

Instruction manual

Wet Separator

NA 7-11



06.2014

Caution! Please do not use the equipment until you have read this instruction manual!
Translation of the original instruction manual

Ruwac
Industriesauger

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1. Introduction

Thank you for choosing a Ruwac wet separator. This is a top-quality product featuring state-of-the-art disposal technology. Ruwac wet separators are designed in accordance with health and safety directives and standards and are subject to continuous functional testing and improvement. You have chosen a high-quality product renowned for its excellent reliability, robustness and long service life.

In order to get the most from this product, we recommend that you carefully follow the instructions given in this manual. This will also ensure that you operate the unit in compliance with accident prevention regulations. It will also prevent faults that could result in downtime and unnecessary costs. Please contact us if you have any problems or enquiries. We will be glad to help.

Keep this instruction manual in a convenient place for future reference.

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General instructions

This NA 7 wet separator is a state-of-the-art product and has been designed, manufactured and tested in accordance with the recognised safety regulations.

However, use of this equipment could involve the risk of injury or death of users and third parties or damage to the wet separator and other equipment.

All persons involved in the installation, commissioning, operation and maintenance of the wet separator must carefully read and observe the following instructions. These precautions and instructions are designed to protect your health and safety.

2. Type designations

NA 7-11

NA = wet separator

7 = container capacity 7 litre

11 = 1.1 kW

3. Health and safety

3.1 Information on health and safety

Read the instruction manual carefully before installing or commissioning the wet separator, paying particular attention to the safety precautions. Follow all instructions exactly.

The customer must ensure that the wet separator is only operated and maintained by suitably skilled personnel. Operators must be instructed and trained by an authorised person before using the equipment for the first time. Staff must be informed during this training of all relevant safety precautions, prohibited uses and any potential risks involved.

The wet separator must only be operated, maintained and repaired by authorised, skilled and suitably trained personnel. All working procedures which endanger the safety of persons, the wet separator or the working environment are strictly forbidden.

The operator must immediately report any safety critical faults which occur on the equipment to the person in charge.

Check the fill level in the wet separator through the viewing panel before commissioning and before each start-up, and at regular intervals during operation.

The equipment must be inspected at regular intervals in accordance with German safety regulations BGV A3. Observe the warning signs on the equipment.

Do not allow under-age persons to use the equipment.

Switch off the equipment during breaks in working.

Ensure that repair work is only carried out by authorised RUWAC service technicians.

During maintenance and repair work, observe the special safety precautions for working with electrical equipment and hazardous dust.

Switch off and unplug the wet separator before repairing any faults.

Do not modify, bypass or remove safety devices or guards.

If a fault or hazard occurs, switch off the wet separator immediately.

Always switch off and unplug the wet separator before carrying maintenance and replacing parts.

Check the mains cable at regular intervals for signs of damage.

Do not use the wet separator if the power supply cable is damaged. Ensure that the power supply cable cannot be driven over, crushed, strained or damaged in any way.

The Ruwac wet separator is a state-of-the-art product and is safe to operate. However, the safety of this equipment cannot be guaranteed if it is used by untrained personnel, operated incorrectly or used for purposes other than those intended

3. Health and safety

3.2 Safety precautions

The wet separator must be suitably earthed to discharge electrostatic charges - or must be used with electrically conductive vacuuming accessories.

Flammable gas caused by chemical reactions (e.g. liquid with aluminium dust) may develop in the separator during operation and idle time. All NA 7-11 separators are equipped with a degasification valve.

The electrical power supply must be properly earthed in order to ensure that electrostatic charges are discharged.

Do not by-pass or disable safety devices. Vacuuming accessories and user retrofits connected to the vacuum unit must be conductive to dissipate static charges.

Switch off the wet separator immediately whenever the suction points are not in use (e.g. during a break in work or when the suction hose is blocked).

Suction of a non-homogenous materials is prohibited, lest chemical reactions between them occur.

If the wet separator is fitted with an additional earthing clip / angled socket, this will carry an information plate:

<p>VOR INBETRIEBNAHME:</p> <ol style="list-style-type: none">1. Potentialausgleich herstellen. Erdungskabel an Bearbeitungsmaschine anschließen.2. Geeignete Flüssigkeit einfüllen. <ul style="list-style-type: none">- Der Flüssigkeitsstand ist während des Betriebs zu kontrollieren.- Gegebenenfalls Flüssigkeit aufzufüllen.- Bei Bedarf - mindestens aber täglich - ist der Behälter zu reinigen.		<p>BEFORE START-UP:</p> <ol style="list-style-type: none">1. Establish the potential equalization. Connect the ground cable with machine.2. Fill in a suitable liquid. <ul style="list-style-type: none">- The liquid level has to be monitored during operation.- If necessary fill-up the liquid.- As needed – but at least daily – the liquid container has to be cleaned.	
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If you notice a reduction in suction power, proceed as follows:

1. Switch off the vacuum unit
2. Clean the moisture separator / filter, replace it if necessary
3. Check the hose for deposits, clean it if necessary.
4. Check the vacuum gauge.

Tends the suction medium to develop hydrogen in conjunction with water, it is necessary to add an appropriate additive (e. g. Hysol) to the precipitation liquid.

Tends the suction medium to develop foam in conjunction with the precipitation liquid, it is necessary to add defoamer to the precipitation liquid.

WARNING!

On finishing work, ALWAYS store the NA 7-11 in a well-ventilated area.
Risk of explosion!

3. Health and safety

3.3 Transportation

The user must ensure that...

... the equipment has been cleaned before it is transported.

... the liquid container is locked using the lever.

... all load handling equipment used during transportation is suitable for the task and has a minimum load capacity greater than the weight of the wet separator being moved.

... the wet separator is secured to prevent sliding and tipping during transportation in a vehicle.

3.4 Positioning and storage

The user must ensure that...

... the floor on which the wet separator is placed has an adequate load bearing capacity.

... because of the ventilation slots arranged at the side of the wet separator, keep it a minimum of 20 cm away from walls and adjoining objects.

