

UNIVERSAL BENDER

MODEL: UBM-30



OPERATION MANUAL

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This book is destined to our customers who have already bought the Universal Bender prepared for angle bends.

Observing the indications mentioned hereinafter, it is easier to make the parts indicated or other similar parts.

As soon as you get accustomed with this device, you will find a lot of methods and possibilities which could make your work easier and more efficient.

We appreciate your remarks and recommendations regarding all improvements!

1. USE RANGE

The device is made to be used for bending flat materials, round and square bars as well as pipes. It brings an efficient and economic bending method for common shapes and bendings. It is easy enough to be carried, being used in different working places or workshop lorries.

Setting possibilities

Attention!

Make sure the is fastened on the floor with screws.

Make sure all pivots are properly passed through and on the necessary position.

Do not bend other steel than that used for construction, namely up to 8*50 mm, round steel up to 16 mm, square steel up to 14*14 mm and pipes up to G3/4"!

Do not bend materials thicker than that 6 mm around the central pivot, but use the 24 mm roller to prevent pivot bending!

Do not use other completion of the arm!

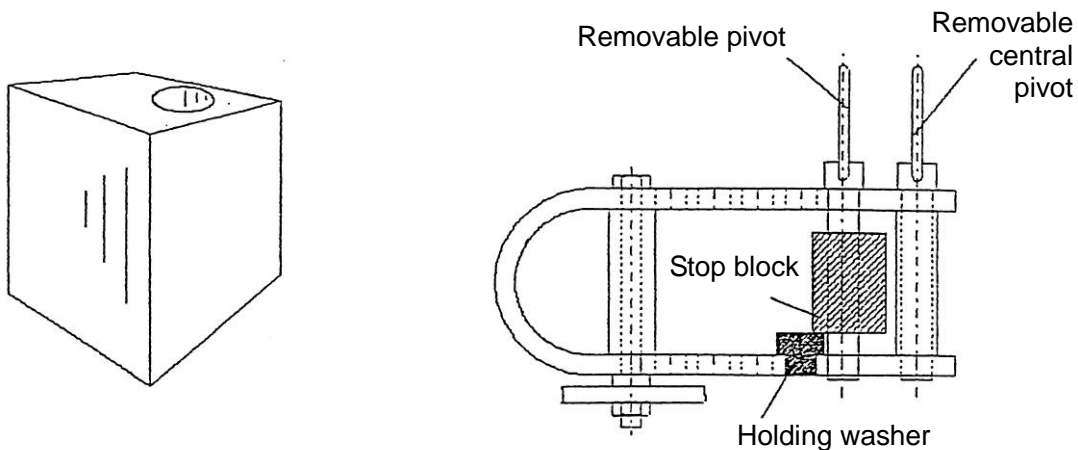
Do not use the set for angle bending to bend the round bars!

Should you use accessories for angle bending, bend only constructional steel up to 6*50 mm or 7*30 mm!

Keep the working place clean to avoid accidents!

Be care as the material set on the bender to have an adequate length in contact with the stop block in order to avoid sliding of the bar to be bent and serious accident in fact.

2. MAIN INFORMATION REGARDING BENDING OPERATION

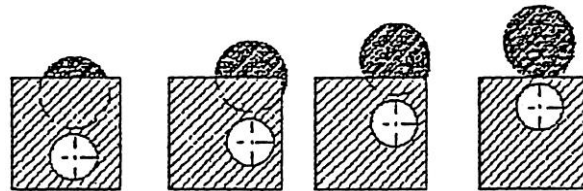


Holding washer set excentrically under the stop block

2.1. Use of stop block

Stop block keeps the material in a proper position during bending with the hand arm around the central pivot or the roll just used.

The block has only four proper positions!



The four proper position of stop block

Use always that position which place the block closer to the central pivot or roll, but makes possible the space for setting the material.

Turn the block position by position in order to get one of the four adequate positions. If the space is created in the position from the centre to the left, the stop block will be turned and material will slide. If you use a bigger roll on the central pivot, stop block and holding washer move as far as the adjustable stop, so that material to be held. Place always the stop block as close as the central pivot or roll, but to exist enough clearance to release the material. In case clearance between the stop block and the central pivot or roll is too large, turn the presser in one of the four proper positions. The stop block with holding washer can be moved back and before in every seat of dividing head. The necessary clearance is so obtained.

