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SETUP AND OPERATION MANUAL

SL-3-W: Gutter center

Type: 6M

Serial nr.:

Build year:

Buyer:





SL-3-W 6000 User Guide

Page: 2

Pages: 19

Revision: 0

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1.) WARNINGS AND SAFETY MEASURES

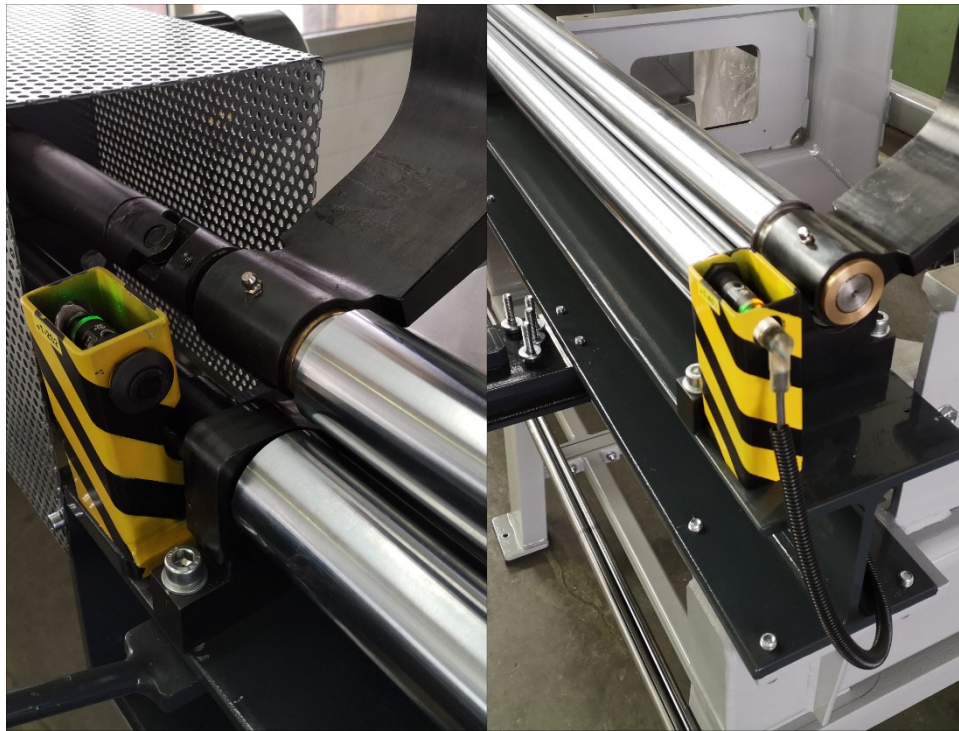
The main hazard of this machine is getting your hands entangled with metal or rollers, when taking the metal out and rolling at the same time. Be careful especially with two operators working on the machine!

DO NOT work with the machine with loose clothes, long hair, jewelry, or similar objects that could get entangled!

DO NOT ACTIVATE EMERGENCY STOP WIRE IN CASE OF FINGER(S) OR HAND(S) GETTING ENTANGLED IN THE ROLLERS AND/OR SHEET METAL. IN THAT CASE DO THE FOLLOWING:

If a person gets their finger(s), hand(s), or other parts of their body trapped in the rollers, **DO NOT** activate emergency stop, but instead stop rotating and press the UP pedal to free them from the rollers.

If the operator breaks the safety laser beam when the rollers go down in AUTO mode, they will stop and go back up.



*Fig.2 Left and right photoelectric sensors. Only work in **AUTO** mode. Should be tested before use, if they don't work, should be recalibrated.*

In **AUTO** mode if the operator gets their finger(s), hand(s), or other parts of their body trapped in the rollers, first switch to **MANUAL** mode and then press the UP pedal to free the operator.

OTHER

If there is any danger that does not involve getting finger(s), hand(s), or other body parts entangled, kick the **EMERGENCY STOP (E-STOP)** to immediately stop the machine. After the problem/danger is removed, reset the wire by pulling the blue button up, on the left side of the wire.

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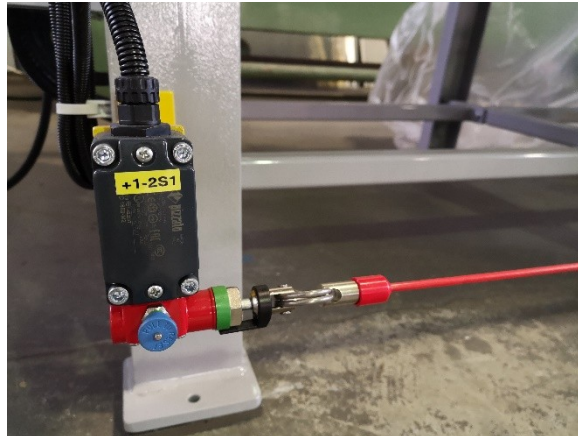


Fig.1 Emergency wire, with the blue button, used to reset the wire, shown.



**Wear safety shoes
with steel caps!**



**Wear cut resistant
safety gloves!**



**Danger rotating
parts!**



Danger high voltage!



General warning!



