



QLS 65

OPERATING INSTRUCTIONS



YOUR ONE-STOP-SHOP
FOR MACHINE-TOOL PERIPHERALS

IMPORTANT



READ CAREFULLY BEFORE USE
AND KEEP FOR FUTURE REFERENCE.

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1 GENERAL INFORMATION

1.1 ABOUT THIS MANUAL

OPERATING INSTRUCTIONS

This manual describes some maintenance and setting procedures for the machine.

- It is part of the machine.
- It applies to all models mentioned.

If you encounter errors or would like improvements to be made, please contact the LNS after-sales service.

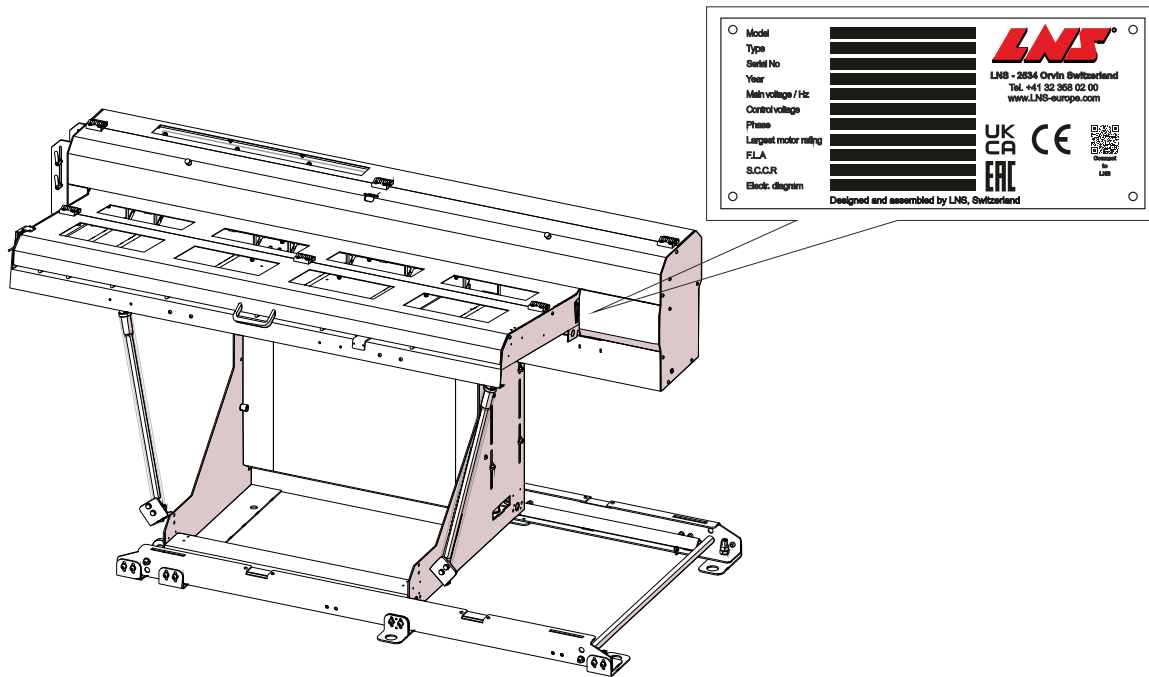
The illustrations in this manual are intended to help with basic understanding. They may differ from the actual design of your machine.

1.2 NAMEPLATE

It contains:

- Business name and full address of the manufacturer
- Conformity Marking: CE, UKCA, EAC
- QR Code: scanning it will take you to a registration page of LNS (my LNS portal)
- Country of origin

Location of the nameplate:



Designation	Description
Model	Model Number
Type	Machinery system type
Serial No	Serial number
Year	Year of manufacture: YYYY
Main Voltage / Hz	Incoming mains voltage
Control voltage	Controlled operational voltage, if any
Phase	1/3: SINGLE-PHASE SYSTEM/3-PHASE SYSTEM
Largest motor	Full load amperage also known as RATED AMPS
S.C.C.R.	Short Circuit Current Rating
Electr. diagram	Designation of electrical diagram

1.3 SYMBOLS AND WARNING LABELS

Warning labels and consequences in the event they are ignored.

DANGER



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Warning of immediate danger which, if ignored, will lead to death or severe physical injury.

WARNING



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Warning of potential danger which, if ignored, may lead to death or severe physical injury.

CAUTION



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Warning of a potentially dangerous situation which, if ignored, could lead to minor physical injury.

NOTICE



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Warning of a potentially dangerous situation which, if ignored, could lead to property damage.

INFO



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Information, comment

IMPORTANT



Type and source of danger!
Consequences of ignoring the warning.
 ⇒ What to do to avoid the danger.

Warning of danger which, if ignored, could lead to: environmental damage.

1.4 TERMS AND STANDARD SYMBOLS

The terms and standard symbols used in this manual are the following:



General information



Electrocution



Crushing



Environmental damage



Property damage



Information, notes



Refer to chapter...

1), 2)

Instructions for individual actions in several steps

(1), (2)

Drawing legend

Callouts:



to identify the product/component



to show movement/indicate the position

The drawings of the plates illustrated make no distinction between the different models.

They are applicable to all models covered in this manual.

The following terms are used in this operating manual to indicate the position of an object in space (positioning).

The terms "left", "right", "front" and "rear" always refer to the position viewed in the direction of movement.

1.5 OTHER APPLICABLE DOCUMENTS

The machine contains integrated components from other manufacturers.

For these purchased parts, the respective manufacturers have carried out a risk assessment and declared their parts to be in conformity with applicable European standards.

The correct use of these integrated components is described in the manuals from their respective manufacturers.

The machine complies with the European standards indicated in the declaration of conformity or incorporation.

1.6 DAMAGE DURING TRANSPORT

LNS is not liable for any damage during transport.

In case of damage, contact the last carrier.

1.7 TARGET AUDIENCES

These instructions contain information for different audiences.

USER

Users are authorized to:

- Clean the machine
- Carry out certain maintenance tasks

QUALIFIED PERSONNEL

Qualified personnel (also called authorized technicians) have the same access and permissions as users, but in addition they are authorized to:

- install the machine
- do maintenance work and repairs
- do work on electrical equipment
- make sure that every person using the machine has first read and understood this manual

1.8 COPYRIGHT

Reproduction, recording or transmission of this document, in whole or in part, in any form or by any means whatsoever, whether mechanical, photographic, audio or other, is prohibited without the express written authorization of LNS.

The names of the products indicated in this document are registered trademarks.

2 SAFETY INFORMATION

2.1 INTENDED USE

The QLS 65 is:

- An industrial machine to be operated in an industrial environment, indoors.
- An automatic bar feeder for short bar stocks designed for fixed headstock lathes.
- Managed from its remote control which allows the first settings and registration of different bar programs. These programs are launchable from the automatic mode.

Any other use of the bar feeder is considered as unintended.

LNS accepts no liability for any damage resulting from unintended use.

Obey the instructions given in the present manual to correctly use the bar feeder.

2.2 LIMITATION OF LIABILITY

All information in this manual have been compiled in accordance with the latest technology and the applicable standards and regulations.

LNS is not liable for any damage resulting from:

- Damage during transport
- Non-compliance with this manual
- Unauthorized modifications to the machine
- Unintended use
- Use of unapproved spare parts
- Use of unqualified personnel

2.3 PERSONNEL

WARNING



Not sufficient qualifications of the personnel!
Possible injury to personnel and/or material damage.
The owner is responsible for ensuring the qualifications of the personnel.
⇒ Only approved personnel can work with the machine.

- Non-qualified personnel, children, and persons under the influence of alcohol or medication should not handle the machine.
- The personnel must fully know the safety instructions and this manual. Obey the safety instructions for this machine, as well as for the machine tool.
- Wearing loose clothing, long hair or jewelry may be dangerous.

2.4 RESPONSIBILITIES

NOTICE



Improper use of the machine!
Injuries to persons or material damages!
⇒ Obey the instructions in the manual.

LNS is not liable for any injuries to persons or material damages caused by improper use of the machine and failing to obey the instructions.

2.5 PERSONAL PROTECTIVE EQUIPMENT

Put on your personal protective equipment (work gloves, protective goggles) to minimize the risk of harm to your health.

CAUTION



Ignoring your industrial context may cause injury!

- ⇒ Put on protective shoes:
 - to protect against heavy falling objects
 - to protect against slipping on slippery surfaces
- ⇒ Put on work gloves: to protect against chemicals and sharp materials.
- ⇒ Put on protective clothing: to protect against contamination.

NOTICE



LNS is not liable for any accidents or material damage caused by non-compliance with the documentation and safety instructions.

2.6 BASIC SAFETY REGULATIONS

MAINTENANCE OBLIGATION

Obey the manufacturer's instructions regarding the maintenance of the bar feeder.

MODIFICATIONS

- Modifications of the bar feeder related to additions and alterations are prohibited.
- For the use and maintenance of the bar feeder, only use parts provided by or recommended by LNS.
- It is strictly prohibited to jump wire or remove circuit breakers, master switches, and especially safety switches.

SAFETY DEVICES

- Check the safety devices and the safety guards before every operation.
- Do not remove any safety covers while the machine or the lathe are under electrical power.
- If certain safety shields or safety covers are removed to conduct maintenance, they must be reinstalled as soon as the maintenance work is completed.
- If it is necessary to move the machine after it has been commissioned, LNS or its local representative must be contacted before any attempt to restart it.

EMERGENCY STOP BUTTON

- The emergency stop button is located on the remote control of the bar feeder. In a dangerous situation, the emergency stop button enables a safe shutdown of the bar feeder's operation.

2.7 SAFETY REQUIREMENTS

NOTICE



⇒ The manufacturer accepts no responsibility for damage caused by failure to obey the instructions.

-
- Do not handle the equipment without knowledge of the safety instructions and the instructions for use. Obey the safety instructions for the machine and the connected machine tools.
 - Do not remove any protective guards while power to the equipment or the machine is turned on.
 - Never place your hands in the machine in operation.
 - If certain safety shields or safety covers are removed to do the maintenance, they must be reinstalled as soon as the maintenance is completed.
 - Do not work on the interface or in the electrical cabinet if the machine or connected machine tool is energized.
 - Do not jump wire or remove circuit breakers, master switches, and safety switches.
 - To guarantee the safety, performance, and warranty of your machine, use only original or manufacturer-approved spare parts for both operation and maintenance.
 - For lifting and transport, only use the indicated points to avoid injury and material damage.

OWNER'S OBLIGATIONS

To comply with:

- Accident prevention laws
- National safety instructions
- Legal regulations concerning occupational safety and environmental protection

2.8 SPECIFIC RISKS

If the machine is operated by unqualified personnel or operated incorrectly, specific risks can arise.

ELECTRICAL HAZARDS

DANGER



Electrical hazards!

Risk of electric shock!

- ⇒ Do not operate machine without a proper electrical ground/earth.
- ⇒ Always disconnect power to the machine before performing any service or maintenance. Work, including maintenance of motor and fan replacements, and on the electrical system, must only be performed by qualified personnel.
- ⇒ Do not operate the machine if its power cables are damaged or if any other damage to the machine is visible or suspected.
- ⇒ The supplied utility/mains power must match the power requirements listed on the machine's rating label.
- ⇒ In the case of a fault that may be electrical in origin, contact LNS or its local representative.

DANGER



Electrical hazards!

Risk of death from electric shock!

- ⇒ Do not carry out any servicing on the interface or inside the electrical cabinet while the machine tool is energized.
- ⇒ Do not place the machine in a damp area and make sure that water or oil does not come into contact with the electrical equipment.
- ⇒ Do not move the bar feeder while it is electrically powered on.
- ⇒ Do not attempt to recharge the batteries of the PLC.

MECHANICAL HAZARDS

WARNING



Moving parts

Crushing and cutting hazard from moving components!

- ⇒ Do not grasp moving parts or rotating object, or nearby elements.
- ⇒ Do not reach into the machine while it is in operation.
- ⇒ Before removing the covers, disconnect the electric supply.
- ⇒ Tie back long hair and do not wear loose garments or jewelry while operating.
- ⇒ Do not operate the machine without any cover after maintenance work.

RISK OF TRIPPING AND FALLING**WARNING****Tripping and falling danger!****Injury or damage from lack of safety measures**

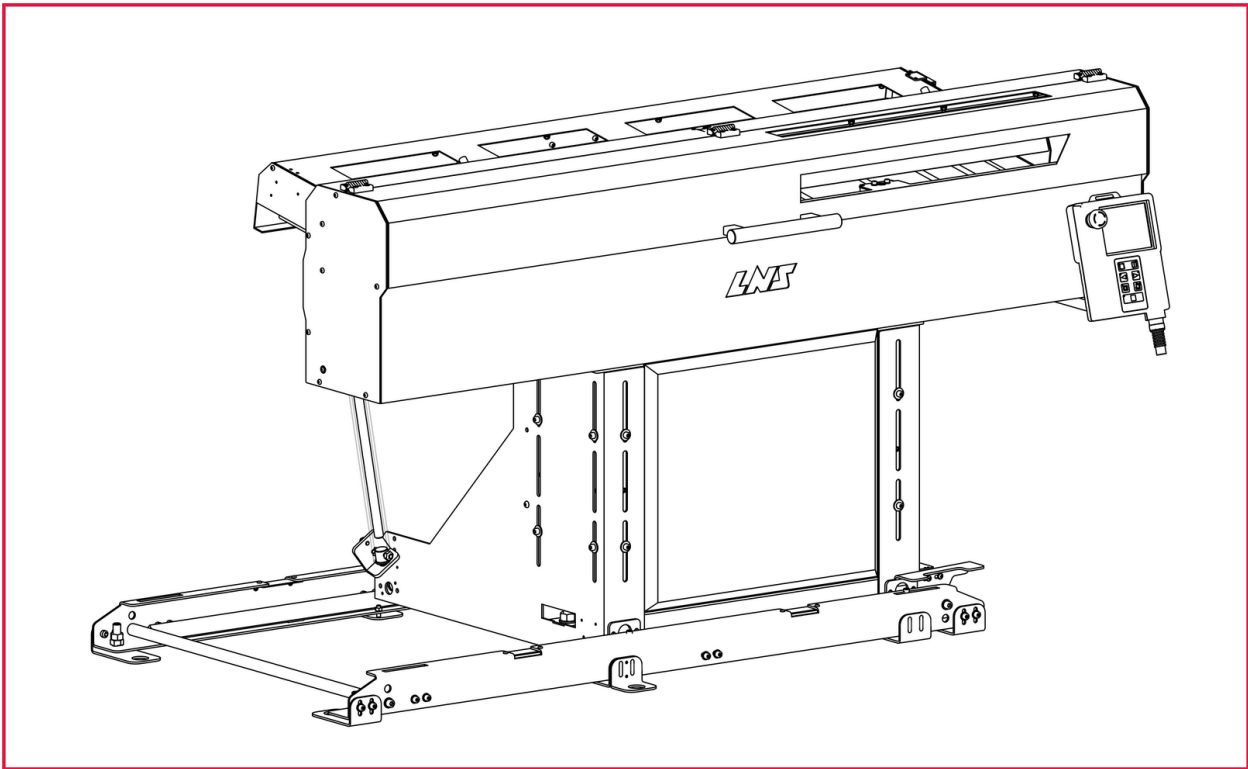
- ⇒ Keep the work area surrounding the bar feeder clear of objects and well lit.
- ⇒ Keep the floor clean on a regular basis, the presence of oil on the ground could cause falls.
- ⇒ Use correct access. (e.g., a ladder).

RISK OF DAMAGE**NOTICE****Risk of damage to the lathe of the bar feeder!**

Respect the limitations given for the bar stock length and diameter.

2.9 DANGER ZONES

The entire area surrounding the machine is considered a danger zone.



During operation, adhere to the following:

- Do not reach into the machine when machine components are moving.
- Only qualified personnel can operate the machine.

2.10 SAFETY DEVICES

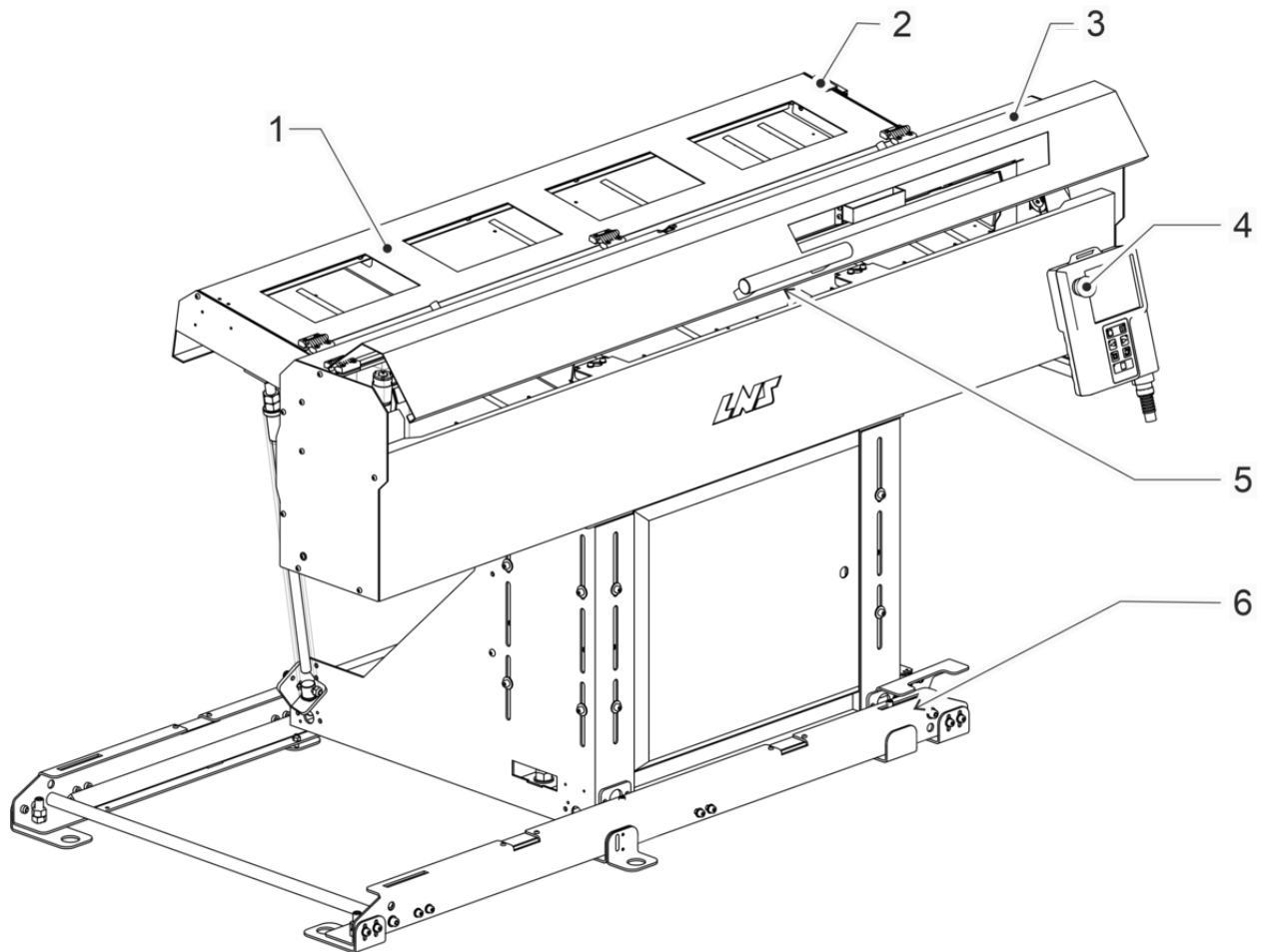
The bar feeder has been designed with a focus on maximum safety during its handling and complies with EC requirements.

