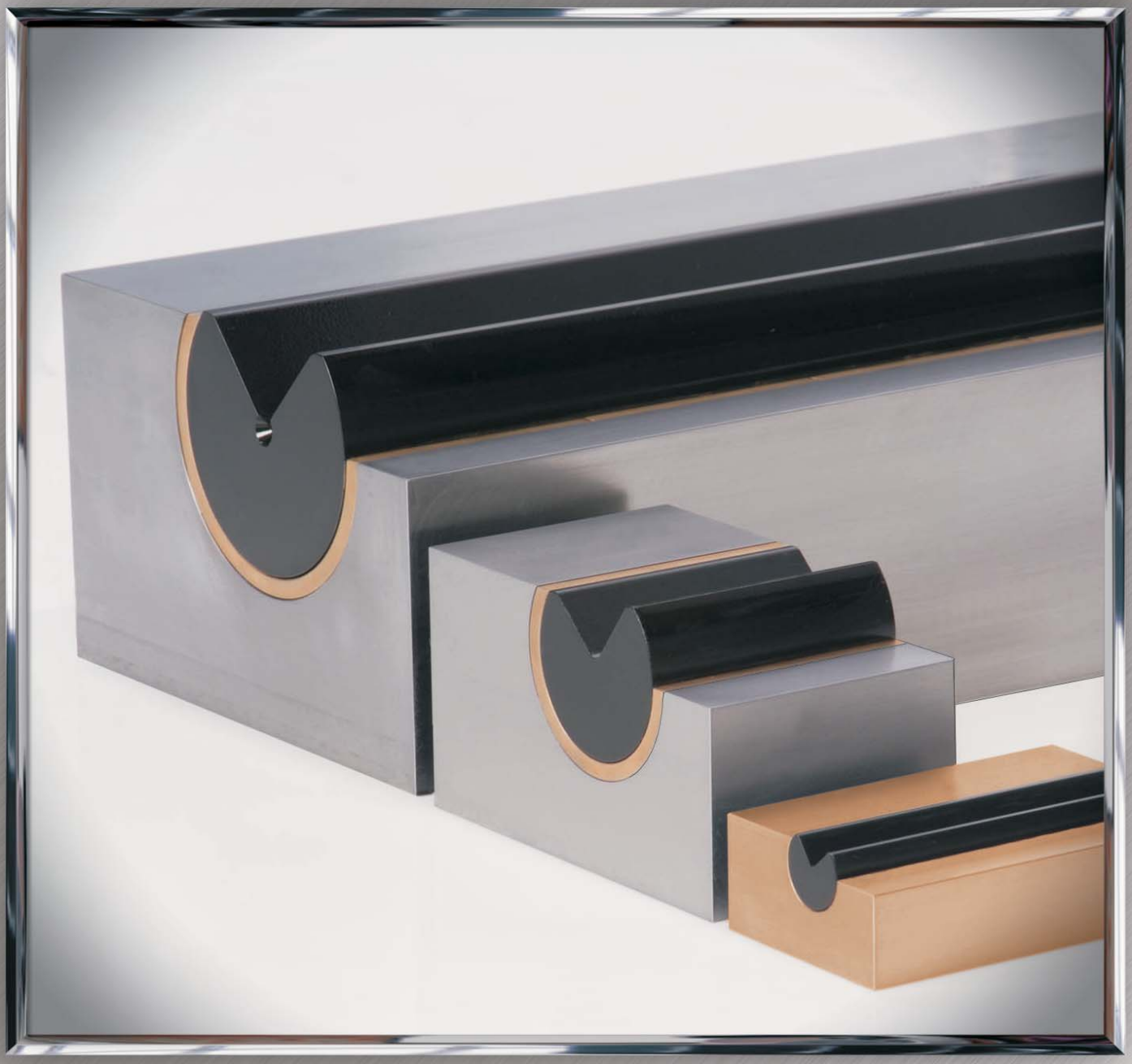
ACCU-BEND™



Anchor Danly

The Brands You Trust

ACCU-BEND™ DESIGN AND MAINTENANCE RECOMMENDATIONS

INSIST ON AN ACCU-BEND™

PRICED TO GIVE YOU A COMPETITIVE EDGE!

To protect your Accu-Bend and for optimal performance, please remember the following:

- **Use light oil before the first start-up.**
- **Oil the unit every 50K cycles.**
- **Clean and inspect the unit every 200K cycles.**
- **Clean the setscrew and use Loctite® 222 when reinstalling the set screw.**
- **Don't distort the saddle pocket and spring hole when machining the saddle.**
- **Provide backup key to saddle.**
- **Use the proper method to modify a rocker for more over-bend.**
- **Provide over-bend back taper allowance in anvil.**
- **The groove in the anvil for the dart must allow for material thickness.**
- **The groove in the anvil for the dart must line up with the bender.**
- **Provide proper land for Z bend.**
- **Allow for material thickness tolerance when locating the saddle.**
- **Don't overstroke.**

ACCU-BEND™ CONTENTS

	PAGE NUMBER
The Accu-Bend™ Advantage	1
How Accu-Bend™ Works	2
Standard Bender Specifications	3
Compact Bender Specifications	5
Bender Design Information	6
Modified Bends	7
Available Options	9
Accu-Bend™ Quotation Form	13

Accu-Bend™ Rotary Benders are manufactured in the USA.

