MICRO JOINT ACTUATOR

VAXOR X30 SERIES

Φ30 mm Micro Joint Actuator

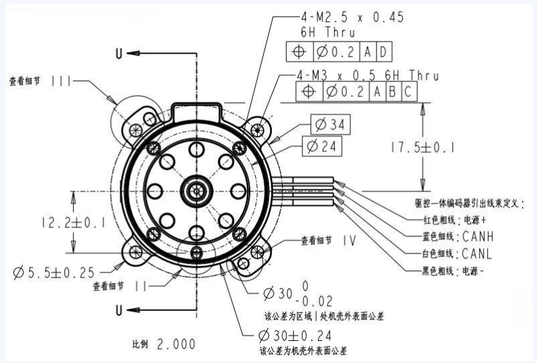
*Designed for dexterous hands, highly integrated robots, and other applications requiring precision motion-control actuators.Refer to the specifications during use and avoid operating beyond the stated limits. Please contact us with any product-related questions.

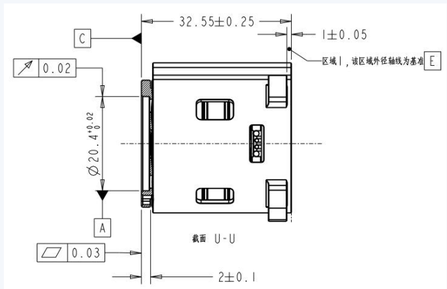
Φ30 mm	2200 mN•m	20 arcmin
Product Diameter	Maximum Torque	Gear Backlash

X30S-UZ / X30S-BZ

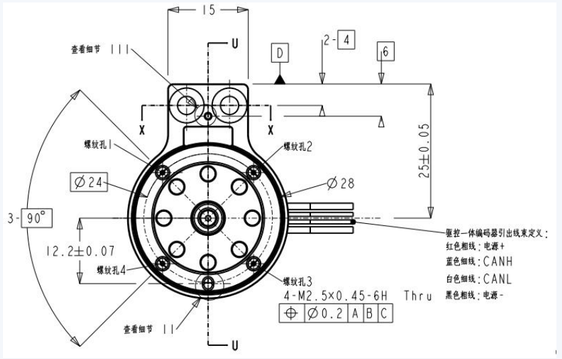
Mechanical Dimensions & Mounting Details

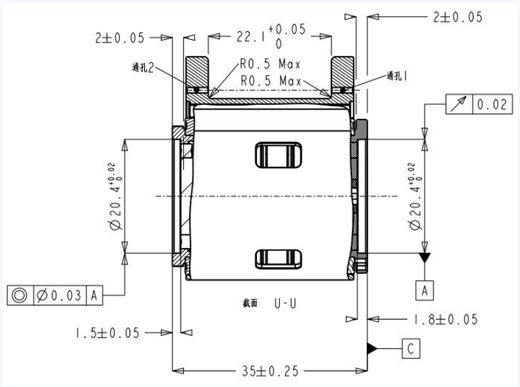
X30S-UZ30/50-MH-3



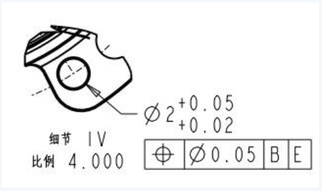


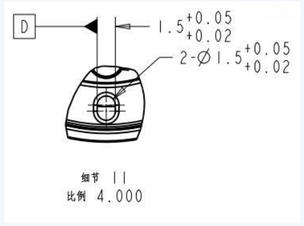
X30S-BZ30/50-MH-3

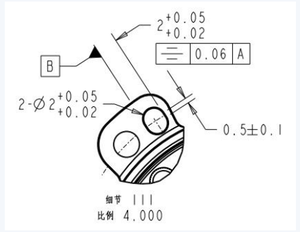




Housing Mounting Hole Detail







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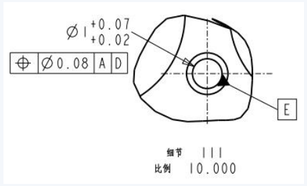
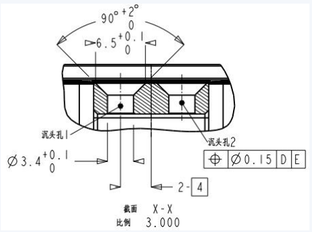
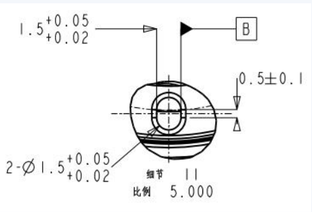






Technical Specifications & Performance Curves

12–18 V
Nominal Voltage

2200 mN•m
Maximum Torque

20 arcmin
Gear Backlash

123 / 133 g
Total Weight

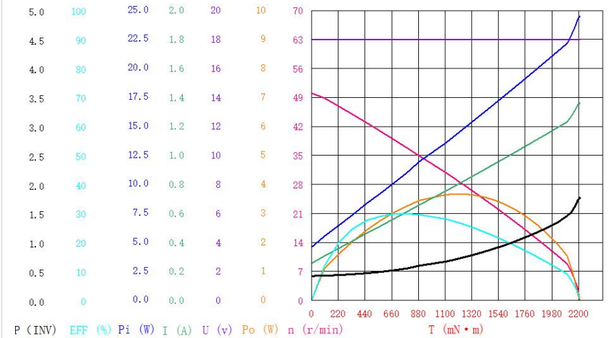
Test Conditions Single Motor · DC Bus Voltage 18 V · Duty Cycle 0.6

Motor Data

Parameter	Unit	Value
No Load Speed	rpm	≤3000
Nominal Speed	rpm	≤2000
Continuous Stalling Torque* (Chassis Temperature145°)	mN·m	59
Continuous Stalling Phase Current* (Chassis Temperature145°)	A	2.4
Stalling Torque (Max)*	mN·m	85
Stalling Phase Current (Max)*	A	3.2
Terminal Resistance*	Ω	1.2
Unbalanced Three-Phase Resistance	%	≤2
Terminal Inductance*	mH	0.6
Unbalanced Three-Phase Inductance	%	≤2
Torque Constant	mN·m/A	27.5
Speed Constant	rpm/V	347
Rotor Inertia	gcm2	15.8

Assembly Data

Parameter	Unit	Gear Ratio 30:1	Gear Ratio 50:1
Gear Efficiency (maximum)	%	75	60
Gear Efficiency (Stalling Point)	%	65	55
Continuous Stalling Torque	mN·m	1100	1500
Maximum Initial Torque	mN·m	1450	2200△
Gear Backlash	arcmin	P0≤20 P1≤30	
Encoder	—	Absolute Magnetic Encoder	
Communication Protocol	—	CAN FD	
Total Weight	g	123(UZ)/133(BZ)	
Total Inertia	g·cm²	30.4	



Efficiency • Current • Speed • Output Power

Thermal Data

Loss Power	W	6.2	10.3	16
ChassisTemperature	℃	80	115	145

Note: 1. * Indicates a ±10% deviation between actual and theoretical values. ; △ Indicates that output torque is limited by mechanical strength. 2. Motor thermal data was measured under natural cooling (without metal contact); performance will be better on a test bench or in the customer's complete system. 3. Contact Sales for customized backdrive torque and backlash performance.