

Sparomat SB®



Type: **SB 02**

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Machine description:

Sparomat SB is designed for application of Bornit Nahtflex mass manufactured by BORNIT-Werk Aschenborn GmbH. This mass is used for treating the central construction joints during asphalt mixture installation procedure. By adding a simple supplementary device, the machine can also be used for bridging cracks in asphalt pavement by application of Bornit Rissflex or Bornit Fertigschlämme masses (cold method).

The machine operates on the principle of forcing out the Bornit-Rissflex or Bornit-Nahtflex mass from its original plastic containers by means of pressure air (low pressure up to 0.5 bar). The plastic container with the Nahtflex or Rissflex mass is fixed inside a vessel made of 2 mm sheet metal which is attached to a frame made of pipes. An aluminium lid with a groove and outlet tube is placed directly on the material container from above. The material is then transferred under low pressure through a plastic hose into the terminal nozzle which applies it to the construction joint before the hot asphalt mixture is installed. The pressure air is provided by a compressor. The power for the compressor is supplied from a 12 V car battery.

Apply the BORNIT-Nahtflex mass on the side of the construction joint before the hot asphalt mixture is installed by a finisher. BORNIT-Nahtflex is a gel-like bituminous compound with excellent adhesive properties. It creates a layer of approx. 4 - 5 mm thickness on the edge of the joint. When hot asphalt mixture is installed by a finisher, this BORNIT-Nahtflex mixture rises partially on the surface. The layer must be then treated with a roller and thus the construction joint becomes sealed. When rolling the layer, make sure that the roller is sufficiently sprinkled by water so that adhering of the Nahtflex mass onto the roller surface is prevented. We recommend that you initially roll it with the smaller edge of the roller, where water pours down more intensively.

Technical data:

Machine length: 1340 mm

Machine width: 580 mm

Machine height: 960 mm

Compressor: VIAIR 325C 12V

Power supply: 12 V car battery 45 A

Precise pressure regulator: FESTO LRP-1/4-0.7

Compressed air tank: Schneider 2 l, max. 12 bar

Air tank safety valve 8.3 bar

Lid safety relief valve - type Herose 06205 DN:1/4", 0.5 bar

Weight without filling: 66 kg

Declared emission of sound pressure level A at a workstation $L_{pAd} = 78 \text{ dB} + 4 \text{ dB}$

(measured according to ČSN EN ISO 11201 - no-load operation of machine)

Declared total value of hand-transmitted vibration acceleration a_{hvd} is lower than 2.5 m.s^{-2}

(measured according to ČSN EN ISO 20643, operating conditions - no-load operation of machine)

The conformity assessment carried out by the State Testing Laboratory of Agricultural, Food Industry and Forestry Machines according to the Act no. 22/1997 Coll., section 12, subsection 4a) and according to the European directive 2006/42/EC, article 12, section 1 (Government Order no. 176/2008 Coll., section 5, subsection 1) and European directive 2004/108/EC, article 7 (Government Order no. 616/2006 Coll., section 4, subsection 1)

Putting the machine into operation:

1. Place a new 25 kg container of Nahtflex compound (30 kg in case of Rissflex) next to the Sparomat SB, remove the lid and remove the protective foil from the surface of the compound.