A too large clearance between the central pivot or roll and the stop block makes possible sliding of material and decreases bending accuracy.

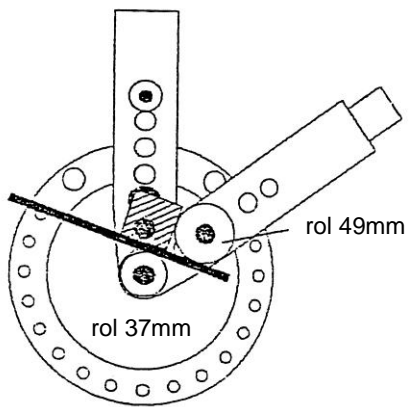
In case of a very accurate bending, it is better to keep the material in front of the stop block with a clamp, (hand vice, self-locking wrench) in order to avoid a possible sliding of material. If the stop block is properly placed, it is not necessary to use the clamp.

But sometimes, when special bending is performed or accurate dimensions are necessary, it is indicated to set the hand vice in front of the stop block.

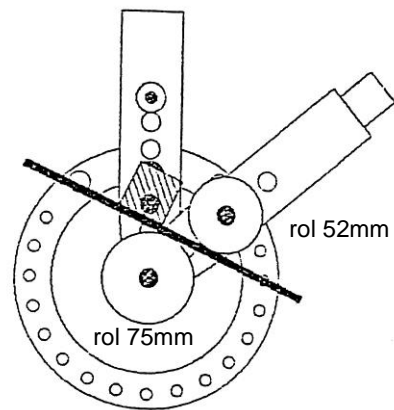
Examples for using buffer block in every of the four proper positions.

Remarks:

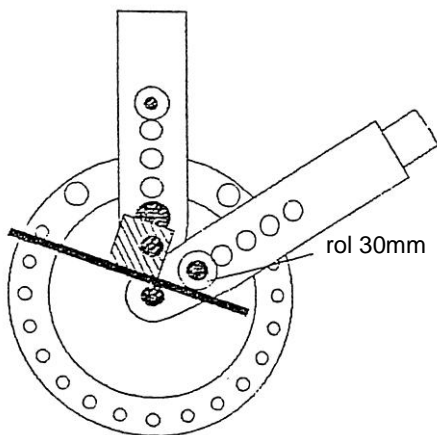
Buffer block and holding washer must be moved back and before to a certain hold to suit different materials and rolls. The hole into the block four proper positions.



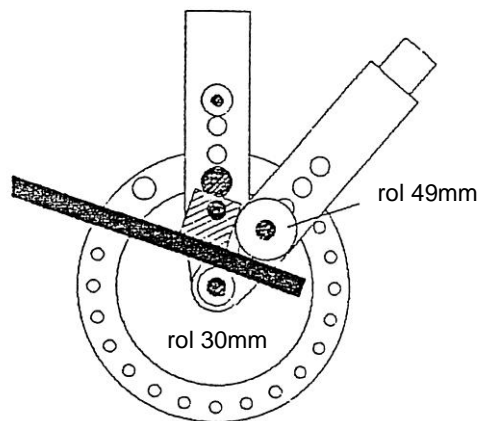
Pos. 1
Flat, square or round steel of 6 mm
bended on the Ø37 mm roll.



Pos. 2
Flat, square or round steel of 6 mm
bended on the Ø75 mm roll.



Pos. 3
Flat, square or round steel of 6 mm
bended on the central pivot.



Pos. 4
Flat, square or round steel of 6 mm
bended on the Ø30 mm roll.

3. HANDLE BENDING

3.1. Round material

It is easy to perform handles of various shapes and dimensions with the Universal Bender. Each of the three types in the figure is performed in round material of 15 mm diameter and 230 mm length.

