

FAST MOVING TECHNOLOGY

STÄUBLI

TX2 robot range

Robotics | Experts in Man and Machine



STÄUBLI VISION

People drive change.
Robots accelerate the pace.



“Today, our robots work both for, and with, people. They have to be fast and precise, collaborative and agile, user-friendly and highly mobile. In all kinds of industries, they redefine performance. Even in the most sensitive environments, they make production smarter. Providing smart data, in an easily connected world, where we share our expertise. A world of solutions.”

Gerald Vogt,
Group Division Manager | Robotics

MAN AND MACHINE

Robots work efficiently
with humans

Today, the collaboration between man and machine is making headway.

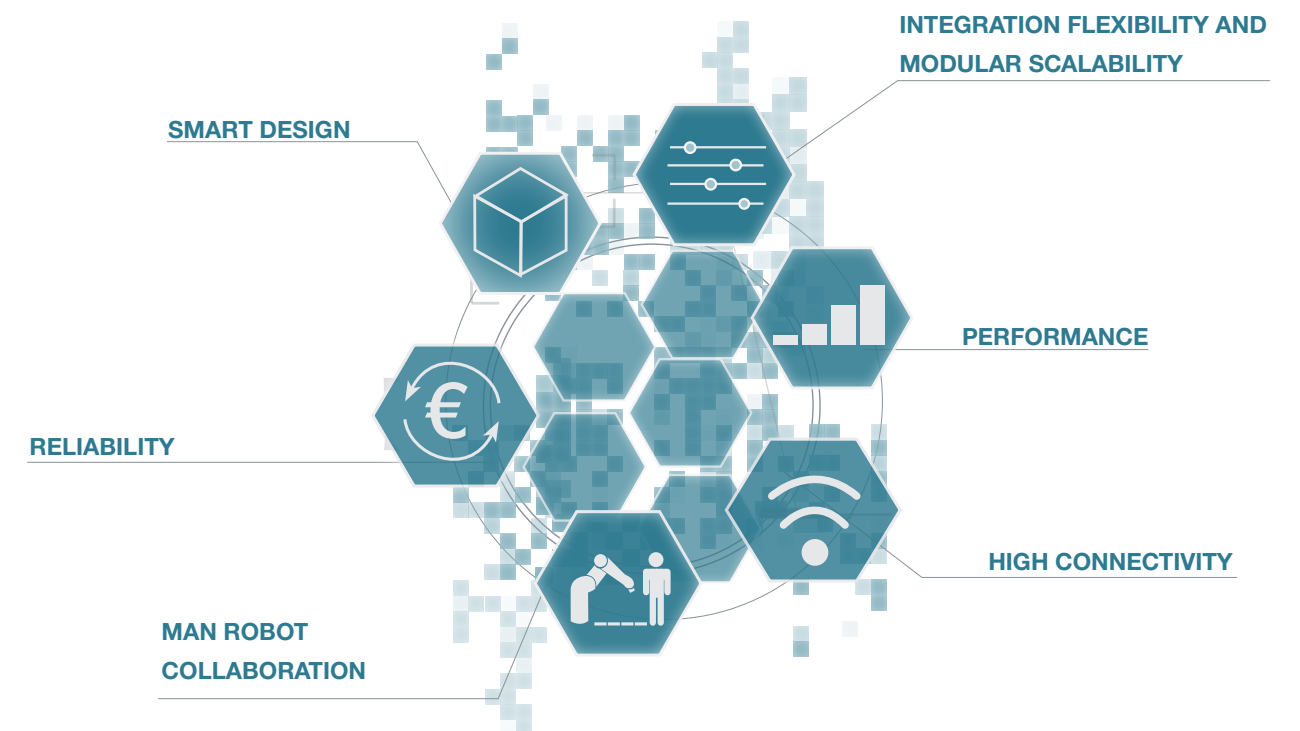
The benefits of robots in industry are no longer in doubt: every year, robots join new sectors, and their “population” is growing around the world.

