

SWABBING ROBOT SR200 V2.0

THE BEST SOLUTION FOR SWABBING
BLANK MOULDS ON I.S. MACHINES



Bucher Emhart Glass by Novaxion

NOVAXION[®]
www.novaxion-robots.com

SWABBING ROBOT SR200 V2.0

The best automatic device for swabbing the blank moulds on IS machines



+56
Swabbing
Robots SR200

In the past 13 years, NOVAXION has installed more than 50 SR200 Swabbing Robots into glass bottle manufacturing plants in Europe, Japan, South Korea, USA...

Novaxion Swabbing Robot Hanged-up Version 2.0

Novaxion's Swabbing Robot's success story began in 2005 when the first swabbing robot prototype was created in co-operation with Saint-Gobain Emballage.

In 2011, NOVAXION developed the first hanged-up Swabbing Robot, which was integrated into a GPS machine in Saint-Gobain Oberland's plant in Germany.

In 2017, Bucher Emhart Glass and NOVAXION began to work together to implement a **new hanged-up SWABBING ROBOT SR200 version V2.0**. This robot has been integrated into an Emhart AIS machine at a European bottle manufacturer.

Worldwide patent license

This innovative solution has been registered in numerous countries around the world. NOVAXION has a license to implement the process, to manufacture and to sell the system worldwide.

Swabbing Robot SR200 replaces manual swabbing

The goal of **SWABBING ROBOT SR200** is to completely replace the manual swabbing on the blank side.

It is able to lubricate any type of blank, from NNPB lightweight bottles to heavy Blow-Blow bottles, and even large mouth press & blow jars.

Not only the blank moulds are swabbed, but also the neck rings.

It can be used on single or tandem IS machines from 6 to 20 sections.

Hanged-up SWABBING ROBOT V2.0 can be integrated into IS, AIS or NIS Emhart machines.

Integration on the IS machine

The specificity of this version 2.0 is that the robot is travelling on a rail fixed onto the hoist beam under the blank panel. This results into a very good integration on the IS machine.

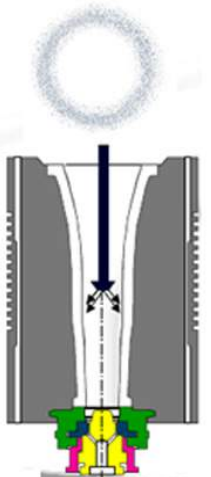
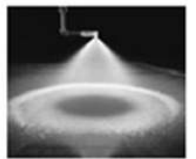
Operating principle

SWABBING ROBOT SR200 comprises a compact 6 axis robot, mounted upside-down on a rail above the sections of the IS machine.

The spraying tool applies a coat of graphite oil into the blank moulds and the neck rings.

Each selected time interval (for instance 20mn), the robot starts and comes in front of the 1st section of the IS machine. The robot sends a request for swabbing to the section, which goes into a special swabbing cycle. When the section is ready, it calls the robot. The robot moves above the blank moulds and then goes down into the moulds.

The SWABBING ROBOT SR200 is swabbing on the fly, without any gob, nor any lost of bottles. Once every 2 or 3 cycles, the neck-rings are swabbed when the mould is opening. The robot moves out of the section and goes in front of the next section until all the sections are swabbed. Then the robot comes back to its parking position.



First hanged-up Swabbing Robot in 2011.



Diagram to the right : Nozzle with external spraying

Efficient lubricant application

The swabbing of the blanks is standardized with equal application of lubricant in each blank. 85% less lubricant is applied compared to manual swabbing. This allows the blank temperature to keep constant.

