HARNISCH+RIETH

DENTAL LABORATORY TECHNOLOGY

P-G 400 Pro

TYPE: 2 | 3 | 4

Original operating instructions for the spot blasting unit | **EN**

BA9001-2021-1

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Operating instructions

Spot blasting unit P-G 400 Pro

For decades, products from Harnisch+Rieth have been synonymous with quality and precision at the highest level. Thank you for the trust you have placed in us by purchasing this spot blasting machine. We wish you every success in your work with the P-G 400.
Please take the time to read these operating instructions carefully so that you can enjoy your device for many years to come, especially before using it for the first time.

Contents

1 Security

1.1 Labelling the safety instructions in these operating instructions

DANGER
Indicates an imminent danger. If the information is not followed, death or serious physical injury (invalidity) will result.
WARNING
Indicates a potentially dangerous situation. If the information is not followed, death or serious physical injury (invalidity) will result..
CAUTION
Indicates a potentially dangerous situation. If the information is not followed, property damage and minor or moderate bodily injury may result.
NOTE
Indicates general information, useful user tips and work recommendations that have no influence on the health of personnel. Emphasises useful tips and recommendations as well as information for efficient and trouble-free operation.

1.2 Intended use

DANGER:
The device is not intended for the following use:
- potentially explosive atmospheres
- medical applications, use on living beings.

The P-G 400 spot blasting unit is designed for use in dental laboratories. It is mainly used for processing and producing dental restorations from various materials. Application examples:

- Roughening the framework bonding surfaces in the ceramic veneering technique,Aufrauen und Vorbehandeln der Gerüsthaftflächen in der Kunststoffverblendtechnik,
- Special coating blasting,
- Design of the ceramic, including occlusal surfaces,
- Removal of investment residues, oxides and excess ceramic
- Shine rays

The design and mechanical realisation are very stable and robust. Blasting results with maximum precision and ergonomics, even in the hardest materials, are possible with the P-G 400 spot blasting unit without any problems.

Unauthorised modifications and alterations are not permitted for safety reasons! The operating and maintenance conditions specified in these operating instructions must be observed.

1.3 General information / safety instructions / sources of danger

- The P-G 400/4 spot blasting unit is safe when used correctly, but there is a risk of injury (skin or eye injuries) from the sand blasting from the blasting stylus or blasting hose if used incorrectly or negligently.
- Before carrying out maintenance, cleaning or repair work, the appliance must be switched off at the main switch and disconnected from the mains (pull out the mains plug).
- Repairs or other interventions may only be carried out by Harnisch+Rieth or by a service partner authorized by Harnisch+Rieth.
- Harnisch+Rieth accepts no liability if the P-G 400 spot blasting unit is not used in accordance with the operating instructions.
- The manufacturer accepts no liability for damage resulting from other use or improper handling.
- The appliance must be disconnected from the mains before accessing the built-in electrical system!
- Check whether the mains data matches the information on the rating plate!
- The blasting stylus must not be used outside the protective blasting chamber, i.e. the blasting hose must not be led out of the appliance. Never look into the mounted blasting nozzle or into the blasting hose without the nozzle mounted (risk of eye injury)!
- To maintain the precision and service life of the device, we recommend the use of original H+R consumables.

These operating instructions must always be kept within easy reach, preferably close to the appliance!

1.4 Authorized operators

The operator of the machine must make the operating instructions available to the user and ensure that they have read and understood them. Only then may the operator put the appliance into operation.

1.5 Safety devices of the appliance

- When the front flap with viewing window is open, the blasting function is interrupted by a safety switch.
- When the cover for the blasting agent container compartment is open, the compressed air supply to the blasting systems is interrupted by a safety switch.
- By opening the safety screw of the upper part of the housing, a pneumatic valve opens the sandblasting shut-off devices.
- All electrical functions (including blast room lighting) are designed with low-voltage safety voltage.
- A pressure regulator protects the appliance against overpressure.

2 Start of operation

2.1 Technical data (Attention: Your machine was specially made for and the data may differ))

Designation of the machine:	Spot blasting device	
Type of machine	P-G 400 / 4 P-G 400 / 3 P-G 400 / 2	
Dimensions:	Width Height Depth	490 mm 410 mm 680 mm
Electrical connection:	230Volt / 50 Hz	
Protection class:	II	
Power consumption:	ca. 80 Watt	
Connection for external suction:	max. 1.000 Watt	
Electrical protection:	2x 8,0A/T	Main fuse
	1x 0,8A/T	Primary device fuse
	1x 2,0A/T	Secondary device fuse
Compressed air connection:	max. 9 bar	
Set working pressure:	7 bar	
Compressed air consumption:	max. ca. 80l/min	
Blasting room lighting:	LED spotlighting	
Weight:	Ca. 45 kg	P-G 400/4 P-G 400/3 P-G 400/2

2.2 Unpacking the appliance

1) Place the box on a flat surface.

2) Open the top of the box and remove the upper packaging material

3) The appliance must be removed from the box by two people

4) Place the appliance on a suitable surface (weight of the appliance approx. 45 kg)

5) Check the accessories:Dokumentation

- Foot switch with cable and plug
- Mains cable
- Compressed air hose, blue, Ø 8.2 x 6 with insertion nozzle for quick coupling and union nut
- Any other accessories, see delivery bill

2.3 Brief description of the device and identification of the components

Main elements of the P-G 400/4 spot blasting unit:

- Sheet steel housing with blasting chamber and connection for external suction.
- 4 blasting units consisting of: Blasting agent container, mixing chamber, vibration device for exact regulation of the desired blasting agent quantity, blasting hose with blasting stylus, electro-pneumatic locking device for triggering or interrupting the sandblasting process.
- Device for automatic activation of the blasting system associated with the selected blasting stylus.
- Electronic selection device for setting the proportion of abrasive in the sandblast, with digital display.
- Pressure control device for setting the blasting pressure, with digital display.
- Device for automatic “reserve” fill level display, with digital display.

