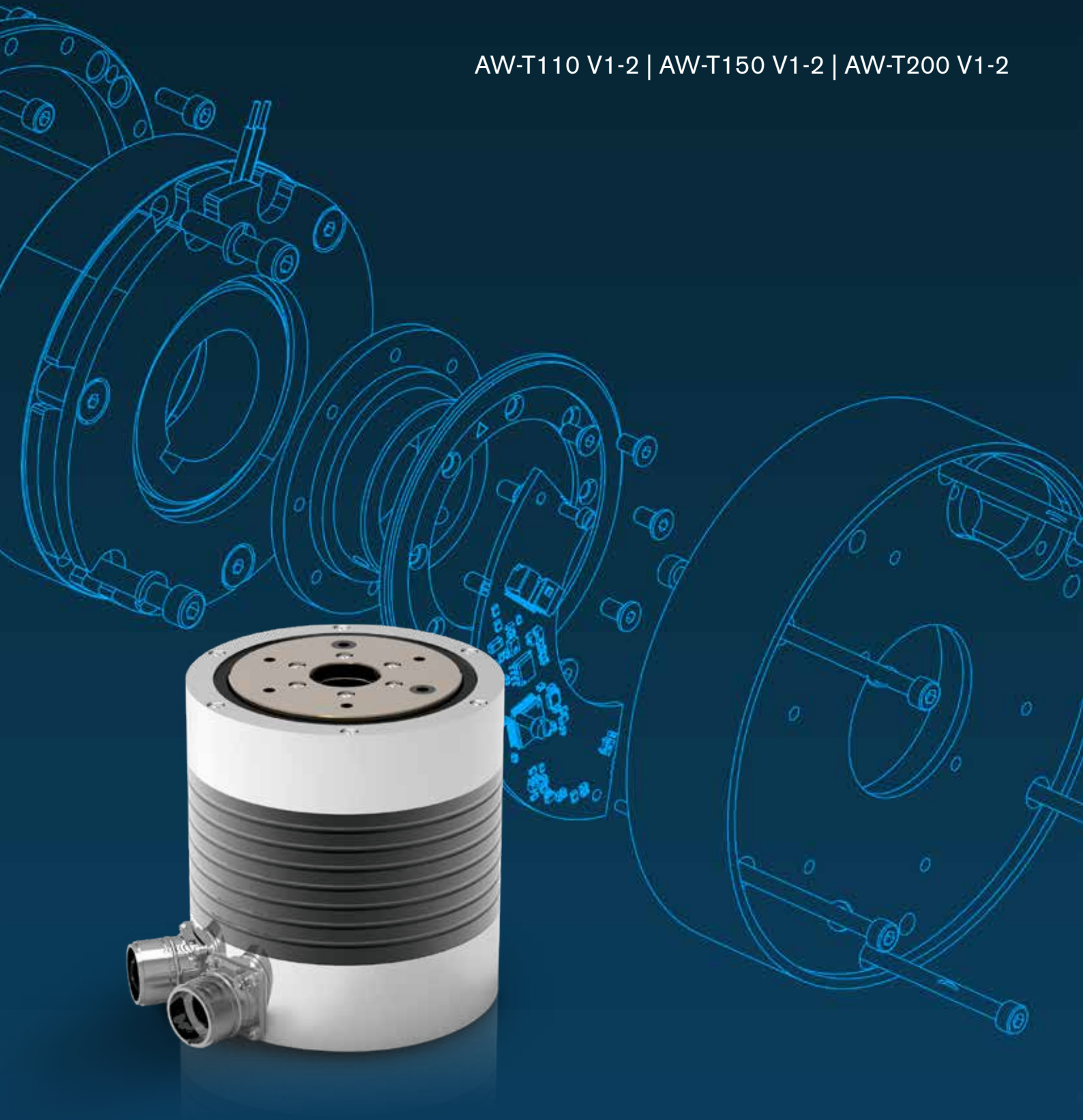
AutomationWare™

One step ahead on the future

Robotics: T-Actuators

AW-T110 V1-2 | AW-T150 V1-2 | AW-T200 V1-2



AW T-Actuators
AutomationWare

Introducing the highest Performance Torque Actuators: AW T-Actuators

In these years we have seen the constant expansion of Mechatronics components.

