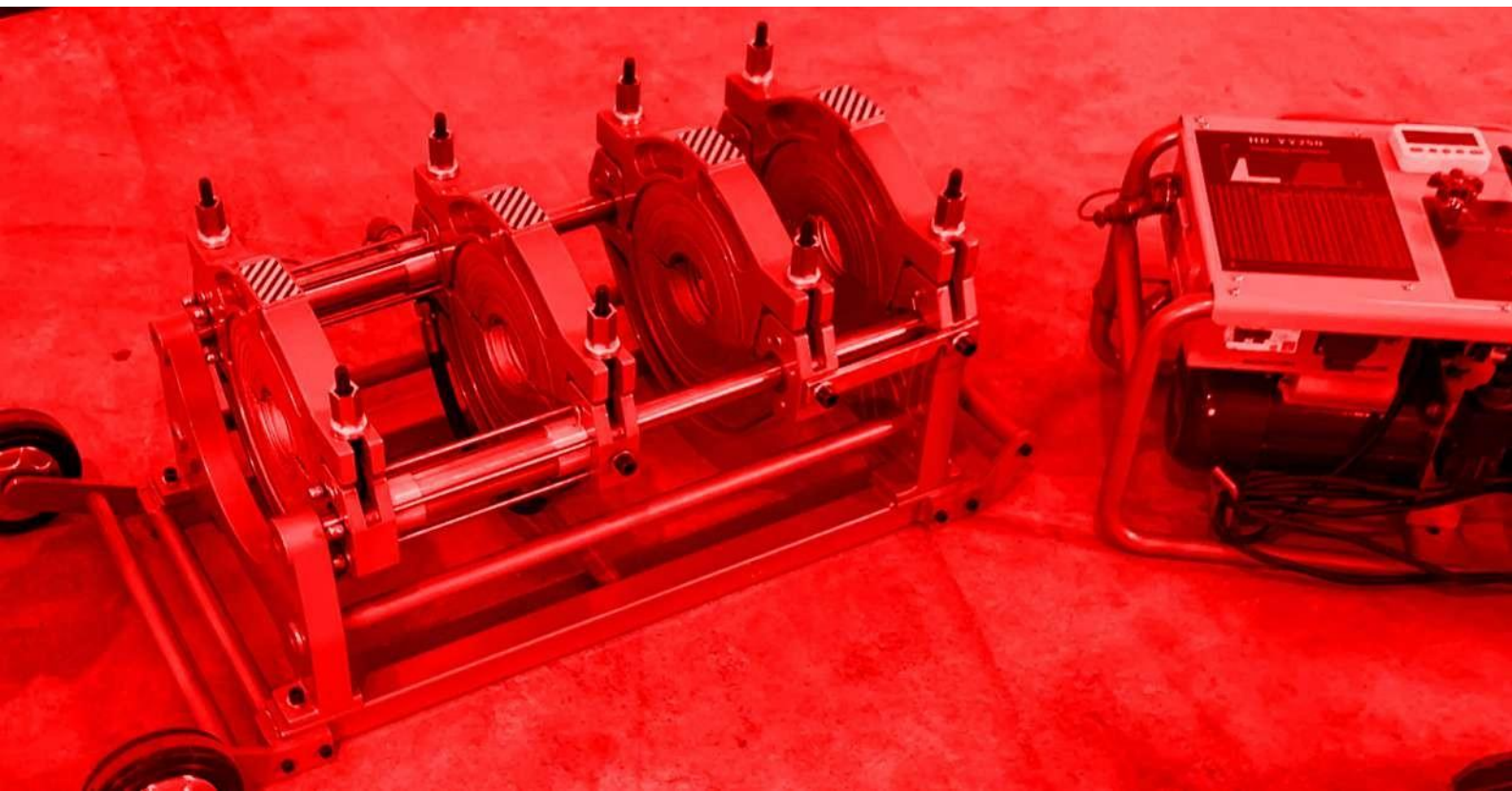




**ANHUI HAIDA ELECTROMECHANICAL
EQUIPMENT IMPORT & EXPORT CO., LTD**

**Hydraulic Butt Welding
Machine Instruction**



1. Equipment of the machine

REMARK

heating plate



Wires to the heating plate



Cable Assembly into heating plate



milling cutter



**REMARK
ON/OFF switch**



Stand for milling machine and heating plate



hydraulic station



Weld Table

Pressure Valve:

Control valve

pressure magnitude

Lever actuator control

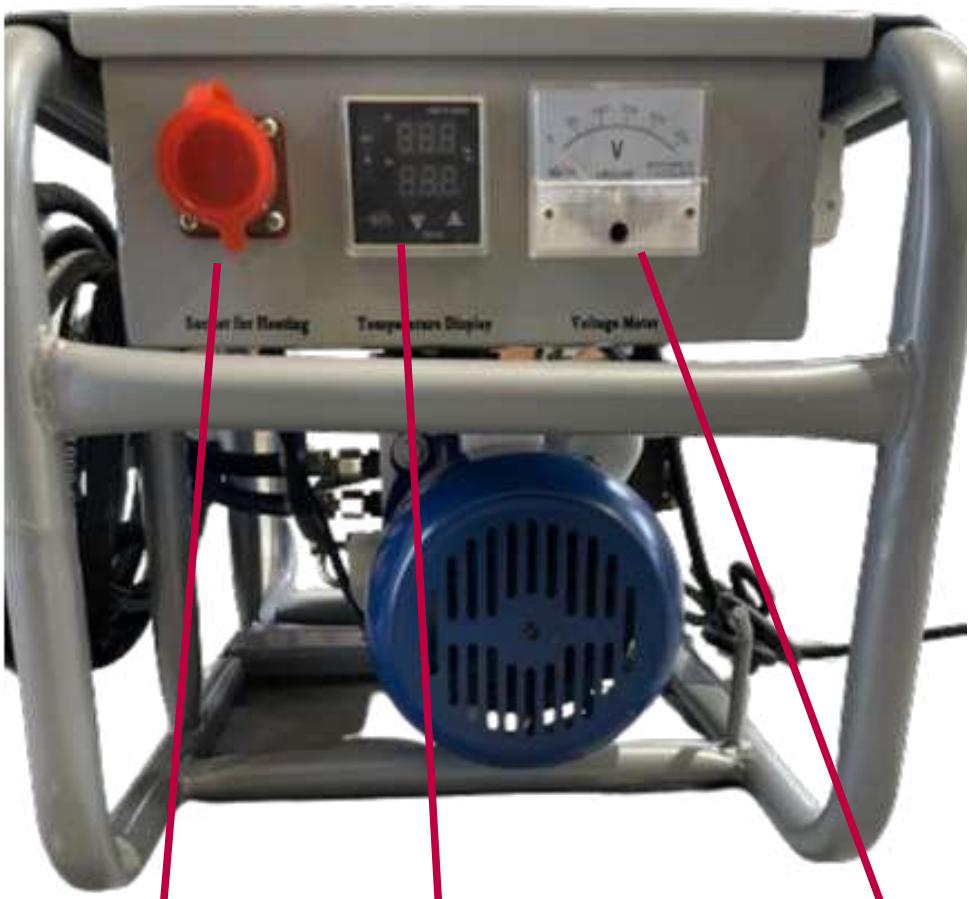
Green arrow: DOJAZD

Red arrow: ODJAZD

-Twisted holds the pressure in the system

-When unscrewed, it releases the pressure in the system

Pressure gauge indicating the current pressure in the system



**Socket for cord
heating plate**

**Temperature
Controller
heating plate**

**Voltage
Indicator**



**Hydraulic station
fuses
(starting position - up)**

**Socket for
milling cutter**

**Cooktop
switch**

**UWAGA
THE BUTTON
MUST BE
PRESSED !
OTHERWISE, THE HOB
WON'T HEAT UP!**



**Screws for
attaching the
reduction**

Open-end wrench

**Screw
driver**

Timer

Rattle

**Screws for
fastening the
wheels and
handles of the
welding
machine**

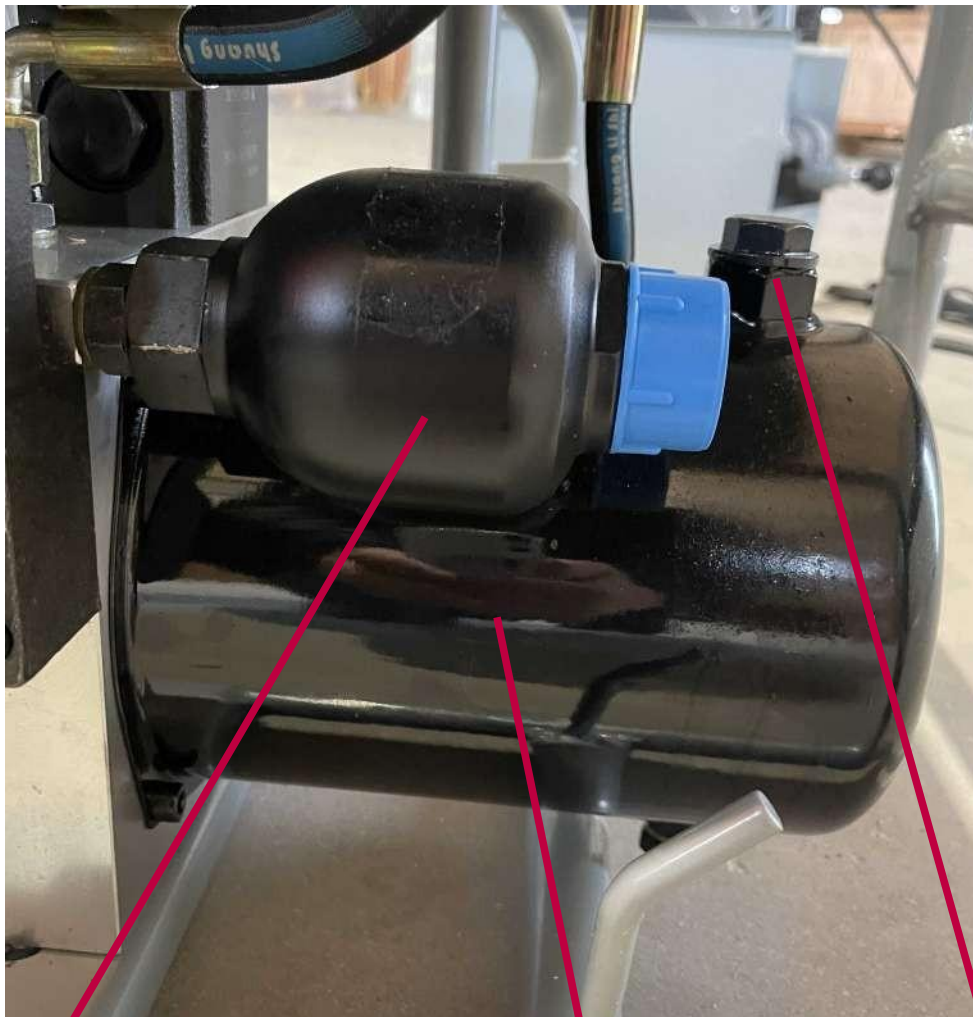
Wheels and handle for transporting the welding machine



Mounting method of wheels and handle



Final effect



Pressure accumulator

Hydraulic oil tank

Oil filler cap



Dipstick to check hydraulic oil condition

Step-by-step welding instructions:

1. An example of a welding diameter is a 160mm pipe



On the pipe, we should read Pipe properties:

Diameter: 160mm

Wall Thickness: 9,5mm SDR 17

The first step is to remove the reduction below 160mm.



