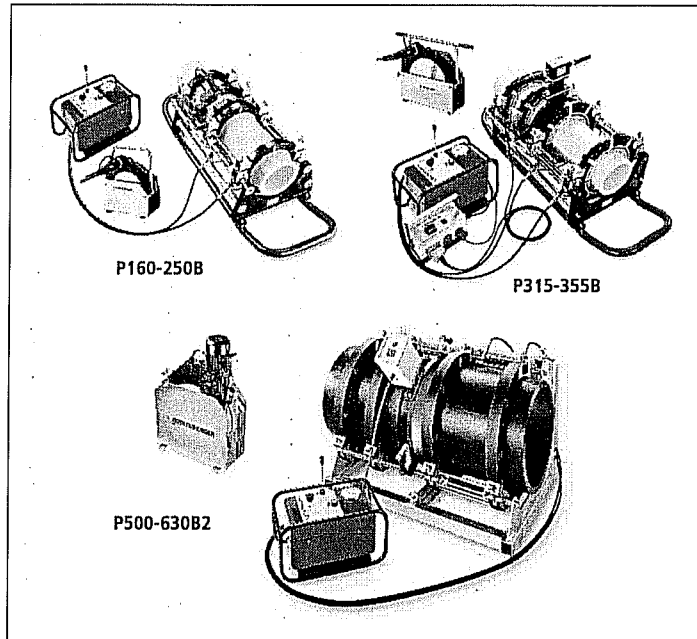


ROTHENBERGER

ROWELD®

P160-250-315-355B

P500-630B2



- | | | | | |
|--------|--------------------------|-------------|--------------------------|-----------------|
| P160B | <input type="checkbox"/> | 5.5250 230V | <input type="checkbox"/> | 5.5290 110/115V |
| P250B | <input type="checkbox"/> | 5.5160 230V | <input type="checkbox"/> | 5.5151 110/115V |
| P315B | <input type="checkbox"/> | 5.5445 230V | <input type="checkbox"/> | 5.5429 110/115V |
| P355B | <input type="checkbox"/> | 5.5455 230V | | |
| P500B2 | <input type="checkbox"/> | 5.3400 400V | <input type="checkbox"/> | 5.3415 basic |
| P630B2 | <input type="checkbox"/> | 5.3300 400V | <input type="checkbox"/> | 5.3355 basic |

(D) (GB) (F) (E) (P) (NL)

ROTHENBERGER Werkzeuge GmbH
Industriestraße 7 D-65779 Kelkheim/Germany
Tel. +49 (0) 6195 - 800-1 Fax +49 (0) 6195 - 7 44 22
E-Mail : verkauf@rothenberger.de
internet : www.rothenberger.com

CE

Impressum / Imprint:

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**Betriebsanleitung bitte zuerst vollständig durchlesen! • Nicht wegwerfen!
Bei Schäden durch Bedienungsfehler erlischt die Garantie!**

**Please read the Instruction Manual carefully first! • Don't throw it away!
If damages are caused by operating errors or misuse the warranty expires!**

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ROTHENBERGER Werkzeuge Produktion GmbH
Lillenthalstraße 71 - 87 • D-37235 Hessisch-Lichtenau

HOTLINE

Für Ersatzteile / for spare parts:

PHONE +49 (0) 5602/9394-38

FAX +49 (0) 5602/9394-36

ROWELD-PARTS@ROTHENBERGER.DE

Für technische Informationen / for technical information

PHONE +49 (0) 6195/800-220

FAX +49 (0) 6195/800-460

ROWELD-INFO@ROTHENBERGER.DE

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1. Safety Instructions

1.1 Designated use

ROWELD P160-250-315-355B and P500-630B2 are solely designed for producing weld joints on PE and PP pipes with an outer diameter of 40-355mm or 200 – 630 mm.

1.2 Applied safety symbols and their meaning



Failure to comply with these safety marks (WARNING) means danger to life and health of individuals.



Failure to comply with these safety marks (CAUTION) means a possibly dangerous situation which may result in injuries or damage to property.



This symbol (NOTE) points to important advice for the proper handling of the machine. Failure to comply with these notes may cause malfunction of the machine or interference to the environment.