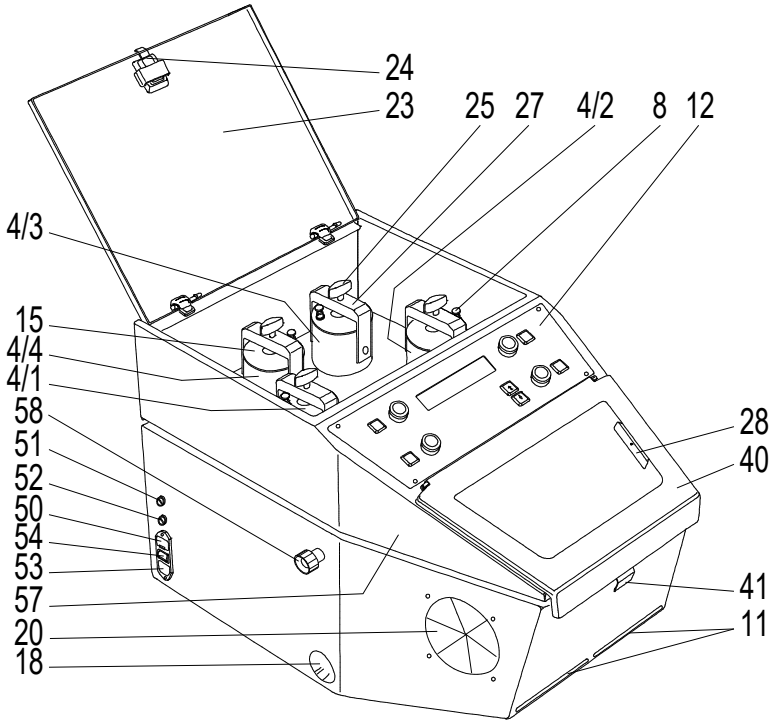


Figure 1: Device view from the front left

4/1	White abrasive container	25	2x | 3x | 4x wing screws
4/2	Yellow abrasive container	27	2x | 3x | 4x brackets
4/3	Green abrasive container	28	2x window holder (right and left)
4/4	Red abrasive container	40	Front flap with window
8	2x | 3x | 4x venting screws	41	Lock for front flap
11	Front air inlet openings	50	2x main appliance fuses 8 A/T
12	Control panel	51	Appliance fuse 0.8 A/T primary
15	2x | 3x | 4x abrasive container lid	52	Appliance fuse 2.0 A/T secondary
18	2x connection for suction hose (right and left)	53	Mains connection (230 V/ 50 Hz)
20	2x hand grips (right and left)	54	Main switch
23	Lid for abrasive container compartment	57	Upper housing section
24	Lid lock	58	Locking screw for upper housing section

2.4 Commissioning

⚠	DANGER of electric shock: • Only use original mains connection cable • Check the connection cable for damage before use
ℹ	NOTE: • The appliance is electrically ready for operation when it is switched on at the main switch (54). The blasting chamber lighting illuminates, see section “3.5”.

1) Connect the spot blasting unit to the compressed air supply, see section 3.2.
2) Connect the spot blasting unit to the required extraction system, see section 3.1.
3) Fill with blasting material, see section 3.3.
4) Plug the foot switch into the socket (13) for the foot switch on the right-hand side of the appliance.
5) Connect to the mains (230 V/50 Hz) at the mains connection plug (53).
6) Activate the desired blasting system (automatic detection), see section 3.6.
7) Set the working pressure (blasting pressure), see section 3.2.
8) Dosing the blast media quantity, see section 3.8.

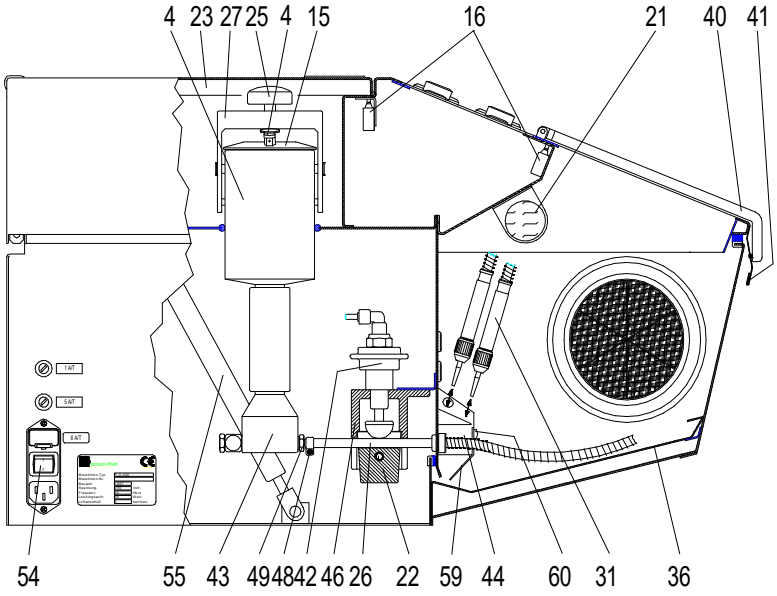


Figure 1: Device view from the front left

4	2x | 3x | 4x Blasting agent container	40	Front flap with viewing window
8	2x | 3x | 4x Vent screw	41	Lock for front flap
15	2x | 3x | 4x Sandblasting agent container cover	42	2x | 3x | 4x Pneumatic cylinder (hose clamp)
16	2x Safety switch	43	2x | 3x | 4x Mixing chamber
21	Blasting chamber lighting	44	Blasting pen holder
22	2x | 3x | 4x Base (hose clamp)	46	2x | 3x | 4x Clamping cylinder housing
23	Cover for blasting agent container chamber	48	2x | 3x | 4x Hose clamp
25	2x | 3x | 4x Wing screw	49	2x | 3x | 4x Connection grommet
26	2x | 3x | 4x Blasting hose	54	Main switch
27	2x | 3x | 4x Bracket	55	Gas spring
31	2x | 3x | 4x Blasting handle	59	Cover plate
36	Perforated plate, 2-part	60	Fastening screw

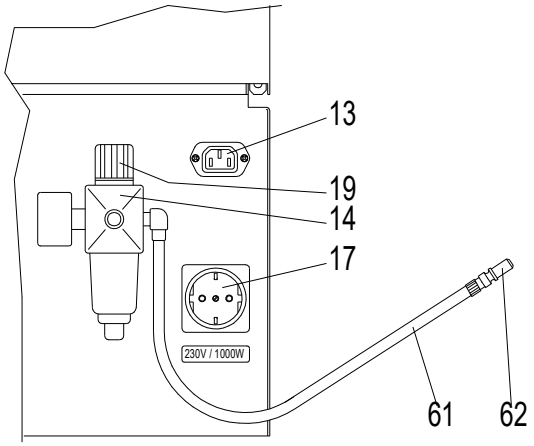


Figure 3: Device view from the front left (Warning: You have received a custom-made product.)