Accu-Bend™ – Simplifying Your Bending Process!

Product Features You Will Appreciate

The Accu-Bend™ is manufactured with the same precise methods and processes you put into your own designs. The saddle liner is a bronze alloy chosen for the ability to hold up to a bearing load with little to no wear.

The Flexibility To Handle Custom Orders

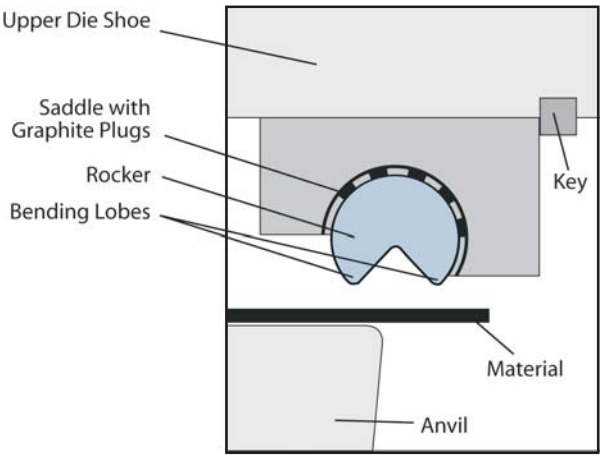
Having a wide range of standard sizes is never enough. When you have an application that calls for something special, call us. Our team of engineering specialists are waiting to tackle your job head-on. They will work with you to quickly find solutions that fit your specific application.

Once designed, making your custom order(s) will be quick and efficient, using our extensive production resources which utilize the latest in tooling.

How Accu-Bend™ Works

Product Features

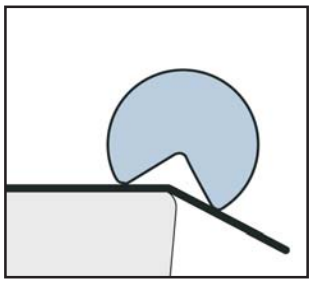
1.



START POSITION

Downward pressure of the press clamps the part with the rocker's bending lobes before the bending action starts.

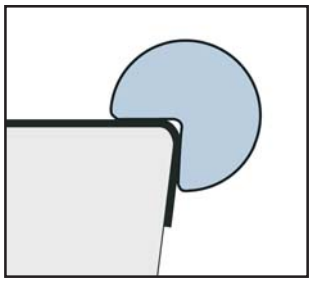
2.



BEND

The rocker's rotation forms the material around the anvil with less pressure and material distortion than wipe bending.

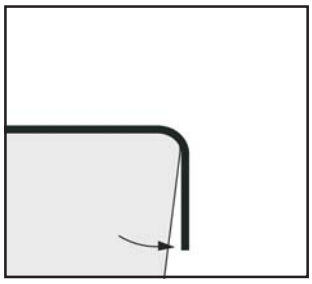
3.



OVERBEND by 3°

Bending action continues to form the material around the anvil until desired angle is completed. The anvil should have 5° relief to allow for the 3° overbend.*

4.



MATERIAL SPRINGBACK

Rocker bends past 90° to counteract material springback, leaving a 90° bent part (±1/2°).

**The 3° overbend applies to cold rolled steel only.*

CUSTOM ORDERS:

- Requests for custom orders can be made by completing a Special Request Quote Form (page 8) or contacting Customer Service.
- Shorter lengths or segmenting are possible.
- Pressure pads can be ordered with Accu-Bend™ units.

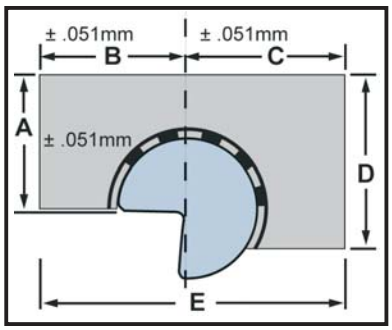
FEATURES:

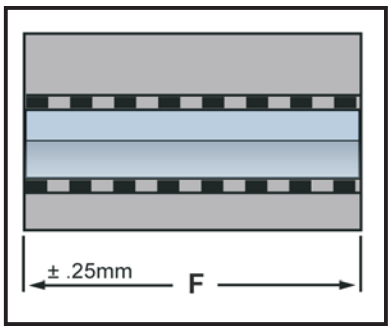
- 87° rocker for 90° bends. This allows a 3° overbend for material spring back.
- Rockers and saddles are machined for precision and interchangeability.
- Graphite plugs are included in the bronze saddle liner to provide lubrication.

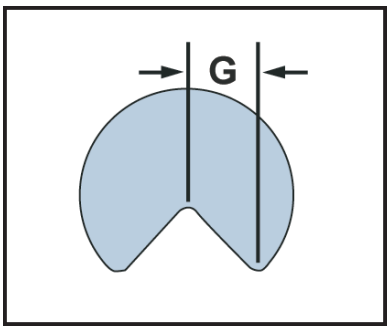
MATERIALS THAT CAN BE BENT:

- Hot Rolled Steel
- Cold Rolled Steel
- High Strength Low Alloy Steel
- Advanced High Strength Steel
- Ultra High Strength Steel
- Stainless Steel
- Galvanized Steel
- Aluminum
- Pre-painted Aluminum
- Brass
- Copper
- And Much More!

