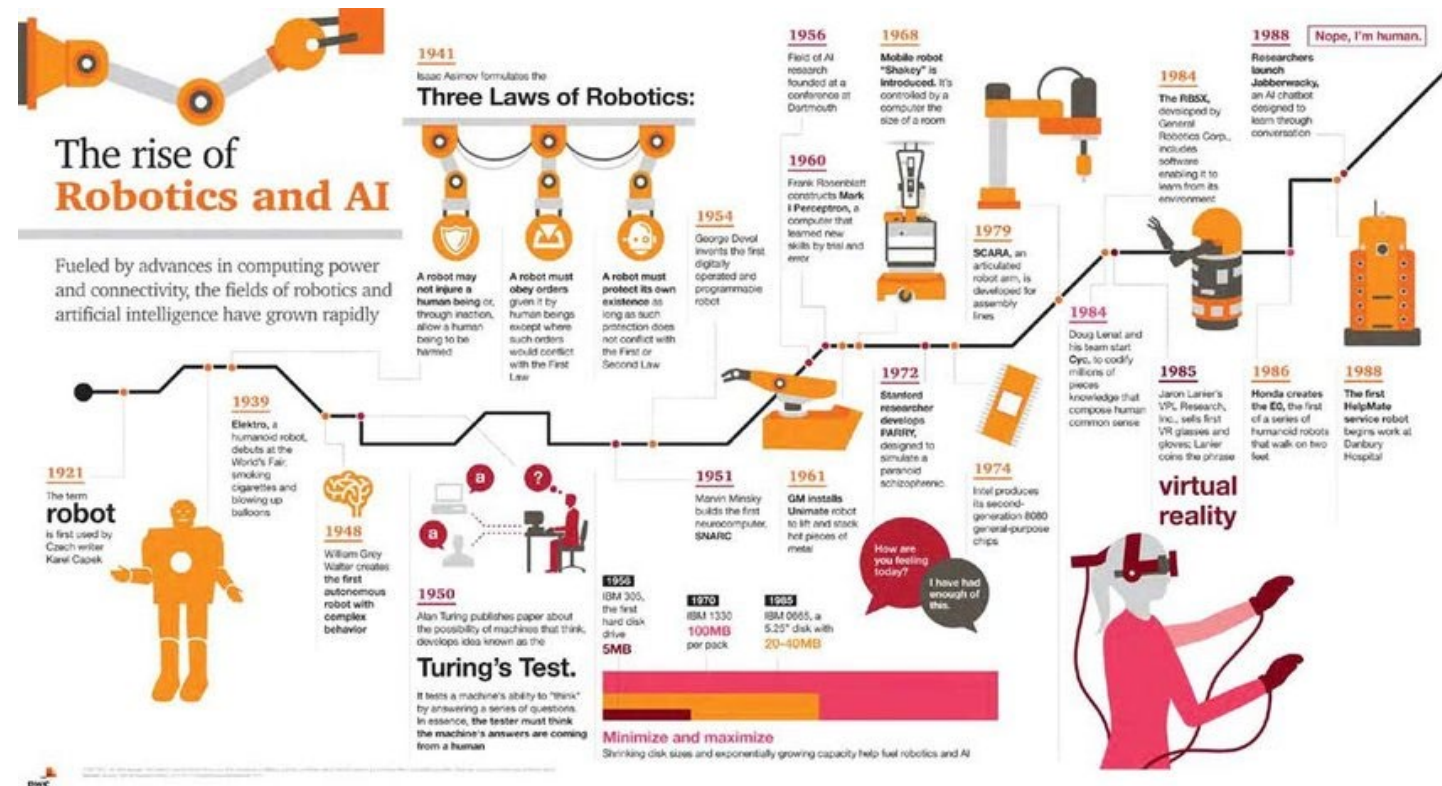
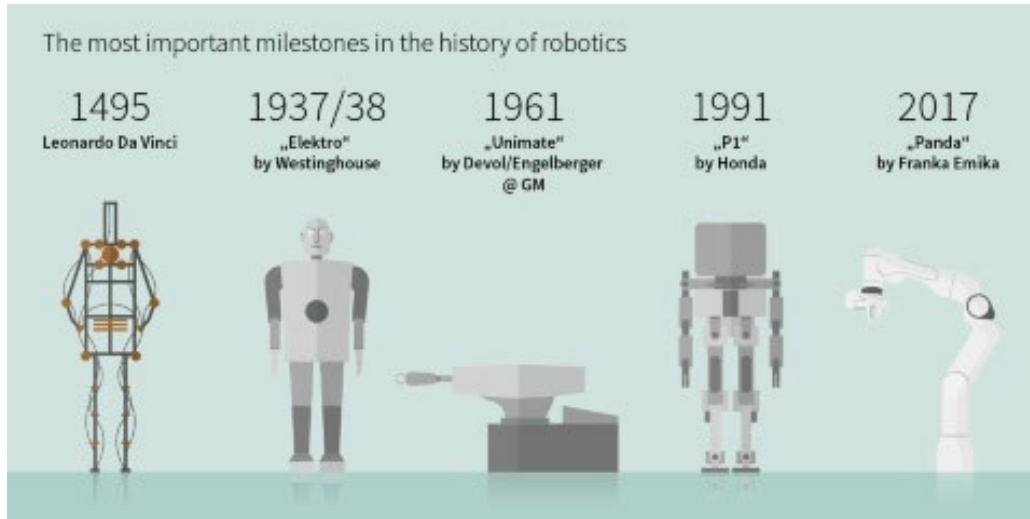


Industrial Robots

Task for 18 Apr 22

History of Industrial Robot



History of Industrial Robot

Definition of an industrial robot

- An industrial robot is defined by ISO as an automatically controlled, programmable, multi purpose manipulator programmable in three or more axes.

