Mactech's Clamshell lathes are portable pipe cutting machines designed for on-site precision severing, severing/beveling, and severing/double beveling. Mactech's clamshells are available in a wide range of sizes in both our low clearance and USS models.

Components

Frame:
The aluminum frame is a split ring assembly capable of being disassembled to be installed around in-line piping. The frame has bearing mountings for the rotating head, a drive motor mount, locator pads for mounting to the pipe, and a gear cover.

Cutting Head Assembly:
The cutting head assembly is a heat treated 4140 alloy steel split ring gear assembly, which aligns with the split lines of the frame enabling the machine to be split in half. The cutting head has an integral spur gear on the outside diameter, and mounting devices for tool holders.

Drive Assembly:
The drive motor mounts to the frame and is arranged with a pinion gear on a shaft with sealed ball bearings. The drive motor mount bracket is designed to accept the reaction torque generated by the drive motor.

Bearings:
The cutting head runs on precision bearings that provide for both axial and radial force reactions experienced in pipe machining. They are designed so that adjustments are not required.

Tool Holders (Blocks):
The tool holders mounted to the cutting head assembly are provided with automatic radial feed "star wheel" mechanisms. They are designed to maintain the radial clearance equal to the frame diameter and feature adjustable gibs to adjust for wear.

Locator Pads:
Four adjustable locator pads are actuated by jackscrews from the outside of the frame. One set of locator pads is provided with each machine. Additional sizes for each machine are available.

Tool Bits:
Mactech tool bits are available for severing, severing and double beveling, severing and beveling on the side of the cut on which the clamshell is mounted (right hand), severing and beveling on the opposite side of the cut (left hand), counterboring, socket weld removal, etc.

Dimensions and Weight

Mactech's LC or low clearance clamshells are designed to fit into tight working areas as well as minimize machine weight. These clamshells are lightweight, but retain rigidity during operation. Below are the operating clearances dimensions, and weight of Mactech's LC Clamshells.

Mactech LC Clamshell Dimensions

	802	804	806	808	810	812	816	820	824
Radial Thickness	1.97	2.16	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Radial Clearance	2.05	2.25	3.16	3.16	3.16	3.16	3.22	3.22	3.22
Rotating Parts Dia.	6.50	10.00	12.94	14.94	16.94	19.06	26.44	26.44	30.44
Clamshell Bore ID	2.62	4.88	7.12	9.12	11.12	13.25	20.50	20.50	34.50
Axial Thickness	3.13	2.96	3.40	3.40	3.40	3.40	3.40	3.40	3.40
In-Line Air Drive	15.25	14.03	14.50	14.50	14.50	14.50	14.50	14.50	14.50
In-Line Air Drive	15.25	14.03	14.50	14.50	14.50	14.50	14.50	14.50	14.50
Rt.Angle Air Drive	8.50	7.06	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Machine Weight	30	32	50	59	65	75	93	110	132
Note: Machine Dimensions are in inches and weight is in pounds.									

Mactech's USS clamshells are a hybrid of our original clamshells and our low clearance models. The USS clamshells offer heavy duty construction for extreme rigidity during operation. Large diameter clamshells must be rigid to maintain a consistent and accurate machining process. Below are the operating clearances, dimensions, and weight of Mactech's USS Clamshells.

Mactech USS Clamshell Dimensions

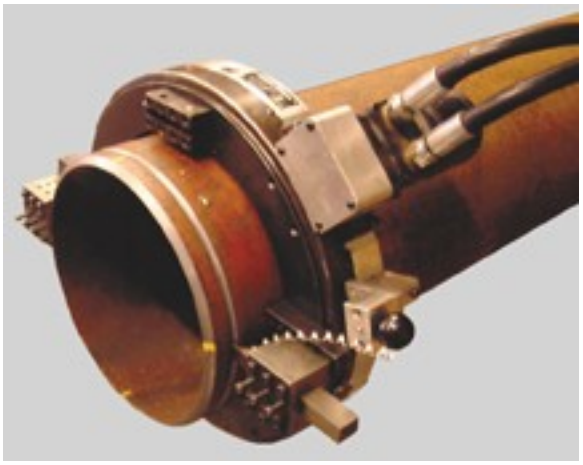
	824	828	830	836	843	848
Radial Thickness	5.00	5.00	5.00	5.00	5.00	5.00
Radial Clearance	5.50	5.50	5.50	5.50	5.50	5.50
Rotating Parts Dia.	31.55	35.55	38.00	44.50	51.50	56.00
Clamshell Bore ID	24.50	28.50	30.50	37.00	44.00	48.50
Axial Thickness	3.40	3.40	3.40	3.40	3.40	3.40
In-Line Air Drive	18.71	18.71	18.96	20.46	20.46	20.46
In-Line Air Drive	8.45	8.45	8.70	10.15	10.15	10.15
Rt.Angle Air Drive	13.00	13.00	13.00	13.00	13.00	13.00
Machine Weight	210	230	250	340	430	500
Note: Machine Dimensions are in inches and weight is in pounds.						