Standard Bender Specifications







Model Number	Max. Part Thickness mm *(in)*	Minimum Part Height mm *(in)*	A mm *(in)*	B mm *(in)*	C mm *(in)*	D mm *(in)*	E mm *(in)*	F mm	F *(in)*	G mm *(in)*	Bolt for Mounting
MB-20-50	1.2 *(0.05)*	8.5 *(0.33)*	24 *(0.94)*	25 *(0.98)*	35 *(1.38)*	30 *(1.18)*	60 *(2.36)*	50	*1.97*	6.5 *(0.26)*	M6
MB-20-100								100	*3.94*		
MB-20-150								150	*5.91*		
MB-20-200								200	*7.87*		
MB-20-250								250	*9.84*		
MB-20-300								300	*11.81*		
MB-20-400								400	*15.75*		
MB-20-500								500	*19.69*		
MB-25-75	2 *(0.08)*	10 *(0.39)*	30 *(1.18)*	30 *(1.18)*	45 *(1.77)*	38 *(1.50)*	75 *(2.95)*	75	*2.95*	8.5 *(0.33)*	M6
MB-25-150								150	*5.91*		
MB-25-225								225	*8.86*		
MB-25-300								300	*11.81*		
MB-25-375								375	*14.76*		
MB-25-450								450	*17.72*		
MB-25-525								525	*20.67*		
MB-25-600								600	*23.62*		
MB-35-75	3 *(0.12)*	14 *(0.55)*	40 *(1.57)*	38 *(1.50)*	60 *(2.36)*	51 *(2.01)*	98 *(3.86)*	75	*2.95*	11.5 *(0.45)*	M8
MB-35-150								150	*5.91*		
MB-35-225								225	*8.86*		
MB-35-300								300	*11.81*		
MB-35-375								375	*14.76*		
MB-35-450								450	*17.72*		
MB-35-525								525	*20.67*		
MB-35-600								600	*23.62*		
MB-40-75	3.5 *(0.14)*	17 *(0.67)*	48 *(1.89)*	40 *(1.58)*	58 *(2.28)*	60 *(2.36)*	98 *(3.86)*	75	*2.95*	12.9 *(0.51)*	M8
MB-40-150								150	*5.91*		
MB-40-225								225	*8.86*		
MB-40-300								300	*11.81*		
MB-40-375								375	*14.76*		
MB-40-450								450	*17.72*		
MB-40-525								525	*20.67*		
MB-40-600								600	*23.62*		

NOTES:

- Dimension A is to center of rocker. Saddle is 0.10 – 0.15mm above.
- The MB-20 and MB-25 series benders have an S7 rocker that sits in a solid bronze saddle.
- Material thickness capacity is based on 50KSI yield strength.

Standard Bender Specifications *(continued)*

Model Number	Max. Part Thickness mm (in)	Minimum Part Height mm (in)	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm	F (in)	G mm (in)	Bolt for Mounting
MB-50-75	4.5 (0.18)	20 (0.79)	55 (2.17)	50 (1.97)	76 (2.99)	70 (2.76)	126 (4.96)	75	2.95	16.5 (0.65)	M10
MB-50-150								150	5.91		
MB-50-225								225	8.86		
MB-50-300								300	11.81		
MB-50-375								375	14.76		
MB-50-450								450	17.72		
MB-50-525								525	20.67		
MB-50-600								600	23.62		
MB-50-750								750	29.53		
MB-65-75	6 (0.24)	25.5 (1.00)	70 (2.76)	60 (2.36)	92 (3.62)	90 (3.54)	152 (5.98)	75	2.95	21.5 (0.85)	M12
MB-65-150								150	5.91		
MB-65-225								225	8.86		
MB-65-300								300	11.81		
MB-65-375								375	14.76		
MB-65-450								450	17.72		
MB-65-525								525	20.67		
MB-65-600								600	23.62		
MB-65-750								750	29.53		
MB-65-900								900	35.43		
MB-80-75	7.5 (0.30)	31.5 (1.24)	80 (3.15)	70 (2.76)	105 (4.13)	105 (4.13)	175 (6.89)	75	2.95	26.5 (1.04)	M12
MB-80-150								150	5.91		
MB-80-225								225	8.86		
MB-80-300								300	11.81		
MB-80-375								375	14.76		
MB-80-450								450	17.72		
MB-80-525								525	20.67		
MB-80-600								600	23.62		
MB-80-750								750	29.53		
MB-80-900								900	35.43		

NOTES:

- Dimension A is to center of rocker. Saddle is 0.10 – 0.15mm above.
- The MB-20 and MB-25 series benders have an S7 rocker that sits in a solid bronze saddle.
- Material thickness capacity is based on 50KSI yield strength.

