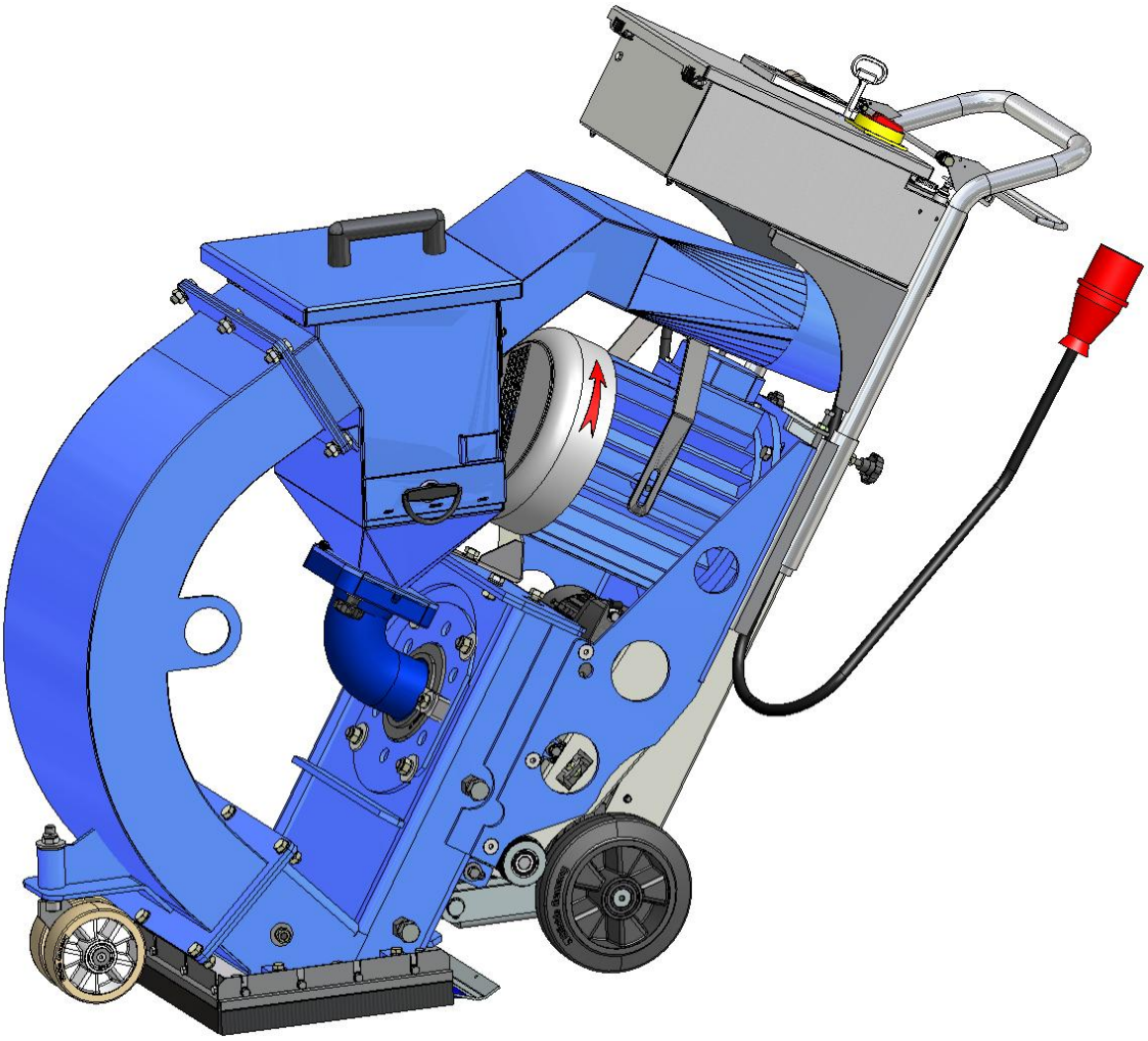
Operating Manual
IMPACTS Blastmachine
Model: S320E110R



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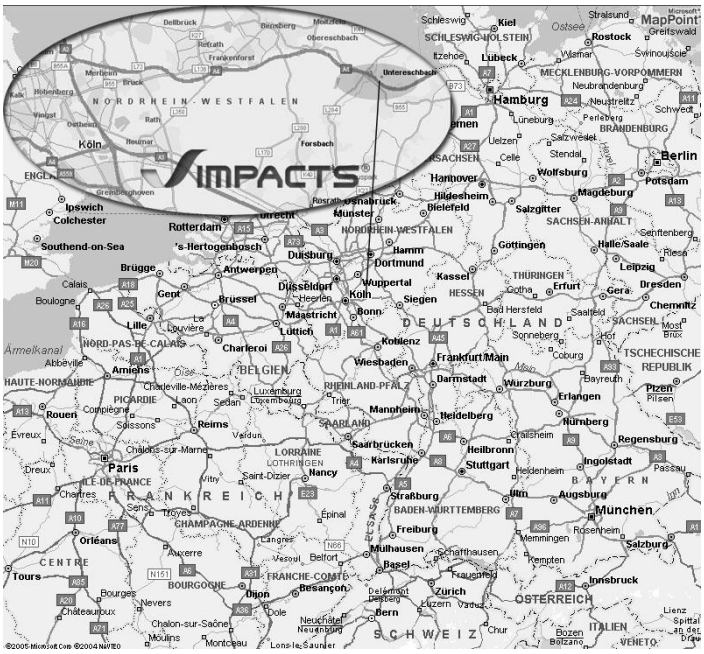

Changes to technical data reserved
Version: September 2017

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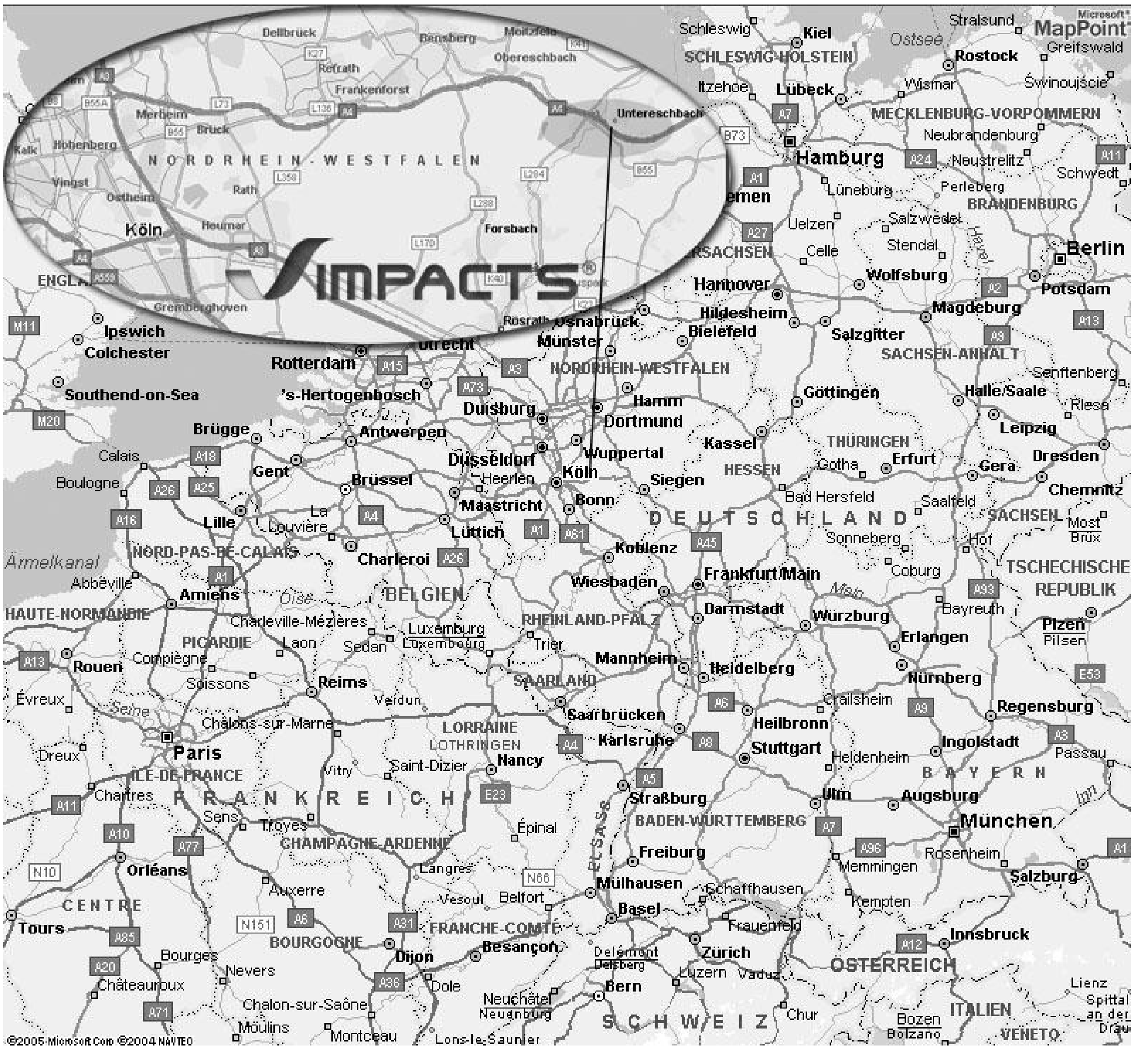
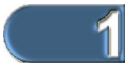


NOTES:

Chapter 1

Technical Data

1.1 Rating



Machine: **IMPACTS BLAST MACHINE**

Machine-model: **S320E110R**

Manufacturer: **IMPACTS GmbH**
Zöllnerstr. 7
D-51105 Overath

1.2 Unit – specifications

Dimensions:

	Blast machine	Dust collector
	S320E110R	DC2725
Length	1407 mm	1110 mm
Width	488 mm	802 mm
Height	985 mm	1228 mm
Weight	240 kg	273 kg

Connected loads of the electrical system:

Blast machine	S320E110R
Power	11 kW
Electrical connection	400V, 50 Hz Plug CEE Fuse 32 A

Recommended dust collector

Dust collector	DC2725
Power	5,5 kW
Electrical connection	400 V, 50 Hz Plug CEE Fuse 16 A

Changes to technical data reserved

1.3 Operative range and correct usage

The blast machine S320E110R is designed to be used on clean, dry, horizontal surfaces without obstacles. The machine can not be used for other purposes.The manufacturer will not be liable for damages resulting from such incorrect usage. In case of wrong usage the user assumes all risks.

1.4 Stand-by power supply (generator)

If the blast machine S320E110R is operated using a generator, the generator must be operated in accordance with the current VDE directives (This applies in special to the protective earth conductor) in order to ensure that all safety devices are functioning and to be able to eliminate possible damage to electrical components.

1.5 Advice for operators of the blast machine

During the operation of the blast machine S320E110R it may be possible to exceed the acceptable noise level of 85 dB(A). This is dependent on the different locations and the local circumstances. When the noise level is 85 dB(A) or more, the machine operator and the persons working near the machine must wear sound-insulating devices.

For the use of the machine the operator has to have a current task-based hazard assessment in place, based on the work protection law and industrial safety regulation

1.6 Machine model designation

Machine model:	**S320E110R**
Unit / designation:	**BLAST MACHINE**
Working width:	**320 mm**
Drive:	**progessively adjustable 0-30m/min**
Blasting capacity:	**up to 200 m²/h**
Abrasive consumption:	**100 – 200 g/m²**
Dust hose connection:	**130 mm**
Recommended dust collector:	**DC2725**

Chapter 2

2.1 Explanation of warnings and symbols

The following denominations and symbols are used in the operating manual to highlight areas of particular importance:

2

Symbol of operational safety.

This symbol will be shown in this operating manual next to all safety precautions that are to be taken in order to ensure prevention to life and injury. Follow always these instructions and take special care in these circumstances. In addition to these instructions, the general safety precautions and the local accident prevention guidelines are also to be followed. Please check, wether there are special regulations for the particular job side.

Information, instructions and restrictions with regards to possible risks to persons or extensive material damages.

Particular details regarding the economical use of the equipment.

Warning against dangerous voltage.	
Indications relating to protective devices of electrical equipment.	
Indications, where consultation with the manufacturer is necessary.	
Instructions relating to periodical checks.	
Reference to important instructions contained in the operating manual.	

2

2.2 Organizational measures

The operating manual is to be kept near the location where the machine is located and must be reachable all the time!

In addition to the operating manual, general and legal regulations regarding accident prevention and environmental protection must be with and indicated every time!

Such duties may for example relate to the handling of hazardous substances or to the provision and wearing of personal protection equipment as well as compliance with local traffic regulations.

The operating manual must be supplemented by instructions including the duty to supervise and report relating to particular local working practices, for example work organisation, work procedures and personnel allocation.

Personnel entrusted with working with the machine must have read the **operating manual** before starting the work, in particular the chapter about **Safety Instructions**. This has to be done before starting any work with the machine. This particularly applies to incidental activities such as setting up the machine, carrying out maintenance work or training staff to work with the machine.

From time to time the working practices of the staff are to be checked regarding awareness of **safety and hazards**.

Personnel must tie back long hair and not wear loose clothing or jewellery rings. There is a risk of injury through getting stuck or being drawn into moving machinery.

Use **personal protection equipment** if necessary or required by regulations! Take notice of **all** safety and hazard notices on the machine!

All **safety and hazard notices on** the machine must be kept complete and **readable**!

If **safety-critical changes** occur to the machine or its performance**,** the machine must be **shut down immediately!** The cause of the fault has to be established immediately and has to be repaired before starting the work again!

Changes, add-ons or conversions of the machine which might have an influence to the safety of the machine must not be undertaken without the **permission of the manufacturer**!

2

This applies in particular to the fitting and adjustment of safety devices and to welding on major and load bearing parts.

Spare parts must always comply with the technical requirements and the specification of the manufacturer. This is always guaranteed with original spare parts of the manufacturer.

Inspection intervals and intervals for recurring checks specified in these operating manual must be complied with. At the same time it is necessary to meet the legal requirements.

To perform maintenance work correctly it is important to be equipped with proper tools for the task in question.

The **location** and the operation of **fire extinguishers** must be made known on each building site!

Take note of the facilities for fire reporting and fighting fires!

2.3 Personnel selection and qualification

Fundamental duties:

Only reliable personnel are aloud to work on the machine.

Only trained personnel can be used to operate the machine. **Note the statutory minimum age!** Specify clearly the responsibilities of personnel for operation, set-up, service and maintenance work!

Make sure that only **authorised** personnel operate or work on the machine!

Select clearly the **machine operator**. Define his responsibilities also regarding to **traffic safety regulations** and empower him to decline instructions from third parties which are not complying with the safety requirements!

Personnel being trained or made acquainted with the equipment may only be deployed **under constant supervision of an experienced person**.

2

Work on the electrical parts of the equipment may only be undertaken by a **skilled electrician** or by a **trained** person under the **guidance** and **supervision** of a **skilled electrician** as well as in accordance with **the electrical engineering regulations**.

2.4 Safety precautions applicable to different operating conditions

Avoid any method of working that **impairs safety**!

All precautions have to be taken, that the machine will only be used in a safe and functional status!

Only operate the machine when all **safety devices** and related **safety equipment**, e.g. detachable **safety devices**, emergency stops and suction devices are present and **operational**!

The machine has to be checked visually at least once a day for any **damage** and **defects**!

In the event of **operational malfunctions** the machine must be **shut down immediately** and secured. The fault must be rectified before starting the machine again!

Secure the **work area** around the machine in **public areas** providing a **safety distance** of at least 2 m around the machine.

Default must be rectified immediately!

Start up and switch off operations and control devices have to be handled in accordance with the operating manual!

All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. Ear protection may be required. The operator is obliged to wear close fitting protective clothing.

Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine and the valid VDE and local guidelines.

Before starting the machine make sure that nobody can be endangered when the machines starts running!

Do not switch of or remove the exhaust and ventilation devices when the machine is running!

2.5 Repair work, maintenance activities, and default repair on the job site

Mechanical service work:

Before starting any servicing work on the machine, put the machine in the **safety off position** as described in chapter 2.6 in order to prevent the machine from being switched on accidentally**.**

Please follow any special safety instructions in the various chapters on servicing the machine. **See chapter 7**

Adjustments, servicing and inspection work and inspection intervals specified in these operating manual as well as any information on the replacement on parts and systems of the machine must be **undertaken and / or complied with**!

These activities can only be undertaken by **qualified personnel**.

Safety Advices

Before starting any maintenance or repair work the **operator** of the machine has to be informed about it!

During all work related to the use, the re-erection or the adjustment of the machine and of the safety devices as well as inspection, maintenance and repair, the start up and shut off procedures have to be done in accordance with the operating manual!

Has the machine been shut off completely for **repair or maintenance work** the plug has to be **disconnected** in order to prevent the machine from being switched on **accidentally. See Chap. 2.6 Safety off position**

The dust bin of a connected dust collector has to be emptied before transportation. Please handle in accordance with the regulation how to dispose the dust and make sure that you meet the local regulations.
Do not use any **aggressive cleaning materials**!
Use lint-free cleaning cloths!

Always tighten any screw connections that are undone during servicing and maintenance work.

If **safety devices** need to be **dismantled** during setting up, servicing and repair work, these **safety devices** must be **reinstalled** and inspected immediately after completion of the servicing and repair work.

Make sure that process materials and replacement parts are disposed of safely and in an environment-friendly manner!

Work on the electrical parts of the equipment may only be undertaken by a **skilled electrician** or by a **trained** person under the **guidance** and **supervision** of a **skilled electrician** as well as in accordance with **the electrical engineering regulations**.

Make sure that electrical components used for replacement purpose comply with the original parts and are correctly adjusted if necessary.

2.6 Definition of the safety off position

Definition:

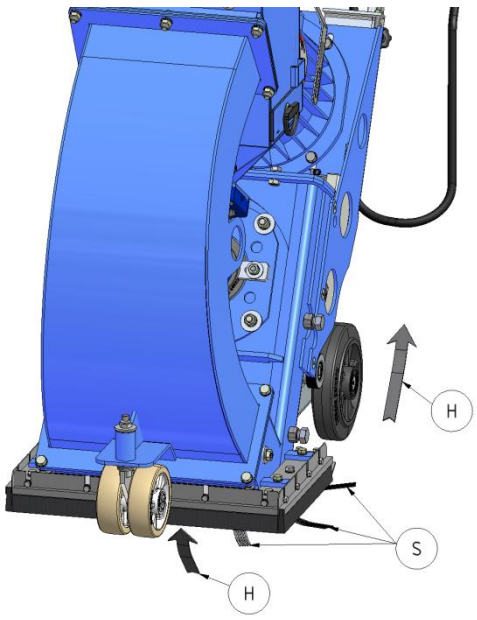
The safety off position is the position of the machine when it cannot generate any hazard.