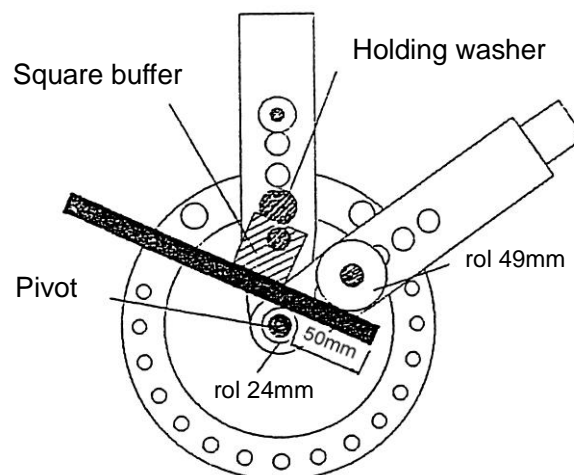
After making the bended parts in round bar, drill additions at 15 mm, put the bended parts at additions and weld them at fitting side. Grind the over-welding to the level.

Note:

In case you use material of another diameter for handle, the borer diameter will be the same with that of material used.

Necessary material:

- Ø 15 mm round bar, 230 mm length
- flat steel for addition



The right position of the stop block used for bending material of 15 mm is presented in the above drawing. After performing the bending at 90° turn material and bend the other end at 90° .

3.2. Flat material

Draw with the chalk the signs like in the drawing below. Signs from the both ends must be drawn on the opposite side to that where the signs in the middle are drawn. Dimensions indicated can be replaced with other ones, Can make also other handing on user's desire.

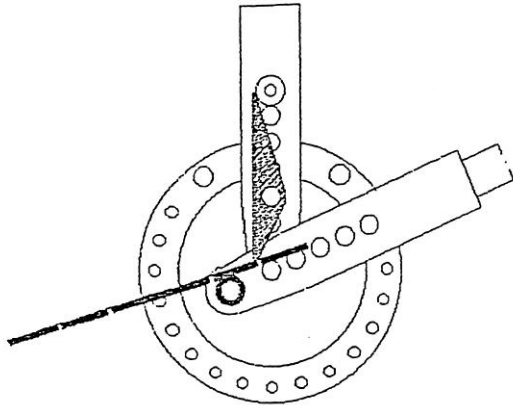
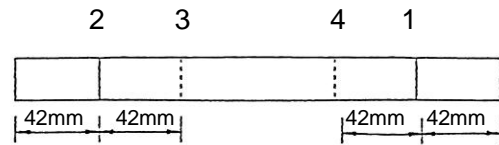
Material:

— length 254 mm,

— thickness 5 mm

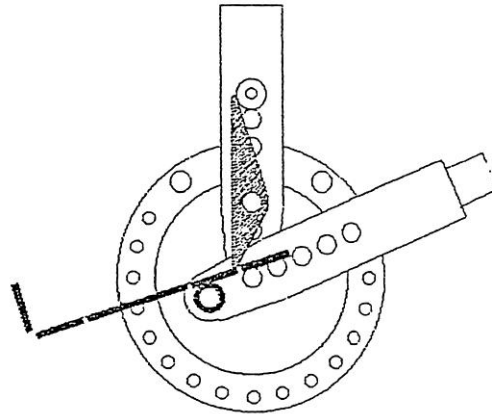
— width 25 mm

Bending order



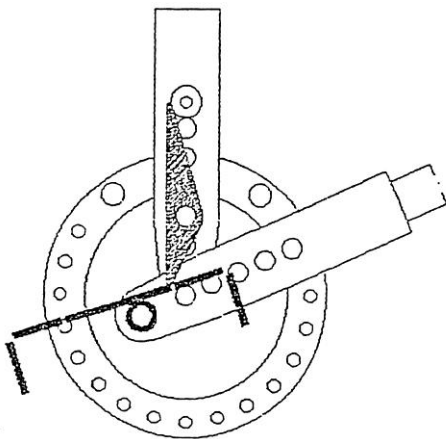
Bending no. 1:

Put the flat material into the bender with the sign no.1 at the point of the key and bend at 90°. Check the angle before going on. Set the adjustable stop so as every bending to be made at 90°.



