Scan to learn more

Cognibotics

SigmaTau

Looking for a machine with high precision and speed? A machine that is also flexible, versatile in manufacturing applications and with a large scalable workspace? With SigmaTau, you have a solution that combines the advantages of CNC machines and serial robots, to bring accuracy, productivity and energy efficiency to your application.

➜ 20x less **moving mass**

➜ 170 m/min **speed**

➜ 2,5 g **acceleration**

➜ 5 µm **repeatability**

➜ 40 µm **tool path accuracy**

The choice of machining technology depends on the specific production requirements, including the nature of the tasks, volume, and the need for flexibility or specialized machining. Serial robots offer flexibility, but may have limited performance in tasks involving high forces, process vibrations, and high stiffness requirements. Machine tools have the stiffness and accuracy but lack dynamics and flexibility.

With SigmaTau, Cognibotics has overcome the disadvantages of traditional CNC and serial robots.

SigmaTau provides the advantages of parallel robots

- high rigidity enabling high precision and accuracy
- high acceleration and velocities
- reduced inertia (due to lower moving mass)
- real-time stiffness control and
- minimal inertia-induced vibrations

...but exceeds traditional parallel robot limitations by

a. singularity free workspace
b. stiff tool orientation by patented structural arrangement of 8-bar linkage
c. large scalable workspace
d. CNC-like 5-DOF accuracy and ISO CNC programming
e. modularity, scalable structure, easy extainabiliy and maintenance

With SigmaTau, you can have it all:

Precision and Accuracy: SigmaTau robots offer high precision and repeatability in manufacturing parts with tight tolerances, making them ideal for critical and high-quality components. The accuracy values are valid in the entire workspace and not limited to a specific working area.
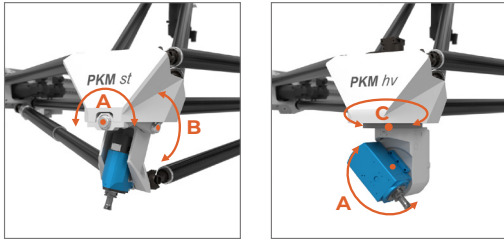
Flexibility: It can be quickly reprogrammed and equipped with different end effectors to perform a variety of tasks, from machining, laser cutting and welding to high performance laser additive processes, making it highly adaptable to changing manufacturing needs.

Consistency: Once a workpiece is programmed, a SigmaTau can produce large quantities of parts with consistent quality, reducing the risk of scrap. Engineering changes can be performed offline and easily adapted to the serial production.

Efficiency: For specific tasks like milling and drilling, SigmaTau robots can operate at high speeds and with great efficiency, maximizing productivity.

Material Versatility: It can work with a wide range of materials, including metals, plastics, wood, and composites, providing flexibility in manufacturing options.

COGNIBOTICS

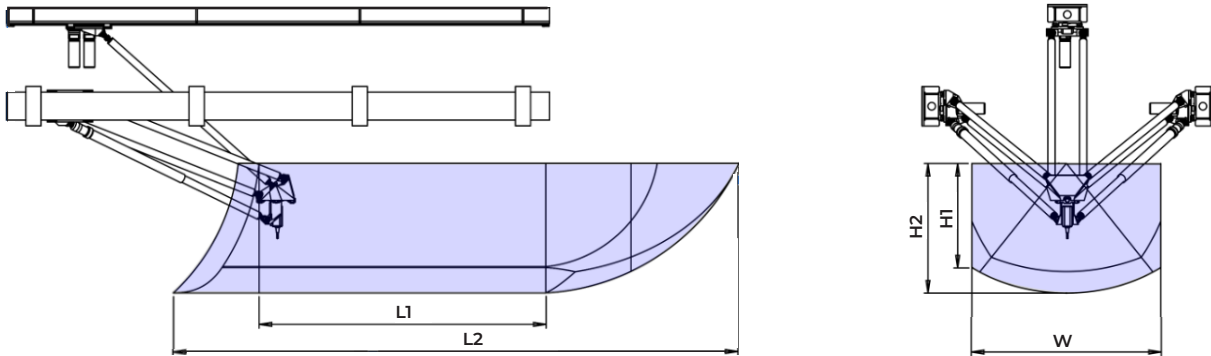## Head configuration

Performance

SigmaTau ST 3000	
Repeatability	7 µm
Path accuracy (without process forces)	50 µm
Max speed:	
X	170 m/min
Y	170 m/min
Z	170 m/min
ST A-Axis	20 rpm
ST B-Axis	20 rpm
HV A-Axis	47 rpm
HV C-Axis	16 rpm
Simultaneous	205 m/min
Max acceleration:	
X	20 m/s²
Y	20 m/s²
Z	20 m/s²
ST A-Axis	55 rad/s²
ST B-Axis	55 rad/s²
HV A-Axis	100 rad/s²
HV C-Axis	250 rad/s²
Simultaneous	20 m/s²
Jerk	500 m/s³
Acceleration	2 g

Work volume

Axis travel range	Current workspace	Feasible workspace
X-Axis travel - L1	3778 mm	No limit
X-Axis travel - L2	7648 mm	No limit
Y-Axis travel - W	2500 mm	Up to 3000 mm*
Z-Axis travel - H1	1365 mm	Up tp 2000 mm*
Z-Axis travel - H2	1712 mm	
ST A-axis angles	± 45°	
ST B-axis angles	± 45°	
HV A-Axis	± 120°	
HV C-Axis	± 360°	

Working Range

Technical data

SigmaTau ST 3000	
Weight (only robot)	800 kg
Max TCP load	400 kg
Foundation outer diameter	6.950 (L) x 6.280 (W) x 4.690 (H) m
Link length (carbon links including inserts and joints)	3000 mm
Stiffness (TCP)	5-10 N/µm
Maximum process force	5 kN
IPO Technology	5-Axis simultaneous 3+2

Connect on social media:

Get in touch:

Phone: +46 46 286 59 90
E-mail: info@cognibotics.com
www.cognibotics.com