

# STANDARDS CATALOG

REVISED MARCH 26, 2008



*PEOPLE MAKING A DIFFERENCE*



# Alexandria Extrusion Company

Since our founding in 1966, Alexandria Extrusion Company has been committed to continuous improvement, total customer satisfaction and providing our customers with the highest quality product available. That strong tradition continues to thrive at Alexandria Extrusion Company.

Alexandria Extrusion Company uses state-of-the-art equipment to provide our customers with aluminum extrusions that meet or exceed their expectations. All processes are monitored regularly to ensure the highest quality and product consistency.

- Youngstown 1800 Ton Aluminum Extrusion Press
- 7" Diameter Size
  
- Loewy 1784 Ton Aluminum Extrusion Press
- 7" Diameter Size

In addition to our two extrusion presses, Alexandria Extrusion Company offers complete cutting to length, CNC machining, welding, assembly and finishing services to fill all your aluminum needs.

Alexandria Extrusion Company is continually adding standard shapes to its availability list. If you require a standard shape that is not included in this catalog, please call AEC at 320-763-6537.

# Standard Shapes

## Your *Affordable Design Partner*

Alexandria Extrusion Company specializes in custom extrusions with an experienced team of engineers and estimators available to assist in the design of unique extrusion profiles and shapes. Sometimes, however, using a standard shape makes sense. By being aware of the many standard shapes available from the earliest stages of product design, it may be possible to engineer your product to take advantage of the conveniences often associated with standard shapes.

### ***Order Acceptance:***

Orders are subject to acceptance by Alexandria Extrusion Company (AEC) at its home office, at 401 County Road 22 NW, Alexandria, MN 56308, and will be accepted only under AEC's published terms and conditions.

### ***Credit Terms:***

AEC's terms are 1% 10 net 30 days from date of invoice. A service charge of 1 and 1/2% per month (18% per annum) will be charged on all past due balances. These terms supersede terms and conditions on all purchase orders received. All changes must be mutually agreed upon in writing.

### ***Change Of Price:***

Prices are adjusted based on changes in raw material cost the 1st of each month unless otherwise arranged. Prices are subject to change without notice.

### ***Certifications:***

Certifications of chemical and mechanical properties are available provided they are requested in writing prior to the order being placed and accepted by AEC. Certifications must be clearly noted on all purchase orders and acknowledgments.

### ***Samples:***

Samples of custom shapes are available from the die trial only if requested in writing prior to the order being placed and accepted by AEC. Standard shape samples are not available.

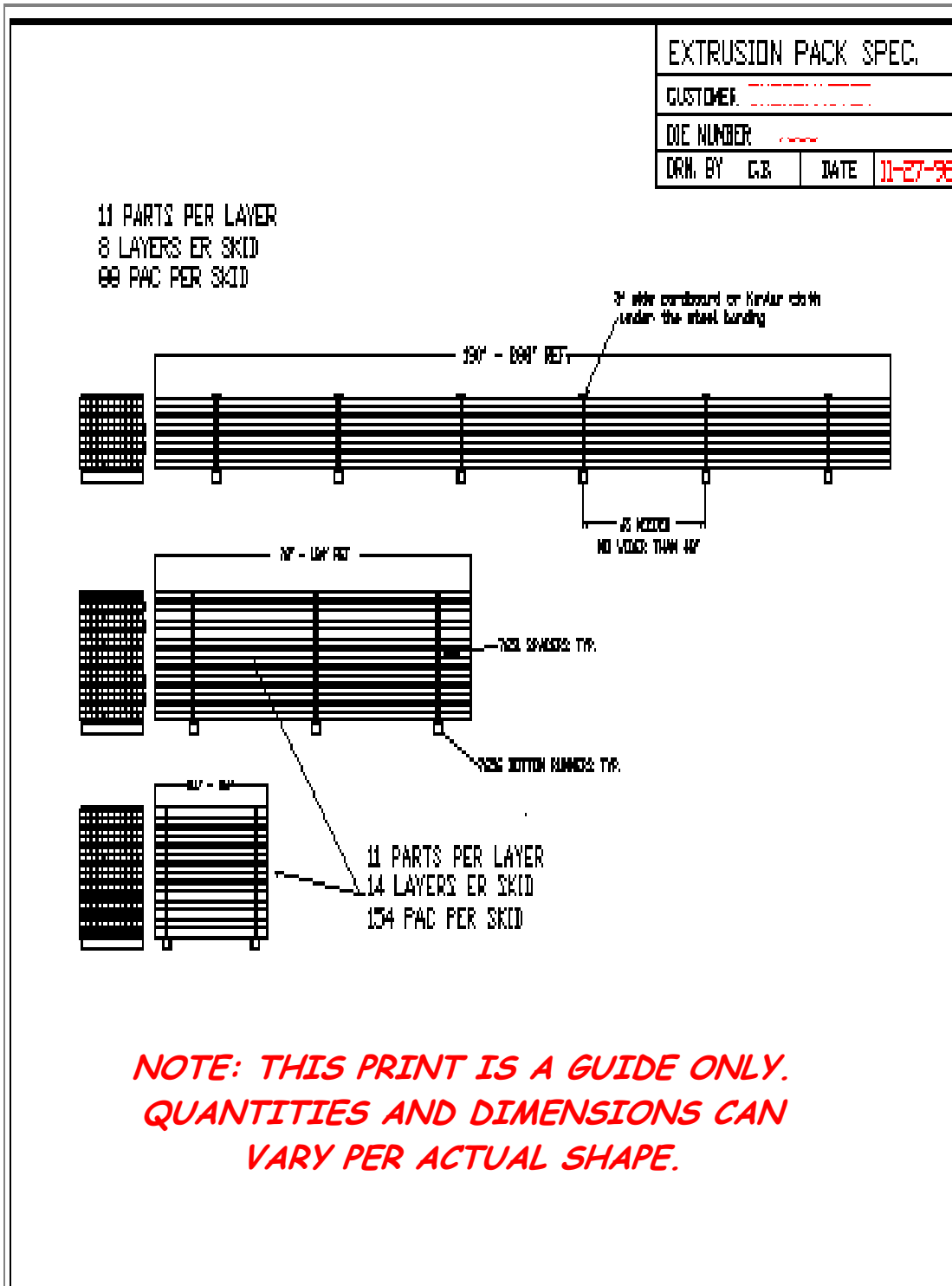
### ***Return Materials Authorization (RMA):***