History of industrial robots

- George Devol applied for the first robotics patents in 1954.
- The first company to produce a robot was Unimation, founded by Devol in 1956, and was based on Devol's original patents.
- Their robots used hydraulic actuators and were programmed in joint coordinates.



History of Industrial Robot

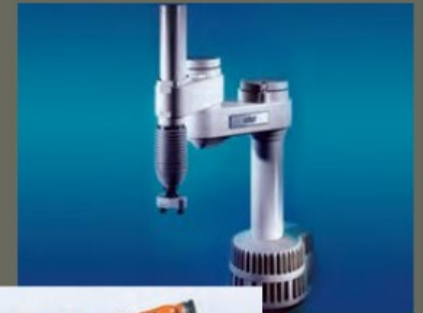
History of industrial robots

- In 1969 Victor Scheinman at Stanford University invented the Stanford arm.
- It was all-electric, 6-axis articulated robot designed to permit an arm solution.
- In 1973 ABB Robotics and KUKA Robotics bringing robots to the market.
- KUKA Robotics built the first robot, known as FAMULUS also one of the first articulated robots to have six electromechanically driven axes.



History of industrial robots

- In 1984 is introduced the AdeptOne, first direct-drive SCARA Robot.
- KUKA, Germany, introduces a new Z-shaped robot arm whose design ignores the traditional parallelogram.



History of Industrial Robot

History of industrial robots

- In 1992 Demarex, Switzerland, sold its first Delta robot packaging application to Rolan, which was constructed to loading pretzels into blister trays.
- In 1998 ABB, Sweden, developed the FlexPicker, the world's fastest picking robot based on the delta robot.
 - It was able to pick 120 objects a minute



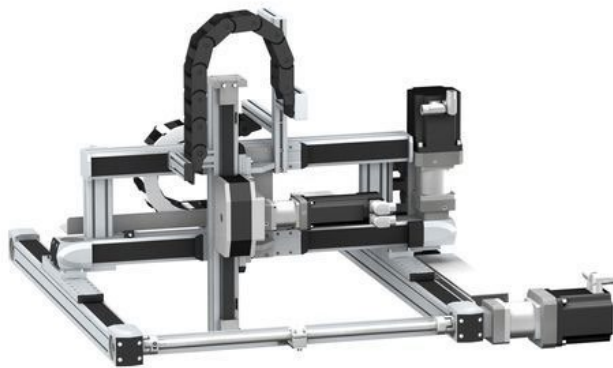
History of industrial robots


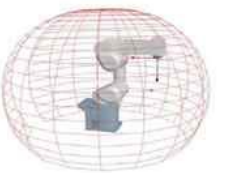




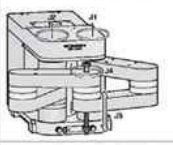





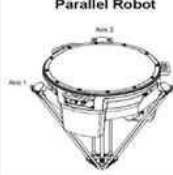


- ❖ In 1999 Reis Robotics receives patent on the integrated laser beam guiding through the robot arm.
 - ❖ This technology replaces the need of an external beam guiding device and allow to use laser in combination with a robot at high dynamics.
- In 2004 Motoman, Japan, introduced the improved robot control system which provided the synchronized control of four robots, up to 38 axis.



Main Types of Robot

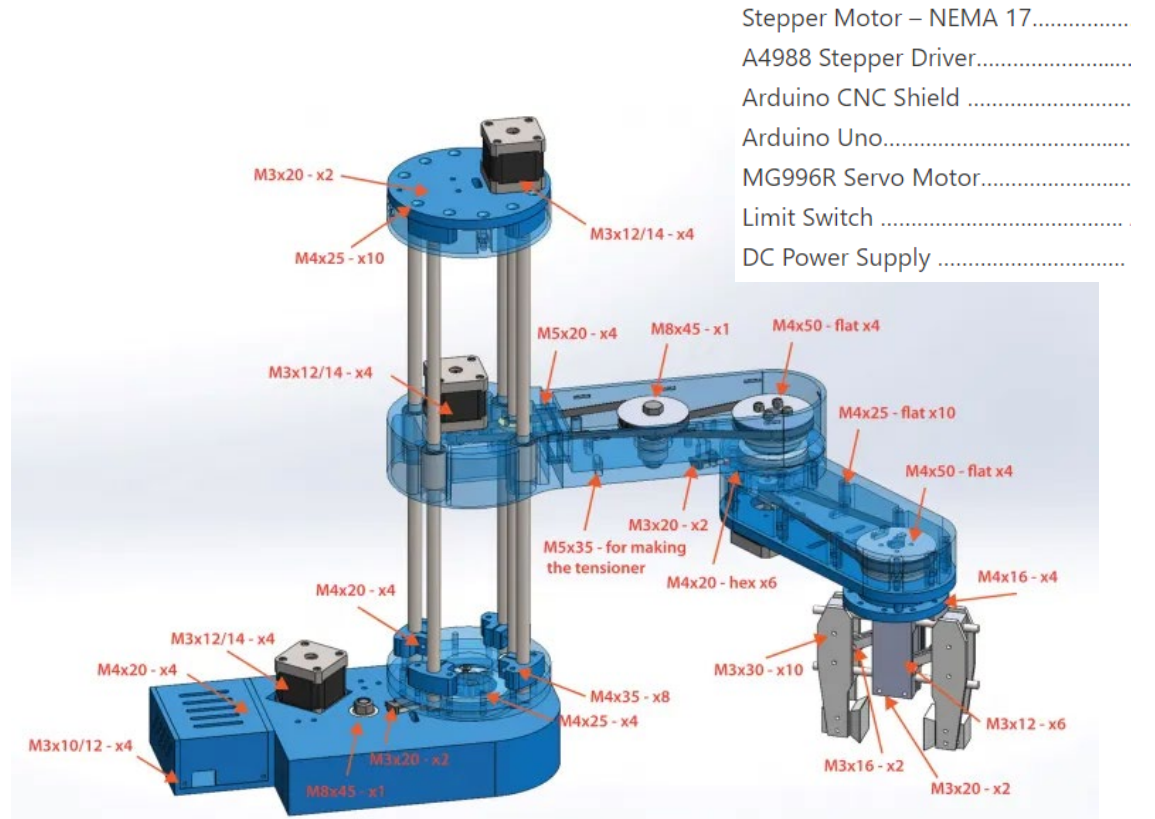
- SCARA Robot
- Articulated Robot
- Cartesian Robot