**Read the
instructions before
use!**

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2.) SPECIFICATIONS

The machine is used to prepare round pipes for seaming, and producing different gutters from straight sheet metal, with thickness ranging from **0,5mm to 0,8mm**, depending on the material.

Product: Machine with rollers for pipe rounding

Type: SL-3-W 6m

Dimensions (Length x Width x Height): 6950mm x 1200mm x 1800mm

Weight: 2650kg

Noise level: 65dB

Machine colour: Signal gray (RAL 7004) and anthracite gray (RAL 7016)

ELECTRICAL SPECIFICATIONS

Motor supplier: Strojna Gonila Maribor

Power supply: 3N PE ~400 / 230 V @ 50Hz

Power consumption: 1,5 kVA

Machine operating voltage: 24V

Electric current: 3A

Safety fuse: 6A

Voltage of controls: 24V

SHEET METAL THICKNESS

Maximum tensile strength: 400N/mm²

Galvanized sheet metal: 0,5 – 0,65mm

Titanzinc sheet metal: 0,5 – 0,8mm

Copper sheet: 0,5 – 0,8mm

Coloured galvanized sheet metal: 0,5 – 0,65mm

Coloured aluminium sheet metal: 0,55 – 0,8mm

The machine features a grounding clamp. **MAKE SURE THE MACHINE IS GROUNDED BEFORE USE!**



Fig.2 Grounding clamp, on the right most leg of the machine.

3.) UNLOADING

The machine should be unloaded with a forklift, the center of mass of the machine is marked. Make sure that the forks on the forklift don't lift by the square pipes on the legs of the machine, but instead **lift by the I-beam on the front, and the connecting pipe on the back of the machine.**

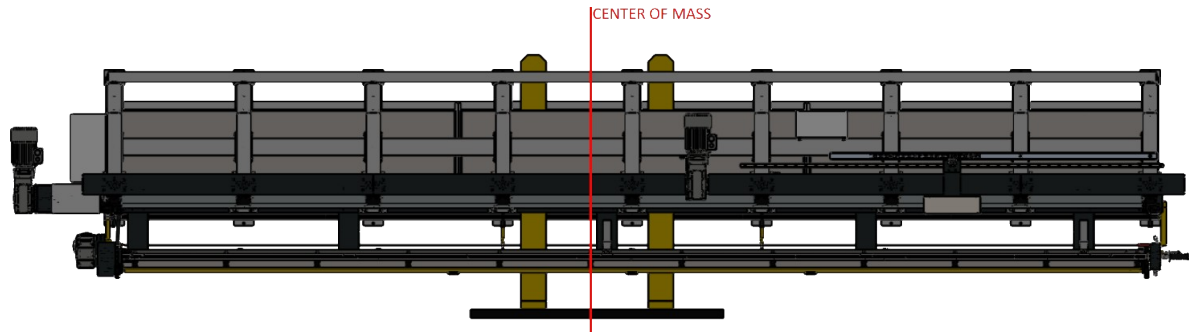


Fig.3 Top view of the approximate forklift forks (yellow) position for machine unloading, with center of mass position marked.

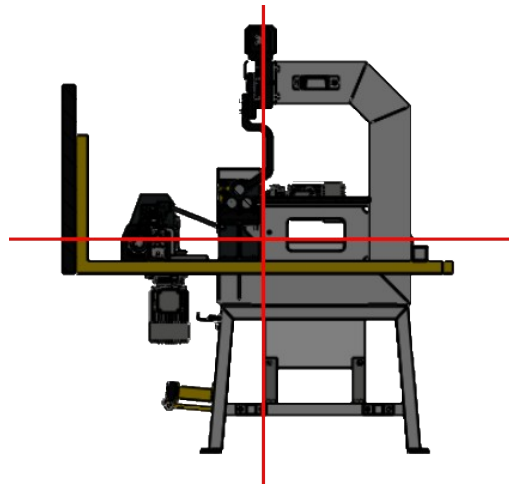


Fig.4 Right side view of the approximate forklift forks position for machine unloading, with center of mass axes marked. Note the members that lean onto the forks (yellow), the **I-beam** at the front, and the **connecting pipe** at the back.

For moving shorter distances a pallet jack can also be used. Position the forks under the connecting pipes in between the legs, as shown on fig.5.

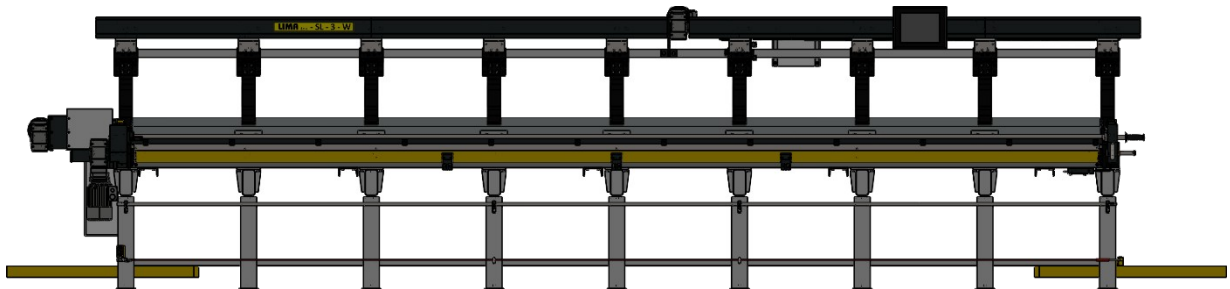


Fig.5 Positions for pallet jack forks, **only to be used when moving shorter distances** or for precise positioning.