Safety covers and devices make access to the moving parts of the bar feeder impossible.

Keep the machine from operating when these protections are open.

Safety covers/components and safety electric components must remain functional.

LNS, or its local representative, may not be held responsible for accidents or property damage, if safety devices have been removed or disabled. The design of switches, and their integration on the bar feeder, makes their exclusion almost impossible.



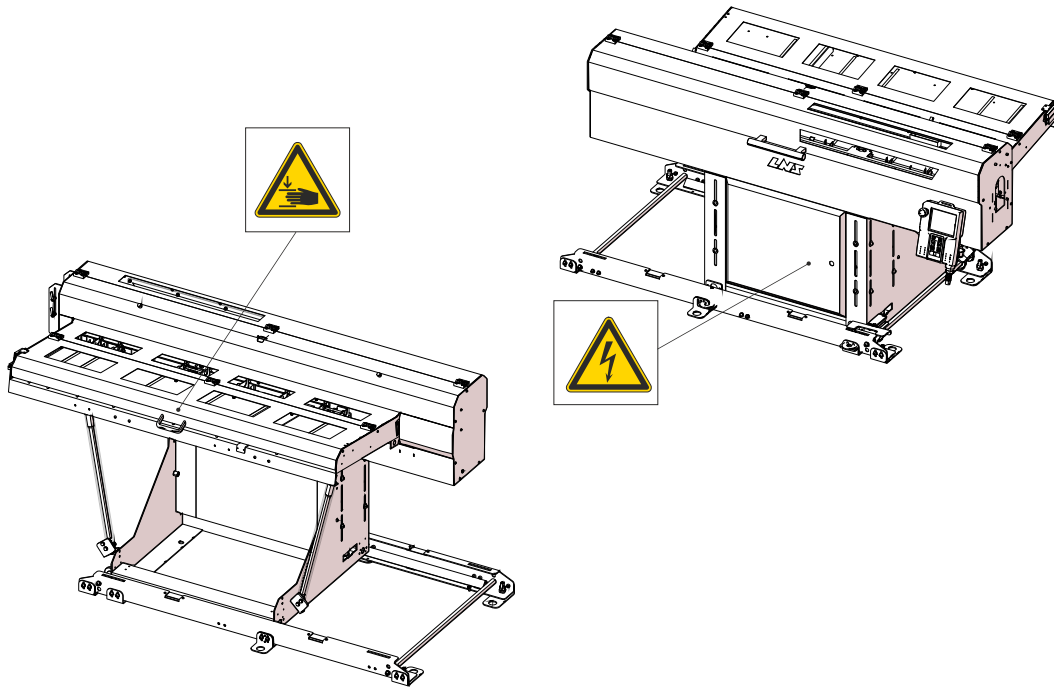
Position	Designation
1	Bar magazine protective cover
2	Safety switch of the bar magazine protective cover
3	Main access cover
4	Emergency stop button
5	Safety switch on the main access cover
6	Safety switches on the retraction device

2.11 SAFETY SIGNS

Safety signs mark hazard points on the machine.

The safety signs must always be kept clean and must not be covered.

If a safety sign is missing or damaged, replace it immediately.



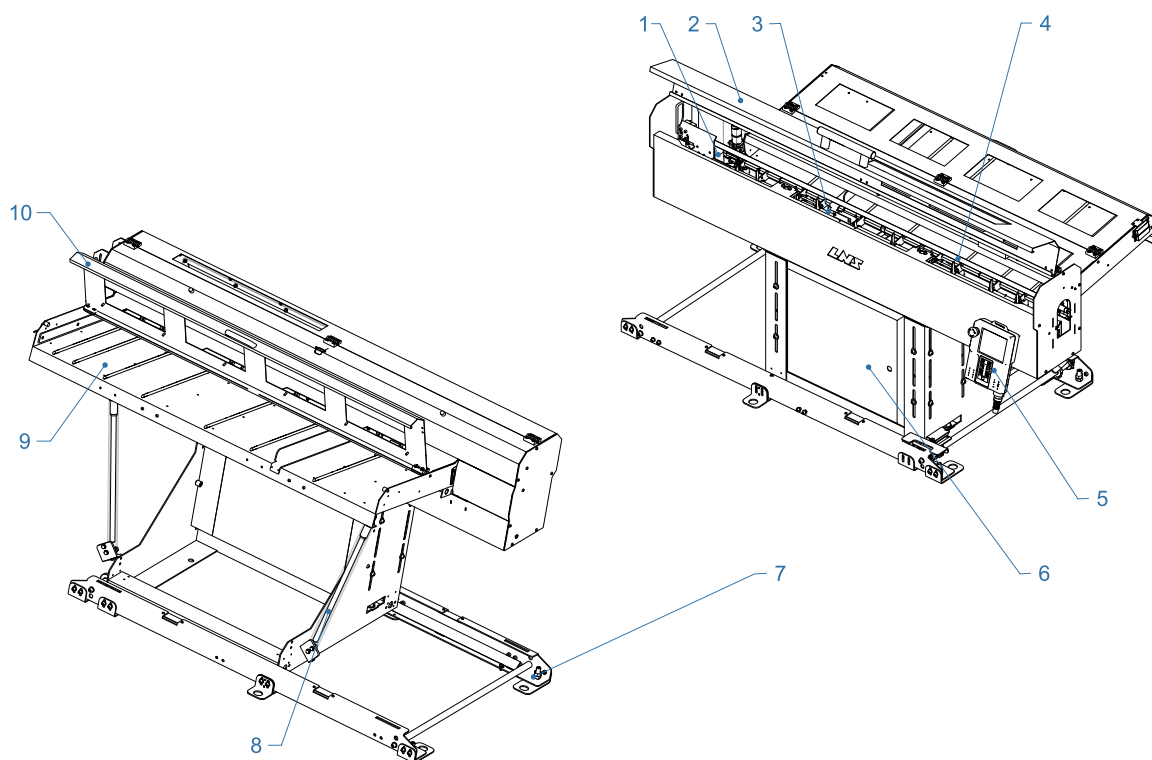
2.12 SAFETY ANALYSIS FOR CORRECT INTEGRATION

Before installing the machine, consider the following points:

- Consider safety strategies that reduce risks to an acceptable level
- Define the tasks required for the applications in order to evaluate access requirements and/or the approach.
- Identify sources of hazards, including breakdowns and failure modes associated with each task.
Risks can come from:
 - the machine with which the equipment is integrated
 - its association with other equipment
- Evaluate and assess the risks associated with using the machine:
 - programming risks
 - operation risks
 - risks of use
 - maintenance risks
- Choose the protection methods:
 - using safety devices
 - introducing signals
 - compliance with safe work procedure

3 MACHINE DESCRIPTION

3.1 OVERVIEW



Position	Designation
1	Servomotor
2	Main access cover
3	V-channel
4	Pusher
5	Remote control
6	Electrical cabinet
7	Retraction system
8	Bar magazine base supports
9	Bar magazine
10	Bar magazine protective cover

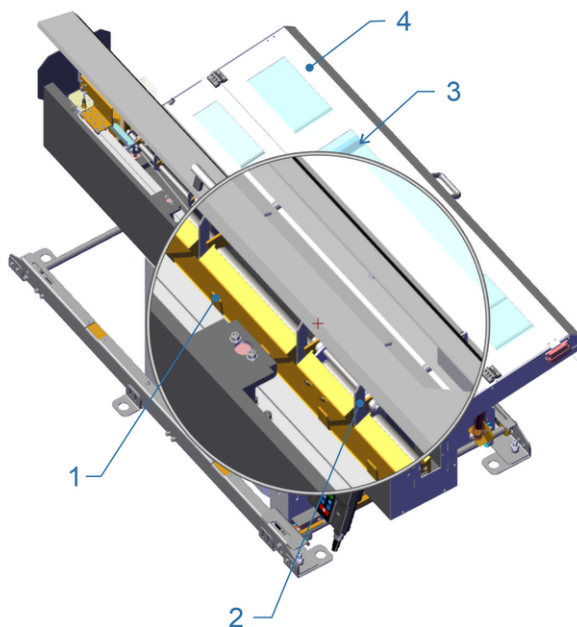
3.2 LOADING SYSTEM

WARNING



Crushing hazard from moving components!
Please read the safety information provided at the beginning of this manual before handling the following devices.

LOADING SYSTEM

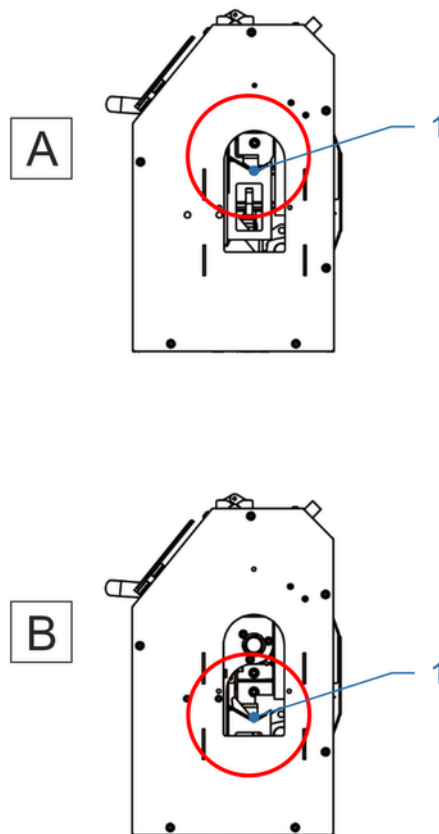


Position	Designation
1	Stop finger
2	Introducer (loading finger)
3	Rear limiter
4	Bar magazine protective cover

The loading system consists of a bar magazine, the stop finger, the introducer (also called loading finger), and the rear limiter. To ensure proper loading, always make sure to align the rear end of the bars with the rear limiter. This system both stores and loads the bars into the guide channel.

In order to load the bars smoothly, the loading system must be properly set up according to the profiles and dimensions of the bars.

3.3 GUIDING SYSTEM



Position	Description
A	V-channel in the raised position: part loading with the introducer.
B	V-channel in the lowered position: part loading and part feeding with the pusher.

The guiding system consists of a V-channel (1) which supports the bar during part loading.

The channel has 2 operating positions:

- Raised position (A): the barstock falls into the V-channel.
Then, the introducer moves towards the spindle.
Once the introducer comes back to its home position, the V-channel lowers its position.
- Lowered position (B): the pusher takes over for the bar stock feeding into the lathe.
In order for the guiding system to function properly, the upper guiding channel height must be adjusted in accordance to the bar diameter.

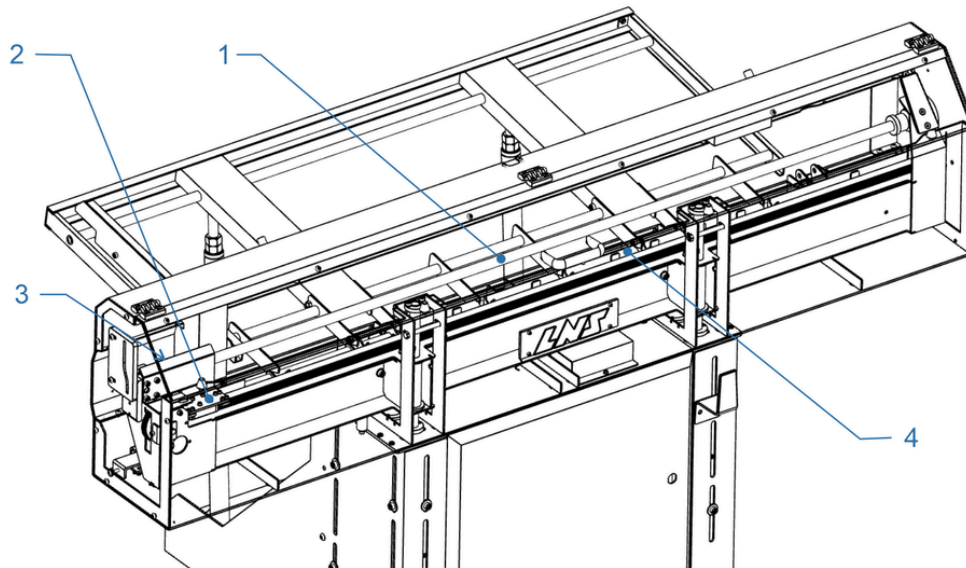
3.4 FEEDING SYSTEM

NOTICE



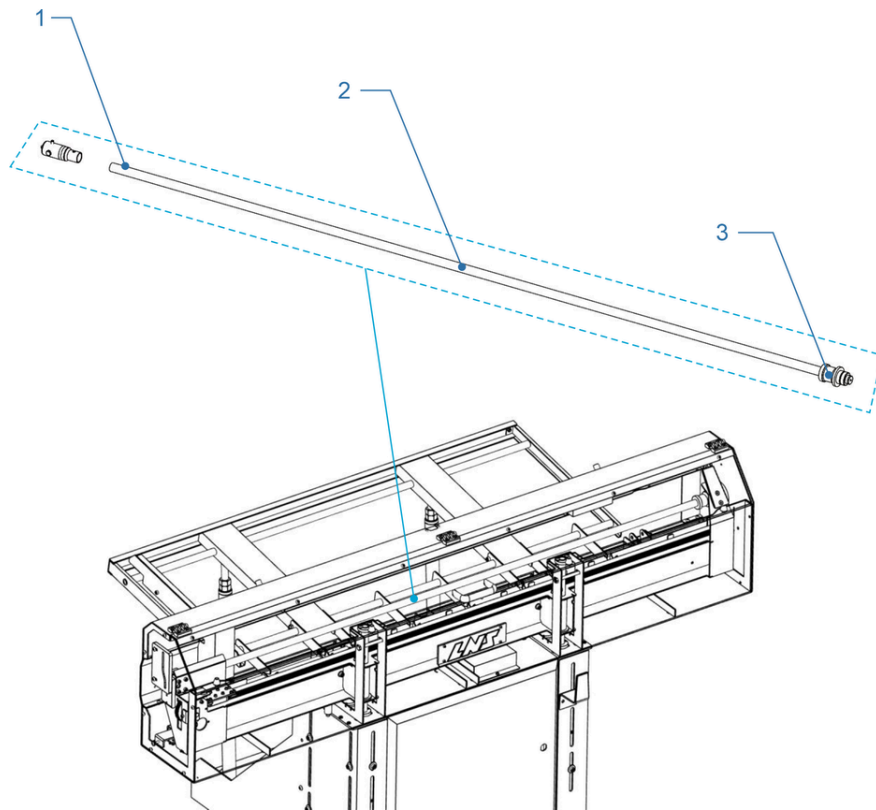
For loading tubes, profiled bars or short bars, optional elements can be installed.

Contact LNS or its local representative.



Position	Designation
1	Pusher
2	Slide
3	Introducer
4	V-channel

Through the toothed belt, the servo motor moves the slide (2) to which the introducer (3) is attached. The introducer (3) feeds the bar stock while it is inside the bar feeder on the V-channel (4). Then it pushes the back of the bar stock towards the lathe.

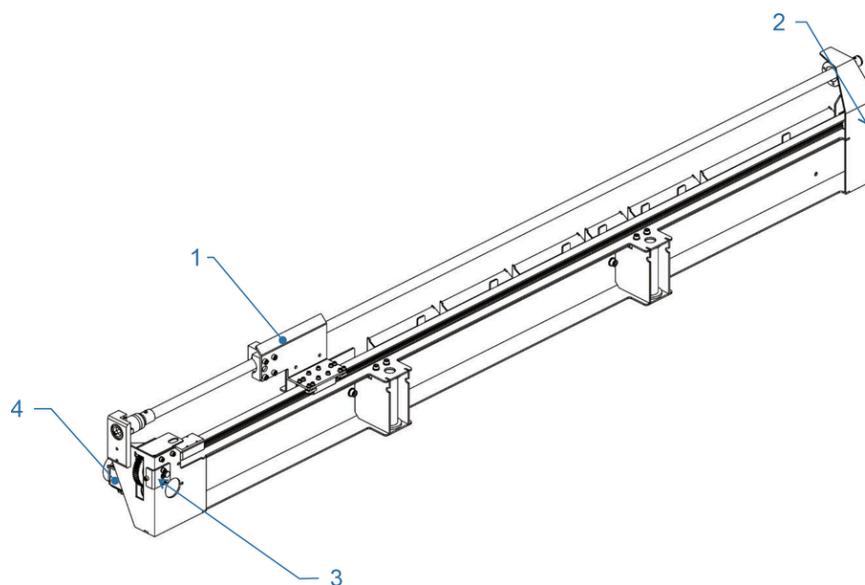
PUSHER

Position	Designation
1	Quick release locking pin
2	Pusher
3	Nose
4	Guide to bushing

The pusher unit consists of the pusher (2), quick release locking pin (1), and guide bushing (3). The introducer feeds the bar while it is inside the bar feeder on the V-channel. Once the bar leaves the bar feeder, the pusher (2) takes over the feeding process, as well as top cut positioning and remnant extraction processes.

