HEBI ROBOTICS

R-Series 7-DoF Double Shoulder Arm Kit

Assembly Instructions

General Warnings and Cautions

Danger (May cause serious injury or death)

- Keep water, flammables, solvents and other liquids clear from **unsealed** actuator.
- Keep fingers away from moving parts during operation.
- Cut power immediately if actuator emits strange odors or smoke.
- Keep actuator out of reach of children.

Warning (May cause injury or damage to actuator)

- Do not expose the actuator to permanent and strong magnetic fields.
- Do not force screws into the bottom of the actuator. R8 = 8mm Tap Depth
- Use provided hardware with accessories and hand tighten as needed.
- Attempts to disassemble actuator will void the warranty and may cause permanent damage.

Sealing (R-Series Actuators are IP67 when properly used)

- Please refer to all online documentation for proper sealing techniques of the actuator.

For more information please visit: ***docs.hebi.us***

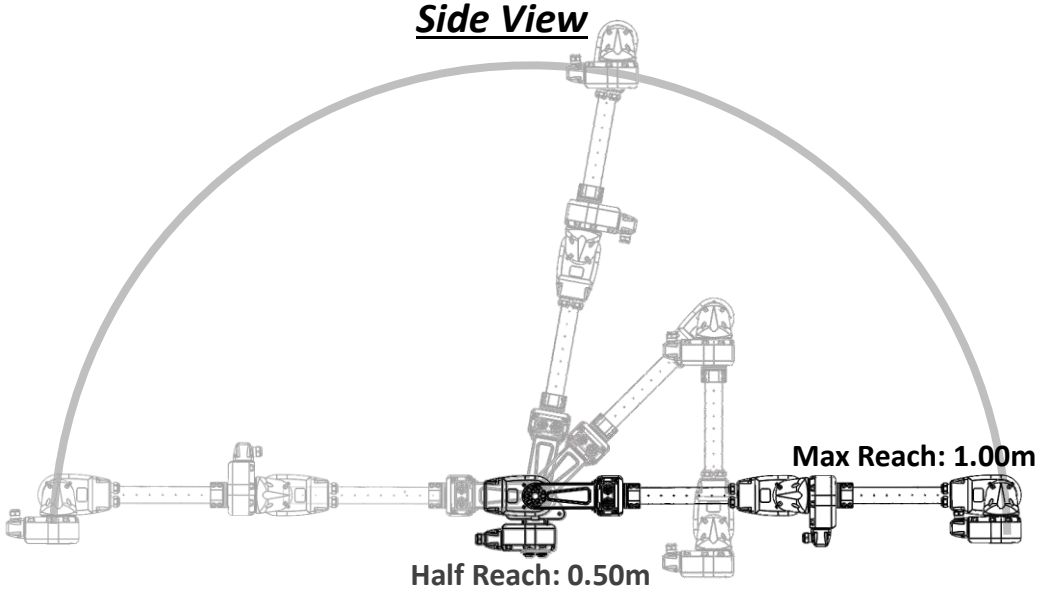
Technical Specifications

Movement	Working Range	Speed
Axis 1 – Base [Default: R8-16]	Continuous (limited by wiring)	90°/s
Axis 2 – Shoulder Pitch [Default: 2 x R8-16]	-90° to +90° (avoid end effector collisions)	90°/s
Axis 3 – Shoulder Twist [Default: R8-9]	Continuous (limited by wiring)	180°/s
Axis 4 – First Elbow [Default: R8-16]	-155° to +155° (avoid end effector collisions)	90°/s
Axis 5 – Second Elbow [Default: R8-9]	Continuous (limited by wiring)	180°/s
Axis 6 – Wrist 1 [Default: R8-3]	Continuous (limited by wiring)	504°/s
Axis 7 – Wrist 2 [Default: R8-3]	Continuous (limited by wiring)	504°/s

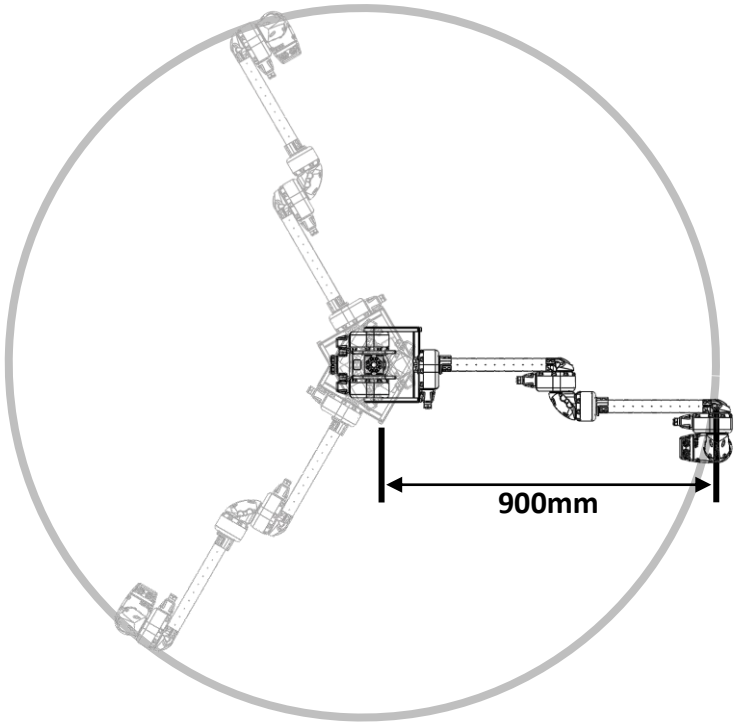
Specifications	Value
Weight	8.25 kg
Max Reach	1.00 m
Payload @ Max Reach	1.0 kg
Half Reach	500 m
Payload @ Half Reach	3 kg

Using a different configuration of R-Series Actuators will provide different payload capacities.

Side View



Top View



Bill of Materials - Mechanical*

Default Configuration

1 x
R8-3
Straight Connector

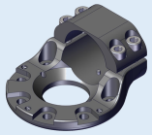
1 x
R8-3
Right Angle Connector

1 x
R8-9
Straight Connector

1 x
R8-9
Right Angle Connector

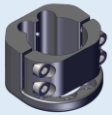
2 x
R8-16
Straight Connector

2 x
R8-16
Right Angle Connector

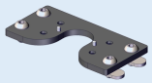


2 x
A-2219-01

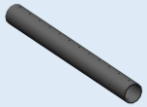
2 x
A-2220-01



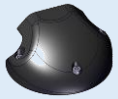
2 x
A-2225-01



1 x
A-2228-01



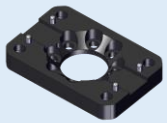
2x
PM-2200-02
[300mm]



