

FAST MOVING TECHNOLOGY

STÄUBLI

TS2 robot range

Robotics | Experts in Man and Machine



reddot winner 2021



STÄUBLI VISION

Experts in Man and Machine



« We wanted a robust robot capable of operating continuously, while ensuring accuracy and repeatability from 2 to 3 hundredths of a millimeter, and fast enough for the client's requested cycle time. Due to small volume of the cell, the very compact TS2-60 robot is ideal for our application »

Antoine Torcheboeuf
Development engineer - Posalux

TS2 SCARA RANGE

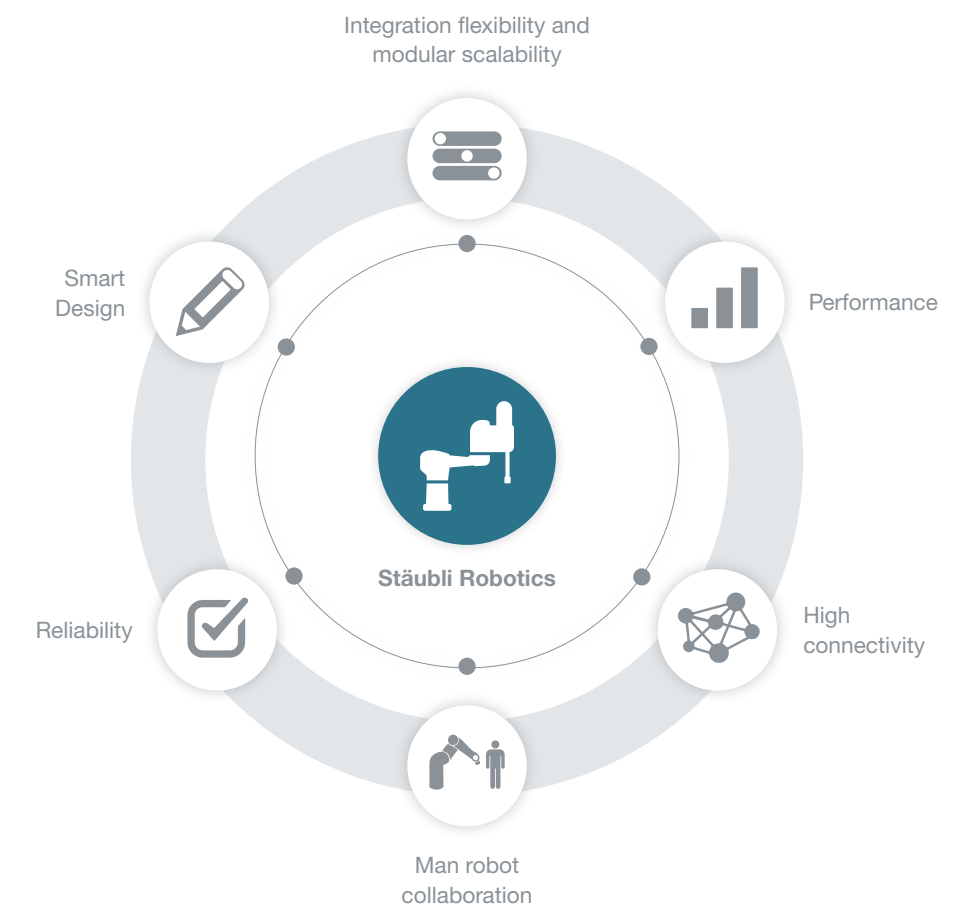
Design, performance and connectivity redefined

Stäubli is entering a new performance class with its TS2 SCARA series. The completely redesigned 4-axis machine with proprietary JCS drive technology facilitates ultra-short cycle times and high repeatability. It also

has a revolutionary encapsulated design which opens up new possibilities for use in sensitive environments. The new TS2 SCARA series share the same structural segments as the 6-axis TX2 robots, offering

an identical footprint for high modularity and optimized development times, as well as the same CS9 controller.

TS2 robots and CS9 controller main benefits



CONCEPTION

Smart design

TS2 Robotic arm

- Encapsulated 4-axis arm enabled by hollow shaft gearbox, no external cables
- IP65 for the entire arm with optional ball screw cover and bellows
- Versions available even for sensitive environments, from harsh and dirty to sterile
- Protection and additional installation options available
- Elegant and innovative design
- Custom colors possible for your CI requirements
- Easy service access to components
- No external cable interference with cell walls or other peripherals for increased reliability and lifetime
- Designed for hygienic operations



SP2 control pendant

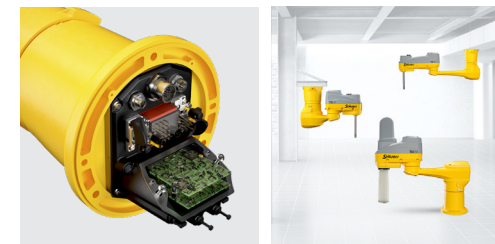
- Web technology based
- Light, compact and robust
- Portrait or landscape mode
- Fits right or left handed
- Touch screen color display