13	Socket for foot switch	19	Adjustment knob (pre-pressure)
14	Pre-pressure filter regulator	61	Compressed air supply line
17	Socket for suction unit	62	Coupling socket

3 Operation

3.1 Connecting the spot blasting unit to the required extraction system

(See also: Figure 1: Unit view from the front left / Figure 3: Unit view from the rear right)

⚠	CAUTION Dust formation: - The P-G400 spot blasting unit may only be operated with an extraction unit. - Please ensure that the extraction unit has sufficient suction power.
ℹ	NOTE: - We recommend our matching D-LE 255 series extraction unit

The air to be extracted enters mainly at the front air inlet openings (11), is directed tightly over the base of the appliance and thus keeps the blasting chamber clean at all times. Air is also drawn in via the manual openings (20).

1. connect the suction unit to the right or left connection (18) (connection Ø 47 mm). The connection (18) that is not required must be closed with the enclosed plastic cover.

2. electrically connect the suction unit to the socket (17) (230V). Maximum connected load 1000 watts.

3 Please also observe the operating instructions for the extraction unit.

3.2 Connecting the spot blasting unit to the compressed air supply

(See also Figure 3: Rear right view of the unit)

⚠	CAUTION - Compressed air quality: • The P-G400 spot blasting device may only be operated with dry and oil-free air.
ℹ	NOTE: • Pull up the adjusting knob (19) = unlock • Push in the adjusting knob (19) = lock

1. Connect the compressed air supply to the pre-pressure regulator (14) using the fabric hose supplied.
2. The inlet pressure is set to approx. 7 bar at the inlet pressure regulator (14) at the factory. It can be corrected if necessary.

3.3 Filling the abrasive into the abrasive containers

⚠	CAUTION: - To avoid malfunctions, make sure that no dirt particles and no grain sizes larger than those specified are mixed in with the abrasive. - Always open the small vent screws (8) before opening the abrasive container. This allows the pressure in the abrasive container to escape and relieves the pressure on the wing screw (25). - - Clean the upper edge of the abrasive container and the O-ring of the lid before replacing the abrasive container lid.
ℹ	NOTE: - We recommend our H+R Henkel bottles with practical filler neck for filling the abrasive. After filling, the filler neck must be tightly closed with the red plastic plug (see above, 1st paragraph). - When the lid (23) is open, the compressed air supply to the blasting systems is interrupted by the safety switch (16). - The blast media tends to absorb moisture from the air, which is why the storage containers must always be kept tightly closed and at a room temperature of at least 20 °C. - Especially during transportation during the cold season, the abrasive can become damp, causing it to lose its flowability, which can lead to malfunctions of the spot blasting unit. - - Moist abrasive must therefore be allowed to dry for approx. 30 min. at approx. 60 °C before being filled into the spot blasting unit.

1. Switch off the appliance at the main switch (54) and pull out the mains plug.
2. Open the cover (23) for the abrasive container compartment.
3. Unscrew the wing screw (25) until the bracket (27) can be swung to the side.
4. Remove the abrasive container cover (15).
5. Fill in the abrasive as described in section 3.4. Fill the abrasive container (4/...) to a maximum of approx. 2 cm below the upper edge.
6. Replace the abrasive container cover (15).
7. Swivel the bracket (27) over the abrasive container lid (15) as far as it will go and tighten the wing screw (25).
8. Tighten the venting screws (8) tightly.
9. Close the lid (23) for the blasting agent container compartment.
10. The device can be put into operation.

3.4 Blasting systems and the associated blasting media and nozzles

⚠	CAUTION: - The appliance is designed for use with HARNISCH+RIETH abrasives. - We cannot accept any liability for malfunctions or damage caused by the use of other abrasives or incorrect grain sizes.

Blasting stylus (31), blasting agent container (4) and control panel sector (working pressure regulator (9) and push button (5)) of each of the four blasting systems are each marked with the color white, yellow, green or red.
The blasting systems are designed as follows as standard from the factory:

Blasting system	Mikro-nozzle-Ø	Type of abrasive	class	Smallest permissible Micro nozzle Ø
white	0,6 mm	Shine blasting media	Kl. 55 A (50 µm)	0,6 mm
yellow	0,6 mm	Special precious corundum (alu-oxide)	Kl. 30 B (50 µm)	0,6 mm
green	1,5 mm	Special precious corundum (alu-oxide)	Kl. 60 B (120 µm)	0,8 mm
red	1,0 mm	Special precious corundum (alu-oxide)	Kl. EW60 (250 µm)	1,2 mm

The blasting chamber assignment may only be changed by a certified H+R service partner or by the factory customer service.