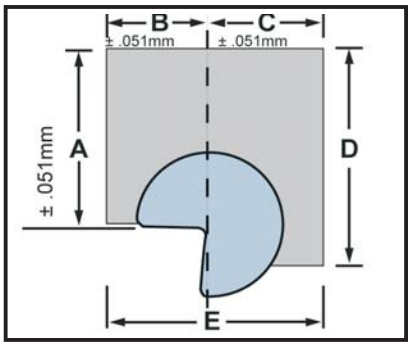
Bender Load Capacity

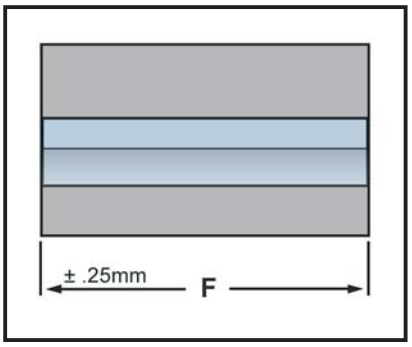
Bender Diameter mm	LBS. per Inch Length	KGS per 25mm Length
20	750	340
25	1450	660
35	2300	1050
40	2750	1250
50	3600	1650
65	4800	2200
80	6000	2750

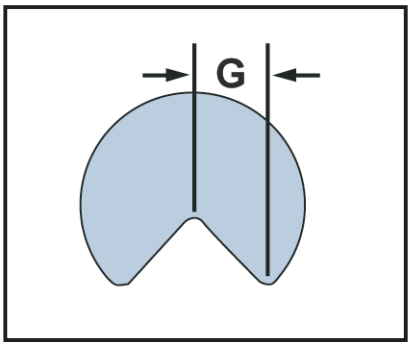
NOTES:

- Use formula on pg.6 to match bender size to other material strength and thickness.

Compact Bender Specifications







Model Number	Max. Part Thickness mm *(in)*	Minimum Part Height mm *(in)*	A mm *(in)*	B mm *(in)*	C mm *(in)*	D mm *(in)*	E mm *(in)*	F mm	F *(in)*	G mm *(in)*	Bolt for Mounting
CMB-20-50	1.2 *(0.05)*	8.5 *(0.33)*	48 *(1.89)*	18 *(0.71)*	18 *(0.71)*	54 *(2.13)*	36 *(1.42)*	50	*1.97*	6.5 *(0.26)*	M6
CMB-20-100								100	*3.94*		
CMB-20-150								150	*5.91*		
CMB-25-50	2 *(0.08)*	10 *(0.39)*	60 *(2.36)*	20 *(0.79)*	20 *(0.79)*	68 *(2.68)*	40 *(1.57)*	50	*1.97*	8.5 *(0.33)*	M6
CMB-25-100								100	*6.94*		
CMB-25-150								150	*5.91*		
CMB-35-50	3 *(0.12)*	14 *(0.55)*	74 *(2.91)*	25 *(0.98)*	25 *(0.98)*	85 *(3.35)*	50 *(1.97)*	50	*1.97*	11.5 *(0.45)*	M8
CMB-35-100								100	*3.94*		
CMB-35-150								150	*5.91*		
CMB-50-50	4.5 *(0.18)*	20 *(0.79)*	85 *(3.35)*	35 *(1.38)*	35 *(1.38)*	100 *(3.94)*	70 *(2.76)*	50	*1.97*	16.5 *(0.65)*	M10
CMB-50-100								100	*3.94*		
CMB-50-150								150	*5.91*		
CMB-65-50	6 *(0.24)*	26 *(1.02)*	100 *(3.94)*	45 *(1.77)*	45 *(1.77)*	120 *(4.72)*	90 *(3.54)*	50	*1.97*	21.5 *(0.85)*	M12
CMB-65-100								100	*3.94*		
CMB-65-150								150	*5.91*		

NOTES:

- Dimension A is to center of rocker. Saddle is 0.10 – 0.15mm above.
- The compact series benders have an S7 rocker that sits in a solid bronze saddle.
- Material thickness capacity is based on 50KSI yield strength.

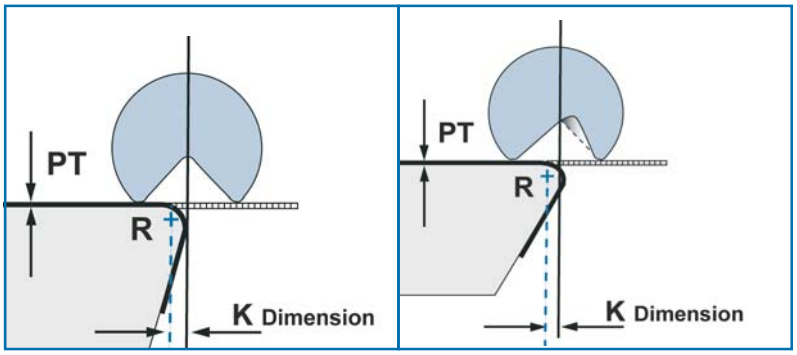
Bender Design Information

Bender Location

- Use the formula for setting the “K” dimension for a 90° bend using a standard 87° rocker. Proper setting of the rocker centerline in relation to the anvil radius centerline is important for dimensioning the key slots needed to hold the backup key.

$$K = \frac{PT + PR}{Tan\ (43.5°)}$$

The "K" dimension for over bend or under bend applications is best determined by doing a CAD layout.



