

Working Instructions Translation

Heating Element Butt Welding Machine

WIDOS 5100



Keep for further use!

Model: Heating element butt welding machine
Type: WIDOS 5100
Serial number: / year of construction: see type lable

Customer entries

Inventory-No.:
Place of working:

Order of spare parts and sales service:

Address of manufacturer

WIDOS
W. Dommer Söhne GmbH
Einsteinstraße 5
D-71254 Ditzingen-Heimerdingen
Phone: +49 (0) 71 52 / 99 39 – 0
Fax: +49 (0) 71 52 / 99 39 – 40
info@widos.de
www.widos.de

Adress of the Subsidiary Companies:

WIDOS GmbH
An der Wiesenmühle 15
D-09224 Grüna / Sachsen
Phone: ++49 371 / 8 15 73 - 0
Fax: ++49 371 / 8 15 73 - 20

WIDOS
W. Dommer Söhne AG
St. Gallerstr. 93
CH-9201 Gossau
Phone: ++41 71 / 3 88 89 79
Fax: ++41 71 / 3 88 89 73

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 these working instructions, 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 continuously improve our products and working instructions, we kindly ask you to inform us about problems and defects which occur in exercise.

Thank you.

Structure of the working instructions

This manual is arranged in chapters, which belong to the different using phases of the machine.

Therefore the searched information can be easily found.



© **WIDOS** 30.06.2011

W.Dommer Söhne GmbH

Einsteinstraße 5

D- 71254 Ditzingen- Heimerdingen

All rights reserved

Reprinting only allowed with permission of the corporation.
Any changes prior to technical innovations.

1. DESCRIPTION OF PRODUCT	6
1.1. Usage and purpose-oriented use	6
1.2. Safety measures.....	6
1.3. Conformity.....	6
1.4. Machine overview	7
1.5. Designation of the product	7
1.5.1 Technical data	8
1.5.1.1 WIDOS 5100 General data	8
1.5.1.2 Heating element.....	8
1.5.1.3 Planer.....	9
1.5.1.4 Hydraulic aggregate	9
1.5.1.5 Basic frame.....	9
1.5.1.6 Protective box	10
1.6. Equipment and accesories:	10
2. SAFETY RULES	11
2.1. Explanation of the different symbols.....	11
2.2. Obligations of the owner.....	12
2.3. Obligations of the worker.....	12
2.4. Measures of organization.....	12
2.5. Information about safety precautions.....	12
2.6. Instructions for the staff.....	12
2.7. Dangers while handling the machine.....	13
2.8. Maintenance, inspection and repair.....	13
2.9. Dangers caused by electric energy.....	13
2.10. Dangers caused by the hydraulic.....	13
2.11. Specific dangers	14
2.11.1 Danger of catching clothes by the planer	14
2.11.2 Danger of being burnt by heating element, reception box and welding area	14
2.11.3 Danger of Stumbling over electric / hydraulic wires.....	14
2.11.4 Danger of squeezing by clamping devices and guideways	14
2.11.5 Risk of injury by noises.....	15
2.12. Structural modifications on the machine	15
2.13. Cleaning the machine	15
2.14. Guarantee and liability.....	15
3. FUNCTIONAL DESCRIPTION	16
4. OPERATING AND INDICATING ELEMENTS.....	17
4.1. Elements on the aggregate	17
4.2. Elements at heating element and planer	18
4.3. Separating device for heating element.....	18

5. STARTING AND OPERATING.....	19
5.1. Starting.....	19
5.2. Connection hydraulic aggregate with the basic machine	20
5.2.1 Exchanging the reduction inserts.....	20
5.2.2 Using small and large reduction inserts.....	20
5.3. Welding process	21
6. WELDING LOGS AND TABLES.....	24
7. MAINTENANCE AND REPAIR	29
7.1. Clamping elements	29
7.2. Planer	29
7.3. Storing.....	29
7.4. Used hydraulic oil	29
7.5. Checking the hydraulic oil level	29
7.6. Venting the hydraulic cylinders.....	30
8. TRANSPORT	31
9. HYDRAULIC AND ELECTRIC DIAGRAMS	32
10. SPARE PARTS LIST	34
10.1. Basic machine	34
10.2. Hydraulic aggregat.....	36
10.3. Planer	39
10.4. Heating element	41
10.5. Reception box	43
11. DECLARATION OF CONFORMITY.....	45

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 5100 has been designed for heating element butt welding of pipes and fittings with a diameter range of $\varnothing = 200 - 450$ mm.
(standard diameters: 200 / 225 / 250 / 280 / 315 / 355 / 400 / 450 mm)

It is a machine for construction sites and particularly designed for the use 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. 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.

1.3. 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.

1.4. Machine overview



1	Planer
2	Heating element
3	Reception box
4	Hydraulic aggregate
5	Basic machine

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 5100 General data

Material which can be welded:	PE80, PE 100, PVDF, PP
Pipe diameter range:	$\varnothing_{\text{outside}} = 200 - 450 \text{ mm}$
Dimension transport box (l x w x h):	1360 x 1300 x 1005 mm
Weight:	99 kg
Total weight (without packing):	240 kg
Fuse:	16 A
Wire cross section:	1.5 mm ²
Emissions:	<ul style="list-style-type: none"> - Noises exceeding 80 dB (A) may occur; during planing it is obligatory to wear ear protection! - When using the named pipe materials and when welding below 260° C no toxicant damp arises
Environment:	<ul style="list-style-type: none"> - take care for cleanness (no dust at the welding area) <p>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.</p> <ul style="list-style-type: none"> - avoid humidity, if necessary use a welding tent - avoid strong sun rays influence - protect from wind, shut the pipe ends

1.5.1.2 Heating element

Power:	3,6 kW
Voltage:	230 V (± 10%)
Current:	15,6 A (± 10%)
Frequency:	50 Hz
Outside- \varnothing :	500 mm
Surface:	nonstick-coated
Attached elements:	<ul style="list-style-type: none"> - Electronic temperature control - Control lamps - Connecting cable with plug
Weight:	approx. 20 kg



Due to the high current consumption, the heating element must not be connected to the aggregate, but to an external plug box with separate fuse protection.

1.5.1.3 Planer

Motor:	Monophase-alternating current-motor
Power:	1400 Watt
Voltage:	230 V ($\pm 10\%$)
Nominal current:	6.1 A
Frequency:	50 Hz ($\pm 10\%$)
RPM n2 of planer:	230 revs/min.
Gear:	Gear ratio: approx. 0.12
Max. RPM	28 revs / min
Attached elements:	- Switch on/off - Connecting cable with plug With earthing contact
Weight:	Approx. 37 kg

1.5.1.4 Hydraulic aggregate

Power:	0,3 Watt
Voltage:	230 V ($\pm 10\%$)
Current:	2,7 A
Frequency:	50 Hz
Phase displacement:	Approx. 18°
Hydraulic oil tank:	Approx. 1 l
Protective system:	IP 54
Electromotor and pump:	
RPM:	1380 (revs / min)
Max. pressure of the pump:	Approx. 120 bar
Working pressure:	0 – 100 bar adjustable
Volume velocity:	1.9 l/min
Weight:	23 kg

1.5.1.5 Basic frame

Reduction insert:	Dimensions can be selected
Material frame:	Machine steel
Material clamping shells:	Aluminium
Weight:	109 kg
Cylinder-Ø:	50 mm
Piston rod-Ø:	40 mm
Length of stroke of cylinder:	195 mm
Max. force: (F=P*A)	14140 N (at 100 bar)
Velocity of piston rod:	2.2 cm/s

For article numbers and component parts see spare parts list

1.5.1.6 Protective box

Weight heat protective box:	Approx. 25 kg
-----------------------------	---------------

1.6. Equipment and accessories:

The following accessories are part of the first delivery:

1 x	Socket wrench size 27 (for clamping the pipes)
2 each	Hexagonal socket screw short size 3; 10
2 each	Hexagonal socket screw size 4; 5; 7 with T-grip (for reduction inserts and adapters)
1 x	Torx screw driver T10
optional	Reduction inserts, roller brackets for the pipes, current transformer for model 42 V

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.

The security notices of this chapter represent the general part.

Particular information is listed directly before the corresponding actions.

- These working instructions provide you with the most important information to run the machine safely.
- The safety information must be read by all persons who work on the machine.

2.1. Explanation of the different symbols

The working instructions contain the following signs for certain situations:



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. Obligations of the owner

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

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

The safety-conscious working of the staff should be checked in regular intervals.

2.3. Obligations 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 organization

- 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 5100 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 materials damages are possible.

The machine may only be used:

- according to the purpose-oriented usage
- 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 electric energy



Only skilled workers 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 hydraulic



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. Specific 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 boddy.
- Do not wear rings or jewellery during 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 on the planer only for use. If the planing pressure is too high, there is the danger that the planer tills and falls out of the machine 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 is heated up to more than 250°C!

- Do not touch the surface 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 into the heat reception box after and before 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 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 or foot between clamped pipe ends.
- Do not stand or put hands between the inner clamping devices with not yet clamped pipes.
- Do not block opening and closing of the machine slides.

2.11.5 Risk of injury by noises



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

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 properly and disposed of properly, especially:
 - when cleaning with solvents
 - when lubricating with oil and grease.

