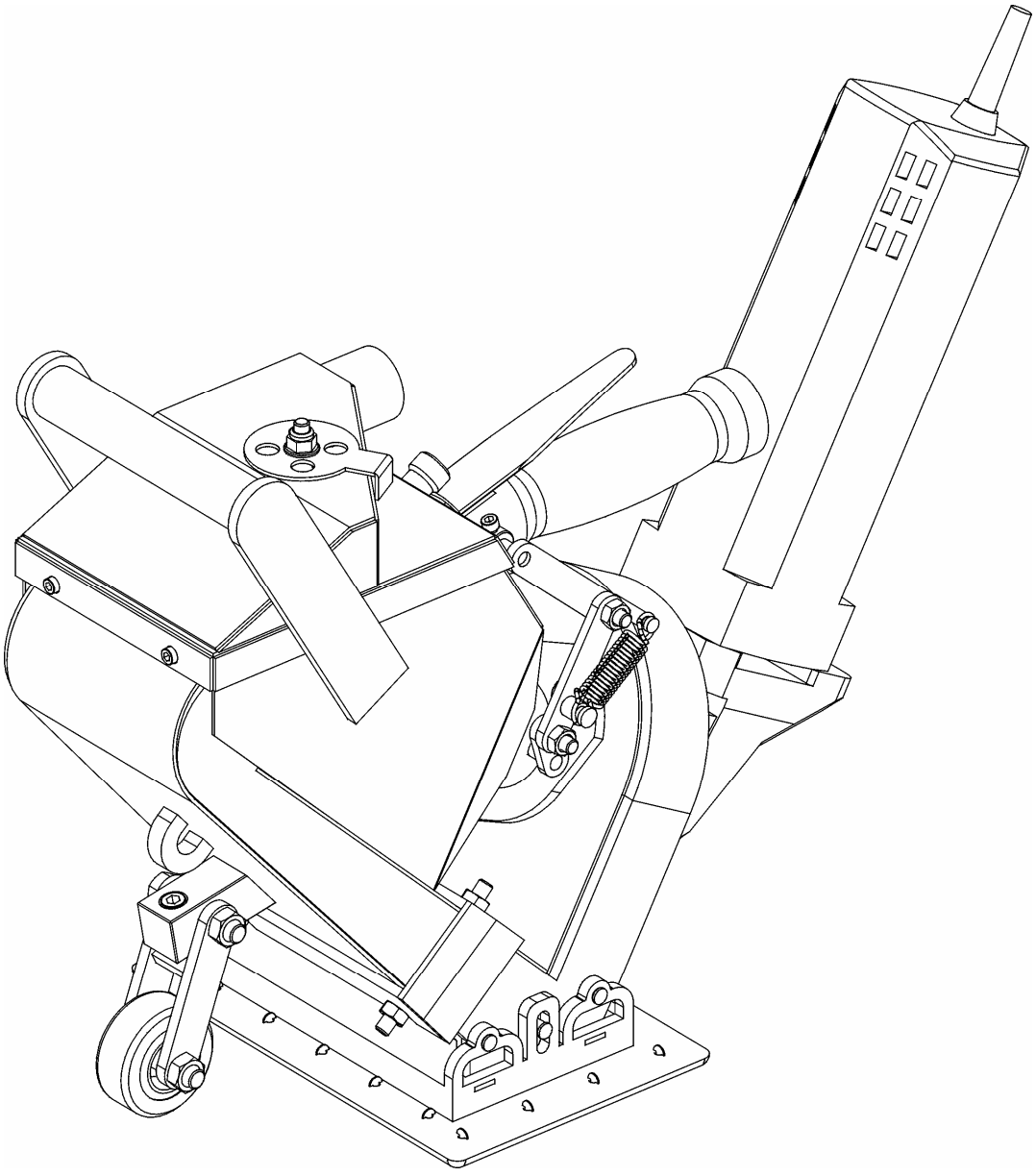
Operating Manual
1-5HH



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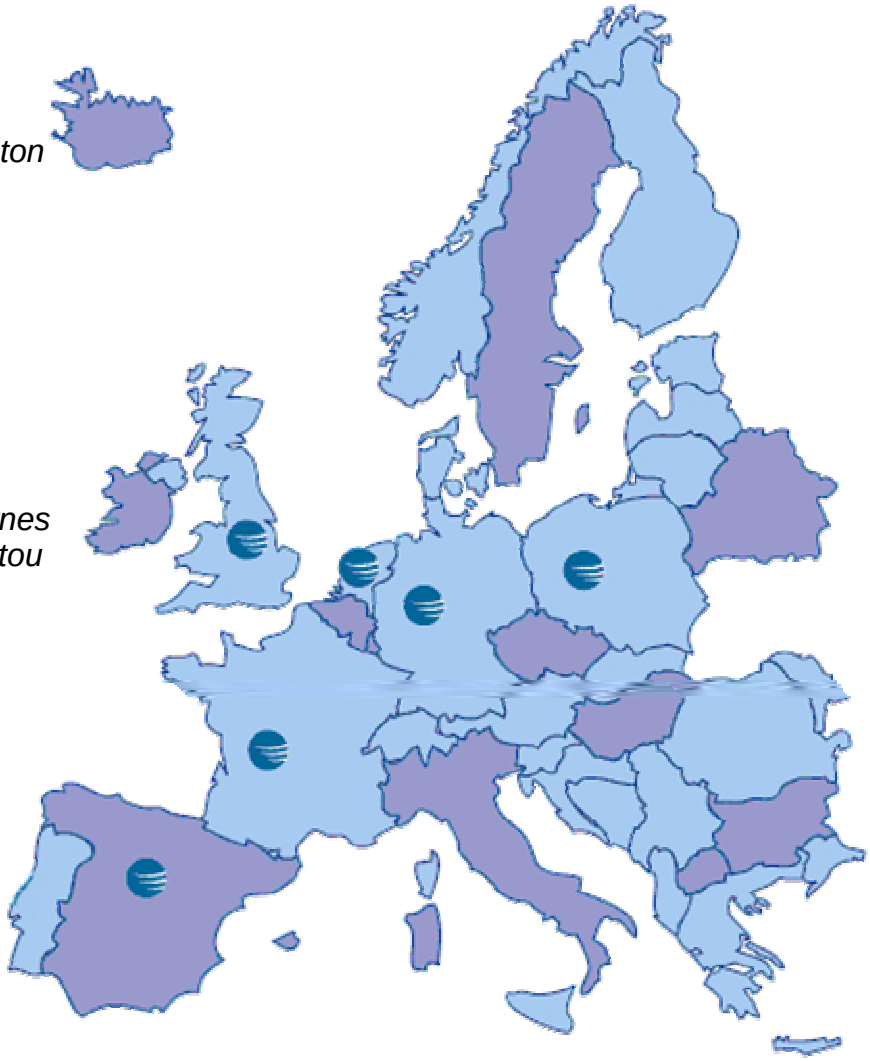


Index Chapter 1

Technical Data

1.1 Rating

1

Machine / code : **BLASTRAC** blast machine

Machine type : 1-5HH

Manufacturer :

Blastrac BV
Utrechthaven 12
3433 PN Nieuwegein
THE NETHERLANDS

1.2 Machine specification

Dimensions:

	Machine
	1-5HH
Length	480 mm
Width	195 mm
Height	350 mm
Weight	9.5 kg

Electrical system installed loads:

	Hand-held blast machine
Power Consumption	1.40 kW
Power Requirements	230 V, 50 Hz, 13 A 110 V, 50 Hz, 16 A

Working width	:	125	mm
Dust hose connection	:	30	mm Ø
Recommended filter plant	:	118DC / 127DC	

1.3 Scope of application and correct use

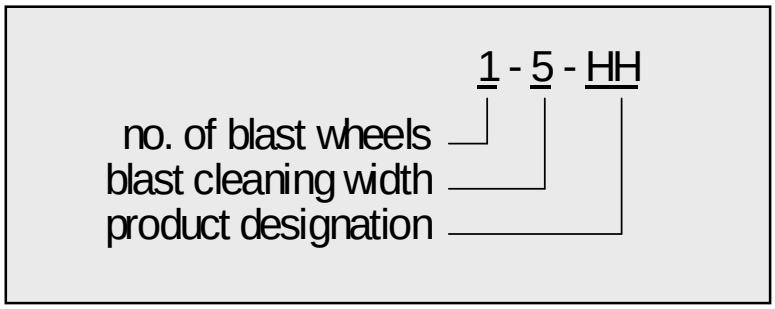
The 1-5HH blast machine is designed for cleaning dry, frost-free, horizontal and vertical surfaces. Any other use is not in accordance with the regulations. The manufacturer will not be liable for any resulting damage. The user alone bears the risk.

1.4 Stand-by power supply system (generator)

If the 1-5HH blast machine is operated in conjunction with a generator this must be operated in accordance with the current guidelines in order to ensure that all safety devices function and in order to exclude damage to electrical components.

1.5 Machine type designation

1



1.6 Advice for the machine operator

Note on **BLASTRAC** 1-5HH blast machine: the operator must compile operating instructions for blast cleaning work in a comprehensible form and language in accordance with accident prevention regulation Blast Cleaning Work (VBG 48).
The operating instructions for the blast machine form only part of these operating instructions. Please consult the current, valid accident prevention regulations for the precise content.

The permissible noise rating of 85 dB(A) ***may be exceeded*** when the 1-5HH blast machine is used***.*** This noise level varies ***depending on local conditions***. If the noise rating is 85 dB(A) or higher the machine operator and persons working in the immediate vicinity must wear personal protective equipment.

Before starting work please familiarise yourself with the surface to be cleaned as regards carcinogenic substances or substances which are harmful to health. If you require filter media other than those used in the filter please consult **BLASTRAC** customer services.

Index Chapter 2

2.0 Warnings and symbols

The following designations or symbols are used in the operating manual for the purpose of providing particularly important information:

Occupational safety symbol.
You will find this symbol opposite all the occupational safety notes in this operating manual where there is a risk to life and limb. Please follow these notes and be especially careful in these instances. The relevant safety and accident prevention regulations must be observed in addition to these notes.