Performance Data

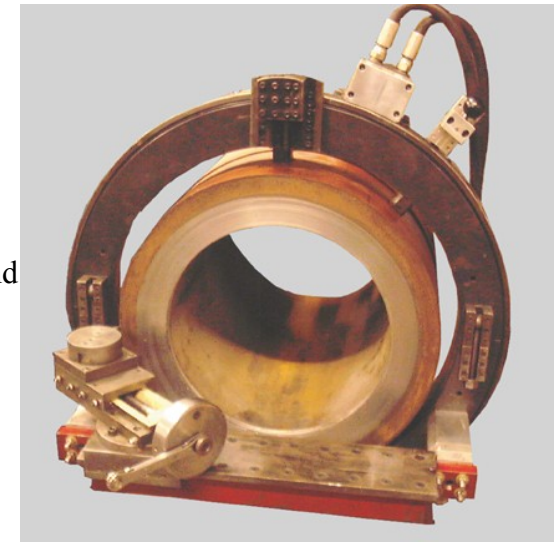
Set-up Time:
Set up times vary depending upon the size of pipe, technician experience, obstructions, and other factors. For example, a trained operator can set up Mactech's 812 on unobstructed closed loop piping in approximately 15 minutes.

Cutting Capacity:
Cutting capacity is determined by the form tool bit's maximum depth of cut. For example standard size tooling for a sever/bevel will enable the operator to cut 2.15" wall pipe. For heavier wall piping larger tooling is required to reach the desired wall size.

Cutting Time:
Many variables are entered into the cutting time equation. First and foremost is the level of training/experience of the operator. As with any task, an experienced operator is able to operate the equipment efficiently. The second largest time factor is the type of drive used. Hydraulic drives typically take 25% to 40% less time to complete the cut than air drives do, however hydraulic drives require a hydraulic power supply and therefore are nowhere nearly as portable as air drives. Lastly the type of form cutting and the location of the cutting operation also have an effect upon the cutting time.



Mactech's 816 Clamshell with Sever/Bevel tooling and hydraulic drive.



Mactech's 816 Clamshell with single point module and hydraulic drive.

Drive Capacity:
Drive capacities are based on in-house testing and extrapolation of test data.

In-Line Air Drive (3800 U) - Motor Data:
At maximum power, the motor produces rotational speed of 9.9 rpm and initial tool bit surface speed of 6.6 in/sec. This motor is used on Mactech Clamshells 802 to 812.

Free Speed:	220 rpm (no load)
Speed at Max. Power:	105 rpm (full load)
Air Requirements:	48 cfm @ 90 psi
Maximum Horsepower:	1.45 hp
Starting Torque:	105 ft/lb.
Stall Torque:	140 ft/lb.

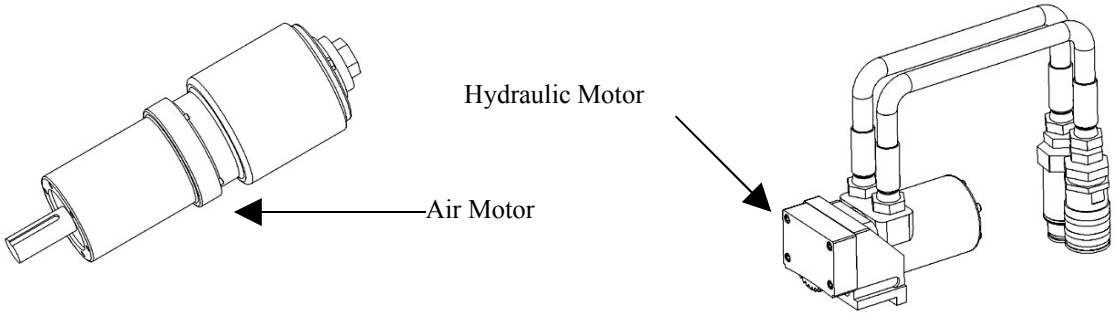
In-Line Air Drive (4800 U) – Motor Data:
This motor is used on Mactech Clamshell models 814 to 860.

Free Speed:	185 rpm (no load)
Speed @ Max. Power:	97 rpm (full load)
Air Requirements:	95 cfm @ 90 psi
Maximum Horsepower:	3.50 hp
Starting Torque:	265 ft/lb
Stall Torque:	354 ft/lb

Right Angle Air Drive (7698-3) Motor Data:
At maximum power, the motor produces rotational speed of 9.5 rpm and initial tool bit surface speed of 6.3 in/sec. The motor can be attached to the front or rear of the gearbox in one of three positions.

Hydraulic Drive (1004) Motor Data:
At maximum flow continuous operation, rotational speed of 40.3 rpm and initial tool bit surface speed of 26.9 in./sec are attainable. For higher efficiency 26.1 rpm and 17.4 in./sec. are recommended. The control valve can be manipulated to achieve desired cutting finish.

Max. Speed at 15 GPM:	320 rpm @ 1200 psi
Effic. Speed at 10 GPM:	207 rpm @ 1200 psi
Max. Horsepower:	6.5 hp
Torque:	1327 in/lbs.
Pressure-Continuous:	1200 psi
Pressure-Peak:	1800 psi



General Information

Each Mactech Clamshell is packed in protective foam and typically comes complete with:

- In-line air, right angle air, or hydraulic drive
- Air Caddy or Oiler (with air drive)
- Tool Blocks & Slides complete
- One set of locator pads
- All hand tools required
- Gang box for machine storage
- Operating manual with parts list

Special Options:

- Additional Locator Pads sets for extended range
- Hydraulic Power Supply (480 VAC)
- Counterbore Attachment Module
- Single Point Module
- Axial Feed Weld Overlay Removal Module
- Automatic Remote Feed for strict operating environment

Technical Support:
Mactech, Inc. recommends on-site technical training conducted by our technical support personnel to assure proper operation and maintenance of clamshell. Cost is dictated by travel expenses, number of days required for training, per diem, and other associated costs.

Mactech's Clamshell Lathe