

**DLyte**



# ***DLyte10,000***

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The Only Automated Surface  
Finishing System for Large  
and Complex Pieces

**DLyte 10,000** is the most powerful **DLyte** modular unit for polishing large pieces and complex geometries. Based on the patented dry electropolishing **DryLyte Technology**, the robot module allows to treat metals and alloys in a fast, cost-efficient way. To achieve the highest quality results in complex and heavy pieces, it combines the **DryLyte Technology** with a precise 6-axis mechanical movement, to remove the roughness from the workpieces.

This machine can be totally integrated in any production line requiring full automation of the workflow and an efficient treatment of heavy pieces and complex geometries. Compared to other dry electropolishing machines, **DLyte 10,000** has been designed to polish large and heavy industrial parts.

**DryLyte Technology** delivers totally automated, high-quality surface finishing for high-value, delicate or complex work pieces with precise and targeted finishing requirements. It brings significant technical advantages over competing technologies such as abrasive finishing, robotic grinding and polishing, mechanical brush and grinding systems. The **DryLyte Technology** offers quality equivalent to manual grinding and fast and cost-effectively polishing.



**Faster · Easier · Cost-Efficient · Precise**  
**DLyte 10,000**

The Revolution in Metal Surface Finishing

# DLyte10,000 DryLyte Technology for Complex and Larger Loads

**DLyte 10,000** is designed for finishing large and complex or heavy workpieces requiring high-quality finishing. **DLyte 10,000** offers significant technical advantages over current metal surface finishing technologies on the market.

The unique dry electropolishing technology used obtains a quality equivalent to manual polishing quickly and affordably. The **DLyte 10,000** system can be easily integrated into any manufacturing line, requiring highly complex grinding and polishing processes.



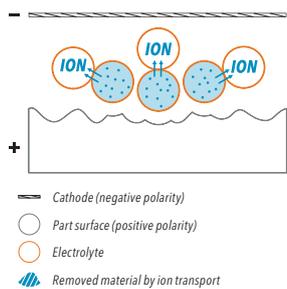
## How it Works



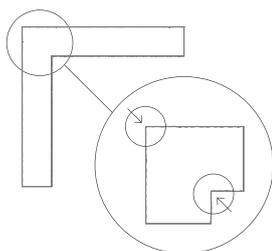
### TECHNOLOGY INTRODUCTION



Powered by DryLyte Technology, **DLyte 10,000** works by combining the electrical flow created by the **high precision** rectifier with the movement of the pieces through the electropolishing media. This results in an ion exchange, removing material only from the peaks of roughness. The process does not round edges and can access internal corners that are not easily accessed mechanically.



The process removes material only from the peaks of the roughness.



The process does not round edges and can penetrate the internal cavities of the piece.

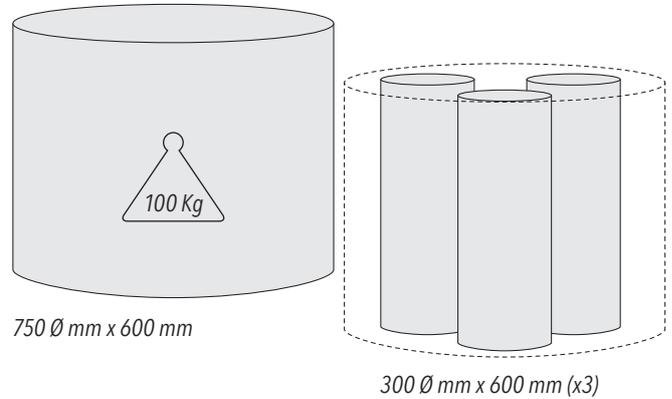


Macro sequence of a DryLyte Technology Polishing Process.