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4.) LEVELING

When unloaded, the machine should be put on a hard, level surface. If it needs to be leveled more, put metal sheets under the legs.

It is also important to secure **at least 1,5 metres** of space on all sides of the machine. When leveling the machine, make sure to fasten the leveling bolts (shown on figure 3) so that they press into the added sheet metal, or into the surface on which the machine lies. Make sure to tighten the bolts starting from the **middle** and working your way to the ends of the machine. All legs must be firmly secured to each plate with leveling bolts.

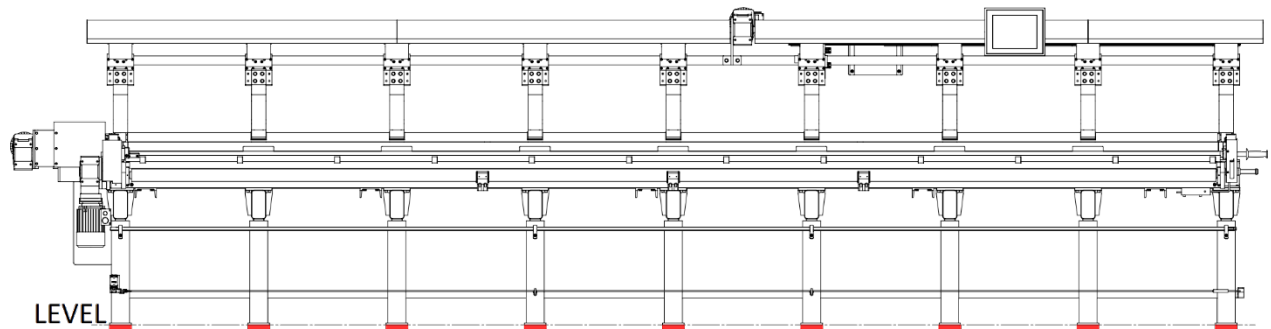


Fig.6 Front view of the machine, with added sheet metal (red) underneath the legs, ensuring that the machine is level.

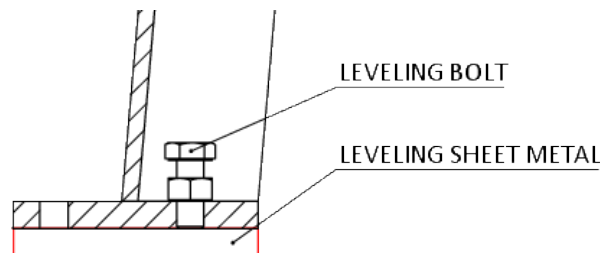


Fig.7 Closeup of the leveling sheet metal, and the leveling bolt on the inside of the leg UNP structural member.

BEFORE SWITCHING ON THE MACHINE!

The machine has to be connected to a three-phase power supply, 3N PE 400/230V, at 50Hz.

5.) POWER UP

Turn the **MAIN SWITCH** into **ON (1)** position. After switching the main switch into position, press the green **SUPPLY ON** button. If the button does not light up, either press the **NOT-AUS** button, or the switch in the electric box could be deactivated, and it needs to be activated.



*Fig.8 Main switch in the **ON (1)** position, with the **SUPPLY ON** button lit up, meaning the machine is turned on and ready for work.*

To test whether the phases are connected correctly, turn the machine on and put it in **MANUAL** mode. If the phases are connected correctly, the upper roller must move **UP** when the foot pedal **UP** is pressed. If the phases are not connected properly, the screen will display a "**WRONG DIRECTION**" message, and the roller will rotate upwards (when facing the front of the machine) if the pedal **FORWARDS** is pressed. If the phases are corrected incorrectly, have an electrician change the phases inside the three-phase plug.

IF THERE IS NO POWER, OR THE MACHINE IS NOT WORKING, it is possible that when the machine is plugged in, the safety switch **2F1** inside the electrical box turns off because of peak power. It needs to be turned back on, manually inside the electrical box if the machine does not respond to contact.

To turn the machine off, switch the **MAIN SWITCH** into **OFF (0)** position.

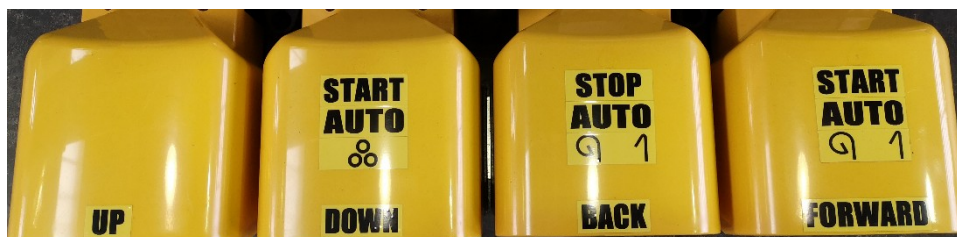


Fig.9 Pedals, marked with the names and their functions. The functions are also shown on the touchscreen display, depending on the mode selected.

