

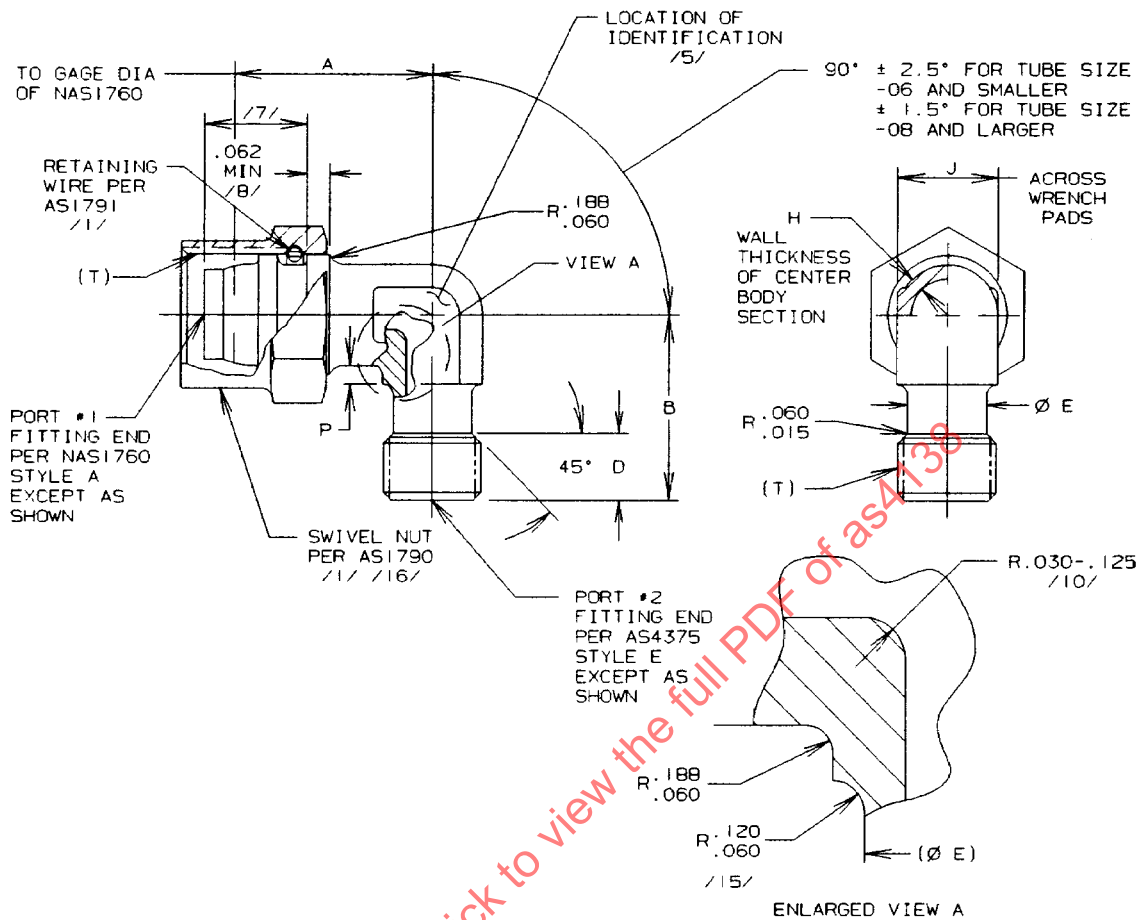
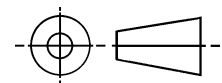


FIGURE 1 - ELBOW, 90°, SWIVEL, REDUCED BODY, FLARELESS

THIRD ANGLE PROJECTION



CUSTODIAN: SAE G-3/G-3B

PROCUREMENT SPECIFICATION: /4/ MIL-F-18280

SAE The Engineering Society
For Advancing Mobility
Land Sea Air and Space
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARDELBOW, 90°, SWIVEL,
REDUCED BODY, FLARELESS