... the wet separator is always emptied and cleaned before it is removed from service or stored.

... the wet separator is always positioned on a level surface (base) if removed from service or stored.

... the parking brake (if fitted) is always applied.

... the wet separator is secured in position by additional means and cannot roll away when stored on a non-slip-proof floor or sloping surfaces with gradients of more than 10°.

3.5 Assembly

The user must ensure that...

... the floor on which the wet separator is placed has an adequate load bearing capacity.

... the vacuum hose (and any other accessories) are connected.

3.6 Cleaning

The user must ensure that...

... the equipment is only cleaned with water or standard commercially available cleaning agents.

... the person cleaning the wet separator wears personal protective equipment appropriate to the medium.

See Section 9

CAUTION!

Before cleaning the equipment, check that the cleaning agents to be used will not react with the material that was vacuumed up.

3.7 Servicing

The user must ensure that...

... maintenance is only carried out on wet separators that are empty and clean.

... The equipment must be **disconnected from the power supply** before any service or repair work is performed on it.

... before working on the equipment, unplug it from the mains.

3.8 Disassembly / Disposal

The user must ensure that...

... wet separators are emptied and cleaned before dismantling.

... Industrial vacuum systems are disposed of only in accordance with national legislation.

... the dispose of the equipment at the end of its service life will be in accordance with applicable legal regulations.

Storage

ONLY WITHOUT liquid:

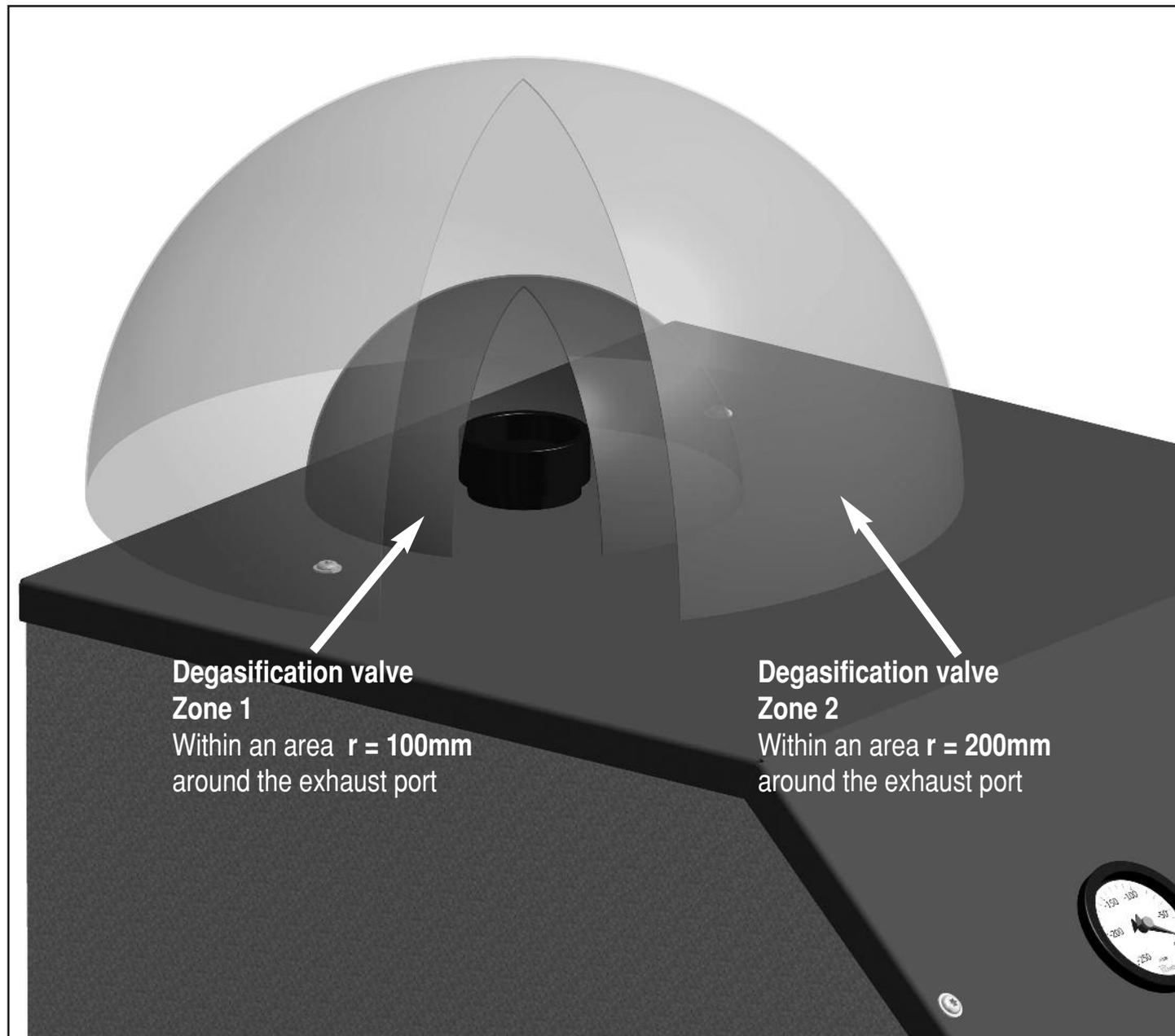
Temperature: 0° - 30°C

Humidity: 30% - 95%,
non-condensing

3. Health and safety

3.9 Zones

Flammable gas caused by chemical reactions (e.g. liquid / aluminium dust) may develop in the separator whilst it is switched on and whilst it is idle.



Definition of zone classification

Zone 1:

Area in which a dangerous explosive atmosphere comprising a mixture of air and flammable gases, vapours or mist can occasionally form in normal use.

Zone 2:

Area in which a dangerous explosive atmosphere comprising a mixture of air and flammable gases, vapours or mist does not usually occur or may occur briefly in normal use.

