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Granule jet blasting device PG 5-8



Translation of the original instructions



R6-22.06-V1

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1.1 General instructions

State-of-the-art

This tool is state-of-the-art technology. To ensure that the equipment operates safely, it must be operated in a proper and safety-conscious manner.

Technical changes

In the interests of quality assurance, we reserve the unrestricted right to carry out technical changes as a result of further technological developments and product improvements without prior notification.



Reading the owner's manual

Before using the tool, make sure you read the owner's manual carefully and understand it. This manual must always be available where the product is used.

Handling

All the actions necessary to ensure correct operation are described in the owner's manual. Any working methods other than those approved by the manufacturer are prohibited.

Faults

If faults occur, the operator may only eliminate those faults through their own actions where the corresponding remedy is described.

Warranty

The manufacturer accepts no liability for damage or injury caused by improper repair or the use of third-party replacement parts.

No warranty will be provided for damage caused to the device due to the tool being used incorrectly.

Environment

Make sure that the tool is set up in a work area which is free from sources of corrosive liquids, greases or oils.

➔ 5.5 Declaration of Conformity

The tool has been manufactured in accordance with international guidelines. The relevant declaration of conformity (CE, UKCA, CB) is included with this owner's manual.

**Risk of damage to the tool**

The tool must only be used as described in the instruction manual. It is expressly forbidden to misuse the tool or to use it for any other purpose. Please make sure that you and your staff handle the tool correctly.

Technical personnel

Only trained and instructed personnel are authorized to carry out the repair/maintenance work on the vehicles and vehicle components concerned.

**Risk of injury**

In addition to the owner's manual and the binding provisions of the accident prevention regulations which apply in the country and at the place of use, you must also comply with the general (accepted) rules for safe and professional working.

1.2 Labelling

Some chapters in this instruction manual use internationally recognised warning symbols, warning notes and general instruction symbols.

The individual symbols are explained below. Follow all the instructions and safety rules.



Instruction manual
general instructions



Please note the following.



Observe the general
instructions



Arrow to clarify
pressing together



Wear face mask



Arrow indicating direction



Wear hearing protection



For further information
see chapter...



Wear gloves



Audibly engage



Wear protective clothing



Shorten



Warning
General source of danger



Blow out with air



Warning
System under pressure



Clean with air/granule mixture



Risk of hearing damage



CE-mark



Warning - noise with high
sound pressure level



UK Conformity Assessment

2.1 Use for intended purpose

The granule jet blasting device complies with the machinery directive 98/37 EC and is used for processing the surface of metal using a grainy blasting material, that is blasted onto the surface that is being processed. The blasting material is transported using compressed air.



The jet blasting device may only be operated in combination with the vacuum adapters that are approved for the relevant engine type and a vacuum cleaner with sufficient suction power.



The GP 5-8 granule jet blasting device is used for removing carbonized material from the inlet channel and valves of combustion engines.



Unauthorised modifications or changes to the device are not permitted for safety reasons.

2.2 Danger sources

The granule jet blasting device is safe if used for its correct purpose.



If it is used incorrectly and/or negligently by untrained personnel, serious injuries could be caused by the escaping granules.



The blasting probe must never be used without the provided vacuum adapter and vacuum equipment with adequate power.



Never direct the blasting probe at persons or look into the opening of the blasting probe. Risk of injury!

The device must only be operated using hoses that are approved for the purpose of use and the operating pressure of the device.



The device may only be used by trained personnel.

Never throw or drop the granule jet blasting device.

The granule jet blasting device may only be used at ambient temperatures of between 5 °C and 50 °C.

The granule jet blasting device must not be used in potentially explosive areas!

The device must never be operated without suitable protective clothing, such as a safety mask and safety shoes. Risk of injury!

➔ 5.1 Before carrying out maintenance or cleaning work and always before filling the device with granules, the compressed air supply must be disconnected and the device depressurised.

The granule jet blasting device may only be operated with compressed air.

➡ **2.4 The granule jet blasting device must always be set up on a level surface or the floor of the workshop. The device must not be set up on tables, workbenches or other objects. (Container is under pressure!)**

Hoses and supply lines must be routed in such a way that they cannot be damaged or become trapped! The hoses must also be routed in a way that prevents people from tripping over them.

2.3 Safety devices on the equipment

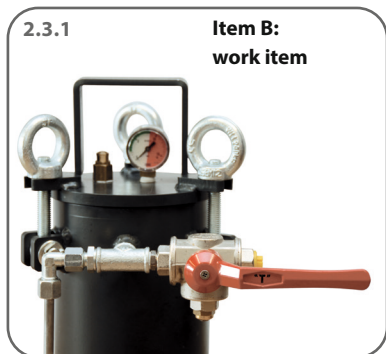


Fig. 2.3.1

There is a 3-way ball valve on the granule container that applies compressed air to the container and the control system in the operating position.

Fig. 2.3.2

In the „Off“ position the container and the control system are depressurised.

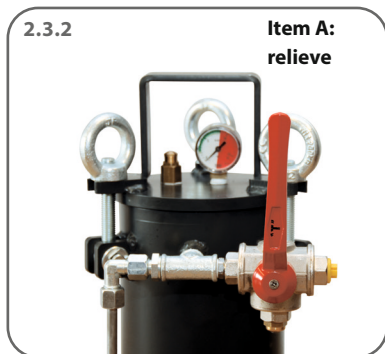


Fig. 2.3.3

There is a 2-way ball valve on the handle of the blasting lance. This can be operated if a control function fails. If the ball valve is closed, no air or other blasting material can exit from the lance.



If a control function fails, the device must be taken out of service immediately and repaired by a trained expert!