As they become smarter and perform better, they are finding a place in production along-

side humans. But what exactly is that place? And what is the vision behind their work? Humans and robots must work together like a team and not like competitors. Robots should work for the benefit of humans, to spare us tedious tasks and eliminate safety constraints. Eliminating barriers in everyday work, helping humans maintain full control

over operations, and adding value to human work within companies, no matter their size or business—that is Stäubli’s philosophy. Today, these pioneering TX2 6-axis collaborative robots with their CS9 controller meet all of these expectations.

TX2 robots and CS9
controller main benefits



CONCEPTION

Smart design



INTEGRATION

Integration flexibility, modular and scalable

- TX2 Robotic arm**
- 360° mounting possibility for flexible and scalable integration
 - Large and efficient spherical working range
 - Righty-lefty integration possible for maximum work envelope usage
 - Integrated electrical and pneumatic user circuit including Cat5e
 - Sealed vertical cable option bringing additional and smart integration options



PERFORMANCE

High performance kinematics

TX2 robotic arm kinematics



- Over 125 years of experience in fast moving technology
- Light and rigid structure
- Patented JCS smart gearbox specially designed for compact robots:
 - high dynamics, agility and path precision also due to higher drive frequency
 - encapsulated in oil bath, perfect lubrication allows extremely high dynamics
- Compatible with NSF H1 food oil with no loss in performance
- Unique, 19-bit safe digital multi-turn absolute encoders, ready to operate with no initiation
- Outstanding precision for robot guided by camera and path precision
- Dynamic absolute calibration as a standard option for all Stäubli robot arms

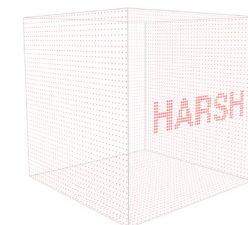


PERFORMANCE

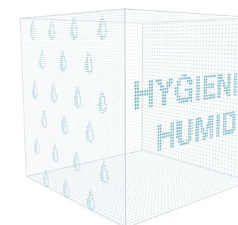
Even in the sensitive environments

Perfectly adapted to sensitive environments

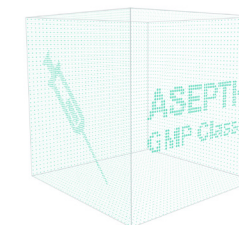
- Pioneer with over 30 years of experience in sensitive environments
- HARSH: ideal to use in harsh conditions such as machine tending operations
- HE: hygienic and humid environments
- Stericlean: aseptic
- SCR: Super Cleanroom
- ESD: electronics compliant



