## UCE1/7; UCE2/8

| | |
|---|---|
| Dimensions (mm) | ∅ 28 x 31 |
| Travel (mm) | 10/13 |
| Travel per step (mm) | 0.021 |
| Speed (mm/s) at 200 Hz | 4.16 |
| Max. Force (N)* | 80 |

*Depends on winding, frequency and lifetime required.
Limited application of the motor driving against end stop is available under required technical and operating conditions. JE will provide specifics of such conditions upon request. JE will not be responsible for product warranty or any liabilities associated with the application of drive against end stop if such application is used without following JE's instructions.

Radial forces on the shaft will reduce life time and performance.

Note: All force and power output values are minimum values, at rated voltage and motor temperature 23°C.

## Standard Data

| | |
|---|---|
| Climatic class | wide-spread according to DIN IEC 60721-2-1 : 2015 |
| Ambient temperature operation | °C -15 ... +60 |
| Ambient temperature storage | °C -20 ... +100 |
| Thermal resistance at f=0 $R_{therm}$ | 29 K/W |
| Thermal class | 130 (B) according to DIN EN 60085 : 2008 |
| Approval | standard |
| Mounting | any position |
| Electrical connection | connector type B, C, D |
| Protection | IP40 according to DIN EN 60529 : 2014 |
| Weight | 67 g |
| Rotor stalling | motor can be stopped when voltage is applied, without being overheated |
| Bearings | ball bearing |

## Order Reference

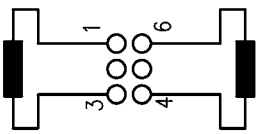
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | Stepper Motor | | | | | UCE | 13 | N | 01 | D | 1E |
| Configuration | 13 | bipolar, standard magnet | 73 | bipolar, stronger magnet | | | | | | | |
| | 23 | unipolar, standard magnet | 83 | unipolar, stronger magnet | | | | | | | |
| Approval | N | | | | | | | | | | |
| Resistance | | see next page, Resistance per winding for bipolar or unipolar | | | | | | | | | |
| Connection | B, C | see next pages "Connection Types" | | | | | | | | | |
| | D | | | | | | | | | | |
| Shaft | 1E | Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions) | | | | | | | | | |

## Technical Data

| | | | | | |
|---|---|---|---|---|---|
| bipolar | Rated voltage $U_N$: | V | 6 | 12 | 24 |
| | Duty cycle | % | 100 | 100 | 100 |
| | Resistance $R_{20}$ | Ω | 24 | 90 | 380 |
| | Winding code | | 05 | 02 | 01 |
| unipolar | Rated voltage $U_N$: | V | 6 | 12 | 24 |
| | Duty cycle | % | 100 | 100 | 100 |
| | Resistance $R_{20}$ | Ω | 24 | 90 | 380 |
| | Winding code | | 07 | 08 | 01 |
| | Travel per step | mm | 0.042 | | |
| | Winding temperature $T_{max}$ | °C | 130 | | |
| | Axial play at ± 20 N force | mm | < 0.25 | | |

Circuit diagram

bipolar



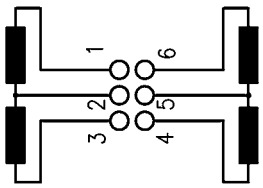

stepping sequence number

| pin number | I | II | III | IV | I |
|---|---|---|---|---|---|
| 1 | + | + | – | – | + |
| 3 | – | – | + | + | – |
| 4 | – | + | + | – | – |
| 6 | + | – | – | + | + |

Pull in (step I to IV, I to IV, etc.)

Push out (step IV to I, step IV to I, etc.)

unipolar




stepping sequence number

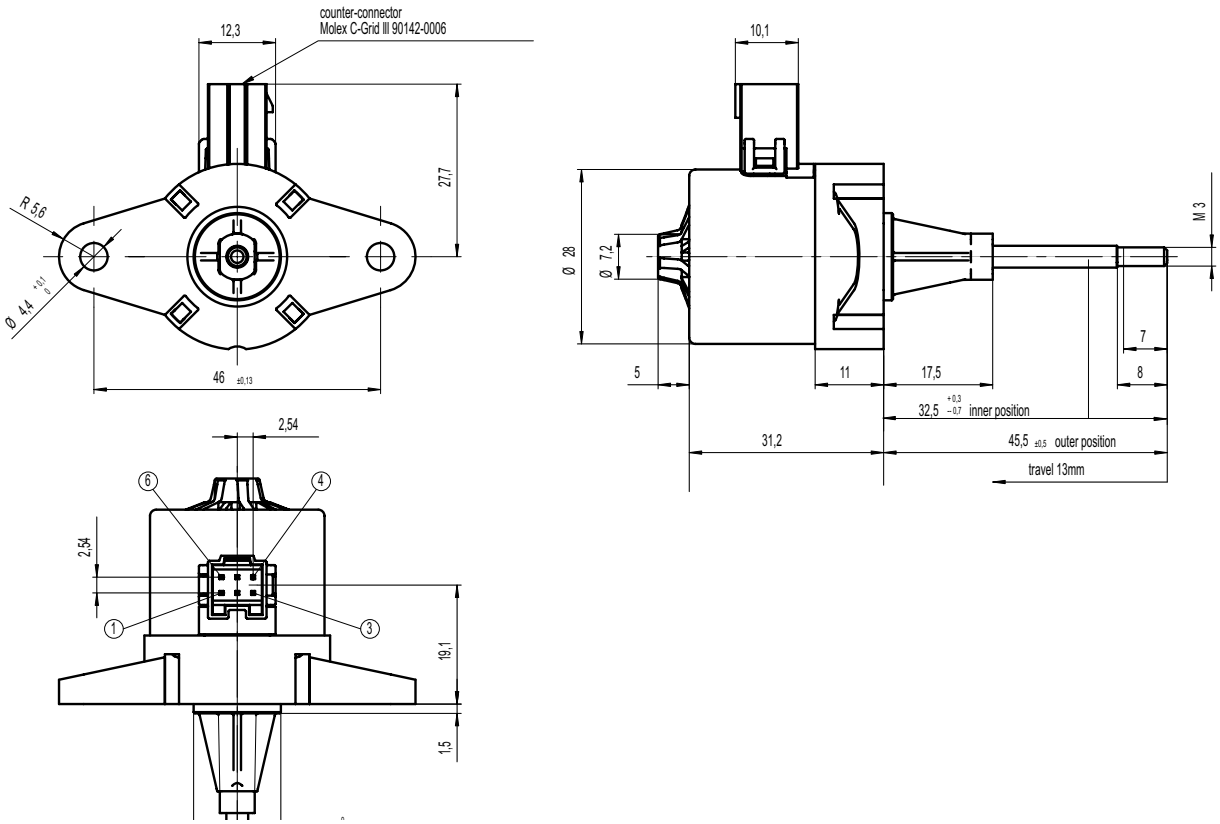
| pin number | I | II | III | IV | I |
|---|---|---|---|---|---|
| 1 | – | – | | | – |
| 2 | + | + | + | + | + |
| 3 | | | – | – | |
| 4 | | – | – | | |
| 5 | + | + | + | + | + |
| 6 | – | | | – | – |