There is a pressure gauge on the granule container. The maximum operating pressure of the device may never exceed 8 bar. A safety valve is installed on the granule container that controls the maximum

imum operating pressure of the device. The valve opens at pressure of approx. 8.5 bar.



If the safety equipment malfunctions, the device must be taken out of service immediately! The device should undergo preventive maintenance at least once per annum by a specialist company!

2.4 Safety measures at the installation site



Fig. 2.4.1

The surface on which the device is installed must be level, load-bearing and stable in accordance with the weight of the device.

The device may only be used in combination with the suction adapters that are provided for the respective motor type and an adequately dimensioned vacuum cleaner.

Hoses and supply lines must be routed so that they do not damage the device and cannot become trapped! The hoses must also be routed in such a way that they cannot be tripped over.

3.1 Unpacking the device

- Place box on a level surface
- Open box and carefully remove the device
- Check the accessories
 - Operating instructions
 - Granule container with connected hose package and handle
 - Straight blasting lance
 - Angled blasting lance
 - Possibly other accessories, see delivery note



3.2 Identification and description of the device components

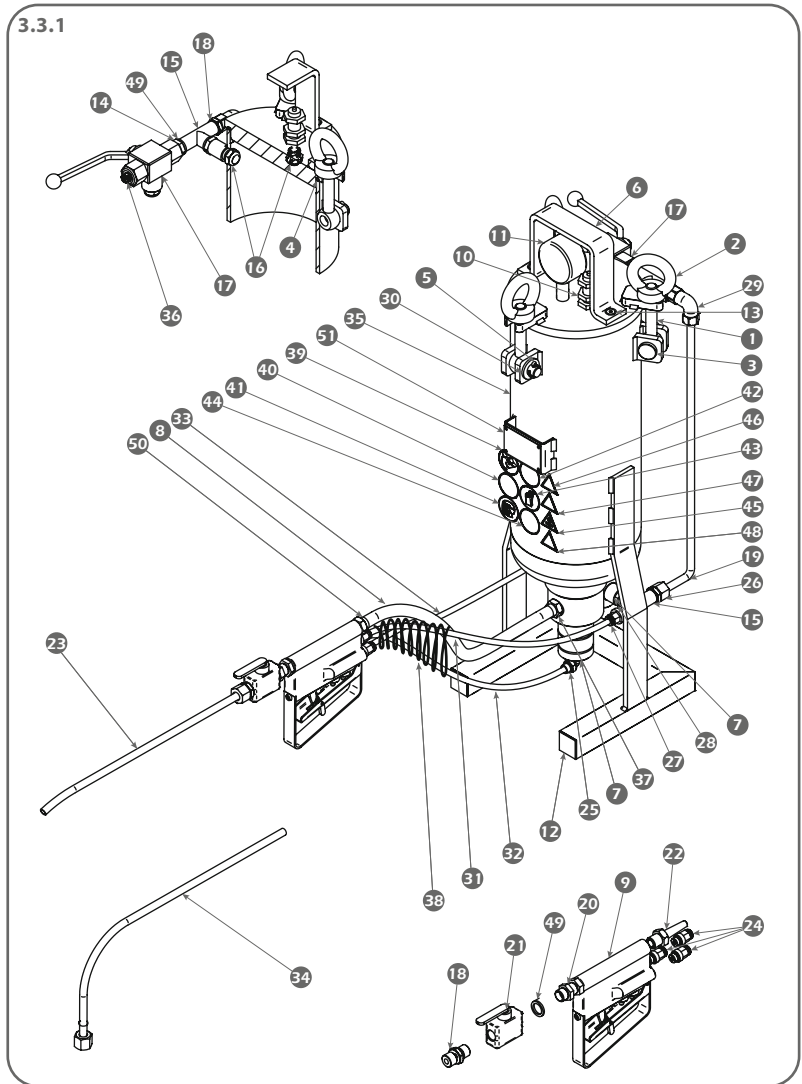
Main elements of the granule jet blasting device

Granule blasting material container with 3-way ball valve, granule control valve, compressed air control valve, pressure gauge and safety valve.

Hose package with granule transportation hose, and three colour-coded control hoses.

Handle with 2-way ball valve and connection for the blasting lance. The control function in the handle is activated using two control valves connected in series. The operating lever is equipped with a safety device to prevent unintentional reactivation.

