



# OPERATOR'S MANUAL

Metal Working



## ORNIMENTAL BENDER MODEL: MPB-40

Baileigh Industrial Holdings LLC  
P.O. Box 531  
Manitowoc, WI 54221-0531  
Phone: 920.684.4990  
Fax: 920.684.3944  
[sales@baileigh.com](mailto:sales@baileigh.com)

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## Table of Contents

THANK YOU & WARRANTY .....	1
INTRODUCTION.....	3
GENERAL NOTES.....	3
SAFETY INSTRUCTIONS .....	4
SAFETY PRECAUTIONS .....	6
Dear Valued Customer:.....	6
TECHNICAL SPECIFICATIONS .....	8
TECHNICAL SUPPORT .....	8
UNPACKING AND CHECKING CONTENTS.....	9
TRANSPORTING AND LIFTING .....	10
INSTALLATION.....	10
ASSEMBLY AND SET UP .....	12
OPERATION.....	13
Punching and Shearing .....	13
Twisting .....	14
Curving .....	15
Bending, Rolling and Riveting.....	16
BENDING ALLOWANCE .....	17
UNDERSTANDING SPRINGBACK .....	17
MATERIAL SELECTION.....	18
LUBRICATION AND MAINTENANCE .....	18
TWISTING TOOL PARTS DIAGRAM .....	19
Twisting Tool Parts List .....	20
SCROLL FORMING TOOL PARTS DIAGRAM.....	21
Scroll Forming Tool Pars List.....	22
BENDING/CIRCLING/RIVETING TOOL PARTS DIAGRAM .....	23
Bending/Circling/Riveting Tool Parts List.....	24
SHEARING AND PUNCHING TOOL PARTS DIAGRAM .....	25
Shearing and Punching Tool Parts List .....	26



## THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial Holdings LLC. We hope that you find it productive and useful to you for a long time to come.

**Inspection & Acceptance.** Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without an RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special-order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

**Specifications.** Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

**Limited Warranty.** Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 10 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (e) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

**EXCLUSION OF OTHER WARRANTIES.** THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

**Limitation of Liability.** IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.



**Force Majeure.** Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

**Installation.** If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

**Work By Others; Safety Devices.** Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

**Remedies.** Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

**Attorney's Fees.** In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorney fees and costs.

**Governing Law/Venue.** This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

**Summary of Return Policy.**

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial Holdings LLC makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial Holdings LLC reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

**For Customer Service & Technical Support:**

Please contact one of our knowledgeable Sales and Service team members at:  
(920) 684-4990 or e-mail us at [sales@baileigh.com](mailto:sales@baileigh.com)



## **INTRODUCTION**

*The quality and reliability of the components assembled on a Baileigh Industrial Holdings LLC machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.*

*Our technical staff will do their best to help you get your machine back in working order.*

### **In this manual you will find: (when applicable)**

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

## **GENERAL NOTES**

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial Holdings LLC and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.



**Note:** This symbol refers to useful information throughout the manual.



## IMPORTANT

### PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



## SAFETY INSTRUCTIONS

### LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**



Follow recommended precautions and safe operating practices.

### UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

**DANGER:** Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION:** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE:** Indicates a situation which, if not avoided, could result in property damage.

**DANGER**

**WARNING**

**CAUTION**

**NOTICE**

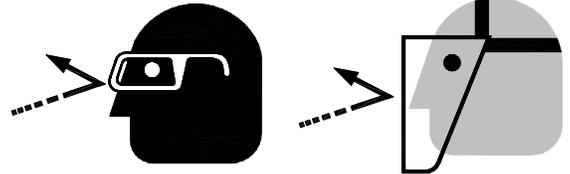


**SAVE THESE INSTRUCTIONS.**  
**Refer to them often and use them to instruct others.**



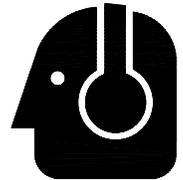
**PROTECT EYES**

Wear safety glasses or suitable eye protection when working on or around machinery.



**PROTECT AGAINST NOISE**

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



**KEEP CLEAR OF MOVING OBJECTS**

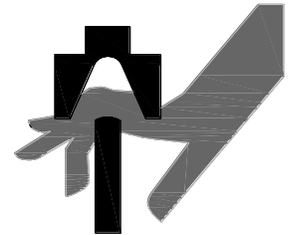
Always be aware of the position of the material and handle(s). They may be heavy and can swing back suddenly causing serious body or head injuries.



**BEWARE OF PINCH POINTS AND CRUSH HAZARD**

Keep hands and fingers from between the roller and die when bending materials to avoid possible injury.

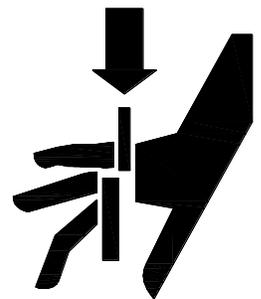
**NEVER** place your hands, fingers, or any part of your body in the die area of this machine.