Special information regarding the economic use of the machine.

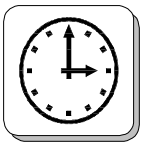
Information or prohibitions to protect persons or prevent extensive material damage.

Warning about hazardous electrical voltages.

Notes about safety devices for electrical equipment.

Notes which require consultation with the machine manufacturer.

Notes on regular inspections.



Information on important notes in the operating instructions.

2.1 Organisational measures

The operating manual must always be available at the place where the machine is used.

The relevant, statutory and other binding regulations concerning accident prevention and environmental protection must be followed and indicated in addition to the operating manual!

Such obligations may also concern the handling, for example, of hazardous substances or the provision/wearing of personal protective equipment and compliance with traffic regulations.

The operating manual must **be supplemented** by **instructions** including **mandatory supervision and reporting systems** in order to cater for **specific in-house conditions**, for example work organisation, work sequences, personnel deployed.

2

Personnel entrusted with activities on the machine must read the **operating manual** and the chapter **Safety Notes** in particular before starting work. Doing this whilst working is too late. This applies in particular to personnel who are only engaged in occasional work on the machine, for example, equipping and servicing work.

Occasionally **monitoring** in accordance with the operating manual must be carried out to ensure that personnel **are working safely and are aware of the hazards involved**.

Personnel must not have any long, loose hair, or wear loose clothing or jewellery including rings. There is the risk of injury due to catching on the machine or being pulled into the machine.

Where necessary or where required by the regulations, **personal protective equipment** must be used! Comply with **all** safety and hazard warnings on the machine!

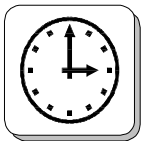
All **safety and hazard warnings** at/on the machine must be complete as well as **legible**!

If **safety-critical changes** occur to the machine or the way in which it operates the machine **must be shut down immediately** and the cause of the defect found immediately!

Modifications, add-ons and conversions to the machine which might impair safety must not be made **without the manufacturer's permission**!

This applies in particular to the fitting and adjustment of safety devices as well as to welding work on load-bearing parts.

Spare parts must comply with the technical requirements specified by the manufacturer. This is always guaranteed when original spare parts are used.



Compulsory **deadlines** or deadlines specified in the operating manual for recurrent **inspections** must be complied with!

The use of workshop equipment appropriate for the carrying out maintenance work is essential.

The **location** and operation of **fire extinguishers** must be specified at each building site!

The factilities for reporting and fighting a fire must be noted!

2.2 Personnel selection and qualification

Fundamental duties :

Only **reliable personnel** may carry out work on the machine.

Only trained or instructed personnel must be deployed. **Comply with the statutory minimum age!** Clearly specify the competences of personnel as regards operating, equipping, servicing and maintenance work!

You **must ensure** that only **authorised** personnel engage in work on the machine!

Specify **machine operator responsibilities** including those concerning **traffic regulations** and authorise him/her to reject instructions from third parties which are in breach of the **traffic regulations**!

Personnel who are being trained, instructed or who are undergoing general occupational training may only engage in work on the machine **under the constant supervision of an experienced person**!

2.3 Safety notes - normal operation

Any method of working that is **not safe** must be prohibited!

Only operate the machine once all **safety devices and safety-critical** devices, e.g. detachable **safety devices**, emergency stop devices, suction devices are available and **operational**!

2

The machine must be inspected at least once a day for outwardly visible **damage** and **defects**!

In the event of **operating faults** the machine must be **shut down immediately**, secured and the fault eliminated immediately!

When working in **areas accessible to the public** the **working area** must be cordoned off with a gap at the sides of at least 2 m.

Before switching the machine on make sure that no-one can be put at risk when the machine is starting up!

Suction devices must not be switched off or removed if the machine is running!

Anyone in the vicinity of the machine must wear safety glasses with side protection and safety shoes. The operator is obliged to wear close-fitting protective clothing.

2.4 Special work when the machine is being used as well as maintenance work and fault elimination during the work sequence.

Mechanical servicing work :

When carrying out any servicing work on the machine place the machine in the **safety shutdown** condition as described in Chapter 2.5 in order to prevent it being **switched on again accidentally.**

Please follow the special **safety instructions** in the various chapters on servicing the machine.
Chapter 7.1 - 7.8

Adjustment, servicing and inspection work and deadlines specified in the operating manual including information on replacing parts/part equipment **must be complied with**!

This work may only be carried out by **specialist personnel**.

Do not use any **aggressive** cleaning agents!
Use lint-free **cleaning cloths**!

Always tighten screw connections that are loosened during servicing and maintenance work!

If **safety devices** need to be **dismantled** during equipping, servicing and repair work the **safety devices** must be **fitted** and inspected immediately upon completion of servicing and repair work.

Make sure **that process materials as well as parts that have been replaced are disposed of safely and in such a way that the environment is protected!**

Electrical servicing work:

Make sure that replacement electrical components match the original parts and are correctly adjusted where necessary.

For safety notes see point 2.7 Electrical regulations

2.5 Safety shutdown

Definition:

A machine is safe, when no hazard can be created by the machine.

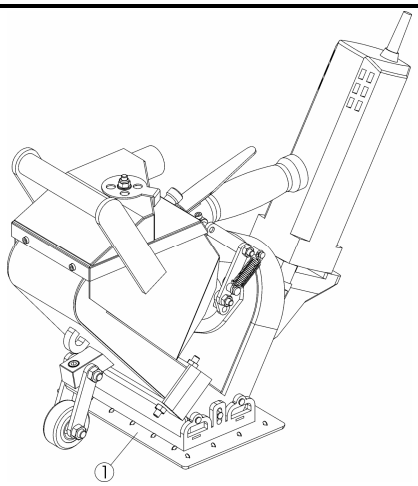
Safety shutdown of the machine means :

- ☑ **Switch off the machine.**
- ☑ **Switch off the filter.**
- ☑ **Wait until the drives are at a standstill.**
- ☑ **Pull out the mains plug.**

2

2.6 Special machine hazard points

If it is not used **in accordance with the regulations**, any machine may be a **hazard** to operating, setting-up and service personnel. The **operator** is responsible for **compliance** with the **safety regulations** during operation and for the maintenance of the **safety devices** supplied with the machine as well as for the provision of appropriate safety devices!



1.Blast wheel outlet opening

Risk of injury !

Abrasive escaping at high speed !
Moving parts !

Only raise and tilt the machine in the safety shutdown condition.

2.7 Regulations – electrics

Work on **electrical** equipment may only be carried out by an **electrician** or **trained** personnel under the **guidance** and **supervision** of an **electrician** as well as in accordance with the **electrical regulations**.

2

Use only extension cables which are sized in accordance with the total power consumption of the machine and the relevant IEE (BS7671) guidelines.

P.A.T. Testing is a legal requirement, the electrical equipment for the machine must be **inspected regularly**. Defects such as **loose** connections or **burned-through** cables must be eliminated **immediately**. **Call an electrician or Customer Service.**

Only start work once you have familiarised yourself with the **electrical regulations** for your **area of work**.

When troubleshooting only use voltage detectors which **comply with the regulations**. From time to time check to ensure that live detectors are functioning correctly.

Safety Advices

Notices

2

Index Chapter 3

3.1 Machine uses

Typical uses for the 1-5HH include :

Opmerking [PD1]: E insatzgebiete nachtragen.

- Preparation of welding seams
- Blast cleaning of surfaces that are difficult to reach
- Repair blast cleaning

3

3.2 Equipment and options

- ☑ **BLASTRAC** blast cleaning machine 1-5HH
- ☑ Filter plant (optional)
- ☑ Dust hose (optional)
- ☑ Operating manual 1 x

A filter plant that is selected to suit the machine ensures low-dust operation and also improves the service life of the machine and tools. Clean air at the workplace is taken for granted nowadays. BLASTRAC uses specially-designed filter plants which guarantee a high degree of separation and therefore a high degree of cleanliness.
In order to connect the machine you need a connection hose with an inner diameter of 30 mm.

3.3 Description of the machine

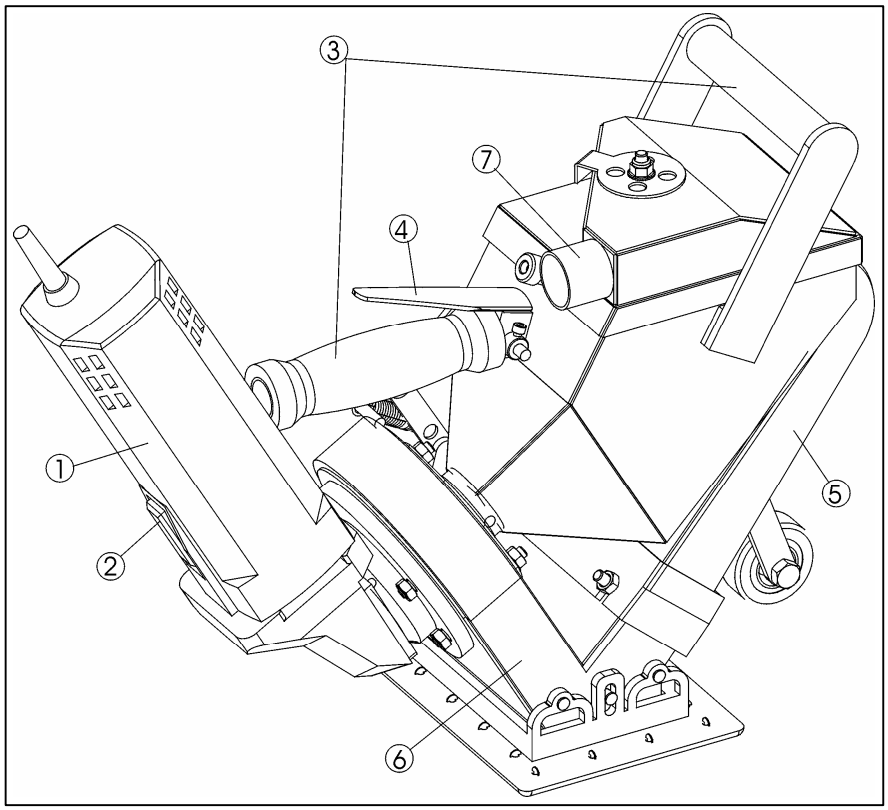


Fig. 3.1

1	Blast wheel motor	5	Separator
2	ON/OFF switch	6	Blast wheel housing
3	Handles	7	Extraction hose connection
4	Abrasive control lever		

Like many revolutionary inventions the centrifugal blast cleaning method is based on a simple principle : After mechanical pre-acceleration the abrasive is thrown onto the surface at high speed via the blast wheel. Once the abrasive hits the surface, it rebounds through a rebound channel. The rebound channel directs the abrasive into an airflow separator. Here, dust and other contaminants are removed from the abrasive so that only abrasive will a very low residual dust content is directed into the collector container to be re-used by the wheel.

