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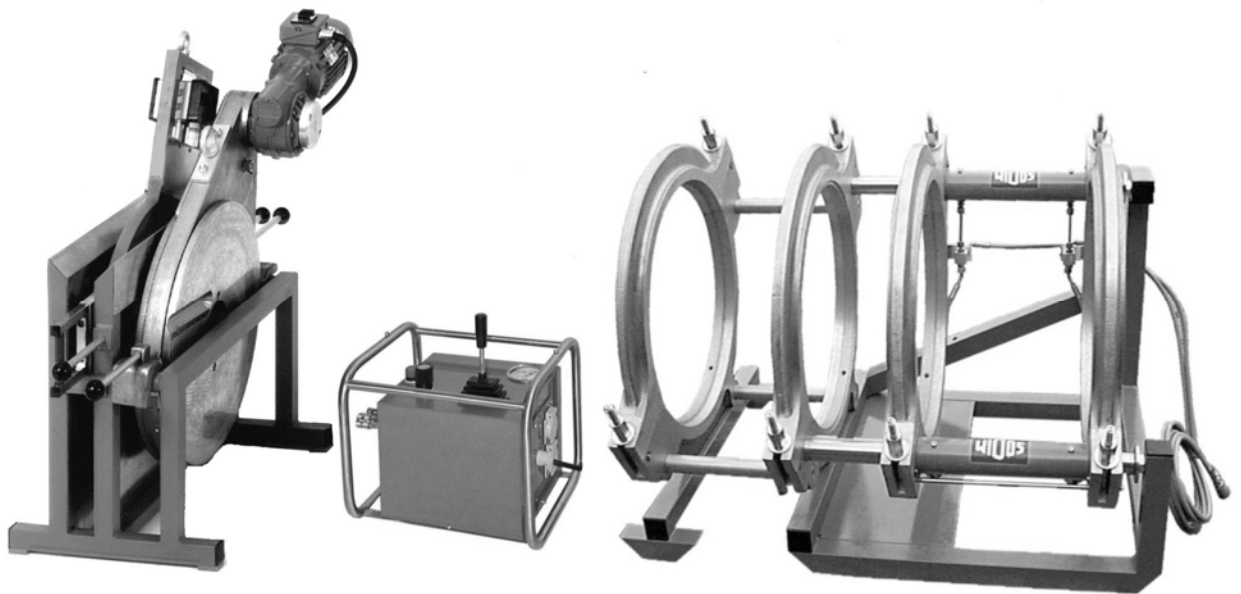
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# Working Instructions Translation

## Heating Element Butt Welding Machine

### WIDOS 5500



Keep for further use !

Model: Heating element butt welding machine  
Type: WIDOS 5500  
Serial number, year of construction: see type lable

**INSERTS OF CUSTOMER**

inventory-no.:

place of working:

**Order of Spare Parts and After Sales Service:**

**Address of Manufacturer**

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## Purpose of the Document

These working instructions give you information about all important questions which refer to the construction and the safe working of your machine.

Just as we are you are obliged to engage in this working instruction, as well.

Not only to run your machine economically but also to avoid damages and injuries.

Should questions arise, contact our advisers in the factory or in our subsidiary companies. We will help you with pleasure.

According to our interest to make our products and working instructions continuously better, we kindly ask you to inform us about problems and defects which occur in exercise.

Thank you.

## Design of the Working Instructions

This manual is arranged in chapters, which belong to the different using phases of the machine. Therefore the searched informations can be found easily.



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# 1. Description of product

This chapter gives important basic information about the product and its prescribed use. All technical details of the machine are put together as a general arrangement.

## 1.1. Usage and purpose-oriented use

The WIDOS 5500 has been designed for heating element butt welding of pipes and fittings out of PE, PP and PVDF with a diameter range of  $\varnothing = 200 - 500$ .

(Standard diameters : 200 / 225 / 250 / 280 / 315 / 355 / 400 / 450 / 500)

It is a machine for construction sites and particularly designed for the usage on-site, as well as in the workshop.

For this reason, the frame is kept small so that it can be used even under difficult conditions (e.g. ditch).

All use going beyond is not purpose-oriented.

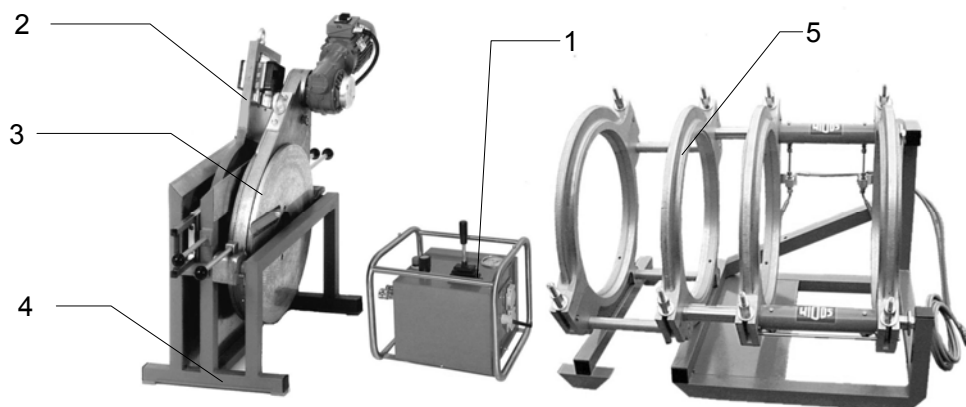
The manufacturer is not responsible for damages caused by misuse.

The risk is held only by the user.

Also part of the purpose oriented use is

- respecting all the indications of the working instructions and
- performing the inspection and maintenance works.

## 1.2. Machine overview



1	Hydraulic aggregat
2	Heating element
3	Planer
4	Protective box
5	Basic machine with clamping devices

### 1.3. Safety measures

In case of wrong use, wrong operation or wrong maintenance, the machine itself or products standing nearby can be damaged or destroyed.

Persons being in the endangered area may be injured.

Therefore these working instructions have to be thoroughly read and the corresponding safety regulations must be necessarily adhered to.

### 1.4. Conformity

The machine corresponds in its construction to the valid recommendations of the European community as well as to the according European standard specifications. The development, manufacturing and mounting of the machine were made very carefully.

### 1.5. Designation of the Product

The product is designated by two type labels which are attached at the aggregate and at the basic machine.

They contain the type, the serial number and the year of construction of the machine.

#### 1.5.1 Technical Data

##### 1.5.1.1 WIDOS 5500 General Data

Material which can be welded:	PP, PEHD, PE 100
Pipe diameter range:	$\varnothing_{\text{outside}} = 200 - 500$
Box for transport machine (LxWxH): Weight:	appr. 1390 x 1340 x 1250 mm appr. 109 kg
Box for transport insert (LxWxH): Weight:	appr. 1520 x 600 x 340 mm appr. 26 kg
Weight (without boxes):	280 kg
Wire cross section:	1,5 mm <sup>2</sup>
Fuse:	16 A
Emissions	<ul style="list-style-type: none"> <li>- Noises exceeding 80 dB (A) may occur; during planing it is obligatory to wear ear protection.</li> <li>- When using the named pipe materials and when welding below 260°C no toxicant damp arises.</li> </ul>

Ambient conditions in the welding area:	<ul style="list-style-type: none"> <li>- take care for cleanness (no dust at the welding area)</li> <li>- If secured by an appropriate measurement that allowed conditions for welding are indicated, it is possible to work in any outside temperature condition as far as the welder is not constrained in its manual skill.</li> <li>- avoid humidity, if necessary use a welding tent</li> <li>- avoid strong sun rays influence</li> <li>- protect from wind, shut the pipe ends</li> </ul>
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### 1.5.1.2 Hydraulic aggregate

Power:	0,56 Watt
Voltage:	230 V (+-10%)
Current:	4,7 A
Frequency:	50 Hz
Displacement of phase:	appr.18°
Tank	appr. 1 L
International Protection	IP 54
Electromotor and pump:	
Speed:	2720 rpm
Max. working pressure of pump:	about 130 bar
Working pressure, adjustable:	0-130 bar
Volum velocity :	3,5 L/min
Weight :	appr. 23 kg

### 1.5.1.3 Heating element

Power:	5,8 kW
Voltage:	400V (+-10%)
Current:	14,5 A (+-10%)
Frequency:	50 Hz
∅:	564 mm
Surface:	nonstick-coated
Attached elements:	<ul style="list-style-type: none"> <li>- Electric temperature control</li> <li>- Signal lamp</li> <li>- Connecting cable with plug</li> </ul>
Weight:	appr. 24,5 kg



1.5.1.4 Planer

Motor:	Three-phase alternating current motor
Power:	1.1 kW
Voltage:	400 V (+-10%)
Nominal current	3,5 A
Frequency:	50 Hz (+-10%)
Speed of motor:	appr. 140 rpm
Gear:	Gear transmission ratio: appr. 0,5
Speed of planer:	appr. 60 – 100 rpm
Attached elements:	- On/off switch - Connecting cable with plug
Weight:	appr. 100 kg

1.5.1.5 Basic frame

Reduction inserts, pipe supports	Optional dimensions
Material frame:	structural steel
Material reduction inserts:	aluminium
Weight:	120 kg
Cylinder-Ø:	50 mm
Piston rod-Ø:	40 mm
Length of stroke of cylinder:	200 mm
Max.force (F=P*A)	14140 N (at p= 100 bar)
Velocity of piston rod:	4,1 cm/s

1.5.1.6 Protection box

Weight protection box:	appr. 30 kg
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See spare parts list for article numbers and single parts

**1.6. Accessories:**

1	Tool bag for 10 parts
1 each	Allan key angulate, size 3 / 6 / 10
1 each	Allan key with T-grip, size 4 / 5 / 7 (for reduction inserts and adapter piece)
1	Socket spanner size 27
1	Torx srew driver T10
optional	Different reduction inserts; roller stands for the pipes; transformator 42V

## 2. Safety rules

The base for the safe handling and the fault-free operation of this machine is the knowledge of the basic safety indications and rules.

- These working instructions contain the most important indications to run the machine safely.
- The safety indications are to be followed by all persons working on the machine.

### 2.1. Explanation of the symbols and indications

In the working instructions, following denominations and signs are used for dangers:



This symbol means a possibly danger for the life and the health of persons.

- The disrespect of these indications may have heavy consequences for the health.



This symbol means a possible dangerous situation.

- The disrespect of these indications may cause slight injuries or damages on goods.



This symbol means a possible dangerous situation by moving parts of the machine.

- The disrespect of these indications may cause heavy crushings of parts of the body resp. damages of parts of the machine.



This symbol means a possible dangerous situation due to hot surfaces.

- The disrespect of these indications may conduct to heavy burns, respectively to self-ignition or even fire.



This symbol means a possible risk of injury by noises exceeding 80 dB(A).

- Ear protection is obligatory



This symbol gives important indications for the proper use of the machine.

- The disrespect of these indications may conduct to malfunctions and damages on the machine or on goods in the surrounding.



Under this symbol you get user tips and particularly useful information.

- It is a help for using all the functions on your machine in an optimal way and helps you to make the job easier.

**The regulations for the prevention of accidents are valid (UVV).**

## 2.2. Obligation of the owner

The owner is obliged only to let persons work at the machine, who

- know about basic safety and accident prevention rules and are instructed in the handling of the machine, as well as who
- have read and understood the safety chapter of this manual and certify this by their signature.

***The safety-conscious working of the staff has to be checked in regular intervals.***

## 2.3. Obligation of the worker

All persons who are to work at the machine are obliged before working:

- to follow the basic safety and accident protection rules.
- to have read and understood the safety chapter and the warnings in this manual and to confirm by their signature that they have well understood them.
- to inform themselves about the functions of the machine before using it.

## 2.4. Measures of organisation

- All equipment required for personal safety is to be provided by the owner.
- All available safety equipment is to be inspected regularly.

## 2.5. Information about safety precautions

- The working instructions have to be permanently kept at the place of use of the machine. They are to be at the operator's disposal at any time and without effort.
- In addition to the manual, the common valid and the local accident protection rules and regulations for the environmental protection must be available and followed.
- All safety and danger indications on the machine have to be in a clear readable condition.
- Every time the machine changes hands or is being rent to third persons, the working instructions are to be sent along with and their importance is to be emphasized.

## 2.6. Instructions for the staff

- Only skilled and trained persons are allowed to work at the machine.
- It must be clearly defined who is responsible for transport, mounting and dismounting, starting the operation, setting and tooling, operation, maintenance and inspection, repair and dismounting.
- A person who is being trained may only work at the machine under supervision of an experienced person.

## 2.7. Dangers while handling the machine

The machine WIDOS 5500 is constructed according to the latest technical standard and the acknowledged technical safety rules. However, dangers for the operator or other persons standing nearby may occur. Also material damages are possible.

The machine must only be used:

- according to the prescription
- in safety technical impeccable status

*Disturbances, which may affect the safety of the machine must be cleared immediately.*

## 2.8. Maintenance, inspection and repair



All maintenance and repair works have to be basically performed with the machine in off position.

During this the machine has to be secured against unauthorized switching on.



Prescribed maintenance and inspection works should be performed in time. The DVS gives the advice of inspection works after 1 year.

For machines with a specially high usage percentage the testing cycle should be shortened .

The works should be performed at the WIDOS GmbH company or by an authorized partner.

## 2.9. Dangers caused by electrical energy



Only skilled persons are allowed to work at electrical appliances!

- The electrical equipment of the machine has to be checked regularly. Loose connections and damaged cables have to be replaced immediately.
- If works at alive parts are necessary, a second person has to assist who can disconnect the machine from the mains if necessary.
- All electric tools (heating element, planer and aggregate) have to be protected from rain and dropping water (if need be use a welding tent).
- According to VDE 0100, the use on construction sites is only allowed with a power distributor with a FI-safety switch.

## 2.10. Dangers caused by the hydraulics



System parts and pressure hoses should be made pressureless before beginning of any repair works. Even if the machine is switched off, pressure may be in the hydraulic accumulator!

There is a danger of injuring the eyes by hydraulic oil squirting out.

- Damaged hydraulic hoses have to be immediately replaced.
- Make a visual inspection of the hydraulic hoses before each work beginning.
- The hydraulic oil is inedible !

## 2.11. Special dangers

### 2.11.1 Danger of catching clothes by the planer



You can cut yourself or even get bones broken !

- Only wear clothes tight to the body.
- Do not wear rings or jewellery during the work.
- If necessary, wear a hair-net.
- Always put the planer back into the reception box after and before each use.
- Transport the planer at the handle only. Do not touch the surfaces.
- Switch the planer on only for usage.
- If the planing pressure is too high, there is the danger that the planer tilts during planing. For that reason do not press the pipe ends stronger than necessary against the planer. If necessary, hold the planer firmly.

### 2.11.2 Danger of being burnt by heating element, reception box and welding area



You can burn yourself, inflammable materials can be ignited.

The heating element temperature is heated up to more than 250°C !

- Do not touch the surfaces of the heating element.
- Do not leave the heating element unsupervised.
- Take enough safety distance to inflammable materials.
- Do wear safety gloves.
- Always put the heating element back into the reception box after and before each use.
- Transport the heating element at the handle only.