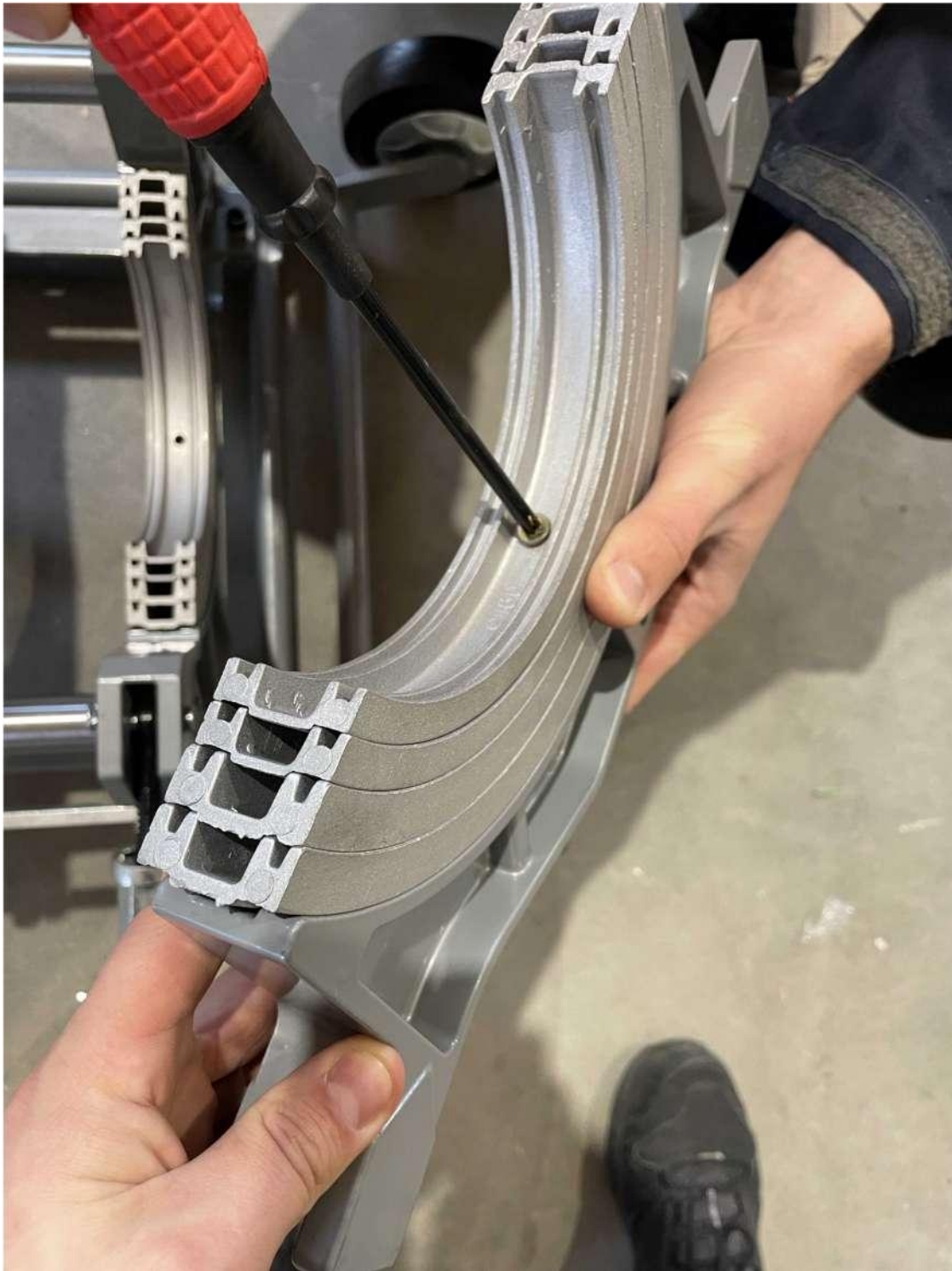
Unscrew the reducers with a screwdriver



We leave reducers of 160mm and higher on each of the 8 clamps



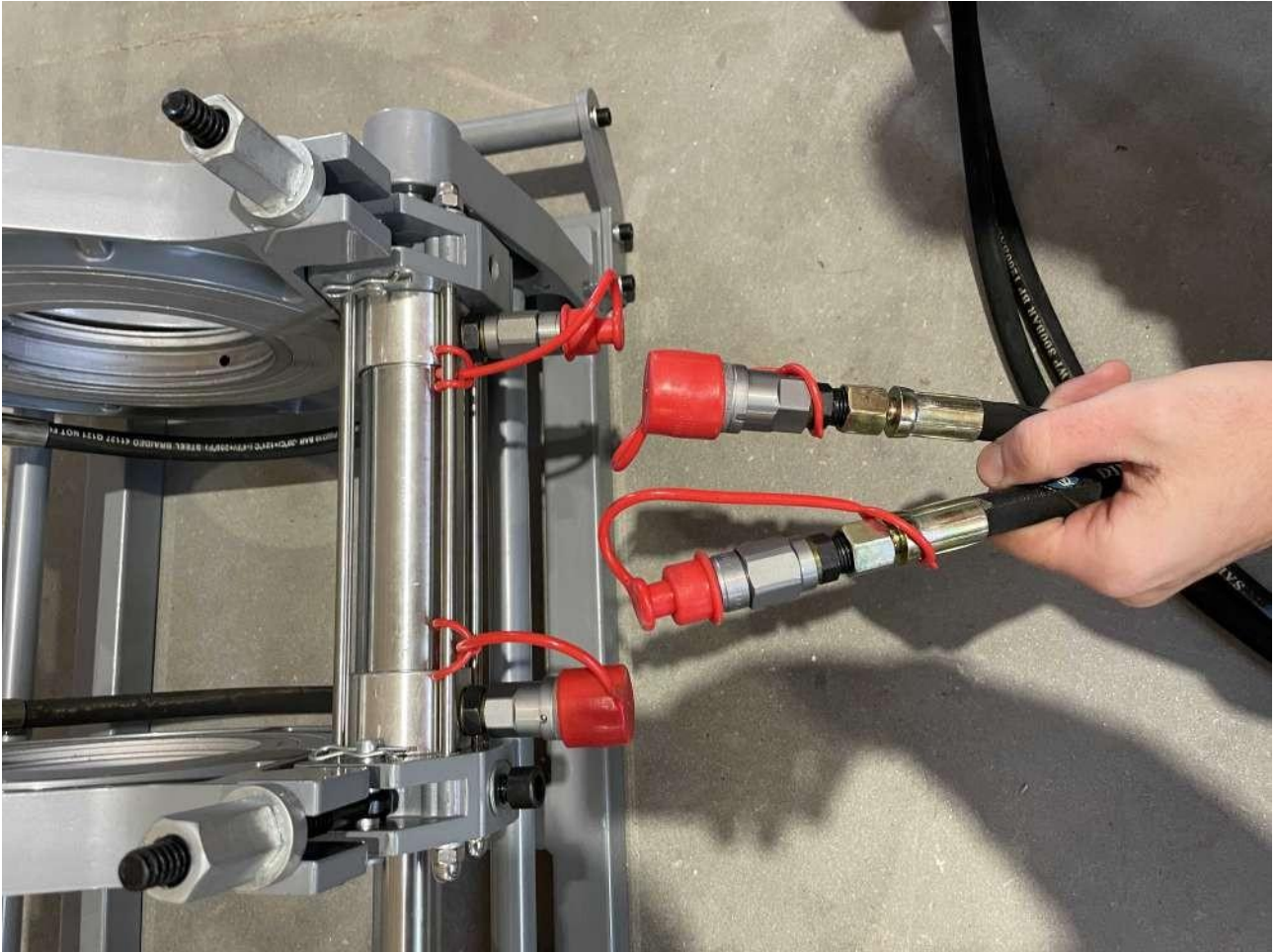
From the pouch you need to select 8 identical screws for attaching the reducers, which when screwed into the calipers, they will not protrude, and will stabilize the reductions before movement.



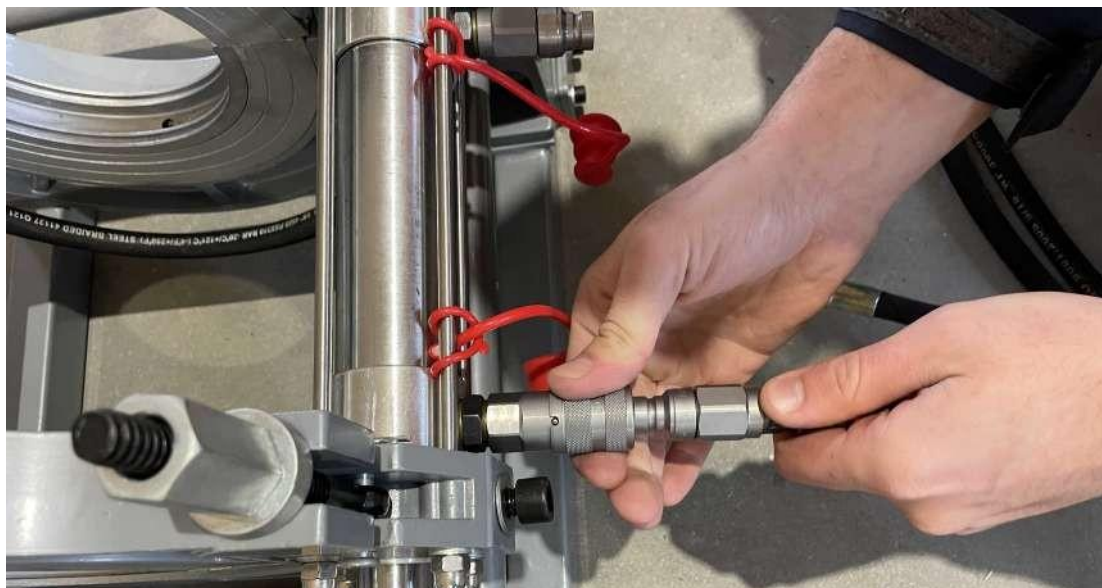
**Tightening the reduction
with the appropriate screw.**

