

# > RasuunDrive®

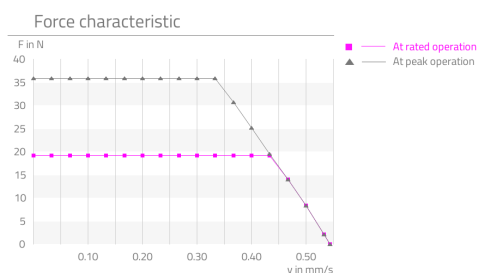
## HighVac 10mm - Type 10

### Attributes

Highlights	Description
<ul style="list-style-type: none"><li>▪ <b>Zero backlash at high speed</b></li><li>▪ <b>Vacuum suitable lubrication</b></li><li>▪ <b>Adapter with thread</b></li><li>▪ <b>Integrated limit switches</b></li><li>▪ <b>Robust control without feedback system</b></li></ul>	<p>The RasuunDrive® HighVac 10mm - type 10 is characterised by its compact outer dimension with a travel range of 12 mm; it was specially designed for use in high-vacuum environments and is lubricated with Braycote. The micro positioning system is driven by a stepper motor with 20 steps per rotation in an open loop control. A zero- backlash MaalonDrive® gear with a reduction ratio of 120:1 comprises the core of the system; it is directly connected to the motor and drives a spring-loaded, zero-backlash spindle nut system with a pitch of 0.4 mm. The mechanical interface for attaching the micro linear actuator system is an M6x0.5 thread; the load is connected via an ball tip.</p>

## Technical parameter

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	120 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	12 mm	
P-008	Repeatability unidirectional		1.5 $\mu\text{m}$	
P-009	Repeatability bidirectional		7.5 $\mu\text{m}$	
P-010	Accuracy		12 $\mu\text{m}$	
P-012	Resolution		0.16667 $\mu\text{m}$	
P-014	Lost motion		7.5 $\mu\text{m}$	
P-015	Backlash		0 $\mu\text{m}$	
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-023	Rated speed	v	0.55556 $\frac{\text{mm}}{\text{s}}$	
P-024	Maximum speed	v	1.16667 $\frac{\text{mm}}{\text{s}}$	
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	
P-055	Moment of inertia	I	$925.01 \cdot 10^{-4} \text{ gcm}^2$	
P-056	Weight	m	22 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-72 $^{\circ}\text{C}$	

# Technical Supply Specifications: RasuunDrive® HighVac 10mm - Type 10



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Nr.	Parameter	Symbol	Value	Hint
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	

## Motor data: Stepper AM 1020-RC-A-0.25-8-01\*

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 <sub>th1</sub>	3.9 <sup>K</sup> /W	
P-120	Thermal resistance of motor between housing and air	R <sub>th2</sub>	53.8 <sup>K</sup> /W	
P-121	Thermal time constant of the coil of the motor	T <sub>w1</sub>	3200 ms	
P-122	Thermal time constant of the housing of the motor	T <sub>w2</sub>	200000 ms	
P-123	Insulation voltage of motor	U	200 V	

## Data limit switch

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

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## Spindle data: Precision spindle m 2x0.4 – 12 mm travel range

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

## Data linear bearing Lsag4 UHV

Nr.	Parameter	Symbol	Value	Hint
P-601	Max. lateral force in y-direction (non-operating, constant load)	F	5 N	

## Material information

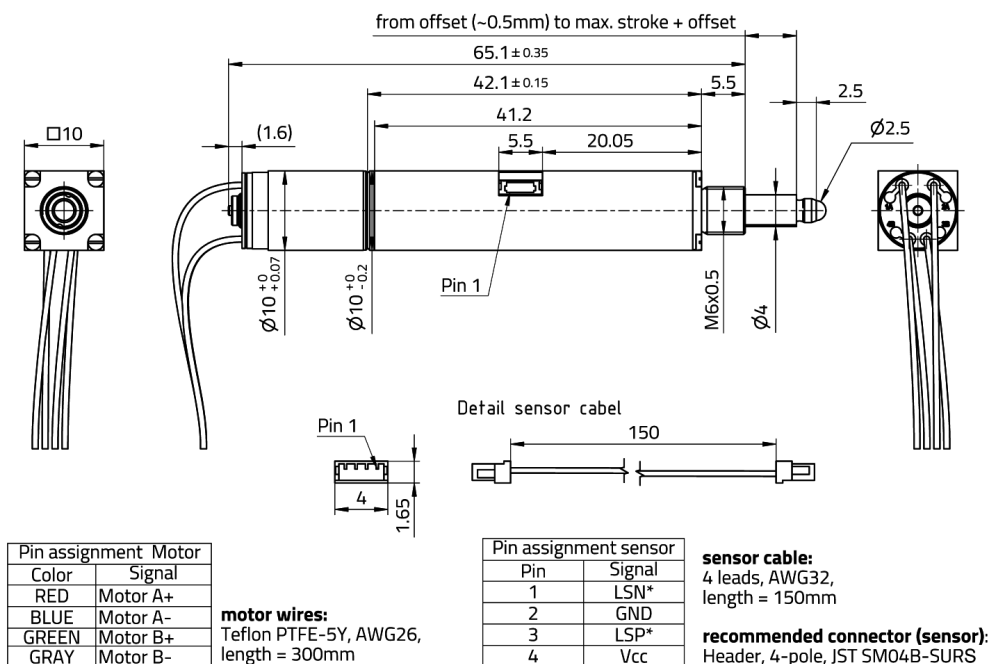
Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Braycote601EF	
P-903	Lubrication of gear component set		Braycote601EF	
P-904	Lubrication of bearing motor		Braycote601EF	
P-905	Lubrication of spindle-nut-system		Braycote601EF	
P-908	Material of gear 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



\*) LSN = limit sensor negativ  
LSP = limit sensor positiv



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