

USER AND MAINTENANCE MANUAL



**Manual Hydraulic Press
Art. P001/**



TRANSLATION OF THE ORIGINAL INSTRUCTIONS

PREFACE



Read this manual before any operation

ORIGINAL INSTRUCTIONS

Before starting any operation it is compulsory to read this instruction manual. The guarantee of smooth operation and full performance of the machine is highly dependent on the application of all the instructions contained in this manual.



Qualifications of the operator

The workers responsible for the use of this machine must have all the necessary information and instruction and should be given adequate training in relation to safety regarding:

- a) The conditions of use of the equipment;
- b) Foreseeable abnormal situations;

pursuant to art. 73 of Legislative Decree no. 81/08.

We guarantee the Machine's conformity to the specifications and technical instructions described in the Manual on the date of issuance, listed on this page. However, the machine may in the future be subject to technical changes that could be important, without the manual being updated.

Contact FERVI for information on any variations that may have been made.



Table of Contents

1 INTRODUCTION	4
1.1 Graphic representation of safety, operational and risk warnings	4
1.2 Preface.....	5
2 GENERAL SAFETY PRECAUTIONS	6
2.1 Technical assistance	7
2.2 Other provisions.....	7
3 TECHNICAL SPECIFICATIONS	7
4 MACHINE DESCRIPTION	8
4.1 Main components of the press.....	9
4.2 Identification label	10
5 MACHINE SAFETY DEVICES	11
6 MISUSE AND CONTRAINDICATIONS	12
7 TRANSPORTATION, LIFTING AND MOVING	13
8 ASSEMBLY AND COMMISSIONING	14
8.1 General warnings	14
8.2 Instructions to remove packaging.....	14
8.3 Press assembly	15
8.4 Press assembly	17
8.5 Preliminary testing.....	18
9 MACHINE OPERATION	18
9.1 Adjusting table height.....	18
9.2 Machine pressing work.....	19
9.3 Pressure release.....	20
10 MAINTENANCE	21
10.1 Routine Maintenance.....	21
11 DECOMMISSIONING	23
11.1 Machine downtime	23
11.2 Disassembly and disposal of materials and components	23
12 SPARE PARTS	24

1 INTRODUCTION

The purpose of this manual is to provide the knowledge required for the use and maintenance of the **MANUAL HYDRAULIC PRESS ART. P001/20** and create a sense of responsibility and an understanding of the capabilities and limitations of the equipment given to the operator.

As a machine is entrusted to experienced and skilled operators, so operators must have perfect knowledge of the following machines for effective and safe operation.

Personnel selection is important for efficiency and safety, and staff selected for a particular job must have sufficient physical and mental capabilities to learn from training.

1.1 Graphic representation of safety, operational and risk warnings

The following signs are designed to attract the attention of the reader/user to ensure **correct** and **safe** machine operation:



Pay attention

This emphasizes behavioral rules to avoid damaging the machine and/or the occurrence of hazardous situations.



Residual risks

This emphasizes the presence of hazards causing residual risks which the operator must watch for to avoid personal injury or material damage.



1.2 Preface

Carefully read this manual to acquire all the necessary information for simple and safe machine operation. In other words, durability and performance are strictly dependent on how it is used.

Even experienced Manual Hydraulic Press operators are required to follow the instructions below as well as the general precautions to be observed during operation.

- Acquire full knowledge of the machine.

Carefully read this manual in order to know: how it works, safety devices and all necessary precautions. Everything required to ensure safe use.

- Maintain the machine with care.

-



Machine operation

The machine must be operated exclusively by staff qualified and trained in its use by authorized staff.



2 GENERAL SAFETY PRECAUTIONS



Compression and impact

- There is always a risk of injury during drilling and tapping processes due to accidental contact of body parts with the moving tool, shavings flying from the workpiece, tool breakage or ejection of a badly blocked workpiece.
- There is no such thing as an "intrinsically" safe tool, and even the most watchful operator cannot "always" avoid accidents. Therefore, DO NOT underestimate the risks associated with machine operation and focus on the work you are doing.



Machine risks

All accident prevention measures reported throughout this manual must be observed even when all safety devices are implemented for safe machine operation.



Machine risks

Every person responsible for machine operation and maintenance is required have read the instruction manual first and specifically the chapter on safety instructions.

The company safety at work manager is required to get written confirmation of the above.



Machine risks

Before starting any type of work on the machine, the operator must wear appropriate personal protective equipment (PPE) such as crush resistant safety gloves and shoes.

