

Trossen Robotics Dynamixel Guide

AX, 24/28, 64 & 106 Series

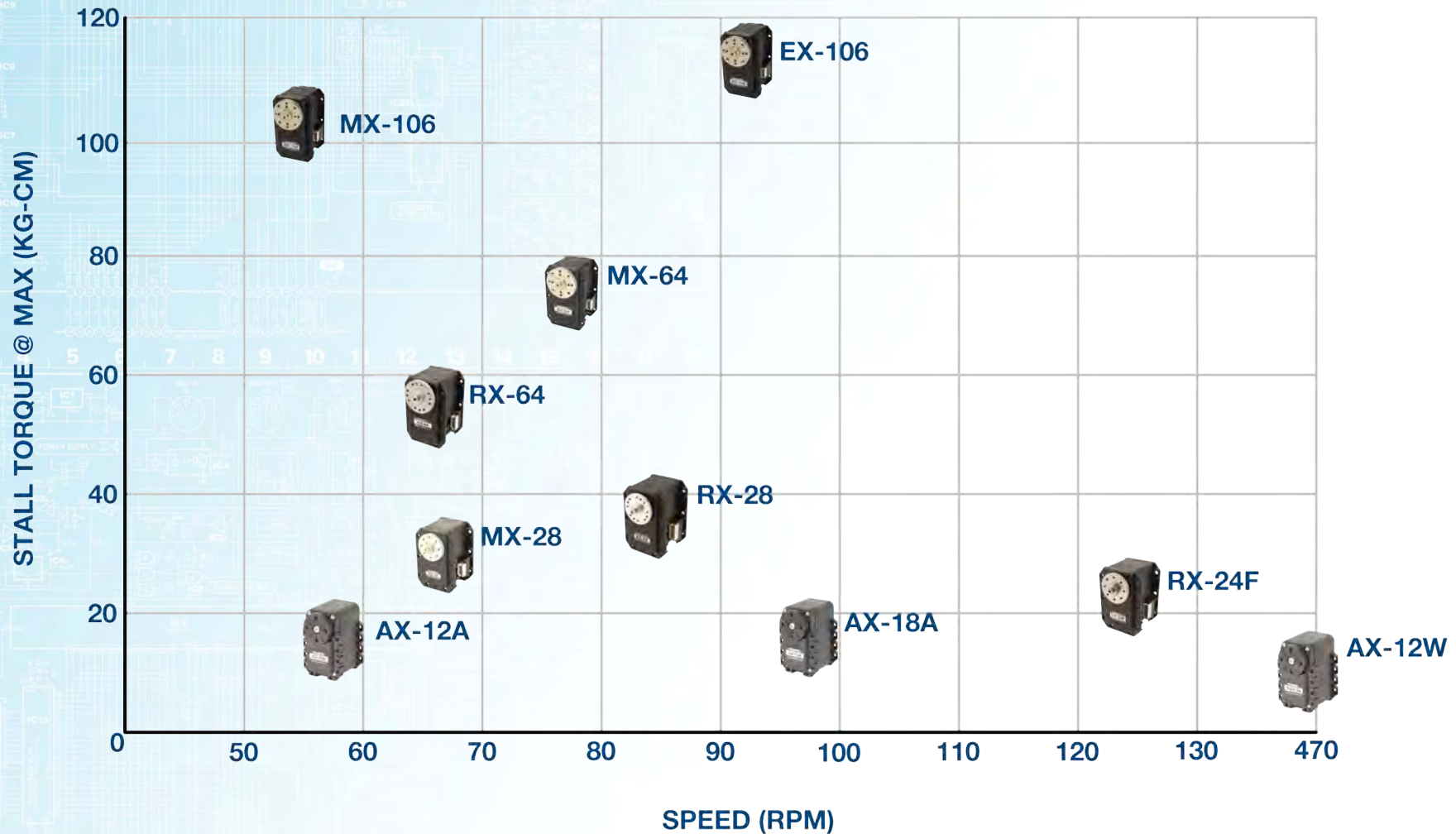
Robotis Dynamixels are the top-tier actuator choice in the industry for researchers and universities

Dynamixel actuators have been used by every major university, research lab, military & government research lab, and robotic competition worldwide. Each Smart Actuator has an onboard microprocessor to facilitate bus communication, positional feedback, temperature & load monitoring. The casing of each servo is built specifically with robotics in mind, providing easy to use mounting rails and a comprehensive bracket system available for building robotic limbs. TTL and RS-485 serial communication allows for daisy-chainable bus connections at up to 1-3mbps. In addition, the Dynamixel's onboard MCU has a set of user customizable features, allowing users to tune the servos in specifically for their application.