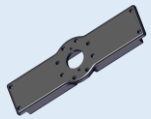
2 x
A-2231-01

2 x
A-2235-01

2x
PM-2515-01



1 x
PM-2517-02



1 x
PM-2562-01

2 x
PM-2563-01

1 x
A-2269-01

fasteners included, not shown

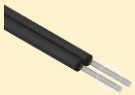
Bill of Materials - Electrical

PP-2349-RED
18AWG Power Wire, Red

PP-2349-BLK
18AWG Power Wire, Black

PP-2358-YEL
22AWG M-Stop Cable, Yellow

PP-2358-BLU
22AWG M-Stop Cable, Blue

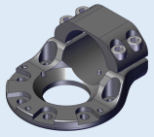


PP-2401-DUP
POF Duplex Cable

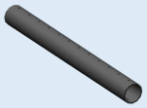
A-2256-01
POF Ethernet Media Converter

all items are included in R-Series Connection Toolbox

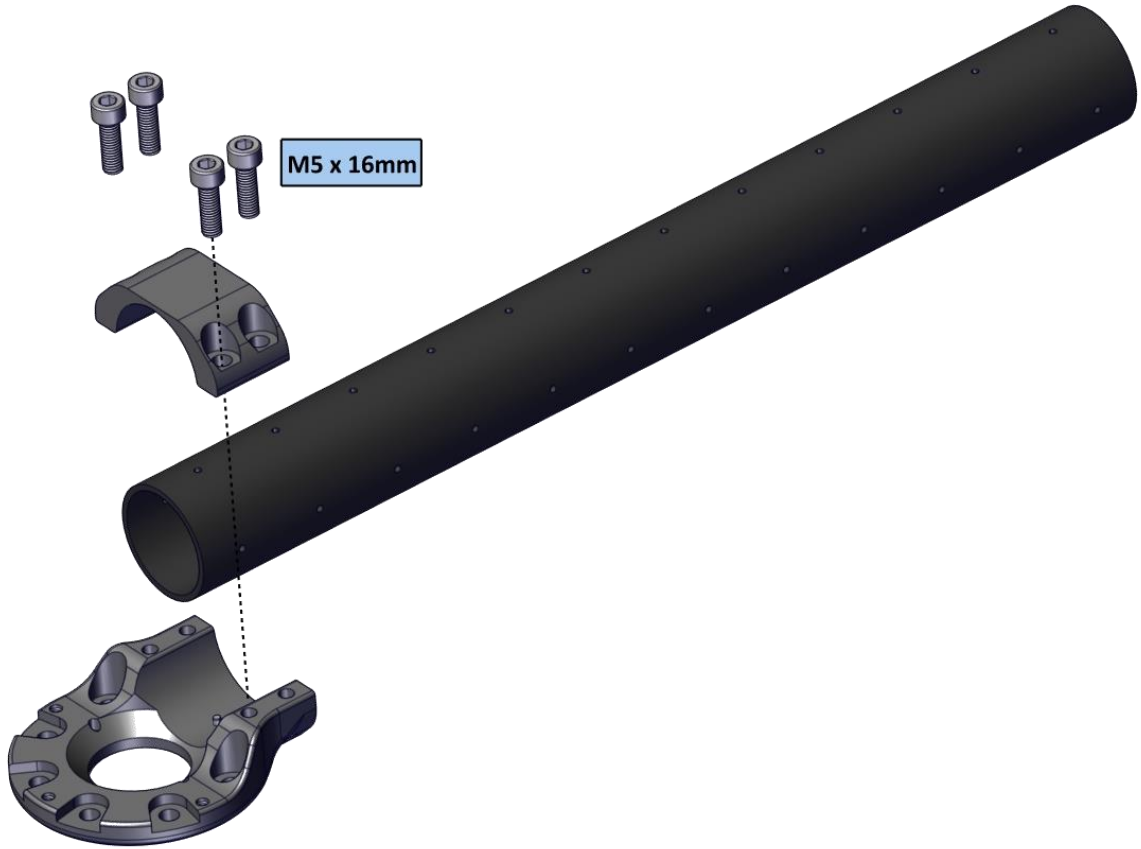
Table of Contents

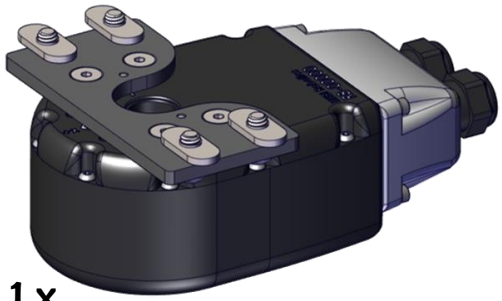


1 x
A-2219-01



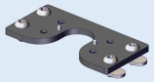
1 x
PM-2200-02
[300mm]