1. Read this manual carefully, and then work safely.
2. Always check the efficiency and integrity of the machine.
3. Keep the work/operation area tidy and free of clutter; untidiness causes accidents.
4. Make sure that children, unauthorized persons and animals are not allowed in the work environment.
5. Do not exceed designed machine performance parameters, **especially operating pressure**. Operate the machine exclusively in accordance with the procedures and methods intended as described in this instruction manual.
6. Work areas must be well lit.
7. Always wear adequately protective safety shoes and gloves while working. Use appropriate masks in case of dust.
8. Replace worn and/or damaged parts, check that protective devices work correctly before operation. If necessary, have the machine checked by Technical Assistance staff. Use only original spare parts.
9. Users of this manual for repair and maintenance are required to have basic knowledge of mechanical principles and procedures for technical repair.
- 10. The company safety manager should make sure that all machine operating staff have read and understood this manual in its entirety.**
- 11. The Company Safety Manager is responsible for monitoring the company's risk status according to Legislative Decree no. 81/08.**



2.1 Technical assistance

Do not hesitate to contact the Technical Assistance Service of the retailer from whom the machine was purchased regarding any inconvenience or for further explanations: they have qualified personnel, special equipment and spare parts.

2.2 Other provisions

TAMPERING WITH SAFETY DEVICES IS FORBIDDEN

Check the presence and integrity of protections and the proper functioning of safety devices before starting operation.

Do not use the Manual Hydraulic Press if it is defective!

3 TECHNICAL SPECIFICATIONS

Description (unit of measure)	Art. P001 / 20
Capacity (kN / t)	196 / 20
Size (mm)	880 x 600 x 1450 h
Work area (mm)	540 x 120 x 1000 h
Cylinder diameter (mm)	70
Piston diameter (mm)	48
Piston stroke (mm)	110
Maximum pressure (MPa)	69.3
Weight (kg)	100

4 MACHINE DESCRIPTION

The **Manual Hydraulic Press (Art. P001/20)** is a machine designed for pressing objects made of metal or similar materials; for example, for the assembly of mechanical units, press fitting bearings or pulleys on shafts, etc.

Other uses or extensions beyond design specifications do not comply with the manufacturer's purpose, and no responsibility can be accepted for any damages resulting therefrom.



Misuse and exceeding maximum capacity

- There is always a risk of injury during drilling or tapping operations due to accidental contact of body parts with the moving tool, flying debris from the workpiece, tool breakage or ejection of a badly blocked workpiece.
- There is no such thing as an "intrinsically" safe tool, and even the most watchful operator cannot "always" avoid accidents. Therefore, **DO NOT** underestimate the risks associated with machine operation and focus on the work you are doing.

Both Hydraulic Presses consist of:

- a steel frame, table and support posts;
- a hydraulic cylinder with movable piston (plunger);
- a manually operated pump, a pressure gauge and other components of the hydraulic circuit.

See section 4.1 of this manual for a more detailed description of machine components.

The Presses must be used exclusively on flat not tilted and appropriately hard and resistant supporting surfaces capable of supporting weights such as industrial shed floors.

Moreover, they should be protected from weather, wind and humidity, and from the risk of fire and explosions.



4.1 Main components of the press

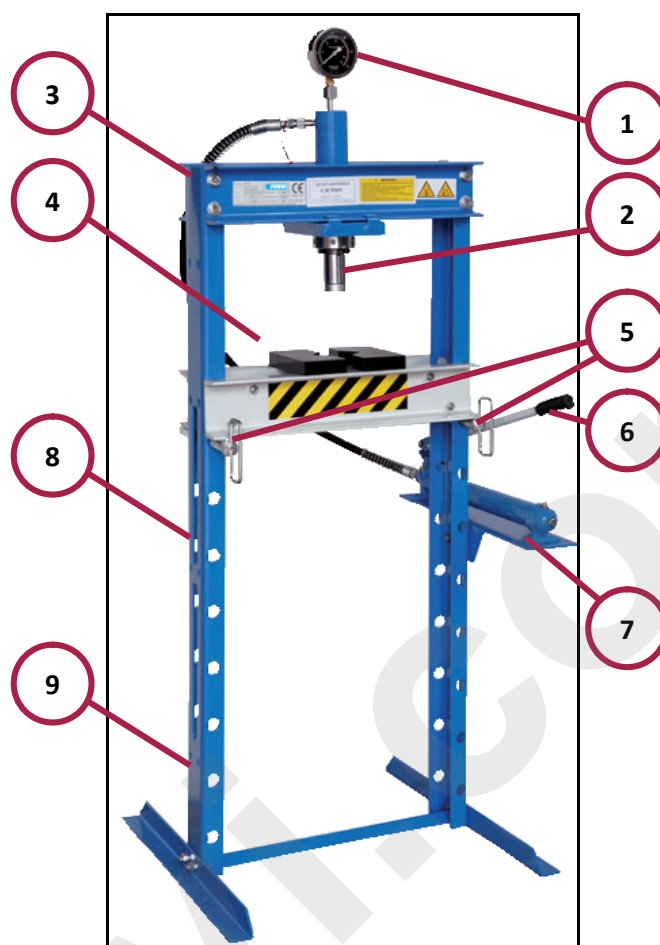


Figure 1 - Main parts P001/20 Art.

