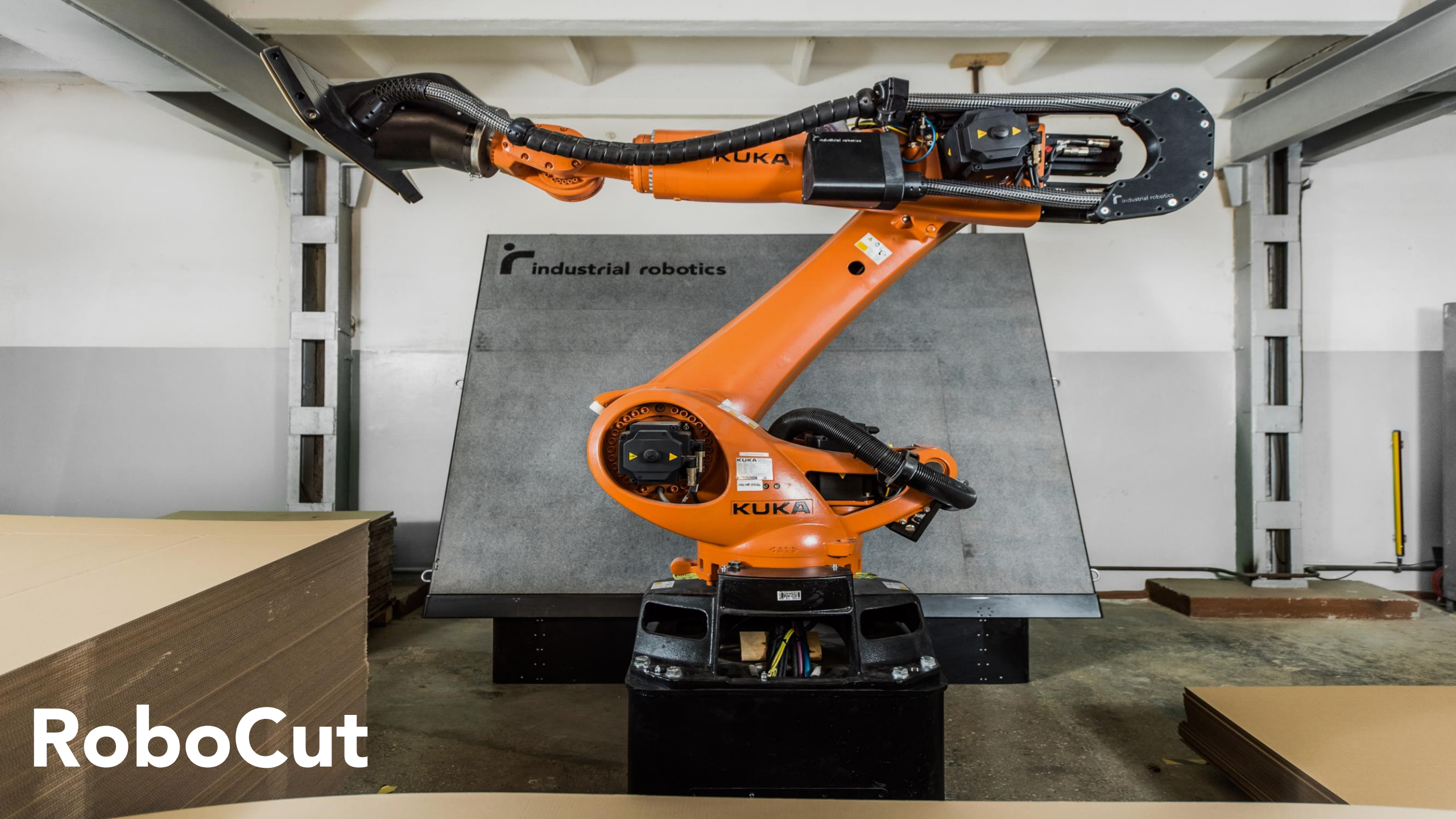