These new actuators, designed with robotic design criteria, allow torque performance and precision never seen before on the market. A new technological approach must take into account new trends in terms of improving precision, safety, therefore operational performance in terms of load and speed, but above all easy programmability and management.

T-Actuators are a series of **rotative systems**. These devices allow easy integration into mechatronic systems to speed up production processes with tables with very high positioning precision.

In addition, the high-speed performances make them crucial for robotic compositions such as **SCARA** or **DELTA robots** with safety technology to give collaboration to the robotic cell.

Count on Automationware Robotics for innovation that helps improve your productivity

We know that no two motion control challenges are alike.

We develop each mechatronic solution with the latest advanced technologies for your project's specific application requirements.

Using miniature precision sensors and direct drive motors, we push the boundaries to deliver unparalleled results–again and again.

Uniquely optimized form factors, precise and dynamic performance, quality, reliability, and ease of installation are the hallmarks of everything we design and build.

Technology to evolve applications

The possibility of large pairs of movement, absolute precision, sensors for detecting the torque of the system's load of vibrations with redundancy *(Optional)* to obtain operating safety in all conditions, make this device unique for a series of applications:

- **Robotics composition** – SCARA or DELTA Robotics solution
- **Machine tools** – multiple axis management for CNC machining – 3+ Axis loading Arms
- **Punching or laser cutting machines** applications
- **Hygienic Analytical**, Pharma, Genetical, Clinical accurate scan analysis
- **Air Space and defence** – Small radar systems, electronics warfare antennas devices
- **Semiconductors handling** and matrix process

AwareVu™ RoboVu™

ROS EtherCAT

MAIN SPECIFICATIONS

T-Actuators	AW-T110 V1-2	AW-T150 V1-2	AW-T200 V1-2
Total Power	220W-471W	377W-785W	733W-1382W
Voltage	230 Vca	230 Vca	230 Vca
N. of Poles	8	10	20
Driver AW	EtherCat / Profinet /Can	EtherCat / Profinet /Can	EtherCat / Profinet /Can
Encoder	1x20 bit, magnetic ABS	1x20 bit, magnetic ABS	1x20 bit, magnetic ABS
Torque Driver Sensor	14 bit	14 bit	14 bit
Robotic Interface ROS	RoboVu	RoboVu	RoboVu
Peak Torque	7,5-15 Nm	12,7-25 Nm	35,5-66,5 Nm
Axial Load	5000 N	5500 N	10000 N
Radial Load	1200 N	2500 N	5500 N
Max M.Tilt	60 Nm	80 Nm	300 Nm
* Motor max Speed	300 RPM	300 RPM	200 RPM
Diameter	110 mm	150 mm	200 mm
Length	117,5 - 142,5 mm	142,5-167,5 mm	160-185 mm
Hollow shaft diameter	22 mm	32 mm	57 mm
Work conditions	0 °C to +35 °C	0 °C to +35 °C	0 °C to +35 °C
Weight	3,5-4,7 Kg	6,5-8,5 kg	11,8-15,6 kg

* Gearbox speed will be based on Nominal Speed Motor/Gearbox Ratio selection

AW T-Actuators
AutomationWare

AutomationWare introduces a new Rotative T-Actuators platform designed to be state-of-the-art technology and make it possible to design new generation of rotative tables fully magnetically driven.

These devices can obtain very high speed and torque without having to use a gearbox. If used in robotic applications such as scara or delta robots they ensure extremely high precision with torque control to avoid unwanted collisions.

