

Standard exterior color is black. Other colors available for volume orders.



Miniature Linear Motion Series

Firgelli Technologies' unique line of Miniature Linear Actuators enables a new generation of motion-enabled product designs, with capabilities that have never before been combined in a device of this size. These tiny linear actuators are a superior alternative to awkward gears, motors, servos and rods.

The PQ-12 actuators are complete, self-contained linear motion devices with sophisticated control capabilities. You can accurately control the actuator's position along its stroke, based on feedback from a built-in precision linear potentiometer. Driving the actuator could not be simpler: apply a DC voltage to extend the actuator, and reverse the polarity to change the actuator direction. The PQ-12s is a high-speed configuration, and the PQ-12f is a high-force configuration. Other force/speed combinations are available as special orders.

Benefits

- **Compact miniature size**
- **Precise position feedback**
- **Simple control**
- **Low voltage**
- **Equal push / pull force**
- **Easy mounting**

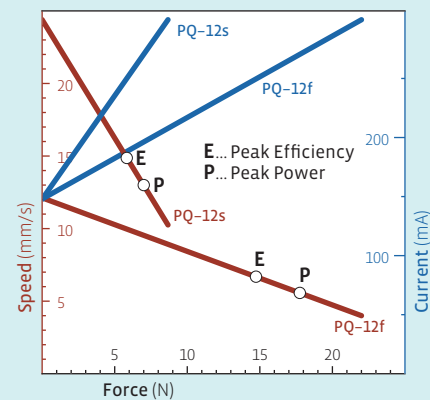
Applications

- **Robotics**
- **Consumer appliances**
- **Medical Devices**
- **Automotive**
- **Industrial automation**

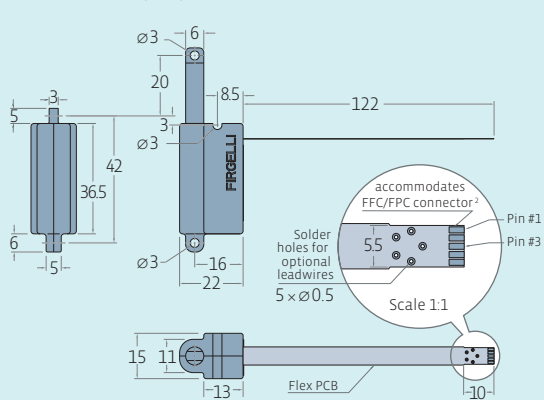
Specifications

	PQ-12f High Force	PQ-12s High Speed
Product number	PQ-12-20-63-A	PQ-12-20-30-A
Stroke	20 mm	20 mm
Rated force (at peak efficiency)	15 N at 7 mm/s	6 N at 15 mm/s
Max Power Point	18 N at 6 mm/s	7 N at 13 mm/s
Max speed (no load)	12 mm/s	27 mm/s
Current draw (at peak efficiency)	250 mA	250 mA
Input voltage	5 Vdc	5 Vdc
Feedback mode	2 kΩ linear potentiometer	
Feedback potentiometer linearity	1%	
Mass	19 g	
Operating temperature	-10 to +50°C	
Duty Cycle ¹	20%	
Actuator lifetime ¹	100,000 cycles	

Load Curve



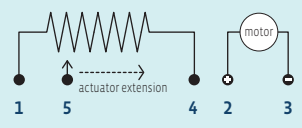
Dimensions (mm) 1:2.5



Wiring

Pin Function ²

- 1 Potentiometer reference**
- 2 Actuator power (+5V to extend)**
- 3 Actuator power (+5V to retract)**
- 4 Potentiometer reference**
- 5 Potentiometer wiper (position signal)**



¹ Quoted lifetime is at peak efficiency point and stated duty cycle. Higher loads or duty cycles may reduce life. ² Flex-PCB edge accepts a 5-pin 1 mm pitch or 10-pin 0.5 mm pitch FFC/FPC connector, such as Hirose FH21 or Molex 52087. Each 1 mm pitch PCB terminal will contact two adjacent 0.5 mm connector pins.



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