Credit will only be issued after samples have been inspected by AEC personnel and agreement on the disposition of discrepant material has been reached. All returns must be completed within 60 days of shipment unless otherwise authorized.

### ***Special Notes:***

1. New shapes will be added at the discretion of AEC
2. Minimum order size is 1,000 pounds per shape.
3. Aluminum Association standard tolerances apply in all areas unless otherwise noted.
4. Over Under Quantity: +20% - 10%
5. Standard packaging

# Standard Packaging EXAMPLE



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# Standard Tolerances

Under standard tolerances, aluminum extrusions are routinely produced with dimensions accurate within hundredths or thousandths of an inch. For most purposes, that's a more-than-ample degree of precision.

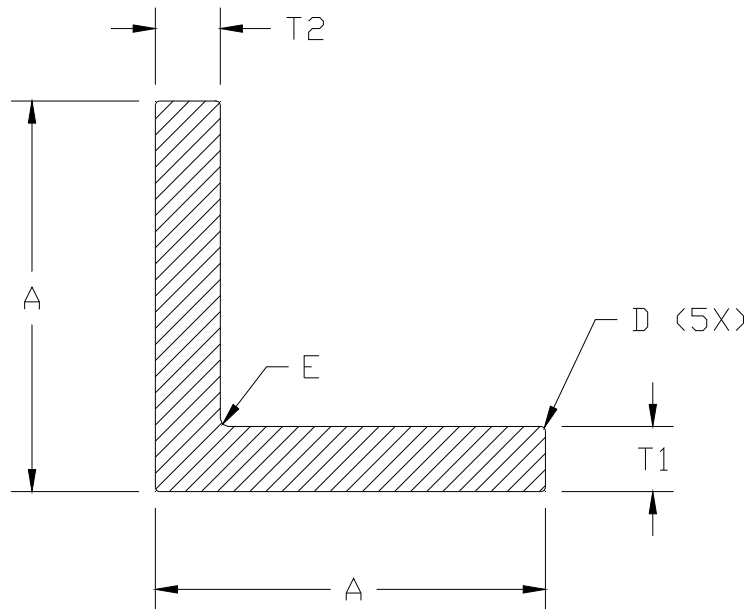
*Exact extrusion tolerances can be determined only by careful application of standard tolerance tables and consultation with AEC. For exact tolerances, consult the Aluminum Standards and Data Manual (most recent revision).*

Often, however, it is not necessary or practical to determine exact tolerances when rough estimates may be adequate for product planning and design.

The following rules of thumb offer easy estimates of standard tolerances, and may be useful in planning and design:

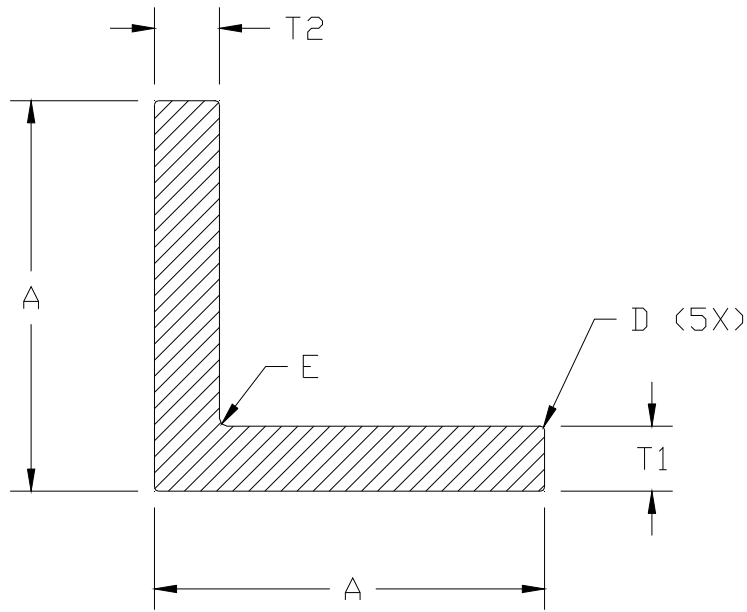
<b>DIMENSIONS</b>	<b>TOLERANCE</b>
• Cross section or profile dimensions	+/- .008 per inch of measured dimension
• Cutting length	
Piece parts	+/- .015 inches
Press parts	+/- .062 inches
• Straightness	.0125 inches X length in feet
• Twist	0.009 in ( $\frac{1}{2}$ Deg.) X width in inches $\div 12$ X length in inches
• Flatness	0.004 X width in inches
• Wall Thickness	+/- 10%