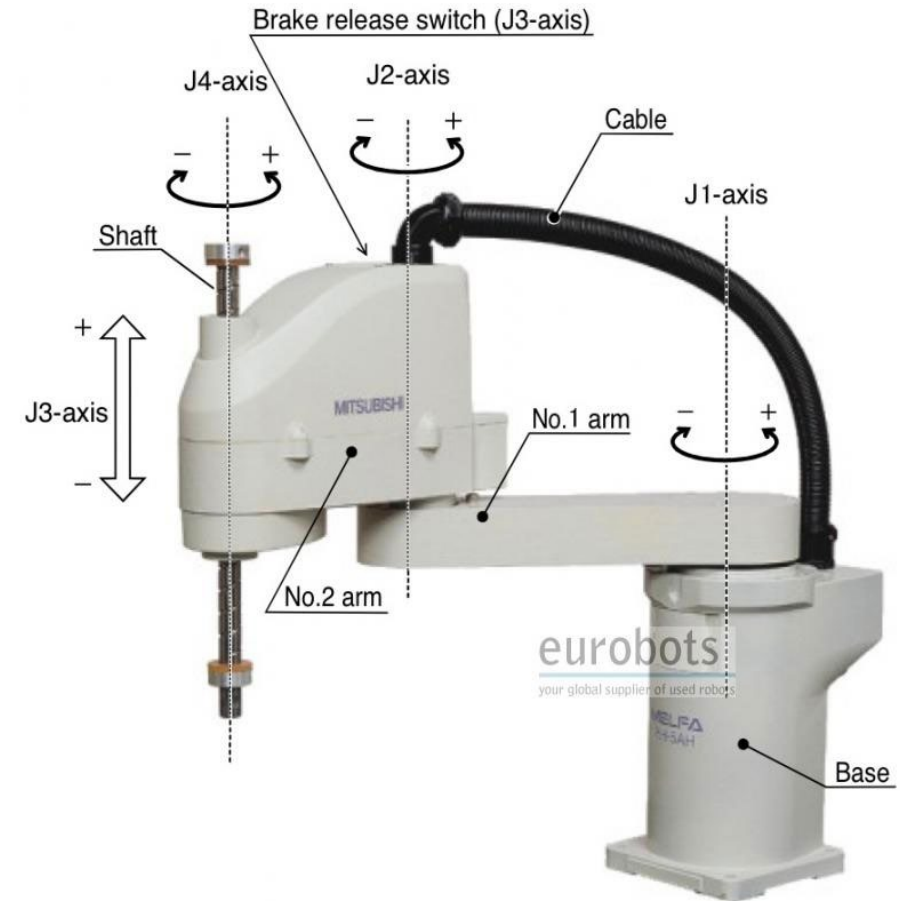
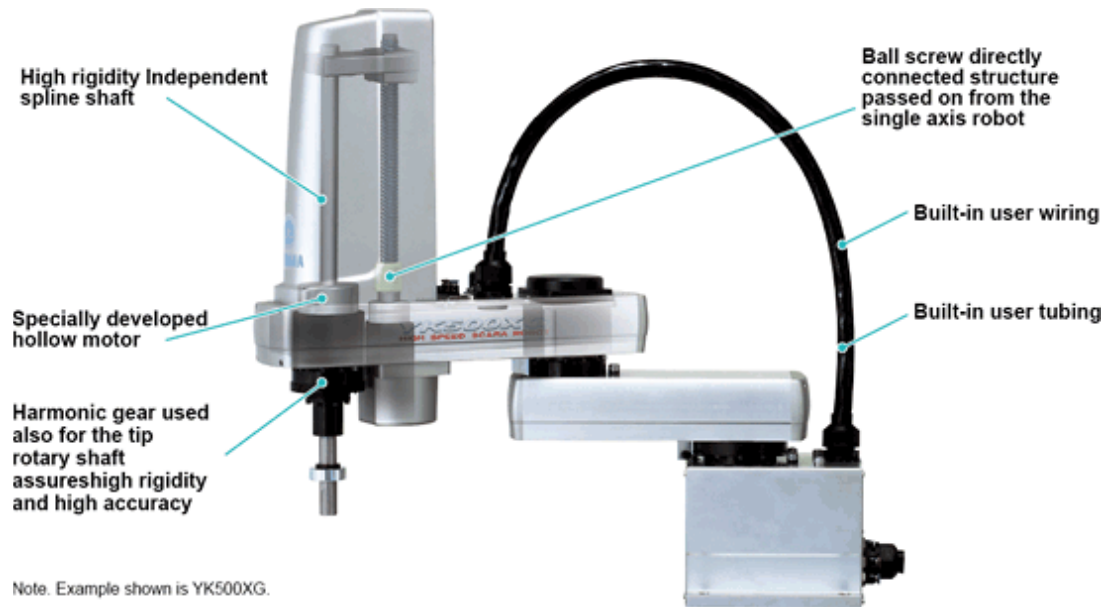
Principle	Kinematic Structure	Photo
Articulated Robot 		
SCARA Robot 		
SCARA Robot 		
Cartesian Robot 		
Parallel Robot 		

SCARA Robot

- The SCARA acronym stands for **Selective Compliant Assembly Robot Arm**.
- Commonly used in assembly applications.
- This robot is primarily cylindrical in design.