Putting the machine in the safety off position means:

- **Switch off the machine**
- **Switch off the dust collector**
- **Wait for stillstand of all devices**
- **Pull out main plug**
- **Secure the machine against unintended start up**

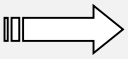
2.7 Dangerous aspects of the machine

Every machine, if it is **not used according to the regulations**, may be **hazardous** for operating, setting-up and service personnel. The **operating authority** is responsible for **compliance with the safety regulations** during operation and maintenance of **safety devices** supplied with the machine as well as the provision of appropriate additional safety devices!

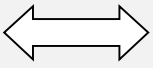


Danger of injury!

Abrasive leaves housing with high speed !
Moving parts !

 **(S)**

Lift and tilt the machine only when it is in safety off position.

 **(H)**

It is not allowed to stay within the working radius of the machine .

2.8 Electrical engineering regulations

2

Work on the electrical parts of the equipment may only be undertaken by a **skilled electrician** or by a **trained** person under the **guidance** and **supervision** of a **skilled electrician** as well as in accordance **with the electrical engineering regulations**.

Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine and the valid VDE guidelines.

In case there is any question ask the manufacturer or a skilled electrician.

The electrical parts of the machine must be **inspected regularly**. Please note in particular the sp**ecified recurring inspections according DGUV V3.** Defects such as **loose** connections or **scorched** cables must be rectified immediately. **Call a skilled electrician or the IMPACTS customer service.**

If work on **life** parts is necessary, a **second person** must be deployed who can pull out the plug in an emergency. The working area must be sealed with a red and white **safety chain** and a danger sign. Use tools that are **insulated against voltages**.

Only start work, once you are familiar with the **electrical engineering regulations** that apply to your area.

Only use voltage seekers that comply with the regulations when troubleshooting. From time to time check voltage seekers to ensure that they are operationally efficient.

2.9 For special attention

Use only proper and default free tools for your work. Damaged tools have to be repaired immediately or to be replaced.

Use during your work for your own safety the required safety **equipment** and **safety cloths** (e.g. safety glasses, safety shoes, safety gloves).

Please instruct your operators and the repair personnel about the following points:

- Greasing-, cleaning-, and repair work is only allowed if the machine is shut off. (**safety off position**)
- Make sure, that during the work on the machine, the machine cannot be started.
- It is not allowed to open or remove **safety devices** while the machine is **running**.
- Do not forget to bring all safety covers and safety devices in **place again** after cleaning, repair and maintenance work.
- Do not touch **moving parts** and do not walk into the working path of the machine.
- Please check after repair- cleaning- and maintenance work and before you start the machine again, that no person is in the working area and could be endangered by the machine.

Safety Advices

Notes:

Chapter 3

General

3.1 Operative range

The **IMPACTS** blast machine S320E110R is a downward blasting machine with a closed abrasive circuit designed for the pre-treatment of horizontal surfaces. The bouncing impact of metallic abrasive onto the surface to be treated thoroughly removes surface contaminants, coats of paint, sealants and thin coatings.

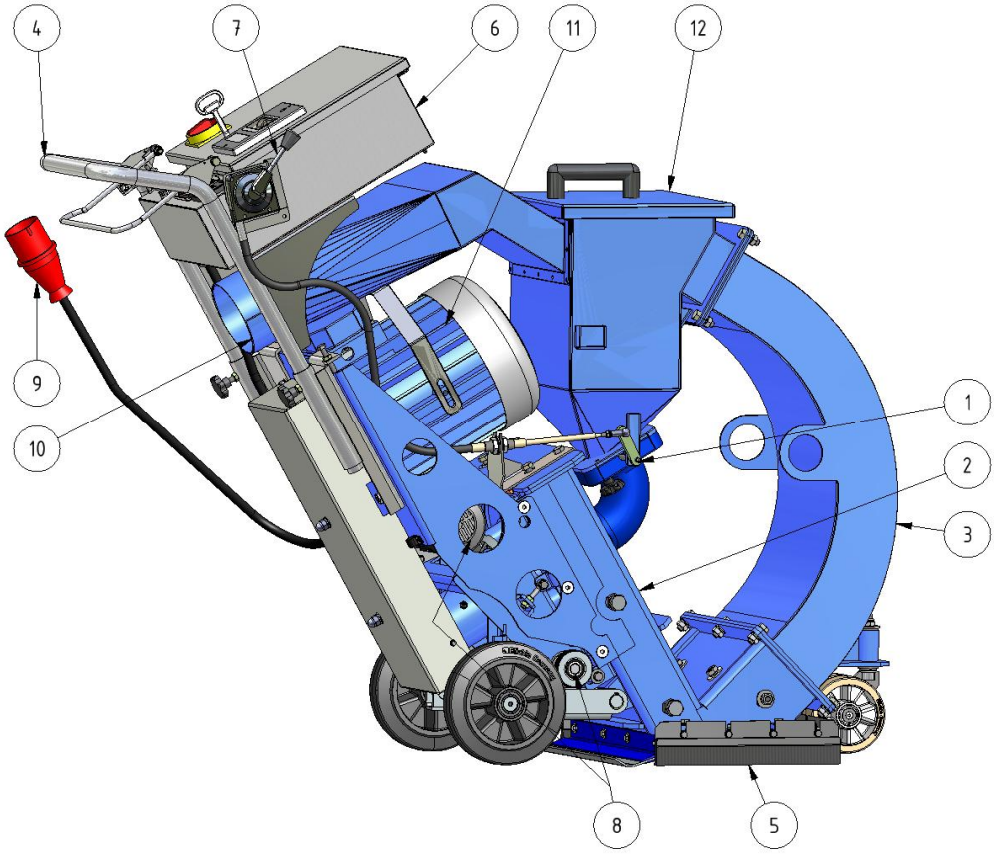
A suitable filter unit must be connected to the machine in order to separate the dust from the abrasive. A specially designed dust collection system ensures dust-free operation of the machine and clean air at the workspace. IMPACTS recommend a DC2725.

3.2 Scope of supply

Scope of supply:

- **Blast machine (S320E110R)**
- **Dust collector (DC2725)**
- **Dust hose (20 m)**
- **Operating manual (1 x)**
- **Magnetic cart (Option)**
- **Magnetic broom (Option)**

3.3 Description of the machine

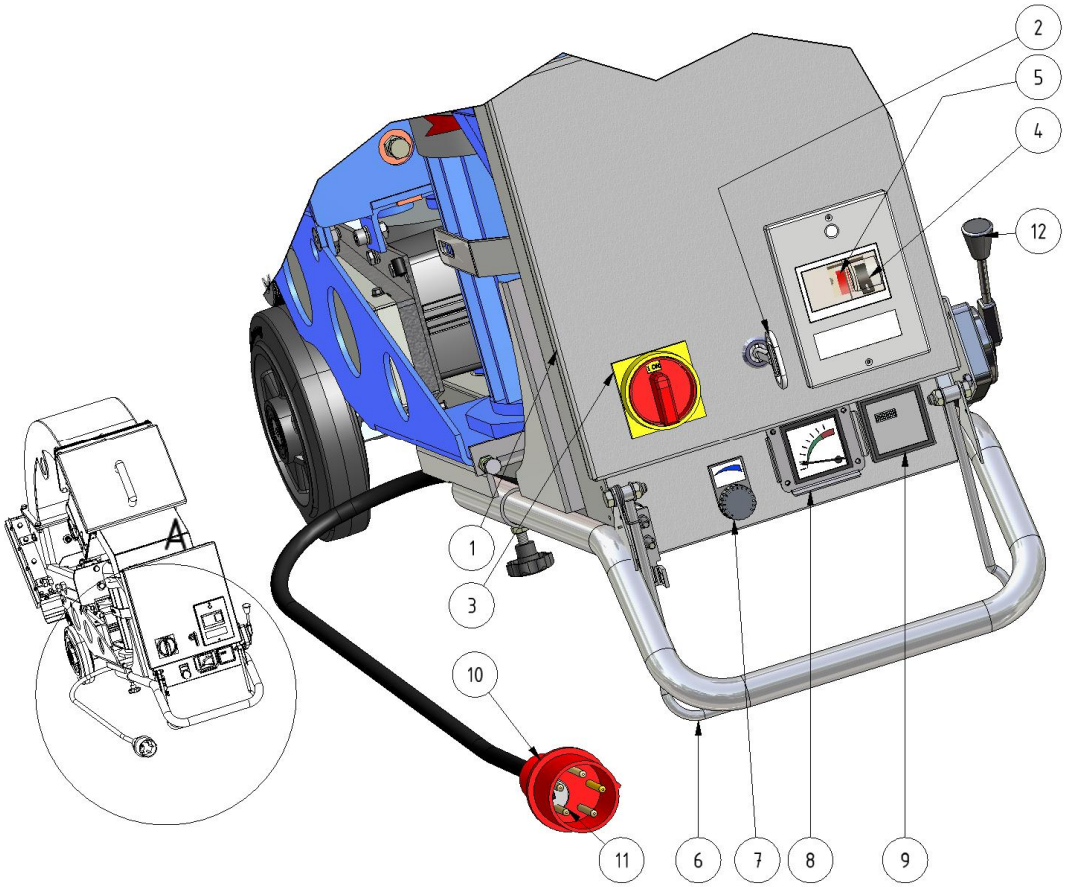


1	Abrasive feeding	7	Lever abrasive control
2	SIDE FORCE-wheel housing	8	Traction drive
3	Rebound	9	Power plug
4	Comb Operation handle	10	Dust hose connection
5	Base seal	11	Wheel motor
6	Control panel	12	Separator

As revolutionary invention, the blast wheel method based on a simple principle: After mechanical pre-acceleration, the abrasive is thrown onto the surface at high speed by the blast wheel. Once the abrasive has impacted the surface it rebounds into a rebound plenum. The rebound plenum deflects the abrasive into an air current separator. Here dust and other contaminants are removed from the abrasive so that only abrasive containing a very small amount of dust is falling back into the abrasive storage hopper to flow back again to the blast wheel.

3.4 Operating elements

The Control Panel is carrying all controls and instruments used for supervision and control of the machine.



1) Control panel housing
2) Control panel key
3) Main switch
4) Switch blast wheel ON
5) Switch blast wheel OFF
6) Traction-drive control lever
7) Traction drive speed control
8) Amperemeter (21 Amp. Max)
9) Hourmeter
10) Power plug
11) Phase inverter
12) Abrasive control lever

Control panel housing

Inside the control panel housing (1) all necessary electric components are installed for monitoring and control of the wheel motor wheel engine as well as for the traction drive.

Control panel key

The control panel key (2) serves to open of the panel by an electrician. Keep the key at a safe place.

Main switch

The main switch (3) serves for the security against unintentional turning on as well as the control of the mains voltage to the installed electric components.

Switch wheel ON/OFF

Pushing button (4) the wheel motor will start up.
Pushing button (5) the wheel motor will stop.

Traction-drive control lever

With the lever (6) below the handle the traction drive will be switched ON OFF. (Dead man's handle)

Traction drive control

The operation speed is set by a potentiometer (7).
Although this indication does not allow direct reading of the actual speed, it shows comparing numbers allowing the operator to set the appropriate speed.

General

Amperemeter

The amperemeter (8) shows the load consumption of the blast wheel motor. When switching on the motor the current value is high (starting current peak), for no-load current and operating current please see the following values.

Machine	Non load current	Operating current
S320E110R	ca. 9 A	max. 21 A

3

Hourmeter

The hour counter (9) shows the sum of the actual working hours performed by the blast wheel.

Power plug

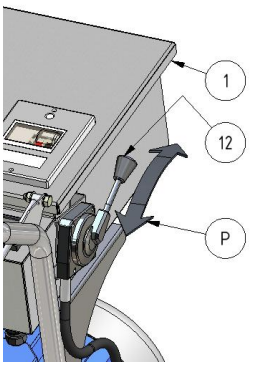
The power plug (10) serves to connect the machine to the power supply.

Phase inverter

The phase inverter (11), integrated in the power plug serves to adjust the direction of rotation on the wheel-motor.

Abrasive control lever

This lever (12) is located on the control panel (1) to control the flow of abrasive towards the blast wheel. The valve is hand-operated and can be set to each amount of abrasive throughput by changing the lever position. Pulling (P) it forward will open and pushing will close the magnetic valve.

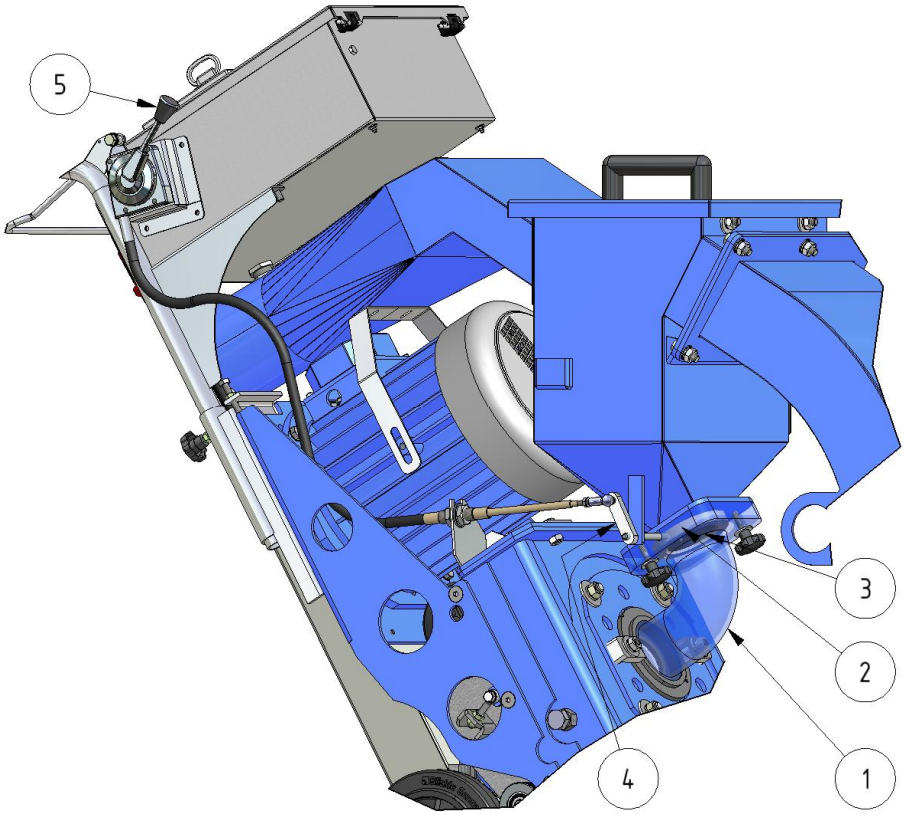


Changes to technical data reserved

Abrasive control valve

To regulate the flow of abrasive to the blast-wheel there is a magnetic-valve (2) fitted between storage-hopper and feed spout (1)This valve has a turn able shutter (3) that is linked to a lever (4) controlled by the abrasive control lever (5).

Changing the angle of the shutter position results in a different amount of abrasive flowing to the blast wheel. Feeding more abrasive is causing more work means higher load on the blast-wheel motor.
Load on the motor is indicated by the amperemeter.
Do not load more abrasive than recommended for the S320E110R, the max load is at 21 **Amp**.
Higher load will cause the **motor to fail** or damage of the motor.

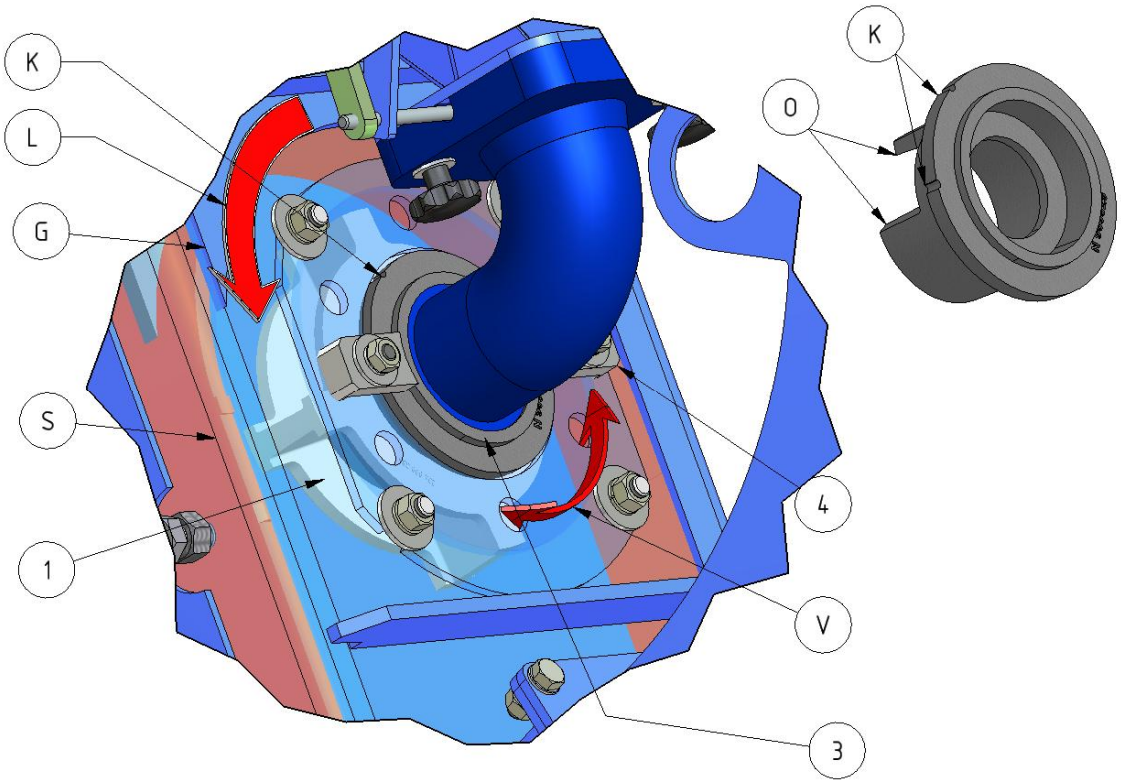


3.5 The wheel kit

The heart of every blast-machine is the blast wheel (1) this will throw the abrasive to the surface to treat, using centrifugal forces. The blast wheel is placed in a side force wheel housing protected with replaceable wear plates. The blast wheel is driven by electric motor via. a belt drive and mounted on a bearing unit.

