



APC SERIES

- ▶ Z-axis 2G acceleration
- ▶ 30mm stroke and 2-axis option
- ▶ Compact 2-axis design at only 16mm thickness
- ▶ Vacuum tip
- ▶ High force to weight ratio

T-axis

① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 ② Resistance is measured by DC current with standard 0.5m lead wire.
 ③ Resistance is measured by DC current with standard 1.0m lead wire.
 ④ Inductance is measured by current frequency of 1kHz.
 ⑤ Max value for 1 revolution.

The contents of datasheet are subject to change without prior notice.

Technical drawing of a vertical shaft assembly. The drawing shows a shaft with a central hole and a keyway. The dimensions and tolerances are as follows:

- Top hole: $6 \times \varnothing 2.50 \nabla 7.50$
- Thread: $M3 - 6H \nabla 6.00$
- Distance from top to first step: 140.00
- Distance from top to second step: 134.00
- Distance from top to third step: 126.00
- Third hole: $3.00 H7 \times 5.00 \nabla 3.00$
- Distance from third hole to fourth hole: $\varnothing 3.00 H7 \nabla 3.00$
- Distance from fourth hole to fifth hole: 13.50
- Distance from fourth hole to sixth hole: 10.00
- Distance from fourth hole to seventh hole: 4.00
- Distance from fourth hole to eighth hole: 0
- Bottom hole: 4.00
- Bottom hole: 4.00

APC16B-Z30

Motor Specifications	Z-axis
Motor	ALM015-T-B1
Continuous Force (NC) @100°C [Z-axis] ^①	10 N
Peak Force [Z-axis]	36 N
Force Constant ±10% [Z-axis]	8.1 N/Arms
Back EMF Constant ±10%	6.6 Vpeak/(m/s)
Resistance (L-L) @25°C ±10% [Z-axis] ^②	4.51 Ω
Inductance (L-L) ±30% [Z-axis] ^③	0.58 mH
Continuous Current (NC) @100°C ^①	1.23 Arms
Peak Current	4.4 Arms
Max. Bus Voltage [Z-axis]	60 Vdc
Magnetic Period	16.5 mm
Attraction Force	-
Mechanical Specifications	Z-axis
Effective Stroke	30 mm
Resolution	0.5 μm
Repeatability	±5 μm
Rated Payload	0.04 kg
No-Load Moving Mass [Z-axis]	0.2 kg
No-Load Total Mass	0.8 kg
Max. Acceleration	20 m/s ²
Max. Velocity	0.5 m/s
Max. Pressure	0.8 MPa
Suction Air Flow Requirement	≥ 8 L/min [ANR]