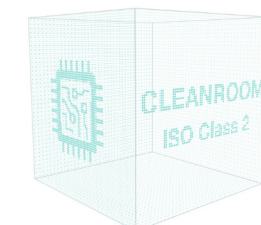
AUTOMOTIVE
METAL



FOOD



MEDICAL
PHARMA



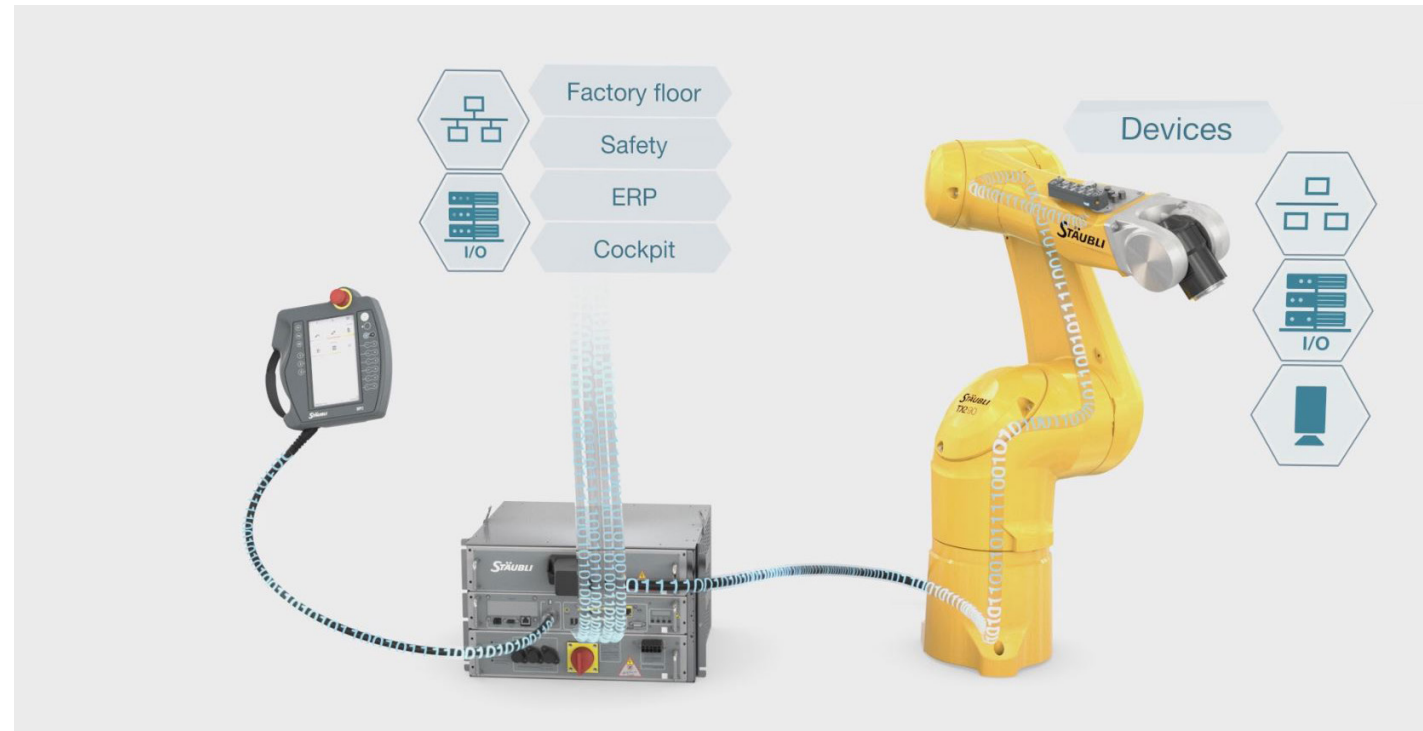
LIFE SCIENCES
SEMICON / PV



AUTOMOTIVE
ELECTRONICS

CONNECTIVITY

Fully connected to the production world



Connectivity to the smart production

- Compatibility to all production devices and ERP
- All standardized communications protocols, including real time Ethernet, available and configurable via a unique software suite
- Web server embedded in CS9 controller
- Smart data for digital production and cockpit
- Any system data accessible and linkable to all interfaces, including OPC UA

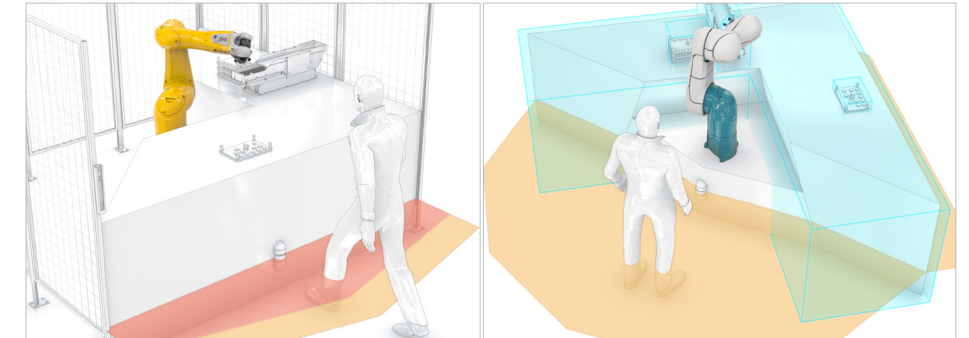
Connectivity to gripper and parts to be manufactured

- Modular safe control of your parts to be produced even for "Batch size one"
- Encapsulated Ethernet Cat5e for multi-gripper, camera and sensors
- IP67 EtherCat I/O modules available for modular connections to peripheral devices
- Electrical and pneumatic connections running inside the arm for added protection, available on the forearm close to the gripper
- Safe control on different types of valves:
 - 5/2 and 5/3 for air pressure
 - 3/2 for vacuum
- Direct tubing for additional valves or devices available

MAN AND MACHINE

Production performers and collaborative experts

Stäubli TX2 robots work both for, and with, people. They are the fastest and safest industrial robots to bring you a more secured payback. The TX2 arm and its CS9 controller make high productivity and collaboration possible thanks to a unique set of modular SIL3-PLe safety functionalities.