4. Applications and use for the intended purpose

4.1 Functional description

The vacuumed material is drawn through a suction connection into the wet separator. Air, dust and liquid are swirled around inside the liquid container. The dust particles become wet on contact with the liquid, causing them to collect in the form of sediment at the bottom of the container. Liquid that is drawn in along with the transport air collects on the moisture

separator positioned in the suction air stream and drips into the liquid container. Any remaining dust particles are separated out in the three filter cartridges (dust class M as standard; dust class H available as an option). The vacuum is generated by a side channel blower.

4.2 Liquid consumption

If the NA 7-11 is operated with a water seal, the water consumption at an air flow rate of **130 m³/h = approx. 0.26 l/h.**

WARNING!

It is important to use only water or other NON-FOAMING liquid for wetting the vacuumed material.

Check the fill level in the wet separator through the viewing panel before commissioning and before each start-up, and at regular intervals during operation.

4.3 Intended use

Wet separator, suitable for Zone 22, designation according to ATEX II 3D for the precipitation of dusts in a liquid.

The NA 7-11 wet separator can be used to precipitate dry, wet, hot, smouldering and explosive, fine and coarse media (except for explosives to § 1...) in water or other liquids as may be necessary.

The wet separator NA 7-11 must be operated only with a sufficient quantity of receiving liquid appropriate to the material to be vacuumed.

Always check the safety data sheets for information about handling the materials to be vacuumed in combination with the receiving liquid.

4.4 Improper use

Operation of the wet separator if the fill level of the liquid receiver is above the maximum or below the minimum level.

Failure to check the safety data sheets for information about handling the materials to be vacuumed in combination with the receiving liquid.

Positioning the wet separator in rooms (or outdoors) where temperatures can drop below freezing. This could cause the materials and liquid to become fully or partially frozen.



Avoid any bodily contact with the hose - even during the suction process.
Do not route the hose over the shoulder or around the body.

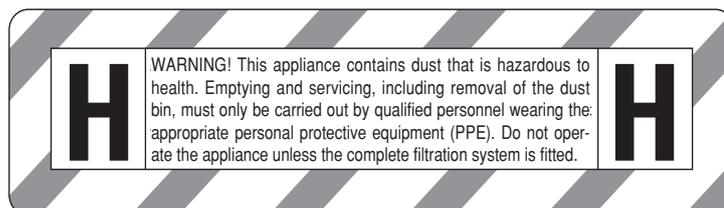
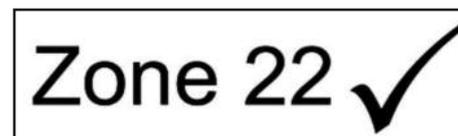
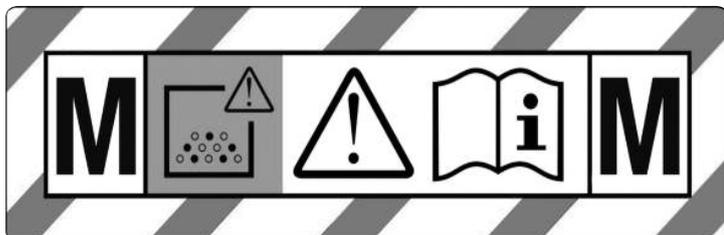
4. Applications and use for the intended purpose

4.5 Classification by dust class

The NA 7 - 11 wet separator is fitted with three dust class M filter cartridges. Dust class H cartridges are available as an option.

Zone 22

Wet separator suitable for intake of flammable dust in zone 22.