- Dedicated onboard MCU
- Adjustable torque, speed, and response
- Position, load, voltage, temperature feedback
- Daisy-chainable Serial Communication
- Wide range of sizes, strengths, and communication options
- Modular mounting design with comprehensive brackets and frames
- 3D models, dimensional drawings, full documentation available

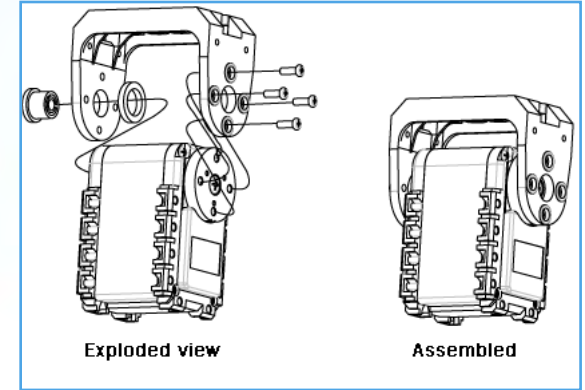
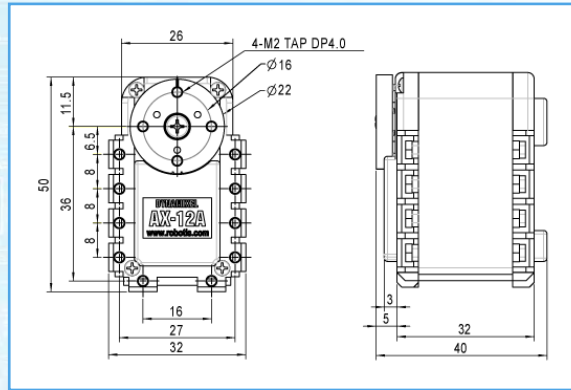


Strength & Speed Chart of the Dynamixel Family



Dynamixel

AX Series

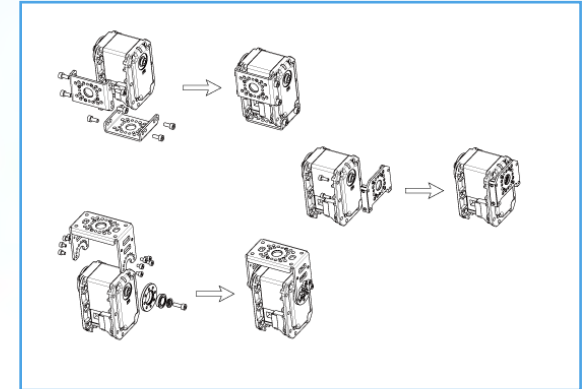
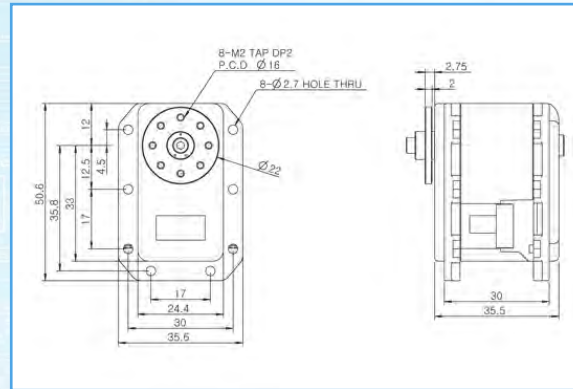


AX Series Dynamixels & Brackets
(Click to View Full Line)