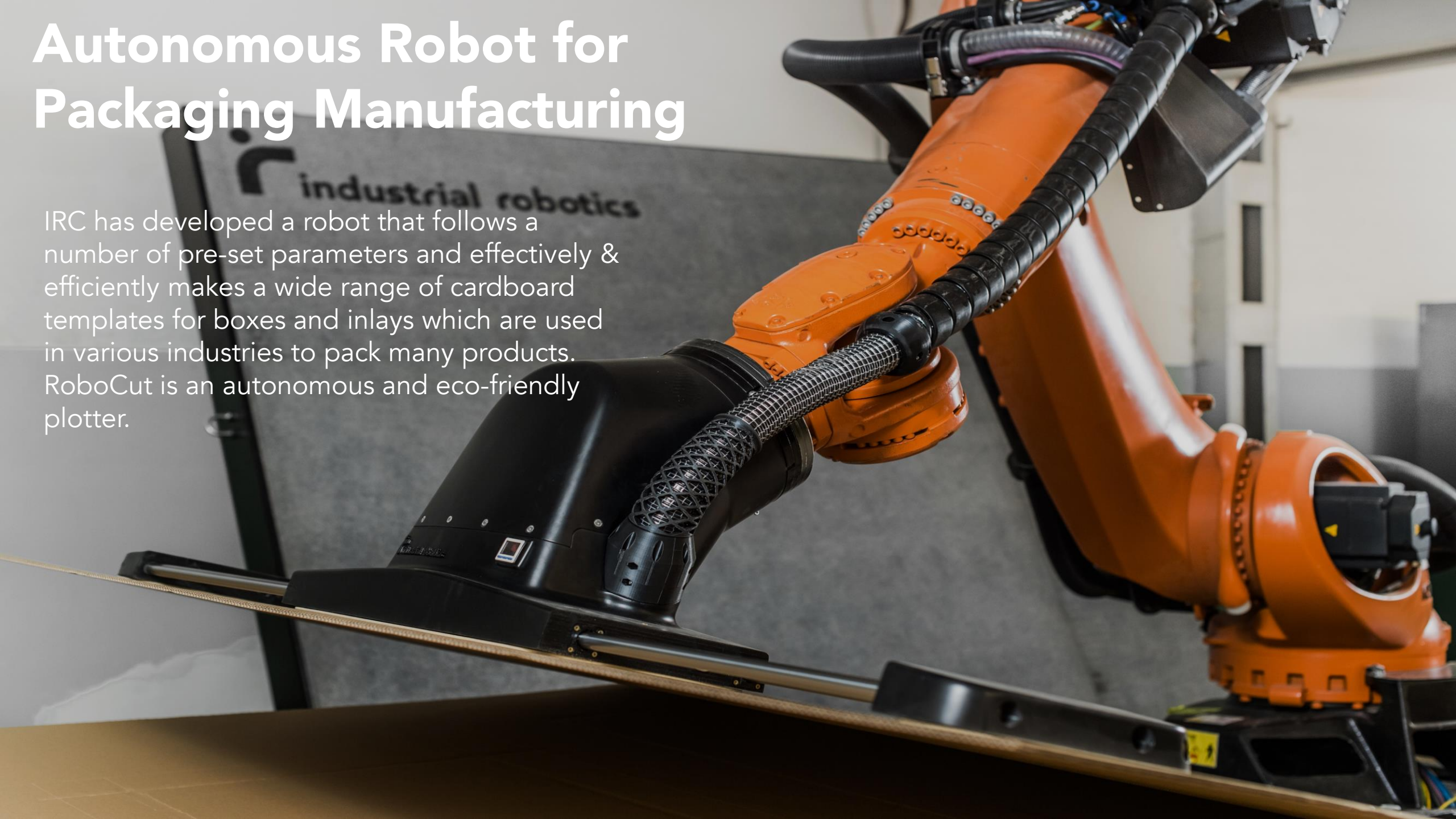


