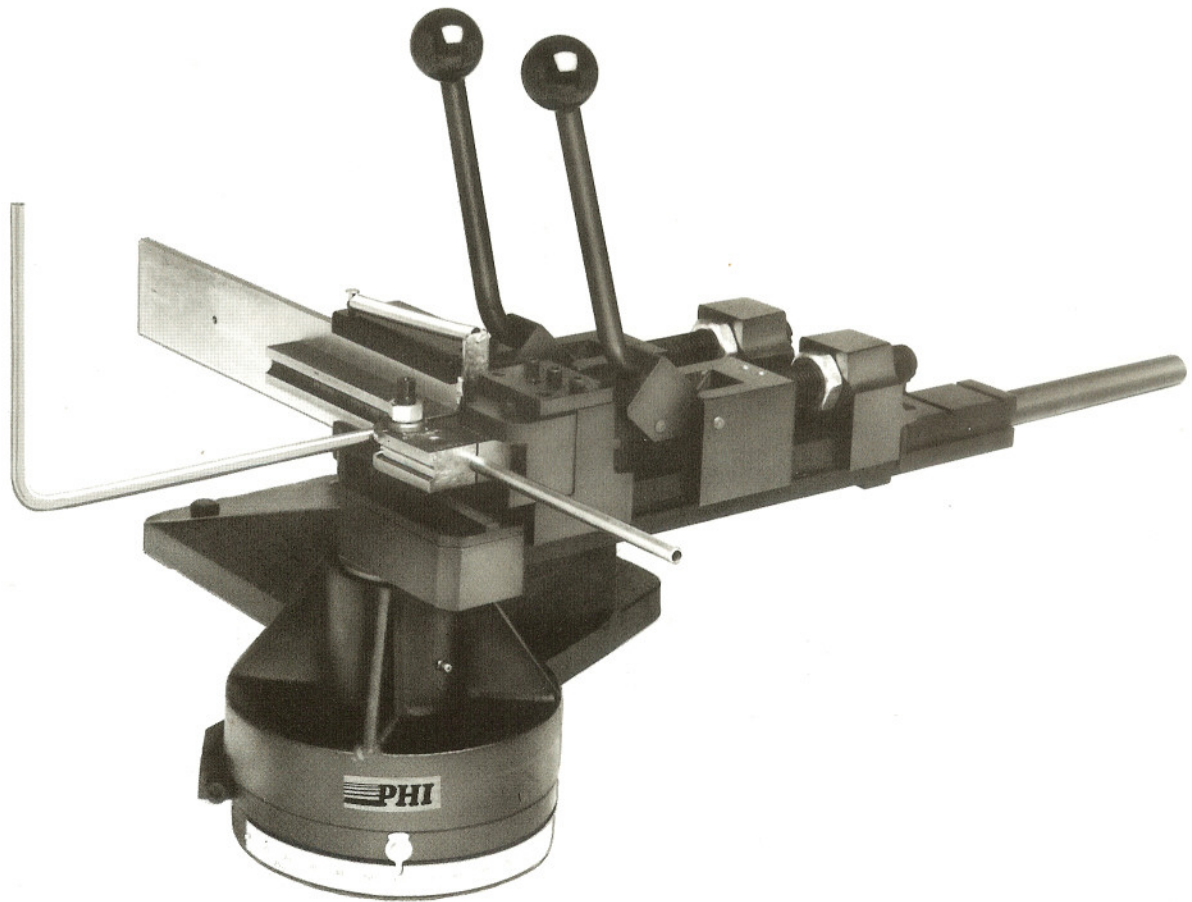


PHI 410/411 MANUAL BENDING MACHINES



Two bench-mounted machines for economical bends of tube up to 1" OD and pipe 1/2" IPS

PHI's draw bending machines let you bend pipe and tube at extremely low cost. When you only need to make one or two bends per piece, you can save time and energy by using these efficient bench-mounted manual machines.

