

7 Servicing



Info

- Observe the safety instructions, see Section 1 "SAFETY".
- The indicated service intervals are recommended values.
If necessary, adapt the service intervals to the operating conditions of the machine.
- Clean the machine after service work and repairs and disinfect if necessary.
- Use the right tool for all service work and maintenance work. The machine can be damaged by using unsuitable tools.
- MULTIVAC recommends that a servicing book is maintained for the servicing work performed. Document the following tasks:
 - Servicing work performed
 - Date
 - Machine's hours of operation
 - Name and signature of the technician

DANGER

Amputation hazard!

The movements of the lifting units are performed with great force. Reaching into the moving lifting units can result in loss of limbs.

- Only perform service work on the lifting units when they are in the lowest position.
- De-energise the machine to prevent dangerous movements.

DANGER

Dangerous voltage!

Turning off the machine with the main switch does not rid it of electrical current.

Touching live components will result in death or serious injury.

- Only qualified electricians are permitted to work on live components. Electric lines marked in orange are live.
- Before starting any work on live components, turn off the main switch and attach a lock to prevent unauthorised start-up.
- Before starting any work on live components, disconnect the machine's power supply from the electrical grid.

⚠WARNING
Health hazard!

- Excess lubricants can accumulate at lubrication points.
 Excess grease has no lubricating function; however, it can breed micro-organisms and contaminate the product.
- Check the lubrication points regularly for accumulation of excess lubricant.
 - Remove any excess lubricant.

7.1 Maintenance schedule

As needed

Assembly	Activity	Page	Com-pleted
Entire machine	Performing intermediate disinfection	570	
Entire machine	Performing microbiological test	571	
Entire machine	Intensive cleaning	571	
Entire machine	Decalcifying	571	
Vacuum system	Changing vacuum filter	589	
Vacuum pump R 5 RD 0200 A	General reconditioning	594	
Vacuum pump WV 0250 - 2000	Changing the oil	594	
Vacuum pump WV 0250 - 2000	Change the oil in the seal casing	594	
Vacuum pump WV 0250 - 2000	General reconditioning	595	
External vacuum pump	Performing servicing work	595	
Direct web printer	Performing servicing work	596	
Suction unit	Replacing filter cartridge	602	

Every 8 operating hours or daily

Assembly	Activity	Page	Com-pleted
Valve clusters	Visual inspection	561	
Entire machine	Visual inspection	562	
Entire machine	Alkaline cleaning and disinfection	570	
Basic setting	Checking, adjusting	571	

Assembly	Activity	Page	Com- pleted
Film unwinds	Visual inspection	573	
Film unwinds	Cleaning	573	
Sensors	Clean optical components	574	
Photo scanning heads	Cleaning optical components	574	
Format tool	Removing film trim	592	
Cutting unit	Visual inspection	596	
Cutting unit	Remove the film trims	597	
Cutting unit	Applying anti-corrosion agents	597	
Film punch	Apply anti-corrosion agent	597	
Suction unit	Visual inspection	602	
Suction removal	Cleaning	604	

Every 50 operating hours or weekly

Assembly	Activity	Page	Com- pleted
Control cabinet	Visual inspection	562	
Control cabinet	Checking the condensate drain	566	
Control cabinet	Check flange seals	570	
Entire machine	Acidic cleaning and disinfection	571	
Connections	Visual inspection	571	
Automatic chain lubrication	Check the fill level, top up if required	574	
Light barriers	Cleaning	575	
Lifting unit - pull rods and guide rods	Applying anti-corrosion agents	590	
Format tool	Checking	593	
Vacuum pump R 5 RD 0200 A	Fill level, checking the	593	
Vacuum pump R 5 RD 0200 A	Visual inspection	593	
Discharge unit with belt conveyor (option)	Tensioning the belt	606	

Every 200 operating hours or monthly

Assembly	Activity	Page	Com-	pleted
Register mark control	Cleaning the film brake	575		
Central lubrication of lifting unit	Lubrication	591		
Vacuum pump R 5 RD 0200 A	Cleaning the filter in the suction connection	593		
Vacuum pump WV 0250 - 2000	Fill level, checking the	594		
Vacuum pump WV 0250 - 2000	Fill level, checking on drip feed oiler	594		
Side channel blower	Cleaning	595		
Film punch	Lubrication	600		
Discharge unit	Adjusting friction brake	604		

Every 1000 hours of operation or every six months

Assembly	Activity	Page	Com-	pleted
Activated carbon filter for compressed air	Replacement	578		
Film transport system	Checking, correcting cut-off length	586		
Vacuum pump R 5 RD 0200 A	Cleaning	594		
Vacuum pump WV 0250 - 2000	Checking the oil colour	594		
Vacuum pump WV 0250 - 2000	Cleaning	595		

Every 2400 operating hours or yearly

Assembly	Activity	Page	Com-	pleted
Service socket	Checking	570		
Entire machine	Check the age	570		
Pedestal bearing	Lubrication	572		
Flange bearing	Lubrication	573		

Assembly	Activity	Page	Com-	pleted
Micro-filter for compressed air	Replacement	575		
Compressed air micro-filter with stainless steel housing	Replacement	577		
Compressed air carbon filter with stainless steel housing	Replacement	581		
Air preparation unit filter	Replacement	583		
Filter element in the dirt trap	Cleaning	586		
Machine control	Check the battery pack	588		
Vacuum pump R 5 RD 0200 A	Replacing the air de-oiling elements.	593		
Vacuum pump R 5 RD 0200 A	Changing the oil and oil filter	593		
Vacuum pump WV 0250 - 2000	Changing the oil	595		
Vacuum pump WV 0250 - 2000	Change the oil in the seal casing	595		
Vacuum pump WV 0250 - 2000	Performing servicing work	595		
Side channel blower	Replacing the air filter	596		
Side channel blower	Performing servicing work	596		

Every 4800 hours of operation or every two years

Assembly	Activity	Page	Com-	pleted
Control cabinet	Replace the condensate drain.	568		

7.2 Opening and closing devices

7.2.1 Opening the electrical lifting units

1. Switch off the cleaning position. See Section 6.2.1 "SWITCHING THE CLEANING POSITION ON AND OFF" on page 514.

7.3 General maintenance recommendation

7.3.1 Valve clusters - Visual inspection

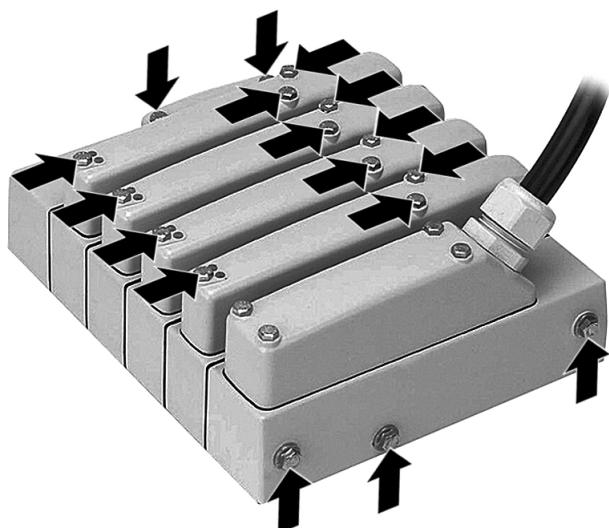
DANGER**Injury hazard!**

If valve clusters are not completely tight, humidity may get in and cause uncontrolled movements of the machine. This will lead to serious injuries.



- Valve clusters may only be opened by a trained specialist.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
2. Remove the side cladding in the area of the valve cluster.
3. Check the safety varnish on the screws.



- 3.1 If the varnish is damaged, notify a trained specialist immediately. The screws of the valve cluster have been opened.

7.3.2 Entire machine - Visual inspection

1. Check the entire machine for any external signs of damage.
2. Check that all the stickers are present.
3. **⚠ DANGER** – Non-functioning or damaged safety devices lead to unprotected danger zones. Reaching into unprotected danger zones will lead to serious injuries or death.
 - Shut down the machine immediately.
 - Notify MULTIVAC Service without delay.
4. Check that all safety devices are attached and undamaged.

7.3.3 Control cabinet - Visual inspection

⚠ DANGER

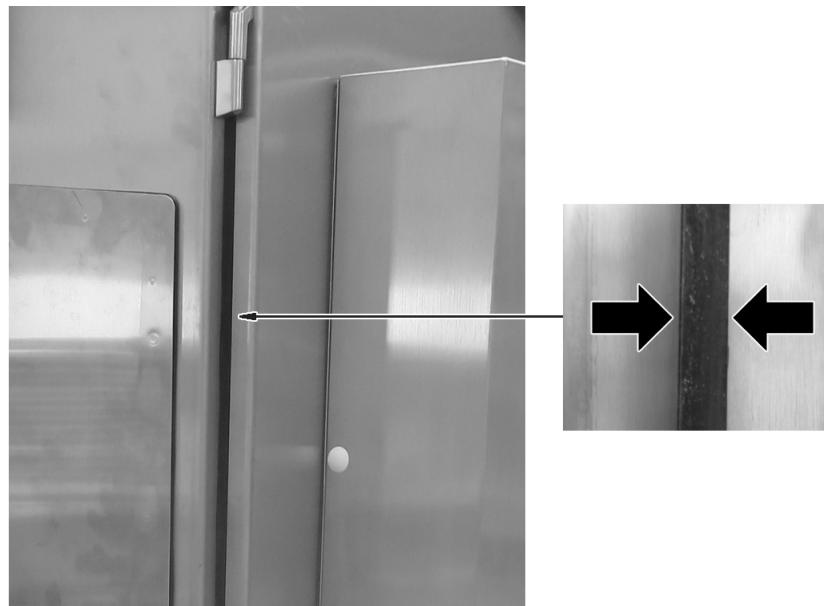
Dangerous voltage!

Switching off the machine does not rid it of electrical current. Touching live components will result in death or serious injury.

- Only qualified electricians are permitted to work on live components. Electric lines marked in orange are live.
- Before starting any cleaning work or service work, disconnect the machine's power supply from the electrical grid.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Check whether the door gasket is damaged.
 - 2.1 If a gasket is damaged, replace it.

-
3. Check whether the door gasket is clean and clear of gaps all round, when the door is closed. If not, observe the following points.



-
4. Open the control cabinet door

5. Check whether the interior of the control cabinet is dirty.
 - ✓ A dirty interior indicates that the door gasket is damaged.
 - ✓ If a gasket is damaged, replace it.

-
6. Check whether there is any contamination visible in the area of the flange plates.



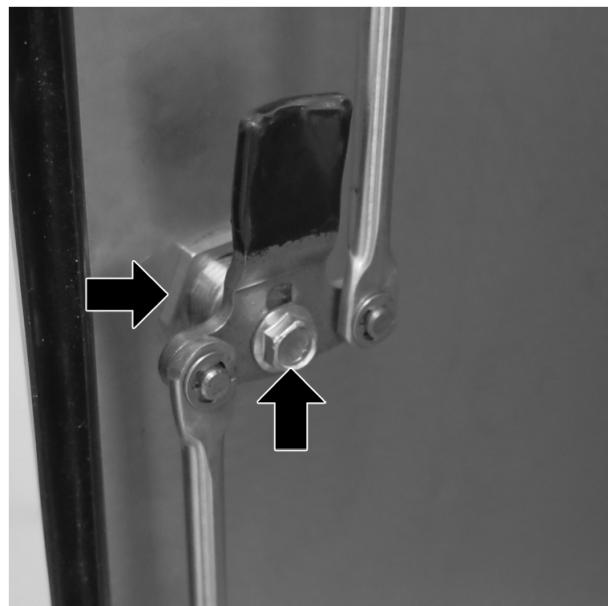
- ✓ Contamination indicates a damaged flange seal.
- ✓ Have a damaged flange seal replaced by MULTIVAC Service.

-
7. Check whether the door gasket is pressed correctly into the U-profile of the control cabinet door.



- ✓ If required, press it in.

-
8. Check whether the screw and nut on the closing mechanism are tightened, and that the closing mechanism functions.



✓ If necessary, tighten the screw and nut.

-
9. Check whether the guides for the rods are movable.



✓ If required, replace the guides.

-
10. Check whether the door is damaged or distorted.
 - ✓ If the door is damaged, notify MULTIVAC Service.
 11. Close the control cabinet door.
-

7.3.4 Control cabinet - Checking the condensate drain

DANGER

Dangerous voltage!

Switching off the machine does not rid it of electrical current.

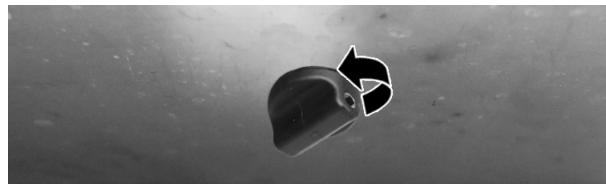
Touching live components will result in death or serious injury.

- Only qualified electricians are permitted to work on live components. Electric lines marked in orange are live.
- Before starting any cleaning work or service work, disconnect the machine's power supply from the electrical grid.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Open the control cabinet door.
3. Check whether there is water on the control cabinet floor.

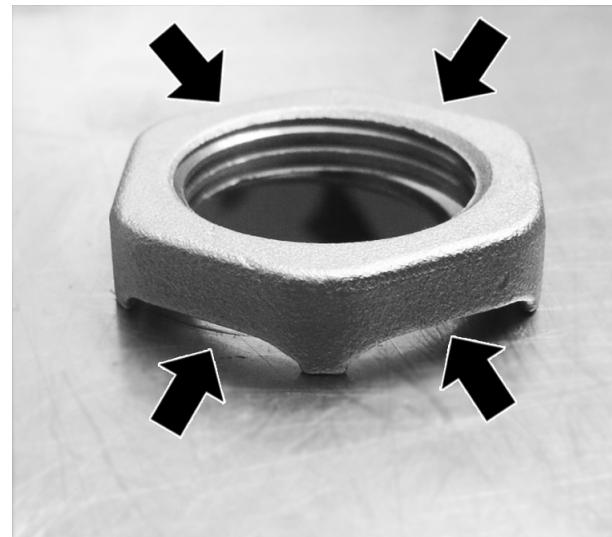


4. If there is water on the control cabinet floor, replace the condensate drain:
 - 4.1 Unscrew the condensate drain on the underside of the control cabinet.

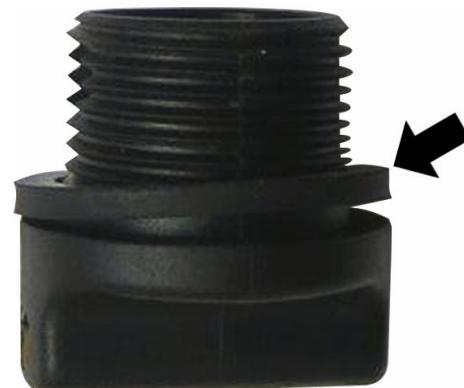


- 4.2 Clean and disinfect the inside of the control cabinet and the nut for the condensate drain.

- 4.3 Ensure that the cut-outs in the nut on the control cabinet floor are free of contamination.
If necessary, perform manual cleaning of the nut.



- 4.4 Ensure that the gasket on the new condensate drain is attached.



- 4.5 Push the new condensate drain from below through the hole in the control cabinet floor.



- 4.6 Tighten the condensate drain by hand.

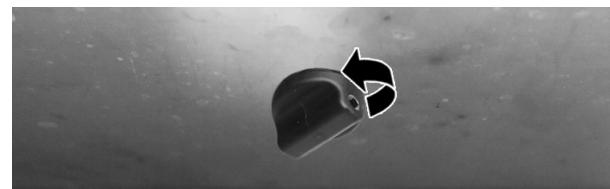
7.3.5 Control cabinet - Replace the condensate drain.

DANGER**Dangerous voltage!**

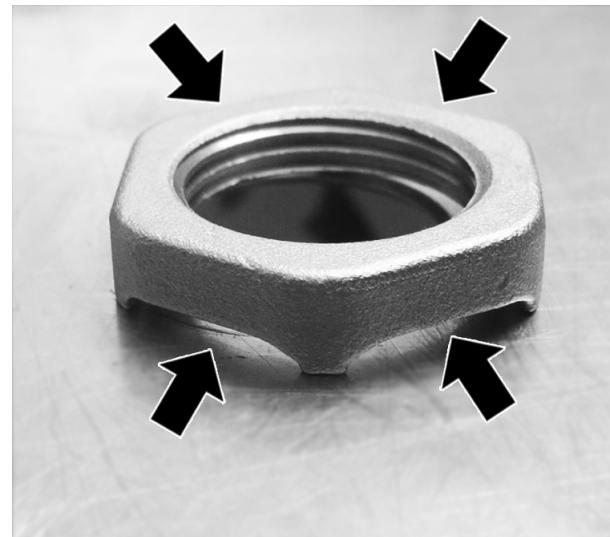
Switching off the machine does not rid it of electrical current. Touching live components will result in death or serious injury.

- Only qualified electricians are permitted to work on live components. Electric lines marked in orange are live.
- Before starting any cleaning work or service work, disconnect the machine's power supply from the electrical grid.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Open the control cabinet door.
3. Unscrew the condensate drain on the underside of the control cabinet.



4. Clean and disinfect the inside of the control cabinet and the nut for the condensate drain.
5. Ensure that the cut-outs in the nut on the control cabinet floor are free of contamination.
If necessary, perform manual cleaning of the nut.



-
6. Ensure that the gasket on the new condensate drain is attached.



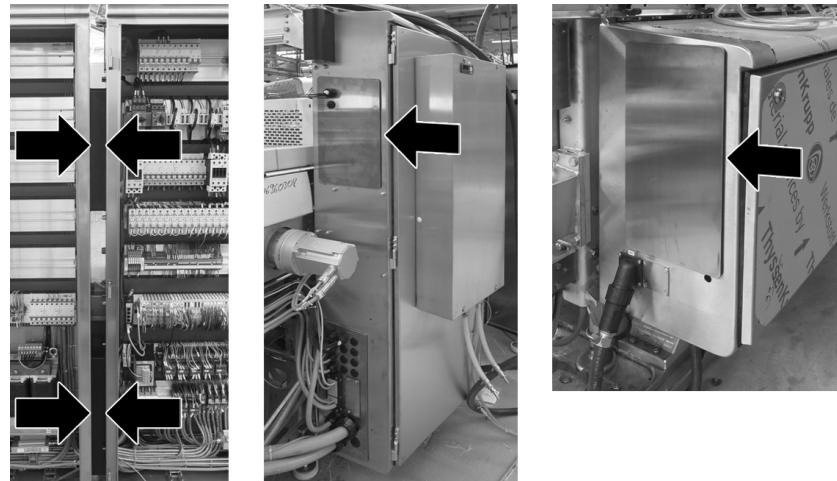
-
7. Push the new condensate drain from below through the hole in the control cabinet floor.



-
8. Tighten the condensate drain by hand.
-

7.3.6 Control cabinet - Check flange seals

1. Check whether damage is visible on the flange seals.
The flange seals can be sideways on the control cabinets or between docked control cabinets.



- ✓ Have a damaged flange seal replaced by MULTIVAC Service.

7.3.7 Service socket - Checking

1. Have the service socket in the control cabinet checked by a qualified electrician.

7.3.8 Entire machine - Check the age

1. Read the year of manufacture on the type plate.
2. If the machine is older than 19 years:
 - 2.1 Shut down the machine.
 - 2.2 Have the safety functions checked by MULTIVAC Service.

7.3.9 Entire machine - Performing intermediate disinfection

1. Perform intermediate disinfection regularly during operation (e.g. after or immediately before short breaks). See Section 6 "CLEANING" on page 506.

7.3.10 Entire machine - Alkaline cleaning and disinfection

1. Perform daily cleaning with an alkaline care product.

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- 1.1 Observe the company cleaning instructions and the cleaning recommendations. See Section 6 "CLEANING" on page 506.
-

7.3.11 Entire machine - Performing microbiological test

-
1. Check the result of the cleaning and disinfection by means of a microbiological test.
 - 1.1 Observe the company cleaning instructions and the cleaning recommendations. See Section 6 "CLEANING" on page 506.
-

7.3.12 Entire machine - Acidic cleaning and disinfection

-
1. Perform cleaning with an acidic care product as described under daily cleaning.
 - 1.1 Observe the company cleaning instructions and the cleaning recommendations. See Section 6 "CLEANING" on page 506.
-

7.3.13 Entire machine - Intensive cleaning

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1. Observe the company cleaning instructions and the cleaning recommendations. See Section 6 "CLEANING" on page 506.
-

7.3.14 Entire machine - Decalcifying

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1. Have the machine decalcified by MULTIVAC Service.
-

7.3.15 Connections - Visual inspection

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
 2. Check the electrical lines for damage.
 3. Check that the compressed air supply line is fitted tightly and undamaged.
 4. Check that the cooling water line is fitted tightly and undamaged.
 5. Check that the line for packaging gas (option) is fitted tightly and undamaged.
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7.3.16 Basic setting - Checking, adjusting

-
1. Check the system pressure and adjust if necessary. See "Technical specifications".
-

-
2. Check the cooling water flow rate.
If necessary, set the cooling water flow rate.

 3. Check the gas pressure (option) and adjust if necessary.
See "Technical specifications".
 - 3.1 Check the setting on the gas cylinder or on the gas mixer,
adjust if necessary.
 - 3.2 Check the setting in the control cabinet, adjust if necessary.
-

7.3.17 Pedestal bearing - Lubrication

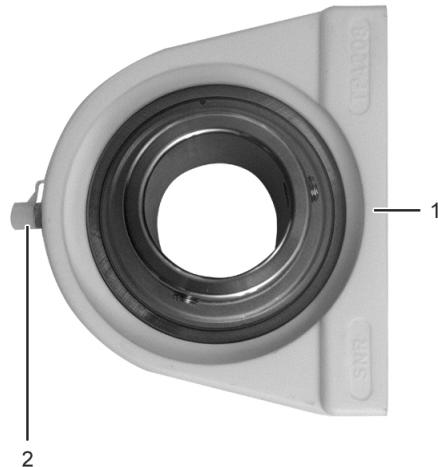


Fig. 379: Pedestal bearing

- 1** Pedestal bearing
2 Lubricating nipple

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.

 2. Remove the respective covers.

 3. Lubricate the pedestal bearings at the lubricating nipples according to the machine configuration.
The recommended lubricant is listed in the "Lubricant table".
 - 3.1 Advance drive for transport chains, 2 in number.
 - 3.2 Chain deflector for transport chains in the case of a machine length greater than 12 m (39.37 ft), 2 in number.

 4. Remove any excess lubricants.

 5. Fit the respective covers.
-

7.3.18 Flange bearing - Lubrication

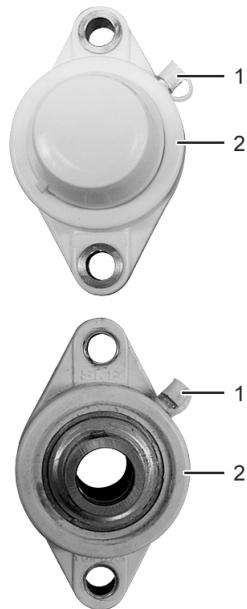


Fig. 380: Flange bearing

- 1 Lubricating nipple
- 2 Flange bearing

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 2. Remove the respective cover.
 3. Lubricate the flange bearings at the lubricating nipples according to the machine configuration.
The recommended lubricant is listed in the "Lubricant table".
 - 3.1 Discharge unit
 - 3.2 Transport conveyor
 - 3.3 Stretching unit with servo motor
 4. Remove any excess lubricants.
 5. Fit the respective covers.
-

7.3.19 Film unwinds - Visual inspection

-
1. Check the film run of the films and correct if necessary.
See Section 4.9 "INSERTING FILM AND FEEDING FILM" on page 354.
-

7.3.20 Film unwinds - Cleaning

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1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
-

-
2. Clean the film unwinds with their deflection rollers and in-feed rollers.
-

7.3.21 Automatic chain lubrication - Check the fill level, top up if required

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
 2. Check the fill level in the liquid container. Top up the oil if required.
The recommended lubricant is listed in the Lubricant table.
 - 2.1 Open the lid of the liquid container.
-



- 2.2 Fill the liquid container with the lubricant.
 - 2.3 Close the lid of the liquid container.
 3. Check the oil application on the brushes.
 4. Check the oil application on the transport chains.
 5. Check the brushes for wear.
-

7.3.22 Sensors - Clean optical components

-
1. Clean optical components of the sensor with a mild cleanser.
-

7.3.23 Photo scanning heads - Cleaning optical components

-
1. Clean optical components of the photo scanning head with a mild cleanser.
-

7.3.24 Register mark control - Cleaning the film brake

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Clean film brake.

7.3.25 Light barriers - Cleaning

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Clean photocells and reflectors with a mild cleanser.

7.3.26 Micro-filter for compressed air - Replacement

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Press the locking device into the filter housing and at the same time turn the filter housing anticlockwise as far as the end stop.



3. Remove the filter housing.

-
4. Unscrew the filter element anticlockwise.



-
5. Insert and tighten the new filter element.
 6. Replace the sealing ring on the filter housing.



-
7. Position the filter housing and turn it clockwise as far as the end stop.
 - ✓ The filter housing is secured.
 8. Open the stop-cock for the compressed air supply.
 9. Set the system pressure on the air preparation unit. See Section 5.1 "ADJUSTING THE COMPRESSED AIR" on page 403.
-

7.3.27 Compressed air micro-filter with stainless steel housing - Replacement

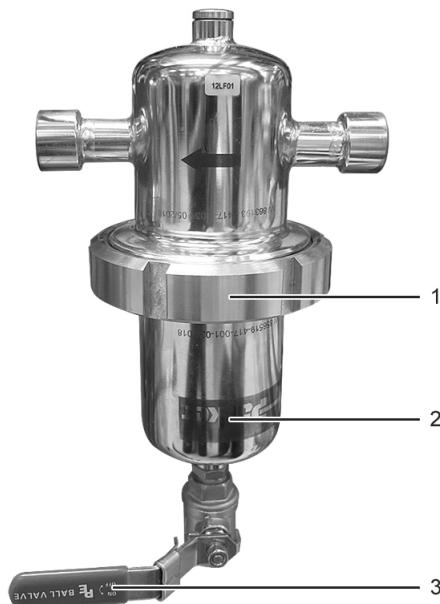


Fig. 381: Micro-filter with stainless steel housing

- 1** Nut
- 2** Filter housing
- 3** Stop-cock

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.

