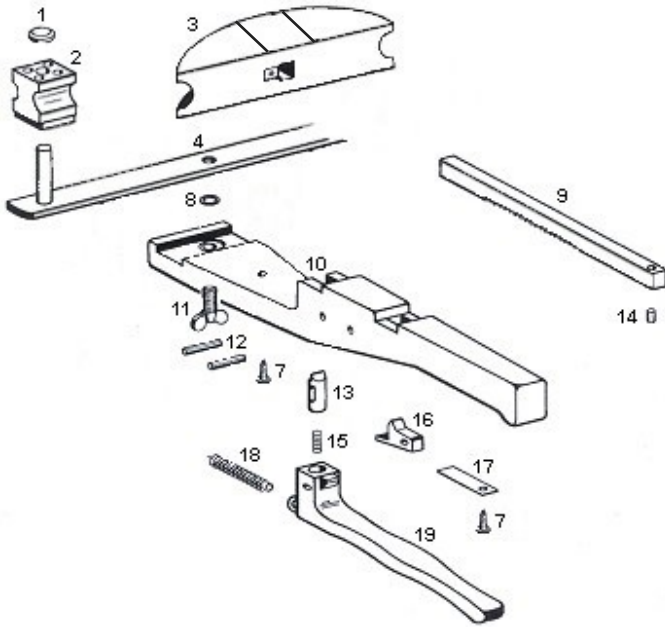


Replacement Parts (Exploded View)



Alloy Ratchet Tube Bender



Diagram Number	Description	Bending Radius	Part Number
3	Alloy Bending Mandrel - 1/4"	1"	63326
	Alloy Bending Mandrel - 5/16"	1-1/8"	63327
	Alloy Bending Mandrel - 3/8"	1-1/4"	63332
	Alloy Bending Mandrel - 1/2"	1-1/2"	63333
	Alloy Bending Mandrel - 5/8"	1-1/2"	63334
	Alloy Bending Mandrel - 3/4"	1-3/4"	63335
	Alloy Bending Mandrel - 7/8"	2"	63336
1, 2, 4	Crossbar Assembly 3/4" to 7/8"		63329
	Crossbar Assembly 1/4" to 5/8"		63330
7	Fillister Head Screw		60328
8, 11	Wing Nut & E-Clip		60348
9, 14	Ratchet Bar & Catch Bolt		63340
10	Bender Body Housing		60343
12	Spiral Pins		N/A
13, 15	Catch Pin & Spring		60344
16	Catch Lever		60345
17	Flat Spring		60346
18	Tension Spring		60349
19	Feed Lever		60347
7-19	Ratchet Body Assembly		63339
N/A	Plastic Carrying Case		63338
N/A	Small Cutter for 1/8" to 1-1/8" OD		60101
N/A	Tube Reamer - 1/16" to 1-3/8"		60161

Easy one hand bending of 1/4" to 7/8" soft copper, aluminum and light wall hydraulic tubing.

Hard copper must be annealed before bending.

- Quick change bending mandrels and shoes
- Trouble free ratchet mechanism
- Index marks to locate bends
- Complete tube bender kit includes all items required to bend 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" and 7/8" tubing
- Color code Alloy Mandrels
- Simple and secure mandrel attachment with ball-detent feature
- Smooth and consistent bends every time

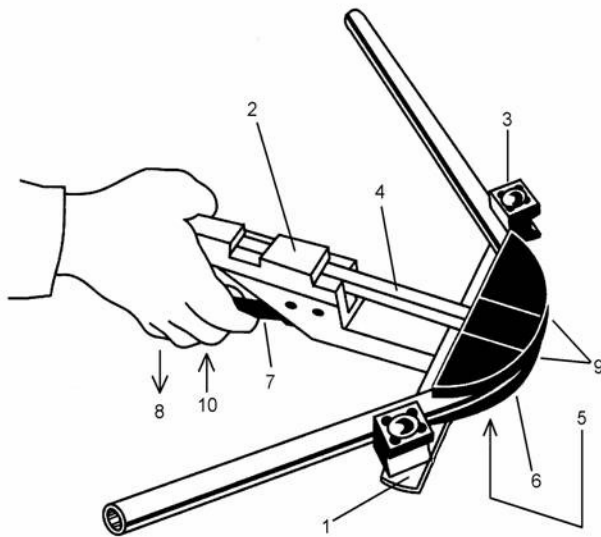


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P/N 733329 RevB

UPC#	Description
63331	Alloy Ratchet Tube Bender Kit
63325	Deluxe Alloy Ratchet Tube Bender Kit (includes 63342 Reverse Bender)
63342	Reverse Bender for 63331

Operating Instructions



(Figure 1)

Preparing Unit for Operation

Choose the desired size bending mandrel (6) and slide the square hole on the ratchet bar (4). Fasten the correctly sized crossbar assembly (1) on the bender body (2), so that the desired size bending shoes (3) are in the same plane as the mandrel. Use the wing screw (5) to fasten. The bending shoes are marked with the various tube sizes. Rotate the desired size shoe to face the bender handle. Pull the feed lever (7) away from the handle in the indicated direction (8) and push the mandrel and ratchet bar back towards the handle. Release feed lever (7). You are now ready to bend tubing.

Bending Operation

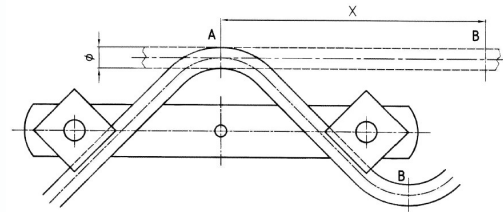
Put your tubing between the mandrel and bending shoes making sure the bending shoe (3) and mandrel (6) are matched for size. Squeeze the feed lever a few times in the indicated direction "9" to begin the bend. When the bender is in the desired position, continue squeezing the lever until the bend is complete. To remove the tube, pull the feed lever (7) away from the handle in the indicated direction (8), push the mandrel back toward the handle and take the tubing out.

CAUTION: Annealed tubing should be cooled prior to bending so bending mandrel and bending shoes are not damaged.

Tool Maintenance

This unit is maintenance free, no service is required.

Minimum Distance Between Bends



Tubing Diameter	Inches	(mm)
1/4"	4"	102
5/16"	4"	102
3/8"	5"	127
1/2"	5"	127
5/8"	5.5"	140
3/4"	8.5"	216
7/8"	8.5"	216

Optional Reverse Bending Kit 63342

(included in Deluxe Alloy Ratchet Tube Bender Kit 63325)

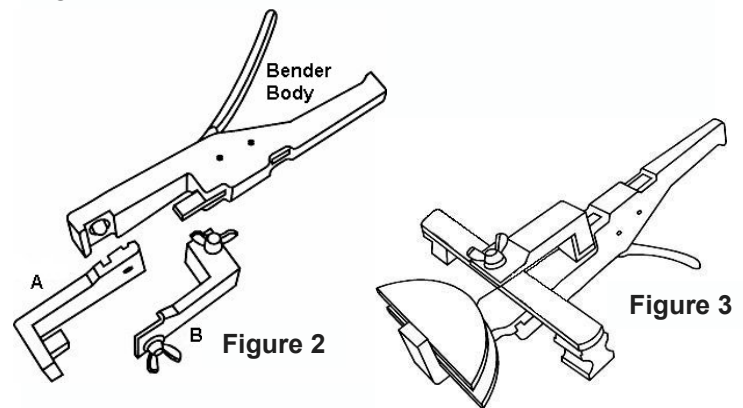
To bend tubing from the outside of the bend, the **Reverse Bender Kit 63342** (mounts on the bender handle) is required.

Adapter "A" attaches to the end of the bender body (Figure 2) where the correctly sized crossbar is normally fastened.

Adapter "B" mounts to the end of the square ratchet bar (4). The bending mandrel is installed onto the square at the end of the "A" adapter.

The crossbar is fastened with the screw to the end of adapter "B" (See Figures 1, 2 & 3).

The bend alignment and bending are done as in Figure 1.



Bend Location Index

Use the two indexes (9) on top of the mandrel to locate your bends. If the desired bend is to be finished 10" from the left end of the tube, locate the 10-inch mark to the right side index and bend. Likewise, if the desired bend is to be 10" from the right, locate the 10-inch mark to the left side index and bend.