SCARA Robot



SCARA Robot



Original Factory New Original HG-KR43 Motor Controller AC Servo Motor

☆☆☆☆ No Ratings



Brand: No Brand | [More Computer Accessories from No Brand](#)

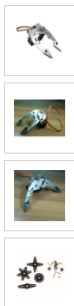
Free Shipping

RM2,296.54

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Gazechimp

4DOF Robotic Robot Arm Gripper Kit with Servo Motor for

Item #: 41096261

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MYR220

[Order now and get it around Tuesday, May 31](#)

Availability **In stock**

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ADD TO CART

Only 1 item left in stock.

Note: Electronic products sold in US store operate on (110-120) volts, a step-down power converter is required for the smooth device function. It is mandatory to know the wattage of the device in order to choose the appropriate power converter.

Recommended power converters [Buy Now](#).



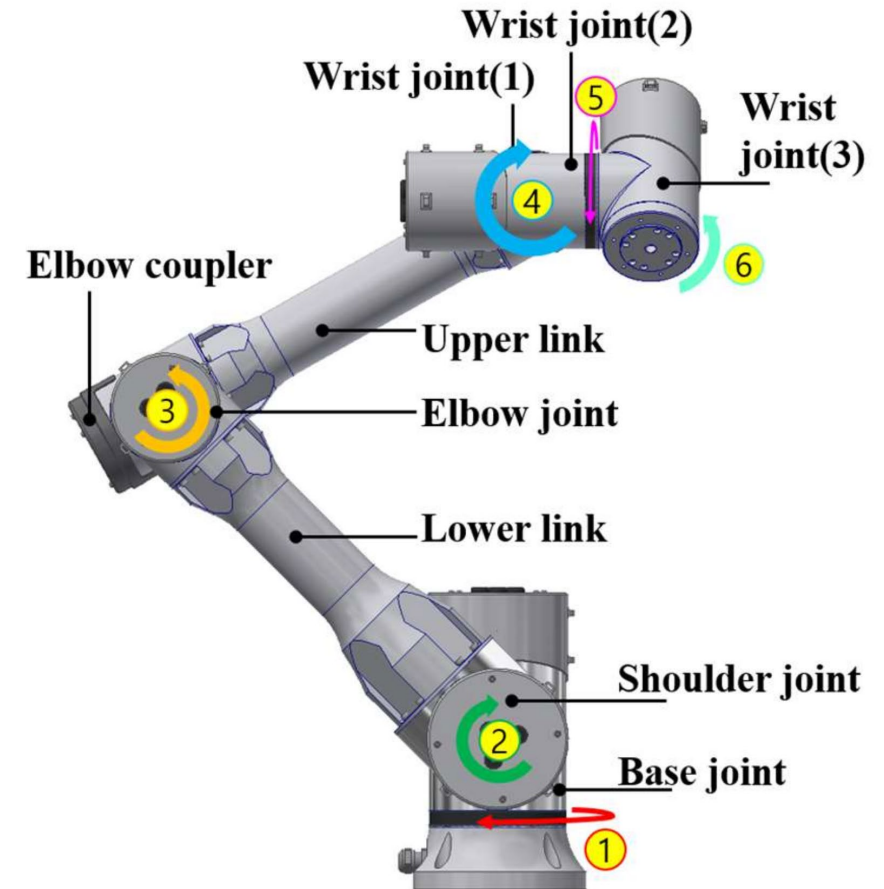
Share



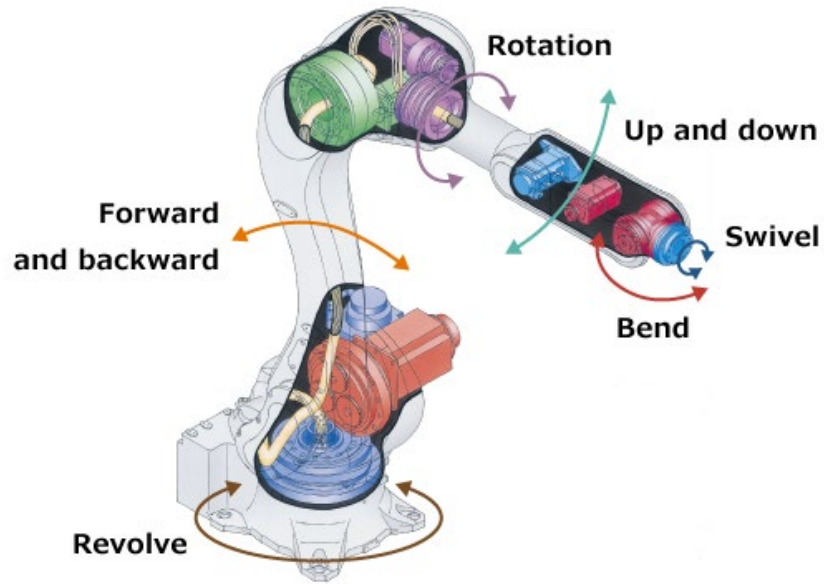
- Robotic arm is an automatic mechanical device that imitates human hands and realizes grasping, handling or moving by given programming.
- Arm Size(L*W): 70x57mm/ inch
- Mading from aluminium alloy for high quality and durable performance
- Complete accessories, easy for installation and operation:fore and aft movement
- 4DOF DIY robotic mechanical arm kit with -996R servo motor