3

The centre of the blast wheel shows a pre-accelerator, called impellor (3) feeding dosed quantities of abrasive onto the blades of the turning blast wheels. On top of this is the control cage (2) which, once it is carefully set, regulates the direction of the abrasive flow.



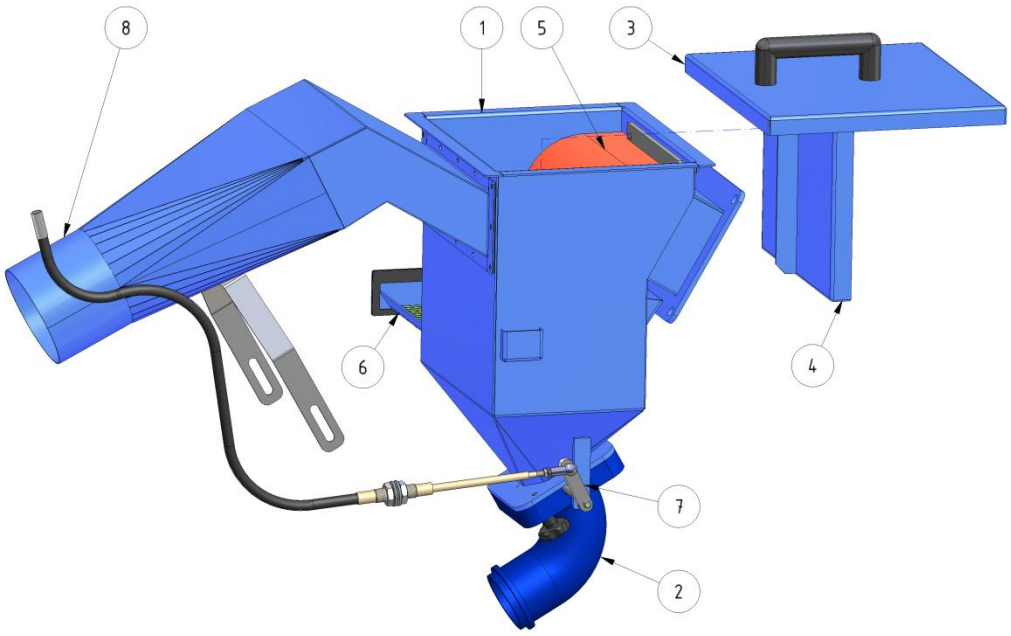
The abrasive goes through the opening of the control cage onto the blades (1) of the turning blast wheel.

The Control Cage, held by two clamps (4) needs to be adjusted (6) so the blast pattern shows to the centre of the machine. For all wheels, turning right or left the turning of the control cage to the left results in a moving of the blast pattern to the right, the turning of the control cage to the right results in a movement of the blast pattern to the left.

3.6 The separator

The separator (1) is mounted to the end of the rebound plenum. The deflector (5) and baffle plate (4) will stop the reflected abrasive. The filter, connected to the hose connector (8) will generate an appropriate airflow within the separator so this device will separate dust from abrasive.

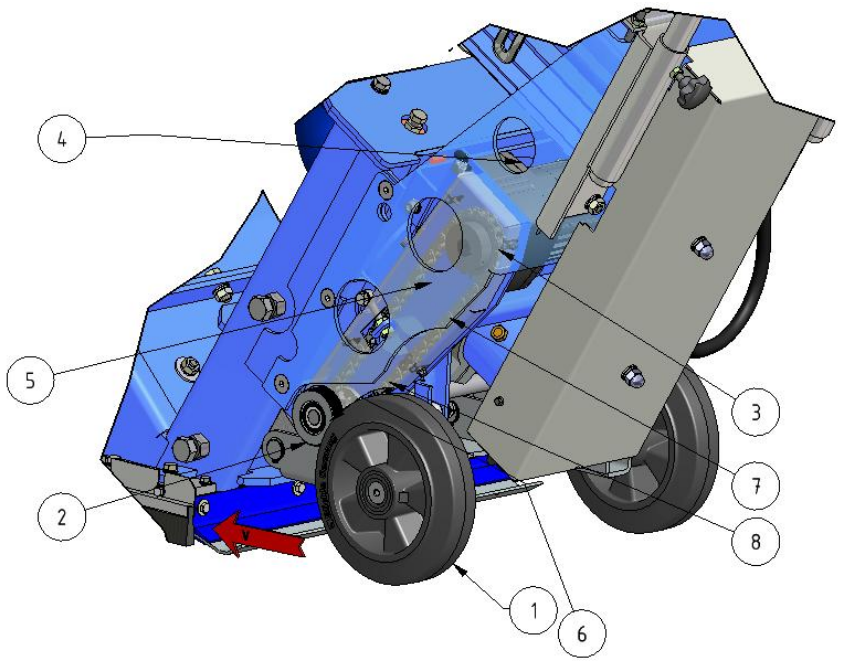
The abrasive drops back to the storage where it has to pass a wire mesh tray (6). This tray (6), fitted to prevent any coarse contaminants from getting into the blast wheel. In order to clean the wire mesh tray the separator lid (3) can be removed and the tray can be taken out from the side.



1	Separator housing	5	Deflector
2	Feed spout	6	Wire mesh tray
3	Separator lid	7	Control magnetic valve
4	Baffle plate	8	Hose conector

3.7 The traction drive

The blast machine S320E110R is driven by an 0,37 kW gear motor. The power transmission works by a chain drive. The wheel (1) and sprockets (5) (6) of the chain-drive are firmly connected by the chain. The lower sprocket (6) drives the drive shaft and the driving wheel (2) in working direction (V).
The driving wheel(2) transfers the force of the gear-Motor only in working direction (V), therefore the machine can be pushed manually faster forward than the driving speed chosen with the potentiometer.

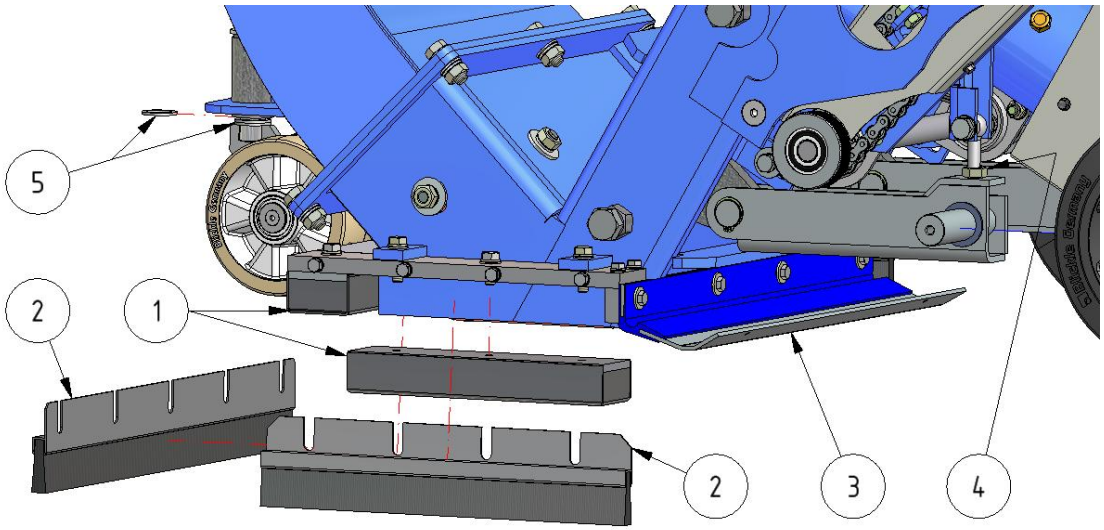


1	Wheel	5	Sprocket
2	Drive wheel	6	Sprocket
3	Cover	7	Chain
4	Gear motor	8	Chain link

3.8 The base seals

On the front and side are magnetic seals (1) surrounded by brush seals (2). On the rear you will find a seal called tail-seal (3) this seal slides over the surface and hinders abrasive getting out of the blast area.

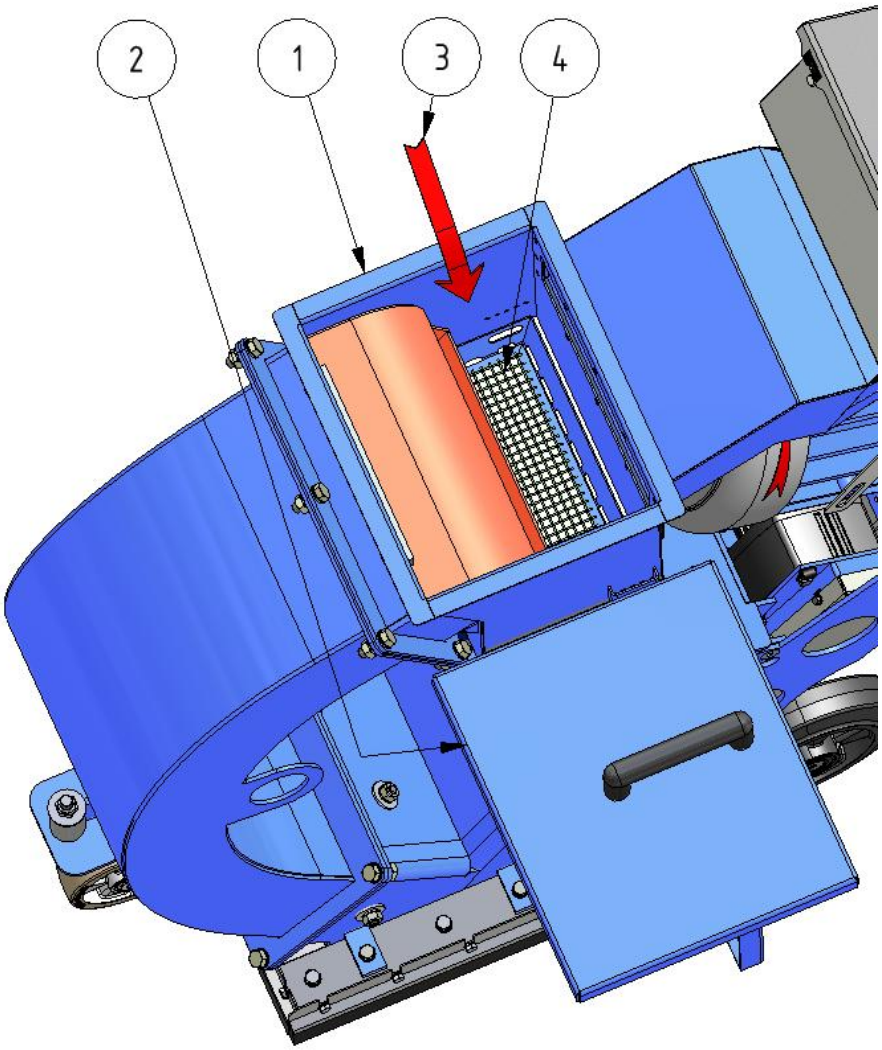
All seal should seal against abrasive spray. The correct setting of the magnets is 8-10 mm over floor depending on the application, also very important for the best function of the machine. The adjustment is done by set screws (4) on the rear wheels and shims (5) at the castor wheel in the front.



1	Magnetic seal	4	Adjuster screw
2	Brush seal	5	Shim
3	Tail seal		

3.9 Abrasive media

In order to operate **IMPACTS** blast machine S320E110R you need hardened, spherical abrasive. The machine S320E110R has been especially designed to be operated with IMPACTS abrasive.
Take of the lid (2) from the separator (1) assure wire mesh tray (4) is in place and fill up abrasive (3) distributed equal up to the bottom of the mesh. Check occasional function of the deflector shutter.
The **IMPACTS** abrasive is of very high quality and owns the rebouncing ability required for the efficient use of model. The selection of the abrasive is very important since this is the material to carry out the surface treatment.



Selecting abrasive

Media IMPACTOR S 290: Applications:

- ❒ creates fine profiles, e.g. on vacuum concrete and non-glazed tiles
- ❒ removes thin layers of paint

Is often used when the surface is only subsequently sealed.

Media IMPACTOR S 330: Applications:

- ❒ creates a fine to medium texture on concrete
- ❒ removes glazing from tiles prior to subsequently coating with antiskid floor sealing.
- ❒ removes old impregnations and coatings about 1 mm thick.

Media IMPACTOR S 390: Applications:

- ❒ Standard abrasive, suitable for about 50-60 % of all applications. Creates a medium profile on concrete. Fulfils the same purpose as Media S 330 when a higher speed of the machine is required, e.g. on asphalt, in order to keep the thermal load low.
- ❒ removes laitance from new concrete
- ❒ roughening of smooth concrete or natural stone
- ❒ removes coatings with a thickness of 1-3 mm
- ❒ cleaning of steel surfaces

Media IMPACTOR S 460: Applications:

Used to generate a rough profile and to improve work output.

- ❒ removes laitance from new concrete
- ❒ removing thicker paints or rust from steel surfaces
- ❒ removing of flex coatings from parking deck
- ❒ removing painted road lines
- ❒ retexturing on asphalt surface and concrete roads

Media IMPACTOR GL18: Applications:

Only as an addition to Media S 330 and S 390 with maximum 30% content.

- ❒ removes polyurethane coatings
- ❒ removes adhesive remnants
- ❒ removes rubber deposits
- ❒ penetrates coatings hard to remove
- ❒ also suitable to be used on steel

Media IMPACTOR GL 18 should never be used without blending since otherwise the wear in the machine as a whole would increase disproportionately.

The effectiveness of the **S320E110R** depends on the rebound effect that ensures that the abrasive can be re-used.

Please take into account that the use of incorrect abrasive increases wear.

Our service engineers have the experience to select the appropriate abrasive for the individual cases of application.

Please consult your IMPACTS customer service department if you have any questions about the selection of the best abrasive for your blast cleaning work.

3.10 Care and maintenance

Special attendance and regular maintenance of the machine and its parts are imperative for functioning and safety.

In order to prevent unnecessary downtimes it is recommended to keep original spare and wear parts on stock as listed in the maintenance box.

A list of contents of the maintenance box is provided in Chapter 10 to enable the above-mentioned work to be carried out quickly.

All persons in the proximity of the machine in operation must wear safety glasses with lateral protection and safety shoes. The machine operator must wear close-fitting protective clothing.

General

Notes:

Chapter 4

Transport

4.1 General notes

Before the machine used for the first time, **IMPACTS** authorised dealers offer a course to familiarise maintenance and operating personnel with all elements of the machine. We are not liable for damage caused by incorrect use of the machine by personnel not trained by **IMPACTS**.

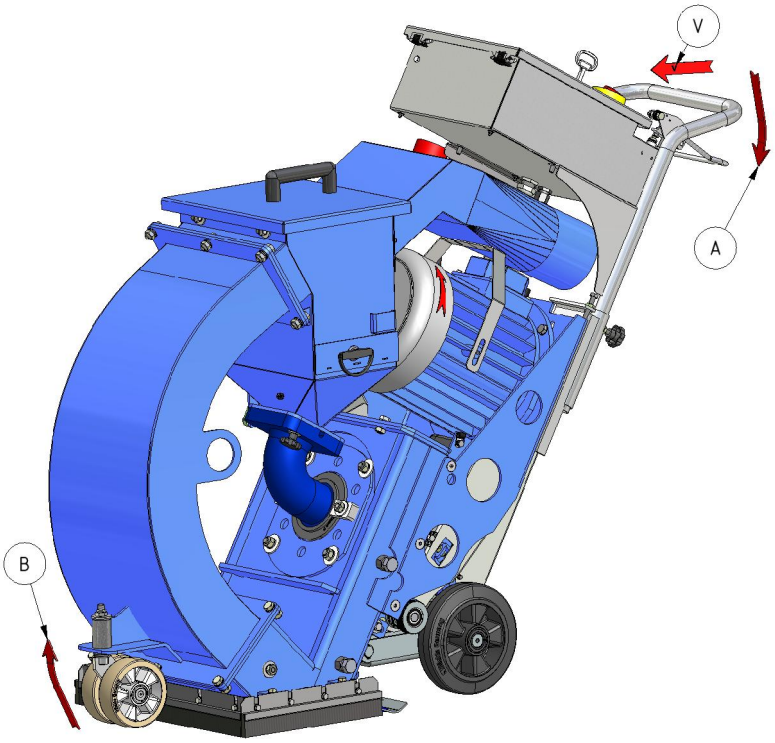
4.2 Transport

In order to transport the machine from a vehicle to the working area you need to lift the machine up.

In order to do so use the handle lever, push the handle (A) downwards so the front of the machine lifts up (B) from the ground.

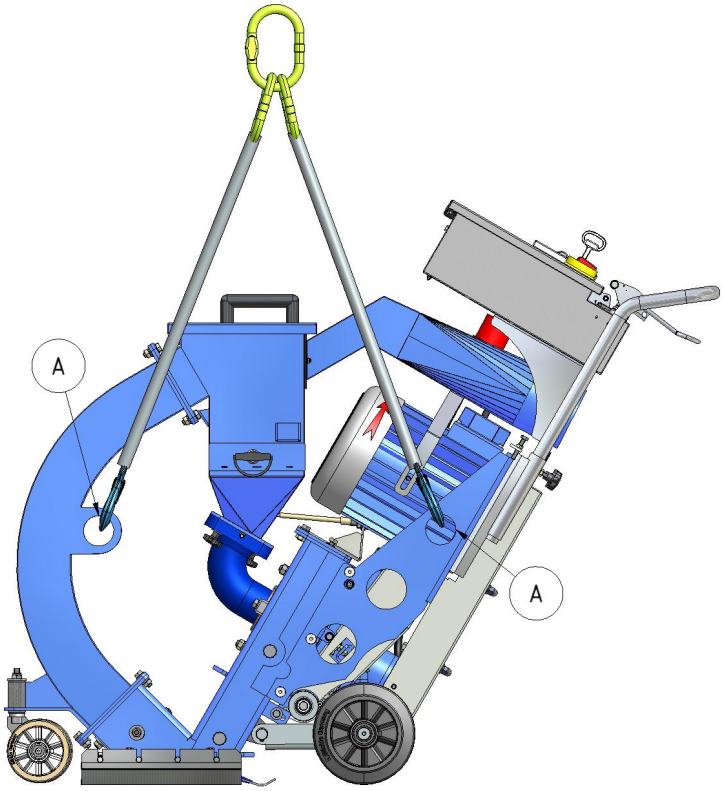
On the handle (A) push the machine forwards direction (V) as shown.

