

# MB METAL Mechanical Impact Marking Products MV12/MV18

## Instruction Manual-Maintenance/Spare Parts

### General information

#### Identifying the Document “INSTRUCTION MANUAL”

The instruction Manual is a document, which is being issued by **MBMETAL**. Company, and which is an integral part of successful installation and machine operation.

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#### Purpose of Document

The main purpose of this document is to enable both the customer and any staff assigned to operate the machine to work according to the directions quoted in the manual for their own protection and safety.

#### How to Read and Use the “INSTRUCTION Manual”

The document forms an integral part of the machine, and, therefore, it must be kept and used during the entire machine life span, even in case of transfer to third parties.

It is necessary to read **CAREFULLY** the instructions on use. Only trained staff should work with the machine. The employer is responsible for disclosing this document to all the staff (operators) who will operate with the machine. Keep the manual in an accessible place, so operators can refer to it as necessary.

The customer and/or any third party are strictly forbidden (excluding duly authorized staff from **MBMETAL**) to make changes to the machine, its functions or this document.

#### General Notes upon Delivery

Upon receipt of the machine, please verify that:

- The supply conforms to your order.
- There are no visible damages due to transportation.
- Please advise if you feel there are missing parts

**Note** - All data and dimensions are subject to change without notice. **MBMETAL** reserves the right to make changes without prior notice, updated technical sheets will be provided upon request indicating these changes.

## General SAFETY warnings

- Do Not put your hands inside the Machine during operation
- Do Not rest Tools, Parts or other Objects on the Machine during operation
- Never wash the Machine with Corrosive Substances or use direct lubrication on Piece parts being processed
- Use only Original Replacement Parts from MB Metal

## Description of MB Metal Impact Machines

The product models **MV12 and MV18** provide an easy way to mark, rivet, shape, stamp, die-cut, number, shear, etc. in any operation requiring a regular and even stroke.

MB METAL Impact machines work on a simple principle:

- Loading of a spring while engaging the piece that is being processed and immediate release of the “**HAMMER**” at the Trip Travel Stop.
- The Impact Strength is adjustable by increasing or decreasing the spring preload.

### Stage 1- APPROACHING the Work Piece

Forward Handle movement provides vertical travel of the Rack towards the work piece. After the piece is processed the Hammer will reset itself when the handle returns to the vertical position.

### Stage 2- COMPRESSION of the Spring

The tooling mounted to the Plunger contacts the piece and spring compression occurs rapidly, this action provides control of the piece. Continued travel of the Plunger by downward handle movement will provide “**HAMMER**” release being imparted to the piece. Note: Impact occurs only when contacting the piece to be processed. Impact will be consistent from piece to piece regardless of the operator or the piece tolerance

### Stage 3- IMPACT of the Plunger Tooling

Consistent power is supplied and the Hammer is locked into position: no double-impact

**Products include three basic elements:**

- Cast iron base with tee slots to fasten Clamping and Locating devices
- Ground steel column that allows Vertical adjustment of the Main Casting Block
- Main Casting Housing Block with the Impact Mechanism

## IMPACT MACHINE SET UP AND ADJUSTMENTS

### Machine Set up

Set and fasten the machine to a flat sturdy table or bench using the mounting holes in the base. It is highly recommended that a steel plate be mounted to the cast iron base using the tee slot nuts supplied. Thickness of at least  $\frac{3}{4}$ " or 20 mm is advisable. The steel plate should be ground, flat and parallel. The MV12 has 2-M6 (1/4") mounting holes and the MV18 has 4-M8 (5/16") mounting holes.

Clamping, nesting or support devices (horn) can then be fastened to the steel plate this is particularly helpful if you intend to process a variety of parts requiring different techniques for securing the part, an interchangeable system can be devised with tapped holes for this purpose.

### Vertical Adjustment of the Main Casting Housing Block

Be sure the Main Casting Housing Block (8) is positioned above the piece to be processed without the tooling touching the piece and the Clamp Bolt (49) securely fastened. Move the Setting Collar (6) by loosening Setting Collar Bolt (7) down all the way on the Column (5), do not fasten the Setting Collar.