# STANDARD SHAPES



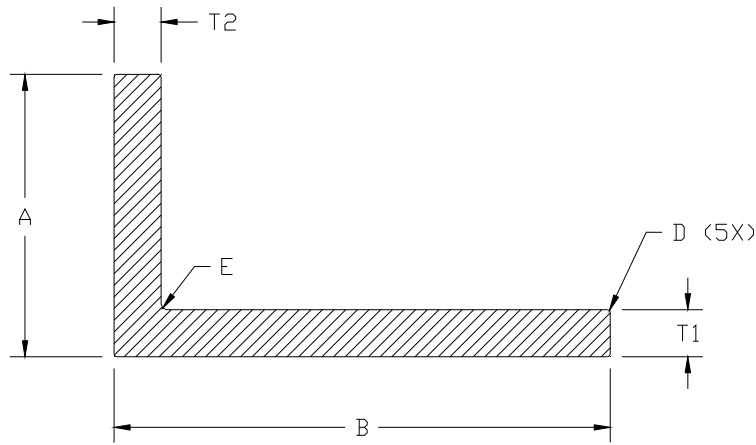
DIE #	A	B	WALL T1	WALL T2	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
556	1.000	1.000	0.125	0.125	0.010	0.010	0.280
8303	1.250	1.250	0.065	0.065	0.015	0.062	0.186
9087	1.250	1.250	0.125	0.125	0.015	0.015	0.356
805	1.500	1.500	0.125	0.125	0.010	0.010	0.432
2594	1.500	1.500	0.250	0.250	0.015	0.015	0.825
7829	1.750	1.750	0.250	0.250	0.015	0.015	0.975
5032	2.000	2.000	0.125	0.125	0.015	0.015	0.581
1311	2.000	2.000	0.187	0.187	0.015	0.015	0.855
9177	2.000	2.000	0.187	0.187	0.125	0.250	0.864
5049	2.000	2.000	0.250	0.250	Varies	0.120	1.124
7159	2.000	2.000	0.250	0.250	0.031	0.062	1.125
9211	2.000	2.000	0.310	0.310	0.130	0.250	1.380

# EQUAL ANGLES



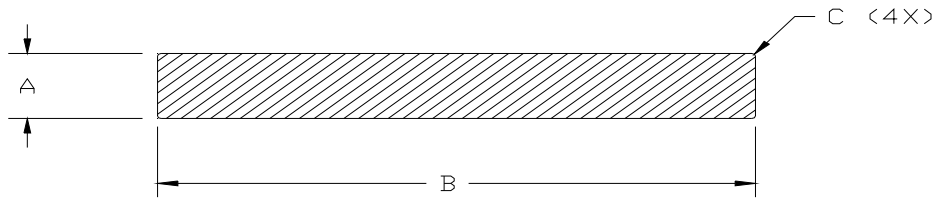
# EQUAL ANGLES

DIE #	A	B	WALL T1	WALL T2	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
456	2.813	2.813	.187	.187	.040	.125	1.252
7538	3.000	3.000	0.250	0.250	0.030	0.030	1.724
8923	3.000	3.000	0.250	0.250	0.015	0.015	1.724
10408	3.000	3.000	.375	.375	.250	.375	2.536



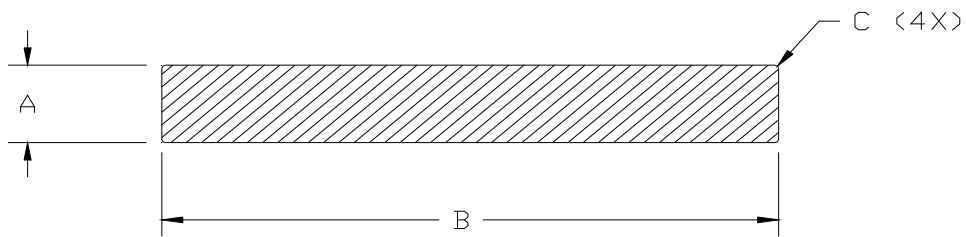
DIE #	A	B	WALL T1	WALL T2	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
10719	.500	1.000	.125	.125	.015	.015	.206
8372	1.000	1.500	.058	.058	.015	.015	.169
8373	1.000	1.500	.088	.088	.015	.015	.254
7697	1.000	1.500	0.125	0.125	.015	.015	0.356
9151	1.000	2.000	0.125	0.125	.015	.015	.431
8639	1.000	3.000	0.125	0.125	.015	.015	.581
7803	1.080	2.500	0.080	0.080	0.015	0.015	0.336
8414	1.250	1.750	0.188	0.188	0.125	0.188	0.634
7648	1.500	2.000	0.188	0.188	.015	.015	0.748
2593	1.500	2.000	0.250	0.250	.010	.010	0.975
9421	2.000	2.500	.125	.125	.015	.015	.656
8884	2.000	2.500	0.250	0.250	.125	.250	1.283
8924	2.000	3.000	0.375	0.375	0.188	0.312	2.088
9238	2.000	4.000	.188	.188	.015	.015	1.310
8834	3.000	4.000	0.250	0.250	.015	.015	2.024
7698	3.000	4.000	0.375	0.375	0.250	0.375	2.986
9538	3.000	5.000	.250	.250	.015	.015	2.324

