



## Attributes

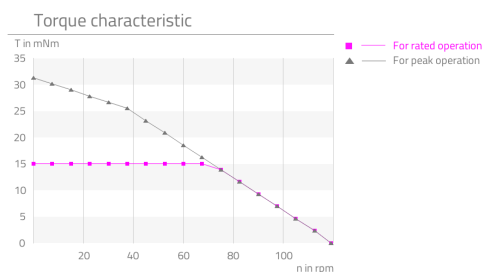
Highlights	Description
<ul style="list-style-type: none"><li>▪ <b>Compact build up</b></li><li>▪ <b>Vacuum suitable lubrication</b></li><li>▪ <b>Use of high quality materials</b></li><li>▪ <b>Preloaded ball bearing</b></li><li>▪ <b>Transmission ratio optimized to torque</b></li></ul>	<p>The CoograDrive® HighVac 10mm - Type 2 micro actuator combines extreme ruggedness with reliability and extremely short length. The micro positioning system is driven by a stepper motor with 20 steps per rotation in an open loop control. It is the ideal solution for applications in extreme environmental conditions and tight space conditions. Because Braycote is used as lubricant for the ball bearings as well as for the gear component set, it can be used in high-vacuum environments. The output shaft is precisely guided by preloaded ball bearings and thereby allow the application to be directly connected. At the core of this micro actuator is a low-backlash CoograDrive® gear with a reduction ratio of 80:1.</p>

## Technical parameter

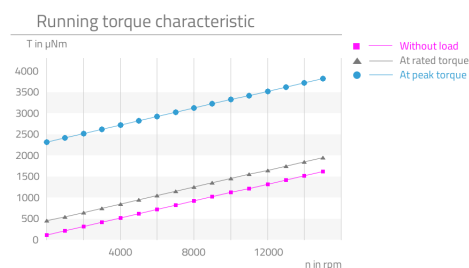
The stated values are based on calculations and measurements by Micromotion GmbH, carried out according to the current state of the art. You can find our definitions at [www.micromotion-drives.com](http://www.micromotion-drives.com).

For further information please contact [sales@micromotion.de](mailto:sales@micromotion.de).

P-019 Curve measured with 5x nominal voltage and load inertia  $6 \cdot 10E-9 \text{ kg/m}^2$  in  $\frac{1}{4}$  micro steps.



P-029 Curve measured with 5x nominal voltage and load inertia  $6 \cdot 10E-9 \text{ kg/m}^2$  in  $\frac{1}{4}$  micro steps.



Nr.	Parameter	Symbol	Value	Hint
P-001	Vacuum suitable		HV	
P-003	Ratio	i	80 : 1	
P-004	Self-locking		yes	
P-008	Repeatability unidirectional		5.85 arcmin	
P-009	Repeatability bidirectional		47.025 arcmin	
P-010	Accuracy		32.7 arcmin	
P-011	Transmission accuracy		65.4 arcmin	
P-012	Resolution		0.225 °	
P-013	Torsional stiffness		3.80 $\frac{\text{Nm}}{\text{rad}}$	
P-014	Lost motion		45 arcmin	
P-015	Backlash		20 arcmin	
P-016	Rated torque	T	15 mNm	
P-017	Peak torque	T	100 mNm	
P-018	Momentary peak torque	T	120 mNm	
P-021	Rated input speed	n	10000 rpm	
P-022	Maximum input speed	n	21000 rpm	
P-023	Rated output speed	n	125 rpm	
P-024	Maximum output speed	n	262.5 rpm	
P-026	No-load starting torque	T	180 µNm	