6.) MANUAL ROUNDING



Fig.10 The **INTRO** screen with mode selection.

Insert the straight sheet metal between the rollers. The edge of the sheet must be approximately on half the roller nearest to you (marked with tape). Press the **DOWN** pedal to bring it into the position you want (e.g., +9,5mm), then rotate forward until you get the desired shape. **SPEED-ROLLING** changes the rotation speed of the rollers, and **SPEED-SHIFT** changes the vertical travel speed of the rollers.

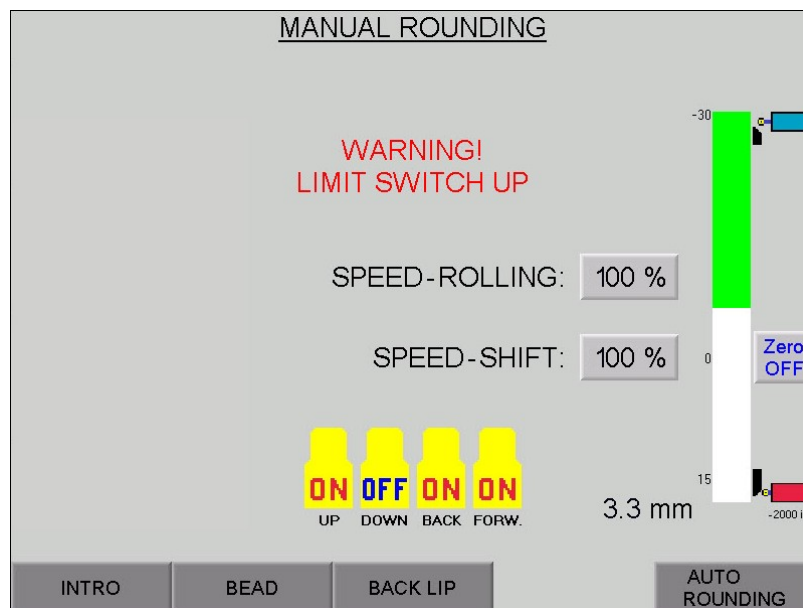


Fig.11 The screen display with manual mode selected.

7.) AUTOMATIC ROUNDING

First switch to auto mode by touching the **AUTO** button in the right corner of the touchscreen. Adjust the roller depth according to what you want to produce.

After adjusting the depth, press the **AUTO START/DOWN** pedal to activate cycle. The roller then goes down into target position. To start the rotation cycle, press the **AUTO START/DOWN** pedal again.

The rollers rotate backward a bit first, and then form the radius. If you need to stop the cycle, you can switch from **AUTO** to **MANUAL** mode. The cycle then stops, and you can finish it in manual mode.

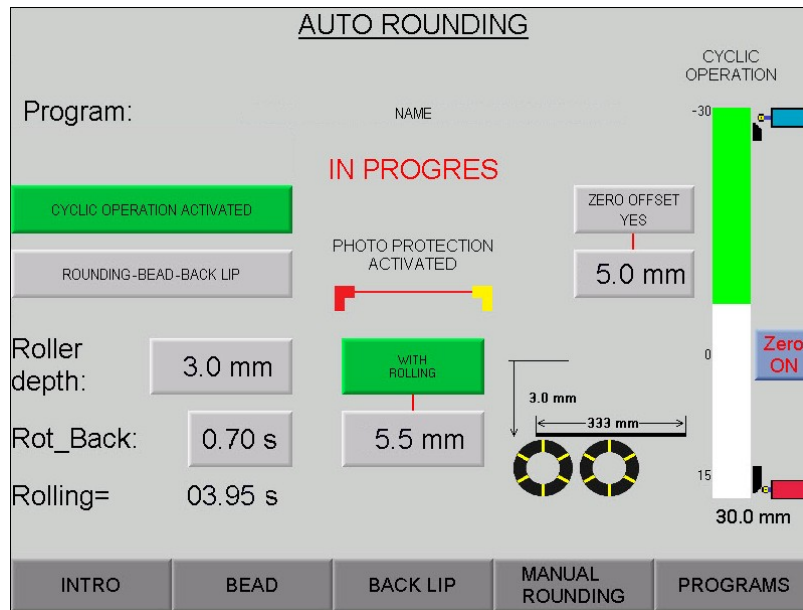


Fig.12 **AUTOMATIC ROUNDING** mode with cyclic operation activated, and with a zero offset.

