Operating manual
Pneumatic rescue equipment

Lifting cushion, 8.0 bar
FLAT BAG SINGLE CUSHION

W-FB 7/17, W-FB 11/17
W-FB 18/18, W-FB 32/18

106.058.1

Tested acc. to
EN 13731 : 2008
Table of Contents

1 General information 4
  1.1 Information regarding the operating manual 4
  1.2 Explanation of symbols 5
  1.3 Limitations of liability 6
  1.4 Copyright 6
  1.5 Guarantee conditions 7
  1.6 Customer service 7

2 Safety 8
  2.1 Appropriate use 8
  2.2 Responsibility of the customer 10
  2.3 Operating personnel 11
  2.4 Personal protective equipment 12
  2.5 Specific hazards 13
  2.6 Safety devices 14
  2.7 How to respond in the event of danger or accidents 14
  2.8 Signage 15

3 Technical data 16
  3.1 Operating conditions 17
  3.2 Serial number 17

4 Design and function 18
  4.1 Overview 18
  4.2 Brief description 18
  4.4 Assembly and activation 19
  4.5 Connections to the control device 21
  4.6 Coupling mechanism 21
  4.7 Operating the control device 22
  4.8 Characteristics of Flat Bag lifting cushions 25
  4.9 Stacking Flat Bag lifting cushions 25
1 General information

1.1 Information regarding the operating manual

This operating manual provides important information for using the Flat Bag lifting cushion. Proper compliance with all specified safety instructions and directives is a prerequisite for safe working.

Furthermore, adhere to the local accident prevention guidelines and general safety regulations for the region in which the devices are used.

This operating manual must be carefully read prior to starting all work! It is an inherent part of the product and must be kept in a place that is known and accessible to personnel at all times.

This documentation contains information for operating your equipment, irrespective of the equipment type. For this reason, you will also find explanations which do not refer directly to your equipment.

All information, technical data, graphics and diagrams contained in this operating manual are based on the latest data available at the time of the document’s creation.

We recommend, as well as having carefully read through the operating manual, that you be trained and instructed on handling the rescue equipment (possible applications, application tactics, etc.) by our qualified trainers.
1.2 Explanation of symbols

Warning instructions

Warning instructions in this operating manual are marked by symbols. The individual instructions are introduced by signal words that express the extent of the hazard.

It is essential to comply with the instructions in order to prevent accidents, injuries and damage to property.

DANGER!
... indicates an immediate dangerous situation that can result in death or serious injury if not avoided.

WARNING!
... indicates a potentially dangerous situation that can result in death or serious injury if not avoided.

CAUTION!
... indicates a potentially dangerous situation that can result in minor or light injuries if not avoided.

ATTENTION!
... indicates a potentially dangerous situation that can result in material damage if not avoided.
1.3 Limitations of liability

All information and instructions in this operating manual have been compiled, taking account of applicable standards and guidelines, the current state of technology, as well as our many years of knowledge and experience.

The manufacturer assumes no liability for damage due to:

- Disregard of the operating manual
- Improper use
- Deployment of untrained personnel
- Unauthorised conversions
- Technical changes
- Use of non-approved spare parts
- Use of non-original spare parts

The actual scope of delivery can vary from the explanations and graphic representations provided in this manual in the case of special versions, or due to technical changes.

1.4 Copyright

All texts, diagrams, drawings and images in this operating instruction may be used without restriction and without any prior approval
1.5 Guarantee conditions

The guarantee conditions can be found as a separate document in the sales documentation.

1.6 Customer service

Our customer service is available to you for technical information.

Germany
Name: Mrs Corina Schulz
Telephone: + 49 (0) 7135 71 10235
Fax: + 49 (0) 7135 71 10396
e-mail: corina.schulz@weber.de

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Telephone: + 43 (0) 7255 6237 12463
Fax: + 43 (0) 7255 6237 12461
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NOTE!
When contacting our customer service department please state the designation, type and year of manufacture of your equipment. These details can be found on the equipment type plate.
2 Safety

This section of the operating manual provides a comprehensive overview of all the important safety aspects for optimal protection of the operating personnel and for safe and trouble-free operation.

Significant hazards can occur if the handling and safety instructions in this manual are not complied with.