Never pull the machine backwards; this could cause the rear seals to become damaged.



Changes to technical data reserved

When transporting the machine with hoisting equipment like a crane or a lift, check the total weight permitted. (see chapter 1, dimensions). Please use only appropriate, allowed and qualified hoisting equipment (A) as well as ropes and chains (A).
Do not fix any rope or chain (A) to the handle; fix ropes and chains only at locations as shown.
The handle is only fixed with two fixing screws and can **not at all been**



used for transport or to fix ropes or hoisting equipment

Remove all abrasives from the machine before transport. The machine may only be lifted as shown. Weight and dimensions of the machine shown in Chapter 1 "Technical data".

The machine transport is splitted in:

- Machine (S320E110R)
- Filter unit (DC2725)
- General accessories

4.3 Transport of the machine with vehicle

When transporting the machine with vehicles, proceed in such a manner that damage due to the effects of use of force or incorrect loading and unloading is avoided. Use straps to tighten the machine to the cabin of the vehicle.
Use at least two straps, or tighten the machine with one strap to the cabin wall of the vehicle. Make sure, that all parts of the machine are fixed.

4.4 Operation conditions

Check the surface to be treated for loose parts (stones, screws, etc.). The surface must be swept if necessary. Make sure that the machine can travel over all inequalities on the surface. Small inequalities like weld seams or floor joints are no barriers for the machine.

4.5 Assembly

The machine must be operated in accordance with instructions given in Chapter 5 "Initial operation".

Whenever the machine is not used for blast cleaning, the abrasive valve must always be closed!

Illustrations are simplified.

4.6 Machine specification

Dimensions

Main dimensions and unit specifications of the machine assembly:

see chapter 1 "Technical Data"

Chapter 5

5.1 Preparing for initial operation

Before start up, ensure that all existing protective housings are fitted and the filter unit is connected correctly.

All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. The operator is obliged to wear close-fitting protective clothing.

Carefully handle all plugs, cables, hoses and operating devices. Avoid any contact with live wires.

Works on the electrical system have to be done only by qualified specialists.

Check the surface to be treated; it should be free of loose parts (stones, screws, etc.). The surface needs sweeping if necessary. Ensure that the machine can run over all inequalities on the surface. Small inequalities like weld seams or floor joints aren't a barrier for the machine.

5

In order to avoid downtimes a regular inspection is essential. Carry out the following checks before any start-up:

☑ Check all screws and other fasteners for tight seat.

☑ Check the abrasive storage hopper, the feed spout and the blast wheel parts for foreign bodies and remove them.

☑ Check the blast wheel blades, impeller, control cage, liners and fastening screws for damages and wear.

☑ Check the magnetic and brush seals for wear.

☑ Make sure the dust bin of the filter unit is empty. Please comply with the local waste treatment regulations considering the removed material.

☑ Check the separator parts for wear and defects. Remove foreign bodies and dust deposits in order to prevent the separator from being blocked.

Remove dust deposits using a dust collector, don't use compressed air.

☑ Check the electrical connections for dirt and foreign body deposits.

☑ Check the electrical motors for dirt and other contaminants.

☑ Check the level of abrasive in the storage hopper. Fill up if necessary.

Before start-up operators and other personnel must be familiar with the safety regulations given in this manual.

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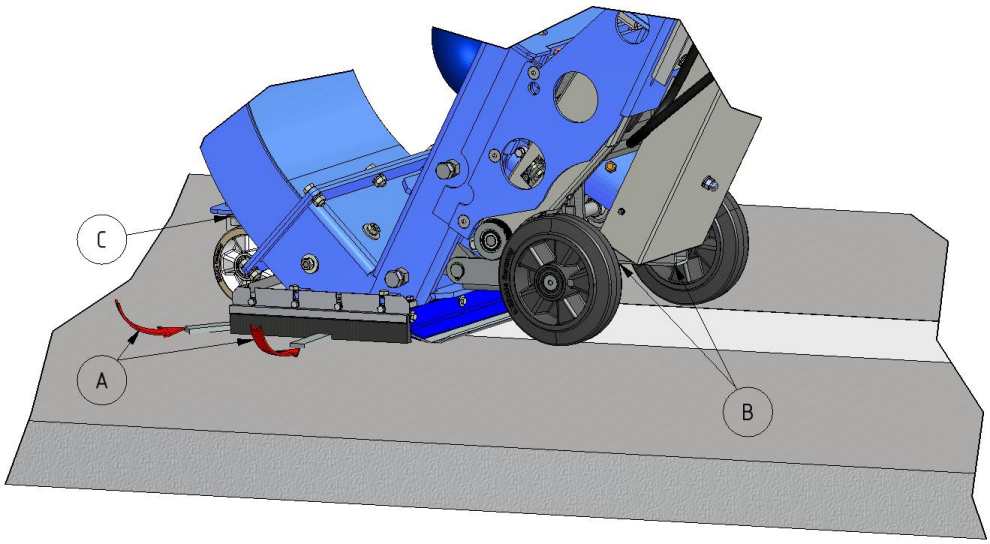
☑ Place the blast machine and the filter unit onto the surface to be treated.

☑ Check the height adjustment (approx. 8 -10 mm) of the blast machine. Distance between magnet and surface.



Initial Operation

- ☑ For the height adjustment, an 8 mm sheet steel strip is shifted below the magnetic sealing (A). In order to adjust it you need to set the set screws (B) and add or remove shims at the front(C). Also see chapter 7.
- ☑ Check the main power cable and the dust hose for damage. Replace or repair all damaged parts before starting the machine.
- ☑ Connect the blast machine and the filter unit with the dust hose. Use hose clamps at the connections.
- ☑ Connect the power supply cable of the blast machine with the filter unit or the site supply.
- ☑ Connect the power supply cables of the filter unit with the site supply. Make sure that the correct electric supply is available. (400V, 50Hz, 32A CEE).

Check the function of the ground failure circuit breaker pressing the test button!

5

- ☑ Fill the separator equally with the selected abrasive (see Chapter 3) up to the bottom of the separator tray. The magnetic feed valve has to be closed whilst doing this.
- ☑ Check that the filter dustbin is empty.
- ☑ Comply with local waste treatment regulations considering the removed materials.

Changes to technical data reserved

5.2 Initial operation

All persons near the machine must wear safety glasses with lateral protection, ear protection as well as safety shoes. The operator is obliged to wear close fitted protective clothing.

When the blast head is lifted from the floor, abrasive will spurt out of the sides of the blast head at high speed. If the machine is moved, the blast head raised, the abrasive feed valve must be fully closed.

The start up of the blast machine and the filter unit should happen in the following order:

1 Switch on the filter unit

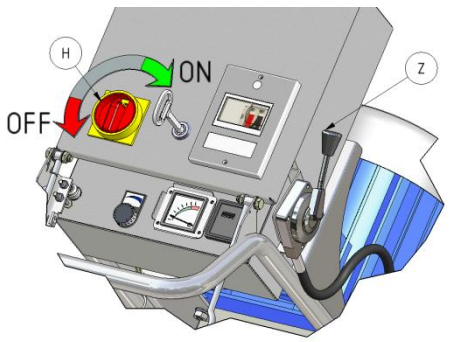
❒ see operating manual of the filter unit

2 Initial operation of the blast machine

❒ Check that the magnetic valve is closed. Black lever should be in position (Z).

❒ Switch ON the main switch (H)

When blasting concrete the abrasive feed valve only may be opened when the blast machine is in forward motion! If the machine is at a standstill and the valve is opened deep grooves are blasted into the concrete surface within seconds.



Initial Operation

(1) Turn ON the wheel-motor at switch (I) and switch OFF (O) immediately in order to check the rotation direction of the wheel-motor. The fan blade of the motor should turn as shown (D), counter clockwise. (Viewing Direction: ON THE FAN BLADE)

(2) If the motor does not turn counter clockwise as shown, correct the direction using the phase-inverter (NP) located in the main-plug (N). Push inwards the phase-inverter using a screw driver and turn about 180° to set it to a different position.

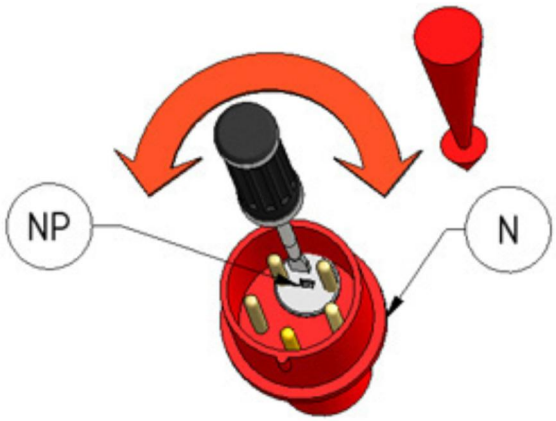
(3) Set the potentiometer (P) in position 2-3 (low speed setting).

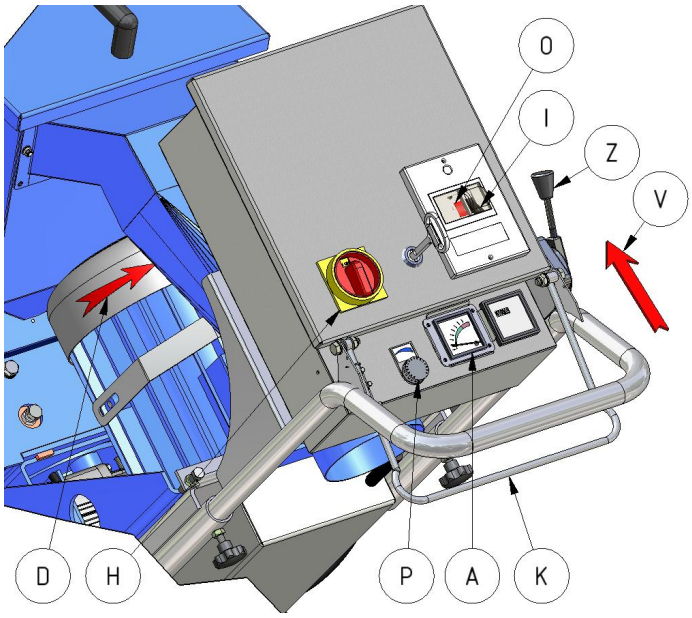
(4) Pull upwards the traction-lever (K), the machine will start moving forward as shown (V).

(5) After the machine starts to move forwards (V) pull the abrasive control-lever (K) to open the abrasive-control valve and so to start blasting the surface.

(6) Watch the amperemeter (A), to control the load of the wheel-motor. During start-up, the motor will need its starting current until max. speed of the motor is reached. Keep eyes on the amperemeter not exceeding 21 Amps.

5 **(7)** In order to switch of the machine, first close the feed valve by the handle, push this forward towards direction (Z). Keep the traction drive switched on so the machines moves towards (V) as long as the feed valve isn´t closed fully to assure no grooves blasted into the surface. Release the traction drive actuator (K) so it swings back into it´s previous position. The traction drive switches off and the machine stops. Final switch OFF the wheel-motor pushing down switch (O) on top of the control panel.





ADVICES:

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An indication exceeding the full load value means overloading of the motor, whereas an indication below the full load value shows that there is not enough abrasive fed to the blast wheel. If necessary, re-adjust the cable to the magnetic valve or refill the hopper with abrasive.

After having approx. 1-2 m blasted, close the abrasive valve, stop the machine and check the blasted surface.

If the blast pattern is irregular it may be necessary to re-adjust the blast pattern (see Chapter 7 “Setting the blast pattern”) or select different speed for the machine.

Alter the travel direction only the feed valve closed.

The dust bin of the filter unit needs regular dumping. Do not overfill the bin to avoid dust exposure when opening the bin. Comply with the local waste treatment regulations considering the removed material.

Initial Operation

Notes:

Chapter 6

Operation

6.1 Daily Operation

Normal start-up and operation of the blast machine S320E110R is not different as been described in Chapter 5 "Initial operation".

Carry out blast operation in parallel tracks in a way that the dust hose and electric cable do not become twisted.

Chapter 6.3 shows the recommended blast paths leading away from the filter unit.

Make sure that no vehicles, such as forklift trucks and other equipment run over the electric cable and the dust hose.

The selection of the correct chart speed of the blast machine is essential for a good result. In the case that the surface shows different characteristics, means different hardness or different coating thicknesses, a uniform blast result will be achieved varying the chart speed while blasting.

6.2 Information about chart speed

The chart speed depends on the material of the surface to be blasted and the desired profiling.

The correct chart speed will be found out by observing the blasted surface and varying the speed during the blast cleaning process.

Slight profiling on concrete requires a higher speed than coarse profiling (6 - 10).

Blasting on steel requires a very low chart speed (1 -3).

6.3 Recommended blast paths

Position the filter unit near to a power supply.

Place the blast machine near to the filter unit and spread out the hose as shown in following picture. Connect blast machine and filter unit with the dust hose.

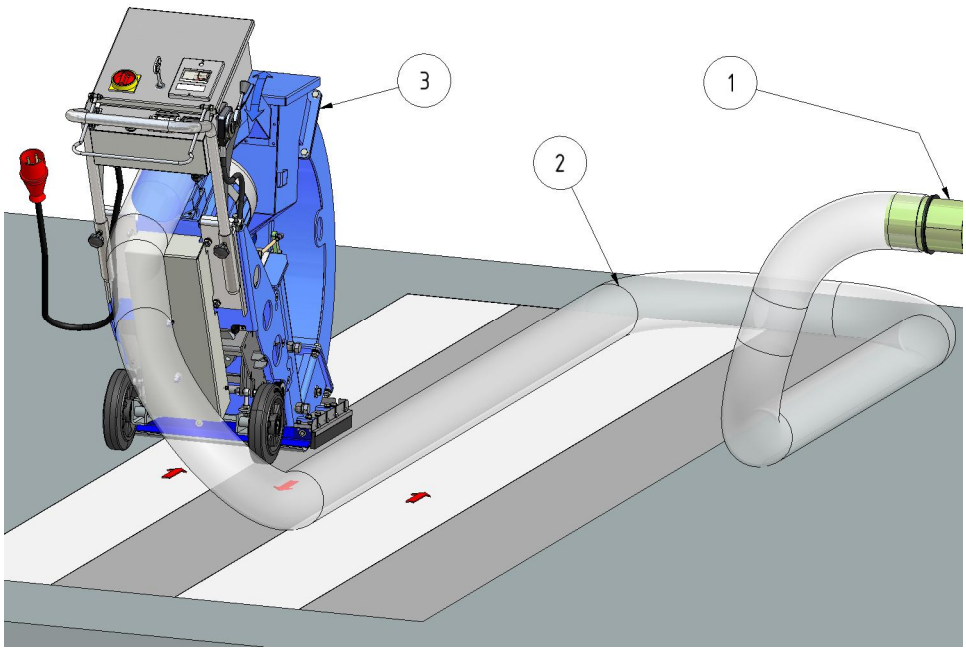
Work with the blast machine, with the hose spread out in the opposite direction, repeating the process away from the filter unit. Watch the max length of cable and dust hose during operation.

Turn around the blast machine by closing the feed valves, than turn the machine to the right and guide it back in an arc to get back to the last blasted path.

Repeat this in order to complete the surface move away from the filter towards the open surface.

Finally move the filter unit to the surface already blasted and finish the area where the filter unit was located before.

1) Filter unit
2) Dust hose
3) Blast machine



6.4 Turn Off the machine

(1) First close the feed valve by the handle, push this forward towards direction (Z).

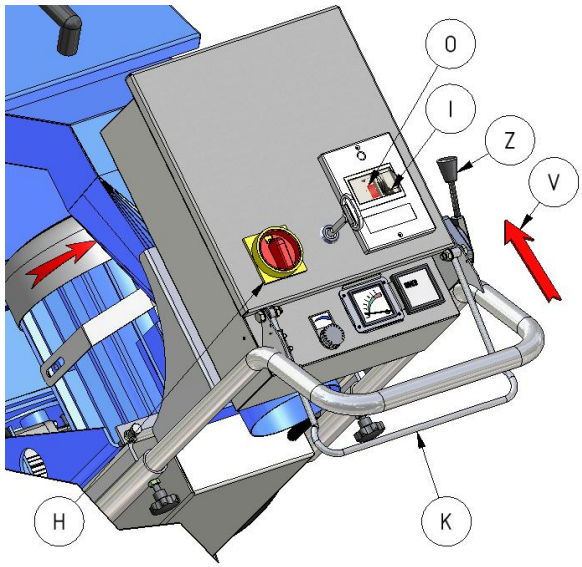
(2) Keep the traction drive switched on so the machines moves towards (V) as long as the feed valve is not fully closed to assure no grooves blasted into the surface.

(3) Release the traction lever (K) so it swings back into its previous position. The traction drive switches off and the machine stops.

(4) Press the wheel motor Off switch (O).

(5) Switch off the main switch (H).

(6) Finally switch off compressor and blower on the filter unit.



Assure all rotating machine parts have come to standstill before inspection or maintenance work starts. Always arrange the Safety Off as described in Chapter 2.6

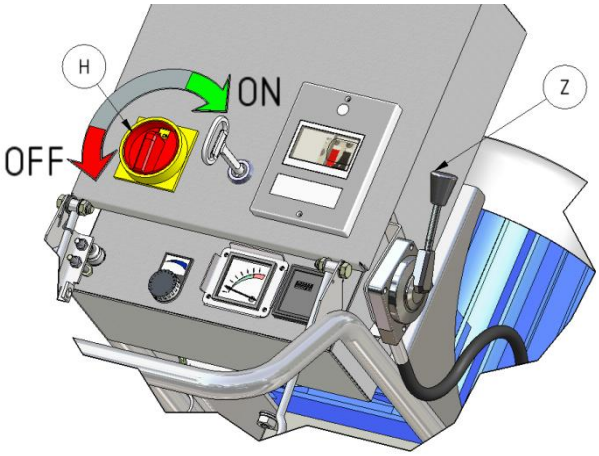
Changes to technical data reserved

In case the **IMPACTS** blast machine S320E110R is not used for a while pull out the main plug, store it at the machine and cover all by a tarpaulin or foil.

6.5 Failure Occurs

In a case of emergency, you can stop the machine immediately by turning OFF the main switch (H).

In an emergency, immediately release the traction-lever (K) and turn OFF the main switch (H). Afterwards close the feed valve pushing lever towards (Z).