# UNEQUAL ANGLES



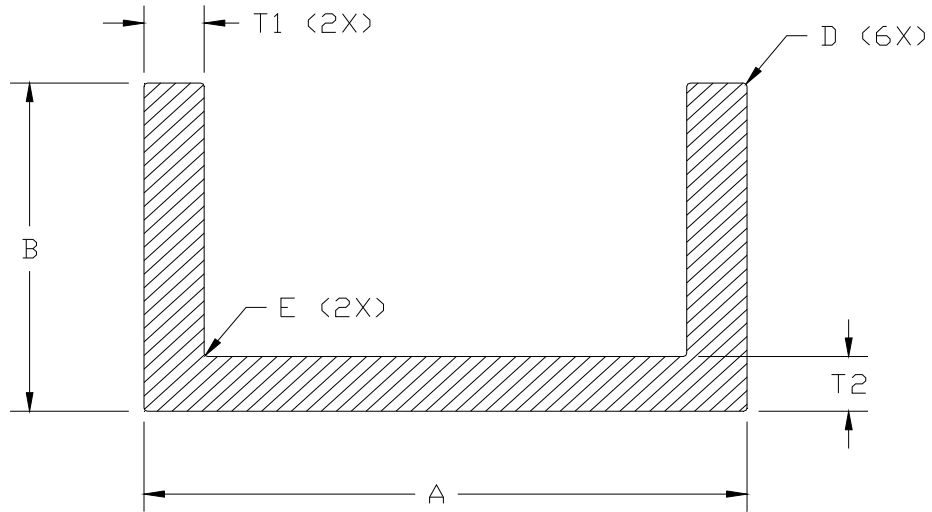
DIE #	A	B	OUTSIDE RADIUS	WT/FT
7856	0.125	0.500	0.020	0.074
7847	0.125	1.000	0.015	0.150
10230	.125	1.500	.015	.224
9299	.125	2.000	0.010	.300
8833	.125	3.000	0.015	0.450
9470	.187	1.000	0.015	.224
9635	.187	1.000	FULL	.215
7681	0.187	1.500	0.015	0.336
9521	.188	1.250	.015	.281
11071	.188	3.000	.015	.677
7917	0.188	5.750	0.015	1.297
7967	0.188	6.000	0.015	1.354
9571	.188	6.500	.010	1.466
8483	.250	.500	0.015	0.150
8927	.250	1.000	0.015	0.300
9175	0.250	1.250	0.015	0.374
7647	0.250	2.000	FULL	0.585
4720	0.250	2.000	0.010	0.600
7744	0.250	2.500	FULL	0.734
9190	0.250	2.750	0.010	0.824

# FLAT/BAR STOCK



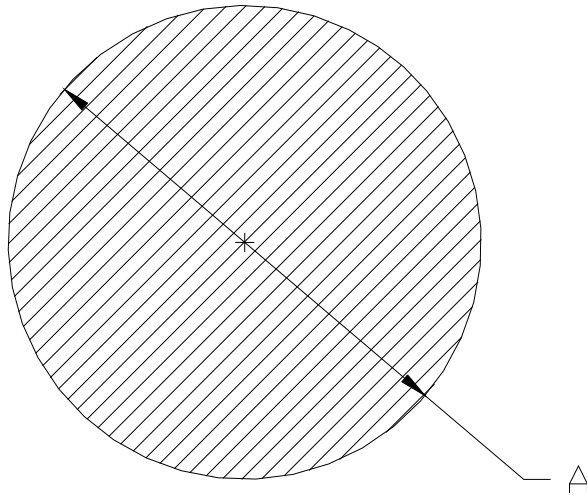
DIE #	A	B	OUTSIDE RADIUS	WT/FT
7651	.250	3.000	.015	.900
9191	.250	3.250	.010	.974
7646	.250	3.750	.015	1.125
7802	0.250	4.000	0.015	1.200
9918	.250	5.000	.015	1.500
7564	0.250	5.750	0.015	1.725
7509	0.250	6.000	0.015	1.8
9801	.250	6.500	.015	1.950
7928	.375	2.000	0.150	0.900
7862	0.375	2.500	0.015	1.124
9967	.375	3.000	.015	1.350
11282	.375	4.000	.020	1.800
7743	0.375	6.000	0.015	2.7
8485	0.500	3.000	0.015	1.800
8486	.750	.750	0.015	.674
10583	1.065	1.065	.020	1.361

# FLAT/BAR STOCK



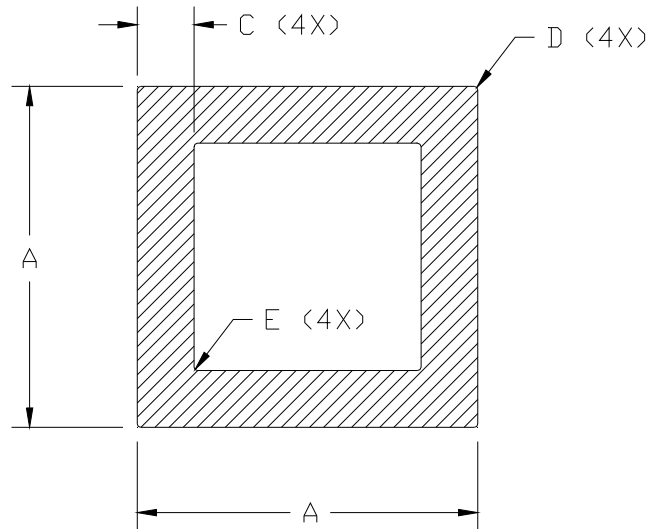
# CHANNELS

DIE #	A	B	T1	T2	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7859	1.000	0.500	0.125	0.125	0.015	0.015	0.262
7661	1.250	0.750	0.188	0.188	0.015	0.015	0.535
8926	1.750	1.750	.125	.125	.015	.015	.750
5990	2.000	1.000	0.125	0.125	0.010	0.010	0.563
10579	2.000	1.250	0.260	.170	0.030	0.150	0.910
8536	2.000	1.500	0.156	0.156	0.015	0.015	0.877
7830 OR 8925	2.000	2.000	0.125	0.125	0.015	0.015	0.863
9816	2.224	.750	.062	.062	.020	.020	.268
10229	2.380	1.500	.188	.188	.015	.015	1.129
7939	3.000	1.500	0.200	0.130	0.015	0.250	1.158
10479	3.000	1.750	0.250	0.250	0.050	0.050	1.798
9584	3.250	1.375	0.125	0.125	0.063	0.125	0.864
9585	3.250	1.375	0.250	0.250	0.063	0.125	1.640
10006	5.000	2.000	.125	.125	.015	.015	1.313