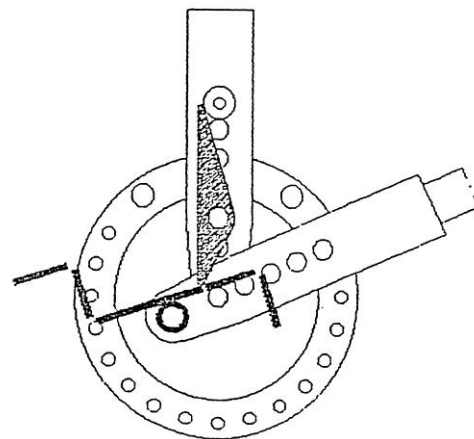
Bending no. 2:

Turn the material at the other end, put it with the sign no.2 straight the key and bend at 90°.



Bending no. 3:

Turn the semi-finished material on the other side, put it with sign no.3 straight the key and bend it at 90°.



Bending no. 4:

Turn the semi-finished material with the other end, put it into the bender with the sign no.4 straight the key and bend it at 90°.

Drill if necessary, smooth and grind the sharp edges.

4. BENDING OF PIPE CLAMPS

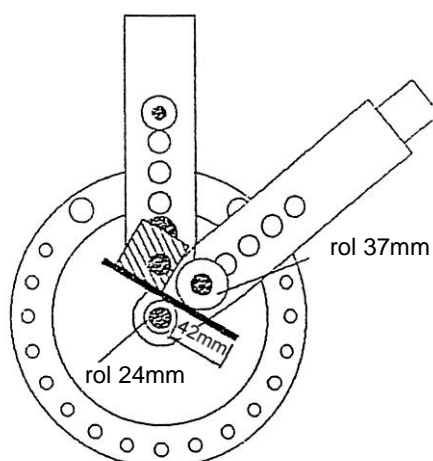
Manufacture of round pipe clamps



Unilateral yoke with 25 mm inner diameter

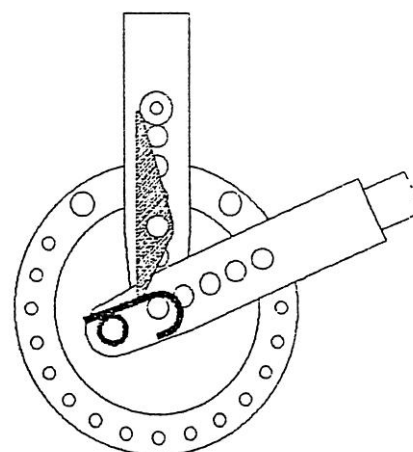
Material

Steel band 5*50 mm with the length of 10 mm



Bending no. 1:

Stop block on pos.2. Put the material into the bender as in the figure above. React on the bending arm as far as the roll on the arm comes out from material.



Bending no. 2:

Set the key for angular bending. Put the material into so that the semicircle to roll up the central pivot. Put the stopper into the sixth hole in the dividing head (clockwise counting). Bend by turning the arm 3 mm to the pivot.

Set a clip at the end of the clamp avoiding material sliding.

Can bend more types of clamp.

5. BENDING OF U-YOKES AND TIE BOLTS

Before starting the U-yoke bending, make a bending test of material without thread. Check if all dimensions are proper and make the necessary corrections.

Set always the buffer block as close as the central pivot or the roll on the central pivot to avoid material sliding.

Check which is the quantity necessary to be added for material cutting at any addition of U-yoke; e. g. if you need to add 25 mm to the yoke, you must add 50 mm at the total length.

Distance from the buffer block to the end of material is also increased with 25 mm. Other 25 mm must be added to the other hand.

Bender has roll of various diameters, which make possible bending of yokes of different sizes.

In case you use material thicker than 9 mm, set always one roll upon the central pivot, Otherwise you can bend it.

During bending operation, material compliance takes place. The same compliance is different at different materials and it is better to check how much is the compliance and to use the same adjusting for production.