During 2020, the version with the integrated driver will also be introduced.

Control is done through an **EtherCat Bus driver**, offering, diagnostic performance during operation never used before.

System vibrations may be added as an option, *(AwareVu)* Torque may be detected and controlled from the high resolution ADC, position accuracy is provided by an absolute encoder with 20 Bit Resolution.

In addition, for those who already use **Robot Operating System**, widely used in robotic research, the Actuator can be controlled directly by **ROS**, thanks to the **RoboVu application™** which allows real-time connection of applications such as **Moveit** to the bus **EtherCat**.

ROS EtherCAT®

Essential Elements

- **9 sizes** to reach up to 40 Nm torque
- **High Payload** performance
- **Real time** 14 bit Torque control system *(with AW EtherCat Drivers)*
- **20 bit** magnetic absolute encoder *(single or double)*
- **Optional Vibration control** and 3D accelerometers detection
- Optional Embedded drive control **EtherCat based**
- Electronics fully supported Vs. **Robotic Operating System**
- **High Speed rotation** up to 300 RPM

Benefits

- **Very high speed**
- **Extremely High precision positioning**
- Devices may be composed for **robotics applications**
- **ROS** fully supported in EtherCat protocol *(**RoboVu** applications)*
- **Nicely fits SCARA or DELTA** robot applications
- **No contamination** vs. Food or Pharma applications
- **Low power consumption**

AW T-Actuators
AutomationWare

Solutions for the factory of the future

High Speed

and Acceleration reaching 300 RPM

High precision Positioning

based on 20 Bit Absolute encoder

Optional AwareVu Patent

Technology to detect
acceleration and vibrations

Torque sensor

based on 14 Bit ADC conversion

RoboVu™ AwareVu™ ROS EtherCAT®

Superior Mechanical

on transmission system with Ergal based chassis and axis

EtherCat / Profinet

Driver based on EtherCat or Profinet connection

Top performance

on his category for Axial and radial payload perforomnce

Brake system

Optional: Eventual brake system

Several sizes

Possibility of customization
(over 10 units)

Fully ROS compatible

With **AW ROS** interface ***(RoboVU)***

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Applications

AutomationWare entering on **Robotics** with disruptive innovation.

Enhancing lives with a visionary approach to motion control.

Across medical and advanced manufacturing markets, you design the world's most complex machines and instruments–technology that enhances the lives of others.

Here at **AutomationWare**, we share your commitment.

Our mechatronics engineering group seamlessly fuses innovative technology and expertise to create solutions that meet your most challenging precision motion requirements.

Medical Application

- Diagnostic DNA or Bacteriological test systems
- Fast Probing rotative tables
- Pharmacy Automation
- Ophthalmic Diagnostic
- Diagnostic Imaging
- Radiation Therapy

Laboratory & Diagnostics

- Surface Sciences
- Life Sciences
- Laboratory Automation
- Analytical Instruments
- In Vitro Diagnostics

Metrology

- Coordinate Measuring *(CMM)*
- Optical Digitizing & Scanning
- Scanning & Inspection

Radar scanner & Fast Surveillance cameras

- Antenna Control
- Camera & Video Control

Robotics

- Mobile & Warehouse
- Autonomous Vehicles Lidar
- Collaborative SCARA or DELTA configuration
- Precision Automation

