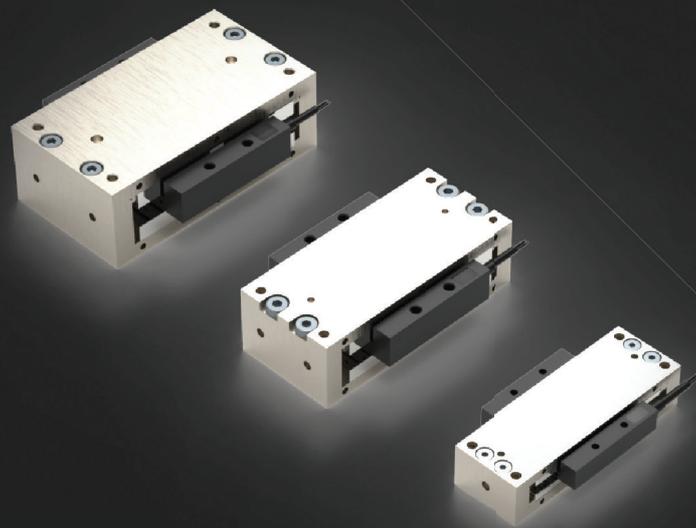




pbca
SYSTEMS

DIRECT DRIVE TECHNOLOGY 
Product Catalogue



RVC SERIES

RECTANGULAR VOICE COIL

RVC SERIES

RECTANGULAR VOICE COIL



Ultra-High Frequency for Short Stroke Motion Systems

PBA's Rectangular voice coil motors are straightforward linear electric motors consisting of a magnetic housing and a lightweight coil. These motors operate without the need for commutation and are commonly utilized for pure frequency oscillation. However, when paired with high-resolution linear encoders, they can easily achieve precise sub-micron positional control.

By applying a voltage across the motor's terminals, it can be moved in one direction. Reversing the polarity of the applied voltage causes the motor to move in the opposite direction. The force generated by the motor is directly proportional to the current flowing through the motor coil, and it remains almost constant within the specified stroke range. The non-commutated motor design enhances reliability, while the direct coupling between the motor and the load enables dynamic acceleration/deceleration and high-speed operation.

Key features of PBA's Rectangular voice coil motors include:

- Zero cogging, backlash, and hysteresis
- Exceptionally dynamic with a high-frequency motion profile
- Minimal speed and force ripple, especially at low speeds
- Available in various sizes and force options
- Simple operation with only two terminal connections required
- High-force versions are also available
- Requires no maintenance

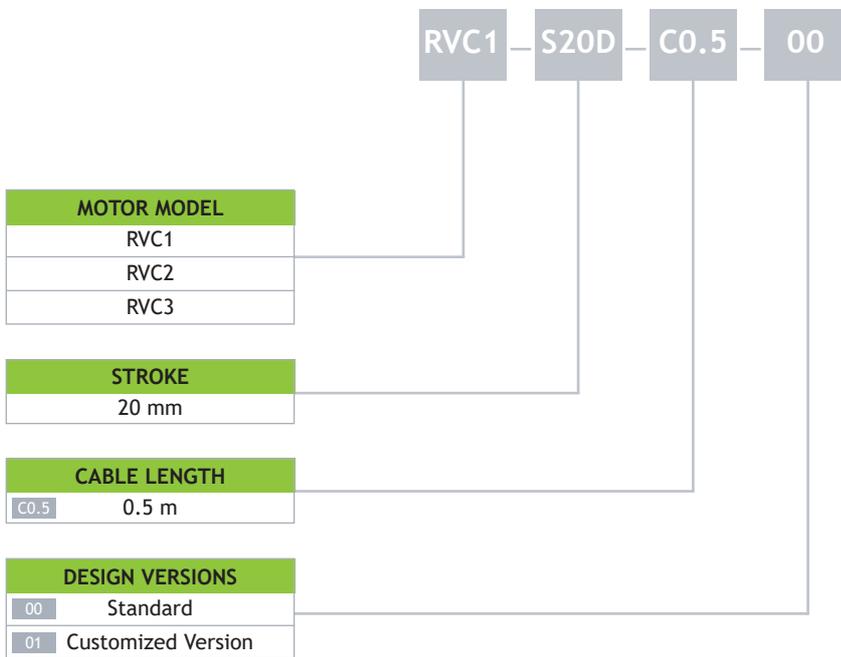
APPLICATION

- Precision automation
- Dynamic Z-axis
- Frequency oscillator
- Force & Pressure control
- Camera lens focusing
- Syringe dispensing
- Biomed simulator
- Laser mirror steer & tilt