1.3 Indication to the safety of man and machine



Keep your working area in an orderly state. Disorder can cause accidents!



Bear ambient factors of influences in mind. Do not expose electrical power tools to rain. Do not use electrical power tools in damp or wet environments. Ensure good lighting. Do not use electrical power tools in the proximity of combustible liquids or gases



Protect yourself from electric shock. Avoid bodily contact with earthed parts, e.g. pipes, radiators, cookers, refrigerators!



Keep children away. Do not allow other persons to touch the tool or flex. Keep other persons away from your working area.



Store your tools safely. Unused tools should be stored in a dry and locked room and in such a way that they are not accessible to children.



Do not overload your tool. You will work better and more safely if you stay within the specified capacity range.



Use the proper tool. Do not use tools or adapter devices which are too weak for heavy work. Do not use tools for purposes and work for which they were not intended, e.g. do not use handheld circular saws to cut trees or branches.



Wear suitable work clothing. Do not wear wide clothing or jewellery, both of which can be caught by moving parts. When working outdoors, rubber gloves and anti-slip shoes are advisable. If your hair is long, wear a hairnet.



Wear protective goggles. Use an oxygen mask for work where a dusty atmosphere is likely to be generated.



Do not misuse the flex. Do not carry the tool by the flex and do not use the flex to pull the plug out of the socket outlet. Protect the flex from heat, oil and sharp edges.



Secure the work piece. Use clamping mechanisms or a vise in order to secure the work piece. In that way, the work piece is held more securely than when held by your hand and allows you instead to operate the machine using both hands.



Do not overextend your standing area. Avoid abnormal postures. Ensure that you are standing safely and have proper balance at all times.



Take care of your tools meticulously. Keep your tools sharp and clean to enable you to work well and safely. Adhere to the maintenance instructions and the instructions for tool changing. Check the plug and the flex regularly and, if they are damaged, have them upgraded by an approved professional. Check the extension cable regularly and replace it if damaged. Keep the handgrips dry and free from oil and grease.



Pull out the mains plug when not using the tool, before performing maintenance work and when changing a part of the tool, such as e.g. saw blade, drill and machine tools of all kinds.



Do not leave a tool wrench inserted. Before switching on the power, check that the wrenches and setting tools are removed.



Avoid starting the tool unintentionally. Do not carry tools which are connected to the power mains while holding your finger on the switch. When plugging the tool into the power mains, make sure that the switch is off.



Extension cables outdoors. When working outdoors, only use extension cables which are approved for this purpose and correspondingly labelled



Be at all times attentive. Monitor your work. Proceed rationally. Do not use the tool if you are not able to concentrate



Check your appliance for damage. Before using the tool any further, check carefully that the protective mechanisms and any slightly damaged parts are functioning perfectly and in line with the regulations and with their intended purpose. Check that the moving parts are functioning properly, that they are not stuck and that no parts are damaged. All parts must be mounted properly and all conditions fulfilled in order to ensure the sound operation of the appliance. Where not otherwise stated in the operating manuals, damaged protective devices and parts should be properly repaired by a customer service workshop or replaced by same. Damaged switches must be replaced by a customer service workshop. Do not use tools on which the power switch cannot be switched on and off.



Caution. For your own safety, only use accessories and auxiliary devices which are specified for use in the operating manual or recommended or specified by the tool manufacturer. The use of tools or accessories other than those recommended in the operating manual or in the catalogue can entail a danger of personal injury to you.



Have your electrical power tools repaired by a skilled electrical specialist. ROTHENBERGER electrical power tools are in accordance with the relevant safety regulations. Repairs are only permitted to be performed by a skilled electrical specialist. Otherwise, accidents can happen to the user.



