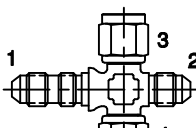
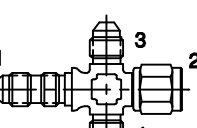
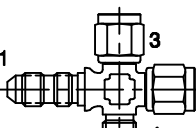
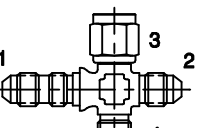
FITTING SIZE	TUBE O.D.	OPERATING PRESSURE (psi) PER FITTING MATERIAL	
		Ti Alloy & Cres	Alum Alloy
02	1/8	3000	3000
03	3/16	3000	3000
04	1/4	3000	3000
05	5/16	3000	3000
06	3/8	3000	3000
08	1/2	3000	3000
10	5/8	3000	3000
12	3/4	3000	3000
16	1	3000	3000
20	1-1/4	1500	1500
24	1-1/2	1500	1500
28	1-3/4	1500	1500
32	2	1500	1500

## EXAMPLE OF PART NUMBER FOR ORDERING FITTINGS

AP18336 J 12 08 H TF



**Note:** Contact Airdrome Precision Components for special fitting configuration, material and/or size not listed in this catalog.


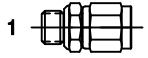
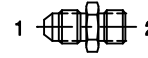

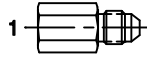
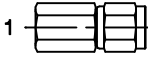

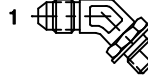
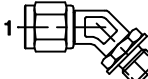
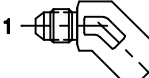
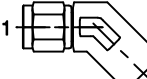
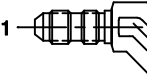
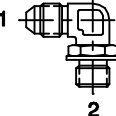
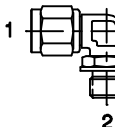
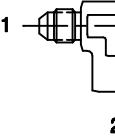
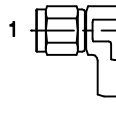
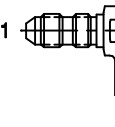
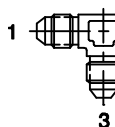
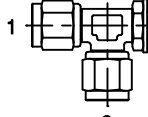
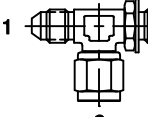
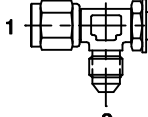
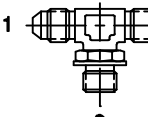
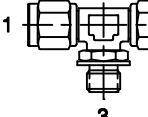
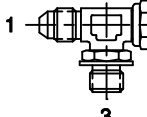
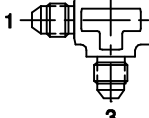
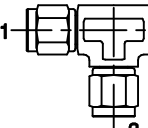
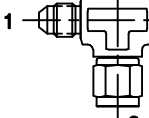
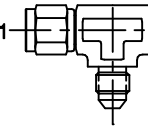
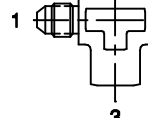
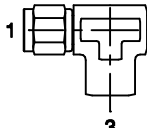
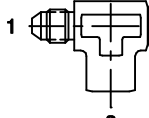
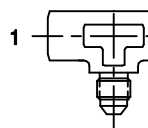
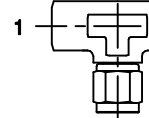
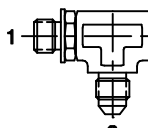
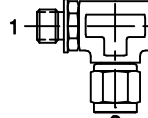
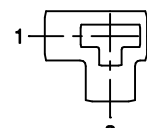
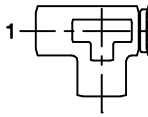
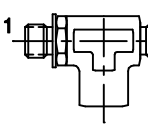
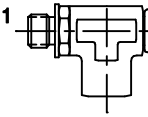
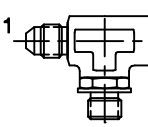
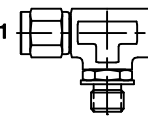
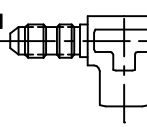
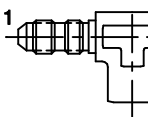
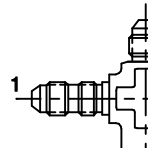
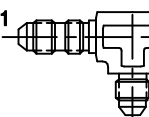
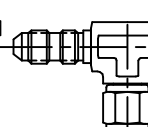
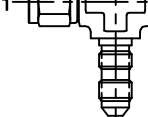
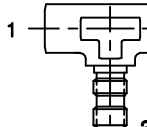
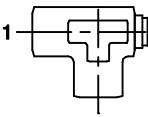
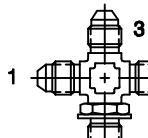
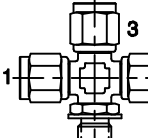
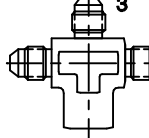
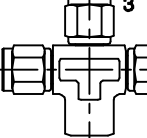
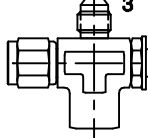
					