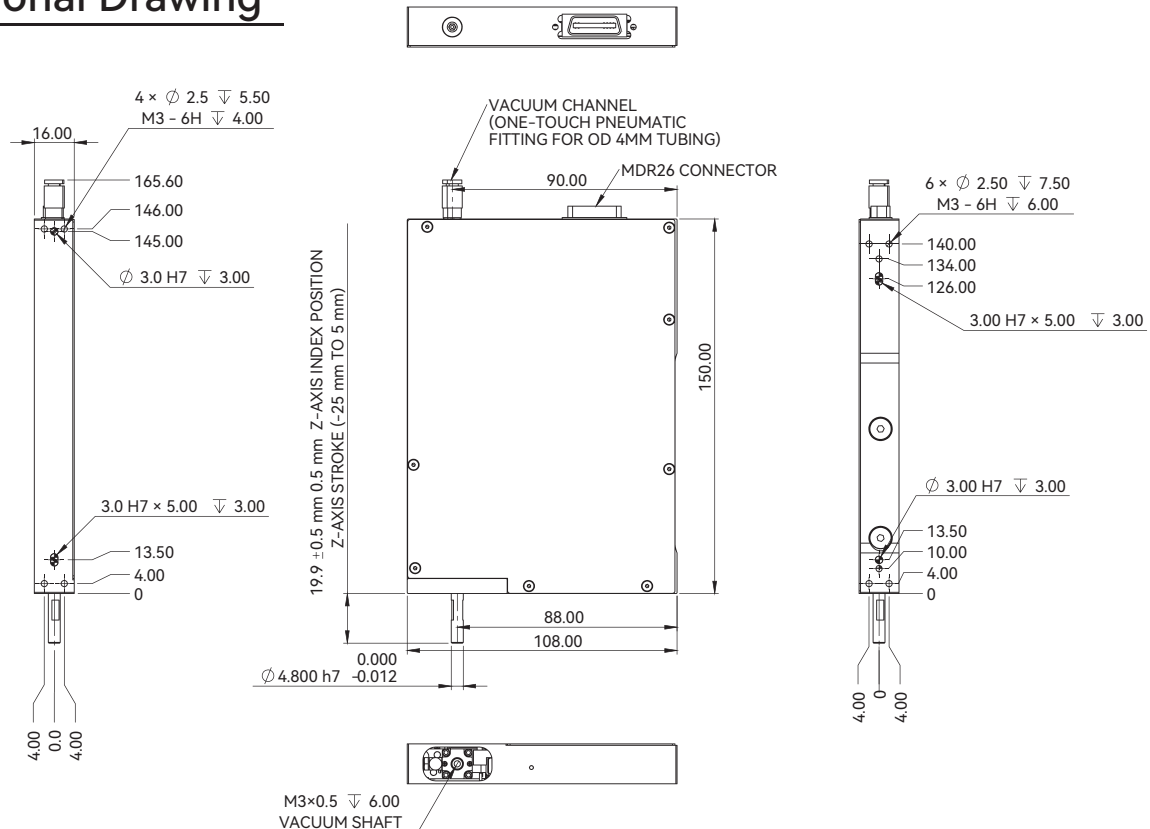
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.

② Resistance is measured by DC current with standard 0.5m lead wire.

③ Inductance is measured by current frequency of 1kHz.

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Dimensional Drawing



Z-axis Motor

Performance Parameters	Unit	ALM015-T-B1
Continuous Force (NC) @100°C ^①	N	10.0
Stall Force (NC) @100°C ^{① ②}	N	8.3
Peak Force	N	36.0
Force Constant ±10%	N/Arms	8.1
Back EMF Constant ±10%	Vpeak/(m/s)	6.6
Motor Constant @25°C	N/Sqrt(W)	3.1
Resistance (L-L) @25°C ±10% ^③	Ω	4.51
Inductance (L-L) ±30% ^④	mH	0.58
Electrical Time Constant	ms	0.13
Continuous Current (NC) @100°C ^{① ⑤}	Arms	1.23
Stall Current (NC) @100°C ^{① ②}	Arms	1.03
Peak Current	Arms	4.4
Continuous Power Dissipation (NC) @100°C ^①	W	13.3
Max. Coil Temperature	°C	100.0
Thermal Dissipation Constant (NC) ^①	W/°C	0.18
Max. Bus Voltage	Vdc	60.0
Magnetic Period	mm	16.5
Attraction Force	N	0.0

① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Minimum heatsink area is 0.03m, and minimum speed is 10mm/s.

③ Resistance is measured by DC current with standard 0.5m cable.

④ Inductance is measured by current frequency of 1kHz.