2. Remove the supply hose of pressure air from the lid by opening the quick-acting connector. By this action you simultaneously release the operating pressure from the vessel. Then release the 4 quick-acting clamps on the metal fixing vessel.
 3. Remove the lid with the empty plastic container from the metal fixing vessel and place it next to the machine. Then place a new filling in the original container into the metal fixing vessel. Take the aluminium lid from the empty container and place it onto the new one and make sure that the circular groove is well seated onto the rim of the vessel. Fix the aluminium lid well to the metal fixing vessel by the 4 quick-acting clamps. Make sure it is sufficiently fixed so that leakage of pressure air is prevented.
 4. Attach the supply hose of pressure air into the attachment on the lid by the quick-acting connector. Put the compressor into operation by its switch and wait until the air pressure indicated on the pressure gauge of the precision pressure regulator reaches 0.42 bar (i.e. value to which it is pre-set) or until the compressor gets automatically switched off by action of the pressure switch when the air tank is filled up. During the operation, the compressor does not have to be switched off as its switching on and off is controlled by means of an automatic pressure switch. However, if the machine is not used for a longer period of time, it is necessary to switch the compressor off as it can be repeatedly started due to pressure reduction in the system.
 5. Release the Sparomat arm by loosening the arresting screw and set the arm into the working position - left or right as needed. In case that the material is applied onto the side of a joint while the machine travels on the layer which is currently being placed (i.e. the milled off layer of pavement), the silicone guiding wheel must be placed in the fixing sleeve situated at the end of the arm. In case that it is possible to travel with the machine on the asphalt layer which has just been placed, the guiding wheel must be fixed to the fixing sleeve situated in the middle of the arm and the terminal nozzle must be turned towards the side of the joint. Make sure, that the nozzle is always positioned from the arm towards the operator and the guiding silicone wheel is in front of the arm, which can be achieved by turning the nozzle holder.
 6. When the system is under sufficient pressure, open the ball valve on the outlet tube. The mass starts flowing through the hose and it is forced out of the nozzle. The quantity of material forced out of the nozzle onto the construction joint is regulated by the ball valve and by speed of the machine travel. The Nahtflex material should be applied onto the construction joint in an even manner - to the upper edge of the newly placed asphalt layer or the milled off edge, the width should be 4 - 5 cm and thickness approx. 4 mm. If the material is applied on the joint side, the joint does not have to be treated. In case that a larger amount of the material is applied onto the joint, a larger amount of it flows down. Although this is not a problem, it is also not desirable because the consumption of material thus increases.
 7. The material in the container lasts for approx. 100 - 120 m of travel, or approx. 5 - 6 minutes of operation. The low level of material is indicated by sputtering sound of the nozzle. When you hear this sound, immediately close the ball valve and prepare replacement of the filling. When you disengage the quick-acting connector on the lid, the operating pressure is immediately lost. However the system remains under pressure from the pressure regulator on, including the pressure air tank. Approx. 5 to 8 cm of unused material will remain on the bottom of the vessel. This remaining material can be poured over to another container. When this other container is filled up, the material can be reused in the machine. It is necessary to make sure that the upper rim of the container is always without any contamination by the material so that it can't stick into the groove of the lid which could subsequently lead to loss of tightness and leakage of the pressure air from the vessel.
 8. When you put Sparomat out of operation or when you replace the filling, secure the machine by activating the brake on the rear swivel wheel.
 9. 12 V battery
- A charged 12 V car battery lasts for 20-25 container emptying, or the equivalent of treating approx.

2000-2500 m of the joint. Afterwards, it is necessary to disconnect and fully recharge the battery. When charging, treating or handling the battery, it is necessary to follow the safety regulations and instructions of the battery manufacturer so that safety of the operator is assured and the battery service life is not reduced. It means in particular:

- do not charge the battery when the compressor is switched on, always disconnect the battery by removing both its terminals always charge the battery removed from the machine
 - do not use a different charger than the one specified for the battery
 - do not short circuit the battery or subject it to heat or fire
 - when installing the battery to the machine, make sure it is installed with the correct polarity
 - if battery cells leak, avoid contact of the fluid with your skin or eyes. In case that the fluid comes to contact with the body, wash the exposed area with a large quantity of water and seek medical aid
 - 100% battery capacity is 12.6 V. If it drops under 12.2 V, it is necessary to immediately charge the battery
 - when the machine is put out of operation at the end of season, it is always necessary to recharge the battery after each 3 months of inactivity at the latest
 - it is best to charge the battery for a period of 24 hours
 - in case that the basic principles above are not adhered to, a sulfation of the battery due to failure to reach the full charge may occur - which means permanent damage to the battery
 - when disposing of the battery, it is necessary to adhere to the particular valid disposal regulations
10. When transporting the Sparomat, make sure that it is well secured and fixed so that tipping is prevented. Tipping of the machine may lead to contamination of the lid which can subsequently affect its tightness on a new container.
11. Always make sure that the lower vulcanised groove of the lid is clean and always place the lid on a clean vessel.

End of operation and cleaning:

When the work is finished, put the compressor switch into the off position. Secure the Sparomat by compressing the brake on the rear swivelling wheel. Make sure that the entire system from the outlet tube up to the terminal nozzle is sufficiently filled by material; otherwise the material may harden up. Put up the working arm with the terminal nozzle into a perpendicular position and secure it by the safety screw. Wrap the nozzle up with plastic foil (preferably) or stick it up with a sticking tape in order to prevent undesirable hardening of the material. Depending on the level of machine surface contamination, carry out cleaning procedure with Bornit-Bitumenreiniger cleaning agent or with higher quality and environmentally friendlier BORNIT-Tool Cleaner.

