

SWABBING ROBOT SR200

The swabbing solution for I.S. machines

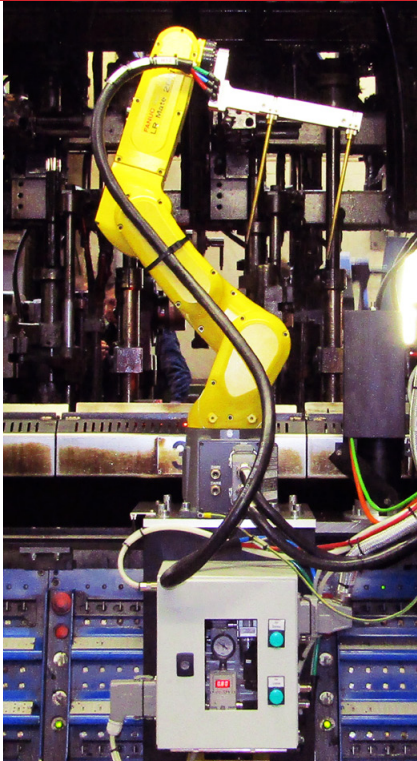


Change for
Automatic
Swabbing

NOVAXION[®]
www.novaxion-robots.com

SWABBING ROBOT SR200

An innovative automatic device for swabbing the blank moulds on IS machines



**WORLDWIDE
PATENT
LICENSE**

*This innovative swabbing solution is the result of a long co-operation between **NOVAXION** and a glass manufacturer which started in 2005.*

Since that time, more than 35 systems are operating successfully to date.

This 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.

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

This automatic equipment is working on Blow & Blow as well as Press & Blow IS machine processes. It can be used on single or tandem IS machines.

Operating principle

SWABBING ROBOT SR200 comprises a compact 6 axis robot, travelling on a small rail in front of each section 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 30mn), 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.

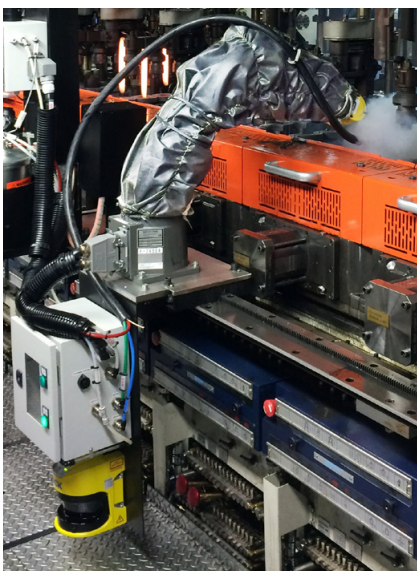
When the section is ready, it calls the robot.

The robot moves above the blank moulds and then goes down into the moulds. A small quantity of graphite oil is sprayed inside the moulds while the spraying nozzles are coming down and at the end on the neck-rings when the mould is opening.

The robot moves out of the section and goes in front of the next section.

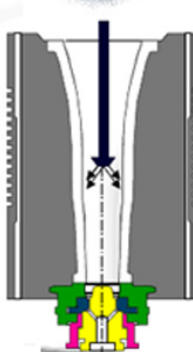
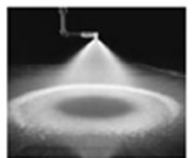
In the meanwhile, the 1st section is started again to receive glass gobs.

When all sections are swabbed, the robot comes back to its parking position.



Integration on the IS machine

In most cases, the rail on which travels the **SWABBING ROBOT SR200** is fixed on the valves blocks. Its compact size permits a very good integration on the IS machine. Some free place is needed between the buttons box and the chute to place the energy chain cable carrier to feed the robot and peripherals



Swabbing of the neck rings

The **SWABBING ROBOT SR200** is able to lubricate the full profile of the blank and even the neck rings.

See the diagram to the right : Nozzle with external spraying

Swabbing on-the-fly

NEW! The **SWABBING ROBOT SR200** can swab the blanks on-the-fly (no section stops).

