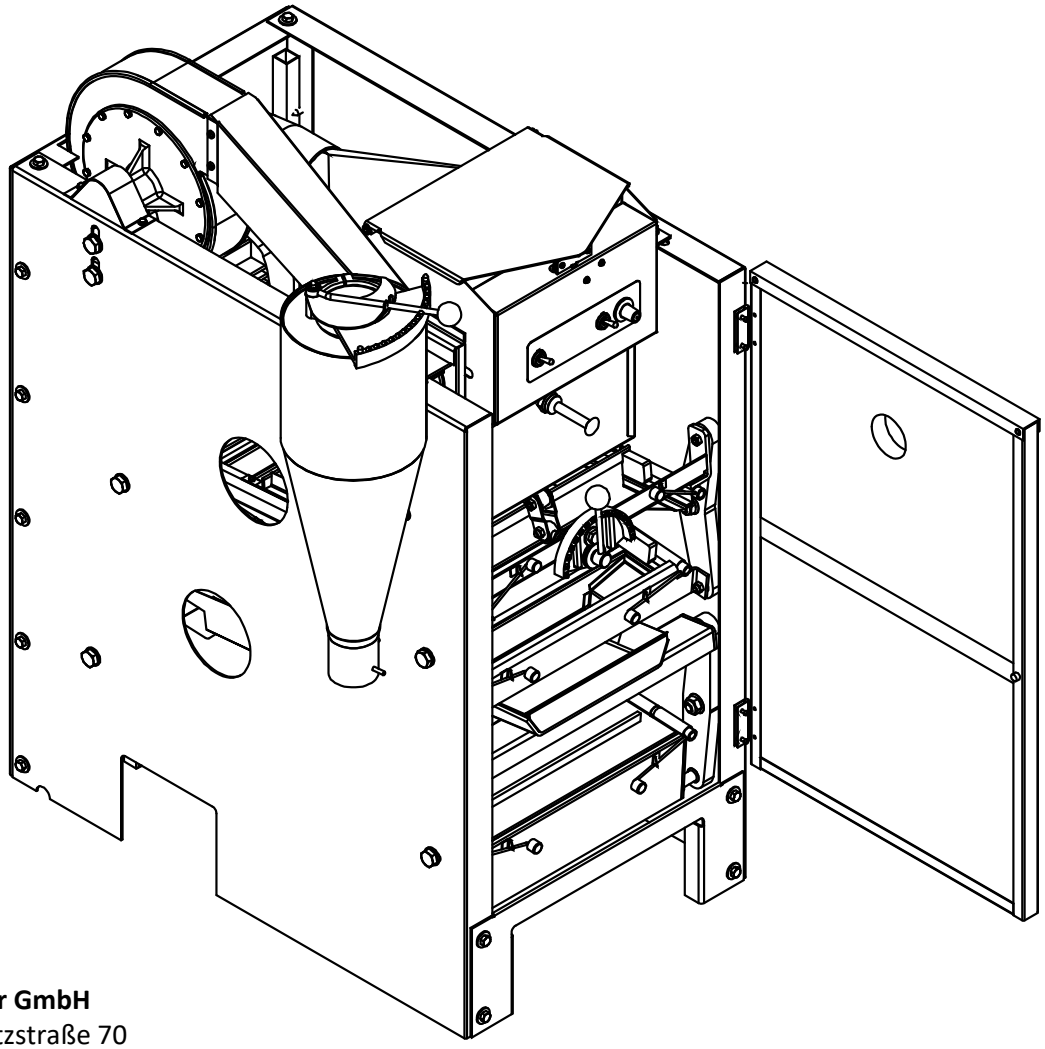
Artikelnummer Betriebsanleitung: **1740 9041**
Article number operating instructions:

PFEUFFER

Operating Instructions

Sample cleaner SLN 3



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Revision 4/15.12.2020
Translation of the original operating instructions

These Operating Instructions are a constituent part of the machine and must be available to all operating personnel at all times. They are intended for the operating company of the system, the operating personnel and the specialists who are responsible for the transport, assembly, installation, operation, maintenance, cleaning, disassembly and disposal.

The Pfeuffer GmbH has prepared and reviewed these Operating Instructions with the greatest care. However, no guarantee is made for its completeness or accuracy.

Subject to technical modifications.

Translation

In the event of delivery of subsequent sale to the countries of the European Economic Area (EEA), the operating instructions must be translated into the corresponding language of the country of use. In the event of discrepancies in the translated text, the original operating instructions (German) must be used for clarification, or the manufacturer must be contacted.

Operating instructions in electronic format

The original operating instructions (German) and translations of the original operating instructions can be requested as PDF files by e-mail: doku@pfeuffer.com. Specifying the correct type designation and serial number is important for further processing!

1 Introduction

1.1 Intended use

Sample cleaner **SLN 3** helps in determining the total dockage (German = Besatz) associated with grain crops and grading the said crops. The cleaning process largely corresponds to that of a normal cleaning machine. The proportion of impurities (coarse particles, fine particles, aspiration discharge), that of small grains and that of quality grains can be determined with the help of a sample at the time of acceptance. This facilitates the acceptance of quality grains and the targeted exclusion of batches that do not fulfil the contractual conditions.

Sample cleaner **SLN 3** is designed as a portable machine with a power plug.

Private use of the machine is prohibited.

NOTICE	This machine was designed solely for the aforementioned purpose. Using it for any other purpose or modifying it without the written consent of the manufacturer is not considered to be in compliance with the intended use. The manufacturer shall not be liable for the resulting damage. Damage caused by such an unintended use is at the sole risk of the operator. The machine is allowed to be operated only if it is ensured that all the safety devices are functional and the system in which this machine is installed complies with the EU directives. **Cleaning flour, dust and grit is forbidden.** The samples to be used for the correct operation of the machine are provided by the operator of sample cleaner **SLN 3**. The operator bears sole responsibility for the proper handling of these materials and the associated dangers. Hazard notes and instructions for disposal must be provided by the operator. The sample must be disposed of after the examination.

Intended use includes also the compliance with the Instruction Manual and User´s Guide as well as the maintenance and servicing conditions, as specified in these Operating Instructions.

These Operating Instructions do not relieve the operating company of the obligation to develop and to apply independent health and/or safety regulations or safe working processes which are aimed at the requirements of the overall machine, as well as the obligation to monitor their compliance.

1.2 Declaration of conformity

EC/EU Declaration of conformity

in terms of the machinery directive 2006/42/EC and EU directive 2014/30/EU (EMC)

Manufacturer: **Pfeuffer GmbH**
Flugplatzstraße 70
97318 Kitzingen
GERMANY

Person authorized to compile technical documents: Lothar Pfeuffer, General Manager

Product: **Sample cleaner SLN 3**

Serial number: _____

The aforementioned product complies with the requirements of the following relevant directives and harmonized standards:

Directives / standard	Title
2006/42/EC	EC Directive: Machine
DIN EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
DIN EN 60204-1:2006	Safety of machinery – electrical equipment of machines; part 1: General requirements
2014/30/EU	EU Directive: Electromagnetic compatibility
DIN EN 61000-6-2:2006	Electromagnetic compatibility – Part 6-2: Generic standards – Imission for industrial environments
DIN EN 61000-6-3:2007	Electromagnetic compatibility – Part 6-3: Generic standards – interference transmission for residential areas, business and industrial premises as well as small-scale companies

This declaration shall become null and void should any alterations be made to the machine without our approval.

Kitzingen, _____ _____
Lothar Pfeuffer, General Manager

1.3 Structural features of the danger notes

The operating instructions from Pfeuffer GmbH contain instructions that you must comply with for your personal safety as well as to avoid damage to property. The instructions for your personal safety are highlighted by a warning triangle. Comply with the following categories of danger notes and explanations of symbols:

Pictogram

⚠ SIGNAL WORD

Type of danger and its source.

Possible consequence of failure to comply.

⇨ Measure to guard against the danger.

⚠ DANGER

This is a warning about a highly dangerous situation that will lead to serious or fatal injuries.

⚠ WARNING

This is a warning about a dangerous situation that may result in serious or fatal injuries.

⚠ CAUTION

This is a warning of a possibly dangerous situation that will lead to slight or moderate injuries.

NOTICE This is a warning about harmful situations for the product and/or environment.

1.4 Pictograms in the operating instructions

	Notes of particular importance and/or additional information		Warning
	Comply with the operating instructions		Warning of electrical voltage
	Pull out mains plug		Warning of hand injuries
	Protective earth connection		Warning of tipping and crushing
	Recycling marking – Supply refuse for recycling		

1.5 Identification

The information provided in these Operating Instructions apply only for the machine whose type designation is specified on the title page. The identification plate with the type designation is located on the machine casing (front). Correct information of type designation, serial number and year of manufacture is important for all queries; this ensures fast processing.

Sample Pfeuffer GmbH type plate:

2 Safety

NOTICE	**It is strictly forbidden to disable the safety devices or to change their mode of operation.**

2.1 Installed safety systems

The installed safety systems must be checked with corresponding test methods at regular testing intervals; refer to the following table:

Test intervals			Test methods		
d	=	daily	**VI**	=	Visual inspection
w	=	weekly	**FT**	=	Functional test
m	=	monthly	**M**	=	Measurement
¼ y	=	quarterly			
½ y	=	half-yearly			
y	=	yearly			

2.1.1 Supply isolating device (plug/socket combination)

The plug/socket combination simultaneously functions as an EMERGENCY STOP device.

⇨ In case of an emergency, disconnect the sample cleaner from the electrical power supply.

⇨ Secure the plug suitably against unauthorized re-plugging by placing it where it can remain under constant supervision.

⇨ Set the plug/socket combination in such a way that it can be easily seen and is quickly accessible in case of an emergency.

Test	
Interval	Method
y	**FT**

2.1.2 System control

The system is controlled internally with a supply system, a phase and an earth connection (with green/yellow covering for the wires).

Test	
Interval	Method
y	**VI, FT, M**

2.1.3 Limit switch system

A limit switch system is used to secure the deawner against unauthorized access during operation: Locking latch at filler cap.

The deawner can be started only if the filler cap is closed.

Test	
Interval	Method
m	**VI**

2.1.4 Protective caps

During the operation, sample cleaner **SLN 3** is protected against interference affecting the machine using protective caps.

Test	
Interval	Method
m	**VI**

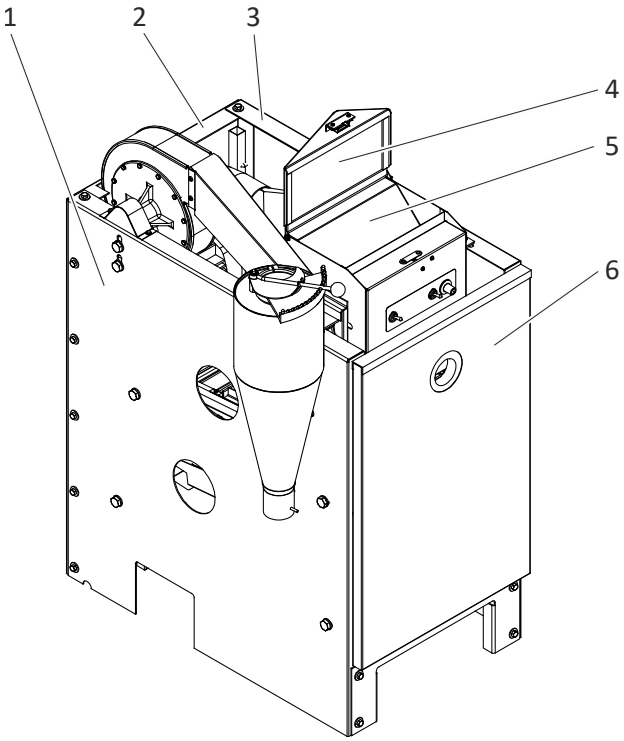


Figure 1: Overview - Protective caps

Item	Name
1	Left sidewall
2	Rear wall
3	Right sidewall
4	Filler cap with locking latch
5	Protective cap - Deawner
6	Door

2.2 Interfaces at sample cleaner SLN 3

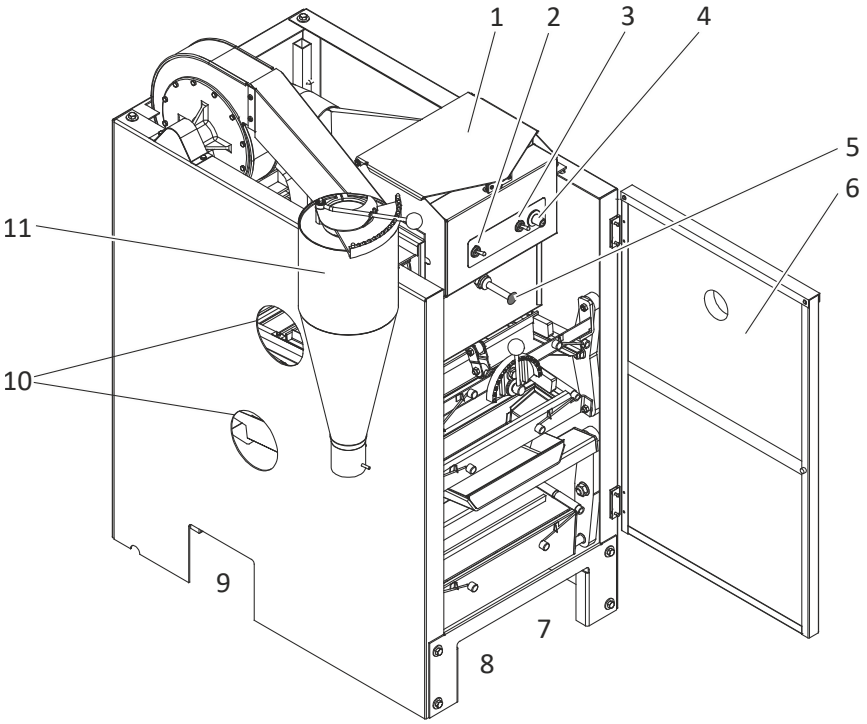


Figure 2: Interfaces

Item	Name	Item	Name
1	Filler hole	7	Outlet - Cleaned sample
2	ON/OFF control switch	8	Outlet for small grain
3	Control switch - Manually open the bottom of the deawner	9	Outlet for sand, weeds and coarse dirt particles
4	Potentiometer - Deawner time	10	Service holes (right and left on the casing)
5	Locking lever for base of deawner	11	Cyclone
6	Door		

2.3 Operating and hazard areas associated with the machine

Operating area

Ensure a sufficient working height (depending on the body size of the operating personnel) of approximately 60-65 cm. For this, a suitable base frame is necessary so that the operating personnel can access the collecting pans ergonomically.

Hazard area

The entire area of one meter around the machine is dangerous during adjustment, maintenance and repair work. The swiveling range of the self-opening door as well as of the filler cap must also be taken into consideration.

⇨ Do not keep any objects around the machine.

2.4 Operating and maintenance personnel

Operating and maintenance personnel are responsible for transport, assembly, installation, operation, adjustment and cleaning of the machine as well as for fault rectification.

1. Sample cleaner **SLN 3** is allowed to be operated by authorized and instructed persons only.
2. The responsibilities associated with operating the machine must be clearly defined and adhered to so that there are no unclear responsibilities concerning safety.

3. The deactivation procedures specified in these operating instructions must be adhered to for all tasks (operation, maintenance, repairs etc.); refer to **chapter 2.9.**
4. The operator must forbid all the methods of operation that compromise the safety levels associated with the machine.
5. The operator must also ensure that only authorized persons work on the machine.
6. The operator is obligated to immediately inform the operating company about changes in the machine that compromise safety.
7. The operating personnel must be equipped with the corresponding protective equipment by the operator, in accordance with the legal obligations and the material to be processed.
8. The operator must regularly demand that the personal safety equipment be used. The operator must also monitor the usage of the said equipment.

2.5 Safety measures (to be implemented by the operating company)

It is noted that the operating company

⇨ trains the operating and maintenance personnel with regard to the safety devices of the sample cleaner

⇨ and monitors their compliance with the safety measures.

The frequency of functional tests described in **chapter 8.3** must be adhered to.

The tasks described in these operating instructions are listed in such a way that they are

⇨ understood by the operating personnel (with regard to the function and operation chapters).

⇨ understood by **skilled personnel** (with regard to the chapters delivery**,** transport and storage, installation and commissioning, maintenance and cleaning, disruptions – causes and their rectification and dismantling and disposal).

The chapters delivery, transport and storage, installation and commissioning, maintenance and cleaning, disruptions – causes and their rectification and dismantling and disposal are **only** intended **for skilled personnel**. Tasks that are described in these chapters must be carried out by **skilled personnel** only.

Instructed person

A person who has been instructed and, if necessary, trained by a **skilled worker** about the assigned tasks and possible dangers in case of improper behavior, and who has been instructed about the necessary safety devices and safety measures.

Skilled worker

An individual who is proficient in identifying risks and avoiding hazards that can occur when using the product, on account of his relevant professional training, education and/or experience.
(Definition as per DIN EN 82079-1:2013-06)

Obligations of the operator

In the European Economic Area (EEA), the national implementation of framework directive 89/391/EEC and the relevant specific directives (especially directive 2009/104/EC "about the minimum requirements for safety and health protection in case of the use of equipment by workers") must be borne in mind and adhered to, with regard to the version that is currently valid.

In addition, the local legal provisions for the following must be adhered to:

⇨ Safety of personnel (accident prevention regulations)

⇨ Accident prevention regulation DGUV Regulation 3 (previously BGV A 3) "Electrical systems and equipment" (DGUV = Association of German Statutory Accident Insurance)

⇨ Safety of work equipment (protective equipment and maintenance)

⇨ Permitted noise load (depending on the site and time of day)

- ⇨ Product disposal (waste legislation)
- ⇨ Material disposal (waste legislation)
- ⇨ Cleaning (cleaning agents and disposal)
- ⇨ Hazardous substances (in Germany, the technical rules for hazardous substances – TRGS 555 apply)
- ⇨ Environmental protection regulations.

Electrical Connections

The sample cleaner may only be connected to a correctly-earthed socket with an earth conductor.

Illumination intensity

The operator must ensure sufficient and proper intensity of illumination in all the areas of the machine.

At least 300 lux is expected (maintenance value).

ASR A3.4 is applicable in Germany.

2.6 General safety instructions

The safety equipment and safety instructions described in these Operating Instructions must be borne in mind.

1. Disconnect the device from the mains in case of malfunctioning.
2. Disconnect the device from mains before starting with the cleaning operation.
3. Do not let the device get wet during transport, storage, cleaning and operation.
4. Make sure that you only use the sample cleaner when it is in a defect-free condition.
5. Never touch the mains cable with wet hands.
6. Always use original spare parts and accessories (refer to **chapter 10** and **11**).

2.7 Safety tests

The following safety tests have been conducted by Pfeuffer GmbH at the plant:

Test and inspection as per DIN EN 60204-1:

- Inspection to verify that the electrical equipment complies with the technical documentation.
- Continuous connection of protective conductor system
- Insulation resistance tests
- Voltage tests
- Functional tests

The functions of the electric equipment, especially those that relate to safety and safety measures, have been tested.

2.8 Residual hazards associated with the sample cleaner

The operation primarily takes place in automatic mode.

- ⇨ Pay attention to electrical hazards in case of all tasks that are to be carried out vis-a-vis electrically-operated components.
- ⇨ Be mindful of crushing hazards when setting up, servicing, repairing and operating the machine.

2.9 Deactivation procedure

DANGER

Touching live parts can be fatal!

The following deactivation procedure must be carried out before cleaning, maintaining or repairing the machine (only by skilled personnel):

⇨ Deplete the sample cleaner.

⇨ Disconnect the machine from the mains:

⇨ Disconnect the plug/socket combination from the power supply.

⇨ It must be possible to ensure that the plug remains under the direct supervision of the person in the hazardous area.

⇨ Make sure that water, vapour or dust cannot enter the electronic area when cleaning.

3 Technical data

Sample cleaner SLN 3	Cleaning and grading all grain crops
Sample quantity	approximately 1 kg
Material/transported material (sub-supplier)	Grains, peas, rape seed, maize and similar granular bulk goods

3.1 Dimensions and weight

Height	970 mm
Width	580 mm
Length	680 mm
Weight	85 kg

3.2 Power supply

Supply voltage/Frequency	230 V_{AC} + 6% - 10%, 50 Hz 115 V_{AC} + 6% - 10%, 60 Hz	(item number: 1740 0040) (item number: 1740 0041)
Power consumption	500 VA	
Number of phases	1 Ph / PE	
Earth conductor	SL (yellow/green) in mains cable	
Frequency	±1%	
Installation instructions	Executed as per VDE	

3.3 General information

Temperature	+5°C – +40°C
Humidity	20 % – 80 % non-condensing
Acoustic level	L_{PA} = 77 $dB_{(A)}$ as per measurement report

4 Delivery, transport and storage

The chapter Delivery, transport and storage is intended for **skilled personnel** only.

4.1 Scope of delivery

The standard scope of delivery to the operator includes:

1. Sample cleaner model **SLN 3**, pre-assembled with standard sieves for malting barley (also assembled with other sieves, if required).
   - Top sieve (straw sieve) 4.5x20 mm / 300x350 mm
   - 2. Sieve (sand sieve) 1.5x3.5 + Ø 2.0 mm / 300x350 mm
   - 3. Grading sieve 2.5x20 mm / 300x470 mm
2. Operating Instructions
3. 5 PVC collecting pans
4. 1 dust collection bag and dust collection bag holder

You can find the respective item numbers in **chapter 11**.

4.2 Transport and packaging

Systems and machines of Pfeuffer GmbH are carefully checked and packaged before dispatching. However, damages during the transport cannot be excluded.

Intake control

Run a completeness check using the delivery note.

In case of damages

Check the delivery for damages (visual inspection).

In case of complaints

If the delivery has been damaged during transport:

⇨ Retain the packaging (for the dispatcher to inspect or for return delivery).

⇨ Immediately inform the suppliers or Pfeuffer GmbH.

4.3 Temporary storage

Freight packaging of the sample cleaner and exchange parts and accessories is intended for a storage duration of six months upon delivery.

Storage conditions

Closed and dry room with a room temperature from minimum -10 °C to maximum +50 °C

4.4 Transport to installation location (of customer)

The machine must be transported by skilled personnel only and in accordance with the local conditions and, if applicable, the information on the packaging material.

Sample cleaner **SLN 3** is supplied to the installation location of the customer on a transportation pallet.

⚠ CAUTION

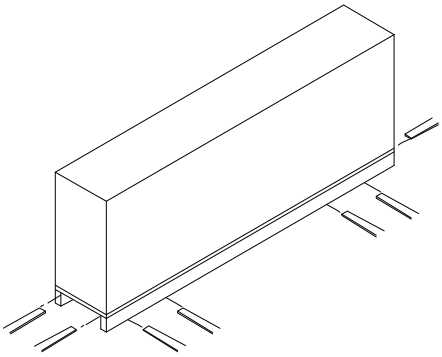
The machine can topple during transport. Pay attention to the centre of gravity (it lies approximately near the centre) and the weight (refer to technical data).

Before transporting, secure the machine with the respective lifting means.

Transport with forklift truck

Packing items that are packaged on pallets or in boxes can be transported by a crane under the following conditions:

- The forklift truck must be constructed according to the weight of the transport unit..
- The driver must be authorized to drive the forklift truck.



Lashing:

⇨ Move the forks of the forklift truck between or under the pillars of the transport pallet of the machine.

The forks must stick out on the opposite side!

⇨ While doing so, make sure that the forks of the forklift truck have been pushed through to a sufficient degree

⇨ Lift the machine and transport it.

Figure 3: Skizze Diagram of transport by forklift

Type	Weight	Handling
SLN 3	approximately 85 kg	Operator must provide for safe transportation

Unpacking

Sample cleaner **SLN 3** is packaged and delivered by Pfeuffer GmbH such that it is lying on its side.
In order to avoid damages to the casing and other components,

⇨ open the packaging

⇨ remove the sample cleaner and the carton from the transport pallet

⇨ place the sample cleaner (along with the carton) on its feet

⇨ retrieve the sample cleaner from the carton using a sack barrow and bring it to the installation location; refer to **figure 4.**

Packaging for return delivery

⇨ If possible, use the original packaging and original packaging material. If both are unavailable, engage a packaging company with skilled personnel.

⇨ Place sample cleaner **SLN 3** in the carton using a sack barrow.

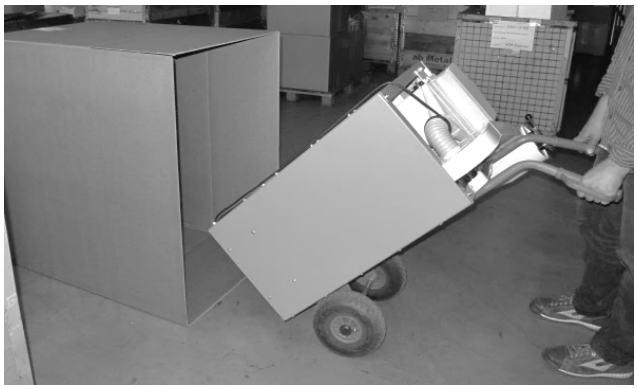


Figure 4: Transport with sack barrow

⇨ Push a transport pallet behind the carton (pay attention to the weight specification). Turn the carton over such that the sample cleaner lies sideways on the pallet.

⇨ Place Styrofoam blocks over the air regulation at the cyclone and in the hollow space above the side frame.

Figure 5: Packaging for return transport

⇨ Seal the carton and fasten the sample cleaner on the transport pallet.

5 Installation and commissioning

The chapter Installation and commissioning is intended for **skilled personnel** only.

5.1 Positioning of sample cleaner SLN 3

⇨ Unpack the sample cleaner carefully (refer to **chapter 4.4**) and place it horizontally. Use a water level for that.

⇨ Ensure a working height of approximately 60-65 cm, depending on the size of the operating personnel.

A correct horizontal positioning of the machine guarantees an even distribution of the grains across the sieves.

⇨ Insert the sieves as described in **chapter 7.4.**

The magnitude of dust nuisance will increase during operation:

Pfeuffer GmbH recommends placing a suction hood over the air outlet of the cyclone. The distance between the air outlet and the suction hood must be at least 400 mm so that the aspiration effect is not affected.

⚠ CAUTION

Dust warning

Due to the nature of the samples, increased levels of dust particles and impurities (such as harmful mycotoxins) may emerge in the vicinity of the sample cleaner during operation!

⇨ Check whether inhaling large quantities might lead to irritation or illnesses of the respiratory passages, and if so then take appropriate measures.

⇨ Place a suction hood over the air outlet of the cyclone, use an enclosure or use respiratory protection.

⇨ Keep the control switch in the **OFF** position.

⇨ Insert the mains plug into a correctly-earthed socket with an earth conductor.

Check if all the components are firmly secured. Re-tighten all the screws and clamps. The interfaces are depicted in **chapter 2.2** of these Operating Instructions.

⇨ Activate the sample cleaner **SLN 3** keeping in mind all the specifications given in **chapter 7.**

6 Function

6.1 Components of sample cleaner SLN 3

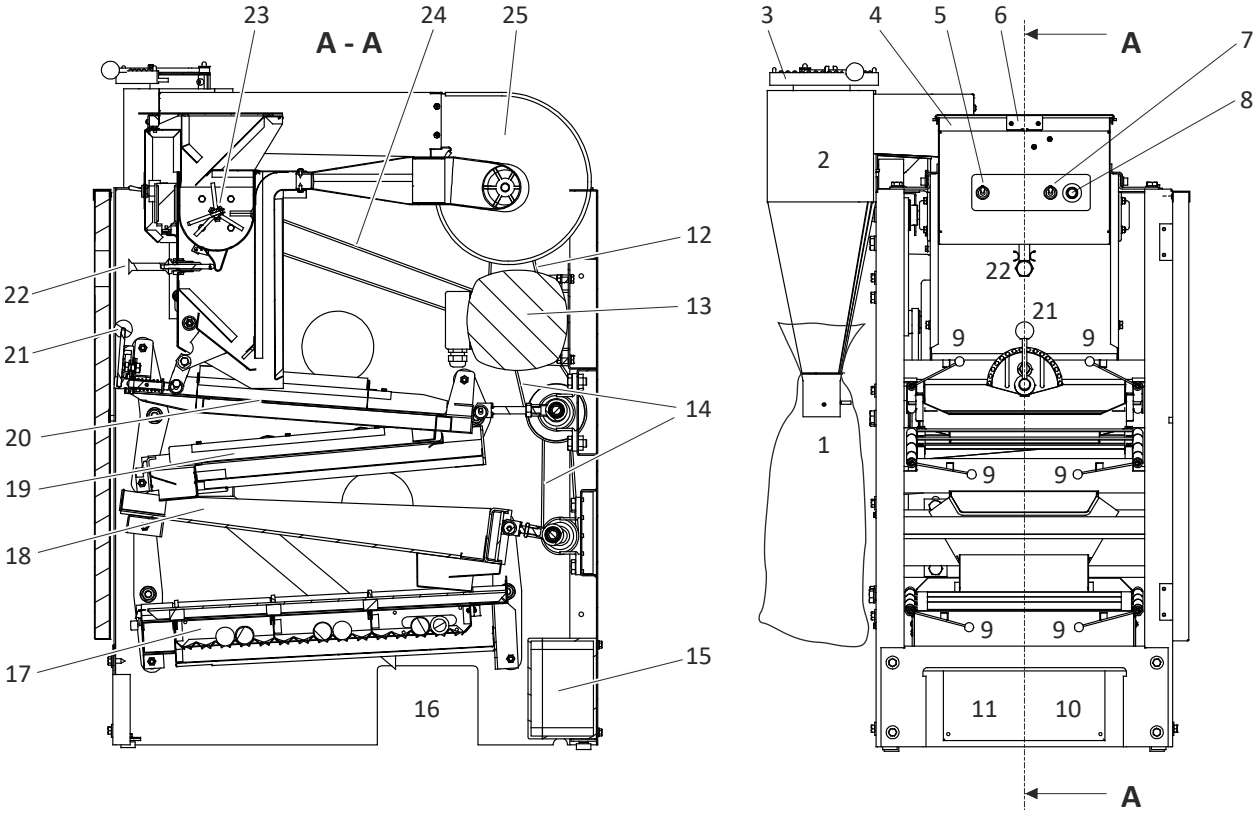


Figure 6: Overview

Item	Name	Item	Name
1	Dust collection bag	14	V-ribbed belts for sieve drive (2 pieces)
2	Cyclone	15	Switch box
3	Air regulation	16	Collection pan for sand, weeds and coarse dirt particles
4	Filler cap	17	Grading sieve
5	ON/OFF control switch	18	Transport sieve
6	Locking latch for filler cap	19	Sand sieve
7	Control switch - Open the bottom of the deawner	20	Straw sieve
8	Potentiometer - Deawner time	21	Outlet regulation
9	Tension springs on sieving tray	22	Locking lever for base of deawner
10	Collection pan for cleaned sample	23	Deawner
11	Collection pan for small grains	24	V-ribbed belt - Deawner
12	V-ribbed belt - Fan	25	Fan
13	Motor		

6.2 Functional sequence

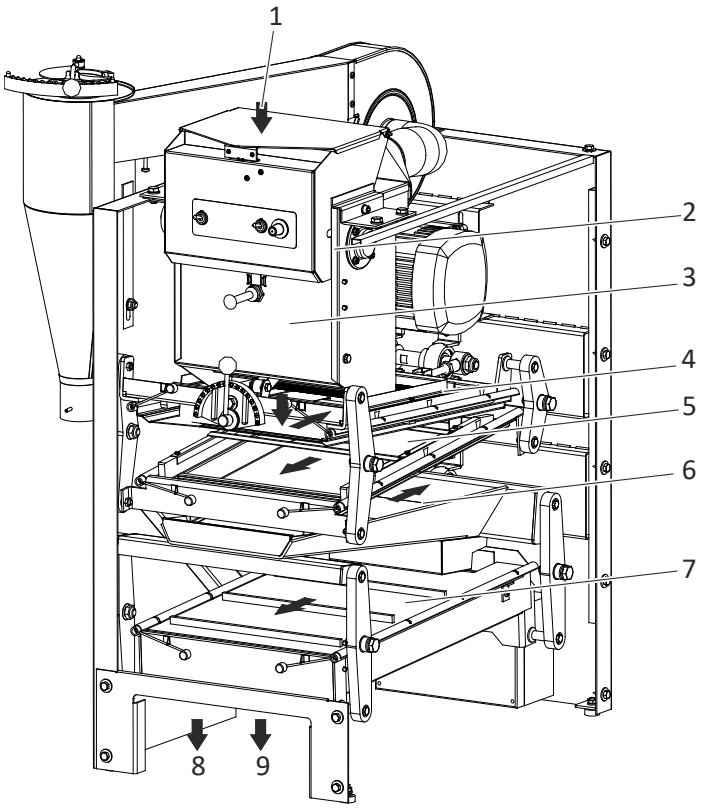


Figure 7: Functional sequence

Item	Name	Item	Name
1	Fill in the sample	6	Transport sieve
2	Deawner	7	Grading sieve
3	Aspiration	8	Outlet for small grain
4	Straw sieve (top sieve)	9	Outlet - Cleaned sample
5	Sand sieve (2nd sieve)		

Sample cleaner **SLN 3** helps in making stock-related determinations associated with grain crops and grading the said crops.
After the sample has been weighed, pour it into the deawner when the deawner base is closed.
The machine starts when you close the cover of the filling container and switch the control switch to **ON**.
The deawner base automatically opens after a period of time specified on the potentiometer (freely selectable between 0 and 80 s).
The light dirt such as dust is extracted by the aspiration process and deposited by the cyclone in the dust collection bag.
The sample proceeds via the straw sieve that sifts larger impurities, after which it proceeds via the sand sieve. Sand and small impurities such as weed seeds fall through the sand sieve.
Coarse impurities, sand and weed seeds are discharged using a chute into the collection pan to the left of the machine.
The sample that is free of impurities proceeds via the transport sieve to the grading sieve, and is sorted there according to the thickness of the grain.
The small grains are collected in the front left collection pan, and the cleaned sample is collected in the front right collection pan.

7 Operation

Sample cleaner **SLN 3** is allowed to be operated by qualified and trained persons only.

7.1 Control elements

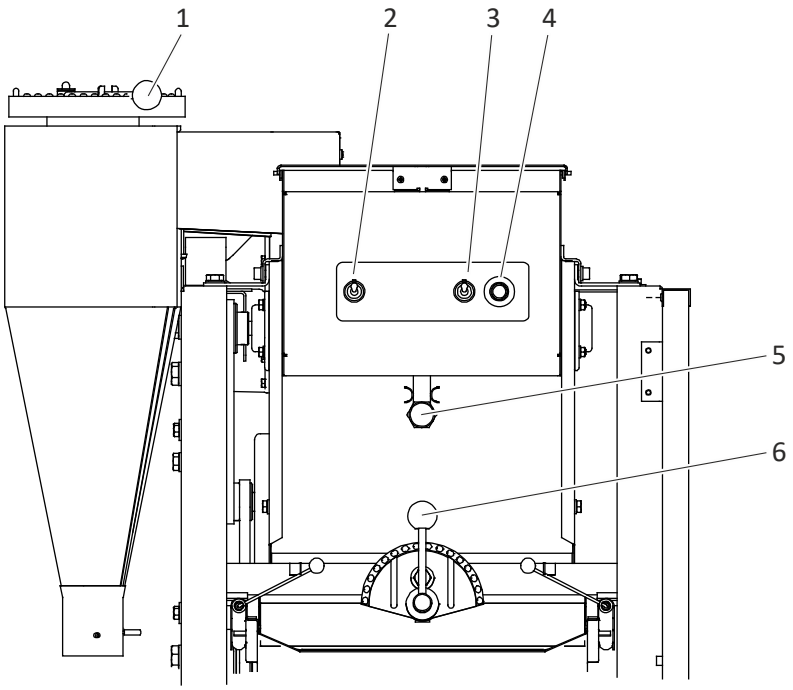


Figure 8: Control elements

Item	Name
1	Air regulation
2	ON/OFF control switch
3	Control switch for manually opening the deawner base
4	Potentiometer
5	Locking lever for deawner base
6	Outlet regulation

7.1.1 Potentiometer

Set the duration for which the sample is deawned using the potentiometer.

Pos.	Duration (approx.)	Pos.	Duration (approx.)
0	no deawning	5	50 s
1	10 s	6	60 s
2	20 s	7	70 s
3	30 s	8	80 s
4	40 s	9	not used

7.1.2 Control switch - Opening the de-awner base

With the help of the control switch for manually opening the deawner base, the deawner base can be opened by hand at any time.

7.1.3 ON/OFF control switch

The **ON**/**OFF** control switch starts and ends the cleaning process.

7.1.4 Outlet regulation

With the help of the outlet regulation, you can adjust the opening gap of the dosage flap, which sets itself after the deawning ends.

The opening gap affects the flow time.

At least 18–20 s should elapse after the deawner base has been opened and before the material in question is completely discharged onto the top sieve.

This duration is necessary,

- to achieve an optimum aspiration effect and
- to guarantee an even distribution of the grain across the sieves.

1 = smallest opening gap (more flow time)

15 = largest opening gap (short flow time)

Make sure that different opening gaps are selected for different samples. Recommendations for the outlet regulation are given in **chapter 7.5.**

7.1.5 Air regulation

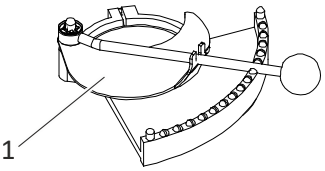


Figure 9: Air regulation - segment disc

Item	Name
1	Segment disc

The counter-pressure is adjusted via the air regulation system, via which the fan works. The air should be adjusted in such a way that no defect-free grains are collected in the dust collection bag.

1 = lowest suction power
15 = highest suction power

The crescent-shaped segment disk with item number 2350 0265 can be used for **cleaning fine seeds**.

Recommendations for the air regulation are given in **chapter 7.5.**

7.1.6 Locking lever for base of deawner

⇨ Close the deawner bottom by pressing the locking lever.

The deawner bottom must be manually closed again after every cleaning process.

7.2 Cleaning the samples

⇨ Place each collection pan under the outlets at the intended places.

⇨ Fasten a dust collection bag at the cyclone.

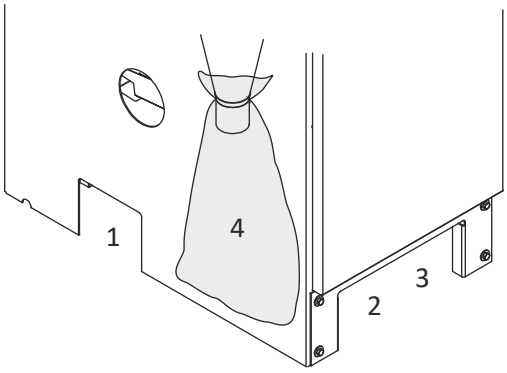


Figure 10: Placing the collection pans and the dust collection bag

Item	Name
1	Outlet for sand, weed seeds and coarse dirt particles
2	Outlet for small grain
3	Outlet - Cleaned sample
4	Dust collection bag

⚠ CAUTION

Dust warning

If the sealing of the dust collection bag against the outlet is insufficient, dust can be discharged into the atmosphere.
Pollutants such as hazardous levels of Mycotoxins can be present in this dust!

⇨ Check whether inhaling large quantities might lead to irritation or illnesses of the respiratory passages, and if so then take appropriate measures.

⇨ Monitor the outlet and air regulation. Pfeuffer GmbH recommends placing the sieves according to the table given in **chapter 7.5.**

⇨ Tare a collection pan on a pair of scales and fill it with approximately 1 kg raw material.

⇨ All the collecting pans (PVC) are tared to 130 g ±0.1 so that re-taring is not applicable when weighing again.

NOTICE

Do not keep any objects (tool, scissors, funnel, measuring cup, etc.) on the sample cleaner.

When starting the cleaning process, they could fall in the working area and lead to damages to the sample cleaner.

⇨ Close the deawner bottom by pressing the locking lever.

The deawner bottom must be manually closed again after every cleaning process!

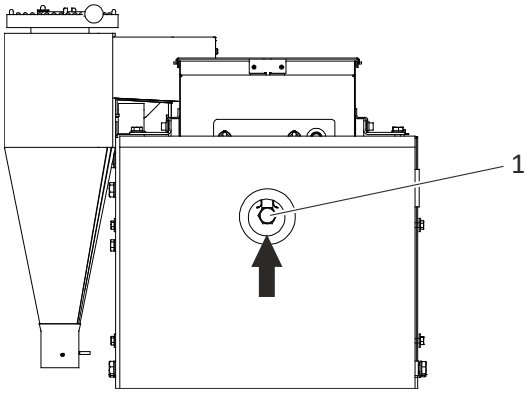


Figure 11: Locking lever for deawner bottom

Item	Name
1	Locking lever

⇨ Open the cover of the filling container and pour the sample in the deawner.

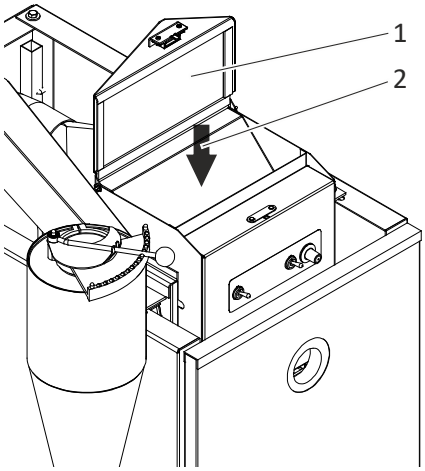


Figure 12: Fill in the sample

Item	Name
1	Filler cap opened
2	Sample

⇨ Set the deawner time on the potentiometer.

⇨ Close the filler cap and the door of the sample cleaner.

⇨ Switch the control switch **ON**.
The sample cleaner starts.

- A limit switch system is integrated into the filler cap.
  The deawner will start only if the filler cap is closed.

⚠ CAUTION

Hand injuries!

The door must be closed when cleaning the samples!

⇨ Do not put your hands

- in the working range of the sieve
- from above in the sample cleaner
- through the service openings at the side walls of the sample cleaner.

The deawner bottom will open automatically at the end of the deawning time.

o In order to cut short the deawning, actuate the control switch for manually opening the deawner bottom.

⇨ Switch the control switch **OFF** if the cleaning process has finished.

A complete cleaning process has ended as soon as grains can no longer be seen on the grading sieve. Duration for a 1 kg sample is approximately 60 s.

Check whether the sieves are free after the cleaning process ends. If grains are stuck, you can remove them by slightly knocking with your fingers.

⇨ Weigh the cleaned sample again. This way, you can determine the waste in percent. For this, refer to the calculation example in **chapter 7.3.**

7.3 Re-weighing

Calculation example:

The weight of the sample that you are pouring in the filling container is 1,050 g.
The cleaning process is started.
The aspiration is effective when the sample is discharged.
10 g dust and light dirt particles are sucked in.
Straw sieve and sand sieve sort 20 g of dirt particles each, i.e. total 40 g.
The weight of the sample that is to be sorted by the grading sieve is now 1,050 g – 50 g = 1,000 g.
The waste of 50 g has 4.8% of the sample.
The remaining 1,000 g is the weight of the grains without waste that must be sorted: **1,000 g = 100 %!**
After grading, the clean sample now has 850 g top goods and 150 g small grains (i.e. 85 % and 15 %).

Result of weighing:

Sample	1,050 g
Waste	50 g = 4.8 %
Top goods	850 g / 85 %
Small grains	150 g / 15 %

The **Auto Sample Cleaner** carries out a fully automatic weighing for you. It can be obtained as a supplement to the sample cleaner **SLN 3** from Pfeuffer GmbH (refer to **chapter 11.3**).

7.4 Sieve change

⇨ In order to avoid an unexpected starting of the sample cleaner, disconnect the mains before changing the sieves.

The tension springs for the straw sieve, sand sieve and the grading sieve are clamped with holders on the sieving trays.

⇨ Press the tension springs downwards and pull them forward.

⇨ In order to attain unrestricted space for the sieve-changing operation, rotate the springs in the direction of the respective side wall.

⇨ The sieves are now ready to be changed.

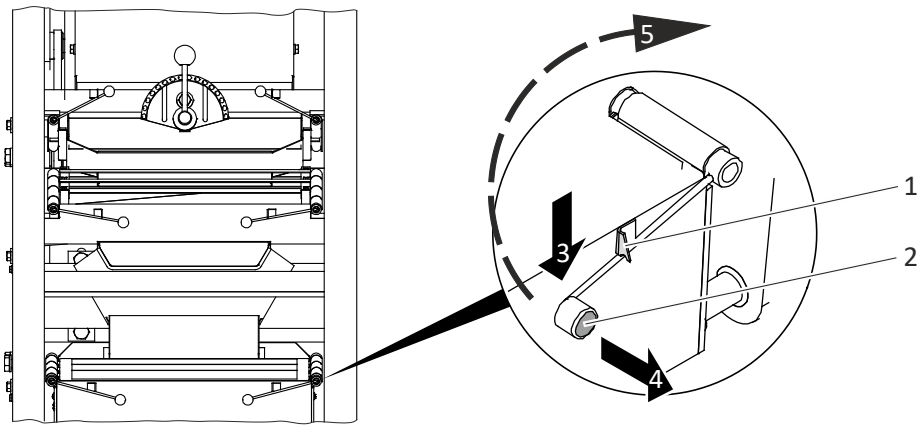


Figure 13: Tension springs on sieving tray

Item	Name
1	Holder
2	Tension spring
3	Tension spring downwards
4	Tension spring forwards
5	Tension spring towards side wall

The sieves are fitted with the deawned side upwards. The engraved numbering is also located in this side.

NOTICE Make sure the neoprene rubbers attached on the sieving trays are not damaged due to the edges of the sieves.

7.4.1 Top sieve (straw sieve)

⇨ Pull the sieve to be changed.

⇨ Slide the new sieve on the sieving tray till the stop. It might have to be slightly lifted.

⇨ Pay attention to the mounting position; refer to **figure 14.**

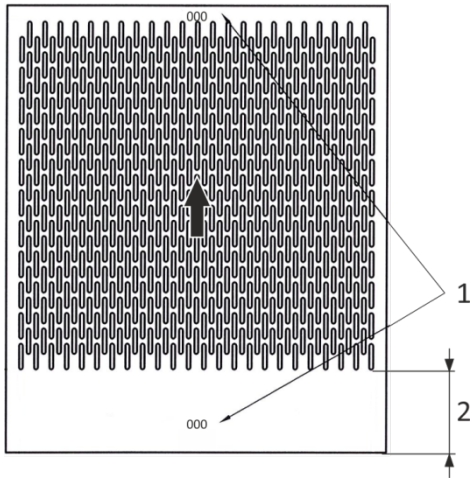


Figure 14: Straw sieve - mounting position

Dimensions: 300x350 mm

Item	Name
1	Engraved number
2	Surface not stamped

⇨ The plastic sheet on the sieve holder must pull backwards in order to avoid the grains falling out after the deawning.

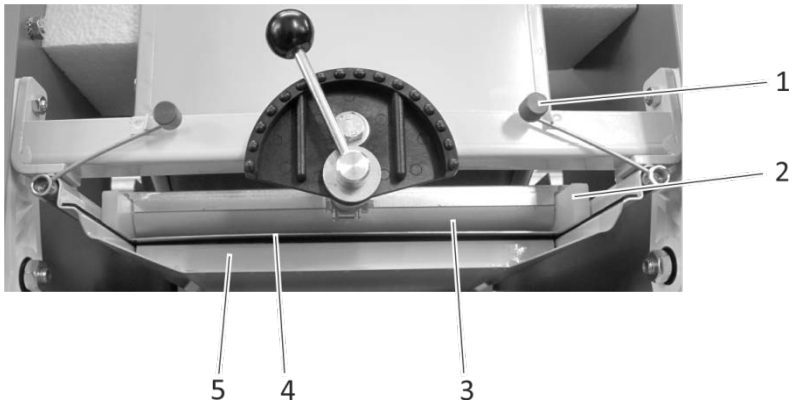


Figure 15: Correct mounting - Straw sieve

Item	Name
1	Tension spring clamped
2	Sieve holder
3	Correct position of the plastic screen (backwards)
4	Sieve
5	Sieving tray

7.4.2 2.Sieve (sand sieve)

⇨ Pull the sieve to be changed.

⇨ Slide the new sieve on the sieving tray till the stop. It might have to be slightly lifted.

⇨ Pay attention to the mounting position; refer to **figure 16.**

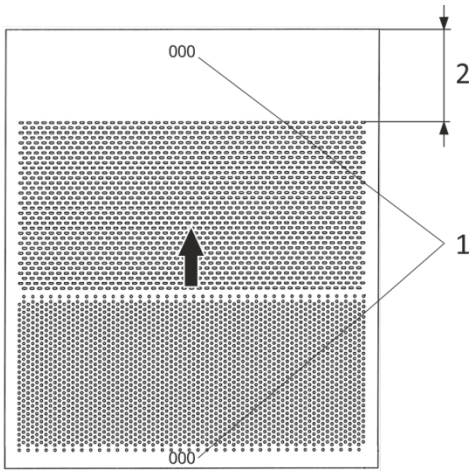


Figure 16: Sand sieve - mounting position

Dimensions: 300x350 mm

Item	Name
1	Engraved number
2	Surface not stamped

7.4.3 3. Grading sieve

⇨ Pull the Plexiglas cover and the sieve.

10 rubber balls are located in each of the three sieving tray areas. Keep the grading sieve clean and do not remove it.

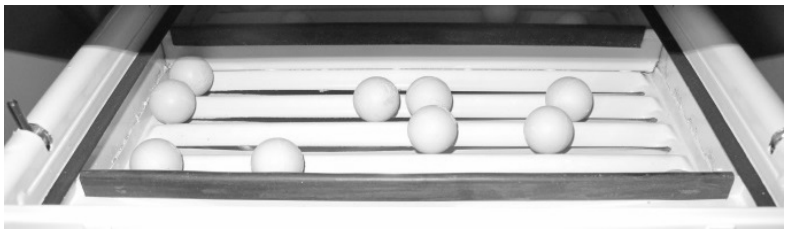
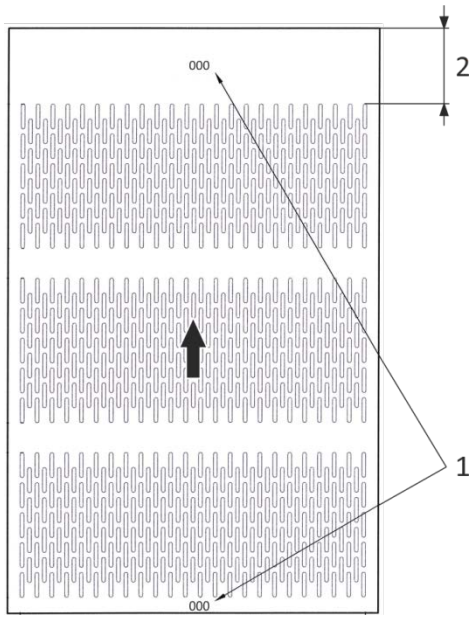


Figure 17: Grading sieve - rubber balls

⇨ Slide the new sieve till the stop and replace the Plexiglas cover on it.

⇨ Pay attention to the mounting position; refer to **figure 18.**



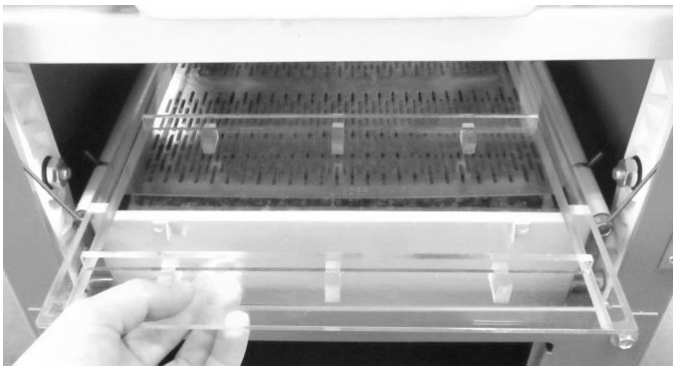


Figure 18: Grading sieve - mounting position

Dimensions: 300x470 mm

Item	Name
1	Engraved number
2	Surface not stamped

⇨ Firmly re-clamp all the sieves on the holders using the tension springs.

7.5 Recommended sieves and settings

Product	Top sieve (straw sieve)	2.Sieve (Sand sieve)	3. Grading sieve	Air	Outlet
Malting barley	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	2.5 x 20 mm	7-10	6
Feed barley	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	2.2 x 20 mm	7-10	6
Hard wheat	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	1.9 x 20 mm	7-10	6
Soft wheat	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	2.0 x 20 mm	7-10	6
Rye	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	1.8 x 20 mm	7-10	6
Oats	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	2.2 x 20 mm/ 2.4 x 20 mm	7-10	6
Malting barley	4.5 x 20 mm	1.5 x 3.5 mm + Ø 2.0 mm	2.2 x 20 mm	7-10	6
Spring swede rape	Ø 2.8 mm	Blind sieve	1.0 x 20 mm	5	1
Winter oilseed rape	Ø 3.0 mm	Blind sieve	1.0 x 20 mm/ 1.25 x 20 mm	6	1-2
Linseed	Without sieve	Ø 1.8 mm/ Ø 2.0 mm	1.8 x 20 mm/ 2.2 x 20 mm	3-5	1-2
Maize	Ø 11.0 mm/ Ø 12.0 mm	Ø 4.5 mm	Ø 6.0 mm	15	10-12
Peas	Ø 9.0 mm/ Ø 10.0 mm	Ø 3.0 mm/ Ø 3.5 mm/ Blind sieve	4.5 x 20 mm Ø 3.0 mm/ Ø 3.5 mm	15	8-10
Beans	Ø 11.0 mm/ Ø 13.0 mm	Blind sieve	3.5 x 20 mm	15	10-12
Soybeans	Ø 8.0 mm/ Ø 9.0 mm	Blind sieve	2.5 x 20 mm	15	8-10
Sunflower	Ø 11.0 mm/ Ø 12.0 mm	Blind sieve	2.0 x 20 mm/ 2.5 x 20 mm	7-9	8-10

Key:		
Ø = round hole	**x** = slot	**/** = or

The specified settings and sieves are recommended by Pfeuffer GmbH. Objective is the same result as during a process cleaning. Products such as peas, beans, soybeans and sunflowers vary greatly in size depending on their types.

You can get the recommended sieves at Pfeuffer GmbH; the item numbers are given in **chapter 11.4**.

You can look up standardised specifications under the following standards:

DIN EN ISO 5223: Test sieves for cereals

DIN EN ISO 658: Oilseeds - determination of impurity level

DIN EN 15587: Cereal and cereal products – determination of stock in wheat, hard wheat, rye and feed barley

8 Maintenance and cleaning

The chapter Maintenance and cleaning is intended for **skilled personnel** only.

NOTICE Opening the housing and inappropriate operation will invalidate the warranty.

In order to guarantee a failure-free operation of the sample cleaner **SLN 3**, it is absolutely necessary that the machine is regularly cleaned and maintained.

DANGER

Touching live parts can be fatal!

The deactivation procedure must be carried out before cleaning, maintaining or repairing the machine (refer to **chapter 2.9**).

- ⇨ During all work that is required, wear personal protective equipment according to the company health and safety regulations.
- ⇨ Pay attention to local statutory accident prevention regulations!

Time-related factors associated with the execution of the cleansing-related and maintenance activities are calculated for single-shift operations (8 hours/day; 22 days/month; 12 months/year).

t	=	daily	**¼ j**	=	quarterly	**LD**	= service life
w	=	weekly	**½ j**	=	half-yearly		
m	=	monthly	**j**	=	yearly		

Specifications about maintaining and cleaning the motor and control unit can be obtained from the respective Operating Instructions of the manufacturer.

8.1 Cleaning

NOTICE

Do not use any sharp objects or tools for cleaning. Use only those objects that are intended for cleaning.

When cleaning, wear personal safety equipment in accordance with the operational safety directives.

Make sure that water, vapour or dust cannot enter the electronic area when cleaning.

8.1.1 Motor

Excess dust deposition on the motor can lead to overheating and failure.

- ⇨ Clean the motor with a dry cloth and/or compressed air.

8.1.2 Deawner

Getting rid of residual impurities:

- The deawner must be empty.
- Start the deawning process.
- The impurities generally come off after approximately 60 s.

If it is possible to clean the deawner bottom by hand, you must remove the filling container.

⚠ CAUTION

The deawner could start and lead to hand injuries!

⇨ Pull the mains plug.

⇨ Undo both the screws at the side of the filling container.

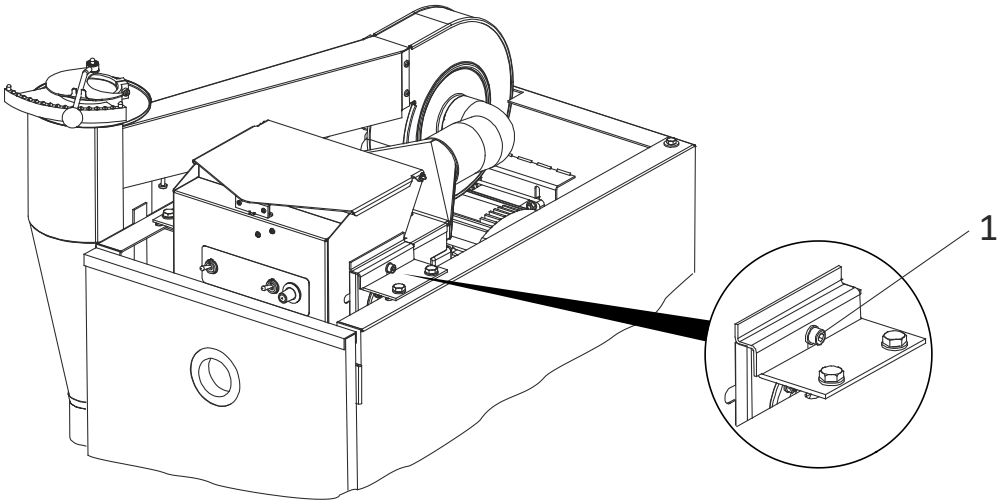


Figure 19: Screws at the filling container

Item	Name
1	Screw

⇨ Remove the filling container from the deawner.

NOTICE Make sure that you do not damage, cut or pull out any cables.

⇨ Clean the deawner with a damp cloth and/or compressed air.

⇨ After cleaning, re-mount the filling container at the specified place.

⇨ Insert the rubber bush on the casing through the recess; refer to **figure 20.**

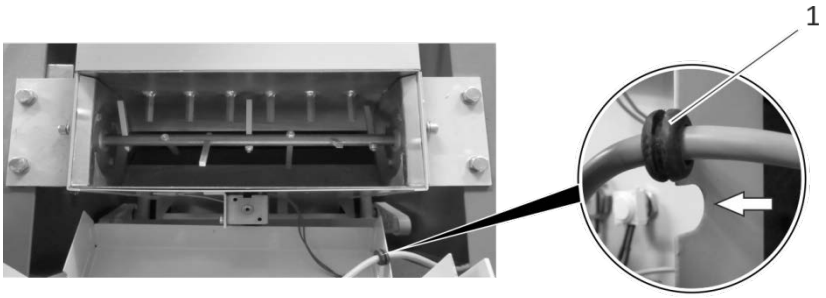


Figure 20: Rubber bush at the filling container

Item	Name
1	Rubber bush

NOTICE Make sure that you do not damage, cut or pull out any cables.

⇨ Secure the side screws at the filling container.

8.2 Lubrication

Maintenance-free bearings are used in sample cleaner **SLN 3**. Lubrication is not necessary.

8.3 Inspection interval and functional test

Assembly	Interval during single-shift operation						
Normal functional tests:	**w**	**m**	**¼ j**	**½ j**	**1 j**	**2 j**	**LD**
Buttons and switches		**X**					
Mains isolator (plug/socket combination)					**X**		
Markings and warnings present and legible (via visual inspection)					**X**		
Check if wires are tight					**X**		
Check whether all the plug, screw and clamped connections are tight and if necessary, re-tighten them			**X**				
Rubber bearings (sieve mode)					**X**		
Check the belt tension and inspect for damages					**X**		
Functional test of the drive motors				**X**			
Electrical test as per VDE				**X**			

8.4 General maintenance instructions

Check	Interval
Correct and secure position of the gear motor and the torque transfer elements	**½ j**
Wear and tear of the gear motor and the torque transfer elements	**½ j**
Functionality of limit switch system	**½ j**
Correct and secure position of protective cladding	**m**
Unusual noises: Rattling, rumbling or grinding → Reference to wear of parts (refer to list of spare parts **chapter 10**) Worn-out parts must be replaced by skilled personnel only.	**m**

8.5 Check

After the work has finished, check:

- ⇨ The completeness of the work carried out.
- ⇨ That there are no tools in the machine.
- ⇨ The wiring in the switch box for breaks, chafe marks or burns.
- ⇨ The covers or insulations for damages.
- ⇨ Close the cover of the gear box.
- ⇨ A function of all assemblies in setting or manual mode.
- ⇨ The safety equipment for proper functioning.
- ⇨ If all the functions are error-free, the machine is handed over to the operator.

NOTICE	After cleaning, maintaining or replacing the worn-out parts, check whether the safety equipment is functioning.

9 Disruptions – causes and rectification

The references about possible malfunctioning stated in this chapter are explained in such a way that they are understood by skilled personnel from electric/electronic or mechanical/ maintenance departments.

These personnel must be provided with corresponding tools and testing equipment.

If the stated measures are not successful, please contact Pfeuffer GmbH.

Correct information of type designation, serial number and year of manufacture is important for all queries; this ensures fast processing.

The deactivation procedure must be carried out before cleaning, maintaining or repairing the machine! (refer to **chapter 2.9**)

Problem	Cause	Rectification
Machine does not show any function.	System voltage not available.	Get the system voltage checked and activated by an **electrically skilled person**.
	Control switch ON/OFF remains at OFF.	Switch the control switch ON.
	Internal fuse defective.	Checking and replacement by an **electrically skilled person.**
Deawner bottom does not open/close.	Pre-set (using nut on locking lever) opening degree of the deawner base has changed.	Reset the opening degree correctly with the help of nut and locknut at the locking lever.
	Trapped grains.	Shake the locking lever for the deawner bottom and actuate the control switch for manual opening.
	Trigger magnet without function	Checking and replacement by an **electrically skilled person.**
Filler cap cannot be opened.	Trigger magnet does not respond.	Pull up the locking lever slightly by hand, which is located at the centre under the filling cup.

Specifications about dysfunctions of the motor and control unit and its causes can be obtained from the respective Operating Instructions of the manufacturer!

10 Spare and wear parts

NOTICE

We particularly emphasize that spare parts and accessories that have not been supplied by us are also not checked and approved by us. The assembly and/or use of such products can hence affect the specified design properties of the sample cleaner **SLN 3** under certain circumstances. Pfeuffer GmbH is not responsible for damages that occur due to the use of non-original parts and non-original accessories.

Standard parts can be obtained at specialist shops.

The spare parts specified in the following are wear parts of sample cleaner **SLN 3**.

Wear part	Item number
Lever switch - Short, angled with rubber bushes	2350 0254
Lever switch - Long, angled with rubber bushes	2350 0256
Lever switch - Long, straight with rubber bushes	2350 0365
Rubber bush for eccentric axle	3135 1740

Other spare and replacement parts are available on request. A complete list of spare parts is available and can be separately requested.