Irrespective of the following information, the local safety regulations are valid in any case for the operation of the machine.

Assure all rotating machine parts have came to standstill before inspection or maintenance work starts. Always arrange the Safety Off Position of the machine as described in Chapter 2.6. Pull out the main plug and store it at the machine.

6.6 Safety Shutdown

The machine must be set into its **Safety off Position** before starting any kind of maintenance or repair work. See chapter 2.6 "Safety Instruccions".

6.7 Restart

After a fault, ensure that you find the reason of the fault before you restart the machine.
Leave the main-switch in Off position and bring the machine in the **Safety-Off Position** before you start to find out the fault.

If you cant find the fault or if you are unsure about the reason for the fault, please contact your IMPACTS contact person and ask for help.

6

Please consider in special the regulations for electric equipment such as DGUV V3 and VDE-0701. These regulations describe the necessarry considerations and actions after repair and changes on electrical Equipment

For the start up of the machine see chapter 5.

All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. Ear protection may be required. The operator is obliged to wear close fitting protective clothing.

6.8 Proceedings prior and after longer stoppage

<u>Stoppage longer 3 months</u>.

Prior long stoppage

Switch off the machine. (see Chapter 6.4)

Remove all abrasive out off the machine.

Remove all abrasive from magnets.

Clean the machine and cover it with a foil.

Motors, cable and plugs need to be protected against moisture, dust heat and shock.

Protect bright parts of the machine and power pack with WÜRTH “SA BESTO“ 0893 055 40 for example, or a similar preservative oil.

Remove dust deposits using a dust collector, don’t use compressed air.

After longer stoppage

See chapter 5 Initial operation

Operation

Notes:

Changes to technical data reserved

Chapter 7

Maintenance

Chapter 7

7.1 Recommendations

Prior to any repair work on the machine and its drives, secure the machine against unintentional switch-on. Put the machine to its Safety Off Position as described in chapter 2.

Failures due to inadequate or incorrect maintenance may generate very high repair costs and long stoppage periods of the machine. Regular maintenance is essential.

Safety and service life of the machine depend, among other things, on proper maintenance.

The following table will show recommendations about time, inspection and maintenance for the normal use of the machine.

The time indications are based on uninterrupted operation. When the indicated number of working hours is not achieved during the corresponding period, the period can be extended. However a full overhaul must be carried out at least yearly.

Due to different working conditions it cannot be foreseen how frequently inspections for wear checks, inspection, maintenance and repair works ought to be carried out. Prepare a suitable inspection schedule considering your own working conditions.

Our specialists will be pleased to assist you with more advice.

Sub-Supplier´s operating and maintenance instructions should be followed during service and maintenance. Highest attention should be paid when replacing electric parts and components.

7.2 Maintenance and inspection

Operating hours/ time period	Inspection points, maintenance instructions
12 h after repairing	Check function of all safety devices. Check all accessible screw connections for tight seat.
Every 3 h	Check whether there is any foreign matter in the hopper, the feed spout or in the blast wheel unit.
Daily prior operation	Check the hose connections for tightness and fixed seat. Check the hose to the filter for damages. Make sure that the dustbin of the filter has been dumped. Check blast wheel, feed spout, liners and fasteners for wear and damage. Check the separator parts for wear and defects. Remove foreign bodies and dust deposits. Check the level of abrasive in the storage hopper. Refill to bottom of wire mesh if necessary. Check the magnetic and seals for wear. And replace if necessary. Check the electrical connections for dirt and foreign body deposits. Check the electric motor for dirt and other contaminants.
Yearly	Fully overhaul and clean the complete machine and filter. Replace compressor oil.

Remove dust deposits using a dust collector, don't use compressed air.

7.3 Maintenance

As already mentioned in Chapter 5 "Initial operation" we recommend accomplishing the first repair works on the machine with the help of IMPACTS personnel. Using this option, your maintenance personnel will have the opportunity to get an intensive training.

Only those repair works are described which occur within the context of maintenance or which are required to replace wear parts.

If you replace parts yourself for specific reasons, the following instructions and work sequence have to be observed.

You should also stock all spare or wear parts that under certain circumstances have to be changed on the jobsite. As a rule, production standstill periods are more expensive than the cost for the corresponding spare part.

Screws that have been removed must be replaced with those of the same quality (strength, material) and design.

Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Pull out the mains plug in order to do this. Store the plug near the machine to avoid accidents.

7.4 The blast pattern

Abrasive leaving the blast wheel blades is not thrown in all directions. Scatter is restricted to an angle of about 55°. This is achieved through the use of a control cage which surrounds the impeller. The position of the window in the control cage determines the blast pattern and the **HOT ZONE**.

Correct adjustment of the control cage and thus of the blast pattern is the most important factor for optimum working with the S320E110R blast machine.

Incorrect adjustment of the control cage results in very high wear and premature blasting-through of the liners in the blast wheel housing, as well as reduced blasting performance and a possible loss of the rebounce energy of the abrasive.

Each time the blast wheel kit is replaced, the thread of the blast wheel fastening screw should be checked. Make sure that this screw will be tightened up correctly. In addition, absolute care must be taken to clean the thread from dust and abrasive.

After each blast wheel repair work switch on the blast wheel motor for a short period (without feeding abrasive) in order to find out whether the rotating parts turn freely and without vibration. After that, the blast cleaning procedure can be continued.

The blast wheel motor is designed for a long service life. Damages to the blast wheel motor can be detected by unusual noises or functional failure of the electric motor. In this case notify our service department.

7.5 Adjusting the blast-pattern and control cage

In order to get a uniform and perfect blast pattern on the surfaces to be treated, the correct adjustment of the blast pattern is most important.

Prior to any maintenance or repair work on the machine and its drives, secure the machine against unintended switch-on. Put the machine to its Safety Off Position. Chapter 2.6

Incorrect adjustment of the blast pattern results in:

- ❒ Uneven cleaning (shadows on the right or left hand side).
- ❒ Extreme high wear (wheel kit and the liners).

Following four factors affect the blast pattern:

Rotation direction of the blast wheel:

- ❒ The rotation direction of the blast wheel must correspond to the instructions on the housing (arrow indicating the turning direction).

Worn wheel kit:

❒ With increased wear of the wheel kit (impellor, control cage) the blast pattern will change.

Size of abrasive:

❒ The size of the abrasive affects the blast pattern. Every change of abrasive requires the blast pattern to be set or to be re-adjusted.

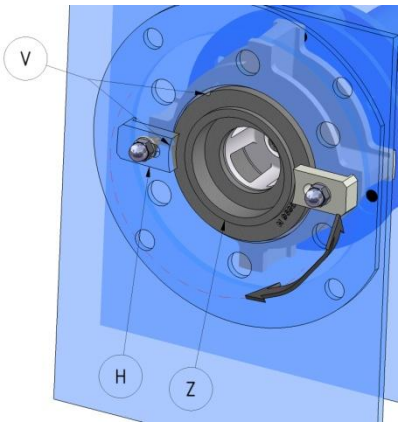
Position of the control cage:

❒ The correct adjustment of the control cage is most important to obtain an optimum blast pattern. The control cage has a lateral window. The position of this window determines where the abrasive is feed on the blast wheel blades, therefore where it hits the surface to be treated.

❒ After changing the wheel kit, the adjustment of the control cage must be checked and re-adjusted. To do so you need to create a blast pattern. The same applies for blasting on another type of surface.

Adjustment of the control cage

The adjustment is affected by slacking the cage clamps (H) and turning the control cage (Z) in the suitable direction. The cast grooves (V) show the position of the control cage opening. The feed spout remains in its former position. The following adjustment standard value is valid: the control cage opening is approximately opposite to the throwing angle. The abrasive grain size plays an important role here. Different types of abrasive have different throwing characteristics due to their different weights and frictional resistance. This means that you must never use different types of abrasive.



7

After fitting new spares always, check the blast pattern in order to get best performance. This is the only way to grant economical work and to avoid unnecessary wear and repair costs.

Maintenance

The adjustment can be carried out as follows:

- Determine the upper (OK) and lower (UK) window edges of the control cage (1).
- Set the upper window edge (OK) of the control cage to imaginary 11.00 of a dial. (Figure A). Place the cage clamps (3) and fix them with nuts (2). Finally replace the feed spout (4) into the control cage and fix it with the screws (5).

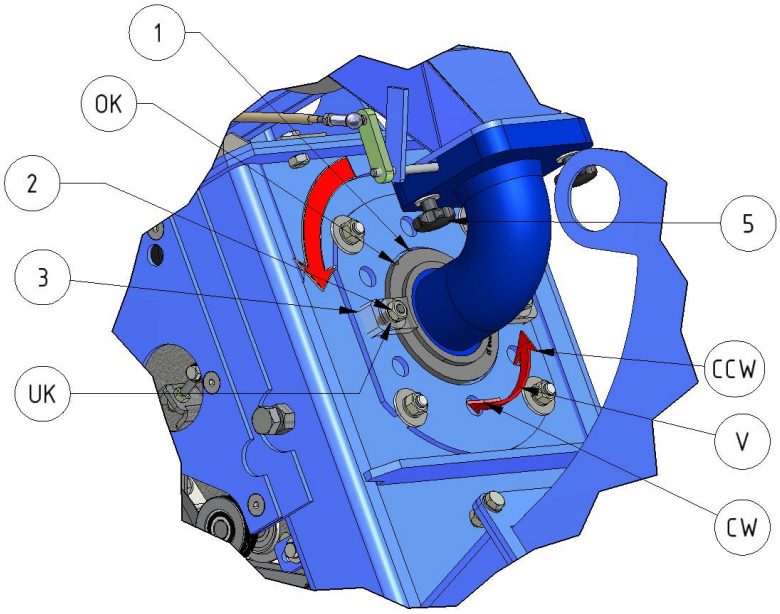


Figure A

7

- Move the blast machine on in direction (D) a 5-8 mm thick steel plate, set the Potentiometer to 0 and blast for 45 seconds at full amperage without moving the machine. (Figure B)
- Move the machine from the blast zone and carefully inspect the steel plate.

You will find the **HOT ZONE** on the blasted surface where the machine has developed the highest blast intensity. This ZONE is normally a little lighter and warmer than the rest of the blast cleaned area due to the heat that is generated by the impacts of abrasive.

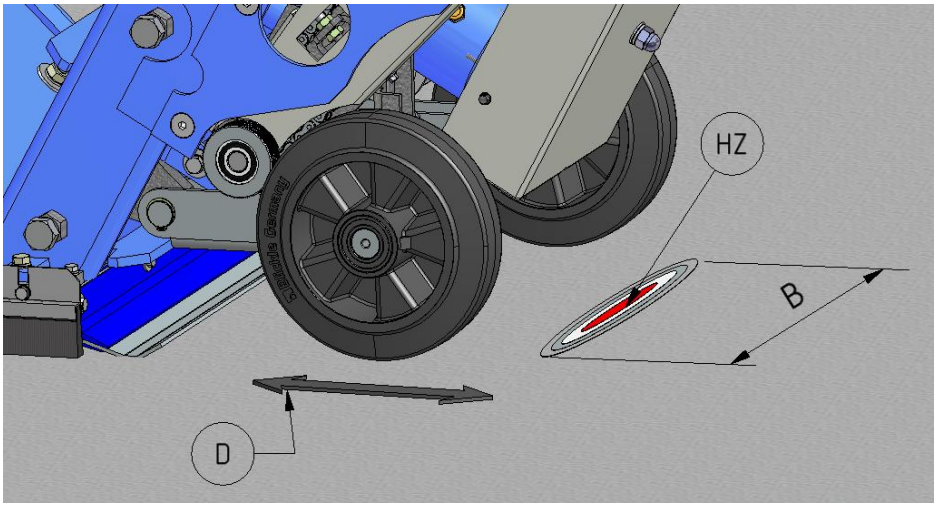


Figure B

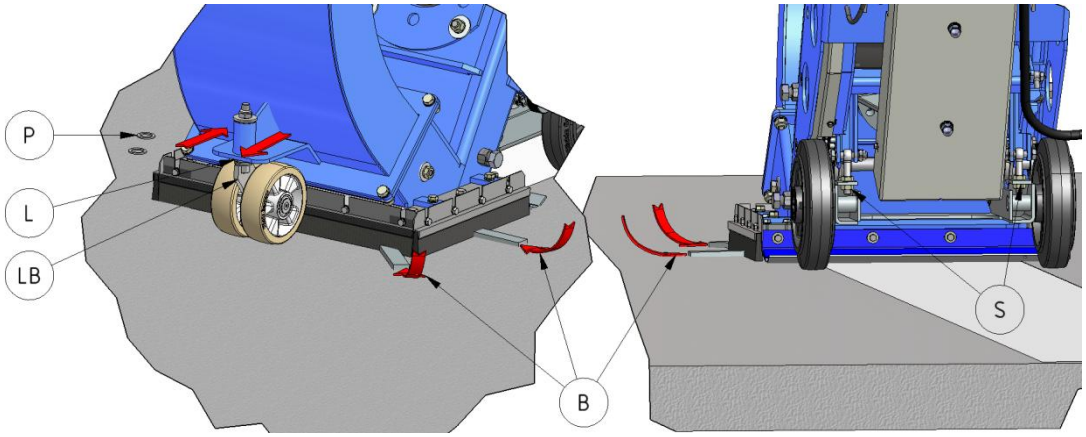
- Adjust the control cages until the **HOT ZONE** (HZ) are exactly in the middle of the blast pattern (B).
- Now the blasting procedure can be started. When a concrete surface is to be blasted, check the blast pattern again after some meters and re-adjust slightly if necessary. The blast pattern will change with and increased wear of the tune-up kit and when the size of the employed abrasive is changed.
- If the blast result shows strong blasting on the right-hand side and weak blasting on the left-hand side (shadows), turn the upper edge of the control cage clockwise (CW) for 2-4 mm.
- If the blast result shows strong blasting on the left-hand side and weak blasting on the right-hand side (shadows), turn the upper edge of the control cage anti-clockwise (CCW) for 2-4 mm.

Never slacken cage clamps or try to adjust the control cage when the machine is in operation.

7.6 Adjusting magnets and seals

The adjusted height of the magnetic seals, parallel to the surface to be treated, should be set equal at about 8-10 mm.

For the height adjustment an 8mm stainless-steel strip (B) is shifted below the magnetic sealing.



Front set shim	Qty:	various
Rear setting screw	Qty:	1 RH / 1 LH

On the **IMPACTS** S320E110R the adjustment on the rear is done by 2 set-nuts (one nut (S)) each side at the rear wheels.

7

The height adjustment of the front swivel caster is done by shims (P). These washers are placed between the caster jacks (LB) and the bottom bearing (L).

The setting depends on the structure of the surface to be treated, in general the rougher the surface the lower the setting.

Working on steel means to set it down as far as possible.

The height of the brush seal should be maximum 1 mm above the surface. The adjustment is possible within the slots of the seal element.

7.7 The belt

The V-belt is designed for the installed drive power. Forcing the drive to grant a higher output by over tensioning the V-belt results in belt breaks, bearing damage and thus to lower efficiency. A low V-belt tension results in slippage causing an increased belt temperature and thus to premature destruction of the V-belts. Temperatures exceeding 70°C for a long period reduce the service life and performance of the V-belts. The grooves of the V-belt pulleys have to be free from rust, grease, dirt and damages. The use of belt wax or similar substances to increase the friction coefficient is unnecessary and damages the V-belts. Avoid any contaminations by oil, grease or chemicals.

In order to grant a perfect output transmission, the V-belt drive needs continuous observation.

Data of belt

See Chapter 10 spare parts

7.8 Fitting belts

Remove the belt guard only when the blast wheel motor is at a standstill and the main switch of the blast machine is in Safety Off Position as described in chapter 2.6.

7

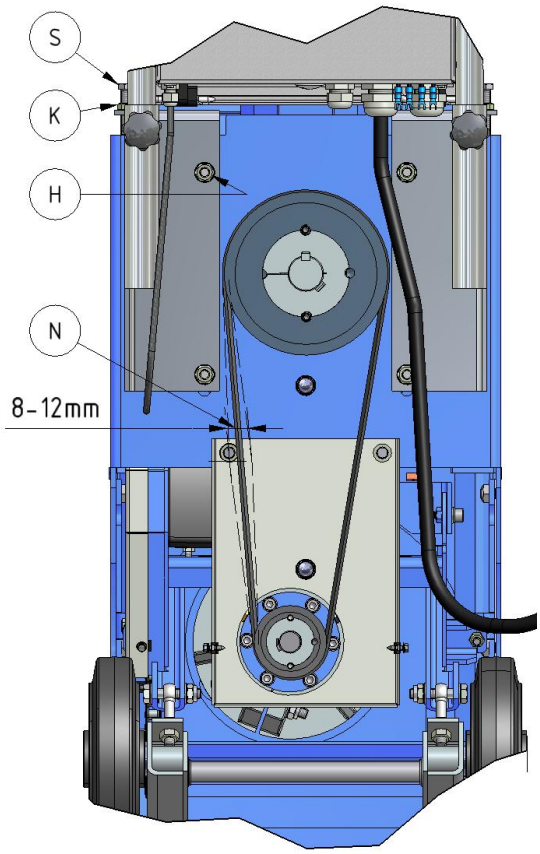
Release the tension of the V-belt drive by reducing the distance between the shafts of the blast wheel motor and wheel-bearing unit.

Insert the V-belt in the V-belt pulley grooves manually without forcing the belt.

Tension the V-belt by increasing the distance between the shafts of the blast wheel motor and the wheel-bearing unit as described next.

Fit the pertaining protective drive equipment.

7.9 Belt tension



To achieve a maximum power transfer and live time the correct setting of the belt tension is essential. Often belts are set with not enough tension and fail before normal service time due to slippage.
Belts, that are set with too much tension a causing bearing problems on motors or bearing units.

Check the correct pre-tension in accordance with fig. A by pressing down the belt. The distance the belt can be pressed down should be 8-12 mm. The belt should be displaceable by thumb in position N. To adjust the correct belt tension, slacken the motor fixing screws (H) and the locknut (K). Adjust the belt tension by the adjuster screw (S) and tighten afterwards the locknut. Final draw up the motor screws (H) and fit the belt guard again.