CE-mark

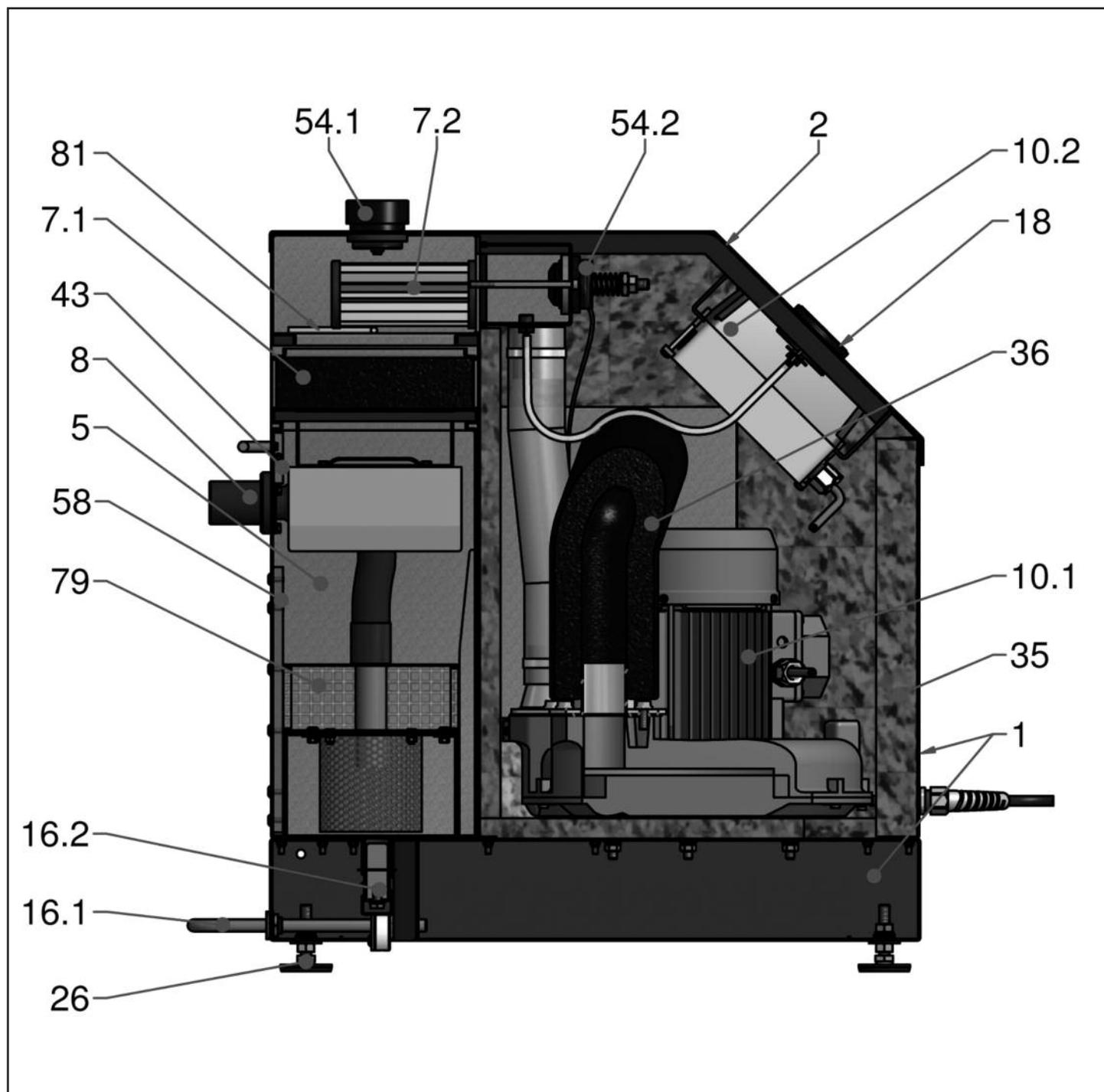


All products carry the "CE mark" (European Conformity). The Declaration of Conformity is included in the delivery documentation.

	
<small>Ruwac Industriesauger GmbH Westholtyeler Str. 25 - 49329 Melle</small>	
EG- Konformitätserklärung EC Declaration of Conformity	
Bevollmächtigter für die Zusammenstellung der relevanten technischen Unterlagen The person authorised to compile the relevant technical documentation Dipl.-Ing. (FH) Birgit Wellmann	
Hiermit erklären wir, dass die nachstehend beschriebene Maschine / Anlage Herewith we declare, that the machinery described below	
Produktbezeichnung/product denomination:	Industriesauger für den Einsatz in Zone 22 (II 3D)/ Industrial vacuum cleaner suitable for zone 22 (II 3D)
Maschinentyp / type of machine:	Zündquellenfreie Bauart/ Version without source of ignition NA7-11/
Maschinennummer / machinery number:	NA7-11/
den Bestimmungen der folgenden Richtlinien entspricht is in accordance with the provision of the following directives	
Angewandte Richtlinien Directives used	2006/42/EG 94/9/EG 2005/108/EG 2006/95/EG 2004/108/EG
und mit folgenden Normen übereinstimmt and is in conformity with the following standards	
Angewandte harmonisierte Normen Harmonised Standards used	EN 1127-1 EN 12100 EN 349 EN 13857 EN 60335-2-69 Anhang annex CC
Angewandte sonstige technische Normen und Spezifikationen Other technical standards and specifications used	DIN 45635
Datum/Date	08.07.13
	
Axel Runge, Geschäftsführer/Managing director	
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<small>Post giro Hannover BLZ: 250 100 30 Kto: 17 49 76 302</small>	