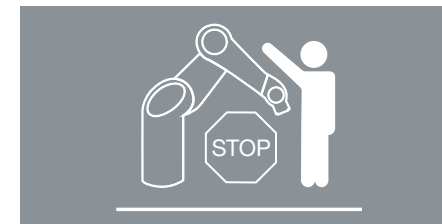


Unique and modular SIL3-PLe safety functionalities.

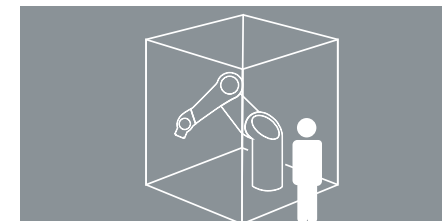
High productivity AND Man-Machine collaboration.



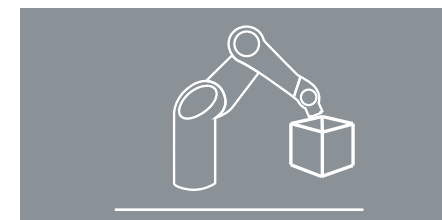
SAFE LIMITED SPEED



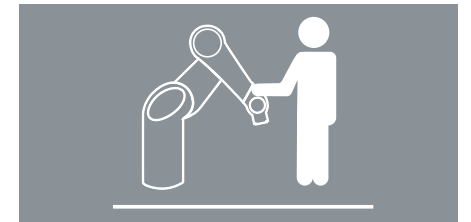
SAFE STOP



SAFE ZONE



SAFE TOOL



SAFE TOUCH with TX2touch version



RELIABILITY

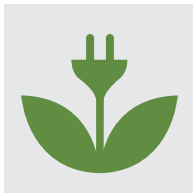
Consistent reliability for secured payback

Lowest startup and maintenance requirements



- Ready to move concept
- No battery on the arm or in the controller
- All subcomponents easily accessible and exchangeable
- Patented components, such as the JCS smart gearbox, with higher lifetime and lower maintenance issues
- Lower total cost of ownership and faster return on investment

