

DLyte PRO500

AUTOMATED CELL

Surface Finishing Process with Fully
Automated Workpiece Handling

DLyte PRO500 AUTOMATED CELL is the ultimate solution for industries requiring full automation –or a multi-level DLyte process automation– to integrate surface finishing in production lines.

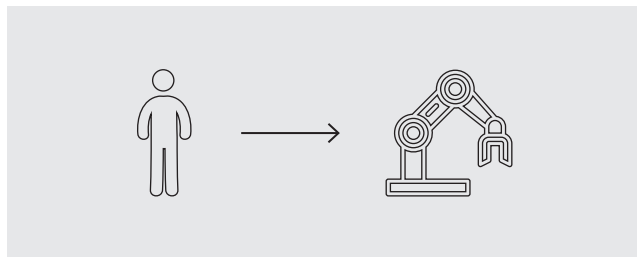
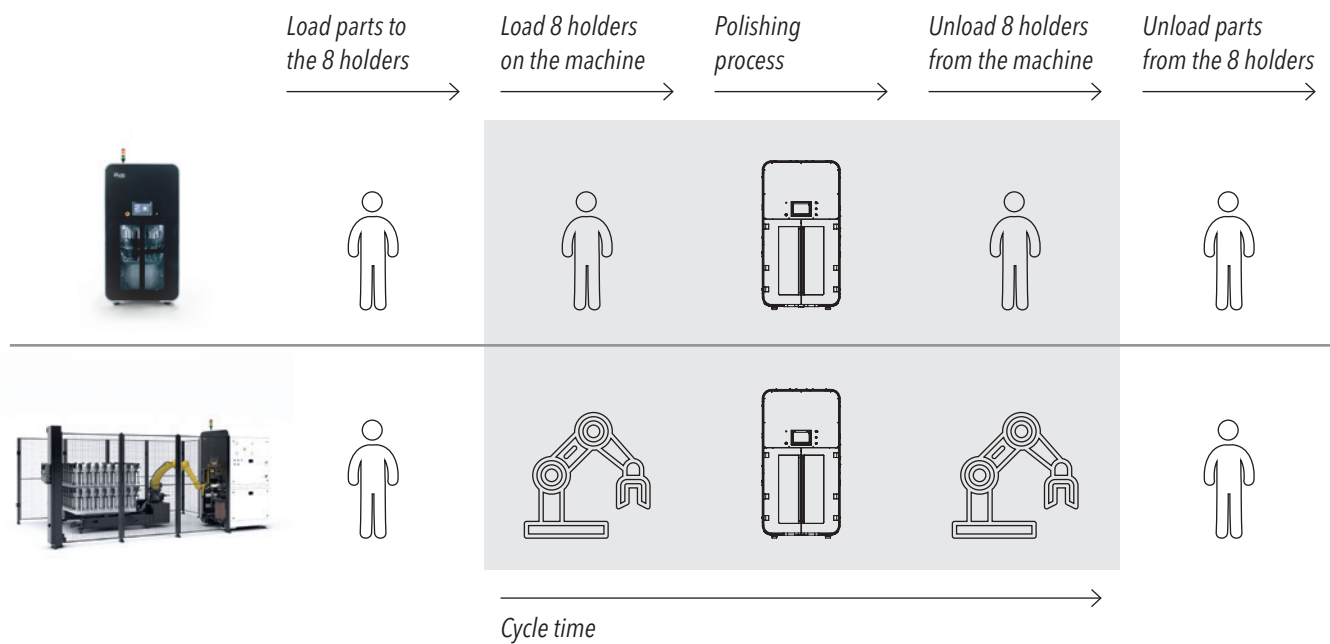
This system allows customers to automate the process of loading and unloading holders into and from the machine, in order to increase the overall cell productivity working longer time autonomously and reducing the loading and unloading times.

It combines the configurability of **DLyte PRO500** with a loading mechanism which in turn comprises a robotic arm and rotating module. The rotating module contains up to **64 pre-loaded holders** with parts ready to be polished, allowing the system to continuously work without the need of human interaction, thus increasing productivity and safety.