2.1 Appropriate use

The flat high-pressure lifting cushions are a development of standard lifting cushions. The design of the lifting cushion allows for even lifting across almost the entire surface. This even surface ensures:

- fully even lifting capacities, depending on the lifting height,
- improved safety during usage, due to the large contact area,
- greater safety when using two or even three lifting cushions stacked one on top of the other.

The lifting cushions are produced from a mixture of natural and synthetic rubber, which is resistant to wear, the influences of the weather, and chemical substances, see Chap. 10 Resistance list. Thanks to their design, the lifting cushions have the requisite strength and flexibility.

Various compressed air sources are available for filling lifting cushions in the outdoors, e.g. a compressor or compressed air cylinder.

This brochure contains technical information about lifting cushions and instructions for their use. Which variant you choose and suitable areas of application depend upon various factors, such as lifting requirements, lifting capacities, lift height, and shape of the object. The manufacturer declines all responsibility for damage to property and personal injury, which may occur as a result of incorrect or unsuitable use of lifting cushions and accessories.
The diagrams in the brochure are only intended for informational purposes. Actual usage conditions and characteristics may differ from one situation to the next, requiring different measures to be taken.

**WARNING!**

**Danger due to inappropriate use!**

Any use of the equipment beyond the appropriate use and/or any other type of use can lead to dangerous situations!

Therefore, make absolutely sure to:

» only use the equipment for the purposes stated above,

» observe all other information about the proper use of the equipment in Chapter 5 (Possible applications).
2.2 Responsibility of the customer

In addition to the health and safety instructions in this operating manual, you must adhere to the safety, accident prevention, and environmental protection guidelines for the region in which the equipment is used. Particularly applicable in this regard:

- The customer must be familiar with the applicable health and safety provisions and in a risk assessment identify other hazards that may exist at the equipment’s installation site due to the special working conditions.
- The customer must clearly regulate and specify responsibilities for installation, operation, maintenance and cleaning.
- The customer must ensure that all personnel who handle the equipment have fully read and understood the operating manual.
- In addition, the operator must train personnel and inform them of the dangers of working with the equipment at regular intervals.

Moreover, the customer is responsible for ensuring that the equipment is always in technically faultless condition. Consequently, the following applies:

- After each use, and at least once a year, a visual inspection of the equipment must be carried out by a trained individual (according to GUV-G 9102 or country-specific guidelines).
- Every five years, or if you have doubts about the safety or reliability of the equipment, functional testing and stress testing must be carried out (according to GUV-G 9102 or country-specific guidelines).
2.3 Operating personnel

The following qualifications are cited in the operating manual for the various activity areas:

- **Trained individual**
  Is informed through training offered by the customer about the tasks assigned to him and the possible dangers in the event of improper conduct.

- **Specialist**
  Is someone who, due to their specialised training, skills and experience, as well as knowledge of the applicable stipulations of the manufacturer, is capable of executing the tasks assigned to them and of recognising possible hazards of their own accord.

**WARNING!**
Danger of injury due to not being adequately qualified!

Improper handling of the equipment can lead to serious injury or material damage.

It is therefore imperative that:
» particular tasks are only carried out by the persons stated in the appropriate chapter of this manual.
» In case of doubt, call in specialists immediately.

**NOTE!**
The equipment may not be used by personnel who have consumed alcohol, medication or drugs!
2.4 Personal protective equipment

Wearing personal protective equipment (PPE) is essential to minimise the risks to operating personnel when working with the pneumatic lifting cushions.

It is essential to wear the following protective clothing for all work:

**Protective work clothing**
Tight-fitting work clothing with tight sleeves and without any protruding parts must be worn when working. It mostly serves to protect against entanglement by moving equipment parts.

**Safety footwear**
Safety footwear with steel toecaps must always be worn as protection against heavy falling parts and from slipping on slippery ground.

**Work gloves**
Work gloves must be worn when working with the equipment, to provide protection from sharp edges and shards of glass.

**Helmet with face shield**
A helmet with face shield must be worn for protection against flying or falling parts and shards of glass.

**Protective goggles**
Protective goggles must also be worn in addition to the face shield in order to protect the eyes from flying objects.

The following must also be worn for certain work:

**Ear protectors**
In addition to the basic protective equipment, ear protectors must also be worn to protect your hearing.
2.5 Specific hazards

The hazards arising from the risk analysis are listed in the following section.

Follow the safety instructions listed here and the warning instructions in the other sections of this manual to minimise potential health hazards and avoid dangerous situations.

