

# Sigma 3.1

## Heavy-duty modular tool changer

Higher strength, lower weight and a low profile maximizes robot load capability, while enhanced modularity and interchangeability increases flexibility.



## SPECIFICATIONS

### Features & Benefits

- Higher payload capacity - up to 360 kg
- Unique six-sided design accommodates more utilities
- A Sigma 3.1 and Sigma 5.1 common profile provides modularity and allows for interchangeability of utility modules
- Connects directly to your robot face plate, eliminating adaptor plate
- Low profile reduces inertial forces
- Supports wide variety of bus communication systems

### Applications

- Spot Welding
- Material Handling
- Machine loading/unloading
- Mold changing
- Docking systems
- Pallet coupling systems
- Pick and place operations
- Press transfer

Not exactly what your application requires? Applied Robotics can design a solution that meets your particular application needs.

### Mechanical

	METRIC	ENGLISH
Payload	360 Kg	794 lbs
Maximum Operating Moment (M <sub>x</sub> , M <sub>y</sub> )	2,000 Nm	17,701 in-lbs
Maximum Operating Torque (M <sub>z</sub> )	2,075 Nm	18,365 in-lbs
Weight* (Robot/Tool)	7.34 kg / 5.13 kg	16.5 lbs / 11.2 lbs
Height (Robot/Tool)	60mm / 60mm	2.36" / 2.36"
Width x Length	268mm x 321mm	
Couple Status Sensor	Couple / Uncouple	N/A
Positional Repeatability (X, Y)	+/- 0.02 mm	+/-0.00078in
Positional Repeatability (Z)	+/-0.013mm	+/-0.00051in
Operating Temperature	5 - 60 °C	41 - 140 °F
Supply Pressure	6 bar +/- 1 bar	87 psi +/- 14.8 psi

\*Without modules

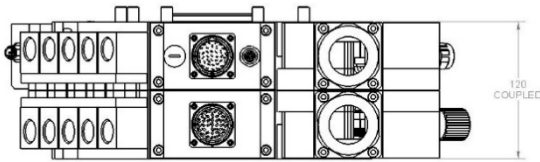
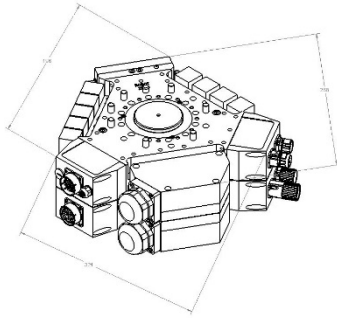
### Couple/Uncouple

(Robot/Tool)	1/4 BSPP	N/A
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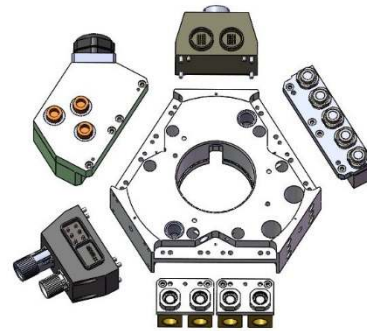
Note: Specification provided are Maximum recommended limits under static conditions. For correct product sizing, consideration must be given to all applicable dynamic forces, including manipulator inertia, tooling configuration and external process forces.

Note: For correct product size, please contact our Tech Support staff at [techsupport@arobotics.com](mailto:techsupport@arobotics.com) or via telephone at (800) 309-3475 in NY or in MI at (248) 358-3677.

## PRODUCT INFORMATION



All dimensions in millimeters.



## PRODUCT DESCRIPTION

S3.1 [ ] - [ ] - [ ] - [ ] - [ ] - A [ ]

**Housing Type/Construction**

- R = Robot Side
- T = Tool Side

**Actuation method:**  
Pneumatic

**Sensing Sinking/Sourcing (Robot Only)**

- 2PNP = Sourcing
- 2NPN = Sinking

**Bolting Pattern**

- A - ISO 125mm Pattern (6) C-bored M10 holes spaced 60 degrees apart. (2) M10 dowels equally spaced on a 125mm BC.
- B - 125mm (10) C'bored M10 holes spaced 30 degrees apart. (2) M10 dowels equally spaced on 125mm BC.
- C - ISO 160mm Pattern (6) C'bored M10 holes spaced 60 degrees apart (2) M10 dowels equally spaced on a 160mm BC.
- D - 160mm (10) C'bored M10 holes spaced 30 degrees apart. (2) M10 dowels equally spaced on 160mm BC.
- E - 160mm (12) C'bored M12 holes spaced 30 degrees apart. (1) M12 dowel
- F - 125mm (6) C'bored M10 holes spaced 60 degrees apart. (2) M9 dowels equally spaced on 125mm BC.

**Assembly Code (Assigned by Factory)**

**Boss/Hub Diameter**

- 100 = 100mm
- 080 = 80mm (Robot Only)
- 060 = 60mm (Robot Only)
- 063 = 63mm (Robot Only)
- 050 = 50mm (Robot Only)

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