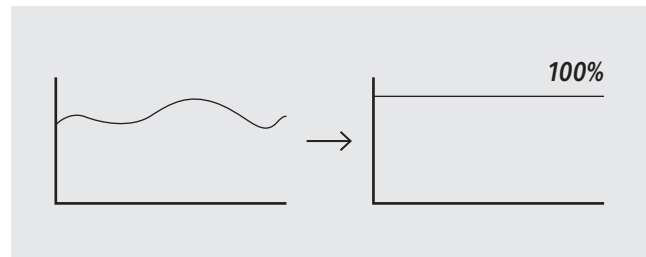


DLyte PRO500 AUTOMATED CELL has been created with the support of the European Union's Horizon 2020 grant for research and development of the **DLyte PRO** range.

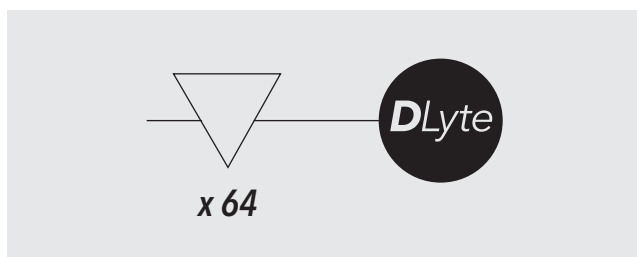
General Automation Benefits



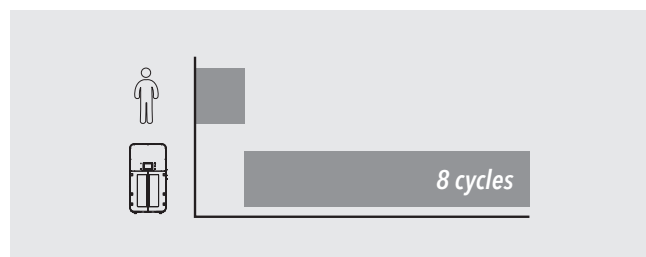
Less manpower



Improve productivity with fully automated process cycle

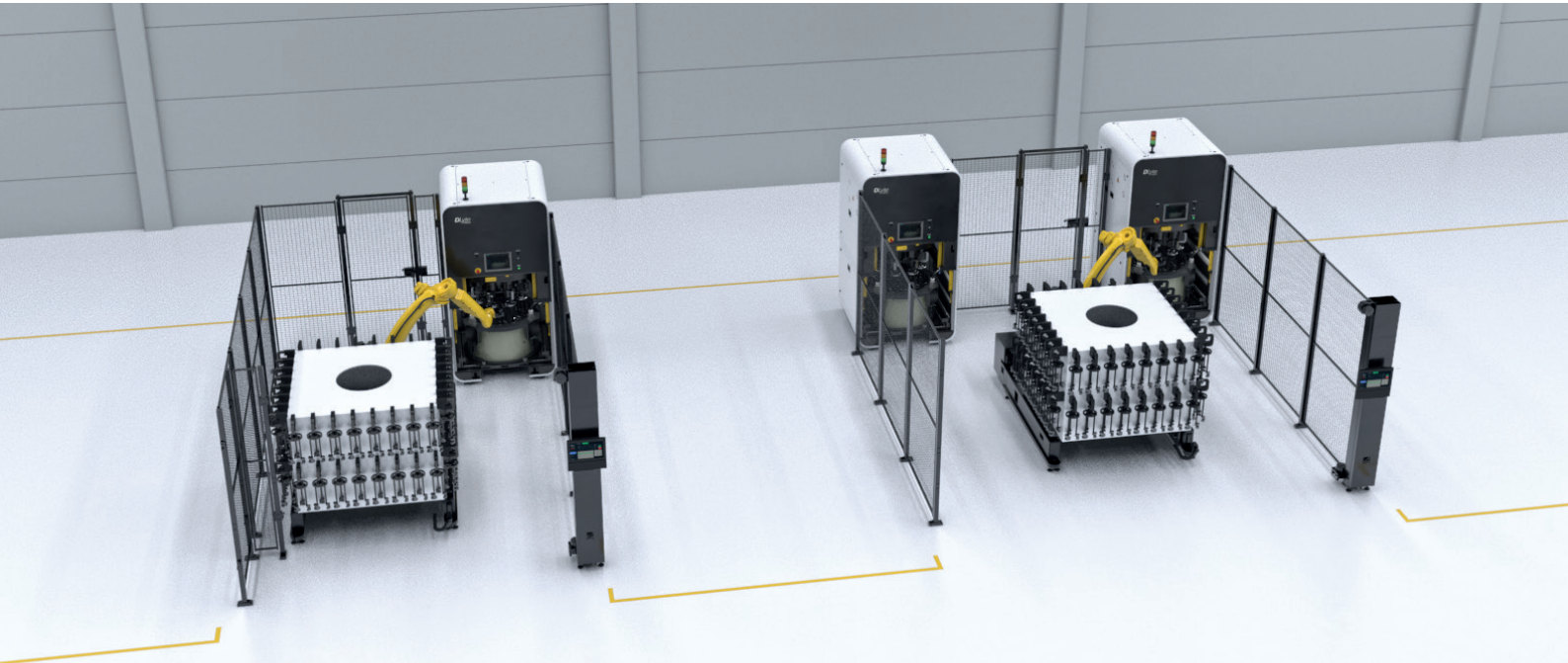


Effective solution to bottle neck production with a safety buffer supply



Up to 8 cycles working autonomously

Setups and Ways of Use



DLyte PRO500 AUTOMATED CELL

DLyte PRO500 AUTOMATED CELL
(2 polishing machines)

1. Standalone DLyte PRO500

Manual loading and unloading for small batches, testing and prototyping.

2. Automatic Loading

+ Full

The operator sets up the system to work continuously until all the parts in the carousel have been polished. Once finished, the user can unload them all. (Different recipes can be used for selected rows).

+ Continuous