**BEWARE OF SHEAR HAZARD**

Keep hands and fingers clear from under the blade.

**NEVER** place your hand or any part of your body in this machine.



**CALIFORNIA PROPOSITION 65**

WARNING: Cancer and Reproductive Harm.  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)





## **SAFETY PRECAUTIONS**



Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard will not make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

**REMEMBER: Your personal safety is your responsibility.**



**WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY**

### **Dear Valued Customer:**

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

### **PLEASE ENJOY YOUR BAILEIGH MACHINE! ....PLEASE ENJOY IT SAFELY!**

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine, you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **Dressing material edges.** Always chamfer and deburr all sharp edges.



8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machine's rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriately. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye protection.** Always wear ISO approved protective eye wear when operating machinery. Wear a full-face shield if you are producing metal filings. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specification. Use of eye wear which does not comply with ANSI Z87.1 specification could result in severe injury from breakage of eye protection.
12. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
13. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
14. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. **Observe work area conditions. DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted.
16. **Blade adjustments and maintenance.** Always keep blades sharp and properly adjusted for optimum performance.
17. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
18. Keep visitors a safe distance from the work area.
19. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
20. **DO NOT operate machine if under the influence of alcohol or drugs.** Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.



## TECHNICAL SPECIFICATIONS

Scroll Capacity	
Round	.375" (9.5mm)
Square	.375" (9.5mm)
Flat Bar	1.25" x .25" (32 x 6.3mm)
Bend Capacity	
Round	.375" (9.5mm)
Square	.375" (9.5mm)
Flat Bar	1.25" x .25" (32 x 6.3mm)
Twist Capacity	
Round	.375" (9.5mm)
Square	.375" (9.5mm)
Flat Bar	1.25" x .25" (32 x 6.3mm)
Shear Capacity	
Round	Round
Square	Square
Punch Capacity	.125" (3mm)
Shipping Dimensions (L x W x H)	42" x 34" x 13" (1067 x 864 x 330mm)
Shipping Weight	75 lbs. (34 kg)
Based on a material tensile strength of *60000 PSI – mild steel	

## TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990 and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: [sales@baileigh.com](mailto:sales@baileigh.com), Phone: 920.684.4990, or Fax: 920.684.3944.



**Note:** *The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*



**Note:** *The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*



## UNPACKING AND CHECKING CONTENTS

Your Baileigh machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

**⚠ WARNING: SUFFOCATION HAZARD!** Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.  
If any parts are missing, **DO NOT** place the machine into service until the missing parts are obtained and installed correctly.

## Cleaning

**⚠ WARNING: DO NOT USE** gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

**⚠ CAUTION:** When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.



**Important:** This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.



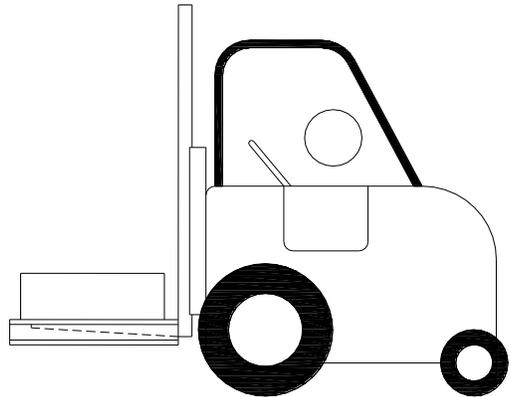


## **TRANSPORTING AND LIFTING**

**NOTICE:** *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

### **Follow these guidelines when lifting with truck or trolley:**

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a forklift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.



## **INSTALLATION**

### **IMPORTANT:**

- Consider the following when looking for a suitable location to place the machine:
- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, worktables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.



- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.

**LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.

**FLOOR:** This machine distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.

**WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.

If you intend to mount the Baileigh machine on a workbench be aware of the following:

- Overall weight of the machine and the weight of material being processed.
- Make sure the workbench is properly reinforced to support the total weight.

The strongest mounting option is where the holes are drilled all the way through the workbench and the machine is secured with bolts, washers, and nuts.



## ASSEMBLY AND SET UP



**Important:** Each of the tools for the MPB-40 Ornamental Bender set is designed to be securely mounted onto a work bench or other suitable surface during operation.

1. Install the handles into each tool as needed.
2. Provide mounting locations and provisions for each tool so that the tool:
  - a. Is secured to prevent unintentional movement.
  - b. Will operate without interfering with or contacting other objects.
  - c. Handles and locks will operate within their full range of motion.
3. Check and tighten all hardware before use.





## OPERATION

**⚠ CAUTION:** Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy materials make sure they are properly supported.

**⚠ CAUTION:** Keep hands and fingers clear of the clamping beam. Stand off to the side of the machine to avoid getting hit with the bending apron as it comes up to bend.