 2. Place a container under the micro-filter.

 3. Open the stop-cock.
 - ✓ If there is liquid in the filter housing, the liquid is drained from the outlet.

 4. When no more liquid drains from the outlet, close the stop-cock.

 5. Remove the container under the micro-filter.

 6. Open the nut on the filter housing and remove the filter housing and nut.
-

-
7. Turn the filter element anticlockwise and pull it out downwards.



-
8. Insert the new filter element.
 9. Attach the filter housing and tighten the nut.
 10. Open the stop-cock for the compressed air supply.
 11. Set the system pressure on the air preparation unit. See Section 5.1 "ADJUSTING THE COMPRESSED AIR" on page 403.
-

7.3.28 Activated carbon filter for compressed air - Replacement

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.

2. Press the locking device into the filter housing and at the same time turn the filter housing anticlockwise as far as the end stop.



-
3. Remove the filter housing.
 4. Unscrew the filter element anticlockwise.



-
5. Insert and tighten the new filter element.

-
6. Replace the sealing ring on the filter housing.



-
7. Position the filter housing and turn it clockwise as far as the end stop.
 - ✓ The filter housing is secured.
 8. Open the stop-cock for the compressed air supply.
 9. Set the system pressure on the air preparation unit. See Section 5.1 "ADJUSTING THE COMPRESSED AIR" on page 403.
-

7.3.29 Compressed air carbon filter with stainless steel housing - Replacement

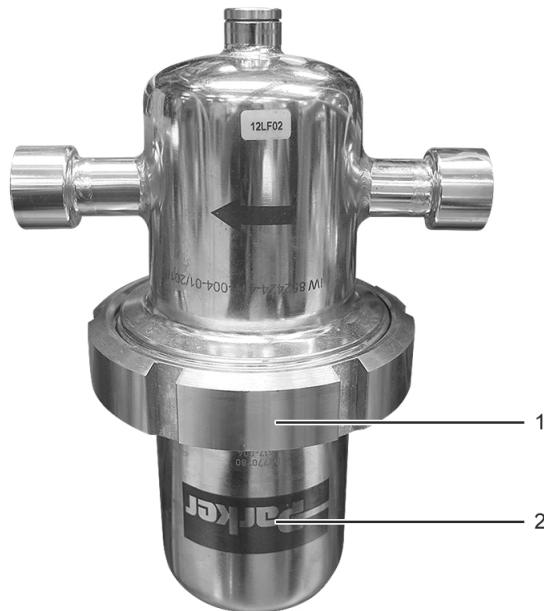


Fig. 382: Compressed air carbon filter with stainless steel housing

- 1** Nut
- 2** Filter housing

-
- 1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 - 2. Open the nut on the filter housing and remove the filter housing and nut.
-

Servicing

Compressed air carbon filter with stainless steel housing - Replacement



-
3. Pull out the filter element downwards and remove it.



-
4. Insert the new filter element.
 5. Attach the filter housing and tighten the nut.
 6. Open the stop-cock for the compressed air supply.
 7. Set the system pressure on the air preparation unit. See Section 5.1 "ADJUSTING THE COMPRESSED AIR" on page 403.
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7.3.30 Air preparation unit filter - Replacement

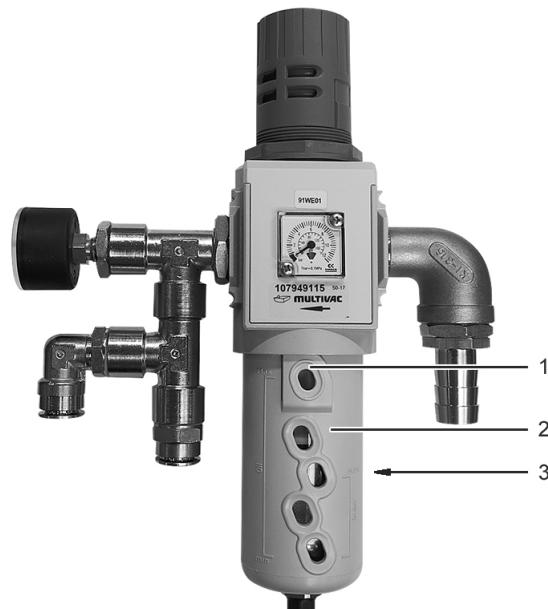
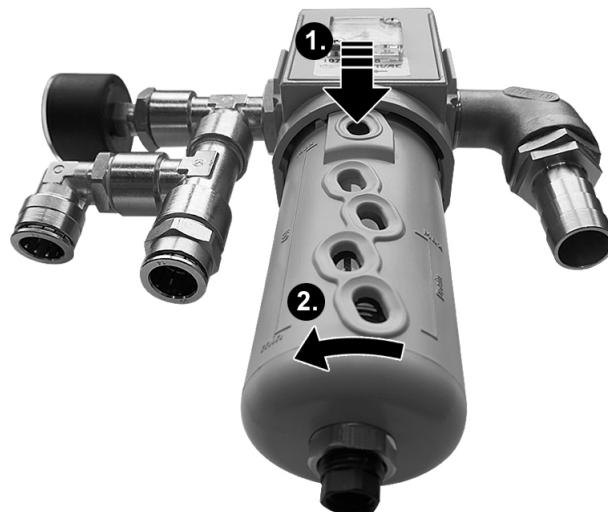


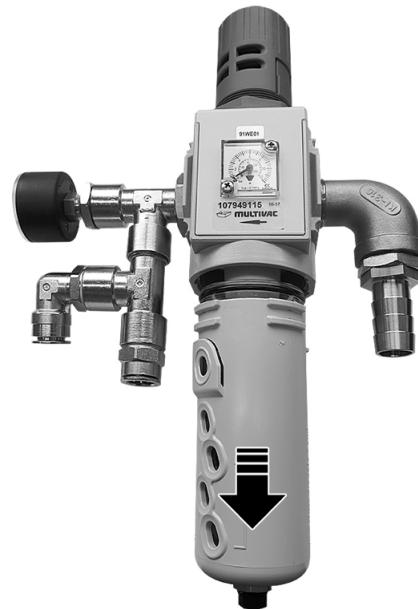
Fig. 383: Air preparation unit

- 1 Locking device
- 2 Filter housing
- 3 Filter element

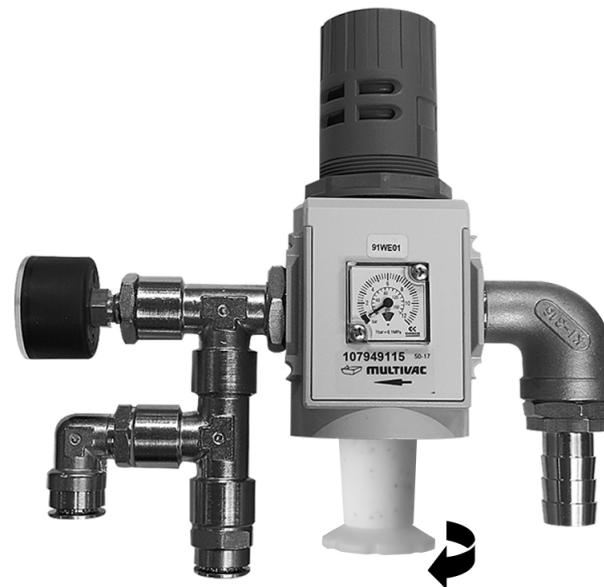
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1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 2. In order to release the pressure in the filter housing, vent the supply line to the machine.
 3. Press the locking device into the filter housing and at the same time turn the filter housing anticlockwise as far as the end stop.
-



-
4. Remove the filter housing.



-
5. Unscrew the knob nuts.



-
6. Replace the filter element.



-
7. Position the filter element on the air preparation unit and tighten the knob nuts.
 8. Replace the sealing ring on the filter housing.



-
9. Position the filter housing on the air preparation unit and turn it clockwise as far as it will go.
 - ✓ The filter housing is secured.
 10. Open the stop-cock for the compressed air supply.

-
11. Set the system pressure on the air preparation unit. See Section 5.1 "ADJUSTING THE COMPRESSED AIR" on page 403.
-

7.3.31 Film transport system - Checking, correcting cut-off length

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1. Check the cut-off length. See Section 7.13 "FILM TRANSPORT SYSTEM" on page 617.
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7.3.32 Filter element in the dirt trap - Cleaning

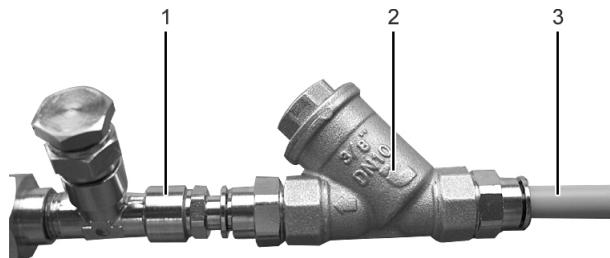


Fig. 384: Dirt trap filter element

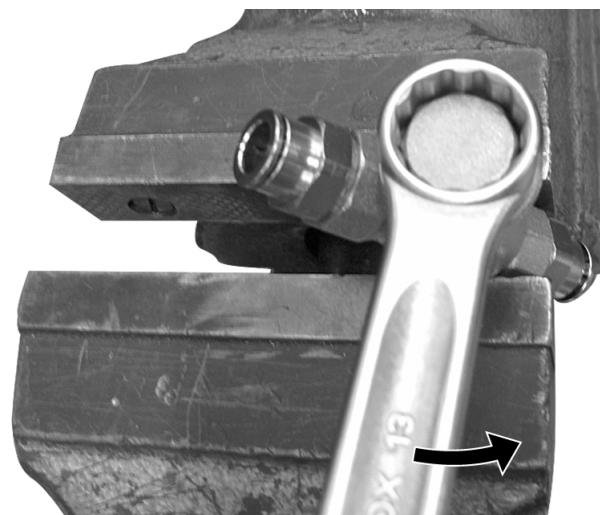
- 1 Cooling water connection
- 2 Dirt trap
- 3 Cooling water line

-
1. Empty the cooling water circuit. See Section 5.10.2 "DRAINING THE COOLING WATER CIRCUIT" on page 426.
 2. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 3. Open the control cabinet door.
 4. Unplug the cooling water line at the dirt trap.
 5. Unplug the dirt trap at the cooling water connection.
-

-
6. Clamp the dirt trap in a bench vice.



-
7. Unscrew the filter element.



-
8. Remove the filter from the filter element and clean it.



-
9. Replace the gasket of the filter element.



-
10. Insert the cleaned filter in the filter element.
 11. Tighten the filter element in the dirt trap.
 12. Connect the dirt trap at the cooling water connection.
 13. Connect the cooling water line at the dirt trap.
 14. Close the control cabinet door.
-

7.3.33 Machine control - Check the battery pack

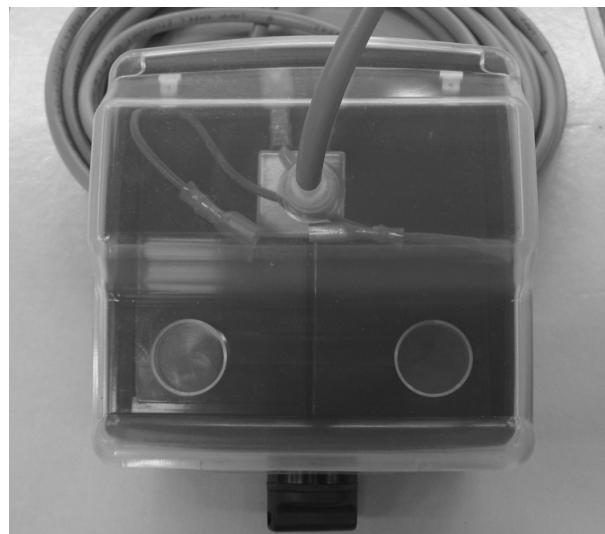


Fig. 385: Battery pack

DANGER

Dangerous voltage!

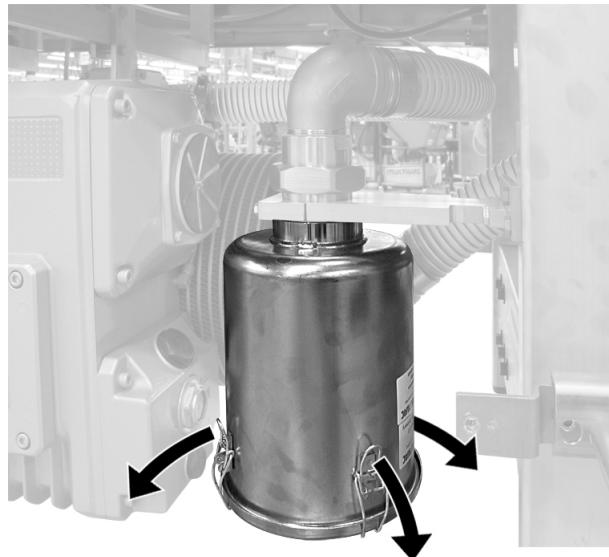
Switching off the machine does not rid it of electrical current. Touching live components will result in death or serious injury.

- Only qualified electricians are permitted to work on live components. Electric lines marked in orange are live.
- Before starting any cleaning work or service work, disconnect the machine's power supply from the electrical grid.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Remove the side cladding in the area of the main control cabinet.
3. Check the age of the battery pack.
 - 3.1 Check the date, on which the battery pack was last changed.
 - 3.2 If the battery pack has not yet been changed, check the machine's year of manufacture on the type plate.
 - 3.3 If the battery pack is older than five years, have the battery pack changed by MULTIVAC Service.
4. Attach the side cladding.
5. Note down the date, on which the battery pack is changed.

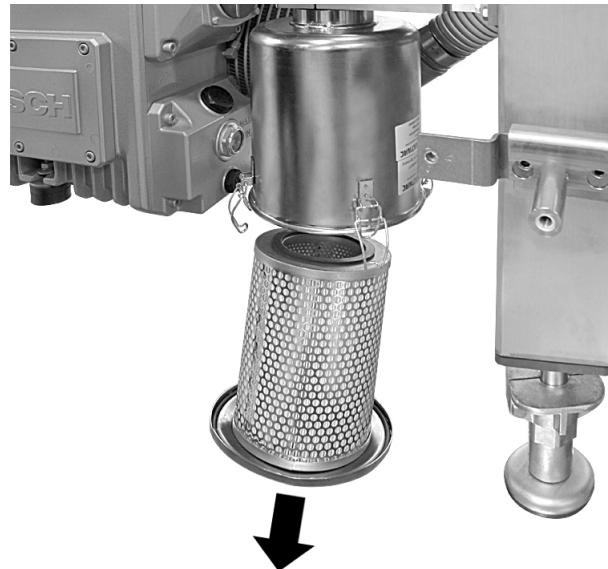
7.3.34 Vacuum system - Changing vacuum filter

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
2. Remove the side cladding in the area of the vacuum filter.
3. Open the clamping clips on the filter housing.



4. Remove the cover.

-
5. Remove the vacuum filter.



-
6. Insert a new vacuum filter.
 7. Attach the cover.
 8. Close the filter housing with the clamping clips.
 9. Attach the side cladding.
-

7.4 Service recommendation for lifting units and dies.

DANGER

Amputation hazard!

The movements of the lifting units are performed with great force. Reaching into the moving lifting units can result in loss of limbs.

- Only perform service work on the lifting units when they are in the lowest position.
- De-energise the machine to prevent dangerous movements.

7.4.1 Lifting unit - pull rods and guide rods - Applying anti-corrosion agents

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
 2. Apply the anti-corrosion agent. The recommended anti-corrosion agent is listed in the Care products table.
-

7.4.2 Central lubrication of lifting unit - Lubri-cation

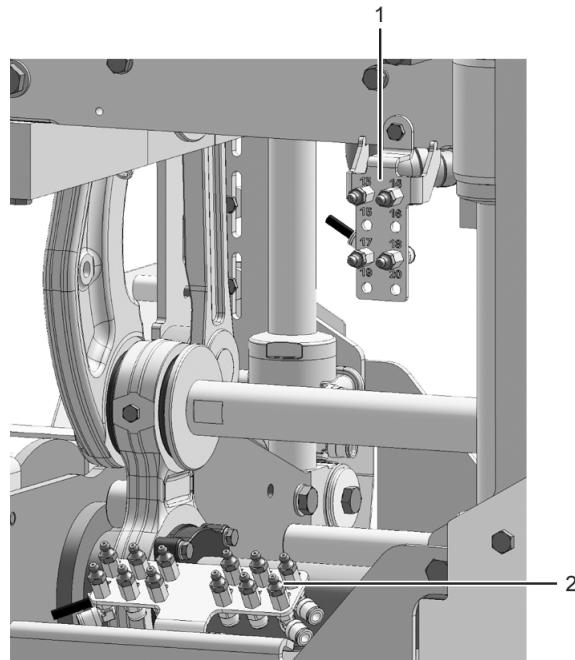
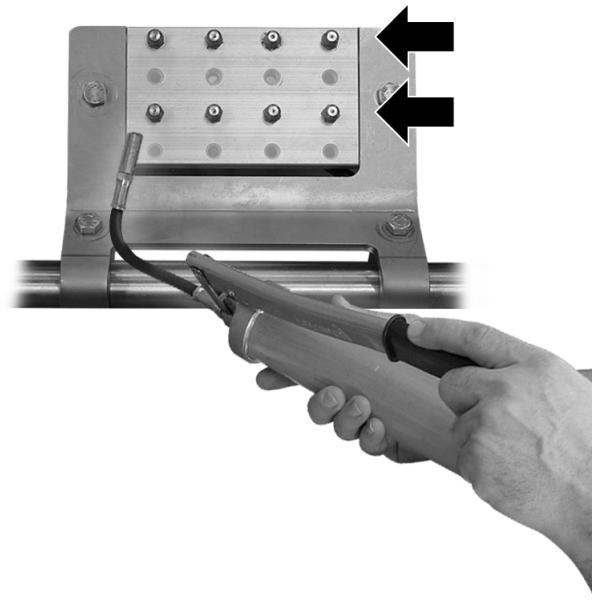


Fig. 386: Lubrication plate

- 1 Upper lubrication plate (option)
- 2 Lower lubrication plate

-
- 1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.

-
2. Lubricate the lubricating nipples on the lubrication plates in the area of the lifting unit. The recommended lubricant is listed in the "Lubricant table".



3. Remove excess lubricant from the lubricating nipples and lubrication points of the lifting unit.
-

7.4.3 Format tool - Removing film trim

 WARNING**Burn hazard!**

The built-in heating plates can reach temperatures over 180 °C. The heating plates remain hot for some time after the machine has been switched off.

Touching the heating plates can lead to severe burns.

- When performing any work wear personal protective equipment.
- Do NOT touch the heating plates.
- Before starting any work in the danger zone, allow the die to cool down.

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 2. Allow the dies to cool down.
 3. Check the die seals.
 4. Check whether there is film trim in the format tools. If necessary, remove the film trim. See Section 7.16.1 "REMOVING FILM RESIDUES" on page 633.
-

7.4.4 Format tool - Checking

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
 2. Check the die fastenings, tighten the screws if required.
 3. Perform the vacuum test see Section 7.12 "PERFORMING THE VACUUM TEST".
-

7.5 Maintenance recommendation for vacuum pumps

7.5.1 Vacuum pump R 5 RD 0200 A - Fill level, checking the

1. Check the fill level of the oil. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
-

7.5.2 Vacuum pump R 5 RD 0200 A - Visual inspection

1. Perform the visual inspection of the vacuum pump. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
-

7.5.3 Vacuum pump R 5 RD 0200 A - Cleaning the filter in the suction connection

1. Clean the filter in the suction connection. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
-

7.5.4 Vacuum pump R 5 RD 0200 A - Replacing the air de-oiling elements.

1. Replace the air de-oiling elements.
-

7.5.5 Vacuum pump R 5 RD 0200 A - Changing the oil and oil filter

1. Replace the air de-oiling elements. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
-

7.5.6 Vacuum pump R 5 RD 0200 A - Cleaning

1. Clean the vacuum pump. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
2. If the vacuum pump is equipped with a gas ballast valve, clean the filter of the gas ballast valve.
For this, contact MULTIVAC Service.

7.5.7 Vacuum pump R 5 RD 0200 A - General reconditioning

1. Have a general overhaul of the vacuum pump carried out every five years.
For this, contact MULTIVAC Service.

7.5.8 Vacuum pump WV 0250 - 2000 - Fill level, checking the

1. Check the fill level of the oil. See Section 7.14 "VACUUM PUMPS" on page 619.

7.5.9 Vacuum pump WV 0250 - 2000 - Fill level, checking on drip feed oiler

1. Check the fill level on the drip feed oiler. See Section 7.14 "VACUUM PUMPS" on page 619.

7.5.10 Vacuum pump WV 0250 - 2000 - Checking the oil colour

1. Check the oil colour. See Section 7.14 "VACUUM PUMPS" on page 619.

7.5.11 Vacuum pump WV 0250 - 2000 - Changing the oil

1. Change the oil for the first time 500 hours after being putting into service. See Section 7.14 "VACUUM PUMPS" on page 619.

7.5.12 Vacuum pump WV 0250 - 2000 - Change the oil in the seal casing

1. Change the oil for the first time 500 hours after being putting into service. See Section 7.14 "VACUUM PUMPS" on page 619.

7.5.13 Vacuum pump WV 0250 - 2000 - Changing the oil

-
1. Change the oil. See Section 7.14 "VACUUM PUMPS" on page 619.
-

7.5.14 Vacuum pump WV 0250 - 2000 - Change the oil in the seal casing

-
1. Change the oil. See Section 7.14 "VACUUM PUMPS" on page 619.
-

7.5.15 Vacuum pump WV 0250 - 2000 - Performing servicing work

-
1. Have other maintenance tasks carried out by MULTIVAC Service.
-

7.5.16 Vacuum pump WV 0250 - 2000 - Cleaning

-
1. Clean the vacuum pump. See Section 7.14 "VACUUM PUMPS" on page 619.
-

7.5.17 Vacuum pump WV 0250 - 2000 - General reconditioning

-
1. Have a general overhaul of the vacuum pump carried out every four years or every 16000 hours of operation.
For this, contact MULTIVAC Service.
-

7.5.18 External vacuum pump - Performing servicing work

-
1. Perform the servicing work in accordance with the vacuum pump's separate documentation.
-

7.6 Service recommendation for side channel blower**7.6.1 Side channel blower - Cleaning**

-
1. De-energise the machine, see Section 5.2 "DE-ENERGISING THE MACHINE".
 2. Open and remove the side cladding at the side channel blower.
 3. Perform manual cleaning of the airflow directional covers.
 4. Perform manual cleaning on the fan wheel.
-

-
5. Perform manual cleaning on the fan grille.
 6. Perform manual cleaning of the cooling fins.
 7. If an air filter is installed in the suction pipe, check the air filter and replace it if necessary.
-

7.6.2 Side channel blower - Replacing the air filter

-
1. De-energise the machine, see Section 5.2 "DE-ENERGISING THE MACHINE".
 2. Open and remove the side cladding at the side channel blower.
 3. If an air filter is installed in the suction pipe, replace the air filter.
-

7.6.3 Side channel blower - Performing servicing work

-
1. Have other maintenance tasks carried out by MULTIVAC Service.
-

7.7 Maintenance recommendation for printer

7.7.1 Direct web printer - Performing servicing work

-
1. Perform the servicing work in accordance with the direct web printer's separate documentation.
-

7.8 Maintenance recommendation for cutting units

7.8.1 Cutting unit - Visual inspection

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 2. Check the cut edges of the packs.
 3. Check the knife and cutting anvil for wear.
 4. **NOTICE** – Incorrect or careless handling will damage the surface of the punch knife of the film punch. This causes corrosion of the punch knife.
 - Perform all work on the punch knife carefully.
 - Do NOT use a punch knife with a damaged surface.
-

-
5. Check the surface of the punch knife for damage.
-

7.8.2 Cutting unit - Remove the film trims

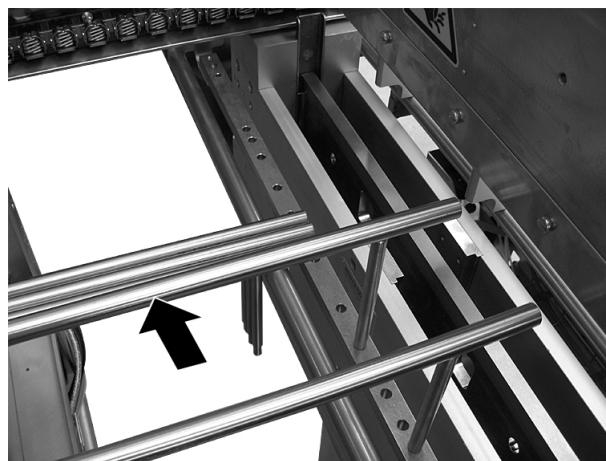
1. If necessary, run the film out of the machine. See Section 4.8.4 "RUNNING THE MACHINE EMPTY" on page 350.
 2. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 3. Remove the film trim from the cutting unit.
-

7.8.3 Cutting unit - Applying anti-corrosion agents

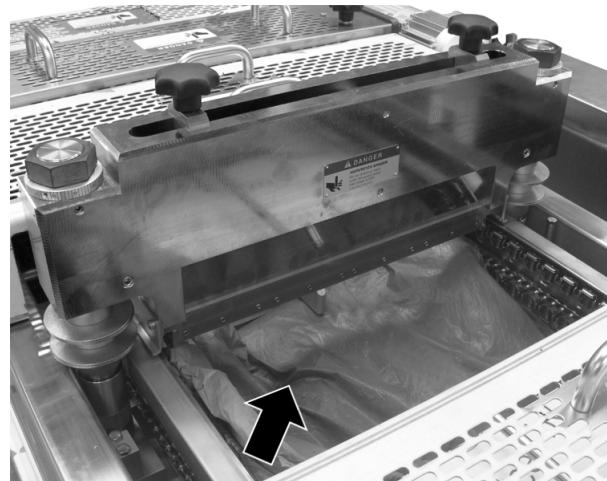
1. If necessary, run the film out of the machine. See Section 4.8.4 "RUNNING THE MACHINE EMPTY" on page 350.
 2. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 3. Apply anti-corrosion agent to the knife and guides. The recommended anti-corrosion agent is listed in the "Care products table".
-

7.8.4 Film punch - Apply anti-corrosion agent

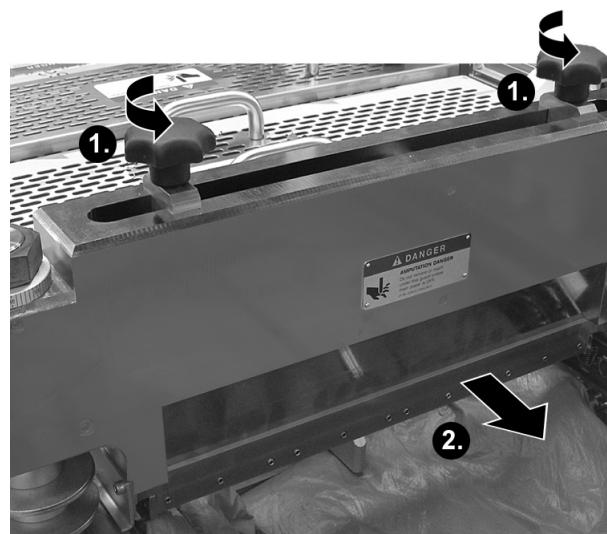
1. Run the film out of the machine. See Section 4.8.4 "RUNNING THE MACHINE EMPTY" on page 350.
 2. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 3. Remove the film trim container on the film punch.
 4. Remove the safety guard over the film punch.
 5. Remove the support bars before and after the cutting unit.
-



-
6. **CAUTION** – The knives of the cutting unit are sharp. Touching the sharp knives can lead to injuries.
 - When performing any work wear personal protective equipment.
 - Do NOT touch the knives.
 7. Cover the punch bottom section to prevent film trim from getting into the punch bottom section.