# Large and Heavy Workpieces

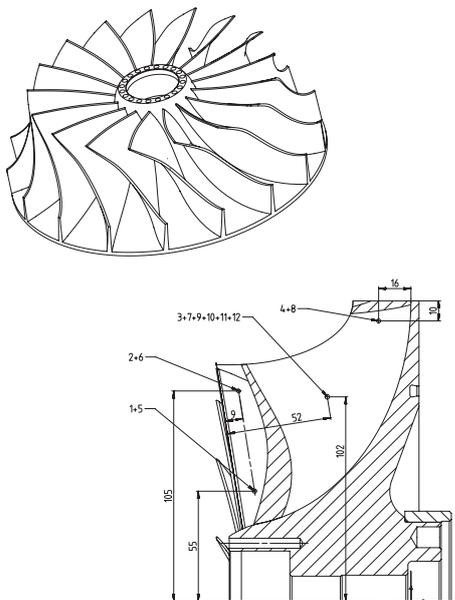
**DLyte 10,000** is the perfect system for large and heavy workpieces with a **diameter of up to 750 mm and length of up to 600 mm and a maximum weight of 100 kg.**

The range of applications for the **DLyte 10,000** are workpieces from the aerospace, energy, oil and gas, shipbuilding, machinery and food industries.



# Complex Geometries

**DLyte 10,000's** robot module is designed to polish complex geometries, which could not reach targeted surface finishing without a **6-axis movement.**

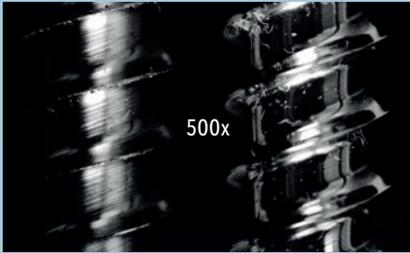


# Single and Multiple Workpiece Holders

The work piece holders or fixtures containing the work pieces are specially designed to optimize the results based on the piece geometry and finishing requirements. The large adaptability of the holding systems ensures capacity optimization for several applications and versatility to use one machine for a wide range of pieces.



# Benefits of the Technology



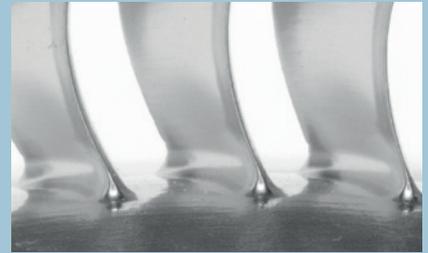
# 1

Achieves **homogeneous** results across the surface and eliminates micro-scratches. The system works efficiently at a micro and macroscopic level.



# 2

**Geometry preservation.** Respects the tolerances and preserves the initial shape, even the cutting edges. It is not rounding the edges as there is no abrasion of the surface.



# 3

**Best in class surface roughness** (Ra under 0,01 micrometers).



# 4

**Repeatability and homogeneity** guaranteed. The DLyte process process guarantees stable results among different batches within the electrolyte media lifespan. There is no wear as would typically occur with abrasive particles.



# 5

Up to **10x faster** than current processes, replaces multiple process steps and **competitive cost** per part.



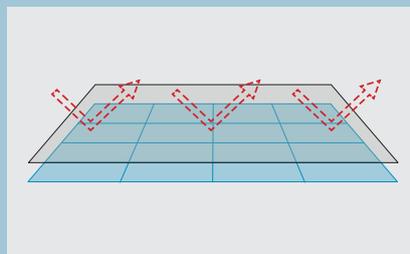
# 6

**Biocompatibility** proven. **Clean, non-hazardous** and easy waste management. Alternative abrasive processes lead to extremely dusty and noisy environment.



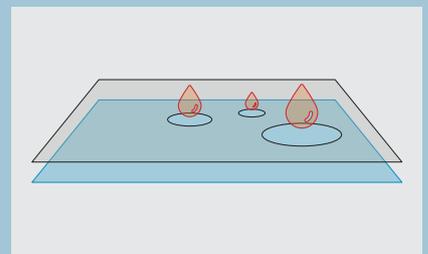
# 7

Enhances negative surface skewness (rsk) which increases the surface bearing contact area (allowing uniform lubricant film distribution) **improving the bearing ratio and reducing the friction** between the pieces.