2. Technical Data	P160B	P250B	P315/ 355B	P500B2	P630B2
Basic unit					
Pipe welding range Ø:	40-160mm	90-250mm	90-315/ 355mm	200-500mm	200-630mm
Pipe capacity	All conventional pressure stages and SDR series				
Cylinder stroke, max.	100mm	166mm	166mm	200mm	200mm
Total cylinder surface	3,53cm ²	6,26cm ²	6,26cm ²	14,13cm ²	14,13cm ²
Cylinder inner diameter	25mm	32mm	32mm	50mm	50mm
Piston rod diameter	20mm	25mm	25mm	40mm	40mm
Leading dimensions (tubular frame included)	1120x370x 300mm	1450x520x 460mm	1450x580x 600	1300x900x 800mm	1300x1060x 920mm
Weight	29 kg	59 kg	71 kg / 68 kg	190 kg	300 kg
Trimmer unit					
Power supply	230V, 600W, 2,9A 110/115V, 600W, 5,8A	230V, 650W, 3,0A 110/115V, 650W, 6,0A	230V, 650W, 3,0A 110/115V, 650W, 6,0A	400V, 750W, 2A	400V, 1100W, 2,9A
Rotary speed	1250min ⁻¹	540min ⁻¹	540min ⁻¹	140min ⁻¹	140min ⁻¹
Idle running speed (milling disc)	240min ⁻¹	70min ⁻¹	45min ⁻¹	31min ⁻¹	24min ⁻¹
Weight	8,7 kg	15 kg	23 / 30,6 kg	68 kg	123 kg
Heating plate					
Power supply	230V, 800W 110/115V, 800W	230V, 1500W 110/115V, 1500W	230V, 2500W 110/115V, 2500W	230/400V, 4000W	400V, 8000W
Temperature regulation	electronically controlled				
Heating plate – diameter	200mm	300mm	380mm	540mm	660mm
Weight	3,3 kg	5,5 kg	11,3 kg	32 kg	49 kg
Carrying frame					
Weight	5,7 kg	10,5 kg	13,3 kg	55 kg	70 kg
Hydraulic unit					
Power supply	230V – 550W – 3,8A 110/115V – 550W - 7,6A			400V – 1100W – 2,9A	
Rotary speed	1450 min ⁻¹			3000 min ⁻¹	
Pump capacity	1,58 l/min			3,2 l/min	
Oil tank capacity	0,7 l			0,7 l	
Pressure range	0 - 120 bar			0 - 120 bar	
Hydraulic-oil	HLP – 46 (Stock no.: 05.8185)				
Dimensions (connection incl.)	500 x 330 x 430mm LxWxH			500 x 330 x 430mm LxWxH	
Weight	29 kg			32 kg	

	P160B	P250B	P315/ 355B	P500B2	P630B2
<u>Overall length</u>					
Total connected load	1,95 kW	2,5 kW	3,5 kW	5,9 kW	10,2 kW
Total weight (integrated machine with standard adaptor clamping inserts and transport case, without optional accessories)	152 kg	273 kg	317 / 325 kg	860 kg	911 kg
<u>Transport case dimensions</u>					
Length	1180 mm	1500 mm	1500 mm	2240 mm	2240 mm
Width	760 mm	980 mm	1000 mm	1300 mm	1300 mm
Height	670 mm	780 mm	1000 mm	1500 mm	1500 mm



3. Equipment function

3.1 Description

ROWELD P160-250-315-355B and P500-630B2 are compact, portable heating plate butt fusion welding machines that were specially designed for use at the construction sites and in particular in pipe trenches. Of course, the tools are very well suited for use in the workshop.

The versatility of the ROWELD welding machines allows the operator to securely join 40 – 355 mm or 200 – 630 mm (outer dimensions) PE and PP pipes for all plumbing and sanitation applications as listed below:

- | | | |
|------|------|----------------|
| I. | pipe | - pipe |
| II. | pipe | - pipe bends |
| III. | pipe | - T-joints |
| IV. | pipe | - welding neck |

The essential machine components are:
basic unit, reduction clamp insets, hydraulic unit, trimmer unit, heating plate, carrying frame

When joining welding necks always use the flange adapter (optional accessory, must be ordered separately).

Stock no. 5.5299 for ROWELD P 160 B
 Stock no. 5.5166 for ROWELD P 250 B
 Stock no. 5.5447 for ROWELD P 315 B
 For ROWELD P 355 B on request
 Stock no. 5.5236 for ROWELD P 500 B2
 Stock no. 5.3321 for ROWELD P 630 B2

Applicable to ROWELD P160-250-315-355B only:

When joining pipe bends with a tight radius of the maximum diameter of the machine always use the overhead main clamp (optional accessory, must be ordered separately).