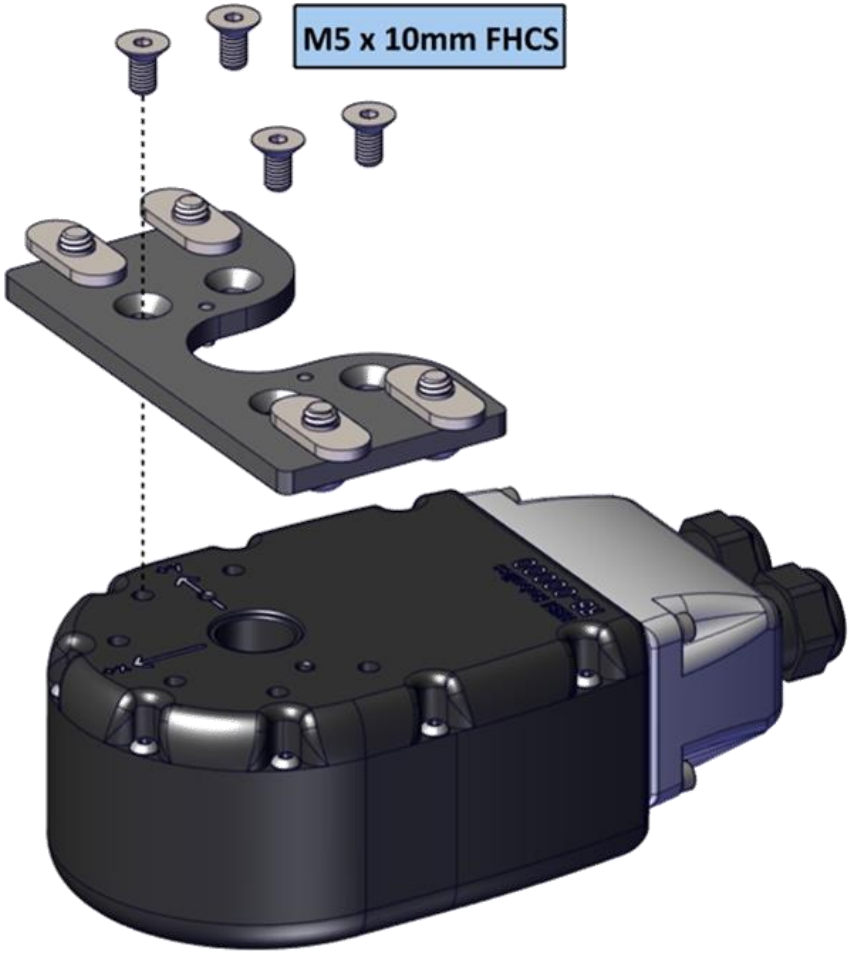


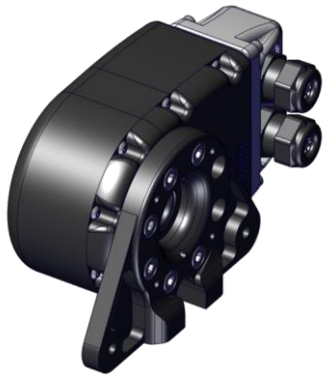
1 x

1 x
R8-16
Straight Connector



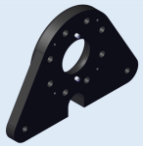
1 x
A-2228-01



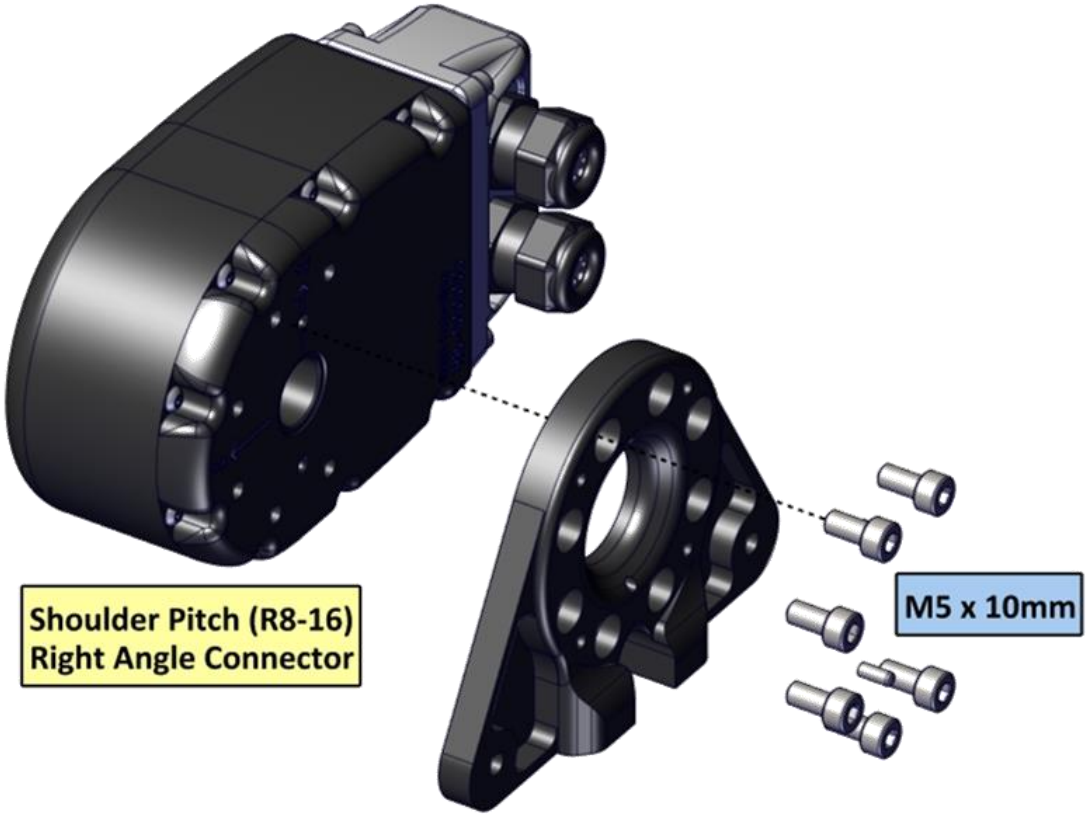


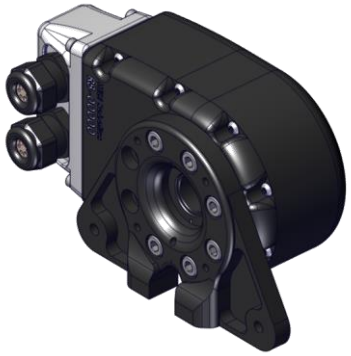
1 x

1 x
R8-16
Right Angle Connector



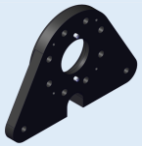
1 x
PM-2515-01



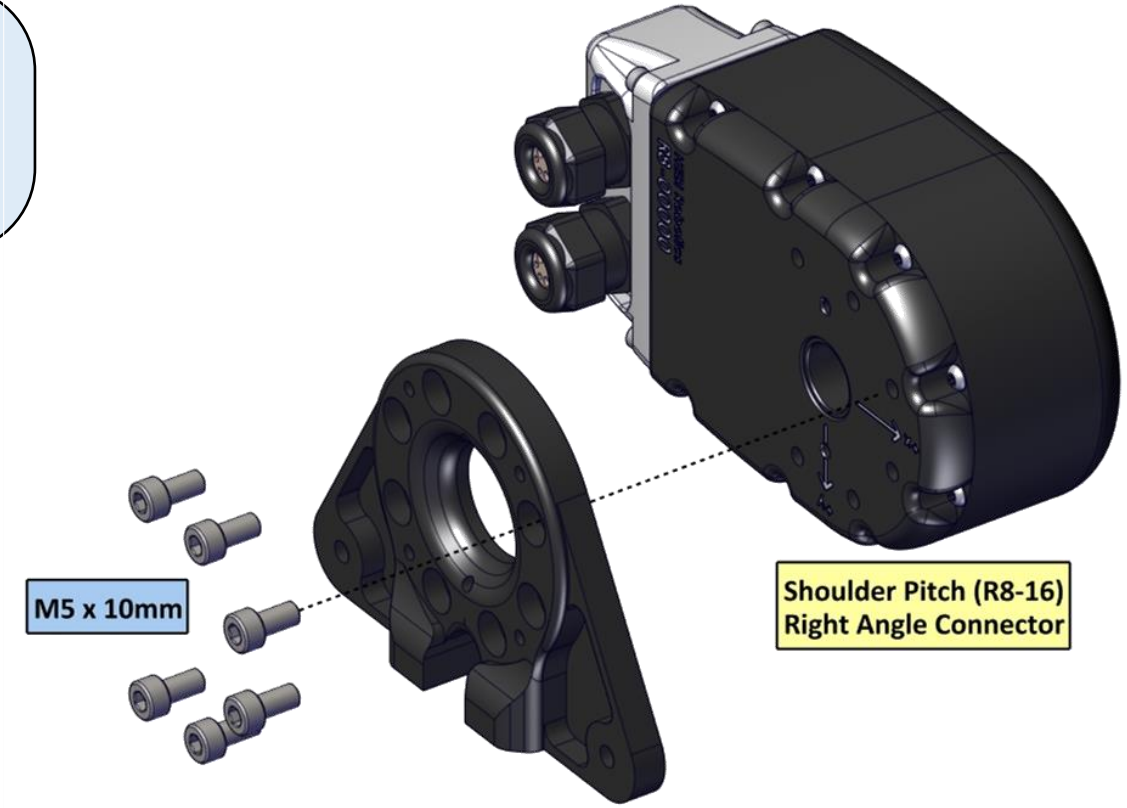


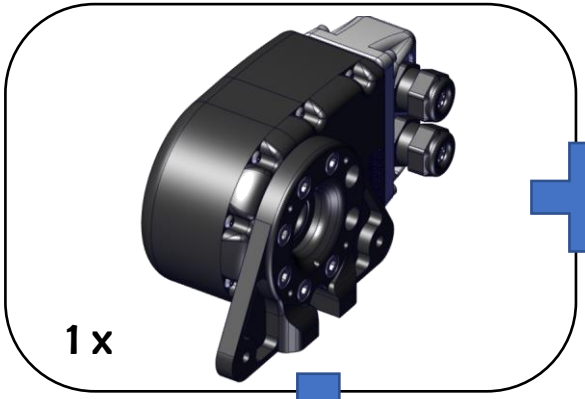
1 x

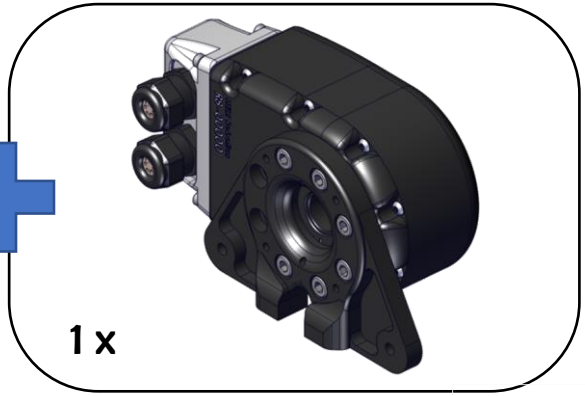
1 x
R8-16
Right Angle Connector

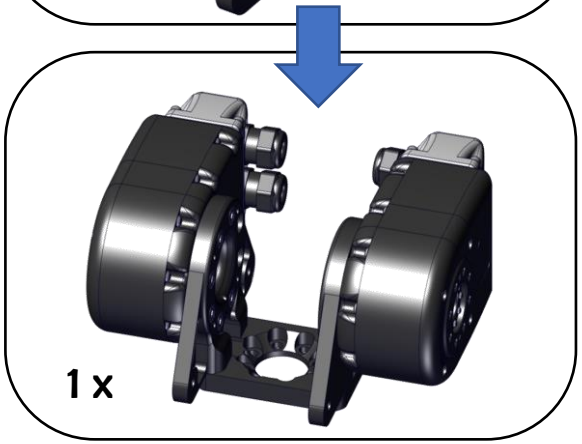


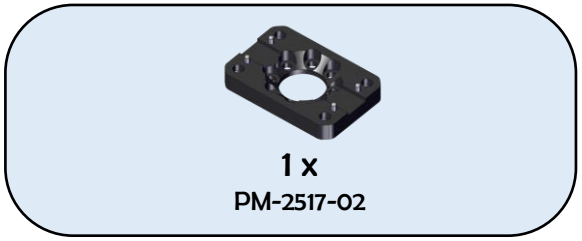
1 x
PM-2515-01



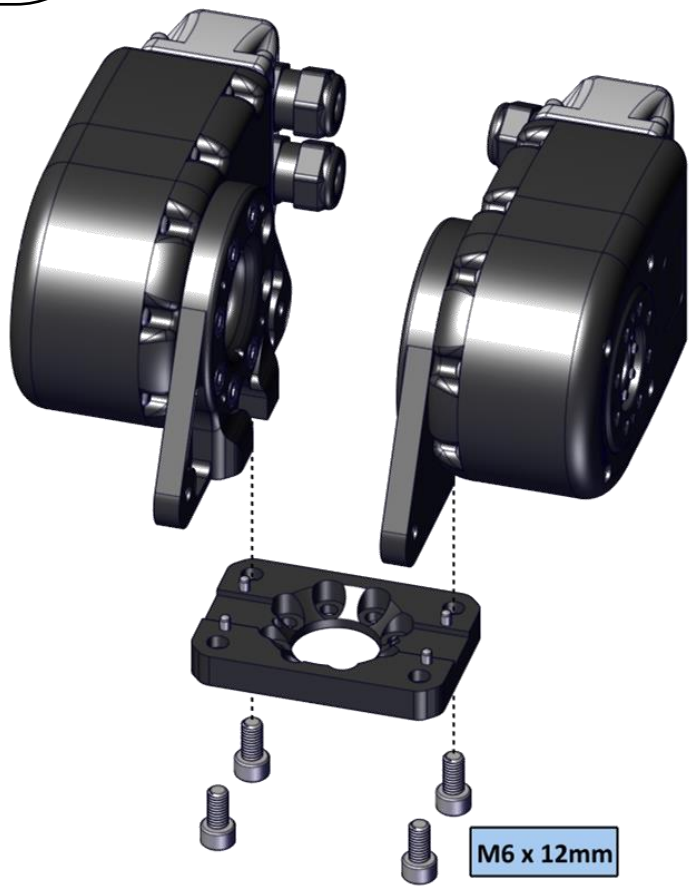