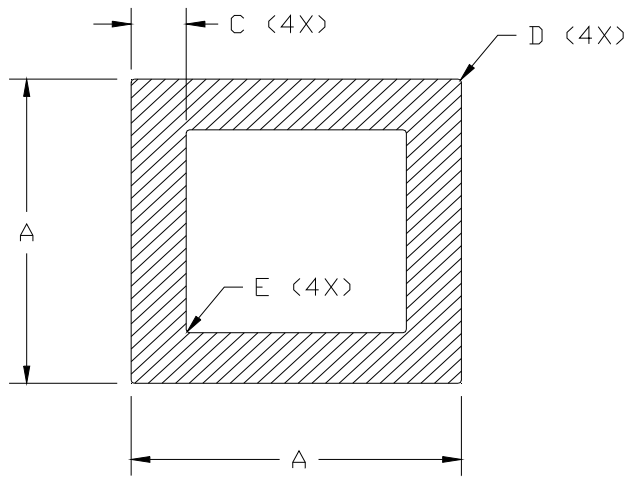
# SOLID ROUNDS

DIE #	A DIAMETER	WT/FT
1549	.375	0.134
8415	.437	.180
7662	.500	0.236
1497	.625	0.368
7929	.750	0.530
1236	.875	0.721
997	1.000	0.942
4705	1.125	1.193
4706	1.250	1.472
8488	1.500	2.120
9713	1.875	3.313
9552	2.000	3.770
8489	2.380	5.339



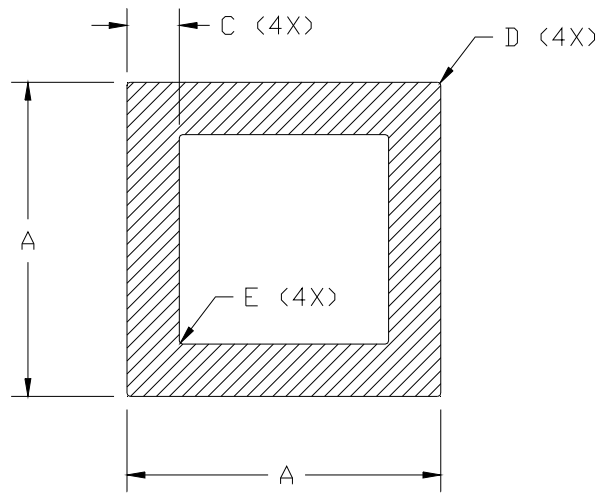
DIE #	A LENGTH	A HEIGHT	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7848	0.750	0.750	0.065	0.125	0.125	0.214
9214	0.750	0.750	0.125	0.060	0.010	0.371
7568	1.000	1.000	0.065	0.125	0.060	0.280
5948	1.000	1.000	0.075	0.062	0.010	0.329
2157	1.000	1.000	0.090	0.109	0.015	0.381
4977	1.000	1.000	0.125	0.015	0.015	0.526
8384	1.000	1.000	0.125	0.094	0.010	0.516
7846	1.125	1.125	0.125	0.125	0.015	0.584
7953	1.250	1.250	0.063	0.125	0.063	0.347
7858	1.250	1.250	0.083	0.015	0.015	0.464

# SQUARE TUBES



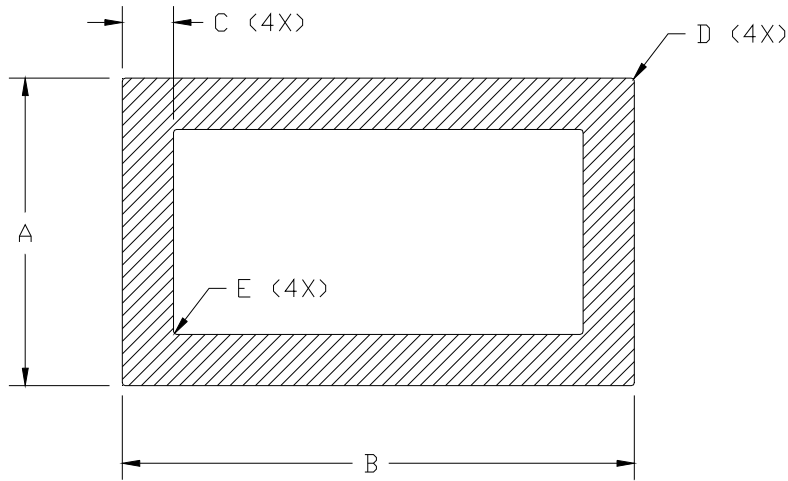
# SQUARE TUBES

DIE #	A LENGTH	B HEIGHT	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7680	1.250	1.250	.090	.125	.035	.486
4966	1.250	1.250	.090	.046	.015	.500
8304	1.250	1.250	.125	.125	.015	.659
11121	1.312	1.312	.187	.125	.063	.997
3607	1.500	1.500	.125	.015	.015	.825
9017	1.563	1.563	.125	.125	.015	.847
7828	1.750	1.750	.125	.125	.015	.929
7667	2.000	2.000	.125	.187	.062	1.093
9883	2.000	2.000	.125	.250	.135	1.079
7540	2.000	2.000	.187	.060	.030	1.625
6396	2.000	2.000	.250	.062	.062	2.100
7669	2.313	2.313	.125	.125	.125	1.313
8896	2.375	2.375	.125	.187	.062	1.318
7665	2.500	2.500	.125	.125	.016	1.409