5. Setup and function

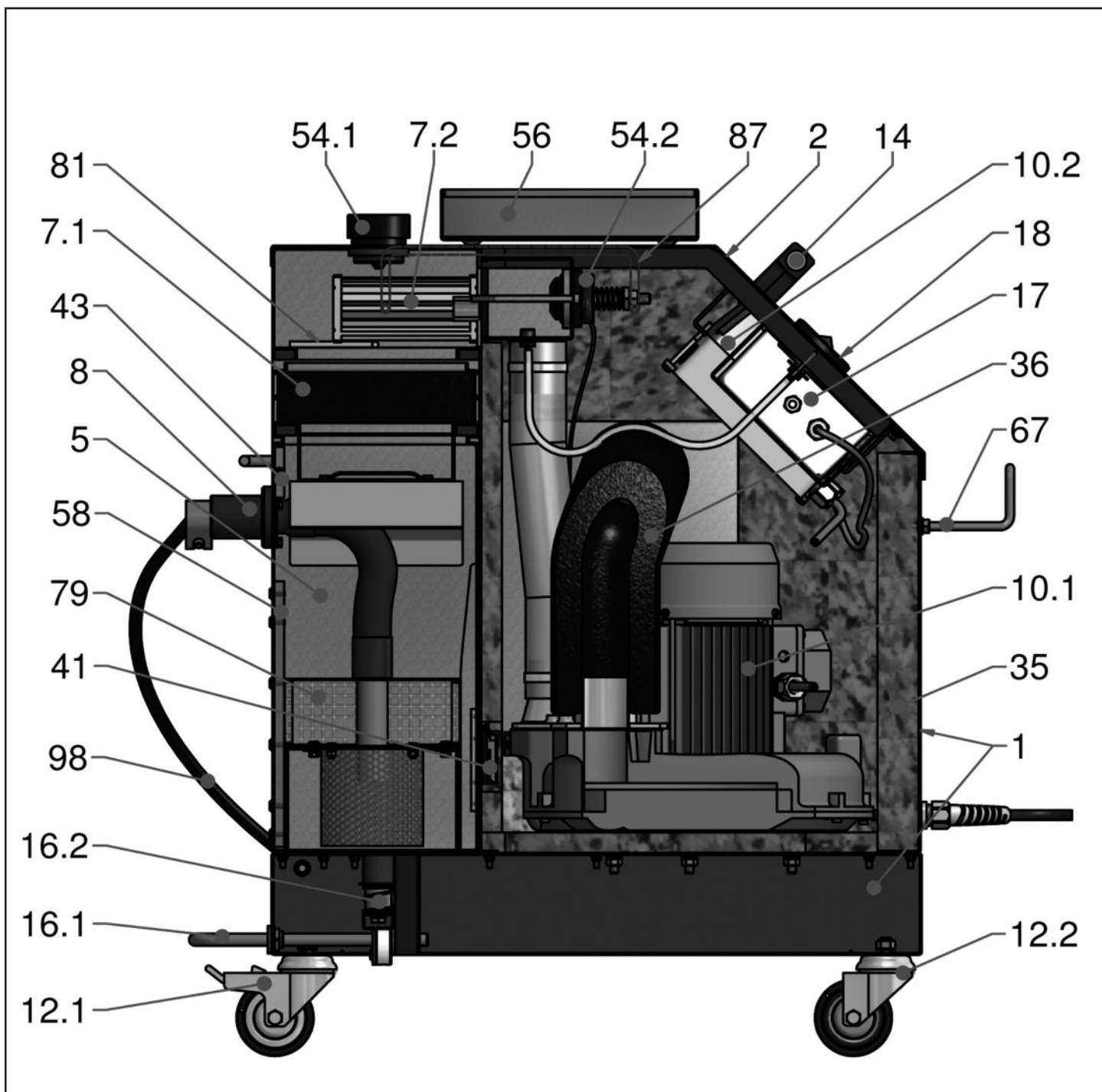
5.1 NA 7-11 Standard



- | | | | |
|------|---|------|--------------------------------|
| 1 | Housing sheet steel | 18 | Vacuum gauge |
| 2 | Cover sheet steel | 26 | Feet |
| 5 | Liquid container, 7 litre capacity | 35 | Noise level with soundproofing |
| 7.1 | Moisture separator | 36 | Noise suppressor |
| 7.2 | Filter cartridges, 3 x 0.1 m ² | 43 | Shut-off valve Ø30 mm |
| 8 | Hose connection Ø30 mm | 54.1 | Degasification valve |
| 10.1 | Side-channel blower | 54.2 | Vent |
| 10.2 | Motor circuit breaker On / Off | 58 | Viewing panel |
| 16.1 | Locking lever | 79 | Swirl filter / insert |
| 16.2 | Lifting mechanism | 81 | Holder for filter cartridges |

5. Setup and function

5.2 NA 7-11 with peripheral equipment



- | | | | | | |
|------|---|------|--------------------------------|------|---|
| 1 | Housing sheet steel | 12.2 | Steering castor Ø75 mm | 54.1 | Degasification valve |
| 2 | Cover sheet steel | 14 | Push handle | 54.2 | Vent |
| 5 | Liquid container, 7 litre capacity | 16.1 | Locking lever | 56 | Accessories box |
| 7.1 | Moisture separator | 16.2 | Lifting mechanism | 58 | Viewing panel |
| 7.2 | Filter cartridges, 3 x 0.1 m ² | 17 | Control unit | 67 | Cable holder |
| 8 | Hose connection Ø30 mm | 18 | Vacuum gauge | 79 | Swirl filter / insert |
| 10.1 | Side-channel blower | 35 | Noise level with soundproofing | 81 | Holder for filter cartridges |
| 10.2 | Motor circuit breaker On / Off | 36 | Noise suppressor | 87 | Hose holder |
| 12.1 | Steering castor Ø75 mm,
with brake | 41 | Fill Level Monitoring | 98 | Earthing cable for equipotential
bonding |
| | | 43 | Shut-off valve Ø30 mm | | |

6. Technical specifications

Drive type:	Single-phase AC
Motor power (kW):	1.1
Voltage (Volts):	230
Power consumption (Amps):	7.6
Protection class:	IP65
Frequency (Hz):	50
Housing:	Sheet steel
Sound pressure level, SPL (dB (A)):	60
Air flow rate (m³/h):	130
Sustained vacuum (mbar):	- 145
Short period vacuum (mbar):	- 235
Bypass air valve:	Yes
Vacuum Monitoring:	Pressure gauge with setting dial
Filter type:	Cartridge
Filter category:	M (H optional)
Moisture filter:	removable
Liquid separator:	removable
Liquid volume (l):	7
Water consumption (l/h):	approx. 0.26
Length (mm):	800
Width (Standard) (mm):	480
Width (Peripheral Equipment) (mm):	570
Height (Standard) (mm):	755
Height (Peripheral Equipment) (mm):	850
Weight (Standard) (kg):	91,5
Weight (Peripheral Equipment) (kg):	95

7. Accident prevention

The wet separator has the following hazard prevention features:

1. Guards, mechanical hazard protection

All moving parts have fixed guards which are securely fastened and can only be removed using tools.

Residual risk:

Using tools to remove the fastenings for the fixed guards when the unit is still running can cause injury.

2. Electrical hazard protection

All live components on the unit are insulated or covered with fixed, securely fastened guards which can only be removed using tools. The machine complies with the requirements of Protection Class I as per EN 60 335-1.

Residual risk:

Electric shock hazard. Using tools to remove fixed guards when the power supply is not unplugged can cause injuries due to electric shock.

3. Protection against hazardous media

Risk of explosion associated with gas formation: Installation of a degasification valve.
On finishing work, always store the wet separator in a well-ventilated area.

Residual risk:

Failure to check the degasification valve is working correctly.

Storing the wet separator without cleaning it.

8. Commissioning / Operation

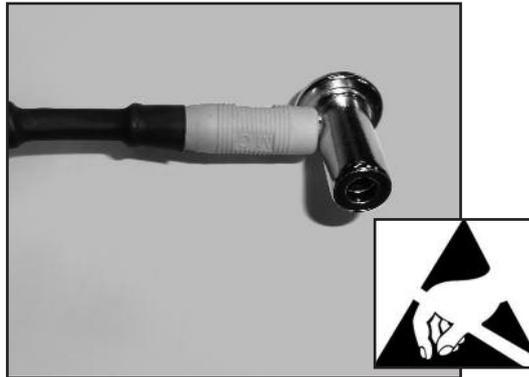
Always wear suitable protective clothing appropriate to the vacuum medium.



8.1 Establishing equipotential bonding (when and earthing clip / angle socket is available)



Attach the earthing clip to the metal part of the suction connection.



Connect the angle socket to the processing machine.

8.2 Switching on / Switching off



Apply the parking brake (if fitted) to prevent the wet separator from rolling away.



Switch on the vacuum unit.