### 2.11.3 Danger of stumbling over electric / hydraulic wires

- Make sure that no person has to step over the wires.
- Lay the wires in such a way that the danger is kept to a minimum.

### 2.11.4 Risk of injury by noises



Noises exceeding 80 dB (A) may occur; during planing it is obligatory to wear ear protection!

### 2.11.5 Danger of squeezing by clamping devices and guideways



There is a danger of serious injuries: on the one hand between the inner clamping devices and on the other hand between the outer clamping device and the end of the guideway.

- Do not stand or put hands between clamped pipe ends.
- Do not stand or put hands between the inner clamping tools with not yet clamped pipes.
- Do not block opening and closing of the machine slides.

### 2.12. Structural modifications on the machine

- No modifications, extensions or reconstructions may be made on the machine without permission of the manufacturer.
- Machine parts which are not in a perfect condition are to be replaced immediately.
- Only use original **WIDOS** spare and wear parts.
- In case of purchase orders please always state the **machine number** !

### 2.13. Cleaning the machine

*The used materials and tissues are to be handled and disposed of properly, especially:*

- when cleaning with solvents
- when lubricating with oil and grease

### 2.14. Warranty and liability

Fundamentally our "General Sales and Delivery Conditions" are valid.

They are at the owner's disposal latest when signing the contract.

Guarantee and liability demands referring to personal injuries or damages on objects are excluded if they are caused by one or several of the following reasons:

- not using the machine according to the prescriptions
- inexpert transport, mounting, starting, operating, and maintenance of the machine
- running the machine with defective or not orderly mounted safety appliances
- ignoring the information given in this manual
- structural modifications on the machine without permission
- unsatisfactory checking of parts of the machine, which are worn out
- repairs performed in an inexpert way
- In case of catastrophes and force majeure

### 3. Functional description

*Basically, the international and national process guidelines are to be followed!*

The plastic pipes are clamped in the clamping devices. Then the front sides of the pipes are cut plane and parallel by means of the **planer** and the misalignment of the pipes is checked.

The cleaned and heated heating element is inserted and the pipes are pressed against the heating element under defined adjusting pressure. This process is called "**adjusting**".

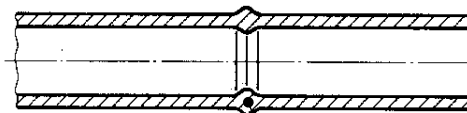
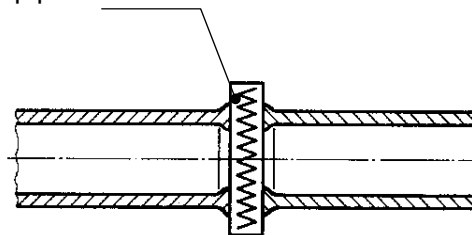
After the prescribed bead height being reached, pressure is reduced, the **heating time** begins. The function of this time is to heat up the pipe ends.

After expiration of the heating time, the slides are opened, the heating element is removed quickly and the pipes are driven together again. The time gap from the removal of the heating element to joining the pipes is called **change over time**.

The pipes are joined under prescribed welding pressure and then cool down under pressure (**cooling time**).

The welded joint can be unclamped, the welding process is finished.

Heating element heats the pipes  
up to welding temperature



Finished welding with  
internal and external bead

## 4. Operating and Indicating Elements

### 4.1. Elements on the Aggregate

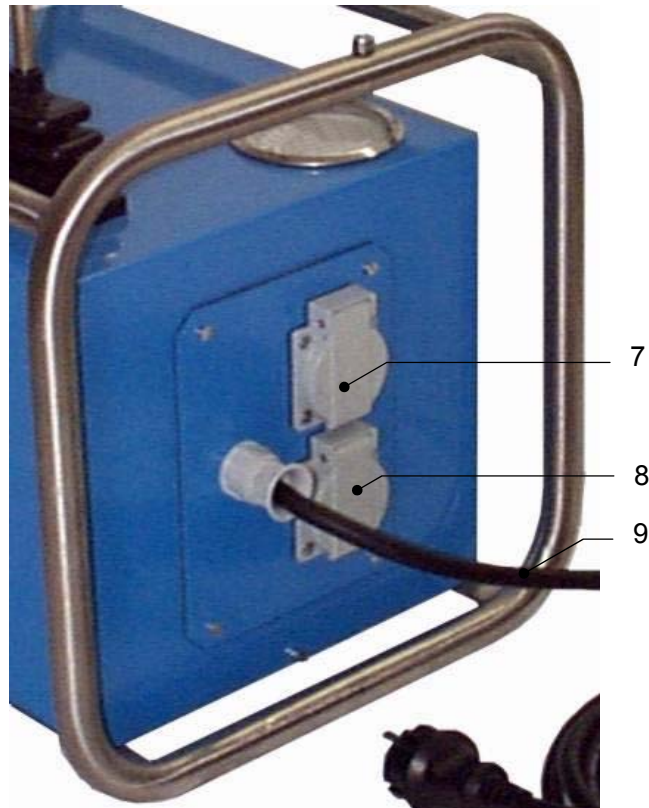


No.	Name	Function
1	Screw with oil dipstick	- checking the oil level - oil filler neck
2	Hydraulic connection for opening the slides	- Non-dropping quick-acting coupling
3	Hydraulic connection for closing the slides	- Non-dropping quick-acting coupling
4	Setting screw for pressure relief valve	- Limitation of the pressure to the desired value.
5	Valve lever	Opening the slides. There are 4 different positions: - <b>to the left side</b> : slides close. - <b>in the middle</b> (usual position): the pressure which is currently achieved is kept (also by means of the built-in hydraulic accumulator) - <b>slightly to the right side</b> (position pressureless): a possibly existing pressure is released without moving the slides. Due to the hydraulic accumulator, it takes about 10 s until the pressure is completely released. - <b>to the right side</b> : slides open
6	Pressure gauge	Digital display of the hydraulic pressure

Planer and heating element have to be connected to a power distributor for building sites (400 Volt).

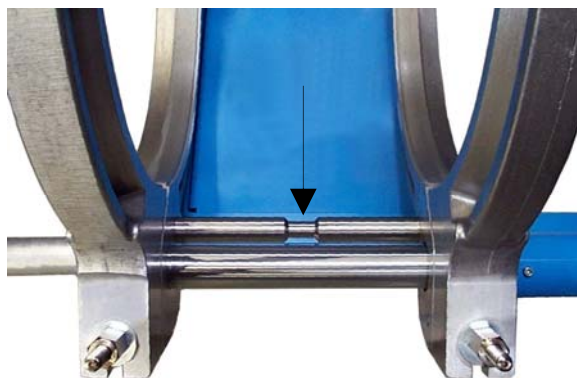


### 4.2. Elements on the Side of the Aggregate



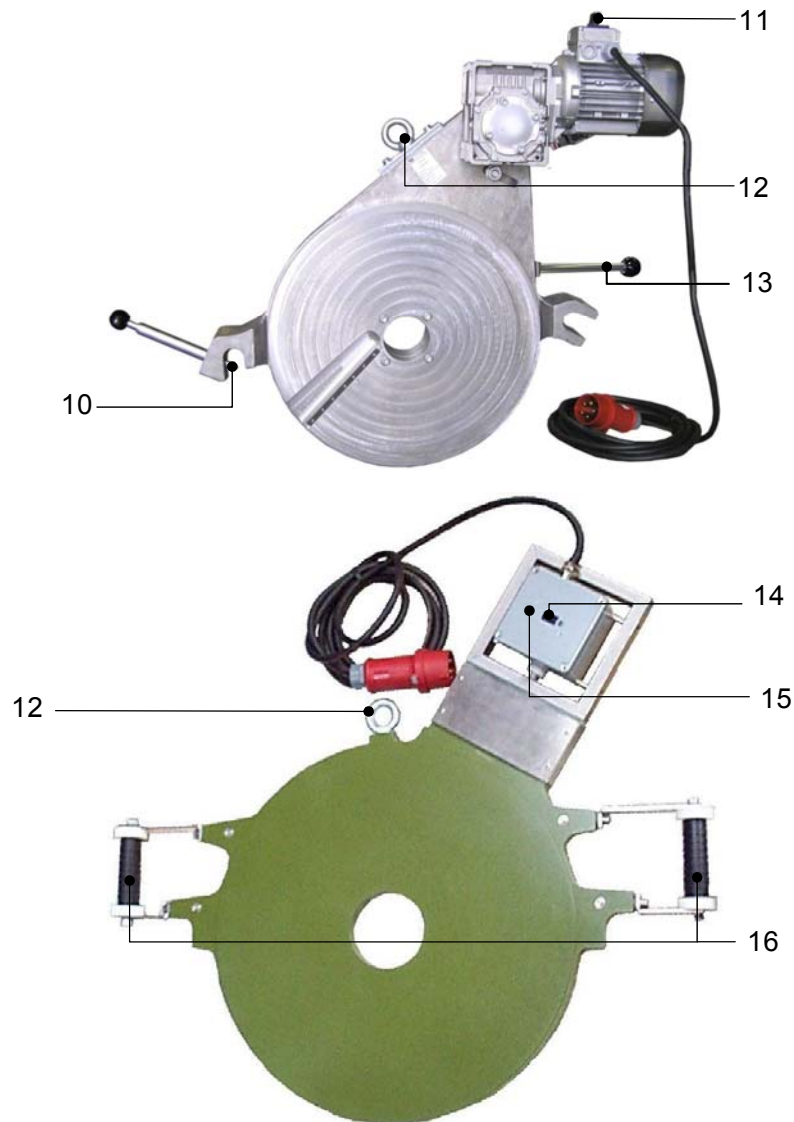
No.	Denomination	Function
7	Plug socket 230 V / 50 Hz	Possibility for connecting
8	Plug socket 230 V / 50 Hz	Possibility for connecting
9	Mains cable 230 V / 50Hz	Power supply

### 4.3. Separating Device for Heating Element



There is a tear-off bar mounted between the movable and the fixed clamping shells on the basic machine. It prevents the heating element from sticking to the heated-up pipe ends. When inserting the heating element take care that it lies in the zone of the throat of the tear-off bar (see arrow).

#### 4.4. Elements at the Heating Element and the Planer



No.	Name	Function
10	Locking device	- Locking the planer into basic machine by planing
11	On/off switch for planer	- For switching on/off the planer. - Switch off the planer after use.
12	Lifting screw	- For lifting/inserting the heating element / planer with the lift-off device.
13	Lever	- For holding the planer when lifting / removing. - Lever can be screwed off.
14	Thermostat	- For setting the required temperature.
15	Display of temperature	- Digital display of set heating element temperature. Three different displays are possible. - For meaning of the displays please refer to chapter 5.4, Setting the Heating Element Temperature
16	Grip	- For holding the heating element when lifting / removing.

## 5. Starting and Operating

The instructions of this chapter are supposed to initiate in the operation of the machine and lead during the appropriate starting of the machine.

This includes:

- the safe operation of the machine
- using all the possible options of the machine
- economic operation of the machine

### 5.1. Safety Indications



The machine may only be operated by initiated and authorized persons.

For the qualification, a plastic welding exam can be taken according to DVS and DVGW.

In situations of danger for persons and the machine, the mains plug has to be unplugged immediately.

In case of power failure, there may still be pressure in the hydraulic system. Therefore release pressure if need be.

After completion of the welding work and during breaks the machine has to be switched off. Further take care that no unauthorized person has access.

Protect the machine from wetness and humidity !

According to VDE 0100, the use on construction sites is only allowed with a power distributor with a FI-security protective switch.



Check the oil level of the hydraulic system before each starting of the control unit in order to avoid damages on the pump. The oil level must be between the two marks at the oil dipstick.

If necessary, add hydraulic oil of the quality HLPD 32.



The heating element surfaces must be clean, especially non greasy, therefore they need to be cleaned shortly before each welding or in case of dirtiness by means of a **fibre-free paper** and a cleaning agent (e.g. PE cleaner or pipe cleaning tissues which are available at the WIDOS company).

The anti-adhesive coating of the heating element must remain undamaged in the working area.



Take care that all hydraulic and electric connections are connected.



Make sure that pump and planer are connected in a way that they turn in right-hand direction.

- Connect planer and heating element to a power distributor for building sites with 400 V.
- Take into account the surrounding conditions:
  - The welding may not be performed under direct sun rays influence.
  - Use a welding umbrella if necessary.
- If the surrounding temperature is under 5°C / 41°F, measures have to be taken:
  - Use a welding tent or preheat the pipe ends if necessary.
- In addition, take measures against rain, wind and dust.

## 5.2. Connection of Hydraulic Aggregate with Basic Machine

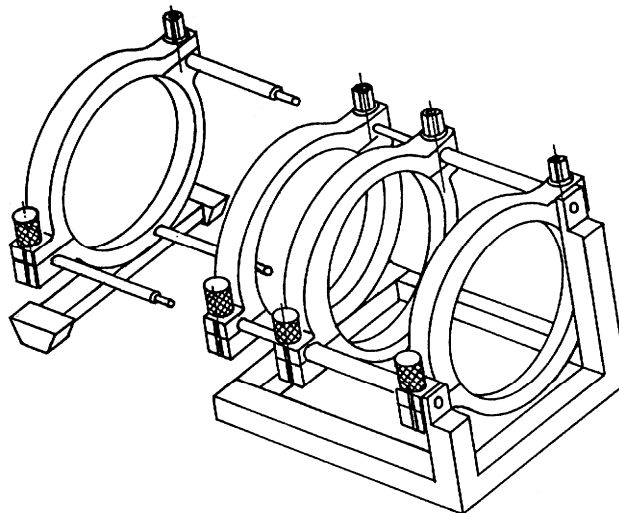
- Connect the aggregate to the mains supply (230 V/50 Hz).
- Put the hydraulic hoses of the basic machine into the quick-acting couplings of the hydraulic aggregate.



Lay the hydraulic and electric wires carefully (danger of stumbling)

## 5.3. Replacing the Reduction Inserts

- Unscrew the mounted reduction inserts by means of the provided Allan key.
- Screw the reduction inserts with the corresponding diameter into the clamping devices. Pipes with OD 550 have to be clamped in the basic clamping devices.
- If necessary (e.g. for T-pieces) the outer fixed clamping device can be dismantled by unscrewing the three hexagon socket screws.