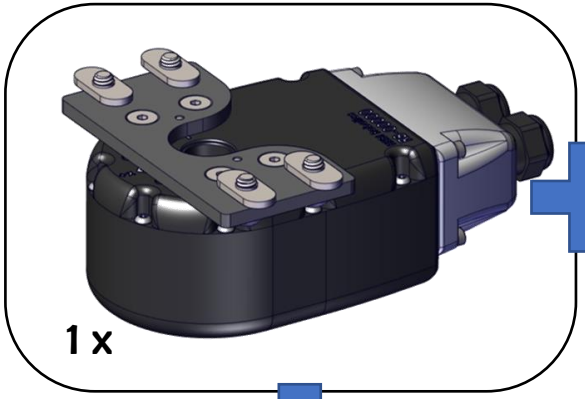


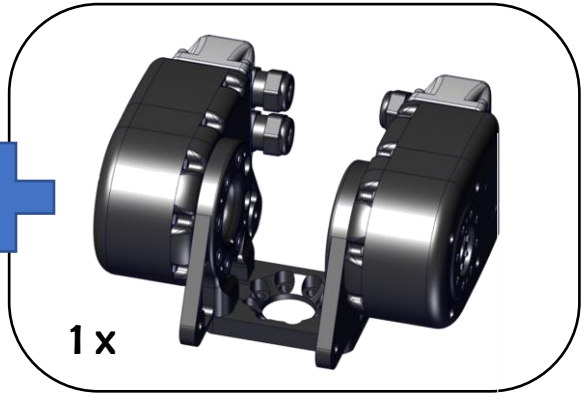


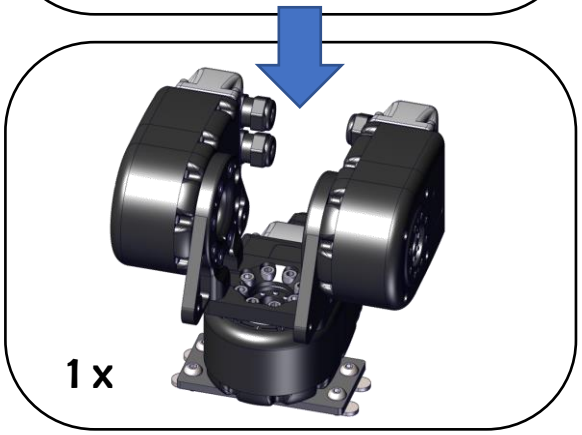


Module output faces towards outside



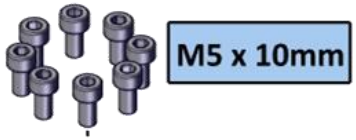




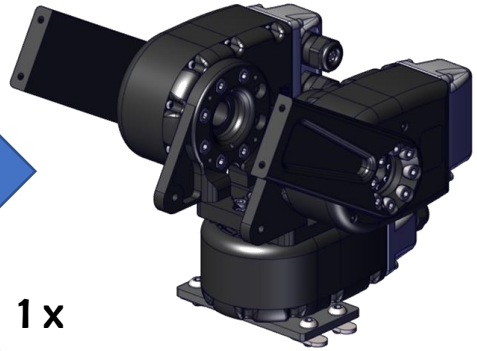


Align with actuator output hub tick mark

(face parallel with tick mark and spring mounting hole pointed on same side)

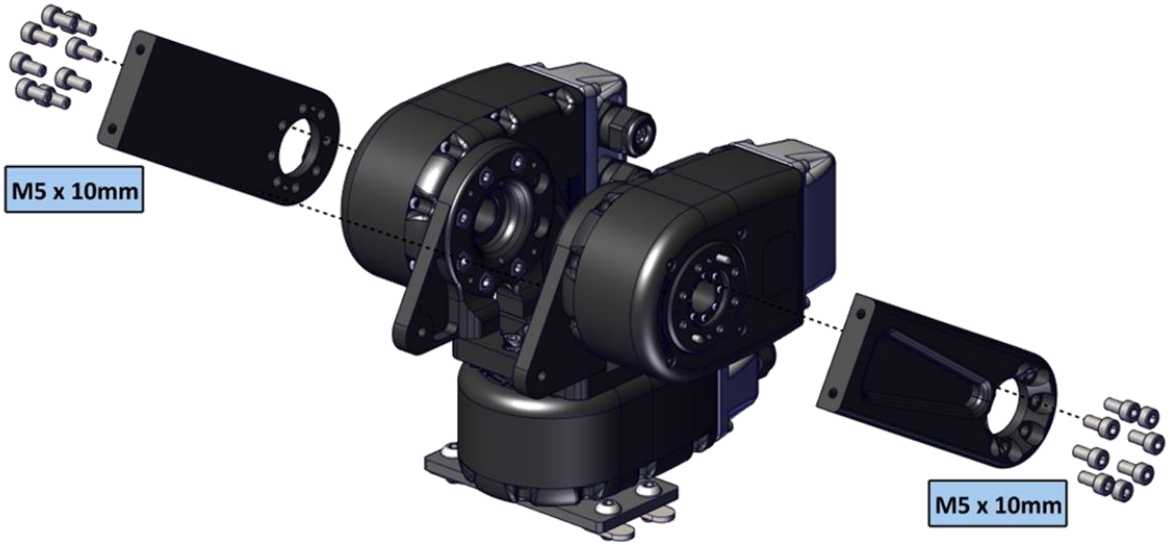


1 x



1 x

2 x
PM-2563-01

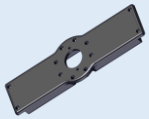


Align with actuator output hub tick mark

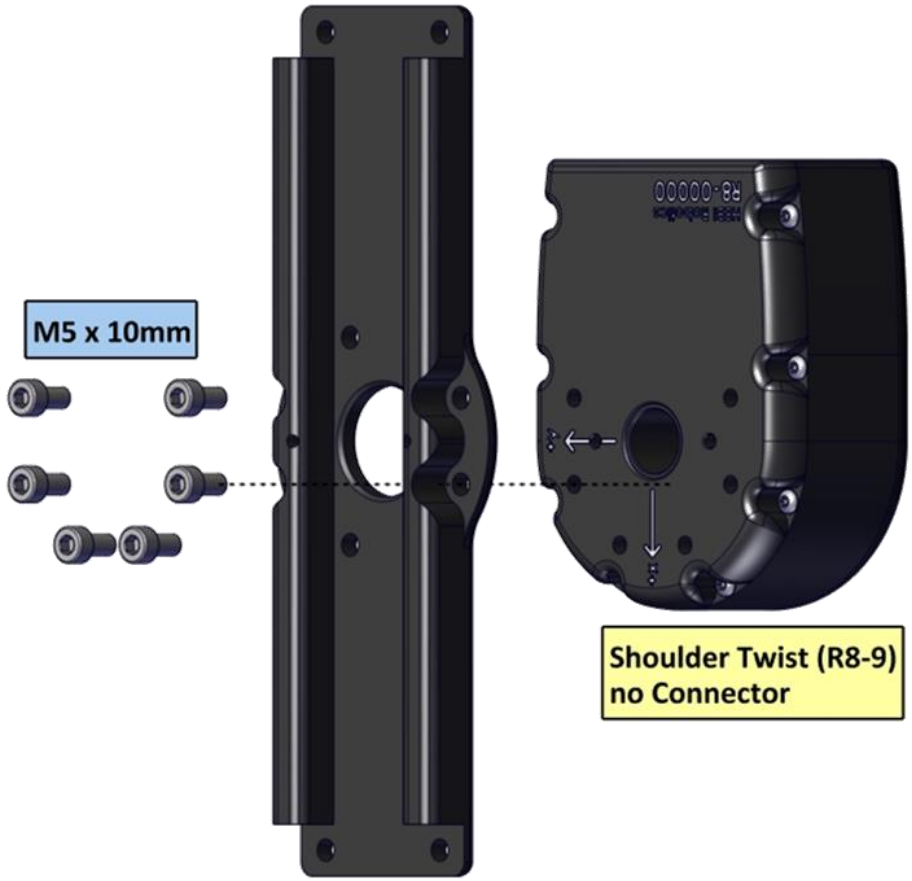
(flat surface with two tapped holes face towards +x*)