Model	AX-12A (Visit Product Page)	AX-12W (Visit Product Page)	AX-18A (Visit Product Page)
Stall Torque @ Max Voltage	1.5N.m (16.5 kg-cm)	0.2N.m (2.0 kg-cm)	1.8N.m (18 kg-cm)
Speed (RPM)	59	470	97
Nominal Operating Voltage	12v	12v	12v
Stall Current Draw	1.5A	1.4A	2.2A
Dimensions	32x50x40 mm	32x50x40 mm	32x50x40 mm
Weight	54.6g	52.9g	54.5g
Resolution	0.29°	0.29°	0.29°
Operating Angle	300	300	300
Gear Reduction	254 : 1	32 : 1	254 : 1
Geartrain Material	Eng. Plastic	Eng. Plastic	Eng. Plastic
Onboard CPU	ATMega8 (ATMEGA8-16AU@16MHZ, 8 Bit)	ATMega8 (ATMEGA8-16AU@16MHZ, 8 Bit)	ATMega8 (ATMEGA8-16AU@16MHZ, 8 Bit)
Position Sensor	Potentiometer	Potentiometer	Potentiometer
Com Protocol	TTL	TTL	TTL
Com Speed	1mbps	1mbps	1mbps
Compliance/PID	Compliance	Compliance	Compliance
Dimensional Drawing	PDF	PDF	PDF

Dynamixel

24/28 Series

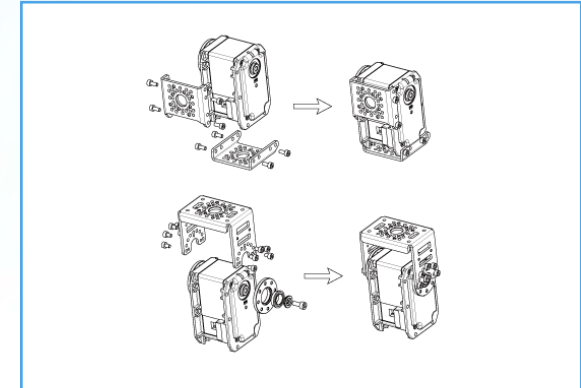
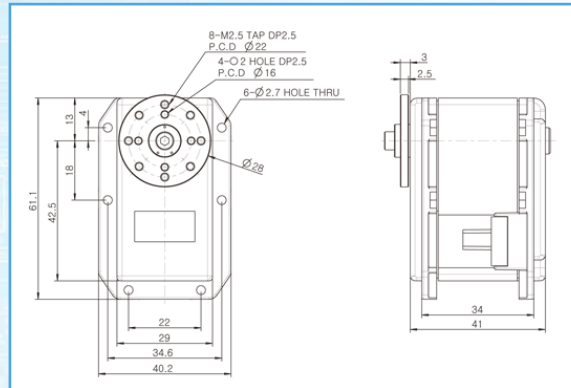


24/28 Series Dynamixels & Brackets
(Click to View Full Line)

Model	RX-24F (Visit Product Page)	RX-28 (Visit Product Page)	MX-28 (Visit Product Page)
Stall Torque @ Max Voltage	2.6N.m (26.5 kg-cm)	3.7N.m (37.7 kg-cm)	3.1N.m (31.6 kg-cm)
Speed (RPM)	126	85	67
Nominal Operating Voltage	12v	12-18.5v	11.1-14.8v
Stall Current Draw	2.4A	1.9A	1.7A
Dimensions	35.6x50.6x35.5 mm	35.6x50.6x35.5 mm	35.6x50.6x35.5 mm
Weight	67g	72g	72g
Resolution	0.29°	0.29°	0.088°
Operating Angle	300	300	360
Gear Reduction	193 : 1	193 : 1	193 : 1
Geartrain Material	Hardened Steel	Hardened Steel	Hardened Steel
Onboard CPU	ATMega8 (AT-MEGA8-16AU @ 16MHZ, 8 Bit)	ATMega8 (ATMEGA8-16AU @ 16MHZ, 8 Bit)	Cortex M3 (STM32F103C8 @ 72MHZ, 32 Bit)
Position Sensor	Potentiometer	Potentiometer	Magnetic Encoder
Com Protocol	RS-485	TTL	TTL/RS-485
Com Speed	1mbps	1mbps	3mbps
Compliance/PID	Compliance	Compliance	PID
Dimensional Drawing	PDF	PDF	PDF