The user replaces the visible face of the carousel (16 holders) while the opposite is being polished. This allows the operator to replace the polished parts with raw parts while the machine is running, allowing a continuous workflow.

3. Double Throughput

If two **DLyte PRO500** machines are being used, the operator is able to increase production by cutting in half production time. Thus, increasing output with an ultra-low footprint.

4. Two-Step Processes

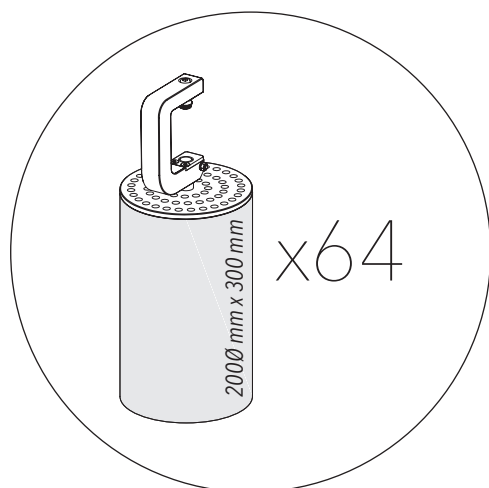
Combine different electropolishing processes, including different media for the same pieces in order to fully automate two-step polishing process, among other options.

What Does DLyte PRO500 Automated Cell Offer?

- + Taking advantage of the First In, First Out (FIFO) production control
- + It allows to begin to work with one **DLyte PRO500** machine and add a second one later
- + Pristine machine efficiency, due to the specially designed double gripper for fast exchange cycle
- + High increase in production with up to 64 holders
- + Easily automated with a smart control panel
- + Load and unload sequence and separate robot workflows
- + Plug-and-play solution of polishing and automation

