SAE The Engineering Resource For Advancing Mobility

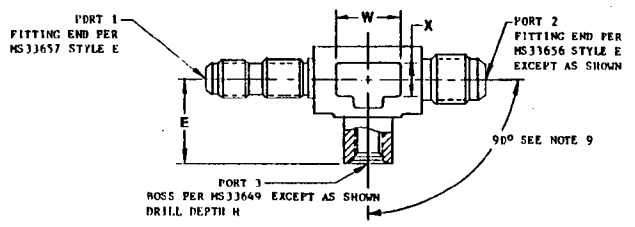
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

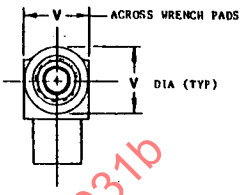
AEROSPACE STANDARD

AS 1031B

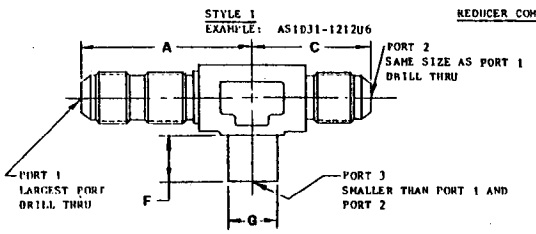
Issued 8-15-62
Revised 4-4-83

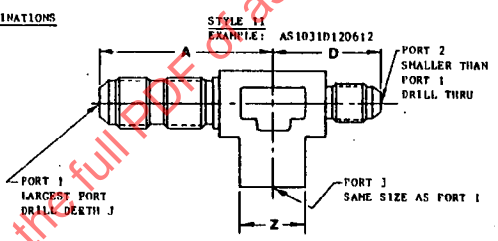
REDUCER TEE - BULKHEAD ON RUN, INTERNALLY THREADED SIDE PORT, FLARED TUBE

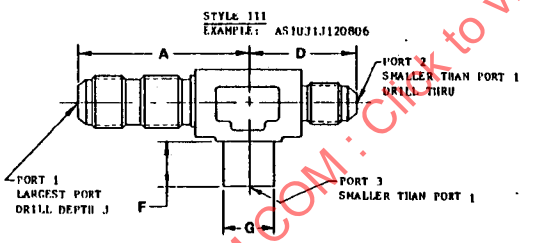


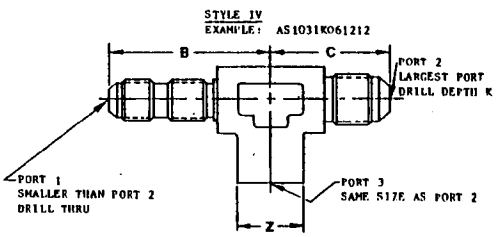


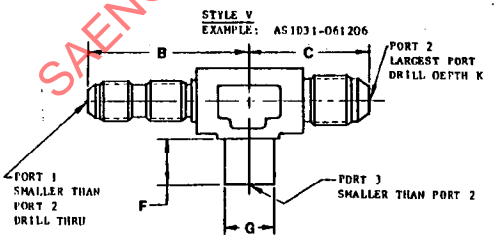
REDUCER COMBINATIONS

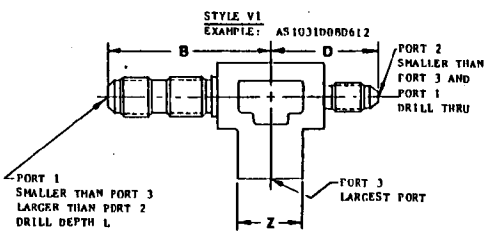


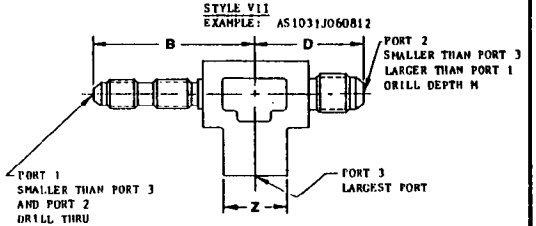


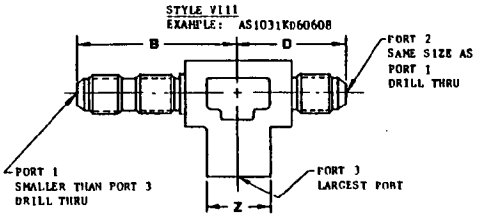












Printed in U.S.A.

FORGING SIZE	A ±.016	C ±.016	E ±.016	F ±.016	H ±.016	V ±.016	W APPROX	X APPROX	Z ±.016
3	1.523	.992	.711	-	.750	.562	.500	.312	.625
4	1.773	1.211	.773	.375	.812	.750	.688	.438	.750
5	1.773	1.211	.773	.375	.812	.750	.688	.438	.750
6	2.023	1.273	.836	.375	.875	.875	.781	.438	.875
8	2.179	1.461	1.023	.469	1.063	1.063	.906	.500	1.063
10	2.398	1.648	1.180	.625	1.219	1.063	.906	.500	1.188
12	2.648	1.836	1.367	.688	1.406	1.312	1.094	.625	1.438
16	2.867	2.086	1.555	.719	1.594	1.625	1.312	.750	1.688
20	3.054	2.273	1.742	.781	1.781	1.875	1.500	.875	2.000

LEG LENGTH B ±.016

FORGING SIZE										
3	4	5	6	8	10	12	16	20		
1.523	1.679	1.679	1.851	1.851	1.929	2.008	2.227	2.367	2	SIZE OF PORT #1
	1.679	1.679	1.851	1.851	1.929	2.008	2.227	2.367	3	
		1.773	1.945	1.945	2.023	2.102	2.321	2.461	4	
			1.945	1.945	2.023	2.102	2.321	2.461	5	
				2.023	2.101	2.180	2.399	2.539	6	
					2.257	2.336	2.555	2.695	8	
						2.477	2.696	2.836	10	
							2.867	3.007	12	
								3.007	16	