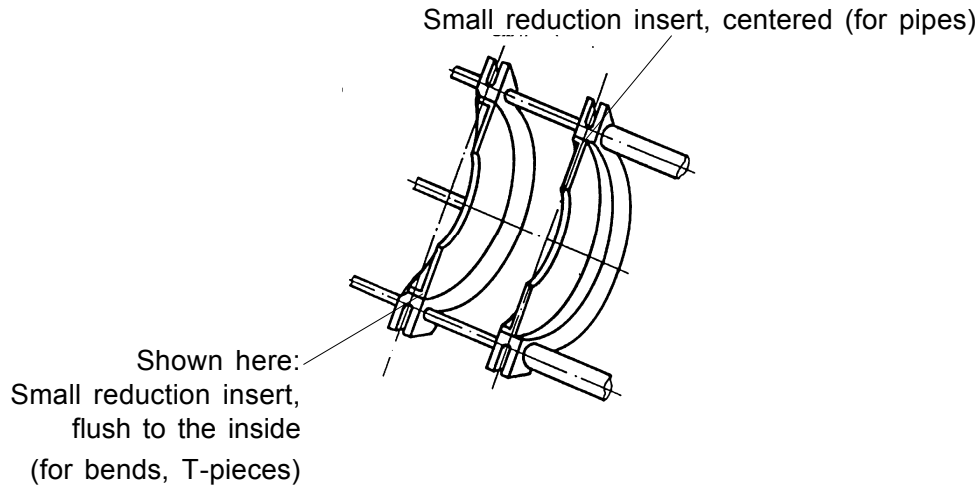


Dismantling of the outer fixed clamping device

### 5.3.1 Using Small and Large Reduction Inserts

#### Small Reduction Inserts:

- Pipe fittings often have only a short straight surface area on which they can be clamped.
- Fittings mostly need to be clamped in the inner clamping devices with the small reduction inserts.
- When fittings are to be welded (bends, T-pieces etc.), the inner small reduction insert can also be used flush to the inside or to the outside.

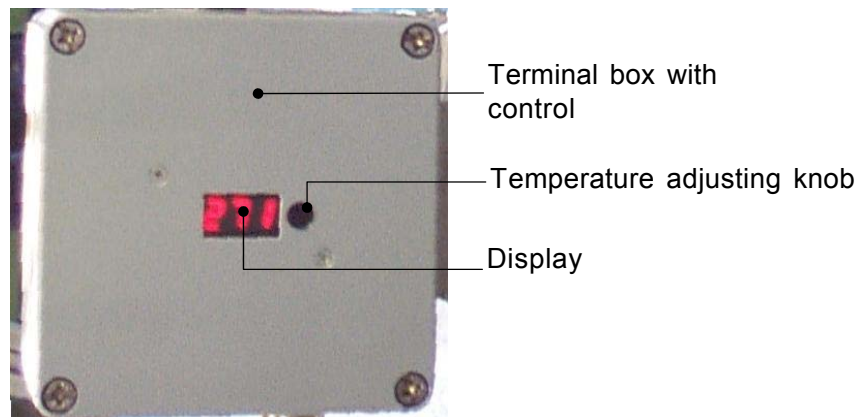


### Large Reduction Inserts

- They are mainly used for a good tightening and are generally mounted on the inner clamping devices.
- Super large reduction inserts have a specially high guidance quality and are mainly used during the welding of fittings with long legs which can only be clamped with a single clamping tool.

## 5.4. Setting the Heating Element Temperature

As soon as the heating element is connected to the mains (400 V / 16A), it starts heating up to the desired temperature. Set the temperature with a screw driver at the adjusting knob.



2 . 2 . 0

Display: DESIRED temperature + blinking points between the numbers.  
The heating element is being heated up, the desired temperature is not yet reached. This display disappears after short time, followed by three lines.

- - -

Display: Three lines.  
The heating element is being heated up, the desired temperature is not yet reached.

1 8 0

Display: ACTUAL temperature (without blinking points).  
Appears as soon as a temperature of > 170 °C / 338 °F is reached and rises continuously to DESIRED temperature. The desired temperature is maintained by a certain pulse-position ratio.

## 5.5. Welding Process

The respectively valid welding prescriptions (ISO / CEN / DVS...) are to be basically followed.



There is the danger of serious bruising.

On the one hand between the inner clamping devices, on the other hand between the outer clamping device and the end of the guide bar.

- Do wear safety gloves as a protection against burning!
- A stop-watch must be available for recording the actual times for heating and cooling.
- A welding table must be available from which the parameters for the pipe dimensions to be welded prescribed by the welding prescriptions may be taken.
- Connect the heating element and set the heating element temperature (see chapter: 5.4).
- The heating element surfaces must be clean, especially non greasy, therefore they need to be cleaned shortly before each welding or in case of dirtiness by means of a **fibre-free paper** and a cleaning agent (e.g. PE cleaner or pipe cleaning tissues which are available at the WIDOS company).  
The anti-adhesive coating of the heating element must remain undamaged in the working area.
- Screw in the reduction inserts according to the outside diameter of the pipes to be welded.
- Lay the pipes to be welded into the clamping devices, tighten firmly the clamping nuts and align the pipes with respect to each other. In case of long pipe ends, use WIDOS roller stands for that purpose.
- Close the slides, valve lever on: "FORWARDS", thereby reading the **movement pressure** on the manometer. The movement pressure is displayed exactly when the slide with the clamped pipe passes over into its movement. Subsequently, open the slides again, valve lever on: "BACKWARDS", such that the planer fits there between.
- Insert the planer between the pipe ends, lock it in front and switch it on.



There is the danger that the planer pulls in clothes!

Do not hold the planer on its front sides in any case.

If the planing pressure is too high, there is the danger that the planer tilts during planing. If necessary, reduce planing pressure.



Noises exceeding 80 dB (A) may occur; during planing it is obligatory to wear ear protection!

- Move the pipe ends towards one another by means of the valve lever on: "FORWARDS" and plane same with a planing pressure between 1 and 15 bar above the movement pressure.  
Planing must be carried out until a revolving cutting has been formed on both sides.
- Open the slides again, valve lever on "BACKWARDS", switch off planer motor, unlock planer, remove it and put it into the protection box.
- Remove the produced cuttings without contacting the worked surfaces
- Close slides, valve lever on: „FORWARDS“.

- Check pipe mismatch and gap on the joining pipe ends. According to DVS 2207, the mismatch on the pipe outer side must not exceed  $0.1 \times$  pipe wall thickness, the admissible gap must not exceed 0.5 mm. The mismatch compensation is carried out by further tightening or releasing of the clamping nuts. In case mismatch compensation was carried out, planing must be repeated afterwards.
- The adjustment pressure for the pipe dimension to be welded can be gathered from the welding table. Add the movement pressure.  
Set the resulting pressure value at the pressure relief valve and check it by actuating the valve lever.
- Open slides again slightly, valve lever on: "BACKWARDS".
- Gather heating time, maximum change over time, cooling time and bead height for the pipe dimension to be welded from the table.
- Move the heating element, which has been cleaned and brought to desired temperature, between the pipes, take care that it lies in the zone of the throat of the tear-off bar (see Chapter: 4.3).
- Close slides smoothly to the set adjustment pressure, valve lever on: "FORWARDS".  
When the prescribed revolving bead height is reached, reduce pressure. For this purpose, move the valve lever to position "Pressure release" until the desired heating pressure is built up (heating pressure = approx. 10% of the adjustment pressure).
- The heating up time starts now. Press the stop-watch and compare the actual time with the nominal time taken from the table.
- After expiration of the heating time, open the slide, valve lever on: "BACKWARDS" remove the heating element as quickly as possible, put it into the protection box and close the slide smoothly, valve lever on "FORWARDS".  
The maximum time frame for this process is predetermined by the value for the change over time taken from the table.
- When the welding pressure is built up, press the stop-watch and keep the control lever for approximately 10s on position „FORWARDS“ so that the hydraulic accumulator can be filled. During the cooling time re-adjust pressure, if necessary (the pressure for cooling is the same as the set adjustment pressure).
- After expiration of the cooling time, release pressure, valve lever on: "Pressure release", open the clamping devices and remove the welded part.
- Open the slide afterwards, valve lever on: "BACKWARDS".

The welding process is finished.

## 6. Welding Log and Tables





# Table for PE

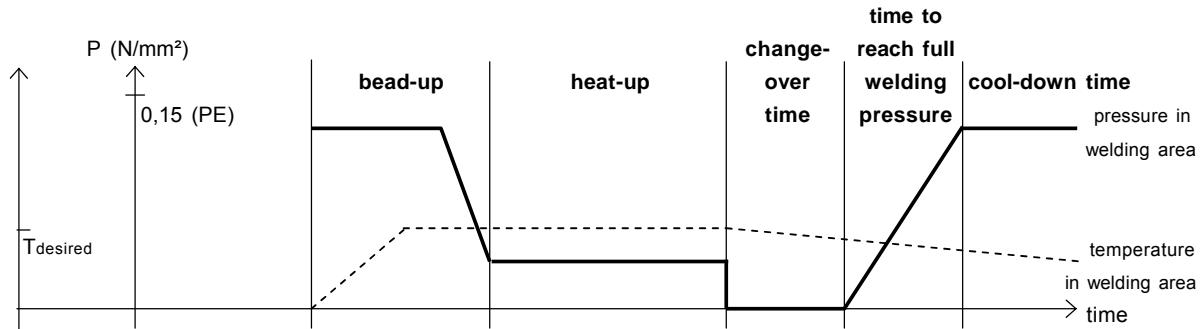
Foundation: 2207, 2208 DIN 16932 German association for welding  
 Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

1 bar on manometer: **141 N**

**PE 80** The value for heating element temperature is between 200° C - 220° C.  
 The **smaller** the pipe wall the **higher** the temperature.

**PE 100** The standard value for heating element temperature is 220° C.  
 Increase the change-over time and the welding pressure time at PE 100 as fast as possible !

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min] ①
<b>200</b>	4,9	41,0	4	1,0	49	5	5	4	7
	6,2	33,0	5	1,0	62	6	6	5	9
	7,7	26,0	5	1,5	77	6	6	5	11
	9,6	21,0	7	1,5	96	7	7	7	13
	11,4	17,6	8	1,5	114	8	8	8	15
	11,9	17,0	8	1,5	119	8	8	8	16
	14,7	13,6	10	2,0	147	9	9	10	19
	18,2	11,0	12	2,0	182	10	11	12	23
	22,4	9,0	14	2,5	224	11	12	14	28
27,4	7,4	16	3,0	274	13	15	16	34	
<b>225</b>	5,5	41	5	1,0	55	5	5	5	8
	6,9	33	6	1,0	69	6	6	6	10
	8,6	26,0	7	1,5	86	7	7	7	12
	10,8	21,0	8	1,5	108	8	8	8	15
	12,8	17,6	10	2,0	128	8	8	10	17
	13,4	17	10	2,0	134	8	9	10	18
	16,6	13,6	12	2,0	166	9	10	12	21
	20,5	11,0	15	2,5	205	10	12	15	26
	25,2	9,0	17	2,5	252	12	14	17	31
30,8	7,4	20	3,0	308	14	16	20	38	
<b>250</b>	6,2	41	6	1,0	62	6	6	6	9
	7,7	33	7	1,5	77	6	6	7	11
	9,6	26	8	1,5	96	7	7	8	13
	11,9	21,0	10	1,5	119	8	8	10	16
	14,2	17,6	12	2,0	142	9	9	12	19
	14,8	17,0	12	2,0	148	9	9	12	19
	18,4	13,6	15	2,0	184	10	11	15	23
	22,7	11,0	18	2,5	227	11	13	18	28
	27,9	9,0	21	3,0	279	13	15	21	34
34,2	7,4	25	3,0	342	15	18	25	42	

# Table for PE

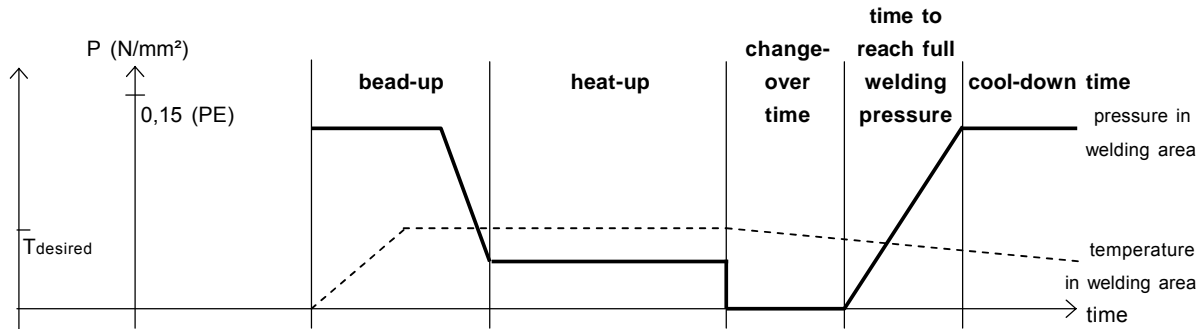
Foundation: 2207, 2208 DIN 16932 German association for welding  
 Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

1 bar on manometer: **141 N**

**PE 80** The value for heating element temperature is between 200° C - 220° C.  
 The **smaller** the pipe wall the **higher** the temperature.

**PE 100** The standard value for heating element temperature is 220° C.  
 Increase the change-over time and the welding pressure time at PE 100 as fast as possible !

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min]
<b>280</b>	6,9	41	7	1,0	69	6	6	7	10
	8,6	33	8	1,5	86	7	7	8	12
	10,7	26,0	10	1,5	107	7	7	10	14
	13,4	21,0	12	2,0	134	8	9	12	18
	15,9	17,6	15	2,0	159	9	10	15	20
	16,6	17	15	2,0	166	9	10	15	21
	20,6	13,6	18	2,5	206	10	12	18	26
	25,4	11,0	22	2,5	254	12	14	22	31
	31,3	9,0	27	3,0	313	14	16	27	38
38,3	7,4	31	3,5	383	16	20	31	47	
<b>315</b>	7,7	41	8	1,5	77	6	6	8	11
	9,7	33	10	1,5	97	7	7	10	13
	12,1	26	13	2,0	121	8	8	13	16
	15,0	21,0	16	2,0	150	9	9	16	19
	17,9	17,6	18	2,0	179	10	11	18	23
	18,7	17,0	19	2,0	187	10	11	19	24
	23,2	13,6	23	2,5	232	11	13	23	29
	28,6	11,0	28	3,0	286	13	15	28	35
	35,2	9,0	33	3,0	352	15	18	33	43
43,1	7,4	40	3,5	431	18	22	40	52	
<b>355</b>	8,7	41	11	1,5	87	7	7	11	12
	10,9	33	13	1,5	109	8	8	13	15
	13,6	26,0	16	2,0	136	8	9	16	18
	16,9	21,0	20	2,0	169	9	10	20	22
	20,1	17,6	23	2,5	201	10	11	23	25
	21,1	17	24	2,5	211	11	12	24	26
	26,1	13,6	29	3,0	261	12	14	29	32
	32,2	11,0	35	3,0	322	14	17	35	39
	39,7	9,0	42	3,5	397	17	20	42	48
48,5	7,4	50	3,5	485	20	24	50	58	

# Table for PE

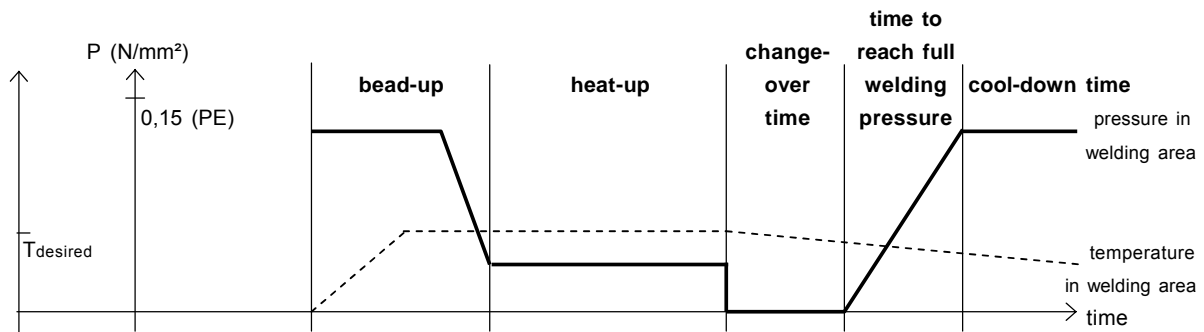
Foundation: 2207, 2208 DIN 16932 German association for welding  
 Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

1 bar on manometer: **141 N**

**PE 80** The value for heating element temperature is between 200° C - 220° C.  
 The **smaller** the pipe wall the **higher** the temperature.