7

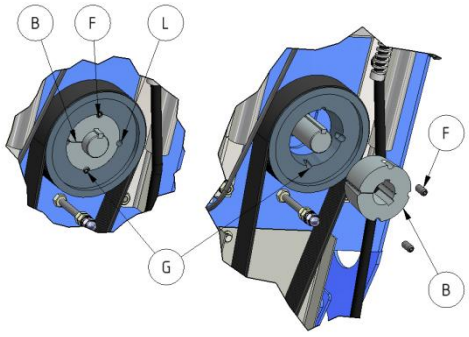
7.10 Taper-Lock bushes

Taper locks are used to shrink-fit hubs on shafts. Mounting and demounting only requires a screw driver DIN 911 (Allan key). Tightening and loosening is effected with the same threaded pins or screws.

Taper locks are cylindrical on the inside, tapered on the outside and slit longitudinally. The smaller bushes 2 and 3 have in the large face their cylindrical blind holes in parallel to the axis, which, however, are only, placed half in the bush material. The other halves of these blind holes are threaded and are placed inside the hub.

Threaded pins or screws (F) are screwed to the stop in the boreholes using an Allan key. When the screws are tightened further using a certain amount of force the hub is drawn up to the tapered bush (B) which is pressed onto the shaft with great force.

Demount



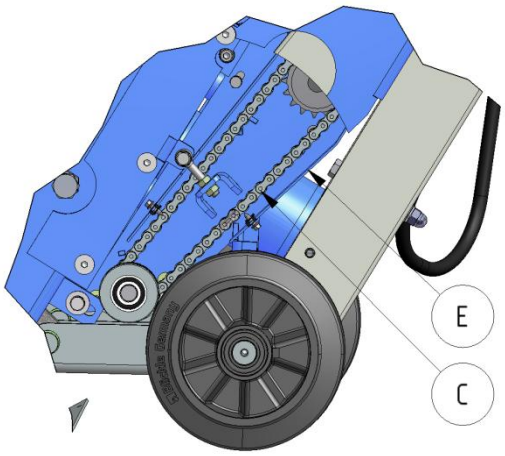
Demount the screws (F) in the belt pulley Lubricate the thread and the tip of the screw and turn it into the bore (L) as shown.
Turn the screw until the taper lock (B) gets loose inside the pulley and, thus, the assembly is loose on the shaft. Take the pulley and the taper lock from the shaft.

Mounting

Assure that all contact surfaces are free from dirt and oil. Place the taper lock into the pulley. Lubricate the screws slightly and insert them into the respecting threaded holes (G).
Clean the shaft, shift the pulley with the taper lock, as one unit, onto the shaft, and position the assembly. Note, that first the taper lock is fixed on the shaft before the pulley reaches its final position on the bush.
Use an Allan key to fit the screws. Knock the frontal face of the bush lightly with a hammer to make sure that the bush is seated in the centre of the pulley (use a mandrel to avoid any damages).

Now tighten the screws. Repeat the alternating hammering and tightening until all screws fully tightened.

7.11 The chain drive



The mounting, demounting and repair work needs always to be done with appropriate tools. With these works the prevailing safety regulations must be strictly observed.
Chain drives (C) are relatively robust and reliable even under unfavourable operating conditions. Incorrect mounting and insufficient lubrication and maintenance cause premature wear of the chain and the chain wheels. Careful fitting of the chain drives and appropriate maintenance therefore both contribute to a long service life. Replacing chain or traction drive (E) parts of the S320E110R should only be done in a specialized workshop because it needs to dismantle the complete traction-drive unit and components of the friction wheel and drive shaft need to be arranged and pressed in a special way to work and function.

Remove the chain guard only when the drive motor is at a standstill and the main switch of the blast cleaning machine is locked (“Safety off position” see chapter 2.6)

7

7.12 Fitting sprockets

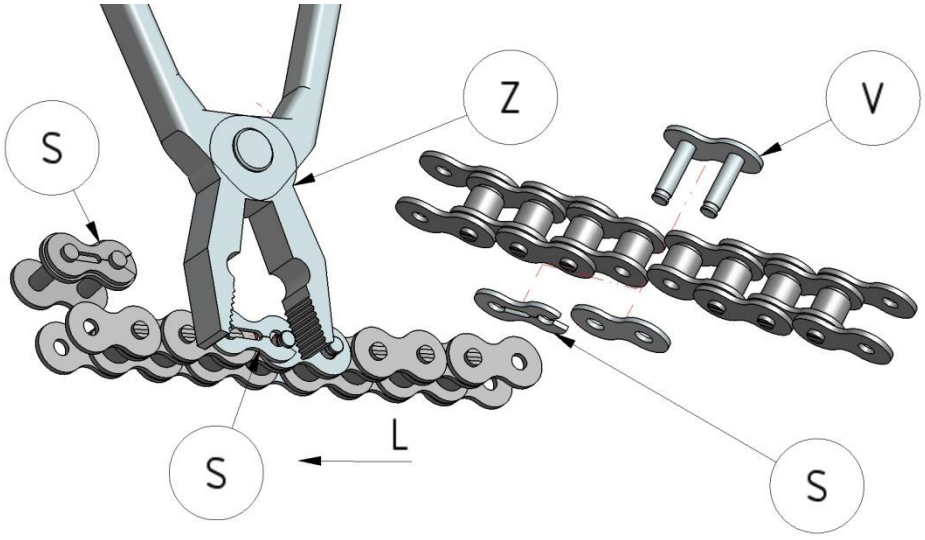
Chain sprockets must be aligned. In order to achieve this both shafts and the chain sprockets must be parallel and dimensioned according the load. Check the mounting precision by a ruler putted to the chain wheels. This has to be done several times with different chain wheel positions. Incorrect mounting makes the internal chain link plates press against the external link plates and, thus, accelerates the chain wear or even causes the chain wheels to lock up.

7.13 Fitting the chain

Before mounting the chain it must be degreased to prevent any abrasive or abrasive particles from adhering.

The chain is supplied as a chain string and has to be prepared during mounting. This is done as follows: Place the chain on the chain wheels so that the links lie in tow adjacent gaps between the teeth. Now close the chain using a chain link. With heavy chains or big distances between the shafts use a pre-stressing tool in order to bring the two end links so close together that the coupling link can be inserted without being deformed.

Chain links with springs, their closed sides should point to the running direction (L) of the chain (S). Slide in the link adapter (V) and place the link plate opposite place the spring onto the link plate and press it over the pin into the ring groove by means of a pair of tongs. Demount the spring in the reverse order.



7.14 Maintenance and repair of the chain

A chain drive needs little maintenance only if the correct chain has been selected, is mounted correctly, for the application and is not lubricated with grease. A chain guard protects the drive chain. The chain guard prevents excessive contamination and prevents accidents.
The chain drive needs to be cleaned every three months. On these occasions, check the alignment of the chain sprockets and the chain tension.

In order to clean thoroughly first remove the dirt adhering to the outside of the chain drive using a hard or wire brush. Then wash the chain in petroleum ether or similar. After this, clean the dirt from the internal parts of the chain. To do this put the chain for approx. 24 hours in petroleum ether, diesel or another solvent in order to soften the dirt in the chain joints and the hardened lubricant remnants. Move the chain several times back and forward in the bath to clean the joints.

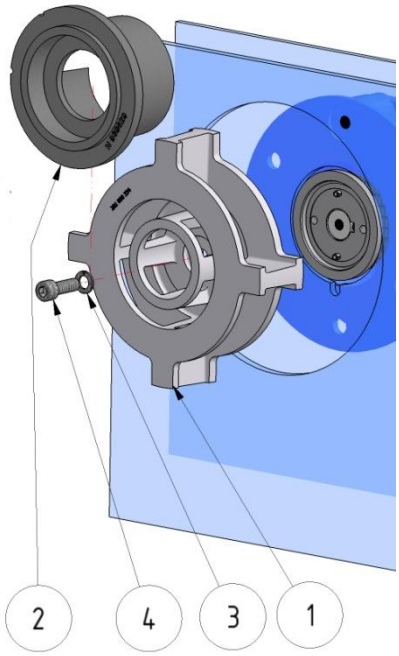
7.15 Adjust Chain tension of the traction drive

The traction drive motor and drive shaft of the S320E110R are fitted in a fixed position and the chain length is selected so it does not need any adjustment.

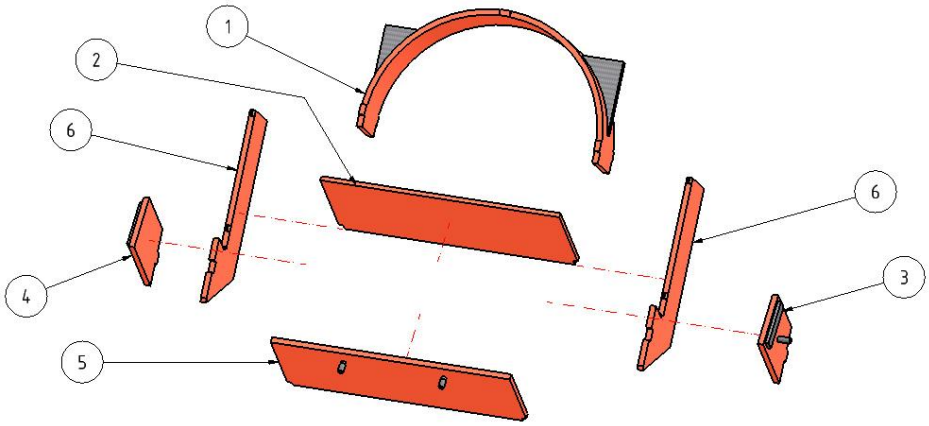
7.16 Wear Parts

The wheel kit

1 Blast wheel
2 Control cage
3 Lock washer
4 Bolt



Liners



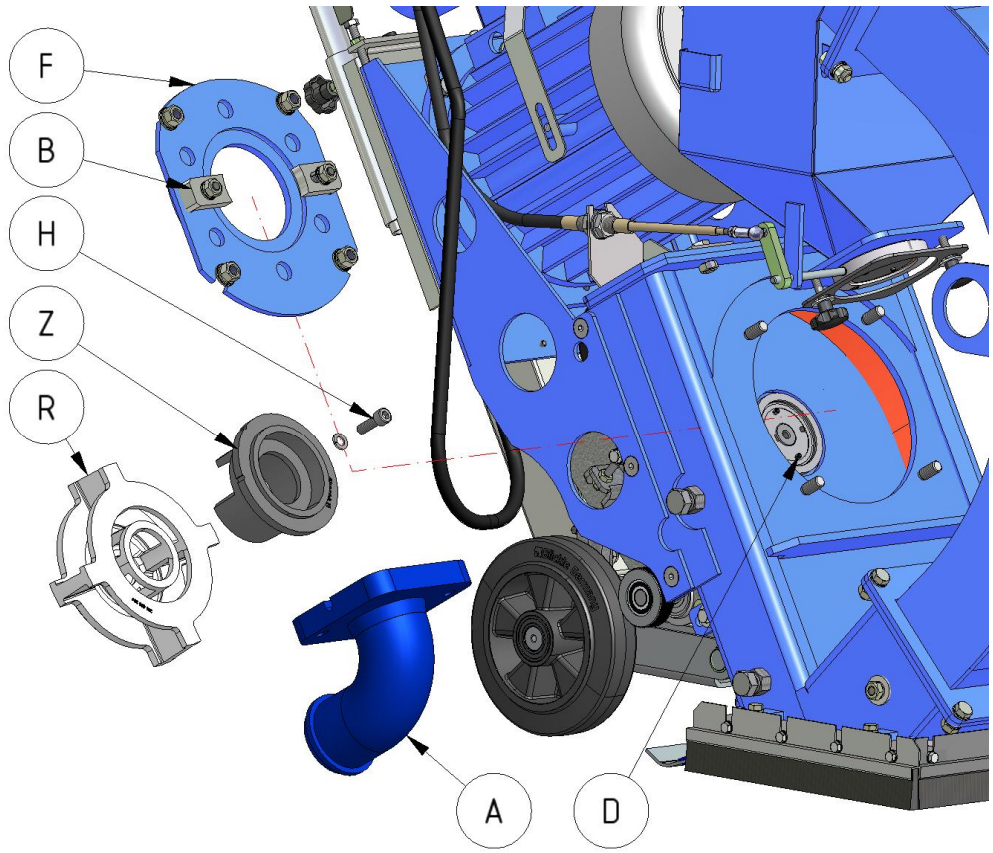
Pos	Description	Pos	Description
1	Top liner	4	Side liner rebound LH
2	Top liner rebound	5	Bottom liner rebound
3	Side liner rebound RH	6	Side liner

7.17 Replacing the wheel kit

The wheel kit consists of blast wheel, control cage, lock washer and bolt.

Demounting:

1 Remove the feed spout (A) loosening the knurled-nuts, pull away the feed spout and move the feed spout out of the housing.
2 Loosen the cage clamps (B) and remove the control cage (Z).
3 Unscrew the 4 screws of the front cover plate (F) and take it off.
4 Unscrew the fixing screw (H) of the blast wheel (R) while holding the blast wheel still. Take the blast wheel out of the housing.
5 Check the wheel adapter (D) for wear and replace if necessary.



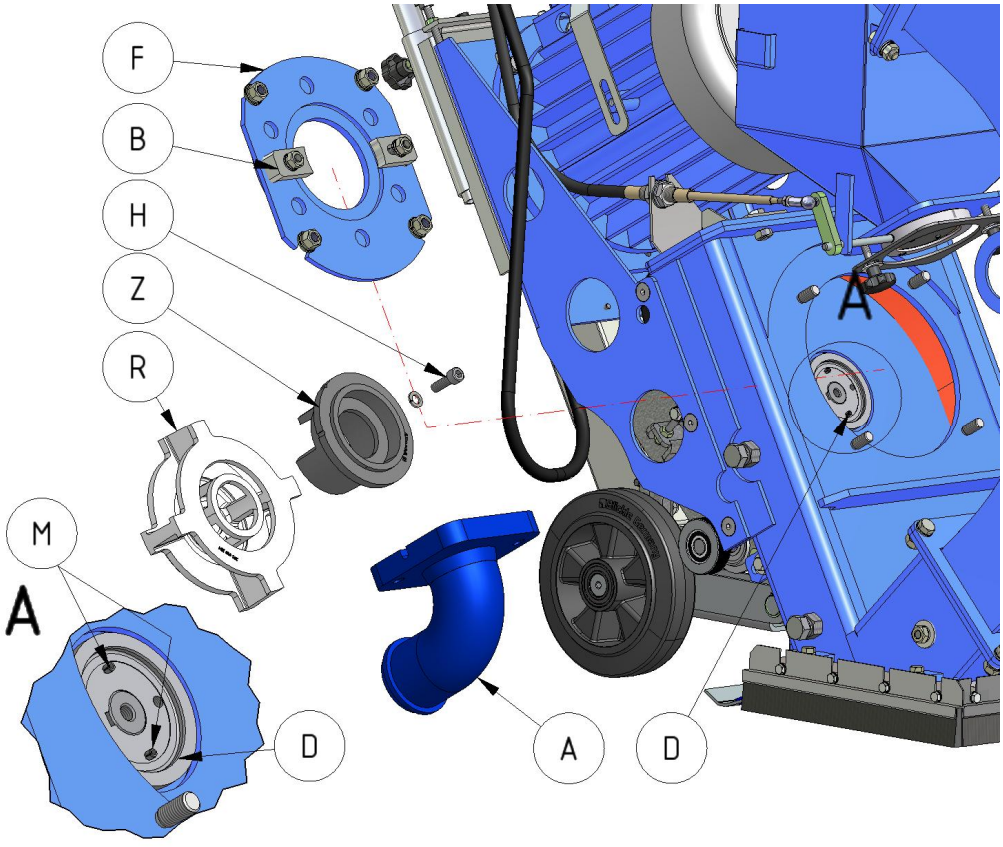
Mounting:

1 Clean all threads and use a new blast wheel fixing screw. Place the blast wheel (R) on the wheel hub (D) through the blast housing opening assure the blast wheel fits with the adapter pins (M) in line. Tighten the blast wheel by the fixing screw (H).

2 Fix the front cover plate (F) using the 4 washer and nuts.

3 Insert the control cage (Z) in the centre (observes Chapter 7.5 "Setting the blast pattern") and clamp the control cage with the cage clamps (B) so that the blast wheel can rotate free with an overall clearance of 3mm to the impellor. Turn the blast wheel manually has to rotate free.

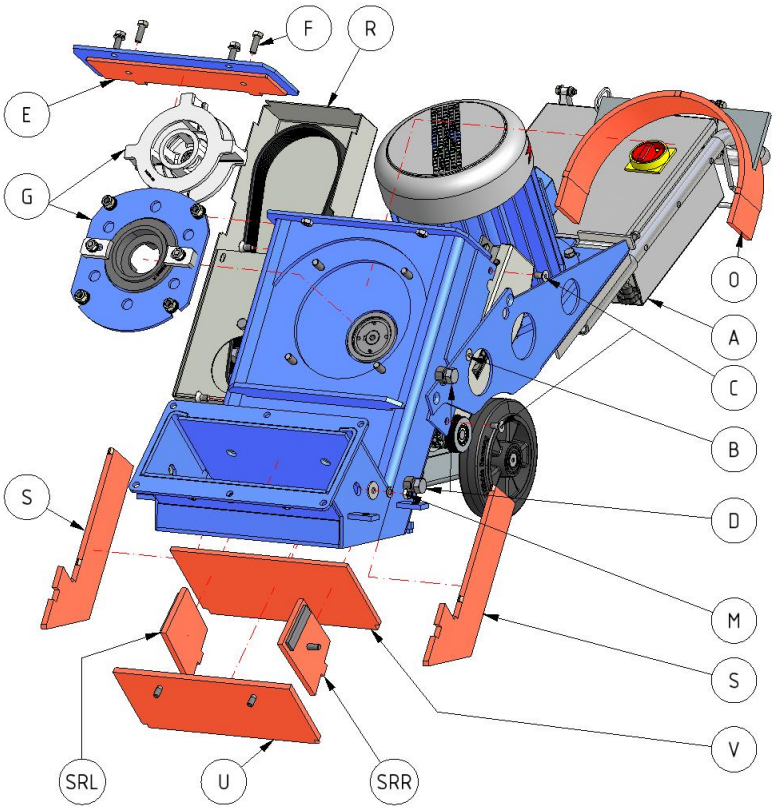
4 Place the feed spout (A) in the housing and fix it with the knurled-nuts.