# 8

Avoids generating grinding texture patterns, **improving wear and fracture resistance, and improving fatigue resistance.** Isotropic surfaces.



# 9

DLyte is the only system able to remove roughness and **improve the corrosion resistance** of the metal pieces at the same time reducing the number of processes required in the manufacturing process.

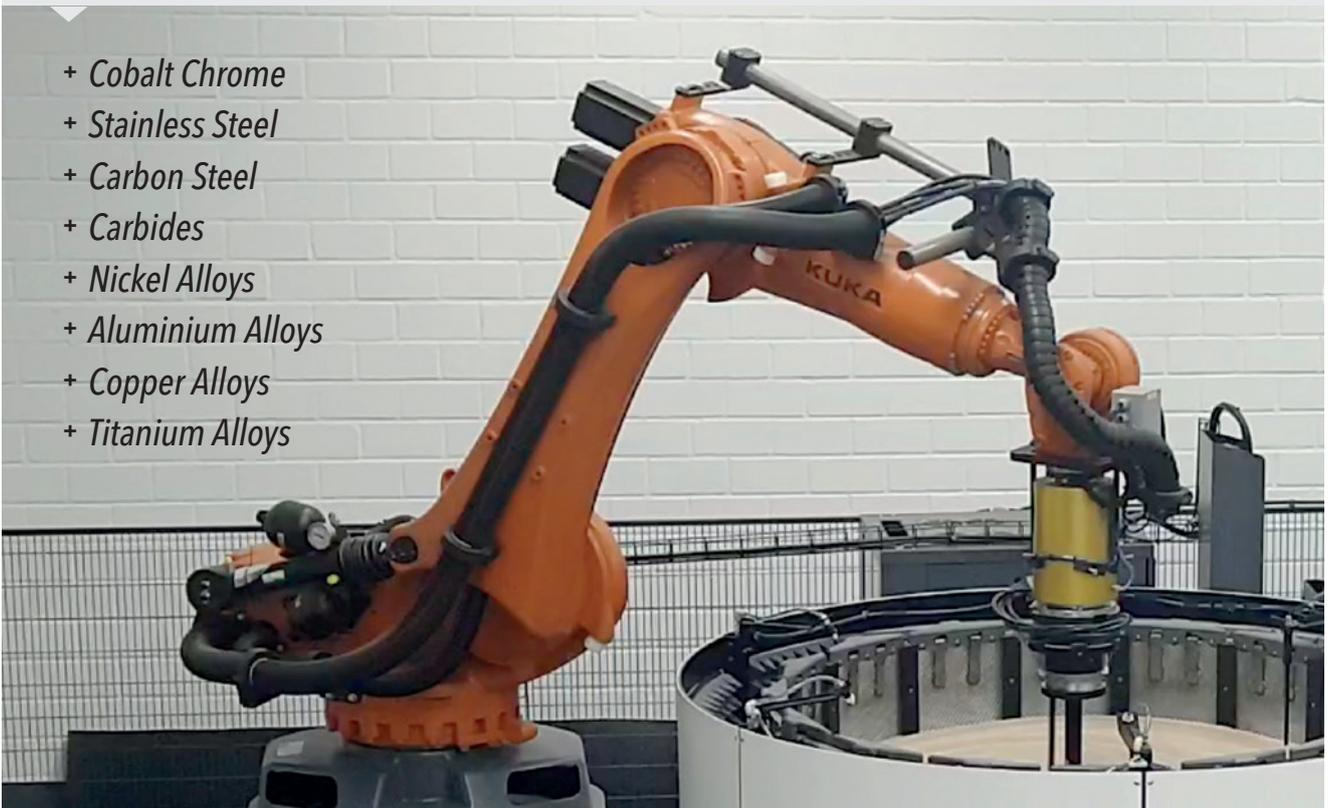
# Best-in-class repeatability, performance and capacity with the latest technology

Repeatability and high precision is achieved with innovative power electronics, using the new SIC Pulser technology, with 8 independent high-frequency rectifiers synchronized by fibre optic cables, delivering up to 55 kW. The new reliable electronics provide better surface finishes, more homogeneous results and shorter cycle times. This is achieved by optimizing the parameters, applying asymmetric pulses and creating multiple movements. The system is capable of a wide range of parameters and process combinations.