In case of making the same production again, it is better to put down the roll diameters and all deviations due to material compliance to make your work easier, like the following examples:

BENDING OF U-YOKES

Round steel of 9 mm

Table of dimensions

Final length-measured from the inner centre of U-yoke as far as the plan of both ends.

| Final length and inner diameter | Material length | Hole no. in dividing head | Buffer block position | Distance from the block | Roll of central pivot | Arm roll | Hole no. in the arm |
|---------------------------------|-----------------|---------------------------|-----------------------|-------------------------|-----------------------|----------|---------------------|
| | | | | | | | |

Round steel of 12 mm

| Final length and inner diameter | Material length | Hole no. in dividing head | Buffer block position | Distance from the block | Roll of central pivot | Arm roll | Hole no. in the arm |
|---------------------------------|-----------------|---------------------------|-----------------------|-------------------------|-----------------------|----------|---------------------|
| | | | | | | | |

BENDING OF U-BRACKETS

Round steel of 6 mm

Table of dimensions

Final length-measured from the inner centre of U-BRACKETS as far as the plan of both ends

| Final length and inner diameter | Material length | Hole no. in dividing head | Hole no. in dividing head | Distance from the block | Roll of central pivot | Arm roll | Hole no. in the arm |
|---------------------------------|-----------------|---------------------------|---------------------------|-------------------------|-----------------------|----------|---------------------|
| | | | | | | | |

Round steel of 8 mm

| Final length and inner diameter | Material length | Hole no. in dividing head | Hole no. in dividing head | Distance from the block | Roll of central pivot | Arm roll | Hole no. in the arm |
|---------------------------------|-----------------|---------------------------|---------------------------|-------------------------|-----------------------|----------|---------------------|
| | | | | | | | |

BRACKETS BENDING

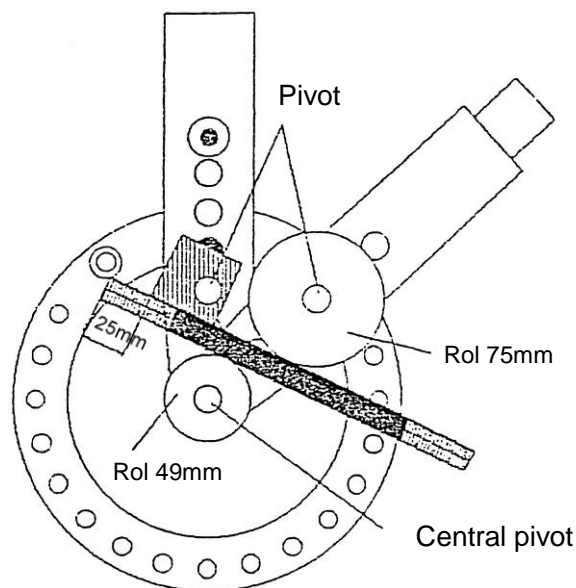
Round steel of 15 mm

Table of dimensions

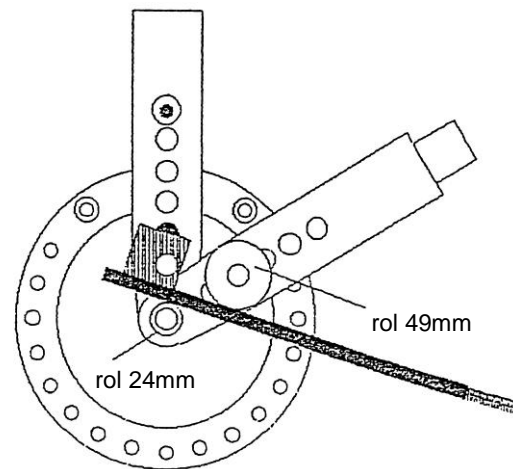
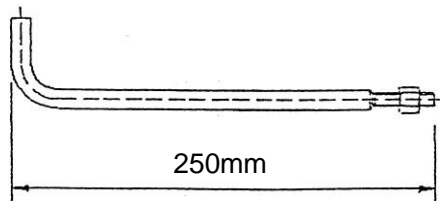
Final length-measured from the inner centre of U-bracket inner side as far as the lever of both ends

| Final length and inner diameter | Material length | Hole no. in dividing head | Hole no. in dividing head | Distance from the block | Roll of central pivot | Arm roll | Hole no. in arm |
|---------------------------------|-----------------|---------------------------|---------------------------|-------------------------|-----------------------|----------|-----------------|
| | | | | | | | |

