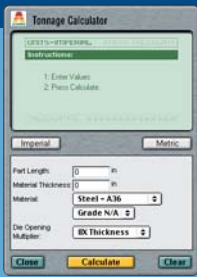


Tonnage Chart



Accurate tonnage requirements and recommended model selections, based on a wide range of materials, can be determined by using the Accurpress Tonnage Calculator, which can be accessed online, at www.accurpress.com

Mild Steel Bending Tonnages

The chart below illustrates the appropriate tonnages to air bend mild steel with 60,000 p.s.i. tensile properties. It must be noted that most North American steel mills are producing harder metals with typical mechanical properties of 44,000 p.s.i. yield and up to 80,000 p.s.i. tensile strengths. The tonnages required to form these metals are substantially higher and must be taken into consideration in the selection of a press brake.

With an eight-to-one die ratio, the inside radius of a right angle bend is approximately equal to the thickness of the metal. The bending forces for mild steel are shown on the chart below.

The tonnages indicated in the boxes are produced when using a female die opening eight times the metal thickness up to 3/8" plate, and ten times the metal thickness when bending 1/2" plate and more.

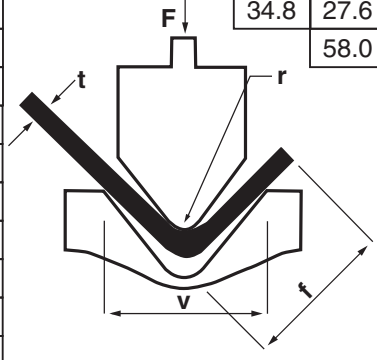
Bending Forces for Other Metals

Soft brass, soft aluminum 50% of Force Shown
 Aluminum alloys heat treated Same as Mild Steel
 Stainless 50% more than Steel

Coining

Tonnage requirements are three to five times greater than for air bending. Coining is normally done in very high precision environments and on light gauge materials only.

Force to Air-Bend Mild Steel (60,000 PSI)																			
F = U.S. tons/lineal ft. of workpiece																		All Dimensions in Inches	
t ga.	v	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	v	
	f	3/16	9/32	11/32	7/16	9/16	11/16	7/8	1 1/8	1 3/8	1 3/4	2 3/16	2 13/16	3 1/2	4 1/2	5 1/2	6 7/8	f	
	r	1/32	1/16	5/64	7/64	9/64	5/32	13/64	1/4	5/16	13/32	33/64	5/8	3/4	11/32	15/16	15/8	ga.	
20	0.036	3.1	1.75	1.2															20
18	0.048	5.4	3.1	2.1	1.55	1.3	F Values												18
16	0.060	9.6	5.5	3.8	2.8	2.2	1.45											16	
14	0.075		9.3	6.4	4.7	3.8	2.5	1.85									14		
12	0.105		20.5	14.0	10.4	8.1	5.6	4.1	3.2	2.2							12		
11	0.120			18.5	13.9	10.9	7.4	5.6	4.3	2.9	2.15						11		
10	0.135			25.2	17.2	14.5	9.9	7.3	5.7	3.8	2.85	2.23					10		
3/16	0.188			34.8	27.6	19.1	13.9	11.0	7.5	5.6	4.3					3/16			
1/4	0.250				58.0	39.5	29.0	22.8	15.5	11.4	8.9	6.1	4.5				1/4		
5/16	0.313					69.5	51.0	40.0	27.0	20.0	15.6	10.5	7.8	6.1			5/16		
3/8	0.375						75.0	59.0	40.0	29.5	23.4	15.8	11.7	9.2	6.2	4.6	3/8		
7/16	0.438						115.0	90.0	61.0	45.5	35.2	24.0	17.8	13.9	9.4	6.9	7/16		
1/2	0.500							85.0	62.0	44.3	33.0	24.5	19.1	13.0	9.8	1/2			
5/8	0.625								86.0	58.0	43.0	34.0	23.2	17.5	5/8				
3/4	0.750									91.0	67.0	53.0	36.4	26.7	3/4				
7/8	0.875										136.0	101.0	79.0	54.0	40.0	7/8			
1	1.000											146.0	115.0	68.0	58.0	1			



t = Workpiece thickness
 r = Inside radius of formed part
 v = Vee-die opening
 f = Minimum flange

For steel of different tensile strength, F value differs in proportion to strength ratio. Inside radius r for mild steel, is about 5/32 of female die opening v, for any t. Shaded F values are for v = 8t, common for average 90° bending. For t = 1/2 inch or more, use v = 10t.

Safety Warning

Press brake tooling is used in combination with sophisticated machinery and high hydraulic pressure, a situation in which misuse may lead to serious personal injury.

To prevent injury:

1. Never use our dies in equipment which lacks the proper safeguards to prevent the user's hands or body parts from entering or remaining in the die space while the equipment is in motion.
2. Fully familiarize the die setter with the press brake or machine manual.

3. Ensure all points of operation guards are operational and in place, preventing users from exposing any part of their person to the closing on the machine or press brake.
4. Supply hand tools for inserting, holding, or removing material, keeping hands at a safe distance.
5. Provide users with training in safety practices and procedures. Insist these be followed. Monitor for compliance.

6. Ensure dies are being installed and operated per the instruction manual for the brand and make of machine used.

It is our responsibility to produce tooling and dies from quality materials to high standards of manufacturing performance. It is the user's responsibility to employ them in proper application with due regard to safety.