1 Pressure gauge

2 Hydraulic piston (plunger)

3 Supporting beam (column)

4 Table

5 Table clamping handles

6 Pump operating lever

7 Hydraulic pump

8 Support posts

9 Base stand (support brackets)

4.2 Identification label

The press has an identification label as shown below

Fabbricante	Fervi S.r.l. Via del commercio 81 41058 Vignola MO		
Tipo	Pressa manuale idraulica	Massa a vuoto	kg 90
Articolo	P001 / 20	Pressione massima	Mpa 69.3
Lotto n°		Anno di costruzione	2012
		Portata	kg 20000
<p>ATTENZIONE: Per evitare danni, non usare la pressa per comprimere molle o oggetti similari.</p>			

Figure 2 – EC Label Art. P001/20.

Maximum capacity value

The labels specify the **maximum capacity** (under standard conditions).

This value indicates the maximum pressing force the machine can exert.

- **P001/20:** Maximum pressing force (capacity) → 200 kN (20,000 kg approx.)



5 MACHINE SAFETY DEVICES

The main safety devices of the press include:

- Table and bed plate locking pins.
- Pressure gauge to control operating pressure.

Table and bed plate locking pins are at the sides of the support posts (Figure 3). After adjusting table height, the steel clamping pins hold it in a stable and secure position. These are equipped with gripping handles to facilitate insertion and extraction in their clamping points.



Figure 3 - Table locking pins.

In the upper part of the frame, there is a pressure gauge that measures the pressure inside the hydraulic circuit; this value can be checked any time during press operation.



Figure 4 - Pressure gauge



Use of PPE

In any case, ALWAYS use appropriate personal protective equipment such as:

- crush resistant safety gloves;
- overalls or aprons;
- safety shoes.



PROTECTIVE GLOVES



PROTECTIVE CLOTHING



PROTECTIVE SHOES

Figure 5 - Personal protective equipment.

6 MISUSE AND CONTRAINDICATIONS

The following actions, which obviously cannot cover the entire range of possible "misuse" of the machines are **strictly forbidden**.



IT IS STRICTLY FORBIDDEN:

- To compress springs or other similar objects;
- To compress objects without resting them correctly on the press;
- To compress irregular shaped objects that may slip out;
- To keep hands or other parts of the body in the pressing area during the descent of the piston;
- To use the manual press without it being properly secured to the floor;
- To use the press on yielding surfaces and in any case with insufficient strength to support the load;
- To leave the manual press unattended when it is loaded (with the circuit under pressure);
- To exceed the pressing force (capacity) and/or the maximum pressure indicated on the label;
- To move the table while the press is loaded (with the circuit under pressure);
- To allow untrained personnel to operate the manual press;
- To operate the manual press if you are not psycho-physically fit;
- To operate the manual press without due care;
- To use the manual press other than for its intended use;
- To operate the manual press under unforeseen environmental conditions;
- To operate the manual press in insufficient light.



7 TRANSPORTATION, LIFTING AND MOVING

The **MANUAL HYDRAULIC PRESSES P001/20** for transportation should only be moved using appropriate lifting equipment. The press comes fully disassembled in a wooden box for a total weight of 90 kg.

Transportation requires industrial vehicles such as trucks, lorries etc.



Compression

- Lifting the presses requires equipment with a capacity of at least 200 kg.
- Do not use makeshift equipment and do not attempt to lift manually.
- Do not move the press when there are people within the operating range of lifting equipment.

If the press has to be moved after assembly, it is necessary:

1. To remove the mounting bolts from the floor.
2. To pass the straps of the harness under the top frame, on the sides of the hydraulic cylinder.

To lift the press smoothly without jolting.

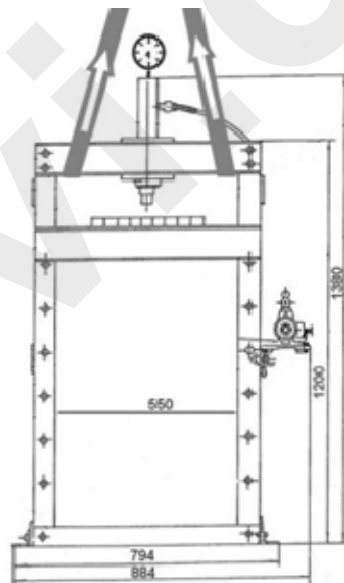


Figure 6 - Lifting the press after assembly.

8 ASSEMBLY AND COMMISSIONING

8.1 General warnings

The following chapters are the core of the manual, as they contain the real operating instructions on how to install, operate and maintain the Manual Hydraulic Press.

The safety information in the preceding pages must be read and understood to learn operating procedures.

Given the difficulty and importance of machine assembly and commissioning, poor execution thereof may lead to serious security and safety risks for exposed persons both at this stage and during subsequent operation.