LEG LENGTH D ±.016

FORGING SIZE									
3	4	5	6	8	10	12	16	20	
.961	1.109	1.109	1.165	1.232	1.338	1.420	1.623	1.763	2
	1.140	1.140	1.196	1.283	1.369	1.451	1.654	1.794	3
		1.211	1.267	1.354	1.440	1.522	1.725	1.865	4
			1.267	1.354	1.440	1.522	1.725	1.865	5
				1.360	1.446	1.528	1.731	1.871	6
					1.547	1.629	1.832	1.972	8
						1.730	1.933	2.073	10
							2.039	2.179	12
								2.226	15

SIZE OF PORT #2

TURNED DIA G ±.016

FORGING SIZE									
3	4	5	6	8	10	12	16	20	
-	.594	.594	.594	.594	.594	.594	.594	.594	2
	.656	.656	.656	.656	.656	.656	.656	.656	3
		-	.719	.719	.719	.719	.719	.719	4
			.781	.781	.781	.781	.781	.781	5
				.844	.844	.844	.844	.844	6
					-	1.062	1.062	1.062	8
						-	1.188	1.188	10
							1.438	1.438	12
								1.688	16

SIZE OF #3 PORT

DRILL DEPTH J ±.016

SIZE OF NO. 1 PORT									
3	4	5	6	8	10	12	16	20	
1.703	1.953	1.953	2.203	2.359	2.578	2.828	3.046	3.234	2
1.734	1.984	1.984	2.234	2.391	2.609	2.859	3.078	3.266	3
	2.000	2.000	2.250	2.406	2.625	2.875	3.094	3.281	4
		2.031	2.281	2.438	2.656	2.906	3.125	3.312	5
			2.312	2.469	2.688	2.938	3.156	3.344	6
				2.562	2.781	3.032	3.250	3.438	8
					2.844	3.094	3.312	3.500	10
						3.172	3.391	3.578	12
							3.516	3.703	16
								3.859	20

SIZE OF #3 PORT

DRILL DEPTH K ±.016

SIZE OF NO. 2 PORT									
3	4	5	6	8	10	12	16	20	
1.172	1.391	1.391	1.453	1.641	1.828	2.015	2.266	2.453	2
1.203	1.422	1.422	1.484	1.672	1.859	2.046	2.297	2.484	3
	1.438	1.438	1.500	1.688	1.875	2.062	2.312	2.500	4
		1.469	1.531	1.719	1.906	2.094	2.344	2.531	5
			1.562	1.750	1.938	2.125	2.375	2.562	6
				1.844	2.031	2.218	2.469	2.656	8
					2.094	2.281	2.531	2.719	10
						2.359	2.609	2.797	12
							2.734	2.922	16
								3.078	20

SIZE OF #3 PORT

DRILL DEPTH L ±.016

SIZE OF NO. 1 PORT								
16	12	10	8	6	5	4	3	
3.812	3.812	3.641	3.500	3.344	3.256	3.266	3.172	20
	3.516	3.344	3.203	3.047	2.968	2.968	2.875	16
		3.000	2.859	2.703	2.625	2.625	2.531	12
			2.703	2.547	2.469	2.469	2.375	10
				2.406	2.328	2.328	2.234	8
					2.234	2.234	2.141	6
						2.032	1.938	5
							1.906	4

SIZE OF #3 PORT

DRILL DEPTH M ±.016

SIZE OF NO. 2 PORT								
16	12	10	8	6	5	4	3	
3.031	2.984	2.875	2.781	2.688	2.672	2.672	2.609	20
	2.688	2.594	2.484	2.390	2.375	2.375	2.312	16
		2.266	2.156	2.062	2.046	2.046	1.984	12
			1.984	1.891	1.875	1.875	1.812	10
				1.750	1.734	1.734	1.672	8
					1.562	1.562	1.484	6
						1.469	1.406	5
							1.375	4

SIZE OF #3 PORT

1. SPECIFY END SIZES IN THE FOLLOWING ORDER: (1) BULKHEAD END; (2) OPPOSITE END ON RUN; (3) INTERNALLY THREADED SIZE PORT.
2. LARGEST TUBE SIZE DETERMINES FORGING SIZE.
3. 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.
   S CRES TYPE 347. CRES PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
   J CRES TYPE 304. CRES PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
   K CRES TYPE 316. CRES 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.
4. PART NUMBER EXAMPLE:

ALUMINUM ALLOY 1.625 WRENCH FLATS

AS 1031 D 10 16 08
MS33657E10
MS33656E16
MS33649-8

A	B	C	D	E	F	C	DRILL DEPTH
				1.555	.719	1.062	1.594
		2.086					2.469
	2.696						THRU

5. PROC. SPEC. MIL-F-5509, LATEST REVISION, UNLESS OTHERWISE SPECIFIED ON PURCHASE ORDER BY PURCHASER.
6. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
7. THIS STANDARD TAKES PRECEDENCE OVER REFERENCED DOCUMENTS HEREIN.
8. 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.
9. TOLERANCE ON 90° ANGLE: ±2-1/2° FOR TUBE SIZE 6 AND SMALLER, ±1-1/2° FOR TUBE SIZE 8 AND LARGER.
10. WHEN FITTING IS MADE FROM BAR, THE CONTOUR OF THE BODY SECTION SHALL BE PER AS 1376 FOR FORGING SIZES DASH 3 THROUGH DASH 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