7.18 Replacing liners

Demounting:

1. Take of the belt guard.
2. Remove the suction box and suction box support.
3. Loose the screws (B) at both sides, take of the screws (C) of the motor bracket (A) and swing the bracket wit the handle carefully downward. Take of the belt.
4. Remove the front-plate and wheel kit (G), see chapter 7.17.
5. Slacken the settings screws (F) of the top liner. Take of the screws of the cover (E) and remove the cover.
6. Slacken the setscrews (D) of both side-liners.
7. Remove the top liner (O) towards the top.
8. Slacken the nuts (M) of the rebound side liners and push the liners inwards. Fully take of the nuts and move both liners (SRL/SRR) downward away from the housing.
9. Push both side liners (S) towards the bottom out of the housing.
10. To remove the rebound top (V) and bottom liner (U), take of the nuts and pull both downwards out of the housing.



Mounting:

1. Before fitting any new liner, check all threads being clean off dirt and abrasives. Clean where necessary.
2. First place the top (V) and bottom rebound liner (U), put the nuts on, but do not tighten them.
3. Place both side liners (S) in the housing.
4. Afterwards place both side liner (SRL/SRR) in the rebound area. Put the nuts (M) but do not tighten them.
5. Place the top liner (O) to the top.
6. Close the cover (E), adjust the top liner with the setting screws (F) in a way so there is no gap on the radius of the inner housing plate.
7. Force the side liners upwards so there is no gap between top and side liners.
8. Tighten up the set screws (D) of the side liners. Tighten up the nuts both sides of the rebound area, tighten up the nuts of the top and bottom rebound liners
9. Fit the wheel kit and front plate (G) as described in chapter 7.17
10. Swing back the motorbracket (A), fit the screws (B+C) at both sides, fit belt and belt guard (R). After 3 hours check if the belt is tighten.
11. Fit the suction box and suction box support.

Maintenance

Notes:

Chapter 8

8.1 Hints for the electrics

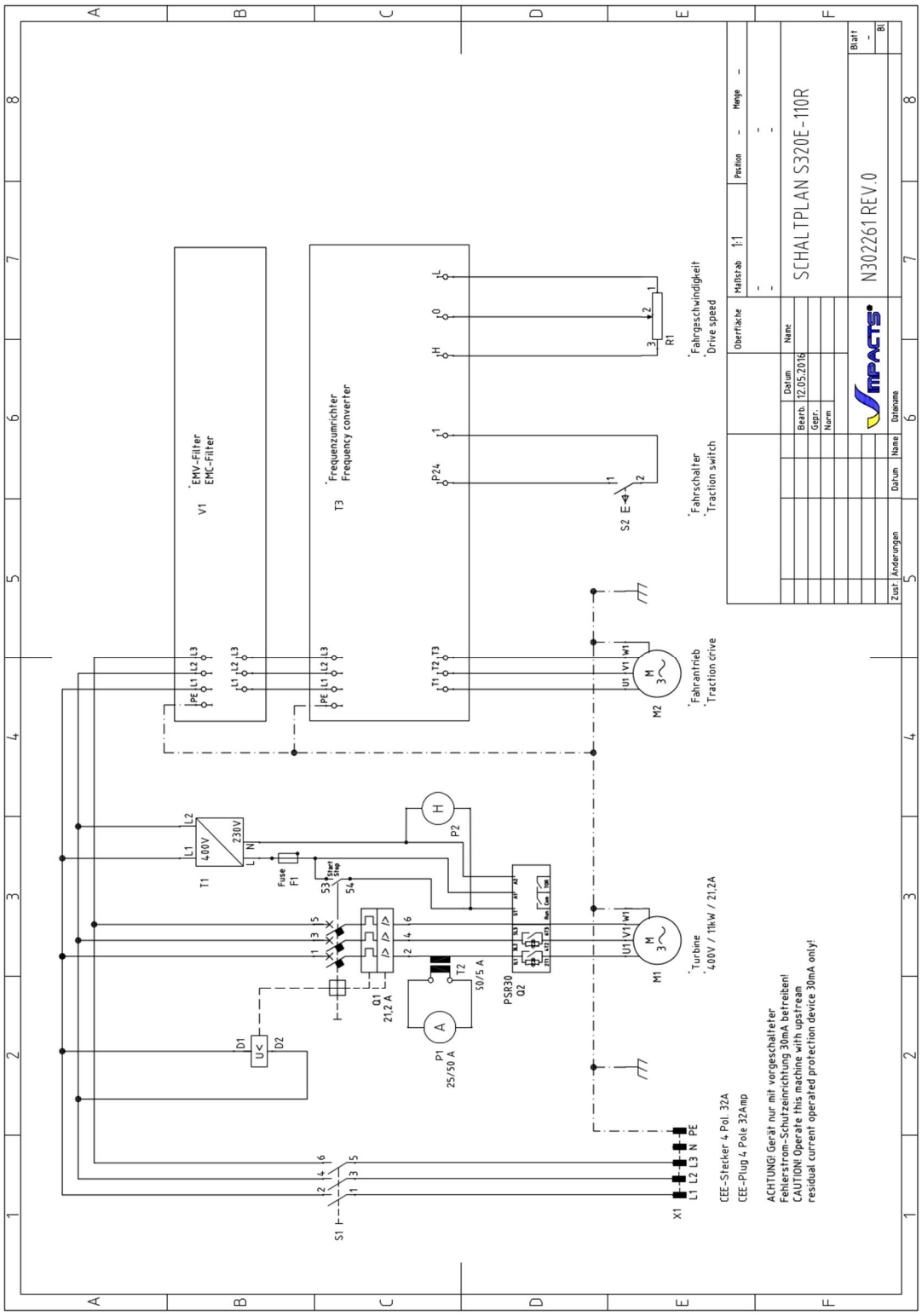
Shut off completely the machine for **repair or maintenance work.** All plugs have to be **disconnected** keep all cables and plugs near the machine in order to prevent the machine from being switched on **accidentally.**

Electric spares need to be ordered with reference to the electrics circuit diagram within this chapter 8.2. If there is any doubt about it, you need to call your local IMPACTS service technician.

The electrical parts of the machine must be **inspected regularly**. Please note in particular the sp**ecified recurring inspections according DGUV V3 or other local regulations.** Defects such as **loose** connections or **scorched** cables must be rectified immediately. **Call a skilled electrician or the IMPACTS customer service.**

Work on the electrical parts of the equipment have to be undertaken by a **skilled electrician** or by a **trained** person under the **guidance** and **supervision** of a **skilled electrician** as well as in accordance with **the electrical engineering regulations**.

8.2 Circuit diagram



Notes:

Chapter 9

Fault diagnosis

9.1 Fault diagnosis blast machine

Prior to any repair works on the machine or its drives, the machine has to be secured against unintentional switch-on. Put the machine to its Safety off position as described in Chapter 2.6

Fault	Possible reasons for failure	Failure corrective actions
Unusual vibrations	Uneven wear of the blast wheel, unbalance due to broken parts or blades.	Replace blast wheel set, check separator and all other sections of the machine. Remove all broken parts.
	Wheel hub worn out	Replace wheel hub
	Drive shaft bended	Replace shaft or complete bearing unit
Unusual noise	Low clearances or bad adjustments of turning parts.	Check parts adjustments (blast wheel and control cage).
	Loose or lost screws.	Check screws and bolts to be fitted correctly, tighten were necessary
	Shrieking wheels	Replace if worn.
	Motor bearings worn.	Replace bearings.
Reduced or no performance.	Insufficient flow of abrasive in front of the blast wheel.	Clean wire mesh, check feed spout to be clean.
	Not enough abrasive in storage.	Fill up abrasive.
	Blast wheel or control cage.	Blast wheel or control cage worn out. Replace if worn.
	Valve adjustment.	Blast wheel or control cage worn out. Replace if worn.

Changes to technical data reserved

Fault	Possible reasons for failure	Failure corrective actions
Reduced or no performance.	Too much abrasive admitted when motor switched on. Feed motion too fast.	Ensure motor got max speed before opening the valve. Reduce speed.
Dumping or loosing abrasive.	Elevation adjustment of magnets. Magnets lost field. Poor abrasive. Blast wheel set worn. Bad seals.	Check elevation not to be higher than 8-10 mm. Replace magnets. Use quality abrasive. Replace blast wheel set. Check base seals readjust and replace if worn.
Too much dust or other particles in storage.	Insufficient air flow towards filter unit.	Check rated performance of the filter unit, check all seals, check dust hose, check differential pressure and replace filter elements if pressure too high
Excessive wear in blasthousing and rebound.	Wrong control cage position.	Adjust blast pattern.
High abrasive consumption	Throttle valve filter unit Abrasive level to high.	Adjust the throttle valve, reduce airflow until any abrasive is sucked off. Drain abrasive to correct level
Machine remained stationary.	Drive speed to low. Blast head scraped along the ground.	Adjust drive speed. Adjust distance between magnets and surface.

9.2 Fault diagnosis of electrical failures

Prior to any repair works on the machine or its drives, the machine has to be secured against unintentional switch-on. Put the machine to its Safety off position as described in Chapter 2.6

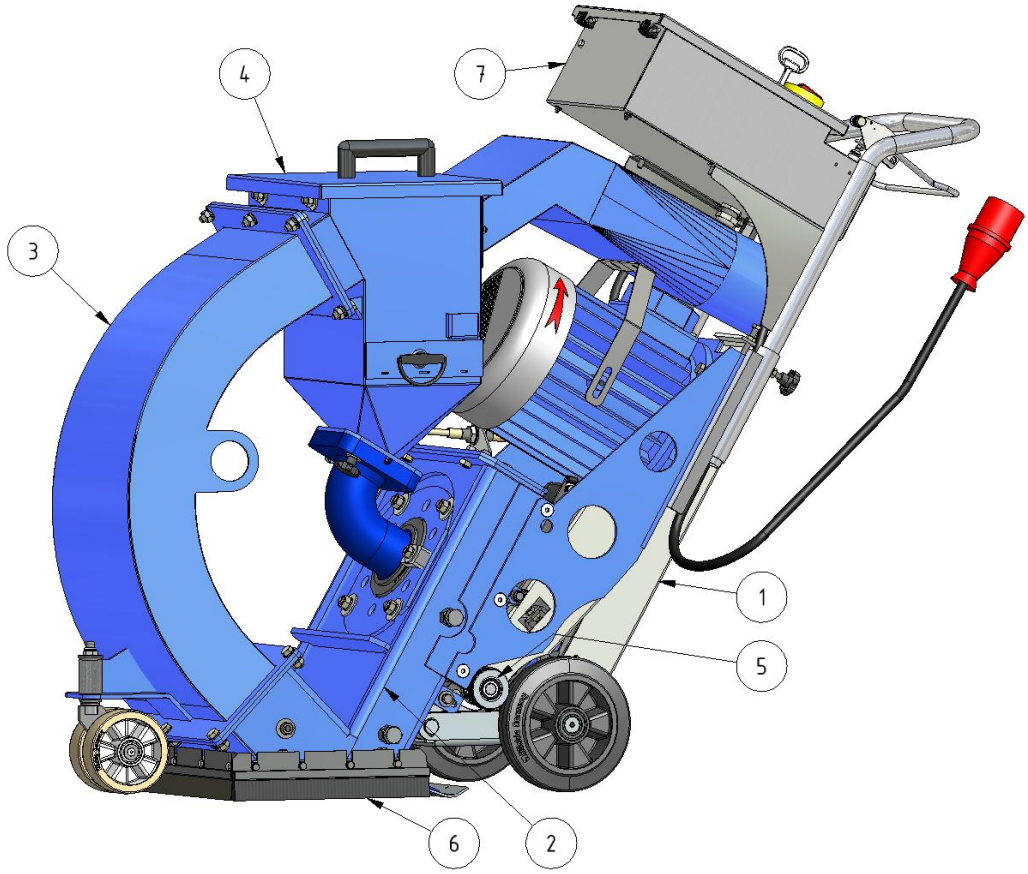
Fault	Possible reasons for failure	Failure corrective actions
Motor does not start up.	Missing phase. Faulty switch or relays.	Check power supply. Diagnosis and replacement by electrician.
Motor stops during operation	Power supply circuit breaker disengaged. Connection cable damaged Supply cable damaged (wheel motor etc.) Motor is damaged.	Reset circuit breaker or replacement by electrician. Diagnosis and replacement by electrician Diagnosis and replacement by electrician. Diagnosis and replacement by electrician.
Traction drive motor stops during operation.	Supply cable damaged. Frequency inverter overload or damaged. Potentiometer damaged. Overheated.	Diagnosis and replacement by electrician. Reset frequency inverter, or replacement by electrician. Replacement by electrician. Wait until cooled down..

9

When overload circuit breaker has been released: Switch off the power supply external and wait for approximately one minute for the circuit breaker to cool down then switch on the power supply again. If a circuit breaker continues to release, wait a longer time to cool down or the cause of the electrical overload should be found and corrected.

Chapter 10

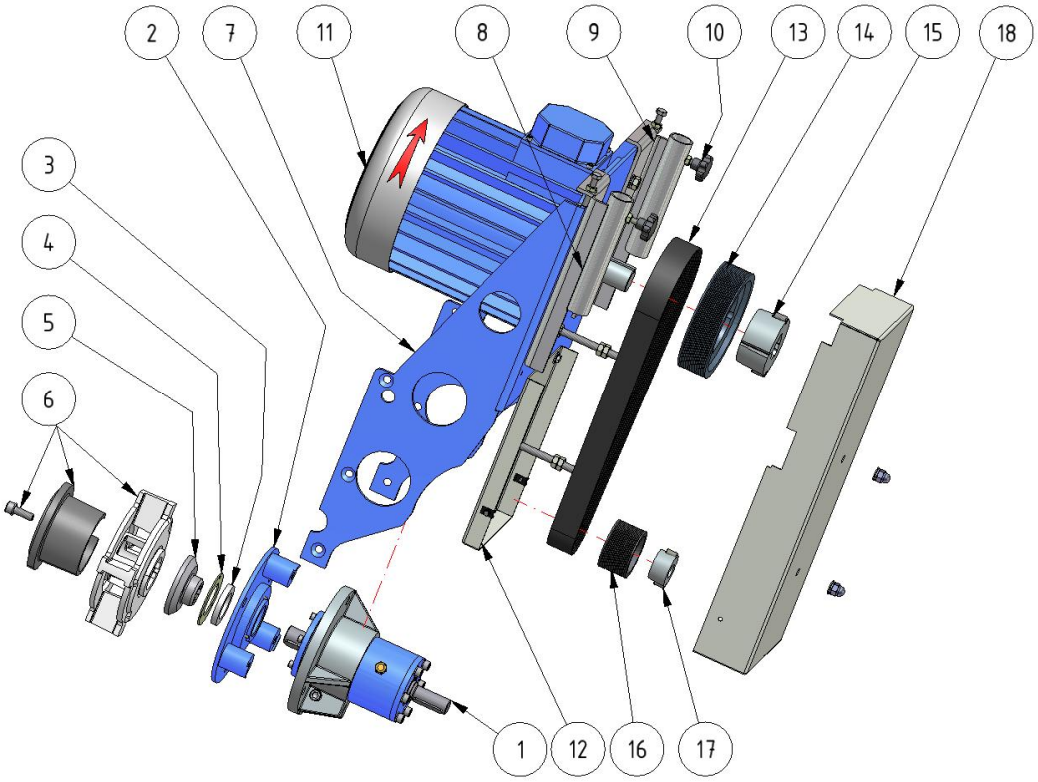
OVERVIEW S320E110R:



POS	QTY	DESCRIPTION	PART NO.
1	1	WHEEL DRIVE ASSY	---
2	1	WHEEL HOUSING ASSY	---
3	1	REBOUND ASSY	---
4	1	SEPARATOR ASSY	---
5	1	TRACTION DRIVE ASSY	---
6	1	BASE SEAL ASSY	---
7	1	TOP HANDLE ASSY	---

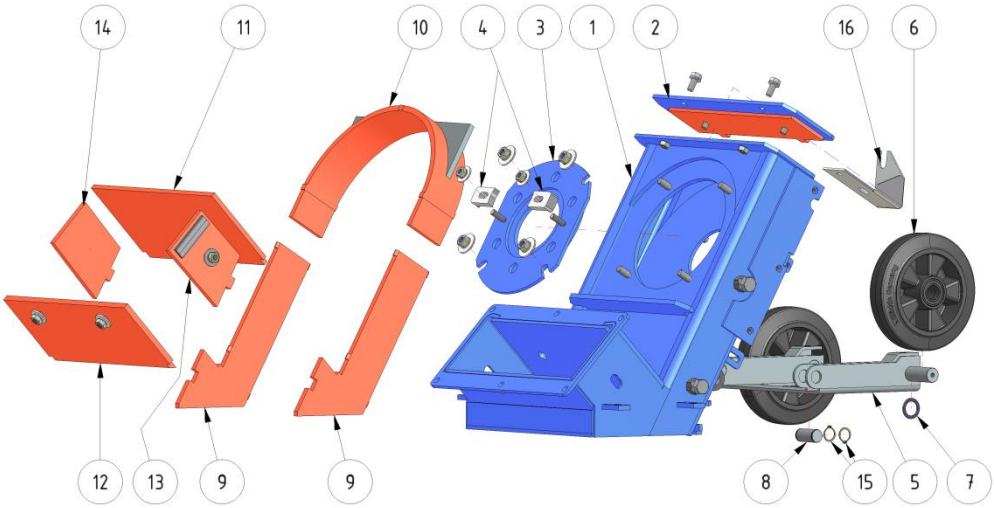
Changes to technical data reserved

WHEEL DRIVE ASSY:



POS	QTY	DESCRIPTION	PART NO.
1	1	BEARING UNIT	201 000 043
2	1	BU FLANGE	201 000 061
3	1	FELT SEAL	201 000 073
4	1	SEAL CLAMP. PLATE	201 000 062
5	1	WHEEL HUB	201 000 051
6	1	WHEEL KIT	201 000 001
7	1	MOTOR BRACKET	201 002 457
8	1	BRKT HANDLE	201 002 128
9	1	BRKT HANDLE	201 002 129
10	2	STAR GRIP	310 000 007
11	1	WHEELMOTOR	601 000 022
12	1	REAR BELT COVER	201 002 127
13	1	POLY V BELT	301 000 001
14	1	SHEAVE	302 000 001
15	1	TAPER LOCK BUSH	303 000 014
16	1	SHEAVE	302 000 002
17	1	TAPER LOCK BUSH	303 000 005
18	1	BELT COVER	201 002 126