This device has many uses. Using this device, you can easily make shaped metal into a variety of not only beautiful, but also practical ornaments without heating and welding.

The MPS-40 manual bender includes four kinds of tools, a punching and shearing tool, a bending and rolling tool, a curving tool, and a twisting tool.

### Punching and Shearing

Make sure the blades, punching pin, punching mold are secure and tight, make sure punching pin and punching mold are matched before using.

### Shearing

Place the workpiece in the work place, push the handle upwards strongly.

### Punching

Place the workpiece between the punching pin and the punching mold, pull the handle downwards.





## Twisting

Make sure the tool is secured tightly on the table.

Adjust the position of the holder according to the size of the work piece.

1. Insert the work piece through the hole in the chuck until desired length is positioned over bender body.
2. Secure the work piece in the chuck by tightening the hex bolt.
3. Position the clamp bracket onto the work piece to clamp the material as close to the end point of the twist as desired.
4. Tighten the hex bolt onto the material.
5. Using the handles on the chuck, turn (twist) the handles until the desired effect is achieved on the work piece.
6. Remove the work piece from the chuck and the clamp bracket.



**Important:** *Over twisting of material, especially flat bar, will cause it to buckle. Twist slowly and watch for signs of over twisting.*





## Curving

This tool can make workpiece into a variety of shapes similar to templates. Refer to the parts diagram for additional component identification.

Determine the size of scroll to be made and the length of material required to make it. Once you have determined the size of the scroll, identify the required scroll and prepare the needed dies.

1. Make sure small die set does not have the inner die or the big die attached.
2. Turn rotational handle until metal holder is not blocked by spacer, allowing you to insert your work piece into the small die set.
3. Insert work piece into small die set and lock into place by turning the clamp handle clockwise.
4. Turn the rotational handle clockwise until the work piece comes in contact with the spacer.
5. For medium length scrolls, attach Inner Die to Small Die set with retaining pin.



**Note:** Optional: Attach INNER DIE and/or BIG DIE to achieve desired effect.

6. For long length scrolls, attach BIG DIE to INNER DIE with retaining pin.
7. Adjust SPACER to height of work piece.
8. Adjust the INNER DIE and the BIG DIE to make smaller and larger diameter scrolls using the ADJUSTING BOLT found near the hinge of each Die.
9. Turn the ADJUSTING BOLT clockwise for smaller for diameter scrolls and counterclockwise for larger diameter scrolls.
10. Hold SQUARE HANDLE GRIP tightly against metal and begin turning HANDLE clockwise.
11. When you have achieved the desired effect, release SQUARE HANDLE GRIP and continue turning HANDLE until the work piece turns past the SPACER.
12. Remove PIN from SMALL DIE SET (and optionally from INNER DIE) and remove DIES.
13. Unlock work piece by turning cam handle counter clockwise. Remove scrolled work piece.

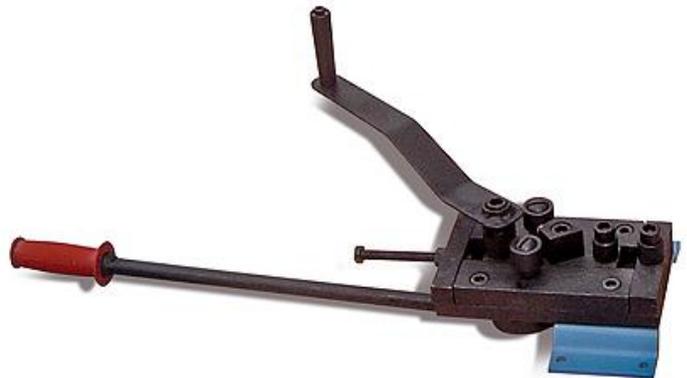


## Bending, Rolling and Riveting

### Bending

You can bend your work piece in 90° and 60° angles.

1. Decide which angle you would like to bend your work. Make sure the bending block is in the correct position to achieve your bend. If you need to adjust bending block, remove the bolt and reposition the bending block. Install and tighten the bolt. Make sure square handle is in left most position.
2. Mark work piece at the point you want to be bent.
3. Place work piece between the bending block and circling wheels.
4. Pull square handle toward the right until work piece has been bent to desired angle.
5. Push square handle back toward the left, releasing your work piece.



### Circling

Circling curves of various degrees and diameters can be done using your circling tool. Your circling tool comes assembled to make small diameter circles. If you want to make larger diameter circles, remove the circling wheels and place them in the outer positions.

1. Pull square handle toward the left to open up the area between the big wheel and the circling wheels and insert work piece.
2. Push square handle toward the right until the big wheel contacts the work piece. Continue to gently push the square handle until the desired degree of circling is achieved.



**Note:** You can vary the circle by adding or reducing pressure on the square handle.

3. While holding the square handle firm, turn the handle set until the desired circle is achieved in the work piece.
4. Pull the square handle toward the left to release your work. Remove over the handle set.