3.4 Operating devices

On/Off switch

The blast wheel is switched on and off by pressing and locking the switch on the drive motor.

Abrasive control lever

3

This lever (1), which is arranged under the handle, controls the flow of abrasive to the blast wheel via the abrasive valve (2). Any change in the opening of the valve alters the amount of abrasive. The valve is hand-operated and can be adjusted so that any amount of abrasive can flow through.

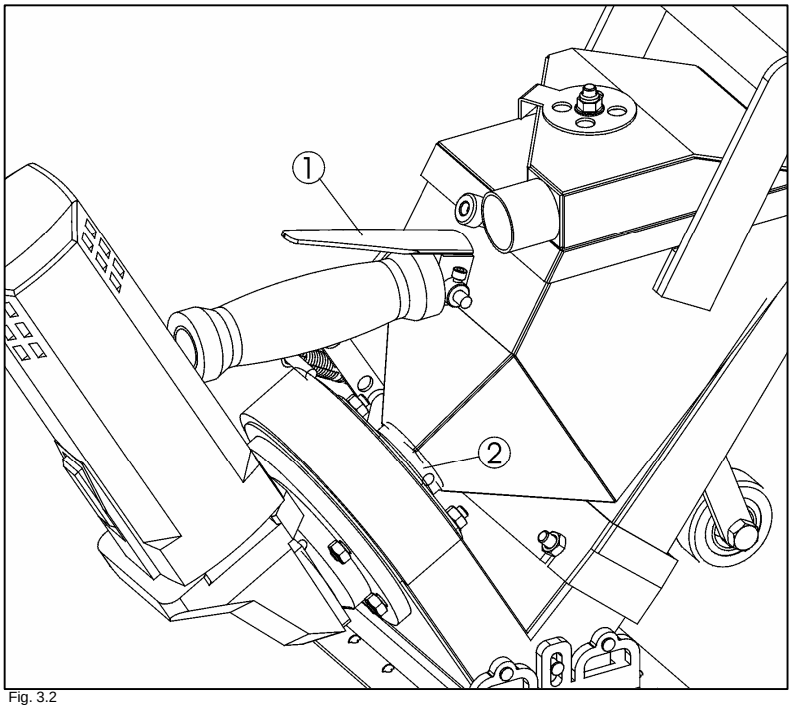


Fig. 3.2

3.5 Blast wheel

The heart of the blast cleaning machine is the blast wheel (3), which throws the abrasive by centrifugal force onto the surface to be cleaned. The wheel is fitted in a protective housing and is driven by an electric motor.

The impeller (1) is located in the centre of the blast wheel. It places a measured quantity of abrasive on the blades of the rotating wheel. The distribution sleeve (2) is located on top. This regulated the abrasive flow after careful adjustment.

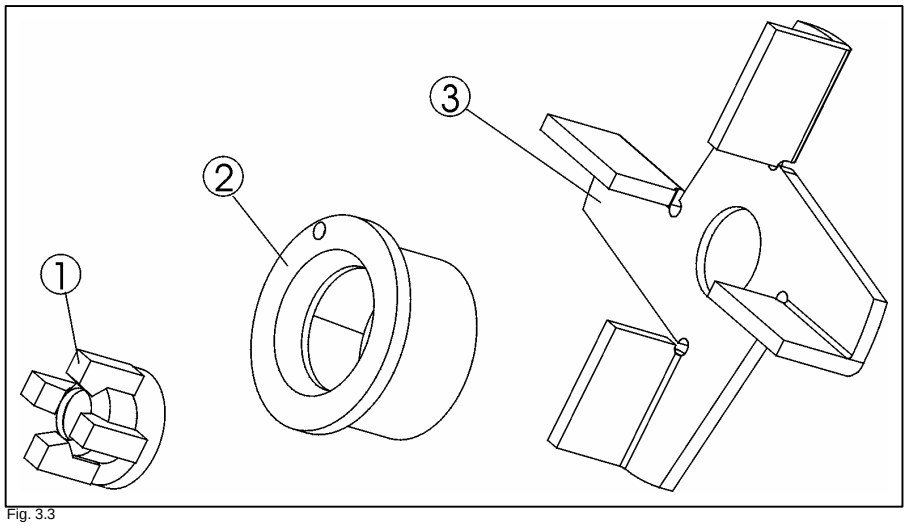


Fig. 3.3

3.6 Separator

The abrasive separator is fitted at the end of the rebound channel. The separator separates the abrasive from the contaminants and directs the cleaned abrasive back to the abrasive circuit.

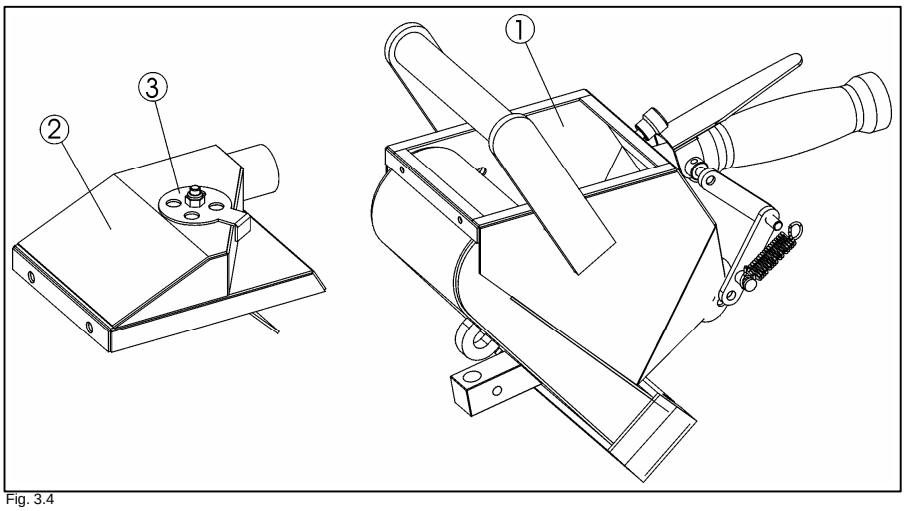


Fig. 3.4

1 Separator
2 Separator cover
3 Outside air valve

3.7 Abrasive seal

An all-round rubber seal (1) with runners (2) and a wear plate (3) is fitted at the front, rear and sides of the blast head. The seal seals the blast cleaning area so that no abrasive can escape.

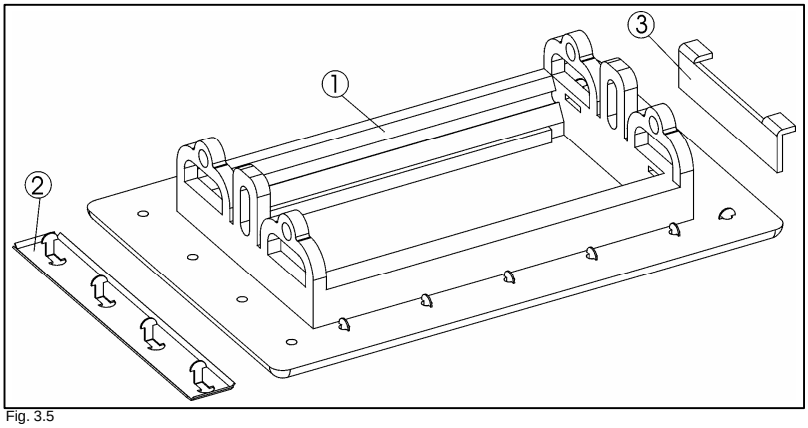


Fig. 3.5

3.8 Operating material

To operate the **BLASTRAC** 1-5HH blast cleaning machine you require hardened, round abrasive. The 1-5HH blast cleaning machine has been specially designed for use with **BLASTRAC** abrasive.

The **BLASTRAC** abrasive is a very high-quality abrasive and has the ricochet force required for the efficient use of the 1-5HH model. The selection of abrasive is very important as this is the material which cleans the surface.

Selection of abrasive

Media No.2:

Applications:

- ❒ produces fine profiles, for example, on vacuum concrete and unglazed tiles
- ❒ removes thin layers of paint

It is often used when the surface is to be sealed afterwards.

Media No.3:

Standard abrasive suitable for approx. 50-60 % of all applications.

Applications:

- ❒ produces a fine to medium texture on concrete
- ❒ removes glazing from tiles in order for anti-slip sealants to be applied afterwards.

  removal of old impregnations, sealants and coatings about 1 mm thick.

The efficiency of the 1-5HH depends on the rebound effect which ensures that the abrasive can be used again.

Please remember that wear is encouraged if the incorrect abrasive is selected.

Your service technician is experienced in the selection of the correct abrasive for the application in question.

Please consult the **BLASTRAC** Customer Service in your area if you have queries about the appropriate selection of abrasive for your blast cleaning work.

3

BLASTRAC Media No. 2 - S00002

BLASTRAC Media No. 3 - S00003

3.9 Care and maintenance

Scrupulous care and regular servicing of the machine and the wheel unit are essential for function and safety.

In order to avoid unnecessary interruptions to work we recommend that you keep the original spare and wear parts listed in the service box in stock.