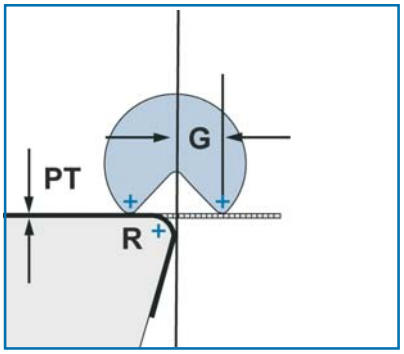
Standard Bend *Over Bend*

Force Formula for the Accu-Bend™

F = Force Required (Pounds)
YS = Yield Strength (psi)
W = Width of Bend, inch
PT = Part Thickness, inch
L = Span (Beam), inch
G = Rocker Dimension, inch
R = Part Radius, inch

$$L = G + PT + R$$

$$F = 2.25 \times \frac{YS \times W \times (PT)^2}{L}$$

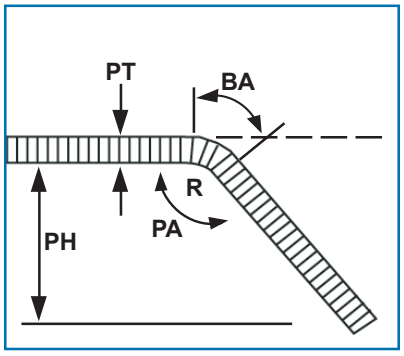


General Bend Allowance

The smooth rotary action of a bender requires a greater bend allowance than is typical with a coining or wipe bending operation. The formula for the bend allowance is:

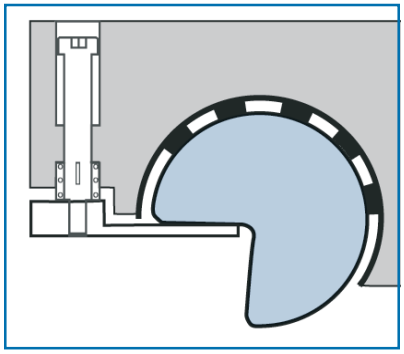
$$BA = 0.01745 \times (180 - PA) \times [R + (PT \times .43)]$$

Important: Variances in material specifications and tolerances may require a change in the bend allowance when changing coils of the same material or changing material type altogether.



Pad Functions

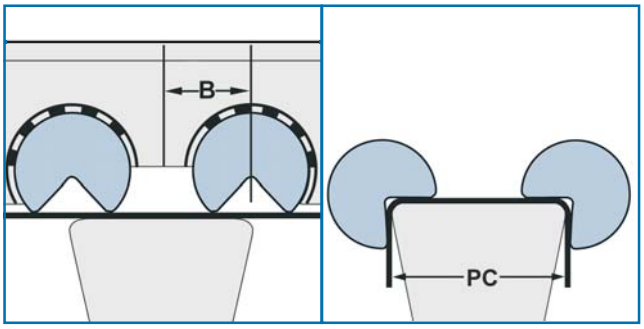
- Eliminates contact marks on clamped surfaces.
- Protects cutout or hole from distortion.
- Matches preformed shape.
- Used for extreme overbend.
- Prevents humping of material when using an over sized bender.
- Used to match a standard rocker radius to Zee Bend dimension.
- Pad can usually be integral to the bender.



Modified Bends

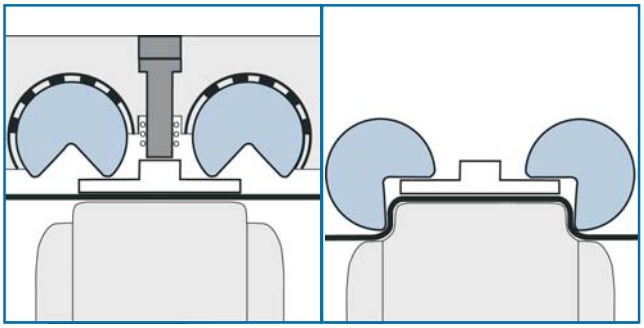
Channel Bend and Hat Bends – Paired Units

- Channel bends can be accomplished in one press stroke by pairing two benders face-to-face.
- In order to use standard benders, the spread or part channel must be greater than 2 times the (B) dimension.
- The rocker inside radius can be specially matched if required. Use a set of interlaced benders for a channel less than 2 x B.
- A pressure pad may be required to hold the part to keep the material from humping at the bend radius and in place.
- Hat bends can be handled with a two Zee Bend setup.



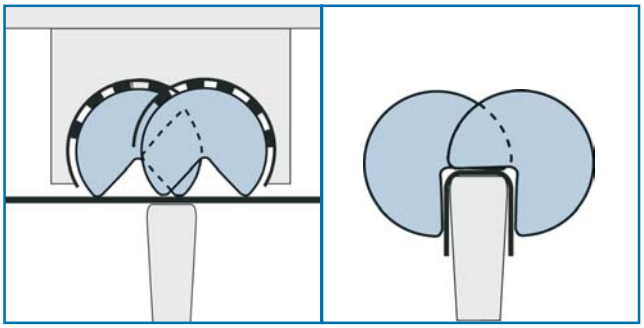
Channel Bend and Hat Bends – Single Saddle

- Two rockers in one saddle.
- For narrow channel and hat bends in one hit.
- The unit has an integral pad.