⑤ Maximum continuous current should be limited to 1.0 Arms due to connector limitation.
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T-axis Motor

Performance Parameters	Unit	TP12
Continuous Torque (NC) @100°C ^①	Nm	7.40E-03
Peak Torque	Nm	1.85E-02
Torque Constant ±10%	Nm/Arms	9.25E-03
Back EMF Constant ±10%	Vpeak/rpm	7.91E-04
Motor Constant @25°C	Nm/Sqrt(W)	4.66E-03
Resistance (L-L) @25°C ±10% ^②	Ω	2.63
Inductance (L-L) ±20% ^③	mH	0.23
Electrical Time Constant	ms	0.09
Continuous Current (NC) @100°C ^①	Arms	0.80
Peak Current	Arms	2.00
Continuous Power Dissipation (NC) @100°C ^①	W	3.25
Max. Coil Temperature	°C	100.0
Thermal Dissipation Constant (NC) ^①	W/°C	0.043
Max. Bus Voltage	Vdc	48.0
Pole Number	-	4
Max. Speed ^④	rpm	1000

① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Minimum heatsink area is 0.03m, and minimum speed is 10mm/s.

③ Resistance is measured by DC current with standard 0.5m cable.

④ Inductance is measured by current frequency of 1kHz.

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Z-axis Linear Encoder

Specifications	ABI-21
Power Supply	5V ±10% 200mA (Max)
Output	TTL ABZ
Operating Temperature	0 °C to +70 °C
Humidity	10 to 80% @ RH (Non-Condensing)
Shock (Non-Operating)	<1000 m/s ² , 6ms, ½ Sine
Vibration (Operating)	<100 m/s ² Max @ 55 Hz to 2000 Hz
Scale Period	80 μm
Resolution	0.5 μm
Substrate Material	Nickel
Expansion Coefficient	14 ppm/°C

T-axis Rotary Encoder

Specifications	ABI-2250 + INTERPOLATOR
Power Supply	5V ±5% 60mA (Typical)
Output	TTL ABZ
Operating Temperature	0 °C to +70 °C
Humidity	10 to 80% @ RH (Non-Condensing)
Shock (Non-Operating)	<1000 m/s ² , 6ms, ½ Sine
Vibration (Operating)	<100 m/s ² Max @ 55 Hz to 2000 Hz
Scale Period	80 μm
Resolution (2048x)	491520 counts/rev
Substrate Material	Aluminium
Expansion Coefficient	24 ppm/°C

Ordering Part Number (OPN)

APC16B-Z30

Model:

APC16B

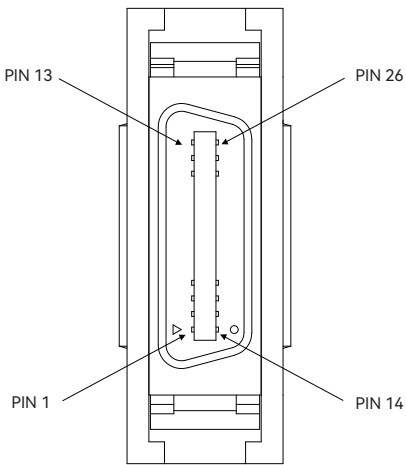
Axis & Effective Stroke:

Z30: Z-axis, 30mm
ZT30: Z-axis, 30mm/T-axis, limitless

Note:

★ Products can be customized to meet specific working environments, please contact cust-service@akribis-sys.com.

APC16B-ZT30 & Z30 Pin Assignments

ENCODER CONNECTOR	PIN	SIGNAL
 26-pin MDR Receptacle Mating Option: 3M 10226-0210EC	1	Z_ENC_5V
	2	Z_ENC_0V
	3	Z_ENC_A+
	4	Z_ENC_A-
	5	Z_ENC_B+
	6	Z_ENC_B-
	7	Z_ENC_Z+
	8	Z_ENC_Z-
	9	NOT CONNECTED
	10	Z_ENC_0V
	11	Z_M1
	12	Z_M2
	13	Z_M3
	14	T_ENC_5V
	15	T_ENC_0V
	16	T_ENC_A+
	17	T_ENC_A-
	18	T_ENC_B+
	19	T_ENC_B-
	20	T_ENC_Z+
	21	T_ENC_Z-
	22	NOT CONNECTED
	23	PE
	24	T_M1
	25	T_M2
	26	T_M3