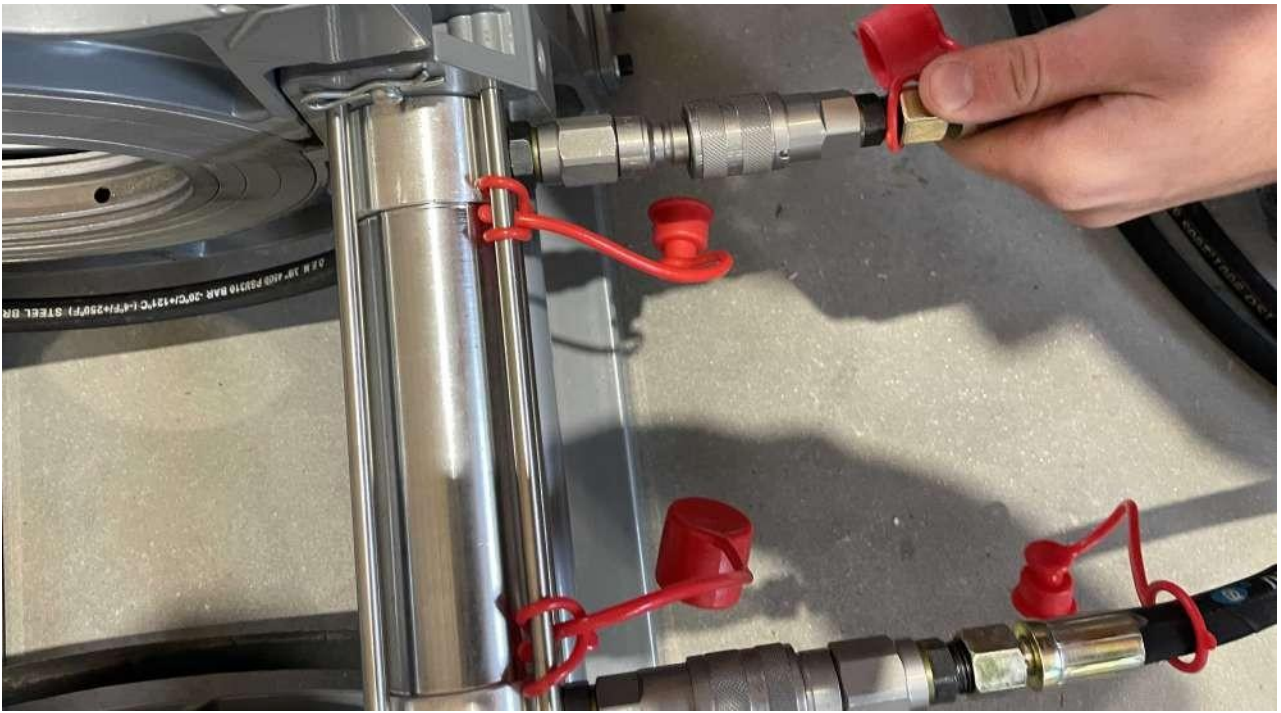
2. Connecting hydraulic hoses

REMARK! Remember to plug the cable ends with special attached plugs to prevent the ingress of dust and sand, which may result in improper operation of the actuators.



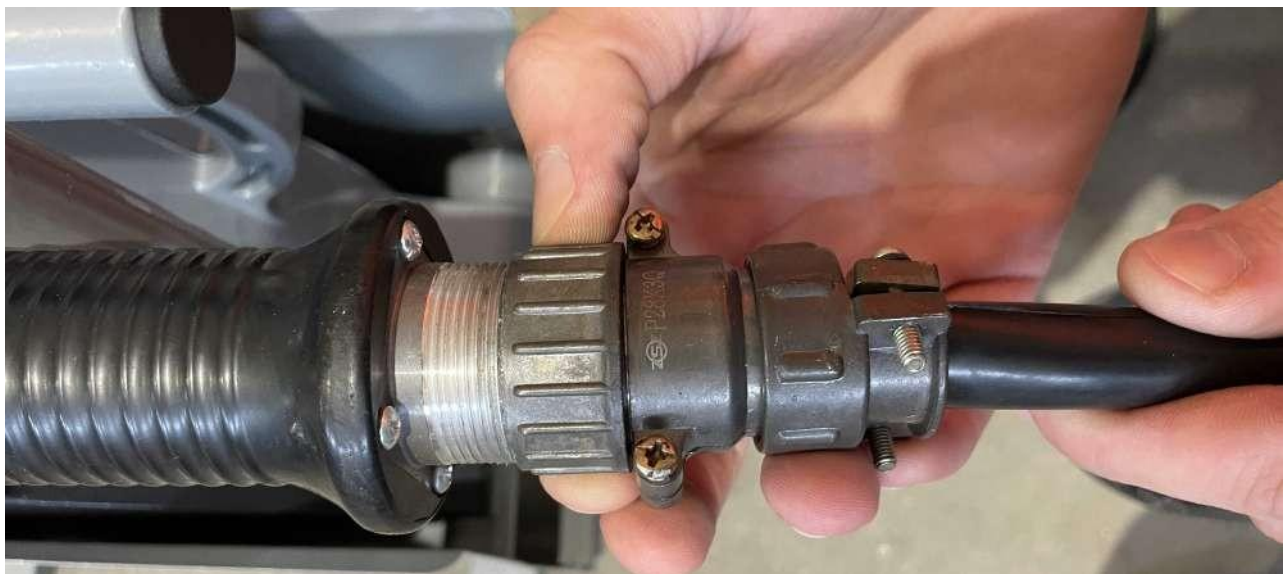
Terminals of opposite forms should be connected to each other – the inner and outer and the outer and the inner in the same way.





3. Connecting the wires of the cooktop

REMARK! When connecting the wires to the heating plate and the hydraulic station, pay attention to the direction of the plug. The end of the hose has a longitudinal groove that points to the top of the plug, while the terminals at the heating plate and the hydraulic station have a cuboid protruding from the outline of the interior directing the top of the plug.



Once the plugs are fitted, screw the whole thing together with a nut



4. Connecting the milling cutter hose to the hydraulic station



5. Connecting the power cord to a 230V power source



6. Setting the temperature of the cooktop.

The temperature highlighted in red is the current temperature of the hob, while the temperature highlighted in green is the set temperature. The hob is set to heat up to 220 degrees Celsius at the factory.

The temperature can be increased and decreased as needed.



Photograph 1:

Current Temperature:

14° Celsius

Applied temperature:

220°Celsius



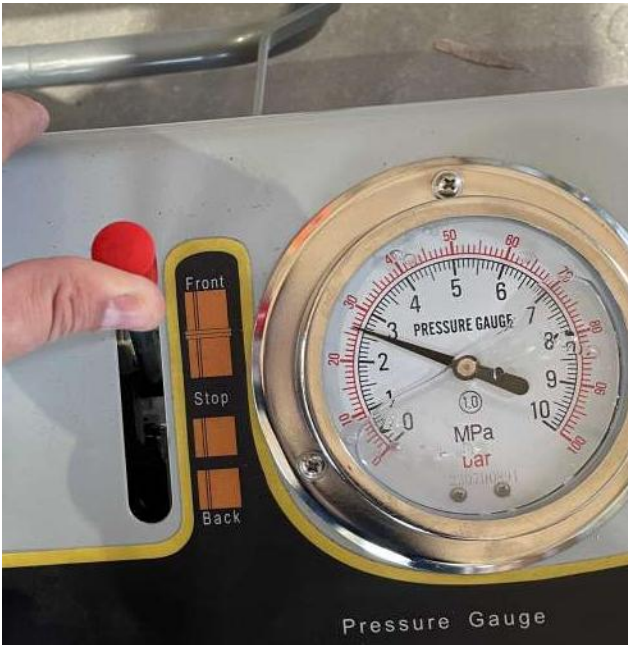
Photograph 2:
**Lower the temperature with
the arrow to
Bottom.**



Photograph 3:
**The temperature is
raised with an up
arrow.**

7. We check the correct operation of hydraulic cylinders.

Checking the work: **APPROACH**



sGetting Started :
DEPARTURE



8.Pipe Assembly

The pre-cleaned pipe should be placed flush on the clamps and screwed on. To screw the clamps, we use the ratchet included in the set.