AS4138
SHEET 1 OF 5

ISSUED 1992-11 REAFFIRMED 2000-10

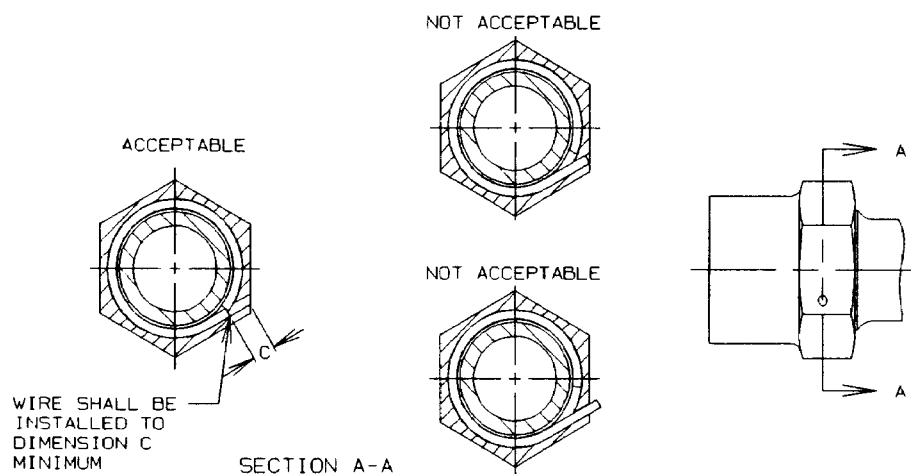


FIGURE 2 - INSTALLATION, SWIVEL NUT RETAINING WIRE

TABLE 1 - DIMENSIONS AND WEIGHTS

BASIC NO. AS4138 /22/ SIZE CODE	H MIN	J	P ±.030	LB/EA MAX CRES	LB/EA MAX TI
04	.050	.390	.030	.060	.034
05	.050	.453	.159	.077	.043
06	.050	.453	.137	.091	.051
08	.050	.577	.140	.160	.082
10	.070	.702	.157	.249	.140
12	.080	.890	.166	.390	.219
16	.090	1.140	.174	.588	.330
20	.110	1.390	.071	.949	.533
24	.130	1.640	---	1.372	.770

TABLE 2 - FITTING END

SIZE CODE	TUBE OD	T THREAD PER MIL-S-8879	C /16/	D	E
04	.250	.4375-20UNJF	.045	.371	.350
05	.313	.5000-20UNJF	.045	.371	.412
06	.375	.5625-18UNJF	.055	.379	.453
08	.500	.7500-16UNJF	.063	.461	.577
10	.625	.8750-14UNJF	.063	.511	.702
12	.750	1.0625-12UNJ	.095	.556	.890
16	1.000	1.3125-12UNJ	.125	.556	1.140
20	1.250	1.6250-12UNJ	.155	.556	1.390
24	1.500	1.8750-12UNJ	.180	.556	1.640

TABLE 3 - LEG LENGTH A

FORGING SIZE	04	05	06	08	10	12	16	20	24
04	.745	---	---	---	---	---	---	---	---
05	.790	.842	---	---	---	---	---	---	---
06	.847	.899	.960	---	---	---	---	---	---
08	.932	.984	1.045	1.143	---	---	---	---	---
10	1.026	1.078	1.139	1.237	1.317	---	---	---	---
12	1.088	1.140	1.201	1.299	1.379	1.367	---	---	---
16	1.244	1.296	1.357	1.454	1.533	1.522	1.570	---	---
20	1.401	1.453	1.514	1.611	1.690	1.679	1.727	1.810	---
24	1.526	1.578	1.639	1.736	1.815	1.804	1.852	1.935	2.112

