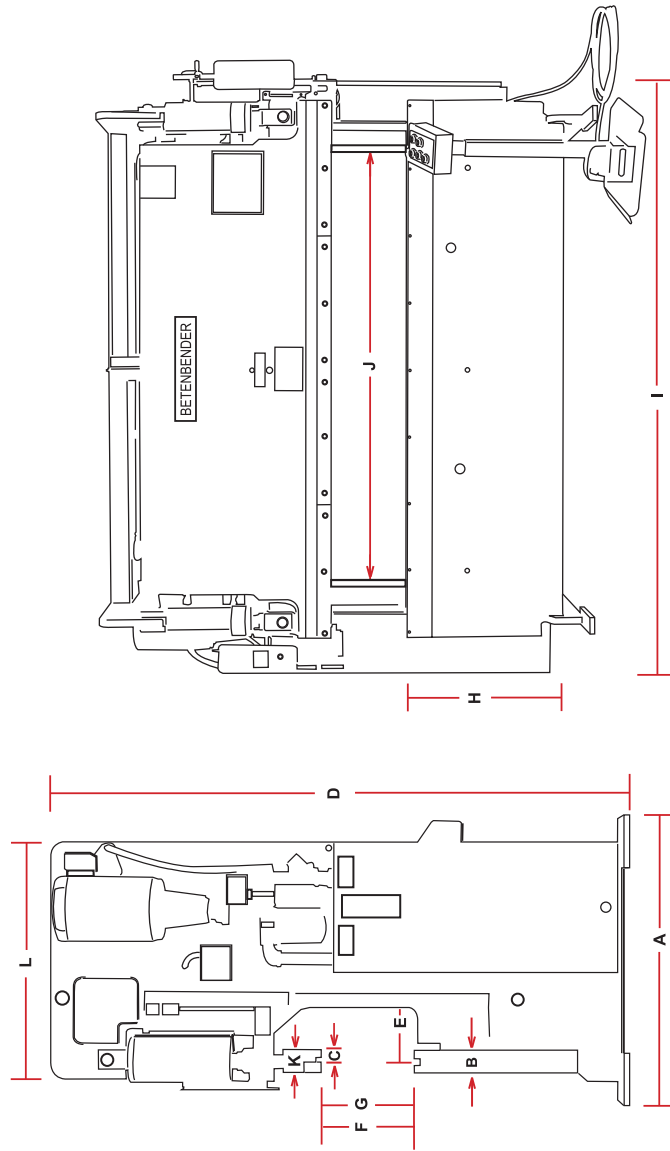




PRESS BRAKES SPECIFICATIONS

Please Note:
ALL measurements and weights may vary from the figures given in this Specification Chart.

All dimensions are in inches unless otherwise noted.
 (To convert to centimeters multiply by 2.54)
 Engineering data and dimensions are subject to change without notice due to continuing product development.
 Foundation plans are available upon request.
 Die Blocks are not furnished.
 To convert Horsepower to KW, multiply by 0.746



HP	AMPS	460
10	28	14
20	54	27
30	80	40
40	104	52

****ESTIMATED WEIGHTS.** The weight of your machine may vary from the estimated weight listed here. Weights may vary according to options included.

For specs on larger machines please call or email us and we will provide those for you.

A	Overall Width	E	Throat Depth	Height of Bed	K	Width of Upper Ram	N	Rapid Approach (IPM)
B	Width of Bed	F	Open Height	Overall Length	L	Width of Upper End Plates	O	Return to Open (IPM)
C	Width of Upper Machined Ram	G	Closed Height	Distance Between Housing	M	Press (IPM)	P	2-Speed Electric Shift
D	Overall Height							