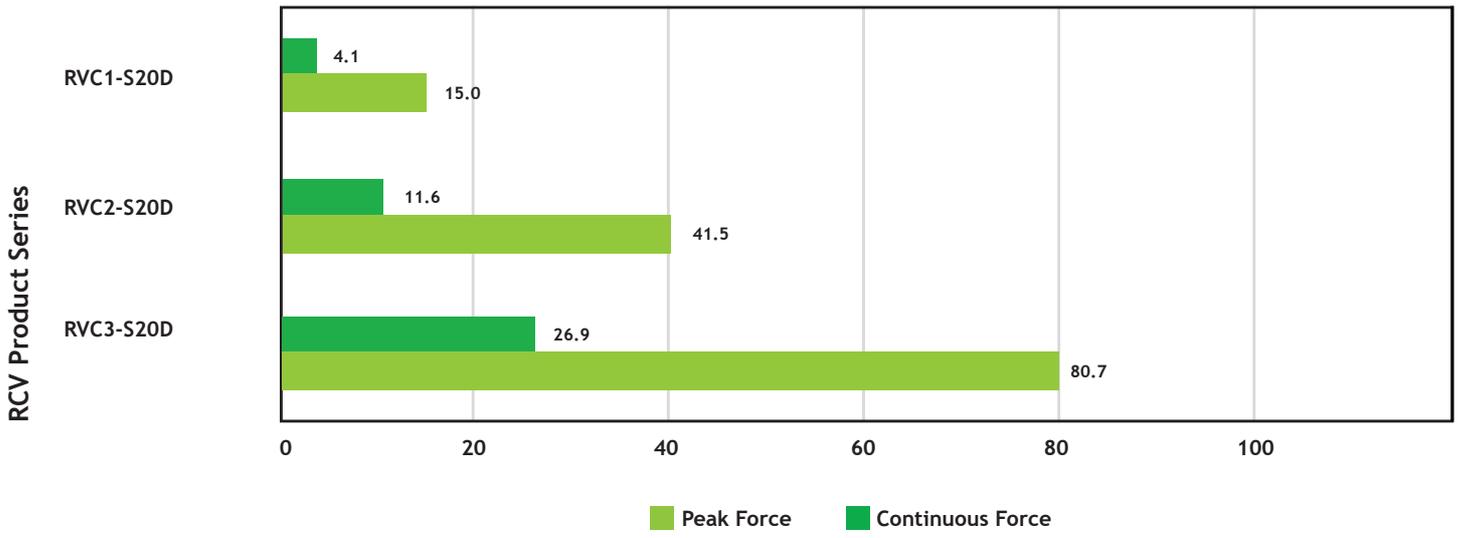
RVC SUMMARY TABLE

powered by Rectangular voice coil

Model	Stroke (mm)	Continuous Force (N)	Peak Force (N)	Continuous Current (A)	Peak Current (A)
RVC1-S20D	20.0	4.1	15.0	1.2	4.4
RVC2-S20D	20.0	11.6	41.5	1.4	5.0
RVC3-S20D	20.0	26.9	80.7	2.6	7.8