INTEGRATION

Integration flexibility, modular and scalable

- Unique cylindrical envelope and small footprint
- Axis 1 working range: $\pm 180^\circ$
- High dexterity in small workspaces due to compact integration of motors
- Floor and ceiling mounting for flexible and scalable integration, wall mounting possible via mechanical interface (3D drawings supplied upon request)
- Integrated electrical and pneumatic user circuit including Cat5e available until end of arm (flange or tool changer)
- Different pneumatics valve types available
- Sealed vertical cable option for smarter integration
- 400 mm stroke available (optional)



Tool changer

- Allows instant production changeovers
- Brings time savings, increased flexibility to ensure a rapid return on investment
- Includes pneumatic, power and signal (Cat5e) contacts
- Ultra-compact integrated tool changer available (optional), allows automatic - manual usage of various tools

CS9 SE controller

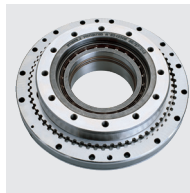
- Compact and lightweight controller (12 kg - 353 x 421 x 144 mm)
- Stackable
- Standardized for 19" rack
- Optimized controller arm connection: interco and power cables easy to connect, thin, flexible



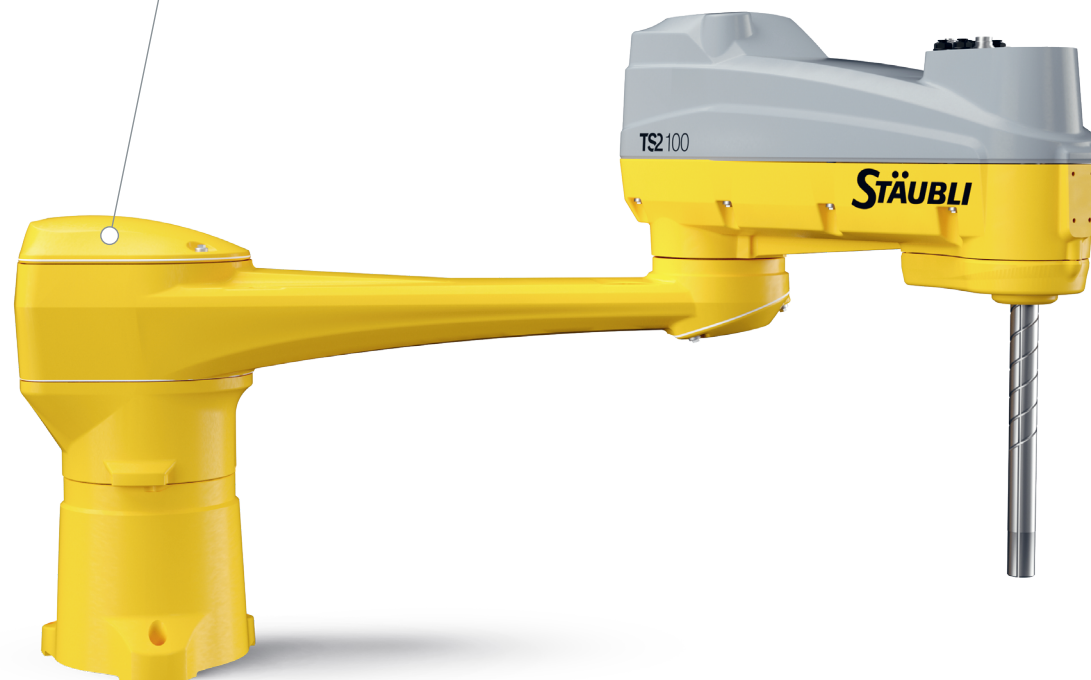
PERFORMANCE

High performance kinematics

TS2 robotic arm kinematics



- Over 125 years of experience in fast moving technology
- Light and rigid structure
- Modular: same components as TX2 6-axis robots
- Patented JCS smart gearbox on axis 1 and 2 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
- 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 robots



