



## Attributes

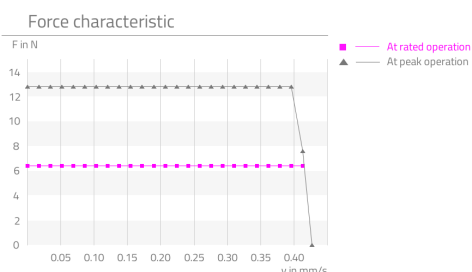
Highlights	Description
<ul style="list-style-type: none"><li>▪ <b>Compact build up</b></li><li>▪ <b>Zero backlash at optimised fit between speed and resolution</b></li><li>▪ <b>Adapter with thread</b></li><li>▪ <b>Integrated limit switches</b></li><li>▪ <b>Extreme power density</b></li></ul>	<p>The RasuunDrive® HighAcc 10mm - type 6 is a micro linear actuator system with a travel range of 6 mm. The drive train consists of a DC motor with rated voltage of 12V as well as an integrated encoder with a resolution of 256 pulses per rotation. Attached to the motor is a zero-backlash MaalonDrive® gear with a reduction ratio of 160:1 and a spring-loaded, zero-backlash spindle nut system with a pitch of 0.4 mm. Two magnetostrictive limit sensors are integrated for detecting the end position. The linear movement is supported with a preloaded ball guide. The mechanical interface for attaching the micro linear actuator system is an M6x0.5 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



Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	160 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	6 mm	
P-008	Repeatability unidirectional		1 $\mu\text{m}$	
P-009	Repeatability bidirectional		5 $\mu\text{m}$	
P-010	Accuracy		12 $\mu\text{m}$	
P-012	Resolution		0.00977 $\mu\text{m}$	
P-014	Lost motion		5 $\mu\text{m}$	
P-015	Backlash		0 $\mu\text{m}$	
P-016	Rated force	F	6.40529 N	
P-017	Peak force	F	12.8106 N	
P-018	Momentary peak force	F	29.4643 N	
P-023	Rated speed	v	0.41667 $\frac{\text{mm}}{\text{s}}$	
P-024	Maximum speed	v	0.58333 $\frac{\text{mm}}{\text{s}}$	
P-034	Lifetime for rated operation		500 h	
P-035	Radial backlash output shaft		0 $\mu\text{m}$	
P-036	Axial backlash output shaft		0 $\mu\text{m}$	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	

# Technical Supply Specifications: RasunDrive® HighAcc 10mm - Type 6



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Nr.	Parameter	Symbol	Value	Hint
P-055	Moment of inertia	I	1123 * 10 <sup>-4</sup> gcm <sup>2</sup>	
P-056	Weight	m	28 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-20 °C	
P-058	Min. permissible ambient temperature (operating)	T	-20 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	85 °C	
P-060	Max. permissible ambient temperature (operating)	T	65 °C	

Additional technical data:

- 2 digital limit sensors integrated

## Motor data: DC-Motor RE 10 6V 1.5W

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

Nr.	Parameter	Symbol	Value	Hint
P-100	Motortype		DC	
P-102	Maximum speed of motor	n	14000 rpm	
P-104	Speed constant of motor	Kn	2100 rpm/V	
P-106	Stall torque of motor	T	3.01 mNm	
P-107	Torque constant of motor	Km	4.56 mNm/A	
P-108	No-load current of motor	I	10.8 mA	
P-110	Max. continuous current of motor	I	339 mA	
P-111	Rated voltage of motor	U	6 V	
P-112	Phase resistance of motor	R	9.09 ohm	
P-113	Inductance of motor	L	0.077 mH	
P-114	Amplitude BEMF of motor	U	0.476 mV/rpm	
P-118	Max. coil temperature of motor	T	85 °C	
P-119	Thermal resistance of motor between coil and housing	R <sub>th1</sub>	9 K/W	
P-120	Thermal resistance of motor between housing and air	R <sub>th2</sub>	37.5 K/W	
P-121	Thermal time constant of the coil of the motor	T <sub>w1</sub>	2220 ms	
P-122	Thermal time constant of the housing of the motor	T <sub>w2</sub>	135000 ms	

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## 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		256	
P-202	Channels of encoder		A, A-, B, B-	
P-203	Frequency range of encoder	f	320 kHz	
P-204	Operating voltage of encoder	U	5 ±0.2 V	
P-206	Output current of encoder	I	5 mA	
P-207	Signal/phase shifting of encoder		90±45 °	

## 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-905	Lubrication of spindle-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		Sintered bronze	
P-912	Material of gearbox output side		1.4305 DIN EN	

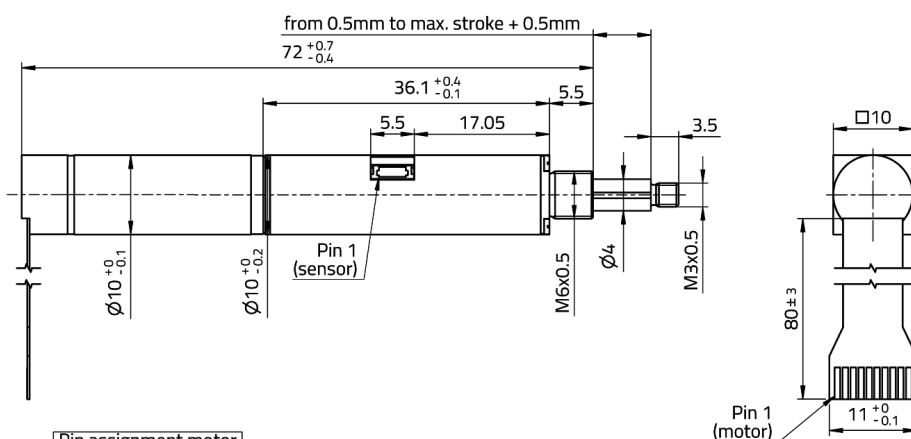
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Nr.	Parameter	Symbol	Value	Hint
P-914	Material of motor housing		Steel, black coated	
P-917	Material of spindle		1.4305 DIN EN	

## Technical drawing



Pin assignment motor	
Pin	Signal
1	Motor+
2	Vcc
3	GND
4	Motor-
5	Enc. A/
6	Enc. A
7	Enc. B/
8	Enc. B
9	n.c.
10	n.c.

**Flex PCB (motor):**  
 Thickness: 0,1mm  
 Bending radius 1mm min.  
 Thickness of pads area (stiffener)  
 0,3mm (±0,05), not flexible

**Recommended connectors (motor):**  
 Pitch: 1mm - FPC/FFC, 10 poles,  
 top contact style  
 Molex 52207-1033 or Tyco 1-84953-0

Pin assignment sensor	
Pin	Signal
1	LSN
2	GND
3	LSP
4	Vcc

**recommended connector (sensor):**  
 socket , 4-pole, JST 04SUR-325



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