AP50	AP100	AP273	AP270	AP271	AP272
					
AP241	AP7231	AP202/AP203	AP208	AP207	AP231
					
AP7129	AP7348	AP225	AP263	AP233	AP259
					
AP213	AP211	AP262	AP232	AP258	AP217
					
AP240	AP251	AP265	AP264	AP222	AP234
					
AP7598	AP7566	AP7555	AP235	AP7518	AP7599
					
AP230	AP7717	AP7718	AP2656	AP7719	AP863
					
AP7711	AP7720	AP7721	AP7722	AP7723	AP7724

**37 deg. Flared Fittings and Equivalent Industry Standards**

Fitting Shape	Port Sequence for Airdrome Part no. only (See Example of Part No.)				Airdrome Standard	Aerospace Standard	National Aerospace Standard	Military Standard	Airforce - Navy Standard
	1	2	3	4					
Seal					AP50	AS3072 AS3074			
					AP100	AS4824			
Jam Nut					AP273	AS5178			AN924
Coupling Nut					AP270	AS4326			AN818
Sleeve	F				AP271	AS5176		MS20819	
Cap	F				AP272	AS4329			AN929
Plug	M				AP241	AS5168		MS24404	AN806
Straight	F	M			AP7231		NAS1564		
	M	M			AP202 *AP203			MS24392 *MS24399	AN815 *AN919
	F	F			AP208	AS4406			
	F	M			AP207	AS4405			
	M	B			AP231	AS1037		MS24393	AN832
	F	B			AP7129				
45 deg. Elbow	M	M			AP7348				
	F	F			AP225				
	F	M			AP263	AS4409			
	M	B			AP233	AS1040		MS24396	AN837
	F	B			AP259				
90 deg. Elbow	M	M			AP213	AS1034		MS24401	AN821
	F	F			AP211	AS4408			
	F	M			AP262	AS4407			
	M	B			AP232	AS1038		MS24394	AN833
	F	B			AP258				
Tee	M	M	M		AP217	AS1035		MS24402	AN824
	F	F	F		AP240				
	F	F	M		AP251				
	M	M	F		AP265	AS4411			
	F	M	M		AP264	AS4410			
	M	F	F		AP222				
	M	B	M		AP234	AS1033		MS24390	AN804
	M	B	F		AP7598				
	F	B	M		AP7566				
	F	B	F		AP7555				
	M	M	B		AP235	AS1039		MS24395	AN834
	F	M	B		AP7518				
	F	F	B		AP7599				
Cross	M	M	M	M	AP230	AS1036		MS24403	AN827
	F	F	F	F	AP7717				
	M	M	F	F	AP7718				
	F	M	F	F	AP2656				
	F	M	F	M	AP7719				
	F	M	M	M	AP863	AS95			
	B	M	M	M	AP7711				
	B	F	F	F	AP7720				
	B	M	F	F	AP7721				
	B	F	M	M	AP7722				
	B	F	F	M	AP7723				
B	M	F	M	AP7724					

Notes: 1. F = Female port, M = Male port, B = Bulkhead male port.

2. \* = A different part number assigned for reducers.