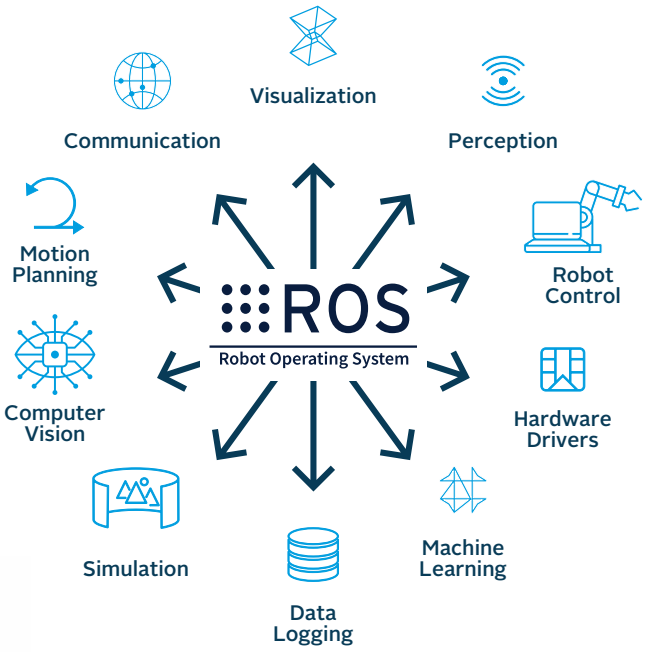
Applications

Semiconductor Equipment

- Lithography
- Ion Implantation
- Etch, Chemical & Physical Vapor Deposition
- Assembly & Wire Bonding
- Test & Inspection
- PCB Assembly

AutomationWare
Evolve on robotics

Next AW evolution: Robotics AW-Tube AW-Mobile-Tube



And the code name of **AutomationWare**' new **Collaborative Robot**. The robot is designed on the **ROS platform** and configures modular co-robotics solutions not only limited to the single component but to the total application.

AutomationWare release **RoboVu™** to connect **ROS** to real time **EtherCat** industrial bus.

Our robotic project, is based on the management of our actuators **J-Actuators** and **T-Actuators** on EtherCat field buses.

Since today, ROS does not have a real-time interface between the virtual and real world.

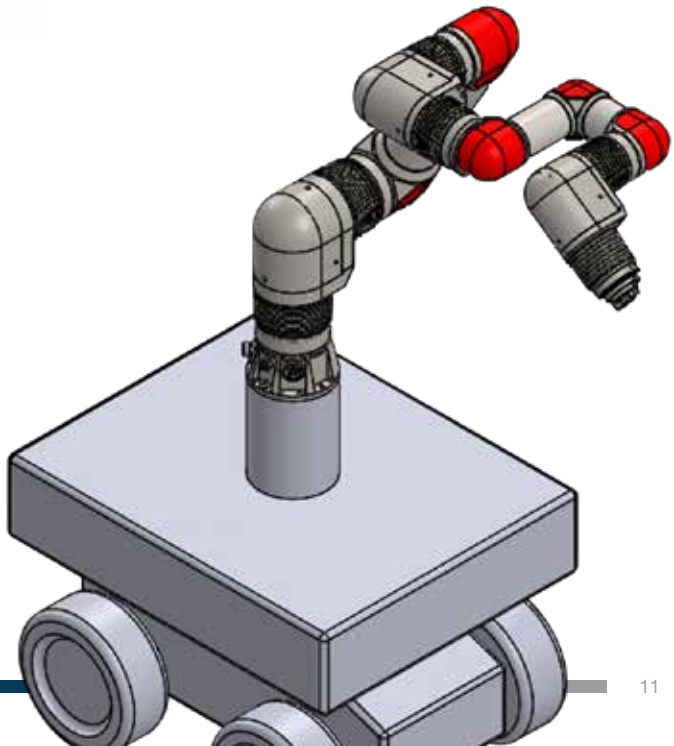
AutomationWare designed a new application called RoboVu™ to connect ROS applications to industrial field buses such as EtherCat.