-
8. If the film punch is equipped for rigid film, perform the following steps:
 - 8.1 Unscrew the screws and pull the knife holder out of the punch top section.

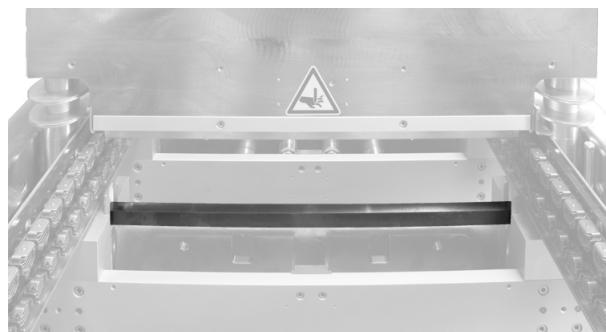


- 8.2 Remove the cover over the punch bottom section and remove the film trim.
- 8.3 Rub the entire film punch and the knife holder dry with a clean disposable towel.

- 8.4 Apply the anti-corrosion agent to the knife holder. The recommended anti-corrosion agent is listed in the "Care products table".

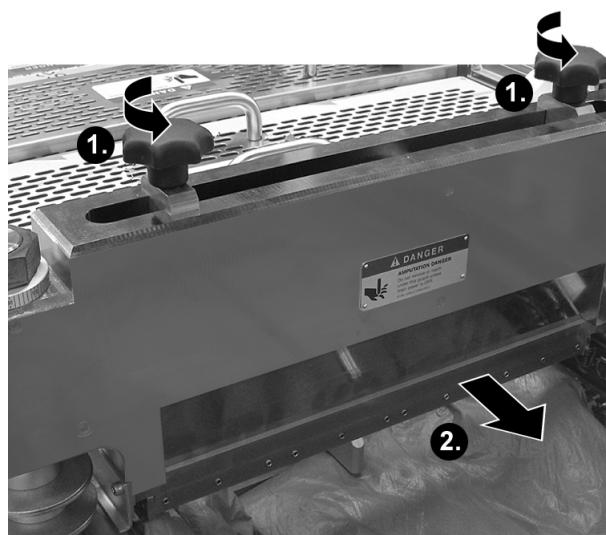


- 8.5 Apply the anti-corrosion agent to the punch table.



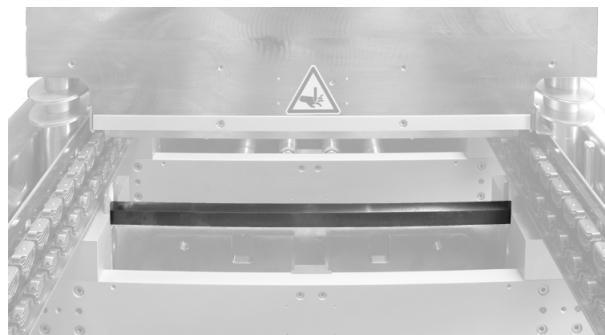
- 8.6 Push the knife holder into the punch top section and tighten both screws.

9. If the film punch is equipped for flexible film, perform the following steps:
 - 9.1 Unscrew the screws and pull the counter-pressure bar out of the punch top section.



- 9.2 Remove the cover over the punch bottom section and remove the film trim.
- 9.3 Rub the entire film punch and the knife holder dry with a clean disposable towel.

- 9.4 Apply the anti-corrosion agent to the counter-pressure bar. The recommended anti-corrosion agent is listed in the "Care products table".
- 9.5 Apply the anti-corrosion agent to the cutting tool bottom section.



- 9.6 Insert the counter-pressure bar in the punch top section and tighten both screws.
10. Insert the support bars.
11. Attach all safety guards.
12. Put the film trim container back on.

7.8.5 Film punch - Lubrication

1. Run the film out of the machine. See Section 4.8.4 "RUNNING THE MACHINE EMPTY" on page 350.
2. Close the cutting unit:
 - 2.1 Open the stop-cock for the compressed air supply.
 - 2.2 Turn on the main switch.
 - ✓ The machine control powers up.
 - ✓ The "Production" page appears.
 - 2.3 If a diagnostic message appears, acknowledge this with the <O> key.

 - 2.4 Touch the <Main menu> button on the navigation bar.

 - 2.5 Touch the "Cutting unit" button in the <Main menu>.

 - 2.6 Touch the "Cross cutter" button in the <Cutting unit> menu.
 - ✓ The page for "Cutting unit / Cross cutter tab" appears.
Main menu > Cutting unit > Cross cutter
 - 2.7 Switch on the desired film punch on the "Cross cutter" tab.
 - 2.8 Switch off all other cutting units.
 - 2.9 Touch the <Wizard> button on the navigation bar.




2.10 Touch the <Servicing> tab.

- ✓ The "Wizard/servicing tab" page appears.

Wizard Servicing

2.11 **DANGER** – The cutting unit closes automatically and has sharp knives. Reaching into the cutting unit while it is closing can result in loss of limbs.

- Do NOT reach into the cutting unit.
- Do NOT remove the safety guards.
- Do NOT reach under the safety guards.
- When performing the function, do NOT allow other persons near the machine.



2.12 Start the wizard for *Cutting unit maintenance position*.

- ✓ The selected cutting units close and are safely locked.

2.13 As soon as the diagnostic message "Safe position adopted" appears, turn off the main switch and attach a lock to prevent unauthorised start-up.

3. Remove the film trim container on the film punch.

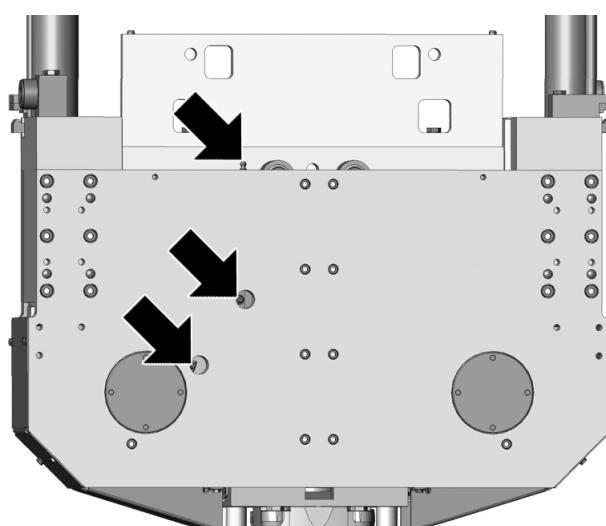
4. Remove the safety guard over the film punch.

5. Remove the side panels in the area of the film punch.

6. **CAUTION** – The knives of the cutting unit are sharp. Touching the sharp knives can lead to injuries.

- When performing any work wear personal protective equipment.
- Do NOT touch the knives.

7. Lubricate the lubricating nipples on both sides of the film punch, three in each case. The recommended lubricant is listed in the "Lubricant table".



8. Remove excessive lubricant from the lubrication points of the film punch.

-
9. Attach all the side panels.
 10. Attach all safety guards.
 11. Put the film trim container back on.
-

7.9 Service recommendation film trim removal

7.9.1 Suction unit - Visual inspection

-
1. De-energise the packaging machine.
 2. Check that the suction hoses are fitted tightly and undamaged.
-

7.9.2 Suction unit - Replacing filter cartridge

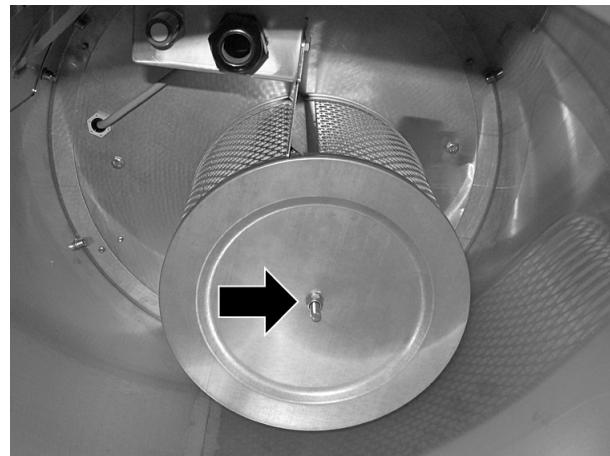


Fig. 387: Replace filter

1 Filter cartridge

-
1. De-energise the packaging machine.
 2. Unlock the film trim container and pull it out.
 3. **CAUTION** – The edge trim strips of the film have sharp contours. Contact with the edge trim can lead to injuries.
 - When performing any work wear personal protective equipment.
 4. Sever edge trim.
 5. Check if the filter cartridge is contaminated.
 6. Replace the filter cartridge if necessary:
-

6.1 Unscrew the hexagon-head bolt.

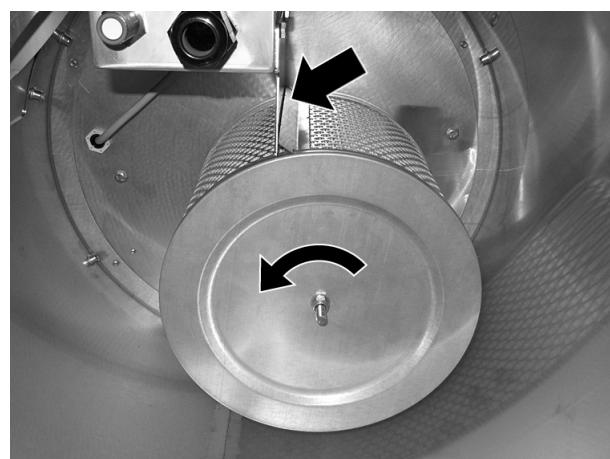


6.2 Take out filter cartridge.



6.3 Insert new filter cartridge.

6.4 Turn the filter cartridge anti-clockwise until the deflector plate of the filter cartridge is in contact with the partition.



6.5 Fasten the hexagon nut.

-
7. Slide the film trim container under the suction unit as far as it will go and then lock it.
-

7.9.3 Suction removal - Cleaning

-
1. De-energise the packaging machine.
 2. Remove the film trim from the suction unit and clean the suction unit.
-

7.10 Service recommendation for discharge units and transport conveyors

7.10.1 Discharge unit - Adjusting friction brake

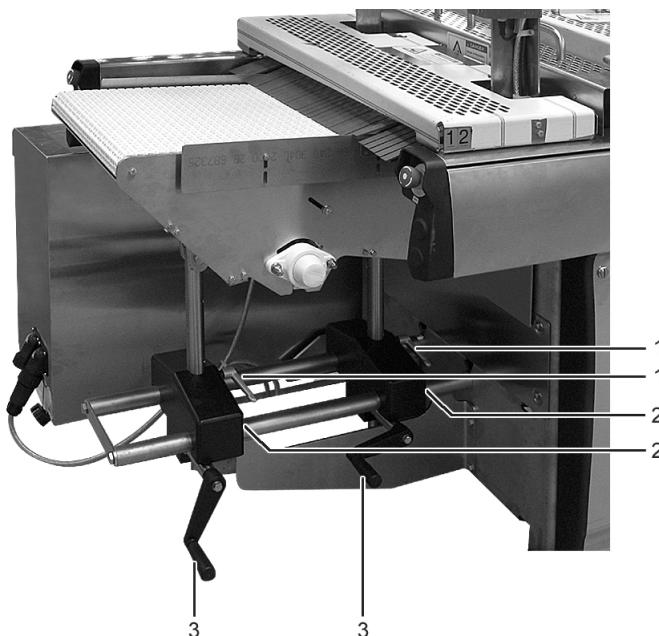
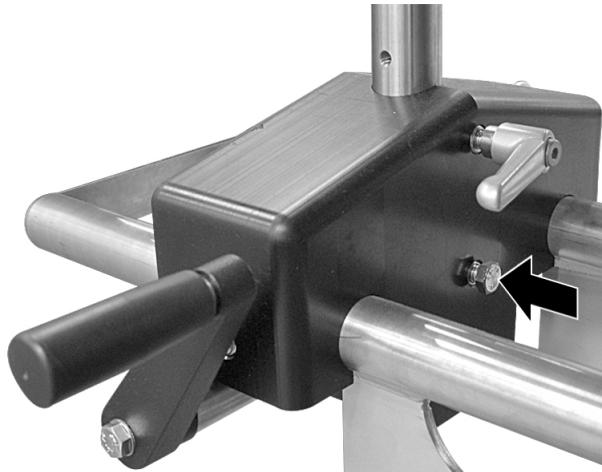


Fig. 388: Discharge unit

- 1 Clamping lever
- 2 Adjustment screw
- 3 Crank

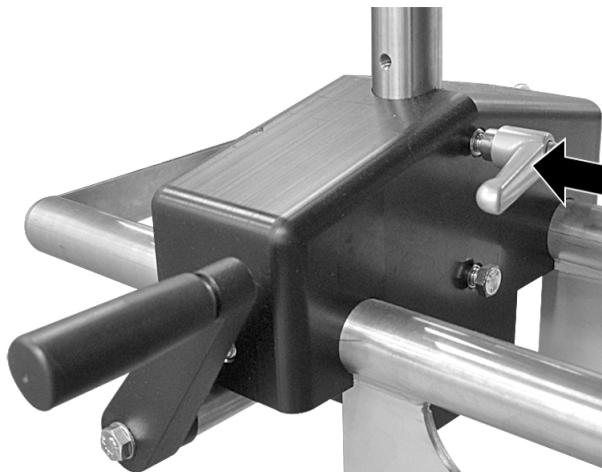
-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.

-
2. Tighten adjustment screws.



-
3. **⚠️WARNING** – If the friction brake is defective or incorrectly set, releasing the clamping lever could result in sudden lowering of the discharge unit. Standing under the discharge unit could lead to injuries.
 - When releasing the clamping levers, do NOT stand under the discharge unit.
 - Exercise the utmost caution when making adjustments
-

4. Release the clamping lever.

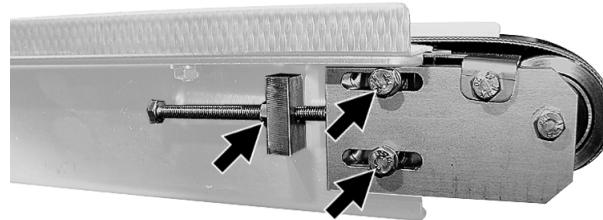


-
5. Slowly release adjustment screws.
 - ✓ The discharge conveyor moves down.
 6. Slowly tighten the adjustment screws until the discharge conveyor stops.
 7. Adjust the height of the discharge conveyor.
 - 7.1 Turn the crank clockwise.
 - ✓ The discharge conveyor moves down.
 - 7.2 Turn the crank anticlockwise.
 - ✓ The discharge conveyor moves up.

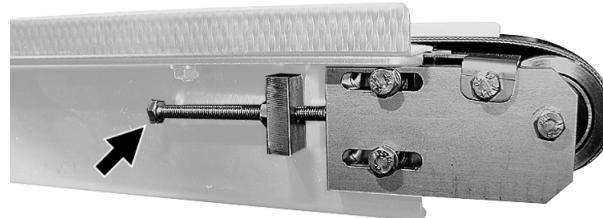
-
8. Tighten the clamping lever.
-

7.10.2 Discharge unit with belt conveyor (option) - Tensioning the belt

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
 2. Release lock nuts and locking screws on both sides.
-



3. Turn the adjustment screw clockwise on both sides by the same amount.
-



✓ The belt is tensioned.

4. Tighten lock nuts and locking screws on both sides.
-

7.11 Testing safety devices

DANGER

Injury hazard!

Non-functioning or damaged safety devices lead to unprotected danger zones.

Reaching into unprotected danger zones will lead to serious injuries or death.

- Shut down the machine immediately.
- Notify MULTIVAC Service without delay.

-
1. Document the testing of the safety devices:
 - 1.1 Note down the date of the test.
 - 1.2 Document the designation of each safety device.
 - 1.3 Document the result of the test.
 - 1.4 Note down the name of the person carrying out the test.
-

7.11.1 Check EMERGENCY STOP

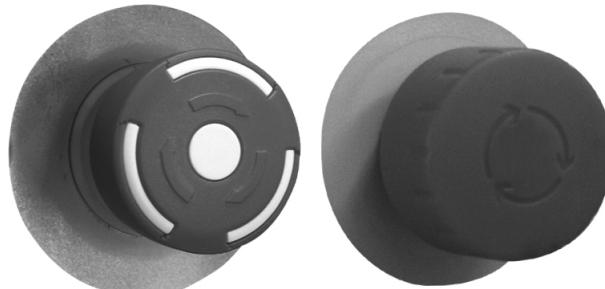


Fig. 389: EMERGENCY STOP

WARNING

Injury hazard!

Operation starts when the machine is switched on.
Reaching into danger zones can lead to serious injuries or death.

- Do NOT reach into danger zones.
- Exercise the greatest caution when checking safety devices.

1. Check that all the safety devices are attached in such a way, that they prevent operators from reaching into the danger zones behind them.
2. Switch on the machine.
3. Press EMERGENCY STOP.
 - ✓ **Correct function:** If the safety device is functioning correctly, a diagnostic message appears on the display.
 - ✓ **Fault:** If the safety device is not functioning correctly, no diagnostic message appears on the display.
4. Perform a test on all EMERGENCY STOP buttons.
The behaviour of the machine, when the EMERGENCY STOP is pressed, is described in the Safety section. See Section 1.10 "SAFETY DEVICES" on page 58.
5. If the safety device does not function correctly, take the machine out of service.

7.11.2 Testing signalling device



Info

The functions of the signalling device depend on the machine configuration.

Test all the signal lights and signal horns on the machine.



Fig. 390: Yellow signal light

⚠WARNING

Injury hazard!

Operation starts when the machine is switched on.
Reaching into danger zones can lead to serious injuries or death.

- Do NOT reach into danger zones.
- Exercise the greatest caution when checking safety devices.



1. Touch the <Wizard> button on the navigation bar.
✓ The "Wizard/production tab" page appears.



2. Touch the <Servicing> tab.
✓ The "Wizard/servicing tab" page appears.
Wizard Servicing



3. Start the wizard for *Signal tower functional test*.
✓ The signal lights light up.
✓ A diagnostic message, which refers to the active functional test, appears in the info line.

4. Test whether all the signal lights on the machine are functioning.
4.1 Replace defective signal lights immediately.



5. End the test.
5.1 Stop the wizard for *Signal tower functional test*.
The functional test is also ended, when the machine is started.

7.11.3 Checking guard plates

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
2. Check that all the guard plates are undamaged.
3. Check that all the screw connections on the guard plates are tight and undamaged.
4. Check that all the guard plates are attached in such a way, that they prevent operators from reaching into the danger zones behind them.
5. If reaching into the danger zones can not be prevented, take the machine out of service.

7.11.4 Checking the support plates

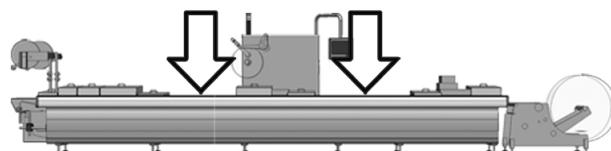


Fig. 391: Position on the machine



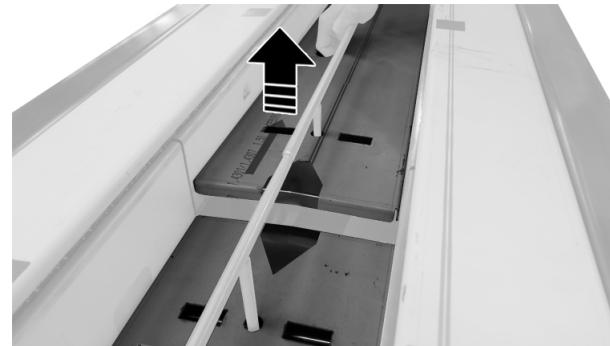
Fig. 392: Support plate

WARNING

Injury hazard!

- Operation starts when the machine is switched on.
Reaching into danger zones can lead to serious injuries or death.
- Do NOT reach into danger zones.
 - Exercise the greatest caution when checking safety devices.

1. Check that all the support plates are undamaged.
2. Check that all the support plate are attached in such a way, that they prevent operators from reaching into the danger zones behind them.
3. Switch on the machine. See Section 4.2 "SWITCHING ON THE MACHINE" on page 330.
4. Raise the support plate briefly with your hand.



- ✓ **Correct function:** If the safety device is functioning correctly, a diagnostic message appears on the display.
- ✓ **Fault:** If the safety device is not functioning correctly, no diagnostic message appears on the display.

5. If the safety device does not function correctly, take the machine out of service.

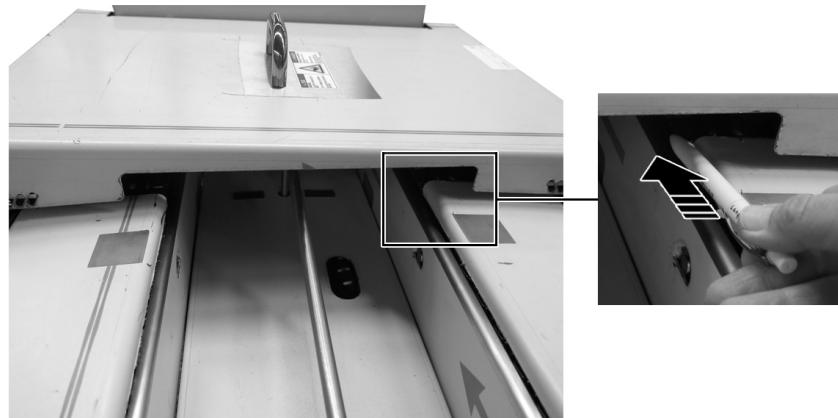
7.11.5 Checking safety light barriers



Fig. 393: Safety light barrier

The safety light barriers can be attached to the machine at different positions.

1. **⚠️WARNING** – Operation starts when the machine is switched on. Reaching into danger zones can lead to serious injuries or death.
 - Do NOT reach into danger zones.
 - Exercise the greatest caution when checking safety devices.
2. Prepare an object with a length of 150 mm (6 in) and a width of 15 mm (0.6 in).
3. Switch on the machine. See Section 4.2 "SWITCHING ON THE MACHINE" on page 330.
4. Using the object, briefly interrupt the light beam at the light barrier.



- ✓ **Correct function:** If the safety device is functioning correctly, a diagnostic message appears on the display.
- ✓ **Fault:** If the safety device is not functioning correctly, no diagnostic message appears on the display.

5. If the safety device does not function correctly, take the machine out of service.

7.11.6 Checking the safety guards



Fig. 394: Example of safety guards

⚠WARNING**Injury hazard!**

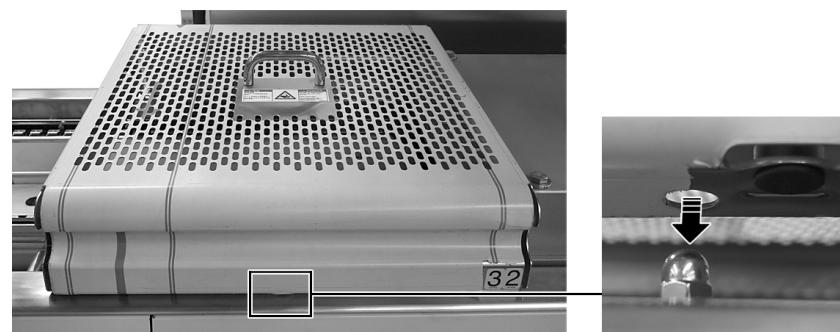
Operation starts when the machine is switched on.
Reaching into danger zones can lead to serious injuries or death.

- Do NOT reach into danger zones.
- Exercise the greatest caution when checking safety devices.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.

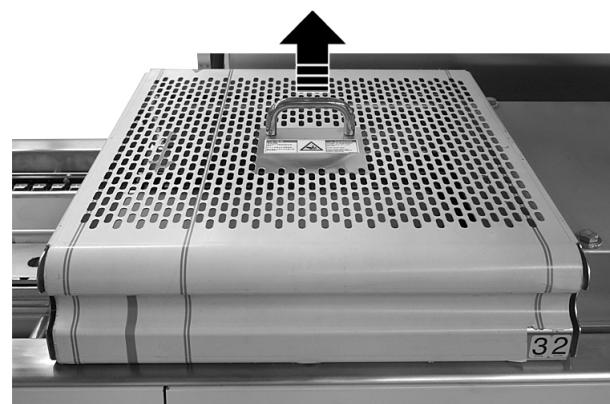
2. Check that all the safety guards are undamaged.

3. Check that all the safety guards are attached in such a way, that they prevent operators from reaching into the danger zones behind them.



4. Switch on the machine. See Section 4.2 "SWITCHING ON THE MACHINE" on page 330.

5. Raise the safety guard briefly with the handle.



- ✓ **Correct function:** If the safety device is functioning correctly, a diagnostic message appears on the display.
- ✓ **Fault:** If the safety device is not functioning correctly, no diagnostic message appears on the display.