 AP2502/AP2504	 AP1109	 AP245	 AP7107	 AP243	 AP226
 AP7134	 AP254	 AP7395	 AP7399	 AP7400	 AP7401
 AP253	 AP7402	 AP7403	 AP7404	 AP7367	 AP256
 AP7604	 AP7605	 AP7606	 AP255	 AP7607	 AP940
 AP1093	 AP7608	 AP7609	 AP7610	 AP7571	 AP7611
 AP7612	 AP7616	 AP7617	 AP7618	 AP7619	 AP7620
 AP7621	 AP7622	 AP7623	 AP7624	 AP7625	 AP7522
 AP7613	 AP7561	 AP1045	 AP7614	 AP7615	 AP7517
 AP7505	 AP7713	 AP7735	 AP7736	 AP7737	 AP7738

**Adapters for 24 deg. Flareless to Boss and Equivalent Industry Standards**

Fitting Shape	Port Sequence for Airdrome Part No. only (See Example of Part No.)				Airdrome Standard	Aerospace Standard	Military Standard
	1	2	3	4			
Straight	M	**M			AP2501 *AP2503		
	F	**M			AP1105		
	M	M			AP7104		
	F	M			AP1051		
	F	M			AP236		MS21915
	F	F			AP229		
	B	F			AP7232		
45 deg. Elbow	M	M			AP7357		
	F	M			AP7405		
	M	F			AP7406		
	F	F			AP7409		
	B	F			AP7407		
90 deg. Elbow	M	M			AP7319		
	F	M			AP7346		
	F	M			AP7408		
	F	F			AP7410		
	F	B			AP2616		
Tee	M	M	M		AP7569		
	F	M	F		AP7626		
	M	M	F		AP7627		
	F	M	M		AP7628		
	M	M	M		AP7568		
	F	F	M		AP7629		
	M	F	M		AP7630		
	M	F	M		AP7631		
	F	F	F		AP7632		
	M	F	F		AP7633		
	F	F	M		AP7634		
	M	M	F		AP1053		
	F	F	F		AP7503		
	F	M	F		AP7528		
	F	F	M		AP7638		
	F	F	F		AP7639		
	M	F	M		AP7640		
	M	F	F		AP7641		
	F	M	F		AP7642		
	F	F	F		AP7643		
	M	M	F		AP7644		
	M	F	F		AP7645		
	M	F	M		AP7646		
	F	F	M		AP7647		
	B	M	F		AP7635	AS1001	MS21910
	F	B	F		AP943		
	M	F	B		AP766		
B	F	M		AP7511	AS1002	MS21911	
B	F	F		AP7636			
F	F	B		AP7637			
F	F	B		AP7515			
B	F	F		AP7547			
Cross	M	M	M	M	AP7739		
	F	F	F	F	AP7740		
	M	M	M	M	AP7741		
	F	F	F	F	AP7742		
	F	M	M	M	AP7743		

- Notes: 1. F = Female port, M = Male port, B = Bulkhead male port.  
 2. \* = A different part number assigned for reducers.  
 3. \*\* = Male Boss port has an integral metal seal.

AP18000	AP273	AP270	AP271	AP272	AP18111
AP18104	AP18110	AP18108	AP18336	AP18333	AP18332
AP18335	AP18331	AP18563	AP18554	AP18555	AP18558
18564	AP18776				