Hold the Main Casting (8) securely and loosen the Clamp Bolt (49) and move the Main Casting down until the tooling touches the piece to be processed. If the Main Casting is tight or does not move tighten the Slot Adjustment Set Screw (47) while you continue to hold the Main Casting securely, it should now move freely. Fasten the Main Casting Clamp Bolt (49).

The Main Casting Housing Block of the MV12 has a vertical adjustment of 153mm (6.0") the MV18 adjustment is 400mm (15.7") and the MV30 is 525mm (20.6") from the bottom of the Collet to the Table. You will need to include the length of Tooling mounted in the Collet for total clearance.

### **Mount Tooling & Set Travel between Tooling and Piece to be Processed**

Mount tooling (punches, numbering heads, type holders, etc.) to the plunger by loosening the Collet Nut (9) with a wrench (17mm for MV12, 23mm for MV18). Attach the tooling and tighten the Collet Nut. The Collet size for the MV12 is 6mm diameter, MV18 is 10mm diameter. While it may be necessary to use a Cheater Bar to tighten the Collet please refrain from over tightening or using a hammer as damage may occur to the Collet Assembly.

Position the Setting Collar (6) tight against the Main Casting Housing Block (8) and tighten the Setting Collar Bolt (7). Loosen the Main Casting Clamp Bolt (49) and Pull the Lever handle (35) downward so the tooling contacts the piece. The Main Casting will move upward, measure the travel 6mm (1/4") between the Main Casting and the Setting Collar. Tighten the Main Casting Clamp Bolt (49) to secure the Main Casting, be sure you maintain orientation with the piece to be processed. Loosen the Setting Collar (7) bolt and move the collar up to the Main Casting and tighten the bolt on the Setting Collar. Proper safety clearance should be set. This clearance may not be practical in all cases due to part configuration, nesting or supporting and so on. **It is important that operators are instructed to keep their hands away from the impact mechanism during its downward vertical movement.**

Maximum advance strokes of the impact mechanism are:

MV12- 25mm (1")

MV18- 45mm (1-3/4")

**Note: Since the "hammer impact" occurs as a result of plunger/hammer over travel after the tooling contacts the piece, setting a longer advance travel does not increase impact force. Plunger/Hammer reset occurs automatically after releasing the Lever Handle (35).**

### **Impact Spring Adjustment**

The Impact Spring determines the force that is imparted on the detail that strikes the part being processed, adjustment of the preload will allow lighter or deeper marks. The **MV12** uses the one impact spring mounted in the machine.

The **MV18** is supplied with a 3,2 mm wire diameter spring mounted in the press. Optional springs are available both lighter and heavier wire diameter, please call use to discuss your application.

## **Impact Spring adjustment:**

Loosen the Cap Locknut (28) and turn the Impact Adjustment Nut (31) Clockwise to increase impact and counter clockwise to decrease impact strength. Tighten the Cap Locknut (28) to hold the setting once optimal performance is realized.

## **Part Marking**

If the Impact Press is to be used for Part Marking the Material the part is made of along with hardness of the piece part affects part marking. This is why additional springs are supplied. There is quite a bit of spring preload adjustment with in the travel of each spring, sometimes slight adjustments need to be made depending on the number of characters to be marked, or the size of the character.

## **Trip Travel Adjustment Setting (MV18)**

Prior to shipping we have adjusted the Trip Travel Adjustment Nut (12) and secured the Lock Nut (11) using a tooling to piece part distance of 6mm (1/4"). Depending on your application, adjustment may be necessary. Setting the Trip Travel Adjustment properly and checking this setting from time to time will help to provide a good impact result and lengthen the life of the Hammer Mechanism.

After you have your distance between tooling and piece part set, with the tooling in the up position using 2 wrenches one for each nut loosen the Trip Travel Lock Nut (11) clockwise and turn it a number of rotations to move it down on the plunger thread. Now, adjust the Trip Travel Adjustment Nut (12) counter clockwise to move it up a little so the Machine Impact is barely felt and heard. Once you have achieved this, turn the Trip Travel Adjustment Nut (12) one full turn clockwise and lock in place with the Trip Travel Lock Nut (11) using two wrenches.