RoboCut

CONTENTS

Autonomous Robot for Packaging Manufacturing



IRC has developed a robot that follows a number of pre-set parameters and effectively & efficiently makes a wide range of cardboard templates for boxes and inlays which are used in various industries to pack many products. RoboCut is an autonomous and eco-friendly plotter.

RoboCut Workflow– „All in One"

Printing

RoboCut uses an inkjet printer to print product codes on the templates.

Bending Lines

RoboCut makes the bending lines using a roller wheel.

Cutting

RoboCut cuts the templates using a pneumatic vibro-knife.

Placement

RoboCut uses a vacuum gripper to move the prepared cardboard sheet from the processing table onto a pallet.

Pick up

RoboCut uses a vacuum gripper to pick up a sheet of cardboard & place it onto the processing table. The pickup may be done directly from a pallet.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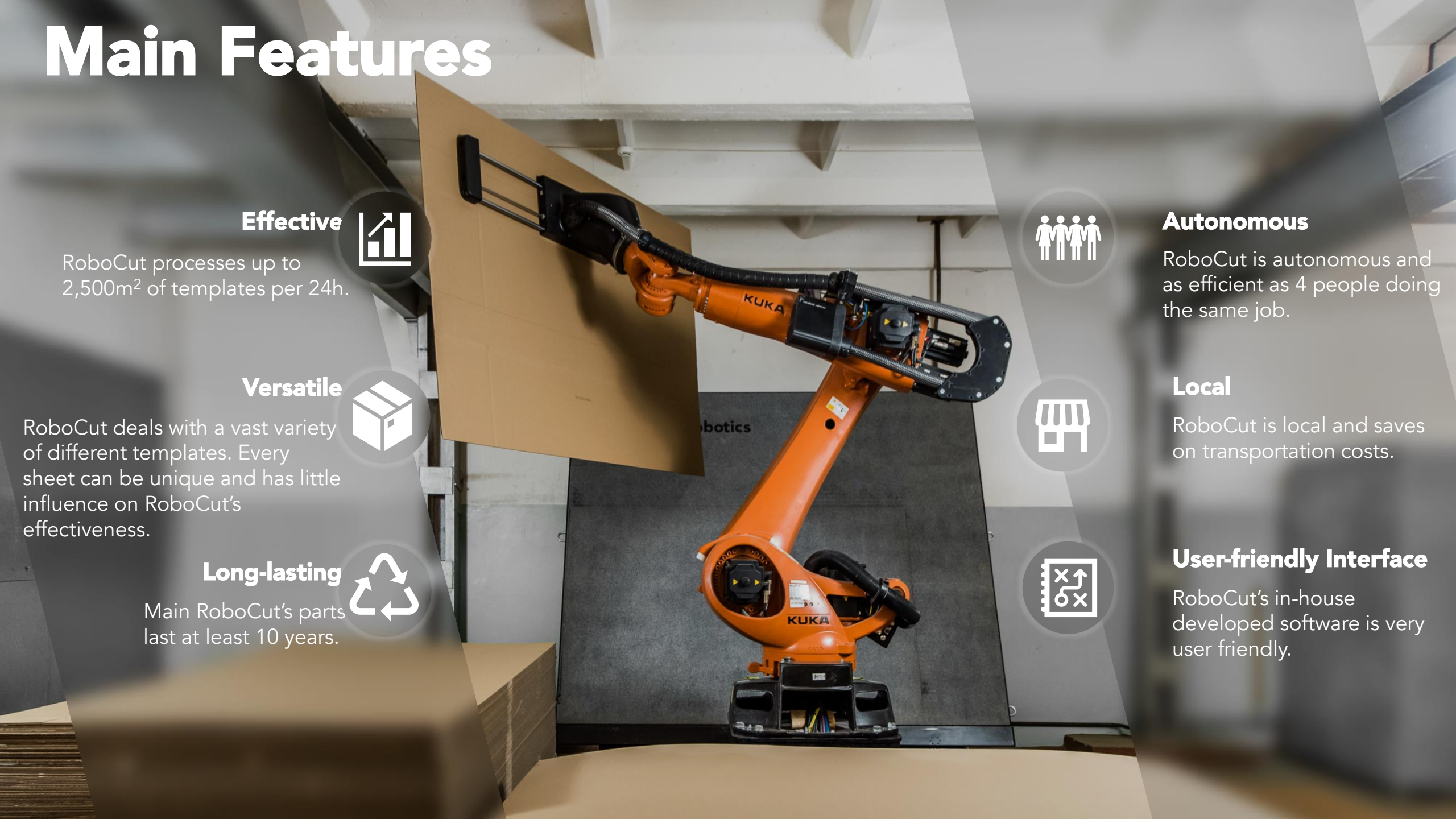
Main Features



Effective

RoboCut processes up to 2,500m^2 of templates per 24h.

Versatile

RoboCut deals with a vast variety of different templates. Every sheet can be unique and has little influence on RoboCut's effectiveness.

Long-lasting

Main RoboCut's parts last at least 10 years.

Autonomous

RoboCut is autonomous and as efficient as 4 people doing the same job.

