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DEVELOPMENT

PRE - SERIES UNIT

***Dust-free, mobile pressure blasting
system***

HSP-200 Performance

Item no. 31267D

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1 Scope of application

The operating instructions apply to the operation and maintenance of the pressure blasting system HSP-200 Performance.

2 Scope of application and restrictions

This PRESSURE blasting system is primarily intended for cleaning parts that cannot be blasted in a cabin due to their size, weight, space conditions or long transportation distances. It is designed in such a way that the workpiece can be blasted locally without abrasive, removed contaminants or dust escaping.

All types of blasting media can be used, although special designs for the impact separator are required for glass beads and plastic blasting media.

The equipment parts are designed for a maximum pressure of 8 bar.

3 Description of the equipment

3.1 Components

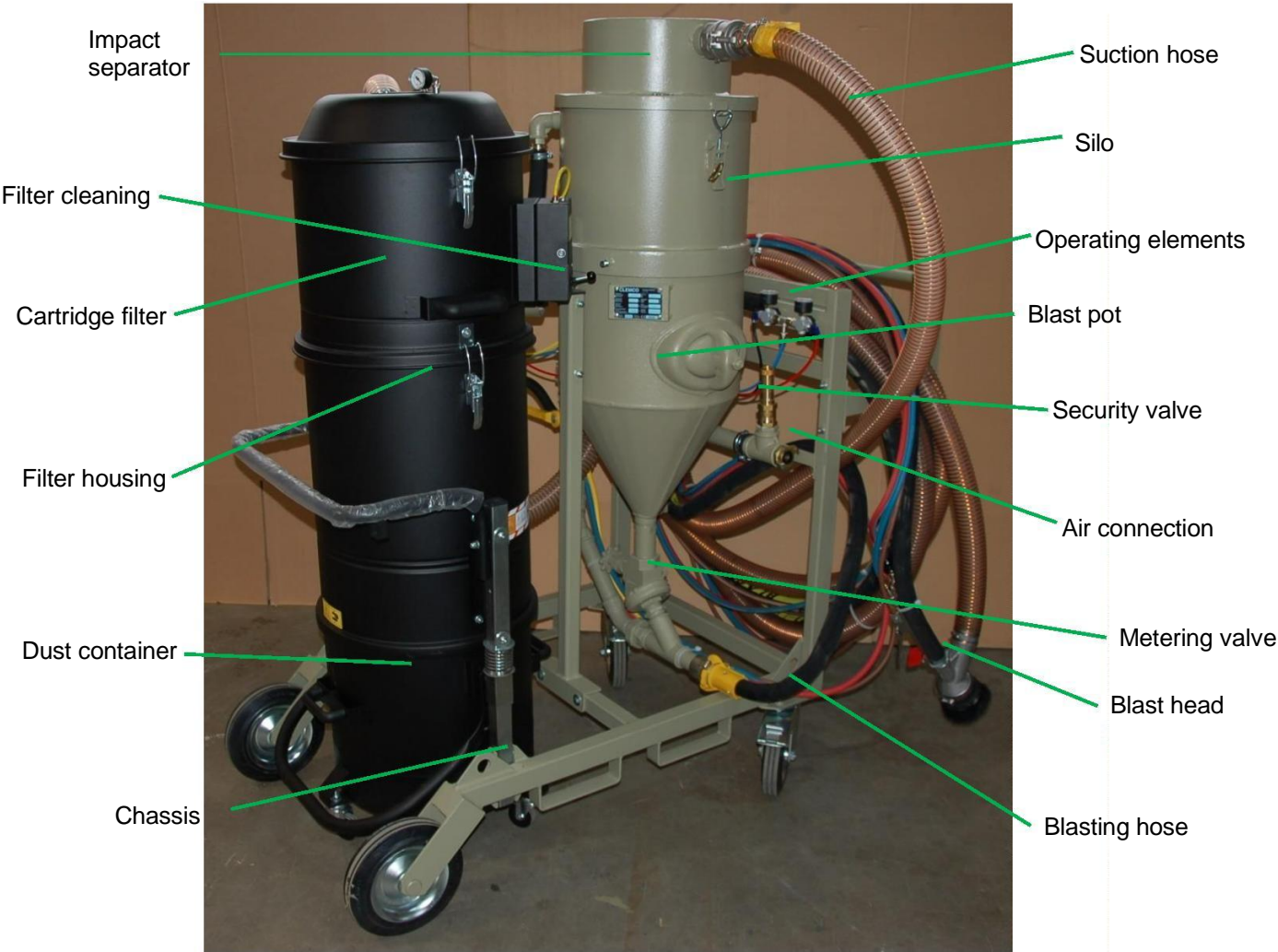


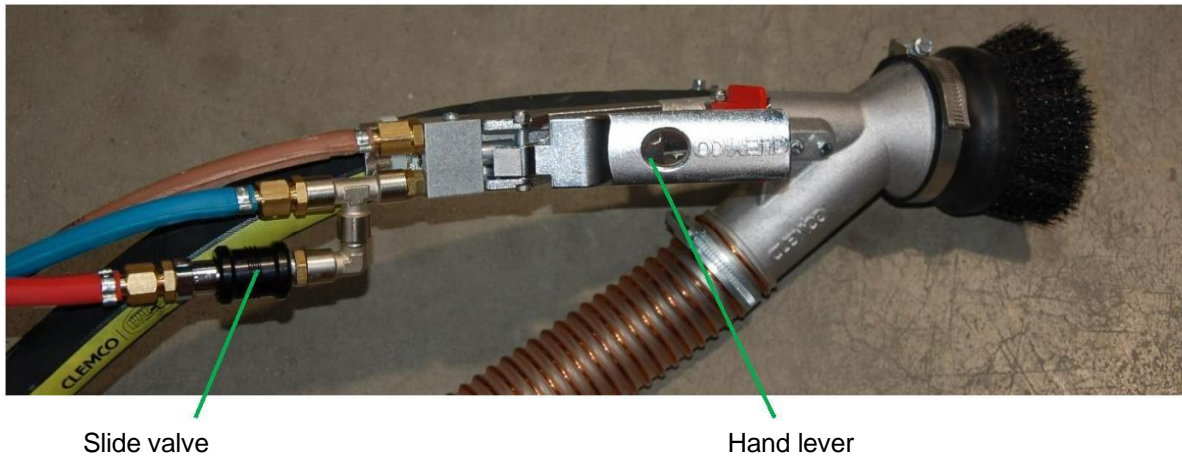
Figure 1: HSP 200 Performance

Figure 1 shows the most important equipment parts of the PRESSURE blasting system:

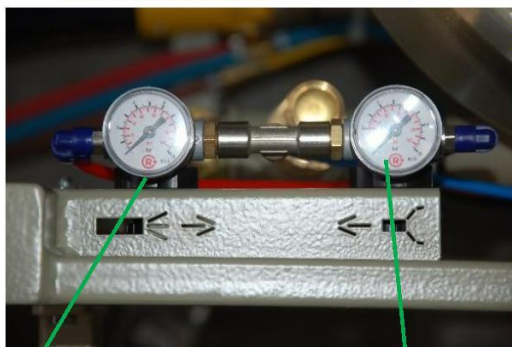