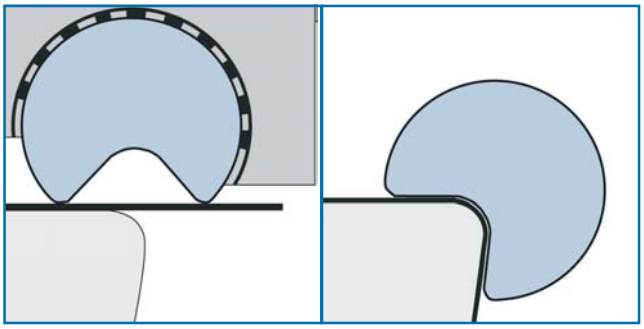
Interlaced Bends

- Custom interlacing to channel dimension.
- Forms a narrow channel in one hit.



Large Radius

- A bend radius exceeding 3 times part thickness is considered a large radius bend.
- Large radius bends can be accomplished by using a larger size rocker.
- Adding a few extra degrees of over bend is required to compensate for material spring back.
- The rocker inside radius can be specially matched to the part radius.

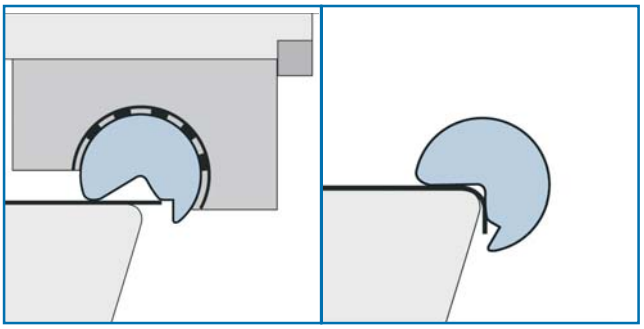


Modified Bends *(continued)*

Short Leg

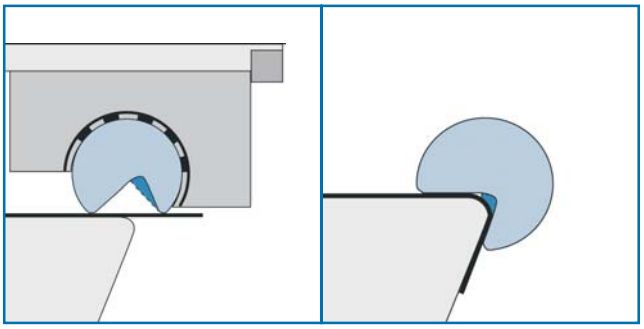
- Short leg bends require a recessed step in the bending lobe of the rocker to accommodate the shorter part height.
- Tonnage requirements will increase as compared to a standard bend.
- The formula to determine the shortest leg possible is:

  2.6 x (part thickness) + (part radius).



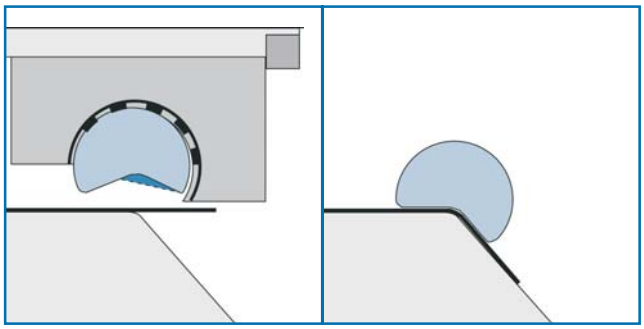
Over Square (up to 120°)

- Over square bends require a modification of the rocker angle while maintaining a constant bending lobe radius.
- The use of a pressure pad is suggested for over square bends over 110º to keep the rocker from sticking to the part.



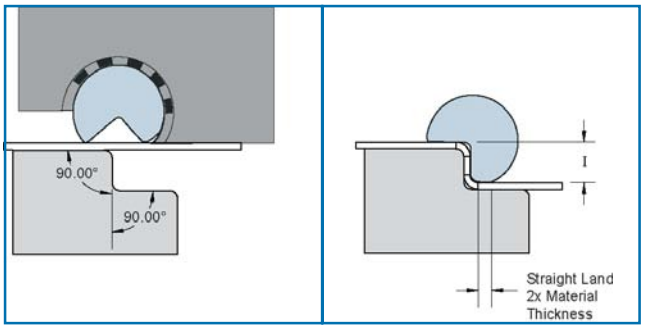
Under Square

- Part angle over 105º, bender centerline above part.
- Part angle up to 105º, bender centerline on part.