Efficient lubricant application

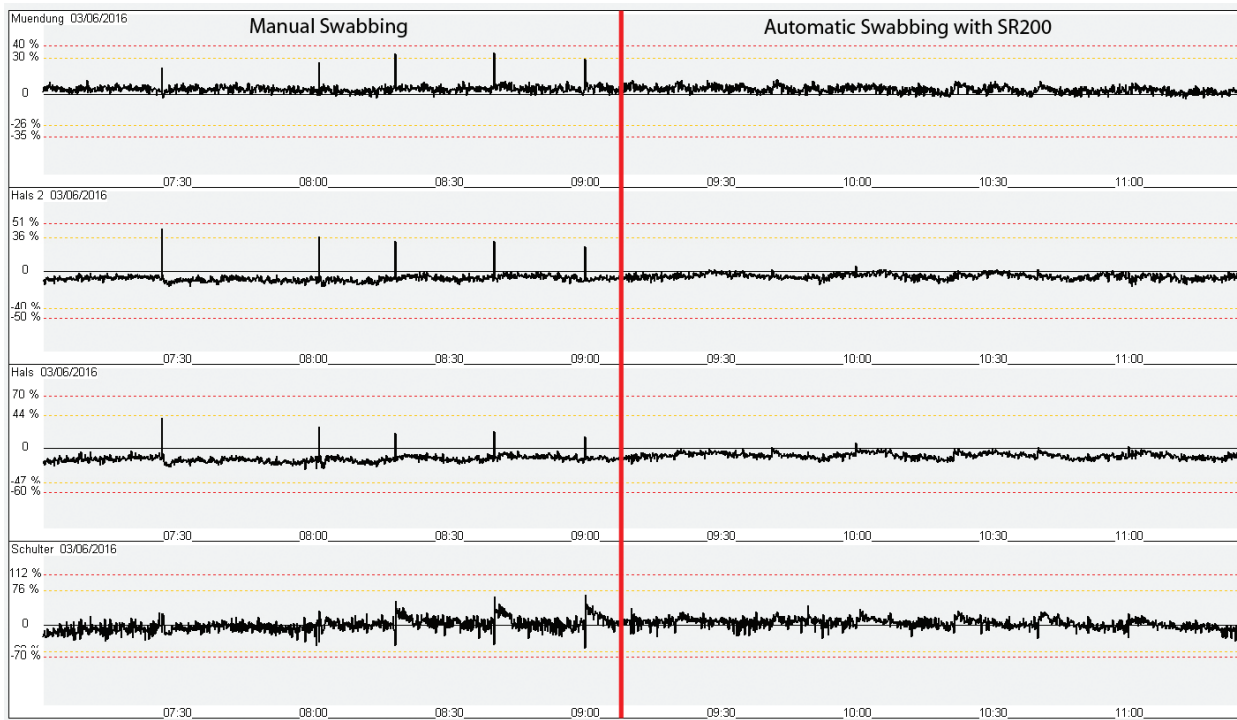
The swabbing of the blanks is standardized with equal application of lubricant in each blank. Less lubricant is applied compared to manual swabbing. This allows the blank temperatures to return to normal levels faster. Logically this results in significant gain in efficiency with less defects produced.

In addition, the operator, relieved from his swabbing task, is gaining time to control the IS-Machine more effectively.

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



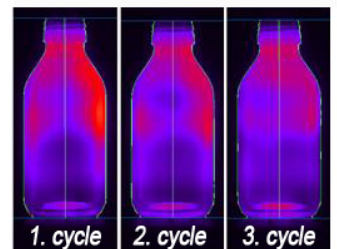
Measure of glass intensity : comparison between manual swabbing (left) and automatic swabbing with Swabbing Robot SR200 (right)

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.



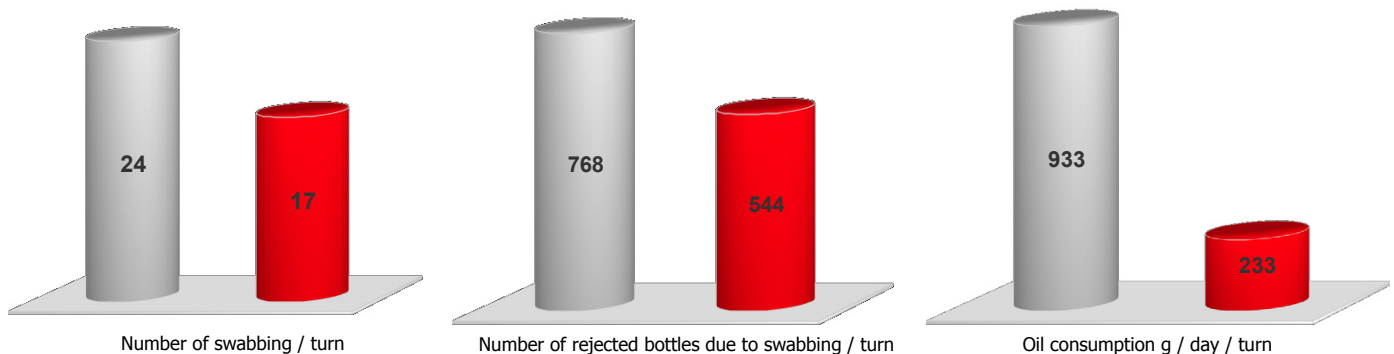
Even after swabbing cycles, glass distribution is still acceptable (right).

