



Attributes

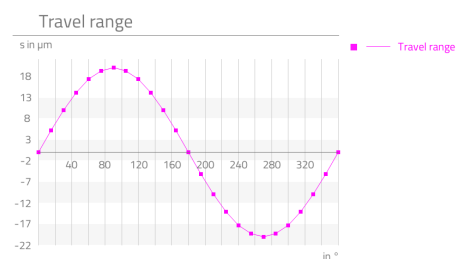
Highlights	Description
▪ Zero backlash at ultra high resolution ▪ Integrated flexure hinghes ▪ Robust control without feedback system ▪ Connecting cable assembled ▪ Step with in the range of single nm	The KeevoDrive® HighAcc 20mm - type 1 micro positioning system combines an eccentric input system with flexure hinge kinematics, thereby allowing movements to be realised in the single-digit nanometre range. The flexure hinge kinematics consists, on the one hand, of a lever system for further reducing the movement and, on the other, of linear guides for connecting the application. The system can easily be operated in an open loop control, as it is driven by a stepper motor with 20 steps per rotation. At the core of this micro system is a zero-backlash MaalonDrive® gear with a reduction ratio of 1000:1.

Technical parameter

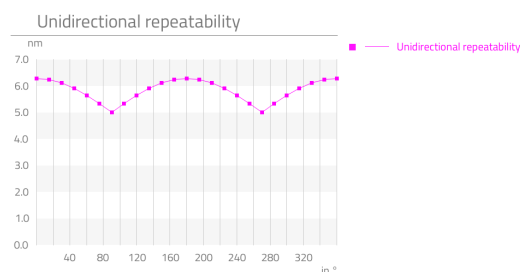
The stated values are based on calculations and measurements by Micromotion GmbH, carried out according to the current state of the art. You can find our definitions at www.micromotion-drives.com.

For further information please contact sales@micromotion.de.

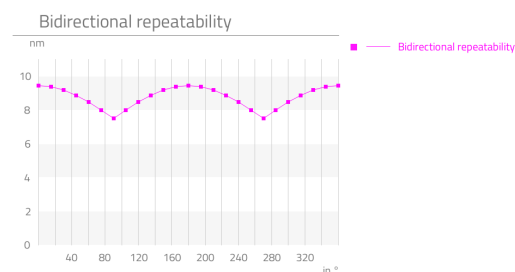
P-005



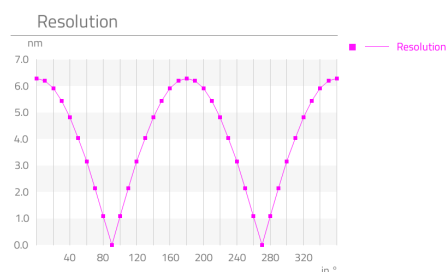
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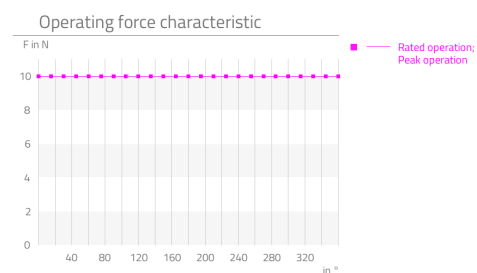
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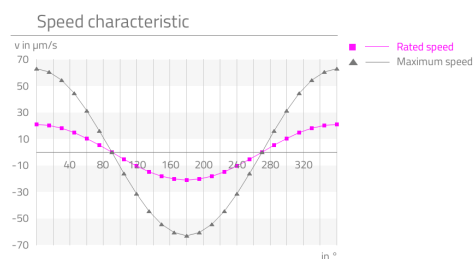
P-012