REMARK! Pay attention to the length of the pipe left in the middle of the welding machine. If the ends of the pipes are too long on both sides, the milling machine will not fit, and if they are too short, the milling machine will not be able to align them or in the next stage the heating plate will not be in contact with the pipe, which will result in an incorrect weld.





9. Operating Pressure Setting

I Preparing for Setup

Before setting the operating pressure, check the positions of two valves: the pressure valve and the pressure control valve. The pressure valve should be closed (to allow oil to flow) and the pressure control valve should be open (so that the current flow pressure is 0).

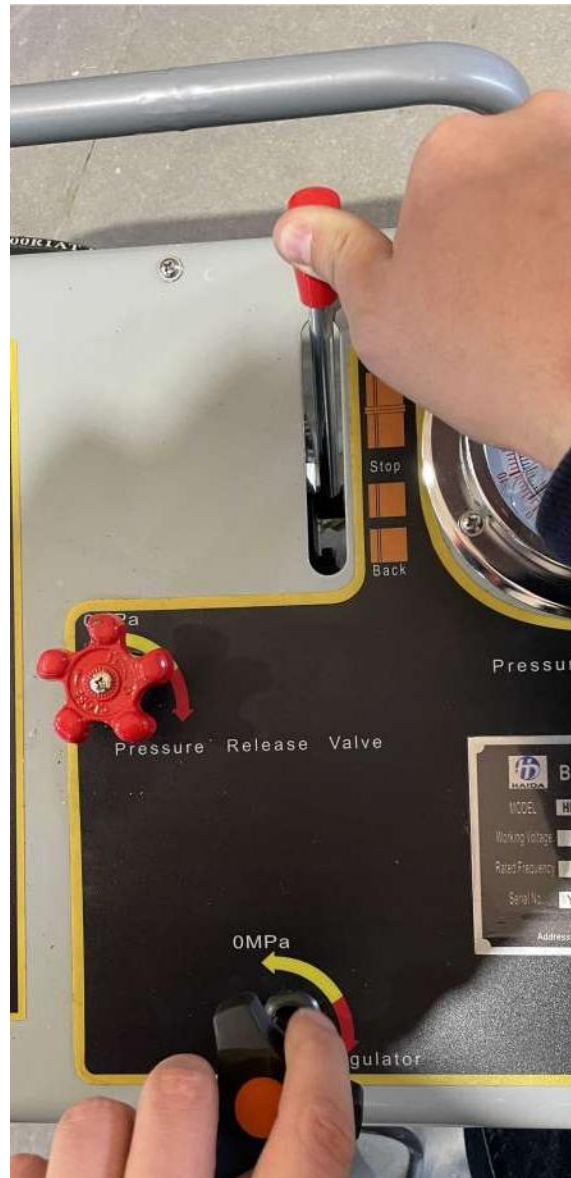


Twisted to the maximum right

Twisted all the way to the left

II Setting the Pressure

To set the operating pressure, simultaneously press the access lever and tighten the pressure control valve to increase the pressure until one pipe end smoothly travels to the other.





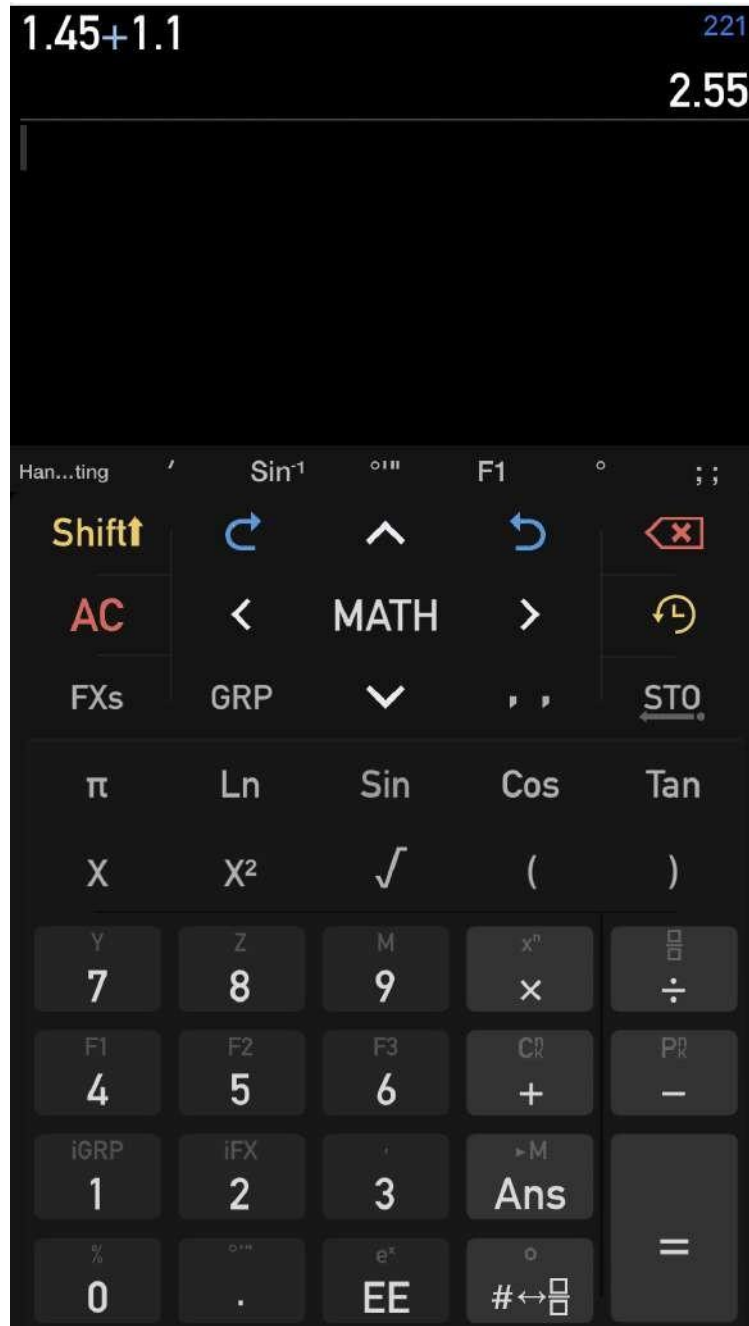
In our case, smooth access of the pipes to each other occurs at 1.1 MPa read from the pressure gauge.

D	S	SDR	T	t1		t2	t3	t4	t5	
				P1(Mpa)	A(mm)				P4(Mpa)	t5(min)
90	8.2	11	210~220	0.87	1.5	82	6	6	0.87	10
90	5.4	17	210~220	0.58	1.0	54	5	5	0.58	7
110	10	11	210~220	1.5	1.5	100	7	7	1.5	11
110	6.6	17	210~220	0.84	1.0	66	6	6	0.84	8
125	11.4	11	210~220	1.64	1.5	114	8	8	1.64	15
125	7.4	17	210~220	0.96	1.0	74	6	6	0.96	10
140	12.7	11	210~220	1.87	2.0	127	8	8	1.87	15
140	8.3	17	210~220	1.35	1.5	83	7	7	1.35	10
160	14.6	11	210~220	1.96	2.0	146	9	9	1.96	15
160	9.5	17	210~220	1.45	1.5	95	7	7	1.45	12
180	16.4	11	210~220	2.07	2.0	164	9	9	2.07	20
180	10.7	17	210~220	1.55	1.5	107	8	8	1.55	14
200	18.2	11	210~220	2.25	2.0	182	10	10	2.25	22
200	11.9	17	210~220	1.78	1.5	119	8	8	1.78	14
225	20.5	11	210~220	2.36	2.5	205	11	11	2.36	24
225	13.4	17	210~220	1.9	2.0	134	9	9	1.9	18
250	22.7	11	210~220	2.45	2.5	227	11	13	2.45	26
250	14.8	17	210~220	1.89	2.0	148	10	10	1.89	18

From the graph at the hydraulic station, we read the pressure P1 for a diameter of 160mm, a wall thickness of 9.5mm and SDR= 17

The pressure of P1 is 1.45 MPa

Then we add our initial pressure to the pressure P1, which we read from the pressure gauge when the pipes arrive.