**PE 100** The standard value for heating element temperature is 220° C.  
 Increase the change-over time and the welding pressure time at PE 100 as fast as possible !

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min] ①
<b>400</b>	9,8	41	13	1,5	98	7	7	13	13
	12,3	33	16	2,0	123	8	8	16	16
	15,3	26,0	20	2,0	153	9	9	20	20
	19,1	21,0	25	2,5	191	10	11	25	24
	22,7	17,6	29	2,5	227	11	13	29	28
	23,7	17,0	30	2,5	237	11	13	30	29
	29,4	13,6	37	3,0	294	13	16	37	36
	36,3	11,0	45	3,0	363	16	19	45	44
	44,7	9,0	54	3,5	447	18	23	54	54
54,7	7,4	64	4,0	547	21	27	64	65	
<b>450</b>	11,0	41	17	1,5	110	8	8	17	15
	13,8	33	21	2,0	138	9	9	21	18
	17,2	26,0	25	2,0	172	9	10	25	22
	21,5	21,0	31	2,5	215	11	12	31	27
	25,5	17,6	37	2,5	255	12	14	37	31
	26,7	17,0	38	3,0	267	12	14	38	33
	33,1	13,6	47	3,0	331	15	17	47	40
	40,9	11,0	56	3,5	409	17	21	56	49
	50,3	9,0	68	4,0	503	20	25	68	60
61,5	7,4	80	4,0	615	23	31	80	71	

# Table for PE

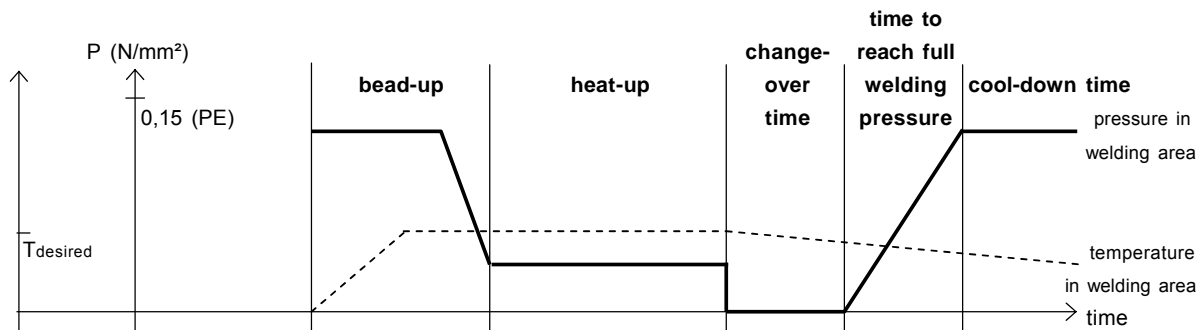
Foundation: 2207, 2208 DIN 16932 German association for welding  
 Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

1 bar on manometer: **141 N**

**PE 80** The value for heating element temperature is between 200° C - 220° C.  
 The **smaller** the pipe wall the **higher** the temperature.

**PE 100** The standard value for heating element temperature is 220° C.  
 Increase the change-over time and the welding pressure time at PE 100 as fast as possible !

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min]
<b>500</b>	12,3	41	21	2,0	123	8	8	21	16
	15,3	33	25	2,0	153	9	9	25	20
	19,1	26,0	31	2,5	191	10	11	31	24
	23,9	21,0	39	2,5	239	11	13	39	30
	28,4	17,6	45	3,0	284	13	15	45	35
	29,7	17,0	47	3,0	297	13	16	47	36
	36,8	13,6	57	3,0	369	16	19	57	45
	45,4	11,0	69	3,5	454	19	23	69	55
	55,8	9,0	83	4,0	558	21	28	83	66
68,3	7,4	99	4,0	683	25	34	99	78	

① Remaining under the cool-down time for up to 50% is allowed under the following conditions:

- prefabrication under workshop conditions
- low additional pressure at unclamping
- no additional pressure during further cooling down
- load onto the workpieces only after being completely cooled down
- Join parts with wall thickness ≥15 mm

# Table for PP

Foundation: 2207, 2208 DIN 16932 German association for welding

Use for: **5100** OD 200 - 450

**5500** OD 200 - 500

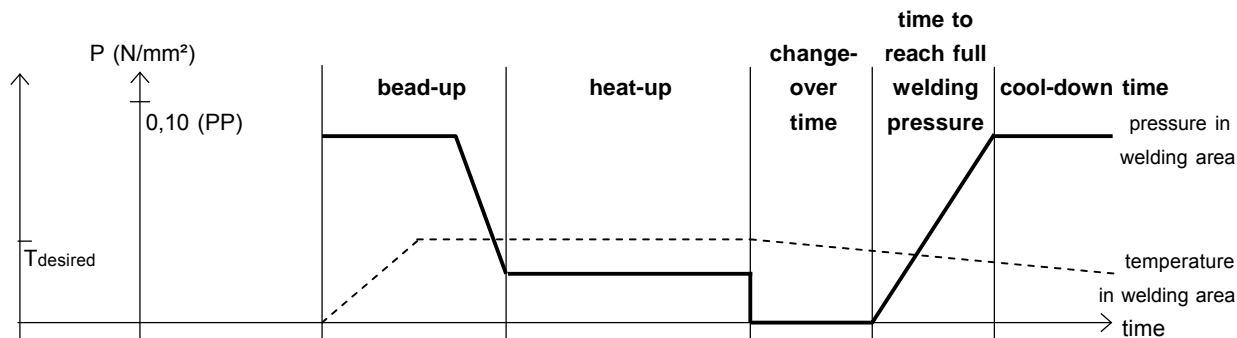
The data in the colored, labeled arrays are interpolated, no guarantee, based on DVS 2207 part 11

1 bar on manometer: **141 N**

The standard value for heating element temperature is 210° C +/- 10° C.

The **smaller** the pipe wall the **higher** the temperature.

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min] ①
<b>200</b>	4,9	41	3	0,5	141	5	6	3	7
	6,2	33	3	0,5	162	6	7	3	10
	7,7	26	4	1,0	185	6	8	4	13
	11,4	17,6	5	1,0	237	7	11	5	19
	18,2	11	8	1,0	320	9	16	8	29
	27,4	7,4	11	2,0	411	11	23	11	42
	33,2	6	13	2,0	456	13	29	13	50
<b>225</b>	5,5	41	3	0,5	151	5	6	3	8
	6,9	33	4	0,5	173	6	7	4	12
	8,6	26	5	1,0	197	6	8	5	15
	12,8	17,6	7	1,0	255	7	12	7	21
	20,5	11	10	1,5	345	9	18	10	32
	30,8	7,4	14	2,0	437	12	26	14	47
	37,4	6	16	2,5	487	14	32	16	55
<b>250</b>	6,2	41	4	0,5	162	6	7	4	10
	7,7	33	5	1,0	185	6	8	5	13
	9,6	26	6	1,0	211	7	9	6	16
	14,2	17,6	8	1,0	272	8	13	8	23
	22,7	11	12	1,5	367	10	20	12	35
	34,2	7,4	17	2,0	463	13	29	17	51
<b>280</b>	6,9	41	5	0,5	173	6	7	5	12
	8,6	33	6	1,0	197	6	8	6	15
	10,7	26	7	1,0	227	7	10	7	18
	15,9	17,6	10	1,0	292	8	14	10	26
	25,4	11	15	1,5	394	11	22	15	39
	38,3	7,4	21	2,5	493	14	33	21	57

# Table for PP

Foundation: 2207, 2208 DIN 16932 German association for welding  
 Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

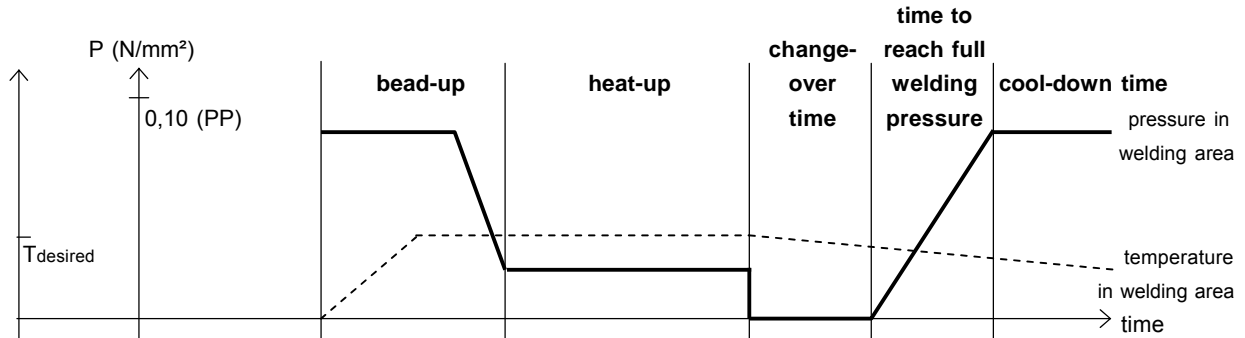
The data in the colored, labeled arrays are interpolated, no guarantee, based on DVS 2207 part 11

1 bar on manometer: **141 N**

The standard value for heating element temperature is 210° C +/- 10° C.

The **smaller** the pipe wall the **higher** the temperature.

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min] ①
<b>315</b>	7,7	41	6	1,0	185	6	8	6	13
	9,7	33	7	1,0	213	7	9	7	16
	12,1	26	9	1,0	246	7	11	9	20
	17,9	17,6	12	1,0	317	9	16	12	28
	28,6	11	19	2,0	420	12	24	19	44
	42,6	7,4	26	2,5	517	15	37	26	61
<b>355</b>	8,7	41	7	1,0	199	6	8	7	15
	10,9	33	9	1,0	230	7	10	9	18
	13,6	26	11	1,0	264	7	12	11	22
	20,1	17,6	15	1,5	341	9	18	15	32
	32,2	11	24	2,0	448	13	28	24	48
	48,0	7,4	33	2,5	548	17	41	33	68
<b>400</b>	9,8	41	9	1,0	214	7	9	9	16
	12,3	33	11	1,0	249	7	11	11	20
	15,3	26	14	1,0	221	7	10	14	17
	22,7	17,6	20	1,5	367	10	20	20	35
	36,3	11	30	2,0	480	14	31	30	54
	54,1	7,4	42	3,0	576	18	46	42	74
<b>450</b>	11,0	41	11	1,0	231	7	10	11	18
	13,8	33	14	1,0	267	8	13	14	23
	17,2	26	17	1,0	308	8	15	17	27
	25,5	17,6	25	1,5	395	11	22	25	39
	40,9	11	38	2,5	508	15	35	38	59
	60,8	7,4	53	3,0	603	19	52	53	81

# Table for PP

Foundation: 2207, 2208 DIN 16932 German association for welding

Use for: **5100** OD 200 - 450

**5500** OD 200 - 500

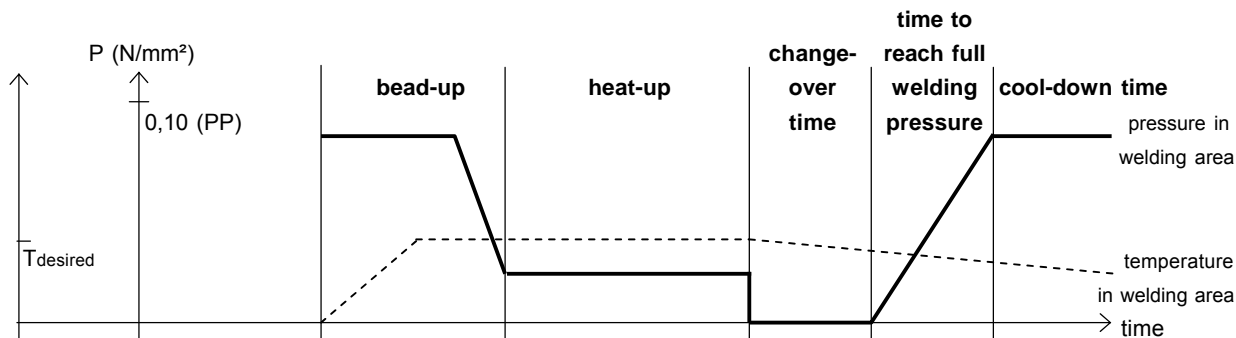
The data in the colored, labeled arrays are interpolated, no guarantee, based on DVS 2207 part 11

1 bar on manometer: **141 N**

The standard value for heating element temperature is 210° C +/- 10° C.

The **smaller** the pipe wall the **higher** the temperature.

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	SDR	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min] ①
<b>500</b>	12,3	41	14	1,0	249	7	11	14	20
	15,3	33	17	1,0	285	8	14	17	25
	19,1	26	21	1,5	331	9	17	21	30
	28,4	17,6	30	2,0	419	12	24	30	43
	44,5	(11)	46	2,5	528	16	38	46	64
	67,6	7,4	66	3,0	630	21	57	66	88

① Remaining under the cool-down time for up to 50% is allowed under the following conditions:

- prefabrication under workshop conditions
- low additional pressure at unclamping
- no additional pressure during further cooling down
- load onto the workpieces only after being completely cooled down
- Join parts with wall thickness  $\geq 15$  mm



## Table for PVDF

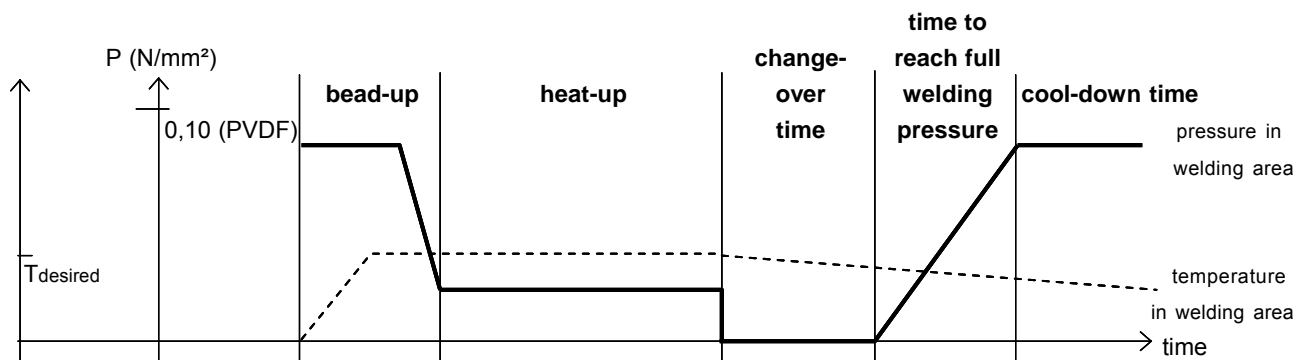
Foundation: 2208, 2207 Part 15 German association for welding

Use for: **5100** OD 200 - 450  
**5500** OD 200 - 500

1 bar on manometer: **141 N**

The standard value for heating element temperature is 240° C +/- 8° C.  
 The **smaller** the pipe wall the **higher** the temperature.