Savings

Number of swabbing per turn is decreased by **30%**

Bottles loss due to swabbing is decreased by **30%**

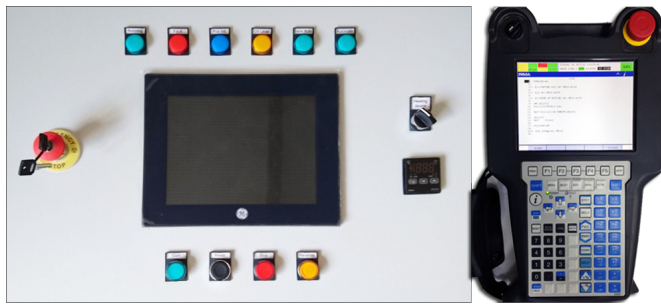
Oil consumption is decreased by **75%**



The above values are not contractual values.

Graph legend: With manual swabbing With Swabbing robot SR200

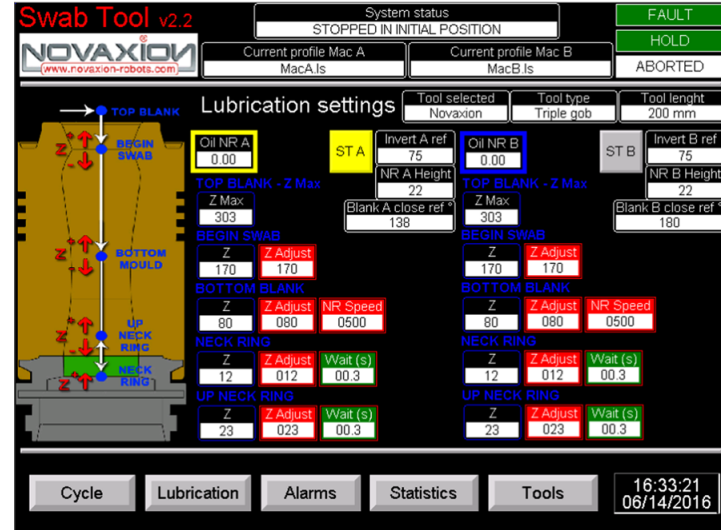
Easy Human machine interface



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

SWABBING ROBOT SR200 based on a 6 axis **FANUC** robot uses a very friendly programming language called TPE (Tech-Pendant Editor).

A special control-board allows the communication between the IS machine and the robot : How much, when and where the lubricant is applied is easy and flexible to program in the intuitive User Interface.

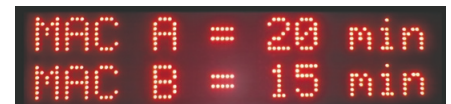


A high definition colour touch-screen allows the operator to adjust the settings such as time between 2 swabbing cycles, oil spraying pressure... The touch-screen is also used as a monitoring: visualization of the swabbing time in the moulds and cycle statistics such as running time, number of cycles...

The robot can be connected to the Ethernet TCP/IP network of the factory in order to access to several data such as TPE programs, inputs/outputs state, system variables...

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.

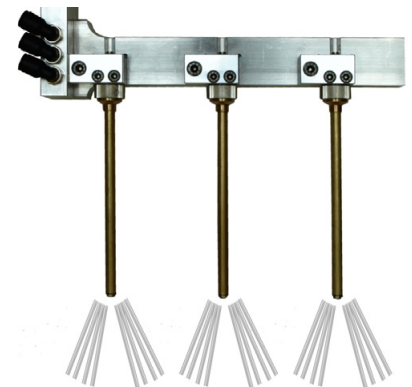


Spraying device

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 or 3 spraying lances depending of the number of moulds per section.