## **Lever Handle Return Adjustment**

If the Lever Handle return is too fast or too slow, adjustment can be made by loosening one of the Spring Lock Set Screws (43), then inserting a large blade screw driver in the slot of the Lever Return Spring Adjustment Bolt (46) and holding the position of this bolt while slowly loosening the other Spring Lock Set Screw (43). Turn the Adjustment Bolt Counter Clockwise to increase the return force and clockwise to reduce the return force. Lock the position by continuing to hold the slotted Adjustment Bolt (46) while tightening the Spring Lock Set Screws (43).

## **Lubrication:**

To Lubricate the Impact Mechanism, remove the Impact Adjustment Cap (31) and using a Lubricating oil spray or bottle lubricate directly over the Impact Spring, lubrication will flow down inside the Impact Mechanism. Do not use Grease.

The Oil Fitting (40) on the pinion guide should also in a similar manner be lubricated with oil.

Tube or Spray Grease should be used on the Rack and Pinion mechanism, it is advisable to turn the press on its side to achieve this maintenance procedure.

## Troubleshooting

### IMPACT TOO WEAK OR TOO STRONG

If you have adjusted the impact strength with the spring in the Machine and you are not getting a satisfactory mark, replace with either a new spring of the same wire diameter if your machine has been in service for a while. Unscrew the Impact Adjustment Nut (31) and remove the spring in the Machine and replace with another spring, see spring length when they are new shown below. If you need deeper marking contact us to determine if there is spring that may achieve a better result.

### IMPACT DOES NOT OCCUR

First, check the Trip Travel Adjustment Setting on the MV18; see adjustment instructions for this above under Trip Travel Adjustment Setting.

Next, check the Stroke of the Plunger-Tool Holder (15) inside the Lower Tube/Rack (18) a stroke of 2mm (.079) is normal. If it strokes longer or shorter than this amount, most likely the Ball Bearings (25) are the problem and will need to be replaced.

To replace the balls unscrew the Upper Tube Coupling (27) and slide the entire assembly from the Lower Tube/Rack (18). Be sure the Sleeve Return Spring (22) is taken out of the Lower Tube/Rack (18) and inspection is done to make sure there is no debris inside the Lower Tube/Rack (18). Use a small magnet to retrieve any debris inside this part. Remove the Hammer (29) and the Bearing Sleeve (23) from the Tube Guide/Guide Sleeve (24) over a bench as the Ball Bearings (25) or fragments of them will become loose during this procedure.

Inspect all the parts; if parts are crushed or broken you will need to replace them. If you reuse the disassembled parts and just need to replace the balls, be sure to take any burrs off these items using an abrasive cloth. The Sleeve Return Spring (22) and Tube Guide Return Spring (26) should be inspected and replaced if damaged or if they have taken a severe set. When new the lengths of these springs are:

MV12 Spring Length New Sleeve Return Spring (22) 35mm (1.3")	MV18 Spring Length New Sleeve Return Spring (22) 45mm (1.7")
Tube Guide Ret. Spr (26) 50mm (1.9")	Tube Guide Ret. Spr (26) 70mm (2.7")

Inspect the Upper Tube Coupling (27) when the head of the Hammer (29) seats as debris from the Impact Spring (30) could get in this area and cause a tilting of the Hammer at Impact. Clean thoroughly making sure the seat is flat for the Hammer to ride against. Inspect the Impact Spring (30) replace if necessary. When new the lengths of these springs are:

MV12 Impact Spring Length New 75mm (2.9")	MV18 Impact Spring Length New 100mm (3.9")
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Reassemble the Impact Mechanism using the assembly drawings supplied with the Machine. Use a tiny dab of white grease to keep ball bearings (25) in place when assembling the Hammer (29), Tube Guide/Sleeve (24) and Bearing Sleeve (23). Be sure the Bearing Sleeve (23) is positioned with the large I.D. side up.

### **MACHINE IMPACTS ONCE AND DOES NOT RESET ITSELF**

Check the Plunger Key MV12 (19) and MV18 (19a) to be sure there are no burrs on the key. To accomplish this, unscrew Nut (21), remove Key (19 or 19a) from Lower Tube/Rack (18), after removing nut and washer. Once all burrs have been removed, reassemble per the assembly drawing.