Additional to the given bead-up force and to the welding force the moving force of the support must be added !



pipe diameter OD [mm]	pipe wall (s) [mm]	bead-up pressure [bar]	circular bead min. [mm]	heat-up time [s]	max. change-over time [s]	time to reach welding pressure [s]	welding pressure [bar]	cool-down time [min]
<b>200</b>	6,2	3	0,6	102	4	5	3	9,5
	9,6	5	1,0	136	4	7	5	13,5
<b>225</b>	6,9	4	0,7	109	4	6	4	10,5
	10,8	6	1,0	148	4	7	6	15,0
<b>250</b>	7,7	5	0,7	117	4	6	5	11,0
	11,9	7	1,1	159	4	8	7	16,5
<b>280</b>	8,6	6	0,8	126	4	6	6	12,5
<b>315</b>	9,7	7	1,0	137	4	7	7	13,5

## 7. Maintenance and Repair

### Goal of the chapter is:

- Keeping the nominal state and the operation capacity of the machine.
- Increasing the efficiency by avoiding non-planned outage.
- Efficient planning of the maintenance works and the maintenance tools.

### 7.1. Maintenance and Inspection, Repair



All maintenance and repair works have to be basically performed with the machine in off position.

During this the machine has to be secured against unauthorized switching on.



Prescribed maintenance and inspection works should be performed in time.

The DVS gives the advice of inspection works after 1 year.

For machines with a specially high usage percentage the testing cycle should be shortened.

The works should be performed at the WIDOS GmbH company or by an authorized partner.

### 7.2. Clamping Elements

- For a long service life clean and grease regularly the threaded spindles and the joint parts which are used for clamping the pipes.

### 7.3. Planer

- Check the stress of the drive chain in the planer and grease it regularly. The cover of the planer can be screwed off by means of the provided socket spanner.
- Do not lay the planer on its blades.
- Check the blades of the planer for sharpness, turn them if necessary (grinded on both sides, max. thickness of the shavings: 0,2 mm!).

### 7.4. Storage

- The cylindrical waves of the basic machine are to be kept free from dirtiness and need to be covered with a thin oil film if they are not being used.
- Store dry.

### 7.5. Used Hydraulic Oil

Only use **HLPD 32**.

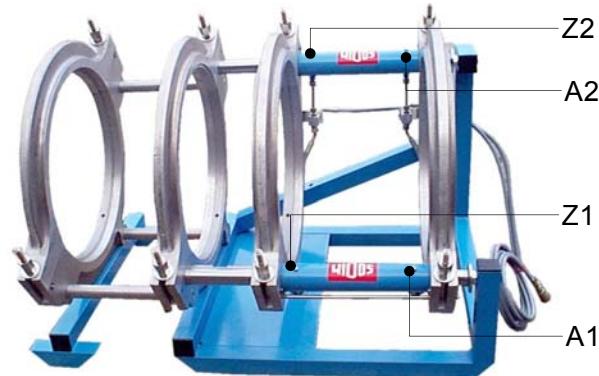
Features: protection against corrosion, resistance to ageing, abrasion-reducing additives, high carrying capacity and particulary water retending.

The hydraulic oil has to be disposed of properly.

## 7.6. Checking the Hydraulic Oil Level

- Remove the red screw at the top of the aggregate.
- Take out the oil dipstick, clean it with a dry tissue and insert it again.
- The oil level must be between the two marks.

## 7.7. Venting the hydraulic cylinder



- Venting the hydraulic cylinder is not required, if
  - the hoses have been disconnected from the quick-action couplings at the control unit because the remaining oil in the hose is being kept by valves and for this reason no air can enter.
- The hydraulic cylinder **must be vented** if
  - there has been too less oil in the tank and air has been attracted.
  - there were leaky spots at the hoses or in the connections.
  - the hoses were unscrewed from the basic machine.
- Eliminate the cause of the air entrance.
- Open the machine completely.
- First unscrew the lower „vent screw (Z1) for closing“ (lefthand side).
- Connect the transparent venting hose and insert it in the collecting vessel of the aggregate.
- Close until there is no more air visible in the venting hose, then tighten again the vent screw.
- Close the machine completely.
- Unscrew the lower „vent screw (A1) for opening“ (righthand side).
- Connect the transparent venting hose and insert it in the collecting vessel of the aggregate.
- Open until there is no more air visible in the venting hose, then tighten again the vent screw.
- When the venting process at the lower vent screws is completed, repeat the process at the upper „vent screw (Z2) for closing“ (lefthand side), as well as at the upper „vent screw (A2) for opening“ (righthand side).



The lower vent screws always have to be vented at first because there is a direct connection between the upper and the lower cylinders.

- If air remains in the lower cylinder, it will ascend in the upper cylinder when pressure is applied.

## 7.8. Disposal



At the end of the life time, the machine has to be disposed of properly, non-polluting and in accordance with the national laws of waste disposal.

## 8. Transport

The machine can be transported in two transport boxes or in one packing box.

One transport box contains the basic machine, the aggregate and the reception box with planer and heating element, the other box contains the reduction inserts.

- In each box holders are included which are suitable for each single component in order to avoid slipping.
- Put the components into the box in such a way that they fit in the holders.
- The hydraulic hoses at the basic machine should not be unscrewed (air penetration).
- Make sure that they are not squeezed.
- Handle the machine carefully.
- Do not tilt the aggregate too much. Otherwise there is the danger that oil may come out.
- Protect the machine from heavy chocs.
- Make sure that the box cover is closed correctly.
- During the construction of the transport box a stress was put on a light-weight construction.
- Take much care when using automatic handling and carrying machines.

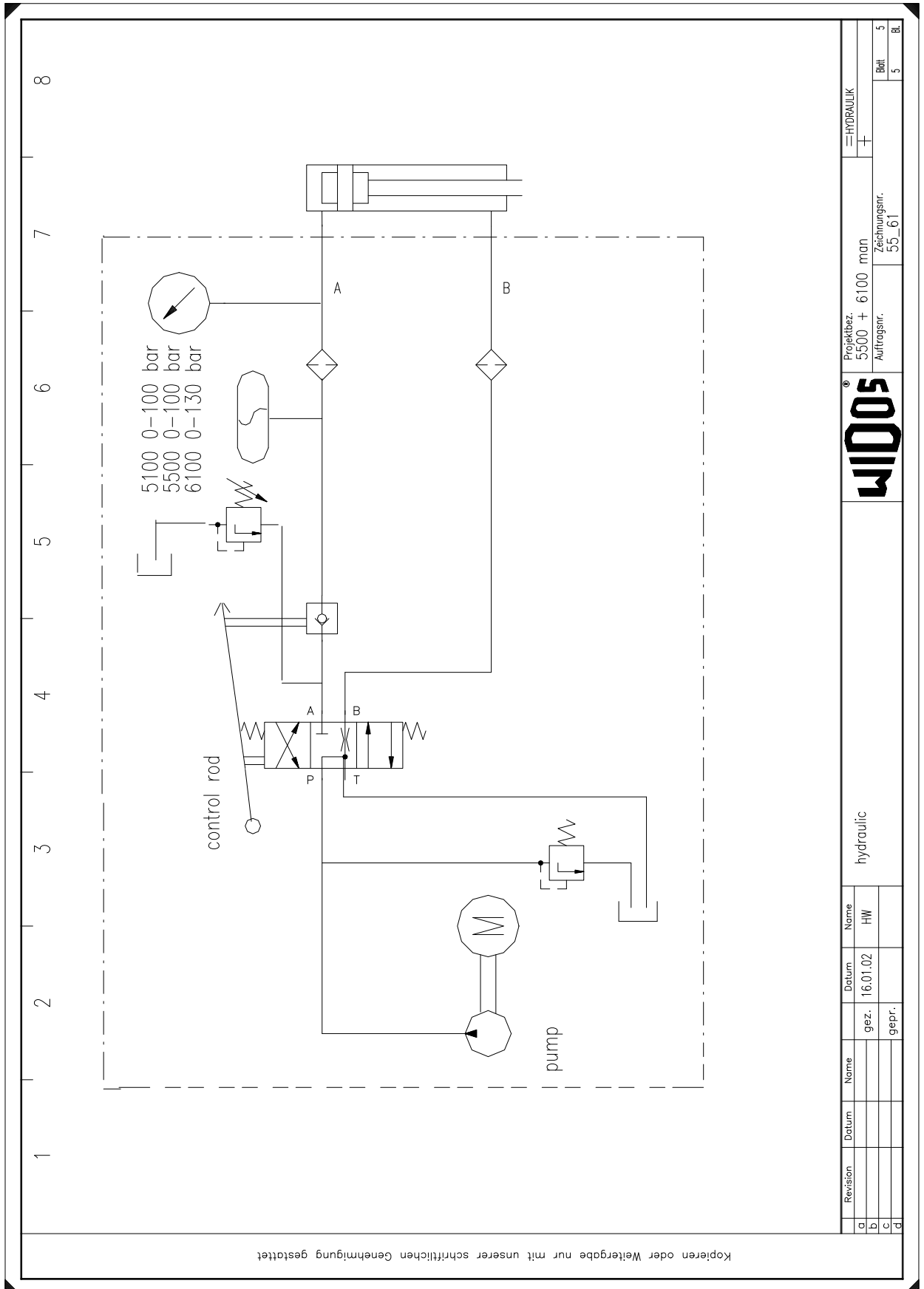


During the transport of the machine there may be cold weldings between the piston rod and the eyes of the planer housing. These spots on the piston rod may damage the sealing.



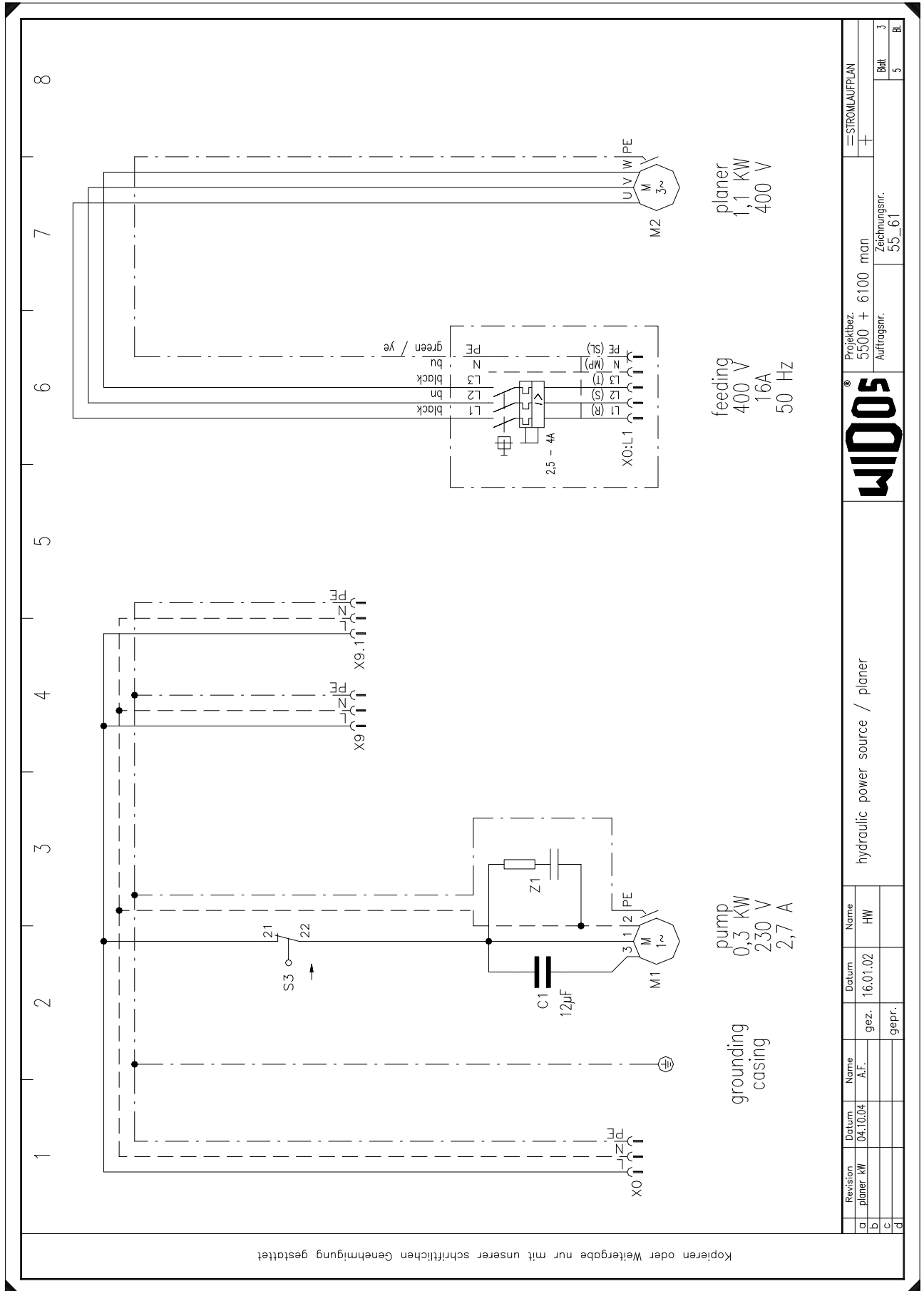
Therefore the eyes must be lubricated with PTFE spray before each transport.

