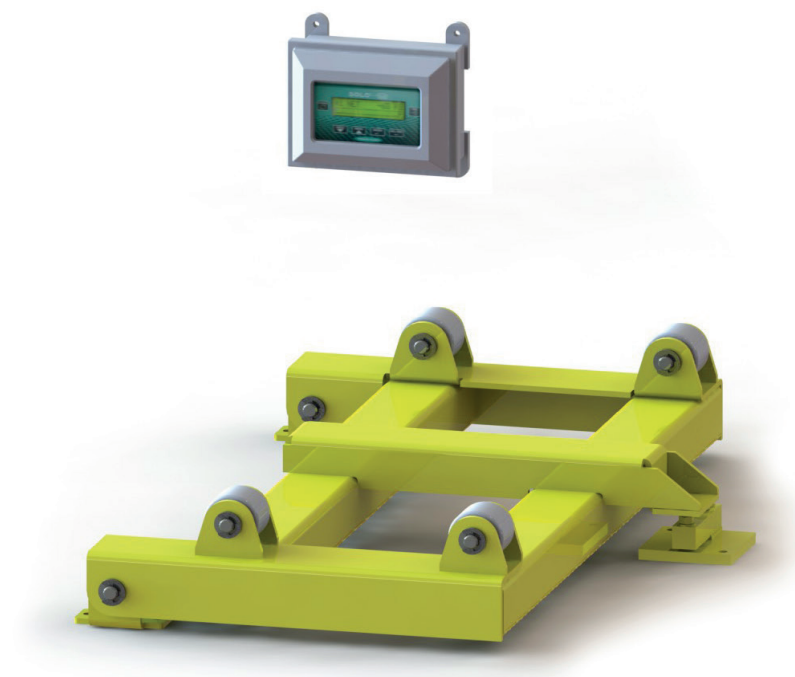


Drum Scales

Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

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1 Notes for the Reader

This operating manual contains information and behaviour rules for the safe and designated operation of the device.

Observe the following principles:

- read the entire operating manual prior to starting-up the device.
- ensure that everyone who works with or on the device has read the operating manual and follows it.
- maintain the operating manual throughout the service life of the device.
- pass the operating manual on to any subsequent owner of the device.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text clearly legible. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER!	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
Note	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Table 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger zone

Table 2: Explanation of the warning signs

Warning sign	Type of danger
	Danger of electric shock
	Danger of crushing
	Danger of damage to machine or functional influences

Table 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	SIGNAL WORD
Description of danger. Consequences if ignored. ⇒ The arrow signals a safety precaution to be taken to eliminate the danger.	

1.5 Instruction for action identification

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.

This is how instructions for action are identified:

➔ Separate step with no follow-up action.

1. First step in a series of steps.
2. Second step in a series of steps.
 - ▶ Result of the above action.

- ✓ **Action completed, aim achieved.**

2 Safety

2.1 General warnings

The following warnings are intended to help you to eliminate the dangers that can arise while handling the device. Risk prevention measures always apply regardless of any specific action.

Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.

	DANGER!
Mortal danger from electric shock! Wrongly connected or located cables or damaged ones can injure you. ⇒ Connect the device only to a SCHUKO socket outlet protected by a ground fault circuit interrupter (GFCI). ⇒ Replace damaged cables without delay. ⇒ Do not use extension cables. ⇒ Do not bury cables. ⇒ Secure cables to avoid being damaged by other equipment.	

	CAUTION
Danger of crushing! The device is extremely heavy. The failure to take adequate safety precautions and to act with caution during transportation, installation and when positioning drums can lead to limbs being crushed. ⇒ Transport the device and the drums using a floor conveyor that is suitable for the load such as a pallet truck, forklift truck or crane. ⇒ Wear safety shoes while transporting the device.	

	CAUTION
Increased risk of accidents due to insufficient qualification of personnel! The device and the accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents. ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. ⇒ Prevent unauthorised persons from accessing the device.	

2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device.

The specific consequences can be:

- failure of important functions of the device and of the corresponding system,
- failure of required maintenance and repair methods,
- Danger to persons,
- danger to the environment caused by substances leaking from the system.

2.3 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules apply and must be followed:

- accident prevention regulations
- safety and operating provisions,
- safety provisions for handling dangerous substances (mostly the safety data sheets to dosing media),
- environmental protection provisions,
- applicable standards and legislation.

2.4 Personal protective equipment

Based on the degree of risk posed by the metered medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

As a minimum, the following protective equipment is recommended:



Protective mask



protective clothing



Protective gloves



safety shoes

Corresponding protective equipment must be used during these tasks:

- Start-up,
- All work on gas-bearing system parts,
- Replacing the supply tanks,
- Shutdown,
- Maintenance work,
- Disposal.

2.5 Personnel qualification

Any personnel who work on the device must have appropriate special knowledge and skills.

Anybody who works on the device must meet the conditions below:

- attendance at all the training courses offered by the owner,
- personal suitability for the respective activity,
- sufficient qualification for the respective activity,
- training in how to handle the device,
- knowledge of safety equipment and the way this equipment functions,
- knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity,
- knowledge of fundamental regulations regarding health and safety and accident prevention.

All persons must generally have the following minimum qualification:

- training as specialists to carry out work on the device unsupervised,
- sufficient training that they can work on the device under the supervision and guidance of a trained specialist.

This operating manual differentiates between these user groups:

2.5.1 Technical personnel

Technical personnel are able, thanks to their professional training, knowledge and experience as well as knowledge of the respective provisions, to do the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.5.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.5.3 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

Trained persons have attended all trainings offered by the operator.

2.5.4 Personnel tasks

In the table below, you can check what personnel qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Technical personnel	■ Assembly ■ Start up ■ Control ■ Taking out of operation ■ Fault rectification ■ Maintenance ■ Repairs ■ Disposal
Trained electricians	■ Electrical installation ■ Rectifying electrical faults ■ Electrical repairs
Trained persons	■ Storage ■ Transportation ■ Control ■ Fault rectification

Table 3: Personnel qualification

3 Intended Use

3.1 Notes on product warranty

Any non-designated use of the device can impair its function and the protection provided. This leads to invalidation of any warranty claims!

Please note that liability is on the side of the user in the following cases:

- the device is operated in a manner which is not consistent with this operating manual, particularly safety instructions, handling instructions and the section "Intended Use".
- Information on usage and environment (see section 5 "Technical data" on page 12) is not adhered to.
- if people operate the device who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the device.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.

3.2 Intended purpose

The drum scales is intended exclusively for determining the weight of horizontally positioned drums, e.g. chlorine drums.

3.3 Device revision

This operating manual applies to the following devices:

Device	Month / year of manufacture
Drum Scales single	07/2014 onwards
Drum Scales dual	07/2014 onwards

Table 4: Device revision

3.4 Principles

The device was checked by the manufacturer prior to delivery. The weighing unit and digital display must be calibrated by the operator after the drum scales have been installed. For information on the calibration procedure, refer to section 9.3 "Calibrating the device" on page 22.

3.5 Foreseeable misuse

Below, there is information about the applications of the dosing pump or associated equipment that are not considered to be intended use. This section is intended to allow you to detect possible misuse in advance and to avoid it.

Foreseeable misuse is assigned to the individual stages of the product lifetime:

3.5.1 Incorrect assembly

- Attaching the weighing frame or digital display to an unsuitable foundation
- Faulty alignment/levelling of the weighing frame
- Inadequately secured signal and current lines
- Inadequate attachment of the device components

3.5.2 Incorrect electrical installation

- Connecting the mains voltage without a protective earth
- Unsecured mains or one that does not conform to standards
- Not possible to immediately or easily disconnect the power supply
- Wrong connecting cables for mains voltage
- Protective earth removed

3.5.3 Incorrect start-up

- Start-up with damaged system
- Personnel was not informed before the start-up
- System was recommissioned after maintenance without all the protective equipment and fixtures, etc. being reconnected.
- Inadequate protective clothing or none at all
- Inadequate calibration or none at all
- Improper positioning of the drum on the weighing frame

3.5.4 Incorrect operation

- Protective equipment not functioning correctly or dismantled
- Unauthorised modification of the device
- Ignoring operational disturbances
- Elimination of operational disturbances by personnel without adequate qualifications
- Deposits on moving parts due to insufficient cleaning
- Bridging the external fuse
- Operation made more difficult due to inadequate lighting and/or poor access
- Operation not possible due to dirty or illegible display on the device
- Exceeding the maximum load capacity of the weighing cell

- Inadequate protective clothing or none at all

3.5.5 Incorrect maintenance

- Carrying out maintenance during ongoing operation
- Carrying out work that is not described in the operating manual
- No adequate or regular inspection of correct functioning
- No replacement of damaged parts or cables with inadequate insulation
- Inadequate cleaning of the system
- Detergents left in system parts
- Using the wrong spare parts
- Installing spare parts without following the instructions in the operating manual
- Pulling off system parts or cables
- Paint damage or corrosion not repaired or rectified
- Not paying attention to safety data sheets
- Inadequate protective clothing or none at all

3.5.6 Incorrect decommissioning

- Device not disconnected from the power supply
- Using the wrong dismantling tools
- Inadequate protective clothing or none at all

3.5.7 Incorrect disposal

- No proper disposal of device components and of replacement parts

4 Product description

4.1 Scope of delivery

Please compare the delivery note with the scope of delivery. The following items are part of the scope of delivery:

- Weighing frame consisting of frame and assembly feet,
- Digital display,
- Weighing unit on mounting plate with 10 m signal line,
- Installation material for the frame and the digital display,
- Operating manuals (drum scales, digital display)

4.2 Structure of the device

4.2.1 Drum scales for 1 drum

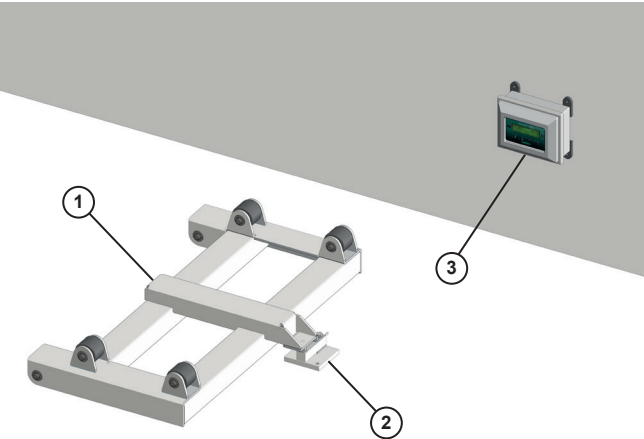


Fig. 1: Drum scales for 1 drum

Position	Description
①	Weighing frame for 1 drum
②	Weighing unit
③	Digital display

Table 5: Description of components

4.2.2 Drum scales for 2 drums

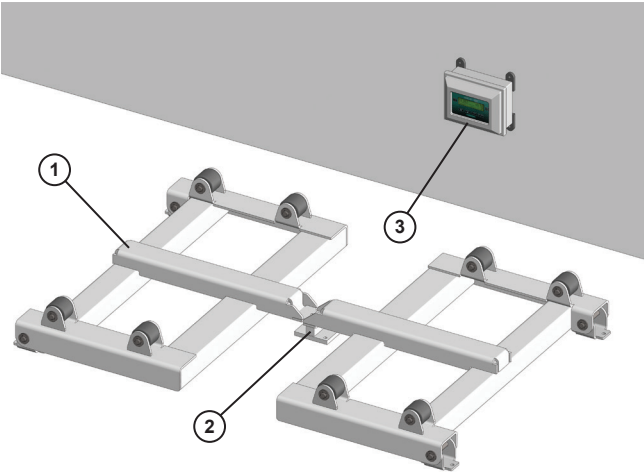


Fig. 2: Drum scales for 2 drums

Position	Description
①	Weighing frame for 2 x 1 drum
②	Weighing unit
③	Digital display

Table 6: Description of components

4.2.3 Function description

The drum scales is a device for determining the weight of horizontally positioned cylindrical drums. It consists of the weighing frame, weighing unit and digital display components. The weight is determined by a weighing unit and converted into an electric signal. The measured value is shown graphically and numerically on the digital display.

The digital display can issue an alarm signal if a minimum value is not met. A 4–20 mA analogue output also allows remote monitoring of the weight data.

4.2.4 Rating plate

The rating plate contains information on the safety and functional method of the product. The rating plate must be kept legible for the duration of the service life of the product.

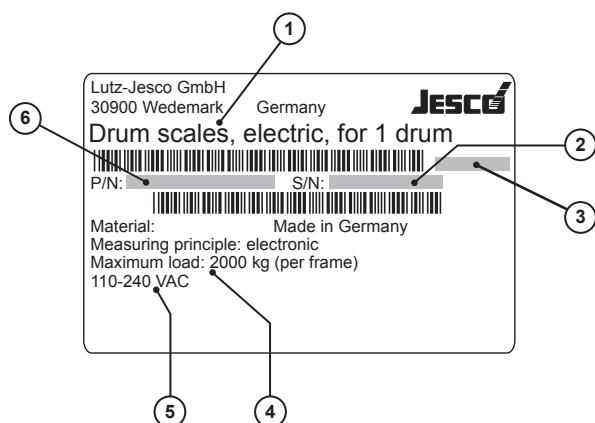


Fig. 3: Rating plate Drum Scales

No.	Description
①	Product name
②	Serial number
③	Month/year of manufacture
④	Maximum load
⑤	Voltage supply
⑥	Part number

Table 7: Rating plate

5 Technical data

Description	Value
Maximum gross load (drum)	max. 2000 kg
Drum dimensions	Ø750 – 860 mm, L = min. 1200 mm
Weighing range	0 – 2000 kg
Accuracy	0.1 – 0.25% of the final value
Display (unit)	kg
Operating voltage	110 – 240 V AC 50/60 Hz, 5W
Weighing unit	Installed on a mounting plate
Signal line	10 m
Limit switch	2 A at 30 VDC 0.5 A at 120 VAC
Output	4 – 20mA
Protection class	IP67
Ambient temperature	0 – 50°C
Dimensions	see page 13
Frame weight (1 drum/2 drums)	60 kg/120 kg
Weight digital display	approx. 7 kg

Table 8: Technical data

6 Dimensions

All dimensions in mm

6.1 Digital display

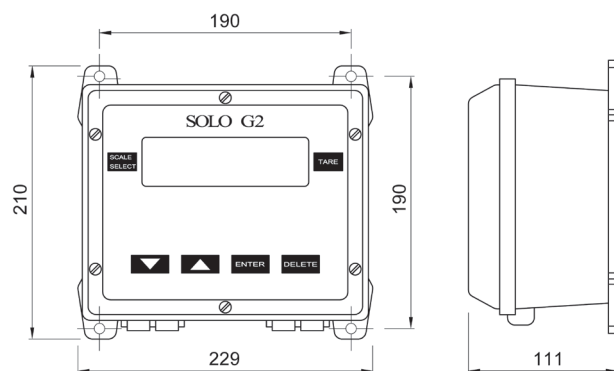


Fig. 4: Dimensions of the digital display

6.2 Drum scales for 1 drum

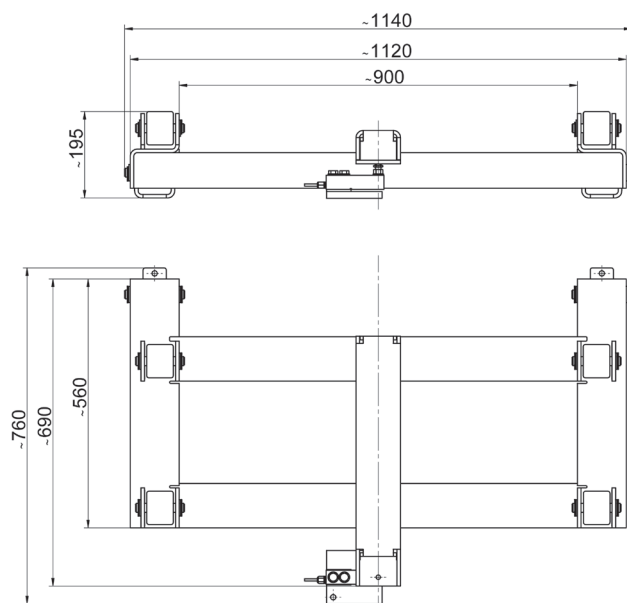


Fig. 5: Dimensions of the drum scales for 1 drum

6.3 Drum scales for 2 drums

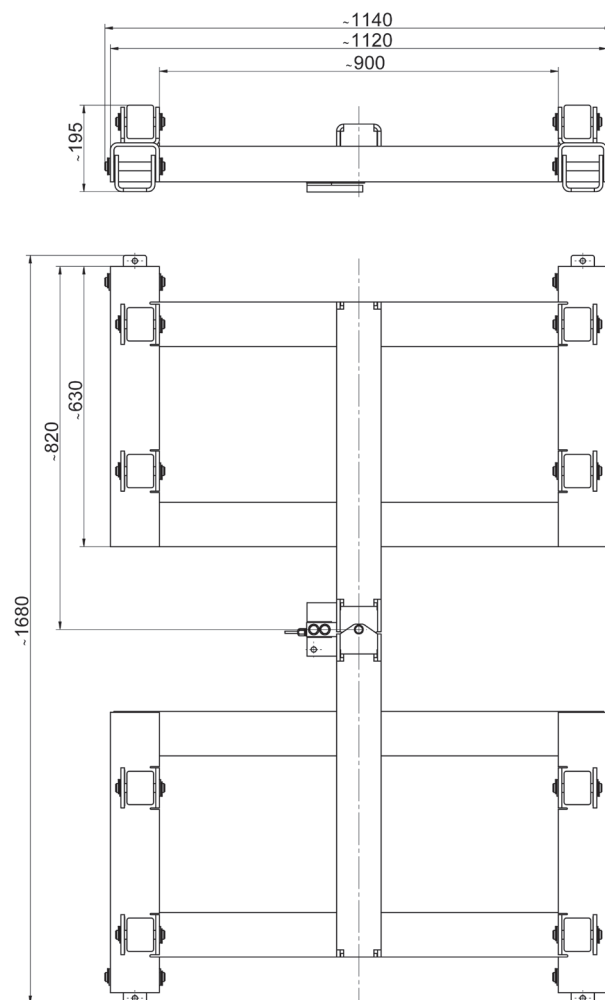


Fig. 6: Dimensions of the drum scales for 2 drums

7 Installation

	WARNING
Increased risk of accidents due to insufficient qualification of personnel! This device and its accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents. ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. ⇒ Prevent access to the system for unauthorised persons.	

	WARNING
Danger of personal injury and damage to property! The device is extremely heavy. The failure to take adequate safety precautions during transportation and to act with caution can lead to accidents involving personal injuries and damage to property. Limbs can be crushed when the device is set up. ⇒ Transport the device using a floor conveyor that is suitable for the load such as a pallet truck, forklift truck or crane. ⇒ Wear safety shoes while transporting the device.	

	CAUTION
Danger of personal injury and damage to property! A device that is difficult to access represents a danger due to incorrect operation and faulty maintenance. ⇒ Install the frame and the digital display so that they are accessible at all times.	

	Note
Damage to the system due to incorrect installation The failure to observe installation instructions (e.g. use of unsuitable tools, incorrect torque) can damage the system parts. ⇒ Use suitable tools. ⇒ Note the specified torque.	

7.1 Installation location

When installing, follow the basic principles below:

- Anchor the device to the floor on a concrete foundation of adequate load bearing capacity.
- The surface of the foundation must be level.
- The foundation should be located beneath a crane rail or should be freely accessible for a suitable fork-lift truck. Sufficient manoeuvring space must be provided to allow the drums to be positioned centrally on the weighing frame.
- The foundation must not be exposed to vibrations. The pump must be vibration-free and stable.
- The area around the system must provide sufficient space for lines and valves as well as for the signal line for the digital display.
- Ensure that the digital display is wall-mounted at eye level in a clearly visible location close to the device.
- Signal and energy supply lines must be protected against damage and, if necessary, routed in cable ducts.
- The ambient temperature must be complied with section 5 "Technical data" on page 12. If necessary, radiant heat from surrounding equipment must be screened.
- Avoid exposure to direct sunlight.

7.2 Installing the device

7.2.1 Installing the weighing frame

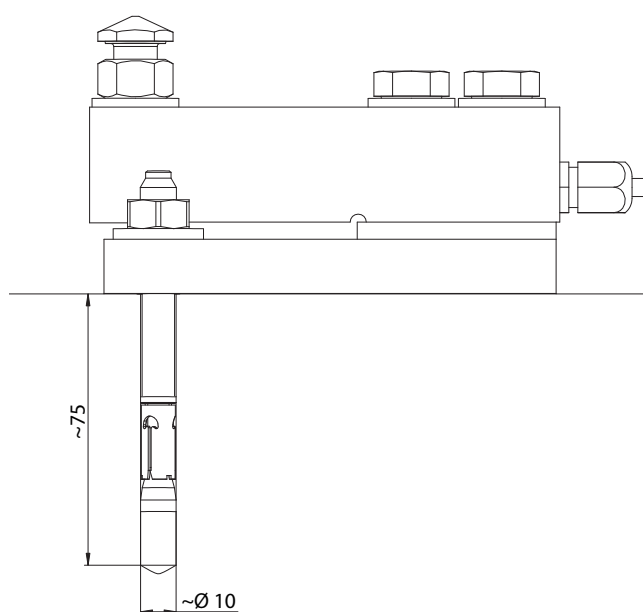


Fig. 7: Installing the weighing frame on the foundation

Precondition for action:

- ✓ The basic principles for selecting the installation location in accordance with Chapter 7.1 were taken into account.

The weighing frame is delivered pre-assembled. It must be installed complete with the weighing unit on the foundation and aligned using a water level.

The weighing frame and the mounting plate for the weighing unit must be attached to the drill holes provided using the supplied floor anchors. The tightening torque for the floor anchors is 1000 – 1500 Nm.

7.2.2 Installing the digital display

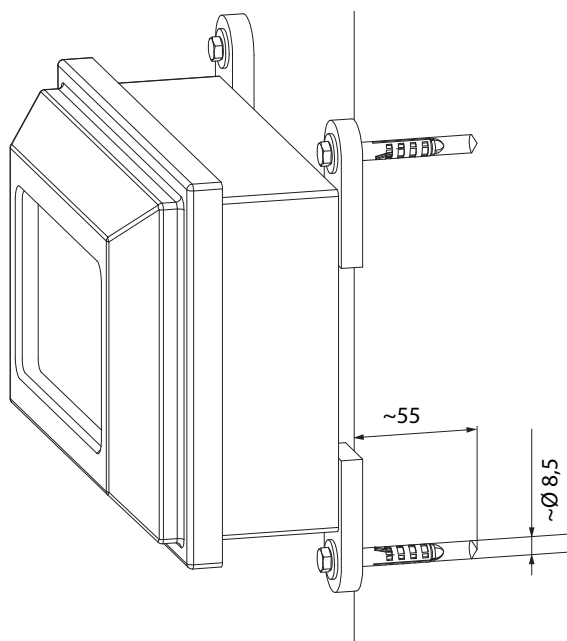


Fig. 8: Installing the digital display on the wall

The digital display should be installed using the supplied assembly kit in a clearly visible location and preferably at eye level, for example, on a wall. The tightening torque for the fastening bolts is 1.5 – 2 Nm.



Note

Measurement inaccuracy due to shortened signal cable

Shortening or lengthening the signal line will lead to inaccurate measurement results.

- ⇒ Perform calibration again if you have changed the length of the signal cable.
- ⇒ Only use genuine signal cables supplied by the manufacturer.

7.2.3 Aligning the weighing unit

7.2.3.1 Frame for 1 drum

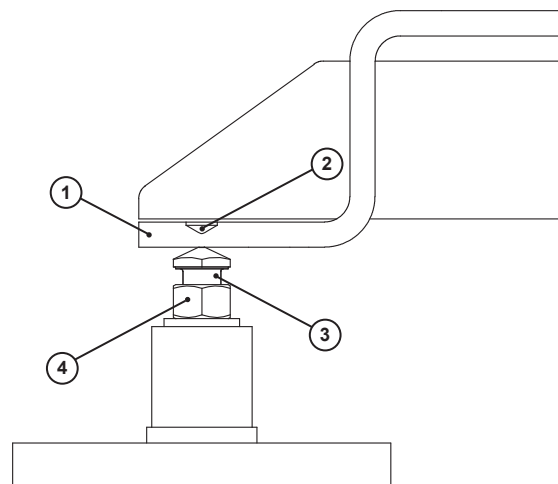


Fig. 9: Frame for 1 drum

Position	Description
①	Arm on base frame
②	Bore
③	Adjusting screw
④	Counter nut

Table 9: Frame for 1 drum

The arm ① on the base frame features a drill hole ②, which is aligned concentrically relative to the positioning and adjusting screw ③ on the weighing unit.

Ensure that the weighing unit is aligned parallel to the base frame so that the signal cable can be routed free of stress in the direction of the digital display.

Perform the following working steps:

1. Balance the base frame using the adjusting screw ③ and a water level.
2. Secure the adjusting screw with the counter nut ④.
3. Secure the base frame and the weighing unit to the foundation using the supplied floor anchors.

✓ **The weighing frame of the drum scales for 1 drum is installed.**

7.2.3.2 Frame for 2 drums

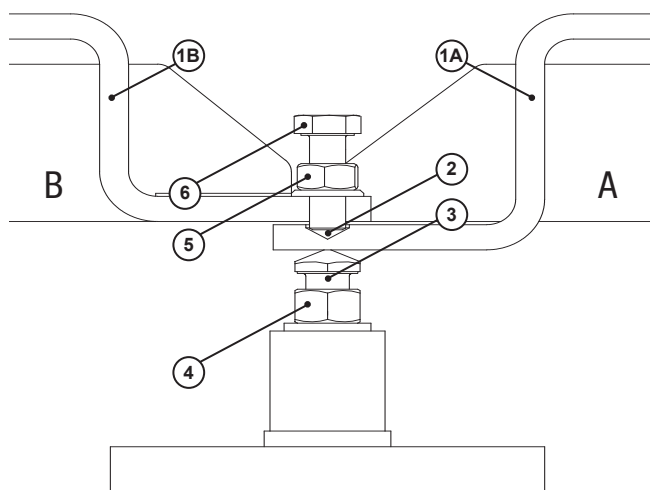


Fig. 10: Frame for 2 drums

Position	Description
①A	Arm on base frame A
①B	Arm on base frame B
②	Bore
③	Adjusting screw on the weighing unit
④	Conternut
⑤	Conternut
⑥	Adjusting screw on arm B

Table 10: Frame for 2 drums

The lower arm ①A of the base frame "A" features a drill hole ②, which is aligned concentrically relative to the positioning and adjusting screw ③ on the weighing unit.

Ensure that the weighing unit is aligned parallel to the base frame so that the signal cable can be routed free of stress in the direction of the digital display.

Perform the following working steps:

1. Balance the base frame "A" and the weighing unit using a water level and the adjusting screw ③.
2. Secure the base frame "A" with the conternut ④.
3. Centre the upper arm ①B of the base frame "B" using the adjusting screw ⑥ in the drill hole ② of the lower arm ①A of the base frame "A".
 - Ensure that the arms are in alignment and that the brackets on the base frame are parallel to one another.
4. Balance the base frame "B" using a water level and the adjusting screw ⑥ on the upper arm ①B.
5. Secure the base frame "B" using the conternut ⑤.

6. Secure the base frame and the weighing unit to the foundation using the supplied floor anchors.

✓ The weighing frame of the drum scales for 2 drums is installed.

7.3 Electrical installation



DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Before working on electrical equipment, disconnect the device from the power supply.
- ⇒ Secure the device to prevent it from being switched on again.



DANGER

Mortal danger from electric shock!

Non-existent or insufficient earthing of the device will lead to electric shocks with fatal injuries.

- ⇒ Earth the drum scales properly at the locations provided before making additional electrical connections and operating the device.
- ⇒ Check the earth on the device on a regular basis.



Note

Damage due to incorrect mains voltage

The digital display can be damaged if you connect it to the wrong mains voltage.

- ⇒ Observe the information on the mains supply that is given on the rating plate.
- ⇒ Do not connect any other consumers (e.g. relays) to the power supply. Voltage peaks can damage the electronics.
- ⇒ Only connect the digital display to power supplies fitted with a protective earth.
- ⇒ Connect the digital display to a power supply fitted with overload protection.



Note

Measurement inaccuracy due to shortened signal cable

Shortening or lengthening the signal line will lead to inaccurate measurement results.

- ⇒ Perform calibration again if you have changed the length of the signal cable.
- ⇒ Only use genuine signal cables supplied by the manufacturer.

7.3.1 Principles

- The digital display may only be connected to the power supply on completion of the assembly of all device components of the drum scales.
- The digital display is supplied without a power cord and must therefore be connected to an external control cabinet or a power supply fitted with a main switch. The digital display has a 110 – 240 V AC 50/60 Hz long-range power supply unit.
- The scales must be properly grounded.
- The signal cable for the digital display must not be routed parallel to high-voltage current lines or mains cables.
- Power supply and signal lines must be routed in separate channels.

7.3.2 Connecting the digital display

Precondition for action:

- ✓ The device is installed.

Perform the following working steps:

1. Remove the four screws on the front of the housing.
2. Open the housing downwards.
3. Feed the cables through the screw connections on the underside of the rear housing as shown below:

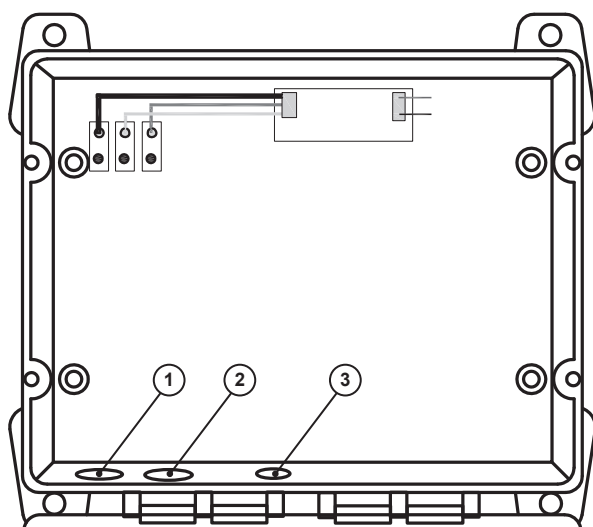


Fig. 11: Screw connections in the rear housing

No.	Threaded union	Connection
①	½"	Voltage supply
②	½"	4 – 20 mA output
③	¼"	Limit switch/alarm relay

Table 11: Screw connections in the rear housing

4. Connect the components in accordance with the wiring diagrams in section 7.4 "Connections for the 1-channel digital display" on page 17 or section 7.5 "Connections for the 2-channel digital display" on page 18.
5. Tighten the screw connections.

6. Close the housing. Take care that no cables become caught.
7. Tighten the four screws evenly. Only in this way can the IP protection class be guaranteed.

✓ The digital display is connected.

7.4 Connections for the 1-channel digital display

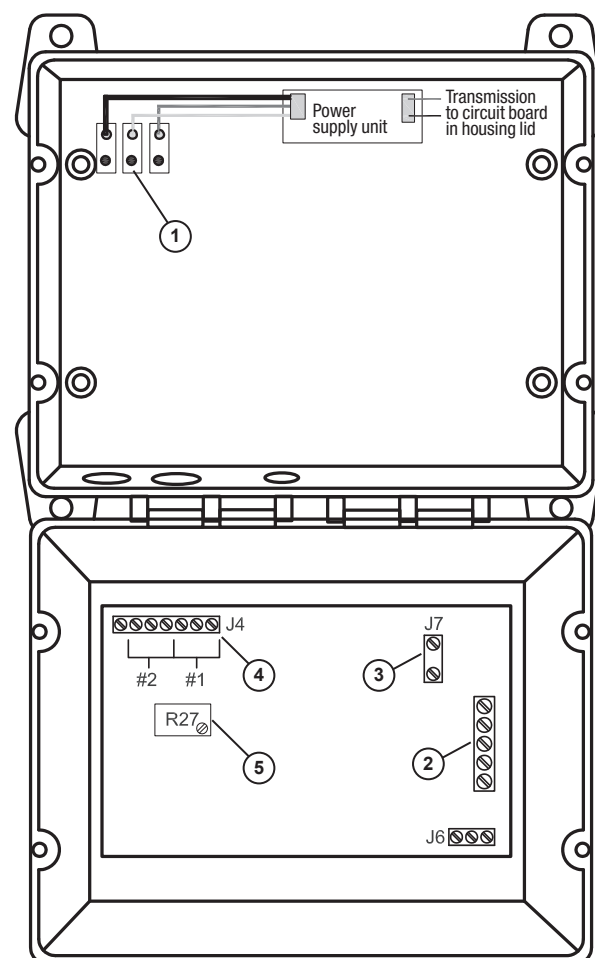


Fig. 12: Connections for the 1-channel digital display

No.	Description	Connection
①	Voltage supply	 L1 PE N
②	Weighing cell	 — Screen — Black/BK (-X) — White/WH (-S) — Green/GN (+S) — Red/RD (+X)

Table 12: Connections for the 1-channel digital display

No.	Description	Connection
③	4 – 20 mA output	J7 — Signal - — Signal + Do not use an external power supply! The 4 – 20 mA output is internally supplied. Working resistance: 900 ohms Do not route the signal line parallel to the mains line.
④	Limit switch/alarm relay 2 freely programmable limit switches, form C	not used NO #1 C #1 NC #1 NO #1 C #1 NC #1 J4 NC: Normally closed C: Com NO: Normally open
⑤	Setting the viewing angle	If it is not possible to install the digital display at eye level, you can use this function to set up the display. Turn the potentiometer to adjust the depth of field of the display.

Table 12: Connections for the 1-channel digital display

7.5 Connections for the 2-channel digital display

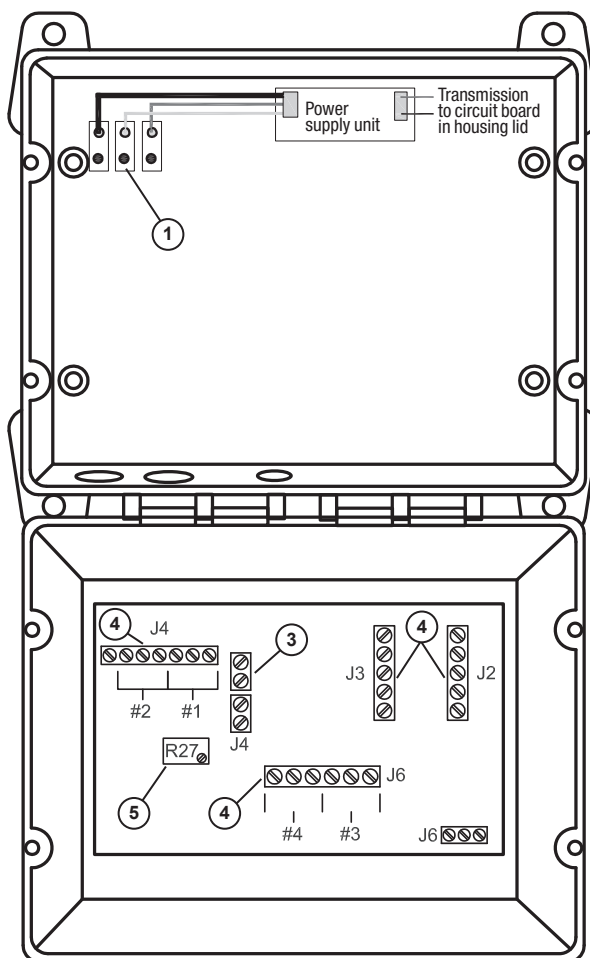


Fig. 13: Connections for the 2-channel digital display

No.	Description	Connection
①	Voltage supply	L1 PE N
②	Weighing cells	J3 J2 Red/RD (+X) — Green/GN (+S) — White/WH (-S) — Black/BK (-X) — Screen — Channel 1 Channel 2
③	4 – 20 mA outputs	J7 — Signal - — Signal + — Signal - — Signal + Do not use an external power supply! The 4 – 20 mA output is internally supplied. Working resistance: 900 ohms Do not route the signal line parallel to the mains line.

Table 13: Connections for the 1-channel digital display

No.	Description	Connection
④	Limit switch/ alarm relay 4 freely programma- ble limit switches, form C	Relay 1, 2: not used NO #1 C #1 NC #1 NO #1 C #1 NC #1 ①②③④⑤⑥ J4 Relay 3, 4: NO #4 C #4 NC #4 NO #3 C #3 NC #3 ①②③④⑤ J6 NC: Normally closed C: Com NO: Normally open
⑤	Setting the viewing angle	If it is not possible to install the digital display at eye level, you can use this function to set up the display. Turn the potentiometer to adjust the depth of field of the display.

Table 13: Connections for the 1-channel digital display

8 Control

8.1 Operator controls of the digital display

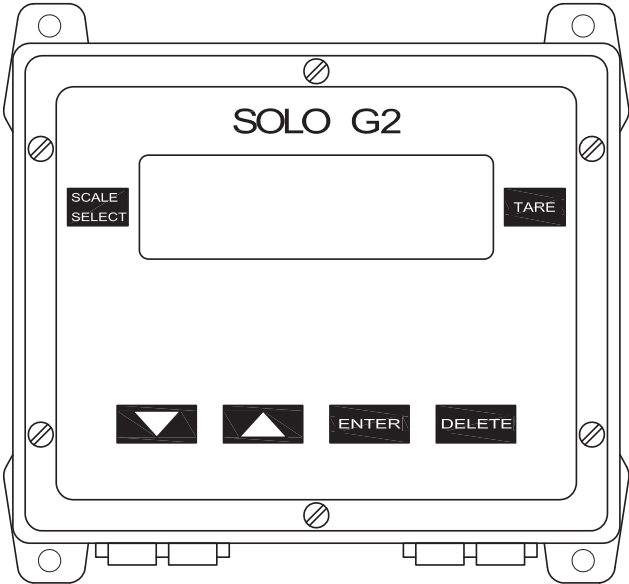


Fig. 14: Digital display

The drum scales are operated from the digital display. The display features a two-line display that displays all menus in clear text.

The keys for the digital display are assigned as follows:

Key	Function
	Press SCALE SELECT to switch between channel 1 and 2 (only for 2-channel digital displays and in the single display format).
	Press the arrow keys to: - Go to the user menu - Navigate in the menu - Change numerical values. Also press the corresponding other arrow key to increase the speed of the value change.
	Press ENTER to: - Confirm selections in the menu - Confirm changes - Go to the next window
	DELETE ends all operations without saving. The display switches directly back to the NET display mode.

Table 14: Key functions

Key	Function
	Press TARE to select the display mode: - TARE: Tare weight of the drum - NET: Net filling weight of the drum

Table 14: Key functions

	After 2 minutes have elapsed without any entries being made, the display switches back to the NET display mode.
--	---

9 Start-up



DANGER

Danger to life due to electric shock!

If there is an electrical accident, you must disconnect the digital display from the mains as quickly as possible.

⇒ Install an emergency stop switch or integrate the digital display into the system safety concept.



CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

The drum scales and its accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.

⇒ Prevent access to the system for unauthorised persons.



CAUTION

Danger of personal injury and damage to property!

The process of positioning and replacing drums can pose a danger to persons and machinery.

⇒ We recommend using load lifting gear (crane or forklift truck) to position the drum.

⇒ Adhere to the maximum lowering speed of 0.4 m/min.

Perform the following working steps:

1. Switch on the drum scales at the external main switch.
 - ▶ The display shows the approximate weight of the weighing frame.
 2. Place an additional weight onto the weighing frame to check whether the display reacts.
- ✓ **The device is ready for operation.**

9.1.2 Indications on the digital display

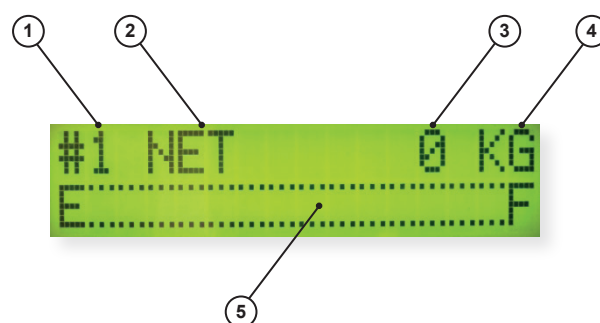


Fig. 15: Indications on the display

No.	Description
①	Channel number
②	Display mode
③	Numerical value
④	Unit
⑤	Bar graph/bar display

Table 15: Indications on the digital display

9.1 Starting up the device

9.1.1 Turning on the device

Pre-conditions for actions:

- ✓ The drum scales have been assembled and installed in accordance with section "Installation" on page 14.
- ✓ All the mechanical fastenings have been inspected to ensure adequate load-bearing capacity.
- ✓ All cables (signal lines and energy supply) are properly routed and have been checked for signs of damage.
- ✓ All metal parts of the drum scales and the digital display are sufficiently grounded.
- ✓ The documentation for the digital display is available.

9.2 Menu navigation

Use the arrow keys on the left below the display to change the settings.

No.	Name	Description
1	DISPLAY UNITS	Choose between displaying the weight (WT) or volume (VOL).
2	SET ZERO	Sets the display to 0.
3	DISPLAY FORMAT	Configuration of the display for multiple channels (multi-channel display required).

Table 16: Menu navigation on the digital display

No.	Name	Description
4	FILTER BAND	Configuration of the display speed for strongly fluctuating and rapidly changing weight/volume.
5	MOTION BAND	Specifies the weight above which the digital display reacts (e.g. for strong fluctuations, you can specify a specific weight to prevent the display from jumping up and down continuously).
6	CONFIG 4-20mA OUT/BARGRAPH	Configuration of the display range of the bar graph and of the 4-20 mA output.
7	ALARMS/ SETPOINTS	Configuration of the alarm and signal points for issuing the limit signals.
8	DIAGNOSTICS	Eliminating faults and for displaying the configuration values.
9	FIELD CAL	Calibration of the electronic system after installation and before initial start-up.

Table 16: Menu navigation on the digital display

For a detailed explanation of the procedure, refer to the manufacturer's documentation for the digital display.

9.3 Calibrating the device

Prior to the start-up, the device must be calibrated. For a detailed explanation of the procedure, refer to the manufacturer's documentation for the digital display.

Precondition for action:

- ✓ All preceding working steps are completed.
- ✓ The manufacturer's documentation for the digital display is available.
- ✓ A reference weight (drum or similar object of a known weight) is ready.



If the measuring electronics are not calibrated, they cannot display the precise contents or the remaining quantity of the medium and this will result in discrepancies and reading errors.

9.4 Drum replacement

Before the initial start-up of the device and every time a drum is changed, you must re-enter the TARE or NET weight. These are indicated on the drums.



CAUTION

Danger due to escaping gases!

Toxic gases may escape when the drums are changed.

- ⇒ Wear a respirator mask.
- ⇒ Check all connections for leaks.

Perform the following steps:

1. Ensure that all valves on the drum are closed and that all gas lines are disconnected.
2. Lift the empty drum and remove it.
3. Set down the new drum slowly and centred onto the support rollers on the scales.
 - ▶ Max. lowering speed 0.4 m/min.
4. Check the filling weight.
 - ▶ Depending on how the digital display is configured, either the contents or the total weight of the drum is displayed (TARE/NET).
5. If necessary, re-enter the TARE or NET weight.

10 Maintenance

The drum scales and the digital display are maintenance-free.

If they become heavily soiled, you can clean them using a damp cloth.

	DANGER
Danger to life due to electric shock! Live parts can inflict fatal injuries. ⇒ Before carrying out any cleaning work, always disconnect the digital display from the power supply. ⇒ Secure the digital display to prevent it from being turned on accidentally.	

	Note
Damage to the digital display and components The bearing, weighing cell and electrical parts can be damaged. ⇒ Do not use a pressure jet cleaner (high-pressure cleaner) to clean the drum scales and the digital display!	

11 Shutdown

11.1 Disassembly

Perform the following working steps:

1. Set the main switch to "Off".
2. Disconnect the digital display from the power supply.
3. Remove the digital display and the weighing unit.
4. Remove the components on the weighing frame.
5. Loosen the floor anchors.

✓ **The drum scales is disassembled.**

11.2 Disposal of old equipment

Precondition for action:

- ✓ The device has been disassembled in accordance with section 11.1 "Disassembly".
- The device must be disposed of in accordance with applicable local laws and regulations. It should not be included with domestic waste.
- As the disposal regulations may differ from country to country, please consult your suppliers if necessary.
- In Germany, the manufacturer must provide free-of-charge disposal, provided the device has been safely returned along with a declaration of no objection (see page 26).

12 Note regarding EC conformity/declaration of incorporation

12.1 Drum scales without CE marking

EC Directive 2009/23/EC on non-automatic weighing instruments only applies to scales that require calibration. The drum scales are not covered by this standard. This device must not carry a CE marking and an EC declaration of conformity must not be issued.

The drum scales is a device that uses the force of gravity acting on a body to determine the mass of the body. This parameter is used to display the content of the body numerically on a digital display. The weighing frame does not contain any moving parts that pose a danger to persons or machinery as defined by the Machinery Directive.

12.2 Digital display with CE marking

The digital display is subject to Directive 2004/108/EC (Electromagnetic Compatibility) and the Low Voltage Directive 2006/95/EC. For confirmation of these directives, refer to the declarations of conformity from the manufacturer's documentation.

13 Declaration of no objection

Please copy the declaration, stick it to the outside of the packaging and return it with the device.

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: Part-no.:

Order No.: Date of delivery:

Reason for repair:

.....

.....

Dosing medium

Description: Irritating: ☐ Yes ☐ No

Properties: Corrosive: ☐ Yes ☐ No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: Phone:

..... Fax:

..... Email:

Customer No.: Contact person:

Date, Signature:

14 Warranty Application

Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:

.....

.....

.....

.....

.....

.....

.....

.....

Service conditions of the device

Point of use / system designation:

.....

.....

Accessories used (suction line etc.):

.....

.....

.....

.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

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