

> RasuunDrive®

BallScrew 10mm - Type 13

Attributes

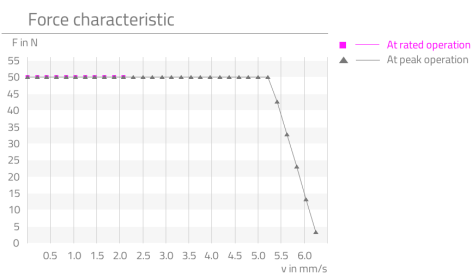
Highlights	Description
<ul style="list-style-type: none">▪ Flexible integration▪ Wide travel range▪ Easy controllability▪ Ball screw▪ Transmission ratio optimized to torque	<p>The RasuunDrive® BallScrew 10mm - type 13 provides an impressive travelrange of up to 20 mm. This is possible thanks to the combination of a EC Motor, an encoder with 1024 Impulses per revolution and with a sturdy, low backlash CoograDrive® gear and a ball screw. The CoograDrive® gear comes with a reduction ratio of 80:1, directly integrated in the bearing of the gear output shaft is the ball screw with a pitch of 1 mm.</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.

For further information please contact sales@micromotion.de.

P-019



Technical Supply Specifications: RasunDrive® BallScrew 10mm - Type 13



Micromotion GmbH, Phone: +49 (0) 6431 – 569 18 – 25, E-mail: sales@micromotion.de

Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	80 : 1	
P-004	Self-locking		yes	
P-005	Travel range	s	20 mm	
P-008	Repeatability unidirectional		0.5 µm	
P-009	Repeatability bidirectional		2 µm	
P-010	Accuracy		20 µm	
P-012	Resolution		0.01221 µm	
P-014	Lost motion		10 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	30000 rpm	
P-023	Rated speed	v	2.08333 mm/s	
P-024	Maximum speed	v	6.25 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	660.05 * 10 ⁻⁴ gcm ²	
P-056	Weight	m	28 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-40 °C	
P-058	Min. permissible ambient temperature (operating)	T	-20 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	125 °C	
P-060	Max. permissible ambient temperature (operating)	T	100 °C	

Motor data: EC-Motor 1028S006B

(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		EC	
P-102	Maximum speed of motor	n	79000 rpm	1)
P-104	Speed constant of motor	K_n	5426 $\frac{\text{rpm}}{\text{V}}$	
P-106	Stall torque of motor	T	9.72 mNm	
P-107	Torque constant of motor	K_m	1.76 $\frac{\text{mNm}}{\text{A}}$	
P-108	No-load current of motor	I	121 mA	
P-110	Max. continuous current of motor	I	1160 mA	2)
P-111	Rated voltage of motor	U	6 V	
P-112	Phase resistance of motor	R	1.08 ohm	
P-113	Inductance of motor	L	0.024 mH	
P-114	Amplitude BEMF of motor	U	0.184 mV/rpm	
P-118	Max. coil temperature of motor	T	125 °C	
P-119	Thermal resistance of motor between coil and housing	R_{th1}	6.6 $\frac{\text{K}}{\text{W}}$	1)
P-120	Thermal resistance of motor between housing and air	R_{th2}	42.4 $\frac{\text{K}}{\text{W}}$	
P-121	Thermal time constant of the coil of the motor	τ_{w1}	4200 ms	1)
P-122	Thermal time constant of the housing of the motor	τ_{w2}	152000 ms	

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		1024	
P-202	Channels of encoder		A, B, I	
P-203	Frequency range of encoder	f	500 kHz	
P-204	Operating voltage of encoder	U	5 ±0.5 V	
P-205	Rated current consumption of encoder	I	max. 23	3)
P-206	Output current of encoder	I	4 mA	4)
P-207	Signal/phase shifting of encoder		90±75 °	5)
P-208	Signal build-up/decay time of encoder	t	0.1/0.1	

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Spindle data: Ball screw – 20 mm travel range pitch 1 mm 1112. /1.3.35.44R P5*
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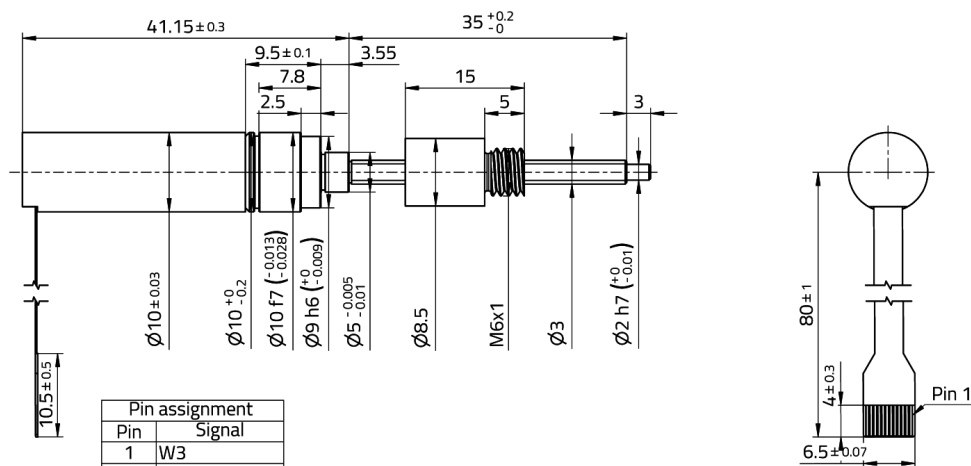
Nr.	Parameter	Symbol	Value	Hint
P-402	Pitch	R	1 mm	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Longtime PD2	
P-903	Lubrication of gear component set		Molykote BR 2 plus	
P-905	Lubrication of spindel-nut-system		Isoflex NBU 15	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-912	Material of gearbox output side		1.4305 DIN EN	
P-914	Material of motor housing		Aluminium	
P-917	Material of spindle		1.4034	

- 2) Curve measured with nominal voltage and load inertia $6 \cdot 10^{-9} \text{ kg/m}^2$ in $\frac{1}{2}$ micro steps.
- 3) Supply = 5V; unloaded outputs
- 4) Supply = 5V; low logic level <0.4V, high logic level >4.5V; CMOS and TTL compatible
- 5) At 5000 rpm

Technical drawing



Pin assignment	
Pin	Signal
1	W3
2	W2
3	W1
4	GND
5	Vcc
6	Hall 3
7	Hall 2
8	Hall 1
9	Enc. B
10	Enc. A
11	Enc. I
12	n.c.

Flex PCB

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

Recommended connectors

Pitch: 0.5mm - FPC/FFC, 12 poles,
 Molex 52745-1297