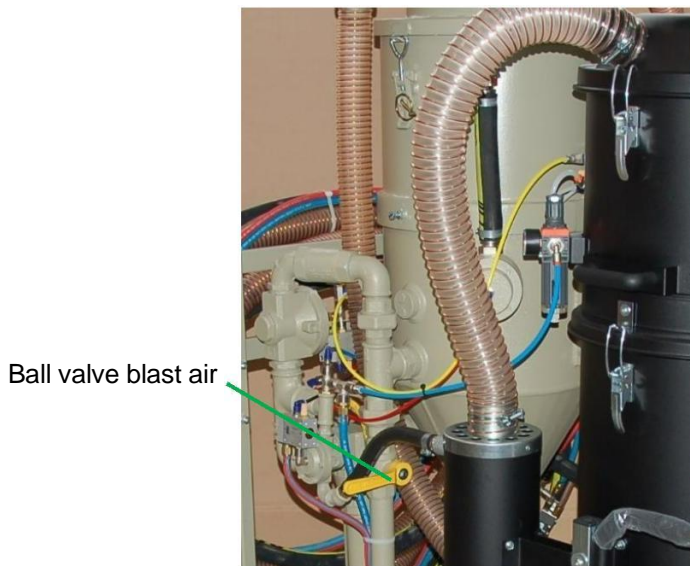
- *Chassis* (L x W x H = 1,500 x 765 x 1,720 mm, weight approx. 300 kg) with mounted
 - Blast pot and silo.
 - Suction unit.
 - Compressed air buffer.
- *Blast pot with integrated silo*
 - Capacity of blasting pot and silo 40l each.
 - Max. Operating pressure 12 bar.
 - 60° steep taper
 - Abrasive metering valve
 - Removable strainer insert
 - Impact separator with rubber impact plate (for glass beads and plastic abrasives on special request)
- *Suction unit (pneumatic cleaning) with*
 - Filter housing
 - Filter cartridges (filter area ^{9m2})
 - HEPA filter
 - Vacuum generator
 - Dust container
- *Air supply with*
 - Compressed air connection
 - Safety valve
 - Shut-off ball valve
 - Water separator
 - Pilot controller
- *Blasting head EDBH-90-1 or EDBH-70*
 - Blasting nozzle SMR-4 (standard version)
 - Blasting nozzle CSD-4/B (boron carbide) for corundum
 - Flat and triangular brush mouthpiece
- *Connecting hoses between blasting pot / silo and blasting head*
 - ⇒ PU suction hose 2" with couplings
 - ⇒ Blasting hose 25 x 7mm or 19 x 7mm with couplings
- Hand lever with remote control hoses (attached to the blasting hose) with dual function