## Wide range of materials

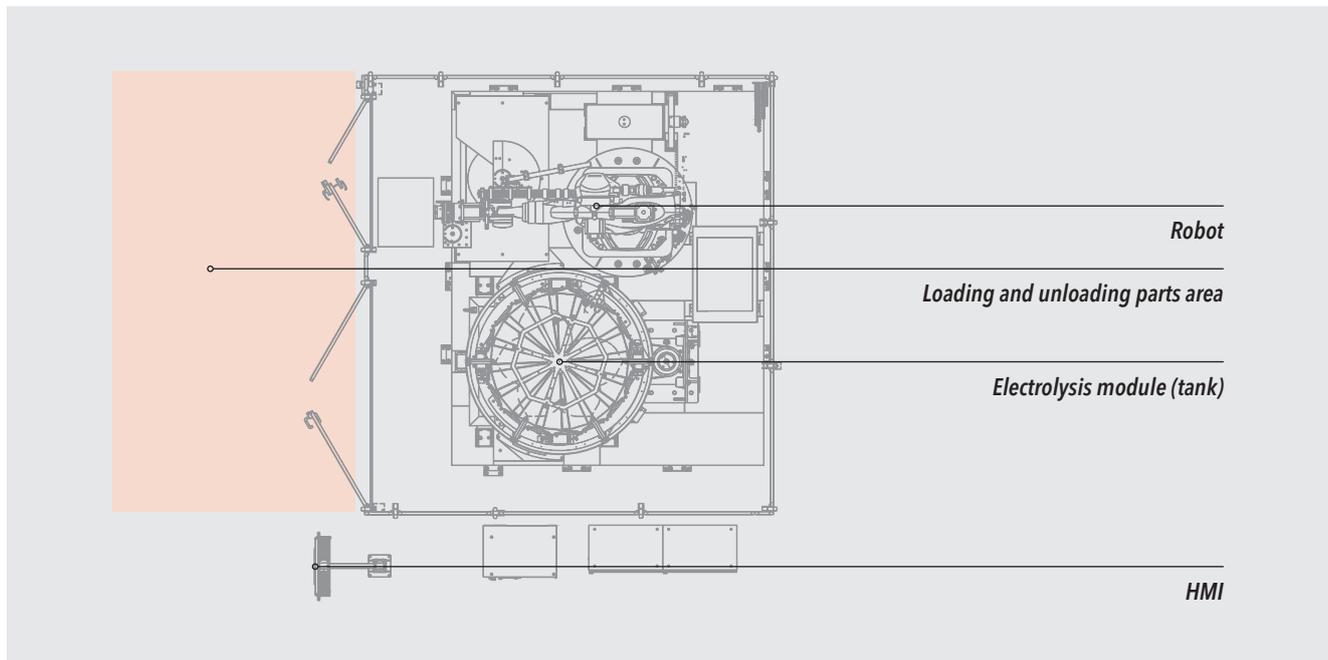
DLyte 10,000 delivers the full range of electrical parameters, from low to high frequency, parameter concatenation and asymmetric voltage. In addition, it allows the user to search the ideal parameters for its pieces in the library of processes in the Polishing Manager APP.

- + *Cobalt Chrome*
- + *Stainless Steel*
- + *Carbon Steel*
- + *Carbides*
- + *Nickel Alloys*
- + *Aluminium Alloys*
- + *Copper Alloys*
- + *Titanium Alloys*



# DLyte 10,000's Modules

This cell has been created to obtain the highest quality results and cost efficiency in massive manufacturing processes. The design of all its modules is focused on the user experience, effectiveness and safety.