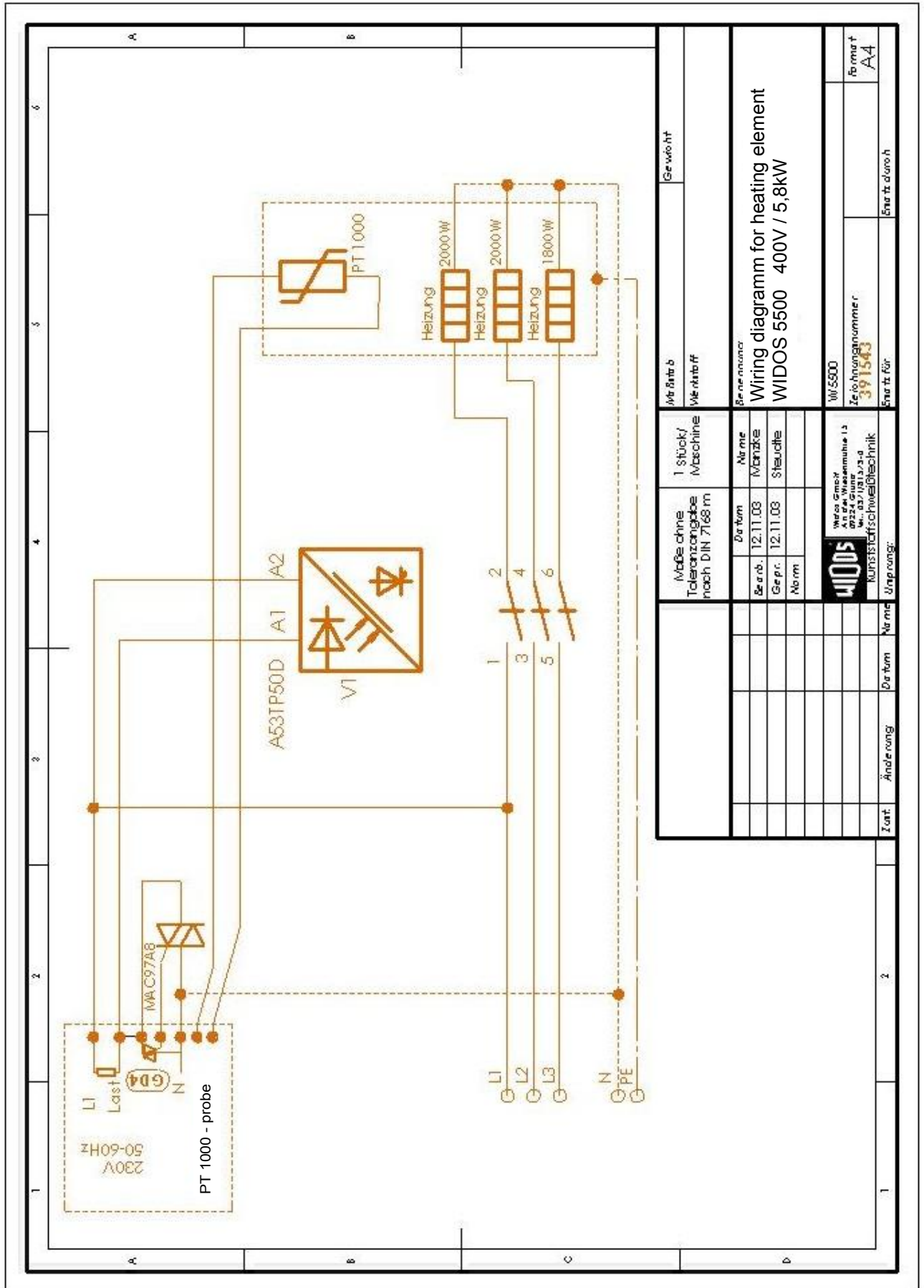
## 9. Electric and hydraulic diagrams



Kopieren oder Weitergabe nur mit unserer schriftlichen Genehmigung gestattet

Revision		Datum		Name	
a		16.01.02		HW	
b	gez.				
c	gepr.				
d					
Projektbez. 5500 + 6100 man				Blatt 5	
Auftragsnr. 55_61				Bl. 5	
Zählungsnr. 55_61					
<b>WIDOS</b>					
hydraulic					
HYDRAULIK					





Maße ohne Toleranzangabe nach DIN 7168 mm		1 Stück/ Maschine		Gewicht	
Datum	12.11.03	Mannte	Mannte		
Gepr.	12.11.03	Staubte	Staubte		
Norm					
		WIDOS GmbH An der Weidenmühle 13 8224 Günter 89103/100 Kunststoffsweißtechnik		W-5500 Zeichnungsnummer 391543	
Zent.		Änderung	Datum	Mannte	Erstellt durch
					A4



Klemmleiste					heating element				
von		Quer- verweis	Bruecke	Klemmen- Nr.	nach				
=Anlage+Ort-BMK-Anschl					=Anlage+Ort-BMK-Anschl				
	cover down	1.7 / 2.8		PE	heating element				
	cover upwards	1.7 / 1.2	•	PE	X9.1:PE				
	K1:6	1.2 / 2.6	•	L3	resistance 15+16				
	resistance 17+18	2.6 / 2.5	•	L3	resistance 13+14				
	K1:4	1.2 / 2.4	•	L2	resistance 9+10				
	resistance 11+12	2.5 / 2.4	•	L2	resistance 7+8				
	K1:2	1.1 / 2.3	•	L1	resistance 5+6				
	X9.1:N	1.2 / 2.5	•	L1	resistance 3+4				
	U1:8	1.5 / 2.4	•	N	resistance 11+12				
	K1:A2	1.3 / 2.4	•	N	resistance 9+10				
	resistance 17+18	2.6 / 2.3	•	N	resistance 7+8				
	resistance 15+16	2.6 / 2.3	•	N	resistance 5+6				
	resistance 13+14	2.5 / 2.2	•	N	resistance 3+4				
heating									

Nr. Typ Quersch. Laenge		Aderbe- zeichnung	

Bemerkung			

<table border="1"> <tr> <th>Revision</th> <th>Datum</th> <th>Name</th> <th>gepr.</th> </tr> <tr> <td>a</td> <td></td> <td></td> <td></td> </tr> <tr> <td>b</td> <td>16.01.02</td> <td>HW</td> <td>gez.</td> </tr> <tr> <td>c</td> <td></td> <td></td> <td>gepr.</td> </tr> <tr> <td>d</td> <td></td> <td></td> <td></td> </tr> </table>	Revision	Datum	Name	gepr.	a				b	16.01.02	HW	gez.	c			gepr.	d				<table border="1"> <tr> <td colspan="2">Name</td> <td>heating element</td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> <tr> <td colspan="2">Name</td> <td></td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> <tr> <td colspan="2">Name</td> <td></td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> <tr> <td colspan="2">Name</td> <td></td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> <tr> <td colspan="2">Name</td> <td></td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> <tr> <td colspan="2">Name</td> <td></td> </tr> <tr> <td colspan="2">Datum</td> <td></td> </tr> </table>	Name		heating element	Datum			Name			Datum			Name			Datum			Name			Datum			Name			Datum			Name			Datum		
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Working instructions WIDOS 5500

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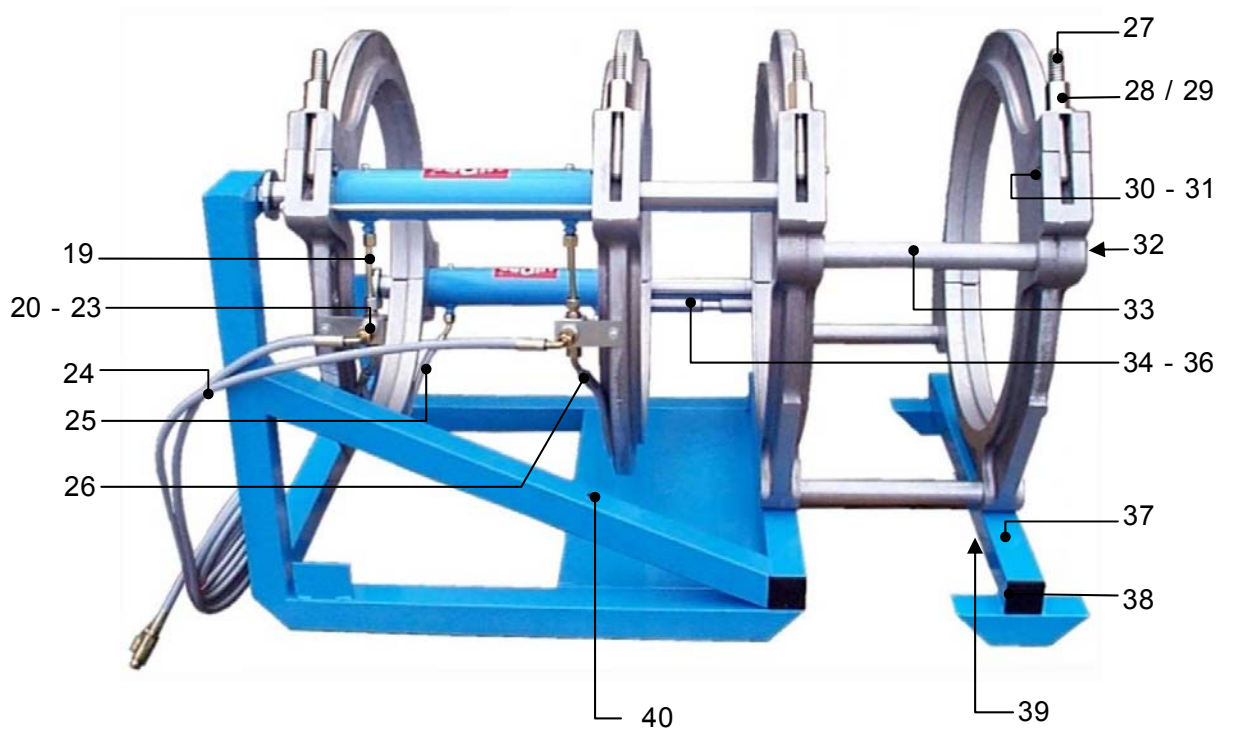
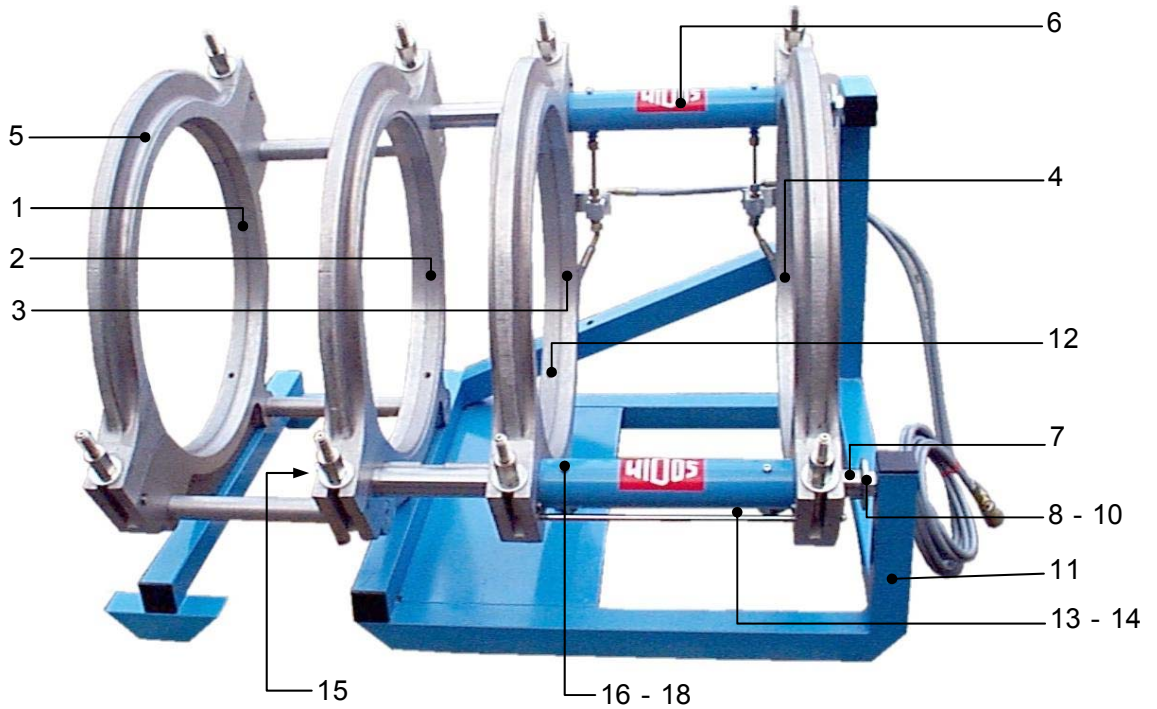
Projektbez. 5500 + 6100 mon  
Auftragsnr. 55\_61  
Zählungsnr. 55\_61

KLEMMENPLAN  
+  
Blatt 5  
Bl.

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# 10. Spare Parts List

## 10.1. Basic Machine



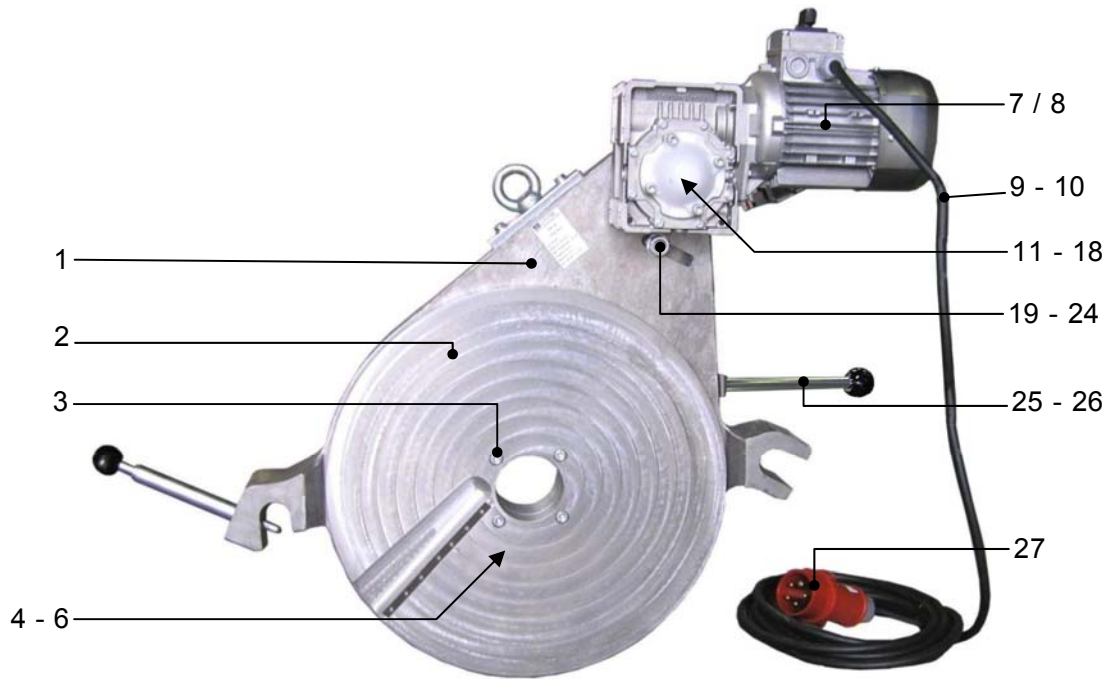
### Basic machine WIDOS 5500

Pos.	Name	Piece	Art.no.
1	Outer clamping, fixed	1	390101
2	Inner clamping, fixed	1	390102
3	Inner clamping, movable	1	390103
4	Outer clamping, movable	1	390104
5	Upper clamp	4	390105
6	Hydraulic cylinder	2	071106
	Seals for cylinder	2 set	D0711061
7	Stop bolt	2	091117
8	Pressure disc	2	071133
9	Pan head screw M 10 x 25 DIN 912	2	0912J025
10	Protective cap, round	1	J0216
11	Basic frame	1	390118
12	Tread insert M10	8	GEW-M10
13	Tension rod	2	071107
14	Counter nut M 10 DIN 985	2	0985J
15	Flat head screw M 16 x 30 DIN 7991	2	7991P030
16	Pan head screw M 6 x 10 DIN 912	4	0912F010
17	Ring for sealing 6x9,3x1	4	D6x9,3
18	Washer M 8 DIN 125	4	0125H
19	Hydraulic hose WIDOS 5500	2	391113
20	Holding device for filter	2	093119
21	Hexagon screw M 8 x 20 DIN 933	2	0933H020
22	Filter	2	V092114
23	Screwed connection GE 8L R3/8"	2	VXGE8L38
24	Hose bunch	2	VSCHL5100
25	Hydraulic hose, short lefthand	2	on request
--	Hydraulic hose, simple	1	VSCHL61
--	Compressed bushing	1	VP256
--	Bow-shaped nipple	2	VB386
--	Bow-shaped 45°	1	DKOR6
26	Hydraulic hose, short righthand	1	on request
--	Hydraulic hose, simple	1	VSCHL61
--	Compressed bushing	2	VP256
--	Bow-shaped nipple	1	VB386
--	Bow-shaped 45°	1	DKOR6
27	Thread spindle	8	071108
28	Nut	8	071109
29	Pressure disc M 16 DIN 6340	8	6340P
30	Rivet	8	071111
31	Lock washer size 9 DIN 6799	8	6799I
32	Flat head screw M 16 x 30 DIN 7991	6	7991P030
33	Shaft	3	071131
34	Tear-off bar for heating element	1	071503
35	Hexagon screw M 8 x 12 DIN 933	2	0933H012
36	Washer M 8 DIN 9021	2	9021H