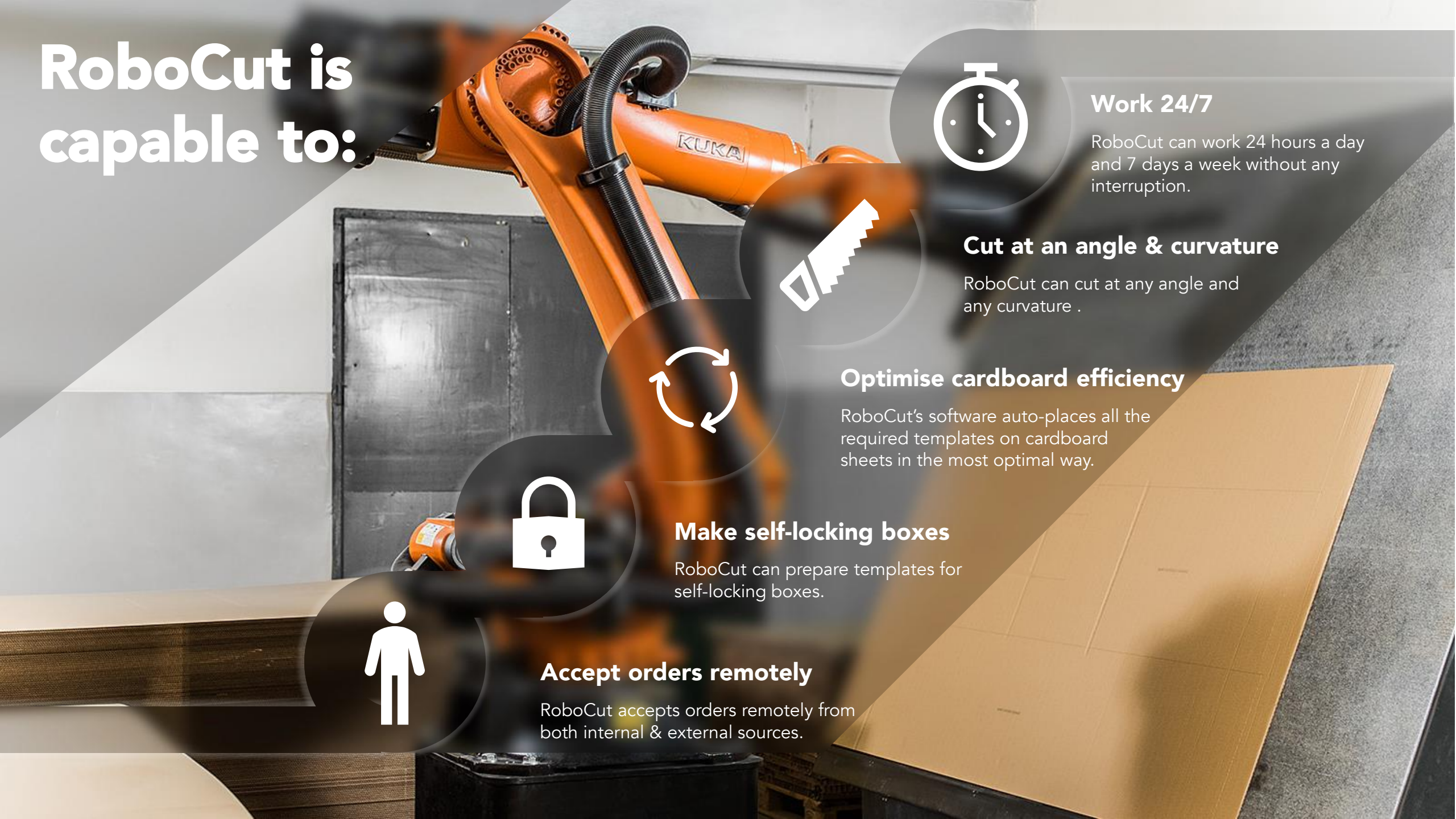
Local

RoboCut is local and saves on transportation costs.

User-friendly Interface

RoboCut's in-house developed software is very user friendly.

RoboCut is capable to:



Work 24/7

RoboCut can work 24 hours a day and 7 days a week without any interruption.

Cut at an angle & curvature

RoboCut can cut at any angle and any curvature .

Optimise cardboard efficiency

RoboCut's software auto-places all the required templates on cardboard sheets in the most optimal way.

Make self-locking boxes

RoboCut can prepare templates for self-locking boxes.