Noise

WARNING!
Hearing damage due to noise!

The noise occurring in the work area can cause severe hearing damage.

Therefore:
» You should also wear ear protectors when carrying out certain noise-producing tasks.
» Do not stay in the hazardous area longer than necessary.
2.6 Safety devices

Safety valve
The safety control devices are equipped with safety valves and pressure gauges, which are calibrated to the appropriate pressure range. A pneumatic rescue system may never be operated without a control device.

2.7 How to respond in the event of danger or accidents

Preventive measures
- Always be prepared for accidents
- Keep first aid equipment (fist aid box, blankets, etc.) to hand
- Familiarise personnel with accident alarms, first aid, and emergency equipment
- Keep entryways clear for emergency vehicles

In the event of an accident
- Shut down the equipment immediately
- Initiate first aid measures
- Get people out of the danger zone
- Inform the responsible parties at the site of the incident
- Notify a doctor and/or the fire brigade
- Clear entryways for emergency vehicles
2.8 Signage

The following symbols and instruction signs are found on the equipment. They refer to the immediate vicinity in which they are affixed.

Comply with the operating manual
Do not use the equipment identified until you have read the operating manual.

Warning of injury to hands
When working with the equipment, care should be taken to avoid hand injuries through trapping or sharp edges.

WARNING!
Danger of injury due to illegible symbols!

Over time, stickers and symbols on the equipment can become soiled or illegible in other ways.

It is therefore imperative that:
» All safety, warning and operating information on the equipment be kept in an easily legible condition.
» Replace damaged signs and stickers immediately.
# 3 Technical data

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<th>W-FB 11/17</th>
<th>W-FB 18/18</th>
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<td>812.575.9</td>
<td>812.5756.7</td>
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</table>
3.1 Operating conditions

If the temperature of the object being lifted exceeds 55°C, the side touching the object should be protected with a piece of plywood. Heat and temperatures on the surface which are higher than the permitted level may cause damage to the lifting cushion.

NOTE!
The lifting cushions are also suitable for underwater use, however, make sure that they rise up.

3.2 Serial number

The serial number is impressed into every Flat Bag on the filling connection. From left to right, the digits mean:
Calendar week (2 digits)/Year (2 digits)/Consecutive number (2 digits)
A test report is also enclosed.
4  Design and function

4.1  Overview

4.2  Brief description

The term lift cushion is used to describe two (vulcanised) rubber/fabric mats connected along the edges, which can be inflated using compressed air, so it can be used to lift loads. Use of oil or water as a medium is also possible.

4.3  Pneumatic supply

Any air source where pressure does not exceed 12 bar can be used to pump up lifting cushions. If the supply pressure is higher than 12 bar, a pressure reducer must be used.

The lifting cushions can also be activated with a filling pressure lower than the nominal pressure of 8. In this case, however, the maximum lifting force will not be achieved. If the compressed air contains oil or water, an oil or water separator must be used.
4.4 Assembly and activation

Pneumatic rescue system, consisting of:

- Compressed air cylinder (various compressed air sources)
- Pressure reducer
- Connection hose
- Control device (various models)
- Filling hose (various lengths/colours)
- Flat Bags (various models)

Activation:

Connect the pressure reducer to the compressed air cylinder and make sure that the sealing ring is in place and is properly seated.
Turn off the air supply to the control device. Rotate the shut-off valve clockwise. This guarantees that no air will flow uncontrolled into the system.

Then open the compressed air cylinder, in an anticlockwise direction, until the left-hand pressure gauge on the pressure reducer displays the pressure of the compressed air.

Use the control valve to set the output pressure to 10 to 12 bar on the (right) pressure gauge. Do not open the shut-off valve yet!

Connect the pressure reducer to the control device. Now the shut-off valve on the pressure reducer can be opened!

WARNING!
Never operate the system without a control device! The control device contains safety valves and pressure gauges, which are calibrated to the appropriate pressure range and which blow off in an emergency, if the filling pressure is exceeded!
4.5 Connections to the control device

Coloured rings on all connections of a control device provide assistance when connecting the unit. Which model of control device you are using has no bearing on this.

4.6 Coupling mechanism

Safety coupling (filling hose between control device and lifting cushion)

Closing:

Insert the coupling plug (left) into the socket (right) with double lock, and push it in until it engages.

