



Attributes

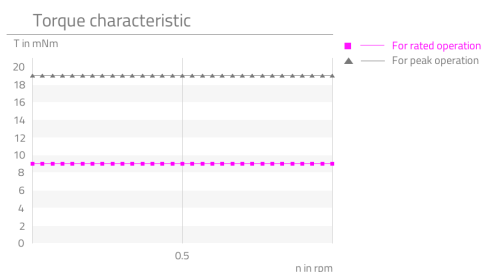
Highlights	Description
<ul style="list-style-type: none">▪ Zero backlash at ultra high resolution▪ Dry lubrication due to coatings▪ Suitable in wide temperature range▪ Robust control without feedback system▪ Preloaded ball bearing	<p>The MaalonDrive® Space 10mm - type 3 micro positioning system combines precision with exceptional reliability and extremely low weight. It is the ideal solution for extreme environmental conditions and tight space conditions. Because ball bearings and gear component set are dry-lubricated, it can be used both in ultra-high-vacuum environments as well as at very low temperatures. The micro positioning system can easily be operated in an open loop control, as it is driven by a stepper motor with 20 steps per rotation. At the heart of this high-reduction and reliable micro system is a low-backlash MaalonDrive® gear with a reduction ratio of 1000:1.</p>

Technical parameter

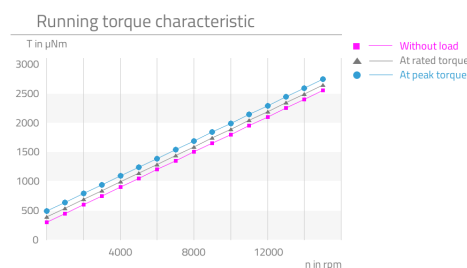
The stated values are based on calculations and measurements by Micromotion GmbH, carried out according to the current state of the art. You can find our definitions at www.micromotion-drives.com.

For further information please contact 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		UHV	
P-003	Ratio	i	1000 : 1	
P-004	Self-locking		yes	
P-008	Repeatability unidirectional		26.48 arcsec	
P-009	Repeatability bidirectional		40.216 arcmin	
P-010	Accuracy		15.216 arcmin	
P-011	Transmission accuracy		30.432 arcmin	
P-012	Resolution		0.018 °	
P-013	Torsional stiffness		3.80 $\frac{\text{Nm}}{\text{rad}}$	
P-014	Lost motion		40 arcmin	
P-015	Backlash		0 arcmin	
P-016	Rated torque	T	9 mNm	
P-017	Peak torque	T	19 mNm	
P-018	Momentary peak torque	T	47 mNm	
P-021	Rated input speed	n	1000 rpm	
P-022	Maximum input speed	n	1000 rpm	
P-023	Rated output speed	n	1 rpm	
P-024	Maximum output speed	n	1 rpm	
P-026	No-load starting torque	T	180 µNm	

Technical Supply Specifications: MaalonDrive® Space 10mm - Type 3



Micromotion GmbH, Phone: +49 (0) 6431 – 569 18 – 25, E-mail: sales@micromotion.de

Nr.	Parameter	Symbol	Value	Hint
P-027	No-load running torque	T	300 µNm	
P-028	Rated running torque	T	1890 µNm	
P-034	Lifetime for rated operation		200 h	
P-035	Radial backlash output shaft		0 µm	
P-036	Axial backlash output shaft		0 µm	
P-037	Radial stiffness	c	2.22 N/µm	
P-038	Axial stiffness	c	40 ^N /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	955 * 10 ⁻⁴ gcm ²	
P-056	Weight	m	15 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-63 °C	
P-058	Min. permissible ambient temperature (operating)	T	-63 °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-0.25-8-01-A2017 dry lubrication
(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	3000 rpm	
P-103	Resonance frequency of motor	f	140 Hz	
P-105	Holding torque of motor (unpowered)	T	0.2 mNm	

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Nr.	Parameter	Symbol	Value	Hint
P-109	Rated current of motor	I	250 mA	
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 _{th1}	3.9 °/W	
P-120	Thermal resistance of motor between housing and air	R _{th2}	53.8 °/W	
P-121	Thermal time constant of the coil of the motor	T _{w1}	3200 ms	
P-122	Thermal time constant of the housing of the motor	T _{w2}	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		MoS ₂ (drylubrication)	
P-902	Lubrication of input bearing gearbox		MoS ₂ (drylubrication)	
P-903	Lubrication of gear component set		DICRONITE®/MoS ₂ (drylubrication)	
P-904	Lubrication of bearing motor		MoS ₂ (drylubrication)	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-910	Material of input 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	