The result of our sum is the pressure expressed in MPa, which should be set on our pressure gauge by further pushing the access and turning the valve regulating the pressure size until it reaches 2.55 MPa on the pressure gauge.

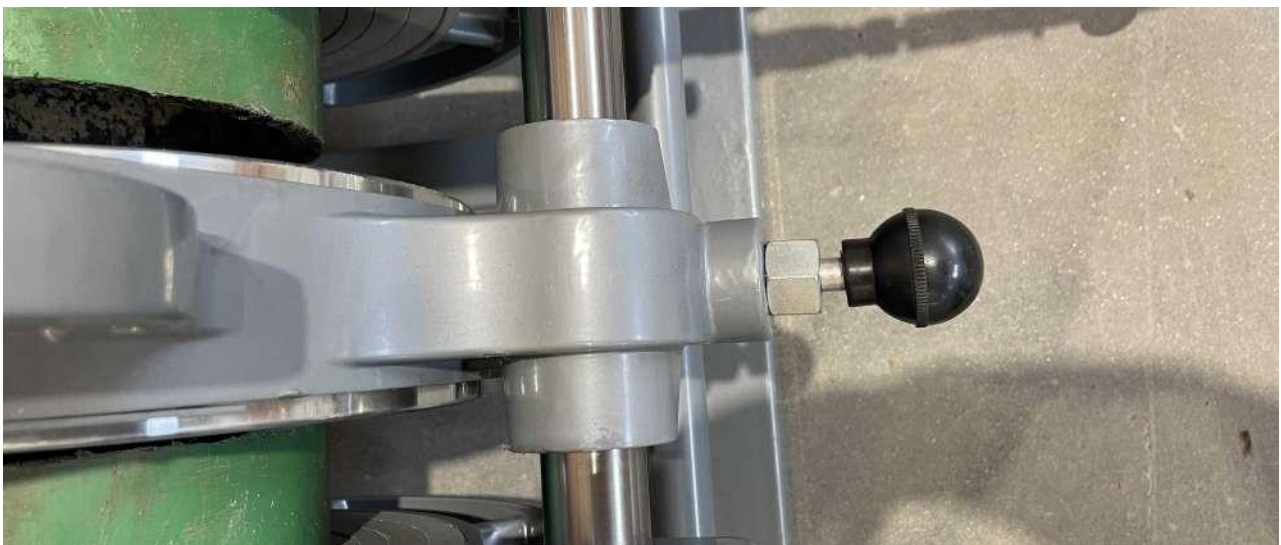


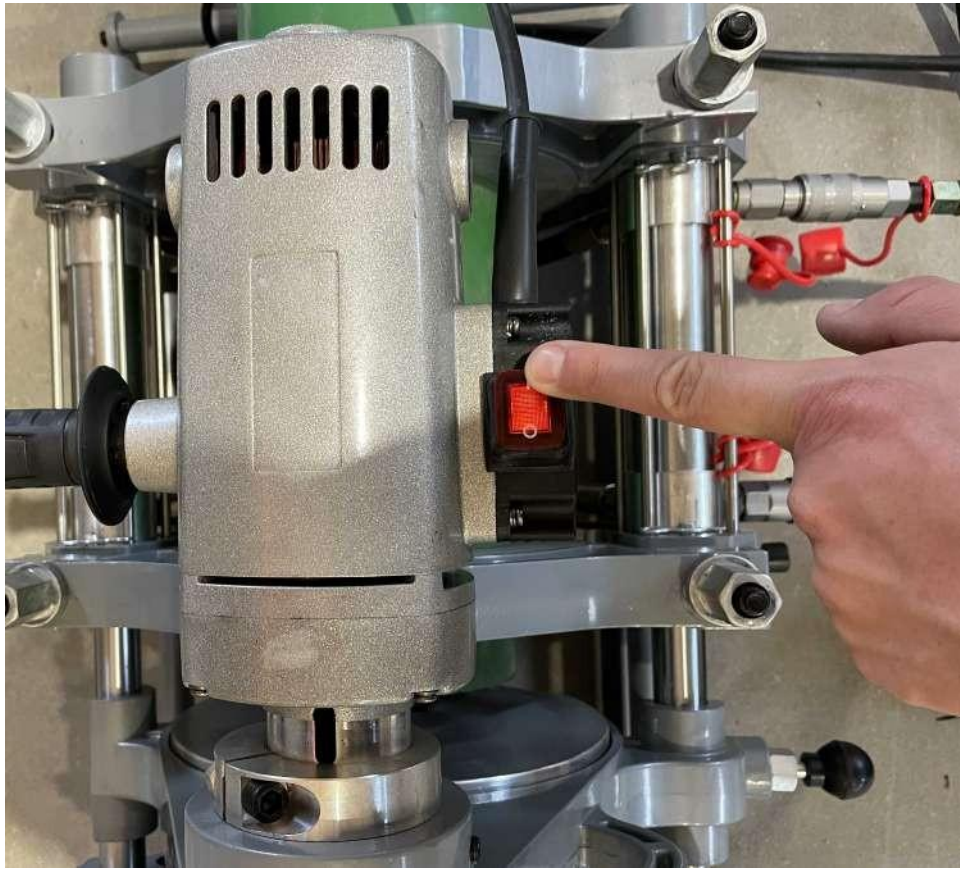
This is how we get the working pressure.