Important: Before you start operating the machine, it is necessary to check the setting of the precision pressure regulator which must be pre-set to 0.42 bar as indicated on the regulator pressure gauge by the red line. **The precision pressure regulator may be set to the maximum value of 0.5 bar!** Do not exceed this value despite the fact that technically the valve can be set to a maximum value of 0.7 bar! Exceeding the pressure value in the vessel over 0.5 bar is prevented by the safety valve HEROSE 06205 DN:1/4" which is set to 0.5 bar precisely.

Before you start operating the machine, check the air filter installed in upstream position to the pressure regulator. In case that it is contaminated, clean it by pressing the discharge valve. The precision pressure regulator may be damaged by excessive accumulation of impurities. In such case, the warranty is no longer valid. The pressure switch is pre-set by the manufacturer and it automatically switches the compressor on when the pressure in the air tank is in the range between 4.2 and 6 bar. The air tank is rated up to 9 bar by the manufacturer. The safety valve is set to a precise value of 8.3 bar by the manufacturer and it is prohibited to interfere with it in any way.

Setting the machine up for application of Rissflex compound:

1. The basic procedure is the same. The only difference is that an additional part, a "spreading iron" needs to

be installed on the arm of the Sparomat - to replace the guiding silicone wheel. This installation is very simple. The removed guiding wheel shall be placed into the opening in the sleeve located in the middle part of the working arm.

2. The Rissflex mass is pushed away from the nozzle in front of the spreading iron which applies it in a form of a narrow strip and even layer of approx 4 mm thickness onto the open joint or crack.
3. As soon as the Rissflex mass has been applied, cover the treated area with sufficient amount of crushed aggregate of grain size 0 - 4 mm and make sure that no vehicles pass over it for the period of approx. 1.5 - 2 hours (as per the technical data sheet).
4. For specification of technical conditions under which the material can be applied please read the technical data sheet of the material.

Setting the machine up for application of Fertigschlämme compound:

1. Detach the nozzle holder from the Sparomat arm, remove the nozzle from the holder and attach it to the holder of the rubber spreader by quick-acting screws.
2. Attach the holder with nozzle and rubber spreader to the Sparomat arm. When the machine starts operation, the material is spread in a thin layer, the width of which is 10 cm, onto the treated joint.
3. Before application, the Fertigschlämme compound must be diluted by adding 0.5 l of clean water to 30 kg container.

Associated risks:

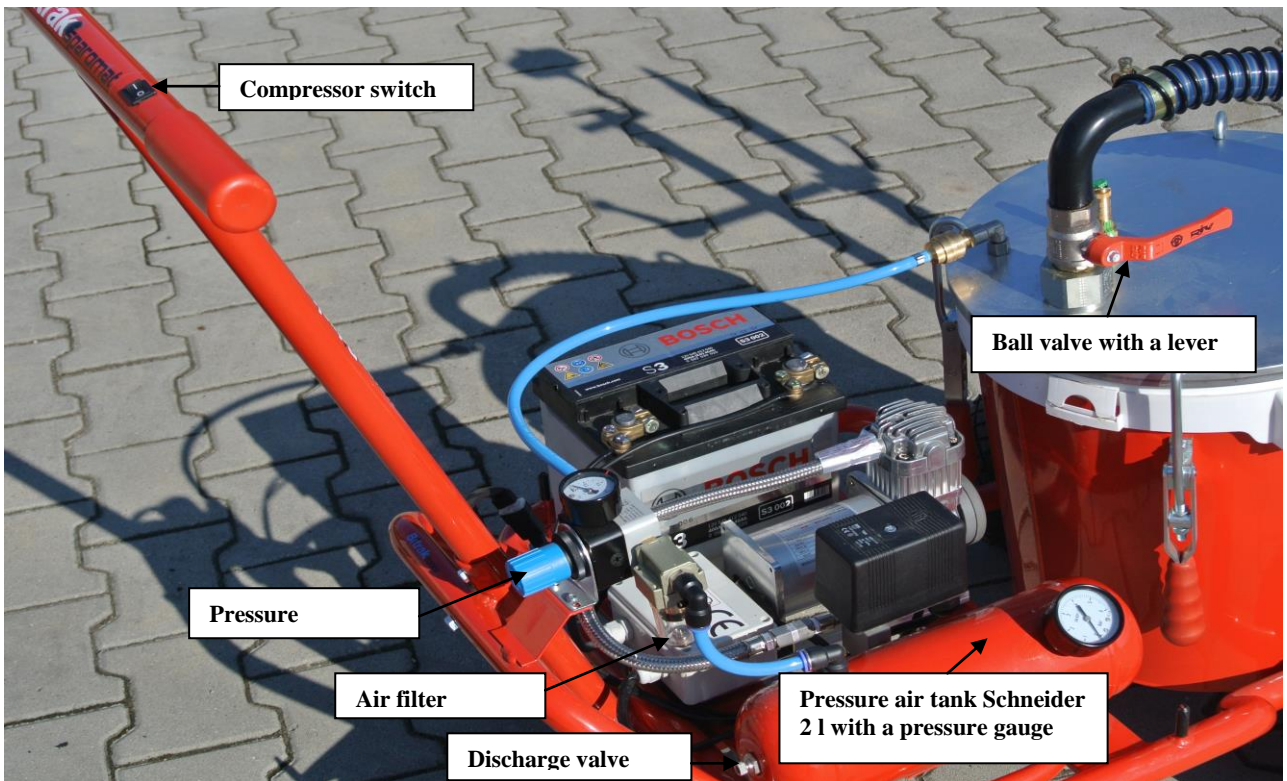
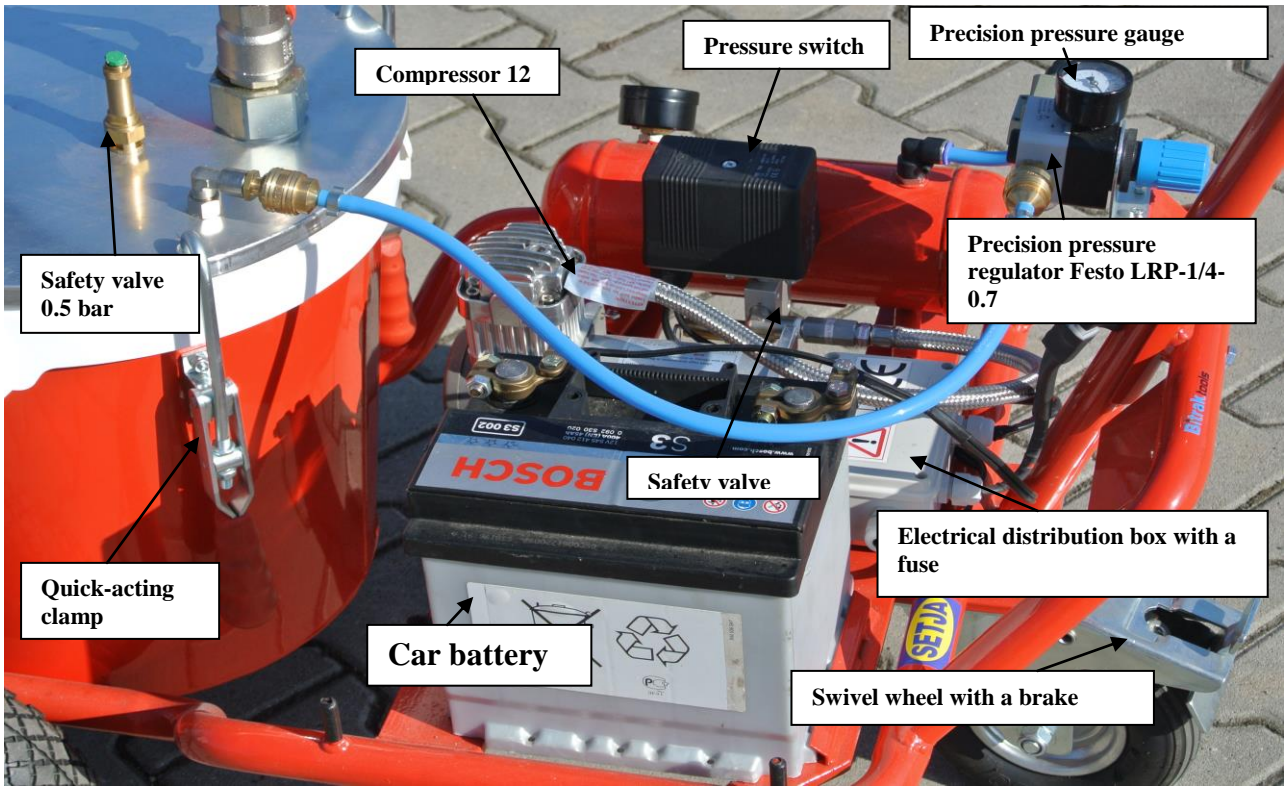
- The machine may only be operated by persons older than 18 years who familiarised themselves with the operating instructions, handling the machine and relevant regulations
- When processing the BORNIT Nahtflex and BORNIT Rissflex compounds, it is necessary to follow the instructions as specified in the technical data sheets and safety data sheets issued for these compounds.
- When operating the machine and working with the above compounds, it is necessary to wear protective clothing and gloves
- If the material gets in contact with the skin, immediately wash it with clean water
- If the material gets into the mouth, nose or eyes, immediately seek medical help
- **The setting of the precision pressure regulator FESTO must not exceed the maximum value of 0.5 bar!**
- The ribbed metal compressor cylinder is heated up during the operation. Handle it with care; make sure you do not burn yourself when touching it!
- Follow the instructions for charging and handling the battery
- **At the end of a shift and when the compressor is put out of operation for a prolonged period of time, disconnect the compressor from the battery!**