2.14. Guarantee 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 checkings of parts of the machine, which are worn out.
- 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 standard specifications are to be fulfilled.

The plastic pipes are clamped in the clamping devices.

Then the front side of the pipes are cut plane and parallel by means of the **planer**, and missalignment 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 operation is called "**adjusting**".

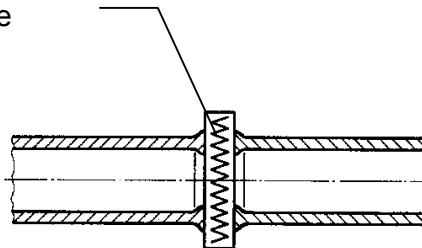
After the prescribed bead height is reached, pressure is reduced, the **heating time** begins. The function of this time is to heat up the pipe ends..

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**.

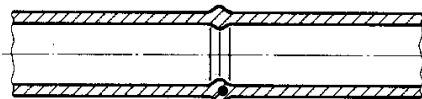
The pipes are joined with the prescribed welding pressure and then cool down under pressure (**cooling time**).

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

Heating element heats the pipes
up to welding temperature



Finished weld joint with
internal and external bead



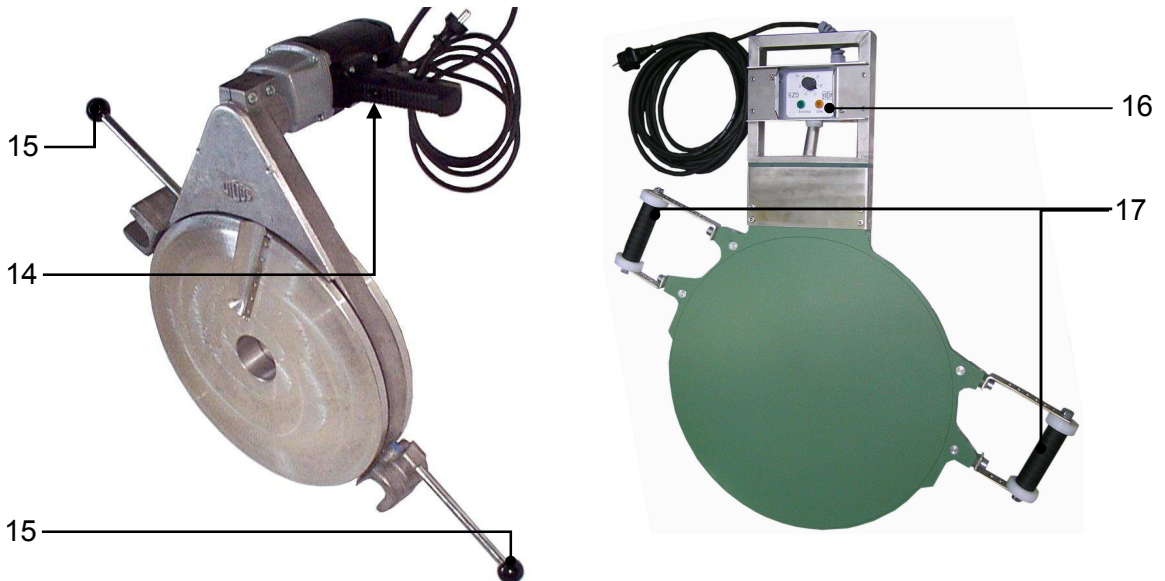
4. Operating and indicating elements

4.1. Elements on the aggregate



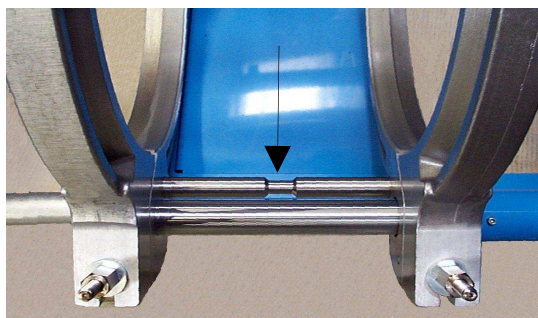
No.	Denomination	Function
7	Pressure gauge	Digital display of the hydraulic pressure
8	Valve lever	Opening/closing the slide. There are 4 different positions: - to the left side : slide closes - in the middle (usual position): the pressure is currently achieved is kept (also by means of the hydraulic accumulator) - slightly to the right side (position pressureless): a possibly existing pressure is released without moving the slide. Due to the hydraulic accumulator it takes about 10 s until the pressure is completely released. - to the right side : slide opens
9	Adjusting screw for pressure relief valve	- For the limitation of the hydraulic pressure to the desired value
10	Hydraulic connection for closing	- Non-dropping quick-action hose coupling
11	Hydraulic connection for opening	- Non-dropping quick-action hose coupling
12	Screw with oil level stick	- Checking the oil-level - Filling in oil

4.2. Elements at heating element and planer



No.	Denomination	Function
14	Switch on / off for planer	- Switching on the planer at the switch and the fixing knob - The planer has to be switched off before and after use
15	Handle	- For lifting the planer in the machine or in the protective box
16	Control	
	Control lamp red	- There are 3 statuses: <ul style="list-style-type: none"> • off: heating element is not heating up or is cooling at the moment • blinking: temperature of heating element is kept. (reached by a pulse-position ratio) • on: heating element is heating up at the moment. Desired temperature is not yet reached
	Control lamp green	- Indication for mains connection
	Control knob	- Temperature control of heating element
17	Handle	- For lifting the heating element in the machine or in the protective box

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).

5. Starting and operating

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

This includes:

- the safe operation of the machine
- using all the possibilities
- running the machine economically

5.1. Starting



The machine should only be operated by trained and authorized people. For the qualification a plastic welding exam can be taken according to DVS and DVGW.

In case of danger unplug the machine immediately.

In case of power failure, the hydraulic system can still be under pressure. For this reason, release pressure when required.

After completion of the welding work and during breaks the machine has to be switched off. Further be sure that no unauthorized persons have access. Protect the machine from wetness and moisture !



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.



Clean the heating element only in a cold state ⇒ danger of combustion / burning.



Take care that all hydraulic and electric connections are connected.

Take into consideration the environmental conditions:

- Welding should not be carried out in direct sunlight.
- If necessary put up a welding tent.
- In case of ambient temperatures below 5°C the following measures have to be taken: If need be, put up a welding tent and heat up the pipe ends.
- Take measures against rain, wind and dust.

5.2. Connection hydraulic aggregate with the basic machine

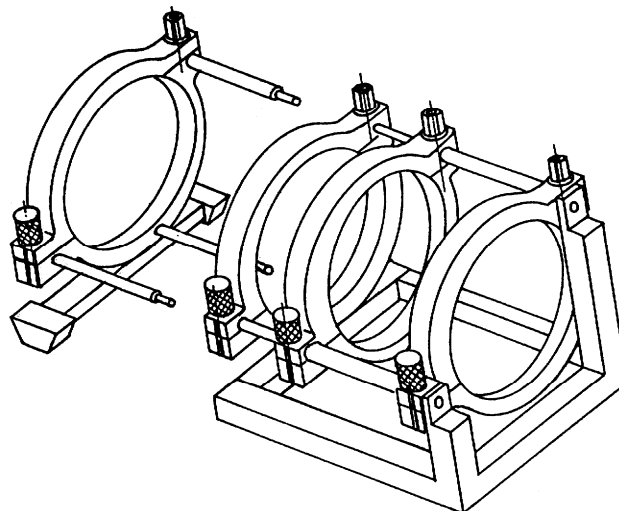
- Connect the power line plug of the hydraulic aggregate to the mains (230 V/50 Hz).
- Connect the planer to the corresponding plug of the aggregate. Connect the heating element on an **external** plug box. Otherwise there is the danger of overloading the current lead.
- Connect the hydraulic hoses of the basic machine to the quick-action couplings of the hydraulic aggregate.



Lay the hydraulik and electro wires carefully! (Danger of Stumbling)

5.2.1 Exchanging the reduction inserts

- Unscrew the already mounted reduction inserts by means of the Allan key being part of the delivery.
- Screw on the reduction inserts with the corresponding diameter.
For clamping the diameters between 200 - 315 mm, adapters are needed which have to be screwed into the clamping shells before.
Pipes with the diameters OD 355 and OD 400 can be clamped without these adapters, pipes with OD 450 can be clamped directly.
- If necessary (e.g. T-pieces), the fixed outer clamping tool can be dismantled by unscrewing the three hexagon socket screws.