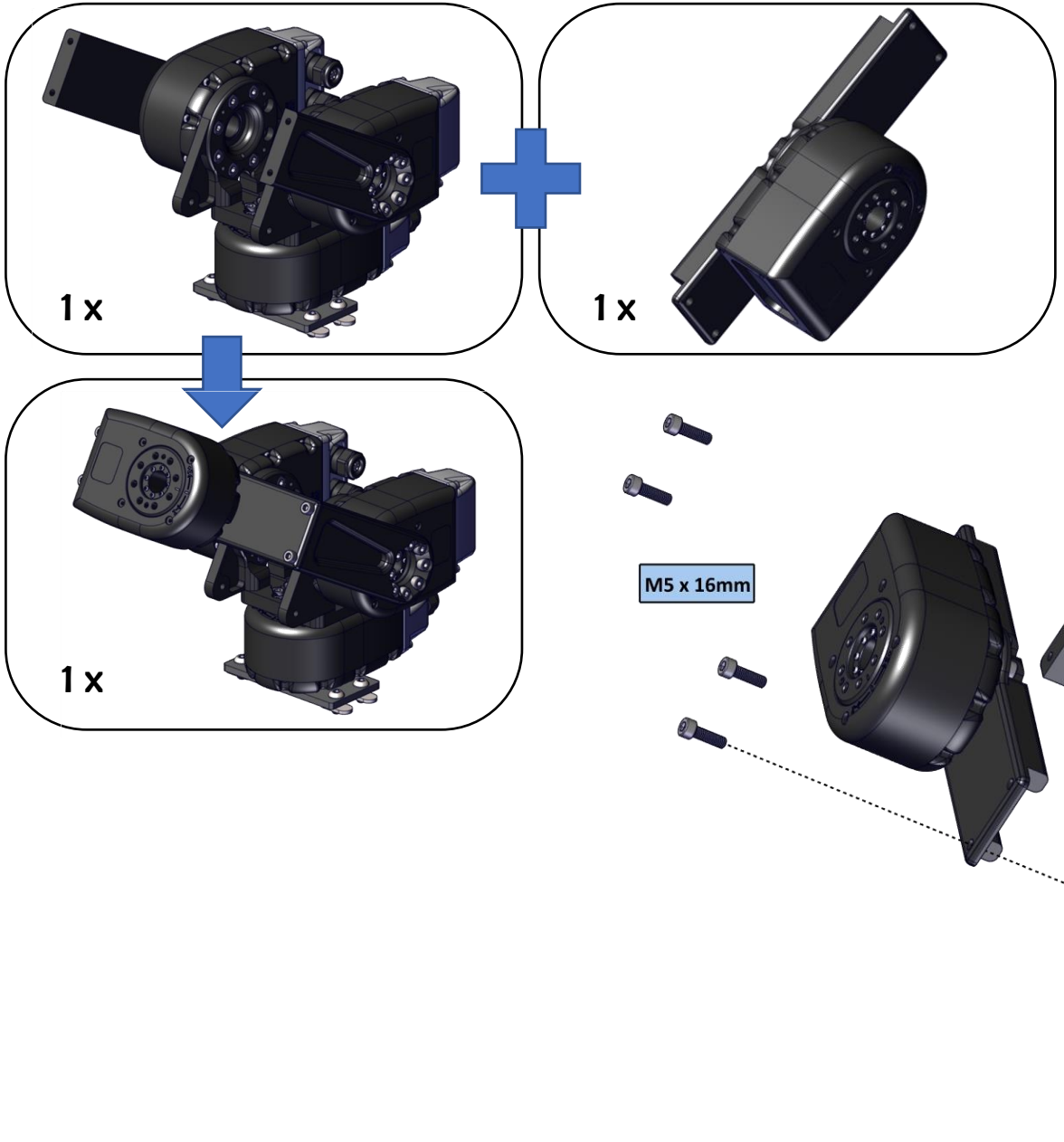
***Axis direction specified on the bottom of the module**