Dynamixel

64 Series

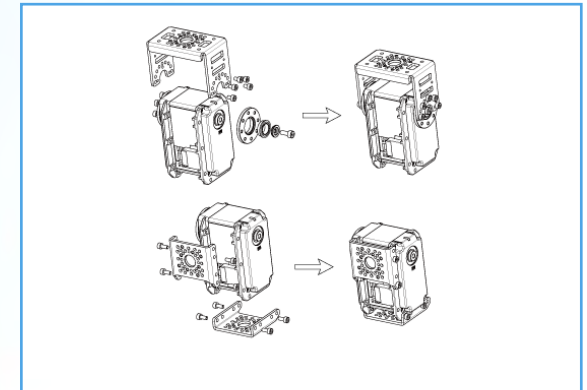
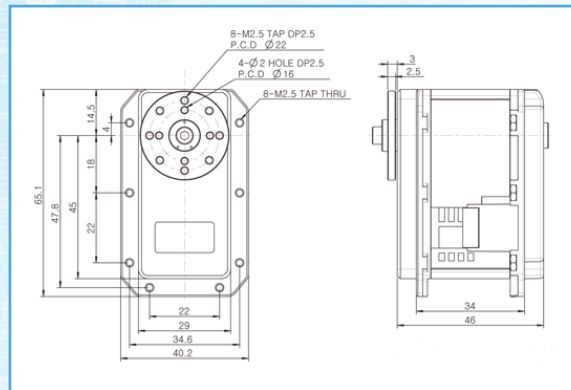


[64 Series Dyanmixels & Brackets](#)
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Model	RX-64 (Visit Product Page)	MX-64 (Visit Product Page)
Stall Torque @ Max Voltage	5.3N.m (54 kg-cm)	7.3N.m (74.4 kg-cm)
Speed (RPM)	64	78
Nominal Operating Voltage	12-18.5v	11.1-14.8v
Stall Current Draw	2.6A	5.2A
Dimensions	40.2x61.1x41 mm	40.2x61.1x41 mm
Weight	125g	126g
Resolution	0.29°	0.088°
Operating Angle	300	360
Gear Reduction	200 : 1	200 : 1
Geartrain Material	Hardened Steel	Hardened Steel
Onboard CPU	ATMega8 (ATMEGA8-16AU @ 16MHZ, 8 Bit)	Cortex M3 (STM32F103C8 @ 72MHZ, 32 Bit)
Position Sensor	Potentiometer	Magnetic Encoder
Com Protocol	RS-485	TTL/RS-485
Com Speed	1mbps	3mbps
Compliance/PID	Compliance	PID
Dimensional Drawing	PDF	PDF

Dynamixel

106 Series



[106 Series Dyanmixels & Brackets](#)
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Model	EX-106+ (Visit Product Page)	MX-106 (Visit Product Page)
Stall Torque @ Max Voltage	10.9N.m (111 kg-cm)	10.0N.m (101 kg-cm)
Speed (RPM)	91	55
Nominal Operating Voltage	12-18.5v	11.1-14.8v
Stall Current Draw	7A	6.3A
Dimensions	40.2x65.1x46 mm	40.2x65.1x46 mm
Weight	154g	153g
Resolution	0.29°	0.088°
Operating Angle	251	360
Gear Reduction	184 : 1	225 : 1
Geartrain Material	Hardened Steel	Hardened Steel
Onboard CPU	ATMega8 (ATMEGA8-16AU @ 16MHZ, 8 Bit)	Cortex M3 (STM32F103C8 @ 72MHZ, 32 Bit)
Position Sensor	Magnetic Encoder	Magnetic Encoder
Com Protocol	RS-485	TTL/RS-485
Com Speed	1mbps	3mbps
Compliance/PID	Compliance	PID
Dimensional Drawing	PDF	PDF

Controllers

The Arbotix Robocontroller, the #1 Microcontroller for Dynamixel Robot Actuators



The Arbotix Robocontroller is a full featured microcontroller solution based upon the Arduino-compatible Sanguino; the only third party microcontroller built specifically for Dynamixel based robot projects. AX & MX Series Dynamixels plug directly into the board and can be controlled using open-source libraries and code examples. Xbee wireless communication, 8 analog & digital IOs, and I2C/SPI breakouts are available. The programming environment uses the popular Arduino IDE, complete with open source code examples and an online community furthering development. [Click here to view the Arbotix product page.](#)

Other Controllers



[USB2Dynamixel](#)
([View Product Page](#))



[CM-700](#)
([View Product Page](#))

Need a ready to go robotic platform?

The Interbotix line of research & pro-hobby robotic platforms utilize the latest in Dynamixel servo technology. Interbotix incorporates the Vanadium Labs Arbotix Robocontroller, rugged ABS frame & structure, and advanced Dynamixels to bring solid yet affordable robots to students, educators, and researchers.



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[CM-530](#)
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