Articulated Robot

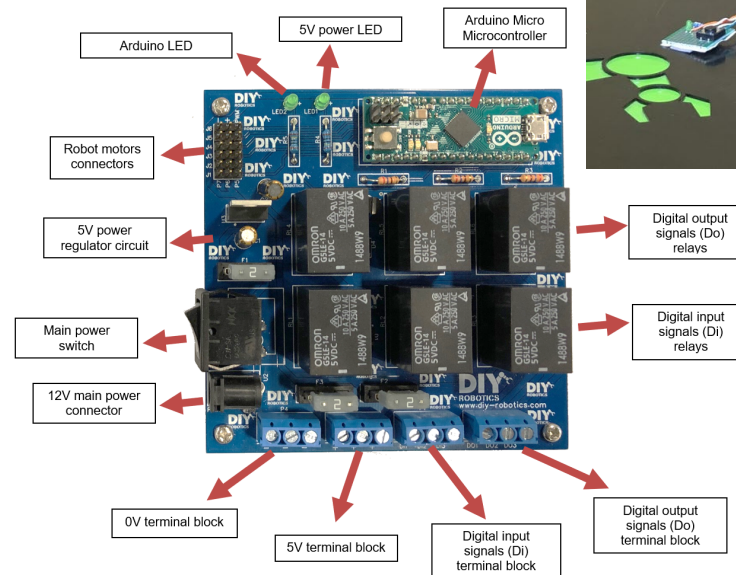
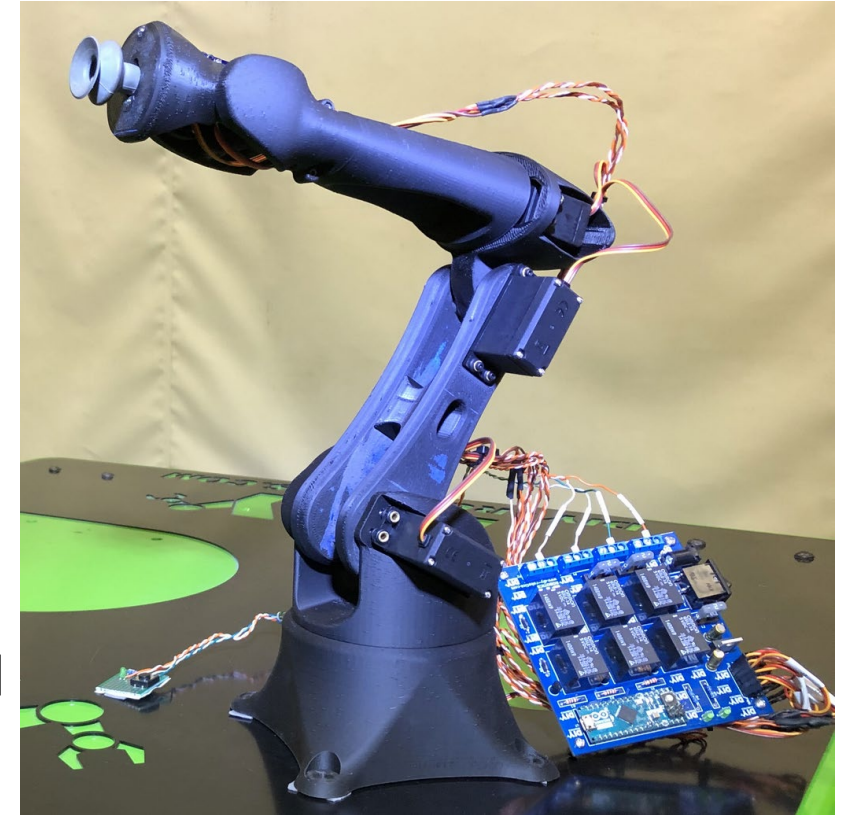
- An articulated robot is a robot with rotary joints.



Articulated Robot



- 4 MG966R servo motors
- 2 9g Micro servo motors
- 8 3D printed robot parts
- 24 metric M2 nuts
- 24 metric M2 bolts
- 2 metric M2.5 bolts
- 4 metric M3 bolts
- 3D printer
- Soldering iron
- Lighter
- Hex keys



Articulated Robot



Ready to Ship In Stock Fast Dispatch

MHZL2-20D Pneumatic Clamp Gripper SMC Metal Double Acting Penumatic Cylinder

1 - 9 Pieces **\$47.14**
≥10 Pieces **\$37.71**

Customization:

Customized logo (Min.Order: 10 Pieces)
Customized packaging (Min.Order: 1000 Pieces) [More](#) ▾

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Bore size(mm)	20
Ambient fluid temperature	-10-60°C
Repeatability(mm)	±0.01
The highest frequency of use(c.p.m)	120
Lubrication	Not requied
Action type	Double acting
Auto switch(optional)	Solid state auto switch