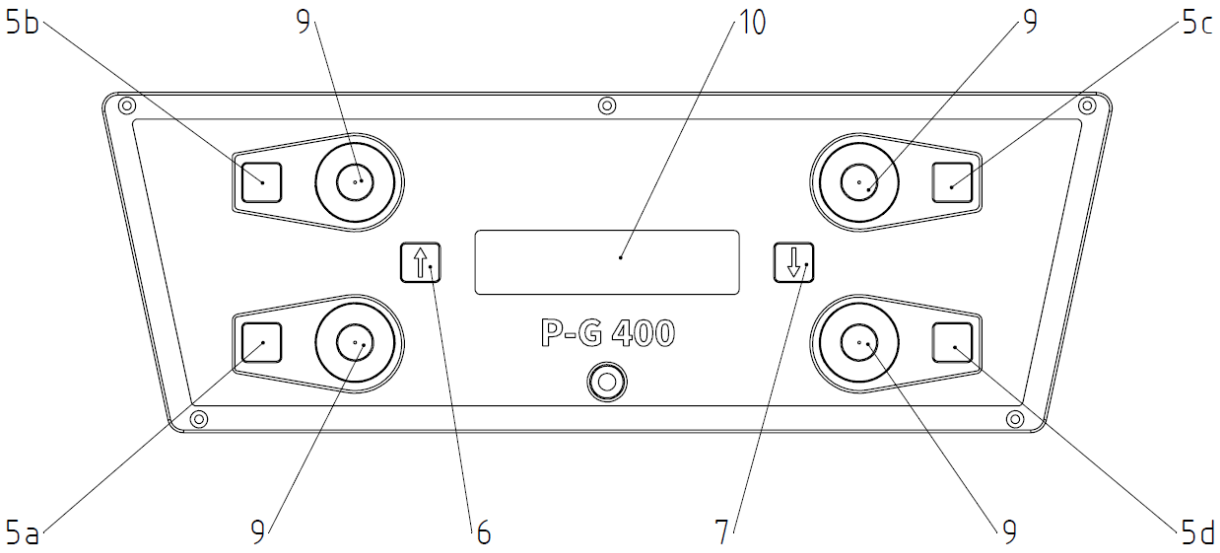


Figure 4: Screen front

5a to 5d	4x push button with indicator light	9	4x working pressure regulator
6	Push button to increase the amount of blasting agent	10	Display
7	Push button to reduce the amount of blasting agent		

3.5 Switching on the blast room lighting and the extraction system

When the main switch (54) is switched on, the blasting chamber lighting (21) is also switched on. If the appliance is not in use, the lighting switches off automatically after approx. 15 seconds. The lighting can only be switched off automatically if all blasting styli are in the blasting stylus holder.
When the main switch is switched on, the jet room lighting is switched on:

- by pressing one of the buttons (5/...) or
- by pressing the foot switch or
- by removing a blasting stylus (31) from the blasting stylus holder (44).

As long as a blasting stylus is removed, the blasting chamber lighting remains switched on.
When the main switch is switched on and a blasting stylus is removed, the extraction system switches on automatically by pressing the foot switch. If the foot switch is no longer pressed, the suction switches off after approx. 7 seconds.

Setting the lighting duration:

To set the automatic light switch-off, switch the appliance off at the main switch, then press and hold the 5d button (yellow). Now switch the appliance back on and keep the button pressed. The display now shows 15 sec. You can adjust this time upwards and downwards using arrow buttons 6+7. Once you have set the desired time, switch the appliance off and on again.

Setting the fan run-on time:

To set the fan run-on time, switch the appliance off at the main switch, then press buttons 5b (red) 5c (green) and keep them pressed. Now switch the appliance back on and keep the button pressed. The display now shows 7 sec. You can adjust this time up and down using the arrow buttons 6+7. Once you have set the desired time, switch the appliance off and on again.

3.6 Activating the desired beam system (automatic detection)

	CAUTION: - If the front flap (40) or the abrasive container compartment lid (23) is not completely closed, the sandblast cannot be triggered. After pressing the foot switch, the display (10) shows: “Close lid”.
	NOTE: - The active blasting system is indicated by the indicator lights in the push buttons (5/...) of the corresponding control panel. - If all blasting styli (31) are removed from the blasting stylus holder (44), the desired blasting system can be activated using the push buttons (5/...), see section 3.11 points 6 and

1. all blasting styli (31) must be positioned in the blasting stylus holder (44) according to their color marking.
2. by pulling the desired blasting stylus out of the blasting stylus holder, the corresponding blasting system is automatically activated.
3. the corresponding blasting system is automatically activated.
4. the working parameters (dosage of the blasting agent quantity and the working pressure), as they were set during the last work with this blasting system, are adopted and shown on the display (10).
5. the sandblast is triggered with the foot switch.

3.7 Setting the working pressure (blasting pressure)

The working pressure is set separately for each blasting system on the corresponding working pressure regulator (9) and shown in bar on the display (10) (see section 3.11 point 5). The respective setting is retained for the relevant blasting system until it is changed again. Depending on the requirements, the appliance can be used from 0.5 bar to 7 bar. As a rule, a maximum working pressure of 5 bar is sufficient. Also observe the pre-pressure regulator setting, see section 3.2 point 2.

3.8 Dosing the quantity of abrasive

The proportion of blasting agent in the spot blasting unit of the respective active blasting system is set using the push buttons (6) and (7) and shown in the LED display (10) as “Volume” and the enclosed number ‘0’ to “9”.

- Value “0” means: minimum amount of blast media
- Value “9” means: maximum amount of abrasive

The set value is saved automatically and is retained for the respective blasting system until it is changed again.

3.9 Setting and saving further working parameters

NOTE:
- The button pressed (push-buttons 5a to 5d) is then permanently illuminated.

Press and hold the pushbutton (5a to 5d) of the corresponding blasting system for at least 15 seconds.

1. Setting the abrasive designation:

   - The following blasting media designations can be set for the individual blasting systems: “ALOX”; “DICOR”, “EDELK”, “OXYD”, “SAND”, “GLANZ”, “PLAST”, “PERLA”, “GLAS”, “WALN”, “COAT”, “PRE”, “PLUS”, “SOFT”, “A”, “B”, “C”, “D”, “E”, “F”, “G”, “H”, “20B”, “30B”, “55A”, “60B”, “EW60”, ‘EW80’, “150A”.
   - Press the push button (5b) briefly. “Blasting agent” appears in the display.
   - Use the button (6) or (7) to select the desired abrasive designation.

2. Setting the abrasive grain size designation:

   The grain size designation for the individual blasting systems can be set from 20µ to 250µ in steps of 10 and 500µ.

   - Press the push button (5a) briefly. The display shows "Grain size“.
   - Use the button (6) or (7) to select the desired grain size (µm).

3. Setting a blasting time, e.g. for special coating blasting:
   The end of the selected blasting time is signaled by a beep (see below, Setting the signal duration):

   - Press the push button (5d) briefly. The display shows "Blasting time“.
   - Use the button (6) or (7) to select the desired time (in seconds). Value 0 seconds = no beep sound.