3 different pusher diameters are available relative to the bar diameter:

Pusher diameter	Bar stock diameter
6 mm	5 mm - 15 mm
12 mm	15 mm - 25 mm
20 mm	≥ 25 mm

DRIVE UNIT

Position	Designation
1	Pusher carrier
2	Pulley adjustment set
3	Pulley mounting set
4	Servomotor

The drive unit consists of the servomotor (4), pulley adjustment set (2) and pulley mounting set (3). The pusher carrier (1) is driven by the servomotor (4).

If there is no mechanical connection between the pusher and the bar stock, a certain distance is kept between the pusher and the rotating bar stock.

The drive usually pushes :

- Forward when the lathe chuck is open and
- Backward again when the lathe chuck is closed.

Advanced drive servo technology guarantees accurate bar control and prevents them from hitting the turret.

Two working modes of positioning are possible:

- Without a bar stop on the turret: bar positioning is controlled by the bar feeder.
- With a bar stop on the turret: bar positioning is determined by the lathe. The bar is pushed against the turret stop.

INFO**REMNANT EJECTION**

The bar feeder calculates the remaining length of the bar being machined and starts the reloading cycle accordingly. The remnant length always depends on the part length and the clamping length of the machined bar.

If the remaining material length is shorter than the part length and the clamping length, the pusher pushes the remnant out. The remnant is ejected into the part catcher of the lathe.

NOTICE

In operation, the tension of the toothed belt must always be correct.

- If the toothed belt and the wheels are misaligned, the drive will lose its reference points. In this case, the drive's original reference points must be reloaded.
- If the toothed belt needs to be tensioned or replaced, contact LNS or its local representative.

Depending on the use of the machine, the toothed belt may need to be tensioned or replaced after a certain time.

3.5 RETRACTION SYSTEM

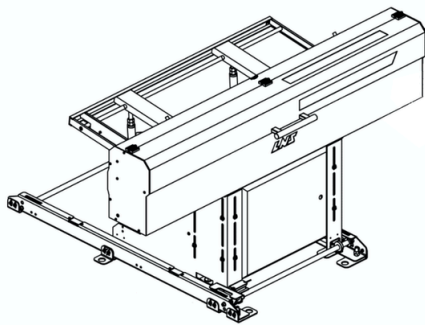
The retraction system allows the bar feeder to be moved back and forth (longitudinally) or side to side (laterally) in order to facilitate certain tasks or access to certain parts.

Once the locking levers are released, the bar feeder slides on two tracks that keep it aligned when it is in operational position.

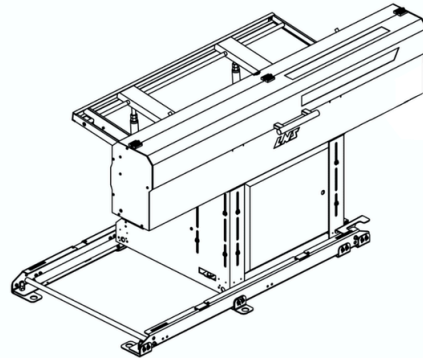
A safety switch impedes any handling of the retraction system as long as the bar feeder is not in operational position.

The retraction system must be mounted to the bar feeder at installation. For assembly instructions, →RETRACTION SYSTEM ASSEMBLY

A



B



Designation	Description
A	Retraction system for longitudinal (X-axis) retraction.
B	Retraction system for lateral (Z-axis) retraction.

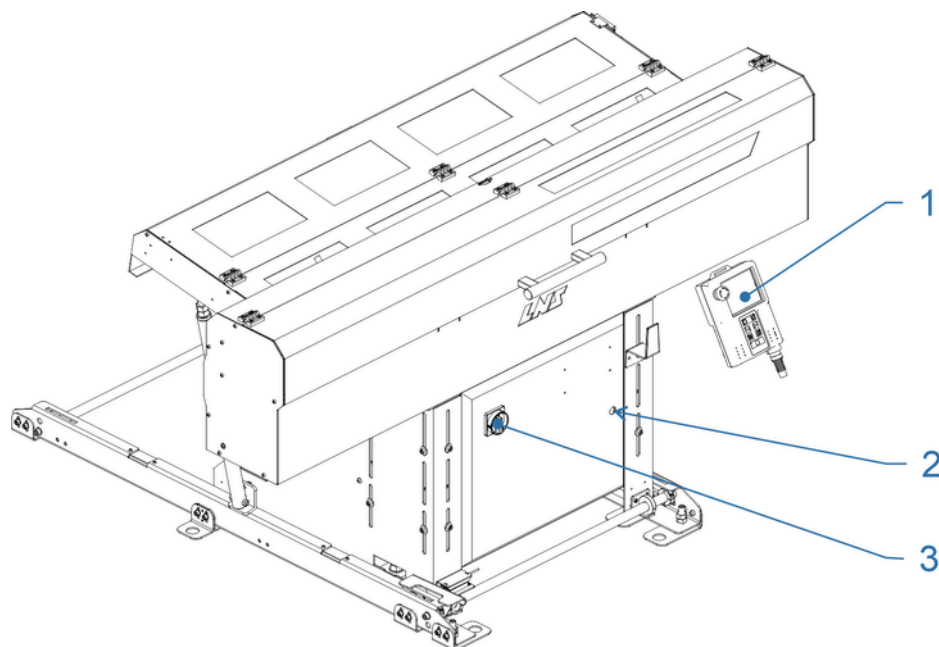
3.6 ELECTRICAL EQUIPMENT

DANGER



Danger of death by electrocution!

- ⇒ Work on the electrical system must only be performed by a qualified electrician.
- ⇒ In the case of a fault that may be electrical in origin, contact LNS or its local representative.



Position	Designation
1	Remote control
2	Electrical cabinet
3	Main switch

4 TECHNICAL DATA

4.1 SPECIFICATIONS

Depending on the country and current standards, some technical data such as mains voltage may vary. Please refer to the data sheet attached to the machine.

Designation	Unit	QLS 65
Weight	(kg)	245
Min. bar Ø	(mm)	5
Max. bar Ø	(mm)	65
Min. bar length	(mm)	300
Max. bar length	(mm)	1,500
Bar magazine max. load capacity	(kg)	-
Max. longitudinal retraction (Z)	(mm)	-
Max. lateral retraction (X)	(mm)	-
Min. remnant length	(mm)	-
Max. remnant length	(mm)	-
Mains voltage	(V)	220
Mains frequency	(Hz)	50/60
Max pushing force	(N)	-
Noise emission	(dBA)	-

INFO



The bar length must never exceed the spindle length.

4.2 OPERATING CONDITIONS

Designation		Operating conditions
Ambient temperature	(°C)	5-40
Relative air humidity	(%)	30-98
Maximum installation height (altitude)	(m)	1000

5 FIRST OPERATION

5.1 TRANSPORT

Depending on the destination, the machine is usually fixed onto a pallet and wrapped in thermoplastic film.

All the shipping documents, including this manual, are also attached to the pallet.

To prevent injury or material damage, it is recommended to follow the instructions provided by LNS when unpacking or lifting, regardless of the type of packaging.

Please contact LNS for advice concerning packing if you want to relocate the machine.

WARNING



Risk of injury due to heavy parts!

- ⇒ Take into account the weight of the parts.
- ⇒ Use an appropriate materials-handling machine to lift and transport heavy parts.

5.2 UNPACK

WARNING



Risk of collapse due to heavy object! .

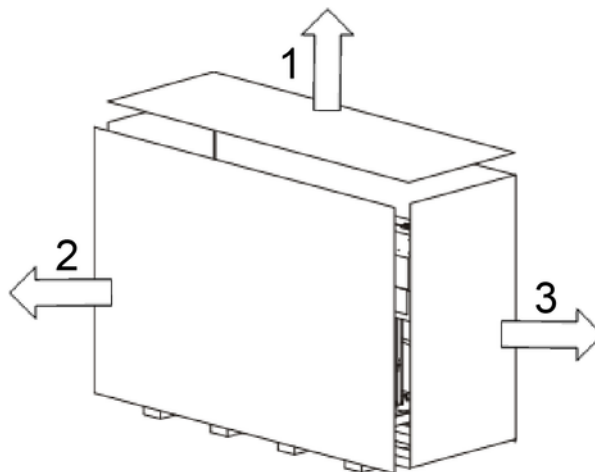
- ⇒ Collapse can cause injuries to persons or damage to the bar feeder and installation site.
- Before choosing the installation site, make sure that the floor can support the weight of the bar feeder (→ TECHNICAL DATA).

The bar feeder may be delivered either on a pallet or packed in a wooden crate, according to customer requirement.

Obey the unpacking and lifting instructions below in order to prevent any injuries to people and damage to objects.

These instructions are stapled to the crate of the bar feeder.

If the bar feeder arrives in a crate, follow the steps below to unpack it:



- 1 Unscrew the top panel.
- 2 Remove the front panel.
- 3 Remove the sidewalls.

5.3 SCOPE OF DELIVERY

The scope of delivery depends on the customer's order, see your "Order Confirmation".

5.4 LIFT

WARNING



Heavy object!

Danger associated with the hoist and/or hanging load hazard!

- ⇒ Make sure that the hoist or lift truck has the appropriate lifting capacity before handling the bar feeder.
- ⇒ Maintain a safe distance from the action radius of the hoist, the lift truck, or any other lifting and transportation equipment.
- ⇒ To avoid any harm to persons or damage to components, only use the indicated points to lift and move the bar feeder.

NOTICE



Risk of damage to the bar feeder!

- ⇒ If it is necessary to move the bar feeder after it has been commissioned, LNS or its local representative must be contacted before any attempt to restart it.
- ⇒ Do not knock the bar feeder while moving it.

NOTICE



Risk of damage to the lathe!

- ⇒ Do not knock the lathe while moving the bar feeder.

NOTICE



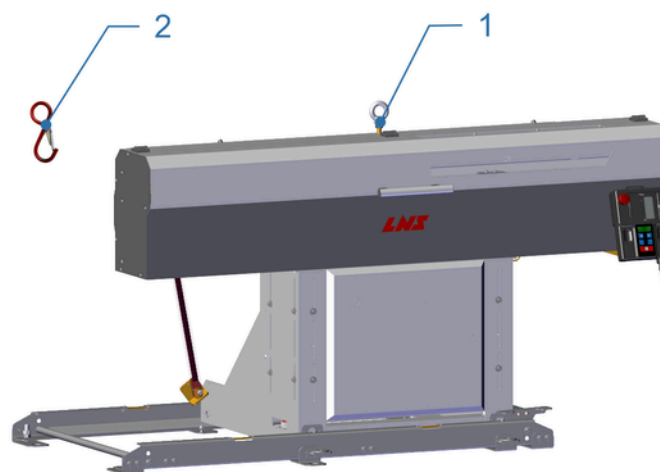
Risk of damage to the lathe/bar feeder!

- ⇒ The proper positioning of the bar feeder must be defined prior to lifting it in order to avoid problems and damage to the lathe/bar feeder. Before lifting, read the instructions in the positioning chapter.

We advise customers to have the bar feeder assembled and installed by LNS or its local representative. We accept no liability for malfunctions attributable to improper installation in which we were not involved.

These accessories are required for lifting the bar feeder:

- Lifting hook (not supplied)
- Hoisting bar



Procedure

- 1 Feed the hoisting straps through the ring of the hoisting bar (1).
- 2 Place the hoist in the center above the bar feeder.
- 3 Attach the lifting hook (2) to the hoist.
- 4 Raise the hoist.
- 5 Remove the screws attaching the bar feeder to the pallet.
- 6 Lift the bar feeder and remove the pallet. Make sure that the bar feeder is balanced.
- 7 Move the bar feeder while ensuring that it remains horizontal.
- 8 Place the bar feeder as close as possible to the lathe behind it (max. 10 mm) and in rough alignment with the lathe spindle. When placing the bar feeder, consider the lathe and bar feeder's fixed and mobile footprint.
- 9 Once placed into position, remove the lifting hook.
- 10 Remove the hoisting bar (1) by unscrewing it from the top of the bar feeder.

5.5 BAR MAGAZINE ASSEMBLY

On leaving the factory, the bar magazine is pre-assembled to the bar feeder. If you need to move the bar magazine backwards for any reason, contact LNS or its local representative.

5.5.1 MOVE THE LIMITER

NOTICE



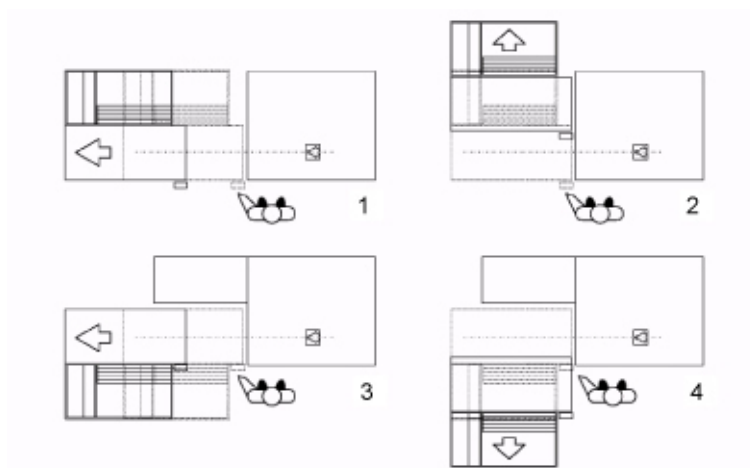
- ⇒ Contact LNS or its local representative so that an authorized technician can perform this operation.
- ⇒ Moving the limiter requires additional service settings to be changed.

5.6 RETRACTION SYSTEM ASSEMBLY

The retraction system allows the bar feeder to move longitudinally or laterally.

When the bar feeder is ordered with a longitudinal retraction system, it is already assembled and fixed to the machine.

When a bar feeder is ordered with a lateral retraction system, the elements of the lateral retraction system are not assembled to the bar feeder upon delivery and must be mounted on site.



Position	Description
1	Longitudinal retraction for left-rear loading
2	Lateral retraction for left-rear loading
3	Longitudinal retraction for left-front loading
4	Lateral retraction for left-front loading

5.6.1 MOUNT THE RETRACTION SYSTEM

WARNING



Injury hazard or damage from unsecured heavy objects!

- ⇒ Before proceeding, make sure that the bar feeder is stable and preferably level. The bar feeder must be positioned as close as possible to the lathe.

NOTICE



Risk of damage due to interface wiring!

- ⇒ Check that the interface wiring between the lathe and the bar feeder is long enough.

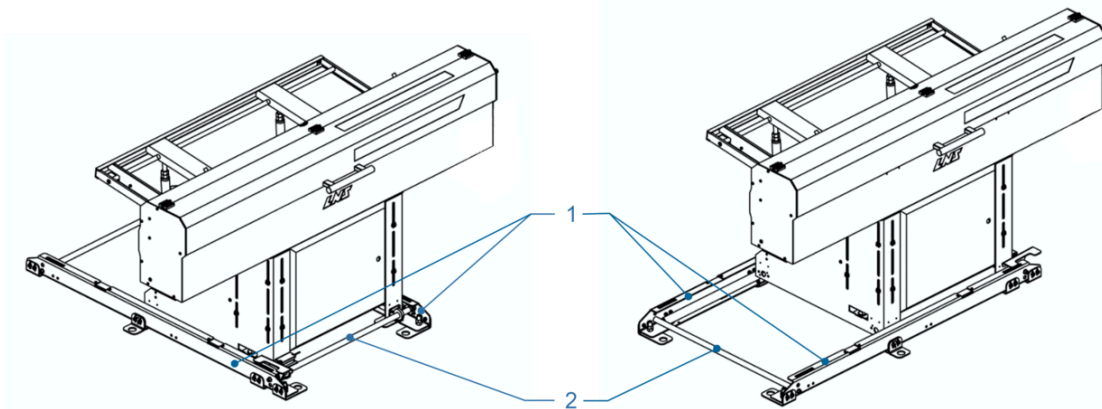
INFO



Retraction system delivered mounted with the bar feeder.

- ⇒ Upon unpacking, verify that the retraction system is oriented correctly.
- ⇒ In case you have to assemble the retraction system, obey the procedures as follows.

We advise customers to have the bar feeder assembled and installed by LNS or its local representative. We accept no liability for malfunctions attributable to improper installation in which we were not involved.



Procedure

- 1 Align the side rails (1).
- 2 Align the tubes (2) at the front/rear.
- 3 Attach the tubes (2) to the side rails (1) using the screws.
- 4 Move the bar feeder back and forth to ensure the retraction device is correctly mounted.
- 5 Check that the fixed safety switch (on bottom) has enough contact to the movable safety switch on top.

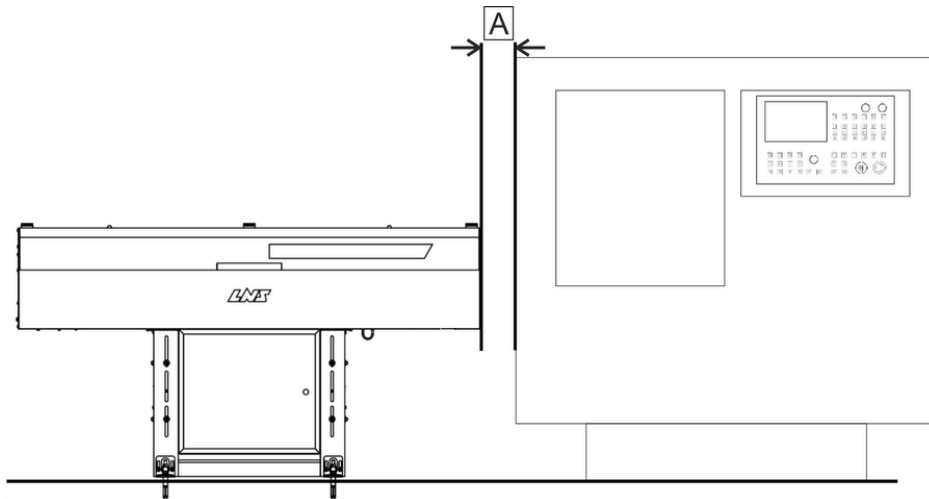
5.7 POSITION

INFO



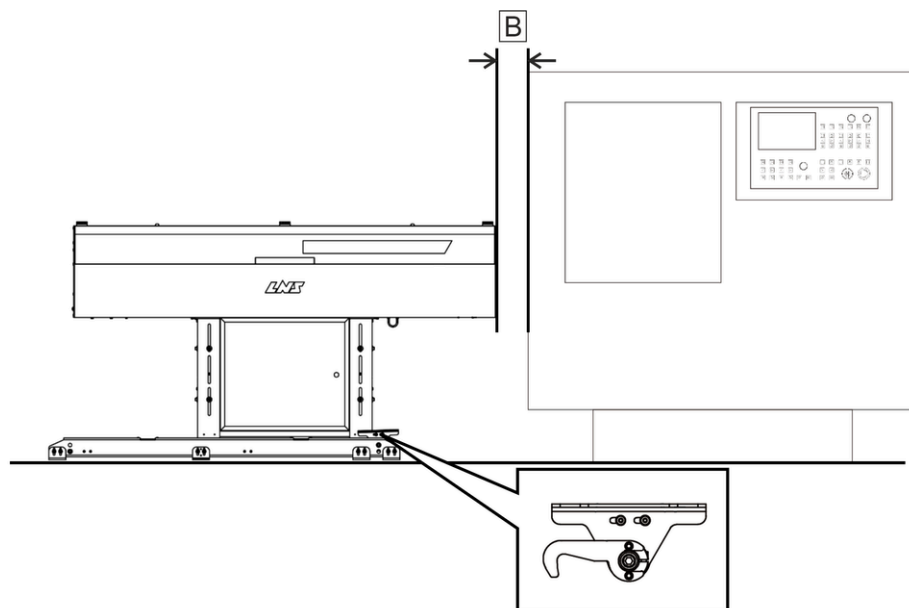
- ⇒ Position the bar feeder as close as possible behind the lathe.
- ⇒ The distance between the lathe and the bar feeder must be less than 20 mm.