Opening:

The filling hose and fittings on the control device are equipped with a double lock. It only opens when the plug is pushed in and the protective ring on the sleeve is pulled back at the same time.
Safety coupling (between pressure reducer and control device)

Closing:

Insert the plug (left) into the socket (right) and push the plug in until it engages.

Opening:

Push in the plug (left) turn the sleeve of the socket (right) until the notch is reached, and then push it inwards.

4.7 Operating the control device

Plastic and metal construction:

Operating the lever pumps up or deflates the lifting cushion.
To pump up the lifting cushion, push the lever upwards.

To deflate the lifting cushion, push the lever downwards.

NOTE!

» If the desired lifting height or the maximum working pressure is reached, discontinue pumping the cushion up by releasing the lever.

» The lever returns to the neutral position automatically (deadman’s switch).

» If the pressure in the lifting cushion exceeds 8 bar, the safety valve opens automatically.
Aluminium construction:

The lifting cushion is pumped up or deflated by operating the control buttons.

To pump up the lifting cushion, push the green control button (+).

To deflate the lifting cushion, push the red control button (-).

Fittings construction:

The lifting cushion is pumped up or deflated by operating the ball valve.

To pump up the lifting cushion, turn the left-hand ball valve 90° clockwise, and turn the right-hand ball valve 90° anticlockwise.

To deflate the lifting cushion, open the pressure relief valve, which is fitted with a perpendicular orientation.
4.8 Characteristics of Flat Bag lifting cushions

Illustrated in the pictures, the Flat Bag lifting cushion initially has a rounded shape.

Then the typical Flat Bag shape emerges. For the benefit of achieving a wide support area, this type of lifting cushion does not have such a large lifting height.

You can now clearly see the flat contact surface, which provides additional stability during lifting. The white marking indicates the edge of the contact area.

4.9 Stacking Flat Bag lifting cushions

With the aid of the double or triple connectors, you can stack lifting cushions. This doubles or triples the lifting height, though not the lifting force!

Hook double connectors into the holes provided in each loop on the lifting cushion using the carabiners.

Hook triple connectors into the holes provided in each loop on the lifting cushion using the carabiners.

WARNING!
Make absolutely sure that the connectors are attached properly and that the connection between lifting cushions is stable.
5  Possible applications

5.1  Using Flat Bag lifting cushions

The lifting cushion must be used on a prepared surface. Splinters and sharp objects can damage the surface of a lifting cushion.

Fully deflated lifting cushions have the lowest height for insertion.

When the lifting cushion is pumped up, the air pressure and the lifting height increases, while the contact area is centred in the usual area for Flat Bags.

WARNING!
Start inserting safety supports while lifting is still in progress. The weight must be supported as early as possible.

NOTE!
Use of the lifting cushion on loose or soft ground is only possible in conjunction with a solid base.
5.2 Supporting Flat-Bag lifting cushions

If there is a gap of more than 70mm beneath the object to be lifted, it must be underpinned until there is only sufficient space remaining to insert a deflated lifting cushion. This will serve to optimise the lifting force and height. The lifting height is modified by the height of the support material. The lifting force is always at its highest in the beginning, because the force is spread over a larger area.

Here is a diagram, which gives an insight into the relationship between lifting force and lifting height, which must be considered while using the lifting cushions!

![Diagram showing the relationship between lifting force and lifting height for different lifting cushions.](image)
The base must provide a support surface which is as large as the cushion. A continuous surface will prevent the cushion from expanding into an empty space, thereby endangering the stability of the base. If the cushion is compressed into an empty space, there is a risk of seriously damaging the cushion.

Support the pumped up cushion and the load again with safety supports. If necessary, strengthen and raise the base for the cushion. Once the desired lifting height is reached, slowly deflate the lifting cushion, until the object is safely resting on the supports.

NOTE!
If the contact area of the cushion is too small, this makes it likely that the object will slip off while the cushion is being inflated. For this reason, you should carefully observe the position/movement of load and lifting cushion throughout the entire lifting operation.

5.3 Lifting with two lifting cushions

Stacked

In order to achieve larger lifting heights, you can place multiple lifting cushions one on top of the other. The smaller lifting cushion is placed in the centre of the larger one. The air connections should run to the left or right of the object. Never stack more than two lifting cushions of different sizes without connectors.