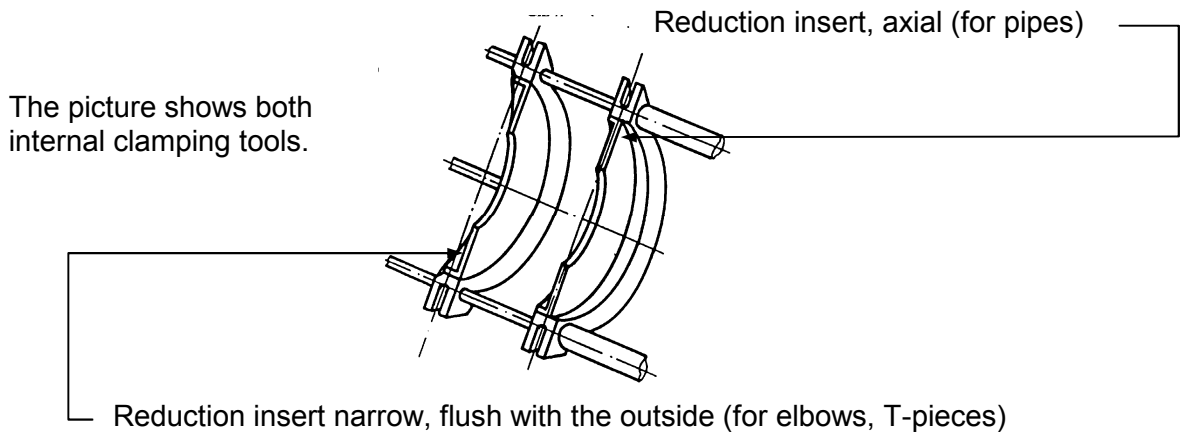
Dismantling of the fixed outer clamping tool

5.2.2 Using small and large reduction inserts

Small reduction inserts:

- pipe fittings often have an only short straight surface area on which they can be clamped.
⇒ Fittings often need to be clamped in the inner clamping tools with narrow reduction inserts.

- When welding fittings (elbows, T-pieces etc.) the inside narrow reduction insert can also be used flush with the outside.



Large reduction inserts:

- They are mainly used for a good tightening and are generally mounted on the inner clamping tools.

Super large reduction inserts have a specially high guidance quality and are mainly used at welding of fittings with long legs which can only be clamped with a single clamping tool.

5.3. Welding process

The respective 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 tools, on the other hand between the outer clamping tool and the end of the guide bar.

As soon as the heating element is connected to the mains, it starts to be heated up.

⇒ Do wear safety gloves as a protection against burning!

- * A stop-watch should be available for recording the actual times for the heating and cooling.
- * In the same way a table should be available from which the parameters for the pipe dimensions to be welded, prescribed by the welding prescriptions, may be taken.
- * The heating element surfaces are to be clean and, above all, free from grease. Therefore they are to be cleaned with non-fraying paper and detergent (e.g. PE - cleaner) before every welding or if they are dirty. The anti-adhesive coating of the heating element has to remain undamaged in the working area.

- Switch on the heating element and adjust the required welding temperature (reference value 200 - 220°C for PE80 / 220 °C for PE 100) at the adjusting screw.
 - The adjusted temperature is obtained when the control light is blinking and is kept constant by a certain pulse-position ratio.
- Screw in the reduction inserts according to the outside diameter of the pipes to be welded.
- Put the workpieces into the clamping tools, tighten the clamping nuts tightly and align the workpieces with respect to one another.

In case of long pipe ends, use WIDOS rollerstands for alignment.
- Close the slide, 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 slide again such that the planer fits therebetween.
- Swivel the planer between the pipe ends and switch it on.



There is the danger that the planer pulls in clothes!
Do not hold the planer on its front side in any case.

If the planing pressure is too high, there is the danger that the planer falls out of the machine during planing!



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 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 slide again by means of the valve lever, switch off planer motor, remove planer and put it into the heat protective box.

Remove the produced cuttings without contacting the worked surfaces.
- Close slide.
- 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 x pipe wall thickness, the admissible gap must not exceed 0.5 mm.

The mismatch compensation is carried out via further tightening or releasing of the clamping nuts.

In case of a mismatch compensation, planing must be carried out again afterwards.
- The adjustment pressure for the pipe dimension to be welded can be gathered from the table. Add the movement pressure.

Set the resulting pressure value at the pressure limiter valve and check by actuating the valve lever.
- Open slide again slightly.
- Take heating up time, maximum change-over time, cooling down time and bead height for the pipe dimension to be welded from the table.
- Put the heating element, which has been cleaned and brought to nominal temperature between the pipes, if necessary wait until the control lamp on the heating element is blinking in regular intervals. Take care that it lies in the zone of the throat of the tear-off bar (see point 4.3).

- Close slide smoothly to the set adjustment pressure.
When the prescribed revolving bead height has been reached, reduce pressure. For this purpose, move the valve lever to the position „pressure-less“ until the desired heating up pressure is built up (heating up 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 up time, open the slide, remove the heating element as quickly as possible, put it into the heat protective box and close the slide smoothly. 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 has been built up, press the stop-watch and keep the control lever for approximately 10s on the position „pressure“ so that the hydraulic accumulator can be filled. During the cooling down period re-adjust pressure, if necessary (the pressure for cooling down is the same as the set adjustment pressure).
- After expiration of the cooling down period, release pressure, remove the welded part and open the slide.

6. Welding logs and tables

Table for PE

Foundation: 2207, 2208 DIN 16932 German association for welding

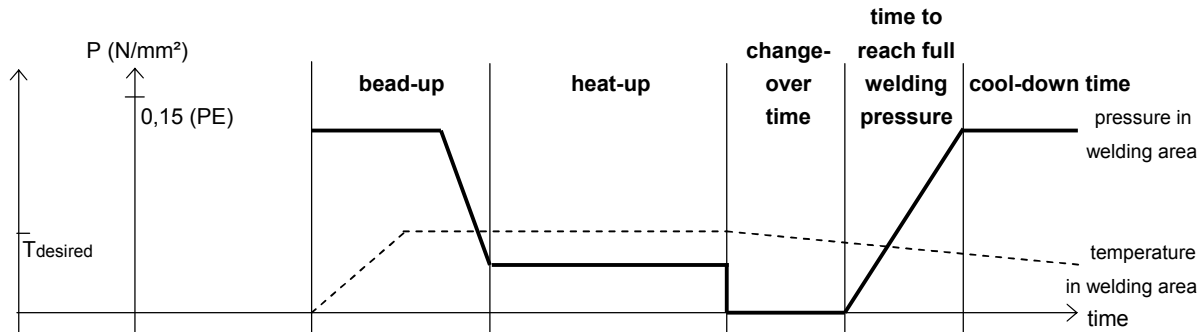
Use for: **5100** OD 200 - 450
5500 OD 200 - 500

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]
200	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	
225	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	
250	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

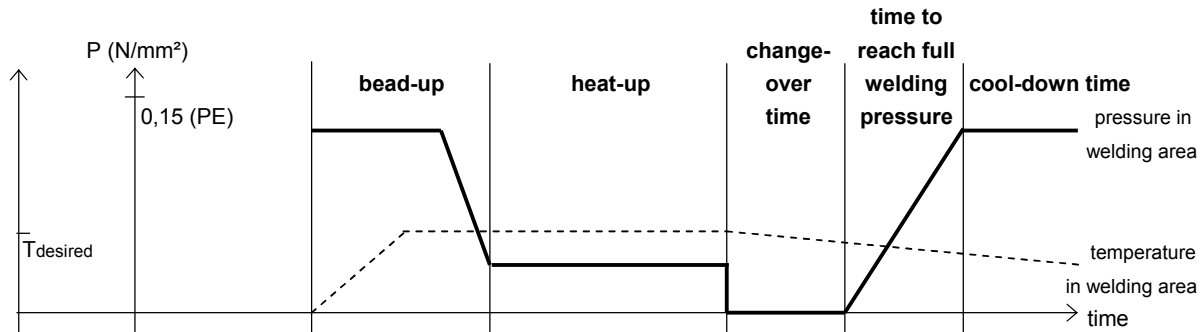
Use for: **5100** OD 200 - 450
5500 OD 200 - 500

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]
280	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	
315	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	
355	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

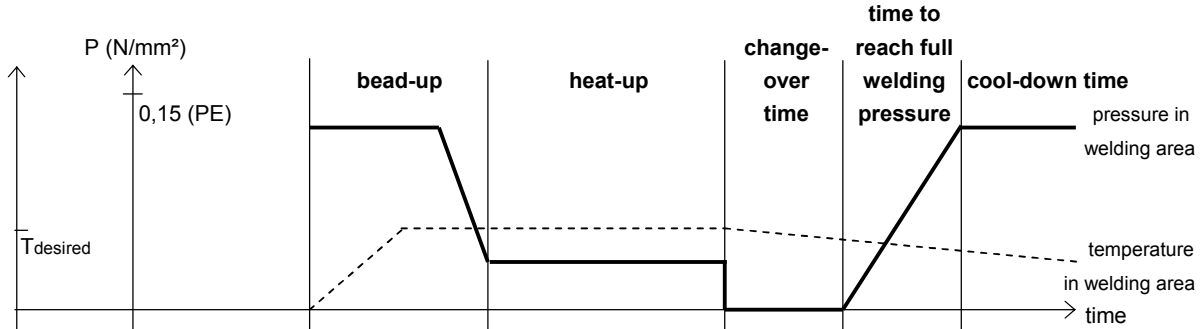
Use for: **5100** OD 200 - 450
5500 OD 200 - 500

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]
400	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	
450	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

