

# > RasuunDrive®

## UHV 19mm - Type 4

### Attributes

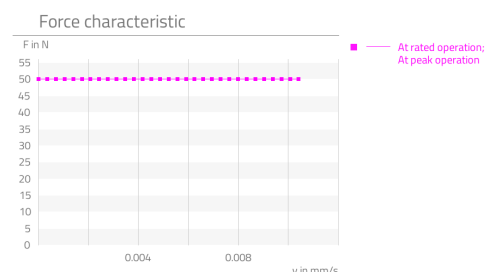
| Highlights                                                                                                                                                                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>▪ <b>Dry lubrication due to coatings</b></li><li>▪ <b>Ball screw</b></li><li>▪ <b>High adjustment force</b></li><li>▪ <b>Adapter with thread</b></li><li>▪ <b>Use of high quality materials</b></li></ul> | <p>The RasuunDrive® UHV 19mm - type 4 was designed as a micro linear actuator system for ultra-high-vacuum environments and offers a travel range of 25 mm. The system is driven by a stepper motor with 200 steps per rotation in an open loop control. At its core is a CoograDrive® gear with a reduction ratio of 80:1 by means of which a dry-lubricated ball-screw drive with a pitch of 0.5 mm is driven. The micro linear actuator system is attached by means of a 3/8" - 40 UNS thread; the load is coupled via a spherical surface.</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](http://www.micromotion-drives.com).

For further information please contact [sales@micromotion.de](mailto:sales@micromotion.de).

### P-019



| Nr.   | Parameter                                                       | Symbol | Value                                | Hint |
|-------|-----------------------------------------------------------------|--------|--------------------------------------|------|
| P-001 | Vacuum suitable                                                 |        | UHV                                  |      |
| P-003 | Ratio                                                           | i      | 80 : 1                               |      |
| P-004 | Self-locking                                                    |        | yes                                  |      |
| P-005 | Travel range                                                    | s      | 25.5 mm                              |      |
| P-008 | Repeatability unidirectional                                    |        | 1 µm                                 |      |
| P-009 | Repeatability bidirectional                                     |        | 4 µm                                 |      |
| P-010 | Accuracy                                                        |        | 20 µm                                |      |
| P-012 | Resolution                                                      |        | 0.03125 µm                           |      |
| P-014 | Lost motion                                                     |        | 10 µm                                |      |
| P-015 | Backlash                                                        |        | 0.01 µm                              |      |
| P-016 | Rated force                                                     | F      | 50 N                                 |      |
| P-017 | Peak force                                                      | F      | 50 N                                 |      |
| P-018 | Momentary peak force                                            | F      | 50 N                                 |      |
| P-023 | Rated speed                                                     | v      | 0.01042 $\frac{\text{mm}}{\text{s}}$ |      |
| P-024 | Maximum speed                                                   | v      | 0.01042 $\frac{\text{mm}}{\text{s}}$ |      |
| 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-044 | Max. axial load on output shaft (non-operating, impulsive load) | F      | 50 N                                 |      |

# Technical Supply Specifications: RasunDrive® UHV 19mm - Type 4



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| Nr.   | Parameter                                            | Symbol | Value                                      | Hint |
|-------|------------------------------------------------------|--------|--------------------------------------------|------|
| P-055 | Moment of inertia                                    | I      | 900038 * 10 <sup>-4</sup> gcm <sup>2</sup> |      |
| P-057 | Min. permissible ambient temperature (non-operating) | T      | -20 °C                                     |      |
| P-058 | Min. permissible ambient temperature (operating)     | T      | -20 °C                                     |      |
| P-059 | Max. permissible ambient temperature (non-operating) | T      | 150 °C                                     |      |
| P-060 | Max. permissible ambient temperature (operating)     | T      | 120 °C                                     |      |

Motor data: Stepper VSS 19.200.0,3-UHV-4LP-2g5 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      | 100 rpm  |      |
| P-105 | Holding torque of motor (unpowered) | T      | 0.9 mNm  |      |
| P-109 | Rated current of motor              | I      | 300 mA   |      |
| P-111 | Rated voltage of motor              | U      | 42 V     |      |
| P-112 | Phase resistance of motor           | R      | 6 ohm    |      |
| P-113 | Inductance of motor                 | L      | 2.2 mH   |      |
| P-115 | Full step angle of motor            |        | 1.8 °    |      |
| P-116 | Angular accuracy of step of motor   |        | ±0.09 °  |      |
| P-117 | Electrical time constant of motor   | t      | 0.367 ms |      |
| P-118 | Max. coil temperature of motor      | T      | 300 °C   | 1)   |

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 |        | no limit switches |      |

Spindle data: Ball screw 1214./0,5.3.35.42r ts (uhv) – 25 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      | 0.5 mm |      |

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## Data linear bearing LSAGT8

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

| Nr.   | Parameter                                                         | Symbol | Value     | Hint |
|-------|-------------------------------------------------------------------|--------|-----------|------|
| P-601 | Max. lateral force in y-direction (non-operating, constant load)  | F      | 1330 N    |      |
| P-602 | Max. lateral force in y-direction (non-operating, impulsive load) | F      | 439 N     |      |
| P-603 | Max. lateral force in y-direction (operating, constant load)      | F      | 1190 N    |      |
| P-604 | Max. lateral force in y-direction (operating, impulsive load)     | F      | 396 N     |      |
| P-605 | Max. lateral force in z-direction (non-operating, constant load)  | F      | 1330 N    |      |
| P-606 | Max. lateral force in z-direction (non-operating, impulsive load) | F      | 439 N     |      |
| P-607 | Max. lateral force in z-direction (operating, constant load)      | F      | 1190 N    |      |
| P-608 | Max. lateral force in z-direction (operating, impulsive load)     | F      | 396 N     |      |
| P-609 | Max. overturning around y-axis (non-operating, constant load)     | T      | 38300 mNm |      |
| P-610 | Max. overturning around y-axis (non-operating, impulsive load)    | T      | 12639 mNm |      |
| P-611 | Max. overturning around y-axis (operating, constant load)         | T      | 38300 mNm |      |
| P-612 | Max. overturning around y-axis (operating, impulsive load)        | T      | 12639 mNm |      |
| P-613 | Max. overturning around z-axis (non-operating, constant load)     | T      | 22000 mNm |      |
| P-614 | Max. overturning around z-axis (non-operating, impulsive load)    | T      | 7260 mNm  |      |
| P-615 | Max. overturning around z-axis (operating, constant load)         | T      | 22000 mNm |      |
| P-616 | Max. overturning around z-axis (operating, impulsive load)        | T      | 7260 mNm  |      |
| P-619 | Stiffness in z-direction                                          | c      | 28,7      |      |
| P-620 | Backlash of linear guiding in y-direction                         |        | 0 µm      |      |
| P-621 | Backlash of linear guiding in z-direction                         |        | 0 µm      |      |

## Material information

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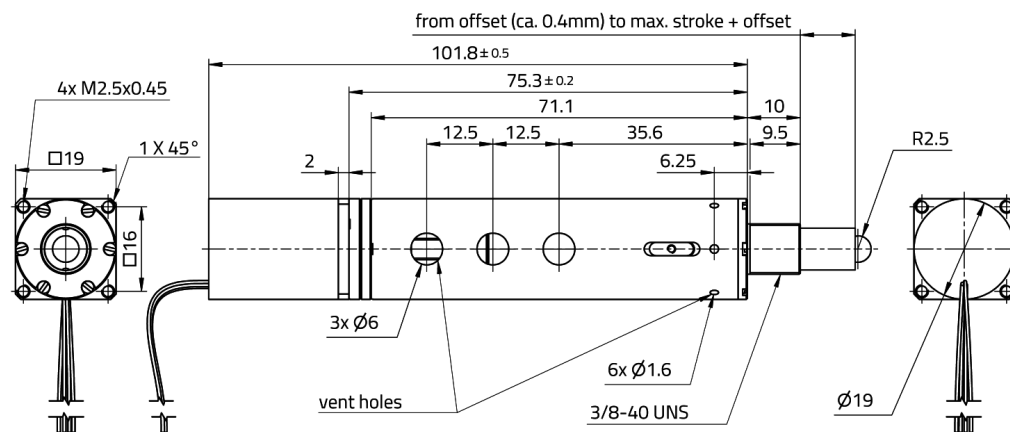
| Nr.   | Parameter                             | Symbol | Value                                        | Hint |
|-------|---------------------------------------|--------|----------------------------------------------|------|
| P-900 | RoHS compliant                        |        | yes                                          |      |
| P-901 | Lubrication of output bearing gearbox |        | MoS <sub>2</sub> (drylubrication)            |      |
| P-903 | Lubrication of gear component set     |        | DICRONITE®/MoS <sub>2</sub> (drylubrication) |      |
| P-904 | Lubrication of bearing motor          |        | MoS <sub>2</sub> (drylubrication)            |      |
| P-905 | Lubrication of spindle-nut-system     |        | MoS <sub>2</sub> (drylubrication)            |      |
| P-906 | Lubrication of linear bearing         |        | MoS <sub>2</sub> (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             |        | Stainless steel                              |      |
| P-917 | Material of spindle                   |        | 1.4108 / CuSn                                |      |

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## Technical drawing



| Pin assignment |        |
|----------------|--------|
| Color          | Signal |
| YEL            | A+     |
| RED            | A-     |
| BLU            | B+     |
| GRE            | B-     |

**Cable:**  
4x Individual leads wires, AWG28,  
length=300mm



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