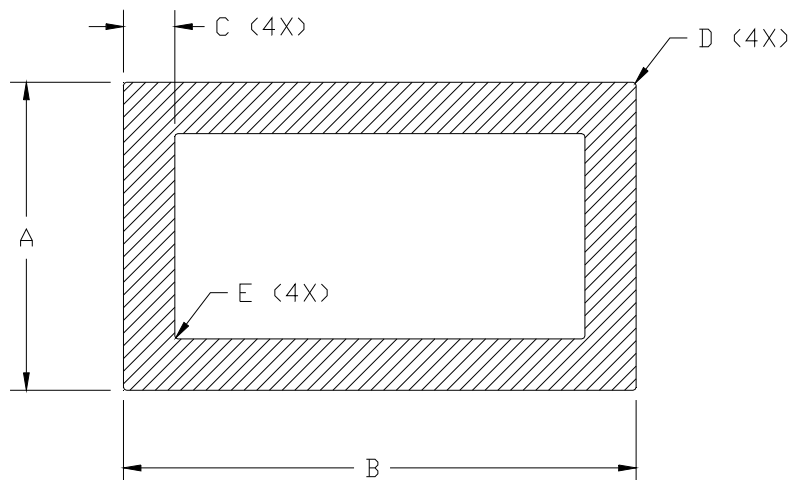
# SQUARE TUBES

DIE #	A	A	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7728	2.500	2.500	.188	.125	.125	2.087
6395	2.550	2.550	.250	.250	.062	2.700
9631	2.568	2.568	.125	.312	.187	1.402
7672	2.625	2.625	.125	.125	.023	1.484
9792	2.818	2.818	.125	.125	.063	1.603
8897	2.875	2.875	.125	.125	.125	1.650
7656	3.000	3.000	.125	.125	.023	1.710
8733	3.000	3.000	.125	.312	.250	1.690
10924	3.000	3.000	.165	.125	.031	2.232
8734	3.000	3.000	.187	.312	.156	2.449
7657	3.000	3.000	.188	.125	.023	2.522
8735	3.000	3.000	.219	.312	.156	2.848
9162	3.000	3.000	.250	.187	.031	3.265
7670	3.437	3.437	.187	.125	.062	2.905
9593	3.970	3.970	.125	.312	.187	2.243
7863	4.000	4.000	.125	.015	.015	2.326



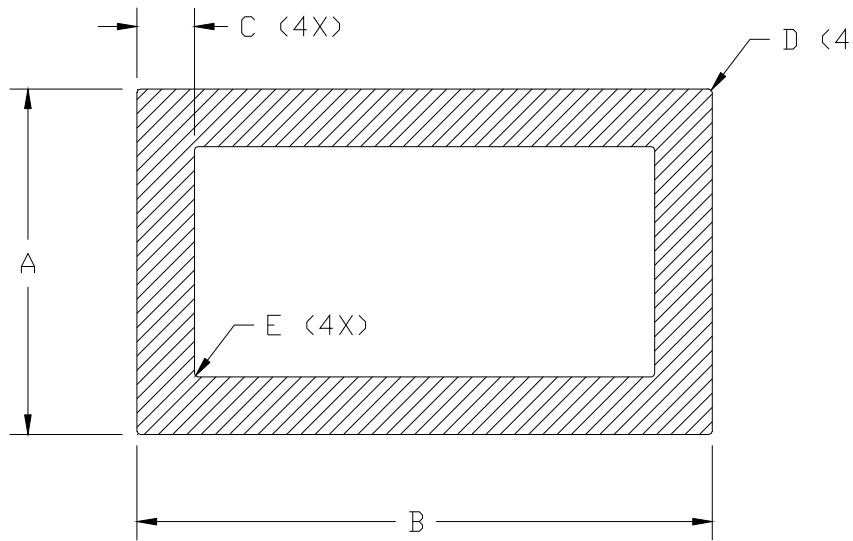
DIE #	A	B	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
8387	.500	2.000	.080	.060	.060	.449
8261	.500	2.000	.125	.060	.060	.676
8238	1.000	1.250	.065	.125	.060	.318
8121	1.000	1.290	.090	.100	.025	.446
9525	1.000	1.500	.055	.157	.102	.301
8418	1.000	1.500	.090	.250	.160	.463
7931	1.000	1.500	.125	.060	.060	.675
11691	1.000	2.000	.083	.060	.060	.468
7483	1.000	2.000	.125	.060	.030	0.822
8364	1.000	2.500	.060	.015	.015	.487
7779	1.000	2.500	.065	.125	.060	.501
8282	1.000	2.818	.125	.125	.010	1.054
8420	1.000	3.000	.090	.090	.030	.817
8595	1.000	3.000	.110	.090	.030	.990
7611	1.125	1.625	.125	.125	.062	.732
8368	1.125	1.625	.125	.187	.062	.716
8539	1.125	1.625	.125	.187	.067	.719