3.2 Control elements:

3.2.1 On the blast head:



3.2.2 On the device



3.3 Compressed air requirement

Compressed air consumption suction cup: approx. $1.2 \text{ m}^3/\text{min.}$ at 8 bar.

Compressed air consumption with 6.5mm blast nozzle: approx. $3 \text{ m}^3/\text{min.}$ at 7bar.

3.4 Functionality of the overall system

If the blasting unit is connected to the compressed air supply, the compressed air enters the system via the shut-off ball valve and the water separator (item 1). The supply line to the hand lever (red hose) is pressurized.

The pressure regulator in the compressed air supply to the vacuum generator of the suction unit is opened via the slide valve on the hand lever. The suction unit is switched on.

By pressing the hand lever:

- the vent valve on the pot is closed
- the pilot regulator in the blast air line is controlled
- a cleaning impulse for the filter cartridges is triggered

The compressed air flowing into the pot closes the sealing cone and the blast pot is pressurized. This starts the blasting process.

The blasting pressure and thus the speed of the outflowing air can be set with the pressure regulator, and the quantity of blasting agent entrained by the air can be set with the dosing valve under the boiler.

The abrasive that hits the workpiece surface and the resulting dust are extracted in the blasting head and fed via the suction hose to the impact separator, which separates the abrasive. The coarse-grained, reusable portion falls into the silo above the blasting pot. The dust is fed to the cartridge filter via the suction hose.

When the hand lever is released

- the outlet valve on the boiler is open
- the pressure regulator is closed

and the blasting process is interrupted (blast pot is vented). The sealing cone drops down and the blasting abrasive in the silo above the blasting pot falls through the filling opening into the blasting pot. The air pulse for cleaning the filter cartridges can also be triggered manually. To do this, briefly press the lever on the filter housing of the extraction unit. The cleaning pressure is set using the pressure regulator mounted on the filter housing (max. 7 bar).

4 Operation

4.1 Preparatory work for initial and new installations

These should also be carried out if the pressure washer has not been used for a longer period of time.

(1) <i>Switch off the pressure blasting device.</i>	Firm and level surface.
(2) <i>Ensure the compressed air supply has the correct operating pressure.</i>	<ul style="list-style-type: none"> – Switch on the compressor and let it warm up for 5 to 10 minutes. – Only use compressor up to max. 8 bar! – Attach an air hose with a suitable diameter to the air outlet nozzle of the compressor, insert the required seals and secure the coupling. Air leaks can be dangerous and reduce efficiency! – Carefully turn on the air (to blow dirt and moisture out of the hose). – Close the air outlet again. – Connect and secure the air hose. <p>We recommend a water- and oil-free compressed air supply (pressure aftercooler with cyclone and auto- water drain).</p>
(3) <i>Connect the jet, suction, remote control and control hoses.</i>	<ul style="list-style-type: none"> – Connect the jet hose and suction hose and secure with a split pin. – Check that all seals are in place. – Connect the remote control hoses to the corresponding control hoses coming from the blasting unit in the correct color. The color combination yellow/brown is permitted. <p>Attention! If the connections are reversed, the system will malfunction and there is a risk of injury!</p>
(4) <i>Selection of the correct brush mouthpiece.</i>	<ul style="list-style-type: none"> – Flat version for flat surfaces. – Triangular variant for corners.
(5) <i>Put on safety equipment.</i>	<ul style="list-style-type: none"> – Protective suit. – Face protection, e.g. goggles with safety glass. – Leather gloves.
(6) <i>Check water separator, cleaning pressure of filter and remove condensate from pressure washer.</i>	<ul style="list-style-type: none"> – Turn up the air on the compressor. – Open the ball valve at the air inlet. – Check the cleaning pressure (regulating knob with manometer on the suction cup). Set max. to 5 bar. – Fully open the abrasive metering valve. – Close the slide valve on the jet head (suction cup is running).

	<ul style="list-style-type: none"> – Press the hand lever for approx. 3 minutes (the boiler is pressurized and air comes out of the nozzle) to remove condensation. <p>Attention! Even when the tank is empty, there may still be blasting agent residue in the system. When blowing out the system, do not direct the blast jet at people.</p> <p>Attention! The compressed air jet emitted is very energetic. Loose objects (e.g. stones) can be whirled up and cause injuries.</p> <ul style="list-style-type: none"> – Release the hand lever.
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4.2 Daily preparation work

These do not apply if an initial or new installation according to 4.1 has already been carried out.

<i>(1) Establish compressed air supply.</i>	<ul style="list-style-type: none"> – Switch on the compressor and let it warm up for 5 to 10 minutes. <p style="text-align: center;">Only use compressor up to max. 8 bar!</p> <ul style="list-style-type: none"> – Connect the air hose to the compressor and remove any condensation by blowing it out. – Insert the required seals and secure the coupling. Air leaks can be dangerous and reduce efficiency! – Connect the air hose to the pressure washer.
<i>(2) Put on safety equipment.</i>	<ul style="list-style-type: none"> – Protective suit. – Face protection, e.g. goggles with safety glass. – Leather gloves.
<i>(3) Check water separator, cleaning pressure of filter</i>	<ul style="list-style-type: none"> – Turn up the air on the compressor. – Open the ball valve at the air inlet. – Check the cleaning pressure (regulating knob with manometer on the suction head). Set max. to 5 bar.

4.3 Commissioning and operation

<p>(1) Fill the <i>PRESSURE</i> system with abrasive</p>	<p>Variant 1</p> <ul style="list-style-type: none"> – Pour 30 - 40 liters of abrasive onto a level surface. – Close the slide valve (suction cup is running) and suck in the blasting medium via the blasting head (this is cleaned immediately). <p>Variant 2</p> <ul style="list-style-type: none"> – Open the quick-release fasteners of the impact separator and remove the impact separator from the silo – Fill the silo with 30 - 40 l of blasting agent. – Replace the impact separator and close and secure the quick-release fasteners
<p>(2) Adjust the abrasive dosage (2 persons are required).</p>	<ul style="list-style-type: none"> – Close the abrasive dosing valve – Place the blasting head vertically on the surface to be treated. – Close the slide valve (suction cup is running). – Press the hand lever. – 2nd person slowly opens the abrasive metering valve (turn knob to the left) until sufficient abrasive is delivered (blasting pattern and noise). – Release the hand lever.
<p>(3) Blast operation.</p>	<p>Only work with the vacuum cleaner switched on</p> <ul style="list-style-type: none"> – Place the blasting head vertically on the surface to be treated. – Press the hand lever (blasting process starts). – Move the blasting head slowly according to the blasting progress.

4.4 Decommissioning after the end of work

<p>(1) Remove the blasting agent completely.</p>	<p>For longer downtimes to prevent blockages caused by wet abrasive.</p> <ul style="list-style-type: none"> – Close the ball valve on the blast pot. – Reduce blasting pressure to max. 2 bar. – Open the abrasive metering valve fully – Switch on the suction cup (slide valve). – Press the hand lever. – Empty the abrasive through the blasting head into a container. <p>Attention! The abrasive comes out of the hose in gushes. Hold the nozzle holder firmly.</p>
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4.5 Decommissioning when the system is relocated

No special measures necessary.

5 Maintenance

5.1 General information

The blasting devices are subject to wear during operation. To ensure safety and a high level of efficiency, they must be serviced regularly in accordance with the following checklists.

Before starting maintenance work, the air discharge from the compressor must be shut off and the entire system depressurized!

5.2 Checklist for daily maintenance

(1) Air, suction and jet hose.	<ul style="list-style-type: none">– Check hoses for tight bends and kinks. If damaged, loss of energy and heavy wear. <p>No vehicles may drive over the hoses!</p> <ul style="list-style-type: none">– Check the clutch seals.
(2) Blast nozzle.	<ul style="list-style-type: none">– Check nozzle seal and replace if worn.– Check nozzle with wear mandrel and replace if necessary.
(3) Remote control valves and accessories.	<ul style="list-style-type: none">– Check that the pneumatic hose connections on the remote control valve are tight.
(4) Dust container.	Empty the dust container.

5.3 Checklist for weekly maintenance

(1) Water separator.	Remove and check the filter bowl and insert. If necessary, clean the filter and sight glass with soap and warm water and dry with compressed air.
	<p>A dirty filter leads to a pressure drop in the system!</p>
(2) Air, suction and abrasive hose.	<ul style="list-style-type: none">– Check all hose couplings and retaining screws for wear and breakage and replace if worn.– Check the entire length of the blasting hose for reduced wall thickness by hand pressure and replace if worn.– Check the air hose (compressed air supply) and replace if worn.– Check the coupling seals and replace if worn.

5.4 Checklist for monthly maintenance

(1) <i>Jet boiler.</i>	<ul style="list-style-type: none"> – Open the handhole cover. – Check the sealing ring and sealing cone of the filler opening for wear by hand.
(2) <i>Hand lever valve, control valves and exhaust valve</i>	Check all air connections and connections on the valve body for leaks.

6 Malfunctions and their elimination

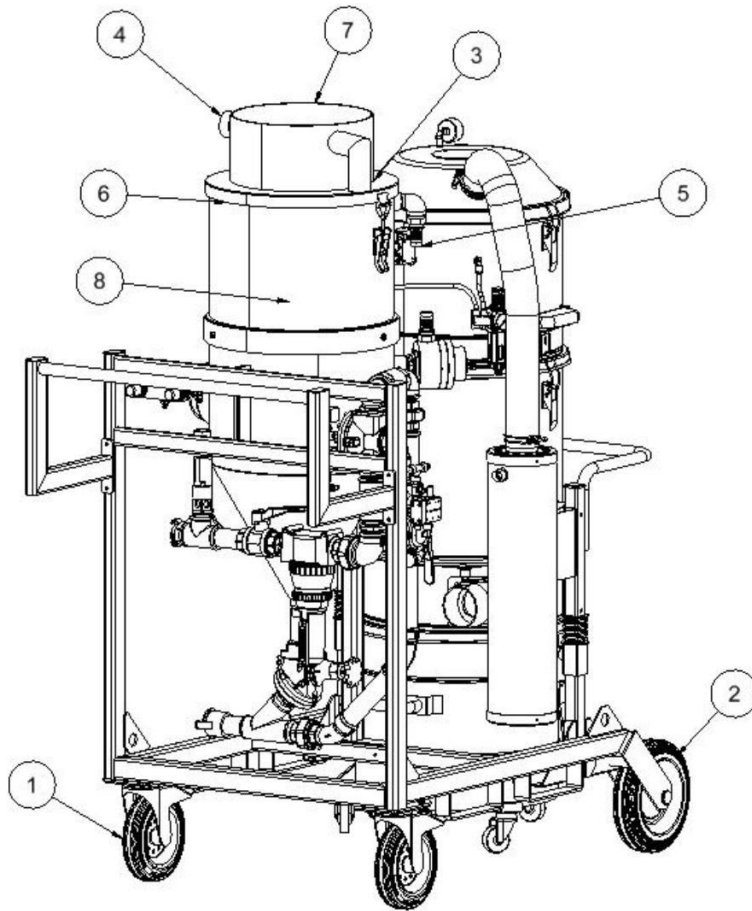
Symptom	Possible cause	Removal
(1) <i>No air or abrasive comes from the nozzle.</i>	Compressor not switched on.	Switch on the compressor.
	Water separator clogged.	Check and clean.
	Inlet valve RMS-1500 does not work.	<ul style="list-style-type: none"> – Close the slide valve. – Press the hand lever. – Check valves and control hoses for loose connections.
(2) <i>Air comes out of the nozzle, but no blasting agent.</i>	Blasting agent metering valve closed.	Open.
	Moist abrasive prevents abrasive flow at the bottom of the blast pot.	<ul style="list-style-type: none"> – Quickly open and close the ball valve on the blast pot. – Remove the handhole cover and clean the boiler.
	Too little air volume.	Larger compressor.
(3) <i>Irregular flow of abrasive from the nozzle.</i>	Abrasive metering valve not set correctly.	Check the setting.
	Ball valve not fully open.	Check and open fully if necessary.
	Blockage of the metering valve.	Open the dosing valve and remove any dirt.

(4) <i>Too much abrasive comes out of the nozzle.</i>	Blasting agent metering valve opened too far.	Check the setting and correct if necessary.
	Ball valve not fully open.	Check and open fully if necessary.
(5) <i>The locking cone does not remain in the closed position.</i>	Insufficient air volume or air pressure.	<ul style="list-style-type: none"> – Check the air pressure of the compressor. – Close the ball valve, if the plug does not close tightly, the air volume is not sufficient.
(6) <i>Closing cone does not close after pressure release.</i>	Wear on sealing cone and / or sealing ring.	Replace the sealing cone and / or sealing ring.
	Vertical guide tube for locking cone blocked.	<ul style="list-style-type: none"> – Open the handhole cover. – Remove the sealing cone and clean the machine.
(7) <i>Machine is not depressurized when the hand lever is released.</i>	Blockage in the outlet valve	Cleaning.
	Valve on hand lever defective.	<ul style="list-style-type: none"> – Check pneumatic connections. – Check and repair.
(8) <i>Poor suction effect (abrasive is not fully extracted and partially escapes).</i>	Insufficient air pressure or air volume.	<ul style="list-style-type: none"> – Check the set suction cup pressure and increase if necessary – Check the air pressure of the compressor. – Use a larger compressor if necessary.
	Water separator clogged.	Check and clean.
	Filter cartridge added.	<ul style="list-style-type: none"> – Especially after a longer, uninterrupted blasting process: Switch off the vacuum cleaner and clean the filter cartridge manually. – Check the cleaning pressure. – Clean the filter cartridge.

	Seals defective.	Check the following seals in order and replace if necessary: <ul style="list-style-type: none"> – Impact separator. – Cartridge filter.
<i>(9) Vacuum cleaner cannot be switched on.</i>	No compressed air connection.	Establish compressed air supply.
	Slide valve defective.	Check and repair or replace if necessary.
	Pneumatics defective.	<ul style="list-style-type: none"> – Check all control hoses and connections for leaks. – Check the slide valve.

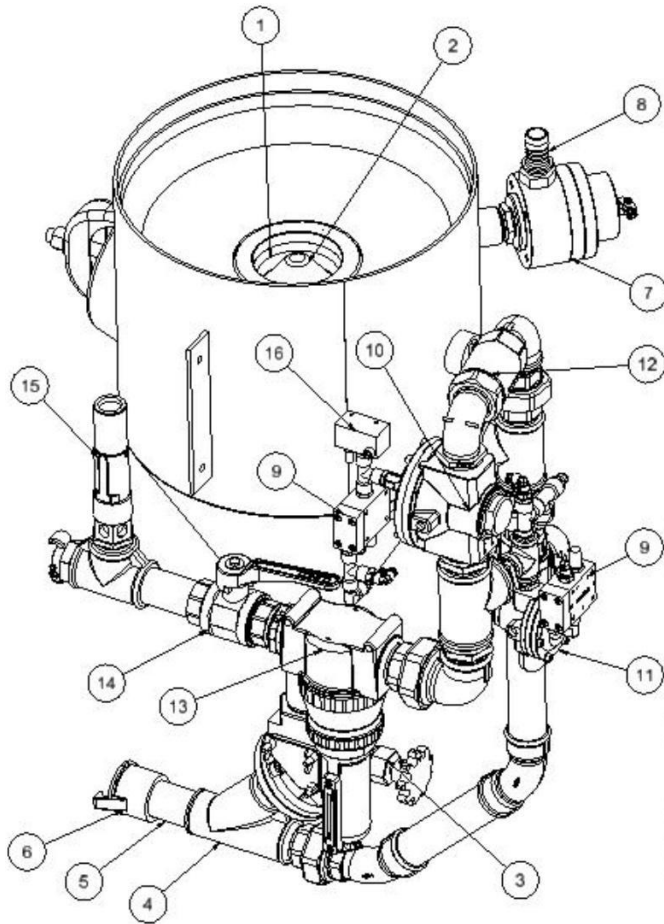
7 Spare parts list

7.1 Mechanical



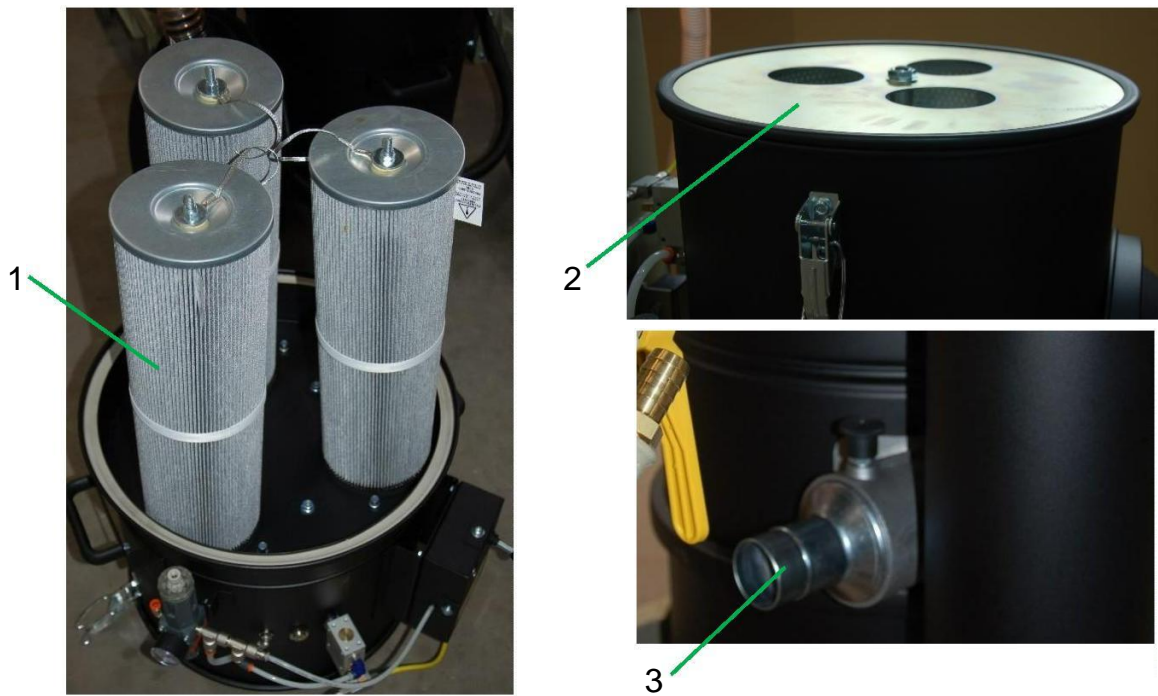
Pos.	Description	Art. No.
(-)	Complete dust-free blasting unit	31267D
(-)	Hose extension, consisting of: 10m suction hose 2" PU 10m blasting hose 25 x 7 or 19 x 7 10m remote control hose complete with couplings	99676D
1	Steerable wheel with stop	99766D
2	Wheel	99767D
3	Suction hose 2" (PU)	90067D
4	Plug nipple (male thread)	99702D
5	Ventilation hose	04259D
6	Seal for impact separator	100832
7	Impact separator HSP	99801D
8	Sieve HSP	99802D
(-)	Blasting hose 19 x 7	04351D
(-)	Blasting hose 25 x 7	04305D

7.2 Boiler



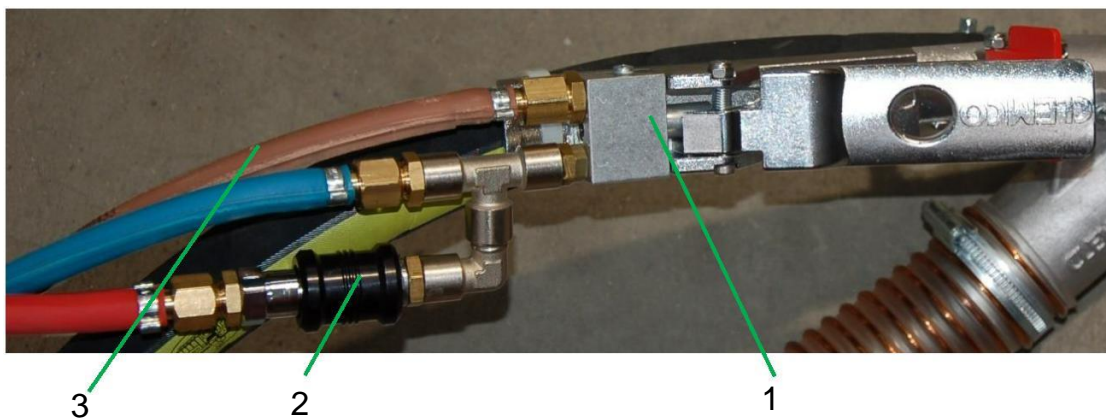
Pos.	Description	Art. No.
1	O-ring with square lip	99157D
2	Cone with shaft	02321D
3	Quantum dosing valve	22780D
4	Rubberized Y-piece	90550D
5	Tube rubberized	90551D
6	Hose coupling	91011D
7	Vent valve	100030
8	Hose nozzle	27291D
9	3/2-way valve pneumatic	99406D
10	Pilot regulator Beams	31231D
11	Pilot regulator suction cup	31230D
12	Non-return valve	99633D
13	Water separator	31229D
14	Ball valve	02397D
15	Safety valve	90023D
16	Filter cleaning timer	31269D

7.3 Suction unit



Pos.	Description	Art. No.
1	Filter cartridge	31286D
2	HEPA filter	31287D
3	Intake manifold	on request

7.4 Hand lever



Pos.	Description	Art. No.
1	Hand lever	100707
2	Slide valve	99172D
3	Control hose with screw connection	90734D

7.5 Blasting heads EDBH 70 and 90-I

7.5.1 Blasting head EDBH 70

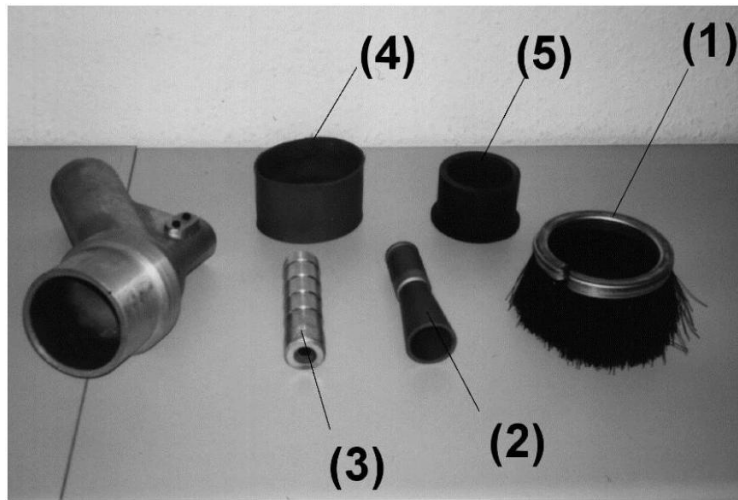


Figure 4: Spare parts EDBH 70

<i>Pos.</i>	<i>Art. No.</i>	<i>Model</i>	<i>Description</i>
(-)	99942D	EDBH-70	Blasting head new with nozzles
(1)	99994D	70 mm	Flat brush for EDBH-70
(2)	99943D		Inner nozzle for EDBH-70
(3)	94204D	CBST-25 x 8	Inlet nozzle for EDBH-70
(4)	99978D		Rubber section
(5)	99992D		Rubber molded part

7.5.2 Blasting head EDBH 90-I

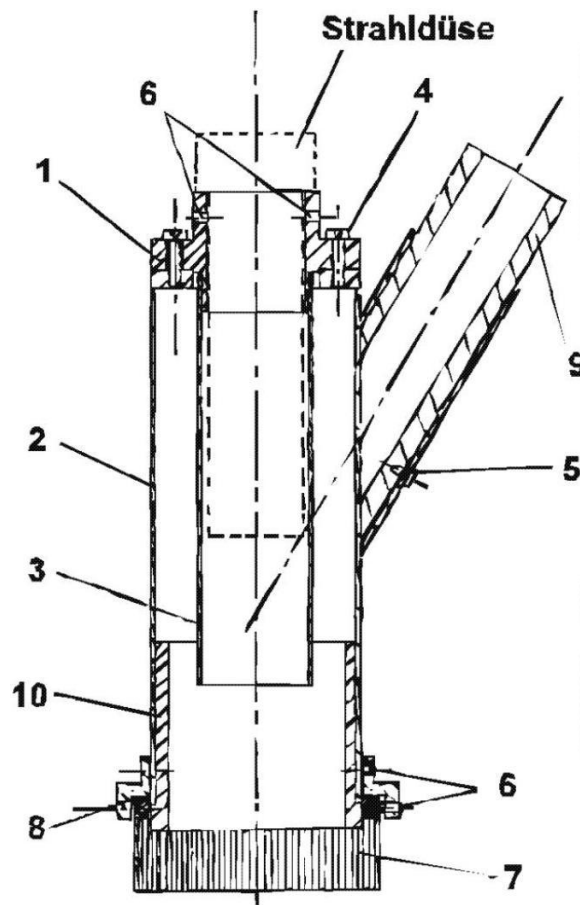


Figure 5: Spare parts for blasting head EDBH 90-I

<i>Pos.</i>	<i>Art. No.</i>	<i>Model</i>	<i>Description</i>
(-)	94342D1		Blasting head EDBH 90-I without nozzle
(1)	100148		Upper part aluminum
(2)	94342A		Tubular housing V2A
(3)	99504D		Jet pipe V2A
(4)	90154D		Hexagon socket screw M6 x 20
(5)	90294D		Screw Tension lock
(6)	90110D		M5 x 8 grub screw
(7)	99182D	5"	Brush
	99183D		Angle brush
(8)	100150		Brush holder ring
(9)	04256D		Hose 32 x 8
(10)	100087		Molded rubber part
(-)	100864	SMS-4	Clemlite nozzle \varnothing 6.5mm