A list with the contents of the service box is given in Chapter 9 Spare Parts to enable rapid completion of the above-mentioned work.

Note any unusual noises or strong vibrations. Check any significant change for its cause. Call a technician if you have doubts about the cause or if it appears that the defect cannot be eliminated properly without him.

In general the **BLASTRAC** 1-5HH blast cleaning machines does not require any special attention as regards servicing.

Each time before the machine is used check that all screws or other connections are seating correctly.

Index Chapter 4

4.1 Transport

Remove the blast media from the machine before transporting it. Chapter 1 "Technical Data" contains details of the weights and dimensions of the machine.

4.2 Care and handling during transportation

When transporting the machine proceed in such a way that damage due to the effects of force or incorrect loading and unloading is avoided. Secure the machine against slipping on the vehicle by placing the machine in a plastic container or suitable packaging.

Index Chapter 5

5.1 Preparations for start-up

Before switching on the machine you must ensure that all existing protective housings are fitted and that the filter plant is correctly connected.

Anyone in the vicinity of the machine whilst it is in use must wear safety glasses with side protection, hearing protection and safety shoes. The operator is obliged to wear close-fitting protective clothing.

Handle all plugs, cables, hoses and operating elements with care. Avoid contact with live wires.

Work on the electrics may only be carried out by trained experts.

5

Check the surface to be cleaned for loose items (stones, screws, etc.). Sweep the surface if necessary. Make sure that the machine can negotiate any unevennesses in the surface. The machine can travel over slight unevennesses such as welding seams or floor joints.

Regular inspection is important in order to avoid machine downtimes. Carry out the following checks each time before start-up:

- ☑ Check all machine parts to ensure that they are safely and correctly assembled.
- ☑ Check that all screws and other fastenings are seating firmly.
- ☑ Examine the container and blast wheel for foreign bodies and remove any that are present.
- ☑ Check the blast wheel blades, impeller, distribution sleeve and fixing screws for damage and wear.
- ☑ Examine the rubber seal, wear plate and runners for signs of wear.

☑ Ensure that the filter dust container has been emptied. Please follow the local disposal regulations as regards the material that is removed by cleaning.

☑ Examine the separator parts for wear and defects. Remove foreign bodies and dust deposits in order to avoid clogging of the separator.

☑ Check the electrical connections for dirt or deposits of foreign bodies.

☑ Check the electric motors for dirt and other contaminants.

☑ Check the level of abrasive in the storage container. Top up, if necessary.

Operating personnel must familiarise themselves with the safety regulations in this manual before starting up the machine.

5

☑ Move the blast machine and the filter plant onto the surface to be cleaned.

☑ Check the main power cable and the dust hose for damage. Replace or repair any damaged parts before starting up the machine.

☑ Connect the blast machine and filter plant to the dust hose. Use hose clamps at the connection points.

☑ Connect the feeder cable for the blast machine to the site connection.

☑ Connect the feeder cable for the filter plant to the site connection.

Check the operation of the site connection residual-current-operated circuit-breaker by pressing the test button!

☑ Fill the separator (1) evenly up to about 40 mm below the separator opening (2) (approx. 2.5kg). In doing so, ensure that the abrasive valve is closed.

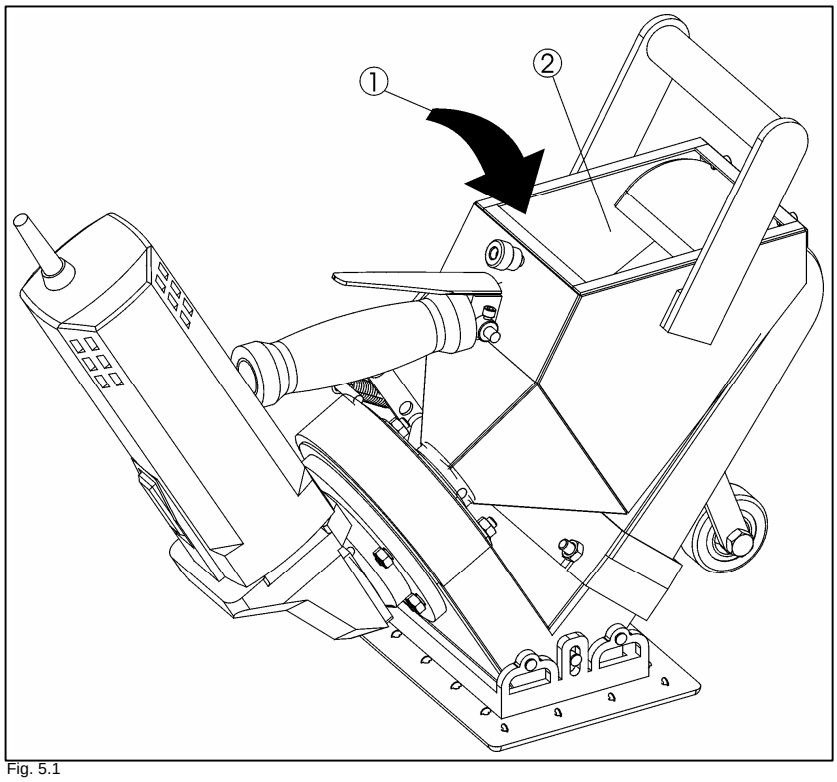


Fig. 5.1

5

☑ Check that the filter dust container is empty. Please follow the local disposal regulations as regards the material removed by the cleaning process.

5.2 Start-up

Anyone in the vicinity of the machine whilst it is in use must wear safety glasses with lateral protection and safety shoes. The operator is obliged to wear close-fitting protective clothing.

The blast machine and the filter plant are now commissioned in the following sequence:

1 Switching on the filter plant

❒ consult the filter plant manual

2 Starting-up the blast machine

❒ Make sure that the abrasive valve is closed.

❒ Use the switch to switch on the drive motor and lock the switch home. The drive motor will now start.

When blast cleaning the abrasive valve must only open once the blast machine is moving! When the machine is at a standstill deep holes are blasted into the surface to be cleaned within a few seconds.

5

When you move the machine, pull the abrasive control lever to operate the abrasive valve up as far as the handle. In doing so, check this by listening to the change in motor noise.

After blast cleaning about 0.15 m shut off the abrasive feed, stop the machine and observe the blast cleaned surface.

If the blast pattern is uneven it may have to be adjusted (see section: “Setting the blast pattern“) or attempt to ensure the machine moves more evenly.

When the blast head is raised from the floor, abrasive escapes from the sides of the blast head at high speed. If the machine is moved with the blast head raised, the abrasive valve must be closed.

The filter plant dust container must be emptied regularly. Please observe the relevant local disposal regulations as regards the material removed by blast cleaning.

5.3 Starting-up on vertical surfaces

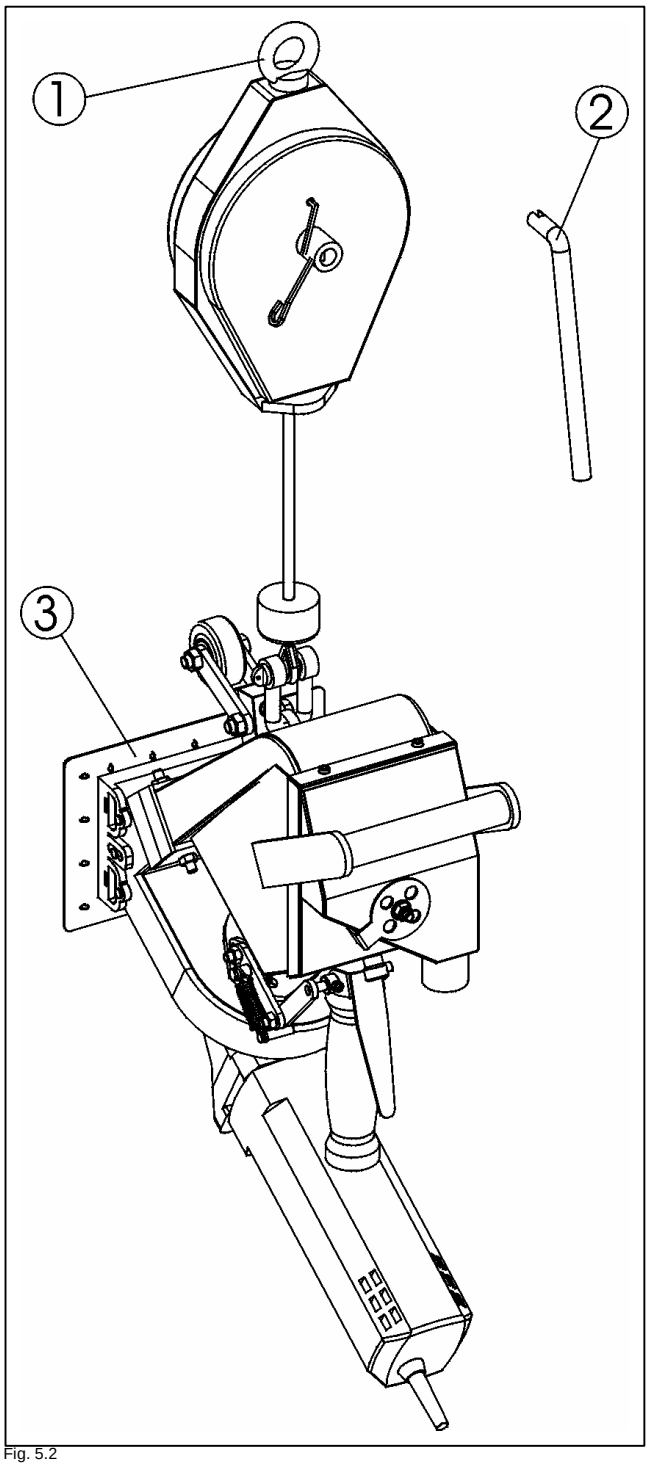


Fig. 5.2

Any machine that is not used in accordance with the regulations is a danger to operating, set-up and service personnel.