### **ORDERING SPARE PARTS**

When ordering Spare Parts for your Machine, please provide the following information:

Machine Model Number: MV12 or MV18

Machine Serial Number: \_\_\_\_\_ Found on the Name Plate on the Machine

Item # : From the Spare Parts List in your booklet

Quantity: Item Quantity you want to order

Warranty: MB Metal warrants each MB Metal Impact Marking Machine to the original purchaser unless end user assignment is made at the time of purchase. Each Machine is warranted against defects in workmanship and materials for one (1) year from the date of delivery. This warranty is limited to the repair or replacement of any part or parts which are found by MB Metal or their Representative to be defective. This warranty does not cover ordinary wear and tear, abuse, misapplication, overloading, altered products or use of improper lubrication. This warranty is the only warranty covering MB Metal Impact Marking Machines. There are no other warranties covering MB Metal Impact Marking Machines either expressed or implied. MB Metal specifically disclaims any warranty of merchantability or fitness for a particular purpose. When question of warranty arises, the user must contact the Representative listed below for permission to return the merchandise. Proper return procedures will be provided to the user at that time.

### **AUTHORIZED MB METAL REPRESENTATIVE IN NORTH AMERICA**

**MB METAL TECHNOLOGIES  
403 S. HAWLEY RD.  
MILWAUKEE, WI 53214**

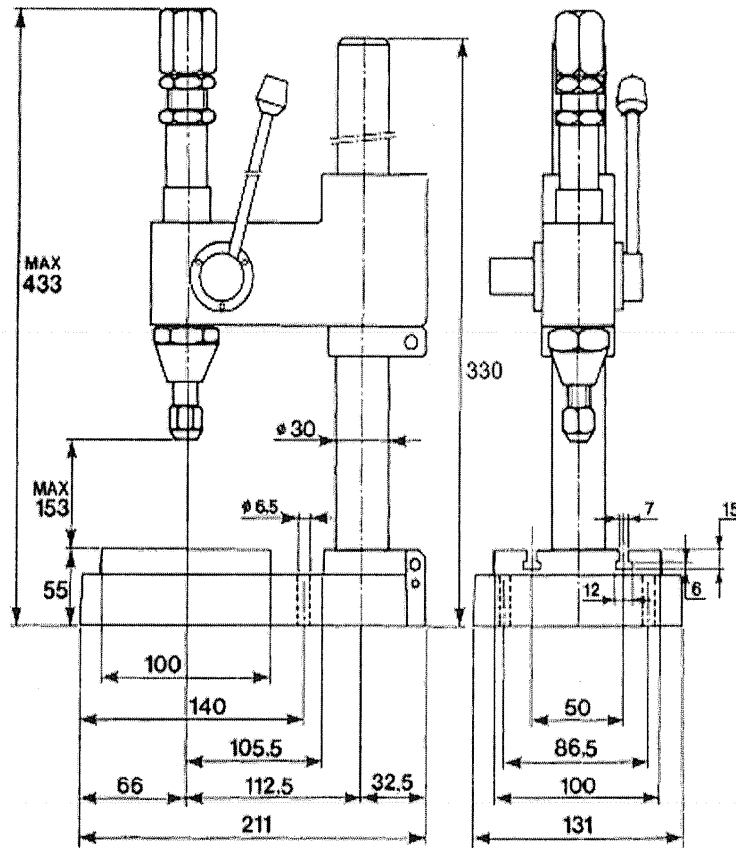
**1-800-837-9270  
FAX 1-414-771-9043**

## MV12 - Technical Data and Overall Dimensions

Maximum Tonnage- 4kN (900 lbs)  
 Maximum Advance Stroke- 25mm (1")

Marking Possibilities: Size of Types in mm and # of Characters that can be marked