Accept orders remotely

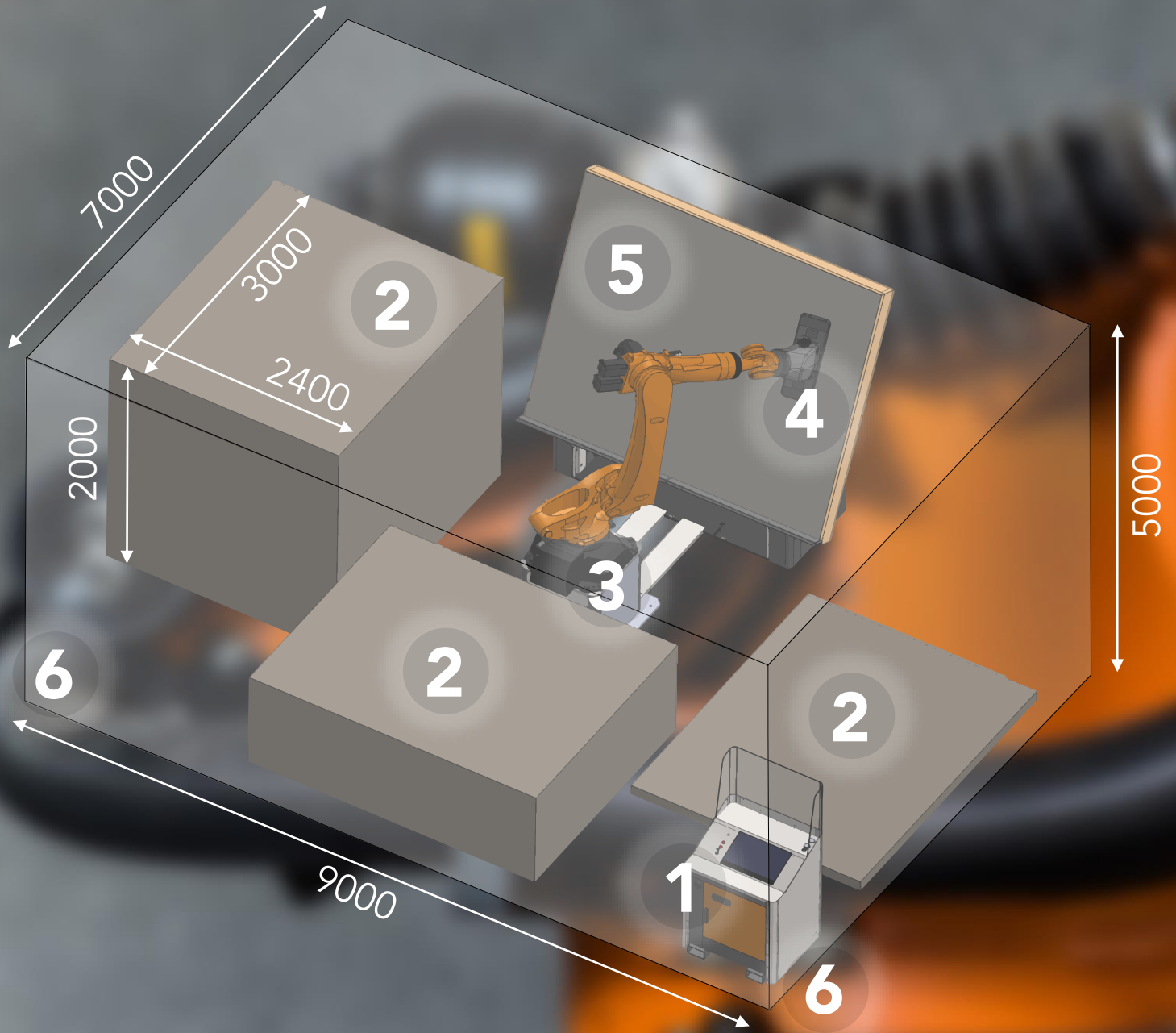
RoboCut accepts orders remotely from both internal & external sources.

Software

RoboCut software features:

- Order processing
- New product creation interface (manual & by uploading a Dxf file)
- Automatic Fefco suggestion based on product dimensions
- Auto-place feature (optimised cardboard usage efficiency)
- Easy workflow planning, priority setting
- Automatic time planning
- Product and order database
- Database for warning messages
- Messenger type communication system for warnings & general information