10. Pipe milling.

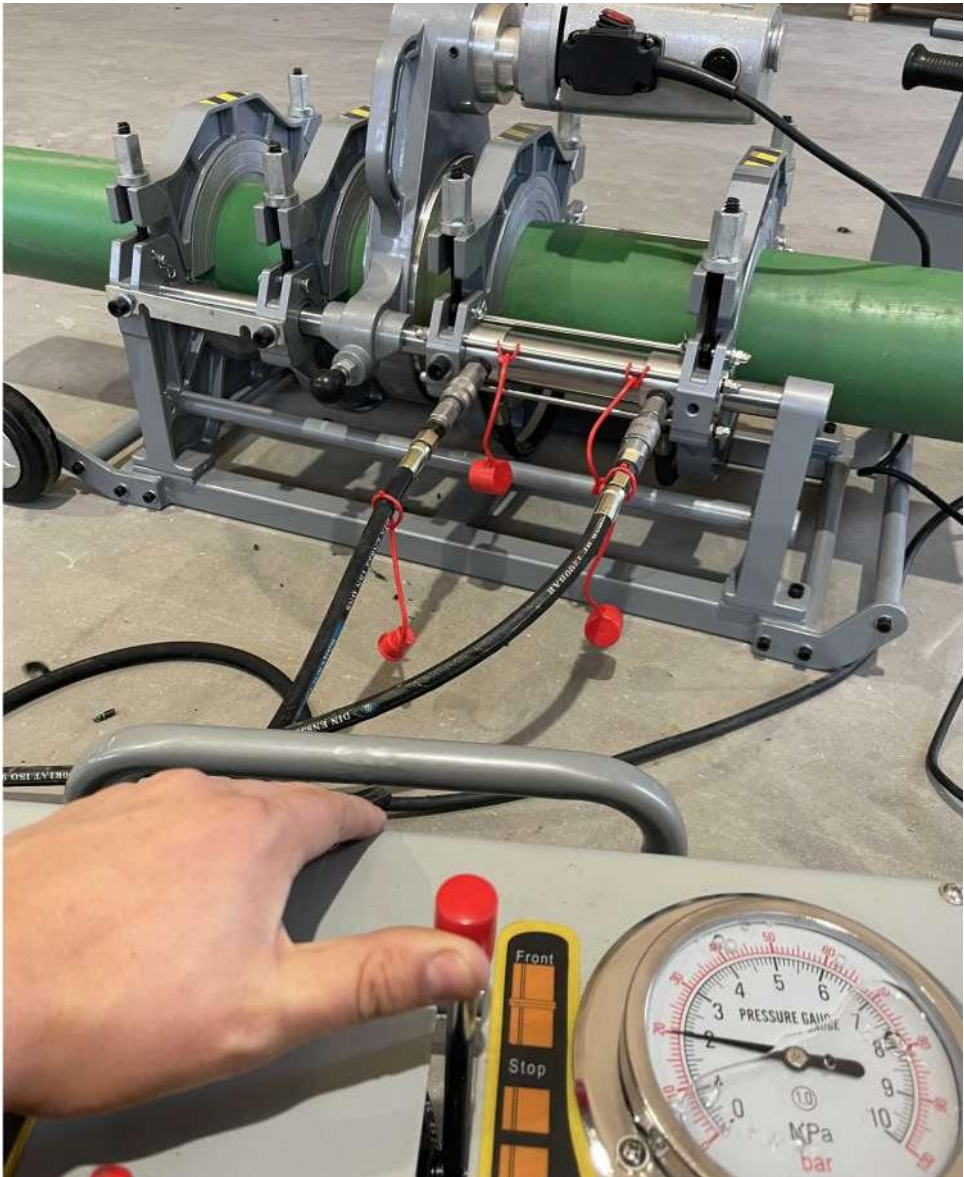
We place the milling cutter on the sledge.

REMARK! Make sure that the router clicks onto the sled guide. Otherwise, the milling machine will be able to jump out of the sled.





Switch on the milling cutter with the "I" position



Then you have to smoothly drive the cylinders to mill the pipes.

It is important to observe the "clippings" of the pipes. With proper milling, the "cuttings" should increase in length after a while and as one fragment they should be the result of the entire circumference of the pipe.

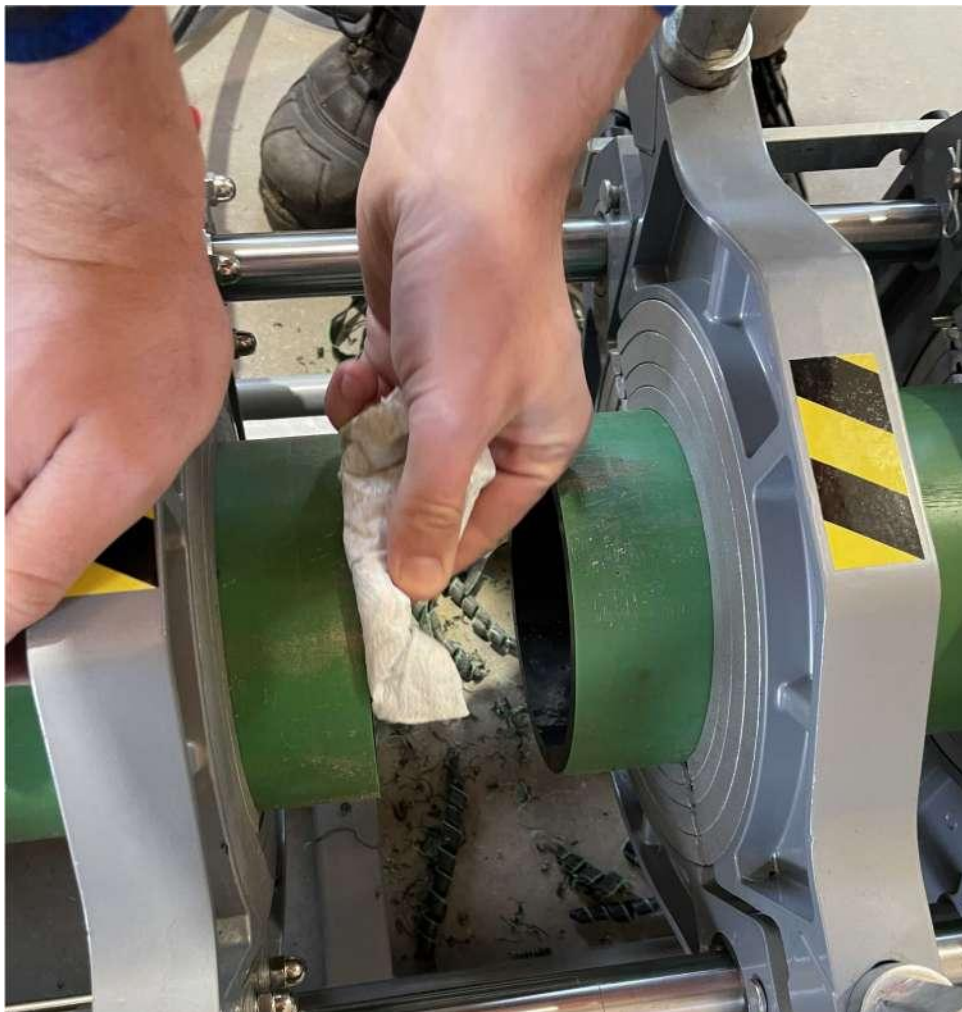
After observing the properly formed clippings, the pressure should be released with the pressure valve and driven away with the lever controlling the actuators.



A correct-looking trim with a length greater than the circumference of the pipe.

11. Degreasing pipes.

After proper milling, the pipe face and wall should be thoroughly degreased using ethyl alcohol-based materials.



12. Pipe welding

I

Check that the hob has reached the set temperature.



II

Position the heating plate on the guide.



III

Reach the hydraulic drive lever until the operating pressure is reached.