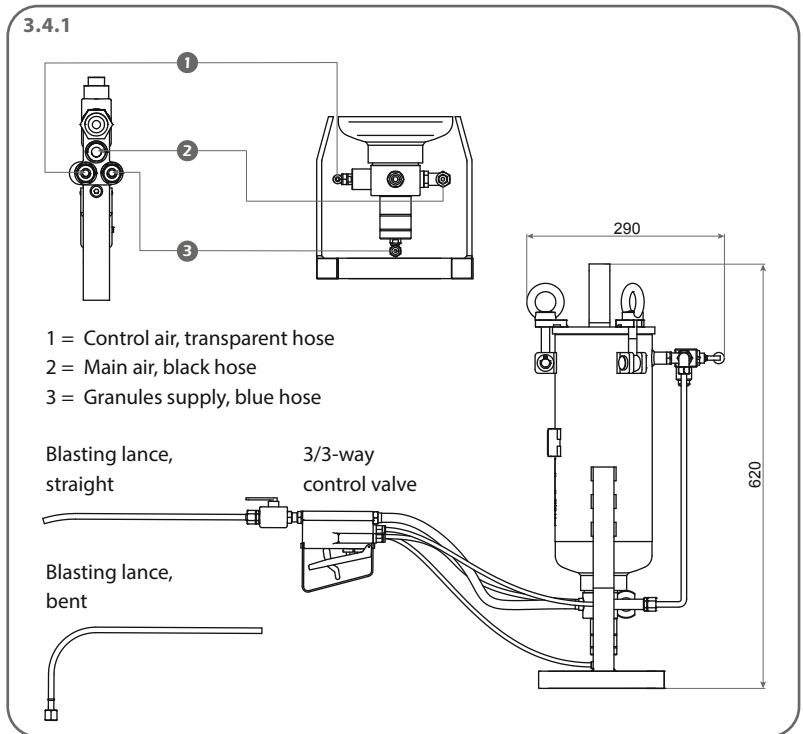
3.3 Device components



No.	Title
1	Eye bolt
2	Annular nut
3	Pin
4	O-ring
5	Split pin
6	Handle
7	Control block
8	PVC hose Ø 14 mm
9	Handle
10	Relief valve
11	Pressure gauge Ø 50 mm
12	Kapsto plastic cover
13	Countersunk screw
14	Double nipple
15	T-piece
16	Exhaust valve
17	3-way ball valve
18	Straight threaded male connector
19	Ermeto pipe 8x1
20	Bulkhead nipple
21	2-way ball valve
22	Threaded nozzle
23	Nozzle, straight
24	Straight insert nuts
25	Elbow fitting
26	Screw-in fitting
27	Straight male connector
28	Double nipple
29	Elbow fitting connection
30	Disc

No.	Title
31	Hose, black Ø 6 mm
32	Hose, blue Ø 6 mm
33	Hose, transparent Ø 6 mm
34	Nozzle, bent
35	Granule container
36	Kapsto sealing screw
37	Press nipple
38	Protective hose
39	Follow manual
40	Observe the general information
41	Wear face mask
42	Wear ear protection
43	Wear gloves
44	Wear protective clothing
45	Warning! System under pressure
46	Warning! General source of danger
47	Warning against damage to hearing
48	Warning against high levels of noise
49	PVC washer for 1/4" connection
50	Hose clamp
51	Type plate

3.4 Technical Data



Length	290 mm	Weight	15.5 kg
Width	ca. 280 mm	Hose package working length	4 m
Height	620 mm		
Max. operating pressure	8 bar	Length and weight without hoses	
Container volume	5 l		

4.1 Operation of the granule jet blasting device

- Fill with blasting material.
- Connect vacuum adapter to vacuum device.
- Attach blasting lance to handle.
- Connect granule jet blasting device to the compressed air supply.
- Start the cleaning process.
- Blasting with air / blowing out.
- Blasting with air/granule mixture / cleaning.
- Cleaning the inlet valves and the inlet channel.
- Taking device out of service.
- Maintaining the granule jet blasting device.



Always check the condition of the hoses before starting up the device!



Stop using defective hoses immediately. Risk of injury!

4.2 Granule jet blasting device preparation and connection

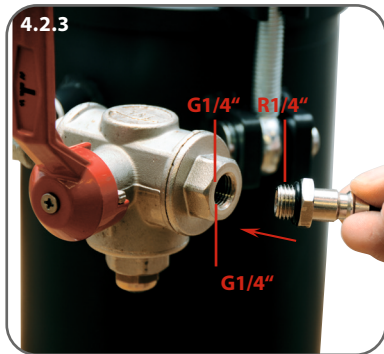


Fig. 4.2.1

The device is supplied from the factory without a compressed air coupling. The ball valve has a connecting thread with a female thread of G 1/4". The thread is fitted with a closing cap.

Fig. 4.2.2 - 4.2.3

Insert a suitable compressed air connection with seal into the thread. Remove the closing cap.

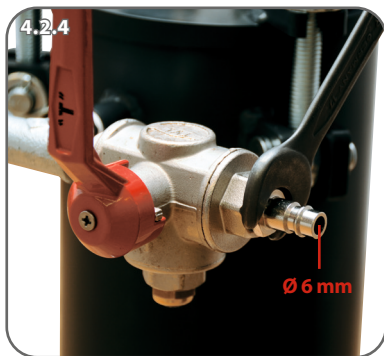
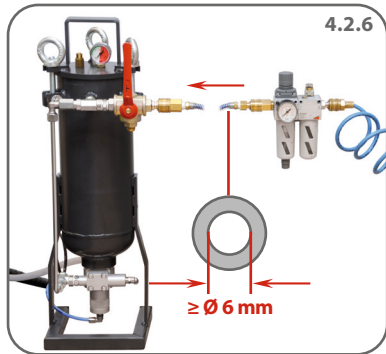
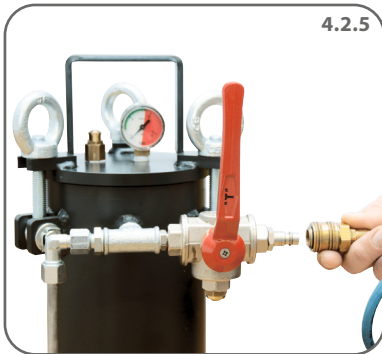


Fig. 4.2.4

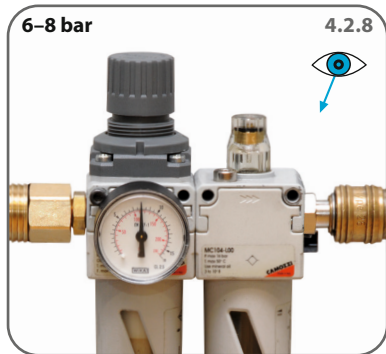
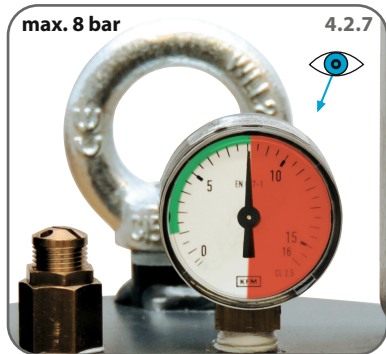
Tighten the compressed air connection using a suitable tool.