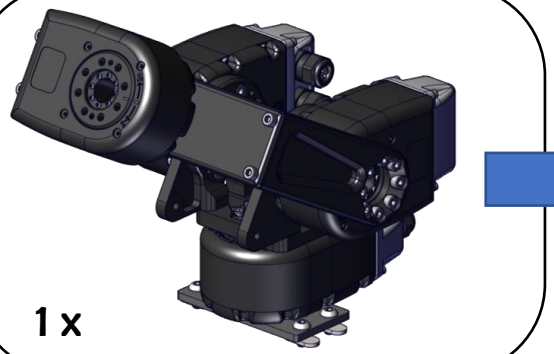
1 x
R8-9
No Connector

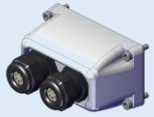


1 x
PM-2562-01

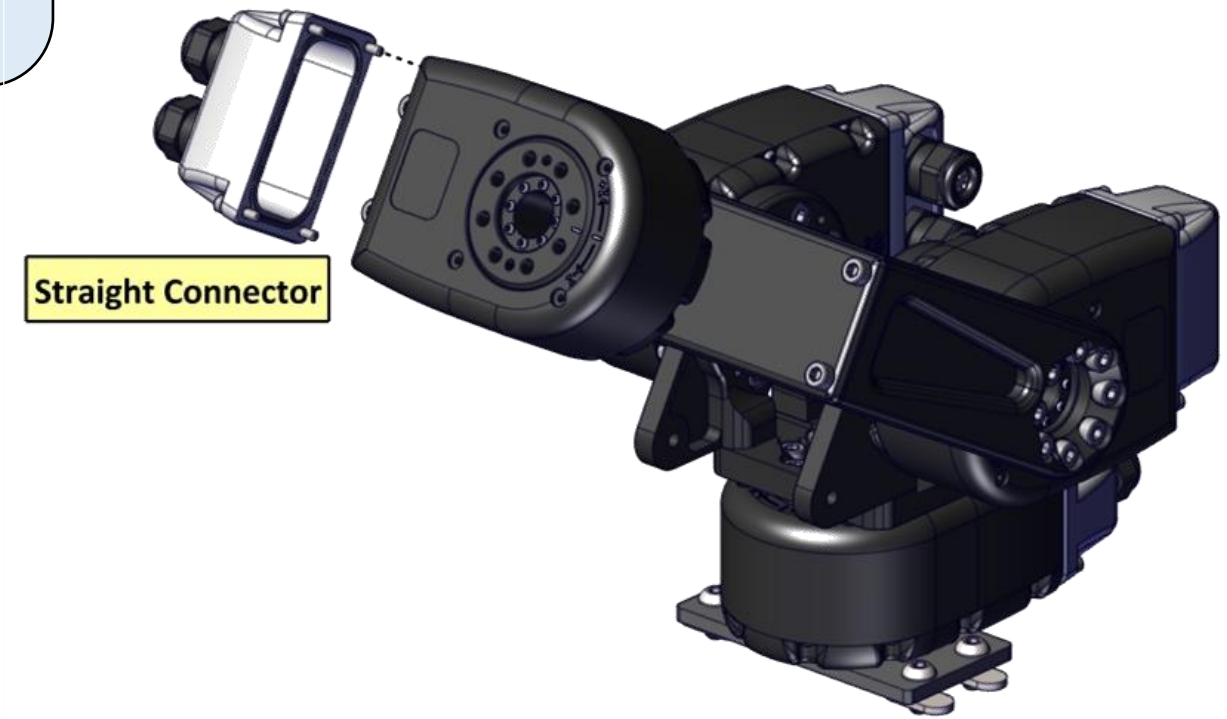


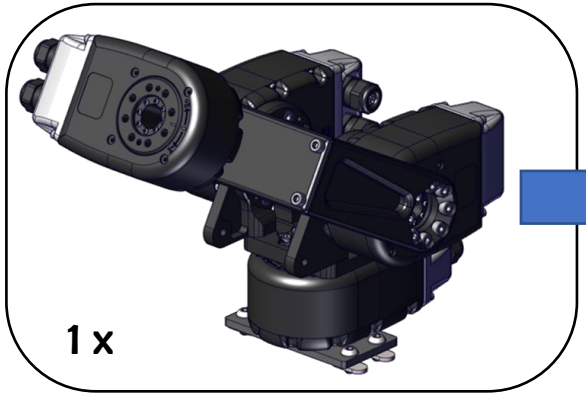

1 x
1 x
1 x
M5 x 16mm

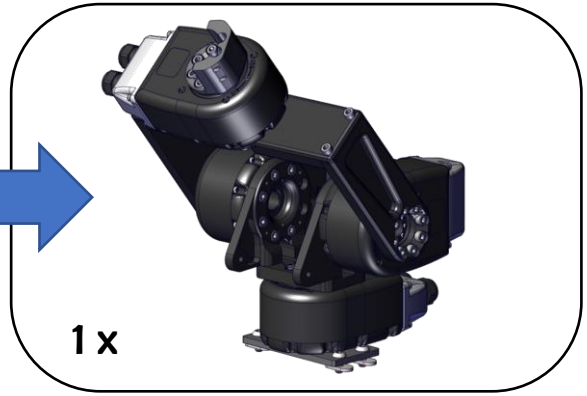


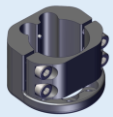


1 x
A-2204-01A







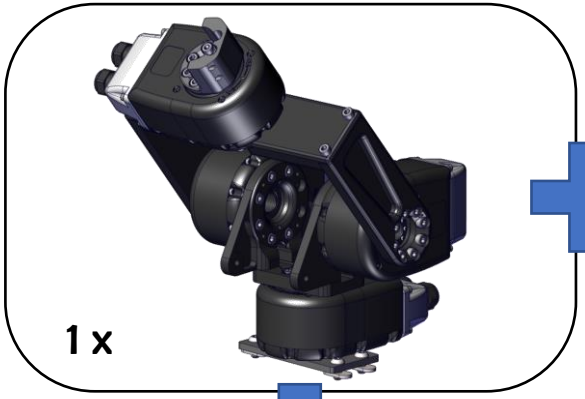


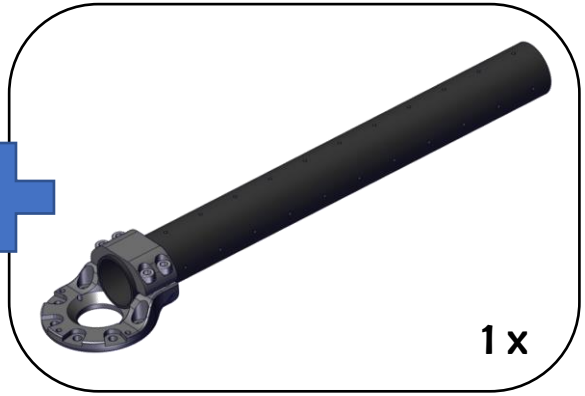
1 x
A-2225-01

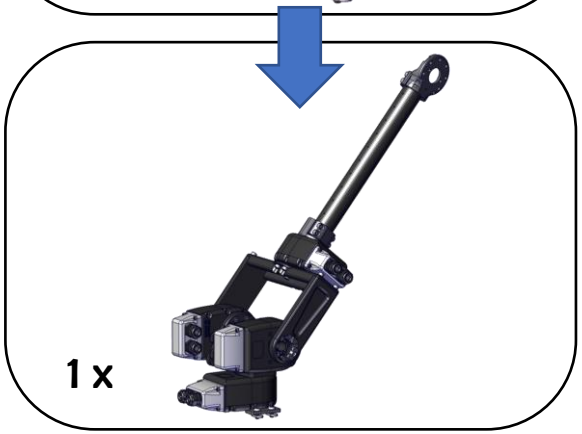
Align with actuator output hub tick mark

(symmetric about tick mark with flat surface facing towards +x*)

***Axis direction specified on the bottom of the module**


1 x


1 x


1 x


M5 x 16mm


1 x


1 x


1 x
R8-16
Straight Connector


M5 x 10mm
First Elbow (R8-16)
Straight Connector

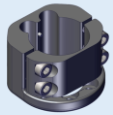

1 x


1 x


1 x
A-2220-01


M5 x 10mm

1 x
R8-9
Right Angle Connector

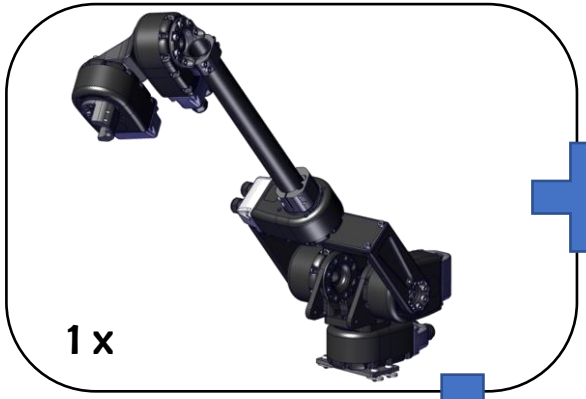


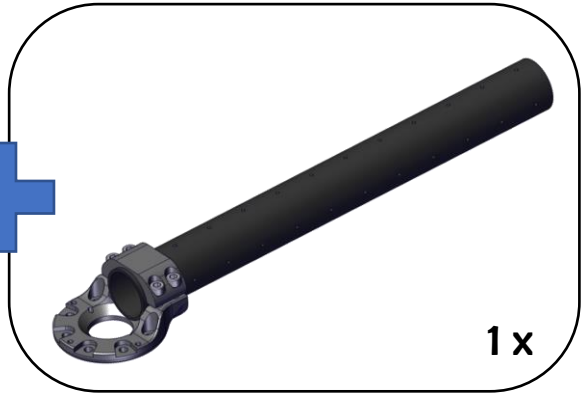
1 x
A-2225-01

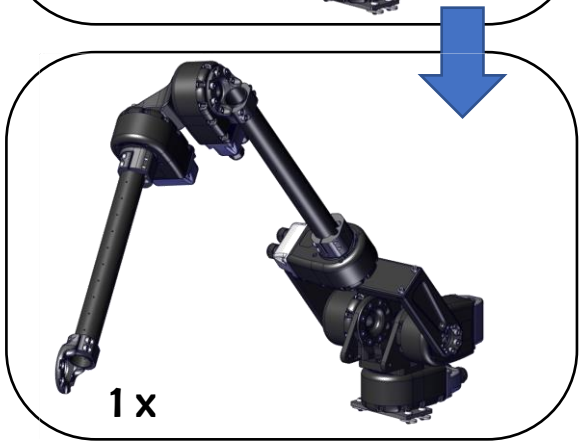
Align with actuator output hub tick mark

(symmetric about tick mark with flat surface facing towards +x*)

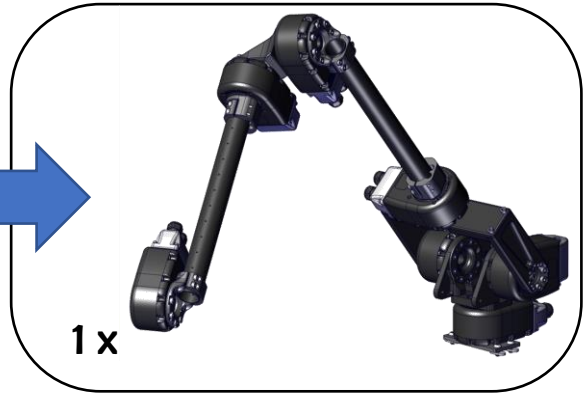
***Axis direction specified on the bottom of the module**