6. Perform the test on all the safety guards.

-
7. If the safety device does not function correctly, take the machine out of service.
-

7.11.7 Checking the deflection roller at the sealing station

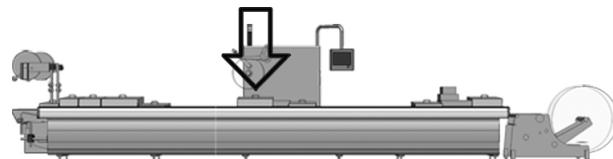


Fig. 395: Position on the machine

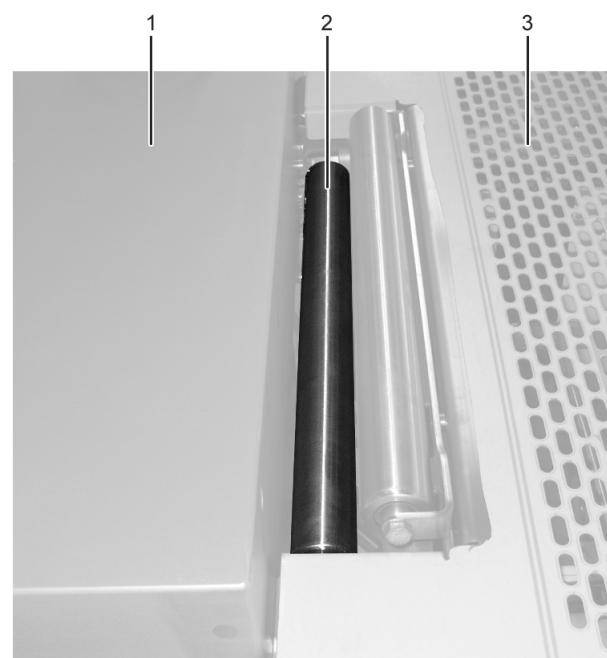


Fig. 396: Deflection roller at sealing station

- 1** Sealing station
- 2** Deflection roller
- 3** Safety guard

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.
 2. Check that the deflection roller is undamaged.
 3. Check that the deflection roller is attached in such a way, that it prevents operators from reaching into the danger zones behind it.
 4. If reaching into the danger zones can not be prevented, take the machine out of service.
-

7.11.8 Checking the cladding

Cladding, which is either subject to a query by the machine control or not subject to a query, may be installed in the machine:

- Cladding, which is not subject to a query, can only be opened with a tool.
- Cladding, which is subject to a query, can be opened without a tool.

Checking the cladding varies and is described as follows.

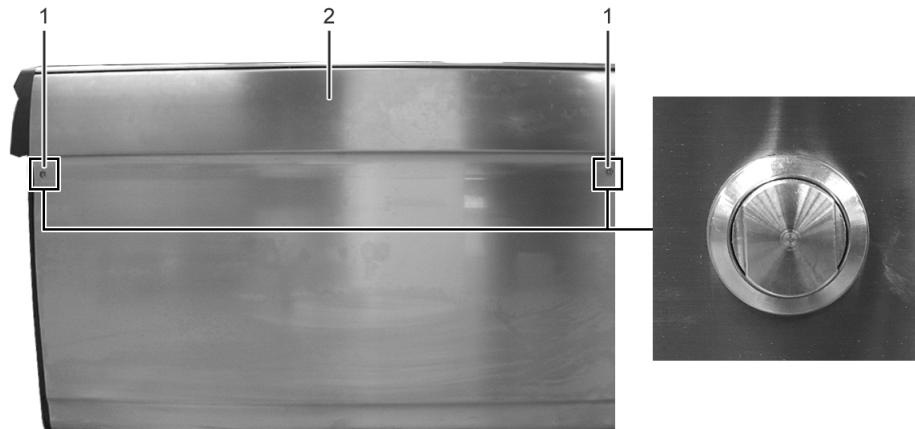


Fig. 397: Cladding that is not subject to a query

- 1** Tool-activated lock mechanism
2 Cladding

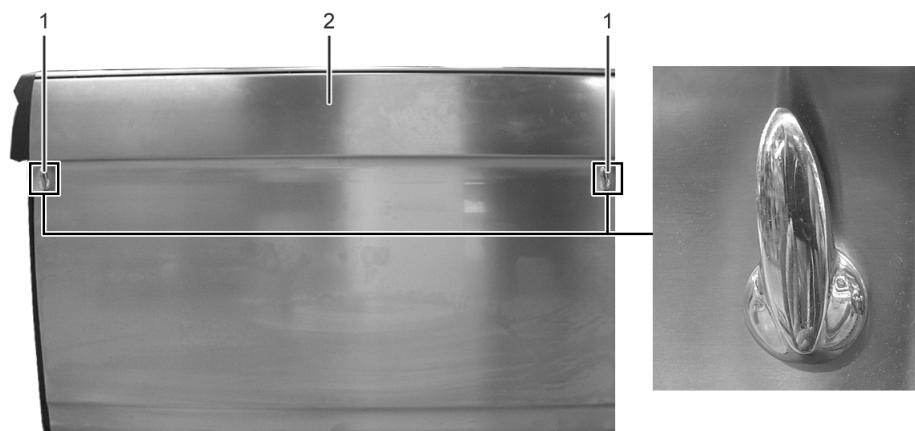


Fig. 398: Cladding that is subject to a query

- 1** Manually activated lock mechanism
2 Cladding

Checking cladding that is not subject to a query

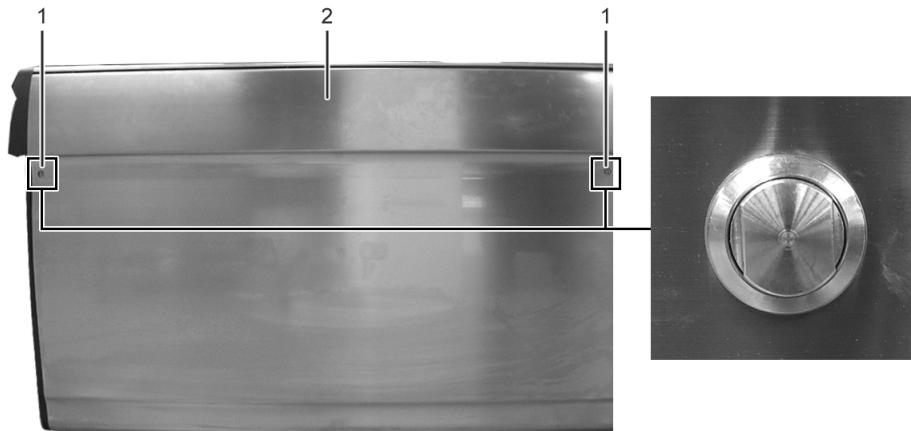


Fig. 399: Cladding that is not subject to a query

- 1 Tool-activated lock mechanism
2 Cladding

-
1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE " on page 404.

 2. Check that all the cladding is undamaged.

 3. Check that all the cladding is attached in such a way, that it prevents operators from reaching into the danger zones behind it.

 4. If reaching into the danger zones can not be prevented, take the machine out of service
-

Checking cladding that is subject to a query

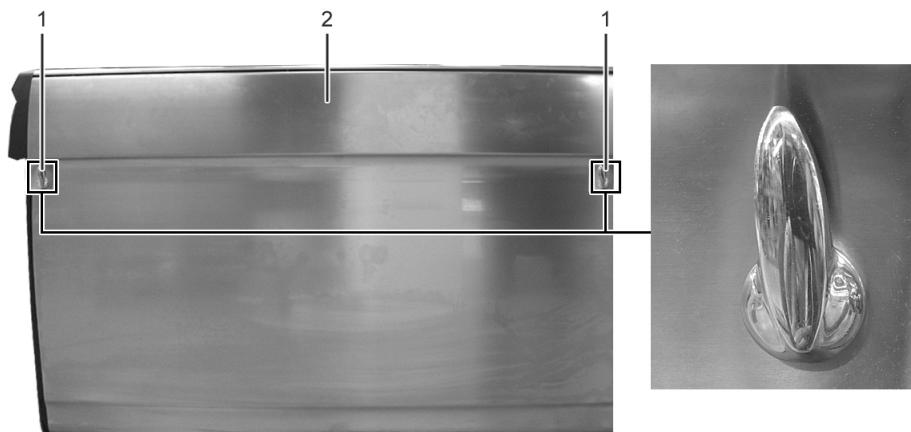


Fig. 400: Cladding that is subject to a query

- 1 Manually activated lock mechanism
- 2 Cladding

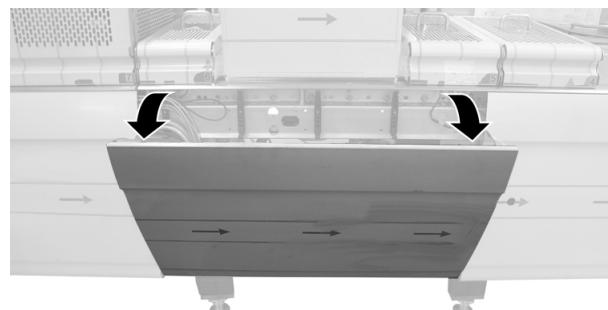
⚠️WARNING

Injury hazard!

Operation starts when the machine is switched on.
Reaching into danger zones can lead to serious injuries or death.

- Do NOT reach into danger zones.
- Exercise the greatest caution when checking safety devices.

1. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
2. Check that all the cladding is undamaged.
3. Check that all the cladding is attached in such a way, that it prevents operators from reaching into the danger zones behind it.
4. Switch on the machine. See Section 4.2 "SWITCHING ON THE MACHINE" on page 330.
5. Open the lock mechanisms on the cladding.
6. Briefly open the cladding and then close it again.



- ✓ **Correct function:** If the safety device is functioning correctly, a diagnostic message appears on the display.
- ✓ **Fault:** If the safety device is not functioning correctly, no diagnostic message appears on the display.

7. Close the lock mechanisms on the cladding.
8. Perform the test on all cladding sections.
9. If the safety device does not function correctly, take the machine out of service.

7.12 Performing the vacuum test

7.12.1 Checking the vacuum system and sealing diaphragm

-
1. Run the upper web and lower web out of the machine, see Section 4.8.4 "RUNNING THE MACHINE EMPTY".

2. Remove the wires of the pack support unit.



3. Touch the <Wizard> button on the navigation bar.
 - ✓ The "Wizard/production tab" display appears.



4. Touch the <Servicing> tab.
 - ✓ The "Wizard/servicing tab" display appears.




5. Call up the *Vacuum test* wizard.
 - ✓ The display for "Vacuum test/die set tab" appears.




6. Start the *Vacuum test* wizard.

- 6.1 If the "Vacuum test" display appears, reduce the sealing pressure to the stated value.

- 6.2 Touch the <OK> button.

- ✓ The vacuum test is performed.

- ✓ The result is displayed in the info line.

- ✓ A diagnostic message appears.

7. If the "Vacuum test" display appears once more, set the original sealing pressure again and touch the <OK> button.

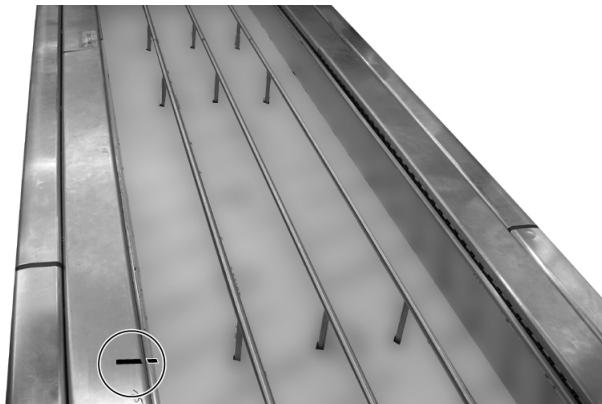
8. Insert the wires for the pack support unit again.

7.13 Film transport system

7.13.1 Checking the cut-off length

-
1. Run the film out of the machine.

-
2. Place an aligning mark on the machine frame and the transport chain using a marker.



3. Touch the <Main menu> button on the navigation bar.



4. Touch the <Film transport system> button in the "main menu".

- ✓ The display for "Film transport system / Lower web advance tab" appears.

Main menu > Film transport system > Advance of lower web



5. Write down the *cut-off length*.

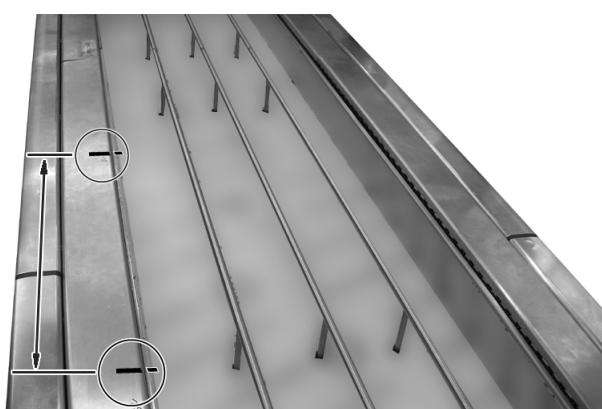
6. Under *cut-off length* enter 1000 mm (39.37 in).

7. Under *cut-off length correction [mm/m]* enter 0 mm (0.0 in).

8. Start the *Manual advance* wizard .

- ✓ The mark on the transport chain moves in the direction of the machine outfeed by the cut-off length entered.
- ✓ The mark on the transport chain thus has a new position.

9. Mark this new position of the transport chain on the machine frame.



-
10. Measure the distance between the two marks on the machine frame.
 - ✓ If the measured value corresponds to the cut-off length: no correction of the cut-off length is necessary.
 - ✓ If the measured value does not correspond to the cut-off length, e.g. 1002 mm (39.45 in): The cut-off length must be corrected.
 11. Under *cut-off length correction [mm/m]* enter the correction value, in this example 2 mm (0.079 in).
 - ✓ With every advance, the cut-off length is automatically corrected.
 12. Under *cut-off length*, enter the original cut-off length.
-

7.14 Vacuum pumps

7.14.1 Servicing vacuum pump R 5 RD 0200 A - R 5 RD 0360 A

Performing visual inspection

Vacuum pump R 5 RD 0200 A

-
1. De-energise the machine.
 2. **⚠️WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
 3. Check that all connections are fitted tightly and undamaged.
 4. Check for oil leaks or leaking cooling water.
 - ✓ If oil or water has leaked from the vacuum pump, please consult MULTIVAC Service.
-

**Checking the fill level
of the oil****Vacuum pump R 5 RD 0200 A**

Fig. 401: Oil sight glass on vacuum pump

- 1 Oil sight glass
- 2 Maximum fill level
- 3 Minimum fill level

1. De-energise the machine.
2. **⚠️ WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
3. Check the fill level on the sight glass.
4. If the level is below the maximum level mark, top up with oil. The recommended lubricant is listed in the "Lubricant table".
5. If the fill level is too high, please consult MULTIVAC Service.
6. If there is water in the oil, please consult MULTIVAC Service.

**Changing the oil and
oil filter****Info**

Carry out the oil change while the oil is still warm.

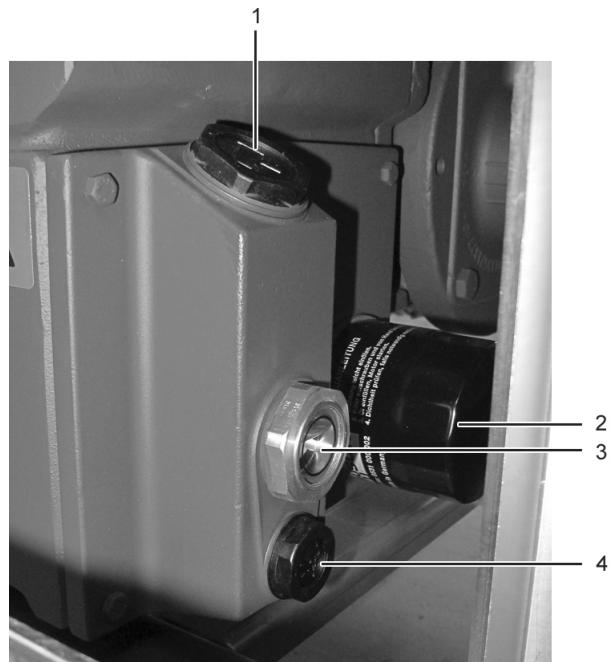
Vacuum pump R 5 RD 0200 A

Fig. 402: Changing the oil

- 1 Oil fill plug
- 2 Oil filter
- 3 Oil sight glass
- 4 Oil drain plug

⚠WARNING**Burn hazard!**

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

⚠WARNING**Burn hazard!**

The oil in the oil tank is pressurised during operation and can reach temperatures of over 70 °C.

Escaping oil can cause burns.

- When performing any work wear personal protective equipment.
- Do NOT open the oil drain plug or the oil fill plug during operation.
- Before starting any work in the danger zone, allow the oil to cool down.

-
1. De-energise the machine.
 2. Unscrew the oil fill plug.
 3. Place a liquid container under the oil drain opening.
 4. Carefully unscrew the oil drain plug.
 5. Drain the oil completely.
 6. Check the oil colour.
 7. Replace the sealing ring on the oil drain plug.
 8. Insert and tighten the oil drain plug.
 9. Place a liquid container under the oil filter.
 10. Unscrew the oil filter and remove it.
 11. Moisten the sealing ring for the new oil filter with fresh oil.
 12. Tighten the new oil filter on the vacuum pump.
 13. Pour the new oil into the fill opening. The recommended lubricant is listed in the "Lubricant table".
The type plate on the vacuum pump contains the information about the required amount of oil.
✓ The fill level is at the maximum mark on the oil sight glass.
 14. Replace the sealing ring on the oil fill plug.
 15. Insert and tighten the oil fill plug.
 16. Dispose of the old oil and the oil filter properly.
 17. Check the fill level again after the vacuum pump has been operating for a short period.
-

Replacing air de-oiling elements of the vacuum pump

Vacuum pump R 5 RD 0200 A

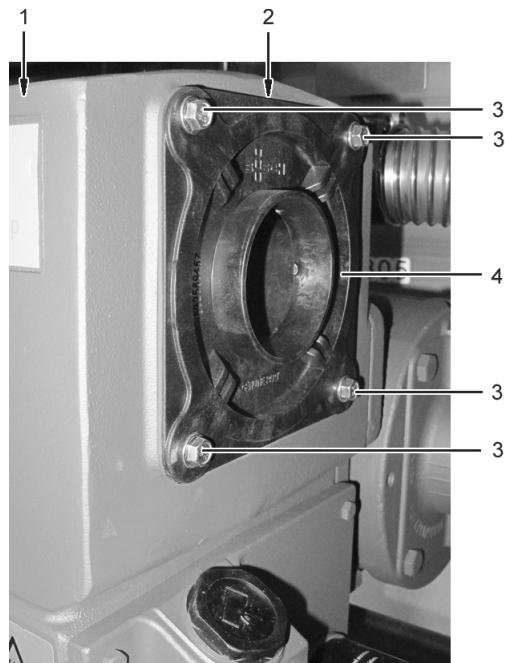


Fig. 403: Vacuum pump

- 1 Sealing ring at the connection of the air de-oiling element
- 2 Sealing ring on the housing of the air de-oiling element
- 3 Screw on the air de-oiling element
- 4 Air de-oiling element

WARNING

Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

1. De-energise the machine.
2. Unscrew the screws on the air de-oiling element.
3. Pull the air de-oiling element out of the vacuum pump.
4. Make sure that the two sealing rings are attached to the new air de-oiling element and are in perfect condition.
 - 4.1 If necessary, fit new sealing rings on the air de-oiling element.

-
5. Push the new air de-oiling element into the vacuum pump.
 6. Tighten the screws on the air de-oiling element.
 7. If more air de-oiling elements are installed, replace these as described above.
-

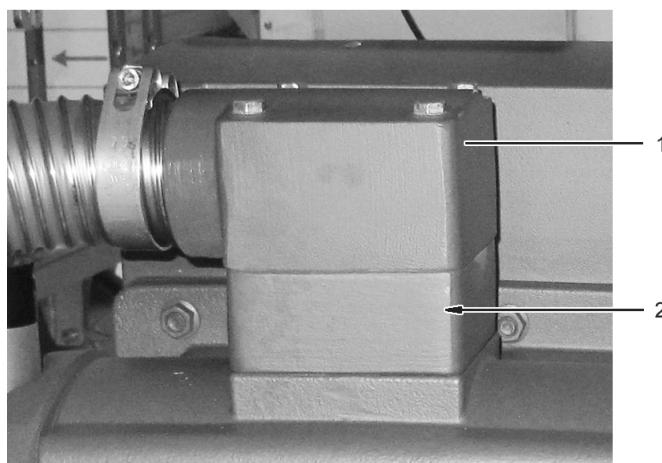
Cleaning the filter in the suction connection**Vacuum pump R 5 RD 0200 A**

Fig. 404: Cleaning the filter in the suction connection

- 1 Suction connection
2 Filter in suction connection

-
1. De-energise the machine.
 2. **⚠️WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
 3. Remove the suction connection.
 4. Clean the filter in the suction connection with compressed air and replace if necessary.
 5. Install the suction connection.
-

Cleaning the vacuum pump

Vacuum pump R 5 RD 0200 A

⚠WARNING**Burn hazard!**

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

1. De-energise the machine.
2. Perform manual cleaning of the airflow directional covers.
3. Perform manual cleaning of the fan wheels.
4. Perform manual cleaning of the fan grilles.
5. Perform manual cleaning of the cooling fins.
6. Perform manual cleaning of the housing.

7.14.2 WV xxxx vacuum pump

Performing visual inspection

1. De-energise the machine.
2. **⚠WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation.
Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
3. Check that all connections are fitted tightly and undamaged.
4. Check for oil leaks or leaking cooling water.
 - ✓ If oil or water has leaked from the vacuum pump, please consult MULTIVAC Service.

**Checking the fill level
of the oil**

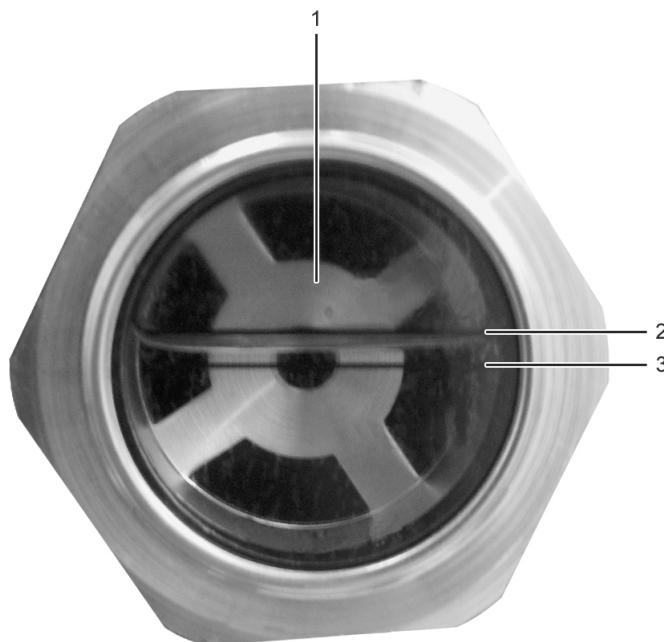


Fig. 405: Oil sight glass on vacuum pump

- 1 Oil sight glass
- 2 Maximum fill level
- 3 Minimum fill level

-
1. De-energise the machine.
 2. **⚠ WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
 3. Check the fill level on the sight glass.
 4. If necessary, top up the oil. The recommended lubricant is listed in the "Lubricant table".
 5. If the fill level is too high, please consult MULTIVAC Service.
 6. If there is water in the oil, please consult MULTIVAC Service.
-

Checking the fill level on the drip feed oiler

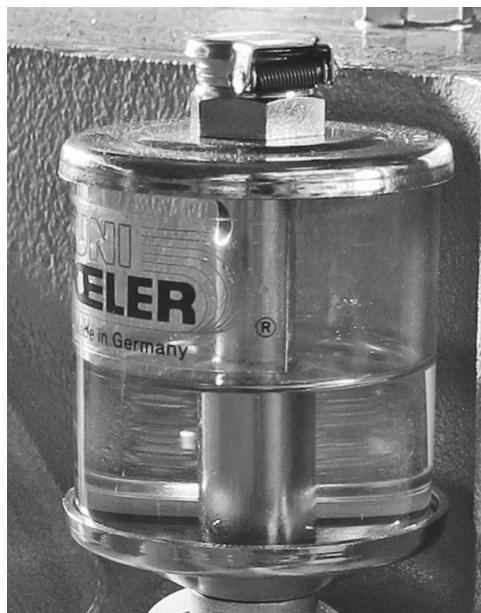


Fig. 406: Drip feed oiler

-
1. If the vacuum pump is equipped with a drip feeder oiler, carry out the following work:
 - 1.1 De-energise the machine.
 - 1.2 **WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
 - 1.3 Check the fill level on the drip feed oiler.
The drip oiler should be approximately two thirds full with oil.
 - 1.4 Top up the oil if required. The recommended lubricant is listed in the "Lubricant table".
 - 1.5 If the fill level is too high, please consult MULTIVAC Service.
-

Checking the oil col- our

-
1. De-energise the machine.

2. **⚠️WARNING** – The surface of the vacuum pump can reach temperatures of over 70 °C during operation. Touching the vacuum pump can lead to burns.
 - When performing any work wear personal protective equipment.
 - Before starting any work in the danger zone, allow the vacuum pump to cool down.
3. Check the oil for discolouration.
4. If the oil is clear, somewhat foamy or slightly clouded, then the oil is OK.
5. If the oil is milky, very foamy or dark, carry out the following work:
 - 5.1 Determine the cause of discoloration of the oil. For this, contact MULTIVAC Service.
 - 5.2 Change the oil.
 - 5.3 If necessary, adjust the oil change interval.

Changing oil



Info

Carry out the oil change while the oil is still warm.