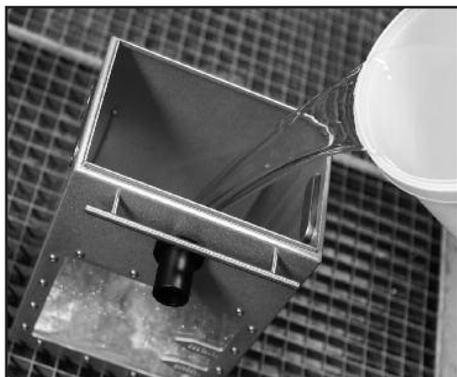


Switch off the vacuum unit.

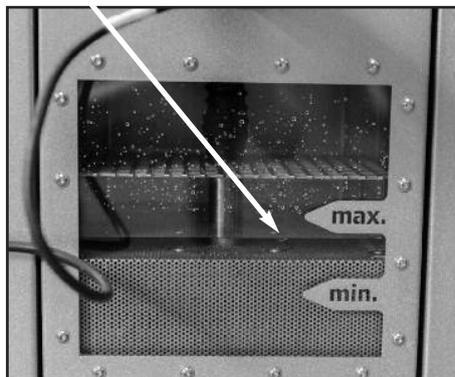
8. Commissioning / Operation

8.3 Filling with liquid / topping up

8.3.1 Filling with liquid

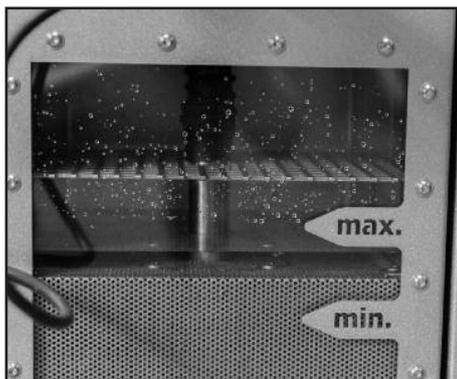


Fill the liquid directly into the liquid container.



Use the viewing panel to monitor the level of the liquid.

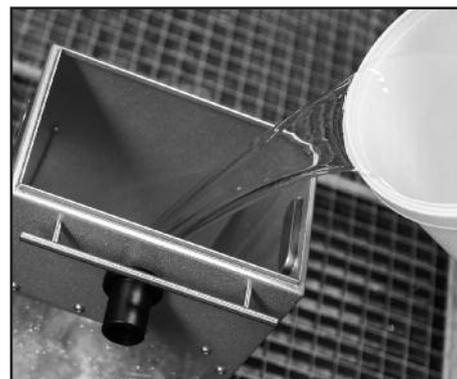
8.3.2 Topping up with liquid



Use the viewing panel to monitor the level of the liquid.



OPTIONAL:
If the NA 7-11 is equipped with a warning light, this will light up to indicate a low liquid level in the wet separator. The vacuum unit will then shut down automatically.



Fill the liquid directly into the liquid container

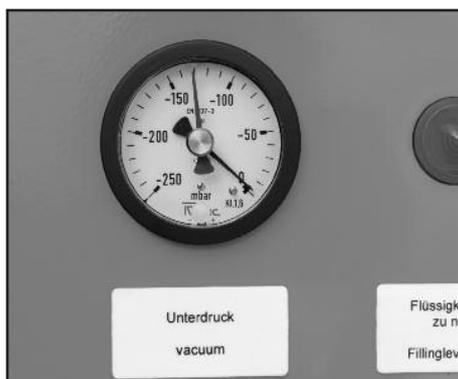
8.4. Checking the function of the degasification valve



The degasification valve should always be checked for correct operation before commissioning and each time before starting the wet separator. Ensure that the machine is switched off before carrying out this check. The valve head should slot into place with gentle pressure and automatically return to its original position with the help of the spring.

9. Emptying / Cleaning

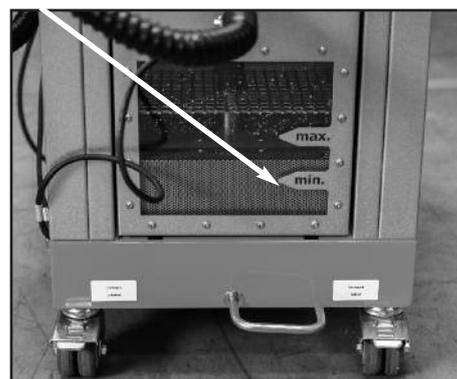
9.1 Emptying / cleaning the container



The container must be emptied and cleaned when the pointer of the vacuum gauge is above the factory set value.



In this case, either the filters or moisture separator is dirty, or the container contains sludge.



The container should also be cleaned once the MINIMUM level has been reached..



Switch off the wet separator and apply the parking brake - if fitted.



Then remove the suction hose.



If an earthing clip is fitted, take this off together with the hose.



Then unlock the container.



Pull the container out of the housing using the handle.



Take hold of the recessed grips on the side of the container.

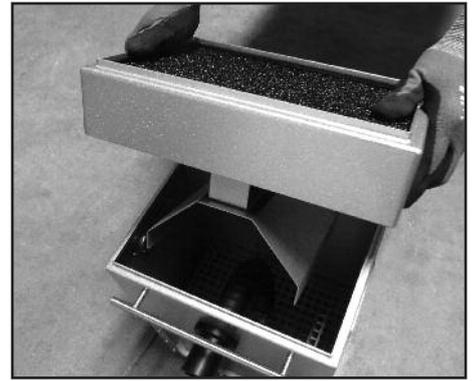
9. Emptying / Cleaning



Take the container out of the housing, using both hands..



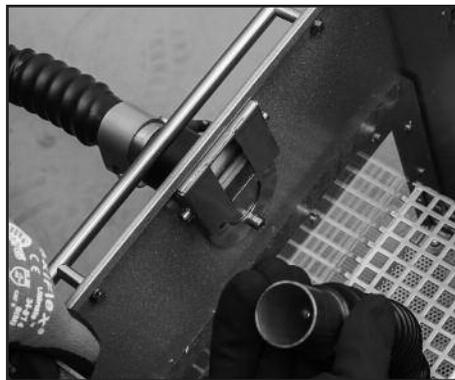
Carefully lift the housing of the moisture separator.