The compact design permits a great deal of mobility, as well as flexibility of location. They're light-weight and require less than four square feet of bench space - including the bend arm sweep.

The tube or pipe length capacity is unlimited, allowing you to use longer lengths with fewer joints.

That means another savings on labor and material costs required to join sections.

Both models give you precision bends with minimal wall thinning and ovality, particularly when optional mandrels are used.

It's the ideal bending machine for prototype departments, small machine shops, and operations where cost is a factor and when only a few bends are needed per piece.

RELIABLE PERFORMANCE.
Few moving parts, all mechanical operation.

HIGHLY MOBILE.

These light-weight machines can be set-up-anywhere. There is no electrical or hydraulic hook-up required.

COMPACT SIZE.

Less than 4 sq. ft. (1.1m²) of bench space required.

PRECISE BENDS.

The DOB dial, in 1° increments, permits accurate bends within 1°.

REVERSIBLE DIRECTION.

You can bend clockwise and counter-clockwise, permitting the production of complex parts (Model 410).

410/411 MANUAL BENDING MACHINE SPECIFICATIONS

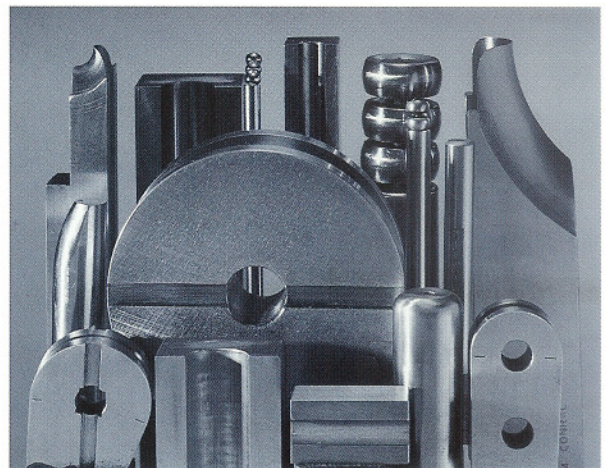
	MODEL 410	MODEL 411
Capacity - Tube	3/4" (10 mm) OD X .065 (1.65 mm) WT maximum X 2D minimum CLR	1" (25 mm) OD X .065 (1.65 mm) WT maximum X 2D minimum CLR
Material - Tube - Material	3/8" (10 mm) IPS X Sched 40 max. X 3D minimum CLR 35,000 psi (930 M Pa) yield	1/2" IPS (13 mm) IPS X Sched 40 max. X 3D minimum CLR 35,000 psi (930 M Pa) yield
Direction of Bend	Reversible (clockwise or counter-clockwise)	Clockwise standard, counter-clockwise if specified
Radius of Bend (CLR)	Minimum 2D Maximum 6" (152 mm)	Minimum 2D Maximum 6" (152 mm)
Maximum Bend Arm Movement	195°	195°
Tube Length	Unlimited	Unlimited
Machine Bench Space (including bend arm sweep)	20" X 13" (508 mm X 330 mm)	24" X 21" (610 mm X 533 mm)
Shipping Weight	100 lb (45 kg)	175 lb (79 kg)
Tooling Post	1/2" diameter (13 mm)	1" diameter (25 mm)
Mandrel Rods Available	Specify thread size	Specify thread size
Mandrel Rod Bracket Available	Machine or bench mounted	Bench mounted only

All necessary wrenches and one appropriately sized tooling post are furnished with each machine. Other sizes are available.

A universal pressure die slide-plate is furnished with the Model 411. A wiper-die support bracket can be furnished with the Model 411.



MODEL 410



Tooling. PHI is now a full-line supplier of bender tooling for not only PHI benders, but also for any other bender you might have. Let us give you a quotation.



14955 East Salt Lake Avenue, City of Industry, California 91746
 Phone 626-968-9686 FAX 626-333-3610
 Email phisales@phi-tulip.com Website www.phi-tulip.com