



## Attributes

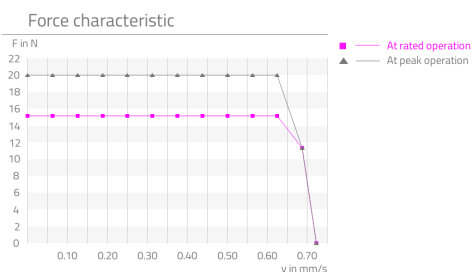
Highlights	Description
<ul style="list-style-type: none"><li>▪ <b>Vacuum suitable lubrication</b></li><li>▪ <b>Ball screw</b></li><li>▪ <b>Integrated limit switches</b></li><li>▪ <b>Custom designed housing</b></li><li>▪ <b>Robust control without feedback system</b></li></ul>	<p>Designed for use in high-vacuum environments and lubricated with Fomblin: The RasuunDrive® HighVac 8mm - type 2 micro linear actuator system is characterised, in particular, by its extremely short design. Thanks to the parallel arrangement of linear roller table and gear-spindle motor, an outstanding 10 mm travel range can be realised even with minimal axial length. The system is driven by a stepper motor with 20 steps per rotation in an open loop control. At its heart is a zero-backlash MaalonDrive® gear with a reduction ratio of 160:1 that is directly connected to the motor and drives a ball screw with a pitch of 1 mm. The end positions are monitored by two inductive limit sensors.</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 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-001	Vacuum suitable		HV	
P-003	Ratio	i	160 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	10 mm	
P-008	Repeatability unidirectional		0.75 $\mu\text{m}$	
P-009	Repeatability bidirectional		3 $\mu\text{m}$	
P-010	Accuracy		23 $\mu\text{m}$	
P-012	Resolution		0.3125 $\mu\text{m}$	
P-014	Lost motion		7.5 $\mu\text{m}$	
P-015	Backlash		0 $\mu\text{m}$	
P-016	Rated force	F	15.1516 N	
P-017	Peak force	F	20 N	
P-018	Momentary peak force	F	20 N	
P-023	Rated speed	v	1.04167 $\frac{\text{mm}}{\text{s}}$	
P-024	Maximum speed	v	2.1875 $\frac{\text{mm}}{\text{s}}$	
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	20 N	

# Technical Supply Specifications: RasuunDrive® HighVac 8mm - Type 2



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Nr.	Parameter	Symbol	Value	Hint
P-055	Moment of inertia	I	282 * 10 <sup>-4</sup> gcm <sup>2</sup>	
P-056	Weight	m	22 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-30 °C	
P-058	Min. permissible ambient temperature (operating)	T	-10 °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:

- Output shaft is sealed by teflon washers and epoxy and cable:PVC ribbon with color code

## Motor data: Stepper AM 0820-2R-A0.225

(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	170 Hz	
P-105	Holding torque of motor (unpowered)	T	0.17 mNm	
P-109	Rated current of motor	I	225 mA	
P-111	Rated voltage of motor	U	2 V	
P-112	Phase resistance of motor	R	7.3 ohm	
P-113	Inductance of motor	L	1.4 mH	
P-114	Amplitude BEMF of motor	U	0.267 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	0.21 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>	4.1 °C/W	
P-120	Thermal resistance of motor between housing and air	R <sub>th2</sub>	65.3 °C/W	
P-121	Thermal time constant of the coil of the motor	τ <sub>w1</sub>	3500 ms	
P-122	Thermal time constant of the housing of the motor	τ <sub>w2</sub>	160000 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: Ball screw MLP-8-SPM0052 – 10 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	1 mm	

## Material information

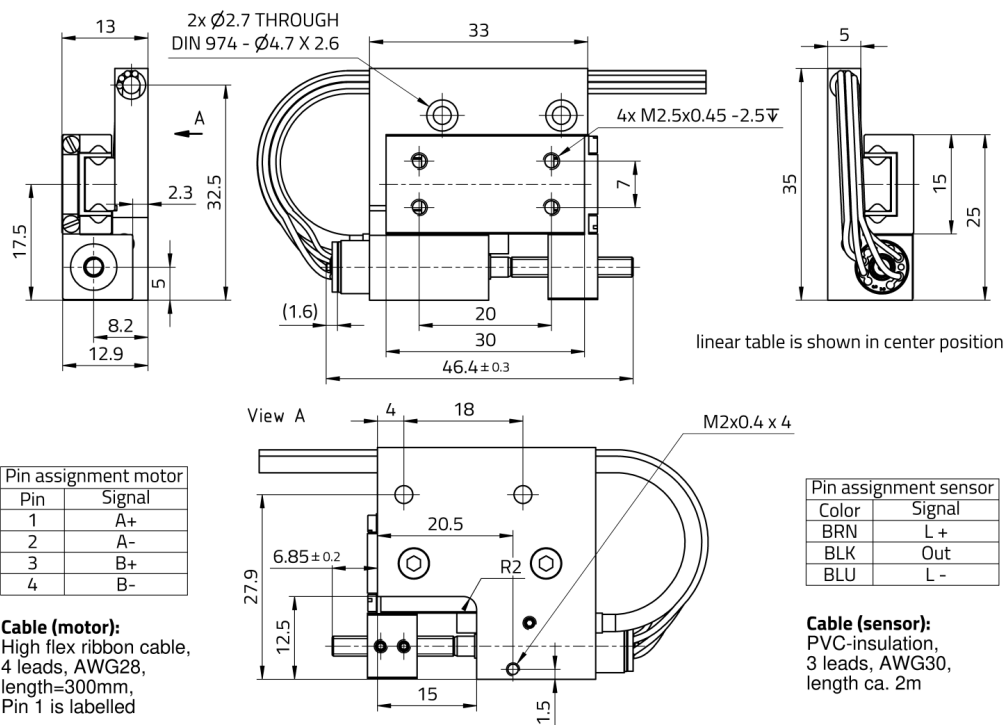
Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		FomblinGRM60	
P-903	Lubrication of gear component set		FomblinGRM60	
P-904	Lubrication of bearing motor		FomblinGRM60	
P-905	Lubrication of spindle-nut-system		FomblinGRM60	
P-908	Material of gear 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		100Cr6	

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## Technical drawing



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