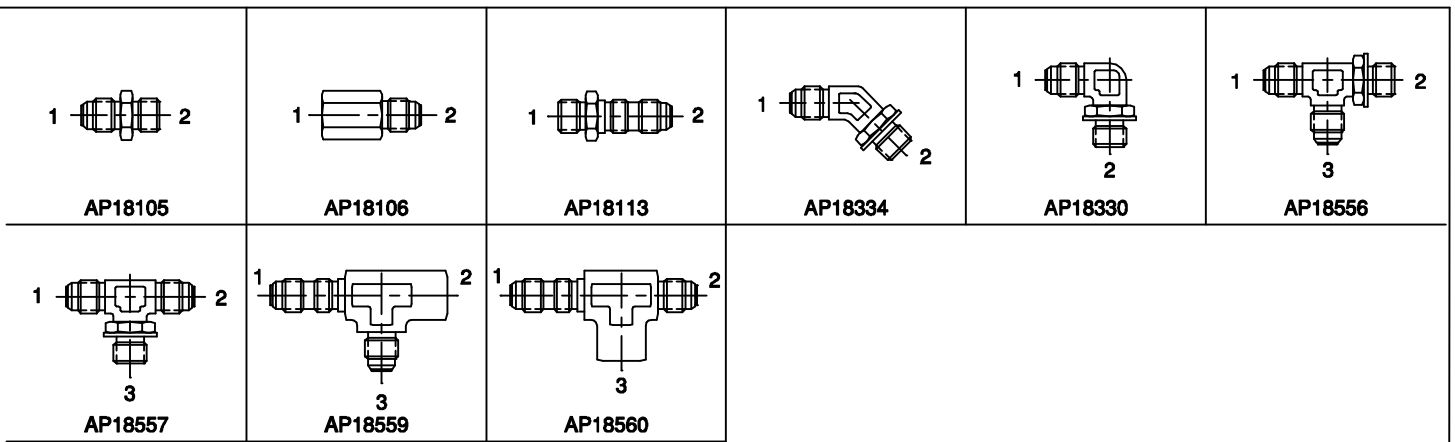
**37 deg. Seal Ring Flared Fittings and Equivalent Industry Standards**

Fitting Shape	Port Sequence for Airdrome Part No. only (See Example of Part No.)				Airdrome Standard	Aerospace Standard	Kennedy Space Center Standard	Military Standard	Airforce - Navy Standard
	1	2	3	4					
Seal					AP 18000	AS1097	KC103		
Jam Nut					AP 273				AN924
Coupling Nut					AP 270	AS4326			AN818
Sleeve	F				AP 271	AS4327	KC143	MS20819	
Cap	F				AP 272	AS4329			AN929
Plug	M				AP 18111	AS1369	KC130		
Straight	F	M			AP 18104	AS4301	KC106		
	M	M			AP 18110	AS1251	KC126		
	M	B			AP 18108	*AS1368 AS1100	KC125 KC124		
45 deg. Elbow	M	F			AP 18336	AS4316	KC132		
	M	B			AP 18333	AS1249	KC128		
90 deg. Elbow	M	M			AP 18332	AS1250	KC118		
	M	F			AP 18335	AS4315	KC131		
	M	B			AP 18331	AS1366	KC113		
Tee	M	M	M		AP 18563	AS1252	KC123		
	M	F	M		AP 18554	AS4302	KC107		
	M	M	F		AP 18555	AS4304	KC109		
	M	B	M		AP 18558	AS1365	KC114		
	M	M	B		AP 18564	AS1253	KC127		
Cross	M	M	M	M	AP 18776	AS1367	KC117		

Notes: 1. F = Female port, M = Male port, B = Bulkhead male port.

2. \* = A different part number assigned for reducers.





**Adapters for 37 deg. Seal Ring Flared to Boss Fittings  
and Equivalent Industry Standards**

Fitting Shape	Port Sequence for Airdrome Part No. only (See Example of part No.)				Airdrome Standard	Aerospace Standard	Kennedy Space Center Standard
	1	2	3	4			
	Straight	M	M				
	F	M			AP 18106	AS4308	KC115
	M	B			AP 18113	AS4318	KC134
45 deg. Elbow	M	M			AP 18334	AS4314	KC129
90 deg. Elbow	M	M			AP 18330	AS4303	KC108
Tee	M	M	M		AP 18556	AS4305	KC110
	M	M	M		AP 18557	AS4306	KC111
	B	F	M		AP 18559	AS4310	KC119
	B	M	F		AP 18560	AS4311	KC120

Note: 1. F = Female 37 deg. Seal Ring Flared or Boss ports,  
M = Male 37 deg. Seal Ring Flared or Boss ports,  
B = Bulkhead 37 deg. Seal Ring Flared male port.