4. Save the settings (1, 2, 3 and 4):
   - After setting the parameters listed above (1, 2, 3 and 4), switch the device off and on again. The illumination of the push button (5/...) goes out. The desired settings are saved

The following parameters can be set by the Harnisch+Rieth technical service:

- Blasting chamber lighting circuit
- Saving the desired default settings (as a priority)
- Retrieving the factory default settings

3.10 Automatic “reserve” level indicator

If the fill level in the blasting agent container of the activated blasting system reaches a certain lower limit due to the consumption of blasting agent, the built-in sensor signals this by the indicator light of the push button (5/...), which belongs to this blasting system, flashing and “Reserve” and “Volume” also appearing alternately in the display (10) at 1-second intervals. At this point, there is still a blast media reserve available for approx. 10 minutes of blasting.

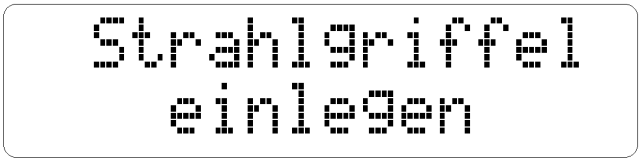
3.11 LED-Display

The display shows the following data for the activated blasting system:

1. Top left : : Color designation of the beam system: “white”, “yellow”, ‘green’ or “red”.
2. Top right : Volume 0 to 9, i.e. 10 selectable levels for abrasive content.
   0=Minimum
   9=Maximum
   If the reserve fill level in the abrasive container is reached,
   will alternately display “Reserve” and “Volume”, see 3.10..
3. bottom left : Type of abrasive, e.g. “ALOX”, see section 3.9 point 1.
4. bottom mid : Abrasive grain size in µm, see section 3.9 point 2.
5. bottom right : Display of the set working pressure in steps of 0.1 bar.

Picture 5 example dislay

5. If two or three styli are removed from the stylus holder, the following message appears



Picture 6 example display

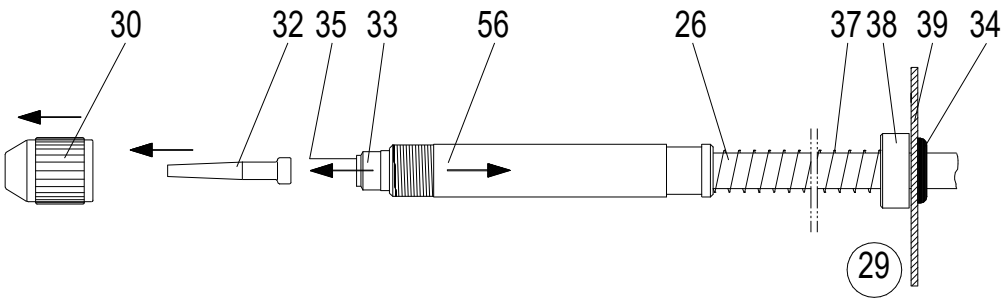
6. If all four blasting styli are removed from the blasting stylus holder, the desired blasting systems can be selected using the push buttons (5/...). The information as described in paragraphs 1 to 5 above appears again.

3.12 Changing and cleaning the jet nozzles

⚠	Danger: Risk of injury, especially to the eyes! - Under no circumstances may a blasting stylus with or without a nozzle be removed from the blasting chamber through the manual access openings as long as the device is connected to the mains and the compressed air and the blasting agent containers are not vented (see section 4.1 points 1-4)! - The blasting nozzles should be removed and installed with the front flap (40) closed! - Otherwise, remove and install them with the front flap open: - Turn the pre-pressure regulator (14) to 0 bar (pull up the adjusting knob (19) = unlocked) or disconnect the compressed air supply upstream of the pre-pressure regulator (by loosening the quick-release coupling (62)). - Vent all blasting agent containers by opening the venting screws (8) and then close them again.
⚠	Caution: - There must be a rubber sealing ring (35) between the jet nozzle (32) and the aluminum hose nozzle (33).
ℹ	Note: - If a jet nozzle is clogged, it is removed from the appliance as described above and blown through with compressed air from the front. - blown through from the front with compressed air or from the front with a thin wire. - As a blocked nozzle sometimes causes the abrasive to build up in the blasting hose, this must then be blown free. To do this, with the front flap (40) closed, hold the blasting stylus without the nozzle in the direction of the perforated base plate and press the foot switch with the appliance switched on and pressurized with compressed air.

1 Unscrew the union nut (30) from the jet nozzle sleeve (56) and remove the jet nozzle (32).

2. fit new jet nozzle and tighten with union nut.