The machine must only be installed in rooms with adequate lighting (at least 300 lux).

8.2 Instructions to remove packaging

The press is supplied in a wooden box.

Before disposing of the packaging, ensure all machine parts (eg screws), the owner's manual and other documentation have been removed.



Standard Packaging

Packaging materials (plastic bags, polystyrene foam, etc..) must not be left within reach of children as these are potentially dangerous.





8.3 Press assembly

To assemble the press Art. P001/20, proceed as follows (see section 12.1 of this manual for reference numbers):

1. Fasten the left and right frame base brackets (21) to the lower frame supporting beam (26) and to the frame posts (20), using the bolts (25), washers (22), lock washers (23) and nuts (24) provided.



Figure 7 - Frame base brackets and post assembly.

2. Attach the holding plate (7) to the frame supporting beams using the corresponding joints before fixing the top frame beams (10) to the posts.



Figure 8 - Plate assembly.

3. Attach the front and back top frame beams (10) to the frame posts, one at the front and one at the back. Tighten the bolts provided - screws (9), washers (13), lock washers (12), nuts (11) - using two wrenches.

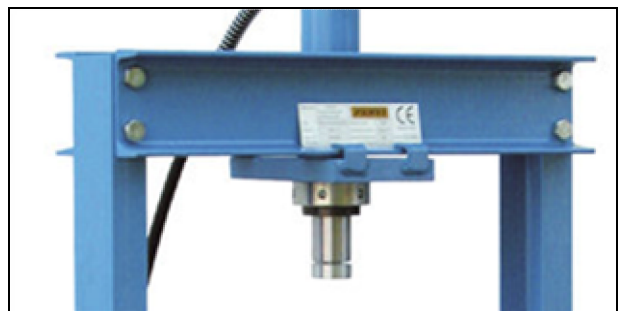


Figure 9 - Assembly of top frame beams.

4. Tighten the nut (6) on the cylinder body (3) in the threaded part, then insert the cylinder into the hole of the plunger plate (7), and then tighten the lower sealing lock ring (8) to the cylinder.
5. Screw the plunger (5) to the piston.

6. Join the two crossbeams of the pressing table (18) together and to the sides of the posts (20), using the four bolts (27) provided, inserting them through the spacers (28).

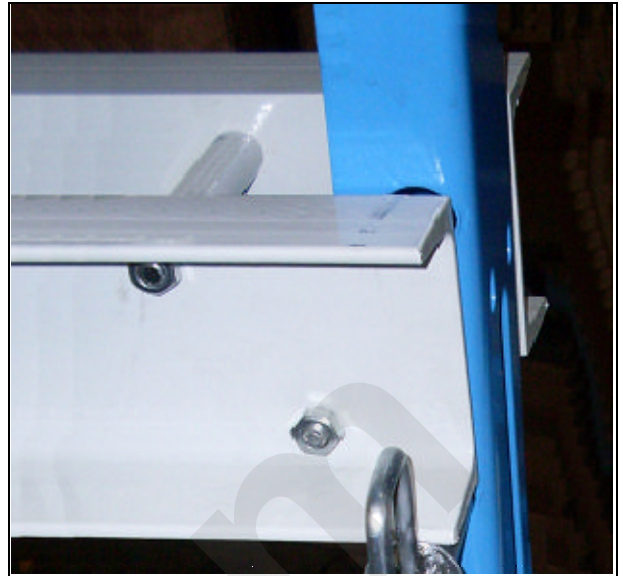


Figure 10 - Mounting the table.

7. Lift the table (ask another person to perform this operation) and insert the table support holding pins with handles (19) into the holes of the posts (at the same height) then lay the table flat.

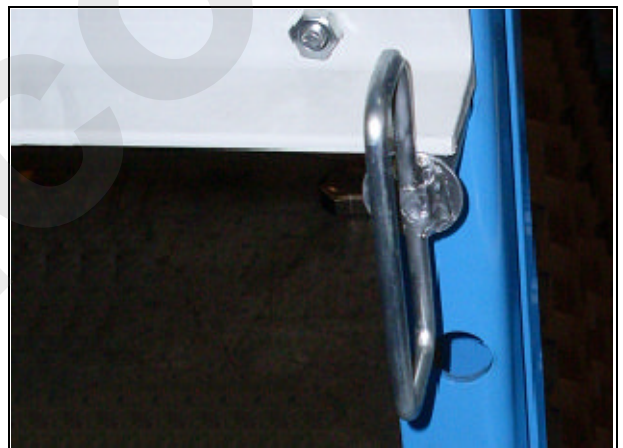


Figure 11 - Insert the table support holding pins.