TABLE 4 - LEG LENGTH B

FORGING SIZE	04	05	06	08	10	12	16	20	24
04	.883	---	---	---	---	---	---	---	---
05	.799	.914	---	---	---	---	---	---	---
06	.861	.861	1.003	---	---	---	---	---	---
08	.955	.955	.971	1.204	---	---	---	---	---
10	1.018	1.018	1.034	1.127	1.380	---	---	---	---
12	1.111	1.111	1.127	1.220	1.283	1.560	---	---	---
16	1.267	1.267	1.283	1.376	1.439	1.502	1.684	---	---
20	1.424	1.424	1.440	1.533	1.596	1.659	1.659	1.903	---
24	1.549	1.549	1.565	1.658	1.721	1.784	1.784	1.784	2.028

NOTES:

/1/ MATERIAL:

a. CODE LETTER J:

- (1) BODY: TYPE 304 CORROSION RESISTANT STEEL PER AMS 5639
- (2) NUT: CODE LETTER J OF AS1790 REFERENCE (TYPE 304 CORROSION RESISTANT STEEL)
- (3) WIRE: PER AS1791 REFERENCE (CLASS 302 OR 305 CORROSION RESISTANT STEEL)

b. CODE LETTER T:

- (1) BODY: TYPE 6AL4V TITANIUM ALLOY PER AMS 4928
- (2) NUT: CODE LETTER T OF AS1790 REFERENCE (TYPE 6AL4V TITANIUM ALLOY)
- (3) WIRE: PER AS1791 REFERENCE (CLASS 302 OR 305 CORROSION RESISTANT STEEL)

c. CODE LETTER V:

- (1) BODY: TYPE 15-5PH CORROSION RESISTANT STEEL PER AMS 5659
- (2) NUT: CODE LETTER V OF AS1790 REFERENCE (TYPE 15-5PH CORROSION RESISTANT STEEL)
- (3) WIRE: PER AS1791 REFERENCE (CLASS 302 OR 305 CORROSION RESISTANT STEEL)

2. HEAT TREATMENT:

a. MATERIAL CODE LETTER J:

- (1) BODY, NUT AND WIRE: NONE

b. MATERIAL CODE LETTER T:

- (1) BODY, NUT AND WIRE: NONE

c. MATERIAL CODE LETTER V:

- (1) BODY: HEAT TREAT TO CONDITION H-1075 PER AMS 2759/3
- (2) NUT: MATERIAL CODE LETTER V OF AS1790 REFERENCE (HEAT TREAT TO CONDITION H-1075)
- (3) WIRE: NONE

/3/ FINISH:

a. MATERIAL CODE LETTER J:

- (1) BODY: PASSIVATE PER QQ-P-35 TYPE VI OR TYPE VII AND COAT WITH DRY FILM LUBRICANT PER MIL-L-46010, TYPE I /7/
- (2) NUT: CODE LETTER J SUFFIX CODE N OF AS 1790 REFERENCE (PASSIVATE WITH DRY FILM LUBRICANT ON ID)
- (3) WIRE: PER AS1791 REFERENCE (PASSIVATE AND COAT WITH DRY FILM LUBRICANT)

b. MATERIAL CODE LETTER T:

- (1) BODY: FLUORIDE PHOSPHATE CONVERSION COAT PER AMS 2486 AND DRY FILM LUBRICANT PER MIL-L-46010 TYPE I /7/
- (2) NUT: CODE LETTER T WITH SUFFIX CODE N OF AS 1790 REFERENCE (FLUORIDE PHOSPHATE CONVERSION COAT AND DRY FILM LUBRICANT ON ID)
- (3) WIRE: PER AS1791 REFERENCE (PASSIVATE AND COAT WITH DRY FILM LUBRICANT)

c. MATERIAL CODE LETTER V:

(1) BODY:

- (a) NO SUFFIX FINISH CODE LETTER: PASSIVATE PER QQ-P-35, TYPE II OR TYPE VIII AND DRY FILM LUBRICANT PER MIL-L-46010 TYPE I /7/
- (b) SUFFIX FINISH CODE LETTER P; CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2

(2) NUT:

- (a) NO SUFFIX FINISH CODE LETTER; CODE LETTER V AND SUFFIX CODE N OF AS1790 REFERENCE (PASSIVATE AND COAT WITH DRY FILM LUBRICANT ON ID)