Type Height	mm	1	1,5	2	2,5	3	4	5
Aluminum		12	11	10	8	6	5	4
Iron		6	5	4	3	2	1	1



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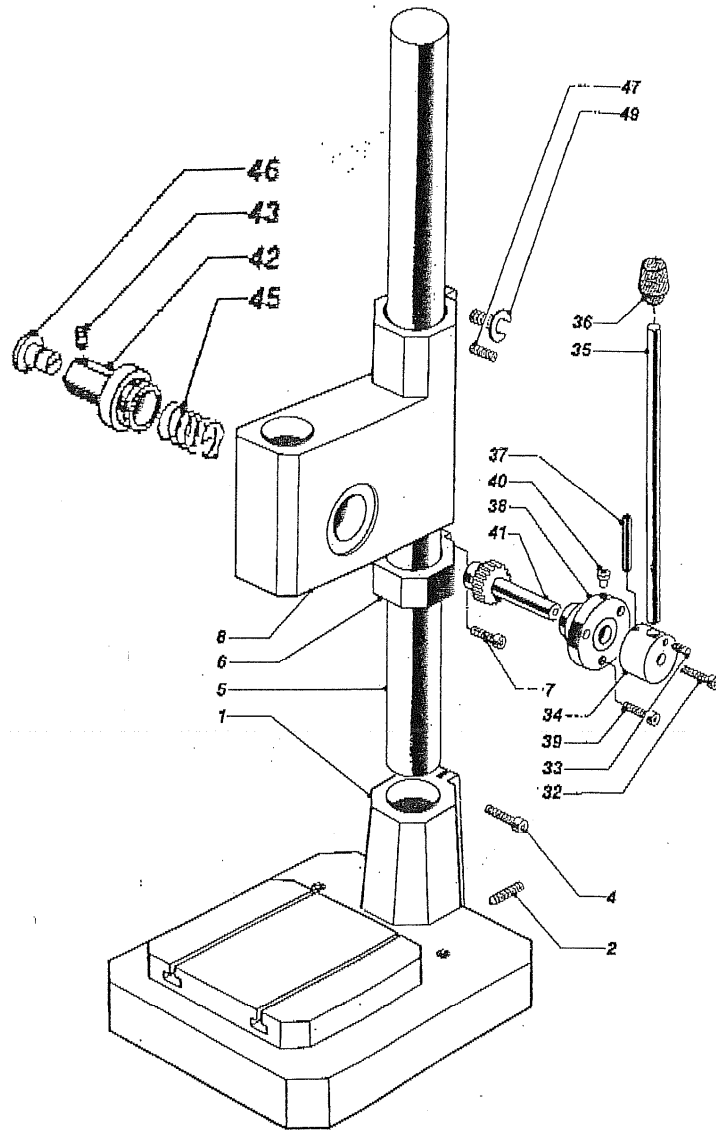
MB METAL IMPACT PRESS MODEL MV12 SPARE PARTS LIST

ITEM #	ITEM DESCRIPTION
1	TABLE/BASE
2	TABLE SET SCREW M5 -0, 8 X 10mm SET SCREW CONE POINT
3	NOT USED ON THE MV12
4	CLAMP BOLT M6 -1, 0 X 35mm SHCS
5	COLUMN MV12 30MM DIAMETER
6	SETTING COLLAR
7	SETTING COLLAR CLAMP SCREW M6-1, 0 X 30mm SHCS
8	MAIN CASTING HOUSING BLOCK
9	COLLET NUT
14	PLUNGER RETAINING NUT & KEY
15	PLUNGER-TOOL HOLDER SPLIT COLLET DESIGN 6mm I.D.
18	LOWER TUBE/RACK
19	LOWER TUBE KEY & STUD
20	LOWER TUBE WASHER
21	LOWER TUBE NUT
22	SLEEVE RETURN SPRING
23	BEARING SLEEVE/SLIDING BUSHING
24	TUBE GUIDE/GUIDE SLEEVE
25	BALL BEARINGS (3) 2.5mm DIAMETER
26	TUBE GUIDE RETURN SPRING
27	UPPER TUBE COUPLING
28	UPPER TUBE LOCK NUT
29	HAMMER
30	IMPACT SPRING MV12
31	IMPACT ADJUSTMENT CAP (MV12)
32	LEVER HOUSING RETAINING SCREW M5- 0, 8 X 16mm SHCS
33	HANDLE RETENTION SET SCREW M4- 0, 7 X 6mm CONE PT SS
34	LEVER HOUSING
35	LEVER HANDLE
36	LEVER HANDLE BALL
37	REGISTRATION PIN
38	PINION GUIDE
39	PINION GUIDE RETAINING SCREWS
40	OIL FITTING
41	PINION/PINION SHAFT/PINION DRIVE PIN ASSEMBLY MV12
42	PINION SHAFT BEARING/SPRING HOUSING MV12
43	LEVER RETURN SPRG LOCK SET SCREWS M6-1, 0X10mm CONE PT
45	LEVER RETURN SPRING
46	LEVER RETURN SPRING ADJUSTING BOLT
47	MAIN CASTING SLOT ADJ SET SCREW M5-0, 8 X 10mm FLAT PT.
49	MAIN CASTING CLAMP BOLT M6- 1, 0 X 35mm SHCS W/WASHER