BAR FEEDER WITHOUT RETRACTION SYSTEM



In alignment with the lathe, position the bar feeder without a retraction system max. 10 mm away from the lathe (A).

BAR FEEDER WITH RETRACTION SYSTEM



If the bar feeder is equipped with a retraction system:

- Mount the retraction system to the bar feeder.
- Position the bar feeder.

Once the retraction system is mounted to the bar feeder, position the bar feeder in alignment with the lathe max. 10 mm away from the lathe (B).

5.8 LEVEL

Once the bar feeder is in place, it can be leveled properly. This chapter covers the procedures to level the bar feeder whether it

WARNING



Injury hazard or damage from unsecured heavy object!

- ⇒ Before proceeding with the leveling of the bar feeder, make sure that the lathe is stable and level.
- ⇒ The bar feeder must be positioned as close as possible to the lathe (max. 10 mm).

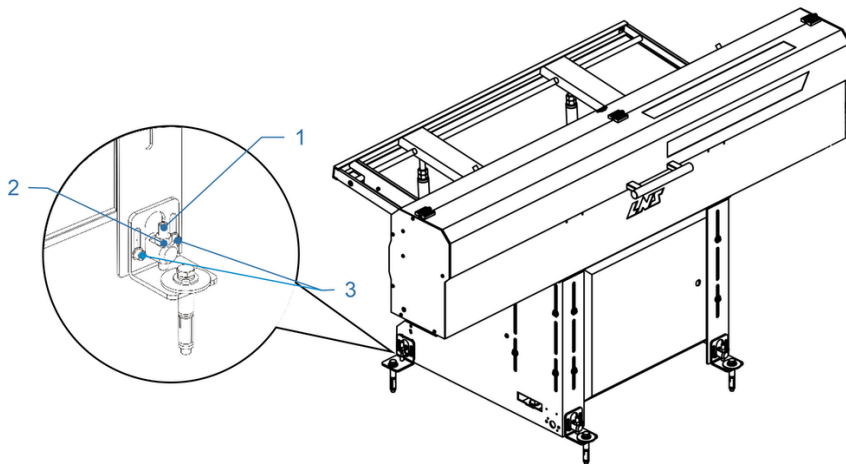
INFO



- ⇒ Install the largest pusher to obtain perfect alignment.
- ⇒ If a spindle liner is installed in the spindle, ensure that it is larger than the pusher.
- ⇒ Ensure that the bar feeder is as straight as possible ($\pm 90^\circ$).
- ⇒ The lengthwise level of the bar feeder should be adjusted on the lathe level. If the levels of the bar feeder and lathe do not match, the pusher may touch the inside of the spindle.

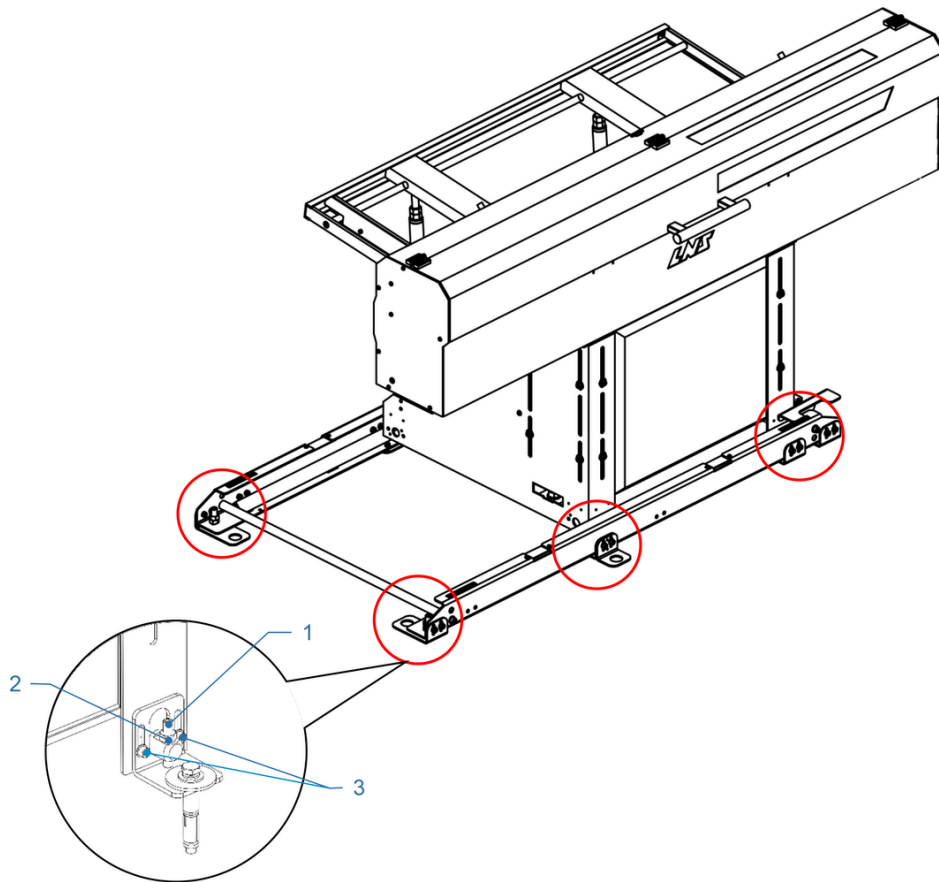
The alignment may be carried out using an optical tool. If you do not have any alignment tools, please contact LNS or their local representative so that they take care of the bar feeder installation.

BAR FEEDER WITHOUT RETRACTION SYSTEM



Procedure

- 1 Place a level lengthwise on the base of the bar feeder.
- 2 Loosen the screws (3) on the L-bracket.
- 3 Loosen the nut (2).
- 4 Adjust the screws (1) at each corner of the base on both sides to set the leveling of the bar feeder.
Turn the screws (1):
Clockwise to raise the bar feeder.
Counterclockwise to lower the bar feeder.
- 5 Once the bar feeder is level, tighten all nuts (2).
- 6 Tighten all screws (3).

BAR FEEDER WITH RETRACTION SYSTEM**Procedure**

- 1 Place a level lengthwise on the base of the bar feeder.
- 2 Loosen the screws (3) on the L-bracket.
- 3 Loosen the nut (2).
- 4 Adjust the screws (1) at each corner of the base on both sides to set the leveling of the bar feeder.
Turn the screws (1):
Clockwise to raise the bar feeder.
Counterclockwise to lower the bar feeder.
- 5 Once the bar feeder is level, tighten all nuts (2).
- 6 Tighten all screws (3).

5.9 CENTER

WARNING



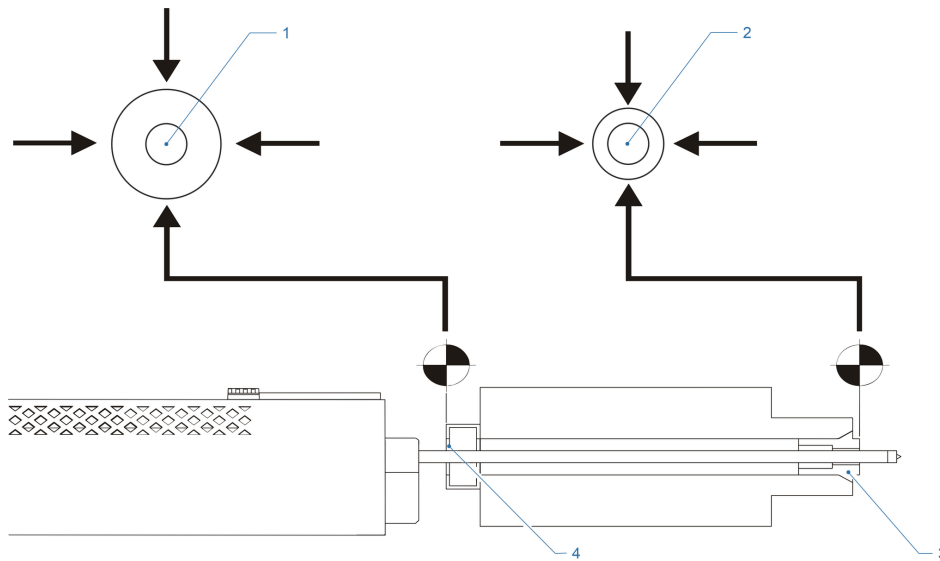
Injury hazard or damage from unsecured heavy object!

- ⇒ Before proceeding with the centering of the bar feeder, make sure that the lathe is stable and preferably leveled.
- ⇒ The bar feeder must be positioned as close as possible to the lathe spindle.

INFO



- ⇒ Install the largest pusher to obtain perfect alignment.
- ⇒ The lengthwise level of the bar feeder should be adjusted on the lathe level. If the levels of the bar feeder and lathe do not match, the pusher may touch the inside of the spindle.
- ⇒ For the best possible performance and stability throughout operation, the pusher and the bar must be aligned with the center of the lathe spindle.



Procedure

- 1 Move the pusher forward.
- 2 Measure accurately the center of the pusher and that of the lathe spindle.
- 3 Adjust the position of the bar feeder so that the center of the pusher is exactly aligned with the center of the lathe spindle.

Designation	Description
1	Spindle
2	Pusher
3	Front spindle end
4	Rear spindle end

INFO



Depending on the weight of the pusher, its center may vary, so the center of the pusher and the center of the lathe spindle in the front and rear positions must be aligned as precisely as possible (± 0.15 mm).

5.10 ANCHOR

Once the bar feeder is in place and perfectly aligned, it should be anchored to the ground to ensure stability. Use anchorage bolts (1) to secure the bar feeder.

The customer must provide the anchorage bolts to secure the bar feeder.

INFO



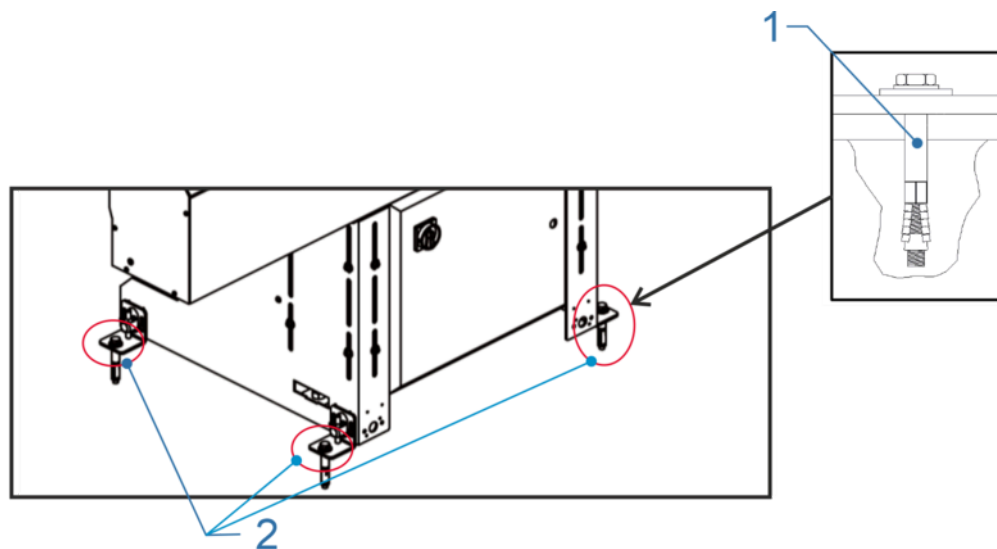
- ⇒ Anchoring: Use heavy-duty anchors.
Minimum: M10 x 100

INFO



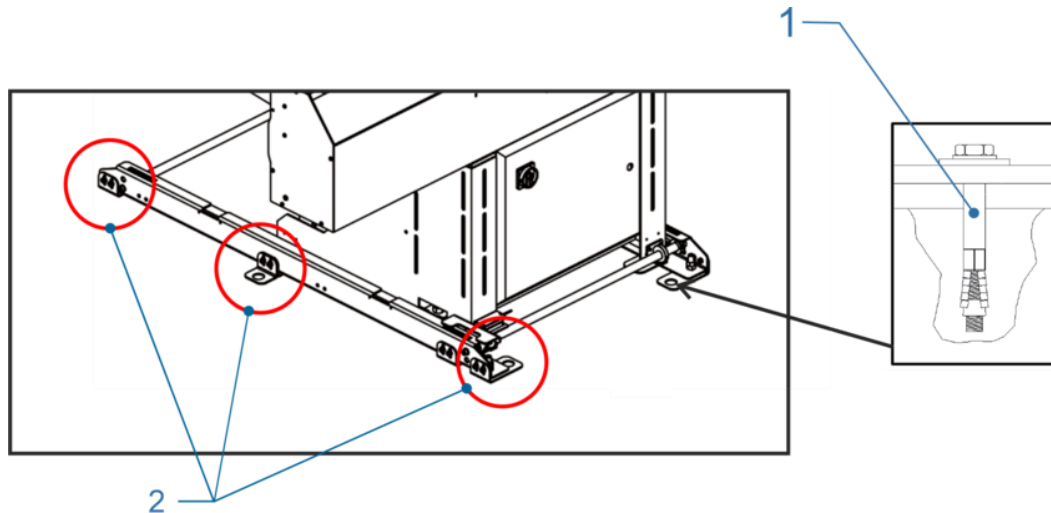
- ⇒ When the bar feeder has been fixed to the ground, check:
 - the alignment of the safety switch,
 - the safety key by moving the bar feeder and then bringing it to the operation position.

BAR FEEDER WITHOUT A RETRACTION SYSTEM

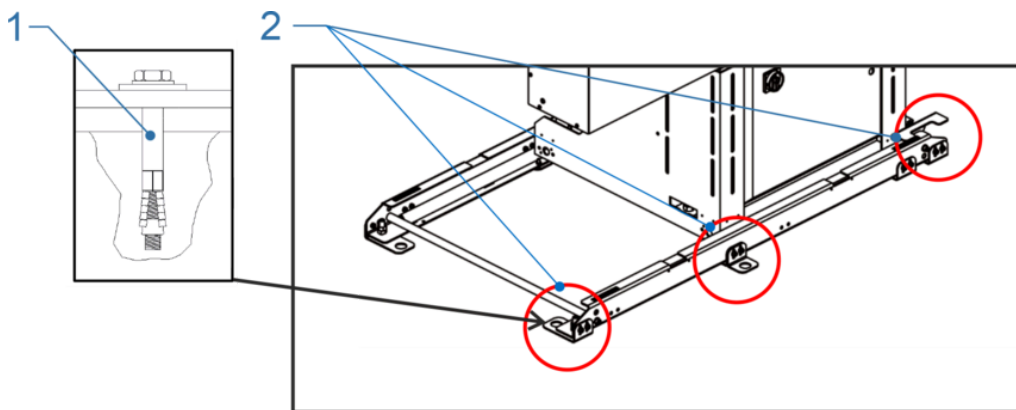


Procedure

- 1 Use an anchorage bolt (1) at each anchorage point (2) to secure the bar feeder to the ground. There are 4 anchorage points: one at each corner of the bar feeder's base.
- 2 Once the bar feeder is anchored, check the level and alignment of the bar feeder. Correct if necessary.

BAR FEEDER WITH A LATERAL RETRACTION SYSTEM
**Procedure**

- 1 Use an anchorage bolt (1) at each anchorage point (2) to secure the bar feeder to the ground. There are 6 anchorage points: three on each side of the rail of the retraction system.
- 2 Once the bar feeder is anchored, check the level and alignment of the bar feeder. Correct if necessary.

BAR FEEDER WITH A LONGITUDINAL RETRACTION SYSTEM**Prerequisite**

Anchorage bolts for each anchorage point (1).

Procedure

- 1 Use an anchorage bolt (1) at each anchorage point (2) to secure the bar feeder to the ground. There are 6 anchorage points: three on each side of the rail of the retraction system.
- 2 Once the bar feeder is anchored, check the level and alignment of the bar feeder. Correct if necessary.

5.11 CONNECTIONS

Once the bar feeder has been aligned and anchored to the ground, it must be connected to the lathe interface.

For this, please contact LNS or its local representative.

5.12 ADJUSTMENTS BEFORE OPERATION

This section covers the steps to take prior to production. This may include the configuration of the bar feeder, the machine tool, and the related adaptations and settings.

WARNING**Crushing and cutting hazard from moving components!**

- ⇒ Do not grasp moving or rotating objects, or nearby elements.
- ⇒ Do not reach into the bar feeder while it is in operation.

WARNING**Risk of crushing from heavy objects!**

- ⇒ Handle the loading and guiding systems and all of their components with care and caution to avoid injury.
- ⇒ Do not introduce fingers/hands into the loading zone, feeding or guiding system when the bar feeder is in operation.