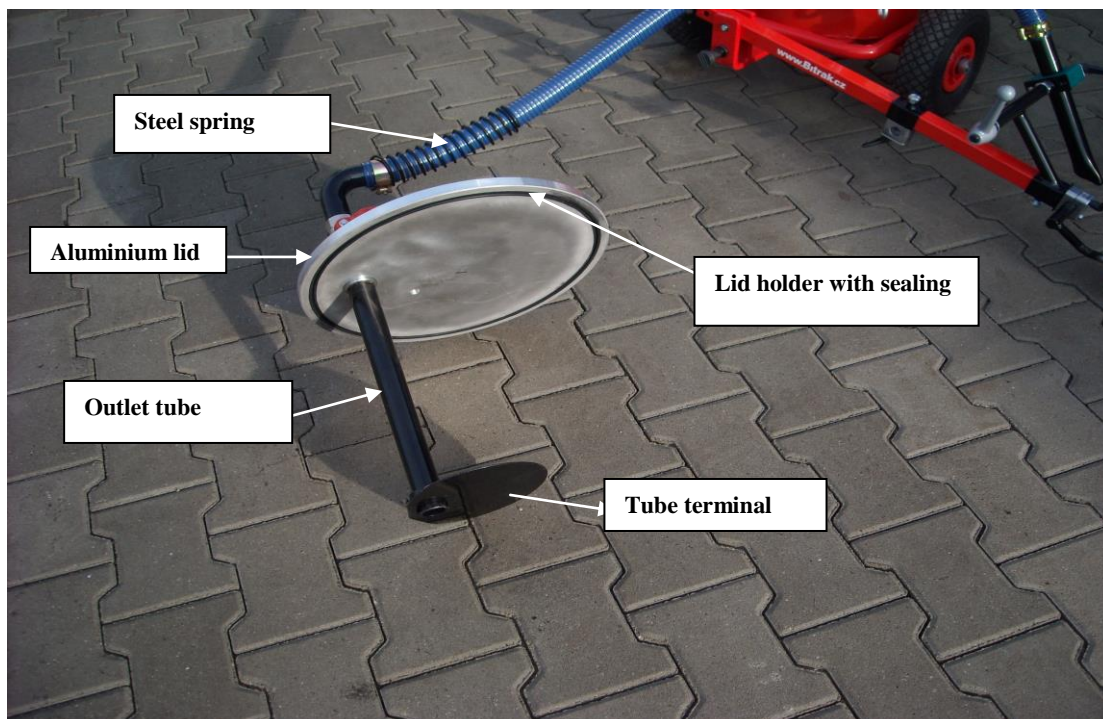
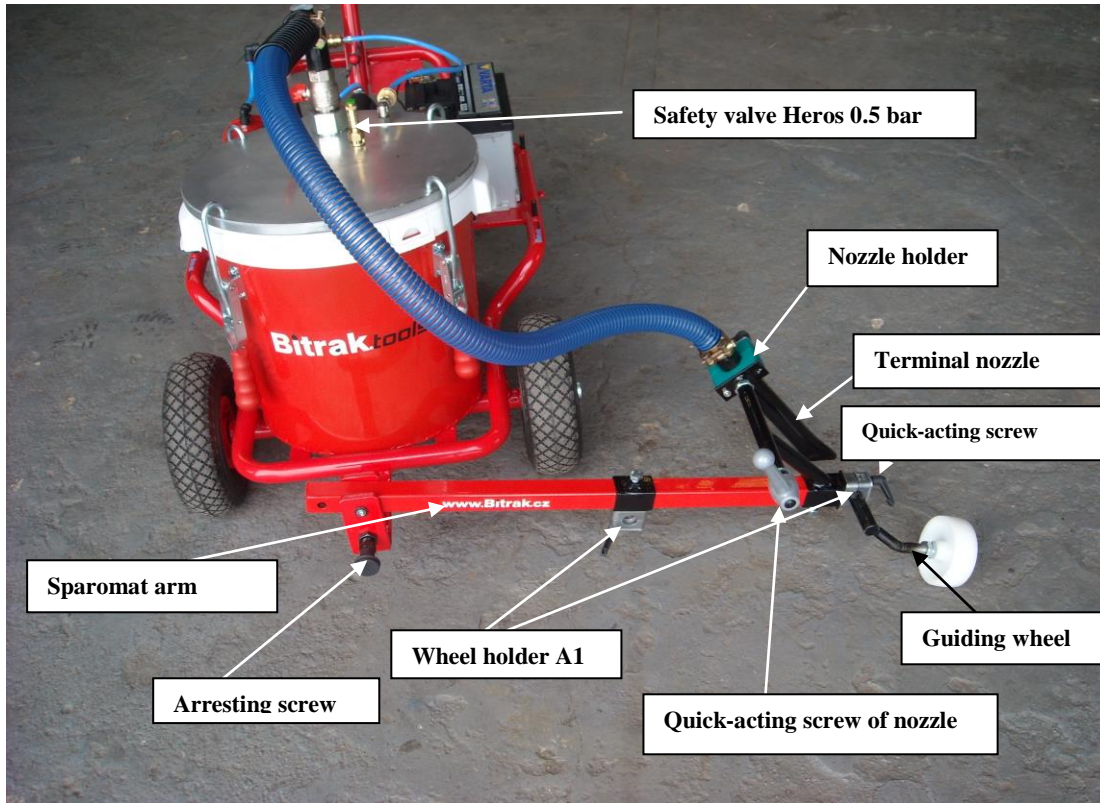
Troubleshooting:

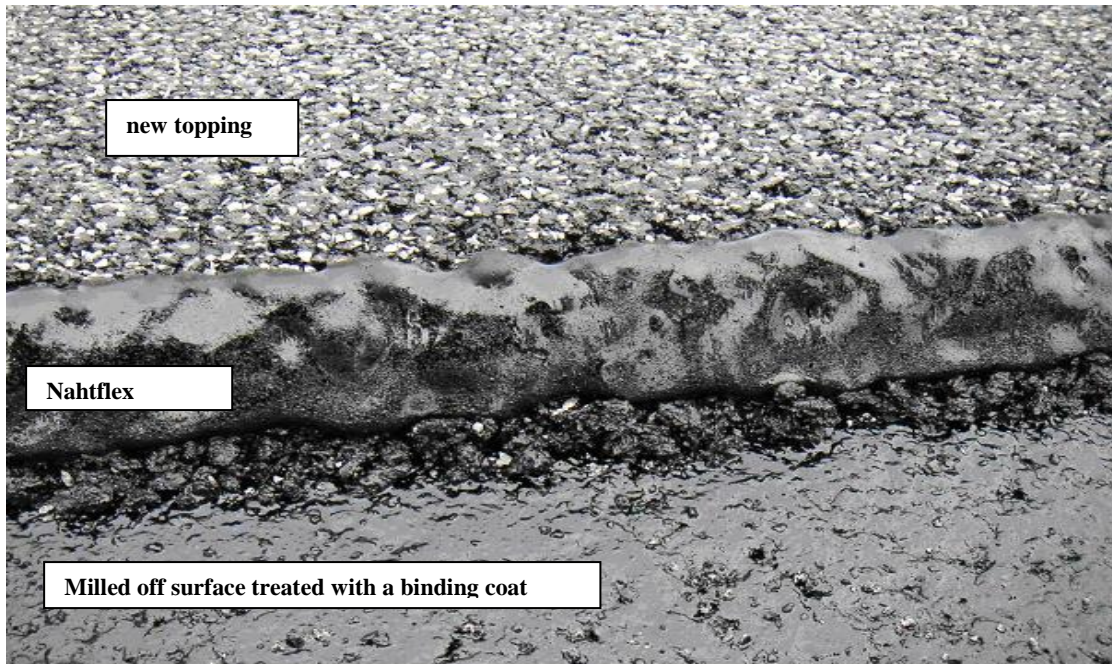
1. The system is under pressure but no material is coming out
 - check whether the ball valve on the outlet is open
 - check whether the terminal nozzle is not clogged or obstructed
2. The system cannot be pressurised, the compressor switches on and off frequently or it is constantly in operation
 - check correct seating of the lid onto the container; make sure no pressure air is escaping, re-engage or tighten the quick-acting clamps on the fixing metal vessel
3. The air filter in front of the pressure regulator is full - release and clean the receptacle