Force Chart For RCV Motors



RVC SERIES

RECTANGULAR VOICE COIL MOTOR



RVC SERIES

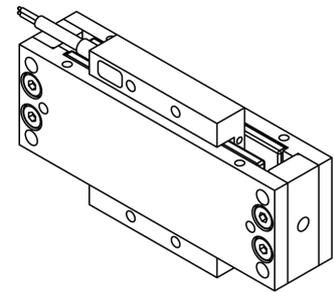
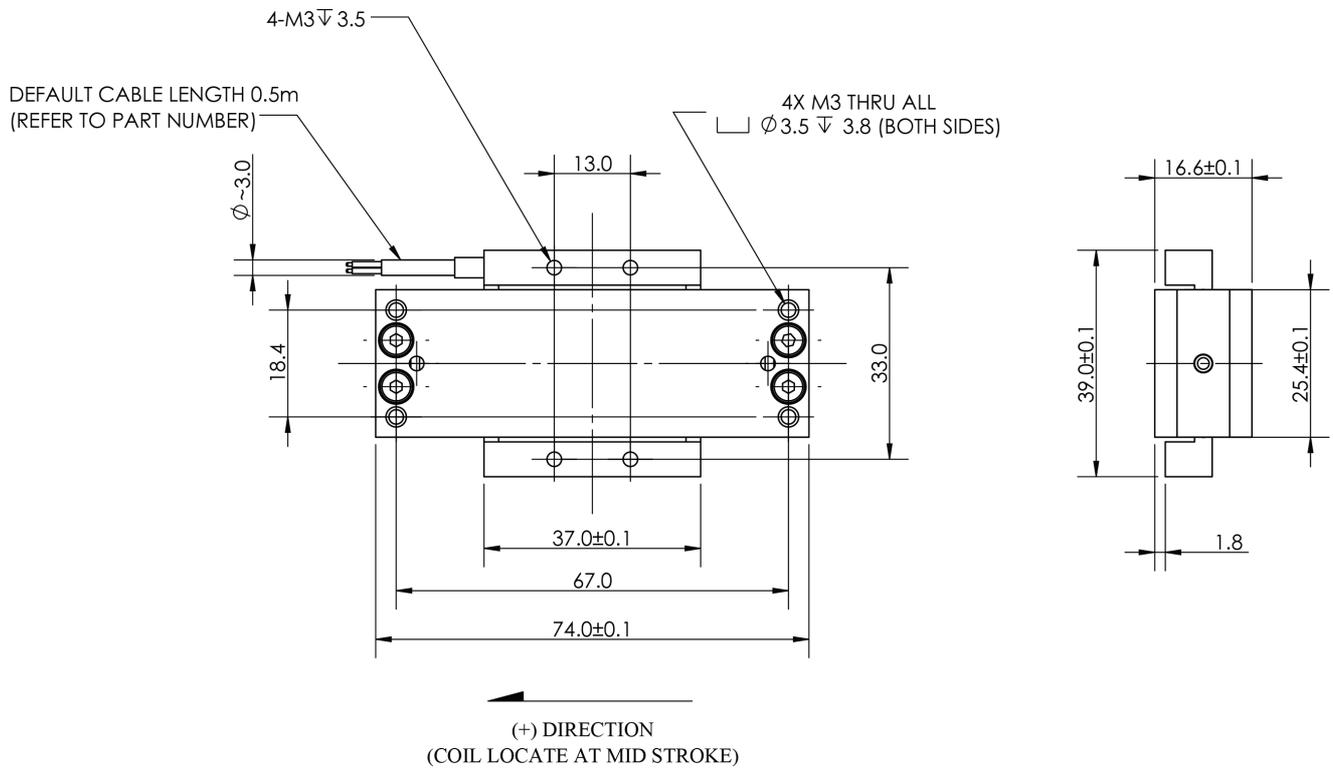
- Direct drive, zero cogging, zero backlash voice coil motors
- Smooth motion at low speeds with limitless resolution
- No contact between coil and core movement
- Low coil mass with very fast response and bandwidth

SPECIFICATION	Unit	MODEL		
		RVC1-S20D	RVC2-S20D	RVC3-S20D
Performance				
Stroke	mm	20.0	20.0	20.0
Peak Force	N	15.0	41.5	80.7
Continuous Stall Force @ 100°C*	N	4.1	11.6	26.9
Continuous Power @ 100°C*	W	4.5	9.4	17.6
Electrical				
Peak Current	A	4.4	5.0	7.8
Continuous Stall Current @ 100°C*	A	1.2	1.4	2.6
Force Constant @ Mid Stroke	N / A	3.4	8.3	10.4
Back EMF Constant @ Mid Stroke	V / m/s	3.4	8.3	10.4
Coil Resistance @ 25°C	ohm	2.4	3.7	2.0
Coil Resistance @ 100°C*	ohm	3.1	4.8	2.6
Inductance @ 1kHz (Inside fully)	mH	0.45	TBI	TBI
Motor Constant @ 100°C*	N / √W	1.9	3.8	6.4
Max. Terminal Voltage	Vdc	48.0	60.0	60.0
Thermal				
Thermal Resistance @ 100°C*	°C / W	16.65	7.94	4.26
Max. Coil Temperature	°C	125	125	125
Mechanical				
Coil Assembly Weight	kg	0.021	0.057	0.070
Magnet Assembly Weight	kg	0.191	0.487	0.888
Air Gap	mm	0.5	0.6	0.8