RoboCut Cell Plan



1 Operating post

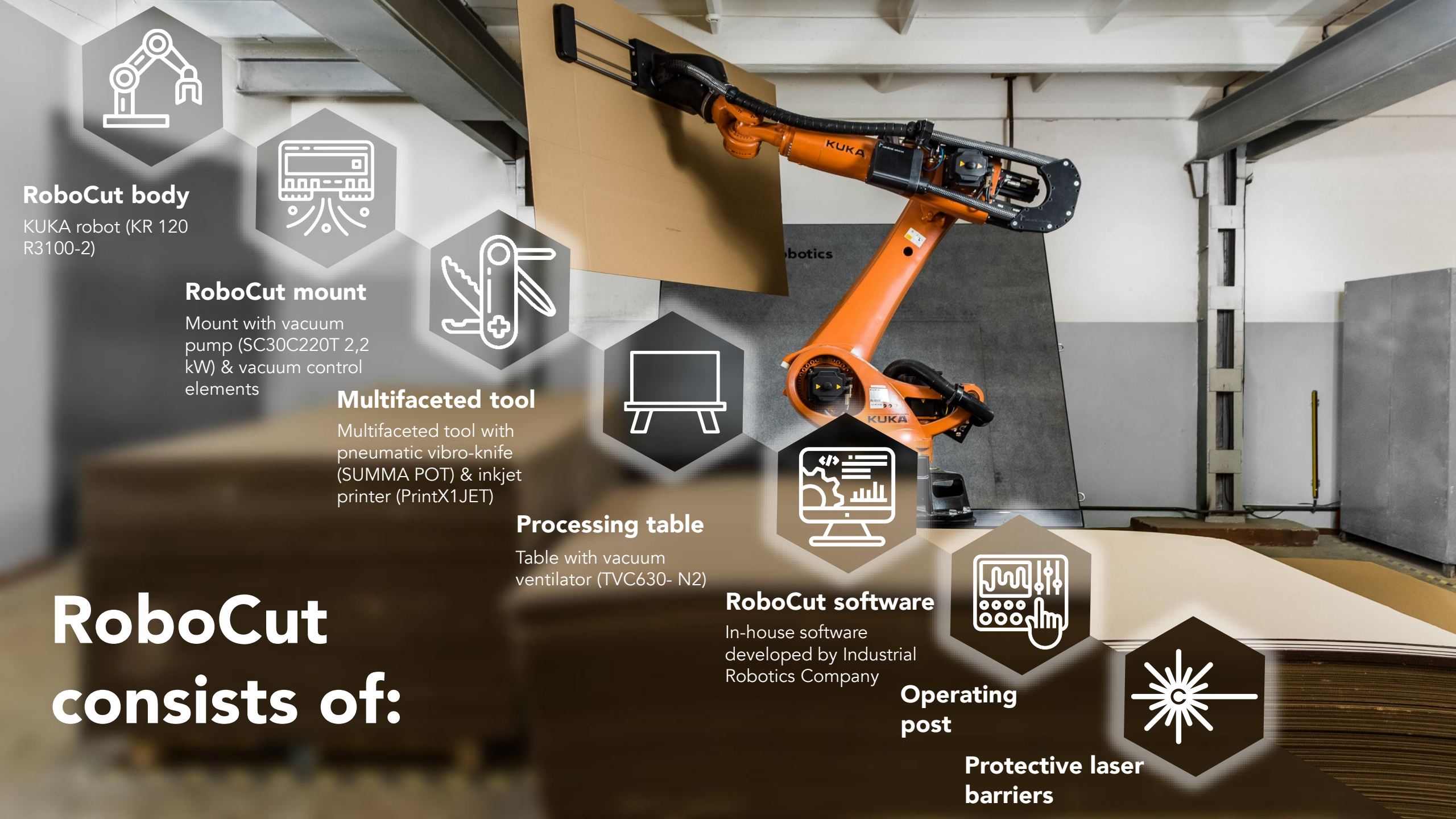
2 Cardboard sheets & prepared templates

3 Mount & main robot body

4 Multifaceted tool

5 Processing table

6 Protective laser barriers



RoboCut consists of:

RoboCut body

KUKA robot (KR 120 R3100-2)

RoboCut mount

Mount with vacuum pump (SC30C220T 2,2 kW) & vacuum control elements

Multifaceted tool

Multifaceted tool with pneumatic vibro-knife (SUMMA POT) & inkjet printer (PrintX1JET)

Processing table

Table with vacuum ventilator (TVC630- N2)

RoboCut software

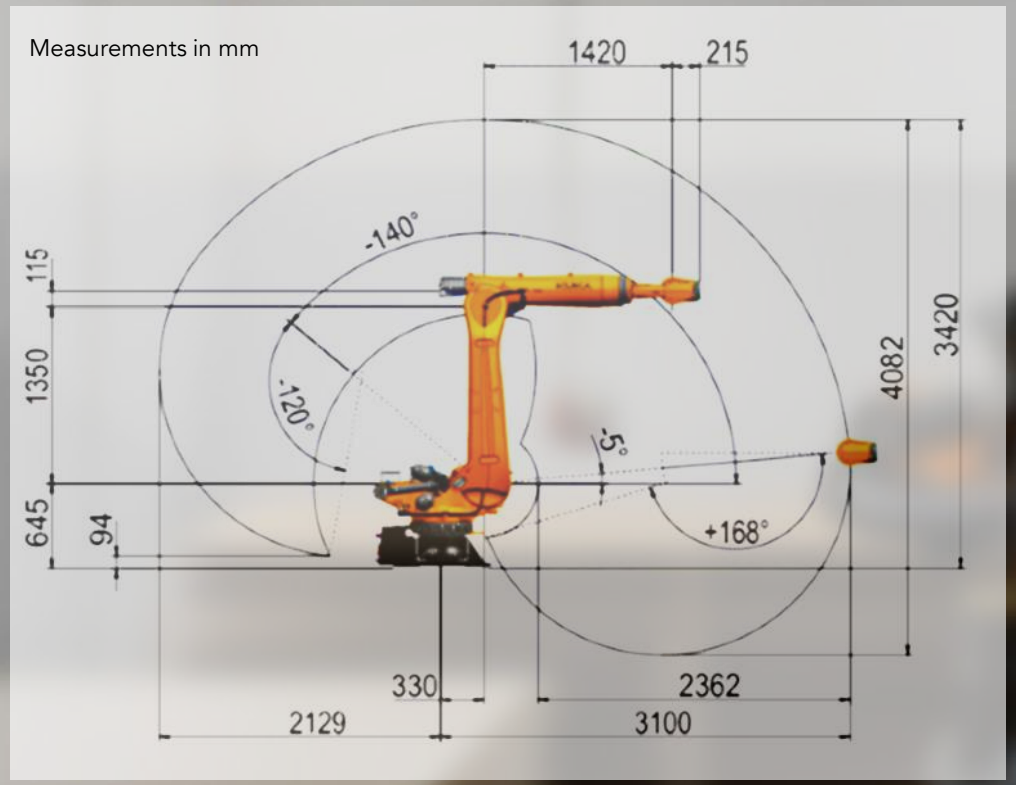
In-house software developed by Industrial Robotics Company

Operating post

Protective laser barriers

RoboCut Body

KUKA robot KR 120 R3100-2 has a maximum payload of 120kg. KUKA robots are widely used in automotive, electronics and pharmaceutical sectors. The few notable advantages of packaging manufacturing with KUKA is less waste, less energy consumption & less time for training. Below is a diagram showing RoboCut's reach capabilities.