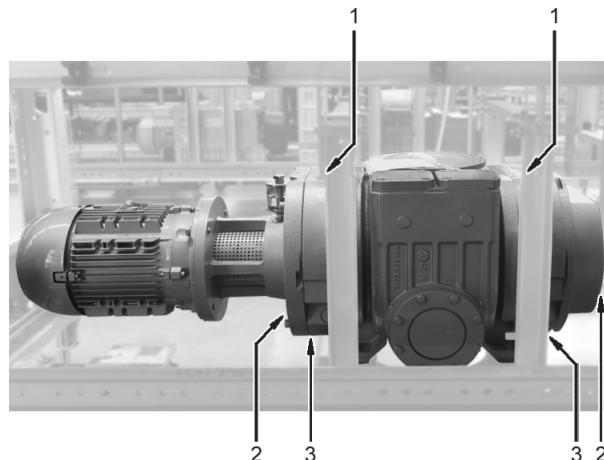


Fig. 407: Changing the oil for vacuum pump WV xxxx

- 1 Oil fill plug
- 2 Oil sight glass
- 3 Oil drain plug

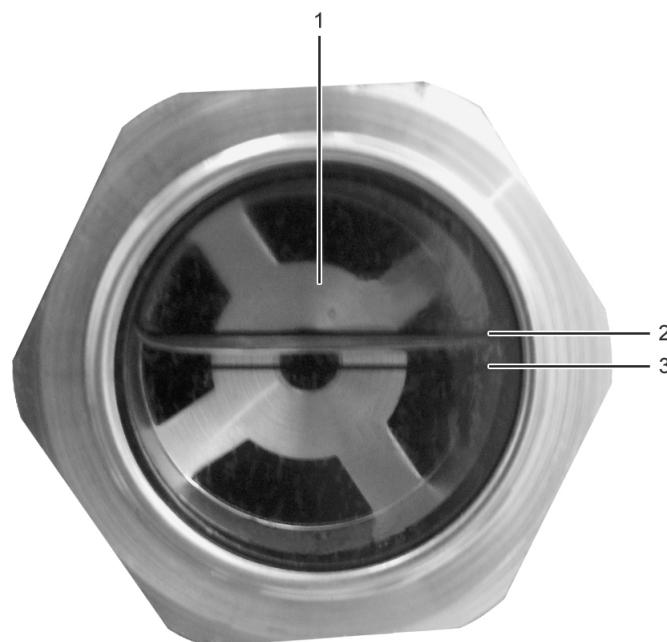


Fig. 408: Vacuum pump sight glass

- 1 Oil sight glass
- 2 Maximum fill level
- 3 Minimum fill level

WARNING

Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

WARNING

Burn hazard!

The oil in the oil tank is pressurised during operation and can reach temperatures of over 70 °C.

Escaping oil can cause burns.

- When performing any work wear personal protective equipment.
- Do NOT open the oil drain plug or the oil fill plug during operation.
- Before starting any work in the danger zone, allow the oil to cool down.

1. De-energise the machine.
2. Unscrew the two oil fill plugs.
3. Place a liquid container under the oil drain openings.

4. Carefully unscrew the 2 oil drain plugs.
5. Drain the oil completely.
6. Ensure that there is no metallic residue on the magnetic part of the oil drain plugs.
7. Replace the sealing rings on the oil drain plugs.
8. Insert and screw in the oil drain plugs.
9. Pour the new oil into the fill openings. The recommended lubricant is listed in the "Lubricant table".
The type plate on the vacuum pump contains the information about the required amount of oil.
 - ✓ The fill level is at the maximum marking on the oil sight glasses.
10. Replace the sealing rings on the oil fill plugs.
11. Insert and tighten the oil fill plugs.
12. Dispose of the old oil properly.
13. Check the fill level again after the vacuum pump has been operating for a short period.
 - ✓ The fill level is between the minimum and maximum markings on the oil sight glasses.

Filling the drip feed oiler

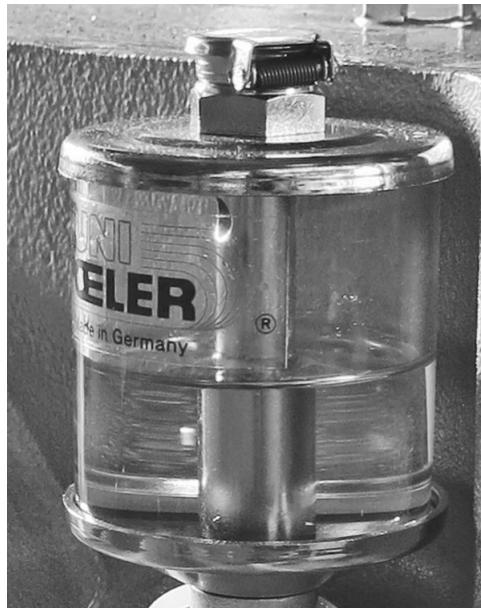


Fig. 409: Drip feed oiler

⚠WARNING**Burn hazard!**

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

⚠WARNING**Burn hazard!**

The oil in the oil tank is pressurised during operation and can reach temperatures of over 70 °C.

Escaping oil can cause burns.

- When performing any work wear personal protective equipment.
- Do NOT open the oil drain plug or the oil fill plug during operation.
- Before starting any work in the danger zone, allow the oil to cool down.

1. If the vacuum pump is equipped with a drip feeder oiler, carry out the following work:
 - 1.1 De-energise the machine.
 - 1.2 Open the chamber lid of the drip oiler.
 - 1.3 Open the lid of the drip feed oiler and pour the new oil into the drip feed oiler until it is two-thirds full.
 - 1.4 Close the chamber lid of the drip oiler.
 - 1.5 Check the fill level again after the vacuum pump has been operating for a short period.

Cleaning the vacuum pump

⚠WARNING**Burn hazard!**

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

1. De-energise the machine.

2. Perform manual cleaning of the airflow directional covers.

3. Perform manual cleaning of the fan wheels.

4. Perform manual cleaning of the fan grilles.

-
5. Perform manual cleaning of the cooling fins.
 6. Perform manual cleaning of the housing.
-

7.15 Lubrication of the transport chains

NOTICE

Material damage!

The use of unsuitable lubricants can increase the wear of the machine and lead to corrosion of the transport chains.

This damages the machine.

- Only use recommended lubricants for the transport chains.

The chain grease recommended by MULTIVAC is ideally matched to the mechanical load of the transport chains. If the chains are lubricated regularly, there will be very small wear on the chain parts.

In addition to the required technical features, it also fulfils the following quality criteria:

- Resistance to ageing
- Oxidation stability
- Shear stability (quality of the oil film under load)

7.15.1 Starting manual chain lubrication



Info

- Manual chain lubrication is only suitable for the relubrication of wet cleaned transport chains.
- Blow out the transport chains until they are dry.

⚠WARNING

Injury hazard!

Moving transport devices can easily catch on loose clothing, hair and objects.

This can lead to serious injuries.

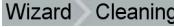
- Do NOT reach into the transport devices when they are running.
- Do NOT wear any loose clothing.
- Wear a hairnet.
- Before starting any work in the area of the transport devices, turn off the main switch and attach a lock to prevent unauthorised start-up.

-
1. Run the upper web and lower web out of the machine, see Section 4.8.4 "RUNNING THE MACHINE EMPTY".
-



2. Touch the <Wizard> button on the navigation bar.
 - ✓ The "Wizard/production tab" display appears.



3. Touch the <Cleaning> tab.
 - ✓ The "Wizard/cleaning tab" display appears.

4. Start the *Manual chain lubrication* wizard.
 - ✓ The "Manual chain lubrication" display appears.
5. Touch the <Yes> button.
 - ✓ The remaining running time of the manual chain lubrication is displayed in the wizard.
 - ✓ The number of blow-out chain revolutions for the transport chains, which is entered in the display for "Lubrication/chain lubrication tab" then starts.
 - ✓ Subsequently the lubrication procedure runs, until the specified lubrication intensity has been reached.
 - ✓ As soon as the lubrication procedure is completed, the machine stops.

7.16 Format tool

7.16.1 Removing film residues

Preparing format tools



Info

Depending on the design of the die, one or more heating plates can be installed in the forming die.

- Standard die:
The heating plate is in the forming die top section.
- Preheating die with standard heating:
The heating plate is in the forming die bottom section.
- Preheating die with sandwich heating:
The heating plates are in the forming die top section and forming die bottom section.

WARNING

Burn hazard!

The heating plate becomes very hot during operation and remains hot for some time after the machine has been switched off. Touching the hot heating plate can lead to burns.

- When performing any work wear personal protective equipment.
- Do NOT touch the heating plate.
- Before starting any work in the danger zone, allow the heating plate to cool down.
- Before starting any work in the danger zone, de-energise the machine.

1. Preheat the format tools to 60 °C (140 °F) to 80 °C (176 °F).
2. Switch off the main switch and attach a lock to prevent unauthorised start-up.
3. **WARNING** – Dies are heavy and have sharp edges.
Carrying heavy dies can lead to injuries.
 - Use suitable load lifting equipment.
 - Have a second person assist you.
 - When performing any work wear personal protective equipment.
4. Remove the format tools from the machine using suitable load lifting equipment. See Section 5.10 "CONVERT THE DIES FOR OTHER PACKAGE FORMATS" on page 425.
5. Store the format tools so that the bottom is accessible, that is, on two stable blocks or on a suitable support.

Cleaning the heating plate

NOTICE

Material damage!

Improper cleaning can damage the sensitive Teflon-coated surface. The film adheres. The packaging process is impaired.

- Only clean the Teflon coating with a soft cloth.
- Do NOT clean the Teflon coating with hard objects.
- Do not use any cleansers on the basis of strong solvents.

1. Carefully remove the film residues on the heating plate in the forming die top section and forming die bottom section with a plastic scraper.
2. Carefully drill through the holes in the heating plate by hand using a drill, diameter 0.7 mm (0.028 in). Make sure that the PTFE coating is not damaged.
3. Remove the remaining adhesive with a disposable cloth.
4. Carry out manual cleaning on the heating plate with a neutral cleanser.
5. Perform quick disinfection of the heating plate.
Make sure that no disinfectant runs into the die.

Cleaning the sealing plate

NOTICE

Material damage!

Improper cleaning can damage the sensitive Teflon-coated surface. The film adheres. The packaging process is impaired.

- Only clean the Teflon coating with a soft cloth.
- Do NOT clean the Teflon coating with hard objects.
- Do not use any cleansers on the basis of strong solvents.

1. Carefully remove the film residues on the sealing plate with a plastic scraper.
2. Remove the remaining adhesive with a disposable cloth.
3. Carry out manual cleaning on the sealing plate with a neutral cleanser.
4. Perform quick disinfection of the sealing plate.
Make sure that no disinfectant runs into the die.

Installing format tools

1. Switch off the main switch and attach a lock to prevent unauthorised start-up.
2. **⚠️WARNING** – Dies are heavy and have sharp edges.
Carrying heavy dies can lead to injuries.
 - Use suitable load lifting equipment.
 - Have a second person assist you.
 - When performing any work wear personal protective equipment.
3. Move the format tools to the machine with suitable lifting equipment and install them. See Section 5.10 "CONVERT THE DIES FOR OTHER PACKAGE FORMATS" on page 425.

7.17 Cross cutter

7.18 Longitudinal cutting unit

7.18.1 Roller shear cutting unit - changing the blade shaft

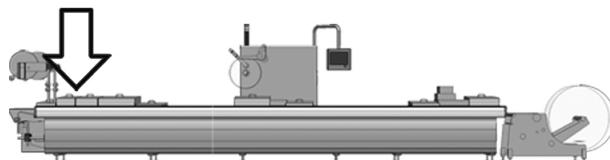


Fig. 410: Position on the machine

Required tool and accessories

The exchange requires the tools and accessories shown.

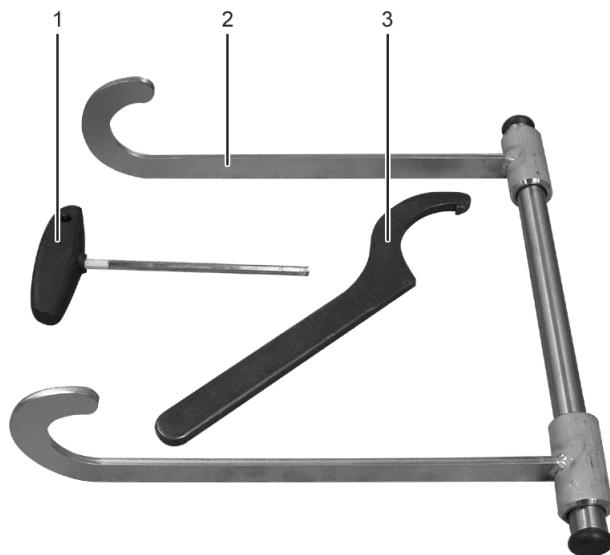


Fig. 411: Tool for roller shear cutting unit

- 1 Hexagon socket wrench, size 5
- 2 Lifting device (optional; standard for pack dimension < 119 mm)
- 3 Hook spanner

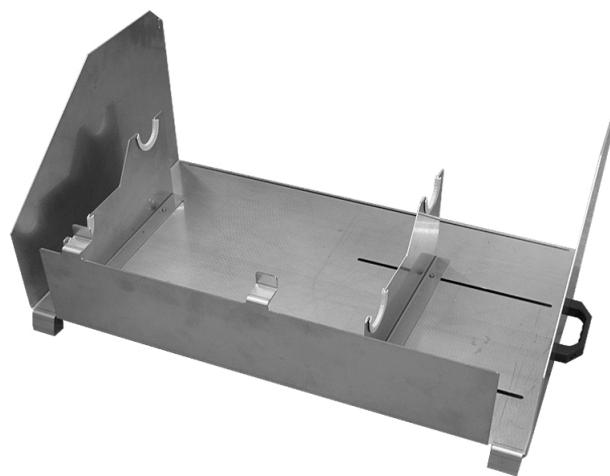


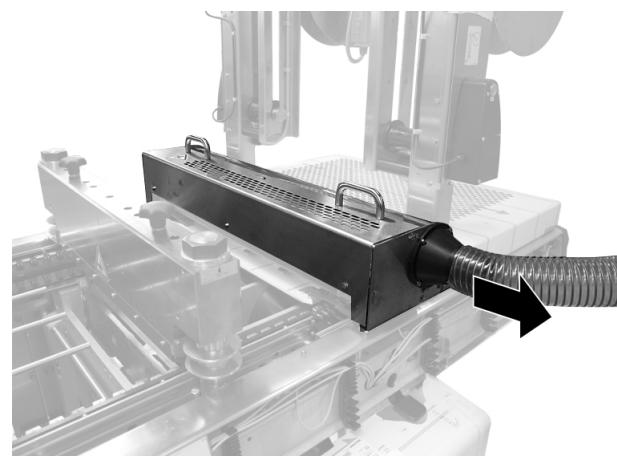
Fig. 412: Storage box for roller shear cutting unit

Removing the knife shafts

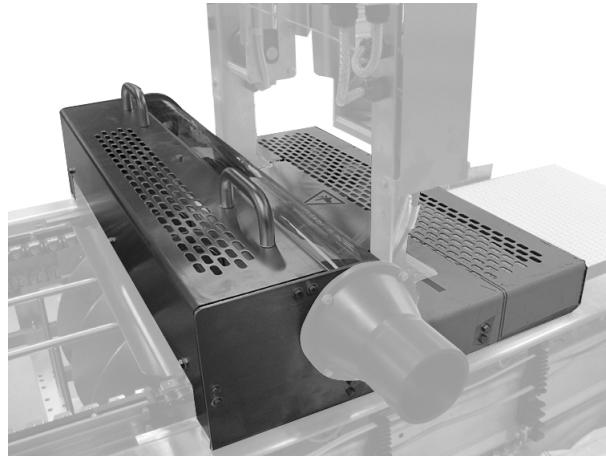
-
1. Run the film out of the machine.

 2. De-energise the machine, see Section 5.2 "DE-ENERGISING THE MACHINE".

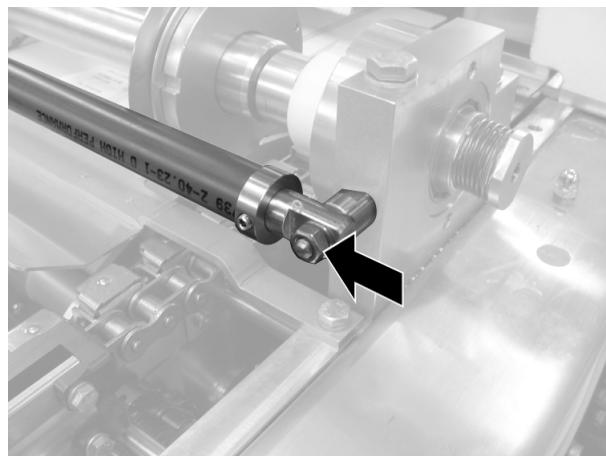
 3. Detach the hose of the suction unit.



-
4. Remove the safety guard over the cutting unit and the safety guard on the discharge side.

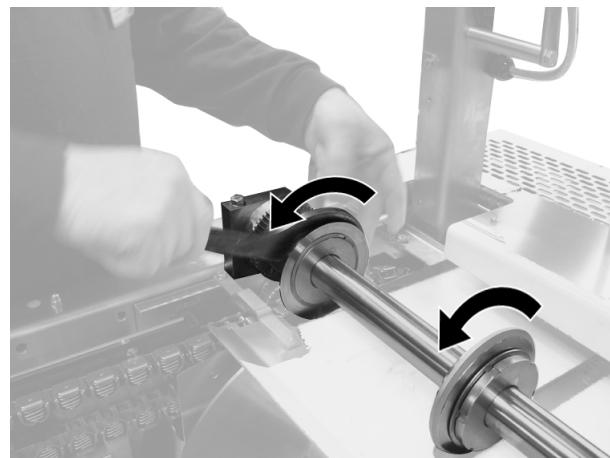


-
5. Remove the side panels on both sides in the area of the cutting unit.
 6. Unscrew the fastening nuts of the pressure bar on both sides and remove the pressure bar. The pressure bar is only installed with centre trim cutting.

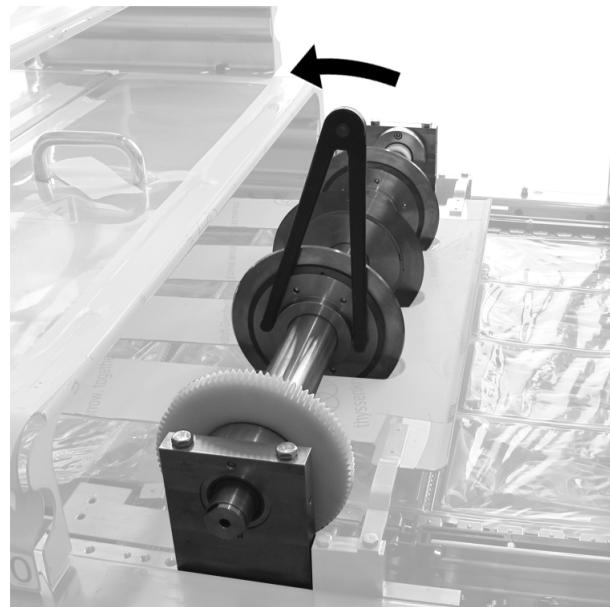


-
7. **CAUTION** – The knives of the cutting unit are sharp. Touching the sharp knives can lead to injuries.
 - When performing any work wear personal protective equipment.
 - Do NOT touch the knives.

8. Release all tensioning rings of the circular blades using the hook spanner.



9. If there are boreholes in the tensioning rings, release all tensioning rings with the face spanner.



10. Move the circular blades to the side.

-
11. Use the hexagon socket wrench to release the spring-loaded bolt of the top blade shaft on one side.



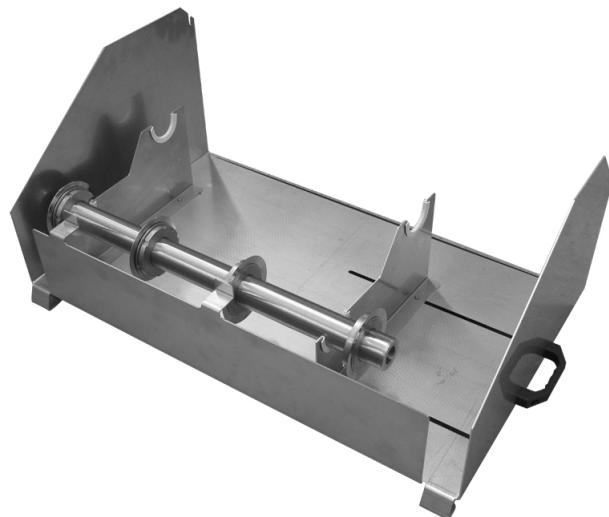
✓ The spring-loaded bolt moves outward.

-
12. Hold the blade shaft firmly.
 - 12.1 If available, use load lifting equipment.

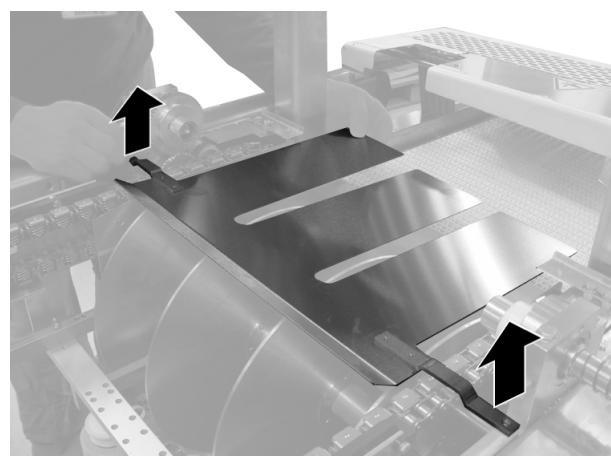


-
13. Release the spring-loaded bolt of the blade shaft on the other side.
 - ✓ The spring-loaded bolt moves outward.
 - ✓ The blade shaft can be removed.

-
14. Place the top blade shaft in the storage box.

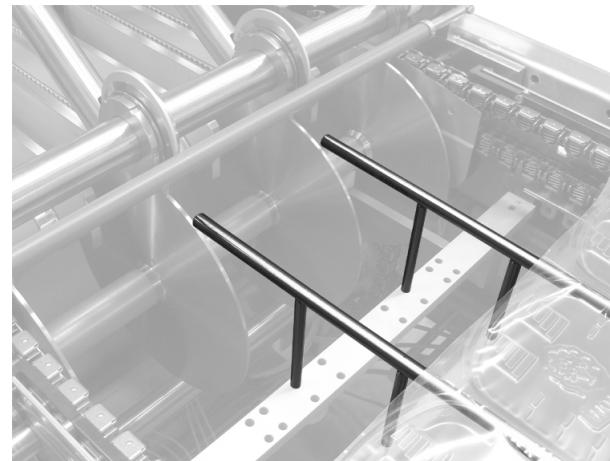


-
15. Unscrew the screws of the cover plate.



-
16. Remove the cover plate.

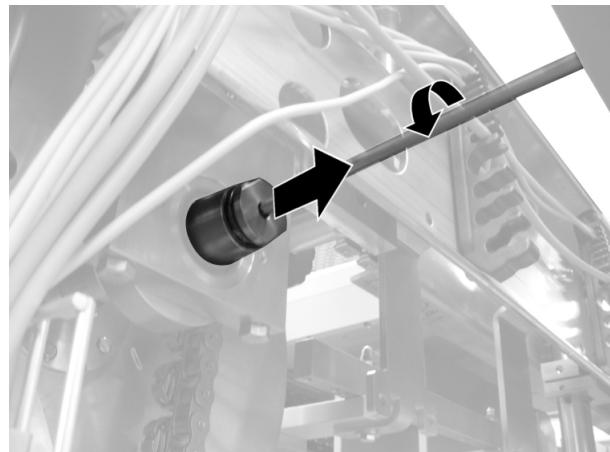
-
17. Remove the support bars in front of the lower circular blades.



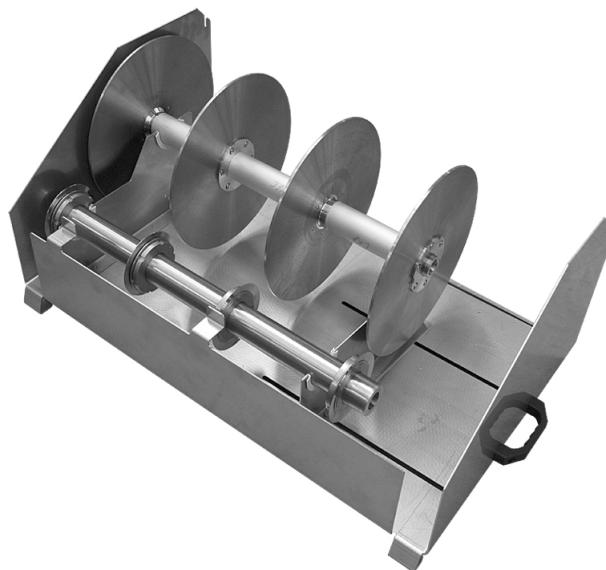
18. Pull the discharge plate out in an upward direction.



-
19. Use the hexagon socket wrench to release the spring-loaded bolts on both sides of the bottom blade shaft.
 - ✓ The spring-loaded bolts move outward.



- ✓ The bottom blade shaft lies on the mountings and can be removed.
 20. Take out the bottom blade shaft and place it in the storage box.
-

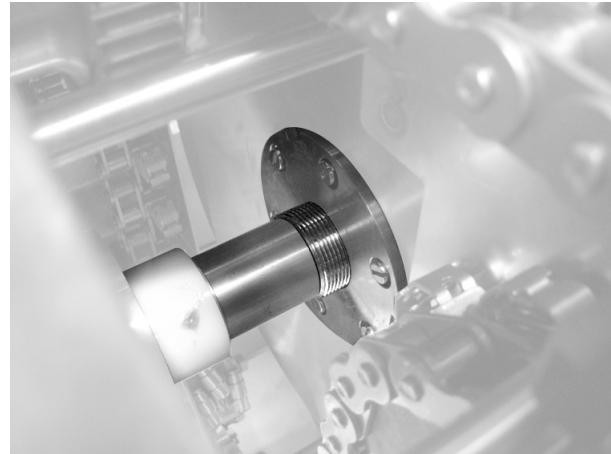


-
21. If available, use load lifting equipment.
-

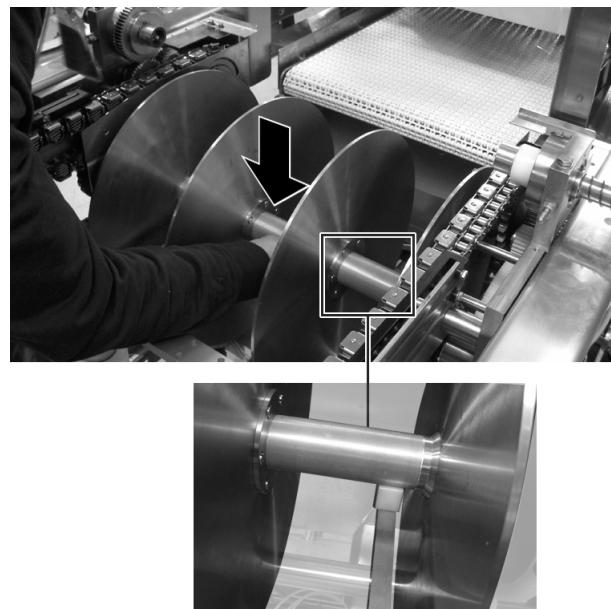
Fitting the knife shafts

1. Ensure that the knife shafts, cover plate and discharge plate match the format.

-
2. Align the bottom blade shaft in such a way, that when inserted the thread is on the **left** as seen from the film running direction.

