

SAE The Engineering
Resource For
Advancing Mobility

400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

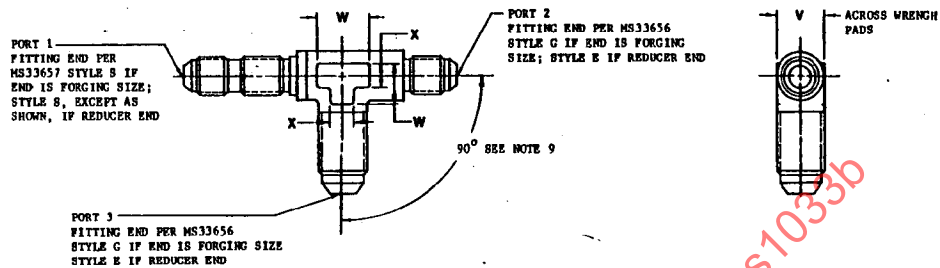
AEROSPACE STANDARD

AS1033B

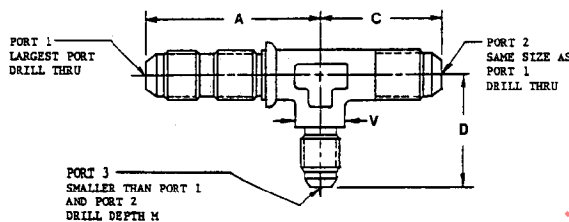
Issued 8-15-62

Revised 4-4-83

REDUCER TEE - BULKHEAD ON RUN, FLARED TUBE

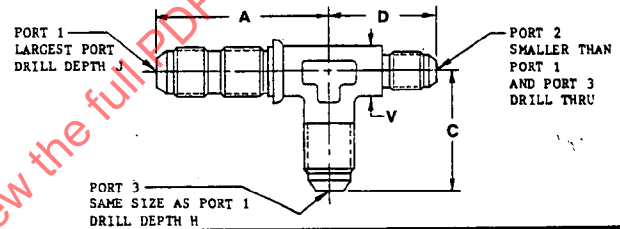


STYLE I
EXAMPLE: AS1033-121208

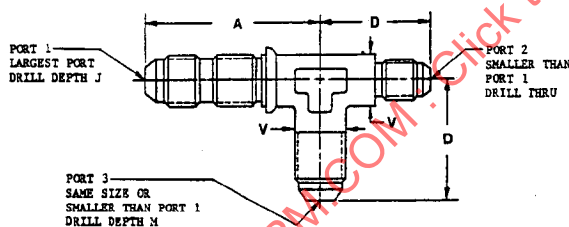


REDUCER COMBINATIONS

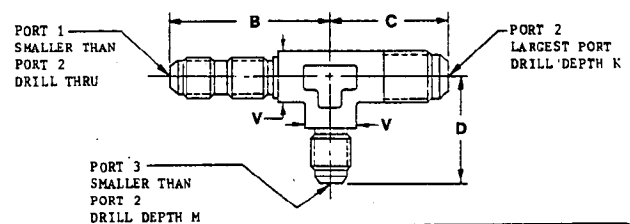
STYLE II
EXAMPLE: AS1033D120812



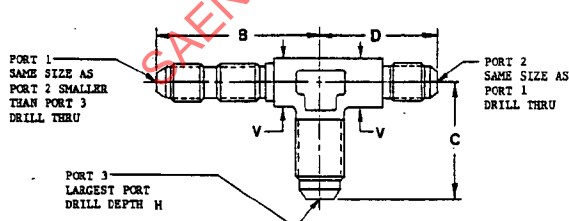
STYLE III
EXAMPLE: AS1033J120808



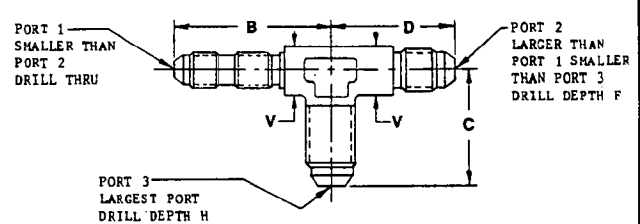
STYLE IV
EXAMPLE: AS1033K0812D8



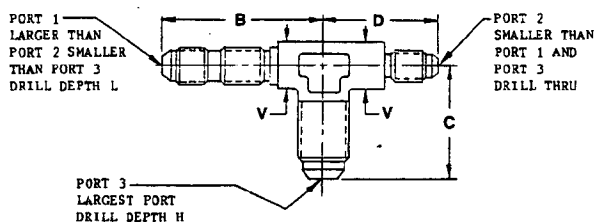
STYLE V
EXAMPLE: AS1033S080812



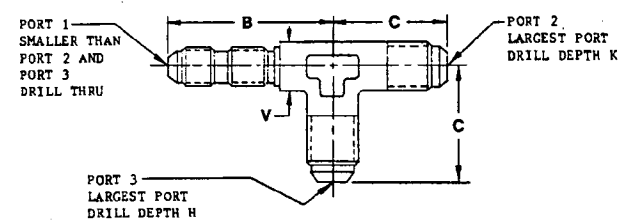
STYLE VI
EXAMPLE: AS1033-060812



STYLE VII
EXAMPLE: AS1033J080612



STYLE VIII
EXAMPLE: AS1033J081010



AS1033B

-2-

FORGING SIZE	A	C	H	V	W	X
3	1.461	1.507	1.538	1.648	1.789	1.929
4	1.601	1.632	1.663	1.742	1.883	2.023
5	1.632	1.663	1.694	1.773	1.914	2.054
6	1.820	1.851	1.882	1.961	2.102	2.243
8	2.117	2.148	2.179	2.258	2.399	2.539
10	2.398	2.429	2.460	2.539	2.680	2.820
12	2.679	2.710	2.741	2.820	2.961	3.101
16	2.804	2.835	2.866	2.945	3.086	3.226
20	3.132	3.163	3.194	3.273	3.414	3.554