**Basic machine WIDOS 5500**

Pos.	Name	Piece	Art.no.
37	Support	1	390141
38	Protective cap, 50 x 50	6	J0227
39	Pan head screw M 10 x 25 DIN 912	3	0912J020
40	Protective cap, round	3	J0217
--	Reduction insert <b>OD 355 - OD 400</b>	1 set	0708...*
--	Reduction insert <b>OD 200 -OD 280</b>	1 set	0308...*
--	Screw M6x30 f. <b>OD 200-OD250</b>	8	0912F30X
--	Screw M6x25 f. <b>OD 280</b>	8	0912F25X
--	Adaptor half coupling ( <b>OD 315</b> )	8	071142
--	Adaptor half coupling / Inset ( <b>OD 450</b> )	8	3908450
--	Screw M10x30 f. <b>OD 450</b>	8	7984J30X
--	Screw M10x55 f. <b>OD 315-400</b>	8	7984J55X
--	Screw M10x100 f. <b>OD 450 + OD 200-280</b>	8	7984J100X
--	Hydraulic oil	2 l	HLPD35
--	Plate "pressure values"	1	SCHM5500
--	Name plate	1	SCHT5500
--	Tool bag for 10 parts	1	ZWR
--	Allan key size 3	1	ZIG03
--	Allan key size 6	1	ZIG06
--	Allan key size 10	1	ZIG10
--	Socket spanner size 27	1	ZRS27
--	Allan key with T-grip size 4	1	ZIT04
--	Allan key with T-grip size 5	1	ZIT05
--	Allan key with T-grip size 7	1	ZIT07
--	transport box	1	TKA10
	*) When ordering, please give the dimension !		

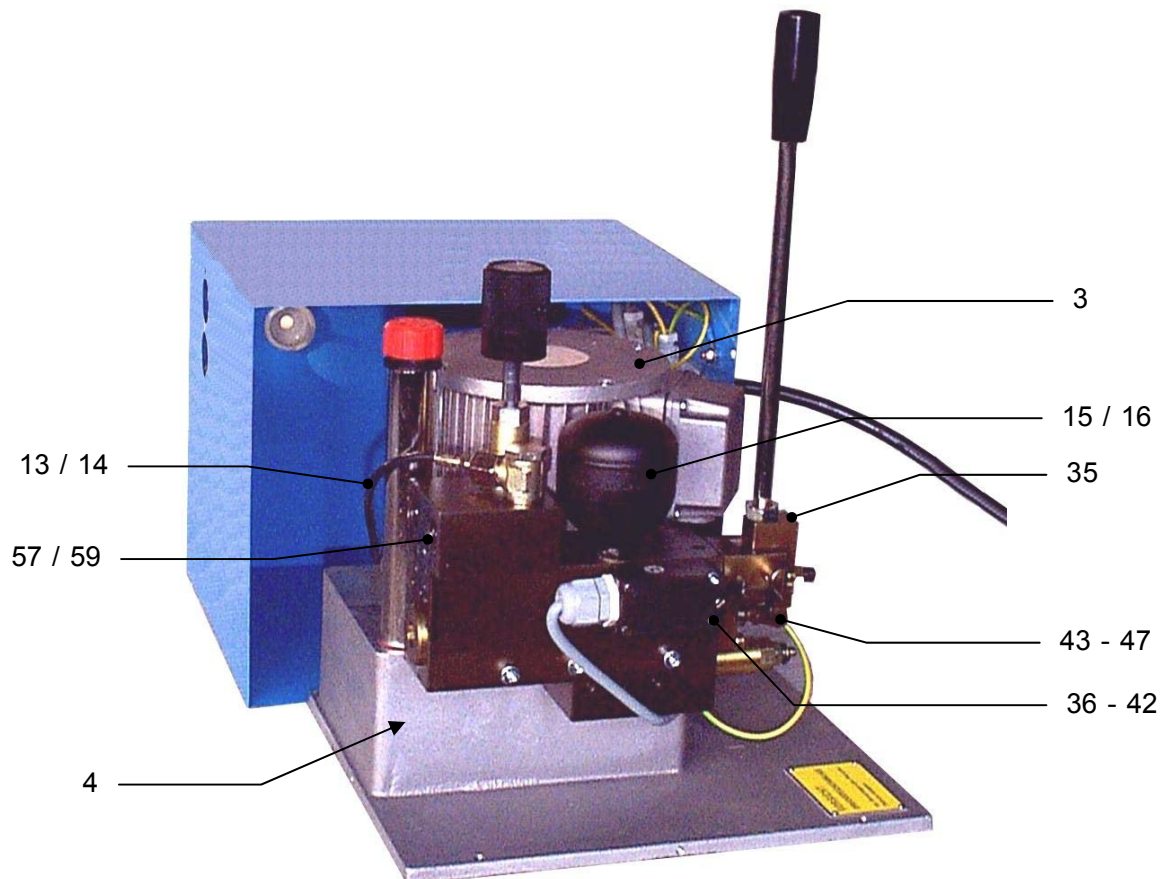
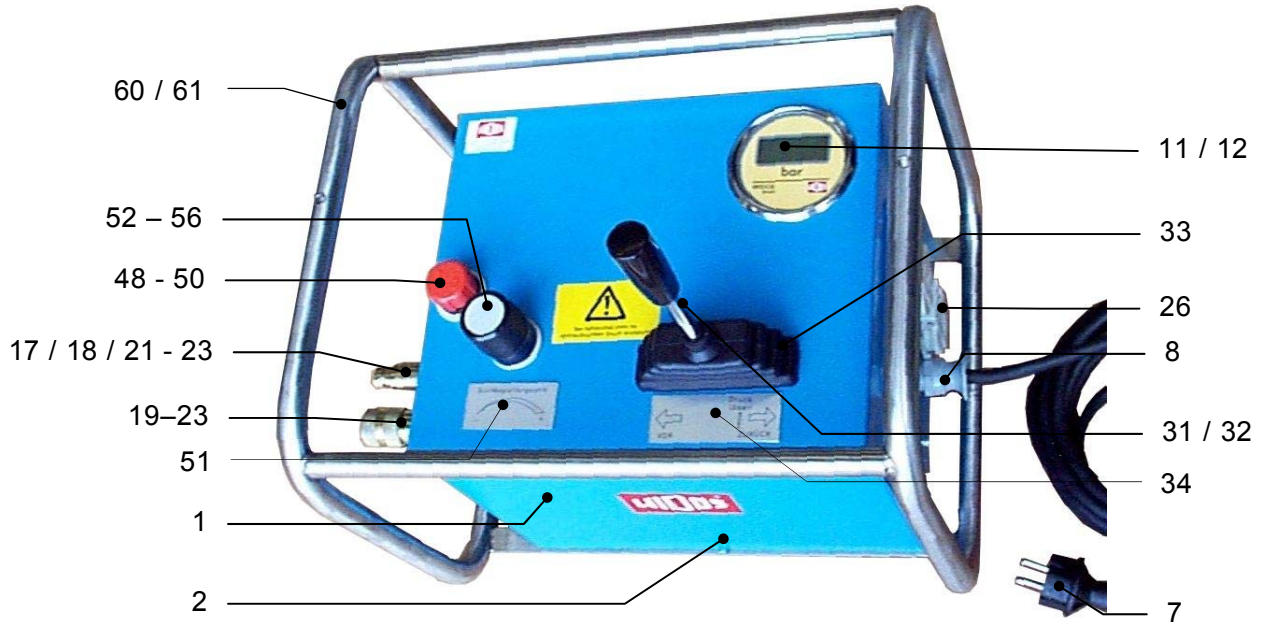
## 10.2. Planer

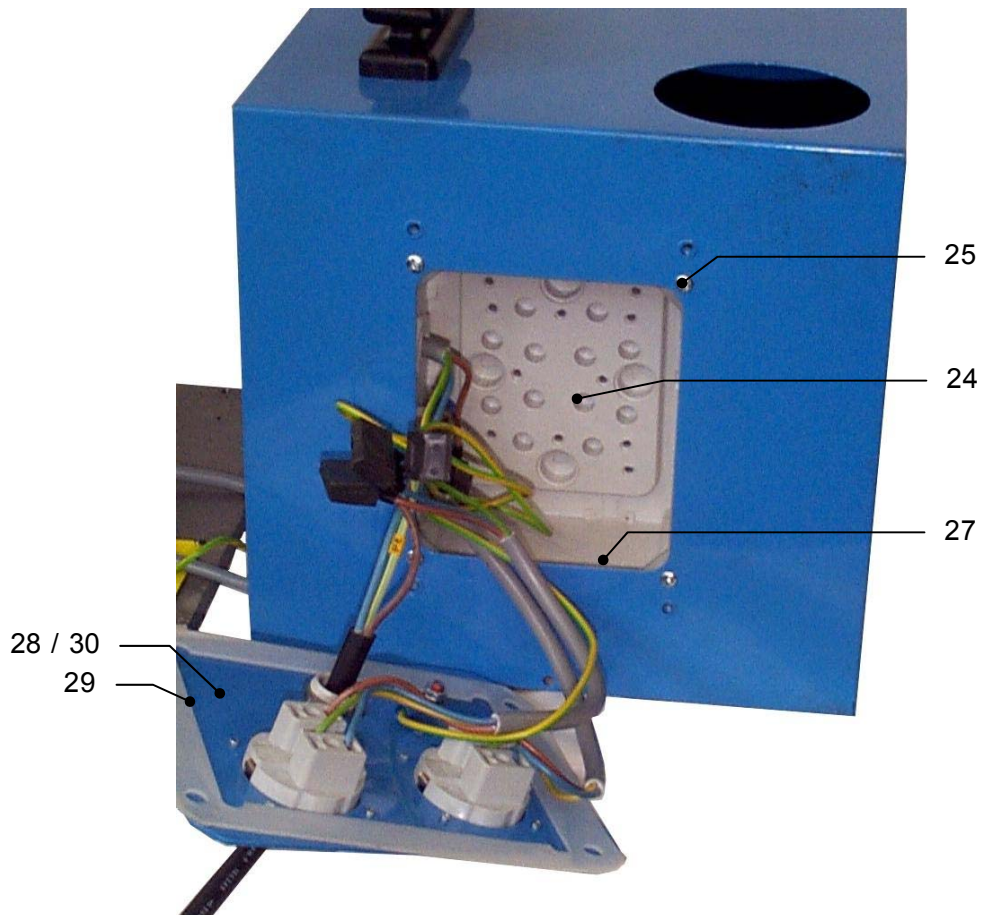
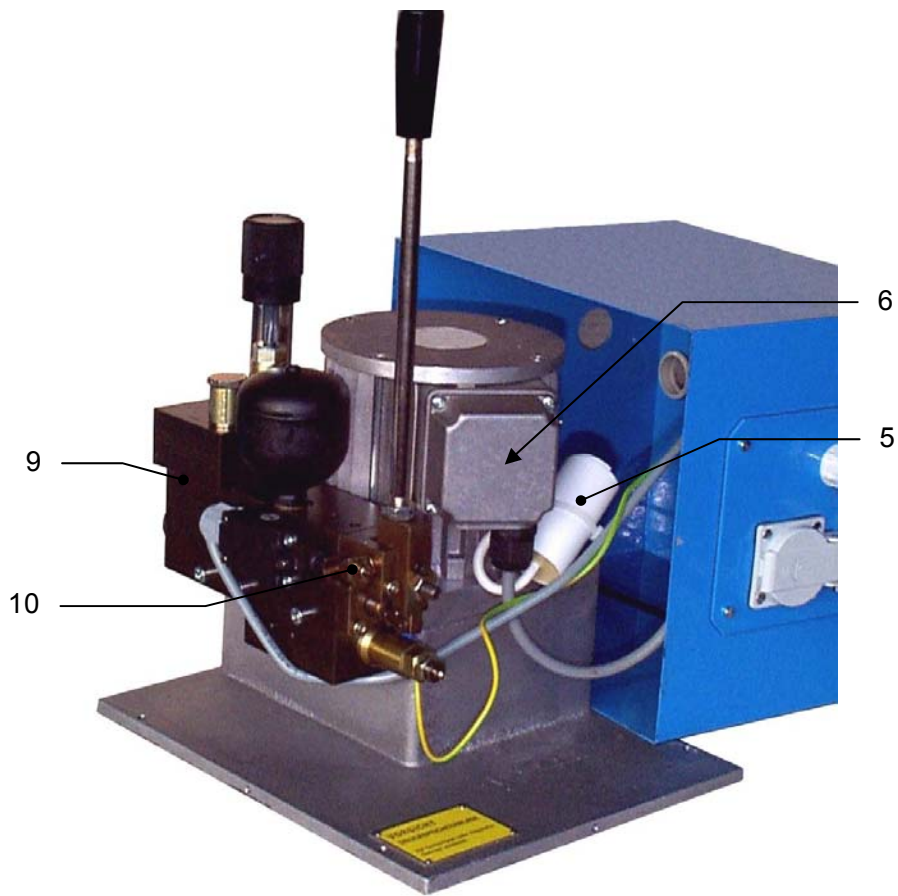


## Planer WIDOS 5500

Pos.	Name	Piece	Order no.
1	Holder for planer	1	391401
2	Planer disc, right-hand	1	391402
3	Pan head screw M10x35 DIN 912	4	0912J035
4	Ball bearing 6028	1	LL6028
5	Chain wheel, large 3/8"x7/32" 95 Z.	1	023406
6	Flat head screw M 8x20 DIN 7991	4	7991H020
7	Three-phase geared motor	1	ADG11400
8	Pan head screw M8x40 DIN 912	4	0912H040
9	Cable	6 m	EL01515
10	Screwing M25x1,5	1	EV1025
11	Drive shaft for geared motor	1	0824111
12	Feather key A8x7x90 DIN 6885	1	6885H090
13	Feather key A8x7x18DIN 6885	1	6885H018
14	Washer	1	081414
15	Flat head screw M8x20 DIN 7991	1	7991H020
16	Disc for chain wheel	1	081409
17	Flat head screw M8x16 DIN 7991	1	7991H016
18	Chain wheel, small 3/8" 15 Z.	1	391406
19	Chain 3/8" 151 pieces	1	K38153
20	Chain joint 3/8"	1	KSCH38
21	Bolt	1	210410
22	Ball bearing 6003 Z	2	L6003Z
23	Washer M16 DIN 125	5	0125P
24	Hexagon nut M16x1,5 DIN 934	1	0934Y
25	Handlebar	1	071409
26	Spherical button	1	0319C40
27	Plug connector 380 V	1	EST0416
28	Cover for planer holder	1	390404
29	Pan head screw M4x16 DIN 912	4	0912D016
30	Planer disc, left-hand	1	391403
31	Suspension holder	1	081406
32	Suspension overarm	1	390407
33	Ring nut M 16 DIN 582-C15	1	0582P
34	Pan head screw M10x45 DIN 912	2	7984J045
35	Washer M10 DIN 125	2	0125J
36	Lock nut M10 DIN 985	2	0985J
37	Knife	2	MES120
38	Spacer	2	MU120
39	Flat head screw M 3x8 DIN 965	14	0965C008TX
40	Knife	2	MES085
41	Spacer	2	MU085
42	Locking for planer complete	1	082420
--	Torx screw driver T10	1	ZT10