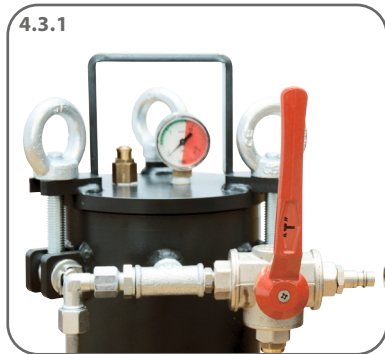
The device may only be operated using dry, oil-free compressed air!

Fig. 4.2.6
The granule jet blasting device may only be operated with an external supply unit with variable operating pressure!

Fig. 4.2.7 - 4.2.8
The operating pressure of the device should be between 6 and 8 bar, and may never exceed an operating pressure of 8 bar!



4.3 Filling with blasting material



Attention!

Device may only be filled if container is depressurised and the air supply line has been disconnected.

Fig. 4.3.1

3-way ball valve in „Relieve“ position

Fig. 4.3.2

Pressure gauge must not be indicating any pressure

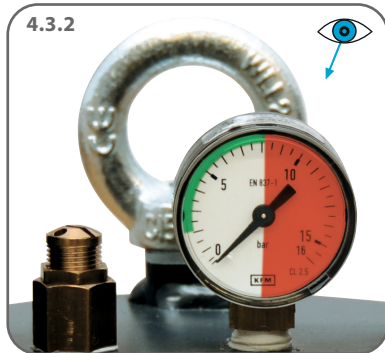
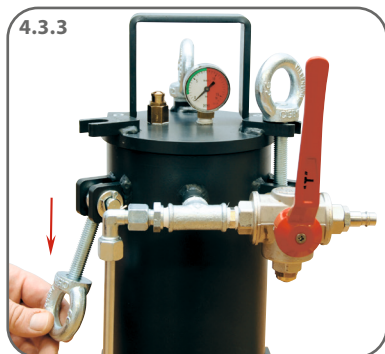


Fig. 4.3.2

Undo eye bolts and swivel out swivelling screw fitting





Only blasting material that has been approved by the manufacturer may be used: **Cleaning granulate.** The blasting material must be free of impurities.



Never re-use blasting material.

Fig. 4.3.4

Remove lid of container

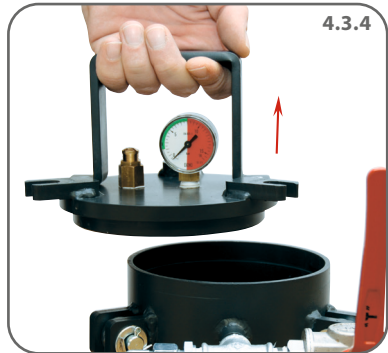


Fig. 4.3.5

Filling with granules



Fig. 4.3.6

Max. filling level 20–30 mm below air inlet connection





Check device for leaks!
If compressed air is leaking from the device, the working process must be interrupted and the cause thereof remedied!

Fig. 4.3.7

Check lid seal. Seal must be clean and must not be damaged.

Fig. 4.3.8

Place lid on container.

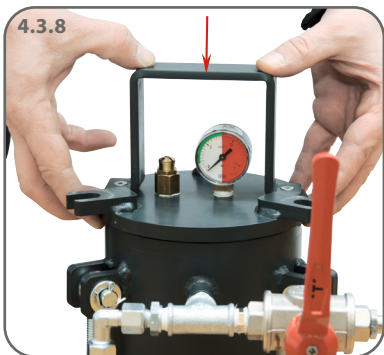


Fig. 4.3.9

Fit swivelling screw fitting.

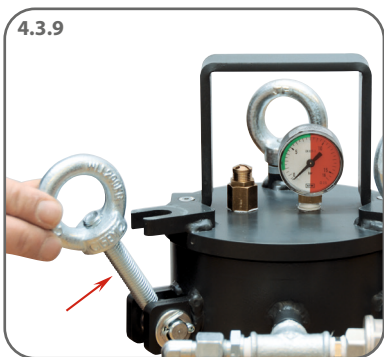
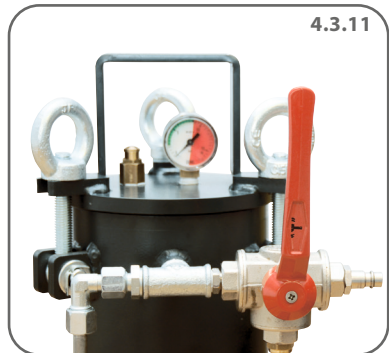
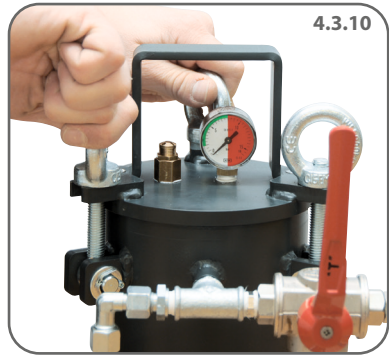


Fig. 4.3.10

Tighten eye bolts by hand.

Fig. 4.3.11

3-way ball valve in „Relieve“ position



4.4 Connect vacuum adapter to vacuum cleaner

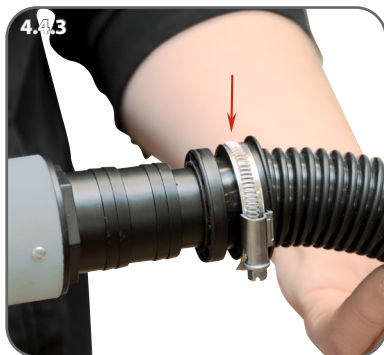


Fig. 4.4.1

Attach stepped grommet of vacuum adapter to suction hose of vacuum cleaner.