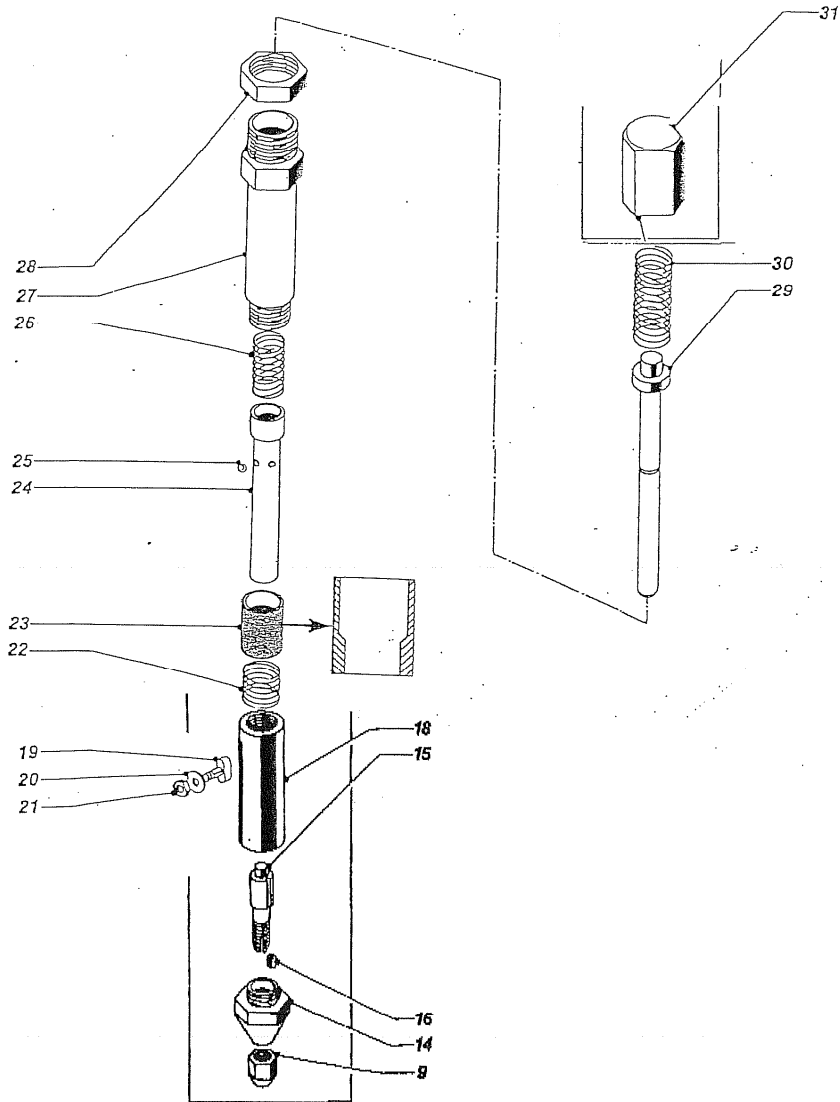
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MV12