PERFORMANCE

Even in the sensitive environments

Perfectly adapted to sensitive environments

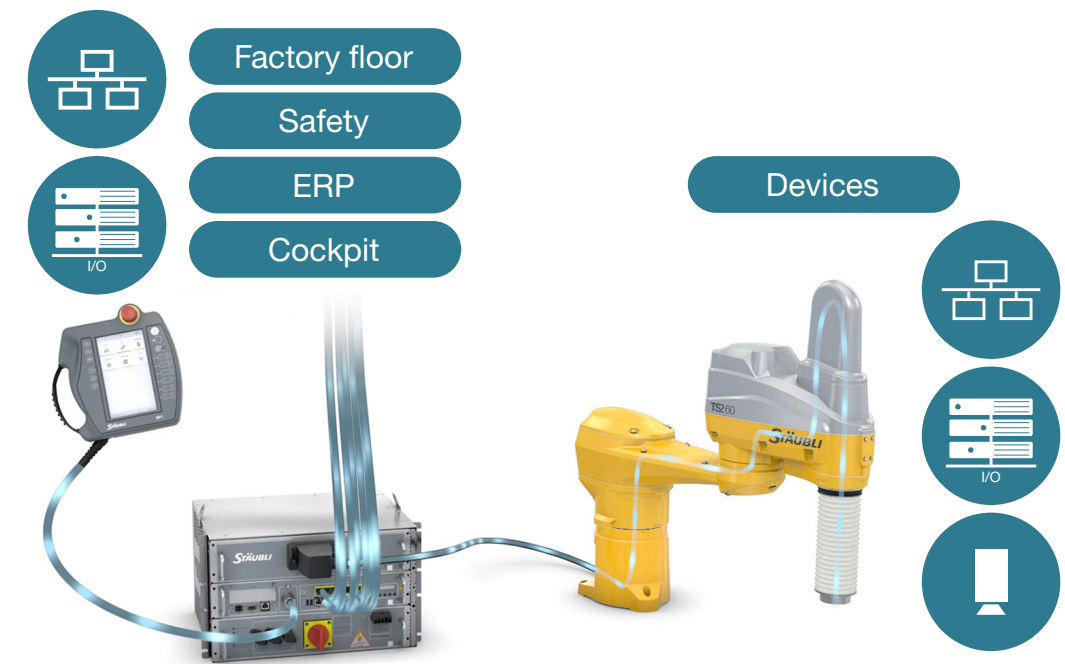
Pioneer with over 30 years of experience in sensitive environments.

- Standard version designed for harsh operations
- HE: hygienic and humid environments
- Stericlean: aseptic
- ESD: electronics compliant

	TS2-40	TS2-60	TS2-80	TS2-100

CONNECTIVITY

Fully connected to the production world



Connectivity to the smart production

- Compatibility with production devices and ERP
- Main standardized communication protocols supported, 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

- Integrated tool changer available (optional) allows automatic - manual usage of various tools
- Encapsulated Ethernet Cat5e for multi-gripper, camera and sensors
- Direct tubing for additional valves or devices available
- Different types of valves:
 - 2x 5/2 for pressure
 - 2x 5/3 for pressure
 - 2x 3/2 for vacuum
 - 1x 3/2 for pressure and 1x 3/2 for vacuum

RELIABILITY

Consistent reliability for secured payback

Lowest startup and maintenance requirements

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



CS9 controller energy efficiency



- Energy recuperation during each joint deceleration
- Different power saving/sleep modes bring up to 40% consumption savings
- High lifetime and low maintenance, all subcomponents easily accessible and exchangeable

CS9 SE controller maintenance

- Minimal maintenance
- Universal power supply for all voltages



TS2 - CS9

TS2 ROBOT RANGE AND CONTROL UNITS

Main characteristics



MODEL	TS2-40	TS2-60	TS2-80	TS2-100
Load capacity	8.4 kg			
Reach (between axis 1 and 4)	460 mm	620 mm	800 mm	1000 mm
Number of degrees of freedom	4	4	4	4
Stroke	200 mm or 400 mm (option)			
Repeatability X - Y	± 0.01 mm		± 0.015 mm	± 0.02 mm
Repeatability Z	± 0.004 mm			
Repeatability R-Z	± 0.002°		± 0.003°	
Protection class	Up to IP65			
Cycles per minute*	240 (0.25s)	220 (0.27s)	200 (0.30s)	170 (0.35s)
Weight	38 kg	39 kg	40 kg	41 kg
Power Consumption - VDMA 24608	0.385 kW	0.289 kW	0.274 kW	0.256 kW
Multiple mounting attachment	Floor/Ceiling			

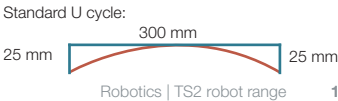


CONTROLLER	CS9 SE	CS9 LP
Dimensions (H x W x D)	353 x 421 x 144 mm	370 x 445 x 270 mm
Weight	12 kg	38 kg
Features	2 GB RAM / 4 Core CPU 2 USB ports / 2 GB CFAST / Serial link RS232, 2 Ethernet ports (Socket, FTP Server/Client) / Web server / EtherCAT Master / Modbus TCP/IP Server & Client, Sercos III Slave, Ethernet IP Adapter, ProfiNet IO-Device, ProfiSafe slave, EtherCAT Slave, PowerLink Controlled Node, FSoE Slave	
Options	Remote I/O OPC UA server	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 OPC UA server



MANUAL CONTROL UNITS	SP2	SP2+
Weight	1.2 kg	1.2 kg
Tactile screen	7"	10.1"
Screen resolution	480 x 800 px	800 x 1280 px
IP rating	IP54	IP65
Screen technology	Resistive	Capacitive
Left or right handed user	✓	✓
Debugging function	✓	✓
Safety function	3-position dead man control, emergency stop	
Custom user interface creation	✓	✓

* Our programing and simulation software Stäubli Robotics Suite enables an easy and precise definition of your specific application cycle time. Cycle time for 25mm - 300 mm - 25 mm motion pattern with 2 kg payload.





● Stäubli Units ○ Representatives/Agents

Global presence of the Stäubli Group

www.staubli.com