Fig. 4.4.2

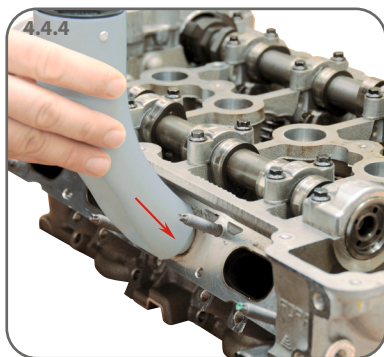
Remove adapter segments that are too small from stepped grommet.

Fig. 4.4.3

Secure suction hose with a hose clamp.

Fig. 4.4.4

Fix suction adapter in the inlet channel of the cylinder head.



The correct adapter for the respective cylinder head must be used!

Pay attention to marking!

If you use the wrong adapter it may leak and blasting material may escape! Warning! Risk of injury.

4.5 Attach blasting lance to handle

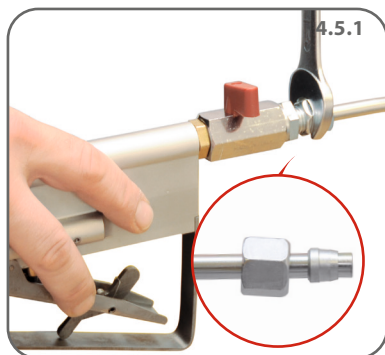


Fig. 4.5.1

Screw suitable blasting lance to 2-way ball valve.

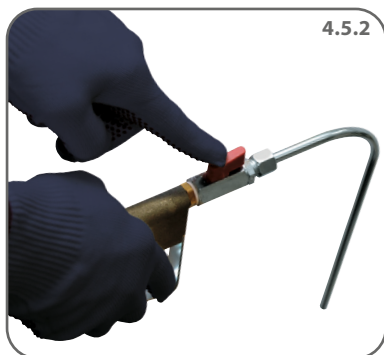


Fig. 4.5.2

Move 2-way ball valve to the open position.

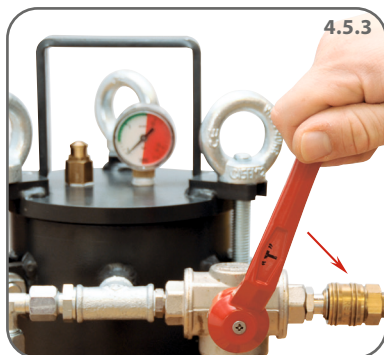


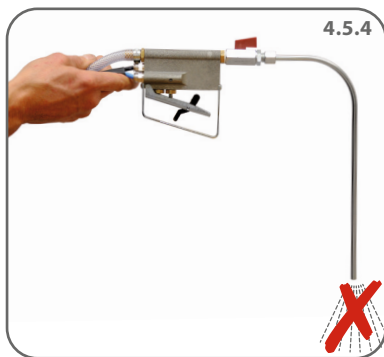
Fig. 4.5.3

Slowly turn 3-way ball valve to the working position.

Fig. 4.5.4

No air must come out of the blasting lance unless the hand lever is operated.

The device is now ready for operation!



4.6 Starting the cleaning process



Only trained and instructed experts may operate the device!



Before the cleaning process is started, the operator must put on the prescribed protective clothing!



4.7 Blasting



Risk of injury!
The blasting lance must never be pulled out of the vacuum adapter during the cleaning process!

Fig. 4.7.1

Blasting with air / blowing out

When the pull-off lever is moved to position 1 (half-way position) only air comes out of the blasting lance.

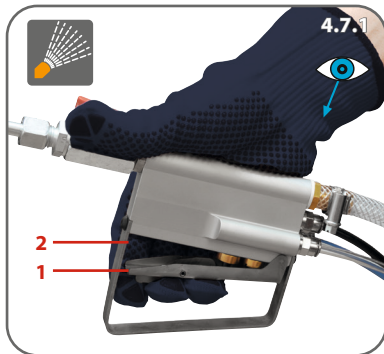
This working position is used to blow out the cleaning area.

Fig. 4.7.2

Blasting with air/granule mixture / cleaning

When the pull-off lever is moved to position 2 (pushed all the way) air and granules flow out of the blasting lance with considerable power.

This working position is used to clean the carbonized areas).



