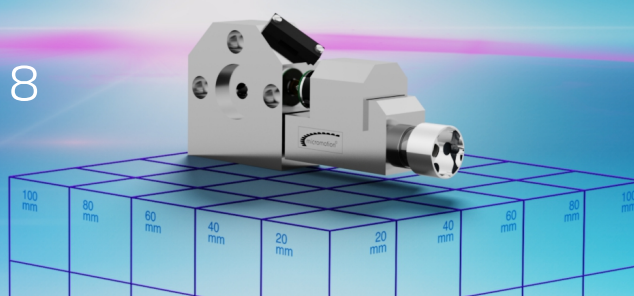


> MaalonDrive® Hollow 10mm - Type 8



Attributes

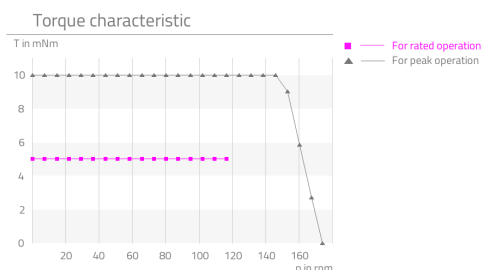
Highlights	Description
▪ Hollow shaft thru center of rotational axis ▪ Custom designed tool holder ▪ Integrated tool fitting ▪ Integrated vacuum supply for tool ▪ Preloaded ball bearing	The MaalonDrive® Hollow 10mm - type 8 micro positioning system combines hollow shaft, tool holder and vacuum supply in one system. The robust bearing of the output shaft and the ability to use a gripper tool directly in the input shaft via a magnetic coupling are the main highlights of this micro actuator solution. 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 precise and reliable micro gearbox is a zero-backlash MaalonDrive® gear with a reduction ratio of 160:1.

Technical parameter

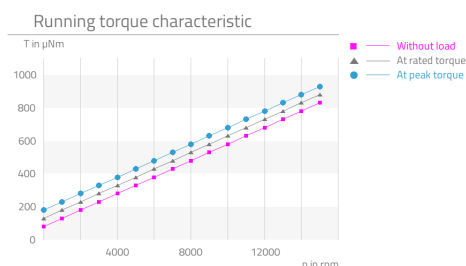
The stated values are based on calculations and measurements by Micromotion GmbH, carried out according to the current state of the art. You can find our definitions at www.micromotion-drives.com.

For further information please contact sales@micromotion.de.

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



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



Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	82.2857 : 1	
P-004	Self-locking		yes	
P-006	Hollow shaft		ja	
P-008	Repeatability unidirectional		54.375 arcsec	
P-009	Repeatability bidirectional		21.3125 arcmin	
P-010	Accuracy		14.625 arcmin	
P-011	Transmission accuracy		29.25 arcmin	
P-012	Resolution		0.21875 °	
P-013	Torsional stiffness		8.25 Nm/rad	
P-014	Lost motion		12 arcmin	
P-015	Backlash		0 arcmin	
P-016	Rated torque	T	5 mNm	
P-017	Peak torque	T	10 mNm	
P-018	Momentary peak torque	T	23 mNm	
P-021	Rated input speed	n	10000 rpm	
P-022	Maximum input speed	n	21000 rpm	
P-023	Rated output speed	n	121.528 rpm	
P-024	Maximum output speed	n	255.208 rpm	
P-026	No-load starting torque	T	120 μNm	

Technical Supply Specifications: MaalonDrive® Hollow 10mm - Type 8



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Nr.	Parameter	Symbol	Value	Hint
P-027	No-load running torque	T	80 µNm	
P-028	Rated running torque	T	645 µNm	
P-034	Lifetime for rated operation		1000 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 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 load)	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	960.01 * 10 ⁻⁶ gcm ²	
P-056	Weight	m	30 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-20 °C	
P-058	Min. permissible ambient temperature (operating)	T	0 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	80 °C	
P-060	Max. permissible ambient temperature (operating)	T	60 °C	
P-061	Tool fitting		Ø10h6 – 3.5 deep with magnetic fixation	
P-062	Connecting for vacuum supply		M5 – 2 deep	