8. Mount the hydraulic pump support (31) with the bolts provided - screws (25), washers (22), lock washers (23), nuts (24) - using a hex wrench.
9. Check that all bolts of the support frame are correctly tightened.
10. Position the table support holding pins.
11. Remove the cap from the hydraulic cylinder and connect the hose (35), which is connected to the pump, to the cylinder cap (37).
12. Screw the pressure gauge (1) to the cylinder into its coupling (38).

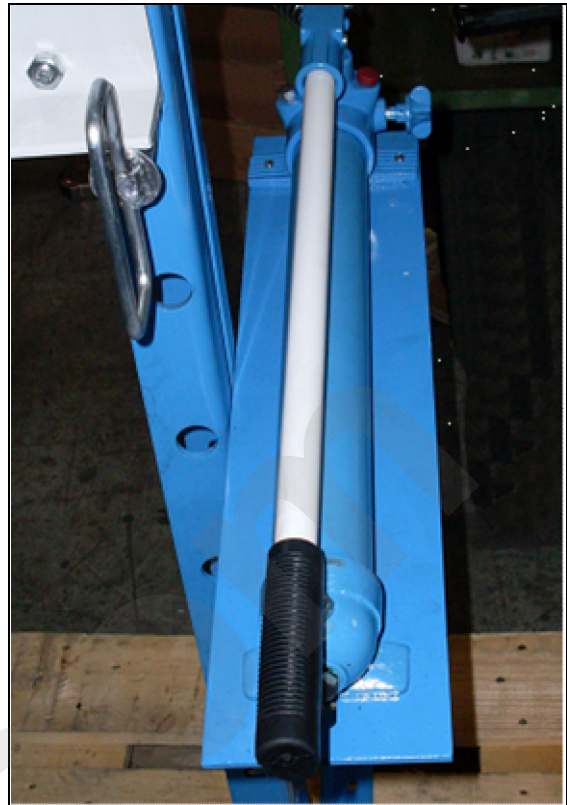


Figure 12 - Pump support.

8.4 Press assembly



Loss of stability / Fall

Choose a press assembly position such that:

1. the area is sheltered from weather and moisture;
2. the surface is perfectly flat, non-slip and non-deformable, with an appropriate load capacity for the weight of the machine;
3. a work area free of obstacles and barriers can be fitted out around the machine;
4. It is positioned in a well lit area.

Proceed as follows to fasten the press to the ground:

- Fasten the base support brackets to the floor in a stable and secure position, using the fastening holes on the brackets themselves. Use appropriate fastening devices such as bolts, dowels, etc..
- Securely tighten the mounting bolts / grips.

8.5 Preliminary testing

Before using the press it is necessary and essential to carry out a preliminary test in its place of operation.

The test includes:

- a general visual inspection of the machine to ensure there are no worn parts and/or damage on the equipment itself, and that all components have been assembled correctly;
- checking the stability of the press;
- testing machine operation by running a few complete cycles (for the whole stroke of the pressing piston) free of load.

9 MACHINE OPERATION

9.1 Adjusting table height



Loss of stability / Fall

- Move the table vertically only when the machine is free of load (hydraulic circuit not under pressure).
- Ensure no one has limbs or body parts under the table to avoid crushing.



Protective gloves

Always wear suitable protective gloves while moving the table vertically.

Place the table and pressing plate at the required height depending on the size of the workpiece as follows:

1. Unload the table, removing all wedges and pressing plates.
2. Lift the table support beam.
3. Hold the pin handle and extract the table support holding pin completely.



Figure 13 - Holding pin extraction.

4. Insert the pin into the first free hole on the post, immediately below the lower base of the beam. Make sure you push the holding pin all the way through to the hole on the opposite post.
5. Place the table on top of the holding pin just inserted.



Levelling the table

Always check the horizontal levelling of the table, after manual adjustment.

Therefore, insert the table support holding pins in holes positioned on the same level. For example, count the free holes from the ground up.

9.2 Machine pressing work

1. Place the workpiece to be pressed on the press plate ([Figure 14](#)), centered with respect to the piston.

The pieces to be pressed must have a compact and solid structure and must not be subject to crumbling, to avoid flying shavings or debris of material. Equally, they must be regular in shape in order to prevent them from slipping under the thrust of the piston and fall from the press plate.



Ejection of workpiece or parts thereof

If there is a possibility of pieces or fragments being ejected during pressing, the use safety goggles is mandatory.



Figure 14 - Pressing plate support.

2. Close the release valve by turning it clockwise

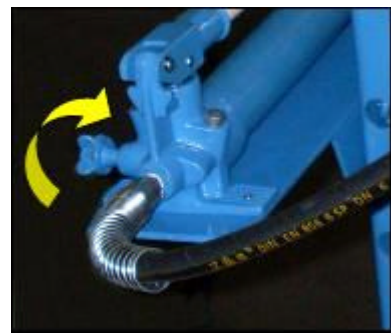


Figure 15 - Release valve.

- Operate the pump by moving the handle in an alternating high / low motion.