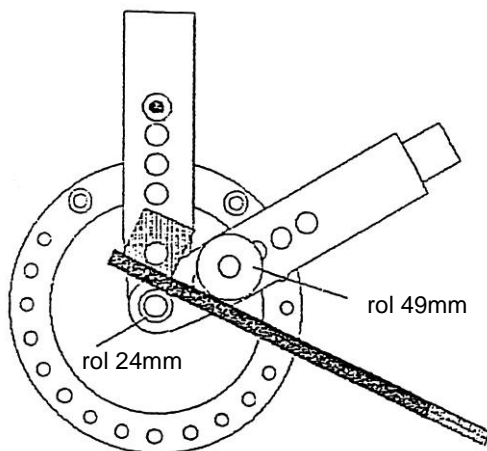
The notes above help you to register the dates necessary to bend various U-brackets. Example for proper adjustment when bending U-brackets with 80 mm final length, inter diameter 50 mm, material \varnothing 15 mm.



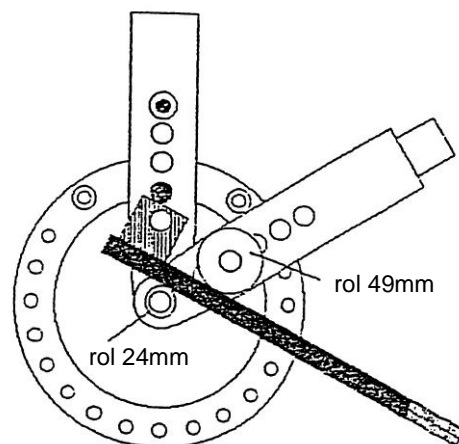
BENDING OF TIE BOLTS



Tie bolt 9 mm, length 310 mm
Pos. 2 of buffer block, moved 12 mm from the buffer



Tie bolt 12 mm, length 310 mm
Pos. 2 of buffer block, moved 15 mm
from the buffer



Tie bolt 15 mm, length 315 mm
Pos. 4 of buffer block, moved 6 mm
from the buffer

All dimensions presented are for making the tie bolt of 250 mm length. Can be bended other lengths by shortening or lengthening the basic length. So the length can be changed lengthening or shortening from the buffer block. Make sure holding length upon the buffer block is enough.

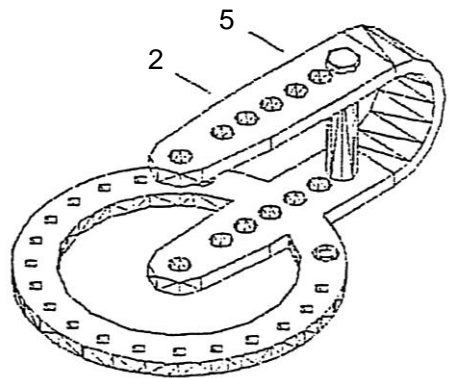
6. ACCESSORIES

It bends 5x25mm hot-rolled material. Coller of the bush leads the material straight during spiral coiling. When making some spirals of the same shape, make a sign on the upper side of the bender at the place where bending of the first spiral finished. Bending every following spiral to this sign, all spirals will be of the same size.



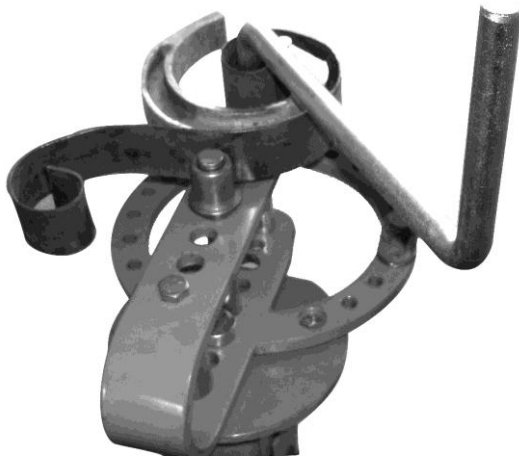
When bending big and small spirals, put the pivot and the bush into the 2nd hole for the first bending step.

First step: hole no. 2



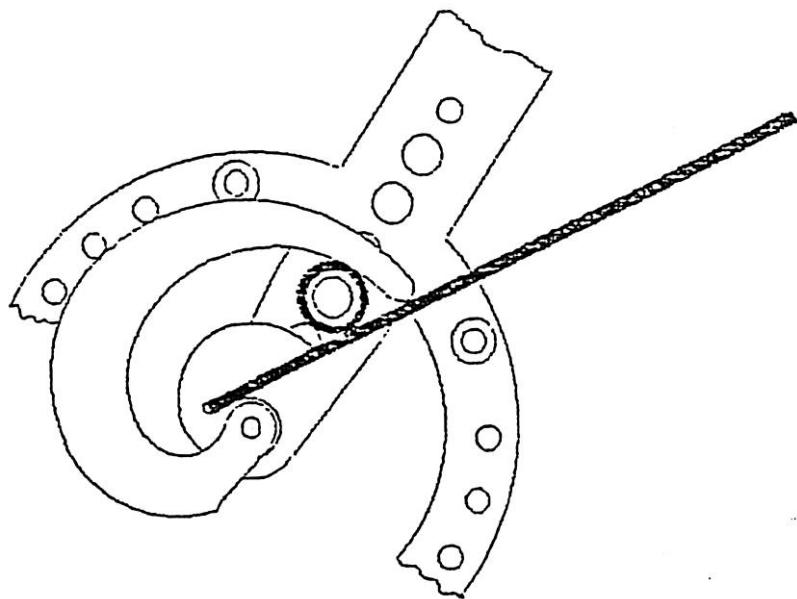
For bending big spirals, when finishing the first bending step, take out the pivot and bush from the hole no.2 and put them into the hole no.5 (hole behind)

Second step: hole no.5



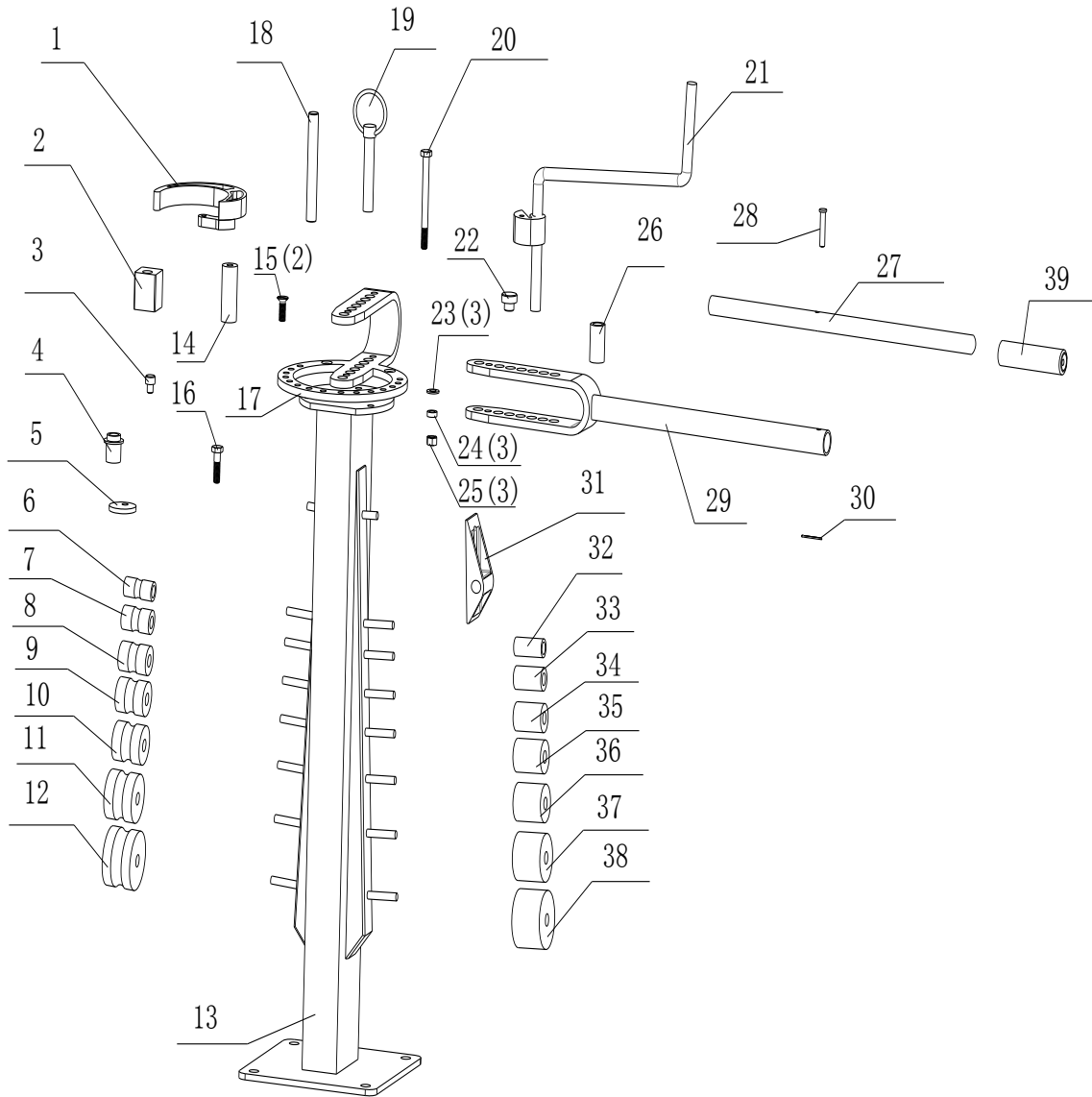
Do not start bending of the big spirals with the pivot and bush into the hole behind. It is necessary to start with the pivot into the hole no.2, otherwise the spiral will not be the adequate one.