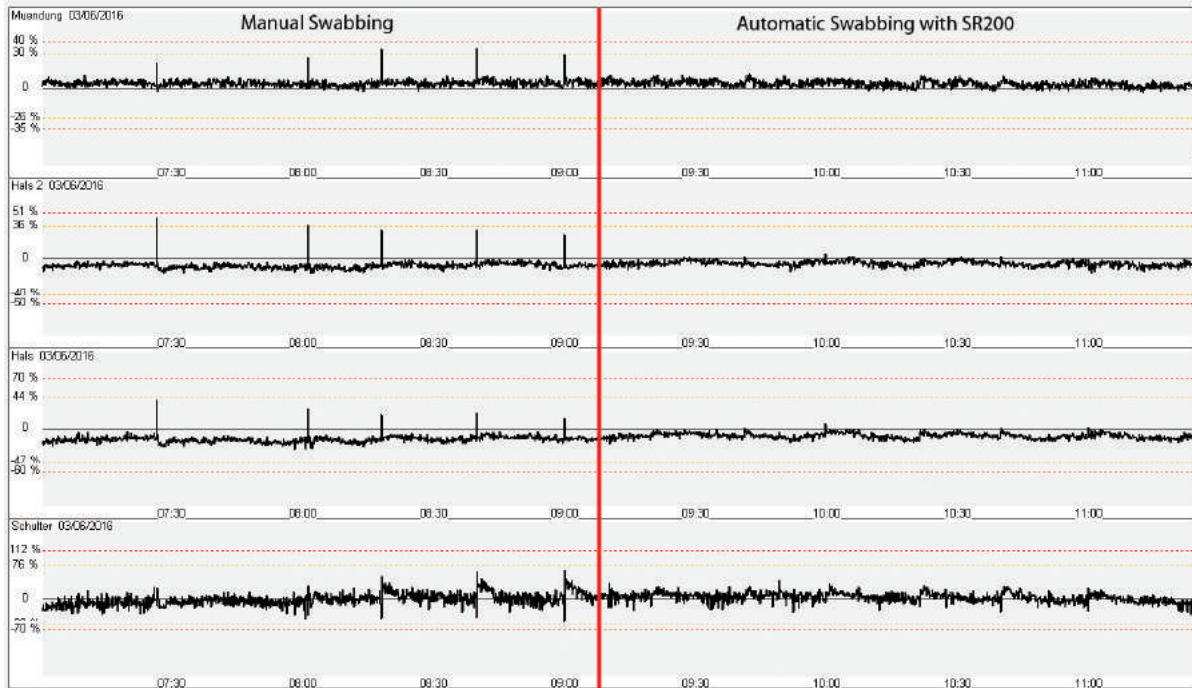
Logically this results in significant gain in efficiency with less defects produced. **The pack to melt ratio is improved from 2% to 15% ! depending on production lines and factories.**

In addition, the operator, relieved from his swabbing task, is gaining time to control the IS-Machine more effectively. Usually, on 3 shifts, 2 operators are removed from swabbing task.

Another side effect is that blanks stay cleaner for a longer period of time. Besides an increased stand time, the blanks require less maintenance and repairs at the mould shop.



Results are clear evidence of performance improvements



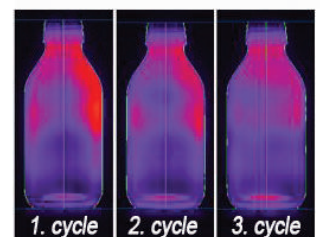
Measure of glass intensity : comparison between manual swabbing (left) and automatic swabbing with Swabbing Robot SR200 (right)

Constant glass distribution

Verification with XPAR cameras shows constant glass distribution.

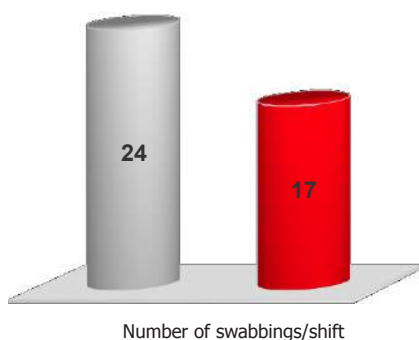
After manual swabbing, glass distribution is 45-50% on the shoulder, and 100-120% at the bottom.