24	3.429	3.460	3.491	3.570	3.711	3.851
32	4.117	4.148	4.179	4.258	4.399	4.539

LEG LENGTH B +.016												
FORGING SIZE												
3	4	5	6	8	10	12	16	20	24	32		
1.461	1.507	1.538	1.648	1.789	1.929	2.039	2.164	2.445	2.726	3.133	2	SIZE OF #1 PORT
	1.507	1.538	1.648	1.789	1.929	2.039	2.164	2.445	2.726	3.133	3	
		1.632	1.742	1.883	2.023	2.133	2.258	2.539	2.820	3.227	4	
			1.742	1.883	2.023	2.133	2.258	2.539	2.820	3.227	5	
				1.961	2.101	2.211	2.336	2.617	2.898	3.305	6	
					2.257	2.367	2.492	2.773	3.054	3.461	8	
						2.508	2.633	2.914	3.195	3.602	10	
							2.804	3.085	3.366	3.773	12	
								3.085	3.366	3.773	16	
									3.413	3.820	20	
										3.836	24	

LEG LENGTH D $\pm$.016											4	5
FORGING SIZE											.960	1.0
3	4	5	6	8	10	12	16	20	24	32		1.1
.820	.820	.874	.978	1.064	1.166	1.263	1.373	1.576	1.716	2.201	2	
	.843	.905	1.009	1.095	1.197	1.294	1.404	1.607	1.747	2.232	3	
		.976	1.080	1.166	1.268	1.365	1.475	1.678	1.818	2.303	4	SIZE
			1.080	1.166	1.268	1.365	1.475	1.678	1.818	2.303	5	OF
				1.172	1.274	1.371	1.481	1.684	1.824	2.309	6	#2
					1.375	1.472	1.582	1.785	1.925	2.410	8	OR
						1.573	1.683	1.886	2.026	2.511	10	#3
							1.789	1.992	2.132	2.617	12	PORT
								2.039	2.179	2.664	16	
									2.226	2.711	20	
										2.836	24	