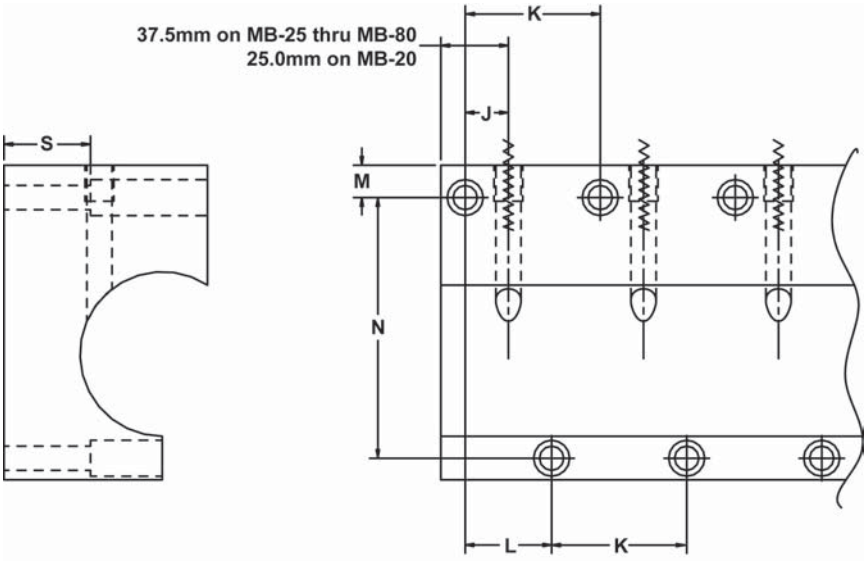
Zee Bend

- A true 90º rocker is used in Zee Bend applications.
- A pressure pad is usually required to make up the difference between the part height and the (I) dimension of the rocker.
- A slight modification to the bending lobe at the time of production of the bender may be required to obtain the desired part radius on the lower bend.



Available Options

Counter Bored Mounting Holes – Standard



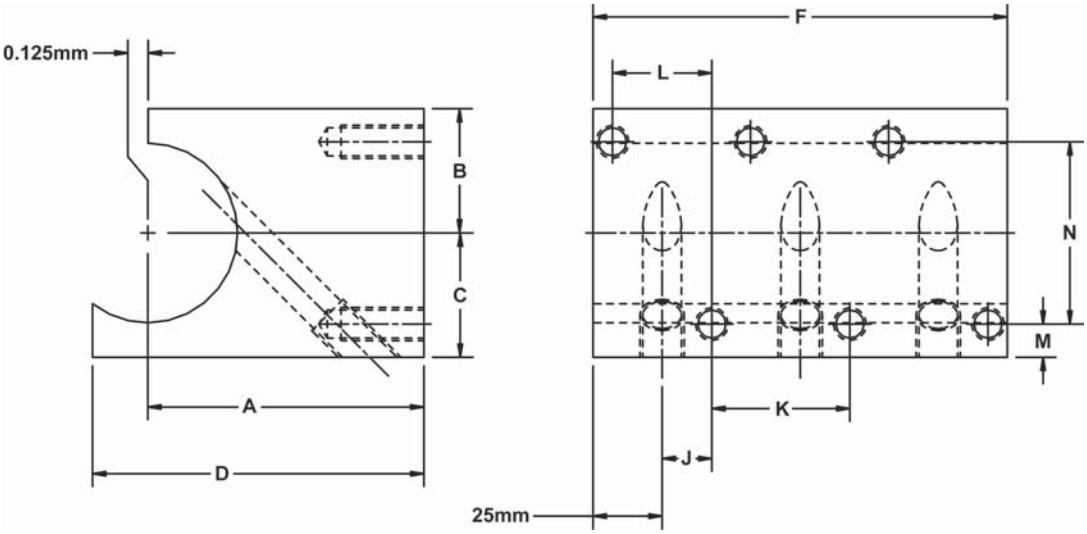
	Model Number	Bolt	S mm *in*	J mm *in*	K mm *in*	L mm *in*	M mm *in*	N mm *in*
METRIC	MB-20	M6	16	16	50	32	9	45
	MB-25	M6	24	18	75	36	9	59
	MB-35	M8	30	22	75	44	12	78
	MB-40	M8	38	22	75	44	12	78
	MB-50	M10	40	22	75	44	15	101
	MB-65	M12	25	24	75	48	18	123
	MB-80	M12	40	24	75	48	18	145
INCH	MB-20	*1/4*	*0.625*	*0.75*	*2*	*1.5*	*0.25*	*1.875*
	MB-25	*1/4*	*.75*	*0.75*	*2.875*	*1.5*	*0.3125*	*2.375*
	MB-35	*5/16*	*1.125*	*0.875*	*2.875*	*1.75*	*0.5*	*3.0*
	MB-40	*5/16*	*1.5*	*0.875*	*2.875*	*1.75*	*0.55*	*3.0*
	MB-50	*3/8*	*1.5*	*0.875*	*2.875*	*1.75*	*0.6875*	*3.875*
	MB-65	*1/2*	*1.0*	*1.0*	*2.875*	*2.0*	*0.8*	*4.75*
	MB-80	*1/2*	*1.5*	*1.0*	*2.875*	*2.0*	*0.75*	*5.625*

NOTES:

- When ordering with mounting holes, add "**MH**" to the end of the part number.