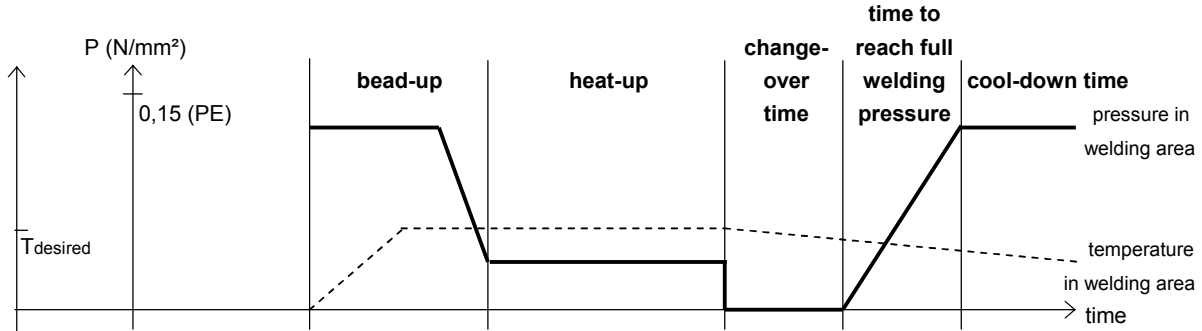
Use for: **5100** OD 200 - 450
5500 OD 200 - 500

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]
500	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

Table for PP

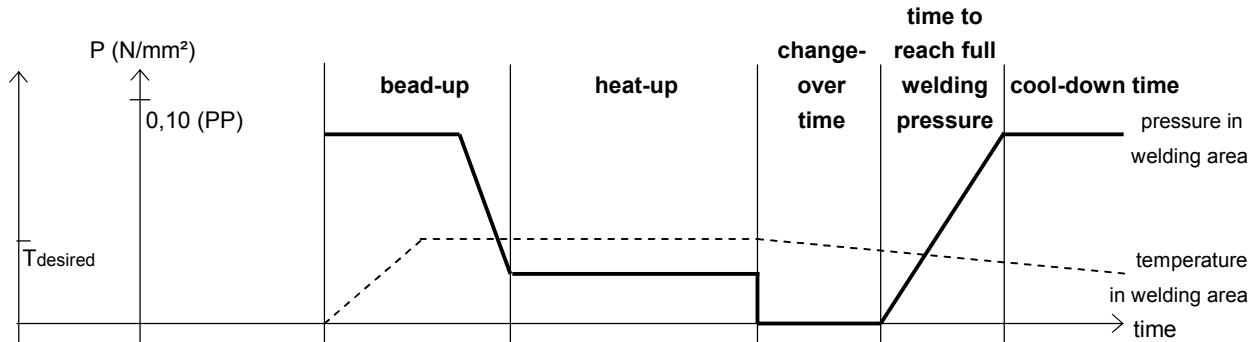
Foundation: 2207, 2208 DIN 16932 German association for welding

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

1 bar on manometer: **141 N**

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
200	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
225	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
250	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
280	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

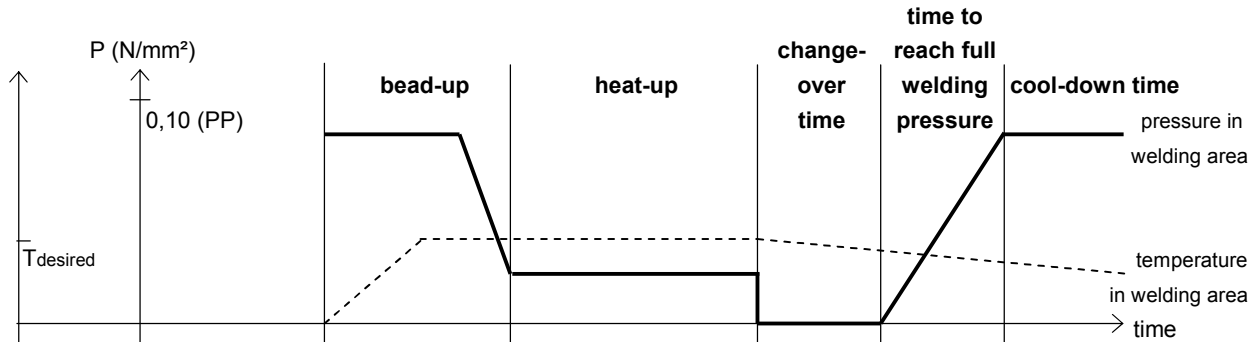
5500 OD 200 - 500

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
315	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
355	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
400	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
450	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
500	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

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

Table for PVDF

Foundation: 2208, 2207 Part 15 German association for welding

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

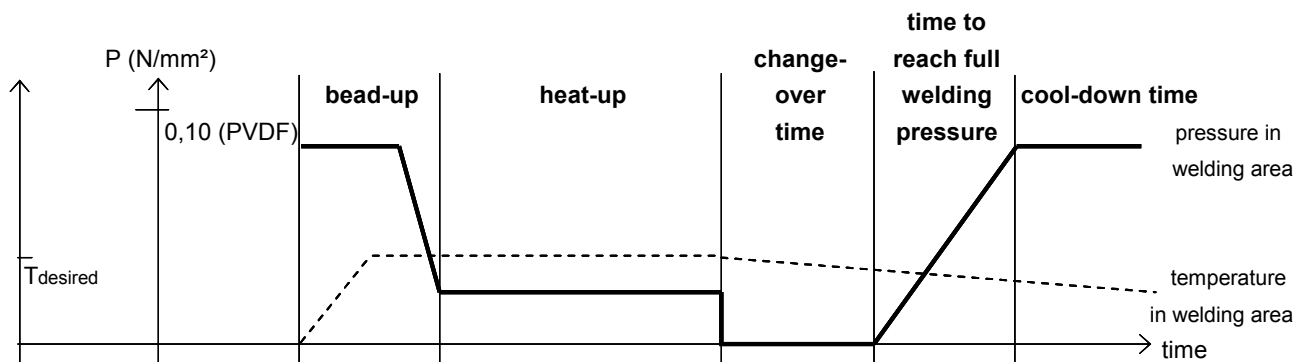
5500 OD 200 - 500

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]
200	6,2	3	0,6	102	4	5	3	9,5
	9,6	5	1,0	136	4	7	5	13,5
225	6,9	4	0,7	109	4	6	4	10,5
	10,8	6	1,0	148	4	7	6	15,0
250	7,7	5	0,7	117	4	6	5	11,0
	11,9	7	1,1	159	4	8	7	16,5
280	8,6	6	0,8	126	4	6	6	12,5
315	9,7	7	1,0	137	4	7	7	13,5

7. Maintenance and repair

Goal of the chapter is:

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

7.1. 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.

7.2. Planer

- Check the stress of the linkage in the planer and grease it regularly. Dismount the cover to get to the linkage.
- Do not lay the planer on its blades.
- The blades of the planer must be checked for sharpness and exchanged if necessary. For that purpose, screw off the cover of the planer by means of an Allan key (blades are grinded on both sides, max. thickness of the chips = 0.2 mm!).

7.3. Storing

- 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.

7.4. Used hydraulic oil

Only use **HLPD 32**.

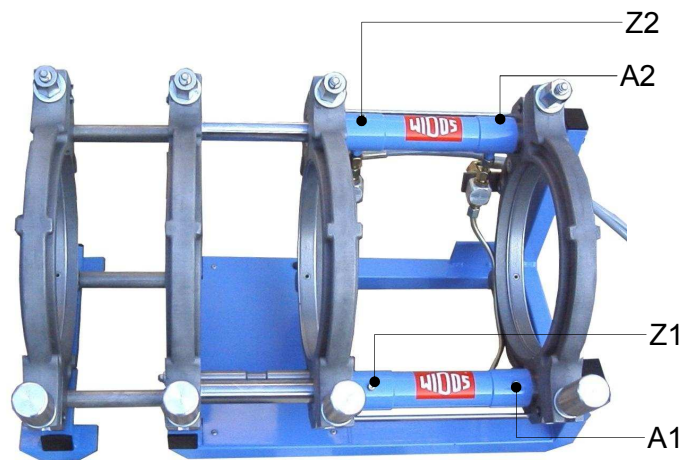
Features: protection against corrosion, resistance to ageing, abrasion-reducing additives, high carrying capacity and particulary water retending.

The hydraulic oil has to be handled properly and to be disposed of.

7.5. Checking the hydraulic oil level

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

7.6. Venting the hydraulic cylinders



- 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.

8. Transport

The machine can be transported either by means of two transport boxes or by one packing box.

One transport box is provided for the basic frame, the hydraulic aggregate and the heat protective box with planer and heating element, the other one contains the reduction inserts.

- The hydraulic hoses at the basic machine should not be unscrewed (air penetration).

⇒ Make sure that they are not being squeezed.

- Handle the machine with care.

⇒ Do not tilt the hydraulic aggregate because oil may come out.

⇒ Protect from heavy shocks and impacts.

⇒ Make sure that the box cover is well closed.

- Care was taken to build the transport boxes according to lightweight construction.