4.8 Cleaning the inlet valves and the inlet channel

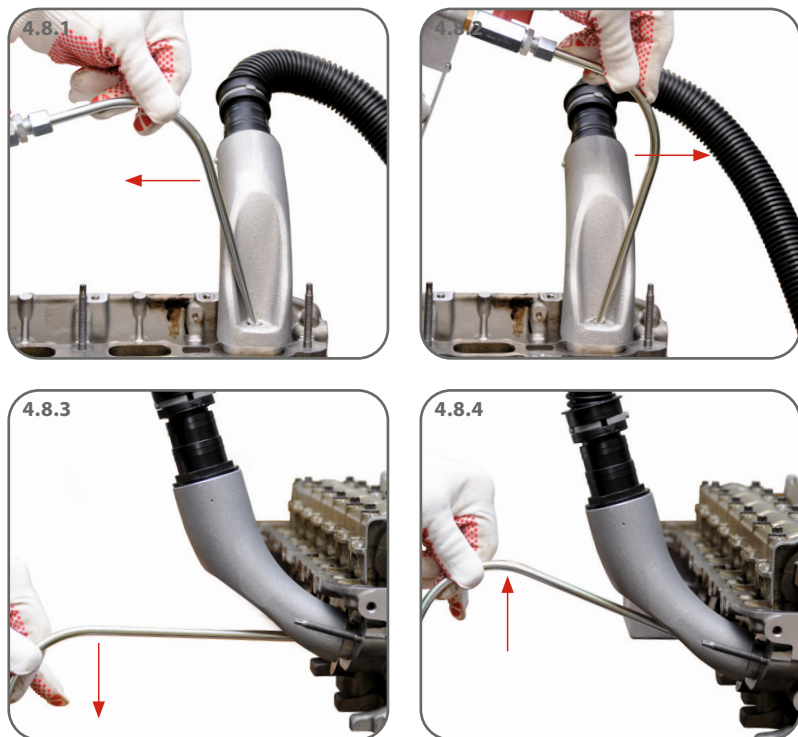


Fig. 4.8.1 – 4.8.4

The blasting lance must be positioned close to the surfaces that are being cleaned. The cleaning phases should last no more than 2-3 seconds. Then the cleaning area should be blown out again with air.

Repeat changeover between cleaning and blowing out several times. Each time the blasting lance must be moved to a different

position so that the entire carbonised area is cleaned.



No blasting material should exit from the vacuum adapter during cleaning and blowing out! If blasting material comes out, the power of the vacuum device is insufficient.

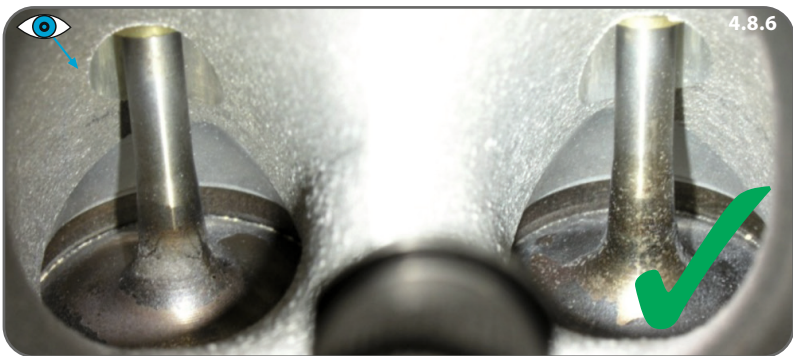
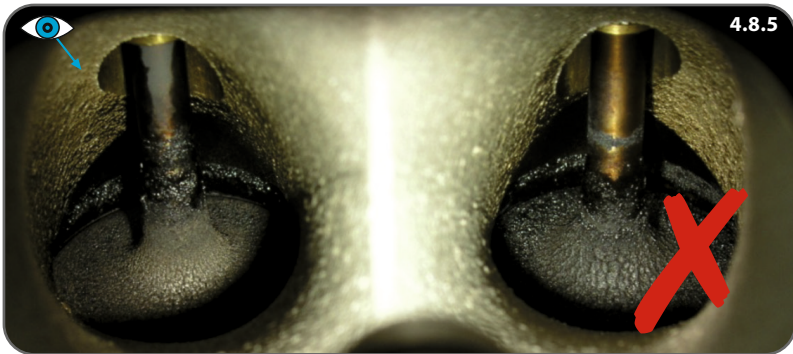


Fig. 4.8.5

After all cleaning positions have been blasted once, the cleaning result must be visually inspected. If the result is unsatisfactory, the process must be repeated and /or the working pressure of the device increased. **Max. 8 bar!**



Fig. 4.8.6

The inlet valves and the inlet channel area should be bare and free of carbonisation.

4.9 Taking the device out of service

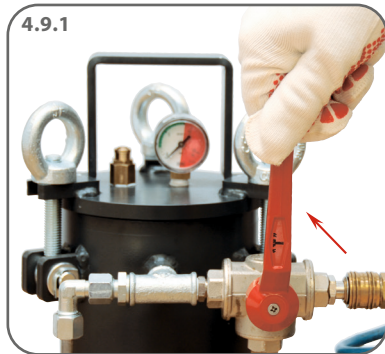


Fig. 4.9.1

After each working procedure the 3-way ball valve must be moved to the „Relieve“ position.

Fig. 4.9.2

The compressed air supply line can be disconnected if no pressure is being indicated on the pressure gauge.

Fig. 4.9.3

Remove cover of blasting device and remove remainder of granules.



The granules must always be stored in a dry place!



5.1 Maintenance / cleaning



Attention!

The blasting material hose is also subject to wear during operation, and must be checked for damage at least every two months.



The blasting material hose should be replaced once per annum if the device is used regularly!

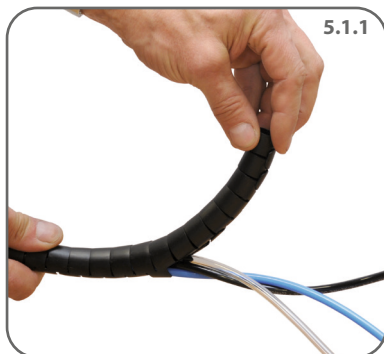


Fig. 5.1.1

Remove hose with protective braiding from hose package.



Fig. 5.1.2 - 5.1.3

Detach hose clamps from grommet on control valve and handle.



