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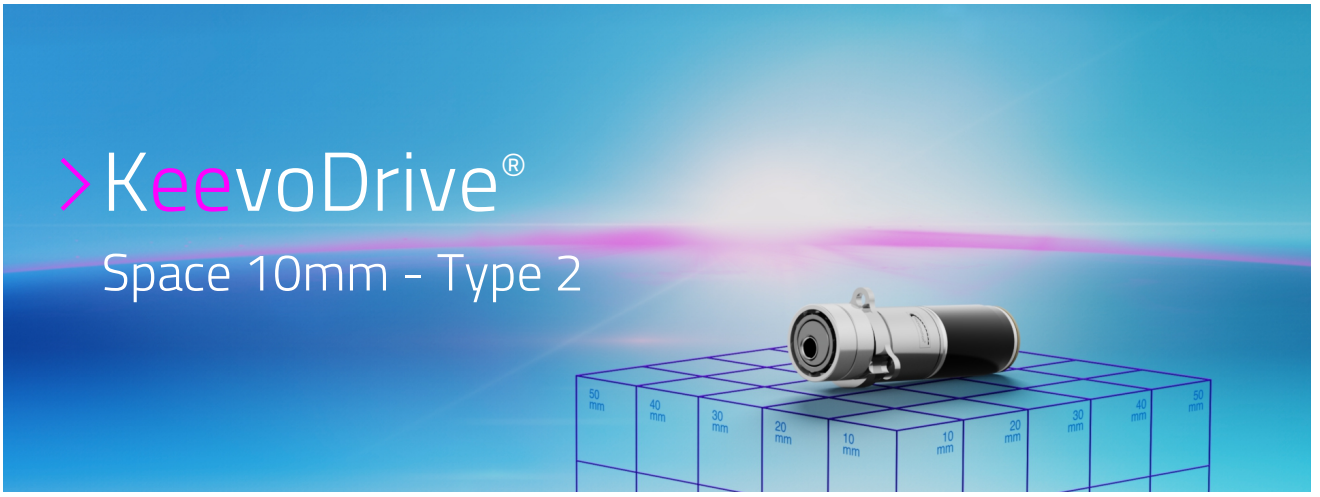

Attributes

Highlights	Description
▪ **Zero backlash at optimised fit between speed and resolution** ▪ **Dry lubrication due to coatings** ▪ **Suitable in wide temperature range** ▪ **Step with in the range of nm** ▪ **Robust control without feedback system**	Dry lubrication, compact outer dimensions and low weight - the KeevoDrive® Space 10mm - type 2. Thanks to the dry lubrication and the materials that are used, this micro positioning system is especially well suited for applications in extreme environmental conditions. Whether in ultra-high-vacuum environments or at extreme temperatures, the positioning unit can be reliably and easily operated in an open loop control thanks to its stepper motor with 20 steps per rotation. The system has an eccentricity of 1000 µm, thereby making possible a travel range of up to 2000 µm. At the heart of this precise and reliable micro system is a zero-backlash MaalonDrive® gear with a reduction ratio of 160:1.

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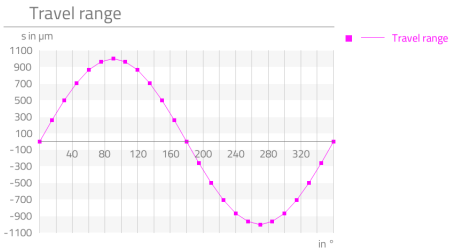
Technical parameter

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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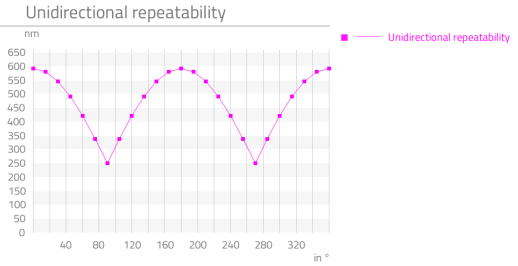

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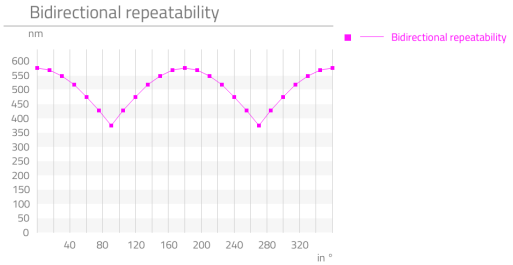

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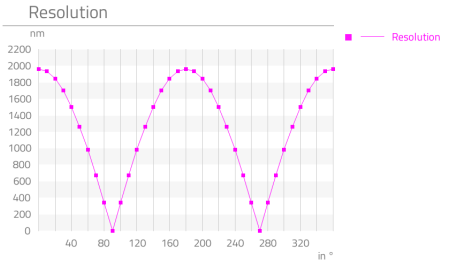