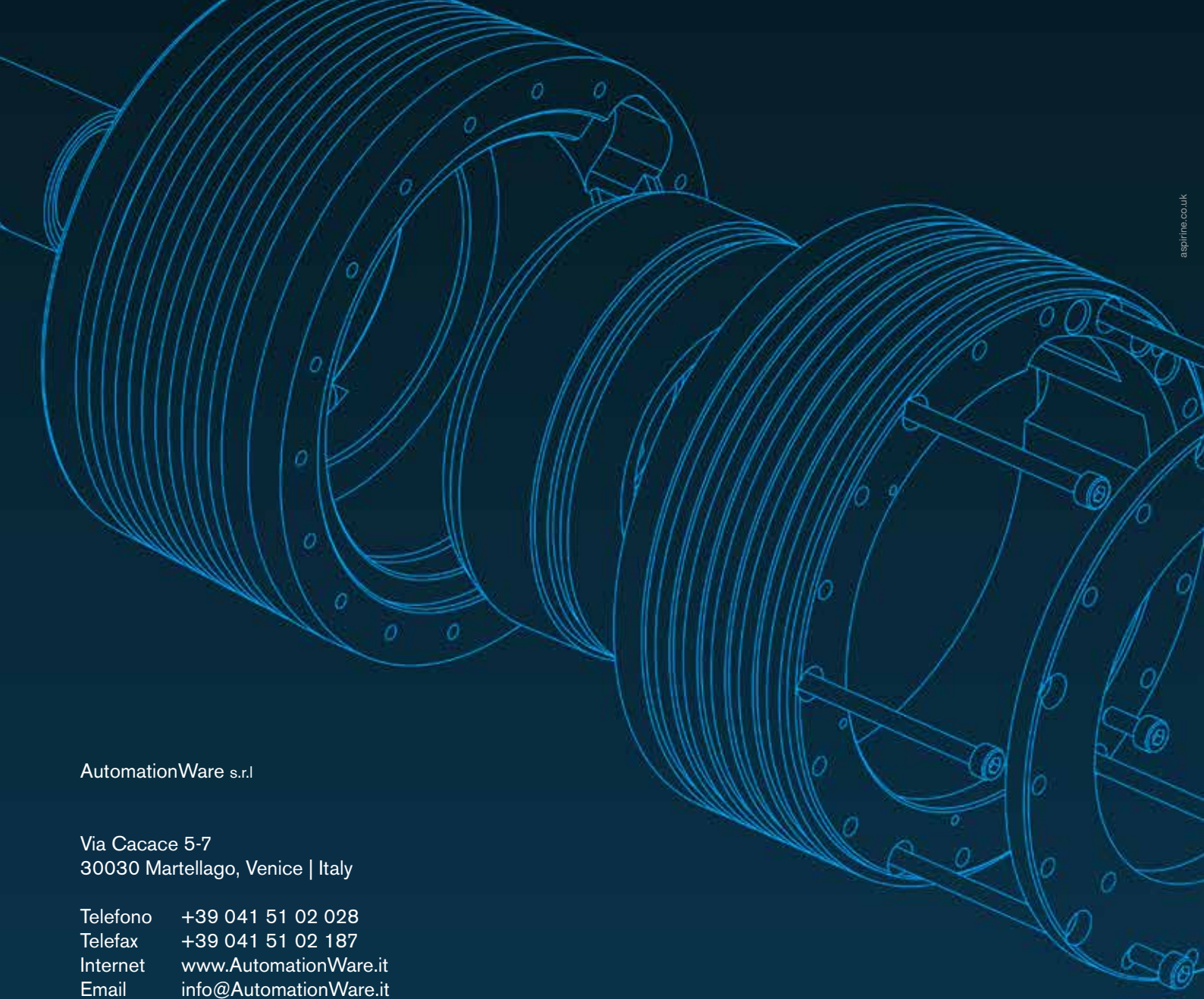
Why Robot Operating System?

Robot Operating System: ROS is an open source framework that provides tools and libraries to help designers develop robotic software.

Starting from the mechanical model, movements are planned, from kinematics to the definition of trajectories.

Future of Open Source robotic development platforms, such as **Robot Operating System** ***(ROS)***, evolve a new generation of Cobots with a quick and easy implementation and permit modularity on applications.





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