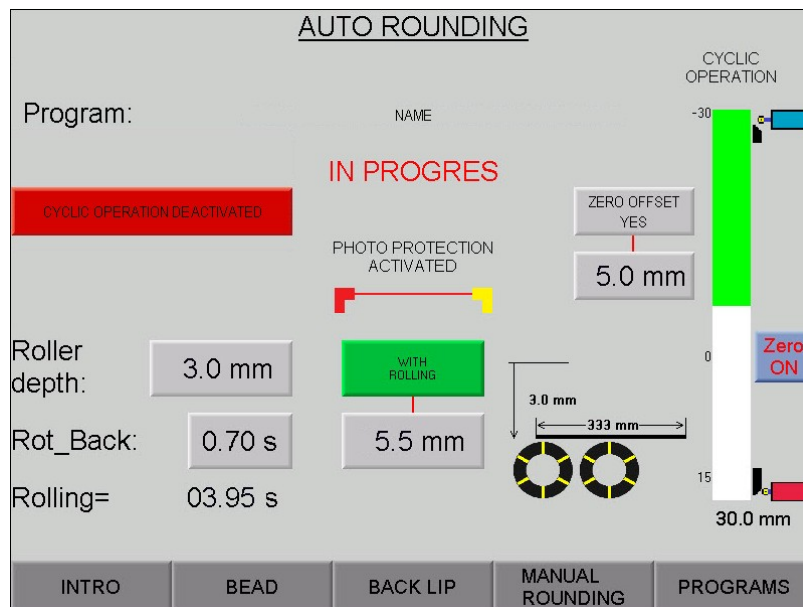


Fig.13 **AUTOMATIC ROUNDING** mode with cyclic operation deactivated, and without zero offset.

CHANGEABLE OPTIONS – can be changed by touching their respective buttons.

CYCLIC OPERATION ACTIVATED/DEACTIVATED

Cycle through the options by touching the button. If activated, the machine will cycle between **ROUNDING**, **BEAD**, and **LIP** operations, depending on the option selected with the button below. If deactivated, the machine will only do the rounding operation.



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ROUNDING-BEAD-BACK LIP

Only available if **CYCLIC OPERATION** mode is **ACTIVATED**. Change between the 2 options, **ROUNDING-BEAD** and **ROUNDING-BEAD-BACK LIP**, by touching the button. The option changes the cycle of operation to rounding, then bead; or rounding, then bead, then back lip, respectively.

ZERO OFFSET YES/NO

If selected, the machine will change the height it lifts the roller to between cycles. The button below allows you to change the value.

ROLLER DEPTH

Sets the depth the roller will go down to.

ROT_BACK

Added time of roll back to avoid the front straight section of the sheet.

PROGRAMS

Allows you to create and select programs for automatic operations.

UNCHANGEABLE OPTIONS

ROLLING

The approximate length of the operation, shown in seconds.

PHOTO PROTECTION ACTIVATED

Shows whether the photo sensors on the rollers have been broken or not.

8.) BEAD

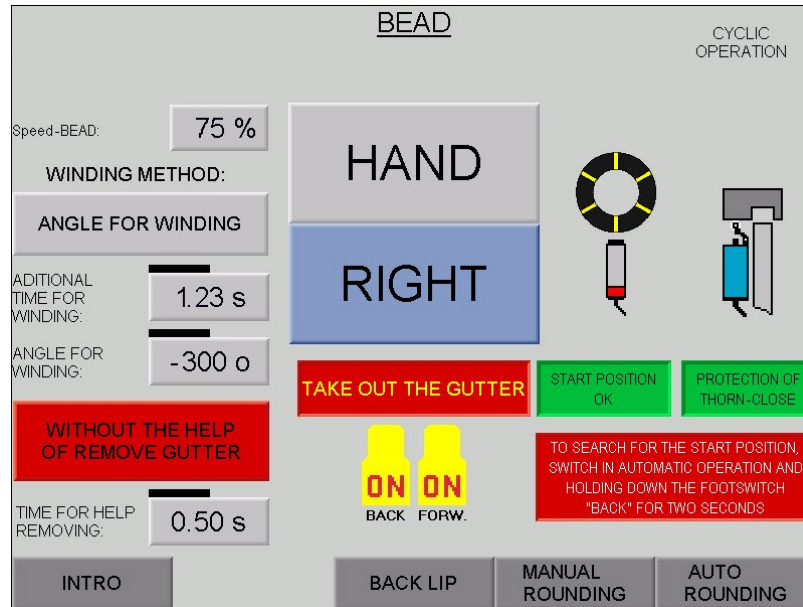


Fig.14 The **BEAD** screen, showing the correct starting position, and that the thorn protection door is closed.

AUTO/HAND

Change the bead mode by touching the button. Choose whether you want automatic or manual bead bending. If **AUTO** is chosen, you can then select **RIGHT** or **LEFT** by touching the button below, which dictates which side the bead is bent in.

SPEED-BEAD

Change the speed of rotation of the bead by touching the button.

WINDING METHOD

Choose either **360°+ADD. TIME** or **ANGLE FOR WINDING**.

If **360°+ADD. TIME** is selected, the **ADDITIONAL TIME FOR WINDING** parameter is used (usually around 1,5s, up to 1,8s max.)

If **ANGLE FOR WINDING** is selected, the **ANGLE FOR WINDING** parameter is used, allowing you to choose the angle of the bead by touching the **ANGLE FOR WINDING** button.

9.) PROGRAMS

PROGRAMS							
Nr.	PROGRAM DESCRIPTION	BACK STOP (mm)	BEAD STICK (mm)	ROLLER DEPTH (mm)	ADD. TIME FOR BEAD (sec)	BACK LIP (yes/no)	
0	NAME	333	18	06.0	0.30	YES	DOWN
1		0	0	00.0	0.00	NO	
2		0	0	00.0	0.00	NO	UP
3		0	0	00.0	0.00	NO	
4		0	0	00.0	0.00	NO	
5		0	0	00.0	0.00	NO	LOAD PROGRAM
6		0	0	00.0	0.00	NO	
7		0	0	00.0	0.00	NO	STORE PROGRAM
8		0	0	00.0	0.00	NO	
0	NAME	333	18	06.0	0.30	YES	
INTRO		AUTO ROUNDING		MANUAL ROUNDING			

Fig 15. The **PROGRAMS** screen. Allowing you to make and choose premade programs.