# MV12

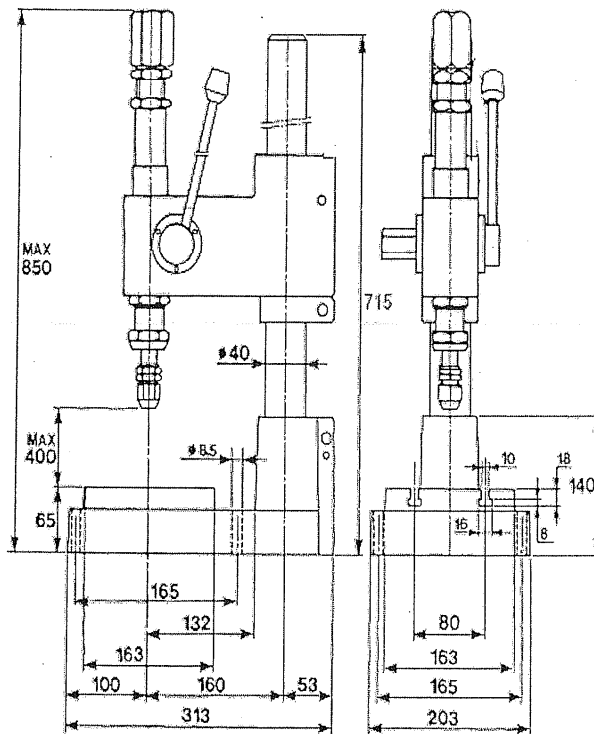


## MV18 - Technical Data and Overall Dimensions

Maximum Tonnage- 25kN (5,600 lbs)  
 Maximum Advance Stroke- 45mm (1-3/4")

Marking Possibilities: Size of Types in mm and # of Characters that can be marked

Type Height	mm	1	1,5	2	2,5	3	4	5	6	10
Aluminum		28	26	24	22	20	16	14	6	3
Iron		15	14	12	11	9	8	6	3	1



MB METAL IMPACT PRESS MODEL MV18 SPARE PARTS LIST

ITEM #	ITEM DESCRIPTION
1	TABLE/BASE
2	TABLE/COLUMN SET SCREW (1) M8-1,25 X 20mm SET SCREW CONE POINT
3	TABLE/BASE SLOT ADJ. SET SCREW (1) M8-1,25 X 20mm FLAT POINT
4	CLAMP BOLT M10-1.5 X 45mm SHCS
5	COLUMN M18 40mm DIAMETER
6	SETTING COLLAR
7	SETTING COLLAR CLAMP SCREW M8-1,25 X 30mm SHCS
8	MAIN CASTING HOUSING BLOCK
9	COLLET NUT
10	COLLET MV18 10mm I.D.
11	TRIP TRAVEL LOCK NUT
12	TRIP TRAVEL ADJUSTMENT NUT
14	PLUNGER RETAINING NUT
15	PLUNGER-TOOL HOLDER
16	PLUNGER KEY
17	PLUNGER RETENTION NUT
18	LOWER TUBE/RACK
19	LOWER TUBE STUD/KEY
19A	PLUNGER STUD/KEY
20	LOWER TUBE & PLUNGER WASHER
21	LOWER TUBE & PLUNGER NUT
22	SLEEVE RETURN SPRING
23	BEARING SLEEVE/SLIDING BUSHING
24	TUBE GUIDE/GUIDE SLEEVE
25	BALL BEARINGS ( 6 ) 3.5mm DIAMETER
26	TUBE GUIDE RETURN SPRING
27	UPPER TUBE COUPLING
28	UPPER TUBE LOCK NUT
29	HAMMER
30	IMPACT SPRING 1 EACH OF 2, 5 - 3, 0 - 3, 2 - 3, 6mm wire diameter
31	IMPACT ADJUSTMENT CAP (MV18)
32	LEVER HOUSING RETAINING SCREW M6-1, 0 X 20 SHCS
33	HANDLE RETENTION SET SCREW M6-1, 0 X 0, 8 SET SCREW CP
34	LEVER HOUSING
35	LEVER HANDLE
36	LEVER HANDLE BALL
37	REGISTRATION PIN
38	PINION GUIDE
39	PINION GUIDE RETAINING SCREWS ( 3 ) M6-1, 0
40	OIL FITTING
42	PINION SHAFT BEARING/SPRING HOUSING MV18
43	LEVER RETURN SPRING LOCK SET SCREWS (2) M6- 1, 0 X 10 CONE POINT
44	PINION SHAFT BEARING SET SCREW ( 3 ) M6-1,0 SHCS
45	LEVER RETURN SPRING
46	LEVER RETURN SPRING ADJUSTING BOLT MV18
47	MAIN CASTING SLOT ADJ SET SCREW M8-1, 25 X 20mm FLAT POINT
49	MAIN CASTING CLAMP BOLT M10-1, 5 X 50mm SHCS WWASHER
51	PINION MV18
52	PINION SHAFT MV18
53	PINION/PINION SHAFT RETENTION PIN

8/1/2007

MV18