When this machine is used the operator is obliged to familiarise himself with the special risk and therefore with responsible handling of the machine.

The operator must ensure that the machine always has the blast opening (3) on the surface, as otherwise persons or items in the vicinity may be injured or damaged by abrasive escaping at high speed.

- ☐ Suspend the weight balancer with the eye bolt (1) above the surface to be cleaned on a suspension point in accordance with the safety regulations.
- ☐ Now with the aid of a shackle connect the machine to the weight balancer.
- ☐ Before starting up the machine check that it is suspended so that it can always be moved on the surface in the work area. If not, change the position of the suspension point.
- ☐ In order to set the initial spring tension of the weight balance place the key (2) on the weight balance. Move the lever with the traction cable slack in the clockwise direction in order to increase the cable force or in an anti-clockwise direction in order to reduce the cable force.
- ☐ Now follow the points for starting-up for horizontal surfaces.

Index Chapter 6

6.1 Daily operation

Standard commissioning and operation of the 1-5HH is the same as the procedure described in the "Commissioning" chapter.

Any one in the vicinity of the machine whilst it is in use must wear safety glasses with side protection as well as safety shoes. The operator must wear close-fitting protective clothing.

You should blast clean a surface working in parallel strips taking care to ensure that the dust hose and electrical cable do not become twisted.

Fig. 6.1 shows the recommended blast cleaning directions away from the filter plant.

Make sure that no vehicles such as fork-lift trucks travel over the electric cable and the dust hose.

The correct advance speed must be selected for a good blast cleaning result to be obtained. If the surface is to have various features (e.g. varying hardnesses or coatings of varying thickness) a uniform blast cleaning result can be obtained by varying the advance speed whilst blast cleaning.

6.2 Advance speed

Opmerking [PD1]: F rüfen in Hinblick auf die Handführung dieser Maschine

The advance speed depends on the material of the surface to be cleaned and on the required profile.

In order to select the correct advance speed observe the surface and vary the speed whilst blast cleaning.

To obtain a slight profile on concrete a higher speed is required than for a coarse profile.

A very slow advance speed is required when blast cleaning steel.

6.3 Recommended blast cleaning direction

Place the filter plant near a mains connection.

Place the blast machine near the filter plant and spread out the hose as shown in Fig. 6.1.

Operating the blast machine by repeating the work process away from the filter plant if the hose is spread out in the opposite direction.

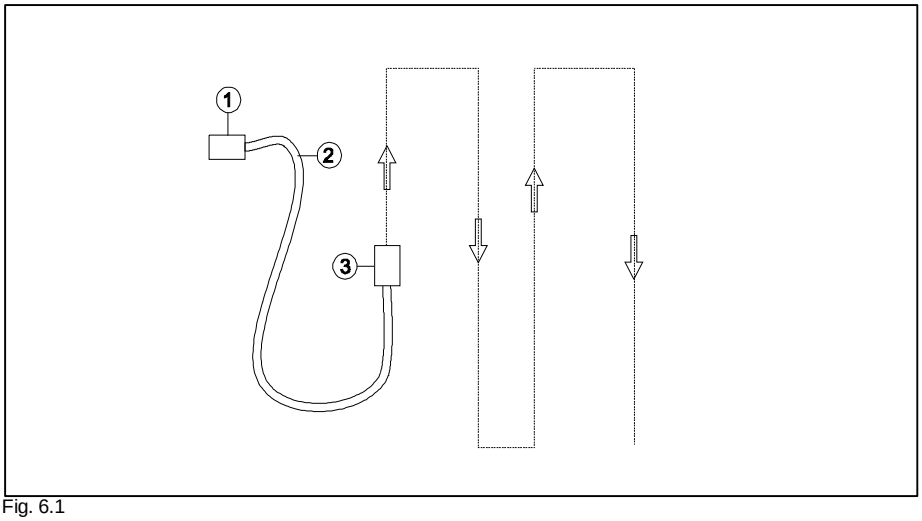


Fig. 6.1

1 Filter plant
2 Dust hose
3 Blast machine

Work your way in stages into the work area and watch the length of dust hose used to avoid damage.

6.4 Switching off the machine

❒ Shut off the abrasive supply using the abrasive control lever.

❒ Continue to move the machine until you are sure that deeper holes are not being blasted in the surface.

❒ Switch the drive motor off using the switch.

❒ Now switch off the filter plant.

Make sure that all rotating machine parts have come to a standstill before carrying out any inspection or servicing work.

If the **BLASTRAC** blast machine is to be taken out of commission for a relatively long period of time, pull out the mains plug, remove the abrasive and store the machine in a dry place.

6.5 What to do if there is a fault

The local safety regulations apply to the operation of the machine irrespective of the following instructions.

First **disconnect the machine from the power supply/turn off the motor**. Then start troubleshooting.

6.6 Re-commissioning after a fault

See Chapter 5 "Commissioning".

6.7 Measures to be taken before and after relatively long periods of standstill

Machine at a standstill for up to a maximum period of 3 months.

Prior to a relatively long period of standstill

Protect electric motors from moisture, heat, dust and shock.

Clean the machine and cover it with plastic sheeting.

After a relatively long period of standstill

See "Commissioning" operating instructions

Index Chapter 7

7.1 Instructions

Before starting any maintenance work on the machine and its drives secure the machine so that it cannot be switched on accidentally. Switch off the power supply/turn off the motors.

Malfunctions caused by insufficient and incorrect servicing can result in very **high repair costs** and long machine downtimes. **Regular** servicing is therefore essential.

Operational safety and machine service life also depend on correct servicing as well as several other factors.

The following table contains advice as to time, inspection and servicing for the normal use of the machine.

Times are based on uninterrupted use. If the number of operating hours stated during the corresponding period is not reached, the interval can be extended. However, the machine must be thoroughly checked at least once a year.

The frequency of inspection for wear, inspection, servicing and maintenance cannot be determined in advance due to varying operating conditions. An appropriate inspection schedule should be drawn up taking the operating conditions into account.

7

Our specialists will be happy to help with more suggestions.

The supplier's operating and servicing instructions should also be followed when servicing and maintaining the machine. Note the instructions Electrical Components Supplies in particular.

7.2 Servicing and inspection list

Operating hours/ period of time	Inspection point, servicing information
12 hours after maintenance work	Inspect all safety devices to ensure they are effective. Check all accessible screw connections to ensure they are seating firmly.
Every 3 hours	Check whether there are foreign bodies in the containers or in the blast wheel unit.
Daily and before starting work	Check that the hose connections are tight and seating firmly. Check the filter hose for damage. Ensure that the filter dust container has been emptied. Check blast wheel, distribution sleeve and fixing screws for damage and wear. Check the separator parts for wear and defects. Remove foreign bodies and dust deposits. Check the level of abrasive in the storage container. Check the all-round rubber seal for wear. Check electrical connections for deposits of dirt or foreign bodies. Check the electric motor for dirt and other contaminants.
Annually	Thorough overhaul and cleaning of the complete machine.

7.3 Maintenance

As with commissioning, we recommend that you consult BLASTRAC personnel when carrying out repair work on the machine for the first time. In this way your servicing personnel will have an opportunity to familiarise themselves thoroughly with the procedures involved.

The only maintenance work described is that which occurs during servicing or which is required when replacing wear parts.

If you are replacing parts yourself for specific reasons, the following instructions as well as the individual steps should be followed.

Furthermore, all spare or wear parts that cannot be supplied quickly should be held in stock by your. Production downtimes are generally more costly than the spare part.

Screws that have been removed are placed with screws of the same quality (strength, material) and execution.

Before starting any maintenance work on the machine and its drives these should be secured so that they cannot be switched on accidentally. Disconnect the machine from the power supply/turn off the motors.

7.4 Blast pattern

The abrasive which leaves the blades of the blast wheel is not thrown indiscriminately in any direction. Distribution of the abrasive is restricted to an angle of approx. 50°. The abrasive is distributed through a distribution sleeve which encloses the impellor. The position of the window in the distribution sleeve determines the blast pattern.

Correct adjustment of the distribution sleeve and therefore of the blast pattern is the most important factor for optimum use of the 1-5HH blast machine.

Incorrect setting of the distribution sleeve results in extremely high wear rates and penetration of the abrasive through the blast wheel housing as well as reduced blast cleaning power and a possible loss of the rebound energy of the abrasive.

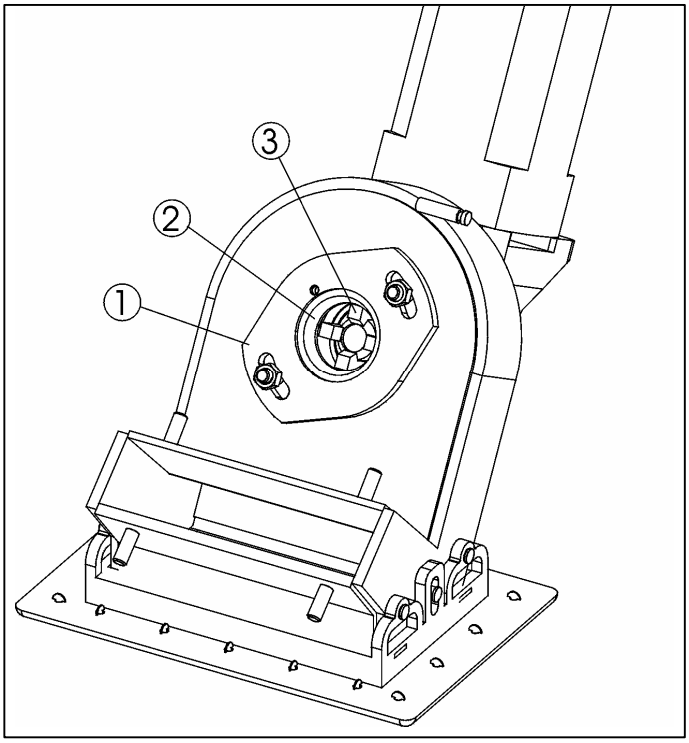


Fig. 7.1

1 Distribution sleeve clamping plate
2 Distribution sleeve
3 Impeller

7.5 Setting the blast pattern

It is most important for the blast pattern to be set correctly in order to achieve a clean, even blast pattern on the surface to be cleaned.

Before carrying out any maintenance work on the machine and its drives the machine must be secured to prevent it being switched on accidentally. Disconnect the machine from the power supply/turn off the motors.

A blast pattern that is incorrectly set leads to:

- ❒ Uneven cleaning (shadows on the right or left hand side).
- ❒ Unusually high wear of the tune-up kit and the blast housing.

The following 3 factors affect the blast pattern:

Worn tune-up kit:

- ❒ The blast pattern alters as the wear on the tune-up kit (impeller, blast wheel, distribution sleeve) increases.

Abrasive size:

- ❒ The size of the abrasive affects the blast pattern. The blast pattern must be adjusted when the abrasive is changed.

Position of the distribution sleeve:

- ❒ Correct setting of the distribution sleeve is the most important factor for achieving an optimum blast pattern. Each distribution sleeve has a window in its side. The position of the window determines where the abrasive lands on the blast wheel blades and on the surface to be cleaned.

- ❒ Each time the tune-up kit is replaced the distribution sleeve setting must be checked and rectified by creating a blast pattern. The same applies when blast cleaning a different base.

7.6 Adjusting the distribution sleeve

To set the distribution sleeve, loosen the distribution sleeve clamping plate and rotate the distribution sleeve in the desired direction by turning the clamping plate. The following is a guide for setting: Sleeve opening roughly opposite to the blast angle. Here, the size of the abrasive plays an important part.

Different abrasives have different directions of flight determined by differences in weight and in resistance to friction. This means: Never use different abrasives together.

After fitting new spare parts a blast pattern should always be created in order to check the blast direction. This is the only way to guarantee that you work economically and avoid unnecessary wear and repair costs.

The blast pattern can be set as follows:

- ❒ The position of the distribution sleeve is determined by the distribution sleeve clamping plate (2). In the central position the upper edge of the distribution sleeve window is at 11 o'clock (see Fig. 7.2). You can correct the setting in both direction by 12.5° rotation.
- ❒ Undo the two nuts (1) and adjust the re-set the distribution sleeve clamping plate (2).
- ❒ Fix the distribution sleeve clamping plate by tightening the two nuts (1).

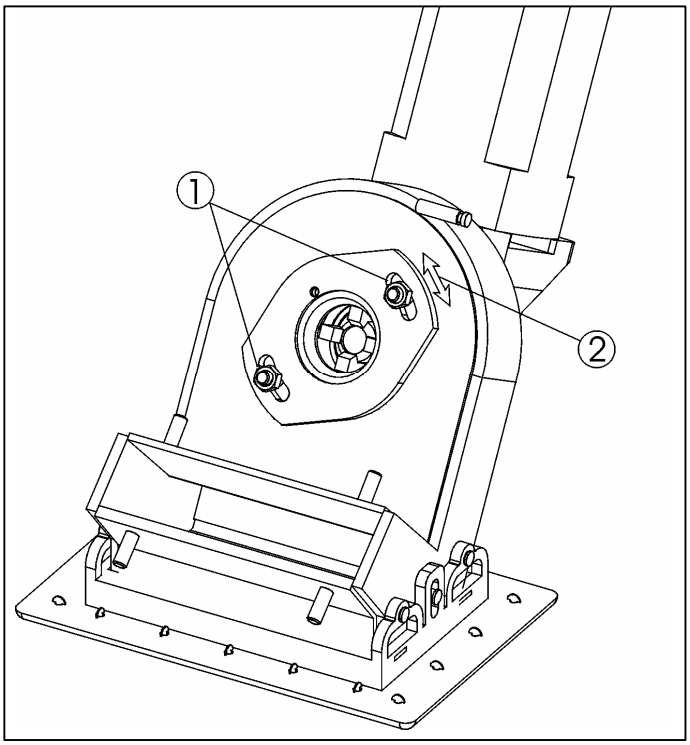


Fig. 7.2

❒ Move the blast head of the blasting machine onto a 5-8 mm thick steel plate and blast clean it for 45 seconds with maximum abrasive throw without moving the machine away from its original position on the steel plate.

❒ Move the machine away from the blast zone and carefully inspect the steel plate.

❒ You will find the hot spot of the blast cleaned surface at the point where the machine has developed the greatest blast intensity. This point is usually somewhat lighter than the other blast cleaned area due to the development of heat.

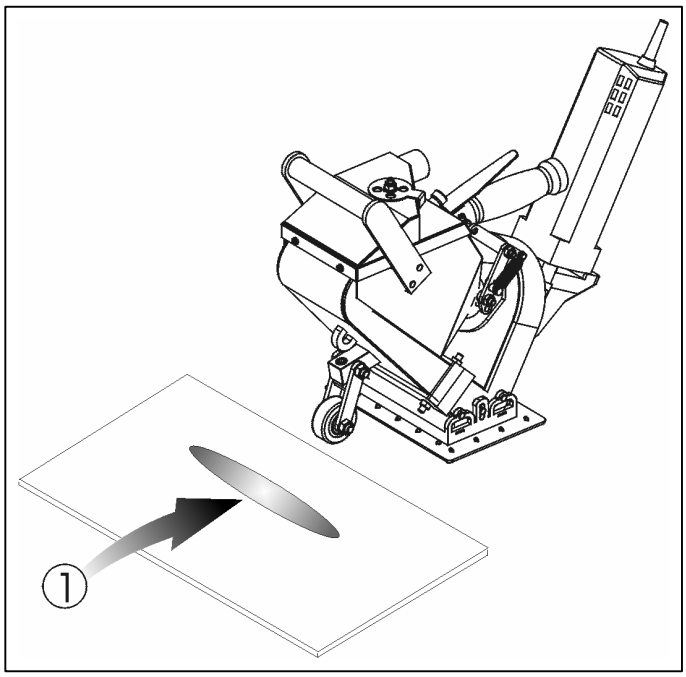


Fig. 7.3

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❒ Now adjust the distribution sleeve until the hot spot (1) is exactly in the middle of the blast pattern.

❒ You can now start blast cleaning. If it is concrete that is to be blast cleaned the blast pattern should be checked and adjusted again slightly after several meters. The blast pattern alters as the wear on the tune-up kit increases and also if the size of the abrasive used is changed.

Never loosen the distribution sleeve clamping plate or attempt to set the distribution sleeve whilst the machine is operating.

- ❒ Looking at the distribution sleeve from the centre of the blast machine:
- ❒ If the blast cleaning result is heavy on the right hand side and weak on the left hand side (shadows) rotate the upper edge of the distribution sleeve in the clockwise direction by 3-6 mm at a time.
- ❒ If the blast cleaning result is heavy on the left hand side and weak on the right hand side, rotate the distribution sleeve in the anti-clockwise direction by 3-6 mm at a time.

7. 7 Wear parts

The tune-up kit

1 Impeller
2 Distribution sleeve
3 Blast wheel

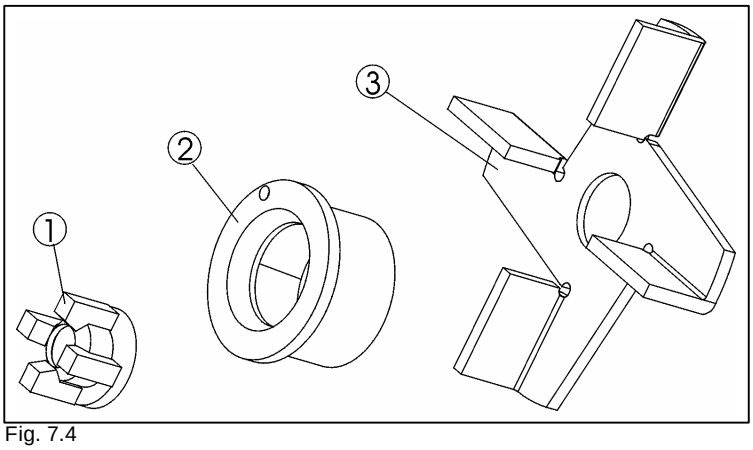

Fig. 7.4

7.8 Replacing the tune-up kit

The tune-up kit comprises blast wheel, distribution sleeve and the impeller with fixing nut.

Removal:

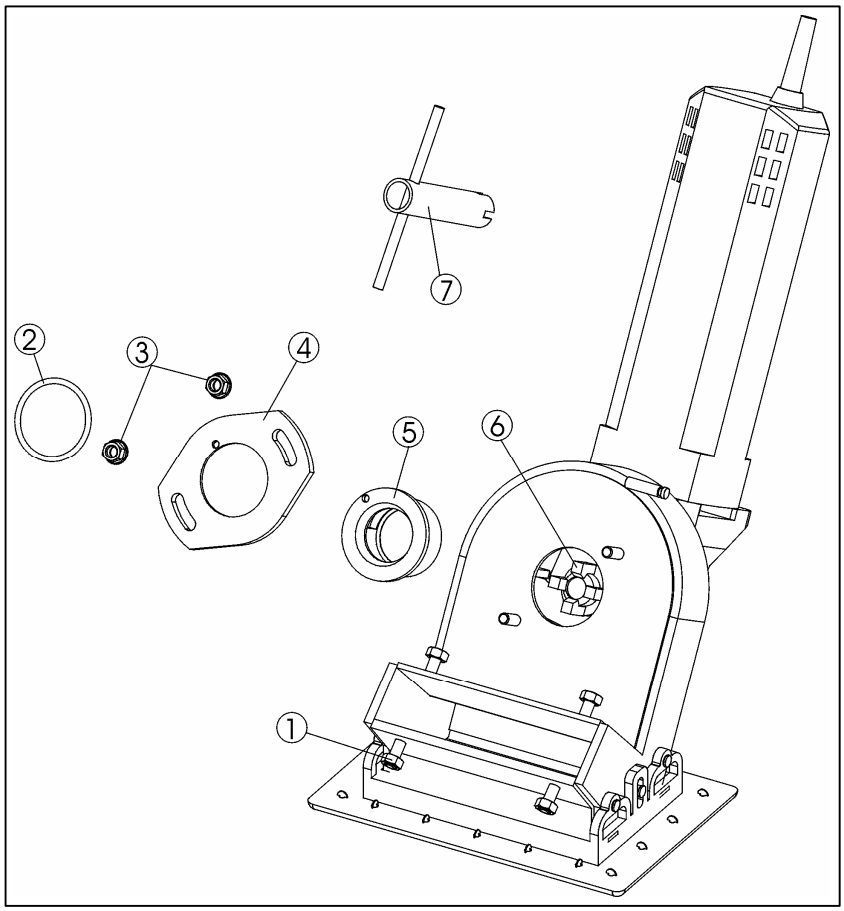

Fig. 7.5

1 Remove the separator by undoing the four nuts and pushing the separator from the blast housing (1). In doing so, note the O-ring (2).

2 Undo the screws (3) for the distribution sleeve retaining plate (4) and remove them. Then remove the distribution sleeve (5).

3 Now loosen the impeller (6) using the impeller key (7) and remove it.

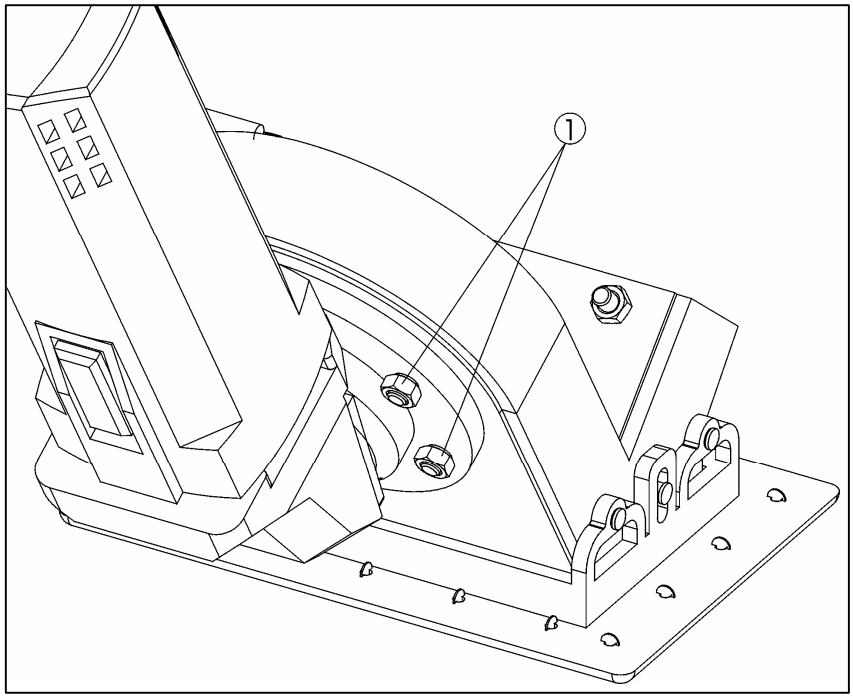

Fig. 7.6

4 Undo the 4 fixing screws (1), two on this and two on the opposite side of the motor locating plate. Take the motor out of the housing noting the blast wheel as you do so.

5 Check the blast wheel location piece for wear and replace it if it if it is worn excessively .

Fitting:

1 Clean the thread of the motor shaft. Guide the blast wheel through the lower housing opening and then place the motor with retaining plate on the housing again and secure it with the screws.

2 Continue the rest of the fitting process in the reverse sequence to the removal sequence.

3 Rotate the blast wheel by hand. It must turn freely.

If the tune-up kit is replaced the motor shaft thread should be checked each time. Make sure that the impeller is tightened correctly. It is also essential to make sure that there is no dust or small particles of abrasive in the threads.

Maintenance

Each time the blast wheel is repaired, switch the blast wheel motor on for a short time (no abrasive feed) in order to estalish whether the rotating parts are turning freely and without vibration. Then continue with the blast process.

The blast wheel motor is designed for a long service life. Damage to the blast wheel motor can be detected through unusual noise or failure of the electric motor. In this case notify Customer Service.

7

Index Chapter 8

8.1 Troubleshooting - blast machine

Before starting any maintenance work on the machine and its drives secure the machine so that it cannot be switched on accidentally. Switch off the power supply/turn off the motor.

Fault	Possible cause	Measures
Excessive vibration	Uneven wear on blast wheel. Imbalance due to worn blast wheel blades	Replace the tune-up kit.
Unusual noise	Screws loose and incorrectly set. Motor bearings defective	Check that screws and all parts are secure. Replace the motor.
Reduced or no blast power.	Too little abrasive in the separator. Contaminated abrasive. Abrasive supply and abrasive valve for abrasive storage container.	Top up abrasive. Abrasive contains large proportion of contaminants, check ventilation system. Check abrasive supply or abrasive valve and clean.
Excessive wear in blast wheel housing and rebound channel.	Distribution sleeve incorrectly set.	Abrasive flow directed at housing not at surface to be cleaned. Adjust the blast pattern.

8.2 Troubleshooting - electrical equipment

Before starting any maintenance work on the machine and its drives secure the machine so that it cannot be switched on accidentally. Switch off the power supply/turn off the motors.

Fault	Possible cause	Measures
Blast wheel cannot be switched on.	Mains connection secured.	Check or switch on again. Check mains connection.

Index Chapter 9

9.1 Spare parts list for 1-5HH blast machine

Item	Article no.	Description	Qty.
1	B21811	Motor 230 V	1
1a	B21814	Motor 110 V	1
2	B21690	Blast wheel	1
3	B21691	Impeller	1
4	B21699	Control clamp plate	1
5	B21697	Control cage	1
6	B21757	Seal o-ring	1
7	B21689	Grinder adaptor	1
7a	B21747	Grinder adaptor 110V	1
8	B21694	Felt seal	1
9	B21811/1	Wheel Hub	1

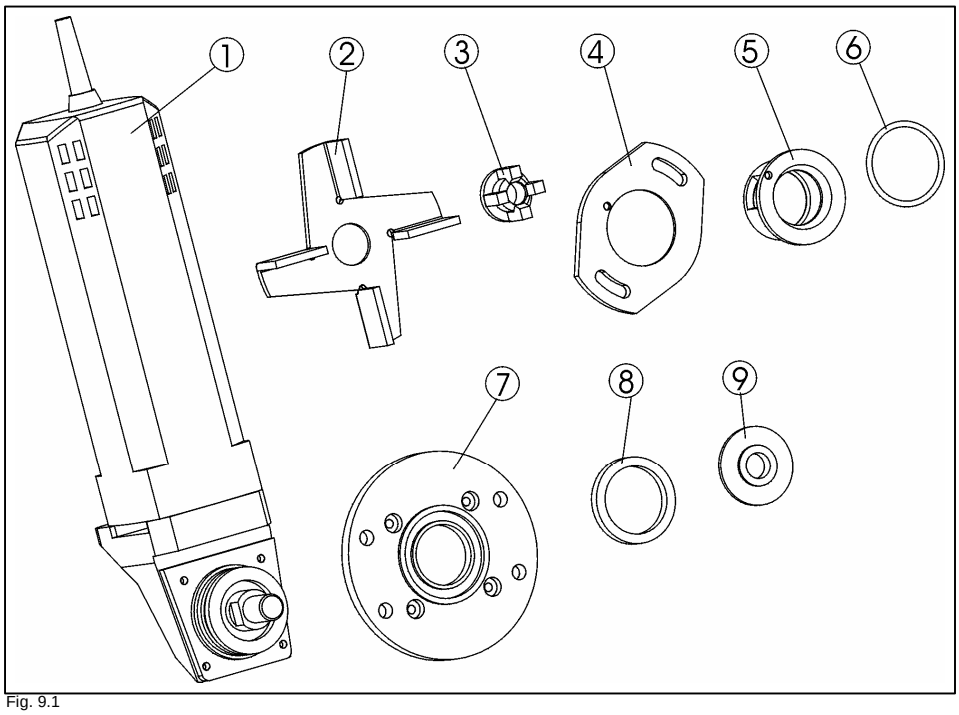

Fig. 9.1

Item	Article no.	Description	Qty.
1	B21687	Blast housing	1
2	B21698/2	Slide shoe front/rear	2
3	B21698/1	Slide shoe right/left	2
4	B21698/4	Foot seal	1
5	B21698/3	Wear plate	1

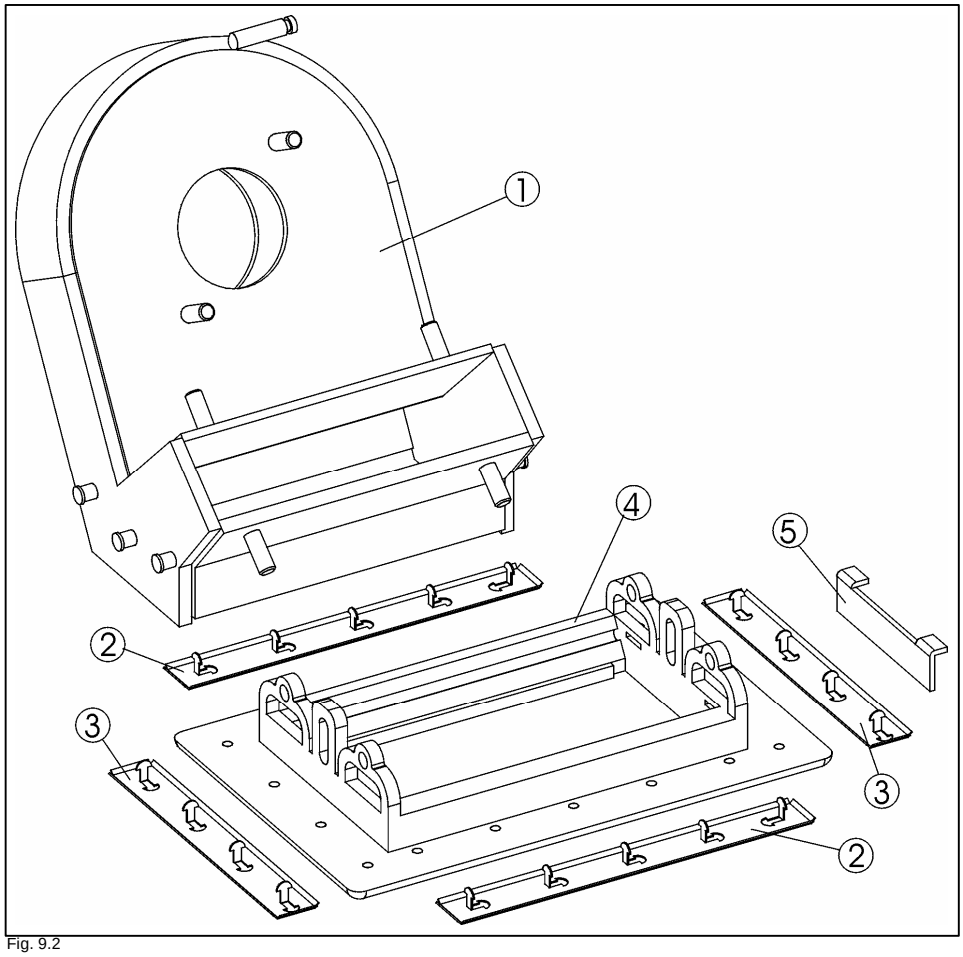

Fig. 9.2

Spare Parts

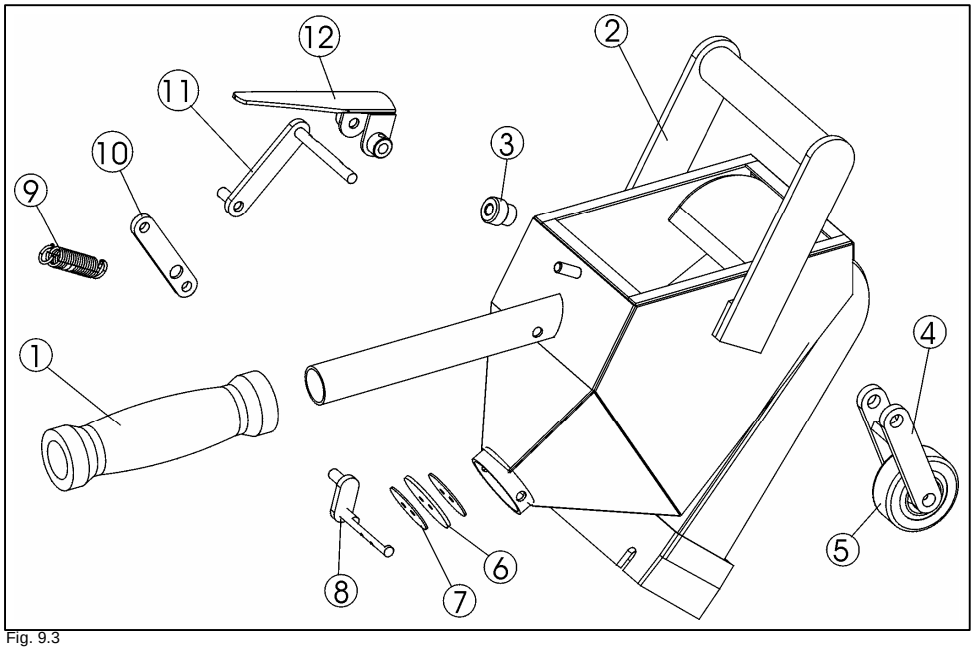

Fig. 9.3

Item	Article no.	Description	Qty.
1	B21756	Soft grip	1
2	B21686	Separator	1
3	B21955	Clamp screw	1
4	B21952	Wheel mount	1
5	B21950	Wheel	1
6	B21693	Valve PU sheave	1
7	B21683	Valve washer	2
8	B21692	Valve shaft	1
9	B21792	Tension spring	1
10	B21953	Middle lever	1
11	B21951	Top lever	1
12	B21688	Valve finger lever	1

Item	Article no.	Description	Qty.
1	B21684	Air slide valve	1
2	B21685	Separator cover	1
	B21954	Seal	1
	B21793	Dust hose	1

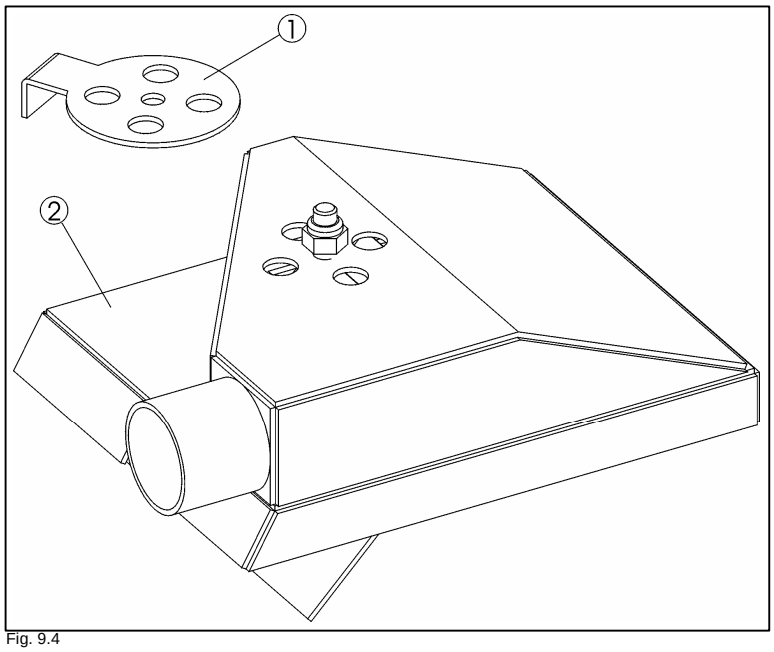

Fig. 9.4

Item	Article no.	Description	Qty.
1	B21752	Impeller key	1

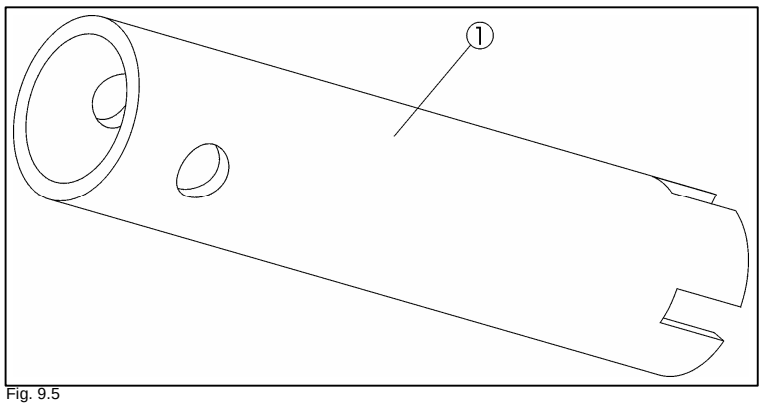

Fig. 9.5

Spare Parts

Item	Article no.	Description	Qty.
1	BWB-16	Weight balancer	1

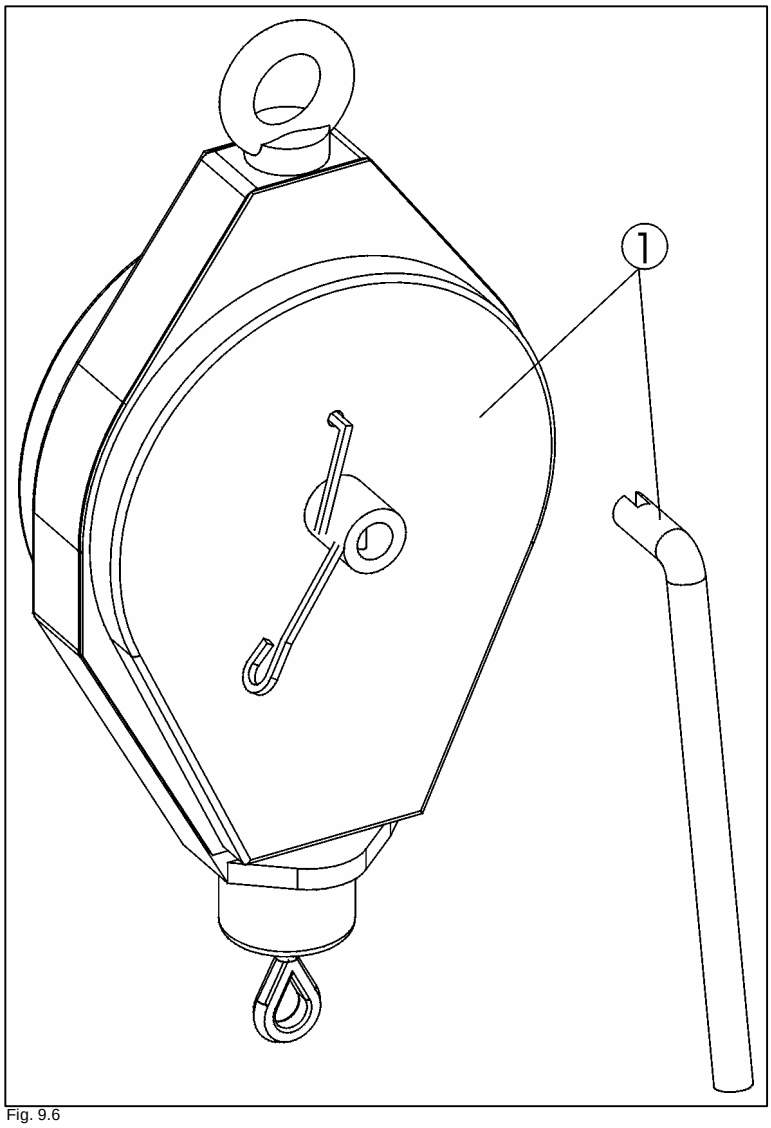

Fig. 9.6

9