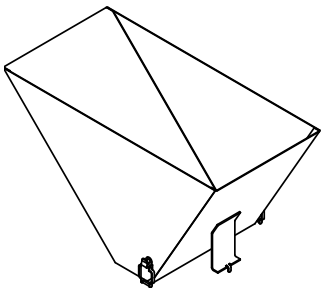
NOTICE

Replacement works on the motor, V-belt gear and switch box should be carried out by a skilled person only; refer to **chapter 2.5.**

In case of questions, please contact Pfeuffer GmbH.

11 Supplements and accessories

11.1 Feed hopper

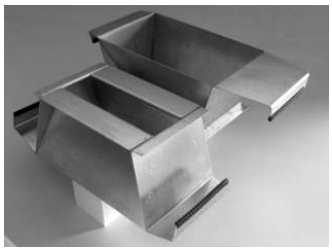


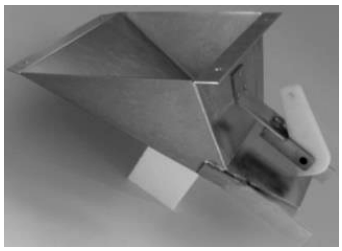
A feed hopper with a capacity of 5 kg can be mounted on the deawner. This way, the sample cleaner can be used for larger sample quantities, e.g. for seed cleaning for trial lots.

Figure 21: Feed hopper

11.2 Flow cup and bag holder

As the usual collecting pans are not suitable for larger sample quantities, another accessory is necessary for operating the sample cleaner with integrated feed hopper:





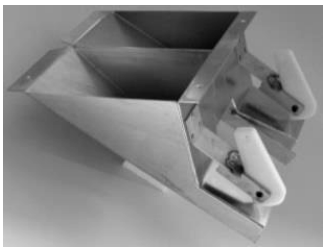


Figure 22: Flow cups, bag holders (1-fold or 2-fold)

11.3 Auto Sample Cleaner

The automatic sample cleaner is available as a supplement for sample cleaner **SLN 3** and helps in weighing the samples fully-automatically.
It is designed with a housing, a barcode scanner, a touch-screen display and a data memory.

Figure 23: Auto Sample Cleaner

Product	Item number
Auto Sample Cleaner (refer to **chapter 11.3**)	1740 0072
Feed hopper	1740 0080
Sample pan for flow	1740 0081
1-fold bag holder	1740 0082
2-fold bag holder	1740 0083
Stainless steel collection pan	3351 0500
PVC collection pan	3110 0050
Dust collection bag holder and dust collection bag	1740 0100
Dust collection bag	4911 8090
Nozzle gage (hole gage) for checking the nominal hole widths	1249 0020

11.4 Sieves

Top sieve (straw sieve) 300 x 350 mm	Item number
Ø 2.8 mm	3115 5067
Ø 3.0 mm	3115 5070
Ø 8.0 mm	3115 5118
Ø 9.0 mm	3115 5124
Ø 10.0 mm	3115 5127
Ø 11.0 mm	3115 5133
Ø 12.0 mm	3115 5134
Ø 13.0 mm	3115 5136
4.5 x 20 mm	3115 6088

2. Sieve (sand sieve) 300 x 350 mm	Item number
Blind sieve	3115 6998
Ø 1.8 mm	3115 5034
Ø 2.0 mm	3115 5040
Ø 3.0 mm	3115 5070
Ø 3.5 mm	3115 5076
Ø 4.5 mm	3115 5088
1.5 x 3.5 mm + Ø 2.0 mm	3115 6999

3. Grading sieve 300 x 470 mm	Item number
Blind sieve	3115 6997
Ø 3.0 mm	3115 7070
Ø 3.5 mm	3115 7076
Ø 6.0 mm	3115 7103
1.0 x 20 mm	3115 8010
1.25 x 20 mm	3115 8019
1.8 x 20 mm	3115 8034
1.9 x 20 mm	3115 8037
2.0 x 20 mm	3115 8040
2.2 x 20 mm	3115 8046
2.5 x 20 mm	3115 8057
3.5 x 20 mm	3115 8076
4.5 x 20 mm	3115 8088

12 Emergency

⇨ In case of an emergency, disconnect the sample cleaner from the electrical power supply.

13 Dismantling and disposal

The machine should be dismantled by **skilled personnel** only.

⇨ Pull the mains plug before dismantling the machine.

The sample cleaner must be disposed of in accordance with the applicable local environmental regulations (Waste Electrical and Electronic Equipment Directive 2012/19/EU).

Special waste

Oil, cleaning agents, contaminated cleaning tools (brush, rags, etc.) must be disposed of according to the local regulations and in accordance with the notes in the manufacturers' safety data sheets.

14 Glossary

Aspiration
is the suction of light-weight impurities.

Deawner
is a device for removing the dust and impurities deposited on grains, husks, which remain on the grains during threshing.

Small grains
are small, broken, shrivelled grains and grains of other cereals and their seeds.

Mycotoxins
are mould fungi. A chronic intake can result in organ damage.

Shrivelled grain
is a shrivelled, hollow small grain.

Cyclone
is a separator for light-weight impurities.

15 DIN ISO 9001 - Documentation

In practical applications, the introduction of QM and TQM systems is becoming increasingly important. Here you can find some points indicating how the accuracy of your test instrument can be documented.

Monitoring intervals for test instruments

It is recommended for the parameters stated below to be checked and documented once a year. Here is a suggestion for a form that should make this task easier.

Checking the nominal hole widths:

A certified precision nozzle gage with a read-off accuracy of 1/100 mm is available for accurate measurement of the nominal hole widths, see **chapter 11** for article number.

Tolerances for sieve plates:

Slot:	ISO 5223	Test sieves for cereals
Round hole:	DIN ISO 3310-2	Test sieves – Technical requirements and testing – Part 2: Test sieves of perforated metal plate

Test process

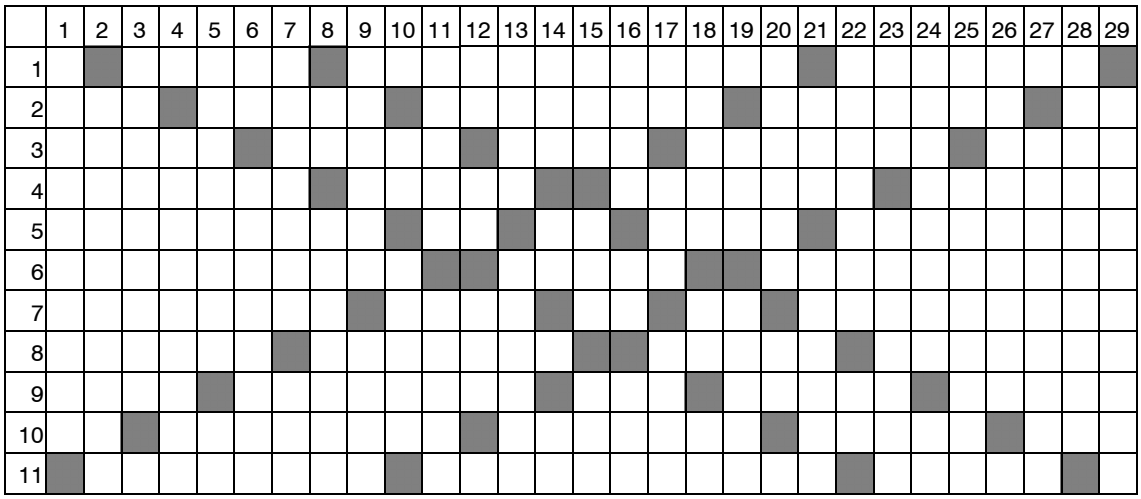


Figure 24: Diagram for selecting the hole widths to be tested

⇨ Select about 40 sieve holes (see diagram for 2.5 mm sieve with 29 x 11 holes, 44 selected).

⇨ Position the sieve plate vertically and clamp it in the clamping fixture.

⇨ Insert the measuring tip of the nozzle gage manually at an angle of 90° into the sieve hole (the gage must be at right angles to the sieve). Advance it until you encounter resistance, but without applying force, hold firmly at the top end, the vernier scale moves down.

⇨ Read off the result on the vernier directly in the inserted condition. Enter it in a test log (see master copy in **chapter 15.1**).

NOTICE	The results can be falsified by removing the nozzle gage before reading off the result, e. g. due to the measuring tip jamming or having a pushing force exerted on it!

⇨ The sieve should be discarded if the nominal hole with is outside the tolerance required in the standard for more than 3 values. Please contact the manufacturer!

15.1 Test log for nominal hole widths

This log is intended to allow the owner-operator to document the test status of the sieves of the sample cleaner **SLN 3**.

Company, location _____

Sample cleaner **SLN 3**

Year of manufacture: _____

Serial number: _____

Company stamp:

Checking the nominal hole widths

Nominal hole width – tolerances for sieve plates:

Slot:	ISO 5223	Test sieves for cereals
Round hole:	DIN ISO 3310-2	Test sieves – Technical requirements and testing – Part 2: Test sieves of perforated metal plate

Nominal hole width as embossed: _____ mm specified tolerance: _____ mm

Actual hole widths:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													

The tester confirms that the measurement has been carried out correctly as described in the operating instructions in **chapter 15**.

The nominal hole widths correspond to the actual hole widths: ☐ Yes ☐ No

The sieves meets the requirements stated in the aforementioned regulations: ☐ Yes ☐ No

Place, date Name, position Signature