RS PRO Pneumatic Solenoid Valve - Solenoid/Spring G 1/4 V51 Series 24V dc



RS Stock No.: 907-6387 | Manufacturer: RS PRO



35 In Global stock for delivery within 4 - 6 working days

1 units

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Price Each

MYR658.67

units

Per Unit

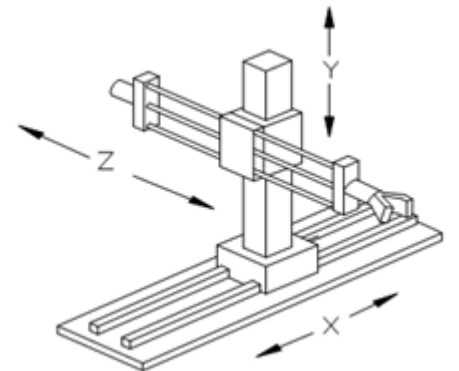
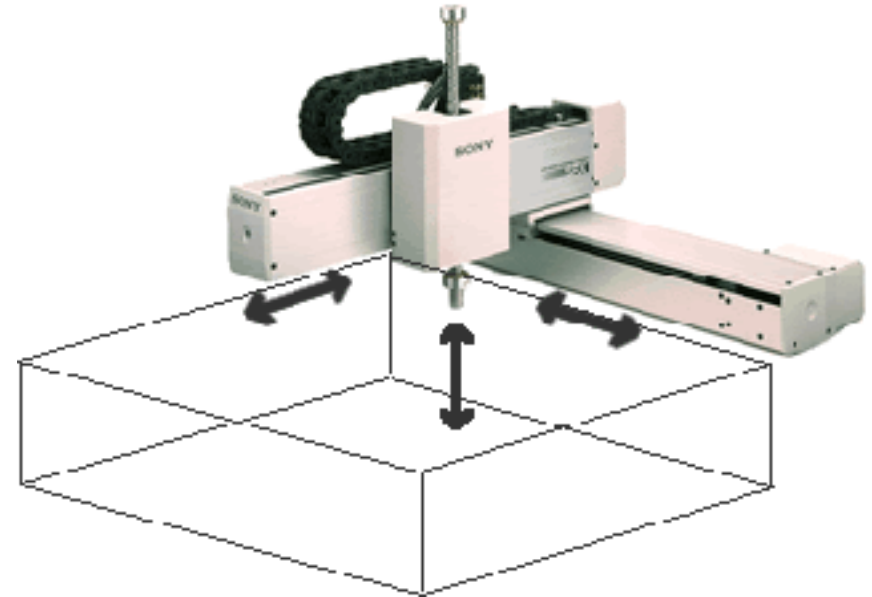
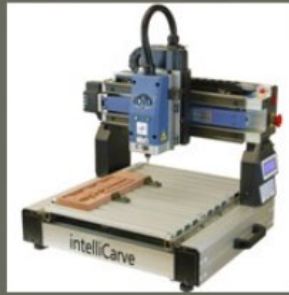
1 +

MYR658.67

Attribute	Value
Manufacturer Series	V51
Mounting Style	Inline, Manifold
Connection Port Thread	G 1/4
Actuation Type	Solenoid/Spring
Body Material	Die Cast Aluminium
Maximum Flow Rate	1020L/min
Solenoid Voltage	24V dc
Solenoid Power Consumption	2W
Minimum Operating Pressure	2bar
Minimum Operating Temperature	-5°C
Maximum Operating Pressure	8bar
Number of Positions	2
Configuration	5/2
Thread Size	1/4in
Maximum Operating Temperature	+50°C
Number of Ports	5
Special Features	Compact and Robust Design, High Flow in-Line Valves, Low Power Energy Efficient Solenoids
Thread Standard	G

Cartesian Robot

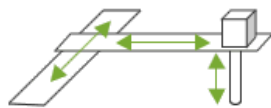
- Cartesian robots have three linear joints that use the Cartesian coordinate system (X, Y, and Z).
- The three prismatic joints deliver a linear motion along the axis.
- A popular application for this type of robot is a computer numerical control machine (CNC machine).



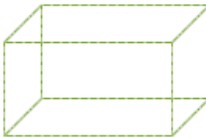
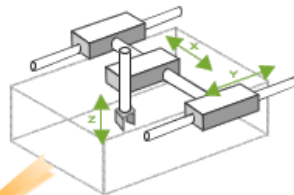
Cartesian Robot



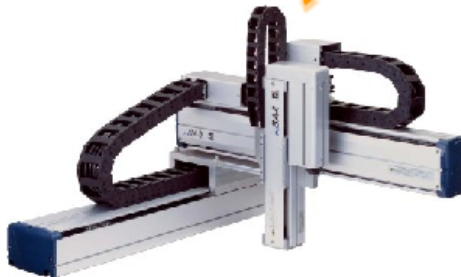
Robot Types - CARTESIAN ROBOTS



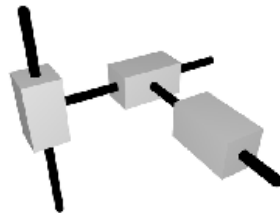
-3 linear axes of freedom
-Perpendicularly oriented



Working envelope
rectangular box.



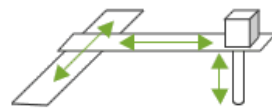
Because of their rigid structure, this type of robots usually can offer good levels of precision and repeatability.



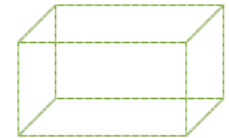
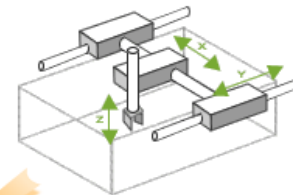
Robotpark.com
Robotic Technology Center



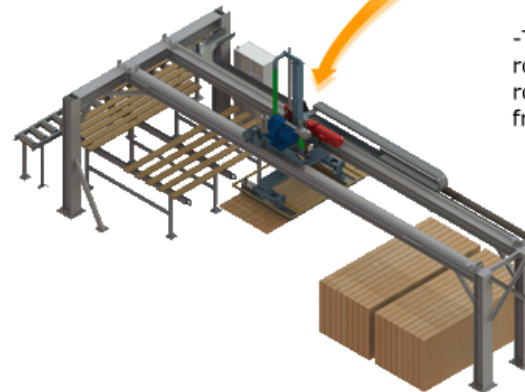
Robot Types - GANTRY ROBOTS



-3 linear axes of freedom
-Perpendicularly oriented



-The work envelope is similar with other robots of Cartesian type, however, a gantry robot usually encloses its work envelope from the outside



-The most prominent use of a gantry robot - a lifter-mover.