### 10.3. Hydraulic Aggregat







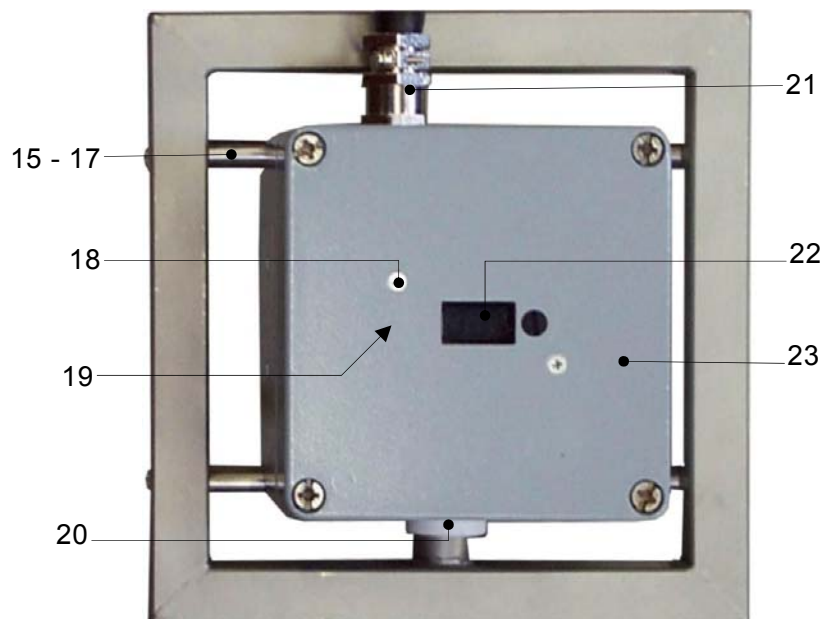
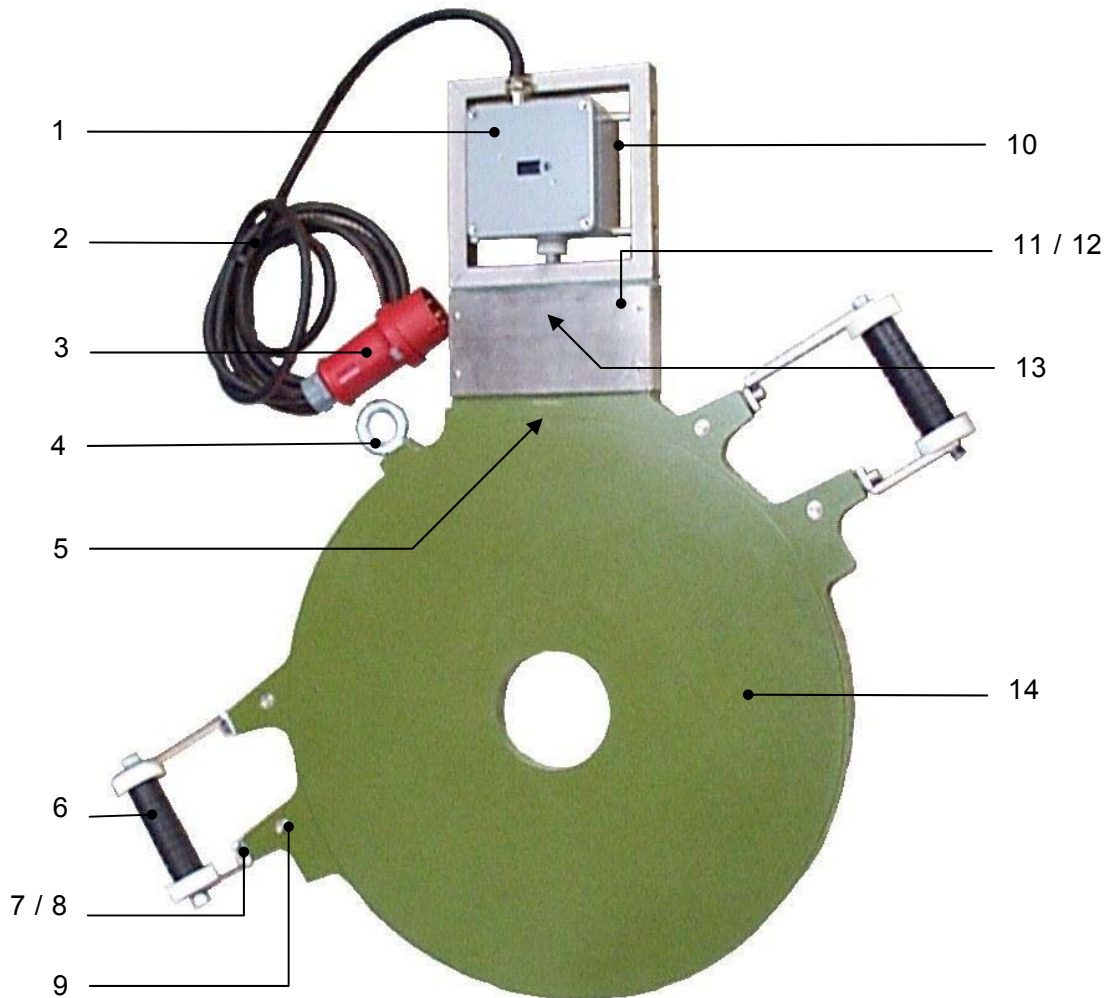
## Hydraulic aggregat WIDOS 5500 man

Pos.	Name	Piece	Order no.
1	Cover	1	1010021
2	Pan-head screw M4x12 DIN 912	4	0912D012
3	Motor	1	on request
4	Pump 1.9 l	1	102103
5	Capacitor 12 µF	1	EK12220
6	Universal RC - link	1	EE0104
7	Connection cable with plug	1	EK32220
8	Screwed connection PG 13.5	1	EV0113
9	Valve	1	on request
10	Pan-head screw M6x45 DIN 912	4	0912F045
11	Pressure gauge	1	101004D
12	Screwed connection of pressure gauge	1	V042314
13	Mini hose	1	on request
14	Hose screwing	1	101008
15	Accumulator	1	101006
16	Ring for sealing 16x22.7x1.5	1	D16x22,7
17	Coupling box, flat packing	1	VMU14
18	Synthetic cap for VMU14	1	VKM14
19	Coupling plug, flat packing	1	VST14
20	Synthetic cap for VMST14	1	VKS14
21	Ring for sealing 16x22.7x1.5	2	D16x22,7
22	Screwed connection	2	V101024
23	O-ring 19x1,5	2	D19x1,5
24	Distributor box	1	on request
25	Pan-head screw M4x10 DIN 912	2	0912D010
26	Socket	2	EST0701
27	Seal, inside	1	1010024
28	Side part	1	1010022
29	Seal, outside	1	1010023
30	Pan-head tapping screw 3.5 x 20	4	7971C020
31	Valve lever	1	101013
32	Cylinder knob M10	1	101033
33	Bellows	1	101035
34	Plate "Release pressure"	1	SCHD-L
35	Hexagon nut M10 DIN 934	1	0934J
36	Pressure switch	1	on request
37	Pan-head screw M4x25 DIN 84	2	0084D025
38	Angle for pressure switch	1	on request
39	Washer M4 DIN 125	1	0125D
40	Pan-head screw M 4x10 DIN 912	1	0912D010
41	Set screw M5x10 DIN 915	1	0915E010
42	Bolt	1	101038
43	Adjusting screw	1	101036
44	Hexagon nut M6 DIN 934	3	0934F
45	Plug-in element P83-1/2"x3/16"	1	101043

**Hydraulic aggregat WIDOS 5500 man**

Pos.	Name	Piece	Order no.
46	Bearing block	1	on request
47	Pan-head screw M5x45 DIN 912	2	0912E045
48	Control knob for pressure setting	1	101022
49	Bush	1	101047
50	Set screw	1	101050
51	Plate "Pressure values"	1	SCHM4600
52	Oil dipstick	1	101021
53	Hydraulic oil	1 l	HLPD35
54	Filler neck	1	101026
55	Copper ring 14x18x1.5 DIN 7603	1	D14x18
56	Cable bushing Kt21	2	EKT21
57	Leading-in for tubes size 22	2	EKT22
58	Sinter-filter 15x8 41180	2	101045
59	O-ring 16x2	2	D16x2
60	Protective mounting	1	101042
61	Pan-head screw M6x16 DIN 912	4	0912F016

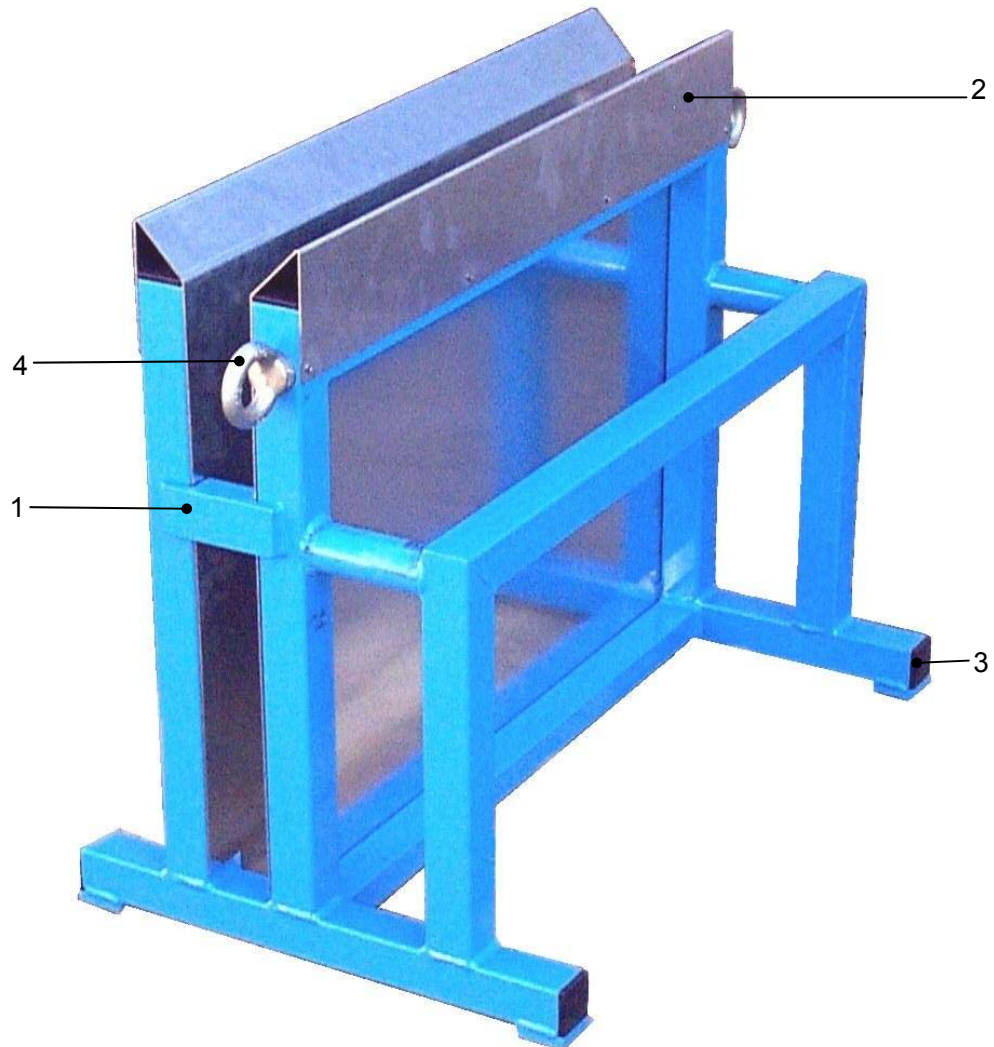
### 10.4. Heating Element



### Heating Element WIDOS 5500

Pos.	Name	Piece	Order no.
1	Terminal box	1	071554
2	Cable	1	EL02515
3	Plug	1	EST0116
4	Lifting screw M 12 DIN 580	1	0580L
5	Temperature probe PT 1000	1	H09082
6	Grip	2	07021
7	Pan-head screw M 10x60 DIN 912	4	0912J060
8	Spring washer B 10 DIN 127	4	0127J
9	Tapped bushing	4	1475045
10	Heat sink	1	on request
11	Cover for terminal box	1	071555
12	Oval-head screw M 3x6 DIN 7985	4	7985C006
13	Insulating piece	1	071556
14	Heating element (400 V)	1	H5500E
--	Heating plate new	1	HP5500E
--	Heating plate in exchange	1	HPT5500E
15	Distance piece	4	081554
16	Tapped bushing	4	081553
17	Pan-head screw M 6x45 DIN 912	4	0912F045
18	Flat-head screw M 3x8 DIN 7991	2	7991C008
19	Controller G4 with triac	1	H0908230D1
20	PTFE - joining piece	1	211505
21	Screwing	1	EV0021
22	Window, tinted	1	H09071
23	Upper and lower part of housing	1	081551

## 10.5. Reception Box



**Reception box WIDOS 5500**

Pos.	Name	Piece	Order no.
1	Reception box	1	390520
2	Heat absorbing steel sheet	2	3905201
--	Blind rivet 4x10 DIN 7337	8	7337D010
3	Fitting cap 40 x 30 x 2	4	J0203
4	Lifting screw M16 DIN 580	2	0580P

## 11. Declaration of Conformity

**In the sense of the EC guideline, MC-Machinery Directive 2006/42/EG**

Corporation

WIDOS GmbH  
Einsteinstr.5  
D- 71254 Ditzingen-Heimerdingen

declares that the product

Plastic welding machine  
WIDOS 5500

has been designed in compliance with :

1. DIN EN ISO 12100 – 1 and 2 (substitute for EN 292 parts 1 and 2)  
Safety of machines, basic terms, general layout guidelines
2. EN 60204.1  
Electrical equipment of industrial machines
3. DIN EN 60555, DIN EN 50082, DIN EN 55014,  
Electromagnetic compatibility (EMC)
4. DIN EN ISO 4413  
Safety requirements for fluid power systems and components.  
(hydraulics)

The technical documentation is completely existing.

The working instructions in the mother language of the user is available.

Ditzingen-Heimerdingen, 17.02.2014

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Martin Dommer (Technical director)