First pump up the larger, bottom lifting cushion, until the smaller, top lifting cushion is resting against the object to be lifted. Next, fully inflate the top lifting cushion, and then also the bottom lifting cushion as required, until the desired height of the lifting object is achieved.
NOTE!
At this point, we would remind you that stacking lifting cushions does not result in any additional lifting force, only a greater lifting height. The combination will assume the lifting force of the smaller lifting cushion.

Side by side

This combination increases the lifting force, as this is dependent on the area of the lifting cushions, but not the lifting height. In the example, you can see two W-FB 11/17 lifting cushions, each with a lifting force of 25 t. There is no guarantee that one cushion would be able to lift a 20 t concrete block, but two type W-FB 11/17 cushions are able to achieve this task.

NOTE!

» The lifting force can only be increased by inflating two lifting cushions side by side at the same time.

» When lifting a load, make sure that at least 2/3 of the cushion’s surface is under the load.
6 Transport, packaging and storage

6.1 Safety information

CAUTION!
Incorrect transport can cause damage!
Incorrect transport can cause significant material damage.

Therefore:
» Proceed with caution when unloading the packages and observe the symbols on the packaging.
» Do not open fully and remove the packaging until it reaches the storage location.

6.2 Transport inspection

Upon receipt, the delivery should be checked immediately for completeness and damage during transport, so that a quick remedy can be instigated if necessary.

In the event of visible external damage, please proceed as follows:

• Do not accept the delivery, or only accept it with reservation.
• Note the extent of the transport damage on the transport documents or on the transport company’s delivery note.
• Submit a complaint.

NOTE!
Report any defect as soon as it is detected.
Claims for damages can be directed to our customer service department (see Chapter 1.6).
6.3 Symbols on the packaging

Caution, fragile!
Handle the package carefully - do not drop, throw, strike or tie up.

This way up!
The package must be transported and stored strictly with the arrows pointing in an upwards direction. Do not roll or tilt.

6.4 Disposal of packaging

All packaging materials and disassembled parts (transport protection) must be disposed of properly, in accordance with local regulations.

6.5 Storage

The equipment must be stored in a dry and dust-free environment where possible. Avoid direct UV radiation on the hose lines and lifting cushions.

CAUTION!
The equipment must be stowed securely in the mountings provided in order to avoid it being damaged whilst in transit, etc.
7 Installation and commissioning

7.1 Safety information

WARNING!
Danger of injury due to improper operation!

Improper operation can cause serious injury or material damage.

It is therefore imperative that:
» All operating steps are executed in accordance with the information in this operating manual.
» All covers and protective devices are installed and in proper working order prior to starting work.

Personal protective equipment
Wear the protective equipment detailed in Chapter 2.4 for all work, and furthermore whatever protective equipment is required for a given task!

NOTE!
Special reference is made where it is necessary to wear additional protective equipment for certain work with or on the device.
7.2 Inspection

Inspect the lifting cushion system for damage. If the system is not fit for purpose, it must not be used! In this case, immediately contact your supplier.

- Inspect the lifting cushion surface (for damage)
- Inspect the shut-off valve (for proper function)
- Inspect the control valve on the pressure reducer (for proper function)
- Inspect the pressure gauges on the pressure reducer (for proper function)
- Inspect the control device (for proper function)
- Inspect the pressure gauges on the control device (for proper function)
- Inspect the connection and filling hoses (for damage)

7.3 Shutdown (end of work)

First, the lifting cushions should be deflated. Then close the valve on the compressed air cylinder and the shut-off valve on the pressure reducer, in the sequence described here. Next disconnect the hose from the pressure reducer on the control device, so you can then slowly open the shut-off valve, in order to blow off the residual pressure. The final step is to unscrew the pressure reducer from the compressed air cylinder.

NOTE!
To fully deflate the lifting cushions, put pressure on it to force out the remaining air.

Then place the protective caps on the coupling plugs.
8 Servicing

8.1 Safety information

WARNING!
Risk of injury due to improperly performed maintenance work!

Improper maintenance of the equipment can cause serious injury or material damage.

It is therefore imperative that:
» Only qualified personnel be allowed to carry out maintenance work.
» The installation site is organised and clean! Loose components and tools lying around are sources of danger.
» Wear protective gloves for all work!

8.2 Care and maintenance

In the interest of permanent operational readiness, the following measures are essential:

• Each time the lifting cushion is subjected to a load, but at least once a year, the equipment and the accessory parts must be visually inspected.