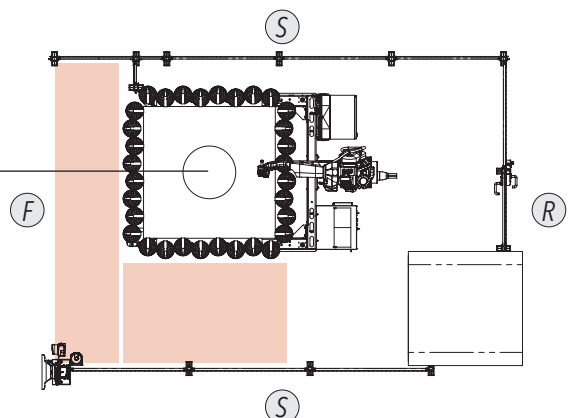
Loading and Unloading Station

The carousel is a steel structure in a square-shaped designed to hold up to 64 holders in total. It can pivot above its bedplate, stopping after each $\frac{1}{4}$ round to allow the robot to work on the holder rows. Once the robot is working one side of the carousel, the operator can simultaneously load and unload on the opposite side of it.



Layout and Guarding

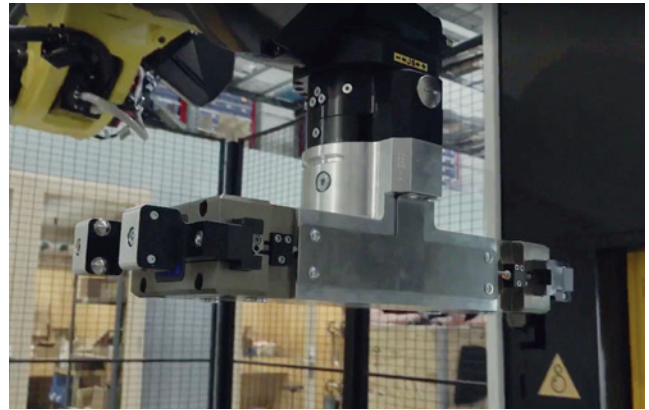
The front side is used to access the loading and unloading holder process. The front open fence (F) is protected with a safety light curtain. At the rear side (R) there is a hinge door. This area is permanently locked and can only be accessed during maintenance. The pole located in the front area, has a floor and laser scanner that automatically stops the polishing process in case the operator accesses the area unannounced, thus achieving a high safety standard.



Workflow Description

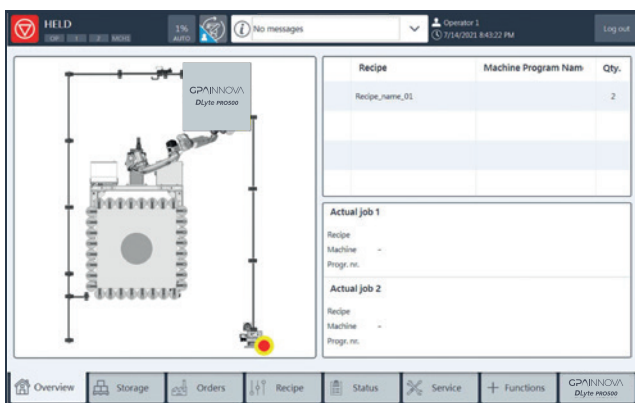
The robot is a standard FANUC robot of 50 kg (about 110 lbs), with a double gripper at the end designed to hold two holders at once.

By doubling the holders, the robot can load the unpolished holder into the machine and extract the polished one and place it on the carousel, all in one sequence.

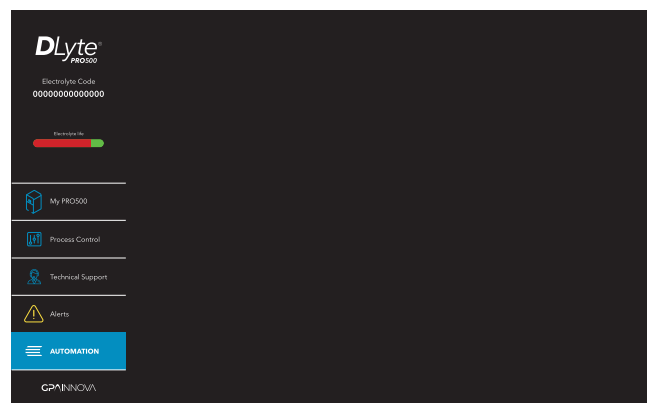


Control Panel

The control panel located on the right front side, allows the user to control all the functions, both the cell and the **DLyte PRO500** outside the processing area.

