Technical Supply Specifications:
RasuunDrive® HighRange 10mm - Type 1

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Attributes

Highlights	Description
▪ **Compact build up** ▪ **Zero backlash at high adjustment speed** ▪ **Integrated limit switches** ▪ **High reliability** ▪ **Robust control without feedback system**	The RasuunDrive® HighRange 10mm - type 1 micro linear actuator is characterised by its short length with a travel range of 6 mm. It is driven by a stepper motor with 20 steps per rotation in an open loop control and is equipped with a zero-backlash MaalonDrive® gear with a reduction ratio of 120:1 that is directly connected to the motor as well as a spring-loaded, zero-backlash spindle nut system with a pitch of 0.4 mm. Two inductive limit sensors monitor the end positions. The mechanical interface for attaching the micro linear actuator system is an M6x0.5 thread; the load is connected via an M3x3.5 thread.

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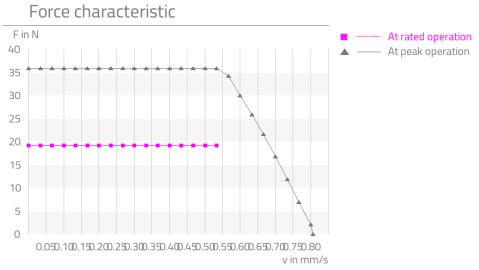
Technical parameter

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*10E-9 kg/m² in ¼ micro steps.



Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	120 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	6 mm	
P-008	Repeatability unidirectional		1 µm	
P-009	Repeatability bidirectional		5 µm	
P-010	Accuracy		12 µm	
P-012	Resolution		0.16667 µm	
P-014	Lost motion		5 µm	
P-015	Backlash		0 µm	
P-016	Rated force	F	19.2159 N	
P-017	Peak force	F	35.8696 N	
P-018	Momentary peak force	F	50 N	
P-021	Rated input speed	n	10000 rpm	
P-022	Maximum input speed	n	21000 rpm	
P-023	Rated speed	v	0.55556 $^{mm}/_{s}$	
P-024	Maximum speed	v	1.16667 $^{mm}/_{s}$	
P-034	Lifetime for rated operation		1000 h	
P-035	Radial backlash output shaft		0 µm	
P-036	Axial backlash output shaft		0 µm	

Nr.	Parameter	Symbol	Value	Hint
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	
P-055	Moment of inertia	I	925.01 * 10^{-4} gcm^2	
P-056	Weight	m	22 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-35 °C	
P-058	Min. permissible ambient temperature (operating)	T	-20 °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-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 $^K/_W$	
P-120	Thermal resistance of motor between housing and air	R_{th2}	53.8 $^K/_W$	
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	

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

Nr.	Parameter	Symbol	Value	Hint
P-302	Configuration Limit switches		n.c.	

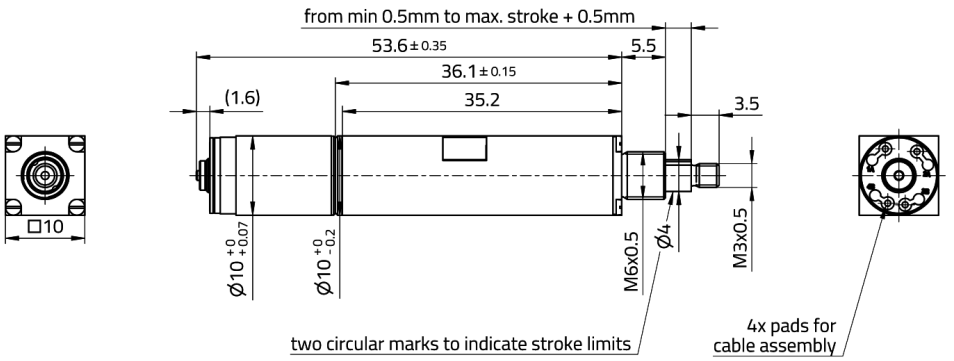
Spindle data: Precision spindle m 2x0.4 – 6 mm travel range
(Data are provided by the manufacturer or are based on the data sheets of the manufacturer)

Nr.	Parameter	Symbol	Value	Hint
P-402	Pitch	R	0.4 mm	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output 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-905	Lubrication of spindel-nut-system		Fomblin GRM60	
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	
P-917	Material of spindle		1.4305 DIN EN	

Technical drawing



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