• Every five years, or if you have doubts about the safety or reliability of the equipment, functional testing and pressure testing must be carried out (according to GUV-G 9102 or country-specific guidelines).

ATTENTION!
Prior to all maintenance work, the equipment must be cleaned of any dirt, so that it does not get into the pneumatic rescue system.
8.3 Cleaning

Cleaning the lifting cushion after use

The lifting cushion must be cleaned after every use. Oil and grease flecks can cause lifting cushions to slip, and dirt in the connection will prevent you from connecting the hose. Hold the lifting cushion straight, with the connection at the top and shake out the dirt. Check the opening in the connection. If it is blocked with dirt, remove it with a thin wire (pull back out of the connection, do not allow to fall into the lifting cushion).

To remove dirt, brush across in different directions with a stiff brush. Use of sharp objects is forbidden. Then clean the lifting cushion with a mild solution of, washing-up liquid and warm water, and remove remaining dirt with a brush.

Rinse the lifting cushion with cold water. Wash the remaining dirt and soapy water off the surface with a strong jet of water. Hold the lifting cushion upright and wipe the connection dry with a cloth. Then allow the lifting cushion to dry. Never place the lifting cushion in a drier or close to a heat source to dry.

Inspection, storage and preventive servicing

Maintenance and servicing of a lifting cushion encompasses, in addition to cleaning, inspection and preventive servicing during storage.

Inspecting a lifting cushion after cleaning

- When the lifting cushion is dry, it may be thoroughly checked for air bubbles, cuts or worn parts, which may have been hidden under the dirt. In case of damage or defect, mark it with chalk and contact the manufacturer or their authorised representative.
- Check the connection for damage which could interfere with making a connection to the counterpart component. If necessary, replace the connection.
Storing a lifting cushion

- If the lifting cushion is stored upright, turn the connection upwards, so that the user can protect it with their hand the next time the cushion is used or transported. Do not set it down on the connection or allow it to be crushed.

- If the lifting cushion is stored laid down, turn the connection outwards, so that it does not rub against walls or other objects.

Preventive servicing

If the lifting cushions are maintained and stored properly, then failure of the lifting cushion or inflation system is highly unlikely. Inspect all parts required for ordinary use, on a regular basis, clean them after use and wipe down the metal parts with a soft cloth. In case of damage or defect, mark it with chalk and contact the manufacturer or their authorised representative.
9 Decommissioning/Recycling

After the end of the normal service life, the equipment must be professionally disposed of. Individual parts can, however, certainly be used again.

For the disposal of all equipment components and packaging materials, the disposal conditions of the specific location apply.

NOTE!
Please ask your supplier about the disposal of the equipment.
# Resistance list

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<th>Chemicals</th>
<th>Conc. %</th>
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11 Malfunctions

Cause of the fault:

Damaged hose connections on the lifting cushion:

   Damaged connections can be replaced. Unscrew the socket using a suitable spanner, seal the thread of the new connection with teflon tape and screw into place.

Frozen sockets - low temperature use

   If the usage temperature is below freezing point and the air is damp and cold, ice may form in the compressed air connection. In this case, use de-icer or warm the socket manually (only warm the metal parts - not the rubber!)

Foreign objects in the hose connection:

   Pull any foreign objects in the hose connection out with a blunt wire and remove them.

NOTE!
If there are visible cuts or cracks, the lifting cushions may no longer be used and must be decommissioned. The repair of lifting cushions is not permitted for safety reasons!
EC Declaration of Conformity

According to the EC Machinery Directive 98/37/EC, dated 22/06/98

Manufacturer:
Savatech d.o.o.
Umweltschutz Produkte
Škofje loška cesta 6
4000 Kranj
Slovenia

Agent:
Weber Hydraulik GmbH
Heilbronner Strasse 3C
74363 Güglingen

Description of the machine:
High-pressure lifting cushion, 8 bar (with aramid reinforcement),
for raising and lowering loads

W-FB 7/17  W-FB 11/17  W-FB 18/18  W-FB 32/18

Relevant provisions:
We affirm that the above named, mass-produced unit complies with all health and safety
requirements, in respect of its design, production of machinery and all safety components,
as stated in

EC Machinery Directive 98/37/EC, Annex 1

All documents associated with the Directive concerning the compliance of machinery 98/37/EC
and all test results collated by an independent body are available from the company's
registered office.