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SPECIFICATIONS

Stock No. 173121
Model.....W-2416Z
Bend Length.....24” (610mm)
Bend Thickness(mild stee*l).....
.....16ga. (1.52mm)
Bend Thickness(stainless steel**).....
.....20ga. (0.912mm)
Bend Angle.....0-135 degrees
Box Depth.....1.18” (30mm)
Minimum Reverse Bend....0.625” (16mm)
Floor Stand.....No
Shipping Dimensions.....34” x 14” x 18”
(864 x 356 x 457mm)
Shipping Weight.....185 lbs. (85 kg)

*(Based on a material tensile strength of *64000 PSI – mild steel **100000 PSI – stainless steel)*

DESCRIPTION

The W-2416Z Pan Brake is hand operated and capable of bending up to 16ga. (1.52mm) mild steel and 20ga. (.912mm) stainless x 24” (610mm) long. The machine has 5 removable fingers and a 1.18” (30mm) box depth allowing it to fabricate pans, boxes, channels, angles, and other shapes. Adjustable counterweights allow the operator to balance the bending leaf to correspond to material thickness.

Note

The photos illustrations using 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.

SAVE THESE INSTRUCTIONS

(Refer to them often and use them to instruct others.)

PROTECT EYES

Wear safety glasses or suitable eye

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protection when working on or around machinery.

BEWARE OF CRUSH HAZARD

Closing upper beam and brake bed will result in loss of fingers or limbs if placed in machine. **NEVER** place your hand or any part of your body in this machine.

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.

BEWARE OF CRUSH HAZARD

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

KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the clamp handle and the counterweight. They are heavy and can swing back suddenly causing serious body or head injuries.

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 won't 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: <u>Your personal safety is your responsibility.</u>

WARNING

FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. Only trained and qualified personnel can operate this machine.

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2. Make sure guards are in place and in proper working order before operating machinery.

3. Remove any adjusting tools. Before operating the machine, make sure any adjusting tools have been removed.

4. Keep work area clean. Cluttered areas invite injuries.

5. Overloading machine. By overloading the machine you may cause injury from flying parts. DO NOT exceed the specified machine capacities.

6. Machine usage. DO NOT use the brake as a press or crushing tool.

7. Dressing material edges. Before bending sheet metal, 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 machines 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 appropriate. 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 and ear protection. Always wear ISO approved impact safety goggles. Wear a full- face shield if you are producing metal filings.

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. DO NOT use electrically powered tools in the presence of flammable gases or liquids.

16. Blade adjustments and maintenance. Always keep blades sharp and properly adjusted for optimum performance.

17. Keep children away. Children must

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never be allowed in the work area. DO NOT let them handle machines, tools, or extension cords.

18. 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.

19. 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.

20. Keep visitors a safe distance from the work area.

CLEANING

Your machine may be shipped with a rustproof waxy oil coating and grease on the exposed unpainted metal surfaces. To remove this protective coating, use a degreaser or solvent cleaner. 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.

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.

TRANSPORTING AND LIFTING

CAUTION

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. Choose a location that will keep the machine free from vibration and dust from other machinery. Keep in mind that having a

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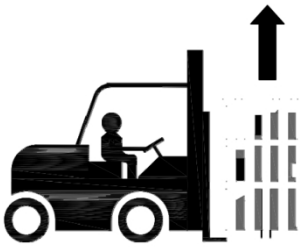
large clearance area around the machine is important for safe and efficient working conditions.



Follow these guidelines when lifting:

● Always lift and carry the machine with the lifting holes provided at the top of the machine.

● Use lift equipment such as straps, chains, capable of lifting 1.5 to 2 times the weight of the machine.

● Take proper precautions for handling and lifting.

● Check if the load is properly balanced by lifting it an inch or two.

● Lift the machine, avoiding sudden accelerations or quick changes of direction.

● Locate the machine where it is to be installed, and lower slowly until it touches the floor.

● 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 fork lift 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.

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● Space needed for auxiliary stands, work tables, 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.

Before beginning assembly, take note of the following precautions and suggestions.

● **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 tool 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.

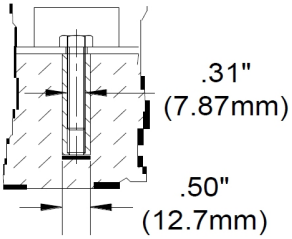
● **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.

Anchoring the Machine

● Position the machine on a firm and level concrete floor.

● Maintain a safe operating distance around the machine.

● Anchor the machine to the floor, as shown in the diagram, using bolts and expansion plugs or sunken tie rods that connect through holes in the base of the stand.



Adjusting the Setback

Setback is the distance from the front edge of the finger to the front edge of the clamp block as shown in (fig. 6). This

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distance is determined by the gauge (thickness) of the piece part and inside radius of the bend. The setback is typically 1-1/2 - 2 times the material thickness.

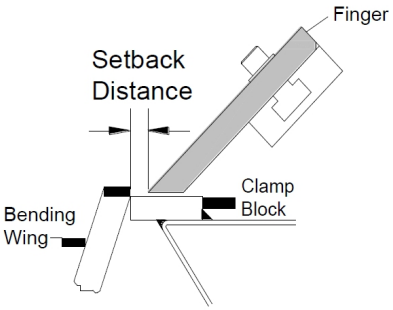

figure 6

1.To adjust, make sure all the fingers are properly aligned to each other and the hold down assembly is not locked in the down position.

2.Loosen the setscrews at the back of the hold down assembly as indicated by the "*" in (fig. 7). Insert a tool, such as an allen wrench, into one of the spooked holes of the eccentric hub and rotate it, which moves the hold down assembly either forward or back. When the fingers are at the correct setback distance and parallel to the clamp block edge, tighten the setscrews "*".

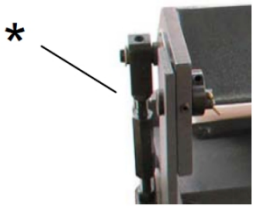

figure 7

Adjusting the Clamping Pressure

The clamping pressure may have to be adjusted as the thickness of the piece part changes. A suitable pressure should have a medium resistance when pulling back on the hold down handle. At the end of the stroke there should be a definite locking of the piece part under the hold down assembly.

1. Loosen the turnbuckle jam nuts on both sides of the hold down assembly. Rotate the two turnbuckles until the desired tension is reached.

2. Retighten all four jam nuts.

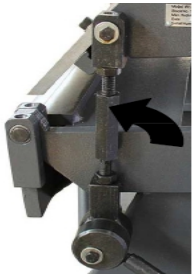

figure 8

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OPERATION

When performing basic bending operations it is important that the fingers of the brake are parallel with the edge of the clamping block. Also make sure you have the proper setback and clamping pressure set for the thickness material being bent.

CAUTION

Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.

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.

When handling large heavy sheets make sure they are properly supported.

Bending Sheet Metal

1. Lift and rotate the clamping handle (cw) clockwise to raise the clamping assembly.
2. Insert the piece part between the clamp block and the brake fingers.
3. Align the fingers of the hold down assembly to the scribed bend line of the piece part and clamp in place by pulling the clamp handle back.

***Note: DO NOT** force the clamping handle. The holding pressure only needs to be tight enough to hold the sheet metal from moving when bending.*

4. Pull up on the bending leaf handles until the piece part has reached the desired bend angle.
5. Lower the bending leaf, raise the hold down assembly, and remove the bent piece part.
6. If you are doing box and pan bending, choose fingers that closely match the dimensions of the finished 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

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.

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- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.

Oil Ports

Using an oil can with a good quality #30W oil, apply 5-6 drops into each of the ports on both ends of the machine. Repeat weekly or more often depending on usage. Wipe off any excess oil.