DRILL DEPTH F +.016											3.638	24
FORGING SIZE												
4	5	6	8	10	12	16	20	24	32			
.960	1.063	1.203	1.328	1.484	1.641	1.859	2.188	2.438	3.156	3		
	1.125	1.266	1.406	1.547	1.703	1.938	2.250	2.516	3.234	4		
32		1.266	1.406	1.547	1.703	1.938	2.250	2.516	3.234	5	SIZE OF #2 PORT	
2.201	2		1.406	1.547	1.703	1.938	2.250	2.516	3.234	6		
2.232	3		1.406	1.547	1.719	1.938	2.266	2.516	3.234	8		
2.303	4	SIZE OF #2 OR #3	1.656	1.813	2.047	2.359	2.625	3.344				
2.303	5			1.922	2.141	2.469	2.719	3.438	10			
2.309	6				2.250	2.562	2.828	3.547	12			
2.410	8					2.609	2.875	3.594	16			
2.511	10						2.922	3.641	20			
									3.766	24		

DRILL DEPTH J +.016											.953	1.016	1.1
FORGING SIZE											1.031	1.1	1.1
3	4	5	6	8	10	12	16	20	24	32			
1.531	1.672	1.703	1.891	2.188	2.469	2.750	2.875	3.203	3.500	4.188	2		
1.563	1.703	1.734	1.922	2.219	2.500	2.781	2.906	3.234	3.531	4.219	3		
	1.719	1.750	1.938	2.234	2.516	2.797	2.922	3.250	3.547	4.234	4		SIZE
		1.781	1.969	2.266	2.547	2.828	2.953	3.281	3.578	4.266	5		OF
			2.000	2.297	2.578	2.859	2.984	3.312	3.609	4.297	6		#3
				2.344	2.625	2.906	3.031	3.359	3.656	4.344	8		PORT
					2.672	2.953	3.078	3.406	3.703	4.391	10		
						3.016	3.141	3.469	3.766	4.453	12		
							3.266	3.594	3.891	4.578	16		
								3.703	4.000	4.688	20		
									4.125	4.812	24		
										5.047	32		

2.836		24		DRILL DEPTH K+.016																			
FORGING SIZE																							
3		4		5		6		8		10		12		16		20		24		32			
.922		.984		1.047		1.156		1.344		1.547		1.750		1.906		2.156		2.422		3.156		2	
.953		1.016		1.078		1.188		1.375		1.578		1.781		1.938		2.188		2.453		3.188		3	
1.031		1.094		1.203		1.391		1.594		1.797		1.953		2.203		2.469		3.203		4		SIZE	
1.125		1.234		1.422		1.625		1.828		1.984		2.234		2.500		3.235		5		OF		PORT	
1.266		1.453		1.656		1.858		2.016		2.266		2.531		3.266		6		#3					
1.500		1.703		1.906		2.063		2.328		2.578		3.328		8									
1.750		1.953		2.109		2.359		2.625		3.359		10											
2.016		2.172		2.422		2.688		3.422		12													
2.297		2.547		2.812		3.547		16															
2.656		2.922		3.656		20																	
3.047		3.781		24																			
4.016		32																					

DRILL DEPTH L										3	4
PORT #1 SIZE										.859	.859
24	20	16	12	10	8	6	5	4	3		.875
4.766	4.750	4.703	4.703	4.531	4.391	4.234	4.156	4.156	4.063	32	
	4.109	4.063	4.063	3.891	3.750	3.594	3.516	3.516	3.422	24	
		3.656	3.656	3.484	3.344	3.188	3.109	3.109	3.016	20	
			3.266	3.094	2.953	2.797	2.719	2.719	2.625	16	
				2.844	2.703	2.547	2.469	2.469	2.375	12	
					2.531	2.375	2.297	2.297	2.203	10	
						2.188	2.125	2.125	2.016	8	
							1.922	1.922	1.828	6	
								1.781	1.688	5	
									1.625	4	