After automatic swabbing, glass distribution is 25%-30% on the shoulder and 30%-40% at the bottom. *Even after swabbing cycles, glass distribution is still good (right)*



Savings

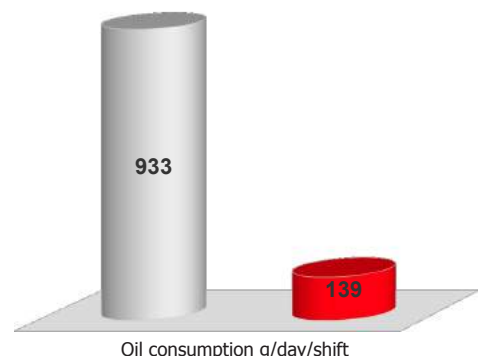
Number of swabbings per shift is decreased by 30%



Bottles loss due to swabbing defaults is decreased by 30%



Lubricant consumption is decreased by 85%



The above values are not contractual.

Graph legend: ■ With manual swabbing ■ With Swabbing robot SR200

Easy Human machine interface



Easy Human Machine Interface : Lighting Push Buttons and Touch-Screen on Novaxion Operator Interface

SWABBING ROBOT SR200 based on a 6 axis **FANUC** robot uses a very friendly programming language.

The high definition 10" touch-screen allows the configuration of the swabbing data : How much, when and where the lubricant is applied is easy and flexible to program in the intuitive User Interface.

Led panel display

One led panel display is installed at the blowing side of the IS machine to allow the operators to check the system status in real time from the operator's room. They can swab the finishing moulds while the robot is swabbing the blanks and the neckrings.

Spraying device

SWABBING ROBOT SR200 is equipped with a high performance spraying device, which allows to deposit a thin and constant layer of graphite oil into the moulds. The spraying tool is interchangeable. It can hold 1, 2, 3 or 4 spraying nozzles depending of the number of moulds per section. Different lengths of lances are available, from 100 to 350mm length depending on the mould height.

Any oils can be used regardless of their viscosity, meaning specific oils can be used for each type of manufacturing (NNPB, P-B, B-B, etc.)



Safety



SWABBING ROBOT SR200 is **CE certified** or responding to **UL norm**.

When the robot is working, a safety laser scanner is protecting an area around the robot to avoid possible collision with the operators.

Different protection areas can be defined, depending on the robot position on the machine in order not to interfere with the staff circulation around the IS machine.

Therefore operators still have free secured access to the IS machine. A special software option allows to reduce the working area of the robot to the minimum required, so the installation of a cage around the robot is not necessary. Light beam cells are also integrated into the machine uprights to protect an operator who should stand on them. Thanks to these safety devices there is no need for a cage around the robot, which is an advantage to watch over swabbing operation.

Installation

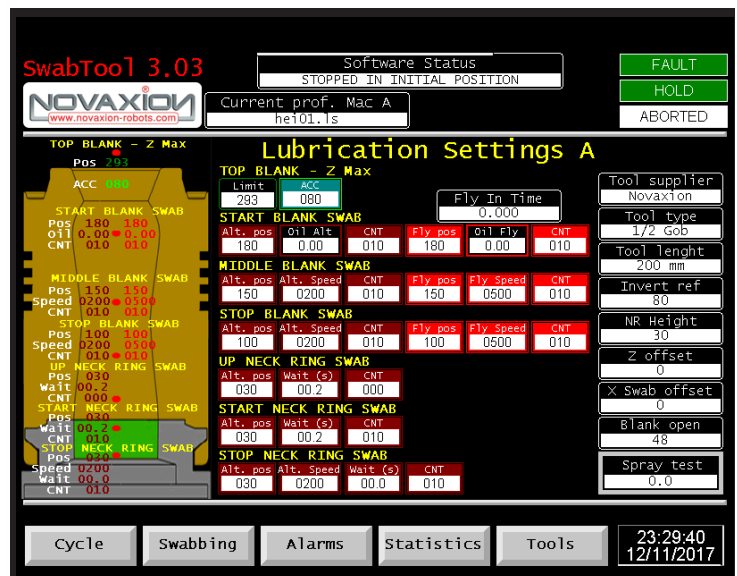
For machines already in the field, installation of SR200 V2.0 is very easy and fast.

Machine down-time is only one day to install the new panel with the rails, to connect the communication cables and download the special software.

Possibility to swab on a tandem producing 2 different types of bottles or jars.