Stock no. 5.5488 for ROWELD P 160 B
 Stock no. 5.5486 for ROWELD P 250 B
 Stock no. 5.5491 for ROWELD P 315 B
 For ROWELD P 355 B on request

Applicable to ROWELD P500-630B2 only:

To insert and remove the trimmer and the heating plate we recommend using the electrical hoist (optional accessory, must be ordered separately).

Stock no. 5.3410 for ROWELD P 500 B2

Stock no. 5.3323 for ROWELD P 630 B2

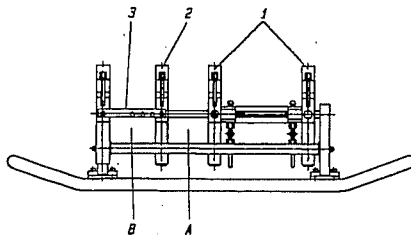
In accordance with national or EU ordinances and guidelines, e. g. DVS 2212, Section I, only duly qualified and authorised personnel are allowed to operate the ROWELD welding machines



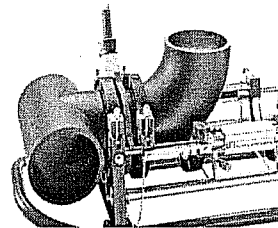
Only trained and authorised welders are allowed to operate the machine!

3.1.1 Basic unit

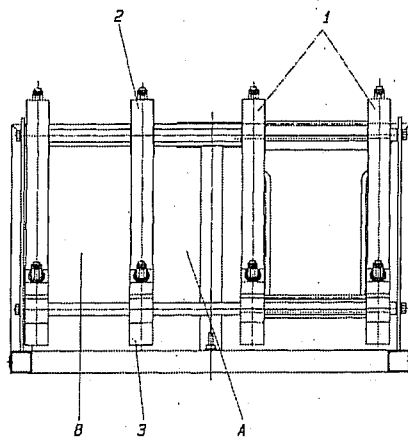
ROWELD P160-250-315-355B



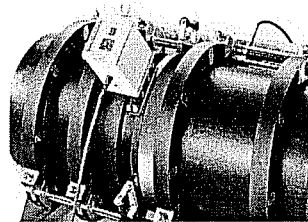
welding position B



ROWELD P500-630B2

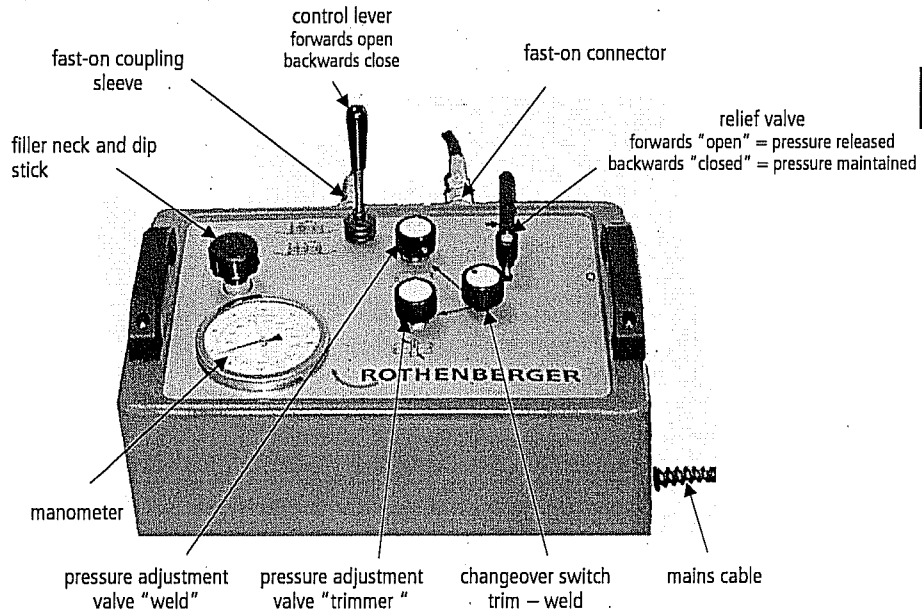


welding position A



- 1. Movable clamps
- 2. Sliding clamps
- 3. ROWELD P160-355B : Spacer with locking notch
ROWELD P500-630B2 : Set screw for releasing the clamp
- A. Welding position for pipe-to-pipe joints
- B. Welding position for pipe-to-pipe bend joints
Welding position for pipe-to-T piece joints

3.1.2 Hydraulic unit



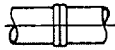
The hydraulic unit allows the operator to operate the welding machine and perform the functions indicated by the following symbols:



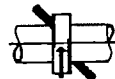
To close the clamps press the control lever.