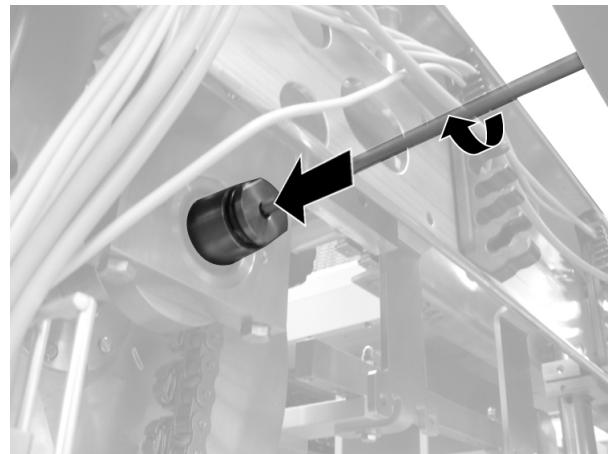


-
3. Place the bottom blade shaft on the mountings in the machine.

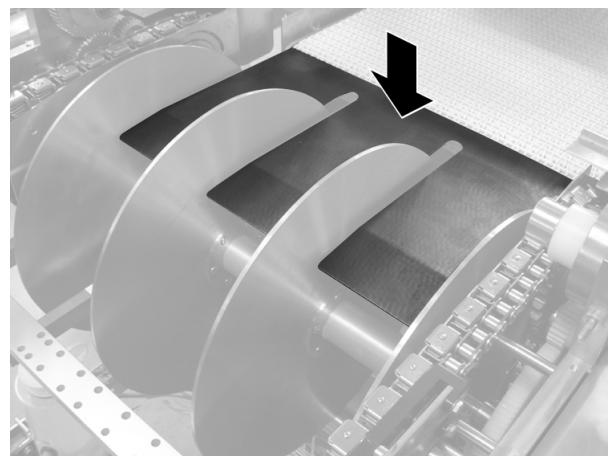


-
4. If available, use load lifting equipment.

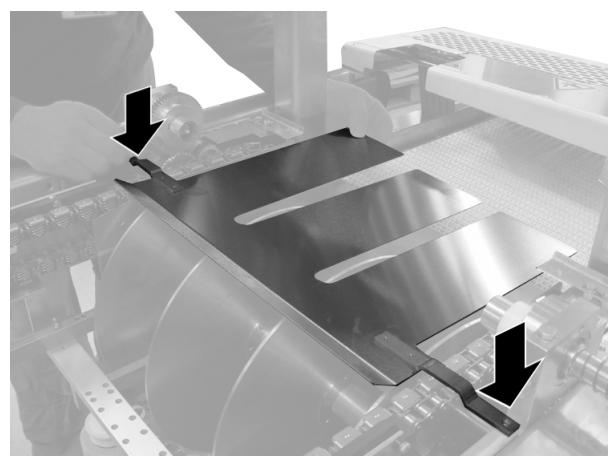
5. Press the spring-mounted bolt on the operating side inwards and tighten it with the hexagon socket wrench.



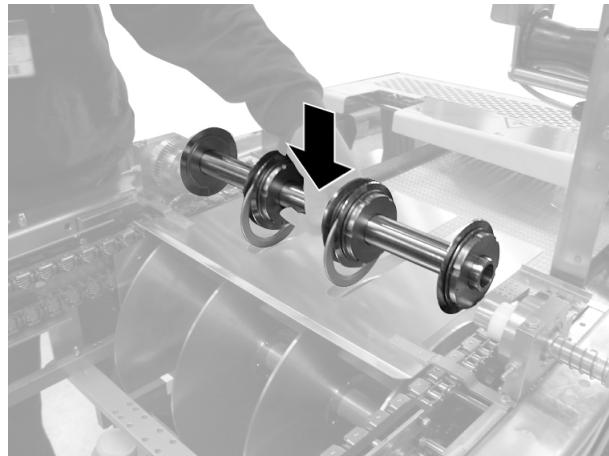
6. Press the spring-mounted bolt on the opposite side inwards and tighten it with the hexagon socket wrench.
7. Insert the discharge plate into the holding devices.



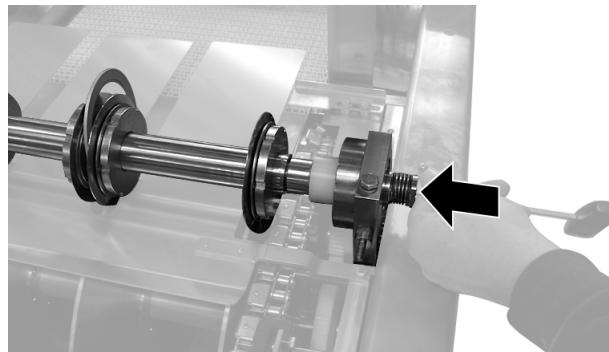
8. Insert the cover plate and tighten the screws.



-
9. Insert the top blade shaft.

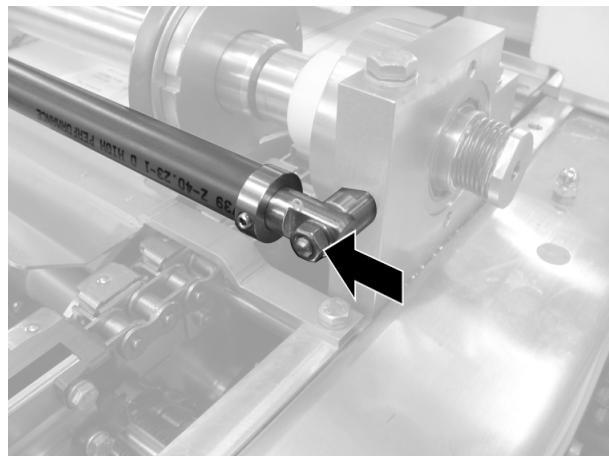


-
10. If available, use load lifting equipment.
 11. Press the spring-mounted bolt on the operating side inwards and tighten it with the hexagon socket wrench.

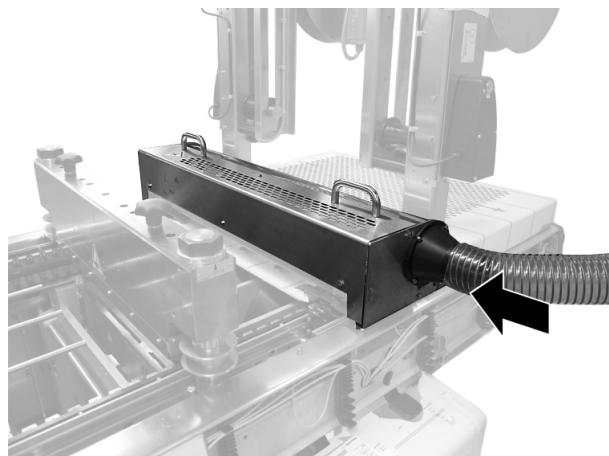


-
12. Press the spring-mounted bolt on the opposite side inwards and tighten it with the hexagon socket wrench.
 13. Set the circular blades, see Section 7.18.2 "ROLLER SHEAR CUTTING UNIT - SETTING THE CIRCULAR KNIVES".

-
14. Fasten the pressing bar (only for centre trim cutting).



-
15. Mount all side panels.
 16. Attach all safety guards.
 17. Connect the hose of the suction unit.
-



7.18.2 Roller shear cutting unit - setting the circular knives

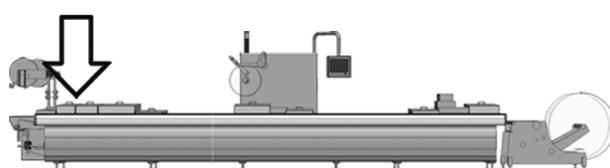


Fig. 413: Position on the machine

Setting the bottom circular knives

The position of the bottom circular blades is set with spacer bushings between the circular knives. Depending on the pack dimensions, longer or shorter spacer bushings will be required.

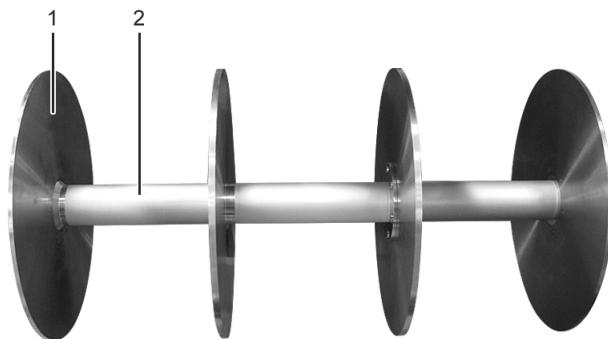


Fig. 414: Bottom circular knives for roller shear cutting unit

- 1 Circular knife
- 2 Spacer bushing

Setting the top circular knives - line cutting

The circular knives can be moved on the blade shaft. When sliding on the circular knives, observe the correct arrangement of the top circular knives in relation to the bottom circular knives.

Arrangement of circular knives for line cutting.

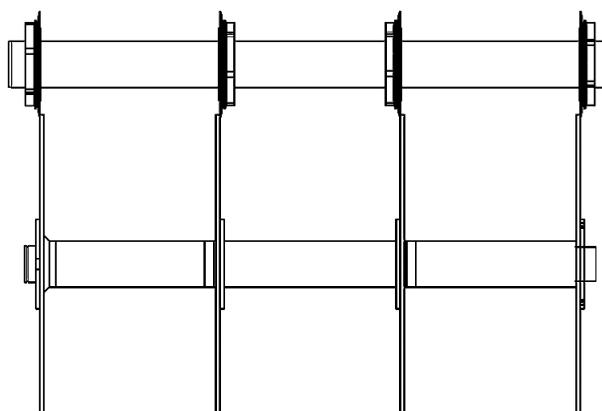
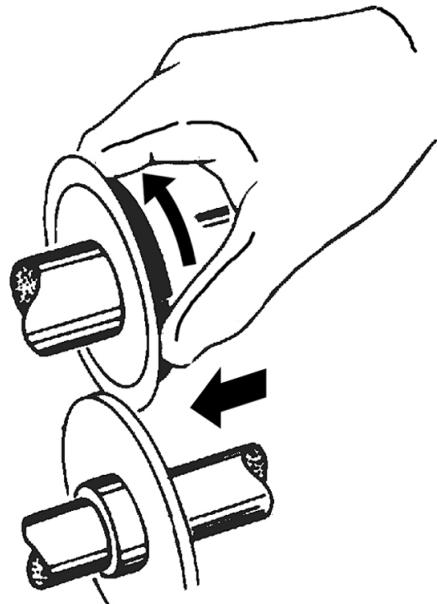


Fig. 415: Line cutting knives

1. **⚠CAUTION** – The knives of the cutting unit are sharp. Touching the sharp knives can lead to injuries.
 - When performing any work wear personal protective equipment.

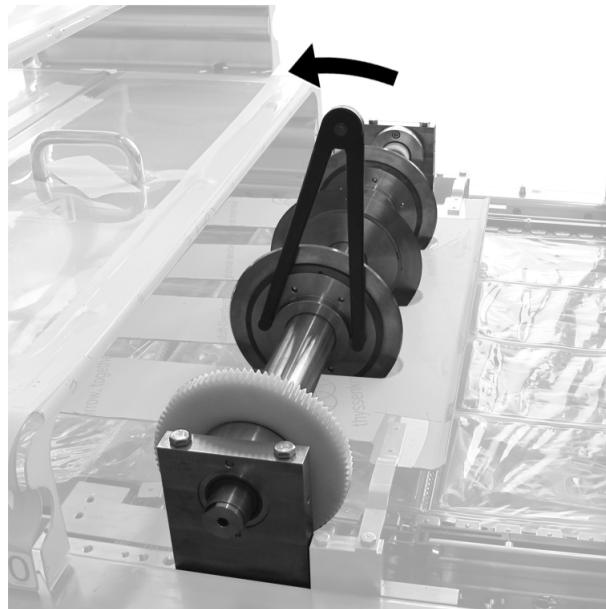
-
2. Press the top circular knife lightly against the bottom circular knife with your hand. At the same time, tighten the tensioning ring in the direction of the arrow.



-
3. Fasten all top circular blades in the same manner.
 4. Tighten all tensioning rings of the top circular knives using the hook spanner.



-
5. If there are holes in the tensioning rings, tighten all tensioning rings with the face spanner.



-
6. Create test packs and check the cutting result. If necessary, adjust the top circular blades' lateral pressing force on the bottom circular blades.
 - 6.1 Thick, rigid film: reduced pressing force.
 - 6.2 Thin, soft film: greater pressing force.
-

Setting the top circular knives - strip cutting

Arrangement of the knives for strip cutting.

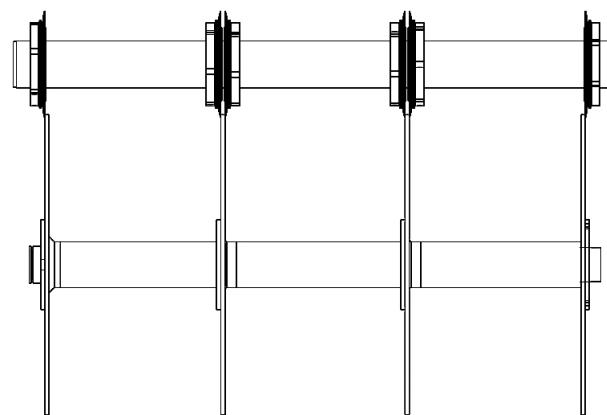
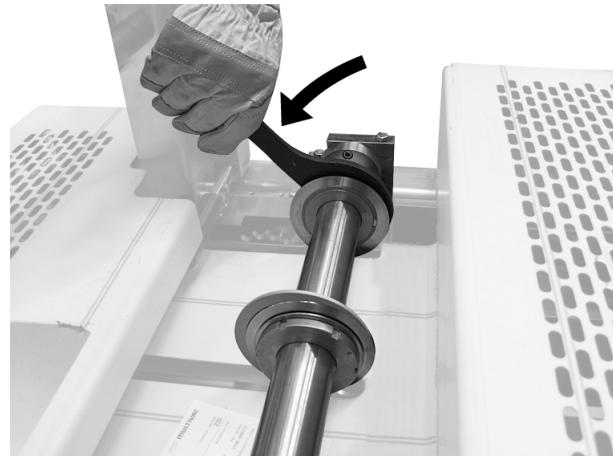
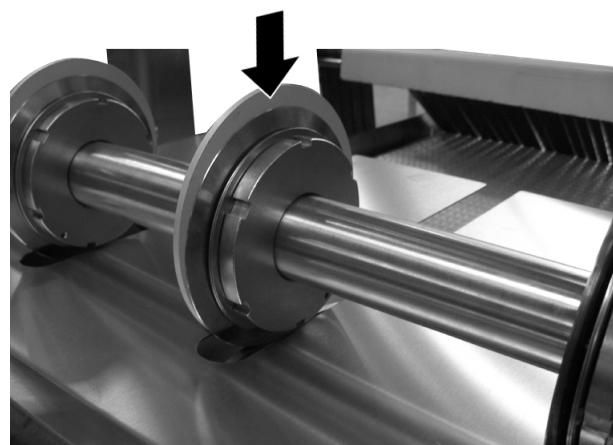


Fig. 416: Strip cutting knives

-
1. Fasten the top, outer circular knives in the same manner as the top circular knives for line cutting, see "Setting the top circular knives - line cutting".

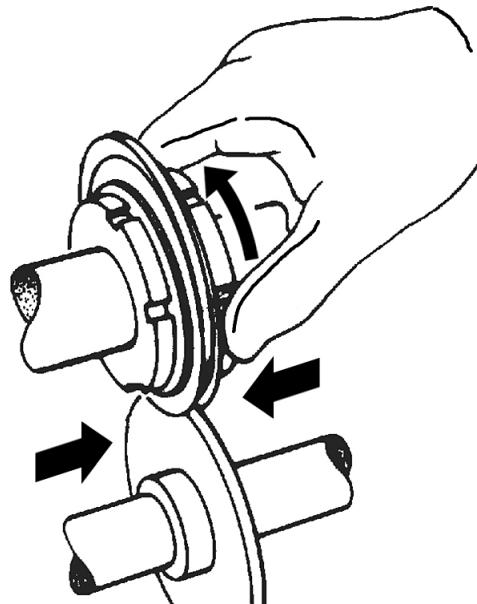


2. For the top circular knives of the strip cutting unit, position the scraper ring so that it lies against the lower circular knives.



3. **⚠️CAUTION** – The knives of the cutting unit are sharp. Touching the sharp knives can lead to injuries.
 - When performing any work wear personal protective equipment.

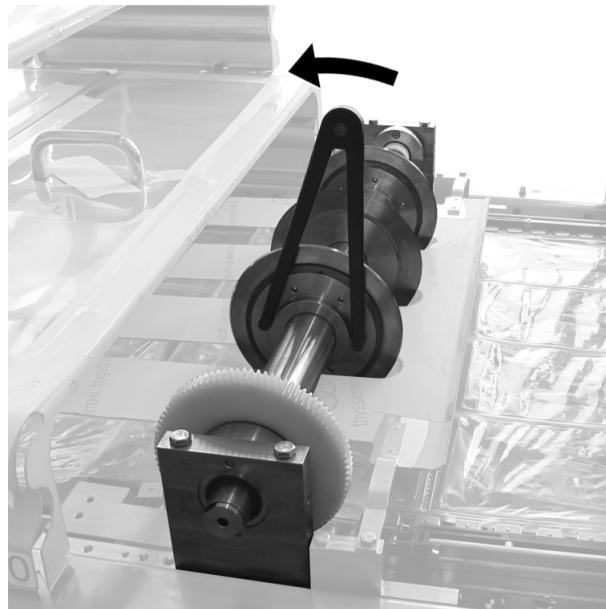
-
4. Press the top circular knife on one side lightly against the bottom circular knife with your hand. At the same time, tighten the tensioning ring in the direction of the arrow.



5. Press the top circular blade on the other side lightly against the bottom circular blade with your hand. At the same time, tighten the tensioning ring in the direction of the arrow.
✓ The scraper ring can be moved between the knives.
 6. Fasten all top circular blades in the same manner.
 7. Tighten all tensioning rings of the circular blades using the hook spanner.
-



-
8. If there are holes in the tensioning rings, tighten all tensioning rings with the face spanner.



-
9. Create test packs and check the cutting result. If necessary, adjust the top circular blades' lateral pressing force on the bottom circular blades.
 - 9.1 Thick, rigid film: reduced pressing force.
 - 9.2 Thin, soft film: greater pressing force.
-

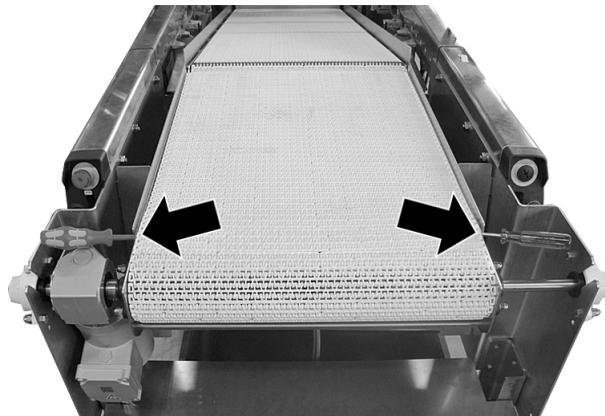
7.19 Conveyor unit

7.19.1 Changing the modular plastic belt

Removing the modular plastic belt

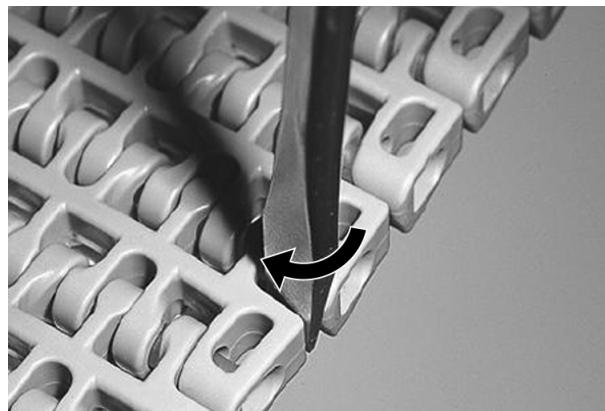
-
1. De-energise the machine.

-
2. Raise the top of the modular plastic belt and place a suitable object under it at each side.



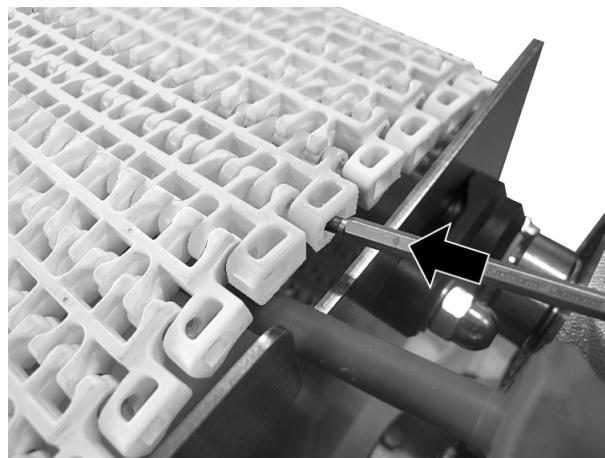
✓ The top of the modular plastic belt is above the frame of the discharge unit.

-
3. Insert the screwdriver at the edge between two links and turn it clockwise.

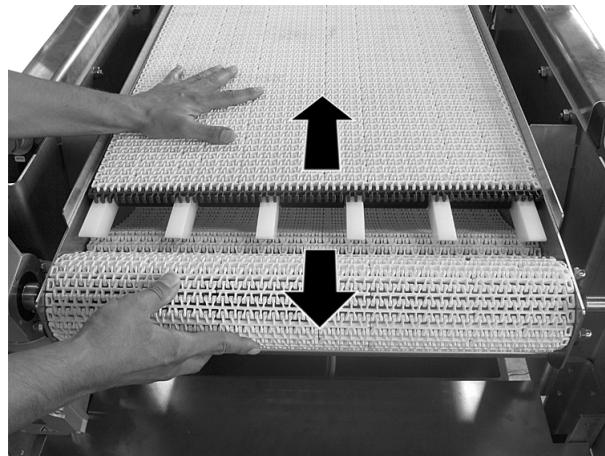


✓ The connector rod detaches from the snap closure.

-
4. Press out the connector rod from the opposite side with a blunt object.

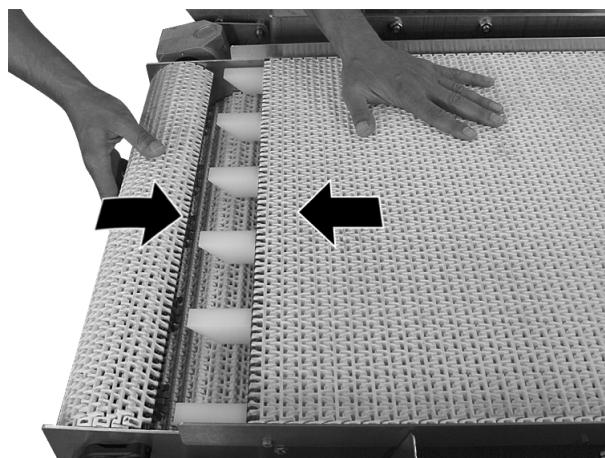


-
5. Pull out the connector rod.
 6. Remove the screwdriver.
 7. Pull the modular plastic belt out of the discharge unit.
-



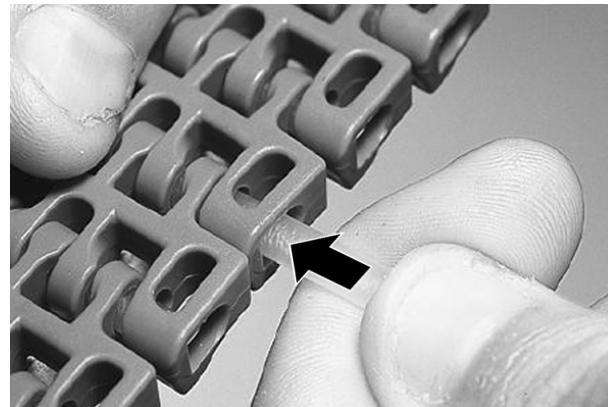
Installing the modular plastic belt

-
1. De-energise the machine.
 2. Remove the safety guard on the underside of the discharge unit.
 3. Insert a new modular plastic belt in the discharge unit.
-

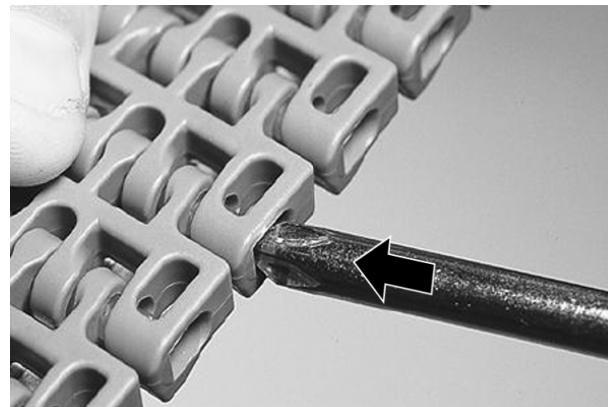


- 3.1 Ensure that the beginning and end of the modular plastic belt are at the top.
 - 3.2 Ensure that the links of the modular plastic belt lie exactly in the drive wheels of the conveyor drive.
 4. Push the links together so that the openings of the links are flush.
-

-
5. Insert the connector rod manually.



-
6. Push the remaining part of the connector rod with a blunt object until it is behind the snap closure.



-
7. Attach the safety guard.

7.20 Specifying and acknowledging service intervals

7.20.1 Specifying the service schedule

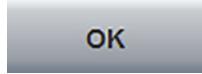
**Info**

The service schedule can only be specified with the *Service access* right.

Manually entering the service schedule



-
1. Touch the <Statistics> button on the navigation bar.

-
- | | |
|---|---|
|  | <p>2. In the "Statistics" menu touch the <Production data> button.
 ✓ The display for "Statistics/production data tab" appears.</p> |
|---|---|
-
- | | |
|---|---|
|  | <p>3. Touch the <service interval> tab.
 ✓ The display for "Production data/service interval tab" appears.
 Statistics > Production data > Service interval</p> |
|---|---|
-
- | | |
|---|---|
|  | <p>4. Touch the desired input box for <i>Service schedule</i>.
 ✓ A keypad appears.</p> |
|---|---|
-
- | | |
|---|--|
|  | <p>5. Enter the service schedule using the keypad.
 5.1 Enter the entire service schedule for this interval stage.
 5.2 Touch the <OK> button.