Pivot and bush (first step)



Roll up the spiral all around as for as the bush does not enable rolling anymore. Take out the pivot and the bush and put them into the for the 2nd step and finish the spiral.

7. COMPONENT PARTS



| Item | Description | Part nr | Qty | Item | Description | Part nr | Qty |
|------|-------------------------------------|---------|-----|------|-----------------|---------|-----|
| 1 | Bending die | | 1 | 21 | Crank | | 1 |
| 2 | Die | | 1 | 22 | Pin | | 1 |
| 3 | Pin | | 1 | 23 | Washer | N10 | 5 |
| 4 | Bushing | | 1 | 24 | Sleeve | | 3 |
| 5 | Eccentric mat | | 1 | 25 | Hexagon nut | M10 | 5 |
| 6 | Die II | φ25 | 1 | 26 | Bushing | | 1 |
| 7 | Die II | φ31 | 1 | 27 | Lengthen handle | | 1 |
| 8 | Die II | φ38 | 1 | 28 | Pin | | 1 |
| 9 | Die II | φ44.5 | 1 | 29 | Handle | | 1 |
| 10 | Die II | φ50.5 | 1 | 30 | Cotter | 2X30 | 1 |
| 11 | Die II | φ63 | 1 | 31 | Base | | 1 |
| 12 | Die II | φ76 | 1 | 32 | Die I | φ24 | 1 |
| 13 | Stand | | 1 | 33 | Die I | φ30 | 1 |
| 14 | Long bushing | | 1 | 34 | Die I | φ37 | 1 |
| 15 | Slotted countersunk flat head screw | M10X30 | 2 | 35 | Die I | φ43 | 1 |
| 16 | Hexagon bolt | M10X40 | 1 | 36 | Die I | φ49 | 1 |
| 17 | Disk | | 1 | 37 | Die I | φ62 | 1 |
| 18 | Fixed pivot | | 1 | 38 | Die I | φ75 | 1 |
| 19 | Draw bar | | 1 | 39 | Handle cover | | 1 |
| 20 | Hexagon bolg | M10X120 | 1 | | | | |

Note: This manual is only for your reference. Owing to the continuous improvement, changes may be made at any time with no obligation on the part of machine. And please note the local voltage for operating machine