To open the clamps pull the control lever.



If the indicator on the changeover switch points to this symbol, the operator can regulate the adjustment or welding pressure with the pressure adjustment valve. The manometer provides information on the regulated pressure.



If the indicator on the changeover switch points to this symbol, the operator can adjust the trimmer pressure with the pressure adjustment valve. The manometer provides information on the regulated pressure.



If the relief valve is turned to this position, the regulated pressure is maintained.



If the relief valve is turned to this position, the regulated pressure is released.



Filler neck, cap with oil dip stick

3.2 Operating instructions

3.2.1 Commissioning



Please read the operating instructions thoroughly BEFORE commissioning the butt welding machine!



Risk of serious injury! The heating plate can reach temperatures of over 300°C (575°F)! We highly recommend storing the heating plate in the designated carrying frame immediately after use.

Connect the hydraulic unit to the basic unit with both hydraulic hoses.

Connect the trimmer unit, hydraulic unit and heating plate mains plugs to the power outlet/supply specified on the type plates.

Instructions for P 160-250 B:

Switch on heating plate (the switch lights green when power supply properly connected) and set required temperature (160°C – 280°C) with screwdriver. The rise in temperature is indicated by a yellow signal lamp on the heating plate. The lamp flashes shortly before reaching the set temperature. The heating element is ready after a further 10 minutes.

Instructions for P 315-355 B:

Switch on master switch in the control box (the switch lights green when power supply properly connected). Set required temperature if necessary (cf. temperature controller). The rise in temperature is indicated by a red signal lamp in the temperature controller. The display generally indicates the actual temperature value. In accordance with national ordinances and guidelines, e. g. DVS, the heating plate is ready after maintaining the setpoint temperature for at least 10 minutes. To ensure continuous seam quality, occasionally verify heating plate temperature with a temperature meter

The welding machine is equipped with a Type 400 digital temperature controller.

The digital temperature controller has been ideally configured and set before leaving our factory. To set temperature simply press the →F← key until “_SP” is indicated in the display. The operator can now adjust the setpoint temperature between 0-300°C with the arrow keys.

If no keys are pressed, the display indicates the actual temperature, the controller automatically sets the new temperature parameter. As long as the actual temperature is lower than the setpoint temperature, the red arrow flashes (low). If the actual value is larger than the setpoint value, the red arrow flashes (high). If the actual temperature corresponds with the setpoint temperature, the green bar illuminates. Should the actual surface temperature of the heating plate not correspond with the actual temperature indicated, it is possible to enter an “offset”. To define the offset, press and hold the →F← key until “InP” appears in the display (approx. 7 sec.); release →F← key, then press the →F← key as many times as required until “oFS” appears. Correct this value as required. To save the new settings, press and hold →F← key until the actual value reappears in the display.

Warning! Do not change any other heating plate parameters.

Factory settings:

Menü „CFG“		Menü „InP“		Menü „Out“		Menü „PAS“	
„S.tu“	0	„Ctr“	8	„AL.n“	0	„Prot“	32
„h.Pb“	1.0	„tYP“	16	„r.o.1“	0		
„h.lt“	0.68	„FLt“	0.1	„r.o.2“	0		
„h.dt“	0.17	„FLd“	0.5	„Ct.1“	20		
„h.P.H“	100	„dP.S.“	0	„Ct.2“	20		
„rst“	0	„Lo.S“	0	„rEL.“	0		
„P.rE“	0	„HI.S“	300				
„SoF“	0	„oFS“	xx				
„Lb.t“	0	„HI.A“	0				
„Lb.P“	25	„Lo.L“	0				
„FA.P“	0	„HI.L“	280				



Note: The autotuning function could cause the details under "CFG" to deviate minutely. Should hunting occur, the autotuning function can be activated while the heating plate is cold (set the menu item "S.tu" to "2" (two) in CFG menu, the system automatically resets the parameter to "0" (zero).