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

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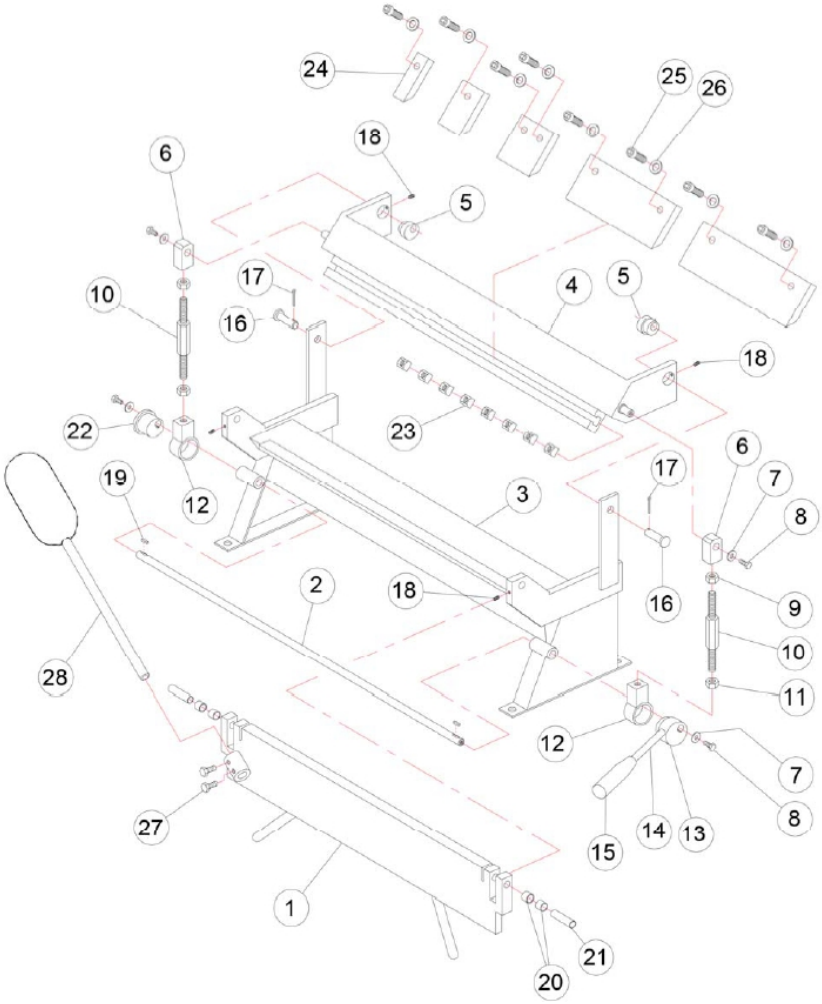
PARTS IDENTIFICATION DRAWING



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PARTS IDENTIFICATION LIST

No.	Description	Qty.	No.	Description	Qty.
1	Leaf weldment	1	15	Handle	1
2	Shaft	1	16	Pin shaft	2
3	Body	1	17	Cotter pin	2
4	Hold down assembly	1	18	Set screw M6 x 8	4
5	Eccentric shaft	2	19	Flat key	2
6	Connecting block	2	20	Bushing	4
7	Washer M6	4	21	Small shaft	2
8	Hex bolt M6 x 11	4	22	Left eccentric shaft	1
9	Hex nut M10	2	23	T-nut	8
10	Threaded stud	2	24	Bending die (set)	1
11	Hex nut M10	2	25	Soc. screw M8 x 22	8
12	Bushing	2	26	Flat washer M8	8
13	Right eccentric shaft	1	27	Hex bolt M10 x 15	2
14	Handle rod	1	28	Counterweight	1

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TROUBLESHOOTING

FAULT	PROBABLE CAUSE	REMEDY
INACCURATE BENDS	Fingers are not aligned Setback distance is not equal from one side to the other Clamping assembly is not holding piece part securely.	Follow proper finger alignment procedure. Accurately measure distance and set accordingly. Re-adjust the clamping pressure.
BENDING LEAF HARD TO LIFT AND BEND.	Exceeding the bending limits of the brake. Counterweight is not on leaf.	Do not bend material thicker than the machine was designed for. Attach the counterweight to lessen force needed to lift bending leaf.

NOTES

SERVICE RECORD

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Date	Maintenance performed	Repair components require

Stock No: 173121
Edition 1 04/2021

If you have any questions about the use of this product, please contact the nearest one to you as below:

KAKA INDUSTRIAL LLC
Mail:
info@kakaindustrial.com
Add: 4200 Steve
Reynolds Blvd Ste 6
Norcross,
GA 30093
U.S.A.

KAKA INDUSTRIAL LTD
Mail:
echo@kakaindustrial.com
Add: 3143 Underhill
Avenue
Burnaby,
B.C V5A3C8
Canada

KANG INDUSTRIAL PTY LTD
Mail:
kang@kakaindustrial.com
Add: 3 Wayne Court
Dandenong,
VIC 3175
Australia