PROGRAM DESCRIPTION

The name of the program.

BACK STOP

The position of the backstop in the machine (should correspond to the developed width of the sheet)

BEAD STICK

Sets the size of the bead stick.

ROLLER DEPTH

Sets the depth of rollers

ADD TIME FOR BEAD

If selected adds additional time for bead rolling (see **BEAD** sections for explanation)

BACK LIP – YES/NO

Indicates whether the program makes the back lip or not.

Cycle through the programs by touching the **DOWN** and **UP** buttons. Change the highlighted program parameters by touching the buttons at the bottom of the screen. Save the changes to the program by touching the **STORE PROGRAM** button.

10.) BACK LIP

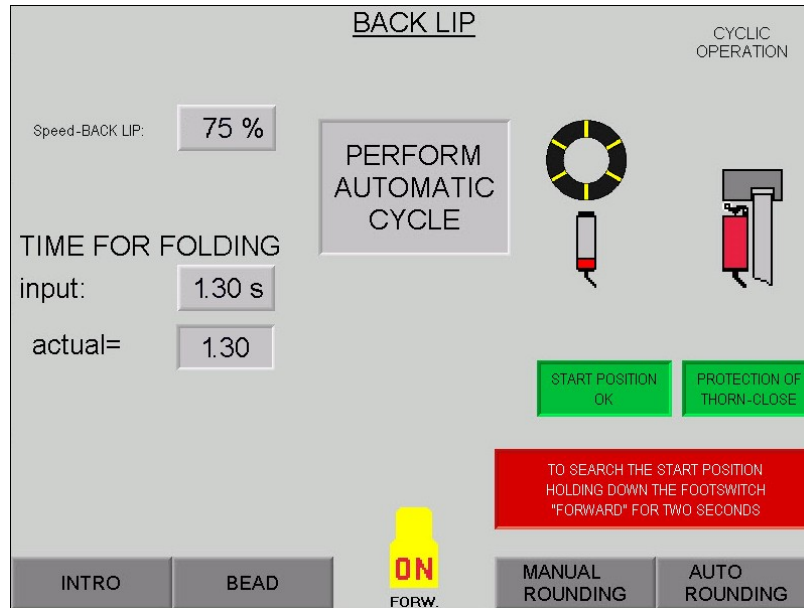


Fig.16 The **BACK LIP** screen, showing the correct start position, and that the thorn protection is closed, thus it's ok to start the back lip operation.

To form the back lip put the sheet metal into position, set the **INPUT** time (~1,2s) of the operation, and then press the **FORWARD** pedal. To put the roller into the start position, hold the **FORWARD** pedal down for 2 seconds.

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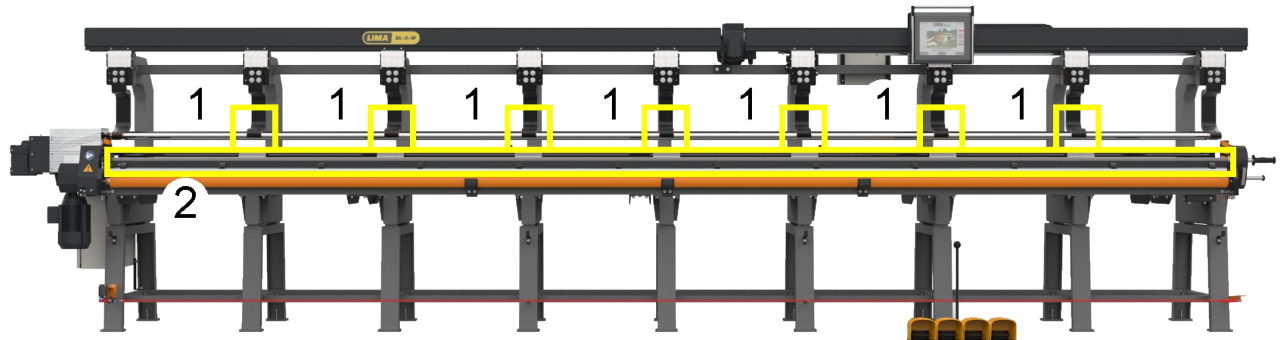
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11.) OILING MAINTENANCE

The parts should be oiled as indicated on the following pictures.