# RECTANGULAR TUBES



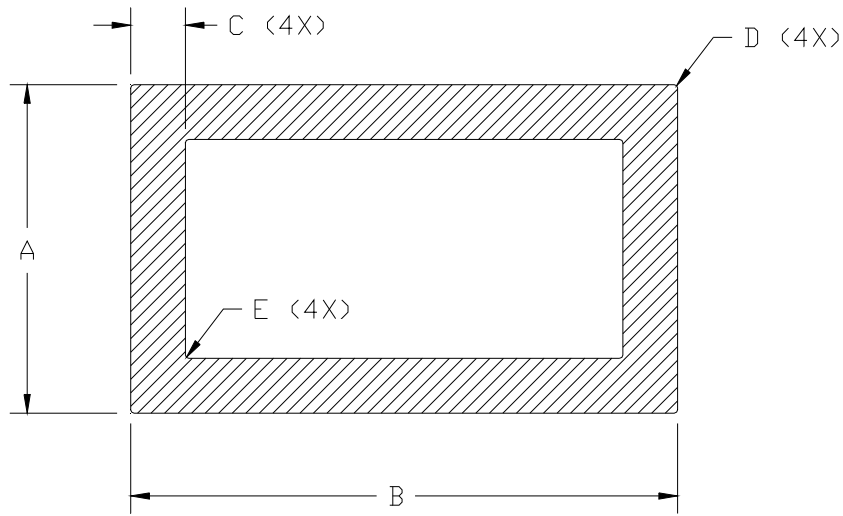
DIE #	A	B	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
8596	1.250	1.750	.100	.250	.150	.631
7976	1.250	2.250	.125	.193	.068	.941
9001	1.250	2.500	.125	.125	.010	1.034
8538	1.437	1.937	.125	.125	.015	.922
7911	1.500	1.750	.065	.020	.020	.487
8458	1.500	1.750	.125	.125	.060	.888
8432	1.500	2.000	.100	.090	.030	.785
8547	1.500	2.000	.125	.125	.015	.960
8454	1.500	2.500	.125	.125	.060	1.112
8455	1.500	3.000	.125	.125	.060	1.262
8642	1.500	3.000	.125	.015	.015	1.276
7713	1.500	3.500	.125	.125	0.015	1.410
9988	1.500	3.750	.085	.125	.063	1.025
11098	1.500	4.000	.125	.020	.020	1.576
8071	1.500	5.000	.125	.020	.020	1.875
8889	1.688	4.500	.125	.063	.063	1.781

# RECTANGULAR TUBES



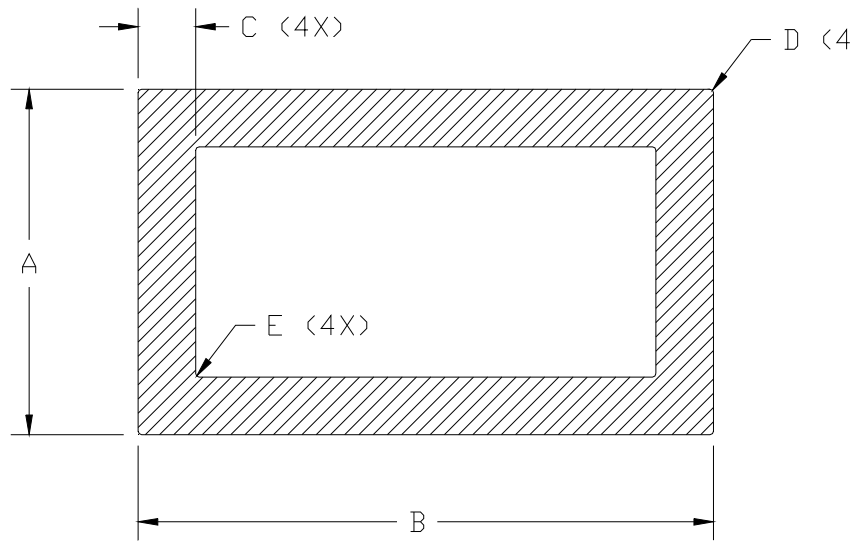
DIE #	A	B	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7565	1.750	2.250	.125	.125	.125	1.125
10480	1.750	3.000	0.125	0.050	0.050	1.350
10481	1.750	3.000	0.187	0.050	0.050	1.964
9987	1.750	4.000	.085	.125	.040	1.127
7668	1.750	4.000	.125	.015	.015	1.650
9771	1.750	4.000	.125	.125	.015	1.634
7854	1.750	5.000	.125	.063	.063	1.950
7566	1.874	2.374	.187	.125	.125	1.739
7927	1.875	2.250	.125	.060	.015	1.163
7796	2.000	2.750	.125	.125	.015	1.334
8544	2.000	3.000	.125	.125	.015	1.409
8641	2.000	3.000	.125	.015	.015	1.426

# RECT ANGULAR TUBES



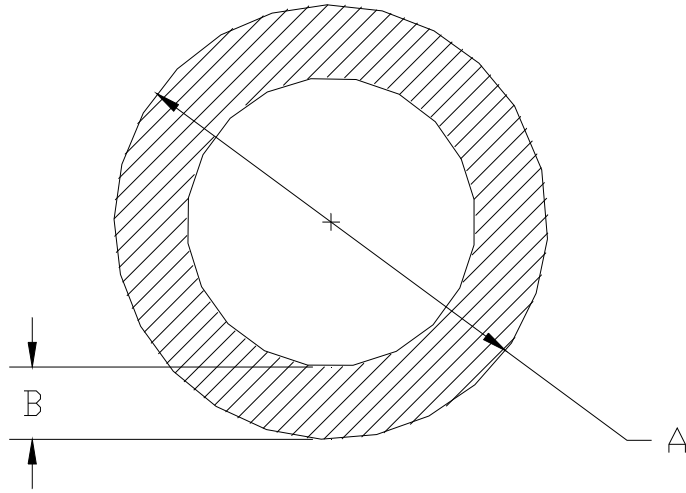
DIE #	A	B	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7797	2.000	3.000	.188	.125	.015	2.071
7456	2.000	4.000	.125	.125	.015	1.709
9071	2.000	4.000	.187	.062	.015	2.521
10016	2.000	4.000	.250	.125	.020	2.737
7654	2.000	4.500	.180 and .125	.050	.050	2.106
7567	2.000	4.500	.187	.050	.050	2.750
7660	2.000	4.500	.235	.050	.050	3.401
8736	2.000	5.000	.100	.125	.062	1.620