				P1	A	t2	t3	t4	P4	t5	
	160	9.5	17	210~220	1.45	1.5	95	7	7	1.45	12

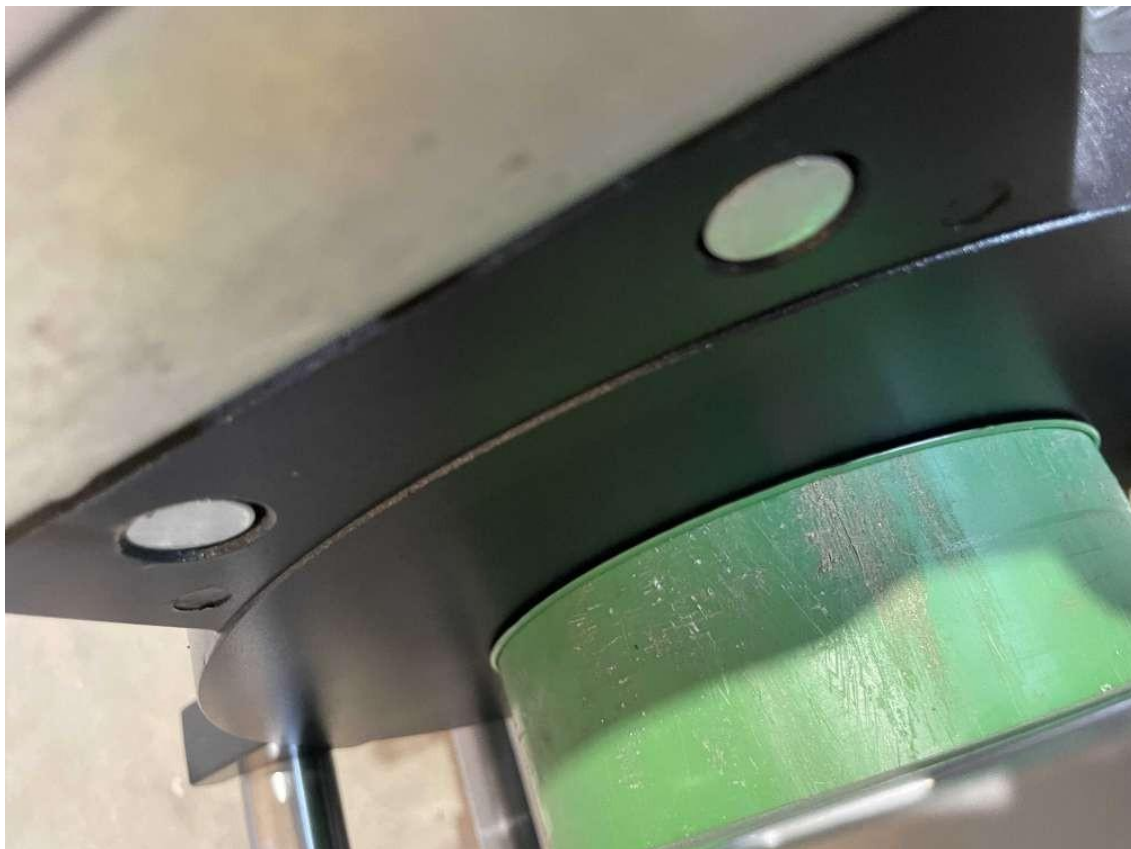
Going back to the chart, we are able to read:

A- pre-flashing width[mm]

t2- total time of butt heating of pipes [sec]

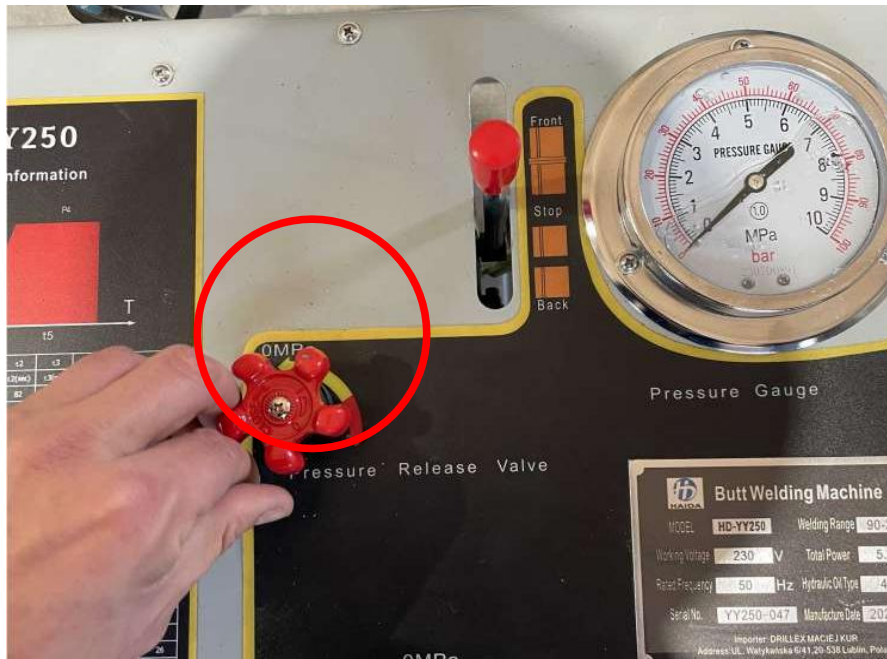
T3- Maximum time to remove the heating plate and slide the pipes down [SEC] T4- Maximum time to reach the working pressure [SEC]

P4- pressure at which the pipe will cool down + pre-pressure [MPa] t5- minimum cooling time of the pipe under pressure [min]



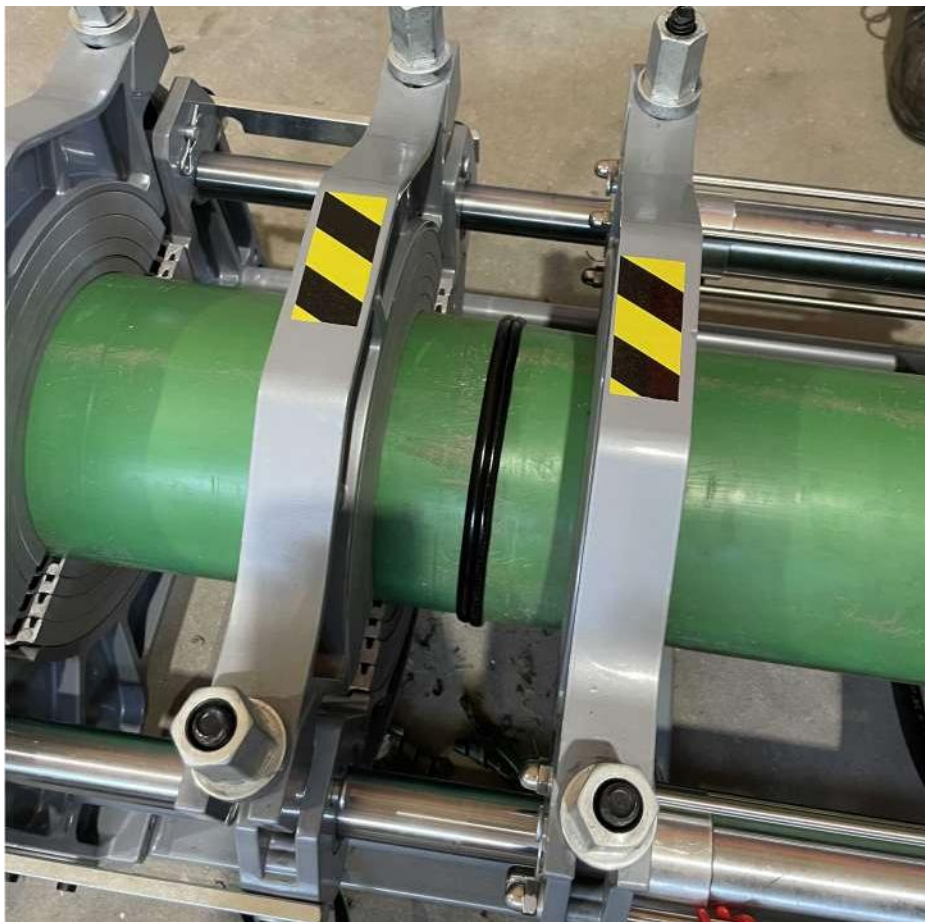
Pre-flashing

After the initial flash, we release the pressure from the system with a pressure valve until the zero pressure is reached, and then turn the valve to the right.



After 95 seconds, hydraulically drive the pipes apart, remove the heating plate immediately and drive the pipe face again until the working pressure is reached.





The width of the flashing of a properly made weld should correspond more or less to the thickness of the pipe.



The pipe should cool down at least according to t_5 at working pressure P_4 .