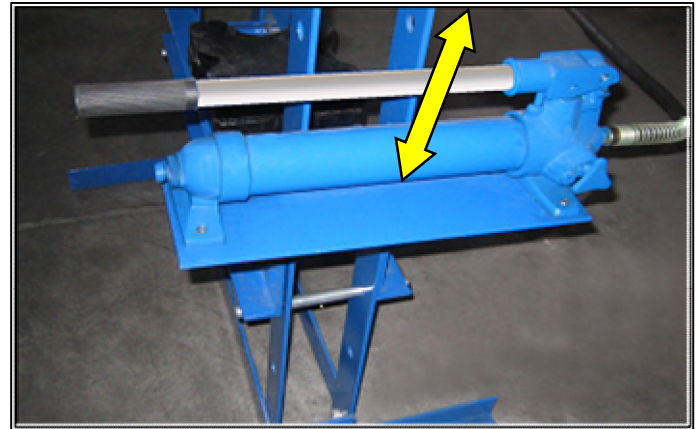


Figure 16 - Pumping motion.

- Pressurize the Press hydraulic circuit and lower the piston to the required height. Check the magnitude of the pressing force on the pressure gauge above the piston (Figure 17).



Figure 17 - Close-up of pressure gauge.



Pressure gauge

The gauge has two measuring scales:

- an internal scale in "METRIC TONS" or Tons in the International System of Measurement;
- an external scale in "U.S. TONS" or Tons in the Anglo-Saxon System of Measurement.

9.3 Pressure release

Use the "release valve" on the pump to release the pressure of the hydraulic circuit, and actuate the upstroke of the plunger. Specifically, unscrew the valve knob (counterclockwise rotation).

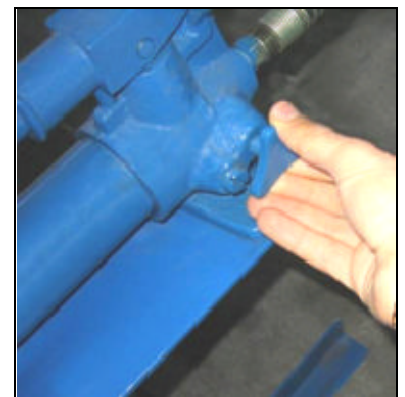


Figure 18 - Release valve.

At the end of the upward stroke, re-tighten the knob of the "release valve" completely.



Re-tighten the release valve

Always re-tighten the release valve before starting a new pressing operation; otherwise the piston will not work despite the pumping motion.

10 MAINTENANCE

The purpose of this chapter is to provide the timing and maintenance procedures required to maintain the **MANUAL HYDRAULIC PRESS ART P001/20**.

Maintenance and repairs must be performed exclusively by qualified personnel.



Empty machine maintenance

Bring the piston back to its resting position (hydraulic circuit not under pressure) before performing any maintenance operation.

10.1 Routine Maintenance

INTERVENTION	Frequency		
	Daily	Weekly	Monthly
1. General visual inspection	X		
2. Check that labels are clearly visible and legible	X		
3. Check for leaks in the hydraulic circuit	X		
4. Check the oil level		X	
5. General cleaning		X	
6. Check the wear of the pressing piston			X
7. Check the tightness of the bolts			X

- General visual inspection:** Check the general condition of the machine, if there are any damaged or missing parts.
- Check the clear visibility and legibility of labels:** the label on the machine must be perfectly visible and legible. It is therefore necessary to keep it clean and ask the maintenance officer for a replacement if it is illegible.
- Verify the absence of leaks in the hydraulic circuit:** there can be no measurable accidental loss in the hydraulic circuit, except for slight moisture insufficient to form a drop.
- Check the oil level:** check the oil level and top up with hydraulic oil as required.

To check the oil level:

- Unscrew the oil cap on the pump body on the right side of the press.
- The level/filling cap is at the front of the pump.
- Check if the oil level is visible through the oil level indicator hole.
- If the oil is not visible, add oil through the filling hole until oil comes out of the oil level indicator hole (indicating that the oil level is optimal).
- Re-tighten the oil filler cap.



Oil Type

Do not use brake or engine fluid.

5. **General cleaning:** cleaning is necessary to keep the structure and moving parts from accumulating dust and dirt and stains caused by excess lubrication. Use implements, equipment and detergents or solvents commonly used for cleaning industrial equipment.
6. **Check the wear of the pressing piston:** check that the piston pressing surface is not worn out, that there are no cracks and/or fissures or abnormal deformities.
7. **Check screw tightness:** check that all mounting screws on the frame and supporting brackets are fully tightened.



11 DECOMMISSIONING

11.1 Machine downtime

Store away the Press before a period of inactivity. Proceed as follows for warehouse storage:

- remove all objects from the pressing plate;
 - protect moving parts with grease and/or lubricating oil;
 - protect pressing components with anti-corrosion liquid;
- store in a dry place, protected from dust and atmospheric agents.

