



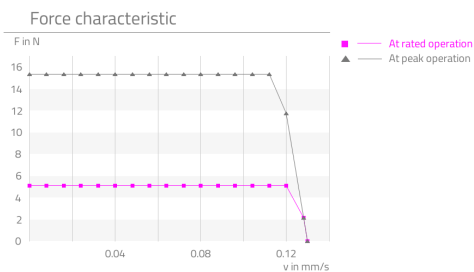
Attributes

| Highlights | Description |
|--|--|
| <ul style="list-style-type: none">▪ Vacuum suitable lubrication▪ Zero backlash at high resolution▪ Integrated limit switches▪ Adapter with thread▪ Robust control without feedback system | <p>Designed for use in high-vacuum environments, the RasuunDrive® HighVac 10mm - type 8 micro linear actuator system offers a travel range of 6 mm and is driven by a stepper motor with 20 steps per rotation. At its heart is a zero-backlash MaalonDrive® gear with a reduction ratio of 500:1 by means of which the spring-loaded, zero-backlash spindle nut system with a pitch of 0.4 mm is driven. In an open loop control, a resolution in the nanometre range can thereby be realised. The micro linear actuator system is attached by means of an M6x0.5 thread.</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 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 | 500 : 1 | |
| P-004 | Self-locking | | yes | |
| P-005 | Travel range | s | 6 mm | |
| P-008 | Repeatability unidirectional | | 1.5 μm | |
| P-009 | Repeatability bidirectional | | 7.5 μm | |
| P-010 | Accuracy | | 12 μm | |
| P-012 | Resolution | | 0.04 μm | |
| P-014 | Lost motion | | 7.5 μm | |
| P-015 | Backlash | | 0 μm | |
| P-016 | Rated force | F | 5.12423 N | |
| P-017 | Peak force | F | 15.3727 N | |
| P-018 | Momentary peak force | F | 20.4969 N | |
| P-023 | Rated speed | v | 0.13333 $\frac{\text{mm}}{\text{s}}$ | |
| P-024 | Maximum speed | v | 0.28 $\frac{\text{mm}}{\text{s}}$ | |
| 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 | |

Technical Supply Specifications: RasuunDrive® HighVac 10mm - Type 8



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| Nr. | Parameter | Symbol | Value | Hint |
|-------|--|--------|--|------|
| P-055 | Moment of inertia | I | 922 * 10 ⁻⁴ gcm ² | |
| P-056 | Weight | m | 22 g | |
| P-057 | Min. permissible ambient temperature (non-operating) | T | -35 °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 | |

Additional technical data:

- 2 digital limit sensors integrated

Motor data: Stepper AM 1020-RC-A-0.25-8-10-1977

(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 | |

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Data limit switch

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

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

Spindle data: Precision spindle m 2x0.4 – 6 mm travel range

(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 | 0.4 mm | |

Material information

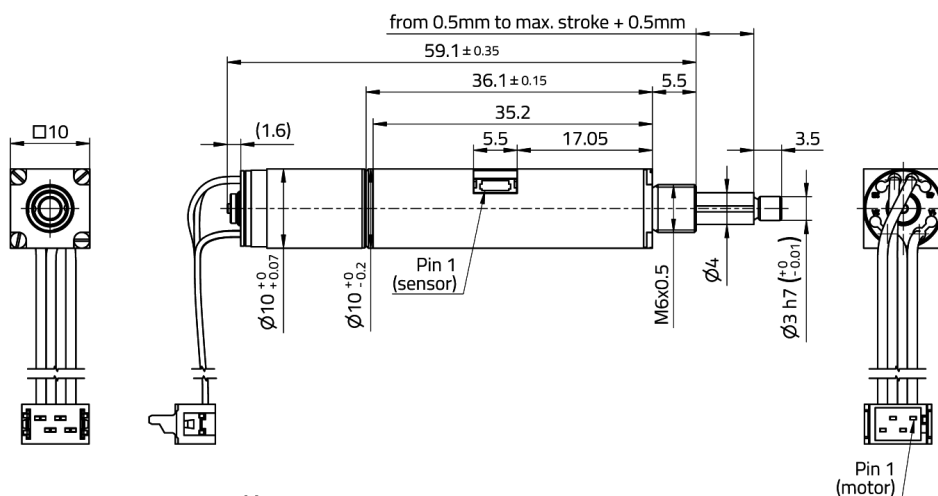
| Nr. | Parameter | Symbol | Value | Hint |
|-------|---------------------------------------|--------|-------------------|------|
| P-900 | RoHS compliant | | yes | |
| P-901 | Lubrication of output bearing gearbox | | FomblinGRM60 | |
| P-903 | Lubrication of gear component set | | FomblinGRM60 | |
| P-904 | Lubrication of bearing motor | | FomblinGRM60 | |
| P-905 | Lubrication of spindle-nut-system | | FomblinGRM60 | |
| 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



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

cable:
Ribbon cable,
4 leads, AWG28,
length=150mm

connector (motor):
Micro MaTch, 4-pole
TE / AMP 7-215083-4

| Pin | Signal |
|-----|--------|
| 1 | LSN |
| 2 | GND |
| 3 | LSP |
| 4 | Vcc |

recommended connector (sensor):
socket, 4-pole, JST 04SUR-32S



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