1 x

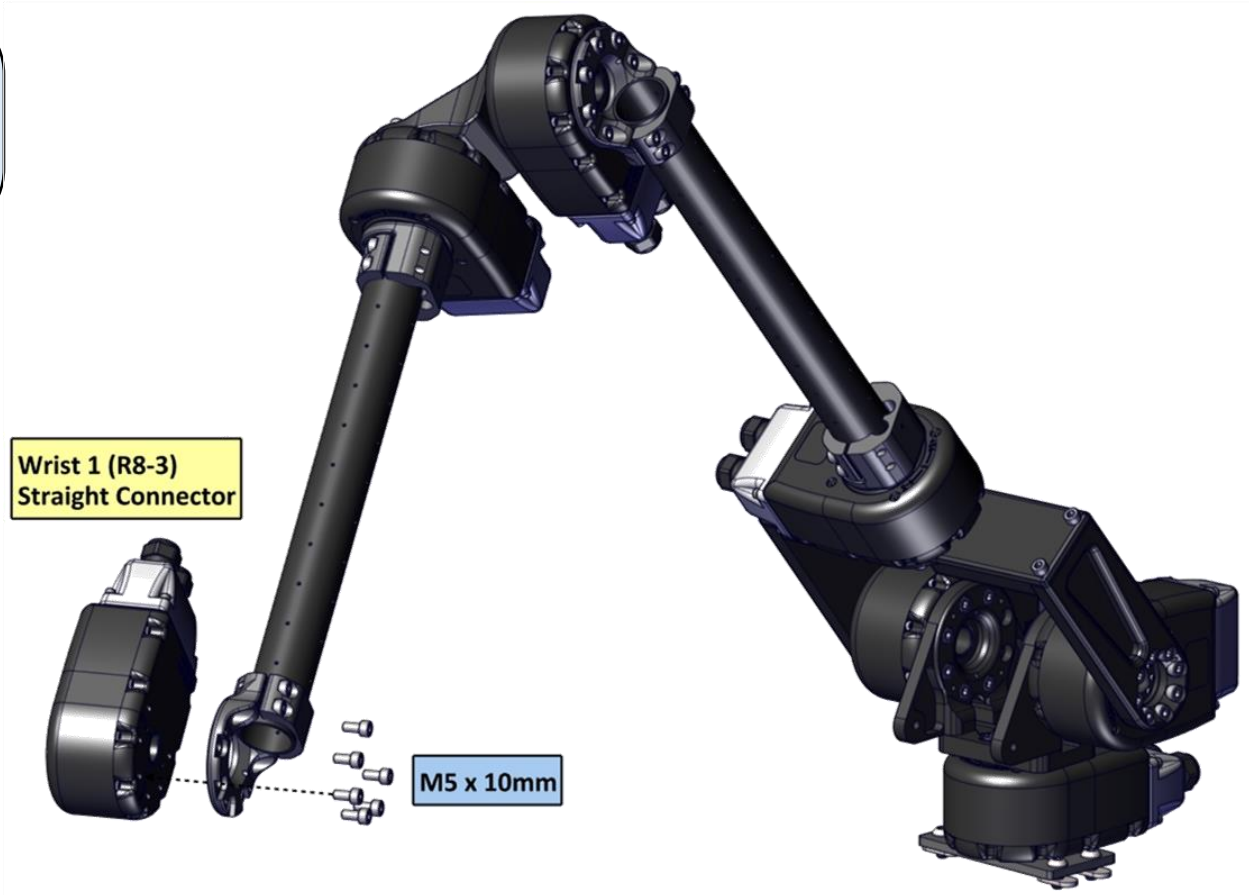

1 x

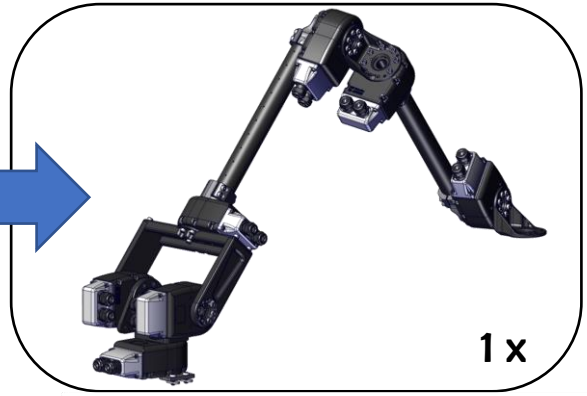

1 x


M5 x 16mm



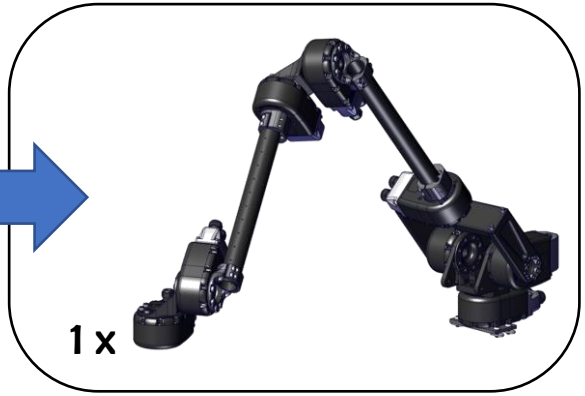
1 x
R8-3
Straight Connector



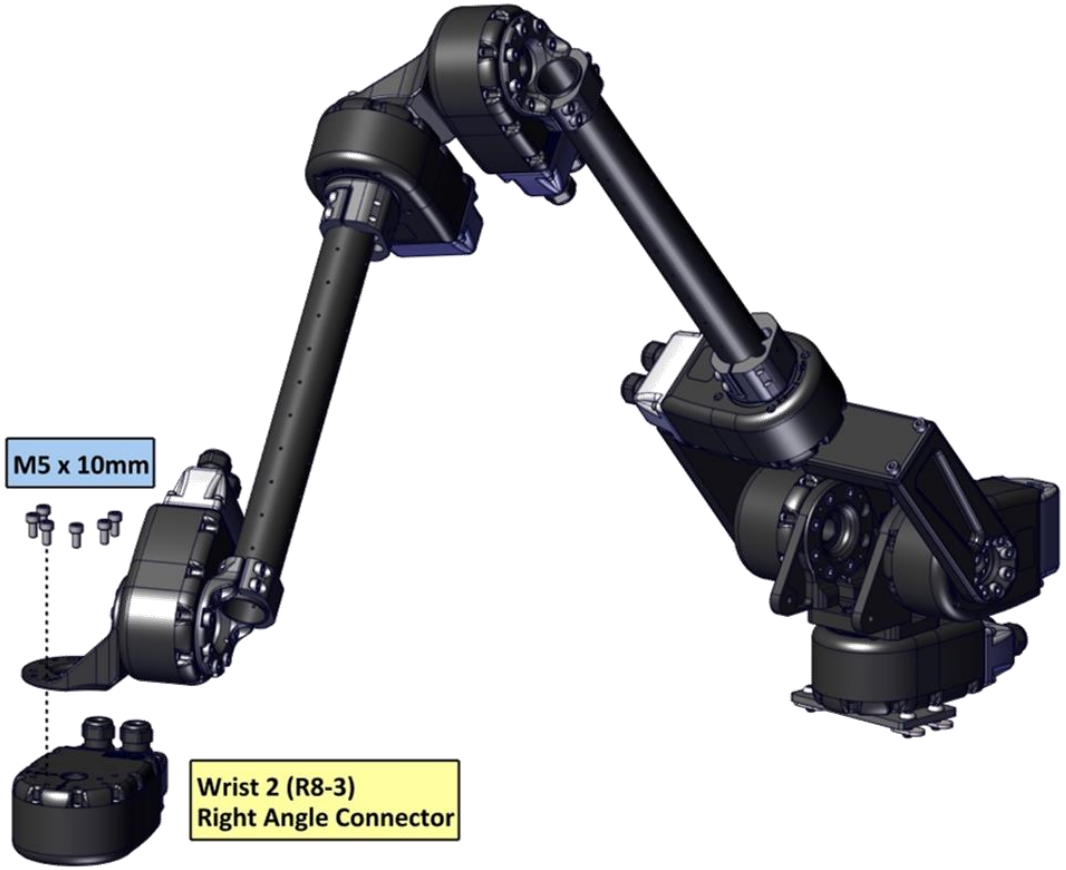


1 x
A-2220-01

Align with actuator output hub tick mark



1 x
R8-3
Right Angle Connector



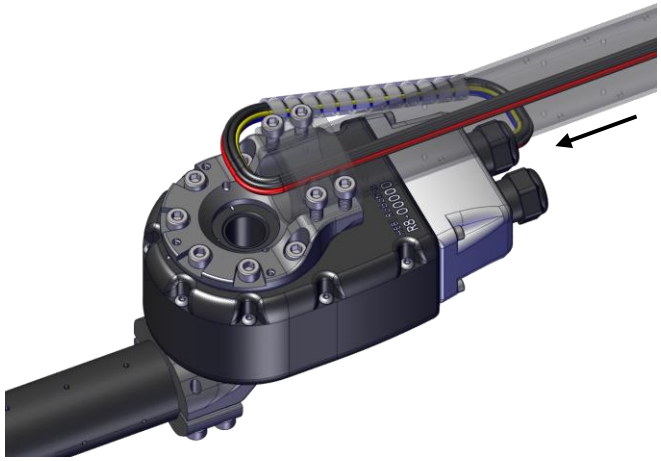
All axes at zero degrees

Wiring Notes

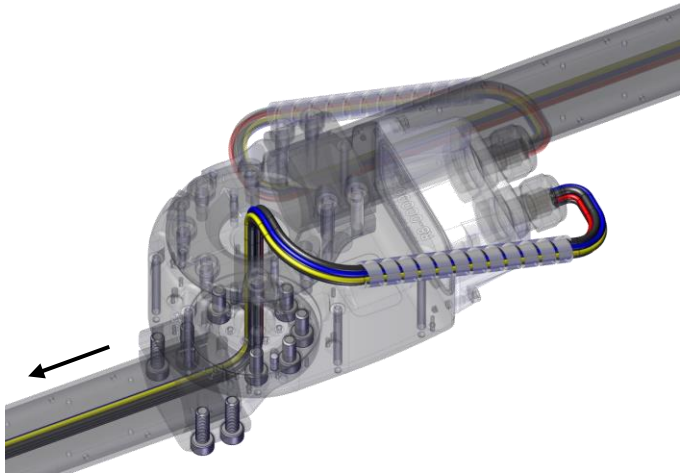
- Keeping wires organized will help prevent tangling and add a nice aesthetic.
  - Spiral sleeving is a good accessory for organizing loose wires
- Visit the following link to see detailed instruction on connecting wires to R-Series Modules.
  http://docs.hebi.us/#r-series-quickstart