INFO**Bar feeder adjustments must be carried out when the following is changed:**

- ⇒ Bar diameter
- ⇒ Bar profile
- ⇒ Length of the parts executed

5.12.1 BAR FEEDER ADJUSTMENTS**ADJUSTING THE BAR MAGAZINE TILT ANGLE**

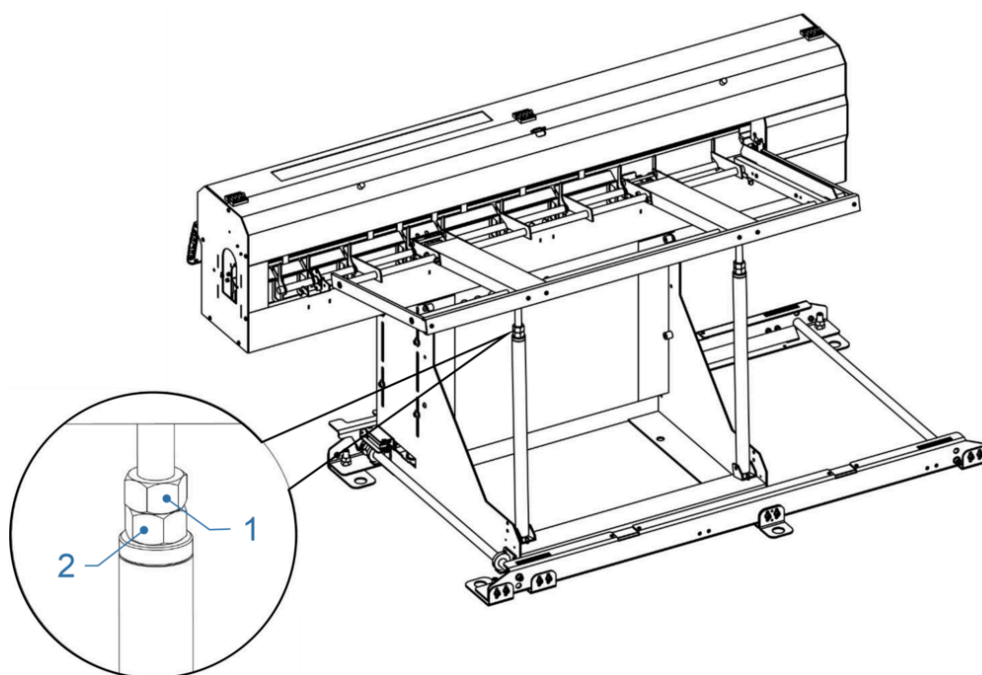
For the bars to be loaded smoothly in automatic mode, the bar magazine tilt angle must be set correctly to the profile and dimensions of the bars to be machined.

INFO

There is no fixed value for the magazine tilt angle:

- If profiled bars cannot slide properly, the slope can be increased.
- If bars with small diameters overlap onto one another, then the slope can/ must be reduced.

To adjust the tilt angle of the bar magazine follow the procedure below.

**Prerequisite**

- The bar feeder is in STOP mode.
- There are no bars on the bar magazine.

Procedure

- 1 Loosen the top nut (1) to unlock the height position.
- 2 Adjust the lower nut (2) to raise or lower the angle of the bar magazine.
- 3 Once the desired angle is set, lock the position by tightening the top nut (1).

CHANGING THE PUSHER

The bar feeder is equipped with a quick-change pusher. This allows an easy and fast changeover to a different pusher, without any necessary equipment.

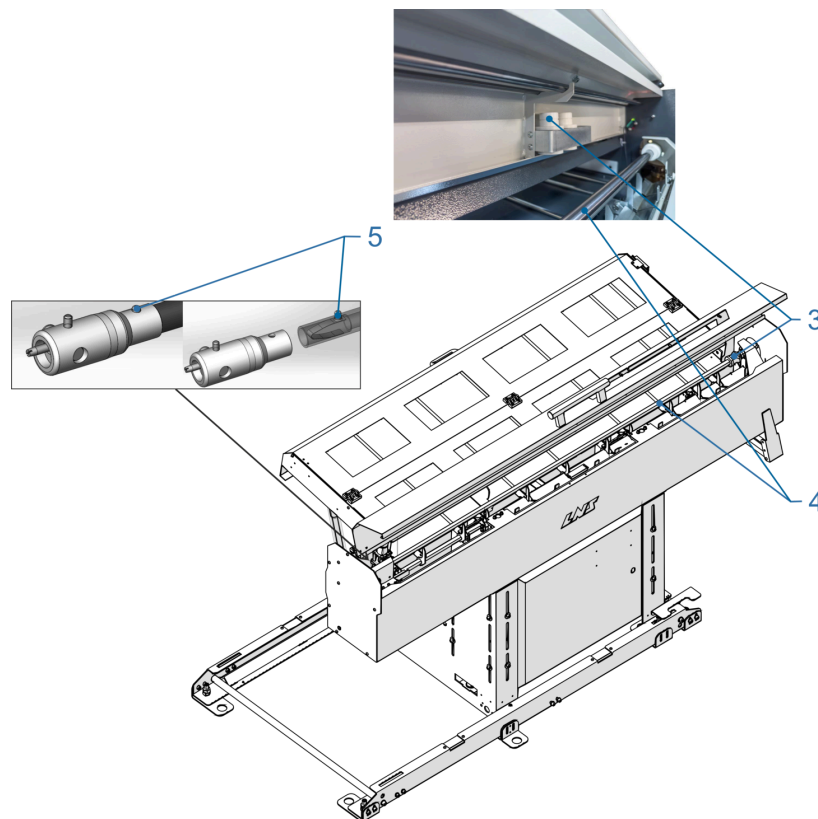


Prerequisite

- The bar feeder is in STOP mode.

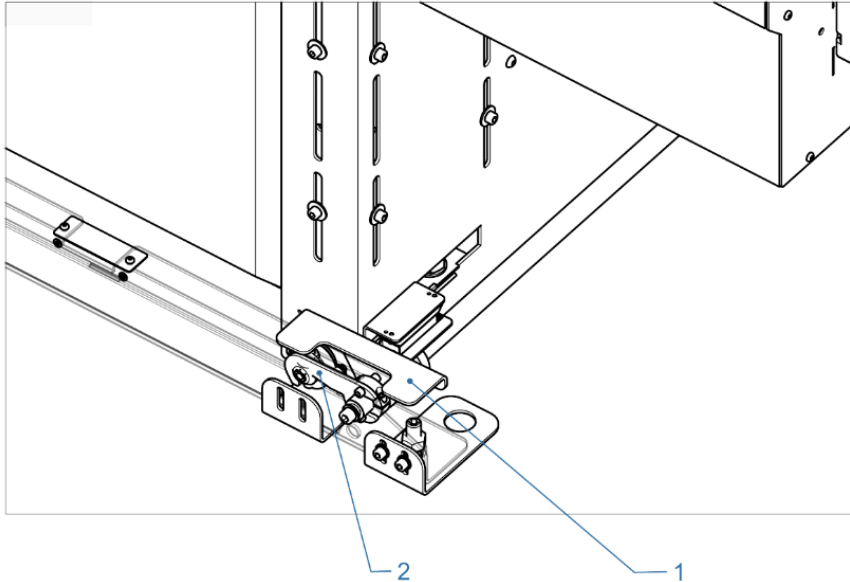
Procedure

- 1 Move the V-channel into the lower position by pressing the button (2).
- 2 Move the pusher (4) to the center of the feed channel by pressing the button (1).
- 3 Unlock the pin (5) by pressing it.
- 4 Remove the pusher (4) and the guide bushing (3).
- 5 Insert the new pusher and guide bushing.
- 6 Lock the pin (5) to secure the new pusher in place.
- 7 Move the pusher back to the rest position.



RETRACTING THE BAR FEEDER**WARNING****Injury hazard from unsecured bar feeder!**

- ⇒ Do not use the retraction system before the bar feeder is anchored to the ground.
 - ⇒ Read the safety instructions at the beginning of this document before handling the following devices.
 - ⇒ Make sure that the interface cables between the lathe and the bar feeder are long enough before handling the retraction system.
-

**Prerequisite**

- The bar feeder is in STOP mode.

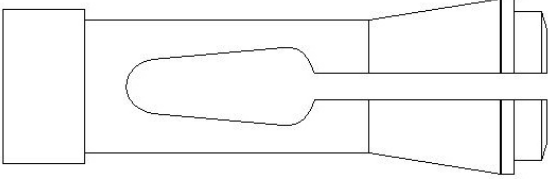
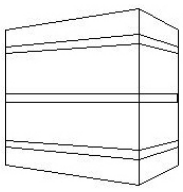
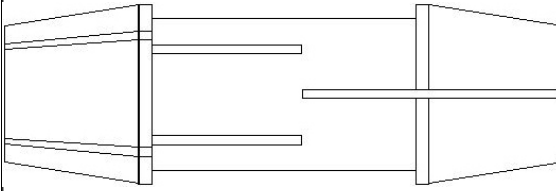
Procedure

- 1 Disengage the lever (1) to unlock the hooks (2).
- 2 Move the bar feeder to its new position.
- 3 Lock the hooks (2) using the lever (1) to lock the bar feeder in place.

5.12.2 LATHE ADJUSTMENTS

CLAMPING DEVICE

COLLET

<p>Single cone collet</p> <p>The bar is gripped at about 350° over a length of 0.5 to 7 times its diameter.</p>	<p>Effectiveness: good to very good</p> 
<p>Biconical collet</p> <p>The bar is gripped at 1 or 2 times 350° over a length of around 1.2 times the diameter.</p>	<p>Effectiveness: very good to excellent</p> 
<p>Double cone collet</p> <p>The double cone collet has the significant advantage of gripping the bar at two distant points of around 1.5 times the diameter with gripping of 2 times 350° over around 0.5 times the diameter.</p>	<p>Effectiveness: excellent</p> 

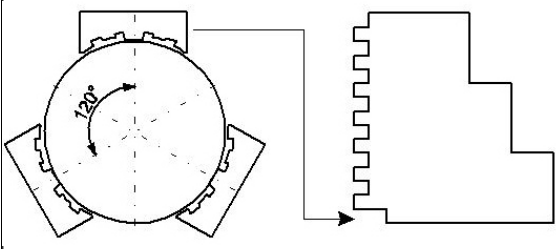
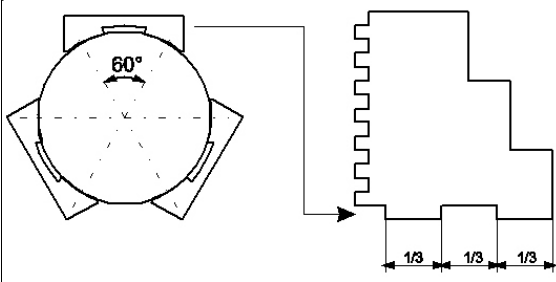
INFO



⇒ If the bar is not correctly fixed, the risk of vibrations significantly increases.

Frequent errors and possibilities for improving the effectiveness of the clamping grip.

Hard and soft jaws

<p>Incorrect: the radius of the jaws is larger than the radius of the bar. The jaws only touch at 3 points at 120°.</p>	
<p>Correct: release the center of the jaws so that there are 2 x 6 contact points at 60°.</p>	

6 OPERATION

NOTICE



Risk of damage to the lathe or bar feeder!

- ⇒ Do not open the main access cover during operation.

6.1 SWITCHING ON/OFF

The servo motor of the bar feeder is equipped with a built-in absolute encoder that continuously controls the position of the pusher.

When the bar feeder is switched off or there is a power failure, this position is stored on the servo drive.

When powering on, the saved position value is immediately taken into account, thus avoiding any referencing position.

Do not change the pusher position when the bar feeder is switched off, as the read position value will no longer correspond to the actual pusher position.

How to reference the bar feeder if the pusher was moved while the bar feeder was switched off?



1. Start the bar feeder.
2. Press the key (1) to move the pusher backwards to the rest position.
3. Press the key (2) to move the V-channel to the lowered position.

DANGER



Danger of death by electrocution!

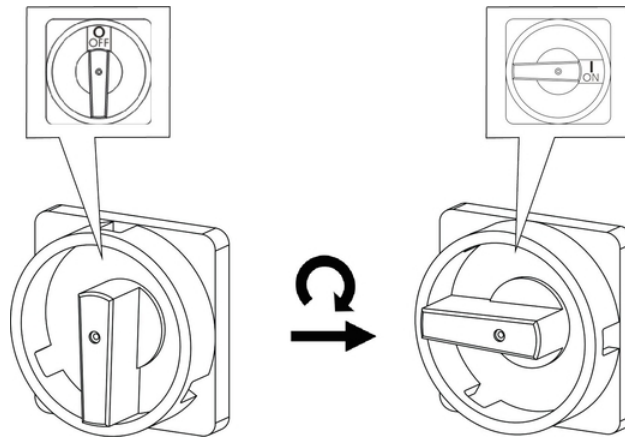
- ⇒ Work on the electrical system must only be performed by a qualified electrician.
- ⇒ Always lock the electrical cabinet again after opening it.
- ⇒ In the case of a fault that may be electrical in origin, please contact LNS or its local representative.

INFO



- ⇒ The main switch can be locked using a padlock. It is then impossible to start the bar feeder.

MAIN SWITCH



Switch on: Turn the main switch clockwise to set the switch to ON.

Switch off: Turn the main switch counterclockwise to set the switch to OFF.

STATUS OF THE BAR FEEDER



The status of the bar feeder is also indicated via the machine ready indicator (1).

- Machine ready indicator (LNS logo) ON: bar feeder is ready or producing.
- Machine ready indicator (LNS logo) flashes: bar feeder has error or stopped.

6.2 REMOTE CONTROL

The screen on the remote control continuously shows the status of the bar feeder and its production. This allows the function, diagnostics, and error signals to be checked or analyzed at any time.



Position	Designation
1	Emergency stop button
2	Touch screen display
3	Auto Start
4	Forward
5	Raise V-channel
6	Stop
7	Lower V-channel
8	Backward
9	Auto Ready

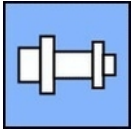
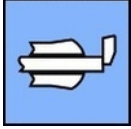
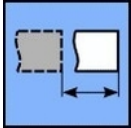
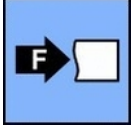



6.3 DISPLAY

The display provides the operator with all the information for both use and maintenance of the bar feeder.



Position	Designation
1	Current status or mode
2	Next menu
3	Torque
4	Speed
5	Software version

6.4 ICONS

	<p>PART</p> <p>To define the parameters and values of the part, e.g.:</p> <ul style="list-style-type: none"> • Bar shape (round, hex, square) • Bar diameter • Feeding length • Number of collet openings
	<p>APPLICATION</p> <p>To set the working mode by selecting the desired application:</p> <ul style="list-style-type: none"> • Feeding with turret • Feeding without turret • Dry run
	<p>POSITION</p> <p>To access the current position values:</p> <ul style="list-style-type: none"> • End of bar • Top cut position • Auxiliary end of bar
	<p>TORQUE</p> <p>To access the current torque values:</p> <ul style="list-style-type: none"> • Torque for bar loading • Torque for part feeding
	<p>LANGUAGE</p> <p>To change the language on the display.</p>
	<p>MISCELLANEOUS FUNCTIONS</p> <p>To access further functions:</p> <ul style="list-style-type: none"> • Referencing position • Timing on lathe's clamping device
	<p>SERVICE</p> <p>For authorized technicians to access maintenance settings and display masked parameters</p>

6.5 EMERGENCY STOP

DANGER



Emergency stop.

Use the emergency stop button!

- The STOP key is not an emergency stop button.
- ⇒ In an emergency, always use the emergency stop button located on the top of the remote control.

In an emergency, use the emergency stop button to interrupt the operation of the bar feeder.



DANGER



Danger of death by electrocution!

- ⇒ Work on the electrical system must only be performed by a qualified electrician.
- ⇒ Always lock the electrical cabinet again after opening it.
- ⇒ In the case of a fault that may be electrical in origin, please contact LNS or its local representative.

To activate the emergency stop button

1. Press firmly on the emergency stop button (1).
 - The AL01 alarm appears on the remote control.
 - The operation of the bar feeder is interrupted.

To deactivate the emergency stop button

1. Turn the emergency stop button (1) counterclockwise until it returns to its original position.
2. Press the STOP key (2).
 - The AL01 alarm is cleared.
 - The bar feeder can operate.

6.6 OPERATION SETTINGS

NOTICE



Damage to lathe or bar feeder from incorrect settings!

- ⇒ The operation settings are the most commonly modified settings for controlling the bar feeder when it is in automatic mode.
- ⇒ Read this section before making any changes.

INFO

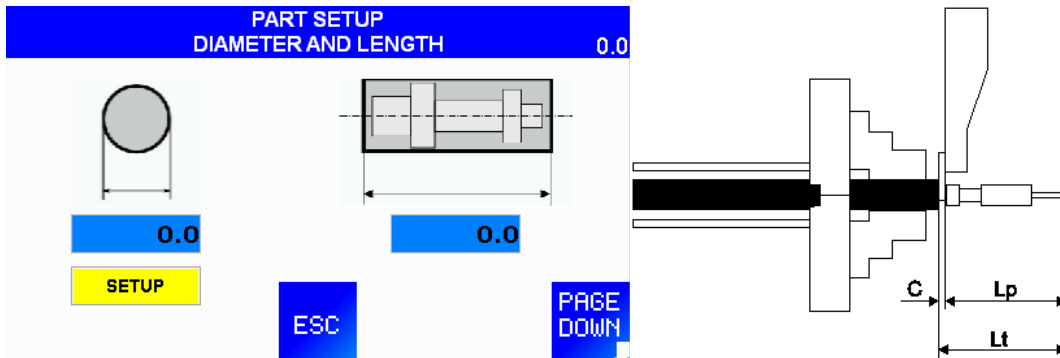


- ⇒ Images in this section may slightly vary from the remote control.
- ⇒ However, the described functions are the same.

6.6.1 PART SETUP

DIAMETER OF THE BAR, LENGTH OF THE PART, VARIABLE FACE-OFF DISTANCE

PART SETUP: DIAMETER AND LENGTH



Bar diameter

Enter the diameter, shape and length of the bar stock currently loaded.

Bar shape

Round bar: external diameter.