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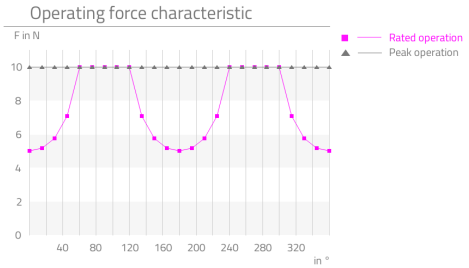

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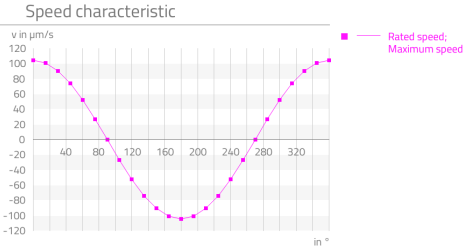
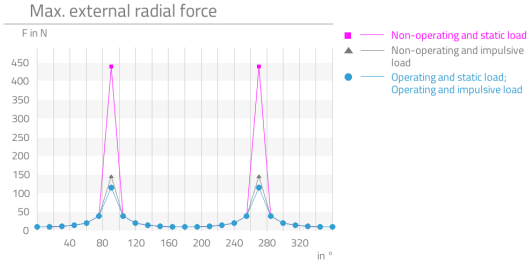


P-512



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Nr.	Parameter	Symbol	Value	Hint
P-001	Vacuum suitable		UHV	
P-003	Ratio	i	160 : 1	
P-004	Self-locking		yes	
P-005	Max. travel range	s	2000 µm	
P-014	Lost motion		7.0008 µm	
P-015	Backlash		0 µm	
P-016	Rated force	F	5 N	
P-017	Peak force	F	10 N	
P-018	Momentary peak force	F	23 N	
P-034	Lifetime for rated operation		200 h	
P-035	Radial backlash output shaft		0 µm	
P-036	Axial backlash output shaft		0 µm	
P-037	Radial stiffness	c	70.09 N/µm	
P-038	Axial stiffness	c	40 N/µm	
P-039	Max. radial load on output shaft (non-operating, constant load)	F	440 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	115 N	
P-042	Max. radial load on output shaft (operating, impulsive load)	F	115 N	
P-043	Max. axial load on output shaft (non-operating, constant	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	$923 * 10^{-4}$ gcm^2	
P-056	Weight	m	15 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-63 °C	
P-058	Min. permissible ambient temperature (operating)	T	-63 °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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Motor data: Stepper AM 1020-2R-A-0.25-8-01-A2017 dry lubrication

(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	3000 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 $^{K}/_{W}$	
P-120	Thermal resistance of motor between housing and air	R_{th2}	53.8 $^{K}/_{W}$	
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	10 N	
P-505	Max. radial load on eccentric bearing (non-operating, impulsive load)	F	10 N	
P-506	Max. radial load on eccentric bearing (operating, constant load)	F	10 N	
P-507	Max. radial load on eccentric bearing (operating, impulsive load)	F	10 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	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		MoS_2(drylubrication)	
P-903	Lubrication of gear component set		DICRONITE®/MoS_2(drylubrication)	
P-904	Lubrication of bearing motor		MoS_2(drylubrication)	
P-907	Lubrication of eccentric bearing		MoS_2(drylubrication)	
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-915	Material of eccentric bearing		1.4108 DIN EN	

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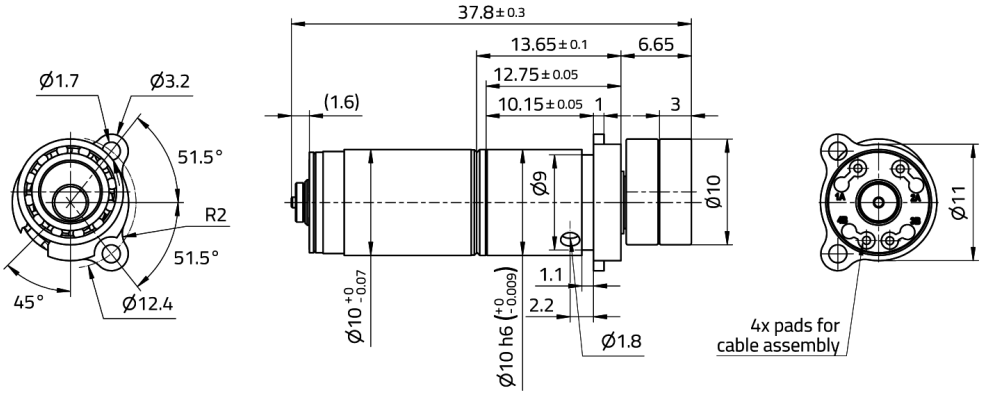
Technical drawing



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