Robotpark.com
Robotic Technology Center

Controller



Teaching Pendant (SCARA)

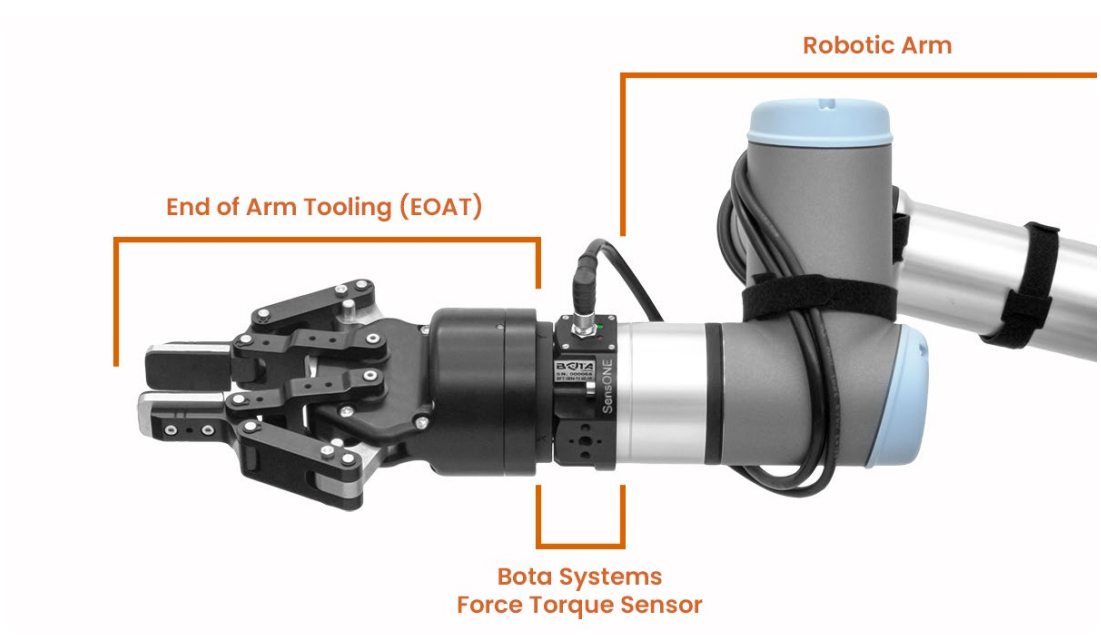



CR800-D/R

4F-R16RTCPU (optional)
Required for CR800-R Functionality

Articulated Robot

Sensor/Data Collection





HEX Force Sensor

Manufacturer: On Robot
[Recommended product for UR arms. For another arm model, please consult.](#)

The ROS drivers of this product aren't available yet, but it can be integrated with our robots very easily. Please consult us.