In case of faults, the servicing is provided by:

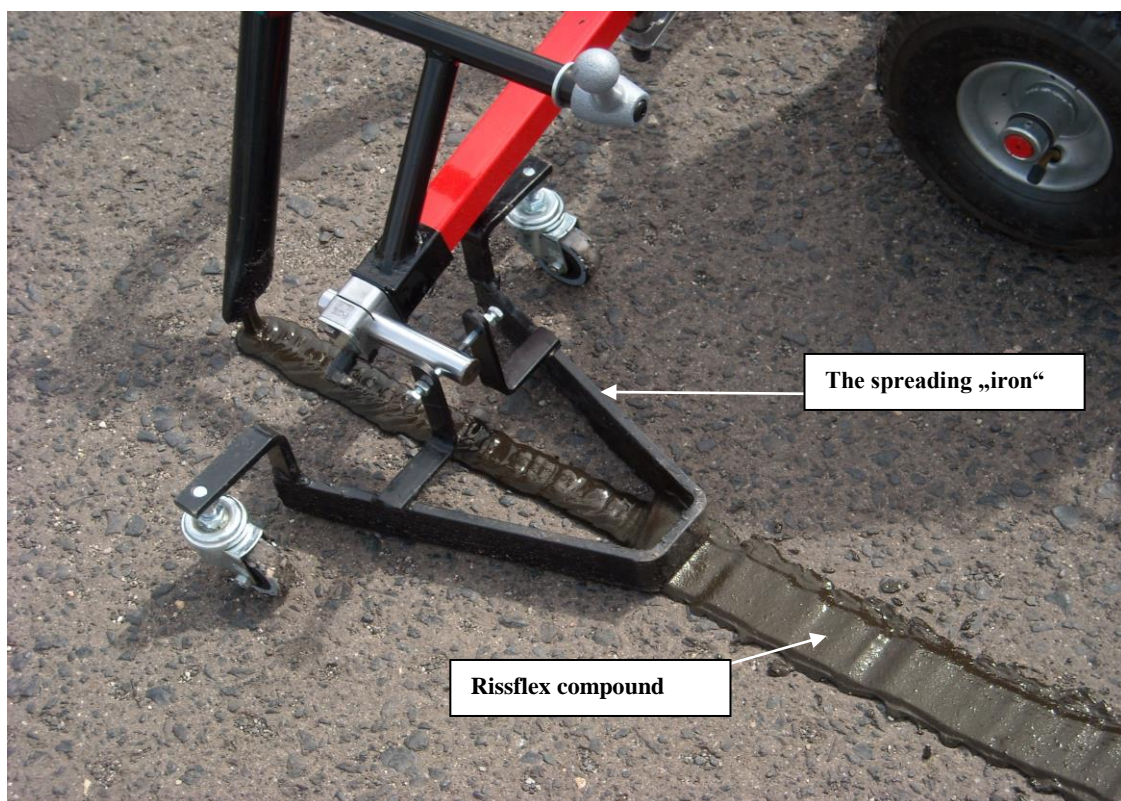
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 Service technician: Roman Šareš, tel. 739 355 468







Detailed view of the central joint treated with the Nahtflex compound before the hot asphalt mixture is installed



Treating a joint by the Rissflex compound and the spreading „iron“ (illustrative photo)



Spreading the treated crack with crushed aggregate of grain size 0 - 4 mm - BORNIT spreader cart



The crack after it has been treated with Rissflex



Treating the construction joint with Rissflex and a rubber spreader



Spreader cart Bitrak PVB

Spreading the treated joint with crushed aggregate



Treated construction joint