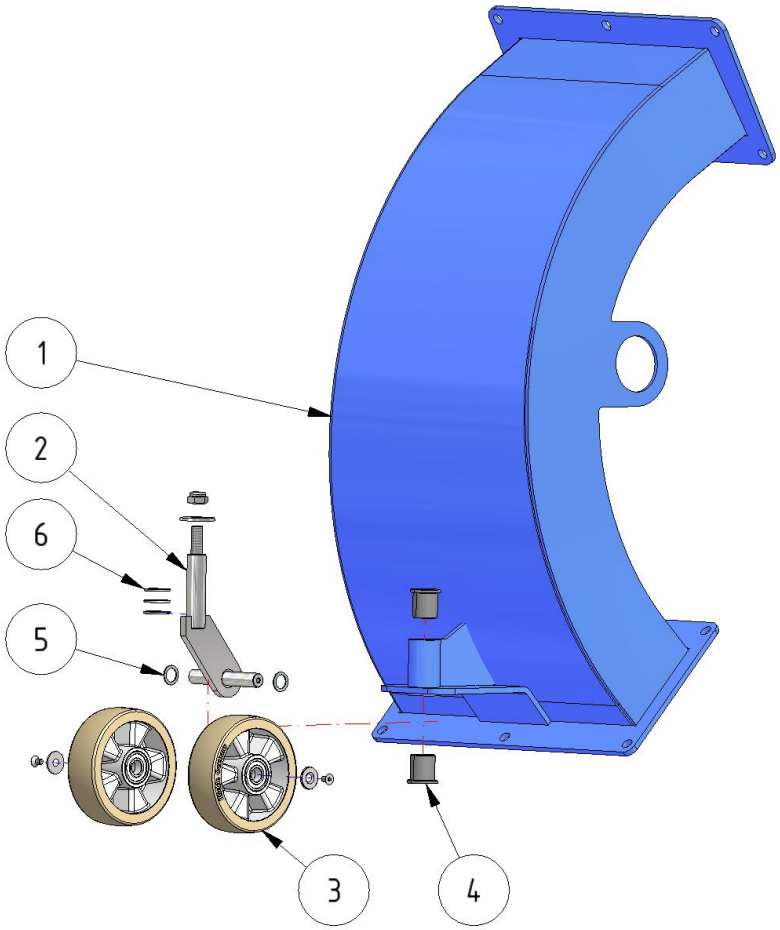
WHEEL HOUSING ASSY:



POS	QTY	DESCRIPTION	PART NO.
1	1	TURBINE HOUSING S320E110R	201 002 453
2	1	COVER WH S320RD	201 001 993
3	1	FRONTPLATE S410E S800A	201 000 259
4	2	CONTROL CAGE CLAMP	201 000 313
5	1	WHEEL SWING ARM	201 002 130
6	2	WHEEL	304 000 036
7	2	WASHER	DIN988 25x35x2
8	2	PIN WHEEL SWING ARM	201 002 131
9	2	SIDE LINER WH S600A	201 000 233
10	1	TOP LINER S320	201 000 530
11	1	TOP LINER RBC S320	201 000 531
12	1	REBOUND BOTTOM LINER	201 000 532
13	1	RH SIDE LINER RBC-WH S410/S600/S800A	201 000 258
14	1	LH SIDE LINER RBC-WH S410/S600/S800A	201 000 257
15	4	SHAFT RING	400 471 014
16	1	CONTROL CABLE BRKT	201 002 616

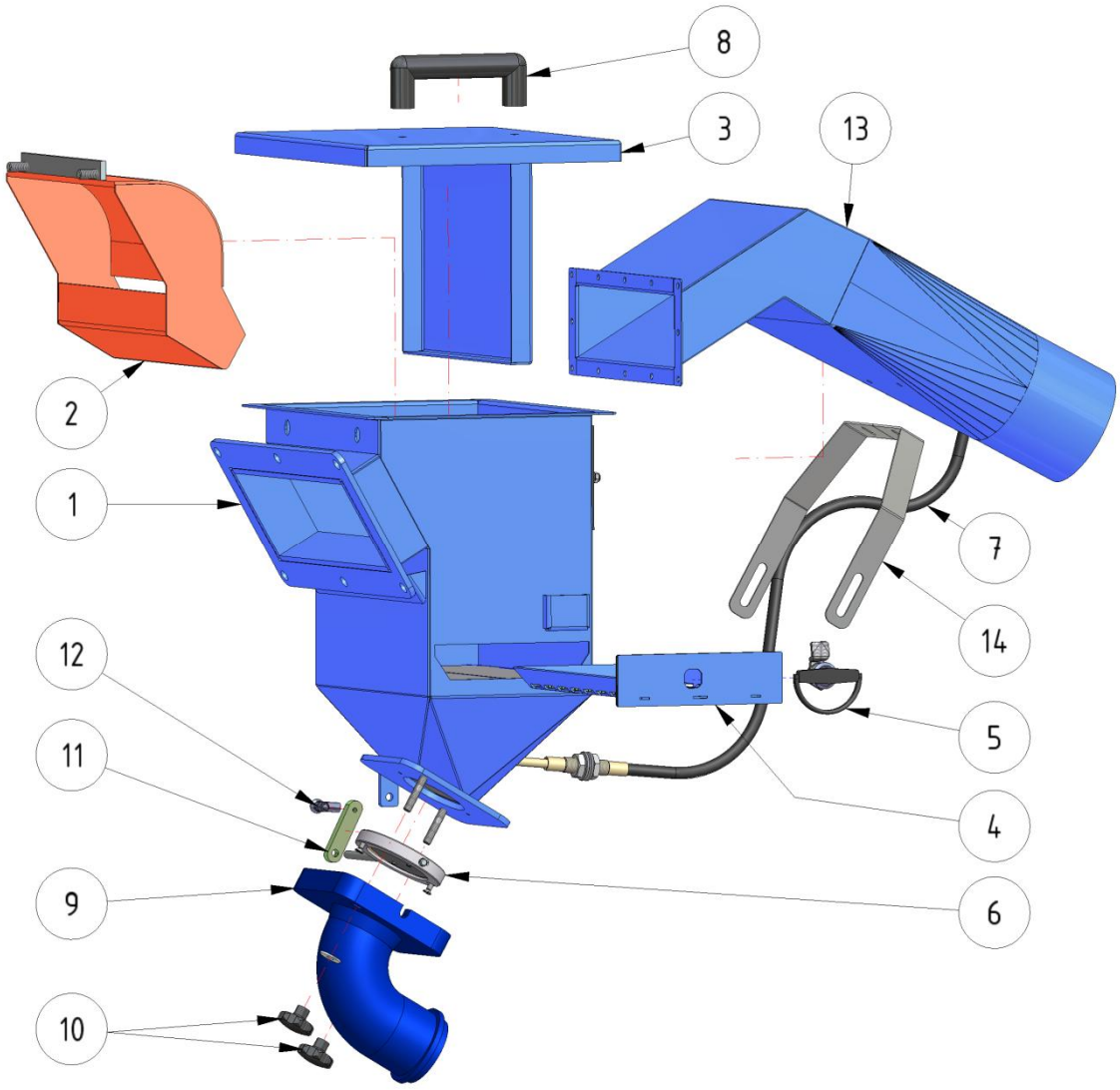
Changes to technical data reserved

REBOUND ASSY:



POS	QTY	DESCRIPTION	PART NO.
1	1	REBOUND	201 002 454
2	1	BRKT SWIVEL CASTER	201 002 119
3	2	WHEEL	304 000 038
4	2	BUSHING	314 000 002
5	2	WASHER	DIN 988 15x21x1
6		SPACER WASHER 2mm	400988002
6		SPACER WASHER 1mm	400988003

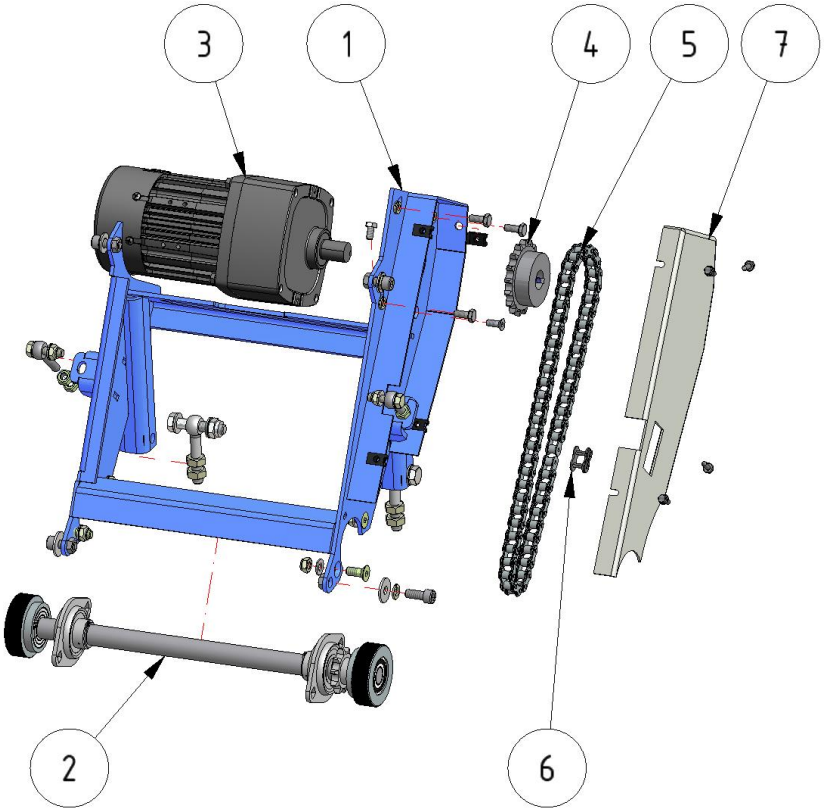
SEPARATOR ASSY:



Changes to technical data reserved

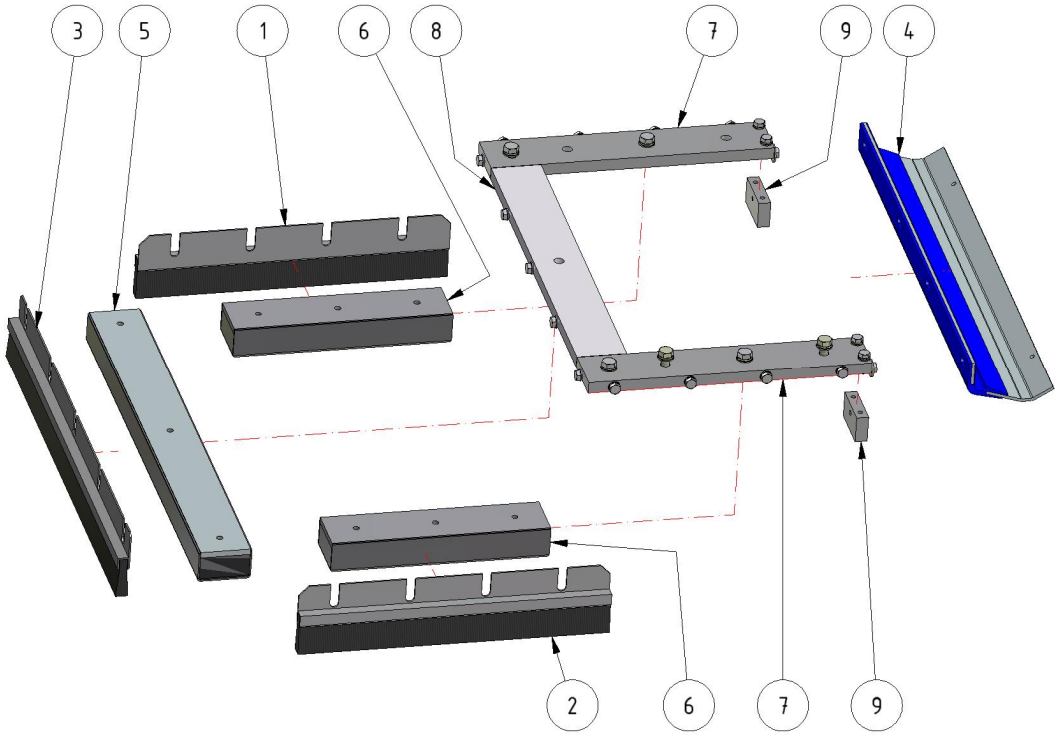
POS	QTY	DESCRIPTION	PART NO.
1	1	SEPARATOR HOUSING	201 002 455
2	1	DEFLECTOR	201 000 421
3	1	SEPARATOR LID	201 002 456
4	1	SEPARATOR TRAY	201 000 987
5	1	CAM LATCH	310 000 009
6	1	CONTROL VALVE	201 002 627
7	1	CABLE CONTROL	201 000 250
8	1	HANDLE	310 000 002
9	1	FEED SPOUT	201 000 159
10	2	STAR KNOB	310 000 005
11	1	LEVER CONTROL VALVE	201 000 315
12	1	BALL JOINT	471 802 004
13	1	SUCTION BOX	201 002 608
14	1	SUCTION BOX SUPPORT	201 002 612

TRACTION DRIVE ASSY:



POS	QTY	DESCRIPTION	PART NO.
1	1	BRKT DRIVE UNIT	201 002 123
2	1	DRIVE SHAFT ASSY	201 001 191
3	1	GEARED MOTOR	601 000 034
4	1	SPROCKET	201 000 796
5	1	CHAIN 57	309 000 003
6	1	CHAIN LINK	309 000 004
7	1	CHAIN COVER	201 002 124

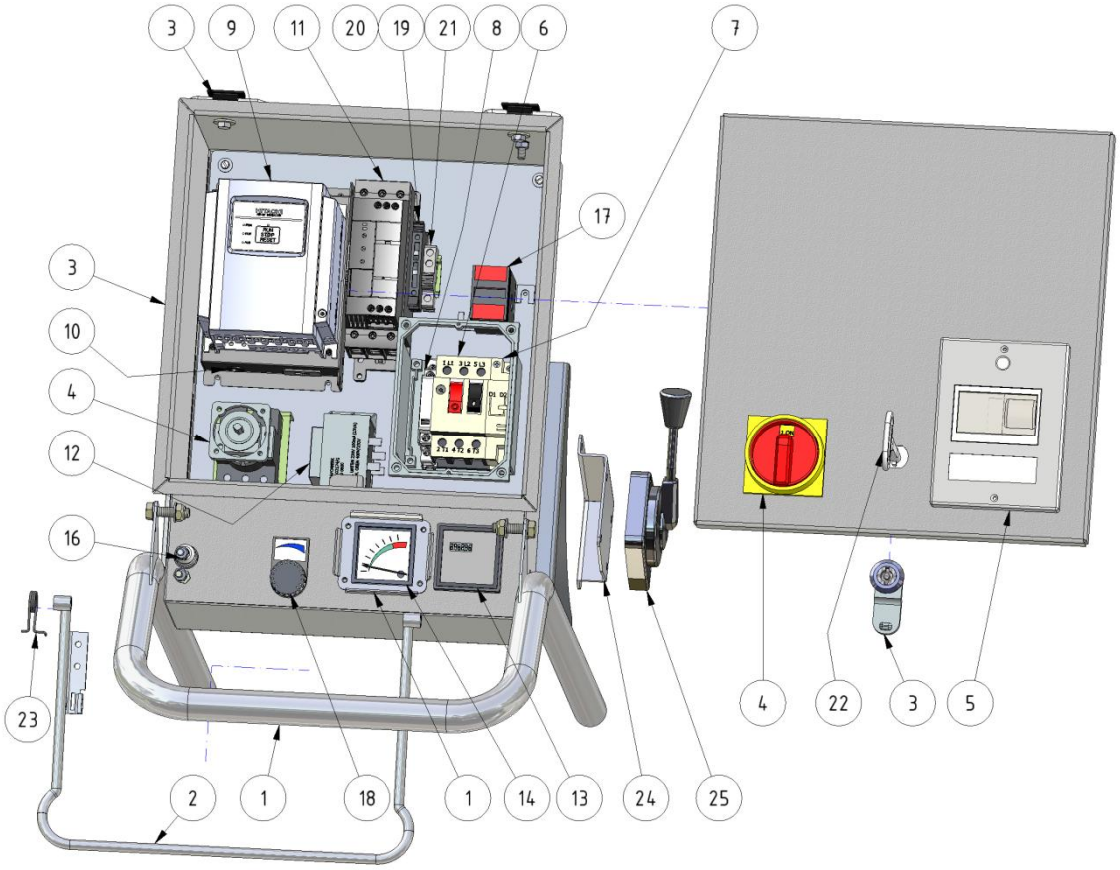
BASE SEAL ASSY:



POS	QTY	DESCRIPTION	PART NO.
1	1	BRUSH LH	201 000 024
2	1	BRUSH RH	201 000 027
3	1	FRONT BRUSH S320	201 000 503
4	1	REAR SEAL S320	201 000 494
5	1	FRONTMAGNET	201 000 502
6	2	SIDE MAGNET S380-S800A	201 000 175
7	2	ISOLATOR SIDE MAGNET RH/LH	201 000 194
8	1	ISOLATOR FRONT S320	201 000 501
9	2	ISOLATOR-REAR SPACER	201 000 195

Spare Parts

TOP HANDLE ASSY:



Changes to technical data reserved

POS	QTY	DESCRIPTION	PART NO.
1	1	HANDLE	201 002 604
2	1	SWITCH LEVER	201 002 463
3	1	CONTROL PANEL HOUSING	201 002 601
4	1	MAINS CONNECTOR	605 000 043
5	1	INSTALLATION HOUSING	611 000 005
6	1	MOTORPROTECTIONSWITCH	607 000 013
7	1	LOW VOLTAGE RELEASE	612 000 001
8	1	CONTACTOR	605 000 047
9	1	FREQUENCY INVERTER	604 000 028
10	1	ECM FILTER	604 000 029
11	1	SOFT START	604 000 033
12	1	TRANSFORMER	609 000 005
13	1	HOUR METER	612 000 012
14	1	AMPMETER	608 000 007
15	1	AMP.-METER FRAME	201 001 492
16	1	MICRO SWITCH	605 000 005
17	1	INSTRUMENT TRANSFORMER	608 000 012
18	1	POTENTIOMETER	612 000 035
19	1	FUSE TERMINAL BLOCK	612 000 078
20	1	FUSE	612 000 170
21	2	TERMINAL CLAMP	612 000 075
22	1	DOOR KEY	314 000 021
23	1	LEG SPRING	201 000 814
24	1	BRKT ABR. CONTR. LEVER	201 002 613
25	1	ABRASIVE CONTROL LEVER	201 000 083
26	1	DOOR HINGE	314 000 130
27	1	CONTROL PANEL LOCK	314 000 020

NOTES: