



NPC DIGIT
Hot presses

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This NPC presses produced since more than 40 years; contain all the experience we got in the wood pressing field. These machines are worldwide known for their reliability and high technical performances.

Main components of the NPC presses are the followings:

- structure
- hydraulic power unit
- pistons
- platens
- heating system
- control board

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STRUCTURE

- Tool machined and all-welded main frame for greater strength
- Double rack and pinion system (both length and crosswise) to grant a perfect platens' parallelism when the mobile one is moving up/downward.

HYDRAULIC POWER UNIT

- Hydraulic power unit (by Hawe - Germany), composed by a double stage pump and a motor which are submersed in the hydraulic oil for a less noisiness and a better lubrication of the rotating parts.
- Closing stage (high delivery at low pressure)
- Thrusting stage (low delivery at high pressure)

ELECTRIC MOTOR

Unit fitted with the following control and safety valves:

- Relief valve for the closing stage.
After the platen closing it cuts off the oil delivery;
- Lower absorbed power and less hydraulic oil heating up;
- Relief valve for the thrusting stage.
It avoids over pressures in the circuit;
- Keeping pressure valve;
- Valve to release the pressure smoothly;
- Solenoid valve to discharge the oil quickly;
- Filters both in the inlet and outlet to prevent the circulation of foreign matters inside the circuit.

1. Coil electric connection.
2. Max pressure valve.
3. Disjunction valve.
4. Cap with dipstick.
5. Manual control push-button.
6. Air suction filter.
7. Electric box.

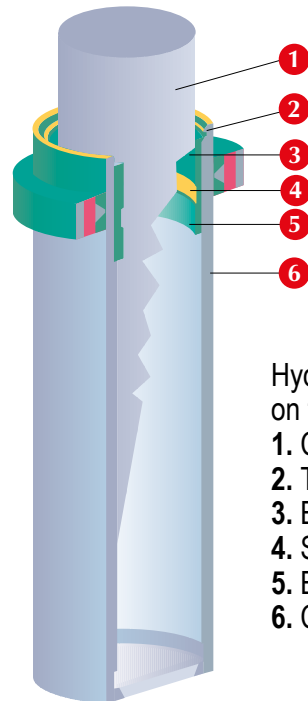


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PISTONS

A remarkable and peculiar detail is the pistons chroming that is carried out by “thickness” (and not by “bath”) to obtain a longer time durability of the chroming, granting a perfect shaft sliding throughout years.

Thrusting cylinders are made of steel for mechanical application and according to Ormamacchine design.



Hydraulic piston section view used on the NPC presses.

1. Chromed shaft
2. Tight seeger
3. Bushing
4. Seal
5. Bushing
6. Cylinder liner

The pistons' locking to the press structure is made by means of bolts to allow a quick maintenance of the piston or its replacement.

Even in this case, this solution has been chosen in comparison to less expensive ones (piston welded to the structure) to guarantee an easy use and maintenance.

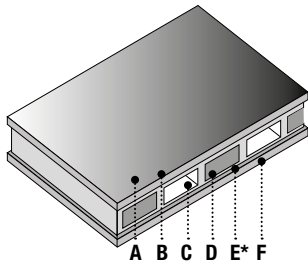


Detail of the pistons bolted to the structure

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TYPE OF PLATEN

The presses can be supplied with 3 different type of platens:



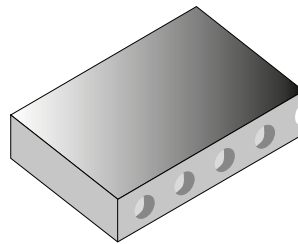
FABRICATED ASSEMBLED STEEL

It is the most common type of platen mounted on the hot presses

Main features:

Max. temp. up to 120 °C.
max. working pressure 3÷5 kg/cm²
heating medium pressure 2,5 ate

- A. Aluminium covering for a better surface finishing and a better heat propagation.
- B. Flat gauged steel sheet.
- C. Coil of piping for hot water/oil circulation.
- D. Reinforcement piping
- E*. Flat gauged steel plate, only for intermediate platen.
- F. Insulating material.

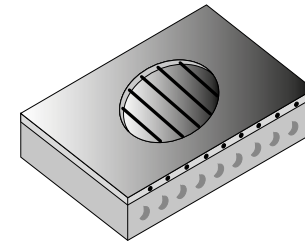


SOLID DRILLED STEEL

It is the strongest type of platen can be mounted on the hot presses

Main features:

Max. temp. up to 250 °C
max. working pressure 30 kg/cm²
heating medium pressure 10 ate



ELECTRIC ELKOM

This platen is made a 12 mm aluminum plate in which are inserted the electric resistances, underneath a chipboard support

Main features:

Max. temp. up to 120 °C.
max. working pressure 7 kg/cm²

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HEATING SYSTEM

The NPC presses can be equipped with the following type of heating systems:

> ELECTRIC HEATER FOR OIL

It is the most common type of heating system.

It is composed by:

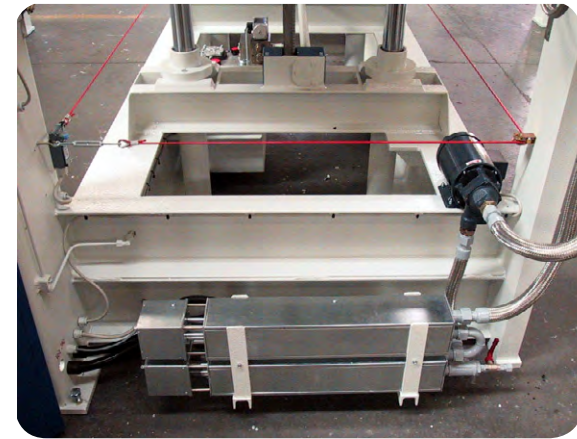
- Circulation pump
- Piping
- Expansion tank
- Max temperature: 120 °C

A thermometer is fitted in the boiler with a double safety function:

- operate in case of remote thermometer breakdown
- operate in case of anomalous temperature inside the boiler

The boiler is provided of the necessary oil for the first plant filling.

Piping insulation excluded.



> ELECTRIC HEATER FOR WATER

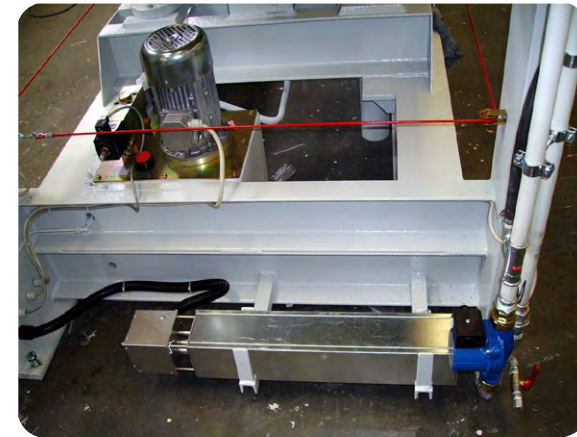
It is composed by:

- Circulation Pump
- Piping
- Expansion Tank
- Max Temperature: 90 °C

A thermometer is fitted in the boiler with a double safety function:

- operate in case of remote thermometer breakdown
- operate in case of anomalous temperature inside the boiler

Piping insulation excluded.



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> GAS/GASOIL FIRED BOILER

This type of heating plant it is advisable in countries where the power cost is high.

The boiler has to be connected to a burner (gas/gasoil).

The heating medium is thermal oil

It is complete of the following devices:

Oil outlet temperature control:

- Temperature switch that stops the burner in case of too high oil temperature.
- Switch that adjust high/low burner flame at set temperature;
- Maximum switch that stops the burner at set temperature;
- Safety switch that stops the burner at set temperature; its intervention need manual reset.

Second safety temperature switch:

This device, independent from the previous one, stops the burner when the oil temperature reaches the safety set temperature, in case of failure of the a.d. temperature control mdevice.

Oil inlet temperature control device

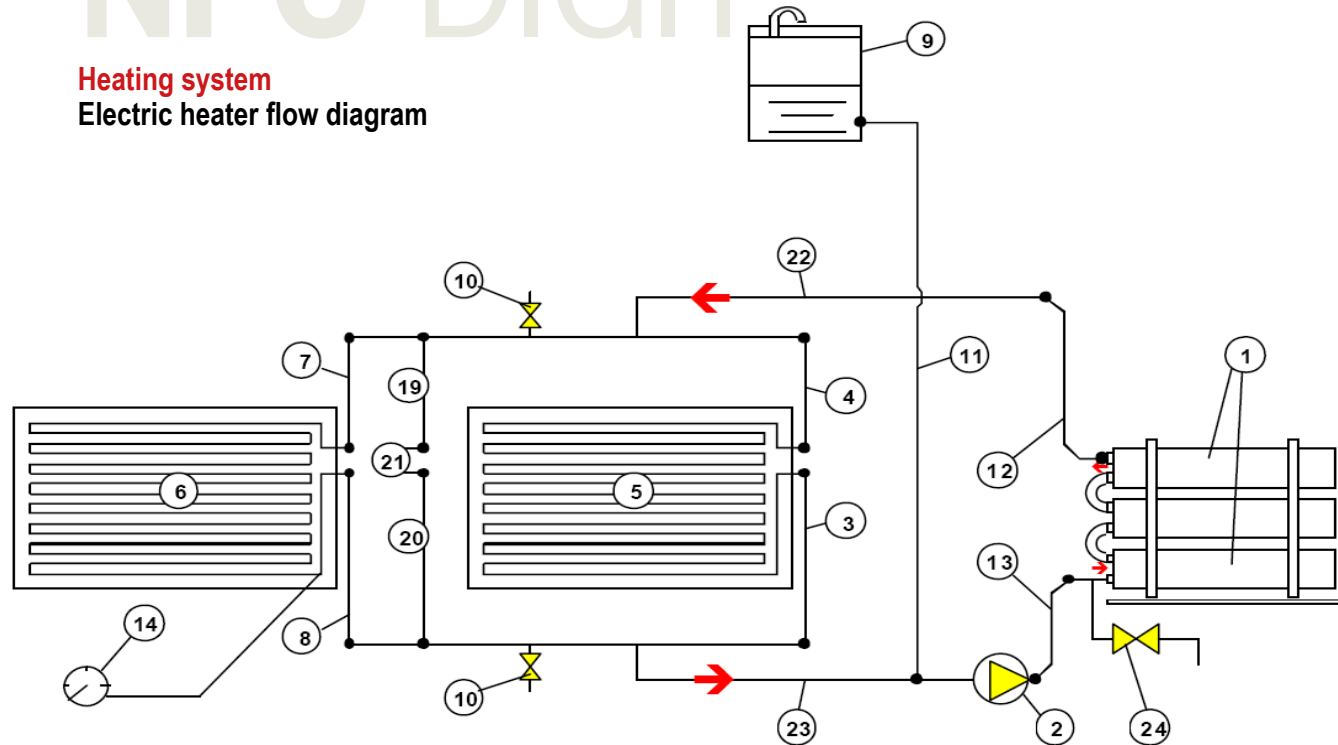
Thermometer (shows oil inlet temperature):

Stops the oil circulation pump only when the oil temperature reaches 100 °C, to dissipate remaining heat in the heater after burner stop, to prevent oil damage.



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Heating system Electric heater flow diagram



LEGENDA

- | | | | |
|----|---|----|--|
| 1 | Electric boiler | 12 | Flexible inox pipe: boiler-collectors connection |
| 2 | Circulation pump | 13 | Flexible inox pipe: pump-boiler connection |
| 3 | Flexible inox pipe -lower output | 14 | Temperature adjustment telethermometer |
| 4 | Flexible inox pipe -lower input | 19 | Possible upper input flexible inox pipe for intermediate platen |
| 5 | Press lower platen | 20 | Possible upper output flexible inox pipe for intermediate platen |
| 6 | Press upper platen | 21 | Possible intermediate platen |
| 7 | Flexible inox pipe -upper input | 22 | Installation delivery hose |
| 8 | Flexible inox pipe -upper output | 23 | Installation return hose |
| 9 | Expansion tank | 24 | Valve for fluid bleed from installation |
| 10 | Air bleed valve | | |
| 11 | Safety flexible inox pipe: water feeding and installation bleed | | |

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CONTROL BOARD

The NPC DIGIT has a new designed control board with a **touchscreen keyboard**
PLC controlled (By Siemens)

Along with the keyboard on the control board there are:

- Opening and closing push-buttons
- Main on/off switch
- Tension lamp
- Emergency push button

By means of the keyboard, the operator can set and check all the press functions such as:

- Specific working pressure
 (presses with electric heater or electric platens)
- Working temperature
 (presses with electric heater or electric platens)
- Pressing time with automatic opening of the platens
- Automatic switching ON of the heating system
- One set of pistons shut OFF
 (presses with 8 and 10 pistons)
- Possibility of using only 50% of the heater
 (heaters over 20 kW)

By setting the specific working pressure the machine will set the needed Tons

In case of shutting off of one or more set of pistons, the machine automatically will calculate again the working pressure, according to the new pressing area



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ADVISED PARAMETERS TO WORK WITH A PRESS