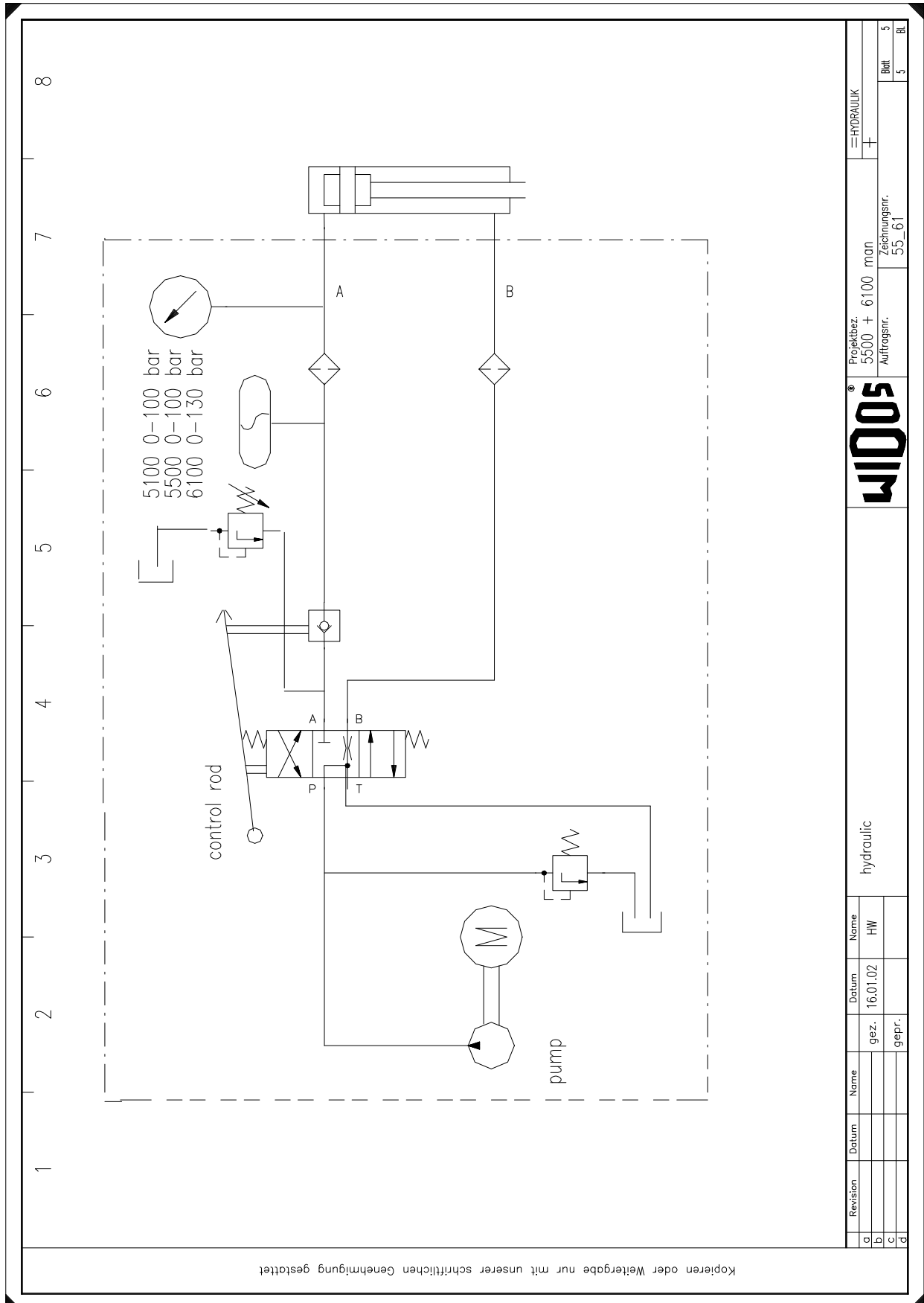
⇒ Be always careful while using automatic handling and carrying machines.



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

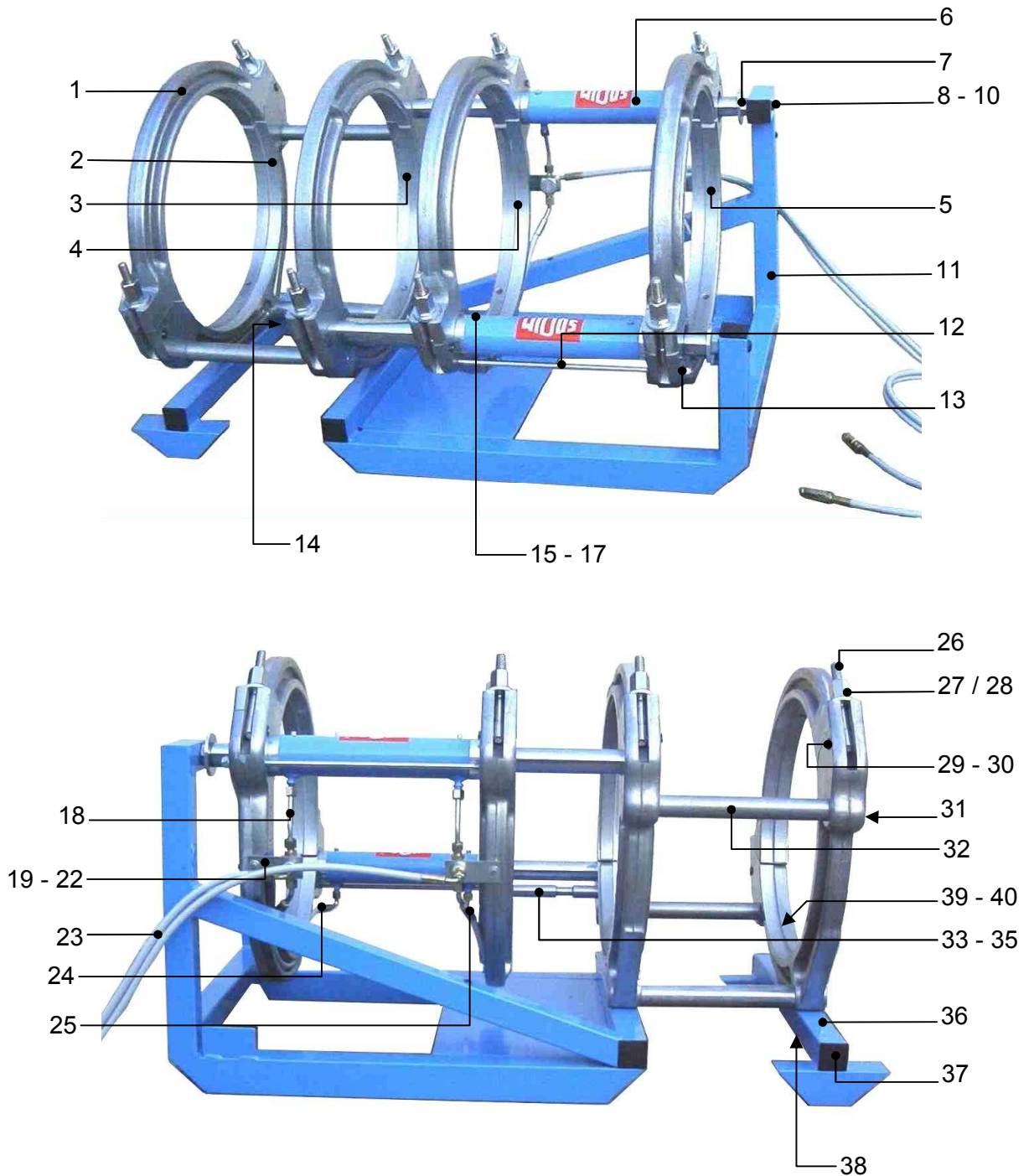
Therefore the eyes must be lubricated with PTFE-spray before transport!