Technical specifications

- Robot model: **FANUC LRMate** + auxiliary axis
- Robot speed: up to 4m / sec.
- Repeatability: 0.02 mm
- Swabbing oil tank capacity: 5L = **2 weeks autonomy**.
- Power supply: 2 KW - 220V single-phase – 50/60 Hz
- Compressed air: 4 bar



Advantages of Novaxion Swabbing Robot SR200 v2.0



✓ Safety

- Specific safety software.
- Laser scanner.
- Light barriers.
- Easy to watch over.
- Decrease of operators exposure time to smoke and noise.
- Increased operator safety.
- Easy to clean.

✓ Quality

- High performance spraying device.
- Constant swabbing of the full profile of the blank and the neck rings.
- Uniform lubricant application into the moulds.
- Targeted application across the entire profile of the mould.
- Constant glass distribution.
- No oil sprayed onto the plunger.

✓ Savings

- Saving on labour costs : less operators needed for swabbing.
- Reduced graphite oil consumption by 85%.
- Blank moulds less prone to fouling.

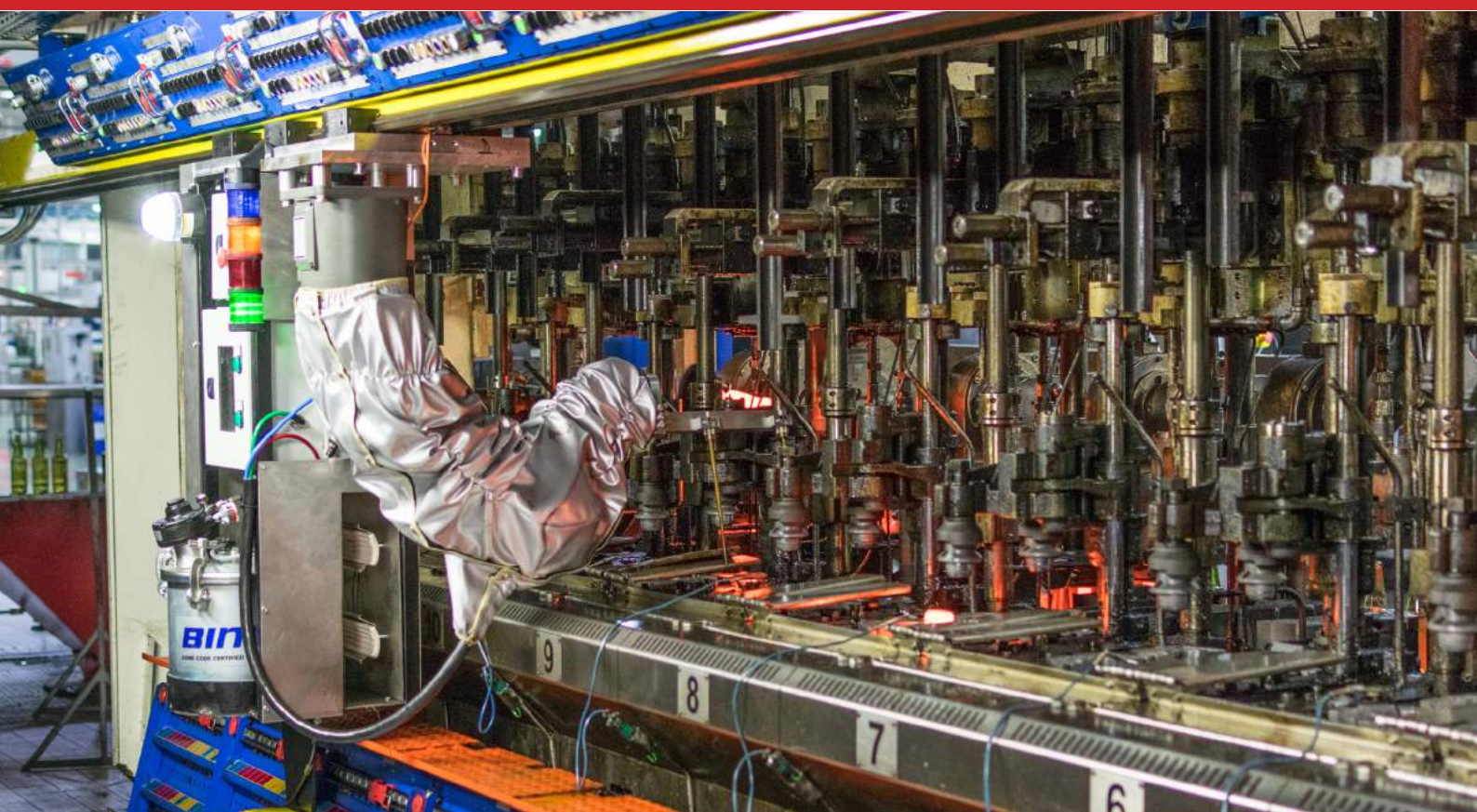
✓ Productivity

- Only one day IS down-time for robot installation on machines in the field.
- Inexpensive and easy-to-maintain spraying system.
- Number of swabbings per shift reduced by 30%.
- Swabbing on-the-fly.