# RECTANGULAR TUBES



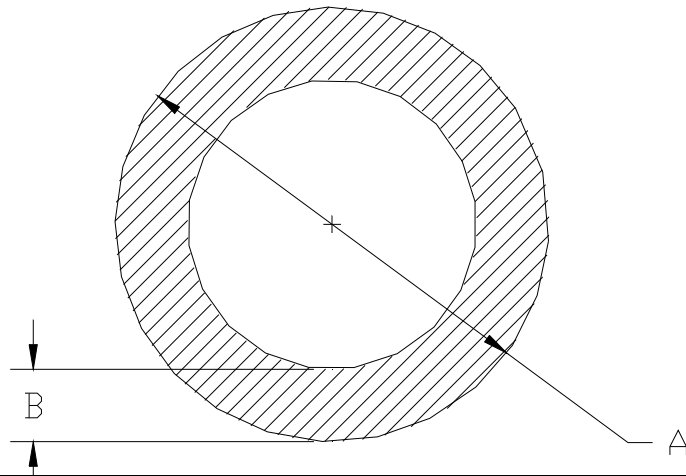
# RECTANGULAR TUBES

DIE #	A	B	C WALL	D OUTSIDE RADIUS	E INSIDE RADIUS	WT/FT
7861	2.000	5.000	.125	.015	.015	2.026
8737	2.000	5.000	.125	.125	.062	2.012
9302	2.000	5.000	.185	.062	.031	2.941
9174	2.000	5.000	.250	.125	.125	3.900
8738	2.000	6.000	.125	.015	.015	2.324
11681	2.000	6.000	.125	.125	.062	2.313
9164	2.000	6.000	.188	.015	.015	3.440
11680	2.000	6.000	.188	.125	.062	3.428
9016	2.065	2.563	.125	.125	.015	1.297
8895	2.250	2.500	.125	.125	.125	1.350
8888	2.500	4.500	.188	.063	.063	2.981
8801	3.000	4.000	.125	.015	.015	2.026
9040	3.000	4.000	.188	.125	.063	2.977
9041	3.000	4.000	.250	.125	.063	3.888
9173	3.000	5.000	.125	.015	.015	2.326
9252	4.000	5.000	.135	.030	.015	2.828
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DIE #	A DIAMETER	B WALL THICKNESS	WT/FT
7932	0.750	0.062	0.161
10317	.875	.050	.156
7688	0.875	0.058	0.179
9780	.875	.115	.330
7741	1.000	0.050	0.179
8517	1.000	0.065	0.229
8273	1.000	0.080	0.277
8062 8236	1.000	0.093	0.318
10143	1.156	0.125	0.486

# ROUND TUBES



# ROUND TUBES

DIE #	A DIAMETER	B WALL THICKNESS	WT/FT
8062 8236	1.000	0.093	0.318
7930	1.000	0.125	0.412
9237	1.000	.250	.707
6005	1.125	.083	.326
9232	1.250	0.125	0.530
8562	1.250	.312	1.104
9130	1.500	0.083	0.443
7807	1.500	0.125	0.648
10660	1.500	.360	1.546
7808	1.660	0.140	0.803
8092	1.687	0.200	1.121
7810	1.900	0.145	0.960
10049	2.000	.125	.883
7809	2.375	.154	1.290
9800	2.375	.218	1.772
10325	2.600	.125	1.166

# ALLOY CHARACTERISTICS

# ALLOY TEMPER CHARACTERISTICS AND APPLICATIONS

ALLOY	CHARACTERISTICS AND APPLICATIONS
<p style="text-align: center;"><b>6063</b> T4, T5, T6</p>	<p>This is the most popular of the 6000-series, and can be used for a broad range of solid and hollow shapes requiring both good strength and appearance. This alloy offers excellent corrosion resistance, formability, weldability and surface appearance. A wide range of surface finishes can be applied to this alloy including paint and anodize. 6063 can be heat treated and artificially aged to obtain higher strengths.</p>
<p style="text-align: center;"><b>6060</b></p>	<p>Similar in characteristics to 6063. Can be used for a broad range of solid and hollow shapes requiring both good strength and appearance. Designed to achieve maximum extrudability, particularly for hollow sections and other complex shapes having thin walls.</p>
<p style="text-align: center;"><b>6005A</b> T5</p>	<p>Combines high mechanical properties with good corrosion resistance, formability, machinability and weldability. In many applications it may be used in place of 6061, usually with a better surface appearance. In many applications 6005A may offer cost savings over 6061.</p>
<p style="text-align: center;"><b>6061</b> T4, T6</p>	<p>High mechanical properties with good corrosion resistance, formability, machinability and weldability as well as having a strength to weight ratio equivalent to structural steel. 6061 can be heat treated and artificially aged to obtain higher strengths.</p>

# ALLOY SPECIFICATIONS

ALLOY	SURFACE QUALITY	EXTRUDABILITY	ELONGATION	ULTIMATE TENSILE STRENGTH (KSI)	YIELD TENSILE STRENGTH (KSI)
6063 T4	GOOD	EXCELLENT	14	19	10
6063 T5	GOOD	EXCELLENT	8	22	16
6063 T6	GOOD	EXCELLENT	8	30	25
6060 T5	GOOD	EXCELLENT (Slightly Better than 6063)	8	22	16
6005 A T5	GOOD	VERY GOOD (Slightly Better than 6061)	8 - 10	38	35
6061 T4	FAIR	GOOD	16	26	16
6061 T6	FAIR	GOOD	8	38	35

# TEMPER DESIGNATION

TEMPER	PERFORMANCE CHARACTERISTICS
T4	Available upon written request, but T4 is not a stable temper. Usage must be agreed upon by both AEC and Customer prior to acceptance of purchase order.
T5	Artificially aged after cooling from an elevated temperature shaping process, such as extrusion. Minimum specifications.
T52	A specified range within T5 temper available upon special request.
T6	Artificially aged after cooling from an elevated temperature shaping process, such as extrusion. Minimum specification.