Part length

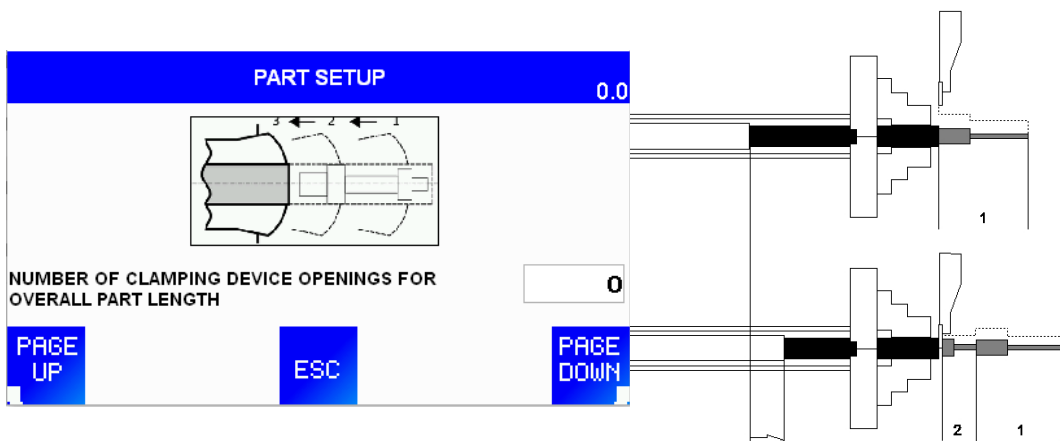
The part length is the total feed-out length (L_t), which includes:

- the length of the part to be executed (L_p)
- the thickness of the cut-off tool (C)
- the thickness of the facing (not represented in the illustration, depends on the part program)

This parameter is used for the calculation of the BAR END position and timing of sending the CYCLE START signal.

Example: The part length is 100 mm and the thickness of the cut-off tool is 3 mm. The value to be entered here is $100 + 3 = 103$.

NUMBER OF TIMES CLAMPING DEVICE OPENS PER PART



When machining a part requires the collet to open several times (for example a long piece or rework of the part on the second spindle), interface conflicts can occur during feed out.

It is therefore important to enter on the HMI the number of times that the collet must open to machine a part.

The bar feeder only takes into account the first position for the same part. The following positions (if there are any) must be performed using the turret.

PART FEEDING

PART SETUP		0.0
TOO SHORT	<input type="text" value="0.0"/>	
TOO LONG	<input type="text" value="0.0"/>	
PAGE UP		ESC

The maximum/minimum acceptable feeding length when machining part.

Too short:

The minimum bar feeding distance allowed.

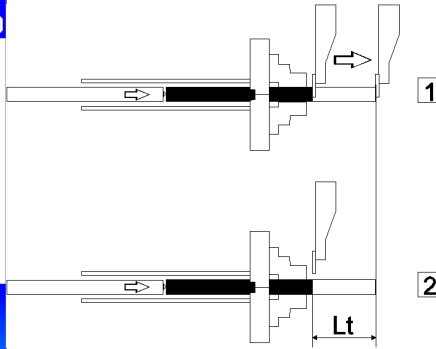
Too long:

The maximum bar feeding distance allowed.

6.6.2 APPLICATION

PART FEED OUT WITH/WITHOUT A TURRET

APPLICATION SETUP		0.0
FEED PART	<input type="text" value="0"/>	
0 : WITH TURRET (PARKED IN POSITION)		
1 : WITH TURRET (MOVES TO POSITION)		
2 : WITHOUT TURRET		
3 : SUB-SPINDLE MODE		
ESC		PAGE DOWN



Part feed out with a turret

This setting makes it possible to set the lathe as the part feed out controller.

Additional setting:

- The turret waits in position:
The turret moves to the bar stock arrival point and waits for the bar feeder to push the bar stock to it.
- The turret accompanies the feed out:
The turret moves to the end of the bar stock. The bar feeder starts feeding and pushes the bar stock against the turret. The turret then moves to the bar stock arrival point with the bar feeder still pressing the bar stock against the turret.

Feed out without a turret

The bar feeder feeds the part. When the chuck opens, the pusher moves the bar stock from the value entered in the setting "total part feed-out length". The bar feeder cannot feed the part if the machining program provides for the chuck to open several times.

Sub-spindle mode

This setting is mainly used on twin spindle lathes when the counter spindle does the part feeding.

In this case, the pusher does not follow the bar stock, but the bar feeder can calculate the time of the bar end signal using known variables, namely the length of the bar stock, the total feed-out length, the number of collet openings, and the minimum bar remnant length.

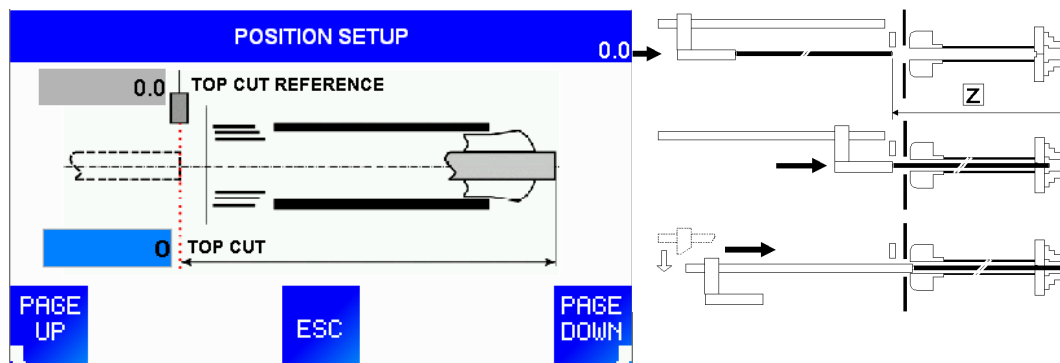
EJECT THE REMNANT BAR STOCK

The screenshot shows a control panel interface with a blue header bar containing the text "APPLICATION SETUP" and a numerical value "0.0" on the right. Below the header, the text "APPLICATION SETUP" is repeated, followed by a small input box containing the number "0". Underneath, two options are listed: "0 : EJECT WITH NEW BAR" and "1 : EJECT WITH PUSHER". At the bottom of the screen, there are three blue buttons labeled "PAGE UP", "ESC", and "PAGE DOWN".

Use this option to set how to eject the remnant of the bar stock machined.

6.6.3 POSITIONS

TOP-CUT POSITION



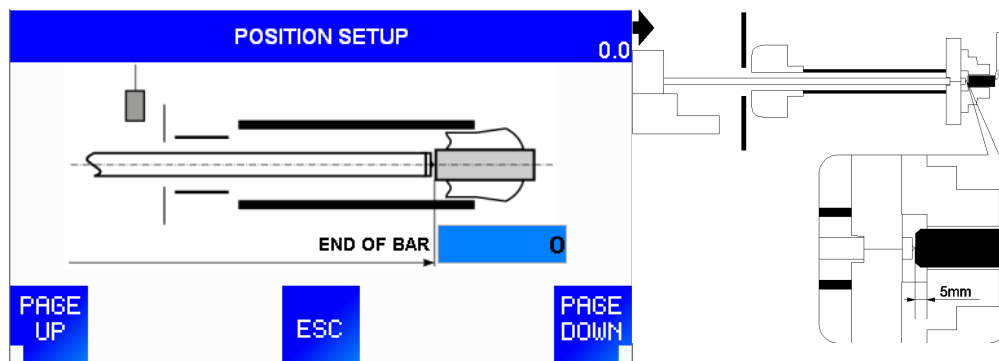
At feed out, the bar is entered into the spindle then automatically positioned in the clamping device of the lathe.

This position corresponds to a value (Z) programmed by the operator.

The distance (Z) is measured between the sensor of the bar feeder and the position of the bar stock in the clamping device of the lathe.

Thanks to this system, the adjustment is always the same irrespective of the length of the bars.

END-OF-BAR SIGNAL POSITION



The time at which the bar feeder enters the loading cycle is determined by the position of the end of bar signal.

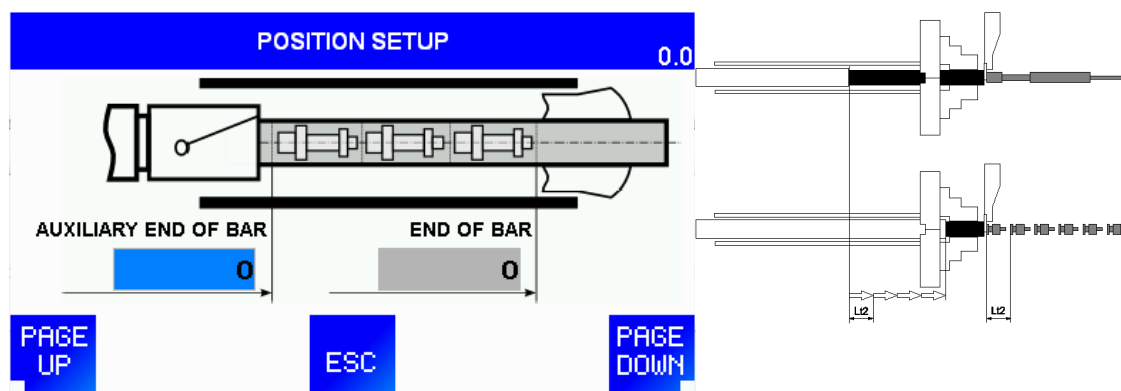
In principle, the end of bar position is set as close as possible behind the clamping device of the lathe (around 5 mm) so that bar stock remnants are as short as possible.

irrespective of the bar or part length, the end of bar signal position is always the same. Nevertheless, certain specific cases may require a different end of bar signal adjustment.

The automatic bar change procedure is the following:

1. Eject remnant out of the chuck.
2. Load new bar and feed it to the "Top Cut" position.
3. Send start to the lathe to indicate that the loading cycle has been completed.

AUXILIARY END OF BAR SIGNAL POSITION



Depending on the lathe and the options it has, the auxiliary end of bar signal may be used in several ways.

For example, to open an additional guiding front rest installed behind the lathe spindle. The adjustment is the same as for the end of bar signal.

6.6.4 TORQUE

TORQUE

Torque adjustment (%)

If needed, the operator can modify this torque.

It sets the pushing force for feeding the bar. It might be necessary to adjust the torque when changing the diameter.

6.6.5 LANGUAGE

INFO



⇒ The bar feeder does not necessarily have to be in the STOP position to select the language.

The language menu enables the user to choose the HMI language of the bar feeder. Select the language to be used on the display.

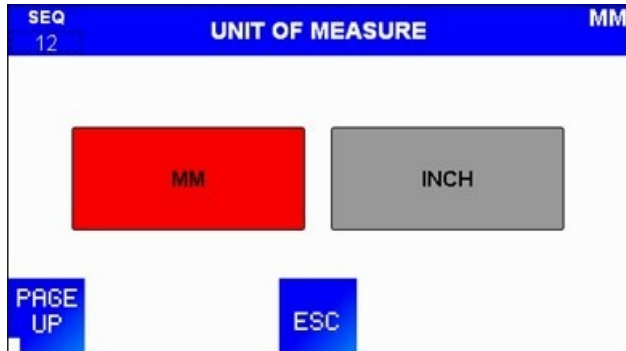
6.6.6 UNIT OF MEASURE

INFO



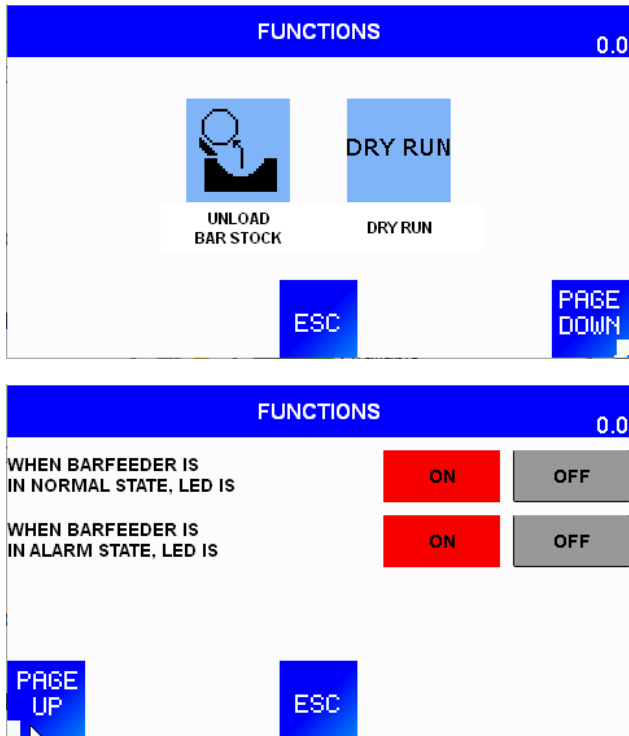
⇒ The bar feeder does not necessarily have to be in the STOP position to select the unit of measure.

UNIT OF MEASURE



The unit of measure can be configured according to the local needs. Both systems are available: Metric (mm) and Imperial (inch). Choose the unit of measure to be used on the display.

6.6.7 FUNCTIONS



Some special functions could be called from here:

- Unload a bar stock.
- Start the dry run.
- Configure the bar feeder LED.

6.6.8 SERVICE

The service settings make it possible to:

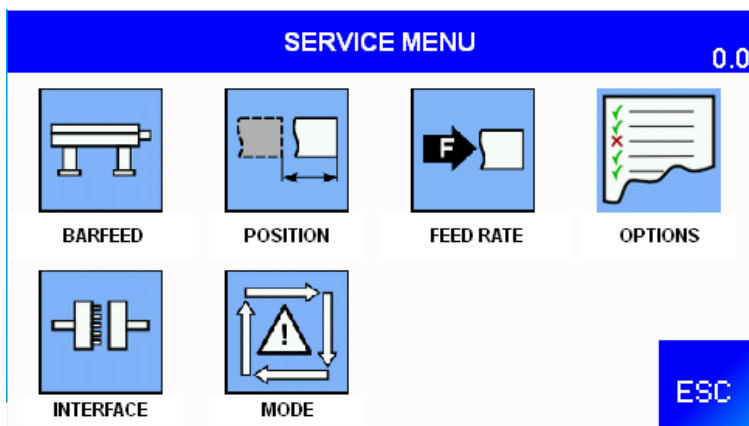
- Configure the bar feeder in its environment.
- Adapt the interface that connects it to the lathe.

INFO



Changing the service settings can damage the machine and create operator safety issues!

- ⇒ Therefore, these settings are protected by password.
- ⇒ Only an LNS (or certified) technician is authorized to change them. Details of these settings are described separately in the service manual.



6.6.9 INFORMATION PAGE

1. Press the INFO button (1) to display various information under the information pages.

INFO



⇒ To facilitate navigation, you can view the diagram designed for this purpose
→ INFORMATION



6.7 MANUAL OPERATION MODE

6.7.1 SETTING THE BAR FEEDER TO MANUAL MODE

NOTICE



Never open the lathe chuck when the bar feeder is in automatic mode. Switch the bar feeder to manual mode first, and only then switch the lathe.

Prerequisite

- The lathe has finished a machining cycle and is in “interrupt” status.
- The lathe chuck is closed.



Procedure

- 1 Press the key (3) to put the bar feeder into manual mode.

6.7.2 MOVING THE V-CHANNEL TO THE LOWERED POSITION

Prerequisite

- The lathe is not in automatic mode.
- The V-channel is in the raised position.
- There is no bar stock in the spindle.



Procedure

- 1 Press the key (4).
- 2 Press the key (1) to move the pusher beyond the front limit.
- 3 Press the key (5) to move the introducer back to the rest position.
- 4 Press the key (4) to lower the V-channel to the lowered position.

6.7.3 MOVING THE V-CHANNEL TO THE RAISED POSITION

Prerequisite

- The lathe is not in automatic mode.
- The V-channel is in the lowered position.



Procedure

- 1 Press the key (5) to move the introducer back to the rest position.
- 2 Press the key (2) to lift the V-channel into the raised position.

6.8 AUTOMATIC OPERATION MODE

6.8.1 SETTING THE BAR FEEDER TO AUTOMATIC MODE

NOTICE



Do not switch the bar feeder into automatic mode if the chuck is open!

NOTICE



Do not switch the lathe to automatic mode until the bar feeder is in automatic mode.

Prerequisite

- The lathe is not in automatic mode.
- The lathe chuck is open.
- The lathe stop is in the workpiece length position.
- There is a bar in the spindle.
- The V-channel is in the lowered position (→MOVING THE V-CHANNEL TO THE LOWERED POSITION).



Procedure

- 1 Press the key (2) to move the pusher forward manually until the bar touches the stop. Release the key (2) and close the chuck.
- 2 Press the key (6) and (1) one after the other to put the bar feeder into automatic mode.
- 3 Switch the lathe to automatic mode.

6.8.2 STARTING A NEW MACHINING OPERATION IN AUTOMATIC MODE

NOTICE



Do not switch the bar feeder into automatic mode if the chuck is open!

NOTICE



Do not switch the lathe to automatic mode until the bar feeder is in automatic mode.

Prerequisite

- The lathe is not in automatic mode.
- The lathe chuck is open.
- The lathe stop is in the top-cut position.
- The lathe program is set correctly.
- The bar magazine is loaded.
- All parameters are set correctly.
- The bar feeder is configured correctly for the specific application.
- There is a bar in the spindle.
- The V-channel is in the lowered position (→MOVING THE V-CHANNEL TO THE LOWERED POSITION).