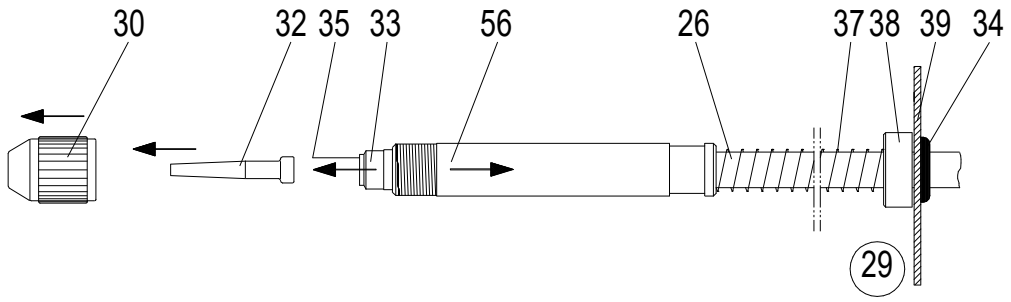
Picture 7 change blasting hose

4 Cleaning and maintenance

4.1 Checking the blast hoses

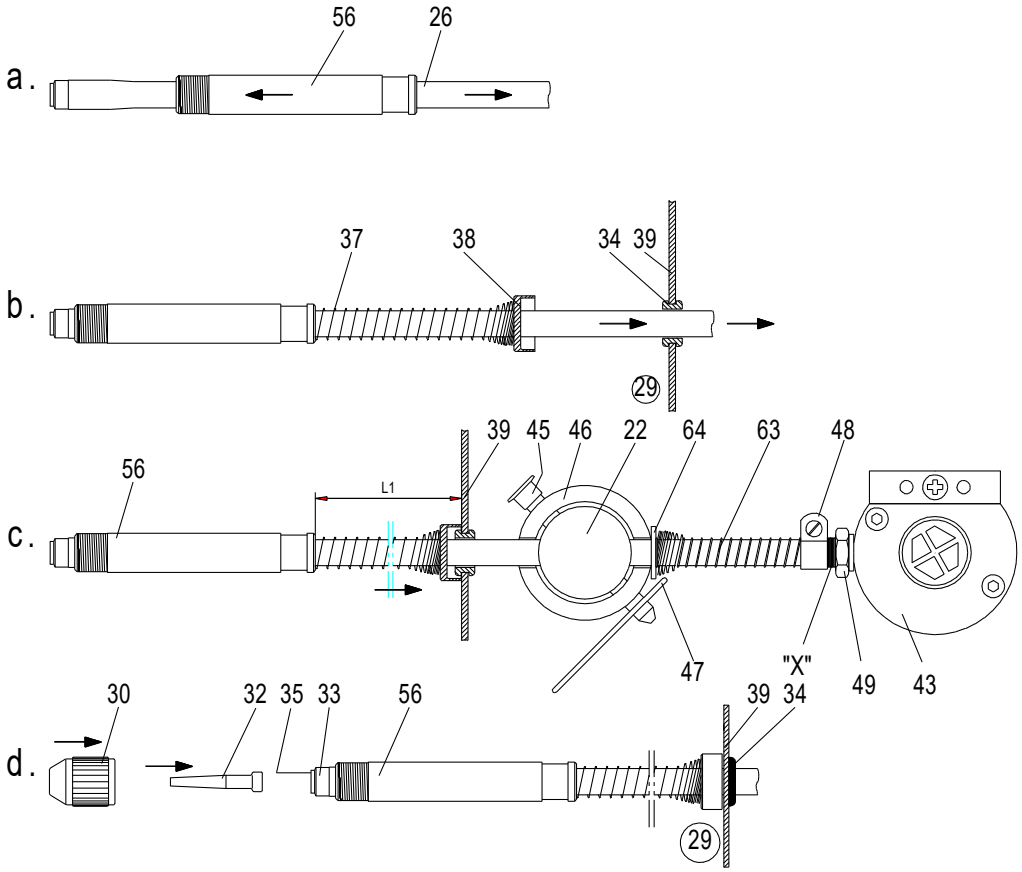
	Danger: Risk of injury, especially to the eyes! - Turn the pre-pressure regulator (14) to 0 bar (pull up the adjusting knob (19) = unlocked) or disconnect the compressed air supply upstream of the pre-pressure regulator (by loosening the quick-release coupling (62)).
	Caution: The blasting hoses are subject to natural wear and tear. They must be checked every other month.
	Note: - The blasting hose must be routed straight from the connection nozzle (49) to the rubber grommet (34) in the blasting chamber wall.

- 1. switch off the appliance at the main switch (54) and disconnect the mains plug.
- 2. turn the pre-pressure regulator (14) to 0 bar (pull up the adjusting knob (19) = unlocked), or disconnect the compressed air supply line upstream of the pre-pressure regulator (by loosening the quick-release coupling (62)).
- 3 Vent all blasting agent containers by opening the venting screws (8) and then close them again.
- 4 Close the cover (23).
- 5. unscrew the locking screw (58) approx. 10 mm and swivel the upper part of the device backwards.
- 6. pull the spring pin (47) out of the retaining bolt (45).
- 7. pull the retaining bolt out of the base (22).
- 8. remove the base (22) downwards from the clamping cylinder housing (46).
- 9. unscrew the cover plate (59).
- 10. remove the blasting hose (26) downwards from the clamping cylinder housing (46).
- 11. if a blast hose (26) is damaged at the point where it was located in the clamping cylinder housing (46) (fabric contour visible on the hose surface), it must be replaced, see section 4.2.
- 12. insert the blasting hose (26) and base (22) into the clamping cylinder housing (46) and secure with retaining bolts (45).
- 13 Push the spring cotter pin (47) into the retaining bolt.
- 14 Screw the cover plate (59) back on.
- 15. close the upper part of the housing (57) (do not pinch the blasting hoses!) and screw the locking screw (58) back in completely.
- 16. set the inlet pressure regulator back to 7 bar and lock the adjustment knob again (press down) or restore the compressed air connection to the inlet pressure regulator.



Picture 8: change blasting houses

22	Base	37	Deflector spring
26	Blasting hose	38	Deflector cap
29	Blasting chamber	39	Blasting chamber plate
30	Union nut	45	Retaining bolt
32	Blasting nozzle	46	Clamping cylinder housing
33	Hose nozzle	47	Spring cotter
34	Rubber grommet	56	Blasting stylus sleeve
35	Rubber seal		



Picture 9 change blasting houses

4.2 Replacing the blasting hoses

⚠	Danger: Risk of injury - The blasting hose must be routed straight from the connection nozzle (49) to the rubber grommet (34) in the blasting chamber wall! - The rubber sealing ring (35) must be positioned between the blasting nozzle (32) and the hose nozzle (33).
⚠	Caution: - Take this opportunity to check the connection nozzle (49). If its bore has already been enlarged so much by the abrasive flow that it is sharp-edged at the conical end, it must be replaced. - The red and green blasting hoses must be positioned and secured in the clamps so that they run approx. 5 mm above the perforated plate floor in the blasting chamber. - - The white and yellow blasting hoses must be fastened in the clamping brackets in such a way that there is no kink or excessive bend between the rubber grommet (34) and the clamping bracket.
ℹ	Note: - The blasting hose must be routed straight from the connection nozzle (49) to the rubber grommet (34) in the blasting chamber wall.