11.2 Disassembly and disposal of materials and components

If the machine is to be scrapped, its parts must be differentiated for disposal.



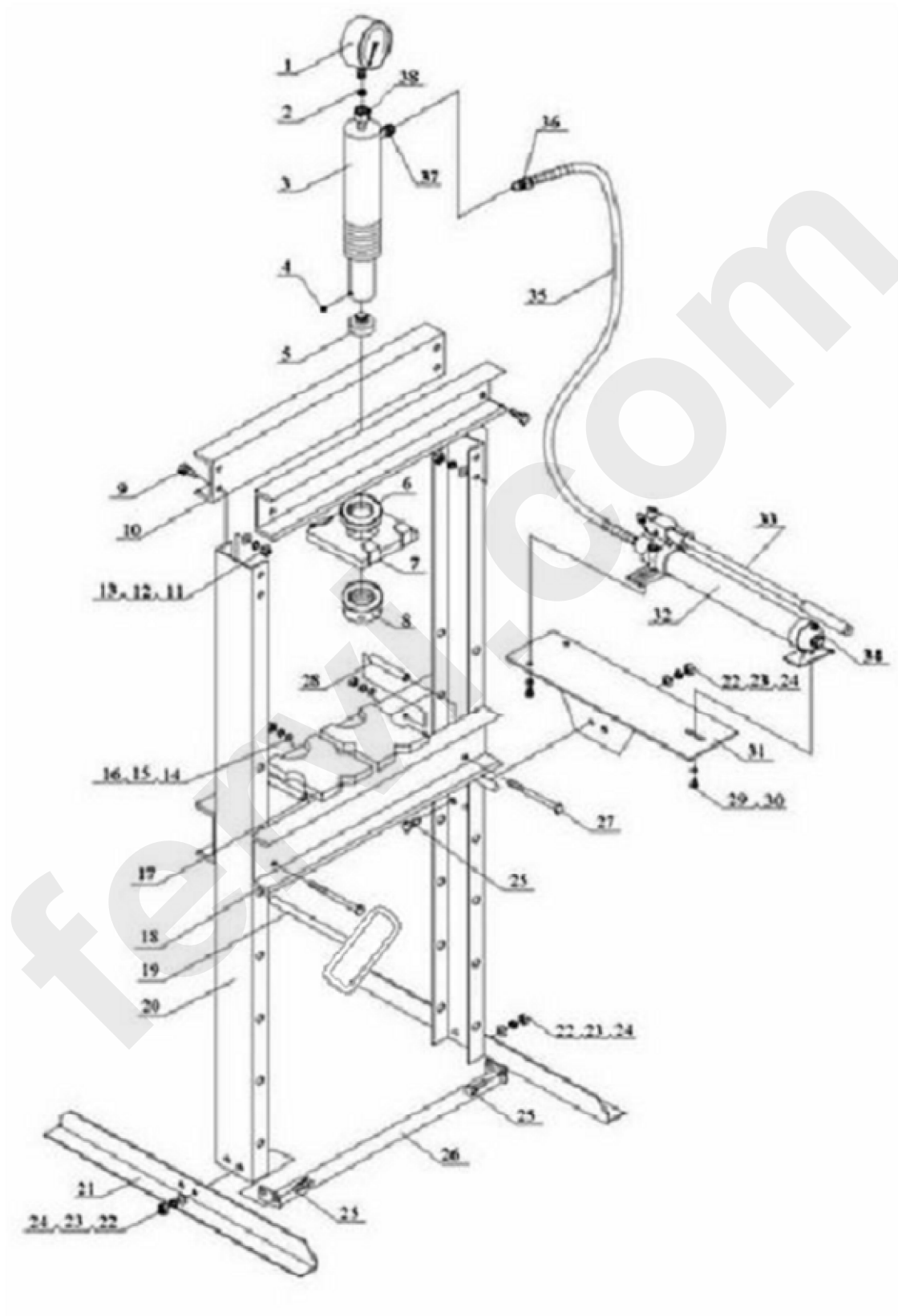
Respect the environment!

Contact a specialist center for the collection of metallic materials.

The structure of the Press and the piston support springs are made of steel, some gaskets are made of polymeric material. The pump contains hydraulic oil. In this regard, differentiate materials according to their nature, consult specialist companies authorized for disposal, in accordance with the requirements of law.