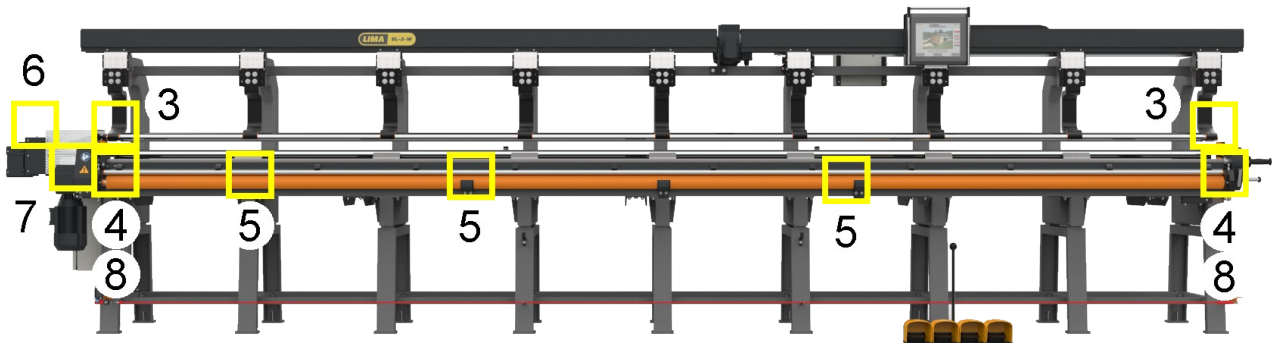
EVERY DAY



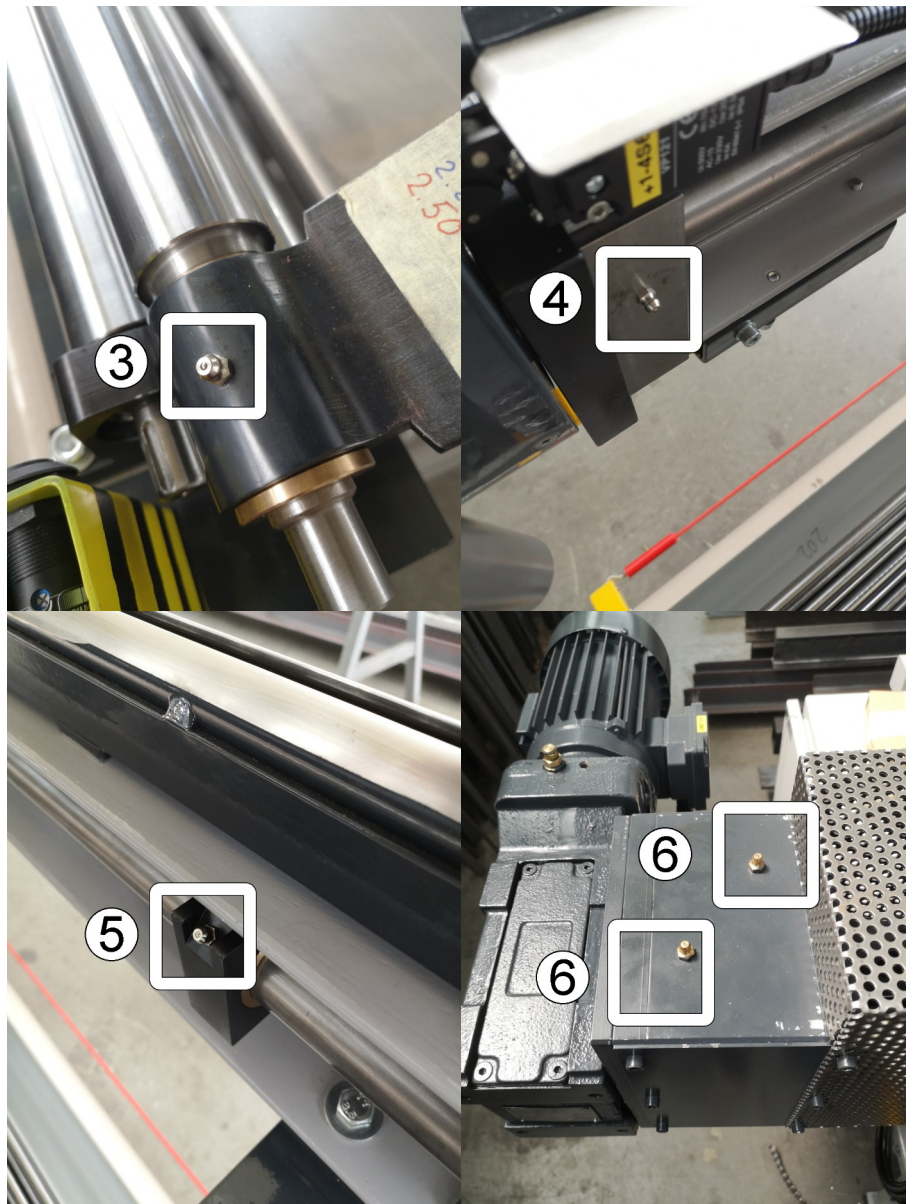
- 1) Middle roller carrier arms (7 holes)
- 2) Bead stick and bead stick holding tube (entire length of the tube and bead stick)



EVERY MONTH



- 3) Outermost roller carrier arms (2 nipples, one on each side of the machine)
- 4) Outermost shaft bearings (2 nipples, one on each side of the machine)
- 5) Inner shaft bearing (2 nipples)
- 6) Roller motor (2 nipples)
- 7) Bead stick transmission (5 nipples)
- 8) Back lip roller bearings (2 nipples, one on each side)