SIZE OF #3 PORT	1
-----------------	---

DRILL DEPTH M											
FORGING SIZE											
3	6	8	10	12	16	20	24	32			
.906	1.016	1.109	1.203	1.297	1.406	1.609	1.750	2.234	2		
.938	1.047	1.141	1.234	1.328	1.438	1.641	1.781	2.266	3		
.016	1.125	1.203	1.312	1.406	1.516	1.719	1.859	2.344	4		SIZ
	1.125	1.203	1.312	1.406	1.516	1.719	1.859	2.344	5		OF
		1.203	1.312	1.406	1.516	1.719	1.859	2.344	6		PO
			1.203	1.312	1.406	1.516	1.719	1.859	2.344	7	
				1.406	1.516	1.625	1.828	1.969	2.453	8	
					1.609	1.719	1.922	2.063	2.547	10	
						1.828	2.031	2.172	2.656	12	
							2.078	2.219	2.703	16	
								2.266	2.750	20	
									2.875	24	

- SPECIFY END SIZES IN THE FOLLOWING ORDER: (1) BULKHEAD END; (2) OPPOSITE END ON RUN; (3) SIDE END.
- LARGEST TUBE SIZE DETERMINES FORGING SIZE.
- MATERIAL CODING:
 - STEEL 1137 OR 1141 PER QQ-S-637 (OPTIONAL: 4130/MIL-S-6758). FINISH CADMIUM PLATE PER QQ-P-416. TYPE II, CLASS 2. COLOR BLACK.
 - CRCS TYPE 347. CRCS PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
 - J CRCS TYPE 304. CRCS PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
 - K CRCS TYPE 316. CRCS PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
 - D ALUMINUM ALLOY 2014-T6 PER QQ-A-367 (OR 2024-T851). ANODIZE PER MIL-A-8625 TYPE II, CLASS 2. DYE BLUE.
 - W ALUMINUM ALLOY 7075-T73 PER QQ-A-225/9 (OPTIONAL: QQ-A-367). ANODIZE PER MIL-A-8625. TYPE II, CLASS 2. DYE BROWN.
 - T TITANIUM ALLOY (6AL-4V) PER AMS 4928. FLUORIDE PHOSPHATE COAT PER AMS 2486.
- PART NUMBER EXAMPLE:

ALUMINUM ALLOY 1.313 WRENCH FLATS					
AS 1033 D	08	10	16	A	B
MS33656-16				1.836	
MS33656-10				1.683	
MS33657-8				2.492	
					DRILL DEPTH
					1.875
					2.141
					THRU

- PROC. SPEC. MIL-F-5509, LATEST REVISION, UNLESS OTHERWISE SPECIFIED ON PURCHASE ORDER BY PURCHASER.
- REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
- THIS STANDARD TAKES PRECEDENCE OVER REFERENCED DOCUMENTS HEREIN.
- MANUFACTURER'S TRADEMARK AND BASIC PART NUMBER (EXCLUSIVE OF SIZE) TO APPEAR PERMANENTLY ON FINISHED PARTS. BASIC PART NUMBER MAY BE REDUCED TO "AS" ON FORGINGS SIZE 6 AND SMALLER. PARTS PREVIOUSLY IMPRESSION STAMPED WITH AN, MS OR PROPRIETARY IDENTIFICATION SHALL BE ACCEPTABLE PROVIDED SUCH IDENTIFICATION IS OBLITERATED BY IMPRESSION STAMPING WITHOUT DAMAGING THE PART.
- TOLERANCE ON 90° ANGLE: ±2-1/2° FOR TUBE SIZE 6 AND SMALLER, ±1-1/2° FOR TUBE SIZE 8 AND LARGER.
- WHEN FITTING IS MADE FROM BAR, THE CONTOUR OF THE BODY SECTION SHALL BE PER AS 1376 FOR FORGING SIZES DASH 3 THROUGH 8, AND AS 1376 CODE M FOR SIZES DASH 10 AND LARGER.

PREPARED BY SUBCOMMITTEE G-3B, AEROSPACE FITTINGS OF
SAE COMMITTEE G-3, AEROSPACE FITTINGS & HOSE ASSEMBLIES