

REMS Python Hydraulic Pipe Bender Set Instruction Manual

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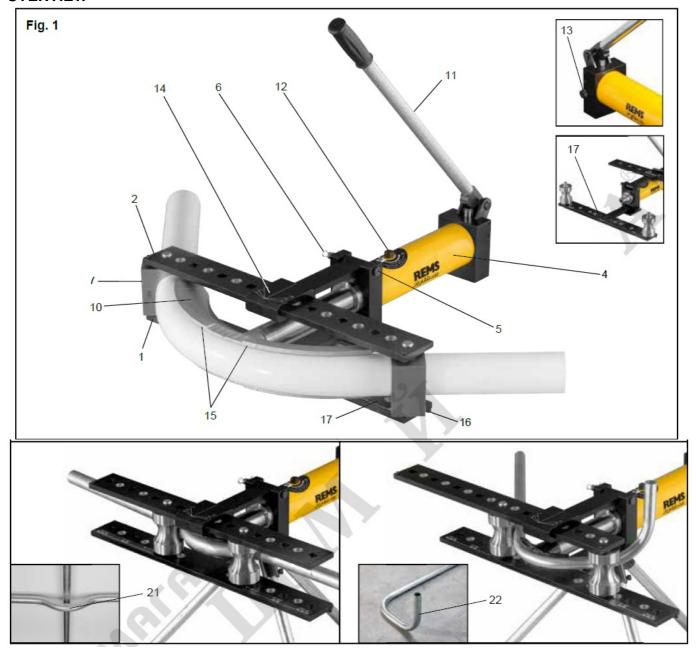
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REMS Python Hydraulic Pipe Bender Set



OVERVIEW



- 1. Lower roller holder
- 2. Upper roller holder, with laterally adjustable roller bearing plate
- 3. Back former support
- 4. Bending drive
- 5. Bolt
- 6. Spring loaded pin
- 7. Rollers / Back formers
- 8. Rack/advance plunger
- 9. Wing nut
- 10. Bending former
- 11. Advance lever
- 12. Locking screw
- 13. Return valve
- 14. Angle marking
- 15. Marking for precise bending

- 16. Foot
- 17. Scale
- 18. Arrow direction
- 19. Bending former holder
- 20. Back former support holder
- 21. Bridge
- 22. Doglegs on several levels

General Safety Instructions

CAUTION

Read all the safety notes, instructions, illustrations and technical data which come with this tool. Failure to heed the safety notes and instructions can lead to severe injuries.

Keep all safety notes and instructions for the future. Only use the tool for the intended purpose and under observance of the general safety and accident prevention rules.

- Keep your workplace tidy. Untidiness in the work area can cause accidents.
- Use the right tool. Do not use weak machines for heavy work. Do not use the tool for a purpose for which it is not intended.
- Check the tool for damage. Slightly damaged parts must be checked carefully for perfect and proper
 functioning before using the tool. Check whether the moving parts work perfectly and do not jam or are
 damaged. All parts must be mounted correctly and meet all conditions to ensure perfect operation of the tool.
 Damaged parts must be properly repaired or changed by a recognized specialist unless specified otherwise in
 the operating manual.
 - Be careful. Pay attention to what you are doing. Work sensibly.
- Do not overload your tool. You can work better and safer in the specified work range. Renew worn tools in time. Wear suitable work clothing. Do not wear loose clothing or jeweler as these can get caught in moving parts. Rubber gloves and non-slip shoes are recommended for working outdoors. Wear a hair net over long hair. Use safety equipment. Wear safety glasses. Wear protective gloves. Avoid abnormal body posture. Make sure that you have a fi rm footing and keep your balance at all times.
- Take good care of your tools. Keep the tools clean to work better and safer. Follow the maintenance regulations and instructions. Keep handles dry and free from grease and oil.
- Take ambient influences into account. Do not expose your tools to rain. Provide good lighting.
- Only use genuine accessories and genuine spare parts for your own safety for the intended function of the tool.
 The use of other insertion tools and accessories can cause you injury.

 Have your tool repaired by a qualified specialist. This tool satisfies the pertinent safety regulations. Repairs may only be done by a recognized specialist or instructed person with the use of genuine spare parts, otherwise the user could have an accident. All unauthorized modifications to the tool are prohibited for safety reasons.

Safety instructions for oil-hydraulic pipe benders, one-hand pipe benders, oil-hydraulic hand pipe benders
CAUTION

Read all the safety notes, instructions, illustrations and technical data which come with this tool. Failure to heed

the safety notes and instructions can lead to severe injuries. Keep all safety notes and instructions for the future.

- Do not use the tool if it is damaged. There is a danger of accident.
- Do not reach between the pipe, rollers/back formers (7) and the bending former (10) during bending. There is a risk of injury.
- Protect persons accompanying the work against the moving pipe during bending. There is a risk of injury.
- Be careful when bending with REMS Python and REMS Hydro-Swing. These develop a high bending force.

 There is a danger of injury in case of improper use.
- Do not lift or carry the REMS Python by the attached advance lever (11). The advance lever is only inserted but not secured. The bender drive (4) can come loose from the advance lever (11) and fall off. There is a risk of injury.
- Children and persons who, due to their physical, sensory or mental abilities or lack of experience and knowledge are unable to operate the tool safely may not use this tool without supervision or instruction by a responsible person. Otherwise there is a risk of operating errors and injuries.
- Only allow trained persons to use the tool. Apprentices may only use the tool when they are over 16, when this is necessary for their training and when they are supervised by a trained operative.

Explanation of symbols

- Danger with a low degree of risk which could result in minor injury (reversible) if not heeded.
- · Material damage, no safety note! No danger of injury.
- · Read the operating manual before starting
- CE conformity mark

Technical Data

Use for the intended purpose

REMS Python, REMS Swing, REMS Hydro-Swing are intended for the purpose of cold pressure bending of pipes up to 90°. All other uses are not for the intended purpose and are therefore prohibited.

Scope of Supply

- REMS Python: Oil-hydraulic pipe bender, 2 roller holders, 2 rollers, bending formers according to ordered set, operating instructions, transport box.
- REMS Swing up to Ø 26 mm: One-hand pipe bender, bending formers according to ordered set, back former supports S Ø 10 – 26 mm, steel case, operating instructions.
- REMS Swing up to Ø 32 mm: One-hand pipe bender, bending formers according to ordered set, back former supports S Ø 10 – 26 mm, back former supports Ø 32 mm, case, operating instructions.
- REMS Hydro-Swing up to Ø 26 mm: Oil-hydraulic hand pipe bender, bending formers according to ordered set, back former supports H-S Ø 10 – 26 mm, case, operating instructions,
- REMS Hydro-Swing Ø 32 mm: Oil-hydraulic hand pipe bender, bending formers according to ordered set, back former supports H-S Ø 10 – 26 mm, back former supports Ø 32 mm, case, operating instructions.
- REMS Hydro-Swing INOX Set: Oil-hydraulic hand pipe bender, aluminium bending formers Ø 15, 18, 22 mm, back former support H-S Ø 10 – 26 mm, case,

- Article numbers REMS Python REMS Swing REMS Hydro-Swing REMS Hydro-Swing INOX
- Drive unit 590000 153100 153500 153510
- Bending formers see Fig. 3 see Fig. 6 see Fig. 8 see Fig. 8
- Roller (pack of 2) 590110
- Back former Ø 75 mm (pack of 2) 590111
- Back former support S Ø 10-26 mm 153125
- Back former support H-S Ø 10–26 mm 153501 153501
- Back former support Ø 32 mm 153115 153115 153115
- Tripod stand 590150
- Transport box 590160
- · Steel case with inlay 153265
- Case with inlay 153270 153570 153570
- Angle meter 590153 590153 590153
- REMS CleanM 140119 140119 140119 140119

Applications

No cracks or wrinkles shall occur during professional cold bending. Pipe qualities and dimensions which do not guarantee this are not suited to be bent with REMS Python, REMS Swing and REMS Hydro-Swing.

- Steel pipes EN 10255 Ø % − 2"
- Soft copper pipes, also thin-walled Ø 10 22 mm, s ≤ 1 mm Ø 10 22 mm, s ≤ 1 mm Ø 10 22 mm, s ≤ 1 mm
 Ø % %" Ø % %" Ø % %"
- Soft coated copper pipes Ø 10 − 18 mm, s ≤ 1 mm Ø 10 − 18 mm, s ≤ 1 mm Ø 10 − 18 mm, s ≤ 1 mm Ø % − 5%"
 Ø 3% − 5%" Ø 3% − 5%"
- Stainless, nickel steel pipes of the press fitting
- systems EN 10217-7, EN 10312 series 2,
- material 1.4401 Ø 12 22 mm, $s \le 1.2$ mm Ø 12 22 mm, $s \le 1.2$ mm
- Stainless steel pipes of the press fitting systems with aluminum bending formers, see fi g. 8 Ø 15 − 22 mm, s ≤ 1.2 mm
- Steel pipes of the press fitting systems with aluminum bending formers, see fi g. 8 Ø 15 22 mm, s ≤ 1.5 mm
- Soft coated carbon steel pipes of the pressfitting systems Ø 12 18 mm, s ≤ 1,2 mm Ø 12 18 mm, s ≤ 1.2 mm
- Soft precision steel pipes Ø 10 18 mm, s \leq 1 mm Ø 10 22 mm, s \leq 1.5 mm
- Composite tubes Ø 32 75 mm Ø 14 32 mm Ø 14 32 mm Ø 14 32 mm
- Largest bending angle 90° 90° 90° 90°
- Hard copper pipes must be softened by annealing!

Dimensions L x W x H

- · Bender drive with
- Roller holder/back former support $670 \times 680 \times 620$ mm $318 \times 252 \times 140$ mm $428 \times 252 \times 170$ mm $428 \times 252 \times 170$ mm $428 \times 26.8'' \times 24.4''$) $(12.5'' \times 9.9'' \times 5.5'')$ $(16.9'' \times 9.9'' \times 6.7'')$ $(16.9'' \times 9.9'' \times 6.7'')$
- Tripod stand 650 × 630 × 525 mm (25.6" × 24.8" × 20.7")

Weights

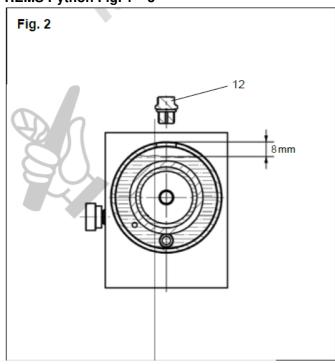
- · Bender drive with
- Roller holder/back former support 35.0 kg (77.2 lb) 1.4 kg (3.1 lb) 3.1 kg (6.8 lb) 3.1 kg (6.8 lb)
- Tripod stand 4.6 kg (10.1 lb)
- Bending formers from to 0.4 4.9 kg 0.06 0.3 kg 0.06 0.3 kg 0.06 0.3 kg (0.9 10.8 lb) (0.13 0.7 lb) (0.13 0.7 lb)

Start-up

CAUTION

Transport weights above 35 kg must be carried by at least 2 persons. When transporting and installing the tool, please note that the tool has a high centre of gravity with and without the base frame, i.e. it is top-heavy.

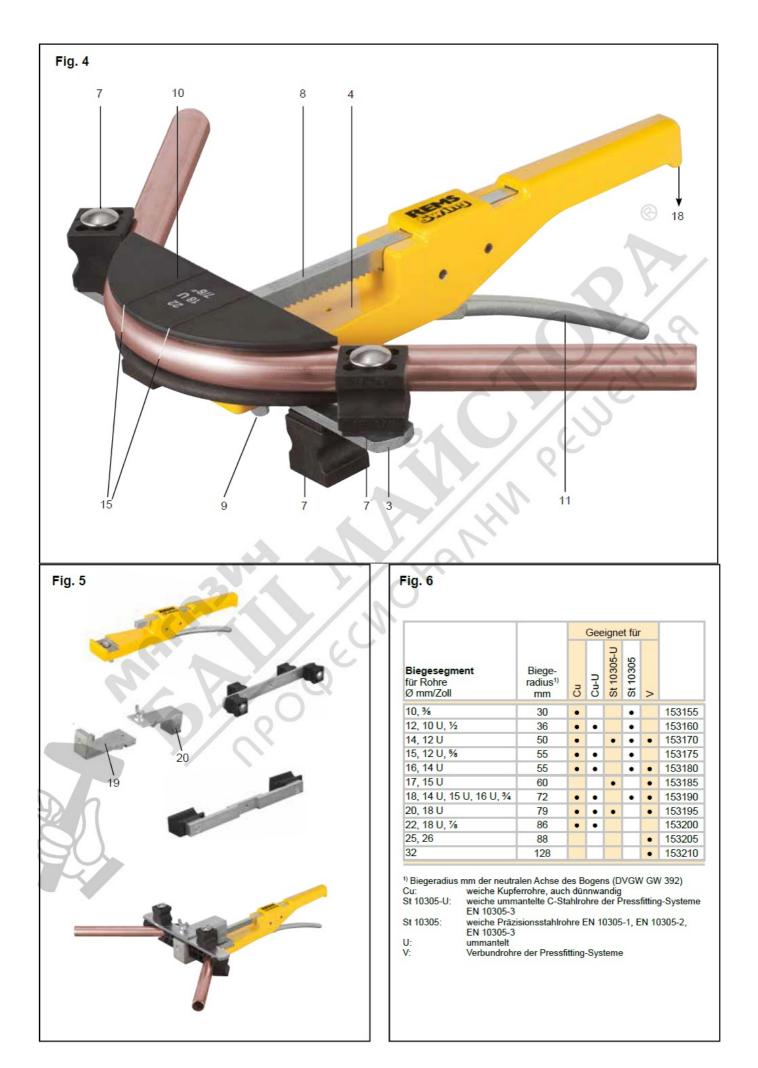
REMS Python Fig. 1 "3



| Biege- segment für Rohre Ø Zoll/mm | Biege- radius ¹⁾ mm | Biege- radius ²⁾ mm | Geeignet für | | | |
|---|--------------------------------------|--------------------------------------|--------------|----------|--|--------|
| | | | St 10255 | > | | |
| St %" | 50 | | • | | | 590051 |
| St 1/2" | 65 | | • | | | 590052 |
| St ¾" | 85 | | • | | | 590053 |
| St 1" | 100 | | • | | | 590054 |
| St 11/4" | 150 | | • | | | 590055 |
| St 11/2" | 170 | | • | | | 590056 |
| St 2" | 220 | | • | | | 590057 |
| V 32 mm | 112 | 128 | | • | | 590061 |
| V 40 mm | 140 | 160 | | • | | 590058 |
| V 50 mm | 175 | 200 | | • | | 590059 |
| V 63 mm | 220 | 252 | | • | | 590060 |
| V 75 mm | 260 | 298 | | A | | 590062 |

Place the bender drive (4) on a fi rm, level base. Make sure that there is enough room for the fully assembled pipe bender and the pipe to be bent. Insert the lower roller holder (1) into the lower groove of the bender drive (4) so that the feet (16) are facing down and the bolt (5) can be inserted. Secure the bolt (5) with the spring loaded pin (6). Insert the upper roller holder (2) into the upper groove of the bender drive (4) so that the angle marking (14) is legible, fi x with the bolt (5), secure the bolt with the spring-loaded pin (6). Insert the rollers (7) according to the pipe size, see scale (17), into the holes between the roller holders (1 and 2). To bend composite pipes with a diameter of 75 mm, insert the 75 mm diameter back formers (accessory) between the roller holders (1 and 2) in place of the rollers (7). The roller bearing plate of the upper roller holder (2) can be moved to the side if necessary, e.g. to form a dogleg (22). The rollers must always be inserted into the holes of the upper and lower roller holder (1 and 2) for bending. Select the suitable bending former for the pipe size (10) and fi t it on the bender drive (4). Push the advance lever (11) onto the bender drive (4). Open the locking screw (12) about 1 turn. Close the return valve (13) by turning in and screw hand tight.

REMS Swing Fig. 4 – 6



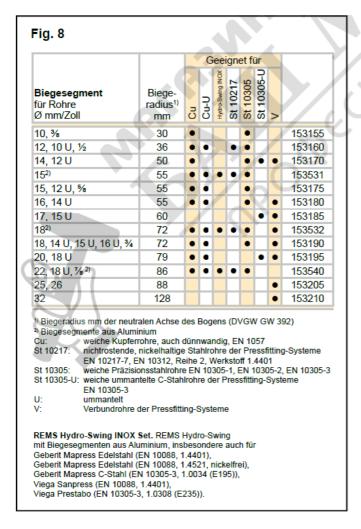
facing towards the rack (8). The back formers are marked with the pipe size. Fix the back formers (3) with the wing nut (9). Select the suitable bending former (10) for the pipe size and fit it on the rack (8). Press down the advance lever (11) in the direction of the arrow (18) and push back the bending former (rack) to the rear stop. Release the advance lever.

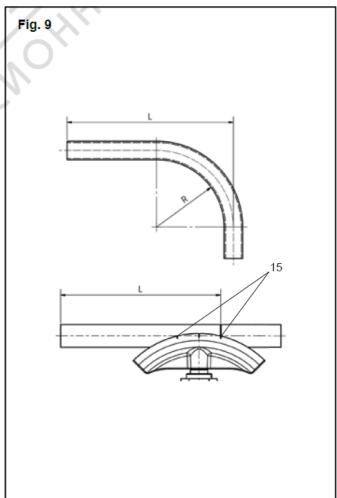
Device for reverse bend Fig. 5 (accessory)

Place the bending former holder (19) on the bender drive (4) so that the holder for the bending former is facing towards the rack (8). Fix the bending former holder (19) with the wing nut (9). Fit the back former support holder (20) to the rack (8). Fix the back former support holder (20) with the wing nut. Place the back former support (3) in the back former support holder (20) so that the back formers (3) for the desired pipe size are facing towards the bending former holder (19). The backformers (7) are marked with the pipe size. Fix the back former support (3) with the wing nut. Select the suitable bending former (10) for the pipe size and fit it on the bending former holder (19). Press down the advance lever (11) in the direction of the arrow (18) and push back the back former support (rack) to the rear stop. Release the advance lever.

REMS Hydro-Swing Fig. 7 – 8







Place the back former support (3) on the bender drive (4) so that the back formers (7) for the desired pipe size are facing towards the advance lever (8). The back formers are marked with the pipe size. Fix the back former support (3) with the wing nut (9). Select the bending former (10) suitable for the pipe size, align the square pin of the advance plunger (8) to the square pin of the bending former (10) by swivelling the advance lever and fit the bending former onto the advance plunger (8). Close the return valve (13) by turning in and screw hand tight. The bender drive (4) can be turned approx. 360°. Then the advance lever (11) can be positioned to the bending former (10) and back former support (3) as required.

Operation

REMS Python Fig. 1 "3

Lift up the upper roller support (2). Insert the pipe between the rollers (7) and the bending former (10). Close the upper roller support (2). Move the advance lever (11) up and down several times until the pipe has reached the desired bending angle. Open the return valve (13) by about 1 turn, the bending former (10) returns to the starting position with the pipe bend. Lift up the upper roller holder (2) and remove the bent pipe. The bending formers St 1" to St 2" have a hexagon head screw. This can be used to press out a pipe jammed in the bending former. There is an angle marking (14) on the upper roller holder (2) for orientation for the bending angle.

NOTICE

To ensure functional reliability and to prevent hydraulic oil leakage, the locking screw (12) must be closed after bending has been completed and for transport of the bender drive.

REMS Swing Fig. 4 – 6

Turn the back formers (7) so that radius on the back former corresponding to the pipe size is on the side facing the bending former (10). Insert the pipe between the bending former (10) and the back formers (7). Push the advance

lever (11) several times opposite to the direction of the arrow (18), until the pipe has reached the desired bending angle. Push the advance lever (11) in the direction of the arrow (18) and push back the bending former, if necessary with the bent pipe. Remove the pipe.

NOTICE The bending formers (10) and the back formers (7) of REMS Swing are made of glass-fi bre-reinforced polyamide. This plastic have very good slide properties, is very strong and heat resistant up to approx. 150 °C. Annealed copper pipes must be cooled down below this temperature.

REMS Hydro-Swing Fig. 7 – 8

Turn the back formers (7) so that radius on the back former corresponding to the pipe size is on the side facing the bending former (10). Insert the pipe between the bending former (10) and the back former (7). Move the advance lever (11) up and down several times until the pipe has reached the desired bending angle. Open the return valve (13) by about 1 turn and the bending former (10) returns to the starting position with the pipe bend. Remove the pipe.

NOTICE The bending formers (10) and the back formers (7) of REMS Hydro-Swing are made of glass-fi bre-reinforced polyamide. This plastic have very good slide properties, is very strong and heat resistant up to approx. 150°C. Annealed copper pipes must be cooled down below this temperature.

The aluminium bending formers \emptyset 15, 18, 22 mm must be used for bending stainless steel pipes and carbon steel pipes, see fi g. 8.

Bending to size Fig. 9

There are 2 markings (15) on the outside of the bending formers (10) which allow exact bending to size. To do this, the dimension mark at which the 90° bend is to end must be placed against the marking (15) over the centre.

Maintenance

In the REMS Python, check the advance lever (11) regularly for damage, change damaged advance lever. REMS Swing and REMS Hydro-Swing are maintenance-free.

Clean the pipe bender regularly especially when it has not been in use for a long time. Keep the bending contours of bending former (10) and rollers/back formers (7) clean. Use REMS CleanM (Art.-No. 140119) or mild soap and a damp cloth for cleaning. Do not use household cleaners. These often contain chemicals which can damage the plastic parts. Never use petrol, turpentine, thinner or similar products for cleaning. Never immerse the pipe bender in liquid.

Inspection/Repair

This work may only be performed by qualifi ed personnel.

In REMS Python, check hydraulic oil (Fig. 2), refi ll hydraulic oil (Art. No. 091027) if necessary. Do not overfi ll, otherwise hydraulic oil will leak during work.

Behaviour in the event of faults

Fault: Bending former (10) does not advance despite moving the advance lever (11) up and down several times.

· Cause:

- Return valve (13) not closed (REMS Python, REMS Hydro-Swing).
- · Not enough hydraulic oil in the system.
- Air in the system (REMS Python).

- Advance lever (11) not pushed properly (REMS Swing).
- Overpressure valve responds (REMS Python, REMS Hydro-Swing).
- Pipe bender defective.

· Remedy:

- Close the return valve (13) by turning in and screw hand tight.
- hydraulic oil (in REMS Python (Fig. 2 and 4.2. Inspection/repair). Have the REMS Hydro-Swing checked/repaired by an authorised REMS customer service workshop.
- Open return valve (13) by about 1 turn and move the advance lever (11) up and down several times until
 the air has escaped.
- Push the advance lever (11) several times, as far as possible, in the opposite direction to the arrow (18).
- Pipe is unsuitable for bending. Only use approved pipes.
- Have the pipe bender checked/repaired by an authorised REMS customer service workshop.

Fault: 90° bend cannot be fully made.

Cause:

- Not enough hydraulic oil in the system.
- Rollers (7) in wrong position between roller holders (1 and 2) (REMS Python).
- Back former support (3) fi tted incorrectly (REMS Swing, REMS Hydro-Swing).
- The strength of the pipe to be bent is too high.
- Pipe bender defective.

· Remedy:

- Refi II hydraulic oil (in REMS Python (Fig. 2 and 4.2. Inspection/repair). Have the REMS Hydro-Swing checked/repaired by an authorised REMS customer service workshop.
- Insert the rollers (7) according to the pipe size, see scale (17), into the holes between the roller holders
 (1 and 2).
- Fit back former support as described in 2.2. or 2.3.
- Only use approved pipes.
- Have the pipe bender checked/repaired by an authorised REMS customer service workshop.

Fault: No useful bend.

Cause:

- Pipe size does not correspond to the bending former (10) and/or the rollers/back formers (7).
- Rollers (7) in wrong position between roller holders (1 and 2) (REMS Python).
- Back former support incorrectly (REMS Swing, REMS Hydro-Swing).
- Pipe is unsuitable for bending.

· Remedy:

- Use bending formers and/or rollers/back formers according to the pipe size.
- Insert rollers according to the pipe size, see scale (17), into the holes between the roller holders (1 and 2).
- Fit back former support as described in 2.2. or 2.3.
- Only use approved pipes.

Fault: Advance lever (11) cannot be pushed or only with diffi culty (REMS Swing).

· Cause:

- Pipe is unsuitable for bending.
- One-hand pipe bender defective.

Remedy:

- Only use approved pipes.
- Have the one-hand pipe bender checked/repaired by an authorised REMS customer service workshop.

Disposal

REMS Python, REMS Swing, REMS Hydro-Swing may not be thrown in the domestic waste when no longer used. They must be disposed of properly by law.

Manufacturers Warranty

The warranty period shall be 12 months from delivery of the new product to the user. The date of delivery shall be documented by the submission of the original purchase documents, which must include the date of purchase and the designation of the product. All functional defects occurring within the warranty period, which are clearly the consequence of defects in production or materials, will be remedied free of charge. The remedy of defects shall not extend or renew the warranty period for the product. Damage attributable to natural wear and tear, incorrect treatment or misuse, failure to observe the operational instructions, unsuitable operating materials, excessive demand, use for unau-thorized purposes, interventions by the customer or a third party or other reasons, for which REMS is not responsible, shall be excluded from the warranty. Services under the warranty may only be provided by customer service stations authorized for this purpose by REMS. Complaints will only be accepted if the product is returned to a customer service station authorized by REMS without prior interference and in a fully assembled condition. Replaced products and parts shall become the property of REMS. The user shall be responsible for the cost of shipping and returning the product.

A list of the REMS-authorized customer service stations is available on the Internet under www.rems.de. For countries which are not listed, the product must be sent to the SERVICE-CENTER, Neue Rommelshauser Strasse 4, 71332 Waiblingen, Deutschland. The legal rights of the user, in particular the right to make claims against the seller in case of defects as well as claims due to wilful violation of obligations and claims under the product liability law are not restricted by this warranty.

This warranty is subject to German law with the exclusion of the conflict of laws rules of German International Private Law as well as with the exclusion of the United Nations Convention on Contracts for the International Sales of Goods (CISG). Warrantor of this world-wide valid manufacturer's warranty is REMS GmbH & Co KG, Stuttgarter Str. 83, 71332 Waiblingen, Deutschland.

Spare parts lists

For spare parts lists, see $\underline{www.rems.de} \rightarrow Downloads \rightarrow Parts lists$.

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Documents / Resources



REMS Python Hydraulic Pipe Bender Set [pdf] Instruction Manual

Python, Swing, Hydro-Swing, Python Hydraulic Pipe Bender Set, Python, Hydraulic Pipe Bender Set, Pipe Bender Set, Bender Set

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• R REMS GmbH & Co KG

Manuals+,