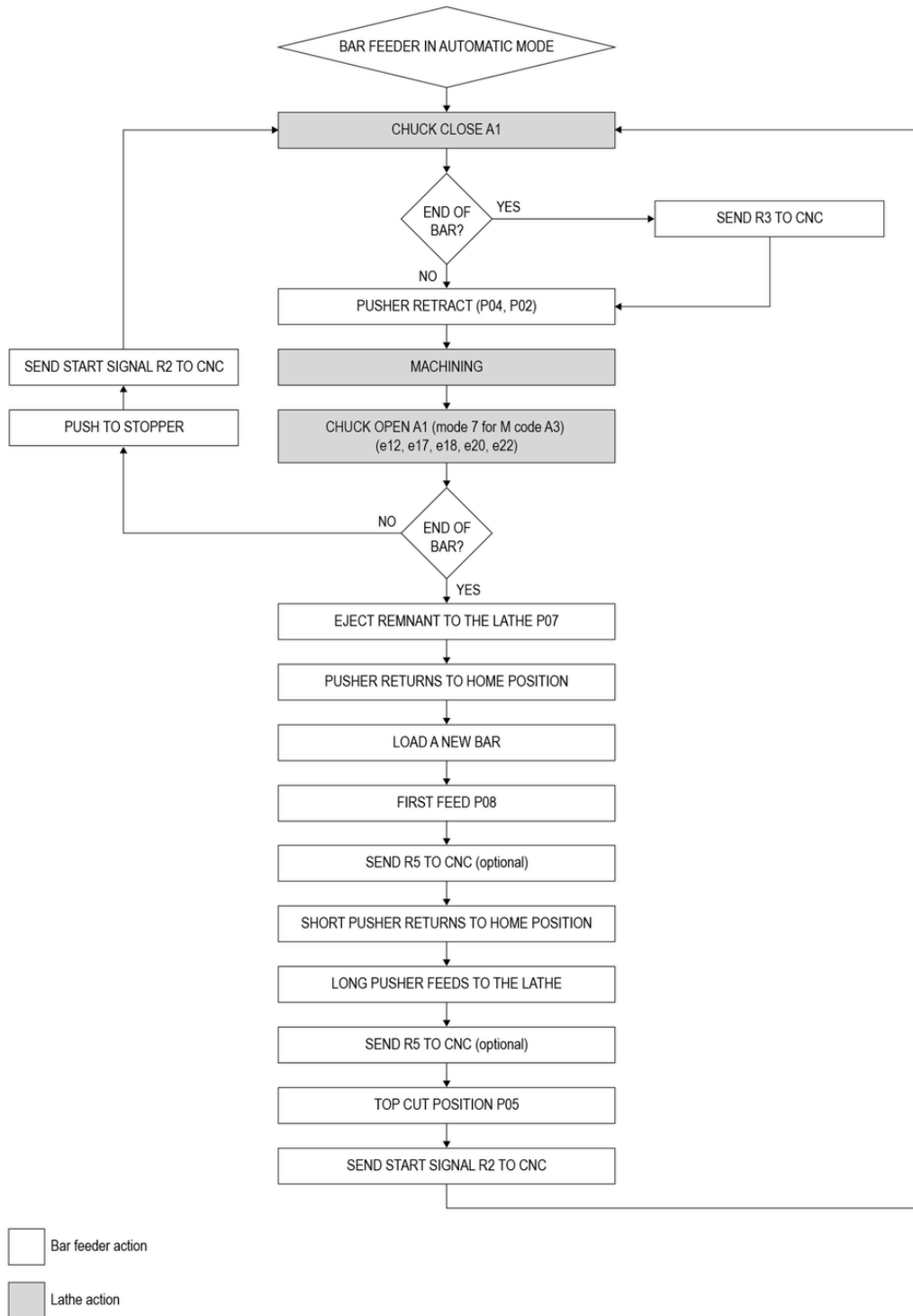


Procedure

- 1 Manually set the lathe stop to the top-cut position.
- 2 Press the key (5) until the pusher moves back into the rest position.
- 3 Raise the V-channel by pressing the key (3) and load a new bar.
- 4 Press the key (2).
The introducer pushes the bar completely out of the magazine.
- 5 Press the key (5).
The introducer automatically moves back to the rest position.
- 6 Press the key (4) to move the V-channel to the lowered position.
- 7 Press the key (2) until the pusher pushes the bar forward until it touches the stop.
- 8 Close the lathe chuck.
- 9 Press the key (5) to retract the pusher by at least 10 mm.
- 10 Check the movement path on the display.
- 11 Rotate the lead end of the bar manually.
- 12 Move the lathe stop to the workpiece length position.
- 13 Open the lathe chuck.
- 14 Press the key (2) until the pusher pushes the bar forward until it touches the stop.

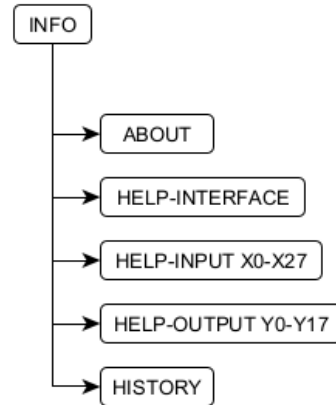
-
- 15 Close the lathe chuck.
 - 16 Press the keys (6) and (1) one after the other to put the bar feeder into automatic mode.
 - 17 Switch the lathe to automatic mode.

6.8.3 SEQUENCE DIAGRAM



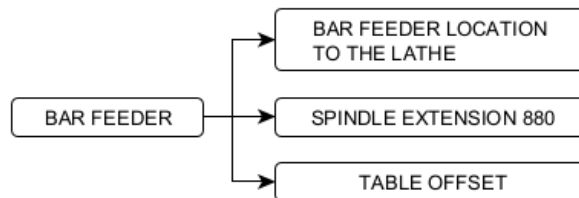
6.9 MENU STRUCTURE

6.9.1 INFORMATION

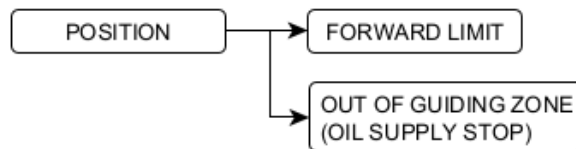


6.9.2 SERVICE

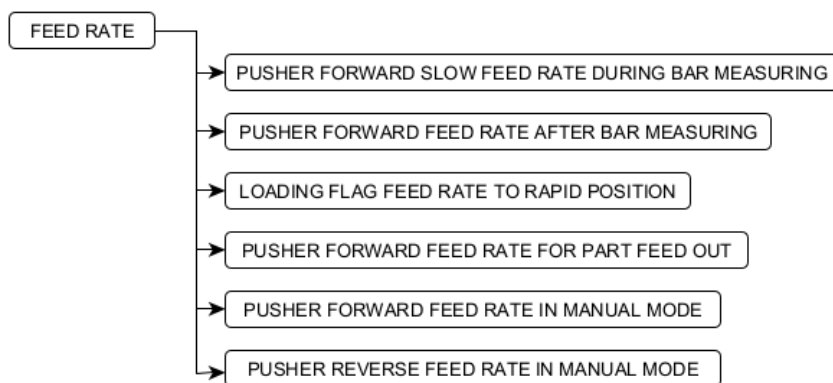
BAR FEEDER



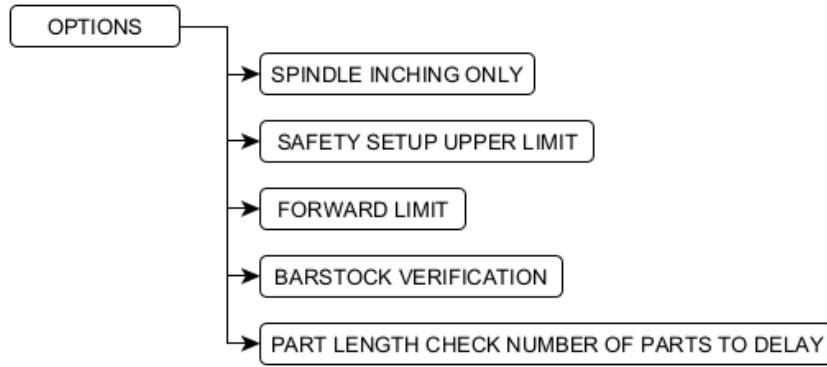
POSITION



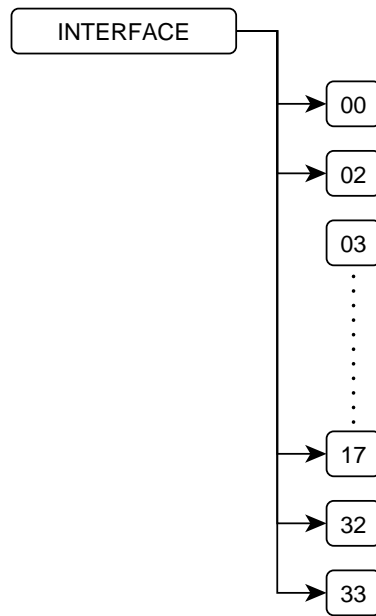
FEED RATE/TORQUE



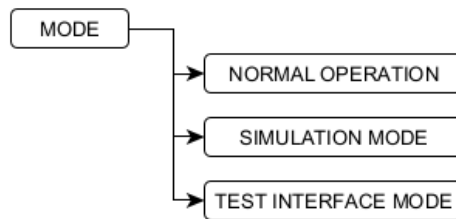
OPTIONS



INTERFACE



MODE



7 MAINTENANCE

This chapter describes simple maintenance work that needs to be carried out on a regular basis. The maintenance work can be carried out by operating personnel.

DANGER



Electrical hazards!
Risk of death from electric shock!

- ⇒ Do not carry out any servicing on the interface or inside the electrical cabinet while the machine tool is energized.
- ⇒ Do not place the machine in a damp area and make sure that water or oil does not come into contact with the electrical equipment.
- ⇒ Do not move the bar feeder while it is electrically powered on.
- ⇒ Do not attempt to recharge the batteries of the PLC.

WARNING



Risk of injury from moving parts!
Crushing hazard.

- ⇒ Stop the machine before carrying out any maintenance work.

7.1 INSPECTIONS

INFO



- ⇒ The maintenance intervals only serve as a guideline.
- ⇒ They must be adapted according to the application, environment and the air quality.

Component	Maintenance task	Daily	Weekly	Monthly	Quarterly	Yearly
Bar feeder	Clean the sensors.			X		
Bar feeder	Clean the bar feeder.					X
Belt drive	Check the tension of the toothed belt.				X	
Emergency stop button	Check its operation.	X				

7.2 CLEANING

NOTICE



Risk of damage to the machine due to compressed air!

- ⇒ Particles may remain blocked in sensitive areas and thus compromise the proper functioning of the bar feeder.
- ⇒ Do not clean the machine with compressed air.

NOTICE



Risk of damage to the paint due to solvent-based cleaning products!

- ⇒ Do not clean the bar feeder with solvents, such acetone or thinners.

Zone	Description
Exterior	Use a soft cloth and a solvent-free cleaning product.
Emergency stop button	Check its operation.

7.3 BATTERIES

INFO



Switching off the bar feeder when the message “Battery low” is displayed may wipe the parameters.

- ⇒ Do not switch off the power until the battery has been replaced.

In the event of a power failure, a backup battery saves the data contained in the PLC. It is possible that with time this battery will slowly drain; in this case a message will be displayed on the remote control. The battery must be replaced as soon as possible with a battery of the same type. The same applies to the servo amplifier.

8 DISPOSAL

At the end of its service life, the machine will be permanently decommissioned and deposited at a recycling collection point.

IMPORTANT



Improper disposal of the machine can cause serious harm to the environment.

Harmful to the environment!

- ⇒ Drop off the machine at a recycling collection point.
- ⇒ Otherwise, have it recycled by an authorized local service.

Procedure

- 1 Clean the machine.
- 2 Allow the machine to air dry.
- 3 Lightly lubricate the moving parts.
- 4 Start the machine.
- 5 Empty the lubricant from the system.
- 6 Depressurize the pneumatic circuit.
- 7 Stop the machine.
- 8 Bring all components to the recycling point, sorted according to their materials

9 TROUBLESHOOT

DANGER



Electrical hazard!

Danger of death by electrocution.

- ⇒ Work on the electrical system must only be performed by a qualified electrician.
- ⇒ In the case of a fault that may be electrical in origin, please contact LNS or its local representative.

This chapter covers all the errors and warnings of the bar feeder. Whenever an error or warning message appears, follow the troubleshooting guide to check the problem. If you are not sure, do not hesitate to contact LNS or its local representative.

9.1 PLC ALARMS

AL01 – EMERGENCY STOP!

Description	The emergency stop has been activated on the bar feeder and the lathe. This alarm is generated every time the safety line is open.
Solutions	<ol style="list-style-type: none"> 1. Check if the emergency stop button on the remote control is pressed. If yes, release the emergency stop. 2. Check if the emergency stop circuit on the lathe is open. If yes, clear all the lathe alarms. 3. Check if the circuit breaker has tripped. If yes, reset the circuit breaker. 4. Check the PLC connection.

AL02 – CHECK 1ST FEED LIMIT!

Description	The introducer exceeds the position of +20 mm.
Solutions	<ol style="list-style-type: none"> 1. Check if forward limit setup is too small.

AL03 – CHECK BAR-END POINT!

Description	When the bar feeder is switched into automatic mode, the pusher's current position is larger than the bar end position.
Solutions	<ol style="list-style-type: none"> 1. Check if end of bar setup is too small.

AL04 – SERVO MOTOR ALARM!

Description	An alarm is generated on the servo amplifier in the electrical cabinet.
Solutions	<ol style="list-style-type: none"> 1. Contact LNS or its local representative.

AL05 – SE880 OIL SWITCH OFF

Description	Problem with the lubrication system of the SE 880.
Solutions	<ol style="list-style-type: none"> 1. Check if you do have enough oil in the tank.

AL06 – TOP CUT TOO LONG!

Description	The pusher passes through “end of bar position”, “ejection position” or “forward limit” but does not length setup on top cut yet during positioning the end of bar, bar ejection and first feed.
Solutions	<ol style="list-style-type: none"> 1. Check if safety setup is too long. 2. Check the setting of end of bar, ejection and first feed.

AL07 – MAGAZINE EMPTY

Description	The introducer has arrived at first feed position according to P08 during first feed. The top cut switch was not activated.
--------------------	---

AL07 – MAGAZINE EMPTY

Solutions	<ol style="list-style-type: none"> 1. Check the presence of bars on the ramp. 2. Load new bars to continue with production.
------------------	---

AL09 – A3 SIGNAL MISSING!

Description	“A3: starting loading” signal is not activated within 15 seconds.
Solutions	<ol style="list-style-type: none"> 1. Contact LNS or its local representative.

AL10 – LATHE COLLET IS NOT OPEN!

Description	<p>Two possibilities:</p> <p>During bar change process, the chuck signal is OFF while the pusher is advancing the new bar stock into the spindle.</p> <p>The pusher does not return to origin reference within 15 seconds while the bar end signal is ON and the chuck signal is OFF.</p>
Solutions	<ol style="list-style-type: none"> 1. Check if the lathe chuck is open. 2. Check if the chuck signal was sent from the lathe. 3. Check if the bar feeder receives the chuck signal.

AL11 – BAR FEEDER NOT IN AUTO!

Description	The bar feeder is still in manual mode when the lathe chuck has been turned ON/OFF 3 cycles.
Solutions	<ol style="list-style-type: none"> 1. Switch the bar feeder into automatic mode if it is supposed to be.

AL12 – PUSHER MOVEMENT TOO LONG!

Description	When the lathe chuck is open, the pusher feeding length is greater than the parameter value set in “Too long”.
Solutions	<ol style="list-style-type: none"> 1. Check if the lathe stopper is correctly positioned. 2. Check if the parameter “Too long” is set correctly. 3. Check if the pusher overlaps the bar stock.

AL13 – PUSHER MOVEMENT TOO SHORT!

Description	When the lathe chuck is open, the pusher feeding length is smaller than the parameter value set in “Too short”.
Solutions	<ol style="list-style-type: none"> 1. Check if the lathe stopper is correctly positioned. 2. Check if the parameter “Too short” is set correctly. 3. Check if the lathe chuck is too tight. 4. Check if the spindle is blocked. 5. Check if the pusher is bent.

AL14 – CHECK SQ4 OR M2 MOTOR FAILURE!

Description	No signal response from M2 motor when the servo is sending a signal to the motor.
Solutions	<ol style="list-style-type: none"> 1. Check the sensor (SQ4) 2. Check the motor (M2).

AL15 – CHECK SQ40 OR M3 MOTOR!

Description	No signal response from M3 motor when the servo is sending signal to the motor.
Solutions	<ol style="list-style-type: none"> 1. Check the sensor (SQ40). 2. Check the motor (M3).

AL17 – PUSHER CAN'T ADVANCE BAR STOCK!

Description	The introducer fails to advance the bar stock to first feed position in 30 seconds (cf. forward limit) or the pusher fails to advance the bar stock at a part length when the chuck is opened during machining.
Solutions	<ol style="list-style-type: none"> 1. If the bar stock is not advanced out of the unit, check the pushing force and adjust the torque value accordingly. 2. Make sure the setup value of forward limit is correct. 3. If the bar stock is stopped between bar feeder and lathe, check the central alignment of both machines and adjustment of bar stock diameter. 4. If the bar stock is stopped in the spindle, check the size of the liner and check if the bar stock is straight or bent.

AL18 – PUSHER REVERSE TIME EXPIRED!

Description	The bar feeder fails to return the pusher to home position in 15 seconds after bar ejection of first feed was accomplished.
Solutions	<ol style="list-style-type: none"> 1. Check if the lathe spindle is blocked. 2. Check if the pusher returned to its home position and the SQ2 did not detect it. 3. Switch to manual mode. Using the remote control, manually move the pusher backward/forward to see if the servo motor is working/broken.

AL19 – CAN'T ADVANCE BAR STOCK TO LATHE!

Description	The bar feeder fails to position a new bar stock at top cut position in 120 seconds after bar ejection of first feed was accomplished.
Solutions	<ol style="list-style-type: none"> 1. Check if the bar stock is blocked inside the lathe spindle or chuck. 2. Check if the torque setup for additional pushing force is enough. 3. Check if the top cut setup is correct.

AL20 – CHUCK CLOSE TIME EXPIRED!

Description	After the start signal is triggered, the bar feeder is unable to receive the chuck close signal within the defined time.
Solutions	<ol style="list-style-type: none"> 1. Contact LNS or its local representative.

AL21 – PUSHER MOTION DETECTED AFTER CHUCK CLOSE!

Description	When the lathe chuck is closed, the pusher has to retract after "R2-finish" setup time.
Solutions	<ol style="list-style-type: none"> 1. Check if lathe chuck cannot close tightly. 2. Compare the chuck status shown by the bar feeder on the main page vs. the actual chuck status. If different, modify the setup. 3. Check if "Too long" setup is correct.

AL22 – EJECTION POSITION EXCEEDED!

Description	Without the end of bar signal sent out, the pusher has arrived at ejection position or end of bar position when chuck opens.
Solutions	<ol style="list-style-type: none"> 1. Check if the position of the stopper is correct. 2. Check if the ejection position setup is too small. Adjust if needed.

AL23 – REMNANT EJECTION EXCEEDED!

Description	After the chuck is open, the pusher fails to exceed the remnant ejection position within 15 seconds.
Solutions	<ol style="list-style-type: none"> 1. Check if the remnant is blocked inside the spindle. 2. Check if the ejection position setup is too great. Adjust if necessary.

AL25 – TOP CUT TOO SHORT!