Available Options *(continued)*

Threaded Mounting Holes – Compact



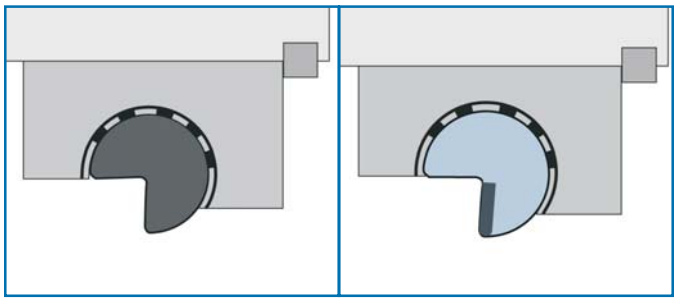
	Model Number	Bolt	Depth of Tap mm *in*	J mm *in*	K mm *in*	L mm *in*	M mm *in*	N mm *in*	Bolts for Mounting
METRIC	CMB-20	M6	15	15	50	30	6	24	M6 x 1
	CMB-25	M6	15	15	50	30	6	28	M6 x 1
	CMB-35	M8	20	18	50	36	8	34	M8 x 1.25
	CMB-50	M10	25	18	50	36	10	50	M10 x 1.5
	CMB-65	M12	30	18	50	36	12	66	M12 x 1.75
INCH	CMB-20	*1/4*	*0.625*	*0.5*	*2*	*1.125*	*0.25*	*0.875*	*1/4 – 20*
	CMB-25	*1/4*	*0.625*	*0.5*	*2*	*1.125*	*0.25*	*1.125*	*1/4 – 20*
	CMB-35	*5/16*	*0.75*	*0.5*	*2*	*1.125*	*0.375*	*1.375*	*5/16 – 18*
	CMB-50	*3/8*	*1*	*0.5*	*2*	*1.125*	*0.4*	*2*	*3/8 – 16*
	CMB-65	*1/2*	*1.125*	*0.5*	*2*	*1.125*	*0.5*	*2.625*	*1/2 – 13*

NOTES:

- When ordering with mounting holes, add "**MH**" to the end of the part number.

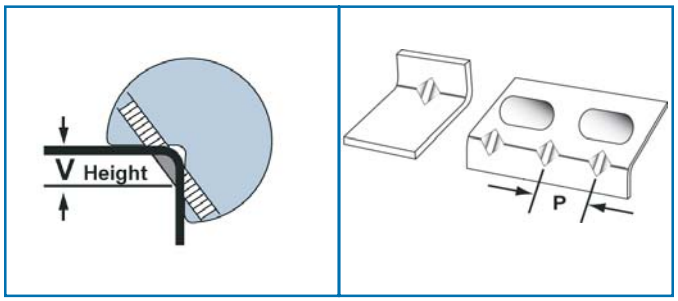
Available Options *(continued)*

Composite Rocker and Insert



- The composite material is a hard, low-friction polymer used as a contact material for stainless or pre-painted steel where slight tool marks are not acceptable.
- Tool marks can be eliminated by using a composite insert in combination with a pressure pad positioned between the part surface and the bending lobe of the rocker.
- Composite inserts are not available in the MB-20 and CMB-20 models. However, we could provide a solid composite rocker as a special.
- A solid composite rocker is used in low production volumes under 100K parts.

Dart Stiffener



- Dart Stiffeners are an easy way to add strength to any part and are formed using less tonnage with the rotary action of the Accu-Bend™.
- You can specify the size of the dart and a rocker with dowel(s) will be made to fit your application.
- A relief in the anvil is necessary to accommodate each dart.

Standard "V"

Bender Diameter mm	Dowel Diameter mm	Gusset Height mm
20	3	5
25	4	8
35	6	10
40	7	11
50	8	12
65	10	12
80	12	12

Notes

ACCU-BEND™
QUOTATION FORM

Quote Number (Assigned by Anchor Danly):_____ Date:_____

COMPANY INFORMATION

Company Name: _____

Contact: _____ Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail Address: _____

APPLICATION INFORMATION

Production Method:[1] Stamping Press ☐ Press Brake ☐

Order Quantity: _____ Material Type & Grade: _____

Material Yield Strength: _____ Ann. Prod. Volume: _____

L = Length of Bend (bender length): _____ PT = Part Material Thickness: _____

PH = Part Height (bent leg): _____ PR = Part Radius (inside):[3] _____

PC = Part Channel (inside): _____ PA = Part Angle (inside): _____

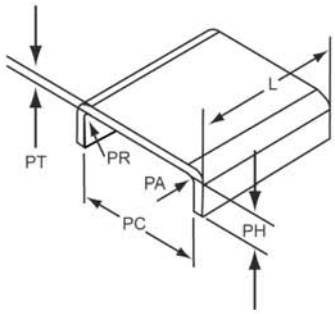
Over Bend required (30° max):[2] _____

Check here if you are interested in test bending this part ☐

No. of drawings attached: _____

Check here if tool marks are not acceptable ☐

Mounting hole options: ☐ Metric ☐ Inch ☐ Customer specified



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Type of Bend (check one)

Square	☐	Zee Bend	☐
Over Square	☐	Short Leg	☐
Channel	☐	Under Square	☐
Hat Bend	☐	"J" Bend (requires two hits)	☐

1. Press brake application will require special mounting plates and special heeling to secure the Accu-Bends.
2. If the over bend angle is not specified by the customer, Anchor Danly will recommend the over bend required. However, this recommendation is not a guarantee. Anchor Danly can perform a variety of test bending. Please contact our Customer Service regarding our test bending service.
3. Due to material characteristics, Anchor Danly recommends the part radius should be at least equal to the material thickness. The final part radius is a result of anvil geometry and material behavior.

FAX: 248-553-6842 or 800-406-4410

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