Different lengths of lances are available, depending on the moulds height.



Safety



SWABBING ROBOT SR200 is **CE certified**.

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.

Light beam cells are also installed above the valves blocks to protect an operator who should stand on them.

Communication between SWABBING ROBOT SR200 and IS machines

The protocol of communication has been developed with the main IS machines suppliers such as **EMHART**, **BOTTERO**, **BDF** and **GPS** (timer **FUTRONIC**). It can be developed for any other brand of IS machines.

SWABBING ROBOT SR200 is now running on different configurations of machines :

- 6 sections IS machine
- 8 sections IS machine
- 10 sections IS machine
- 12 sections IS machine
- Tandem 2 x 6 sections
- Tandem 2 x 8 sections
- Tandem 2 x 10 sections...

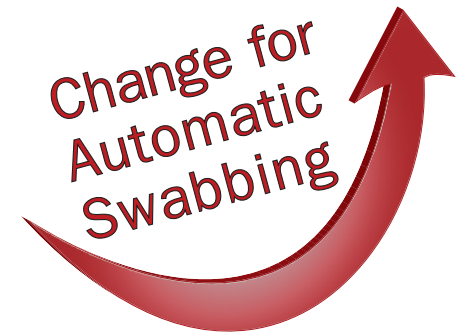
Technical specifications

- Robot model: **FANUC LRMate** + auxiliary axis
- Robot speed: up to 4m / sec.
- Repeatability: 0.02 mm
- Swabbing oil tank capacity: 9L = more than one week autonomy
- Power supply: 2 KW - 220V single-phase – 50/60 Hz
- Compressed air: 5 bar

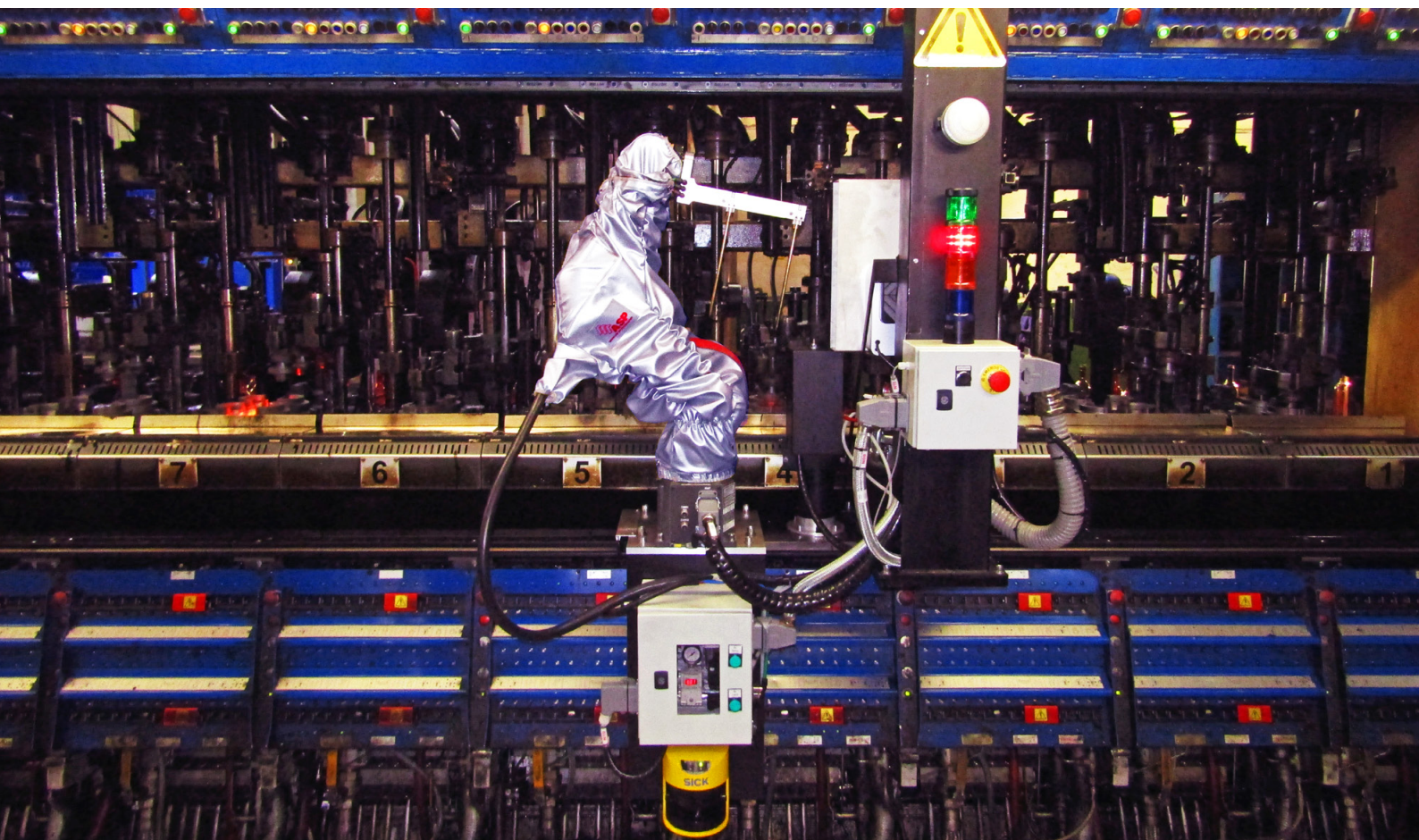
Advantages of swabbing robot compared with manual swabbing



