

> RasuunDrive®

BallScrew 10mm - Type 21

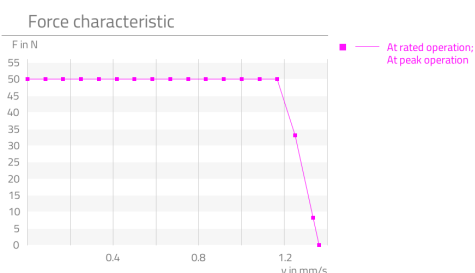
Attributes

Highlights	Description
▪ Ball screw ▪ Vacuum suitable lubrication ▪ Zero backlash at high adjustment speed ▪ Robust control without feedback system ▪ Flexible integration	The vacuum-compatible RasuunDrive® BallScrew 10mm - Type 21 consists of a stepper motor with 20 steps per revolution, a MaalonDrive® gearbox and a ball screw. Core is the backlash-free MaalonDrive® gearbox with a reduction ratio of 120: 1. The ball screw offers a max. travel range of 15mm with a pitch of 1 mm per turn and is integrated directly into the bearing of the gear output shaft. All components and lubricants are suitable for operation in high vacuum.

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 $6 \cdot 10^{-9} \text{ kg/m}^2$ in $\frac{1}{4}$ micro steps.



Technical Supply Specifications: RasunDrive® BallScrew 10mm - Type 21



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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	15 mm	
P-008	Repeatability unidirectional		0.75 µm	
P-009	Repeatability bidirectional		3 µm	
P-010	Accuracy		20 µm	
P-012	Resolution		0.41667 µm	
P-014	Lost motion		15 µm	
P-015	Backlash		5 µm	
P-016	Rated force	F	50 N	
P-017	Peak force	F	50 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	1.3889 mm/s	
P-024	Maximum speed	v	2.9167 mm/s	
P-034	Lifetime for rated operation		500 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	925.02 * 10 ⁻⁴ gcm ²	
P-056	Weight	m	17 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-72 °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	

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

(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	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 ^{°C} /W	
P-120	Thermal resistance of motor between housing and air	R _{th2}	53.8 ^{°C} /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	

Spindle data: Ball screw – 15 mm travel range pitch 1 mm 1112. /1.3.30.39R P5*
(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		Braycote601EF	
P-903	Lubrication of gear component set		Braycote601EF	
P-904	Lubrication of bearing motor		Braycote 815Z	

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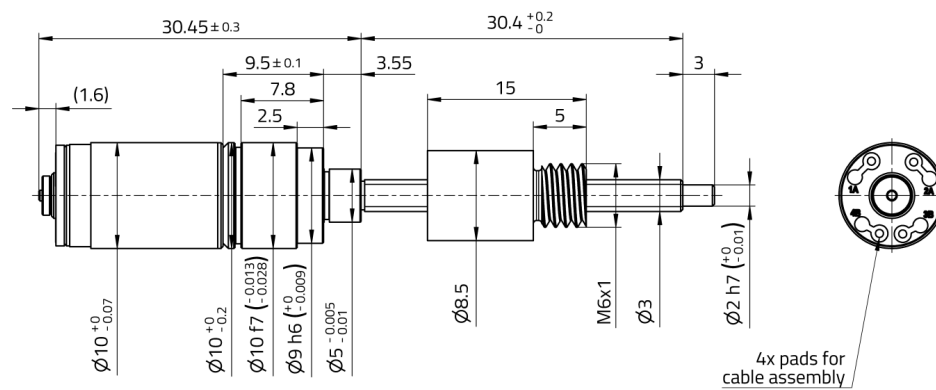
Nr.	Parameter	Symbol	Value	Hint
P-905	Lubrication of spindel-nut-system		Braycote601EF	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-911	Material of bearing motor		Stainless steel	
P-912	Material of gearbox output side		1.4305 DIN EN	
P-914	Material of motor housing		Anodized aluminum	
P-917	Material of spindle		1.4034	

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Technical drawing



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