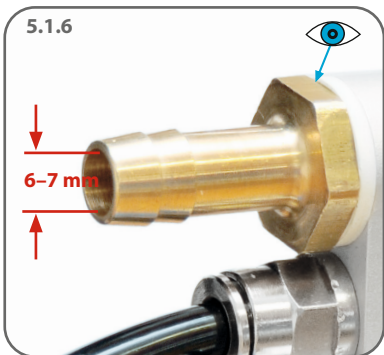
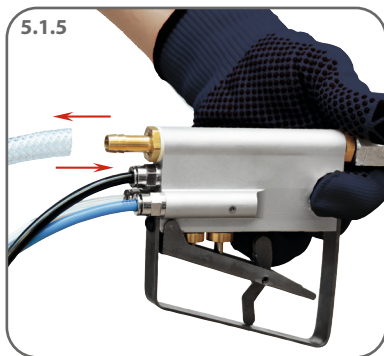
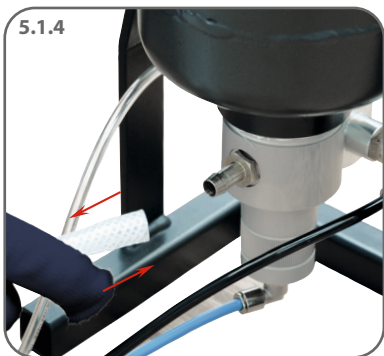


Fig. 5.1.4, 5.1.5

Remove hose and replace with new hose.

Fig. 5.1.6

This opportunity must be taken to check all hose grommets and connecting nipples on the control valve and the handle.

If the size of the hole has been increased significantly by the flow of blasting material, it must be replaced!

Original diameter	6 mm
Wear limit diameter	7 mm

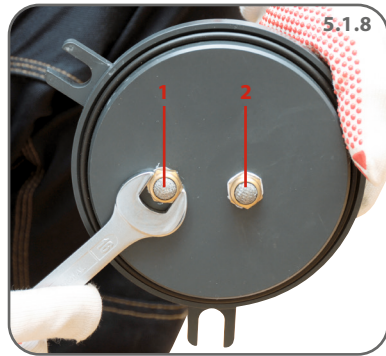
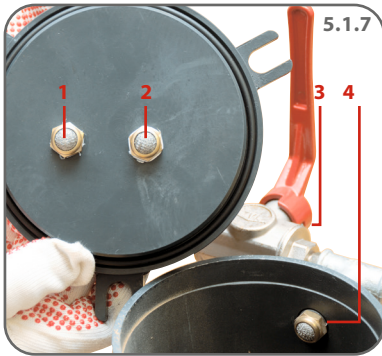
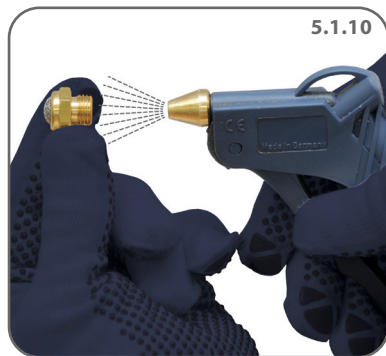
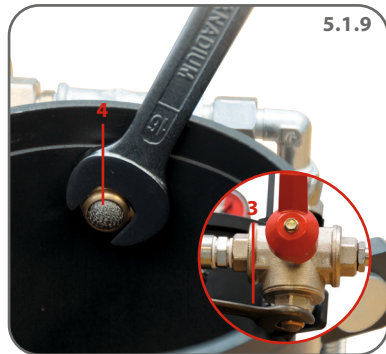


Fig. 5.1.7 – 5.1.9

At regular intervals, but after no more than 10–15 container fillings, the filter inserts in the blasting material container and the lid of the device must be cleaned!

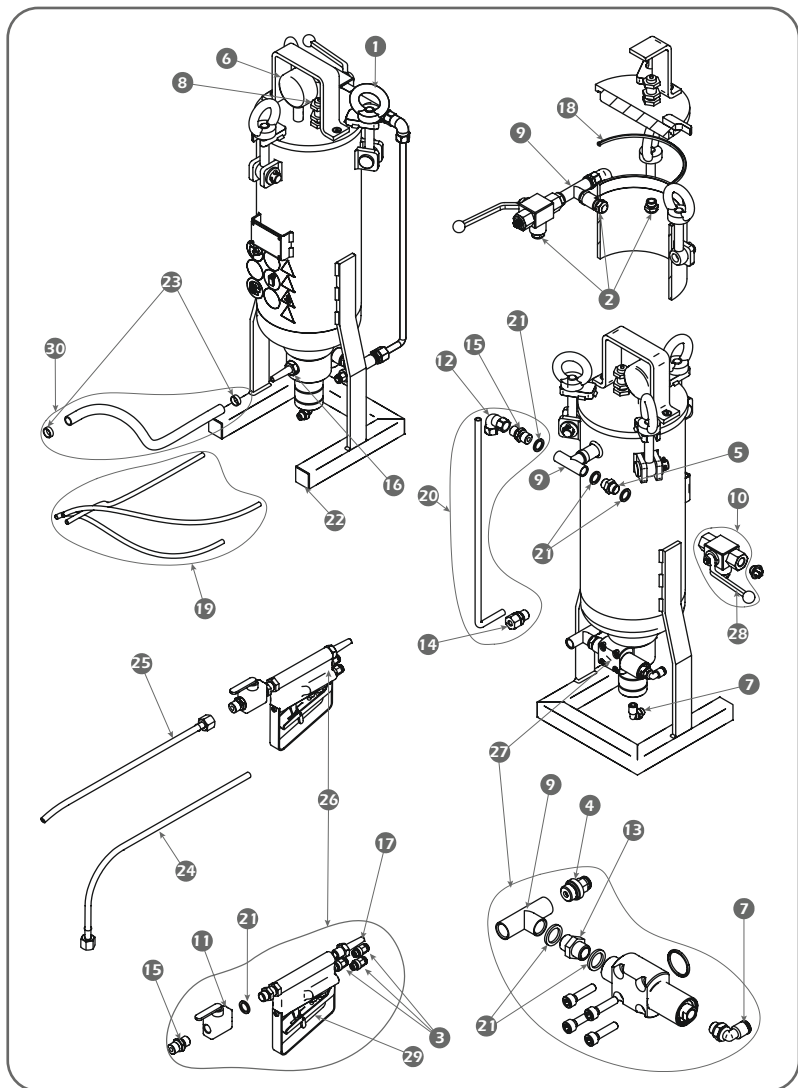
Fig. 5.1.10

Unscrew all filter inserts and blow them out with a compressed air blow-out gun from threaded side until all granule or dust residue has been removed. After cleaning, the filter inserts must be screwed back into the relevant positions.