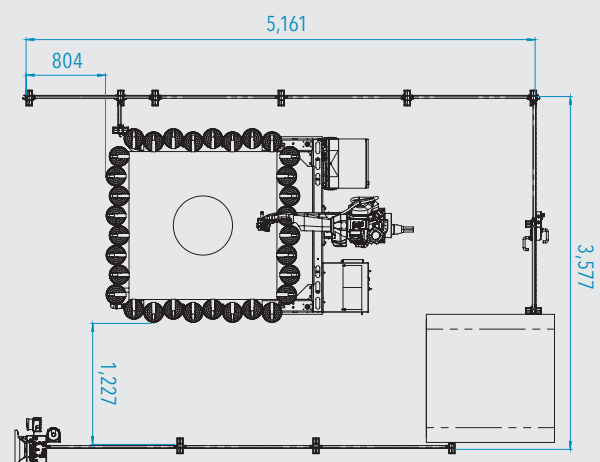


The cell has a complete loading manager where the operator can set the automation cycle, depending on the batch, row and polishing recipe.



The mirror function allows the operator to access to the Human-Machine Interface (HMI) of the DLyte PRO500 to operate directly on the machine.

Footprint



Technical Datasheet

	DLyte PRO500® AUTOMATED CELL	
Specifications	DLyte PRO500	Robot + Cell
Machine dimensions	5,750 x 3,850 x 3,150 mm	
Electrolyte capacity	250 l	
Capacity (per cycle)	Up to Ø180 x 250 mm (x64 pieces)	
Work piece weight capacity	20 kg (workpieces + holder)	
Machine weight	DLyte PRO500: 1,600 kg Tank with electrolyte: 400 kg	Robot: 1,850 kg Cell: 280 kg
Frequency	50-60 Hz	
Rated voltage	400 V~ ± 10% (3P+N+GND)	
Rated power supply	25 kW	5 KW
Short-circuit breaking capacity (ics)	6 kA	-
Rated current	35 A	10 A
Full load current	40 A	32 A
Grounding connection	TN system	-
Earth leakage current	>10 mA (20 mA)	-
Main air supply	Pressure: 6-7 bar Flow: 1,000 l/min * Connector: Ø 10 mm	Pressure: 6-7 bar Flow: 250 l/min Connector: Ø 8 mm
Holder air supply	Pressure: 6-7 bar Flow: 1,500 l/min Connector: Ø 12 mm	- - -
Distilled water tank capacity	16 l	
Water continuous system	Connector: Ø 10mm	
Acid tank capacity	6.5 l	
Ambient temperature operating	5°C to 35°C	
Temperature storage	-10°C to +70 °C	
Humidity storage/operation	30-70 % RH (without condensation)	
Electrolyte storage	5 °C to 40 °C (see the expiration date on the datasheet)	
Protection index machine	IP20	

* Detailed air consumption in DLyte PRO500 datasheet.



SPAIN



C/ Maracaibo, 1, Naus 2-6,
08030 Barcelona (Spain).

P. (+34) 931 256 536
info@gpainnova.com

AMERICA



15491 SW 12th St. Suite 405,
Sunrise, Florida 33326 (USA).

P. (+1) 954 530 8277
officeusa@gpainnova.com

ASIA



Unit 2204, 22/F, Lippo Centre,
Tower 2, 89 Queensway, Hong Kong.
香港金钟道89号
力宝中心第2座22楼2204室

P. (+852) 291 229 12
officeasia@gpainnova.com

CHINA



Room 1311, 13/ f, Tower A, Building
2, Chuangwei Innovation Valley
II, Tangtou Rd, Shiyan St, Baoan
district, Shenzhen City, Guangdong
province

P. (+852) 25 377 338
officeasia@gpainnova.com

gpainnova.com
dlyte.com

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