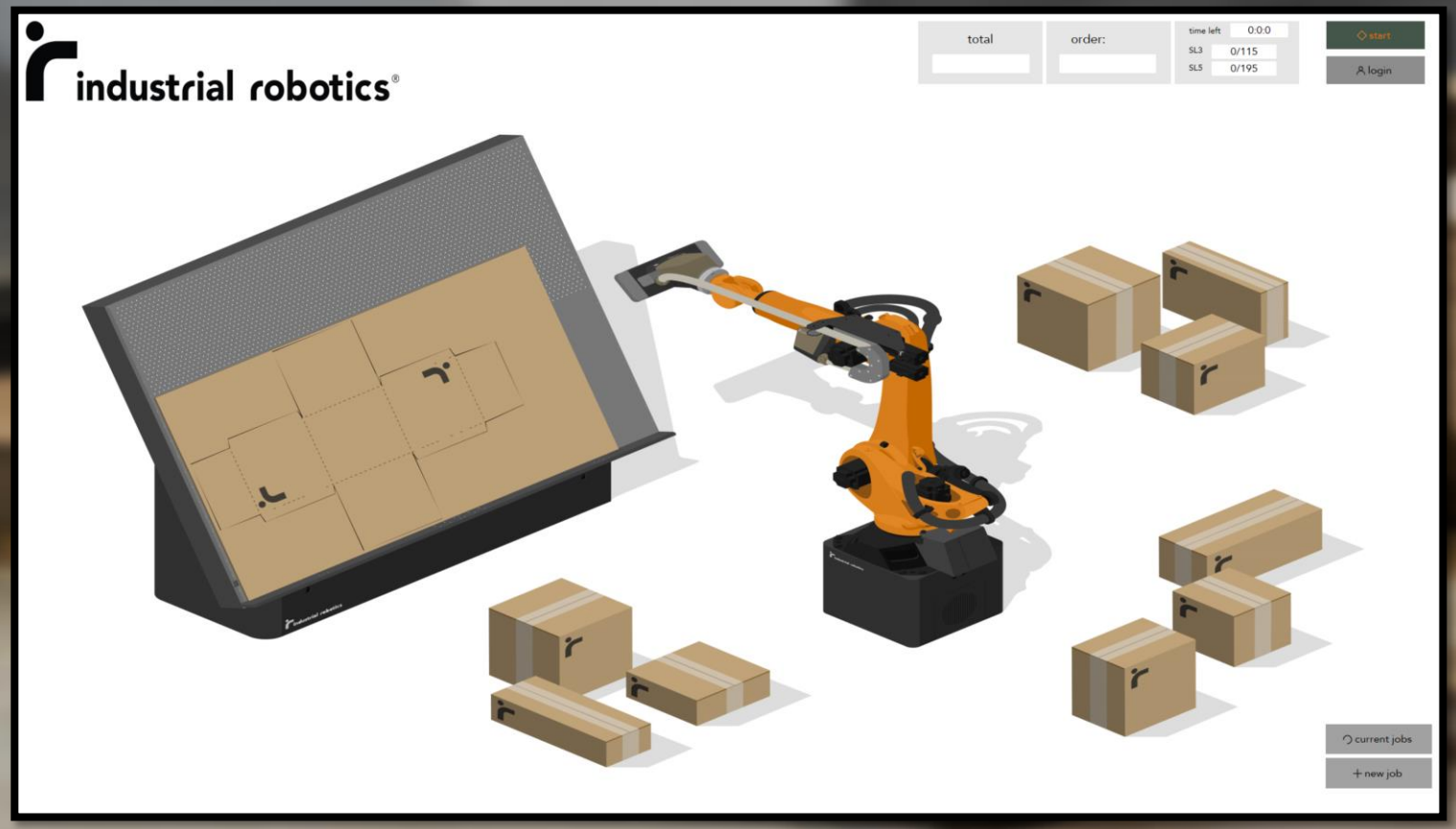


Processing table

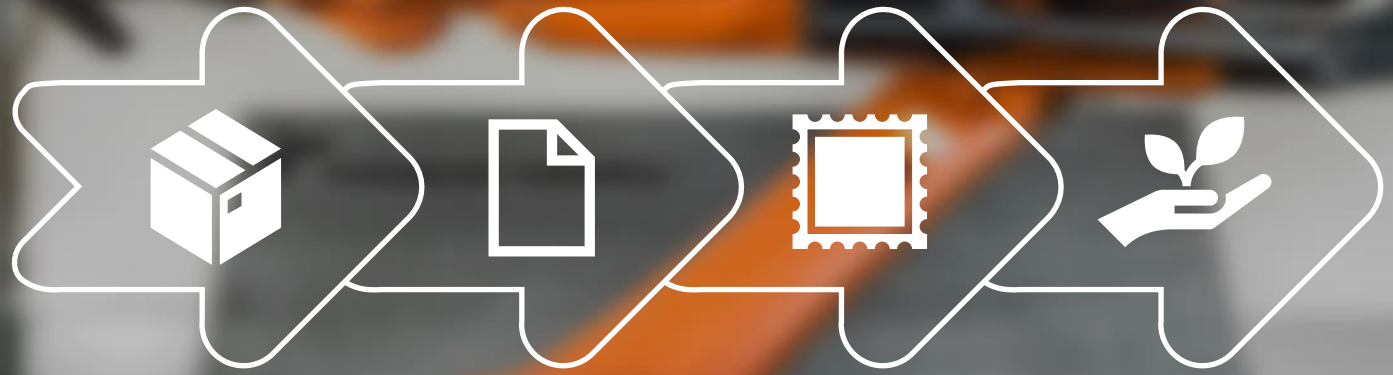
Multifaceted tool

Operating Post

Operating post is equipped with a standard KUKA controller KR C4 and a special user interface developed for RoboCut by Industrial Robotics Company. The software runs on Windows 10 operating system & is pre-installed on a touch screen tablet that is integrated within the operating post. Below is a screenshot of the home page of the software in question.



Is RoboCut for YOU?



1 YES - if you currently make your boxes by hand

2 YES - if you use more than 10,000 square meters of cardboard for box making per month

3 YES – if you require more than 50 different box sizes or templates per month

4 YES – if you are looking for an innovative, effective, efficient and eco-friendly solution for your box manufacturing

RoboCut Parameters

Space & Materials	
Space for 2 pallets of raw materials	
Space for 1 pallet of finished goods	
Maximum loaded pallet size, mm	L3000 x W2400 x H2350
Maximum sheet size, mm	L3000 x W2400 x T2…20
Minimum sheet size, mm	L800 x W300 x T2…T20
Pallet placement accuracy, mm	±150
Raw materials	Cardboard or any other material that can be cut using a vibro-knife
Technical	
Efficiency, m/h	~105
Cutting accuracy, mm	±0.5
Print height, mm	12
Noise, dB	Average 68, max 80
Usage	
Electrisity	6-10 kWh.
Compressed air	40 L/min

RoboCut Parameters

Parts	Estimated years of service
Robot body	~ 10 – 15 years
Vacuum pump	~ 10 years
Table with vacuum ventilator	~ 10 years
Pneumatics	~ 5 years
Electronics	~ 10 years
Multifaceted tool	~ 5 years

Oil for vibro-knife and cassettes for inkjet printer need regular maintenance.
Overall annual service is recommended.

Eco-friendly

Less tree cutting

Less tree cutting means reduced levels of CO2 in the atmosphere (1 tree = 113m^2 of cardboard)

10% more output means 30% less waste.

30% Less cardboard waste

10% More efficient

RoboCut autoplaces templates in the most efficient way and achieves a 10% greater output on average from the same cardboard sheets.