**HMI.** The Human-Machine Interface (HMI) allows the user to control the polishing cycles.

**Control cabinet.** This module contains a safety PLC which manages all the modules.

**Power cabinet.** Manages the power required during the electropolishing process.

**Guarding.** It prevents personnel from entering the polishing area during operation.

**Electrolysis module (tank).** It contains the electrolyte and it is where the electrolysis process is carried out.

**Robot module.** It has been designed to polish big and/or complex parts. This robot can be configured by the user to define the movement of the angles. The user can define the gripper and the table support design according to each project.

**Water system.** This module stores the demineralized water to be used during the electropolishing process. This water will be sprinkled in the electrolysis module.

**Pneumatic system (air).** This system manages the robot's compression supply and electrolysis tank requirements of it.

# Multiple Movement Combinations with a Robust Design

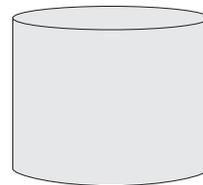
The mechanical systems of the **DLyte 10,000** are robust, precise and reliable, designed for mass production. They enable the perfect combination of multiple movements and vibrations, maximizing performance. It provides freedom of movement ensuring media flow optimization during the process. A 6-axis movement is combined with a core vibration and a rotation and vibration of the tank, thus reducing the friction with the electrolyte particles. The intuitive software allows to select the movement combinations easily based on a range of sizes and geometries.

The machine offers different presetting robot movements for three size ranges:

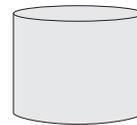
**Large parts:** Cylinder with 750 mm in diameter and 600 mm high

**Middle-size parts:** Cylinder with 400 mm in diameter and 350 mm high

**Small parts:** Cylinder with 250 mm in diameter and 200 mm high



**Large parts**  
750 Ø mm x 600 mm



**Middle-size parts**  
400 Ø mm x 350 mm



**Small parts**  
250 Ø mm x 200 mm

# Automatic Workpiece Loading and Unloading

The integrated automatic loading system ensures ergonomic workpiece loading and unloading with a safety size tool.





Dilyte  
10.000

KUKA

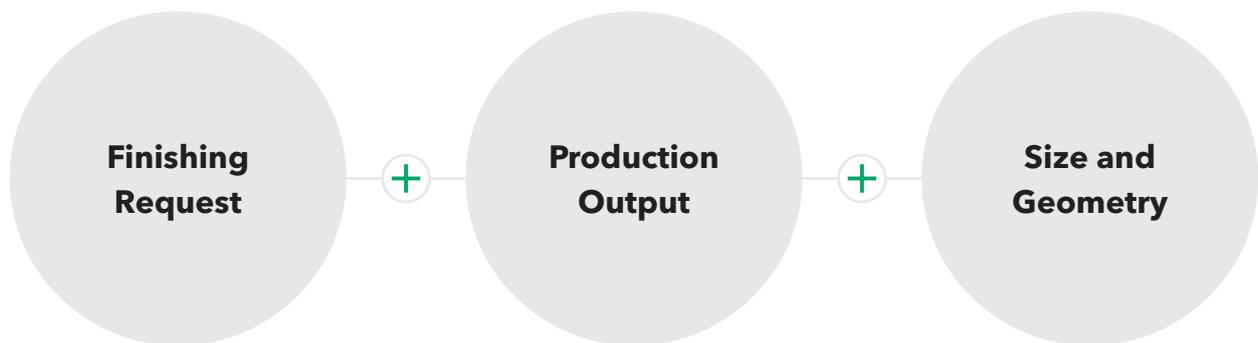
EH

*The company supports you onboard your DLyte experience to assure a success with its unique surface finishing technology.*