Prepare the spot blasting unit for blasting hose removal, see section 4.1 points 1 to 10. Removal (old blasting hose):

1. Remove the hose clamp (48) from the blasting hose (26).
2. Pull the blasting hose (26) off the connection sleeve (49).
3. Unscrew the cover plate fastening screw (60) and remove the cover plate (59).
4. Remove the blast hose from the clamping bracket on the blast chamber side (29).
5. Pull the blast hose (26) out of the rubber grommet (34). Remove the deflector cap (38) and deflector spring (37).
6. Unscrew the union nut (30) from the blasting stylus sleeve (56) and remove the blasting nozzle (32).
7. Grasp the old blasting hose (26) with pliers at the hose nozzle (33) and pull it out of the front of the blasting pen sleeve (56).

Installation (new steel hose):

8. Insert the new blasting hose (26) through the blasting pen sleeve (56), see Fig. 9a.
9. Pull the blasting hose firmly into the blasting pen sleeve, see Fig. 9b.
10. Slide the discharge spring (37) and discharge cap (38) onto the blasting hose as shown in Fig. 8b.
11. Push the blasting hose (from the blasting chamber side (29)) through the rubber grommet (34), see Fig. 9b.
12. Press the blasting hose with the hose clamp (48) pushed on to the connection nozzle (49) on the mixing chamber (43) and tighten the hose clamp (48), see Fig. 2 page 7.
13. Insert the blasting hose (26) and base (22) into the clamping cylinder housing (46) and secure with the retaining bolt (45).
14. Push the spring cotter pin (47) into the retaining bolt (45).
15. Screw the cover plate (59) back on.
16. Fit the jet nozzle (32) and tighten with the union nut (30), see Fig. 9d.
17. Close the upper part of the housing (57) (do not pinch the blasting hoses!) and screw the locking screw (58) all the way in again.
18. Set the pre-pressure regulator back to 7 bar and lock the adjustment knob again (press down) or restore the compressed air connection to the pre-pressure regulator.

4.3 Maintenance

Apart from changing and checking the blasting hoses (26) and the connection nozzles (49) (see section 4.2 points 1 and 2 and “Caution”, and changing the blasting nozzles (32), the appliance requires no further maintenance.

5 Electrical fuse protection

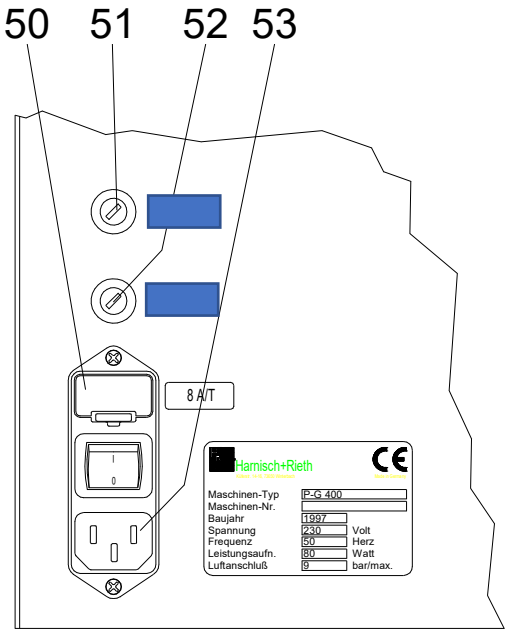


Abbildung 1: Gerätesicherungen

50	Main appliance fuses 2x 8 A/T	52	Appliance fuse after transformer 1x 2 A/T
51	Appliance fuse before transformer 1x 0.8 A/T	53	Mains connection appliance plug

6 Zubehör / Verbrauchsmaterial / Verschleißteile

6.1 Zubehör

Article-No.	Designation
72001	Connection set (2x connection piece Ø50 | 1x connection piece Ø40 | 1.5m suction hose)
72040	Suction hose Ø40 (sold by the meter)
72045	Suction hose Ø45 (sold by the meter)
72050	Suction hose Ø50 (sold by the meter)
35028	Mains connection cable
72004	Connection piece Ø40
72005	Connection piece Ø50
72007	Connection piece Ø45
50942	Glove right mounted on plastic ring complete
50943	Glove left mounted on plastic ring complete

6.2 Verbrauchsmaterial

Article-No.	Designation
75556	Grit blasting media 55A Grit size 50µ (6kg)
75156	Grit blasting media 150A Grit size 150µ (6kg)
75208	Special precious corundum 20B Grit size 25µ (6kg)
75308	Special precious corundum 30B Grit size 50µ (6kg)
75250	Special precious corundum EW60 Grit size 250µ (6kg)
75606	Special precious corundum 60B Grit size 120µ (6kg)
75806	Special precious corundum EW80 Grit size 180µ (6kg)

6.3 Verschleißteile

Article-No.	Designation
53609	Blasting hose unit white
53611	Blasting hose unit red
53612	Blasting hose unit yellow
53613	Blasting hose unit green
30100	Manual handle “sleeve set” (1 handle)
27004	Micro nozzle 0.4mm
27006	Micro nozzle 0.6mm
27008	Micro nozzle 0.8mm
27010	Micro nozzle 1.0mm
27012	Micro nozzle 1.2mm
27015	Micro nozzle 1.5mm
27018	Micro nozzle 1, 8mm
47042	Stop valve complete
70003	Front screen
40160ET	Dosing housing adjusted (25-50µ yellow/white)
40161ET	Dosing housing adjusted (110-250µ yellow/white)
40162ET	Dosing housing adjusted (25-50µ green/red)
40163ET	Dosing housing adjusted (110-250µ green/red)
33610	Lid for sand container complete

7 Service

You have purchased a high-quality Harnisch+Rieth product that has undergone several quality checks and a strict outgoing goods inspection. If, contrary to expectations, malfunctions should occur during commissioning or operation, please contact our customer service department before making a complaint to your dealer or sending the appliance to us!

You can reach our customer service by phone, fax, e-mail or via our service portal on the Internet using the contact information below.

You can download the spare parts list from our homepage under Service.

When responding to your inquiries, we attach great importance to processing your inquiries quickly and competently. Please note that at peak times a longer processing time for your inquiries cannot be ruled out.

Contact informationen:

Service-Telefon:	+49 (7181) / 9678-30
Service-Fax:	+49 (7181) / 9678-17
Service-E-Mail:	service@hr-dental.de
Online-Anmeldung:	https://hr-dental.de/support/reparaturservice/

+++++ Mark Harnisch is available especially for you ++++

Service-Telefon:	+49 (7181) / 9678-24
Service-Fax:	+49 (7181) / 9678-17
Service-E-Mail:	mark.harnisch@hr-dental.de

8 EC Declaration of Conformity

The manufacturer / distributor

Harnisch+Rieth GmbH&Co.KG
Küferstrasse 14-16
73650 Winterbach
info@hr-dental.de | www.hr-dental.de

hereby declares that the following product:

complies with all relevant provisions of the applicable legal regulations (hereinafter) - including their amendments in force at the time of the declaration. This declaration of conformity is issued under the sole responsibility of the manufacturer. This declaration relates only to the machine in the condition in which it was placed on the market. Parts subsequently fitted by the end user and/or subsequent modifications are not taken into account.

The following legal provisions were applied:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU
- Product Safety Directive 2001/95/EC

The protection targets of the following other legal regulations were met:

- Low Voltage Directive 2014/35/EU

The following harmonized standards were applied:

DIN EN ISO 12100 Safety of machinery
DIN EN 61000-4-2 Testing of immunity to static electricity discharge
DIN EN 61000-4-3 Testing of immunity to radio-frequency electric fields
DIN EN 61000-4-4 Testing of immunity to fast transient electric disturbances
DIN EN 61000-4-5 Testing of immunity to surge voltages
DIN EN 61000-4-6 Testing of immunity to conducted disturbances induced by radio-frequency fields
DIN EN 61000-4-11 Testing of immunity to voltage dips, Short-term interruptions and voltage fluctuations
DIN EN 61000-6-2 Generic standard for immunity to interference in industrial areas
DIN EN 61000-6-3 Generic standard for interference emission in residential areas
DIN EN 61000-3-2 Limits for harmonic currents <16A
DIN EN 61000-3-3 Limitation of voltage changes and flicker on public low-voltage supply systems for devices with a rated current <16A per conductor, which are not subject to special connection conditions
DIN EN 55011-2010-05-4-2 Testing of immunity to static electricity discharge
DIN EN 55014-1 Requirements for household appliances, power tools and similar appliances Emission of interference
DIN EN 55014-1 Requirements for household appliances, power tools and similar appliances Immunity to interference

Name and address of the person authorized to compile the technical documentation:

Harnisch+Rieth GmbH&Co.KG
Birgit Harnisch
Küferstrasse 14-16
D-73650 Winterbach

Winterbach, im März 2020

Birgit Harnisch
Geschäftsführerin

9 Guarantee conditions

The following warranty conditions of the

Harnisch+Rieth GmbH&Co.KG
Küferstraße 14-16
D-73650 Winterbach
(following Harnisch+Rieth)

govern your rights as a consumer vis-à-vis Harnisch+Rieth in the event of material or manufacturing defects in your Harnisch+Rieth product. Here you will find information on the scope, duration and assertion of the guarantee.

The guarantee granted by Harnisch+Rieth does not affect your statutory warranty rights vis-à-vis the seller of the product. If your product is faulty, you can therefore contact the seller of the product in any case and without restriction, regardless of whether a warranty case exists and whether the warranty is claimed or not.

9.1 Start and duration of the guarantee

The warranty period for all products begins on the date of purchase by the end user. We do not provide a warranty for devices whose production date is more than five years ago at the time of purchase.
The warranty period is 36 months and can be extended to 60 months1 in total.

In order for warranty claims to be recognized, proof must be provided that the maintenance prescribed by Harnisch+Rieth has been carried out without interruption. The maintenance intervals can be found in the operating instructions. The inspection and maintenance checklist completed in full by a Harnisch+Rieth employee or authorized service partner shall serve as proof.

Replacement deliveries for warranty reasons or free repairs during the warranty period do not extend the original warranty period, nor does the warranty period start anew.
[1]By concluding a contract for Service Package 03, the warranty period is extended in accordance with the contract term (max. 60 months).

9.2 Assertion of the guarantee

To make a claim against Harnisch+Rieth for material or manufacturing defects occurring during the warranty period, please contact us:

Tel: (07181) 9678-0 Fax: (07181) 9678-17
E-Mail: service@hr-dental.de

For any warranty claims to be recognized, a machine-generated proof of purchase (copy is sufficient) showing the date of purchase, type designation and serial number is required. This copy must be enclosed with any returns.

9.3 Requirements for a guarantee commitment

- The purchased product is a Harnisch+Rieth product.
- The machines and devices are installed in the Federal Republic of Germany.
- The notice of defects must be received by us in writing immediately after discovery of the defect before the warranty period expires. Inhalt und Umfang der Garantie

- - The Harnisch+Rieth customer service department or an authorized service partner of Harnisch+Rieth will rectify any material or manufacturing defects occurring within the warranty period free of charge, either by repairing or replacing/exchanging the parts/devices concerned. Replaced parts/devices shall become the property of Harnisch+Rieth.
- - The purchaser must allow services received from the seller under the warranty to be offset against the warranty.
- - Harnisch+Rieth shall not provide loaner equipment or assume any costs for repairs during the warranty period. The guarantee does not cover any further claims for damages against Harnisch+Rieth.Einschränkung der Garantie

Consumables are generally excluded from the warranty unless a production fault can be proven.

The warranty expires if faults or defects are attributable to:

- Normal wear and tear, in particular with
- seals after 4 months (regardless of the mileage)
- blasting hoses after 4 months (regardless of the mileage)
- Incorrect set-up or installation, e.g. failure to observe the applicable VDE regulations or installation instructions
- Improper use and improper operation or stress, use of unsuitable chemicals, cleaning agents
- External influences, e.g. external damage, damage due to weather conditions or other natural phenomena
  Repairs or modifications not carried out by Harnisch+Rieth or a third party authorized by Harnisch+Rieth.
  external damage, damage caused by weather conditions or other natural phenomena
- Repairs or modifications not carried out by Harnisch+Rieth or a third party authorized by Harnisch+Rieth
- Use of non-original accessories or non-original spare parts from Harnisch+Rieth
- Defects of which the customer was already aware at the time of purchase
- Non-observance of operating, storage and transport instructions described in the operating manual.