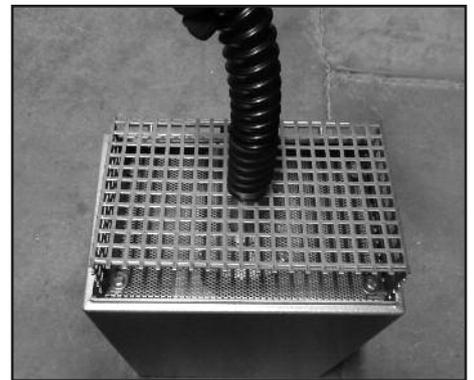
Carefully lift the housing of the moisture separator.



Pulling out the hose automatically activates the shut-off valve, thereby closing the suction connection.



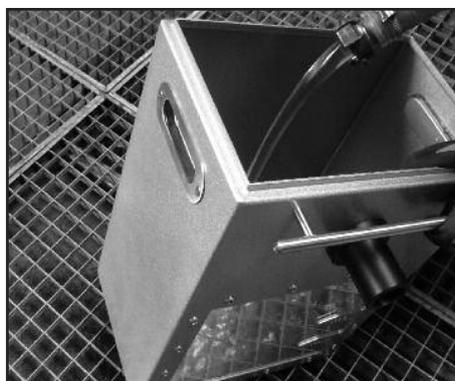
Suction connection is closed by the shut-off valve.



Remove the swirl filter insert. If necessary, also wash out the strainer using a strong jet of water. Replace the strainer only when it is clean.



The contents of the container should be emptied out into a suitable vessel. Dispose of the vacuumed material in accordance with all applicable, national environmental regulations



Clean the container using a strong water jet.

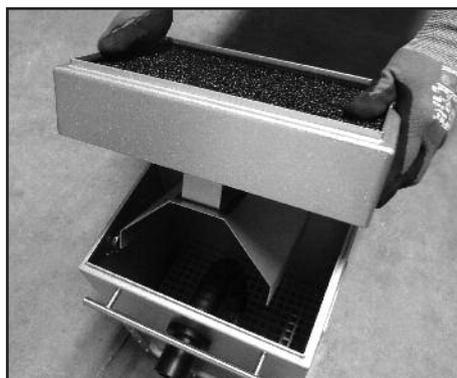
The wet separator including the moisture separator should be cleaned regularly. How often cleaning is needed will vary depending on duration of use and the quantity and properties of the materials that were vacuumed.

9. Emptying / Cleaning

9.2 Cleaning / Changing the moisture separator



Switch off the vacuum unit.
Pull the container out of the housing using the handle.

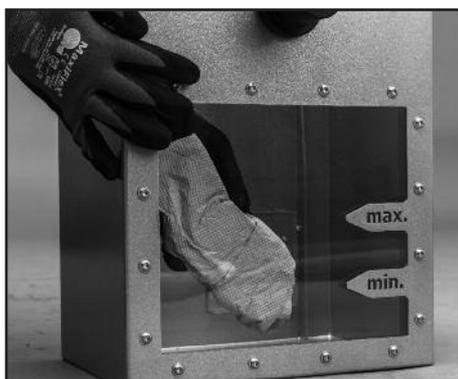


Lift the moisture separator housing.
Clean the moisture separator using a strong water jet. Dry until only slightly moist (use compressed air if necessary).



If despite being cleaned the moisture separator is still dirty it must be replaced. Remove the moisture separator from the housing. Then insert a new moisture separator.

9.3 Cleaning / Checking the viewing panel



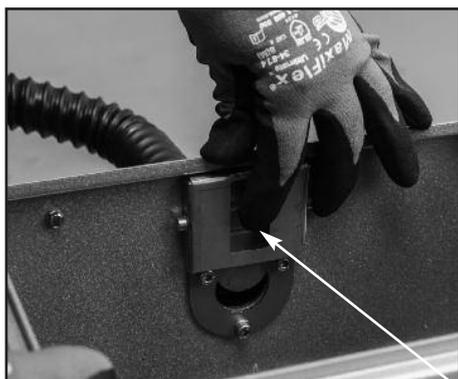
The viewing panel should be regularly wiped clean, inside and out, using a soft cloth



The window of the fill level indicator should also be regularly wiped clean, inside and out, using a soft cloth.

9.4 Assembly of the wet separator

To insert the container into the housing, reverse the order.



Lift the shut-off valve to allow insertion of the hose. (arrowed)



The shut-off valve in the liquid container avoids the possibility that after the container has been cleaned an attempt may be made to run the suction unit without reinstalling the swirl filter.

10. Vacuum pressure gauge

The vacuum gauge indicates the vacuum present inside the suction housing.

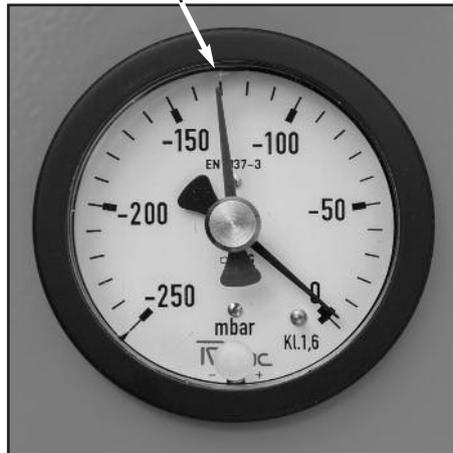
Setting pointer:

Type	Hose Ø	mbar
NA 7-11	30	- 130

If the flow velocity in the hose falls below 20m/sec - according to the vacuum gauge reading - switch the unit off immediately.

This visual warning device (vacuum gauge) operates reliably when a hose of length 2.5m - 5.0m and diameter 30 mm is connected to the industrial vacuum unit. (Open cross-section without nozzles, etc.)

Setting pointer



Vacuum pressure gauge

During operation, the pressure gauge pointer must indicate a value LOWER THAN the factory setting (see values).