9. Hydraulic and electric diagrams



10. Spare parts list

10.1. Basic machine



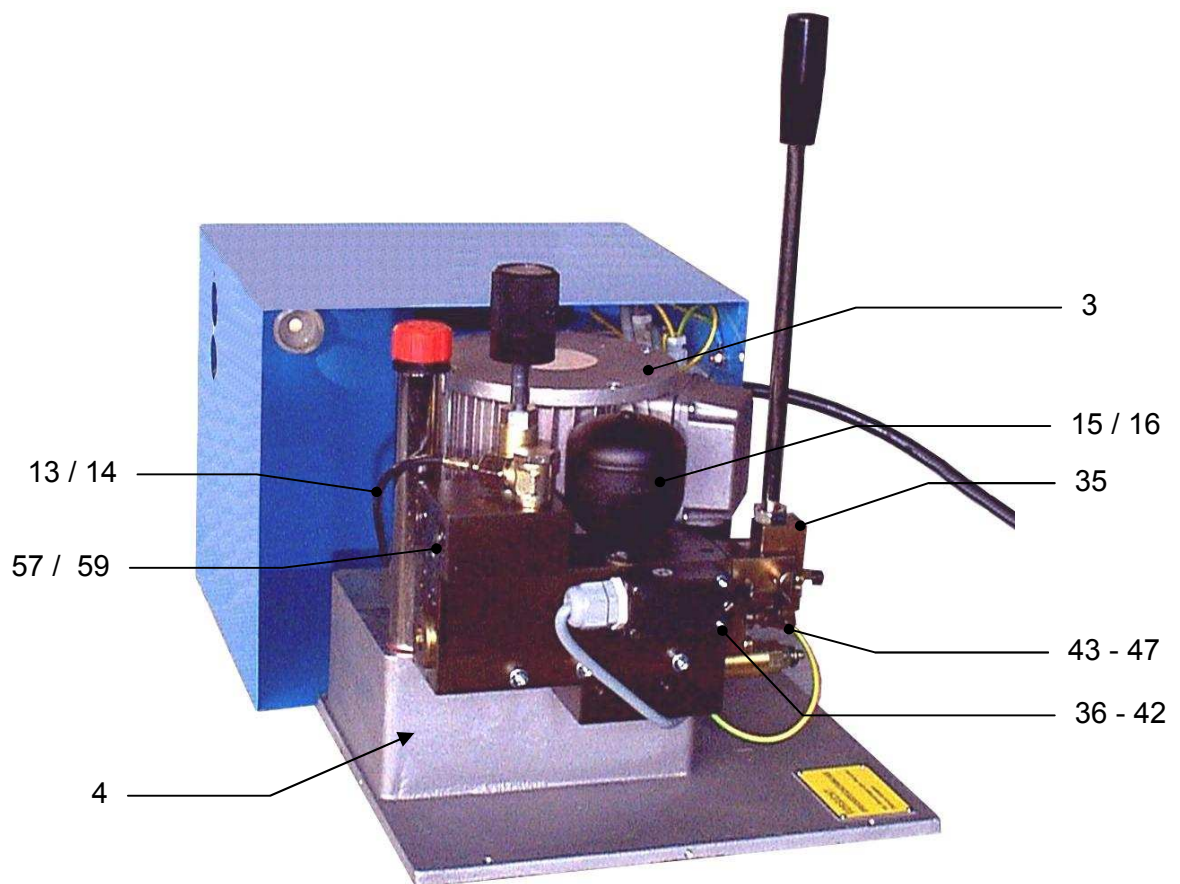
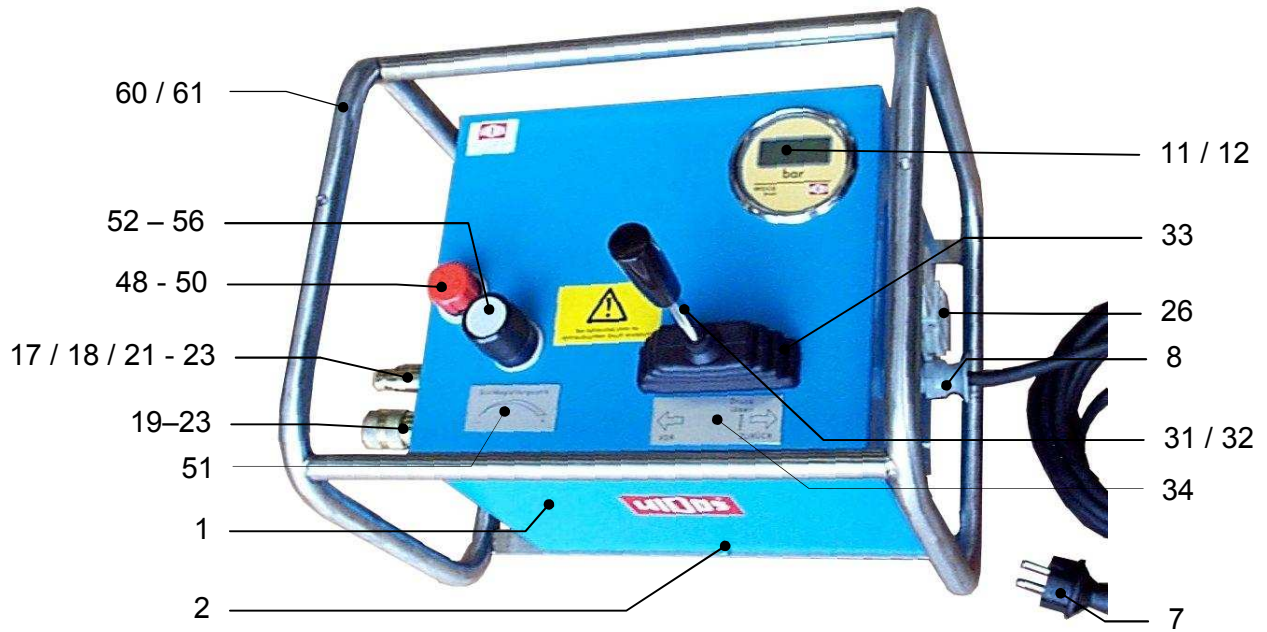
Basic machine WIDOS 5100

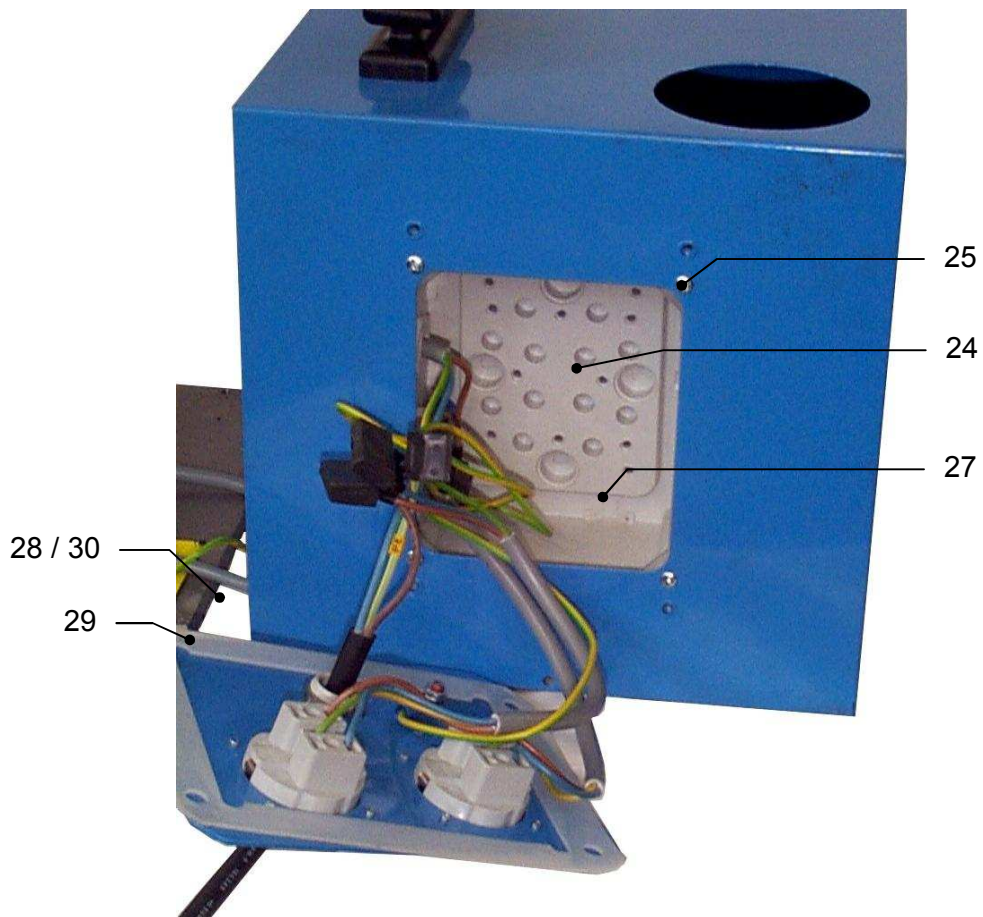
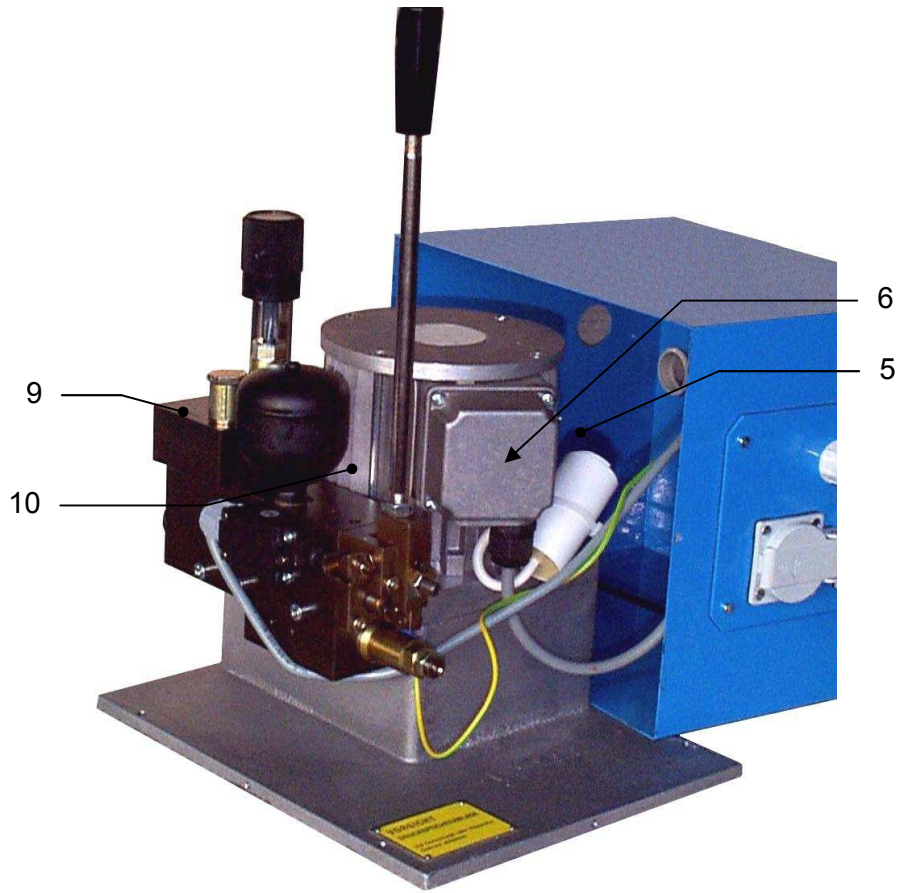
Pos.	Name	Piece	Art.no.
1	Upper clamp	4	071105
2	Outer clamp, fixed	1	071101
3	Inner clamp, fixed	1	071102
4	Inner clamp, movable	1	071103
5	Outer clamp, movable	1	071104
6	Hydraulic cylinder	2	071106
	Gasket set for cylinder	2 set	D0711061
7	Stop bolt	2	091117
8	Pressure disc	2	071133
9	Pan-head screw M10x25 DIN 912	2	0912J025
10	Protective cap, round	2	J0216
11	Base frame	1	071118
12	Tie rod	2	071107
13	Counter nut M10 DIN 985	2	0985J
14	Flat-head screw M 16x30 DIN 7991	2	7991P030
15	Cylinder head screw M6x10 DIN 912	4	912F010
16	Usitring 6x9,3x1	4	D6x9,3
17	Wascher M8 DIN 125	4	0125H
18	Fluid power cylinder	2	071113
19	Holder for filter	2	093119
20	Hexagon screw M8x20 DIN 933	2	0933H020
21	Filter	2	V092114
22	Screwed connection GE 8 LR 3/8"	2	VXGE8L38
23	Hose bunch, on one side	2	VSCHL5100
24	Hydraulic hose short, left	1	on request
	Hydraulic hose simple	1	VSCHL61
	Compressed bushing	2	VP256
	Bow-shaped nipple	1	VB386
	Bow-shaped 45°	1	DKOR6
25	Hydraulic hose short, right	1	on request
	Hydraulic hose simple	1	VSCHL61
	Compressed bushing	2	VP256
	Bow-shaped nipple	1	VB386
	Bow-shaped 45°	1	DKOR6
26	Threaded rod	8	071108
27	Nut	8	071109
28	Pressure disc M 14 DIN 6340	8	6340P
29	Rivet	8	071111
30	Lock washer Gr.9 DIN 6799	8	6799I
31	Flat-head screw M 16x30 DIN 7991	6	7991P030
32	Shaft	3	071131
33	Tear-off bar	1	071503
34	Hexagon screw M8x12 DIN 933	2	0933H012
35	Washer M10 DIN 9021	2	9021H