Ref.: RB-OR-HEX

Optional components

Models

[RB-OR-HEX-E-C] HEX-E w/compute box and flange C

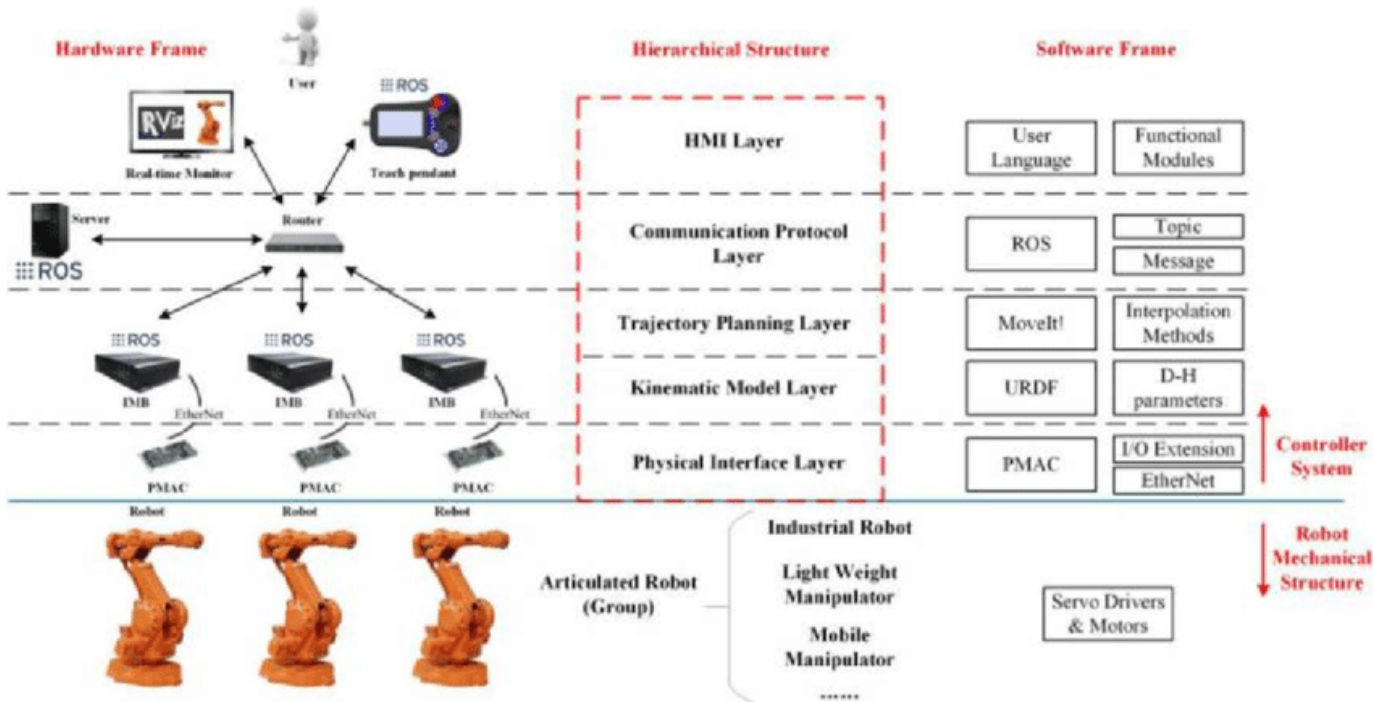
3 575,00 €
Taxes are not included

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1 Week

Model N°	HEX-H and HEX-E SENSOR
Size	37,5 x 70 mm
Weight	245 g
Storage Temperature	0 C° - +55 °C
Nominal Capacity(N.C)	HEX-H (Fxy: 200 N ; Fz: 200 N ; Txy: 20 N·m ; Tz: 13 N·m) HEX-E (Fxy: 200 N ; Fz: 200 N -Txy: 10 N·m ; Tz: 6.5 N·m)
Single axis deformation at N.C (typical)	HEX-H (Fxy: ± 0,6 mm ; Fz: ± 0,25 mm ; Txy: ± 2 ° ; Tz: ± 3,5 °) HEX-E (Fxy: ± 1,7 mm ; Fz: ± 0,3 mm ; Txy: ± 2,5 ° ; Tz: ± 5 °)
Single axis overload	HEX-H (Fxy: 500 % ; Fz: 400 % ; Txy: 300 % ; Tz: 300 %) HEX-E (Fxy: 500 % ; Fz: 500 % ; Txy: 500 % ; Tz: 500 %)
Signal noise2 (typical)	HEX-H (Fxy: 0,1 N ; Fz: 0,2 N ; Txy: 0,006 N·m ; Tz: 0,002 N·m) HEX-E (Fxy: 0,035 N ; Fz: 0,15 N ; Txy: 0,002 N·m ; Tz: 0,001 N·m)
Noise-free resolution (typical)	HEX-H (Fxy: 0,5 N ; Fz: 1 N ; Txy: 0,036 N·m ; Tz: 0,008 N·m) HEX-E (Fxy: 0,2 N ; Fz: 0,8 N ; Txy: 0,010 N·m ; Tz: 0,002 N·m)

Data Transmission



object.

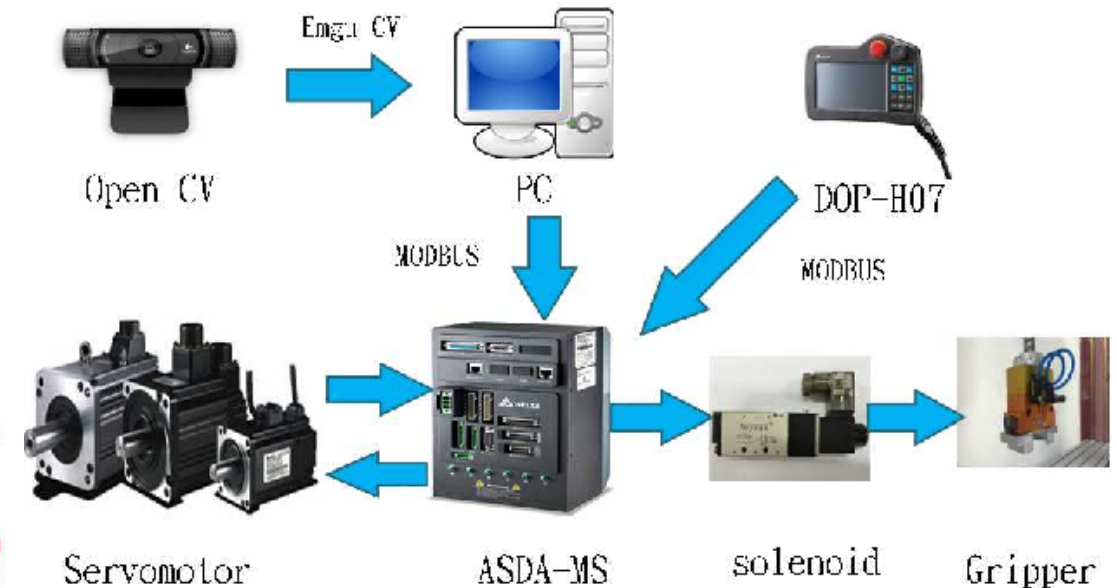


Fig. 1. System Architecture of the SCARA robot arm

Power Management



Power Supply	Input Voltage Range (V) (*2)	RV: 2FR/4FR/7FR/13FR/20FR, RH:1FRHR/3FRH/3FRHR/6FRH/12FRH/20FRH Single-Phase AC 200V to 230V
	Power Capacity kVA (*3)	RV2FR, RH3FRH: 0.5; RH3FRHR, RV4FR, RH6FRH: 1.0; RH1FRHR/RH12FRH/20FRH: 1.5; RV7FR (except RV7FRLL): 2.0 RV7RLL, RV13FR/RV20FR: 3.0



Power Supply

Single phase AC 220±10%, 50/60Hz

4 Axis SCARA Robot, 550mm Arm Length, 1kg Load