Instructions for P500-630B2:

Switch on heating plate (the switch lights green when power supply properly connected) and set required temperature (0°C – 280°C). The rise in temperature is indicated by a red signal lamp in the temperature controller. The lamp flashes shortly before reaching the set temperature. The heating element is ready after a further 10 minutes.

Verify the direction of rotation! The machines were polarised to turn clockwise before leaving our factory. Open or close basic unit with hydraulic system; if the machine does not react, use suitable tools to change over the phase inverter in the mains plug.

Important: Never activate the hydraulic system if the rotary direction is incorrect. Risk of permanent failure!

Insert trimmer unit in basic unit and switch on. The planing discs should turn in the cutting direction; if not, use suitable tools to change over the phase inverter in the mains plug.

3.2.2 Welding preparations

Pipes smaller than the maximum welding range (diameter) of the machine, mount the adapter clamping inserts.

ROWELD P 160-355 B: consisting of six wide-surface shells and two small-surface shells

ROWELD P 500-630 B2: consisting of six wide-surface shells and two small-surface shells (for diameters up to 450 mm) or 8 wide-surface shells (for diameters >500 mm)

suited for the pipe diameter with the Allen screws found in the accessories kit.

In so doing, please observe that the small-surface shells are mounted to the two lower external main clamps. These shells may only be mounted to the upper left main clamps when making pipe-to-pipe bend joints.

Insert the plastic pipe or fitting in the clamping device (use dolly with longer pipe sections) and tighten brass nut on the upper clamps. Adjust brass nuts (tighten or loosen) to compensate for any ovalness.

ROWELD P 160-355 B:

Pipe-to-pipe joints: snap spacers into the two left clamps (welding position A)

Pipe-to-fitting joints: snap spacers into the two centre clamps (welding position B) so that the pipe section is held by 3 clamps and the fitting by 1 clamp. The third main clamp can be positioned on the rod as required to securely clamp and weld the pieces.

ROWELD P 500-630 B2:

Pipe-to-pipe joints: insert one pipe section in the two left clamps and the second pipe section in the two right clamps (welding position A).

Pipe-to-fitting joints: loosen set screws in sliding clamps, use three right clamps to secure pipe section and one to secure the fitting (welding position B). The sliding clamp can be positioned on the rod as required to securely clamp and weld the pieces.

Verify secure fit by moving the workpieces together.

Check to ensure that the heating plate has reached the setpoint operating temperature. The temperature rise time for the heating plate is complete when the red (P315-355B / P500-630B3) or yellow (P160-250B) signal lamp on the heating plate extinguishes. The electronic control ensures that the temperature of the heating plate remains consistent; short flash intervals of the red (P315-355B / P500-630B3) or yellow (P160-250B) signal lamp indicates that the heating plate is being brought back up to temperature.

CAUTION!

To ensure that the heat is distributed evenly across the entire heating plate, you must observe the 10-minute waiting period. Check and verify the temperature with a temperature meter (Stock no.: 05.3230) and readjust if necessary.

Position the electrical trimmer between the two workpieces and switch on. Set the changeover switch on the hydraulic unit to **"trim"** position.



Risk of serious injury! Keep hands away from trimmer blade at all times while tool is switched on or blade is coasting. Use trimmer in working position only and return it into the designated carrying frame immediately after use. Ensure that the safety switch functions properly at all times to avoid any accidental starting of the trimmer away from the basic machine.

To set the ideal trimming pressure when initially commissioning the machine, proceed as follows:

- Unscrew the **"trimmer"** pressure adjustment valve.
- Press the control lever and slowly increase the trimming pressure until resistance is sufficient.

Once set, to operate the trimmer the operator now needs only to actuate the control lever.

Once the trimmer continuously ejects shavings ≤ 0.2 mm thick, shift the control lever forward and shift the machine back to the initial position.

Switch off trimmer unit, disengage from the basic unit and put back in the carrying frame. Move workpieces to welding position and check whether the joint surfaces are plane, parallel and in true axial alignment. Should the joint surfaces show any misalignment, repeat the trimming procedure. For best results the workpiece ends should not be mismatched by more than 10% of the wall thickness and the maximum gap between the joint surfaces no more than 0.5 mm. This recommendation does not release you from your obligation to observe national welding guidelines. Clear away any remaining shavings with a clean brush.

CAUTION!

Do not touch the trimmed, ready to weld surfaces. Ensure that the surfaces are free of any and all containments and foreign objects.

3.2.3 Welding

Set changeover switch on the hydraulic unit to the "weld" position.



Risk of injury! Keep a safe distance from the machine when mechanically closing clamps and moving workpieces. Keep hands, limbs and objects such as clothing, tools etc. away from running machine!



While moving workpiece ends to welding position, read the workpiece drag pressure from the manometer on the hydraulic unit. The workpiece drag pressure is the minimum amount of pressure required to set the workpiece – depending on weight and length – in axial motion.

This value must be precisely determined; it will be necessary to engage and disengage the machine and workpieces several times and to set the pressure adjustment valve until the machine almost comes to a standstill. Add the drag pressure to the conformation, heat-penetration and joint pressure.

Insert the heating plate into the basic unit between the two workpiece ends.

Engage the machine, set and maintain the required conformation pressure plus drag pressure. As soon as sufficient bead has formed around the entire circumference of the workpiece ends, slowly release the pressure by slowly opening the relief valve. Set the pressure so that workpiece ends have uniform almost pressureless contact to the heating plate (warm up). Now close the relief valve. Ensure that the workpiece ends still have contact with the heating plate.

After the warm-up phase, disengage workpieces, remove the heating plate and re-engage the workpieces. Increase the pressure linear to the respective joint pressure and maintain that pressure until the joint is fully cooled.

CAUTION: Press and hold the control lever for the first 20 to 100 seconds then release (neutral switch position).

After the joint has fully cooled, slowly release the pressure by opening the relief valve, unclamp the workpieces and remove from the machine.

Disengage the basic unit, write protocol (specimen in Appendix 1). The machine is now ready for the next welding cycle.

All welding parameters can be found in the enclosed welding tables.

3.2.4 Storing after use

Switch off heating plate

CAUTION! Heating plate may be hot. Handle with care.

Remove trimmer unit, heating plate and hydraulic unit mains plugs from power outlet and roll up cables.

Disconnect and roll up hydraulic hoses.

Important! Protect couplings from damage and dirt.

3.3 General requirements

As weather and ambient conditions can seriously effect welding procedures and joints, it is essential to duly observe national welding guidelines and ordinances, e. g. DVS Guideline 2207, Sections 1, 11 and 15.

(Welding requires continuous and due supervision and monitoring!)

3.4 Important information on welding parameters

For welding parameters such as temperature, pressure and time, consult your national welding guidelines and ordinances, e. g. DVS Guideline 2207, Sections 1, 11 and 15.

Ordering: Deutscher Verlag für Schweißtechnik DVS – Verlag GmbH
Postfach 10 19 56
40223 Düsseldorf / Germany
Tel.: +49 211 151056 / Fax: +49 211 1575950

In the event of doubt, consult the pipe manufacturer for material-specific welding parameters!

The welding parameters specified in the welding tables are strictly reference values. **ROTHENBERGER** cannot assume any liability for their accuracy or completeness.

The compensation and joint pressure values specified in the welding tables were calculated using the following formula:

$$\text{pressure (in bar)} = \frac{\text{welding surface (cm}^2\text{)} \times \text{welding factor}}{\text{surface of cylinder (cm}^2\text{)}}$$

Welding factors: PE pipes = 1.5; PP pipes = 1

(**ROWELD P 160 B**: the total cylinder surface is 3.53 cm²)

(**ROWELD P 250 B**: the total cylinder surface is 6.26 cm²)

(**ROWELD P 315 / 355 B**: the total cylinder surface is 6.26 cm²)

(**ROWELD P 500 B** and **P 630 B**: the total cylinder surface is 14.13 cm²)

4. Maintenance

To ensure that the welding machine functions properly, observe the following maintenance recommendations:

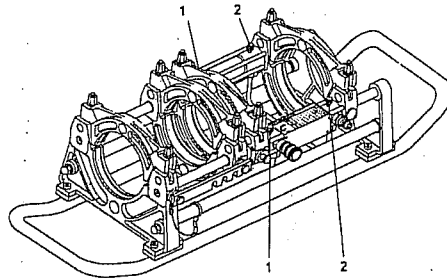
- The guide rods must be kept free of dirt and grime. Replace guide rods whenever surface shows signs of erosion or damage, otherwise hydraulic system may loose pressure.
- Trimmer unit, heating plate, hydraulic unit may only be supplied with the voltage specified on the type plates.
- To achieve perfect welding results, it is essential to keep the heating plate clean. If the surface is damaged or shows signs of erosion, the surface must be recoated or replaced. Material residues on the heating plate surface reduces the non-sticking properties of the coating. Remove all residues with non-linting paper and alcohol (heating plate must be cool!).
- Check oil level in the hydraulic unit regularly (oil level should lie between full and empty marks). Replenish hydraulic oil whenever necessary (HLP – 46, Stock no.: 05.8185).
- Change hydraulic oil (HPL – 46, Stock no.: 05.8185) every six months.
- To avoid malfunctions, regularly check the hydraulic unit for leaks, proper fit of connections as well as the power cable for signs of damage or wear.
- Protect the fast-on couplings on both the hydraulic unit as well as the hydraulic hoses from dirt and grime. Remove any dirt or foreign objects prior to connecting.
- The trimmer unit is equipped with two bi-directional blades. Rotate or replace blades whenever trimming performance is no longer up to expectations.

Always ensure that the pipe and workpiece ends, in particular the butt surfaces are clean. Dirt or other foreign substances will shorten the serviceable life of the blades considerably.

- Deaerating the basic unit

The connecting and disconnecting of the hydraulic hoses always allows some air to enter the hydraulic system. Occasionally or whenever the basic unit no longer runs smoothly, it is necessary to deaerate the hydraulic system as follows:

- Remove the protective cap from the bleeder valve and connect the transparent DN 6 hoses to the valves indicated as item 1 in the drawing. Open filler neck on the hydraulic unit and insert the open ends of the hoses. Cleanliness is essential to ensure that no contaminants are put into the system.
- Engage machine with approx. 10 bar.
- Open bleeder valve ("1") with a 7 mm spanner until oil bleeds. The hoses return the oil to the hydraulic system.
- As soon as no more air bubbles escape, close bleeder valves, remove hoses and replace protective caps.
- Disengage the basic unit and deaerate the hydraulic system with the bleeder valves indicated by item 2 in the diagram.
- Wipe off any excess oil from the machine and dispose of rags as specified by national and local waste disposal ordinances and hazardous waste laws.



Pursuant to welding guidelines the welding machine must be inspected annually by the manufacturer or an authorised service workshop. Machines subjected to above average use or strain should be inspected at shorter intervals.

4.1 Machine and tool maintenance

(Observe maintenance information provided under Section 4!)

Sharp and clean tools are safer and provide better work results.

Replace dull, broken or lost parts immediately. Check and verify that all accessories are properly and securely connected to the machine.

Always use manufacturer original parts and spares. Only qualified personnel are permitted to carry out repairs.

Always disconnect the machine from the power supply whenever the machine is not in use or before carrying out maintenance or repair work or replacing accessory parts. Ensure that the machine and accessories are switched off before reconnecting the machine to the power supply.

Check extension cables and cable reels for sign of wear or damage. Use operative weather-tight extension cables and cable reels only.

Never use tools or machines when housing or handles, in particular plastic housings or handles, are cracked, warped or broken.

Dirt and moisture conduct electricity and can cause electric shock if the machine or tool insulation is damaged or rendered useless.

Notice: Observing the above guidelines does not release the operator or his supervisor from their duty to observe national accident-prevention regulations.

5. Disposal

Parts of this machine are recyclable. Contact your local certified and authorised recycling company for further details. Contact your local waste disposal office for information on the proper disposal of non-recyclable parts (e. g. electronic scrap).

6. CE Declaration of Conformity

We declare that this product is in full compliance with the following EU Directives: 98/37/EC and 73/23/EEC.

For further information, please contact the manufacturer at the address below or one of his subsidiaries.

ROTHENBERGER Werkzeuge GmbH
Industriestrasse 7
D- 65779 Kelkheim
Germany