**Note:** The circling tool will not curve the ends of the metal. Pre-bend as needed.



## **Riveting**

This tool can produce a riveted joint to join two work pieces together, giving an authentic appearance like traditional wrought iron. This method of jointing has the benefit of not requiring heat.

1. Mark the work pieces where you want to rivet them together.
2. Punch a hole at each of the marked positions with a punching machine (sold separately) or use a drill and an appropriate diameter drill bit for use with your rivets.
3. Pull the square handle toward the left to open the area between the press wheels.
4. Place the two work pieces together and match up the holes. Place the rivet in the hole.
5. Place the two strips between the press wheels.
6. Center the rivet between the press wheels.
7. Push the square handle toward the right with enough force to expand the rivet, jointing the two pieces of work piece.
8. Pull the square handle toward the left, releasing your riveted work piece.

## **BENDING ALLOWANCE**

In order to bend sheet metal accurately, you will need to consider the total length of each bend. This is referred to as bend allowance. Subtract the bend allowance from the sum of the outside dimensions of the piece part to obtain the actual overall length or width of the piece. Because of differences in sheet metal hardness, and whether the bend is made with the grain or against it, exact allowances must sometimes be made by trial and error. However, bend allowances for general use can be obtained from metal working books or from the Internet.

## **UNDERSTANDING SPRINGBACK**

Springback, also known as elastic recovery, is the result of the metal wanting to return to its original shape after undergoing compression and stretch. After the bending leaf is removed from the metal and the load is released, the piece part relaxes, forcing the bent portion of the metal to return slightly to its original shape. The key to obtaining the correct bend angle is to over bend the metal a little and allow it to spring back to the desired angle. All metals exhibit a certain amount of spring back.



## **MATERIAL SELECTION**

**⚠ CAUTION:** It must be determined by the customer that materials being processed through the machine are **NOT** potentially hazardous to operator or personnel working nearby.

When selecting materials keep these instructions in mind:

Material must be clean and dry. (without oil)

Material should have a smooth surface so it processes easily.

Dimensional properties of material must be consistent and not exceed the machine capacity values.

Chemical structure of material must be consistent.

Buy certificated steel from the same vendor when possible.

## **LUBRICATION AND MAINTENANCE**

**⚠ WARNING:** Make sure the electrical disconnect is **OFF** before working on the machine.  
**Maintenance should be performed on a regular basis by qualified personnel.**  
**Always follow proper safety precautions when working on or around any machinery.**

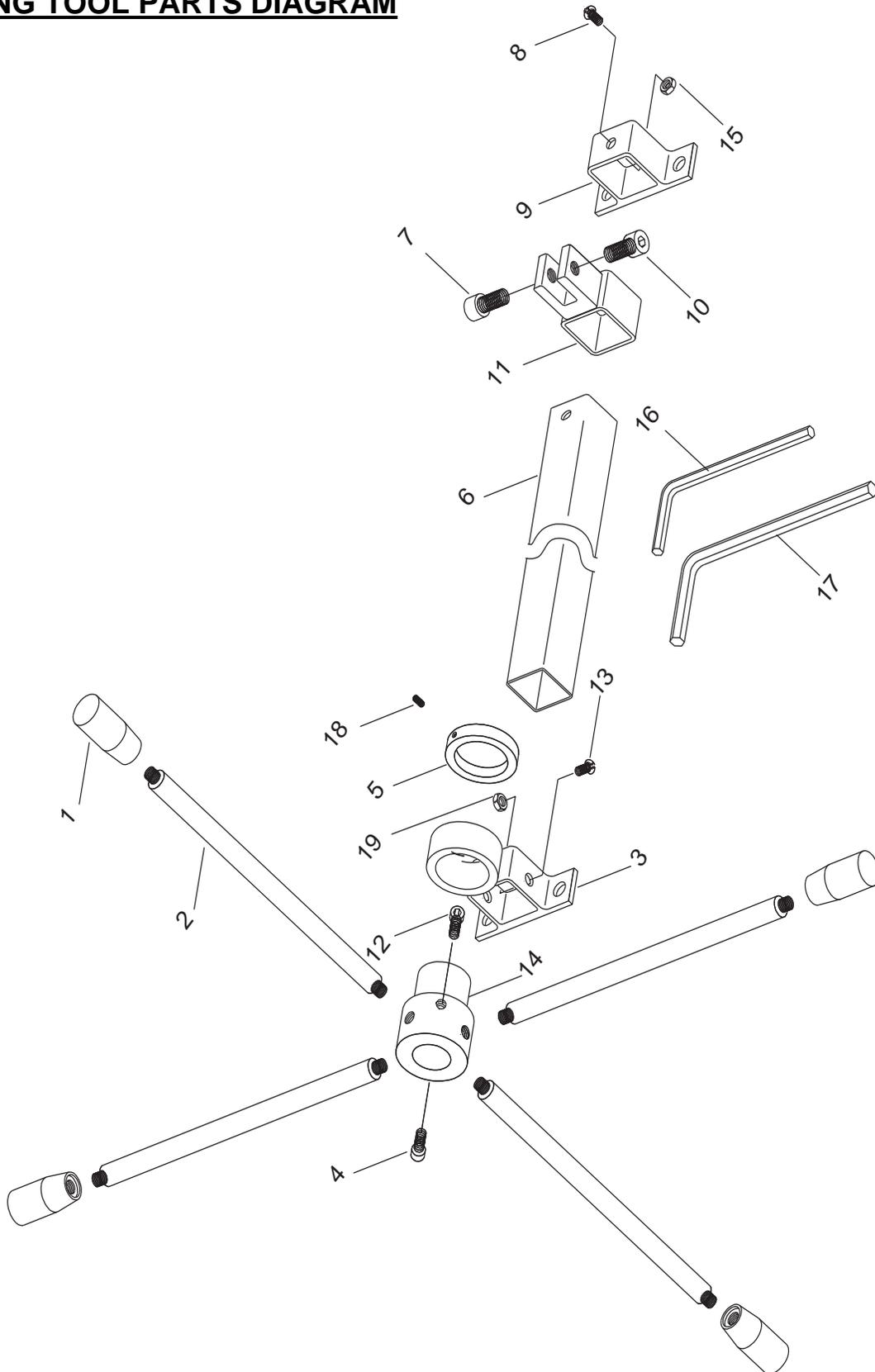
- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- On a weekly basis clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Regularly inspect, clean, and lubricate the moving parts of the Ornamental Bender.
- Apply a good grade of oil to the threaded shaft of the vise and the bending block wheel.
- Lightly grease the bending block slide. Remove the body and apply grease to the shaft as necessary to keep it turning freely.
- When using the round die, make sure the mounting shaft is well oiled.



**Note:** *Proper maintenance can increase the life expectancy of your machine.*



# TWISTING TOOL PARTS DIAGRAM



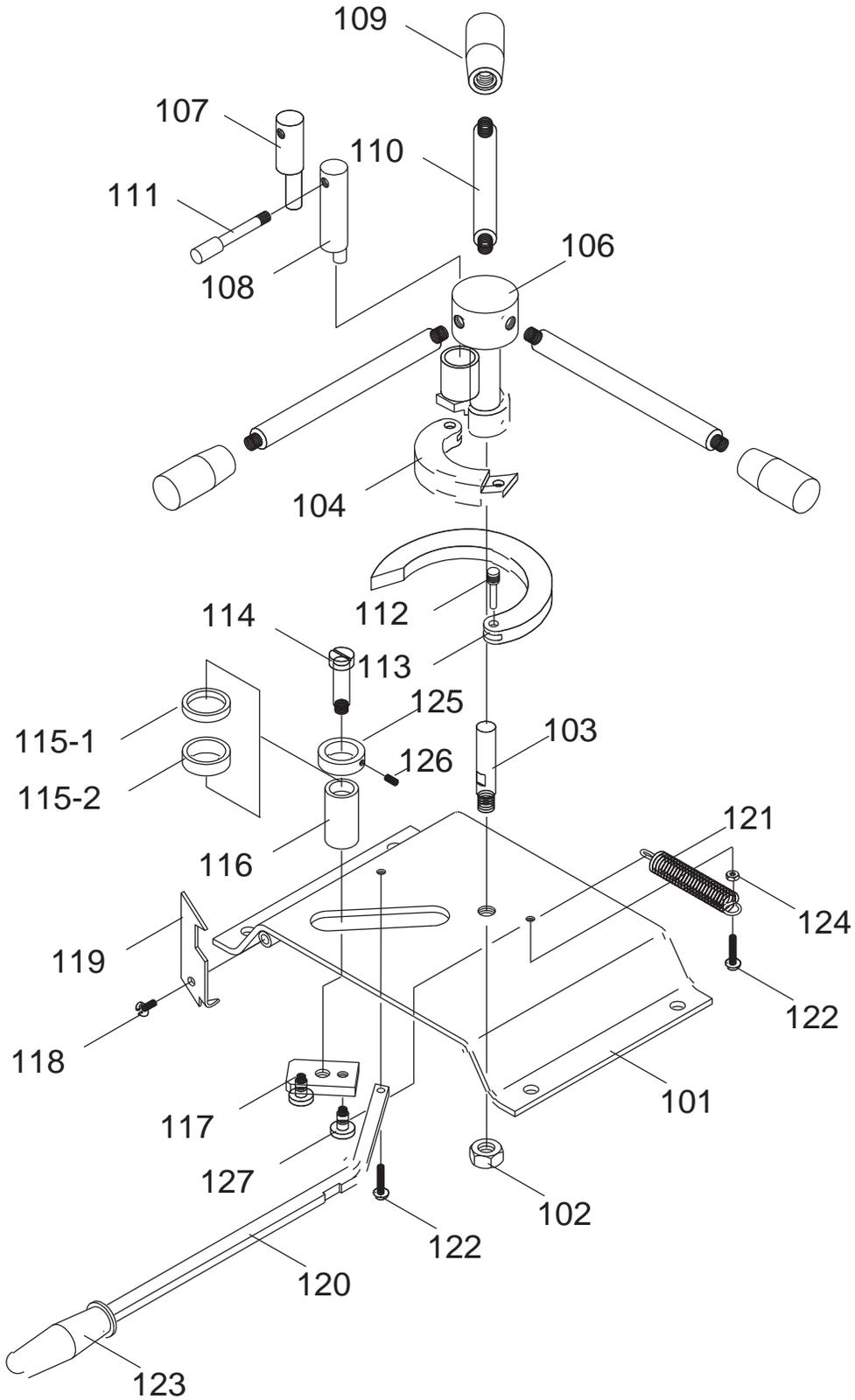


### Twisting Tool Parts List

Item	Part No.	Description
01	MPB40-TW-1	Handle Grip, Knob
02	MPB40-TW-2	Handle Bar, Shaft
03	MPB40-TW-3	Mounting Bracket
04	MPB40-TW-4	Bolt M12 x 35
05	MPB40-TW-5	Chuck
06	MPB40-TW-6	Body
07	MPB40-TW-7	Bolt M12 x 20
08	MPB40-TW-8	Bolt M6 x 12
09	MPB40-TW-9	Mounting Bracket
10	MPB40-TW-10	Bolt M12 x 20
11	MPB40-TW-11	Clamp Bracket
12	MPB40-TW-12	Bolt M12 x 35
13	MPB40-TW-13	Bolt M8 x 12
14	MPB40-TW-14	Turnstile
15	MPB40-TW-15	Nut M6
16	MPB40-TW-16	Key Wrench 4mm
17	MPB40-TW-17	Key Wrench 10mm
18	MPB40-TW-18	Set Screw



# SCROLL FORMING TOOL PARTS DIAGRAM



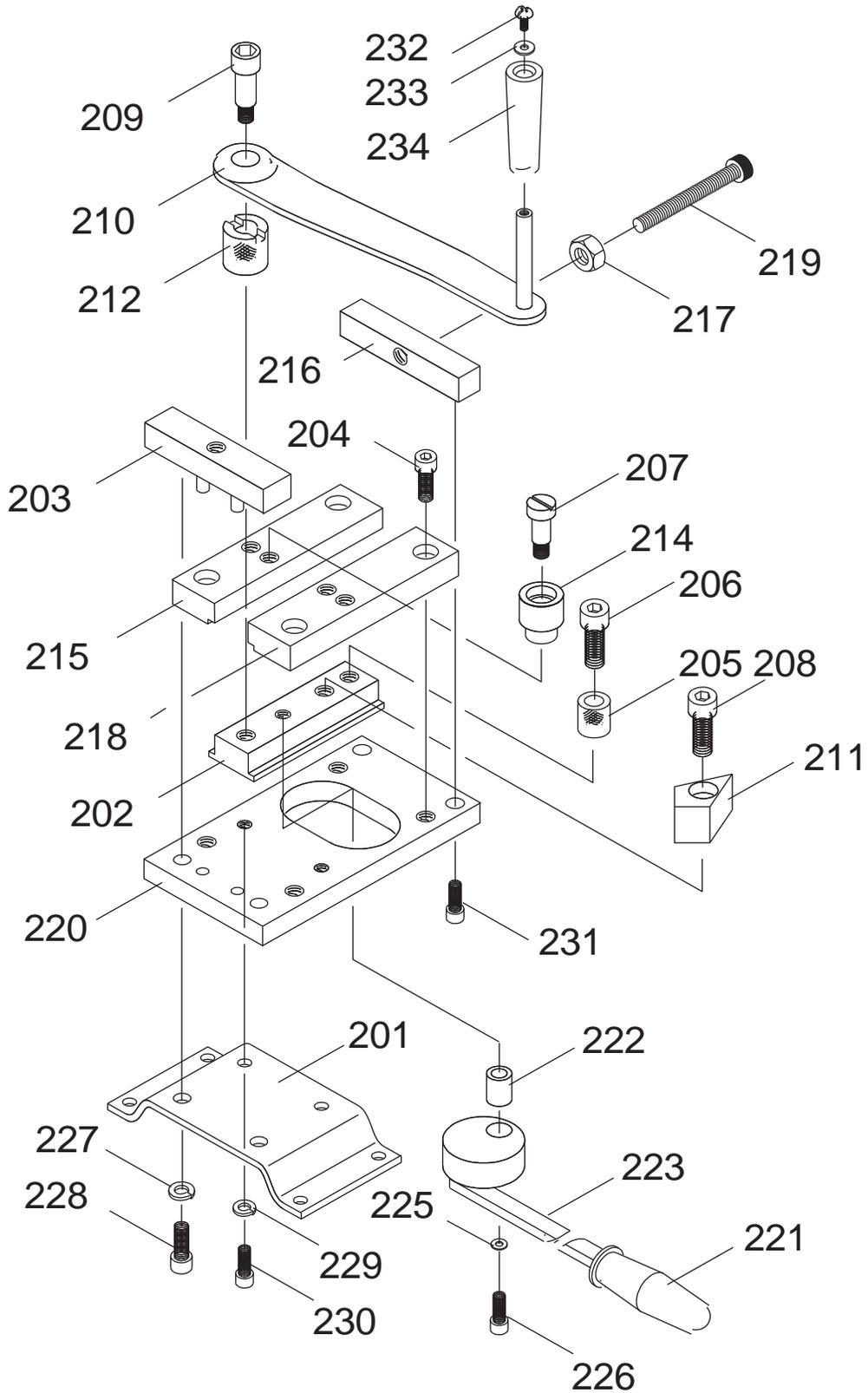


**Scroll Forming Tool Pars List**

Item	Part No.	Description
101	MPB40-SC-1	Base
102	MPB40-SC-2	Nut M12
103	MPB40-SC-3	Arbor
104	MPB40-SC-4	Inner Die
105	MPB40-SC-5	Adjusting Bolt M8 x 10
106	MPB40-SC-6	Small Die Set
107	MPB40-SC-7	Long Offset Shaft
108	MPB40-SC-8	Short Offset Shaft
109	MPB40-SC-9	Handle Grip
110	MPB40-SC-10	Handle Bar
111	MPB40-SC-11	Clamp Handle
112	MPB40-SC-12	Pin
113	MPB40-SC-13	Big Die
114	MPB40-SC-14	Pin Shaft
115-1	MPB40-115-1	Spacer 28.2 x 32.5 x 4.3mm
115-2	MPB40-115-2	Spacer 28 x 32 x 10.5mm
116	MPB40-116	Guide Sleeve
117	MPB40-SC-117	Guide Plate
118	MPB40-SC-118	Bolt M6 x 12
119	MPB40-SC-119	Hook
120	MPB40-SC-120	Square Handle Bar
121	MPB40-SC-121	Spring
122	MPB40-SC-122	Bolt M6 x 25
123	MPB40-SC-123	Square Handle Grip
124	MPB40-SC-124	Nut M6
125	MPB40-SC-125	Collar
126	MPB40-SC-126	Set
127	MPB40-SC-127	Pivot Bolt



# BENDING/CIRCLING/RIVETING TOOL PARTS DIAGRAM



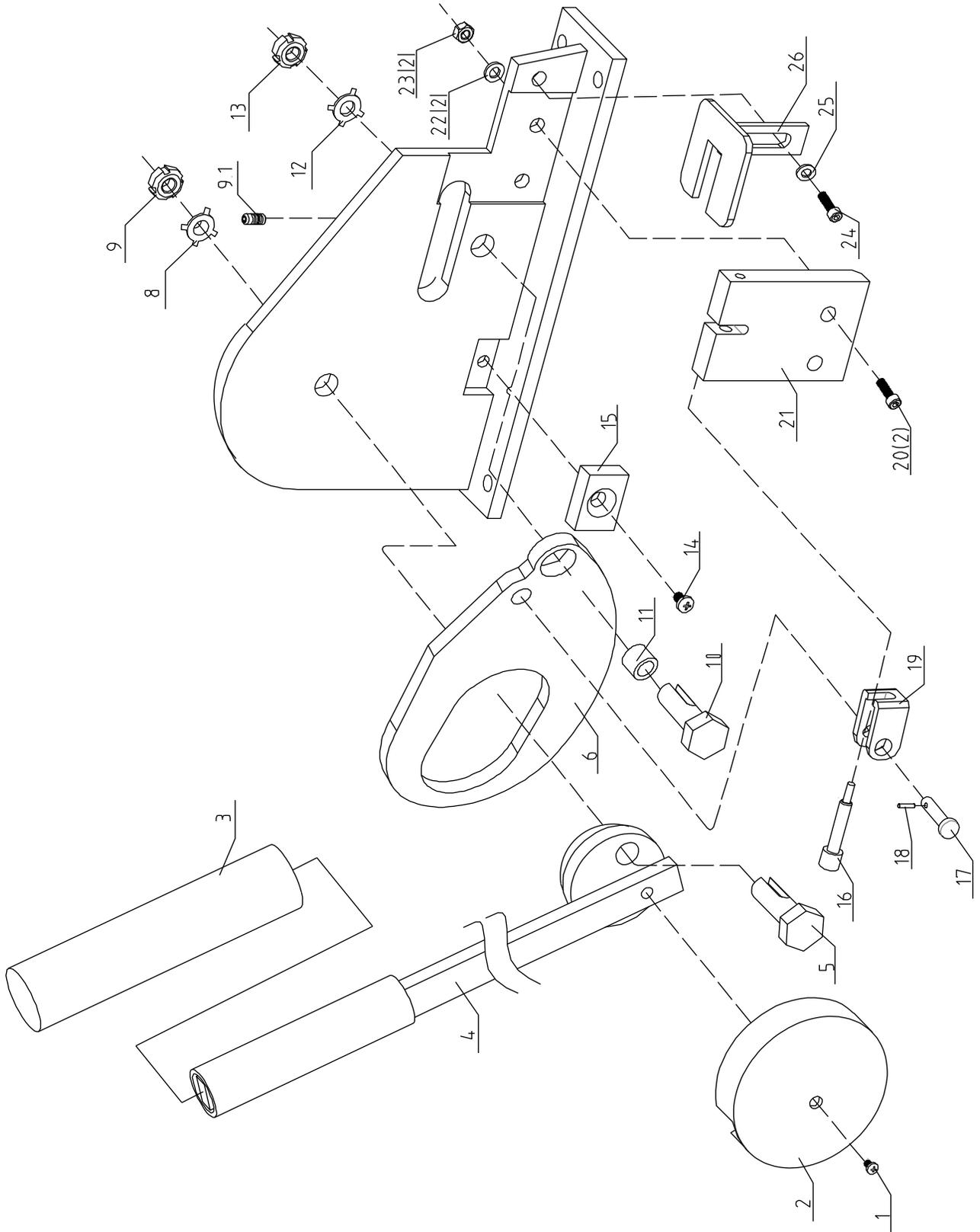


### Bending/Circling/Riveting Tool Parts List

Item	Part No.	Description
201	MPB40-201	Base Foot
202	MPB40-202	Slide Block
203	MPB40-203	Front Block
204	MPB40-204	Inner Hex. Bolt M10 x 25
205	MPB40-205	Press Wheels Knurled 12.5 x 22 x 20mm
206	MPB40-206	Inner Hex. Bolt M10 x 35
207	MPB40-207	Fixing Bolt
208	MPB40-208	Inner Hex. Bolt M12 x 30
209	MPB40-209	Fixing Shaft
210	MPB40-210	Handle Set
211	MPB40-211	Bending Block
212	MPB40-212	Big Wheel Knurled
214	MPB40-214	Drive Spacer Circling Wheels
215	MPB40-215	Right Block
216	MPB40-216	Rear Block
217	MPB40-217	Fixing Nut M10
218	MPB40-218	Left Block
219	MPB40-219	Fixing Bolt M10
220	MPB40-220	Base
221	MPB40-221	Handle Grip
222	MPB40-222	Sleeve
223	MPB40-223	Square Handle Bar
224	MPB40-224	Offset Wheel
225	MPB40-225	Washer M10
226	MPB40-226	Inner Hex Bolt M10 x 40
227	MPB40-227	Flat Washer
228	MPB40-228	Socket Head Cap Screw
229	MPB40-229	Flat Washer
230	MPB40-230	Socket Head Cap Screw
231	MPB40-231	Socket Head Cap Screw