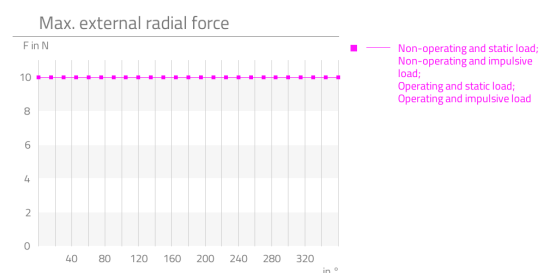
P-016



P-502



P-512



Technical Supply Specifications: KeevoDrive® HighAcc 20mm - Type 1



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Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	1000 : 1	
P-004	Self-locking		yes	
P-005	Max. travel range	s	40 µm	
P-015	Backlash		0 µm	
P-016	Rated force	F	9 N	
P-017	Peak force	F	19 N	
P-018	Momentary peak force	F	47 N	
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-037	Radial stiffness	c	69.13 N/µm	
P-038	Axial stiffness	c	40 N/µm	
P-039	Max. radial load on output shaft (non-operating, constant load)	F	435 N	
P-040	Max. radial load on output shaft (non-operating, impulsive load)	F	145 N	
P-041	Max. radial load on output shaft (operating, constant load)	F	98 N	
P-042	Max. radial load on output shaft (operating, impulsive load)	F	98 N	
P-043	Max. axial load on output shaft (non-operating, constant load)	F	150 N	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	
P-045	Max. axial load on output shaft (operating, constant load)	F	380 N	
P-046	Max. axial load on output shaft (operating, impulsive load)	F	127 N	
P-055	Moment of inertia	I	955 * 10 ⁻⁴ gcm ²	
P-056	Weight	m	54 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-35 °C	
P-058	Min. permissible ambient temperature (operating)	T	-20 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	130 °C	
P-060	Max. permissible ambient temperature (operating)	T	70 °C	

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KeevoDrive® HighAcc 20mm - Type 1



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Motor data: Stepper AM 1020-2R-A0.25

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

Excenter data

Nr.	Parameter	Symbol	Value	Hint
P-501	Eccentricity		1000 μm	
P-504	Max. radial load on eccentric bearing (non-operating, constant load)	F	19 N	
P-505	Max. radial load on eccentric bearing (non-operating, impulsive load)	F	19 N	
P-506	Max. radial load on eccentric bearing (operating, constant load)	F	19 N	
P-507	Max. radial load on eccentric bearing (operating, impulsive load)	F	19 N	

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Nr.	Parameter	Symbol	Value	Hint
P-508	Max. axial load on eccentric bearing (non-operating, constant load)	F	150 N	
P-509	Max. axial load on eccentric bearing (non-operating, impulsive load)	F	50 N	
P-510	Max. axial load on eccentric bearing (operating, constant load)	F	380 N	
P-511	Max. axial load on eccentric bearing (operating, impulsive load)	F	127 N	
P-513	Eccentricity error		20 µm	

Data flexure hinges

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

Nr.	Parameter	Symbol	Value	Hint
P-701	Flexure hinge ratio	i	50	
P-702	Max. load on flexure hinges	F	10 N	
P-703	Angular position of eccentric at min. position	α	0 °	
P-704	Angular position of eccentric at max. position	α	360 °	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Longtime PD2	
P-902	Lubrication of input bearing gearbox		Fomblin GRM60	
P-903	Lubrication of gear component set		Molykote BR 2 plus	
P-904	Lubrication of bearing motor		Synthetic light ester oil	
P-907	Lubrication of eccentric bearing		Longtime PD2	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-910	Material of input 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	

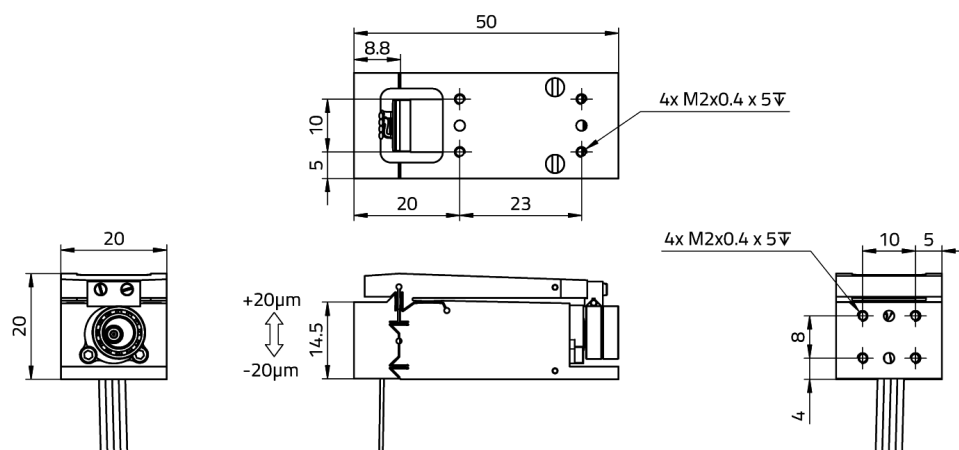
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Nr.	Parameter	Symbol	Value	Hint
P-914	Material of motor housing		Anodized aluminum	
P-915	Material of eccentric bearing		1.4108 DIN EN	

Technical drawing



Pin assignment	
Pin	Signal
1	Motor A+
2	Motor A-
3	Motor B+
4	Motor B-

cable:
high flexible ribbon cable,
4 leads, AWG28,
length=300mm,
Pin 1 is labelled



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