



**MATERIAL:** TITANIUM ALLOY - BARS, SHAPES OR FORGINGS.  
 STEEL-BARS, SHAPES, OR FORGINGS.  
 ALUMINUM ALLOY - BARS, SHAPES, OR FORGINGS.  
 CORROSION RESISTANT STEEL - BARS, SHAPES, OR FORGINGS.  
 SEE PROCUREMENT SPECIFICATION.

**FINISH:** SEE PROCUREMENT SPECIFICATION.

NO CODE LETTER IN PART NUMBER FOR STEEL.  
 ADD D AFTER DASH NUMBER FOR ALUMINUM ALLOY (EXCEPT 7075-T73)  
 ADD J AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL, TYPE 304.  
 ADD K AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL, TYPE 316.  
 ADD S AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL, TYPE 347.  
 ADD T AFTER DASH NUMBER FOR TITANIUM.  
 ADD W AFTER DASH NUMBER FOR 7075-T73.

**EXAMPLE OF PART NUMBERS.**  
 AN833-8 - ELBOW, 1/2 TUBING, STEEL.  
 AN833-8D - ELBOW, 1/2 TUBING, ALUMINUM ALLOY (EXCEPT 7075-T73).  
 AN833-8J - ELBOW, 1/2 TUBING, CORROSION RESISTANT STEEL, TYPE 304.  
 AN833-8K - ELBOW, 1/2 TUBING, CORROSION RESISTANT STEEL, TYPE 316.  
 AN833-8S - ELBOW, 1/2 TUBING, CORROSION RESISTANT STEEL, TYPE 347.  
 AN833-8T - ELBOW, 1/2 TUBING, TITANIUM.  
 AN833-8W - ELBOW, 1/2 TUBING, 7075-T73.

INSTALLATION TO BE IN ACCORDANCE WITH AND10064.  
 BREAK ALL SHARP EDGES AND REMOVE ALL HANGING BURRS AND SLIVERS WHICH MIGHT BECOME DISLODGED UNDER USAGE.  
 DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: FRACTIONS  $\pm 1/64$ , DECIMALS  $\pm .005$ , ANGLES  $\pm 1/2^\circ$ .  
 TITANIUM NOT TO BE USED IN OXYGEN SYSTEMS.

<b>ENTIRE STANDARD REVISED</b>		<b>AIR FORCE - NAVY AERONAUTICAL STANDARD</b>	
P. A. <b>AIR FORCE - 82</b> <small>Other Cost</small>	INTERNATIONAL INTEREST	<b>ELBOW - FLARED TUBE AND BULKHEAD UNIVERSAL, 90°</b>	
ARMY - AV NAVY - AS <b>AIR FORCE - 99</b>		<b>AN833</b>	
PROCUREMENT SPECIFICATION <b>MIL - F - 5509</b>	SUPERSEDES:	SHEET 1 OF 2	

USER ACTIVITIES  
 REVIEWER ACTIVITIES DLA-CS

This military standard is approved for use by all Departments and Agencies of the Department of Defense  
 Selection for all new engineering and design applications and for repetitive use shall be made from this  
 document

APPROVED 9 MAY 42 REVISED 7 16 APRIL 82 8 4 Aug 82

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DASH NO.	TUBING OD	THREAD T (REF)	H RAD	H +3/64 -0	Q +3/64 -0
AN833-2	1/8	5/16-24UNJF-3A	1/32	1-13/32	53/64
AN833-3	3/16	3/8 -24UNJF-3A		1- 7/16	57/64
AN833-4	1/4	7/16-20UNJF-3A	1/16	1-37/64	61/64
AN833-5	5/16	1/2 -20UNJF-3A		1-39/64	1- 1/64
AN833-6	3/8	9/16-18UNJF-3A	3/32	1-51/64	1- 5/64
AN833-8	1/2	3/4 -16UNJF-3A		2- 3/32	1-11/32
AN833-10	5/8	7/8 -14UNJF-3A		2- 3/8	1-35/64
AN833-12	3/4	1-1/16-12UNJ -3A		2-21/32	1-49/64
AN833-16	1	1-5/16-12UNJ -3A		2-25/32	1-59/64
AN833-20	1-1/4	1-5/8 -12UNJ -3A		3- 7/64	2- 5/32
AN833-24	1-1/2	1-7/8 -12UNJ -3A		3-13/32	2-21/64
AN833-28	1-3/4	2-1/4 -12UNJ -3A		3-25/32	2-19/32
AN833-32	2	2-1/2 -12UNJ -3A		4- 3/32	2- 7/8

DASH NO.	R RAD	U RAD	V	W APPROX	X APPROX	Y +3/64 -0	Z +3/64 -0
AN833-2	5/32	1/16	5/16	5/16	3/16	55/64	1- 7/16
AN833-3	3/16		3/8		1/4	59/64	1-15/32
AN833-4	7/32		7/16	3/8	63/64	1-39/64	
AN833-5	1/4	3/32	1/2	1/2	5/16	1- 3/64	1-41/64
AN833-6	9/32		9/16			1- 7/64	1-53/64
AN833-8	3/8		3/4	3/8	7/16	1- 3/8	2 1/8
AN833-10	7/16	7/8	3/4	1-41/64		2-15/32	
AN833-12	17/32	1/8	1-1/16	7/8	1/2	1-55/64	2- 3/4
AN833-16	21/32		1-5/16	1- 1/16	5/8	2- 1/64	2- 7/8
AN833-20	13/16	3/16	1-5/8	1- 1/4	3/4	2- 9/32	3-15/64
AN833-24	15/16		1-7/8	1- 7/16	7/8	2-31/64	3-39/64
AN833-28	1- 1/8		2-1/4	1- 3/4	1-1/16	2-25/32	4- 1/16
AN833-32	1- 1/4		2-9/16	1-15/16	1-3/16	2-15/16	4-29/64

ENTIRE STANDARD REVISED

P. A. AIR FORCE-82  
Other Code  
ARMY - AV  
NAVY - AS

INTERNATIONAL INTEREST

AIR FORCE-NAVY AERONAUTICAL STANDARD

ELBOW - FLARED TUBE AND BULKHEAD UNIVERSAL 90°

AN833

AIR FORCE-99  
PROCUREMENT SPECIFICATION  
ML-F-8509

SUPERSEDES:

SHEET 2 OF 2