Basic machine WIDOS 5100

Pos.	Name	Piece	Art.no.
36	Support	1	071141
37	Protective cap 45x45	6	J0225
38	Pan-head screw M10x20 DIN 912	3	0912J020
39	Reduction insert OD 355-400	1 set	0708...*
	Adaptor half coupling (OD 315)	1 set	071142
	Reduction insert OD 200-280	1 set	3808...*
40	Screw M10x30 DIN 7884 (OD 400)	8	7984J30X
	Screw M10x35 DIN 7984 (OD 355)	8	7984J35X
	Screw for adapter half coupling M10x70 (OD 315)	8	7984J70X
	Screw M6x25 f. reduction inserts OD 280	8	0912F25X
	Screw M6x30 f. reduction inserts OD 200-250	8	0912F30X
--	Hydraulic oil HLDP 32	2 l	HLPD35
--	Socket spanner size 27	1	ZRS27
--	Plate "manometer"	1	SCHM5100
--	Type plate	1	SCHT5100

10.2. Hydraulic aggregat

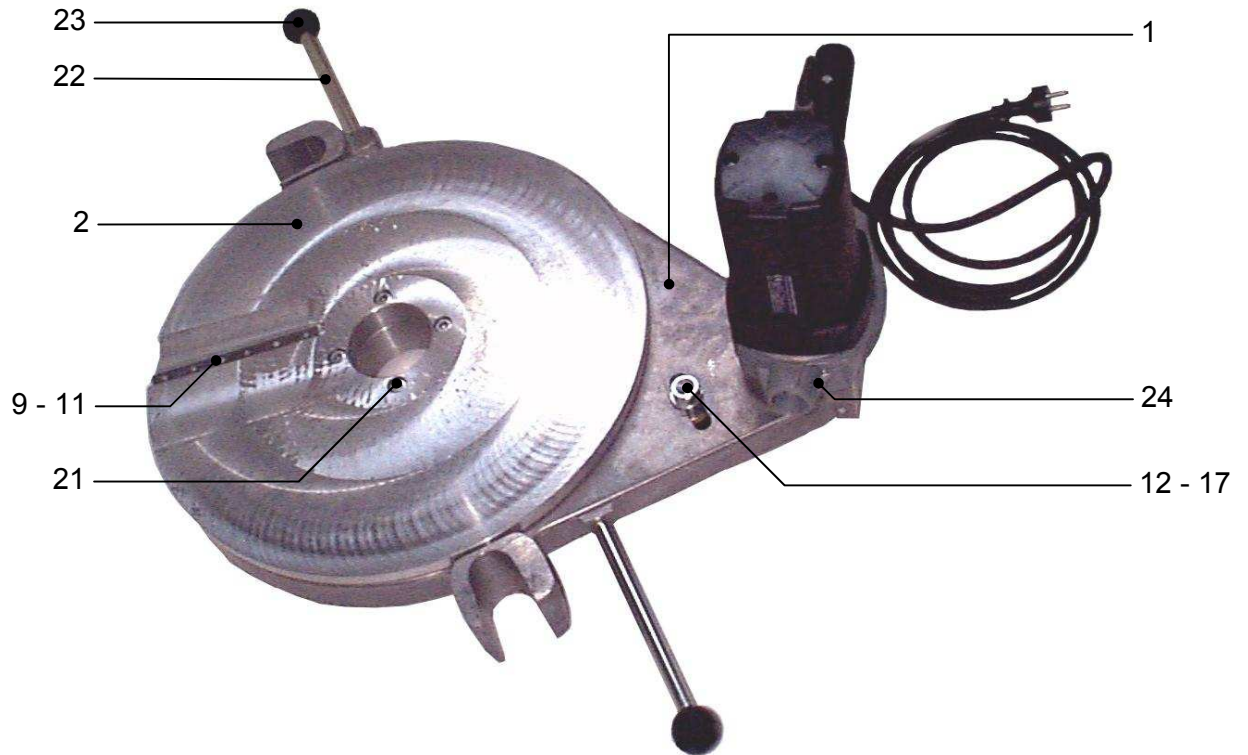




Hydraulic Aggregate WIDOS 5100			
Pos.	Name	Piece	Order no.
1	Cover	1	1010021
2	Pan-head screw M4x12 DIN 912	4	0912D012
3	Motor	1	on request
4	Pump 1,9 l	1	102103
5	Capacitor 12,5 µF	1	EK12220
6	Universal RC - link	1	EE0104
7	Connection cable with plug	1	EK32220
8	Screwed connection PG 13,5	1	EV0113
9	Valve	1	on request
10	Pan-head screw M6x45 DIN 912	4	0912F045
11	Manometer	1	101004
12	Manometer connection	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 sleeve flat packing	1	VMU14
18	Synthetic cap fVMU14	1	VKM14
19	Coupling plug flat packing	1	VST14
20	Synthetic cap fVMST14	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	Stick for valve	1	101013
32	Cylinderknob M10	1	101033
33	Boot	1	101035
34	Plate "Pressure loosen"	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 Aggregate WIDOS 5100			
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 dip rod	1	101021
53	Hydraulic oil	1 l	HLPD35
54	Filling nozzle	1	101026
55	Coper ring 14x18x1,5 DIN 7603	1	D14x18
56	Cable bushing Kt21	2	EKT21
57	Leading-in for tubes	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