# Technical Supply Specifications: CoograDrive® HighVac 10mm - Type 2



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Nr.	Parameter	Symbol	Value	Hint
P-027	No-load running torque	T	120 µNm	
P-028	Rated running torque	T	1570 µNm	
P-034	Lifetime for rated operation		500 h	
P-035	Radial backlash output shaft		0 µm	
P-036	Axial backlash output shaft		0 µm	
P-037	Radial stiffness	c	2.3 N/µm	
P-038	Axial stiffness	c	40 <sup>N</sup> /µm	
P-039	Max. radial load on output shaft (non-operating, constant load)	F	55 N	
P-040	Max. radial load on output shaft (non-operating, impulsive load)	F	20 N	
P-041	Max. radial load on output shaft (operating, constant load)	F	7 N	
P-042	Max. radial load on output shaft (operating, impulsive load)	F	7 N	
P-043	Max. axial load on output shaft (non-operating, constant)	F	150 N	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	
P-045	Max. axial load on output shaft (operating, constant load)	F	380 N	
P-046	Max. axial load on output shaft (operating, impulsive load)	F	127 N	
P-055	Moment of inertia	I	938.01 * 10 <sup>-4</sup> gcm <sup>2</sup>	
P-057	Min. permissible ambient temperature (non-operating)	T	-35 °C	
P-058	Min. permissible ambient temperature (operating)	T	-10 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	130 °C	
P-060	Max. permissible ambient temperature (operating)	T	70 °C	

## Motor data: Stepper AM 1020-2R-A-0.25-8-10/1977

(Data are provided by the manufacturer or are based on the data sheets of the manufacturer)

Nr.	Parameter	Symbol	Value	Hint
P-100	Motortype		Stepper	
P-102	Maximum speed of motor	n	21000 rpm	
P-103	Resonance frequency of motor	f	140 Hz	
P-105	Holding torque of motor (unpowered)	T	0.2 mNm	
P-109	Rated current of motor	I	250 mA	

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Nr.	Parameter	Symbol	Value	Hint
P-111	Rated voltage of motor	U	2 V	
P-112	Phase resistance of motor	R	8 ohm	
P-113	Inductance of motor	L	2.4 mH	
P-114	Amplitude BEMF of motor	U	0.6 mV/rpm	
P-115	Full step angle of motor		18 °	
P-116	Angular accuracy of step of motor		±1.8 °	
P-117	Electrical time constant of motor	t	0.32 ms	
P-118	Max. coil temperature of motor	T	130 °C	
P-119	Thermal resistance of motor between coil and housing	R <sub>th1</sub>	3.9 <sup>K/W</sup>	
P-120	Thermal resistance of motor between housing and air	R <sub>th2</sub>	53.8 <sup>K/W</sup>	
P-121	Thermal time constant of the coil of the motor	T <sub>w1</sub>	3200 ms	
P-122	Thermal time constant of the housing of the motor	T <sub>w2</sub>	200000 ms	
P-123	Insulation voltage of motor	U	200 V	

## Material information

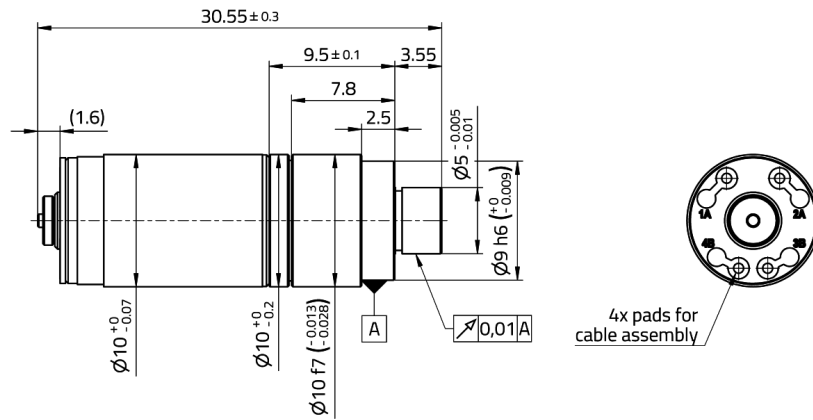
Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Braycote601EF	
P-903	Lubrication of gear component set		Braycote601EF	
P-904	Lubrication of bearing motor		Braycote601EF	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-911	Material of bearing motor		Stainless steel	
P-912	Material of gearbox output side		1.4305 DIN EN	
P-914	Material of motor housing		Anodized aluminum	

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## Technical drawing



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