## Custom Project Development

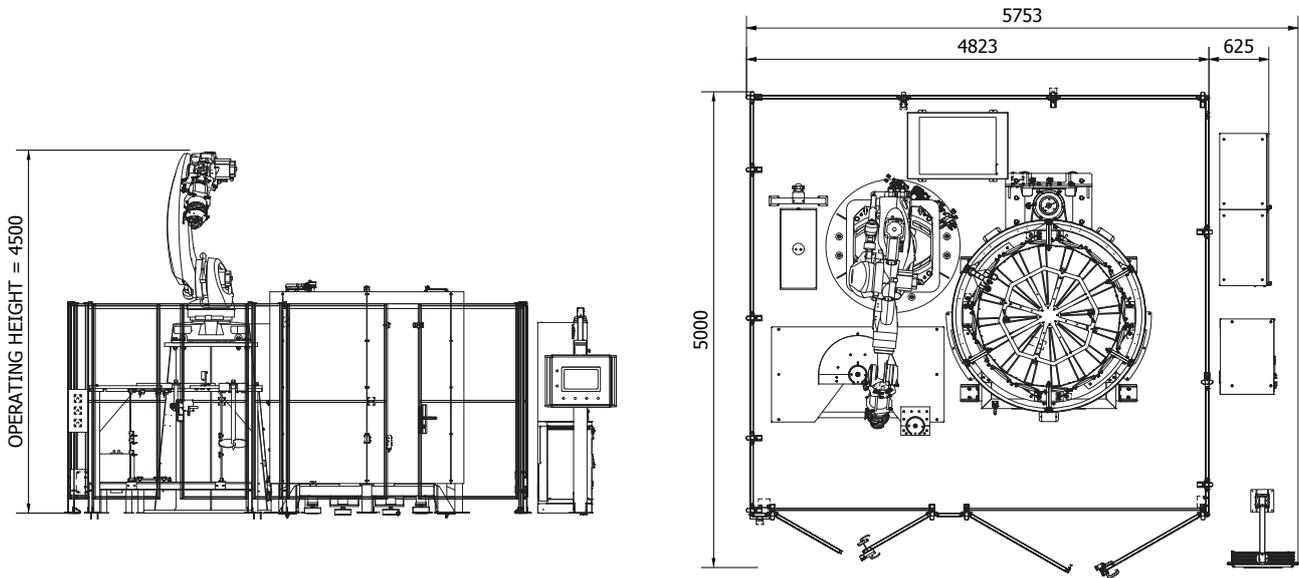
We suit our DryLyte Technology to cover your needs.

- Polishing constraints won't be your limitation anymore.
- Just contact us, we'll do the rest.



- 1. Polishing needs: concept and goals**
- 2. Polishing assessment: real tests with DryLyte technology**
- 3. Customized engineering development**
- 4. Production phase**
- 5. In-house validation**
- 6. Onsite installation**
- 7. Service**

# Technical Data



Main Data	
<b>Capacity (per cycle)</b>	750 Ø x 600 mm (one piece centered to the robot axis).
<b>Operating height</b>	4,500 mm
<b>Operating layout</b>	5,718 (front) mm x 4,507 (side) mm. (Recommended safety area: 8,110 mm x 9,307mm)
<b>Floor requirements</b>	It is recommended that the quality of the concrete must meet the requirements of the following standard: C20/25 according to DIN EN 206-1:2001/DIN 1045-2:2001 for a weight machine of 7,450 km without the scaffold (950 kg).
<b>Power consumption</b>	55 kw (125A)
<b>Power supply</b>	380 - 400 VAC / 50-60 Hz / 3P + N + GND
<b>Air pressure main</b>	Main line: 6-8 bar (air connector: 16 mm Ø) Consumption of 3,000 l/min. Air quality must be 1.5.1 according to ISO 8573.
<b>Distilled water</b>	70 l. demineralized water tank with conductivity properties < 5 µS/cm according to ISO 3696.
<b>Ventilation</b>	The unit must be installed in a well-ventilated area. Otherwise, a forced ventilation system must be installed on top of the unit.



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