This ensures that the flow velocity in the hose does not fall below the safe value of 20 m/sec. If the pointer indicates a value HIGHER THAN the factory setting, then the flow velocity in the hose will be less than 20 m/sec. That means that safe operation of the unit can no longer be guaranteed. There is then the possibility that dust may have been deposited in the hose.

11. Changing the filter cartridges

First ensure that the wet separator is switched off.



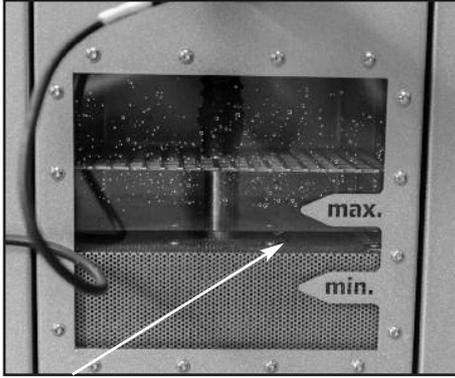
If the filter cartridges are extremely dirty, replace them. Always change all three cartridges at the same time



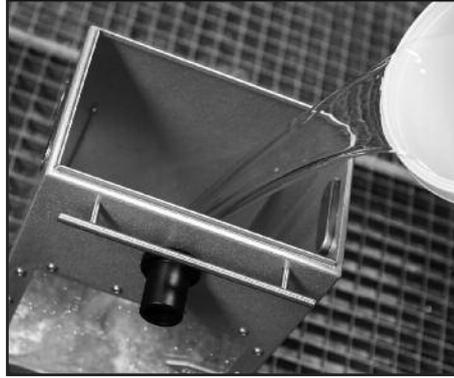
To do this, simply remove the filter cartridges and dispose of them in accordance with environmental regulations.

12. Fill level monitoring

12.1 Visually by the viewing panel

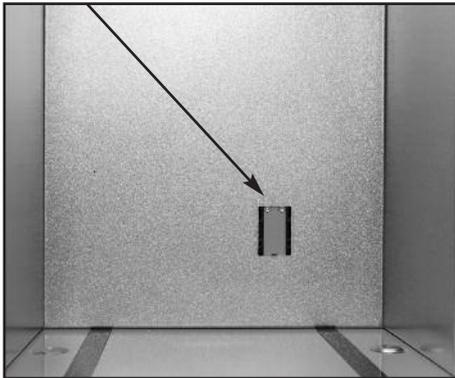


Regularly check the level via the viewing panel

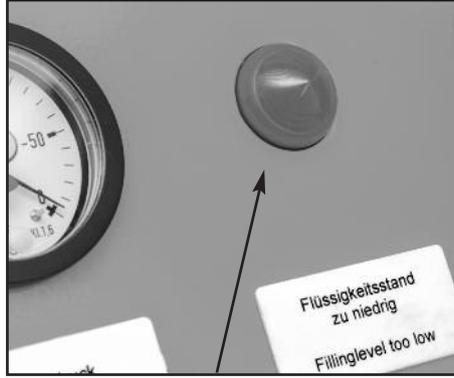


If necessary, fill the liquid directly into the liquid container

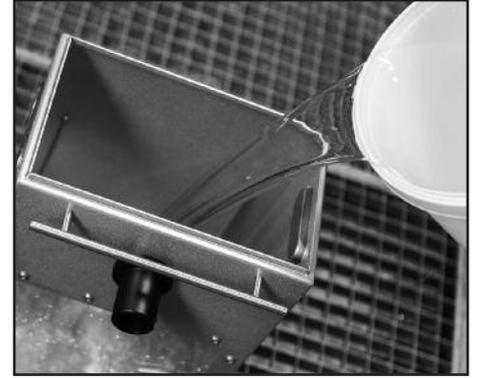
12.2 Automatically by the fill level indicator



Fill Level Indicator (optional) automatic shutdown at low liquid level.



If the NA 7-11 if equipped with a warning light, this will light up to indicate a low liquid level in the wet separator. The vacuum unit will then shut down automatically.



If necessary, fill the liquid directly into the liquid container

13. Maintenance check list

Designation	Activity	On commissioning	Daily before operation	Daily at the end of the working day	Other maintenance intervals
Degasification valve	Function test	X	X	-	-
Container	Fill with suitable medium to a level between the minimum and maximum fill level	X	X	-	-
	Check the fill level and top up with medium as necessary	X	X	-	At regular intervals during operation
	Emptying / cleaning the container	-	-	X	-
Viewing panel	Cleaning the viewing panel Recommendations: After cleaning the container.	-	-	X	-
Viewing panel Fill Level Indicator (optional)	Cleaning with a soft cloth	-	-	X	-
Moisture separator	Cleaning / If very dirty replacing if necessary	-	-	X	If suction power is reduced
Filter unit	Replacing if very dirty	-	-	X	If suction power is reduced

14. Troubleshooting

Fault	Cause	Solution
No suction power	Hose blocked	Clear the blockage
	Liquid has become saturated	Clean the container and fill it with fresh liquid
	Strainer not inserted / hose not connected	Insert the strainer and connect the hose
Suction power too low	Filter cartridge clogged	Change filter cartridge
	Moisture separator dirty	Clean the moisture separator, replace if necessary
	Degasification valve not closing	Clean / replace degasification valve
	Liquid has become saturated	Empty the container and fill it with fresh liquid
Liquid leaking from the exhaust air outlet	Liquid fill level too high	Adjust liquid level using the liquid level display
	Liquid foaming	Use anti-foaming agent

15. Spares and consumable parts

Hose, PUR, stainless steel connection, 30 mm Ø, 3m	Part no.: 59251
Moisture separator, 290 x 190 x 50mm	Part no.: 59120
Swirl filter hose and connector	Part no.: 59190
Filter cartridge, 0.1 m ² , dust class M	Part no.: 59057
Filter cartridge, 0.1 m ² , dust class H	Part no.: 59281

16. Peripheral equipment for use when handling reactive materials

Earthing the machine frame and suction hose	Part no.: 59803
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