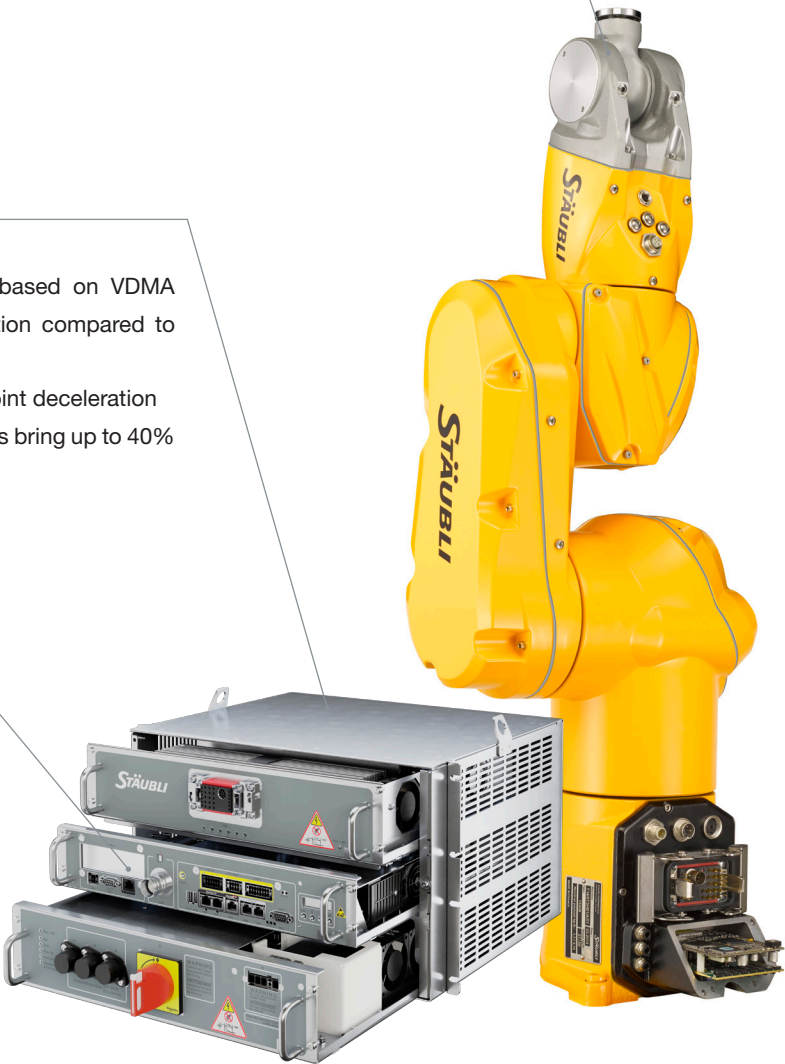
CS9 controller energy efficiency



- The most energy efficient robot based on VDMA norm 24608, 15% less consumption compared to previous generation
- Energy recuperation during each joint deceleration
- Different power saving/sleep modes bring up to 40% consumption savings

CS9 controller maintenance

- Minimal maintenance
- Universal power supply for all voltages
- Easy drawer access due to smart design



TX2 ROBOT RANGE, CS9 CONTROLLER, SP2 MANUAL CONTROL UNIT

Main characteristics



MODEL	TX2-40	TX2-60	TX2-60L	TX2-90	TX2-90L	TX2-90XL
Maximum load	2 kg 2.3 kg under conditions	4.5 kg 9 kg under conditions	3.7 kg 5 kg under conditions	14 kg 20 kg under conditions	12 kg 15 kg under conditions	7 kg 9 kg under conditions
Nominal load	1.7 kg	3.5 kg	2 kg	7 kg	6 kg	5 kg
Reach (between axis 1 and 6)	515 mm	670 mm	920 mm	1000 mm	1200 mm	1450 mm
Number of degrees of freedom	6	6	6	6	6	6
Repeatability - ISO 9283	± 0.02 mm	± 0.02 mm	± 0.03 mm	± 0.03 mm	± 0.035 mm	± 0.04 mm
Weight	27 kg	51 kg	52 kg	111 kg	114 kg	116 kg
Stäubli series controller	CS9	CS9	CS9	CS9	CS9	CS9



CS9 controller - (H x W x D) 270 x 445 x 365 mm - 38 kg

- IP20
- 1 GB RAM
- USB ports
- 2 GB CFAST
- Serial link RS232, 2 Ethernet ports (Socket, FTP Server/Client)
- EtherCAT Master
- Modbus TCP/IP Server & Client, Sercos III Slave, Ethernet IP Adapter, ProfiNet IO-Device, EtherCAT Slave, PowerLink Controlled Node, FSoE Slave

Optional for CS9 model:

- PCIe card: **ASI** Master, **CCLink** Client, **Profibus DP** Master & Slave, **Ethernet IP** Scanner & Adapter, **ProfiNet** IO-Controller & Device, **EtherCAT** Master & Slave, **Sercos III** Master & Slave, **PowerLink** Controlled Node
- Remote I/O
- Industrial chassis with air-air heat exchanger



SP2 manual control unit: the power at your fingertips

- This unique terminal combines a lightweight design, ergonomics (for left or right-handed user) and robustness to deliver advantages in all environments:
- built-in programming, maintenance and supervision,
 - safety functions (3-position dead-man control, emergency stop).



■ Stäubli Units ○ Agents

Global presence of the Stäubli Group

www.staubli.com