Technical Supply Specifications: MaalonDrive® Hollow 10mm - Type 8



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Additional technical data:

- - Vacuum supply
- -magnetic Pick Tool Holder
- - axial spring-loaded

Motor data: Stepper AM 1020-2R-A0.25

(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	
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	τ _{w1}	3200 ms	
P-122	Thermal time constant of the housing of the motor	τ _{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		Longtime PD2	
P-902	Lubrication of input bearing gearbox		Longtime PD2	
P-903	Lubrication of gear component set		Molykote BR 2 plus	
P-904	Lubrication of bearing motor		Synthetic light ester oil	
P-908	Material of gear component set		NiFe	

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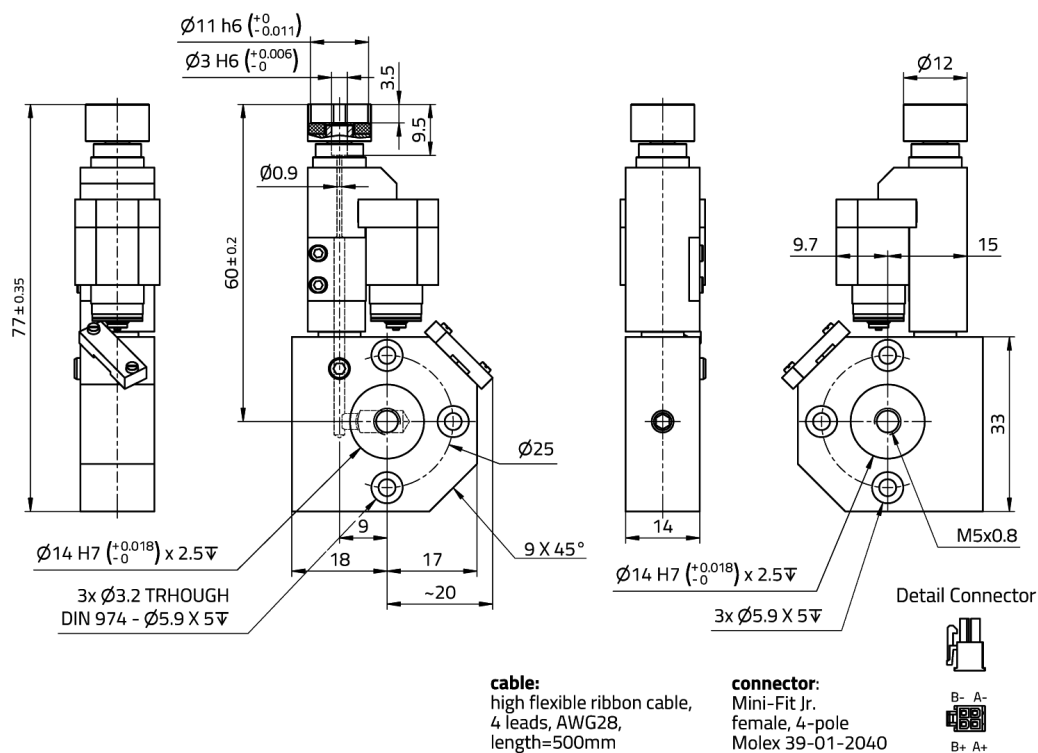
Nr.	Parameter	Symbol	Value	Hint
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-910	Material of input bearing gearbox		1.4108 DIN EN	
P-911	Material of bearing motor		Stainless steel	
P-912	Material of gearbox output side		1.4305 DIN EN	
P-913	Material of gearbox input side		1.4305 DIN EN	
P-914	Material of motor housing		Anodized aluminum	

Technical Supply Specifications: MaalonDrive® Hollow 10mm - Type 8



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Technical drawing



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