232	MPB40-232	Button Head Cap Screw
233	MPB40-233	Flat Washer
234	MPB40-234	Handle



# SHEARING AND PUNCHING TOOL PARTS DIAGRAM





### Shearing and Punching Tool Parts List

Item	Part No.	Description
01	MPB40-SH-1	Bolt M6 x 10
02	MPB40-SH-2	Cover
03	MPB40-SH-3	Handle Sleeve
04	MPB40-SH-4	Handle
05	MPB40-D5	Bolt / Pivot with Key Slot
06	MPB40-SH-6	French Curve
07	MPB40-SH-7	Main Body
08	MPB40-SH-8	Star Tabbed Washer
09	MPB40-SH-9	Nut Tab Locking
10	MPB40-D10	Bolt / Pivot M16 with Key Slot
11	MPB40-SH-11	Sleeve
12	MPB40-SH-12	Star Tabbed Washer M16
13	MPB40-SH-13	Nut Tab Locking M16
14	MPB40-SH-14	Button Head Cap Screw
15	MPB40-SH-15	Blade
16	MPB40-16	Shaft
17	MPB40-SH-17	Shaft
18	MPB40-18	Spring pin 2 x 25mm
19	MPB40-SH-19	Connecting Plate
20	MPB40-SH-20	Socket Head Cap Screw
21	MPB40-D21	Plate
22	MPB40-SH-22	Lock Washer
23	MPB40-SH-23	Nut
24	MPB40-SH-24	Socket Head Cap Screw
25	MPB40-SH-25	Flat Washer
26	MPB40-SH-26	Stand

**BAILEIGH INDUSTRIAL HOLDINGS LLC**  
**1625 DUFEEK DRIVE MANITOWOC, WI 54220**  
**PHONE: 920. 684. 4990 FAX: 920. 684. 3944**  
**www.baileigh.com**