Description	The top cut sensor is activated too early. The top cut set is too short.
Solutions	<ol style="list-style-type: none"> 1. Check both: top cut and forward limit setup. 2. Check if the top cut sensor was activated earlier than it is supposed to be.

AL26 – TOP CUT INCORRECT OR STOPPER IN WRONG POSITION!

Description	The pusher position has been over top cut position + workpiece length + 50 mm when the start signal was activated.
Solutions	<ol style="list-style-type: none"> 1. Check if the top cut setup value is too small. 2. Check if the lathe stopper position is incorrect. 3. Check if the top cut sensor was activated earlier.

AL27 – DRY RUN ERROR!

Description	Some conditions allowing the dry run mode are not fulfilled.
Solutions	<ol style="list-style-type: none"> 1. Contact LNS or its local representative.

AL28 – LATHE NOT IN AUTO WITH CHUCK OPEN!

Description	This occurs if the bar feeder is in automatic mode. The lathe does not output auto signal (A2 lathe in auto) but opens the lathe chuck (A1 spindle chuck).
Solutions	<ol style="list-style-type: none"> 1. Check if the lathe is in auto mode. If yes, check why the bar feeder did not receive auto signal. If not, switch the lathe in auto mode.

AL29 – CHUCK OPEN DURING BAR STOCK VERIFICATION!

Description	In automatic mode, lathe chuck is open at an inopportune moment.
Solutions	<ol style="list-style-type: none"> 1. Check the lathe part program or parameter.

AL30 – MAIN ACCESS COVER OPEN!

Description	The main access cover is open. This alarm is only available when installing main access cover safety switch.
Solutions	<ol style="list-style-type: none"> 1. Close the cover. If the cover is already closed, check if there is something hindering the contact with the safety switch (SQ10). 2. Check if the safety switch is defective. If yes, replace it. Otherwise contact LNS or its local representative.

AL31 – RETRACTION SYSTEM IS NOT IN WORKING POSITION!

Description	The retraction system is not locked properly. This alarm is only available when installing retraction system safety switch.
Solutions	<ol style="list-style-type: none"> 1. Lock retraction device. 2. If the retraction device is locked, check if the safety switch (SQ12) is defective. If yes, replace it. Otherwise contact LNS or its local representative.

AL32 – MAGAZINE PROTECTION COVER OPEN!

Description	The magazine protection cover is open. This alarm is only available when installing magazine protection cover safety switch.
Solutions	<ol style="list-style-type: none"> 1. Close the cover. If the cover is already closed, check if there is something hindering the contact with the safety switch (SQ11). 2. Check if the safety switch is defective. If yes, replace it. Otherwise contact LNS or its local representative.

AL33 – LOADING OR UNLOADING CYCLE INTERRUPTED!

Description	The loading or unloading cycle was interrupted.
Solutions	<ol style="list-style-type: none"> 1. Contact LNS or its local representative.

AL34 – SQ1 SWITCH (MEASIRUNG CELL) FAILURE! CHECK THE SWITCH SQ1!

Description	The sensor is activated (LED on the sensor is ON) before the first feed or after the pusher has returned.
Solutions	<ol style="list-style-type: none"> 1. Check if something is activating the sensor. 2. Check if the sensor is defective.

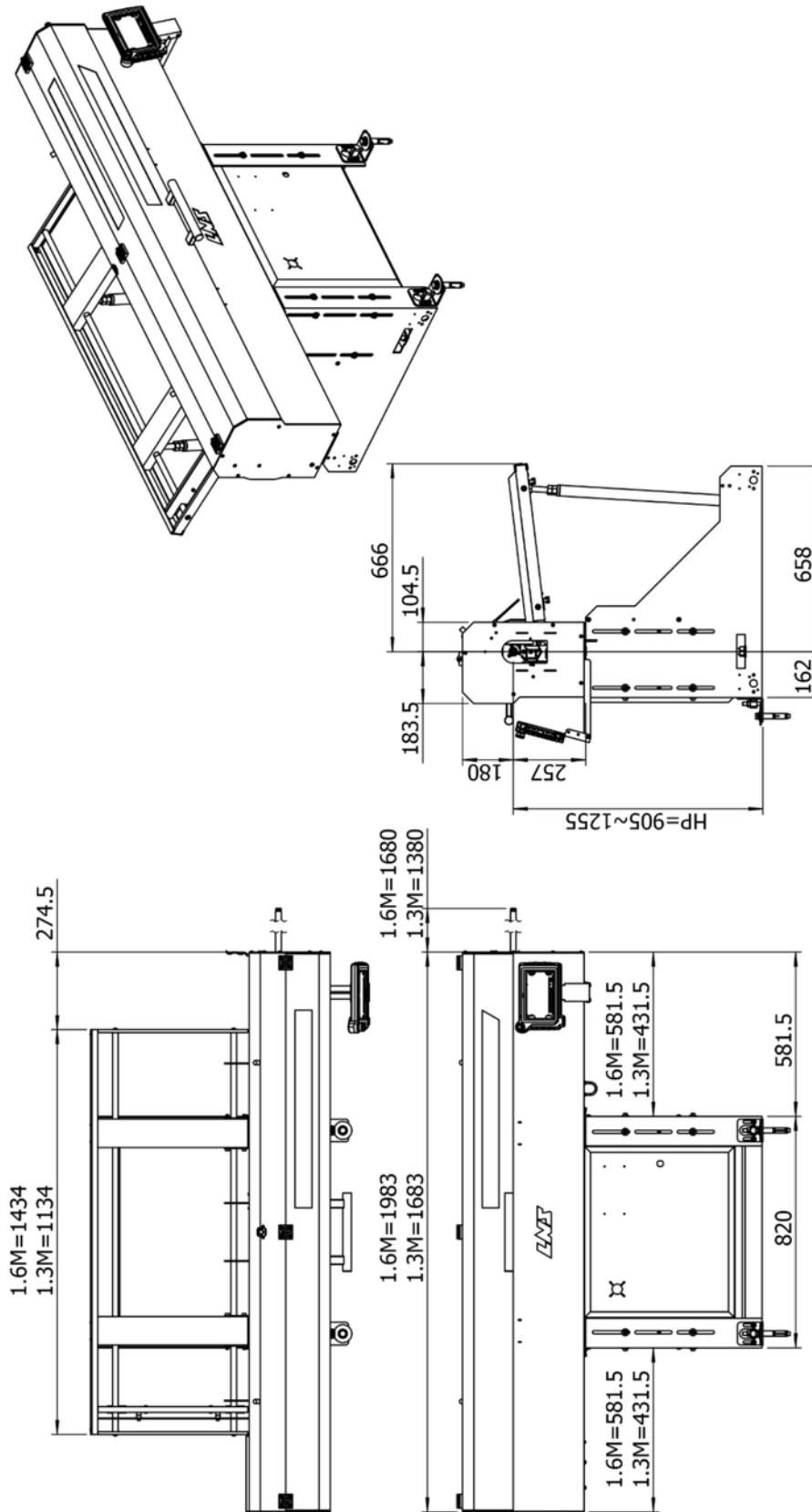
AL35 – NC ALARM

Description	When A2 signal is set to 1 and the bar feeder is in auto mode, receiving A2 alarm signal.
Solutions	<ol style="list-style-type: none">1. Switch to manual mode.2. Check if there are any problem on the lathe.

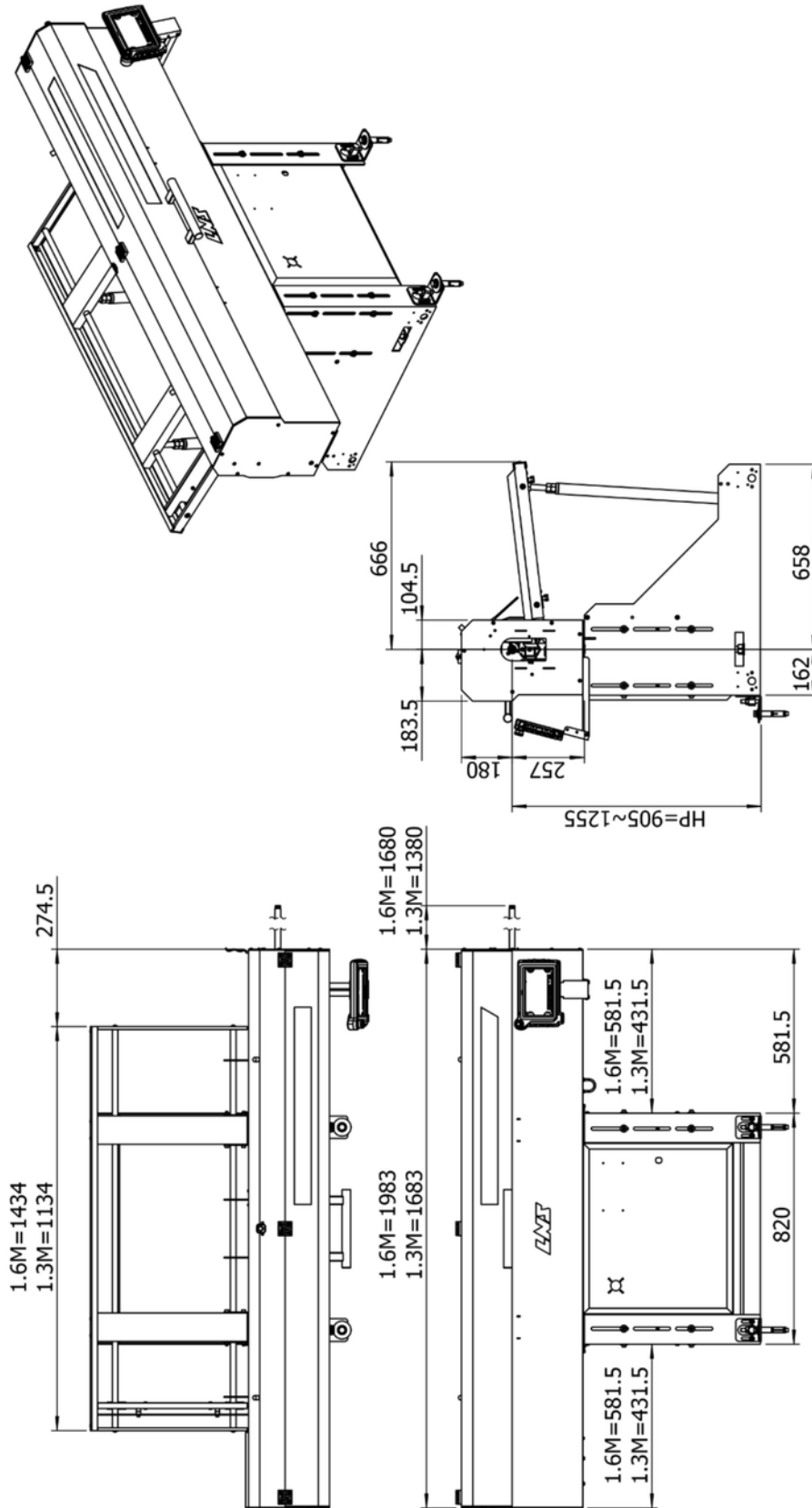
10 APPENDICES

10.1 DIMENSIONAL DRAWINGS

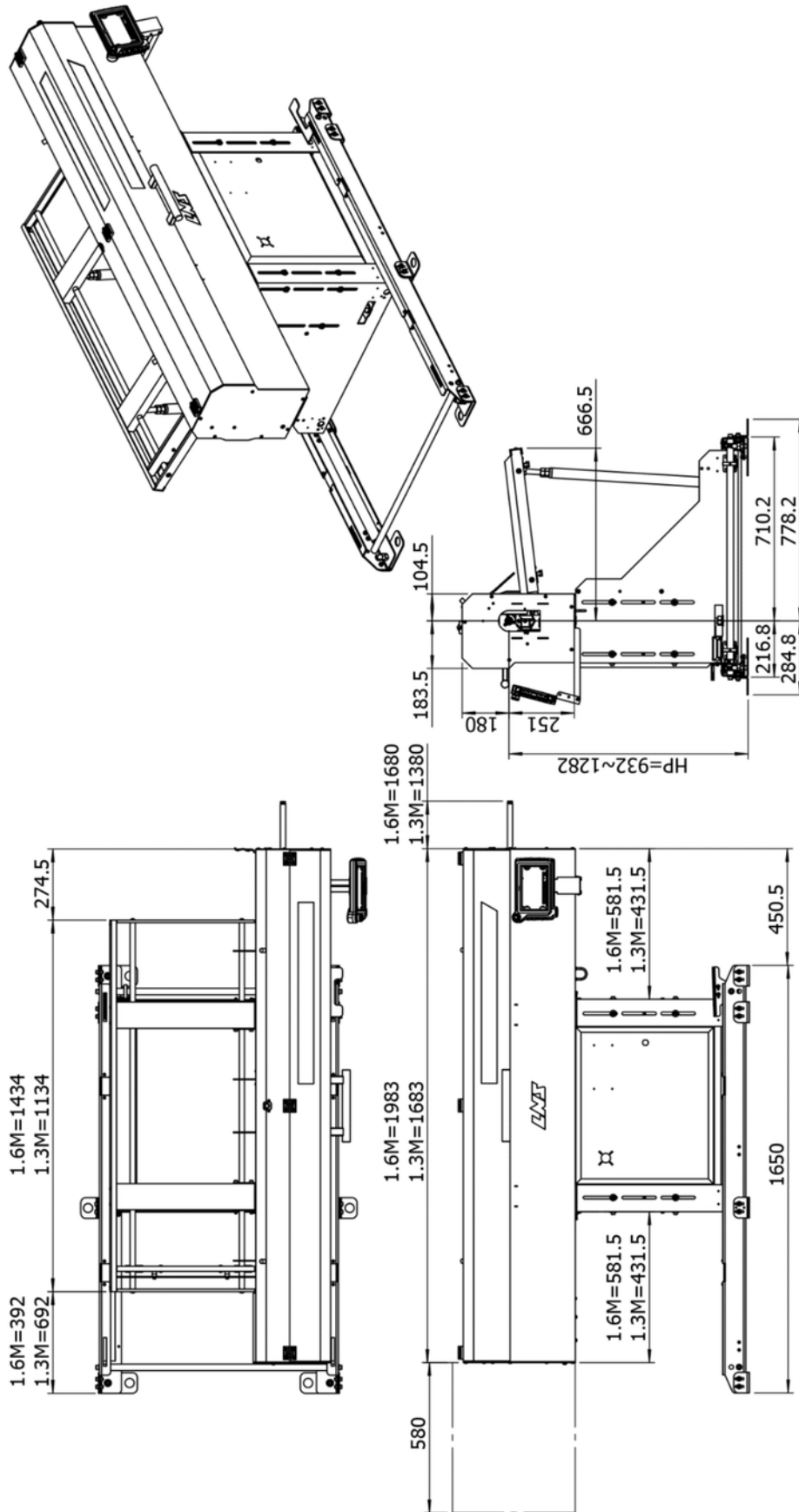
WITHOUT RETRACTION SYSTEM



WITH LATERAL (X-AXIS) RETRACTION SYSTEM



WITH LONGITUDINAL (Z-AXIS) RETRACTION SYSTEM



10.2 GLOSSARY

Bearing	Machine component in which a shaft or other elements turn.
Collet	Secures the bar stock and connects it to the pusher.
DAC	Digital-to-Analog Converter
Drive	Transforms electrical energy into mechanical energy.
EE-PROM	Electrically Erasable Programmable Read Only Memory
Front rest	The last guide element in contact with the bar stock before the entrance of the lathe spindle. Stabilizes the bar movement.
IGBT	Insulated Gate Bipolar Transistor
Informed persons	Persons sufficiently informed or supervised by qualified personnel to enable them to avoid the dangers posed by electricity (maintenance or operating staff).
Motor	Equipment transforming electrical energy into mechanical energy.
PLC	Programmable Logic Controller: Digital computer used for process automation. The PLC controls the machine's operation.
Pos.	About illustrations: Number of position.
Pusher	Controls the movement of the bar stock inside the bar feeder and lathe spindle.
Qualified personnel	Persons with technical knowledge or experience sufficient to enable them to avoid the dangers posed by electricity (engineers and technicians).
Remnant vice	Fixes the bar stock for insertion or retraction.
Rotating sleeve	Connects the pusher to the collet.
Shaft	Steel bar for supporting rotating elements or to transfer power.
SD card	Removable memory card (Secure Digital).

10.3 SPARE PARTS CATALOGUE

A spare parts catalogue is available for this machine.

The catalogue is among the technical documentation delivered with the machine.

10.4 AFTER-SALES SERVICE

For repairs or in case of problems with the machine, contact:



SERVICE HOTLINE	
Mo. - Th.	Fr.
07:30 - 12:00 (CET)	07:30 - 12:00 (CET)
13:30 - 17:00 (CET)	13:30 - 16:00 (CET)



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10.5 EC DECLARATION

EC DECLARATION OF CONFORMITY In accordance with Annex II 1 A of the directive 2006/42/EC



We hereby declare that the machine below meets the requirements of the directives:

- Machinery Directive: 2006/42/EC
- Low Voltage Directive: 2014/35/EU
- EMC Directive: 2014/30/EU

Manufacturer:

LNS China
No. 289, Quande Rd.,
Wujiang Economic & Technical Development Zone,
Wujiang Dist.,
Suzhou City, Jiangsu Province, China

Authorized Representative:

LNS Sàrl
Route de Frinwillier
2534 Orvin
Switzerland

Creation of the relevant technical documents in accordance with Annex VII Section A of the machinery directive 2006/42/EC

Plaseco
Kurt De Pauw
Route de Payerne 11
CH-1752 Villars-sur-Glâne
Switzerland

Description of the machine:

Bar feeder

Type:

QLS 65

Serial number:

The following national and harmonized standards have been applied:

In relation to the machinery directive:

EN ISO 12100:2010; EN ISO 13855:2010; EN ISO 13857:2019; EN ISO 14120:2015; EN ISO 13849-1:2015; EN ISO 13850:2015; EN ISO 14118:2018; EN ISO 14119:2013; EN ISO 4414:2010; EN 60204-1:2018

In relation to the low voltage directive:

EN IEC 61439-1:2021; EN IEC 61439-2:2021; EN 61439-3:2012/2019-04

In relation to the EMC directive:

EN IEC 61000-6-4:2019; EN IEC 61000-6-2:2019

Place and date:

(Seal and signature)

Orvin, September 9th, 2024

Sabrina Tschannen
Export Manager