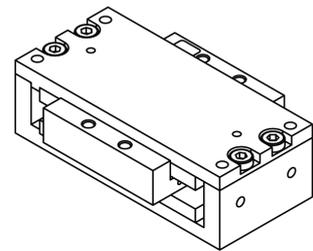
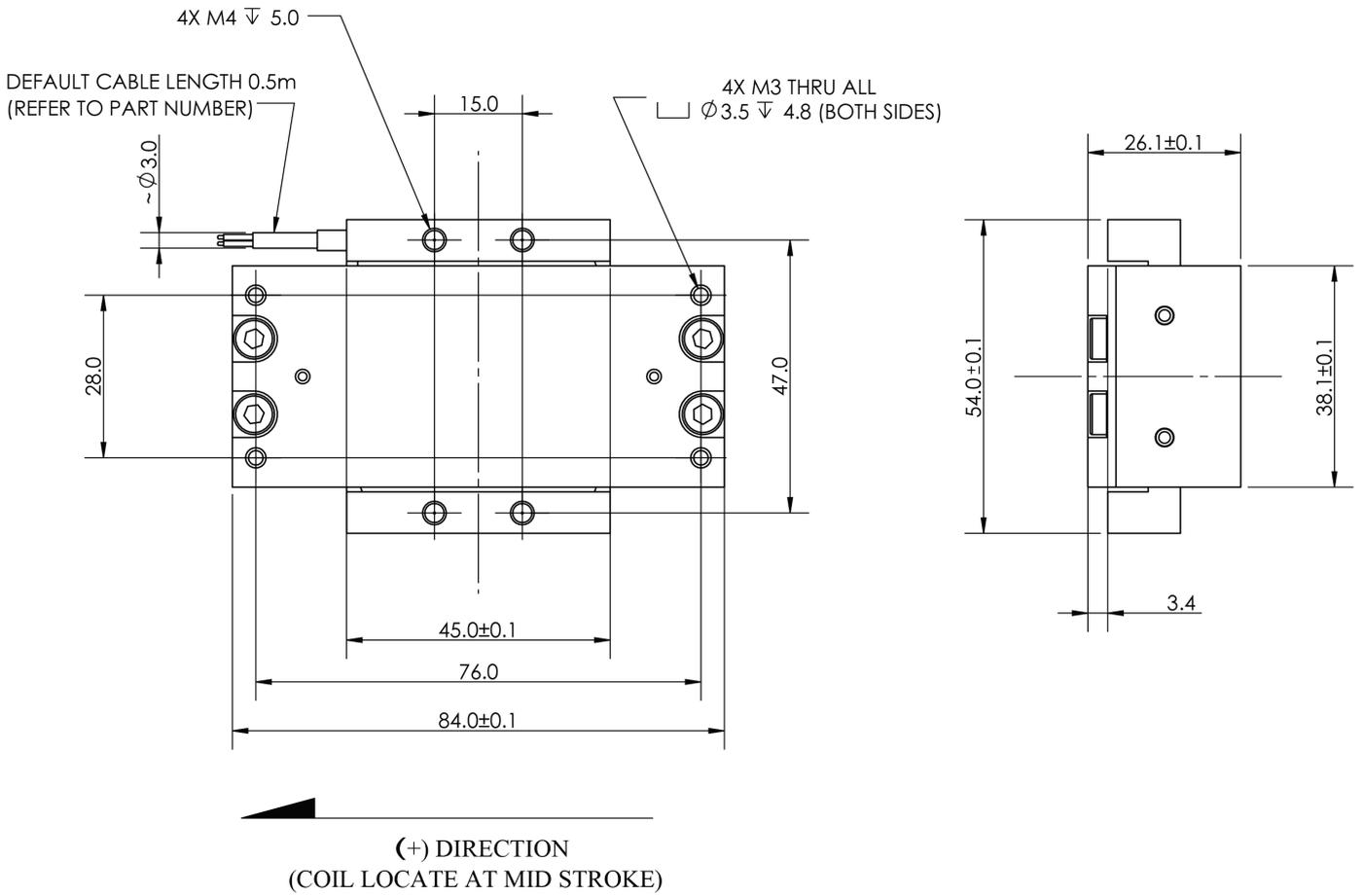
Notes:

1. * Ambient temperature 25°C, heat dissipation by natural convection, without heat sink attached.
2. Specifications tolerance : ±10%.
3. Peak force and current : 4% duty ratio and 1 second duration.
4. Specifications are subject to change without prior notice.

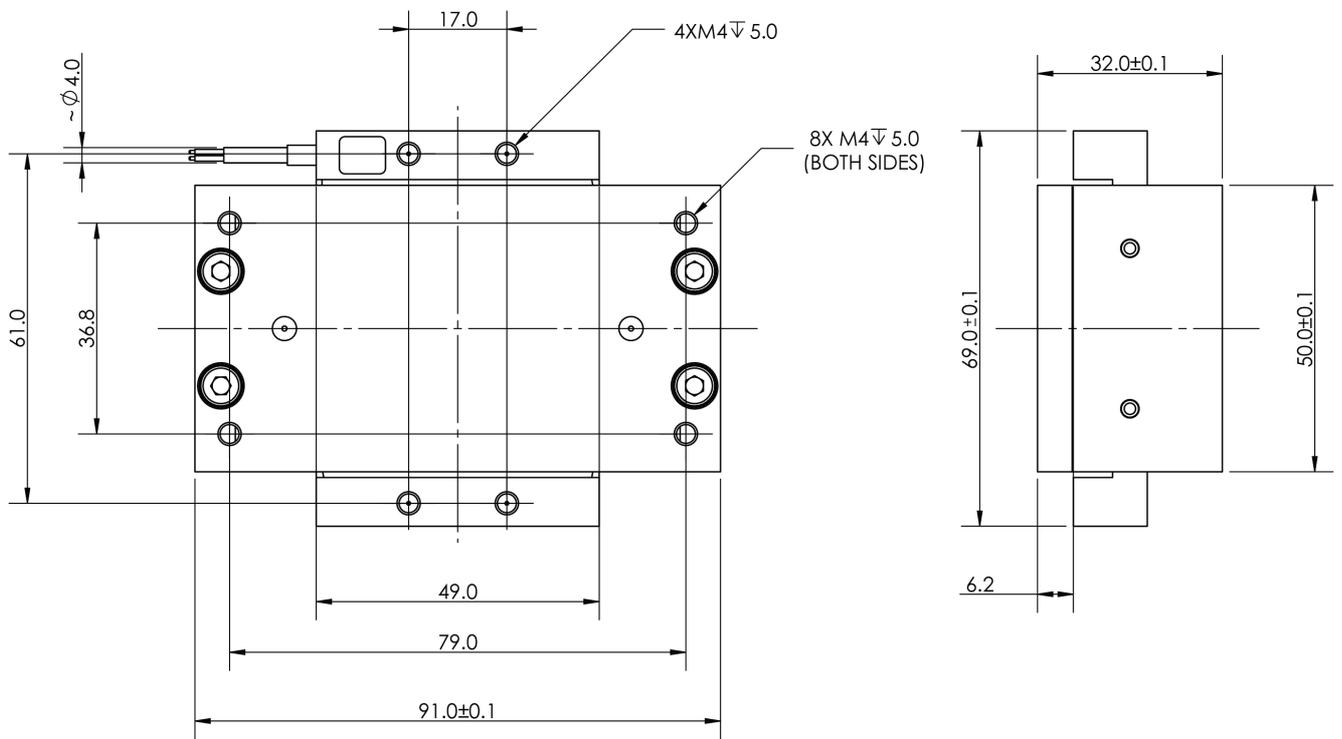
RVC1-S20D



RVC2-S20D



RVC3-S20D



(+) DIRECTION
(COIL LOCATE AT MID STROKE)