 ✓ The service schedule is adopted in the input box.</p> |
|---|--|
-
- Importing the service schedule**
-
- | | |
|--|---|
|  | <p>1. Remove the cover for the USB connection on the underside of the control terminal.</p> |
|--|---|
-
- | | |
|---|--|
|  | <p>2. NOTICE – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.</p> <ul style="list-style-type: none"> • Use only virus-scanned USB sticks. |
|---|--|
-
- | | |
|---|---|
|  | <p>3. Plug the USB stick with TXT file into the USB connection.</p> |
|---|---|
-
- | | |
|---|--|
|  | <p>4. Touch the <Statistics> button on the navigation bar.</p> |
|---|--|
-
- | | |
|---|---|
|  | <p>5. In the "Statistics" menu touch the <Production data> button.
 ✓ The display for "Statistics/production data tab" appears.</p> |
|---|---|
-
- | | |
|---|---|
|  | <p>6. Touch the <Service interval> tab.
 ✓ The display for "Production data/service interval tab" appears.
 Statistics > Production data > Service interval</p> |
|---|---|
-
- | | |
|---|---|
|  | <p>7. Touch the <Load data> button for the desired service schedule.
 ✓ The "service schedule" display appears.</p> |
|---|---|
-
- | | |
|---|------------------------------------|
|  | <p>8. Select the desired file.</p> |
|---|------------------------------------|
-
- | | |
|---|--|
|  | <p>9. Touch the <OK> button.
 ✓ The selected file is adopted into the input box as the service schedule.</p> |
|---|--|
-



-
10. Touch the button for <Safely remove USB stick>.
-

11. Remove the USB stick.
-

12. Attach the cover for the USB connection.
-

7.20.2 Specifying service intervals



1. Touch the <statistics> button on the navigation bar.
-



2. In the "Statistics" menu touch the <Production data> button.
-

✓ The display for "Statistics/production data tab" appears.



3. Touch the <service interval> tab.
-

✓ The display for "Production data/service interval tab" appears.

Statistics > Production data > Service interval

4. Under *setting*, enter the desired number of operating hours for the particular step.
-

5. To switch off a step, enter "0" under *setting*.
-

7.20.3 Acknowledging service intervals



1. Touch the <statistics> button on the navigation bar.
-



2. In the "Statistics" menu touch the <Production data> button.
-

✓ The display for "Statistics/production data tab" appears.



3. Touch the <service interval> tab.
-

✓ The display for "Production data/service interval tab" appears.

Statistics > Production data > Service interval

4. For the desired step, enter "0" under *actual value*.
-

✓ The diagnostic message is acknowledged and the hour counter for this step is reset.

7.21 Allocating variables for access from an overriding control

**Info**

Allocating the variables is only possible with the *Service* access right.

7.21.1 Table for adapting identification of variables



1. Touch the <maintenance menu> button on the navigation bar.



2. In the "Maintenance menu", touch the <Service menu> button.

3. Touch the <Identification of variables> button in the "Service menu".

✓ The "Identification of variables" display appears.
Service menu > Identification of variables

Sorting the table

1. Call up the "Identification of variables" display.

Service menu > Identification of variables

2. Touch the caption button for the desired table column.

✓ The table content relating to the selected column appears, sorted so that it is counting upwards.

3. Touch the same caption button again.

✓ The table content relating to the selected column appears, sorted so that it is counting downwards.

Filtering table content



1. Call up the "Identification of variables" display.

2. Touch the <Other settings> tab.

✓ The display for "Identification of variables/other settings tab" appears.
Service menu > Identification of variables > Other settings

3. Under *Filter* touch the desired input box.

✓ A keypad appears.

4. On the keypad touch the required number sequence or the required word section and touch the <OK> button.



5. Touch the <Identification of variables> tab.

✓ In the table only the variables still appear, which contain the entered search term in the relevant column.



Info

The filters for *Variable ID*, *Item ID* and *Group* are simultaneously active. By combining the three filters, the content of the table for identification of variables can be localized precisely.

7.21.2 Saving variables on the USB stick.

1. Remove the cover for the USB connection on the underside of the control terminal.

2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.
 - Use only virus-scanned USB sticks.

3. Insert the USB stick into the USB connection.



4. Touch the <Maintenance menu> button on the navigation bar.



5. In the "Maintenance menu", touch the <Service menu> button.



6. Touch the <Identification of variables> button in the "Service menu".

7. Touch the <Other settings> tab.

- ✓ The display for "Identification of variables/other settings tab" appears.

Service menu > Identification of variables > Other settings

8. Under *output* select which variables are to be saved on the USB stick.

- 8.1 If all variables are to be saved, touch *All*.
- 8.2 If only the recipe variables are to be saved, ensure that the desired recipe is loaded and touch *Only recipe values*.
- 8.3 If only certain variables are to be saved, enter the corresponding filters under *Filter* and touch *Filtered*.



9. Touch the <Save data> button.

- ✓ The selected variables are saved on the USB stick.

10. Wait until the saving procedure is ended.



11. Touch the <OK> button.



12. Touch the button for <Safely remove USB stick>.

13. Remove the USB stick.

- ✓ The button for <Safely remove USB stick> disappears.

14. Attach the cover for the USB connection.

7.22 Performing data saving

7.22.1 Backing up data

**Info**

The data backup contains the following data:

- Recipes
- Message list
- User data.
- Cause and solution for troubleshooting
- Data of the audit trail
- Diagnostic data
- Control program of the machine

Back up data on a USB stick

1. Remove the cover for the USB connection on the underside of the control terminal.
2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.
 - Use only virus-scanned USB sticks.

3. Insert the USB stick into the USB connection.



4. Touch the <maintenance menu> button on the navigation bar.



5. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The page for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup

6. Touch the <Create data backup> button.
 - ✓ The "Create data backup" page appears.
 - ✓ All the data is grouped in a zip archive and saved on the USB stick.



7. Touch the button for <Safely remove USB stick>.

8. Remove the USB stick.
 - ✓ The button for <Safely remove USB stick> disappears.

9. Attach the cover for the USB connection.

Backing up data without USB stick



1. Touch the <maintenance menu> button on the navigation bar.



2. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The page for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup
3. Touch the <Create data backup> button.
 - ✓ The "Data backup" page appears with the target directory on the local machine control drive.
4. Touch the <OK> button.
 - ✓ All the data is grouped in a zip archive and saved on the given target directory.
 - ✓ The access to the data is gained via File Transfer Protocol (FTP).

OK

7.22.2 Backing up the database of production data acquisition (PDA)

**Info**

The data backup contains all the PDA data.

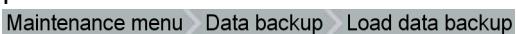
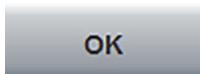
1. Remove the cover for the USB connection on the underside of the control terminal.
2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.
 - Use only virus-scanned USB sticks.
3. Insert the USB stick into the USB connection.
4. Touch the <maintenance menu> button on the navigation bar.
5. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The display for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup
6. Touch the button for <Create PDA database backup>.
 - ✓ The display for "Create PDA database backup" appears.
 - ✓ All the PDA data is copied onto the USB stick and saved in a corresponding folder.
7. Touch the button for <Safely remove USB stick>.
8. Remove the USB stick.
 - ✓ The button for <Safely remove USB stick> disappears.



-
9. Attach the cover for the USB connection.
-

7.22.3 Load recipes

1. Remove the cover for the USB connection at the bottom of the control terminal.
 2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.
 - Use only virus-scanned USB sticks.
 3. Plug the USB stick with the saved recipes into the USB connection.
 4.  Touch the <Maintenance menu> button on the navigation bar.
 5.  Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The display for "Data backup/create data backup tab" appears.
 6.  Touch the <Load data backup> tab.
 - ✓ The display for "Data backup/load data backup tab" appears.

 7. Touch the <Load recipes> button.
 - ✓ The display "install data backup" appears.
 8. If several data backups are saved on the USB stick, select the required backup by means of the date.
 9.  Touch the <OK> button.
 - ✓ The recipes on the USB stick are copied to the machine control's industrial PC.
 10. Load the desired recipe, which is to be used for production.
 11. Touch the button for <Safely remove USB stick>.
 12. Remove the USB stick.
 - ✓ The button for <Safely remove USB stick> disappears.
 13. Attach the cover for the USB connection.
-

7.22.4 Loading the data of production data acquisition (PDA)

1. Remove the cover for the USB connection on the underside of the control terminal.

-
2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.

- Use only virus-scanned USB sticks.

-
3. Plug the USB stick with the saved PDA database into the USB connection.



-
4. Touch the <maintenance menu> button on the navigation bar.



-
5. Touch the "Data backup" button in the <Maintenance menu>.
- ✓ The display for "Data backup/create data backup tab" appears.



-
6. Touch the <Load data backup> tab.
- ✓ The display for "Data backup/load data backup tab" appears.

Maintenance menu Data backup Load data backup

-
7. Touch the button for <Load PDA database backup>.

- 7.1 If several PDA database backups are saved on the USB stick, select the required database backup by means of the date.

- ✓ The display "install data backup" appears.

OK

-
8. Touch the <OK> button.

- ✓ The data on the industrial PC of the machine control is overwritten with the data on the USB stick.



-
9. Touch the button for <Safely remove USB stick>.

-
10. Remove the USB stick.

- ✓ The button for <Safely remove USB stick> disappears.

-
11. Attach the cover for the USB connection.

7.22.5 Save images

-
1. Remove the cover for the USB connection on the underside of the control terminal.

-
2. **NOTICE** – Missing data protection measures can damage the machine control software. This can result in reject packs and loss of production.

- Use only virus-scanned USB sticks.

-
3. Insert the USB stick into the USB connection.



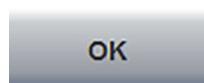
-
4. Touch the <Maintenance menu> button on the navigation bar.



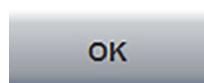
5. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The display for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup

6. Touch the <Save images> button.
 - ✓ The "Create data backup" display appears.



7. Touch the <OK> button.
 - ✓ All images of the display are copied to the USB stick in the selected language.
 - ✓ If all screens are saved, the display "Save screenshots" appears.



8. Touch the <OK> button.



9. Touch the <maintenance menu> button on the navigation bar.



10. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The display for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup

11. Touch the button for <Safely remove USB stick>.

12. Remove the USB stick.
 - ✓ The button for <Safely remove USB stick> disappears.

13. Attach the cover for the USB connection.

Cancel save images



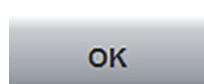
1. Touch the <maintenance menu> button on the navigation bar.



2. Touch the "Data backup" button in the <Maintenance menu>.
 - ✓ The display for "Data backup/create data backup tab" appears.

Maintenance menu Data backup Create data backup

3. Touch the <Cancel save images> button.
 - ✓ The "Save screenshots" display with the *Really abort?* message appears.



4. Touch the <OK> button.
 - ✓ No further images are copied on the USB stick.

5. Touch the button for <Safely remove USB stick>.

-
6. Remove the USB stick.
 - ✓ The button for <Safely remove USB stick> disappears.
 7. Attach the cover for the USB connection.
-

7.23 Connect the machine with the MULTIVAC network



Info

- The Service access right is required to connect with the network.
 - Only establish the connection with the network in consultation with MULTIVAC Service. See Section 1.8.3 "TAKING PRECAUTIONARY MEASURES FOR DATA PROTECTION" on page 25.
-



1. Touch the <Maintenance menu> button in the navigation bar.
-



2. Touch the <Diagnosis> button in the "Maintenance menu".
-

3. Touch the <Remote Assistance> button in the "Diagnosis" menu.

- ✓ The page "Remote Assistance/Remote assistance tab" appears.
- ✓ The status of the connection is displayed in *Status*.

Diagnosis Remote Assistance

4. Touch the <Connect> button.

- ✓ The info line is coloured blue.
- ✓ The access indicator on the navigation bar displays the symbol *Remote Assistance*.
- ✓ "Connection active" appears in *Status*.
- ✓ MULTIVAC Service can access the machine control.

5. To sever the connection, touch the <Disconnect> button.
-

7.24 Lubricant table



Info

The lubricants, which are recommended by MULTIVAC, are tailored ideally to the purpose and use. Damage to equipment or impairment of performance, e.g. increased wear and corrosion or similar, which is caused by use of inappropriate lubricants, is not covered by our warranty.

DANGER
Danger of explosion!

Unsuitable oil in the vacuum pump can cause an explosion.
Explosions can cause serious injuries or even death.

- Only fill the vacuum pump with oil that is suitable for the application of the machine.
- Do NOT mix oils.
- Before switching to another oil, have the vacuum pump cleaned by MULTIVAC Service.

NOTICE
Material damage!

The use of unsuitable lubricants can increase the wear of the machine and lead to corrosion of the transport chains.

This damages the machine.

- Only use recommended lubricants for the transport chains.

Recommended lubricants:

Lubrication point	Type	Manufacturer	Designation	Marking and labelling	MULTIVAC material number
Transport chains	Oil	Klüber Lubrication	Klüberoil 4 UH1-150N	H1	91111112041
Flange bearing	Grease	MULTIVAC	MULTIVAC grease	H1	107111650
Pedestal bearing	Grease	MULTIVAC	MULTIVAC grease	H1	107111650
Linear ball bearing	Grease	MULTIVAC	MULTIVAC grease	H1	107111650
Lifting unit or lifting device	Grease	MULTIVAC	MULTIVAC grease	H1	107111650
Film punch	Grease	MULTIVAC	MULTIVAC grease	H1	107111650
Vacuum pump R 5 RD 0200 A	Oil	Busch	Busch VSL 100	H1	105877068
Vacuum pump WV 1200 A	Oil	Busch	Busch VSL 100	H1	105877068
Vacuum pump WV 2400 A					

8 Troubleshooting

WARNING

Injury hazard!

Ignorance of proper machine handling is very dangerous.
Improper handling can lead to serious injuries.

- Make sure you observe the safety instructions and accident prevention regulations.
- Only qualified electricians are permitted to work on electrical modules.
- Service and repair work should be carried out by authorised technicians only.
- When carrying out any service work or repairs, disconnect the power supply from the electrical grid.

8.1 Faults with diagnostic message

Diagnostic messages

Diagnostic messages appear in the info line and consist of a diagnostic number and a diagnostic text.

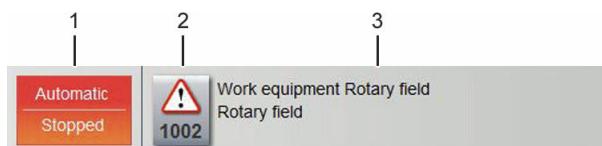


Fig. 417: Diagnostic message

- 1 Operating status of the machine
- 2 <Help> button with diagnostic number
- 3 Diagnostics text

Diagnostic number

The diagnostic number consists of five parts which are separated from each other with dots.

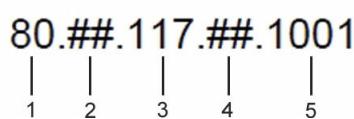


Fig. 418: Diagnostic number

- 1 Station
- 2 Station number
- 3 Subsystem
- 4 Sub system number
- 5 Error number

8.1.1 Acknowledging diagnostic message

**Info**

If a warning or fault occurs, the display of the operating status in the info line changes. A diagnostic message appears.

1. Rectify cause of malfunction.
2. Acknowledge the diagnostic message. Touch one of the following keys or buttons:
 - 2.1 <I> key.
 - 2.2 <O> key.
 - 2.3 <OK> button in the info line.



8.1.2 Calling up cause and solution

Calling up solution for current diagnostic messages

1. **Without QR code:** Touch the <Help> button in the navigation bar.
 - ✓ The "troubleshooting" display for the current diagnostic message appears.



2. **With QR code:** Touch the button with the fault icon in the info line.
 - ✓ The "Troubleshooting" display for the current diagnostic message appears with the <QR code> button.
3. Touch the tabs <1> to <xx>.
 - ✓ A known cause appears on each tab with the corresponding possible solution.

Calling up help from the message list

1. Touch the <maintenance menu> button on the navigation bar.



2. Touch the <Diagnosis> button in the "Maintenance menu".
 - ✓ The "Diagnosis" menu appears.

3. Touch the <Message list> button in the "Diagnosis" menu.
 - ✓ The "Message list" display appears with the last displayed diagnostic messages.

Diagnosis Message list

-
4. Touch the desired diagnostic message.
 5. Touch the <Troubleshooting> button.
 - ✓ The "Troubleshooting" display for the selected diagnostic message appears.
 6. Touch the tabs <1> to <xx>.
 - ✓ A known cause appears on each tab with the corresponding possible solution.
-

**Calling up help from
the message list of
production data ac-
quisition**

1. Touch the <Statistics> button on the navigation bar.



2. In the "Statistics menu", touch the <Production data acquisition> button.
 - ✓ The "Production data acquisition" menu appears.



3. Touch the <Message overview> button in the "Production data acquisition" menu.
 - ✓ The display for "Production data acquisition/message overview tab" appears.



4. Touch the <Message list> tab.
 - ✓ The "Message list" tab appears with the last displayed diagnostic messages.

Production data acquisition > Message overview > Message list

-
5. If required, limit the number of displayed messages with the filter settings.
 6. Touch the desired diagnostic message.
 7. Touch the <Troubleshooting> button.
 - ✓ The "Troubleshooting" display for the selected diagnostic message appears.
 8. Touch the tabs <1> to <xx>.
 - ✓ A known cause appears on each tab with the corresponding possible solution.
-

8.1.3 Assessing cause and solution

-
1. Call up the "troubleshooting" display, see Section 8.1.2 "CALLING UP CAUSE AND SOLUTION".
 2. Touch the desired tab with cause and solution.
-

-
3. Touch the <Increase value> or <Decrease value> button.
 - ✓ With each positive or negative assessment, the *assessment number* increases or decreases.
 - ✓ The tabs are sorted according to their *assessment number* in descending order.
 - ✓ The tab with the highest *assessment number* is in position 1.
-

8.1.4 Inputting causes and solutions


Info

When inputting causes and solutions, the following options are available:

- Enter a new cause and new solution.
- Use existing causes and existing solutions.
- Combine an existing cause with a new solution.
- Combine a new cause with an existing solution.

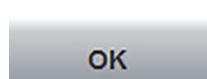
Inputting new causes and new solutions



-
1. Call up the "troubleshooting" display, see Section 8.1.2 "CALLING UP CAUSE AND SOLUTION".
 2. Touch the <Perform> button.
 ✓ The "add cause and solution" display appears.
-



- ✓ Under *Cause* there appears *Create new cause* next to the <Edit> button.
 - ✓ Under *Solution* there appears *Create new solution* next to the <Edit> button.
-



3. Touch the *Cause* input box.
 ✓ A keypad appears.
 4. Enter the new cause on the keypad and confirm with the <OK> button.
 ✓ The new cause is adopted in the input box.
-

-
- OK
5. Touch the *Solution* input box.
✓ A keypad appears.
 6. Enter the new solution on the keypad and confirm with the <OK> button.
✓ The new solution is adopted in the input box.
 7. Touch the <OK> button.
-
- OK
- 7.1 If the display language is not English, process the prompt as follows.
 - 7.2 If the cause and solution are also to be created in English, touch the <Yes> button, enter the English cause and solution and confirm with <OK>.
 - 7.3 If the cause and solution are not to be created in English, touch the <No> button.
✓ The new cause and solution are adopted in the "troubleshooting" display on the last tab.
-

Using existing causes and existing solutions

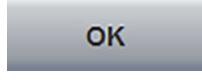
-
- 
1. Call up the "troubleshooting" display, see Section 8.1.2 "CALLING UP CAUSE AND SOLUTION".
 2. Touch the <Perform> button.
✓ The "add cause and solution" display appears.
-



-
- 
3. Under *Cause* touch the <Edit> button.
 4. Select *Use existing cause* and confirm with the <OK> button.
 5. Using the arrow keys next to the list, search for the desired cause under *Cause*.
 6. Touch the desired cause.
-



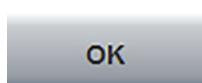
-
7. Under *Solution* touch the <Edit> button.


OK

-
8. Select *Use existing solution* and confirm with the <OK> button.

-
9. Using the arrow keys next to the list, search for the desired solution under *Solution*.

-
10. Touch the desired solution.


OK

-
11. Touch the <OK> button.
✓ The selected cause and the selected solution are adopted in the "Troubleshooting" display on the last tab.
-

8.1.5 Sending current fault as e-mail

As soon as a fault occurs on the packaging machine, the information about this fault is collected and shown as a QR code. This QR code can be scanned with the camera of a smartphone and sent as an e-mail.



Info

A QR code can only be produced for the current fault present.

- The QR code contains a fault description for the current fault.
- In the case of further faults, only the error code, date and time are given.

Preparing the smartphone for the QR code

-
1. Ensure that the smartphone has an Internet connection.
-
2. Download an app for scanning QR codes.
✓ The app used must have MATMSG e-mail support.
-

Scanning and sending the QR code



-
1. Touch the button with the Fault icon in the info line.
✓ The "troubleshooting" display for the current diagnostic message appears.
-



2. Touch the <QR code> button.
 ✓ The "QR code" display appears.



3. Scan the QR code with the smartphone.
 ✓ An e-mail is automatically generated on the smartphone.
 ✓ The type and serial number of the packaging machine, as shown in the example, should be given as the reference.



4. Send the created e-mail to MULTIVAC Service.
 5. Touch the <OK> button.
 ✓ The "Troubleshooting" display appears.

8.2 Faults without diagnostic message

Symptom	Cause	Solution
Cavities are not fully shaped or have creases.	<ul style="list-style-type: none"> The <i>heating</i> time or <i>forming</i> time is set too short. Forming pressure is too low. 	<ul style="list-style-type: none"> Check, reset if necessary. Check, reset if necessary.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> The temperature during forming heating is too high or too low. The silencer of the quick exhaust valve for the forming die bottom section is dirty. Film infeed is not parallel. The film is not tensioned enough. Holes in the heating plate are clogged. Heating plate is too far down. Hose to forming die damaged. The forming die is insufficiently cooled. Die is furred. Closing diaphragm not airtight. 	<ul style="list-style-type: none"> Check, reset if necessary. Replace silencer. Check, reset if necessary. Check, reset if necessary. Redrill the holes. Move heating plate back somewhat, remove spacer bushings. Check, replace if necessary. Set the cooling water flow rate higher. Decalcify the die. Check, replace if necessary.
The film is not heated up in the preheating device.	<ul style="list-style-type: none"> Compressed air and a diaphragm are configured in the hardware configuration of the preheating unit and a diaphragm is built in. The diaphragm in the preheating die is not activated. 	<ul style="list-style-type: none"> Activate the diaphragm in the "Forming / Other settings tab" page.
Film is not properly gripped by the chain grippers.	<ul style="list-style-type: none"> Film does not run symmetrically into the transport chains. Film does not run centred into the transport chains. Transport chains are not sufficiently tensioned. 	<ul style="list-style-type: none"> Adjust the <i>film run handwheel</i> accordingly while the web roll is turning. Adjust the <i>film run handwheel</i> accordingly while the web roll is turning. Have the transport chains tensioned only by a specialist authorised by the manufacturer.
Creases appear across the film.	<ul style="list-style-type: none"> Machine is not properly aligned. 	<ul style="list-style-type: none"> Have the machine aligned only by a technician authorised by the manufacturer.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> Transport chains are unevenly tensioned. 	<ul style="list-style-type: none"> Have the transport chains tensioned only by a specialist authorised by the manufacturer.
	<ul style="list-style-type: none"> Transport chains are not sufficiently tensioned. 	<ul style="list-style-type: none"> Have the transport chains tensioned only by a specialist authorised by the manufacturer.
Pack cavities are damaged.	<ul style="list-style-type: none"> The radius plates are missing. The radius plates are damaged. 	<ul style="list-style-type: none"> Insert the radius plates. Smooth the radius plates.
Forming die whistles.	<ul style="list-style-type: none"> The round cord in the forming die is defective. <i>Forming</i> time set too long. The <i>heating/pressure increase</i> time is set too long. 	<ul style="list-style-type: none"> Check, replace if necessary. Check, reset if necessary. Check, reset if necessary.
Register mark control does not work.	<ul style="list-style-type: none"> Register mark control switched off. 	<ul style="list-style-type: none"> Switch on.
The print image runs ahead and behind alternately.	<ul style="list-style-type: none"> Register mark <i>amplification</i> is set too high. 	<ul style="list-style-type: none"> Decrease value.
The print image is running in the direction of the film infeed.	<ul style="list-style-type: none"> The film guide clamps the web roll. Film print image is too long. 	<ul style="list-style-type: none"> Adjust guide. Use film which matches the requirements.
The print image is running in the direction of the film outfeed.	<ul style="list-style-type: none"> Film print image is too short. The pneumatic valve on the film brake is defective. 	<ul style="list-style-type: none"> Use film which matches the requirements. Check, replace if necessary.
It takes a very long time for the print image to be corrected.	<ul style="list-style-type: none"> <i>Amplification register mark</i> is set too low. 	<ul style="list-style-type: none"> Increase value.
Poor vacuum	<ul style="list-style-type: none"> Vacuum is set too low. <i>Vacuum</i> time set too low (depending on programme). Filter for vacuum pump is clogged. The sealing valve is leaky. The sealing plate presses down. 	<ul style="list-style-type: none"> Check, reset if necessary. Check, reset if necessary. Exchange the filter. Replace the sealing valve.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> The solenoid valve <i>Lower sealing plate</i> on the sealing valve is defective. The sealing diaphragm is vented in the vacuum system. Sealing diaphragm defective. 	<ul style="list-style-type: none"> Replace the solenoid valve <i>Lower sealing plate</i>. Check, replace if necessary.
Unsatisfactory gas flushing	<ul style="list-style-type: none"> Gas nozzle is dirty. The value of the <i>gas switch point</i> is too short for the <i>gas flushing time</i>. The gas pressure is too high. The gas mixer is set incorrectly. 	<ul style="list-style-type: none"> Clean the packaging gas nozzle. Check, reset if necessary. Check, reset if necessary. Check, reset if necessary.
Pack not airtight, poor seal	<ul style="list-style-type: none"> Film incorrectly inserted. Sealing heating temperature is too high or too low. Sealing time is too short or too long. Set sealing pressure is too low. Sealing gasket in the die bottom section is worn. Diaphragm in the sealing die top section is defective. Sealing plate damaged. Non-return valve on sealing die is defective. Film runs asymmetrically. Heating element defective. Polyethylene has melted behind the sealing plate. 	<ul style="list-style-type: none"> Insert film correctly. The sealing layers of the upper and lower web must lie directly on top of one another. Check, reset if necessary. Check, reset if necessary. Increase the sealing pressure on the pressure regulator in the control cabinet. Check, replace if necessary. For a purchase order, provide the complete material number. Check, replace if necessary. Check, replace if necessary. Check, replace if necessary. Adjust the film guide. Check, replace if necessary. Carefully clean the sealing plate.
No cutting; cross cutter	<ul style="list-style-type: none"> Cutting unit not switched on or wrong cutting unit selected. 	<ul style="list-style-type: none"> Switch on cutting unit.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> The <i>cutting</i> time is too short. Power lifting (with punch) is switched off. 	<ul style="list-style-type: none"> Check, reset if necessary. Switch on power lifting (for punch) in the machine control unit.
	<ul style="list-style-type: none"> Pneumatic line loose or defective. Solenoid valve does not switch on. 	<ul style="list-style-type: none"> Check, replace if necessary. Measure the voltage at the solenoid valve.
	<ul style="list-style-type: none"> Guides are dry. 	<ul style="list-style-type: none"> Lubricate guides.
No cutting; longitudinal cutter	<ul style="list-style-type: none"> Cable on electric motor defective. Motor circuit breaker tripped. 	<ul style="list-style-type: none"> Check, replace if necessary. Check motor circuit breaker, eliminate cause of overload.
Faulty cutting; longitudinal cutter	<ul style="list-style-type: none"> Knife loose. Knife blunt. Cutting line outside the centre. 	<ul style="list-style-type: none"> Clamp knife firmly in place. Check, replace if necessary. Reset the position of the knife.
Water leaks from the cladding or in the die.	<ul style="list-style-type: none"> O-ring between machine frame and die top section is missing or defective. The gasket is defective. Water hose in the machine is defective. 	<ul style="list-style-type: none"> Check, replace if necessary. Check, replace if necessary. Check, replace if necessary.
The die top section becomes hot.	<ul style="list-style-type: none"> Die is furred. 	<ul style="list-style-type: none"> Decalcify the die.
Cooling water continues to flow through the machine despite main switch being turned off.	<ul style="list-style-type: none"> The valve at the cooling water inlet does not close. 	<ul style="list-style-type: none"> Clean, decalcify.
Compressed air blowing out.	<ul style="list-style-type: none"> Hose is damaged. O-ring is damaged. Diaphragm in the quick exhaust valve has hardened. 	<ul style="list-style-type: none"> Check, replace if necessary. Check, replace if necessary. Check, replace if necessary.