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	HP	Wt.**
4-17	54	2	1 3/4	72	7	14	6-10	29-33	54	30 1/2	2	50	0-66	66	92	Std.	5	2,500
4-50	45	2	1 3/4	96	8	14	6	28	63	30 1/2	2	36	0-66	66	92	Std.	10	5,800
6-50	45	2	1 3/4	96	8	14	6	28	87	54 1/2	2	36	0-66	66	92	Std.	10	6,800
8-50	45	2	1 3/4	96	8	14	6	28	111	78 1/2	2	36	0-66	66	92	Std.	10	8,000
10-50	45	4	1 3/4	96	8	14	6	28	135	102 1/2	2	36	0-66	66	92	Std.	10	11,000
12-50	45	4	1 3/4	96	8	14	6	28	159	126 1/2	2	36	0-66	66	92	Std.	10	12,500
4-70	45	4	1 3/4	96	8	14	6	28	63	30 1/2	2	36	0-44	44	63	Std.	10	7,500
6-70	45	4	1 3/4	96	8	14	6	28	87	54 1/2	2	36	0-44	44	63	Std.	10	8,000
8-70	45	4	1 3/4	96	8	14	6	28	111	78 1/2	2	36	0-44	44	63	Std.	10	11,000
10-70	45	4	1 3/4	96	8	14	6	28	135	102 1/2	2	36	0-44	44	63	Std.	10	13,000
12-70	45	4	1 3/4	96	8	14	6	28	159	126 1/2	2	36	0-44	44	63	Std.	10	14,500
14-70	45	4	1 3/4	96	8	14	6	28	183	150 1/2	2	36	0-44	44	63	Std.	10	15,500
6-95	56 1/2	4	2 3/4	103	8	14	6	37	100	54 1/2	2 1/2	50	50	114	168	Std.	20	13,000
8-95	56 1/2	4	2 3/4	103	8	14	6	37	123	78 1/2	2 1/2	50	50	114	168	Std.	20	18,000
10-95	56 1/2	4	2 3/4	103	8	14	6	37	135	102 1/2	2 1/2	50	50	114	168	Std.	20	20,100
12-95	56 1/2	4	2 3/4	103	8	14	6	37	159	126 1/2	2 1/2	50	50	114	168	Std.	20	21,000
14-95	56 1/2	4	2 3/4	103	8	14	6	37	183	150 1/2	2 1/2	50	50	114	168	Std.	20	23,000
16-95	56 1/2	4	2 3/4	103	8	14	6	37	207	174 1/2	2 1/2	50	50	114	168	Std.	20	24,000
6-120	56 1/2	5	2 3/4	103	8	14	6	37	100	54 1/2	3	50	40	87	115	Std.	20	17,000
8-120	56 1/2	5	2 3/4	103	8	14	6	37	123	78 1/2	3	50	40	87	115	Std.	20	19,000
10-120	56 1/2	5	2 3/4	103	8	14	6	37	135	102 1/2	3	50	40	87	115	Std.	20	22,000
12-120	56 1/2	5	2 3/4	103	8	14	6	37	159	126 1/2	3	50	40	87	115	Std.	20	24,000
14-120	56 1/2	5	2 3/4	103	8	14	6	37	183	150 1/2	3	50	40	87	115	Std.	20	26,000
16-120	56 1/2	5	2 3/4	103	8	14	6	37	207	174 1/2	3	50	40	87	115	Std.	20	28,000
6-160	56 1/2	5	2 3/4	103	8	14	6	37	100	54 1/2	3	50	31	68	86	Std.	20	17,000
8-160	56 1/2	5	2 3/4	103	8	14	6	37	123	78 1/2	3	50	31	68	86	Std.	20	19,000
10-160	56 1/2	5	2 3/4	103	8	14	6	37	135	102 1/2	3	50	31	68	86	Std.	20	22,000
12-160	56 1/2	5	2 3/4	103	8	14	6	37	159	126 1/2	3	50	31	68	86	Std.	20	24,000
14-160	56 1/2	5	2 3/4	103	8	14	6	37	183	150 1/2	3	50	31	68	86	Std.	20	26,000
6-190	56 1/2	5	2 3/4	103	8	14	6	37	100	54 1/2	3	50	25	55	66	Std.	20	17,000
8-190	56 1/2	5	2 3/4	103	8	14	6	37	123	78 1/2	3	50	25	55	66	Std.	20	19,000
10-190	56 1/2	5	2 3/4	103	8	14	6	37	135	102 1/2	3	50	25	55	66	Std.	20	22,000
12-190	56 1/2	5	2 3/4	103	8	14	6	37	159	126 1/2	3	50	25	55	66	Std.	20	25,000
14-190	56 1/2	5	2 3/4	103	8	14	6	37	183	150 1/2	3	50	25	55	66	Std.	20	27,000
6-240	56 1/2	5 1/2	3 3/4	111	8	16	10	37	100	54 1/2	4	60	25	50	70	Std.	30	23,000
8-240	56 1/2	5 1/2	3 3/4	111	8	16	10	37	123	78 1/2	4	60	25	50	70	Std.	30	26,000
10-240	56 1/2	5 1/2	3 3/4	111	8	16	10	37	135	102 1/2	4	60	25	50	70	Std.	30	29,000
12-240	56 1/2	5 1/2	3 3/4	111	8	16	10	37	159	126 1/2	4	60	25	50	70	Std.	30	33,000
14-240	56 1/2	5 1/2	3 3/4	111	8	16	10	37	183	150 1/2	4	60	25	50	70	Std.	30	35,000
6-300	56 1/2	5 1/2	3 3/4	116	8	16	10	37	100	54 1/2	4	60	25	50	70	Std.	30	29,000
8-300	56 1/2	5 1/2	3 3/4	116	8	16	10	37	123	78 1/2	4	60	25	50	70	Std.	30	31,000
10-300	56 1/2	5 1/2	3 3/4	116	8	16	10	37	135	102 1/2	4	60	25	50	70	Std.	30	34,000
12-300	56 1/2	5 1/2	3 3/4	116	8	16	10	37	159	126 1/2	4	60	25	50	70	Std.	30	37,000
14-300	56 1/2	5 1/2	3 3/4	116	8	16	10	37	183	150 1/2	4	60	25	50	70	Std.	30	38,000
10-350	56 1/2	5 1/2	3 3/4	119	8	16	10	37	135	102 1/2	4	60	25	50	70	Std.	30	35,000
12-350	56 1/2	5 1/2	3 3/4	119	8	16	10	37	159	126 1/2	4	60	25	50	70	Std.	30	37,000
14-350	56 1/2	5 1/2	3 3/4	119	8	16	10	37	183	150 1/2	4	60	25	50	70	Std.	30	39,000



BENDING PROPERTIES OF DIFFERENT STEELS TONNAGE CHARTS

Pressure In Tons Per Linear Foot
Required to Make 90 Degree Air Bend in Mild Steel
Tensile 58 ksi Yield 32 ksi

Tons Per Linear Foot		WIDTH OF FEMALE DIE OPENING																	
THICKNESS OF METAL		1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Gauge	Inches	Add 25% for A36 steel. This can vary with tensile and yield																	
20	.036	2.9	2.2	1.7	1.2	1.0													
18	.048		4.0	2.9	2.2	1.6	1.3												
16	.060			5.6	3.6	2.7	2.2	1.7											
14	.075				6.0	4.5	3.4	3.0	2.5	2.1									
13	.090					6.8	5.4	4.3	3.7	3.3	2.9								
12	.105					10.1	7.4	6.3	5.4	4.4	4.0	3.2							
11	.120						10.5	8.8	7.2	6.2	5.4	4.3	3.2						
10	.135							11.3	9.6	8.4	7.0	5.6	4.1						
9	.150								13.1	11.9	9.0	6.7	5.2	3.5					
7	.188									16.4	14.0	11.2	7.6	5.8	4.5				
1/4	.250										28.8	22.0	15.3	11.5	9.1	7.5	6.2		
5/16	.312											38.0	26.0	19.2	16.0	12.5	10.6	7.6	
3/8	.375												41.0	29.9	24.0	19.4	16.0	12.3	9.3
7/16	.437													45.2	35.0	28.0	24.0	17.0	14.6
1/2	.500														47.9	39.0	33.1	24.0	19.0

NOTE
We recommend using 85° or 88° dies
And or punches for air bending

Pressures shaded are for dies with female openings approximately 8x metal thickness, with radius on male die equal to metal thickness, and considered ideal for right angle bending

Pressure Required For Air Bending High-Tensile Low-Yield Steel

Tons Per Linear Foot		Tensile 80-90 ksi								Yield 30-40 ksi		
THICKNESS INCHES		WIDTH OF V-DIE OPENING (INCHES)										
		2	2 1/2	3	3 1/2	4	5	6	7	8	10	12
1/4	0.250	18.5	13.7	10.8	8.9	7.3						
5/16	0.313	32.4	23.9	18.4	15.2	12.6	9.2					
3/8	0.375	50.8	37	29	23.5	19.5	14.8	11.4				
7/16	0.438		55	42.5	30.5	29.5	21	17.5	13.5			
1/2	0.500			59	47.5	40	29.5	23.5	19	15.5		
5/8	0.625				84	70	51.5	40	33	28	20	
3/4	0.750					112	83	64	52	43	33	25
7/8	0.875						125	97	77	64	48	38
1	1.000							136	110	92	68	53

V-opening is 8x material thickness.

Punch radius equal to material thickness

Pressure Required For Air Bending High-Tensile Low-Yield Steel

V-opening is 10x material thickness.
Punch radius is 1 1/2x material thickness.

Tons Per Linear Foot		Tensile 60-75 ksi								Yield 45-55 ksi		
THICKNESS INCHES		WIDTH OF V-DIE OPENING (INCHES)										
		2	2 1/2	3	3 1/2	4	5	6	7	8	10	12
1/4	0.250	26	19.5	15.5	12.5	10.5						
5/16	0.313	46	33.5	26	21.5	18	13					
3/8	0.375			41	33.5	28	21	16				
7/16	0.438				48.5	41.5	29.5	23	19			
1/2	0.500					57	42	33	27	22		
5/8	0.625						74	57	47	40	29	
3/4	0.750							91	74	62	46	36
7/8	0.875								110	90	68	54
1	1.000								155	129	96	75

Plates Typical Properties

Properties shown for annealed and as rolled alloy plate are based on single test results.
They will vary considerably dependent on thickness.

Condition of Steel	Tensile Strength KSI	Yield Strength KSI	% Elong. In 2"	% Elong. In 8"	Approx. Brinell Hardness	
GENERAL PURPOSE						
1015	As Rolled	50	29	---	---	133
1020 Mild Steel	As Rolled	58	32	---	---	143
1025	As Rolled	70	34	---	---	156
ASTM A36, ASME SA36	As Rolled	58-80	36 min.	23	20	137

Bending Pressures Required For Other Metals As Compared To 60,000 P.S.I. Tensile Mild Steel On Chart:

Soft Brass.....50% of pressure listed
Soft Aluminum.....50% of pressure listed
Aluminum Alloys(Heat Treated).....same as steel
Stainless Steel.....50% more than steel

PRESS BRAKES

TECHNICAL SPECIFICATIONS

Frame: The frame is of open throat design with mounting holes in feet. Drilled and tapped holes in feet allow for leveling of the machine.

Bed: The machined flat surface is slotted full length to accommodate standard die holders, filter blocks, misc.

Front & Back of Bed: The bed is machined down 4" on the front and 12" on the back to allow a flat surface for mounting various brackets, supports and gauges.