To Glue	On To	Pressure kg/cm ²	Temperature °C
Formica / laminate	wood frame / polystyrene	1	60
Formica / laminate	chipboard/ plywood/multi-ply/hollow core*	2	60
1 mm thick veneer	chipboard/ plywood/multi-ply/hollow core*	2,5/4	120
3 mm thick veneer	plywood	18	120
Plywood	multy-ply	6/7	120
Standard paper	chipboard / plywood / multi-ply	3/5	8'
Glued melamine	chipboard / plywood / multi-ply	10/12	120
Pre glued melamine	chipboard / plywood / multi-ply	25	180

TOTAL THRUST OF A PRESS:

HOW TO CALCULATE IT?

$$R \times R \times \pi \times 350 \times NP = \text{Kg}$$

$$\text{Ex. : } 300 \times 130 = 39,000 \text{ cm}^2$$

$$\pi = 3,14$$

350 = max. pressure of hydraulic unit in bar

NP = number of pistons

I.E.: press platen dimension

3000x1300 mm, 6 pistons ø 85 mm:

$$4.25 \times 4.25 \times 3.14 \times 350 \times 6 = \sim 120,000 \text{ kg}$$

$$120.000 \text{ Kg}/1000 = 120 \text{ Tons}$$

SPECIFIC PRESSURE OF A PRESS:

HOW TO CALCULATE IT?

Calculate the total surface of the pressing platens in cm²

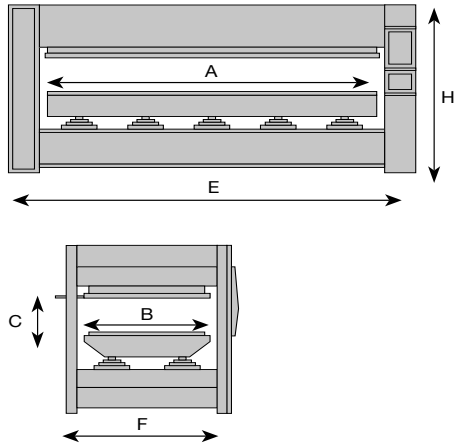
R = Piston radius in cm

Divide the total thrust by he surface

$$\text{Ex.: } 120,000 : 39,000 = 3.07 \text{ kg/cm}^2$$

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TECHNICAL FEATURES



- They differ according to the type of platen and possible intermediate platens

* Heating system excluded

Tipo Type Type	Dimensione piani Platen size Dimensions Plateaux	Spinta totale Total Thrust Pression totale	Cilindri Cylinders Vérins	Pistoni Pistons Pistons	Corsa Stroke Course	Pressione Pressure Pression	Motore Motor Moteur	Caldaia Woodboiler Chaudière	Boiler Boiler Boiler	Piani elettrici Electric Platens Plateaux électriques EIKOM	Ingombro Overall Encombrement	Peso Netto Net Weight Poids Net
	mm A-B	Ton	N.	Ø mm	mm C	80% kg/cm ²	HP	kcal/h •	kW •	kW •	* mm E-F-H	kg
NPC/DIGIT 4/40	2500x1300	40	4	70	400/650	1,5	2	20.000	18	17,8	3100 1650 1800	2400
NPC/DIGIT 4/70	2500x1300	60	4	70	400/650	2	2	20.000	18	17,8	3100 1650 1800	2800
NPC/DIGIT 6/90	2500x1300	90	6	70	400/650	3,3	2	20.000	18	17,8	3100 1650 1900	3150
NPC/DIGIT 6/100	2500x1300	120	6	85	450/650	4,5	3	20.000	18	17,8	3200 1650 2050	3500
NPC/DIGIT 3000/S	3000x1300	70	6	70	400/650	2,2	2	20.000	18	25,4	3600 1650 1800	3300
NPC/DIGIT 6/95	3000x1300	90	6	70	400/650	2,8	2	29.900	21	25,4	3600 1650 2000	3600
NPC/DIGIT 6/110	3000x1300	120	6	85	450/650	3,7	3	29.900	21	25,4	3700 1650 2050	4000
NPC/DIGIT 8/120	3000x1300	160	8	85	450/650	5	4	29.900	21	25,4	3700 1650 2050	4500
NPC/DIGIT 3500/S	3500x1300	90	6	70	400/650	2,4	2	29.900	21	28,8	4150 1650 2000	4150
NPC/DIGIT 6/120	3500x1300	120	6	85	450/650	3,2	3	29.900	27	28,8	4200 1650 2100	4700
NPC/DIGIT 8/160	3500x1300	160	8	85	450/650	4,2	4	29.900	27	28,8	4200 1650 2200	5200
NPC/DIGIT 10/200	3500x1300	200	10	85	450/650	5,3	5,5	29.900	27	28,8	4400 1650 2200	6500



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