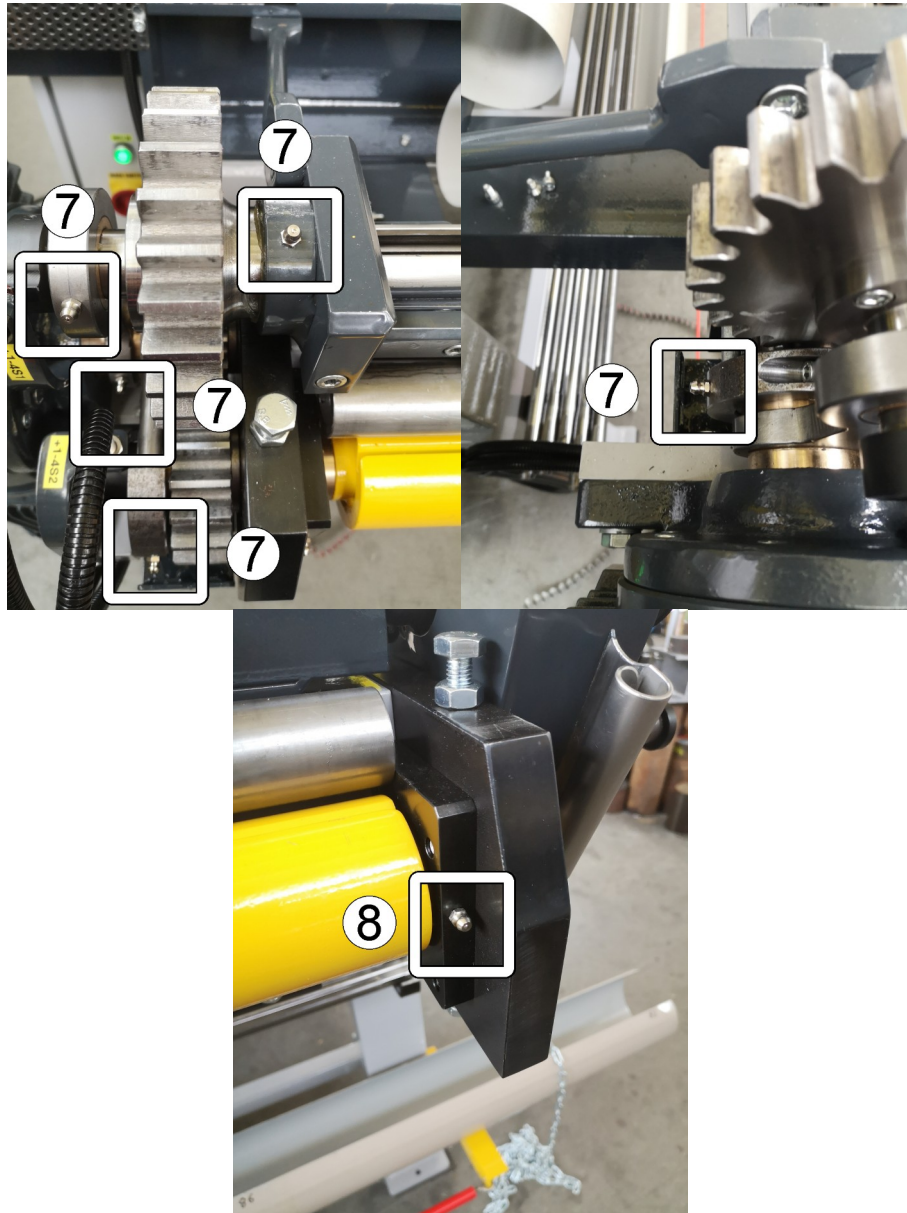


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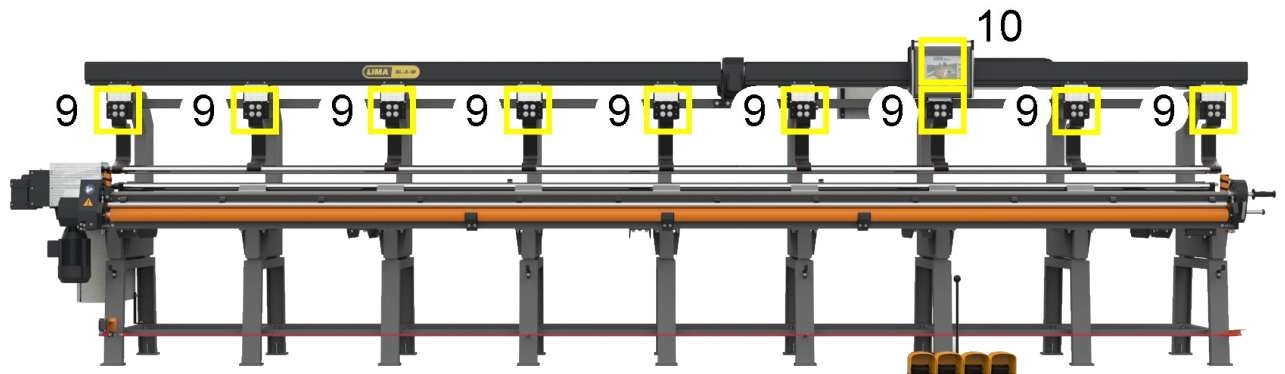


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EVERY YEAR

- 1) Arm carrier sliders (18 nipples, 2 per slider)
- 2) Screen carrier slider (1 nipple, behind the screen)