- Increase of the "pack to melt" ratio by 3% to 15%.



The above values are not contractual.

✓ Quick payback : 1 to 1.5 year





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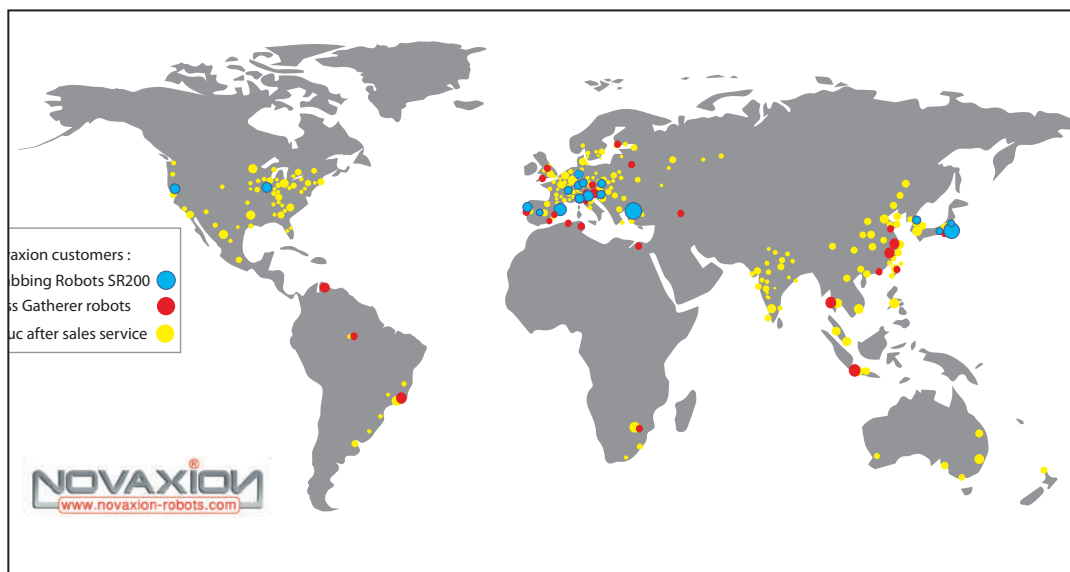
CUSTOMER
SATISFACTION



WORLDWIDE
PATENT LICENSE

Our satisfaction is yours ! Customer testimonial :

«Verallia had the first swabbing robot installed in 2006. Over the past ten years other robots were installed across verallia. All of these robots were integrated on the I.S. Machines by Novaxion. For ten years, Novaxion has been proposing and supporting enhancements which have led to superior performance. Thanks to this long experience, Novaxion is now the perfect robot integrator on I.S. Machine to provide the hollow glass industry with reliable systems able to deliver all the awaited benefits from an automated swabbing process.»



**Go ahead
with
Novaxion!**

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is exclusively distributed by
Bucher Emhart Glass
www.bucheremhartglass.com

NOVAXION
702, chemin de la Draillette
13550 Paluds-de-Noves - FRANCE
Fax +33 (0)4 90 95 18 32

Phone +33 (0)4 90 95 41 86
E-mail : novaxion.info@wanadoo.fr
www.novaxion-robots.com