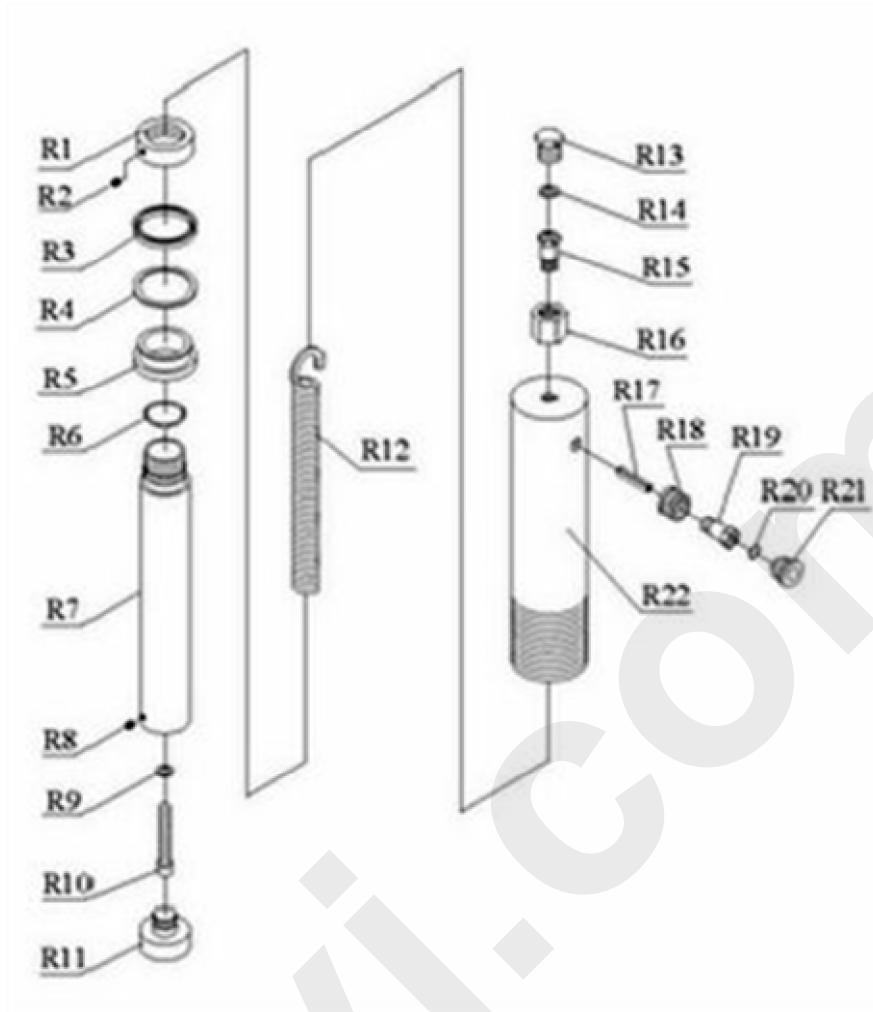


12 SPARE PARTS





Ref.	Description	Ref.	Description
P001/20/01	Pressure gauge	P001/20/20	Post
P001/20/02	Nylon ring	P001/20/21	Base support bracket
P001/20/03	Piston housing	P001/20/22	Washer Ø 12
P001/20/04	Lock nut M6	P001/20/23	Lock washer Ø 12
P001/20/05	Plunger coupling	P001/20/24	Nut M12
P001/20/06	Upper ring	P001/20/25	Bolt M8x30
P001/20/07	Holding plate	P001/20/26	Lower beam
P001/20/08	Lower sealing lock ring	P001/20/27	Table screw M10x130
P001/20/09	Bolt M8x30	P001/20/28	Spacer
P001/20/10	Upper beam	P001/20/29	Screw M8x15
P001/20/11	Nut 16	P001/20/30	Washer Ø 8
P001/20/12	Lock washer Ø 16	P001/20/31	Pump support
P001/20/13	Washer Ø 16	P001/20/32	Pump
P001/20/14	Washer Ø 10	P001/20/33	Pump lever
P001/20/15	Lock washer Ø 10	P001/20/34	Oil cap
P001/20/16	Nut M10	P001/20/35	Hydraulic hose
P001/20/17	Blocking pin	P001/20/36	Hydraulic hose connector
P001/20/18	Pressing table	P001/20/37	Hydraulic piston connector
P001/20/19	Holding pin	P001/20/38	Pressure gauge connector



Ref.	Description	Ref.	Description
P001/20/R01	Nut	P001/20/R12	Spring
P001/20/R02	Screw M6x6	P001/20/R13	Screw
P001/20/R03	Lock ring	P001/20/R14	Nylon ring
P001/20/R04	Gasket	P001/20/R15	Pressure gauge connector
P001/20/R05	Plain bearing	P001/20/R16	Pressure gauge connector nut
P001/20/R06	O-ring	P001/20/R17	Plug
P001/20/R07	Thrusting piston	P001/20/R18	Hose connector nut
P001/20/R08	Screw M6x10	P001/20/R19	Quick release connector
P001/20/R09	Sealing gasket	P001/20/R20	O-ring
P001/20/R10	Bolt M10	P001/20/R21	Filter
P001/20/R11	Plunger	P001/20/R22	Cylinder