For more information visit: ***docs.hebi.us***

[Spiral sleeving]

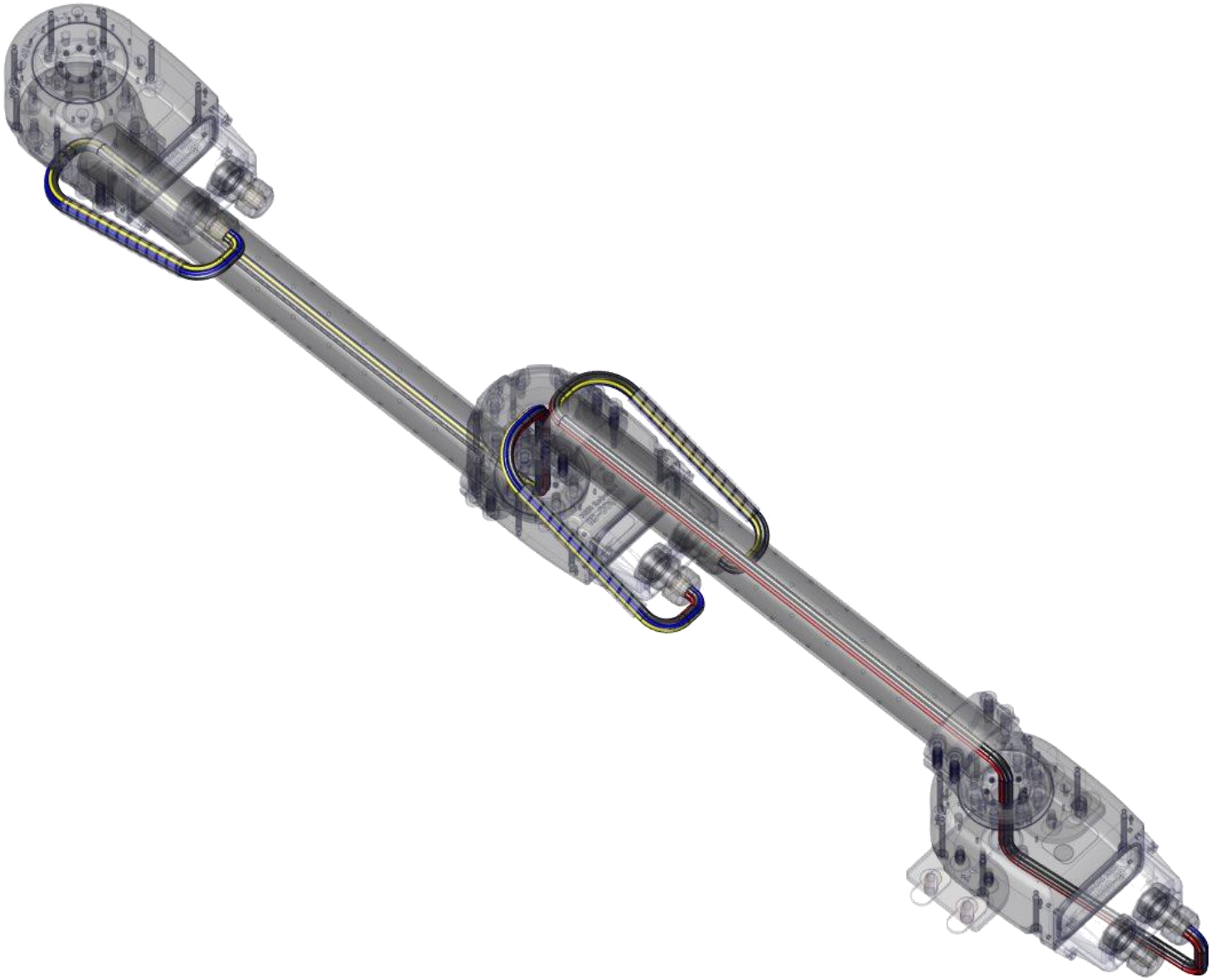


Wires that come from the previous joint should be inserted directly to actuator ports.

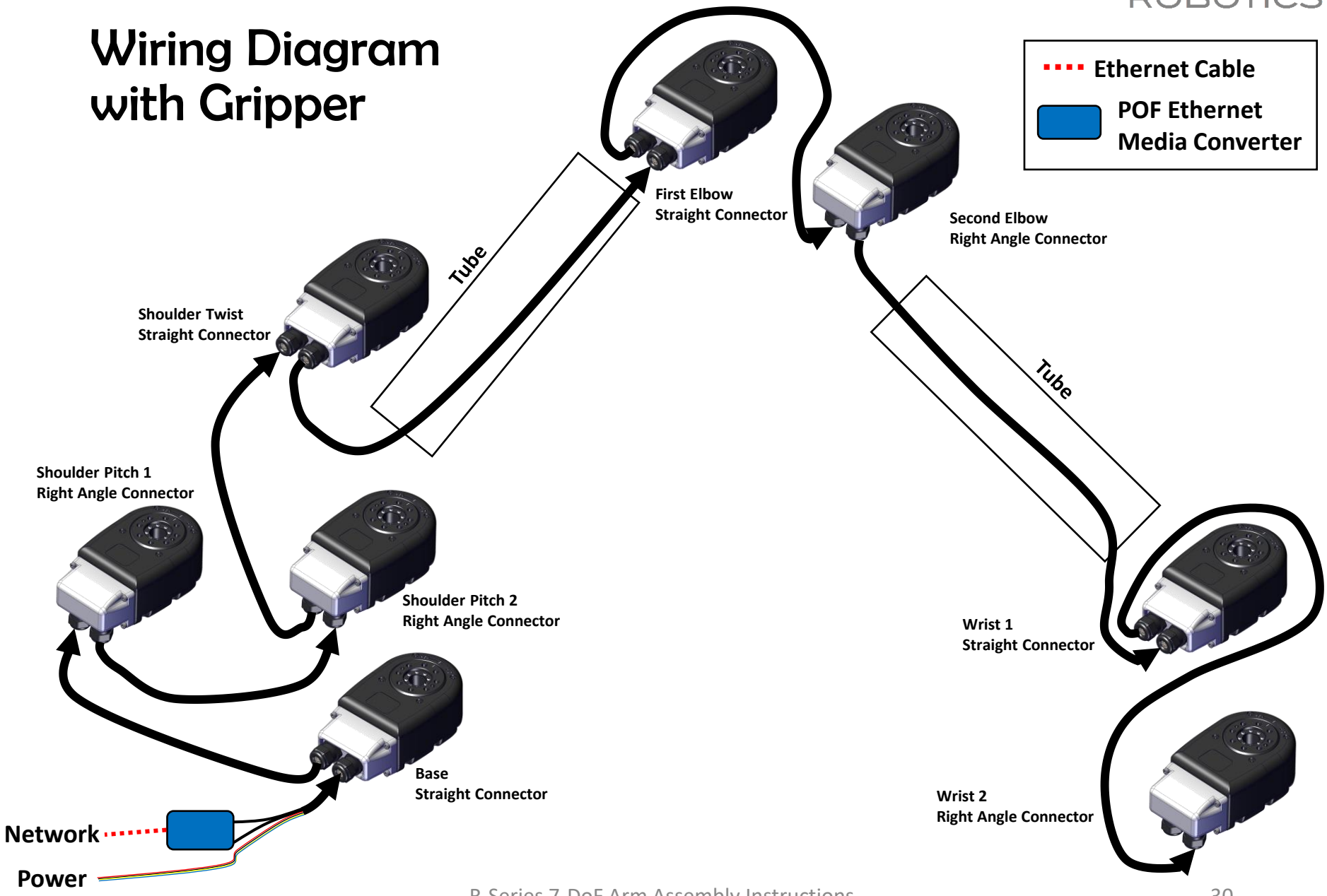


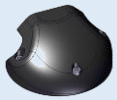
Wires that connect to the next joint should be threaded through the actuator's bore hole.

Wiring Example



Wiring Diagram with Gripper





2 x
A-2231-01

2 x
A-2235-01

Install cables before adding caps

HEBI
ROBOTICS