CONDUIT BENDERS

Cat. No.
48-22-4070, 48-22-4071, 49-22-4080, 48-22-4081, 48-22-4082

IMPORTANT SAFETY INSTRUCTIONS

⚠WARNING To reduce the risk of injury, read and understand this instruction sheet. Failure to understand how to safety operate this tool could result in an accident causing serious injury.

Always inspect the bender for wear or damage before each use. A worn or damaged tool may fail, resulting in injury or property damage.

Use this tool only for its intended use. Other use may result in injury.

Keep proper footing and balance at all times. This enables better control of the tool in unexpected situations.

Always wear eye protection. Protective equipment used for appropriate conditions will reduce personal injuries.

READ AND SAVE THESE INSTRUCTIONS

MILWAUKEE conduit benders are used to bend 1/2" through 1" EMT and 1/2" through 3/4" rigid conduit.

SYMBOLOGY

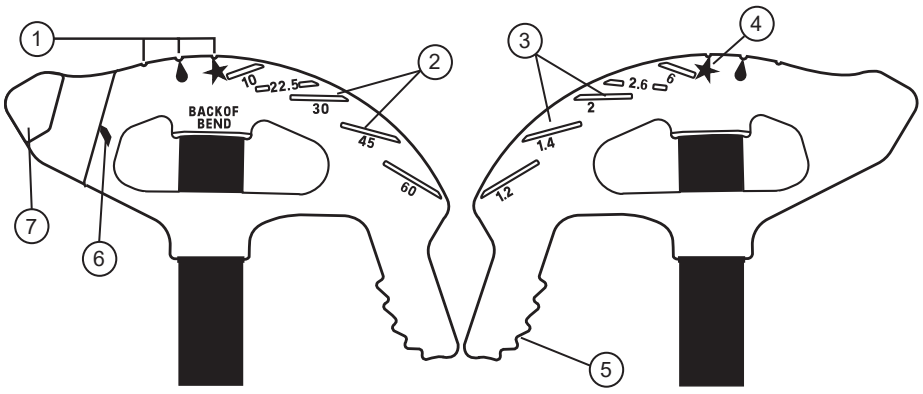
Warning

Read Operator's Manual

Wear Eye Protection

Keep Proper Footing and Balance

FUNCTIONAL DESCRIPTION



1. Center of Saddle Bend Notches (30°,45°, and 60°)
2. Angle Indicators
3. Offset Multipliers
4. Back of 90° Bend Indicator
5. Foot Pedal
6. Alignment Arrow
7. Hook

OPERATION

Good practices and tips:
- Always measure first
- Use the tables on the bender's handle or in this instruction sheet to mark the conduit.
- Match the marks to the markings on the bender.
- When bending against the ground, pin the conduit down using heavy foot pressure to keep the conduit in the groove and prevent kinks.
- When bending in the air, pin the conduit against your body.

Stub Bends

To make a simple stub bend:
1. Mark the conduit.
2. Line up the Alignment Arrow with the mark.
3. Bend to 90°.

NOTE: Use the following to calculate the marking location:

Desired stub height - Indicated tool stub height = Marking location for alignment arrow

Back-To-Back Bends

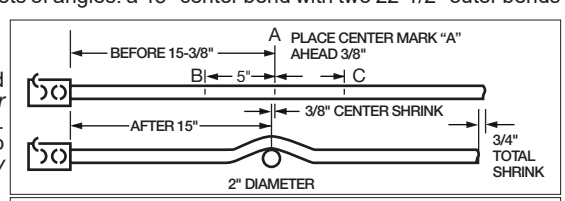
To make U-bends in a single piece of conduit:
1. Make the initial stub bend.
2. Measure and mark the conduit where the back of the U-bend will be. This is the side that will run against the floor, ceiling or wall.
3. With the bender hook facing away from the previous bend, line up the mark with the star (Back of 90° Bend) indicator.
4. Bend to 90°

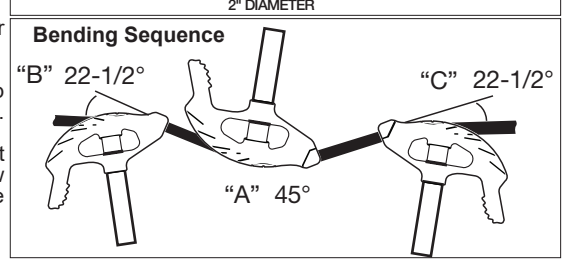
Offset Bends

To make an offset bend due to work around an obstacle, resulting in the conduit running along a different plane:
1. Determine the most appropriate offset angle, keeping in mind the function of the bend.
2. Measure the distance from the coupling to the obstacle.
3. Use the Offset Table to determine the appropriate *Offset Angle*.
4. Find the corresponding *Offset Depth*.
5. Add the *Shrink Amount* and mark the conduit.
6. Measure the *Distance Between Marks* and mark the conduit again.
7. Line up the Alignment Arrow with the first mark and bend to the offset angle chosen
8. Rotate the conduit 180°.
9. Line up the Alignment Arrow with the second mark and bend to the offset angle chosen.