Service

Service team

Service team that consists of a mechanic, automation specialist and a programmer is ready to respond to any service issues within 2 working days.

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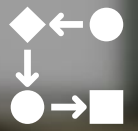
Remote service team

Remote service team is ready to respond to any service issues within 4 working hours.

Software repair

Mechanical repair



Maintenance

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Industrial Robotics Company was created from a necessity to increase competitiveness for a small batch cabinet furniture manufacturer. While in cooperation with Kaunas Technology University and global robot manufacturer KUKA, the company is achieving its goal in robotising the manufacturer. Robots are aimed at assisting employees in effectively performing difficult and time consuming operations. They are also paramount in increasing employees' qualifications & efficiency while making the factory more responsive to customers' needs, more agile and competitive.

IRC team consists of furniture & mechanical engineers, electricians, automation, robot & general programmers, mechatronics, mechanics, financiers, project managers and sales people.

There are currently 4 robotic cells in development. They are all in different stages of completion, but once finished, they will be sold to and implemented as stand-alone robotic cells in other factories:

RoboCut – autonomous robot plotter – FINISHED
Drilling, milling & sanding robot for relatively small parts – 80% COMPLETE.
Spraying robot – a robot for painting assembled parts & products – 70% COMPLETE
Sanding robot – a robot for sanding assembled parts & products – 50% COMPLETE

One of the main points of difference for robots created by Industrial Robotics Company is quick training, straight forward user interface and overall low maintenance.

IRC Channel

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