- Constant swabbing of the full profile of the blank and also the neckrings
- Uniform lubricant application into the moulds
- Swabbing on-the-fly
- Possibility to swab on a tandem producing 2 different types of bottles or jars



- Reduced graphite oil consumption
- Blank moulds less prone to fouling
- Decrease of rejected bottles because of swabbing defects by 30%
- Decrease of operators exposure time to smoke and noise
- Increased operator safety
- Reduces the number of operators for swabbing
- Immediate payback on any production line



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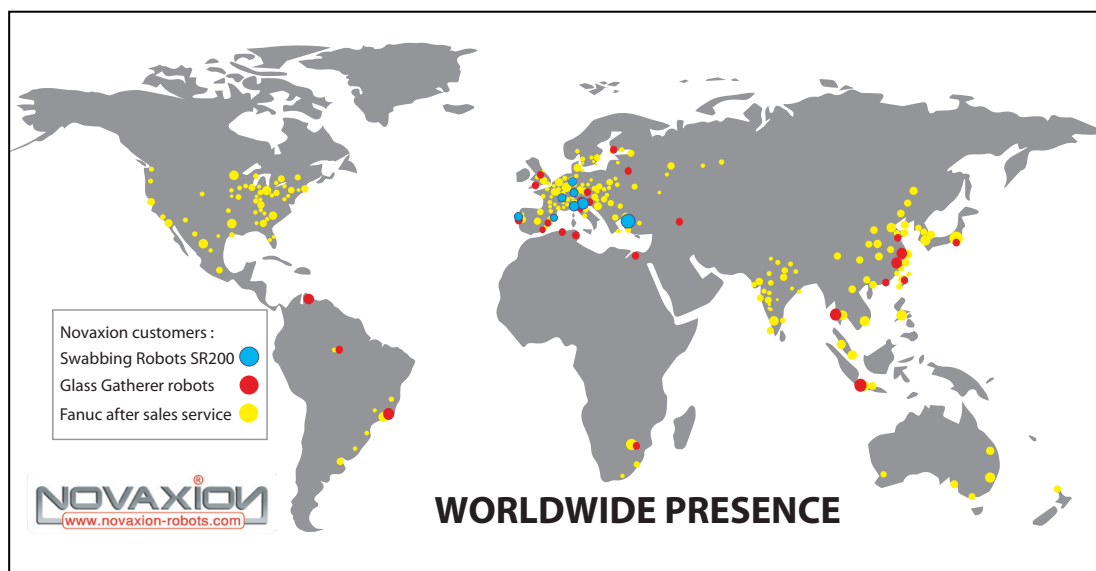
CUSTOMER
SATISFACTION



WORLDWIDE
PATENT LICENSE

Our satisfaction is yours !

Customer testimonial : «*Thank you very much for this professional work of your complete team. It was a pleasure to see how they worked and developed to bring the robot on a level that everybody is happy with this system. My big compliment to all of you.*»



**Go ahead
with
Novaxion!**

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