Saddle Bends

To make a saddle bend due to work around an obstacle, returning the conduit to the same plane:
1. Use the same calculation for both sets of angles. a 45° center bend with two 22-1/2° outer bends is most common.
2. Find the *SADDLE DEPTH* in the Saddle Table.
3. Find the center of the bend, and mark it accord-ing to *Place Center mark "A" Ahead of Actual Center By*.
4. Mark the other bends according to *Place Marks "B" and "C" Each Way From Center*.
5. Line up the Center of Bend Indicator on the A mark.
6. Bend to 45°.
7. Slide the conduit down and line up the Alignment Arrow with the B mark.
8. Bend to 22-1/2°.
9. Remove the conduit and rotate it 180°. Line up the Alignment Arrow with the C mark. **NOTE:** Be sure the bend is in the same plane.
10. Bend to 22-1/2°.
11. See the following example.





Saddle Formula
Distance from Mark "A" to Marks "B" and "C"=2.5 x Saddle Depth

Example
Saddle over a 2" diameter pipe; center of pipe is located 15" from the box

Offset Table

Applies to any size conduit

Offset Angle	Multiplier	Shrink per Inch of Offset Depth
10° X 10°	6	1/6" 4,2 mm
22-1/2° X 22-1/2°	2.6	3/16" 12,7 mm
30° X 30°	2	1/4" 6,4 mm
45° X 45°	1.4	3/8" 9,5 mm
60° X 60°	1.2	1/2" 12,7 mm

Offset Depth	22-1/2° X 22-1/2°		30° X 30°		45° X 45°		60° X 60°	
	Distance Between Marks	Shrink Amount	Distance Between Marks	Shrink Amount	Distance Between Marks	Shrink Amount	Distance Between Marks	Shrink Amount
2" 51 mm	5-1/4" 121 mm	3/8" 9,5 mm						
3" 76 mm	7-3/4" 159 mm	9/16" 14 mm	6" 152 mm	3/4" 19 mm				
4" 102 mm	10-1/2" 241 mm	3/4" 19 mm	8" 203 mm	1" 25 mm				
5" 127 mm	13 330 mm	15/16" 24 mm	10" 254 mm	1-1/4" 32 mm	7" 178 mm	1-7/8" 48 mm		
6" 152 mm	15-1/2" 3681 mm	1-1/8" 29 mm	12" 305 mm	1-1/2" 38 mm	8-1/2" 216 mm	2-1/4" 57 mm	7-1/4" 184 mm	3" 76 mm
7" 178 mm	18-1/4" 451 mm	1-5/16" 33 mm	14" 356 mm	1-3/4" 45 mm	9-3/4" 248 mm	2-5/8" 67 mm	8-3/8" 213 mm	3-1/2" 89 mm
8" 203 mm	20-3/4" 527 mm	1-1/2" 38 mm	16" 406 mm	2" 51 mm	11-1/4" 286 mm	3" 76 mm	9-5/8" 245 mm	4" 102 mm
9" 229 mm	23-1/2" 597 mm	1-3/4" 45 mm	18" 457 mm	2-1/4" 57 mm	12-1/2" 318 mm	3-3/8" 86 mm	10-7/8" 276 mm	4-1/2" 114 mm
10" 254 mm	26" 660 mm	1-7/8" 48 mm	20" 508 mm	2-1/2" 64 mm	14" 334 mm	3-3/4" 95 mm	12" 305 mm	5" 127 mm

Saddle Table

Applies to any size conduit

Saddle Depth	Place Center Mark "A" Ahead of Actual Center By	Place Marks "B" and "C" Each Way from Center
1" 25,4 mm	3/16" 12,7 mm	2-1/2" 63,5 mm
2" 50,8 mm	3/8" 9,5 mm	5" 127 mm
3" 76,2 mm	9/16" 14,3 mm	7-1/2" 190,5 mm
4" 101,6 mm	3/4" 19,1 mm	110" 254 mm
5" 127 mm	15/16" 23,8 mm	12-1/2" 317,5 mm
6" 152,4 mm	1-1/8" 28,6 mm	15" 381 mm
For each additional inch add: Pour chaque millimètre additionnel, ajouter : Para una pulgada adicional sume:	3/16" 12,7 mm	2-1/2" 63,5 mm