Ram: The ram is constructed of solid steel slotted to accept standard dies. The clamping bar is sectional for positive clamping. The upper is machined up to 4" to allow a flat surface for mounting brackets and gauges.

Ram Tilt Adjustment: The micrometer spindle is located on the right side end frame of machine, which allows for adjustment of the desired angle required up to ± 0.500 inch. The micrometer allows the operator to return to a given setting, parallel to desired angle. By using the micrometer reading, the machine can return to previous position.

Ram Level: The ram level is accomplished by two hydraulic systems, one for each cylinder, which keeps them parallel. The ram self-levels at the bottom of each stroke even if hydraulic system is out of adjustment.

Hydraulic Cylinders: Direct acting hydraulic cylinders are one piece, double acting with self-aligning, hardened ball sockets.

Accuracy: Parallelism is maintained at ± 0.002 inch in low speed.

Operating Controls:

1. Pull to start. Push off. Light is on when in the "ON" position.
2. Run/Jog switch. Run position for normal operation. Jog position for loading of tooling, maintenance and set-up. Up/Down buttons are used when in jog.
3. 3 Position Foot Pedal
 - a. Ram up
 - b. Ram hold
 - c. Foot pedal down. Ram down allows or jogging of ram down and holding. Emergency stop and emergency up buttons are located on a small pedestal that comes from the foot pedal.
4. Cycle time delay at bottom of stroke

When using top & bottom tools on a press brake, a forming system is created which requires analysis to determine the appropriate safeguarding for operator safety and protection.

It is the user's responsibility to ensure that the point of operation is effective and all applicable safety requirements are met.



Stroke Control (Optional): Control of strokes in accomplished by rotation of hand wheels, which read in thousandths of an inch and set the closed height. When the machine is 2 or 3 speed, the knob for setting the speed change point is located on right side for simple adjustments.

Tonnage Control (Optional): Our machines are equipped with optional adjustable tonnage control to go from lower tonnage to rated tonnage of machine, as well as overload protection.

Backgauge: A slide and clamp, 3 axis backgauge 24" is standard.

1. Front operated manual backgauge, hand wheel with mechanical readout (0.01)
2. Front operated power backgauge with LED readout (0.001)

CNC backgauging and front gauging is optional.

Front Support Arms (Optional): 24" support arms are "slide" type. Optional disappearing stops help to hold the material from sliding backward.

Electrical System: The electrical systems meet NFPA 79 standards. All machines have disconnect switches, magnetic starters, 110/120v controls, 208-230/460v 3 phase, others optional.

Motors: Our American made motors are rated for continuous duty, open drip.

Lubrication: Grease zerks are standard. One shot lube or automatic lubrication is optional.

Safety Features: Betenbender Hydraulic Press Brakes and Shears are built to meet ANSI B11.3 standards. Safety features of the Betenbender Press Brake include:

- Emergency stop on pedestal
- Emergency up on pedestal
- Warning signs, safety markings and covers
- Electronics meet NFPA 79 standards
- 110/120v control

Specifications are subject to change without notice.

Compliance with OSHA requirements is the legal responsibility of the user and is subject to local inspectors' interpretation of existing standards.

Betenbender Shears are built to meet ANSI B11.3 standards

Convert Feet to Millimeters Multiply By 304.8	
2'	609.6 mm
4'	1219.8 mm
5'	1524.0 mm
6'	1828.8 mm
8'	2438.4 mm
10'	3048.2 mm
12'	3657.6 mm
14'	4267.2 mm

Convert Inches to Millimeters Multiply By 25.4		
1/8"	0.125	3.18 mm
3/16"	0.188	4.77 mm
1/4"	0.250	6.35 mm
3/8"	0.375	9.53 mm
1/2"	0.500	12.7 mm
5/8"	0.625	15.88 mm
3/4"	0.750	19.05 mm
1"	1.000	25.4 mm