8.3 Faults of the vacuum pump

The troubleshooting applies to the following vacuum pumps:

- R 5 RD 0200 A
- R 5 RD 0240 A

- R 5 RD 0300 A
- R 5 RD 0360 A


Info

If faults arise which are not listed, contact MULTIVAC Service.

Symptom	Cause	Solution
The vacuum pump does not run.	<ul style="list-style-type: none"> • The mains frequency or mains voltage is outside the tolerance limits. • The motor is defective. • The clutch is defective. 	<ul style="list-style-type: none"> • Check the power supply. • Contact MULTIVAC Service. • Contact MULTIVAC Service.
The vacuum pump does not achieve the indicated vacuum.	<ul style="list-style-type: none"> • There is too little oil in the vacuum pump. • The filter in the suction connection is clogged. • The installed vacuum filter is clogged. • Components in the vacuum pump are damaged. 	<ul style="list-style-type: none"> • Top up with oil. • Use pneumatic lines with a sufficient cross-section. • Clean or replace the filter in the suction connection. • Clean or replace the vacuum filter. • Have MULTIVAC Service repair the vacuum pump.
The vacuum pump is too loud.	<ul style="list-style-type: none"> • The clutch is defective. • The slides of the vacuum pump are difficult to move. • The bearings of the vacuum pump are defective. 	<ul style="list-style-type: none"> • Have MULTIVAC Service repair the vacuum pump. • Have MULTIVAC Service repair the vacuum pump. • Have MULTIVAC Service repair the vacuum pump.
The vacuum pump gets too hot.	<ul style="list-style-type: none"> • The vacuum pump is dirty. • The ambient temperature is too high. • There is too little oil in the vacuum pump. • The air de-oiling elements are clogged. 	<ul style="list-style-type: none"> • Clean the vacuum pump. • Observe the maximum ambient temperature. • Top up with oil. • Replace the air de-oiling elements.
Oil mist or oil droplets escape at the gas outlet.	<ul style="list-style-type: none"> • The air de-oiling elements are clogged. • The air de-oiling elements are not installed correctly. 	<ul style="list-style-type: none"> • Replace the air de-oiling elements. • Install the air de-oiling elements correctly.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> The sealing rings on the air de-oiling elements are missing or defective. 	<ul style="list-style-type: none"> Replace the sealing rings.
	<ul style="list-style-type: none"> The float valve is defective. 	<ul style="list-style-type: none"> Have the float valve repaired by MULTIVAC Service.
The oil is discoloured black.	<ul style="list-style-type: none"> The oil change interval is too long. The oil was too hot. 	<ul style="list-style-type: none"> Contact MULTIVAC Service. Have MULTIVAC Service rinse the vacuum pump. Replace the air de-oiling elements. Change the oil and the oil filter. Adjust the oil and oil filter change interval. Use a different oil. For this, contact MULTIVAC Service.
	<ul style="list-style-type: none"> The installed air filter is defective. 	<ul style="list-style-type: none"> Replace the air filter.
	<ul style="list-style-type: none"> The vacuum pump gets too hot. 	<ul style="list-style-type: none"> Clean the vacuum pump. Observe the maximum ambient temperature. Top up the oil if required. If necessary, replace the air de-oiling elements.
The oil is discoloured white. Water is present in the oil.	<ul style="list-style-type: none"> The vacuum pump has drawn in an extensive amount of moisture. 	<ul style="list-style-type: none"> Contact MULTIVAC Service. Have MULTIVAC Service rinse the vacuum pump. Have MULTIVAC Service clean the gas ballast valve filter. Replace the air de-oiling elements. Change the oil and the oil filter. If necessary, adjust the packaging process.

8.4 Faults of vacuum pump WV xxxx



Info

If faults arise which are not listed, contact MULTIVAC Service.

Symptom	Cause	Solution
The vacuum pump does not run.	• The mains frequency or mains voltage is outside the tolerance limits.	• Check the power supply.
	• The parts inside the vacuum pump are jammed or defective.	• Contact MULTIVAC Service.
	• There is foreign matter in the vacuum pump.	• Contact MULTIVAC Service.
	• The motor is defective.	• Contact MULTIVAC Service.
The vacuum pump does not achieve the indicated vacuum.	• The pneumatic lines of the vacuum system are too long or have a cross-section that is too small.	• Keep the pneumatic lines as short as possible. • Use pneumatic lines with a sufficient cross-section.
	• The upstream vacuum pump does not work correctly.	• Check the upstream vacuum pump. • If necessary, use a suitable vacuum pump.
	• The motor's direction of rotation is incorrect.	• Have the electrical connection repaired by a qualified electrician.
	• Components in the vacuum pump are damaged.	• Have MULTIVAC Service repair the vacuum pump.
The vacuum pump is too loud.	• There is unsuitable oil in the vacuum pump.	• Use suitable oil. For this, contact MULTIVAC Service.
	• The gearbox is defective.	• Have MULTIVAC Service repair the vacuum pump.
	• The clutch is defective.	• Have MULTIVAC Service repair the vacuum pump.
	• The bearings of the vacuum pump are defective.	• Have MULTIVAC Service repair the vacuum pump.
The vacuum pump gets too hot.	• The vacuum pump is dirty.	• Clean the vacuum pump.
	• The ambient temperature is too high.	• Observe the maximum ambient temperature.
	• The temperature of the packaging gas drawn in is too high.	• Adjust the packaging process.
	• There is too little oil in the vacuum pump.	• Top up with oil.

Symptom	Cause	Solution
	<ul style="list-style-type: none"> The upstream vacuum pump does not work correctly. 	<ul style="list-style-type: none"> Check the upstream vacuum pump. If necessary, use a suitable vacuum pump.
The oil is discoloured black.	<ul style="list-style-type: none"> The oil change interval is too long. The oil was too hot. 	<ul style="list-style-type: none"> Contact MULTIVAC Service. Change the oil and the oil filter. Adjust the interval for changing the oil and oil filter.
	<ul style="list-style-type: none"> The vacuum pump gets too hot. 	<ul style="list-style-type: none"> Clean the vacuum pump. Observe the maximum ambient temperature. Adjust the packaging process. Top up the oil if required. Check the upstream vacuum pump. If necessary, use a suitable vacuum pump.

8.5 Unblock moveable parts



Info

If parts of the machine are jammed, e.g. transport chains, pneumatic cylinders or conveyors, please notify MULTIVAC Service.

8.6 Remote service via Remote Assistance



Info

The Remote Assistance function can be used under the following conditions:

- The operating company's service personnel must have participated in a Remote Assistance training course at MULTIVAC.
- The operating company's network and the Internet access have to have a synchronous line capacity of at least 512 Kbit.
- The IP address 80.149.79.236 on the ports UDP500 and UDP4500 at MULTIVAC must be capable of being reached by the operating company's network.

Activating remote service



- Touch the <Main menu> button on the navigation bar.



2. Touch the <Other settings> button in the "Main menu".



3. Touch the <Network> tab.

✓ The "Other settings / machine tab" page appears.

Main menu Other settings Network

4. Activate the *Remote Assistance* function.

✓ A check mark appears in the box.

✓ Access via Remote Assistance is enabled.

Establishing the connection to the MULTIVAC network.



Info

- Only establish the connection with the network in consultation with MULTIVAC Service.
- The connection to the network can only be established with Service access rights.



1. Touch the <Maintenance menu> button in the navigation bar.



2. Touch the <Diagnosis> button in the "Maintenance menu".

3. Touch the <Remote Assistance> button in the "Diagnosis" menu.

✓ The "Remote Assistance" page appears.

✓ The status of the connection is displayed in the *Status* page section.

Diagnosis Remote Assistance

4. Touch the <Connect> button.

✓ The info line is coloured blue.

✓ The *Remote Assistance* icon is displayed on the <Access> button on the navigation bar.

✓ 'Connection active' appears in the *Status* page section.

✓ MULTIVAC Service can access the machine control.

Disconnecting the connection to the MULTIVAC network.



1. Touch the <Maintenance menu> button in the navigation bar.



2. Touch the <Diagnosis> button in the "Maintenance menu".

-
3. Touch the <Remote Assistance> button in the "Diagnosis" menu.

- ✓ The "Remote Assistance" page appears.
- ✓ The status of the connection is displayed in the *Status* page section.

Diagnosis Remote Assistance

4. Touch the <Sever connection> button.

- ✓ The icon for *Remote Assistance* disappears from the <Access> button.
 - ✓ 'Connection severed' appears in the *Status* page section.
 - ✓ The machine control is disconnected from the MULTI-VAC network.
-

9 Shutdown, transport, storage

**Info**

Observe the safety instructions, see Section 1 "SAFETY".

9.1 Shutting down the machine

9.1.1 Removing film from the machine

⚠WARNING**Injury hazard!**

The web rolls are heavy.

Carrying heavy web rolls can lead to injuries.

- Use suitable load lifting equipment.
- Have a second person assist you.

1. Run the film out of the machine.
2. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
3. Empty the spools of the edge trim winder.
4. Remove the upper web roll.
5. Remove the lower web roll.

9.1.2 Cleaning the machine

1. Perform intensive cleaning of the machine.

9.1.3 Closing and disconnecting supply lines

1. Remove film from the machine. See Section 4.8.4 "RUNNING THE MACHINE EMPTY" on page 350.
2. Close the stop valve of the gas cylinder, if available.
3. Drain the cooling water circuit. See Section 5.10.2 "DRAINING THE COOLING WATER CIRCUIT" on page 426.
4. If it is present, close the stop-cock of the water inlet for the water rinsing of the chain.
5. De-energise the machine. See Section 5.2 "DE-ENERGISING THE MACHINE" on page 404.
6. Set the system pressure on the air preparation unit to 0 bar (0.0 psi).
7. Disconnect any optional and customer-supplied devices such as suction unit, central vacuum system, etc. from the machine.

-
- 7.1 Unplug or detach cables at the machine.
 - 7.2 Remove hose connections to the machine.

 8. Remove the gas hose from the inert gas connection.

 9. Remove the compressed air hose from the compressed air connection.

 10. Remove cooling water inlet and cooling water return flow hoses from the cooling water connections.

 11. Remove the hose for the "chain water rinsing" function.

 12. Disconnect the machine from the mains electricity.
 - 12.1 Release the cable strain relief on the supply cable.
 - 12.2 Detach the supply cable and carefully pull it out of the control cabinet.
-

9.1.4 Preserving the machine

1. Lubricate the transport chains. See Section 7.15 "LUBRICATION OF THE TRANSPORT CHAINS" on page 632.

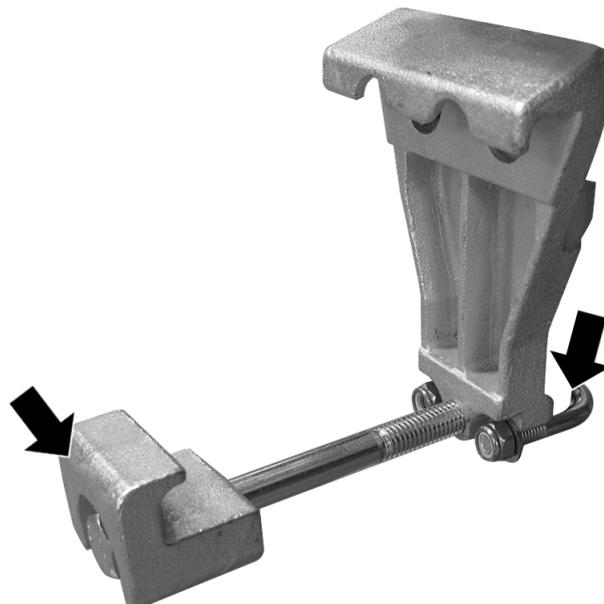
 2. Preserve the machine. See Section 6.1.8 "CORROSION PROTECTION AND LUBRICATION" on page 511.
-

9.2 Transporting the machine

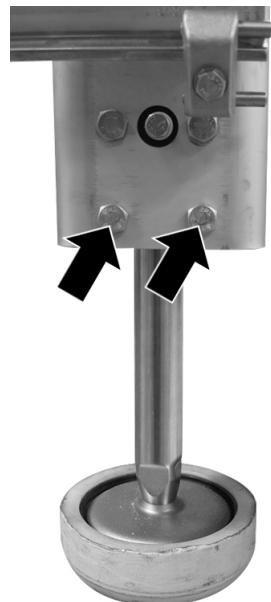
9.2.1 Attaching transport rails

Attaching holding device

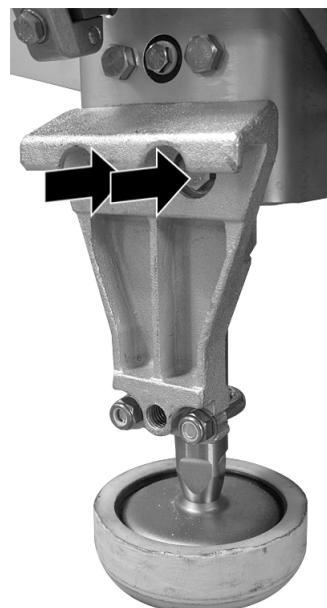
-
1. Remove the hook and the bracket screw.



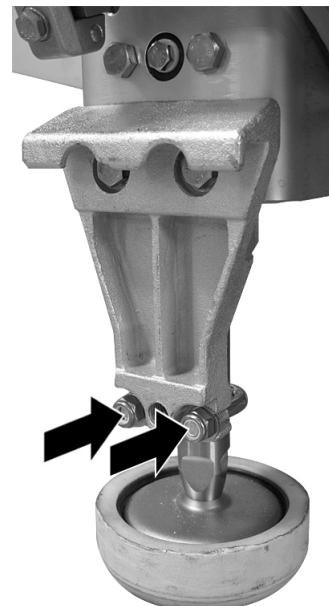
-
2. Unscrew screws on the machine foot.



3. Fasten the holding device onto the machine foot using the screws. Do not tighten the screws, the machine foot should remain rotatable.

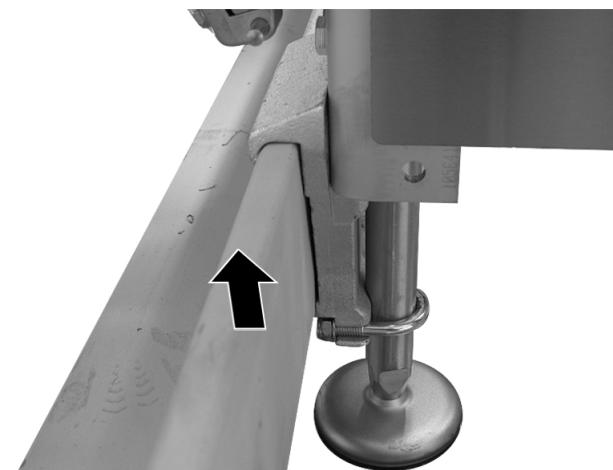


-
4. Fasten the bracket screw with both nuts to the holding device. Do not tighten the nuts, the machine foot should remain rotatable.



Attaching transport rails

1. Push the transport rail with lifting trolley onto the holding device.
2. Raise the transport rail with lifting trolley until the top of the transport rail is in the holding devices.



-
3. Insert the hook in the transport rail and tighten the screws.



- ✓ The transport rail is attached to the machine foot.
-

9.2.2 Transporting the machine

**Info**

Machines with disconnection points may only be transported when separated into their constituent parts. If necessary, have the machine disconnected by authorised service personnel.

DANGER**Injury hazard!**

Incorrect transport can cause the machine to fall or tip over. Standing in the danger zone will lead to serious injuries or even death.

- Do NOT stand under suspended loads.
- Only lift the machine at the designated points.
- Take the machine weight into account.

NOTICE**Material damage!**

Incorrect transport can damage the machine. Damage can cause faults in the machine, which in turn can result in reject packs.

- Only transport the machine with the transport rails fitted.
- Do NOT lift the machine at the machine ends.
- Only lift the machine at the designated points.
- Do not pull or push the machine if it rests on the machine feet.

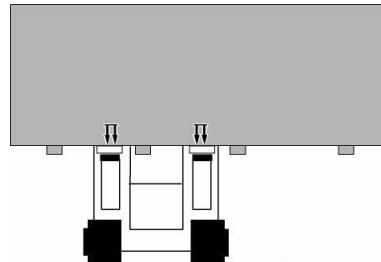
NOTICE

Material damage!

At an inclination of more than 15°, the oil in the vacuum pump shifts. The air de-oiling elements will get wet from the oil and become ineffective. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

1. Use personal protective equipment.
2. Close and disconnect the supply lines. See Section 9.1.3 "CLOSING AND DISCONNECTING SUPPLY LINES " on page 685.
3. Secure the machine against tilting and falling over by using acceptable transport safety attachments.
4. Use suitable and adequately sized load lifting equipment.
5. Note the dimensions and weight of the machine, see the shipping documents.
6. Set the lifting arms to the widest setting.
7. When lifting the machine, note the centre of gravity. The centre of gravity can lie outside the centre point of the machine.



8. Lift the machine with the wooden base at the designated points.



9. Transport the machine.

9.3 Storing the machine

1. Taking the machine out of service
2. Select a suitable storage site.
 - 2.1 Observe the ambient conditions for storing the machine, see Technical specifications.

- 2.2 Ensure that the location site is of adequate load-bearing capacity and keep the weight of the unit in mind, see Technical specifications.

3. If necessary, cover the machine with film.

4. Make a note of the date on which the machine was put into storage.

Machines that have been stored for more than six months must be examined by MULTIVAC Service prior to being put into service.

9.4 Disposal and environmental protection

9.4.1 Disposing of the vacuum pump

Disposal of the R 5 RD 0200 A vacuum pump

DANGER

Dangerous voltage!

Inside are live components.

Touching live components will result in death or serious injury.

- Disconnect the vacuum pump from the electrical grid before opening the cover.
- Only qualified electricians are permitted to work on live components.
- Do NOT touch damaged electrical lines. Have them replaced immediately by a qualified electrician.
- Do not put the vacuum pump into operation without the cover of the terminal box.

WARNING

Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

⚠ CAUTION

Injury hazard!

The vacuum pump generates negative pressure during operation. Touching the open suction connection can lead to injuries.

- Do not touch the suction connection during operation.
- Ventilate the vacuum pump before reaching into it.

1. Empty the cooling water circuit.
2. De-energise the machine.
3. Allow the vacuum pump to cool down.
4. Remove the air de-oiling elements. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
5. Drain the oil. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
6. Remove the oil filter. See Section 7.14.1 "SERVICING VACUUM PUMP R 5 RD 0200 A - R 5 RD 0360 A" on page 619.
7. Sort and properly dispose of the materials. Observe all legal and company regulations in regard to environmental protection.

Disposal of the WV 0250 - 2000 vacuum pump

⚠ DANGER

Dangerous voltage!

Inside are live components.

Touching live components will result in death or serious injury.

- Disconnect the vacuum pump from the electrical grid before opening the cover.
- Only qualified electricians are permitted to work on live components.
- Do NOT touch damaged electrical lines. Have them replaced immediately by a qualified electrician.
- Do not put the vacuum pump into operation without the cover of the terminal box.

⚠WARNING**Burn hazard!**

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

⚠CAUTION**Injury hazard!**

The vacuum pump generates negative pressure during operation. Touching the open suction connection can lead to injuries.

- Do not touch the suction connection during operation.
- Ventilate the vacuum pump before reaching into it.

-
1. De-energise the machine.
 2. Allow the vacuum pump to cool down.
 3. Drain the oil. See Section 7.14 "VACUUM PUMPS" on page 619.
 4. Sort and properly dispose of the materials. Observe all legal and company regulations in regard to environmental protection.
-

**Disposal of the VR
2060 - 3108 vacuum
system****⚠DANGER****Dangerous voltage!**

Inside are live components.

Touching live components will result in death or serious injury.

- Disconnect the vacuum pump from the electrical grid before opening the cover.
- Only qualified electricians are permitted to work on live components.
- Do NOT touch damaged electrical lines. Have them replaced immediately by a qualified electrician.
- Do not put the vacuum pump into operation without the cover of the terminal box.

⚠WARNING

Burn hazard!

The surface of the vacuum pump can reach temperatures of over 70 °C during operation.

Touching the vacuum pump can lead to burns.

- When performing any work wear personal protective equipment.
- Before starting any work in the danger zone, allow the vacuum pump to cool down.

⚠CAUTION

Injury hazard!

The vacuum pump generates negative pressure during operation. Touching the open suction connection can lead to injuries.

- Do not touch the suction connection during operation.
- Ventilate the vacuum pump before reaching into it.

1. De-energise the machine.
2. Allow the vacuum system to cool down.
3. Dispose of the vacuum system in accordance with the separate documentation for the vacuum system.

9.4.2 Disposing of the machine

⚠WARNING

Burn hazard!

The built-in heating plates can reach temperatures over 180 °C. The heating plates remain hot for some time after the machine has been switched off.

Touching the heating plates can lead to severe burns.

- When performing any work wear personal protective equipment.
- Do NOT touch the heating plates.
- Before starting any work in the danger zone, allow the die to cool down.

⚠WARNING

Injury hazard!

Dies are heavy and have sharp edges.

Carrying heavy dies can lead to injuries.

- Use suitable load lifting equipment.
- Have a second person assist you.
- When performing any work wear personal protective equipment.

⚠CAUTION**Injury hazard!**

The knives of the cutting unit are sharp.
Touching the sharp knives can lead to injuries.

- When performing any work wear personal protective equipment.
- Do NOT touch the knives.

⚠CAUTION**Injury hazard!**

Sharp knives are installed in the die top section.
Touching them can lead to injuries.

- When performing any work wear personal protective equipment.
- Do NOT touch the knives.

Info

- Dies can be reused on other machines of the same series.
- If disposal of the machine is not handled by the manufacturer, dispose of the machine as described below.

1. Remove the film rolls, see Section 9.1.1 "REMOVING FILM FROM THE MACHINE".

2. Drain the cooling water and disconnect the machine from the mains electricity, see Section 9.1.3 "CLOSING AND DISCONNECTING SUPPLY LINES".

3. Dismantle the machine.

4. Sort and properly dispose of the materials. Observe all legal and company regulations in regard to environmental protection.

9.4.3 Disposal of operating materials

NOTICE**Protect the environment!**

Operating materials are hazardous to the environment.
Improper disposal is harmful to the environment.

- Handle operating materials properly.
- Dispose of operating materials at suitable collection points.
- Observe environmental directives.

Disposing of oil and grease

**Info**

Excerpt from the disposal directive:

- It is forbidden to mix oil with other waste.

- Different oils must NOT be mixed with each other.
 - The used oil filters should be collected, stored, transported and disposed of separately from other waste.
-
1. Handle and dispose of the oil properly.
 2. Handle and dispose of the grease properly.
-

Disposing of packaging materials



Info

Packaging materials are resource materials that can be recycled.

- Improper disposal is harmful to the environment.
- Films should be collected for recycling.
- Follow the manufacturer's disposal instructions.

-
1. Handle and dispose of packaging materials properly.
-

Disposing of chemicals

WARNING

Chemical burn hazard!

Cleansers are caustic. Caustic effects are NOT noticed immediately. Contact with the skin can cause burns.

- Wear the prescribed personal protective equipment when handling cleansers.
- Observe the manufacturer's instructions.

WARNING

Danger of fire!

Alcohol-based disinfectants are highly flammable.

Fire, naked light or smoking ignites the disinfectant and can cause fires.

- When disinfecting the machine, flames or naked lights are prohibited.
- Smoking is prohibited.
- Observe the instructions of the disinfectant manufacturer.



Info

Improper disposal is harmful to the environment.

- Observe the manufacturer's safety data sheets.
- Follow the manufacturer's disposal instructions.
- Observe the disposal regulations that apply regionally.

-
1. Handle and dispose of the chemicals properly.
-

-
2. If the cooling water is mixed with a corrosion inhibitor or with other chemicals, handle the cooling water properly and dispose of it in a professional manner.
-

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