Independently of the normal cleaning and maintenance work, the device must be checked and maintained at least once per annum by a specialist company!

5.2 Spare parts and accessories



Pos.No.	Item number	Title
1	SER-GPG-00000128	Annular nut
2	SER-GPG-00000129	Exhaust valve
3	SER-GPG-00000130	GE 1/8" thread to Ø6
4	SER-GPG-00000131	GE 1/4" thread to Ø6
5	SER-GPG-00000132	Double nipple 1/4"
6	SER-GPG-00000133	Pressure gauge
7	SER-GPG-00000134	Angle connector 1/8"
8	SER-GPG-00000135	Relief valve
9	SER-GPG-00000136	T-piece
10	SER-GPG-00000137	3-way ball valve
11	SER-GPG-00000138	2-way ball valve
12	SER-GPG-00000139	Male elbow fitting
13	SER-GPG-00000140	Double nipple
14	SER-GPG-00000141	Screw-in fitting
15	SER-GPG-00000142	Screw-in fitting
16	SER-GPG-00000143	Press nipple M 16x1.5
17	SER-GPG-00000144	Threaded nozzle 1/4" thread
18	SER-GPG-00000052	O-ring
19	SER-GPG-00000048	Hose set incl. protective hose
20	SER-GPG-00000050	Ermeto pipe set
21	SER-GPG-00000146	PVC washer
22	SER-GPG-00000147	Kapsto plastic cover
23	SER-GPG-00000148	Hose clamp
24	SER-GPG-00000055	Nozzle, bent
25	SER-GPG-00000056	Nozzle, straight
26	SER-GPG-00000053	Handle
27	SER-GPG-00000051	2/2-way valve
28	SER-GPG-00000049	Ball valve handle
29	SER-GPG-00000126	Operating lever
30	SER-GPG-00000047	PVC hose with clip
31	SER-GPG-00000046	Cleaning granulate

5.3 Disposal



Devices and machinery and components of devices and machinery must be disposed of in compliance with the laws, regulations and other stipulations of the country in which they are located.

We recommend using specialist licensed companies for disposal.



The modules and units have been developed to be environmentally compatible and suitable for recycling. According to the EU Directive 2002/96/EC, these parts must be taken to authorized collection points.

5.4 Warranty & Service



Tools from TKR Spezialwerkzeuge GmbH come with a 24 month warranty against material and manufacturing defects. Otherwise, the statutory conditions governing warranty periods and our General Terms and Conditions of Sale and Supply apply. Wearing parts such as screws are excluded.

The warranty begins on the date of delivery, as specified on the invoice or delivery note. The warranty shall be valid for the user/customer provided that the tool is obtained from an authorized sales outlet and is used as described in the instructions and for the purposes for which it was designed.

The warranty shall be invalidated if the tool is used for any purposes other than those for which it was designed.

Furthermore, the warranty shall be invalidated if the tool is not used as described in the owner's manual.

In the event of a defect or fault, TKR Spezialwerkzeuge GmbH shall only repair or replace faulty parts at its own discretion.

Service address **TKR Spezialwerkzeuge GmbH**
Service
Am Waldesrand 9–11
D-58285 Gevelsberg (Germany)

Online-Service **www.tkrgroup.com/service**



Other language versions, assistance with use and information
Visit our Customer Service Dept.

Service e-mail **support@tkrgroup.com**



EU Declaration of Conformity

In accordance with EU Machinery Directive
2006/42/EG

Manufacturer: TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg, Germany

**Person authorised
to compile the technical
documentation:** Thorsten Weyland

Equipment type: Pneumatically operated
granule jet blasting device

Type designation: PG 5-8

Has been developed and designed in
accordance with the standards
and guidelines of

**TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg (Germany)**

Serial number range: 00001–10000

Referenced German Product Safety Act (ProdSG)

harmonised EN 614-1:2006+A1:2009, EN ISO 4414:2010,

device safety law: EN ISO 13849-1:2015

EU Machinery Directive: 2006/42/EG

**As the manufacturer, we hereby declare that the appropriately
marked products comply with the requirements of the
listed directives and standards.**

Thorsten Weyland

Gevelsberg, 3 Dec 2018 Thorsten Weyland
Technical Director

Declaration of Conformity

Manufacturer: TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg, Germany

**Person authorised
to compile the technical
documentation:** Thorsten Weyland

Equipment type: Pneumatically operated
granule jet blasting device

Type designation: PG 5-8

The product is developed and constructed
in accordance with the UK legislation and
designated standards by

**TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg (Germany)**

Serial number range: 00001–10000

Applicable UK legislation: Supply of Machinery (Safety) Regulations 2008

UK Designated Standards: EN 614-1:2006+A1:2009, EN ISO 4414:2010,
EN ISO 13849-1:2015

As manufacturer, we declare: The products marked accordingly fulfil the
requirements of the directive and standards listed.

Thorsten Weyland

Gevelsberg, 28:06:2022 Thorsten Weyland
Technical Director



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