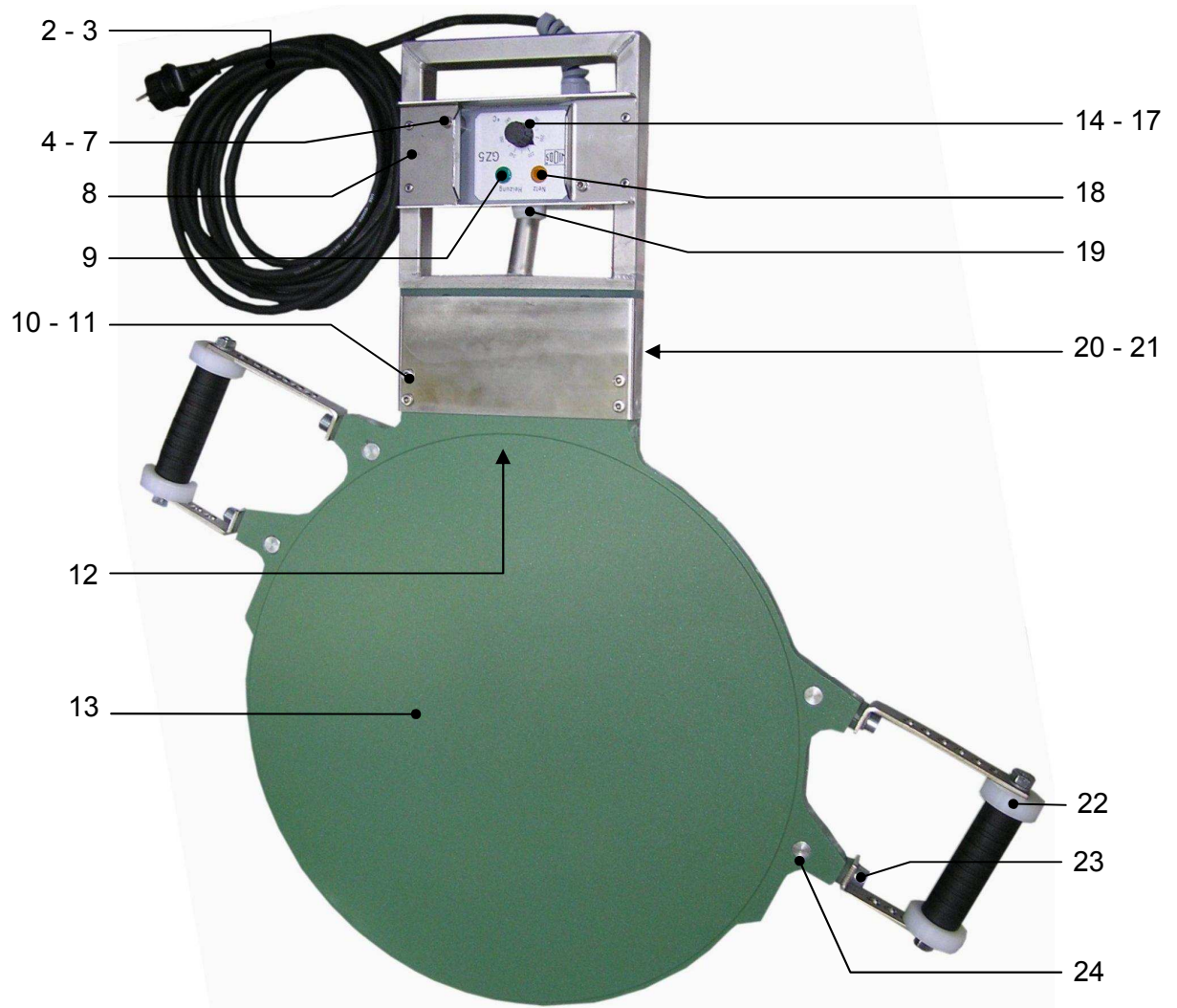
10.3. Planer



Planer WIDOS 5100

Pos.	Name	Piece	Art.no.
1	Holder for Planer	1	071411
2	Planer disc, right	1	071412
3	Planer disc, left	1	071413
4	Cover	1	071404
5	Cylinder head screw M 4x16 DIN 912	2	0912D016
6	Ball bearing 6024	1	L6024
7	Chain wheel, big 3/8" 95Z	1	023406
8	Flat head screw M 8x20 DIN 7991	4	7991H020
9	Knife	2	MES170
10	Flat head screw M 3x8 DIN 965	12	0965C008
11	Spacer	2	MU170
12	Ball bearing 6003Z	2	L6003Z
13	Bolt	1	210410
14	Washer M 16 DIN 125	5	0125P
15	Hexagon nut M16x1,5 DIN 934	1	0934Y
16	Chain 3/8" 137 pieces	1	K38137
17	Chain joint 3/8"	1	KSCH38
18	Chain wheel, small 11 Z	1	K38011
19	Motor 1400 W, 230 V	1	AMBF23
	Switch for Motor	1	ESMBF16
	Collector carbon	1 set	EKMBF23
20	Connection cable	1	EK3220
21	Cylinder head screw M 10x40 DIN 912	4	0912J040
22	Handlebar	2	071409
23	Ball button	2	0319C40
24	Cylinder head screw M 10x40 DIN 912	2	0912J040

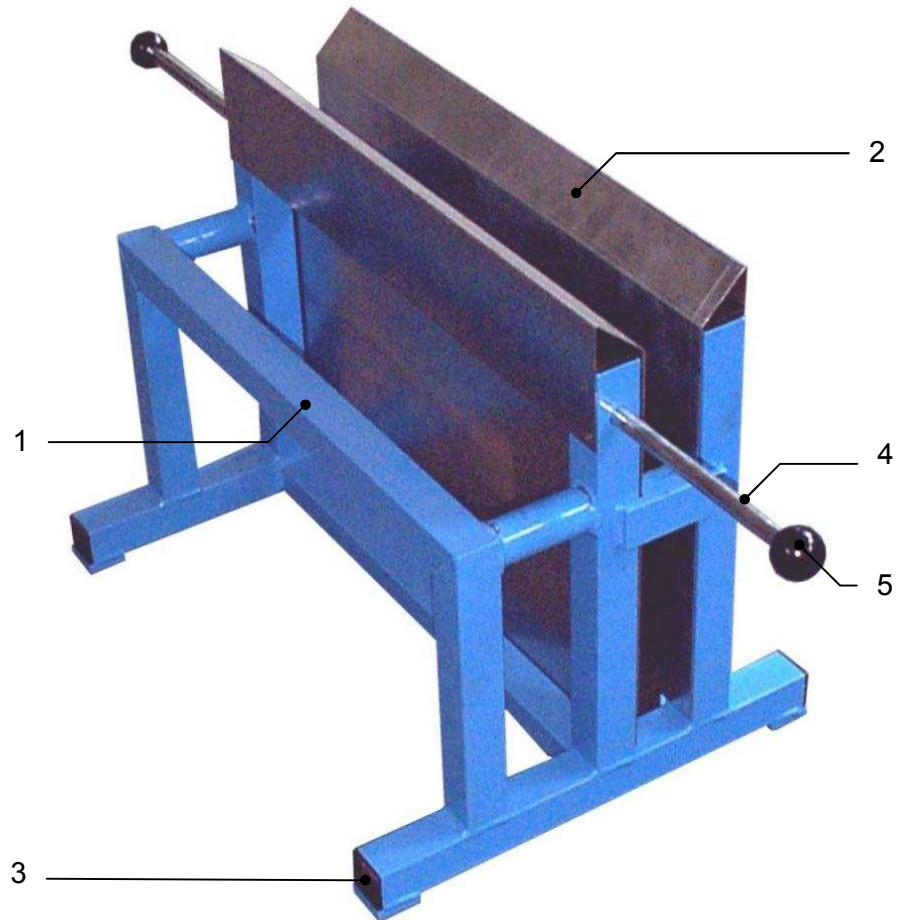
10.4. Heating element



Heating Element WIDOS 5100

Pos.	Name	Piece	Art.no.
1	Frame for terminal box	1	071534
2	Connecting cable	1	EK3220
3	Bolting HKL	2	EVH1313
4	Pan-head screw M 5x25 DIN 912	2	0912E025
5	PTFE-distance washer	2	211508
6	Washer M5 DIN 125	2	0125E
7	Spring washer M5DIN 127	2	0127E
8	Panel	1	071537
9	Control lamp green	1	H2105
10	Plug bolt M6	4	on request
11	Flat head screw M 6x12 DIN 7991	8	7991F012
12	Temperature probe PT 1000	1	H09082
13	Heating plate	1	HP5100E
	Heating plate for change	1	HPT5100E
14	Terminal box	1	on request
15	Cover for terminal box	1	on request
16	Control GZ4 with extend axis	1	H0928230
17	Knob for temperature	1	H2109
18	Control lamp yellow	1	H2106
19	PTFE - insulating disk	1	211505
20	Cover plate	1	071536
21	Oval-head screw M3x6 DIN 7985	9	7985C006
22	Handle, kpl.	2	H07021
23	Pan-head screw M 10x40 DIN 912	4	0912J040
24	Handle bolt	4	HGEW-M10

10.5. Reception box



Reception box Widos 5100

Pos.	Name	Piece	Order no.
1	Mounting	1	071512
2	Heat absorbing steel sheet	2	0715121
	Blind rivet 4x10 DIN 7337	8	7337D010
3	Fitting cap	4	on request
4	Handlebar	2	071409
5	Sherical button	2	0319C40

11. Declaration of conformity

in the sense of the EC-guideline EC, EG-MRL 2006/42/EG

Corporation

WIDOS GmbH
Einsteinstr.5
D- 71254 Ditzingen- Heimerdingen

declares under own responsibility that the product

Plastic welding machine
WIDOS 5100

to which this declaration refers corresponds to the following norms and norming documents:

1. DIN EN ISO 12100 – 1 und 2 (replacement for DIN EN 292 part 1 and 2)
Safety of machines, basic terminology, gen. design guidelines
2. DIN EN 60204.1
Electric equipment of industrial machines
3. DIN EN 4413
Safety technology requirements at fluid technical devices and components
4. EN 60555, EN 50082, EN 55014
Electro-magnetic resistance

The technical documentation is completely available.

Ditzingen - Heimerdingen, the 30.06.11

Dieter Dommer (Manager)