



## Attributes

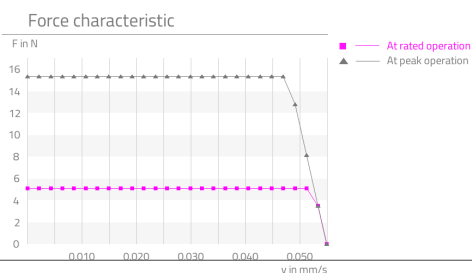
Highlights	Description
<ul style="list-style-type: none"> <li>▪ <b>Flexible integration</b></li> <li>▪ <b>Zero backlash at high resolution</b></li> <li>▪ <b>Integrated limit switches</b></li> <li>▪ <b>Adapter with cylindrical surface</b></li> <li>▪ <b>Robust control without feedback system</b></li> </ul>	<p>The RasuunDrive® HighRes 10mm - type 1 is a micro linear actuator system with a travel range of 12 mm. The drive train consists of a stepper motor with 20 steps per rotation, a zero-backlash MaalonDrive® gear with a reduction ratio of 500:1 and a spring-loaded, zero-backlash spindle nut system with a pitch of 0.4 mm. The linear movement is supported with a preloaded ball guide. The mechanical interface for attaching the micro linear actuator system is an M6x5 thread; the load is connected via an M3x3.5 thread.</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 nominal voltage and load inertia  
 $6 \cdot 10^{-9} \text{ kg/m}^2$  in  $\frac{1}{2}$  micro steps.



# Technical Supply Specifications: RasuunDrive® HighRes 10mm - Type 1



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Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	500 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	12 mm	
P-008	Repeatability unidirectional		1 µm	
P-009	Repeatability bidirectional		5 µm	
P-010	Accuracy		12 µm	
P-012	Resolution		0.04 µm	
P-014	Lost motion		5 µm	
P-015	Backlash		0 µm	
P-016	Rated force	F	5.12423 N	
P-017	Peak force	F	15.3727 N	
P-018	Momentary peak force	F	20.4969 N	
P-023	Rated speed	v	0.13333 mm/s	
P-024	Maximum speed	v	0.28 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	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	
P-055	Moment of inertia	I	1822 * 10 <sup>-4</sup> gcm <sup>2</sup>	
P-056	Weight	m	23 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	

Additional technical data:

- 2 digital limit sensors integrated

Motor data: Stepper AM 1020-RV-V3-16-01

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

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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	180 mA	
P-111	Rated voltage of motor	U	3 V	
P-112	Phase resistance of motor	R	16 ohm	
P-113	Inductance of motor	L	5.2 mH	
P-114	Amplitude BEMF of motor	U	0.867 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 °/W	
P-120	Thermal resistance of motor between housing and air	R <sub>th2</sub>	53.8 °/W	
P-121	Thermal time constant of the coil of the motor	τ <sub>w1</sub>	3200 ms	
P-122	Thermal time constant of the housing of the motor	τ <sub>w2</sub>	200000 ms	
P-123	Insulation voltage of motor	U	200 V	

## Encoder data

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

Nr.	Parameter	Symbol	Value	Hint
P-201	Impulses per revolution of encoder		10	
P-202	Channels of encoder		A, B	
P-203	Frequency range of encoder	f	7.2 kHz	
P-204	Operating voltage of encoder	U	5 ±0.5 V	
P-205	Rated current consumption of encoder	I	5 mA	
P-207	Signal/phase shifting of encoder		90±45 °	
P-208	Signal build-up/decay time of encoder	t	5 / 0.2	

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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 – 12 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

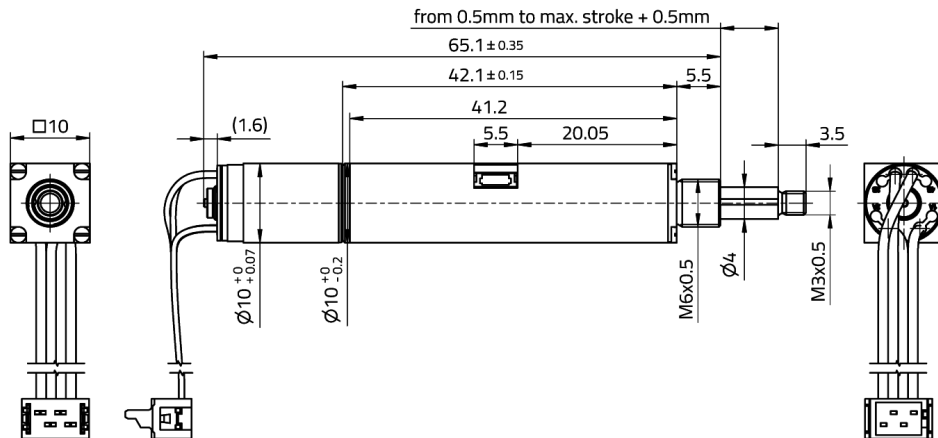
Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Longtime PD2	
P-903	Lubrication of gear component set		Molykote BR 2 plus	
P-904	Lubrication of bearing motor		Synthetic light ester oil	
P-905	Lubrication of spindel-nut-system		Fomblin GRM60	
P-908	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	

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## Technical drawing



Pin	Signal
1	Motor A+
2	Motor A-
3	Motor B+
4	Motor B-

**cable:**  
Ribbon cable,  
4 leads, AWG28,  
length=150mm

**connector (motor):**  
Micro MaTch, 4-pole  
TE / AMP 7-215083-4

Pin	Signal
1	LSN
2	GND
3	LSP
4	Vcc

**recommended connector (sensor):**  
socket, 4-pole, JST 04SUR-32S



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