Pull in (step I to IV, I to IV, etc.)

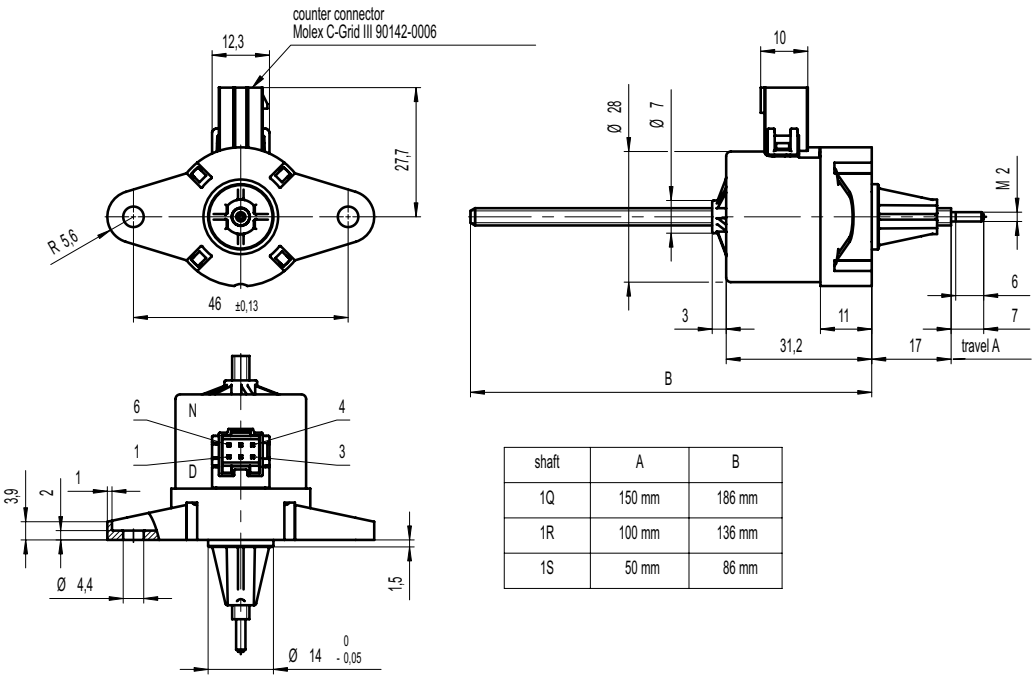
Push out (step IV to I, step IV to I, etc.)

Dimensions

Version with Connector D, with 13 mm travel, shaft 1E




Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q - only for pull operation




| shaft | A | B |
|---|---|---|
| 1Q | 150 mm | 186 mm |
| 1R | 100 mm | 136 mm |
| 1S | 50 mm | 86 mm |

Please note:

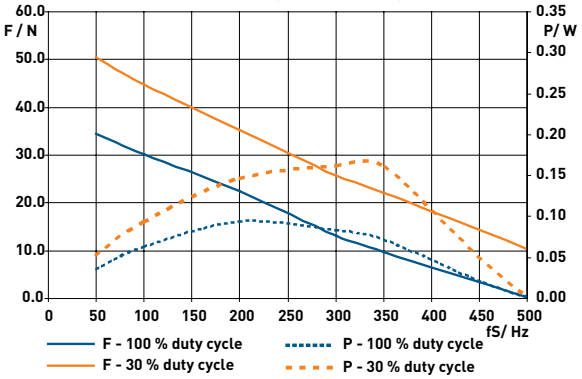
The linear motor with non-captive shaft needs an external antirotation fixation and guidance. The antirotation is to produce the linear movement.

Application design of the guidance has to consider a maximum tolerance of 0.2° from the ideal axis.

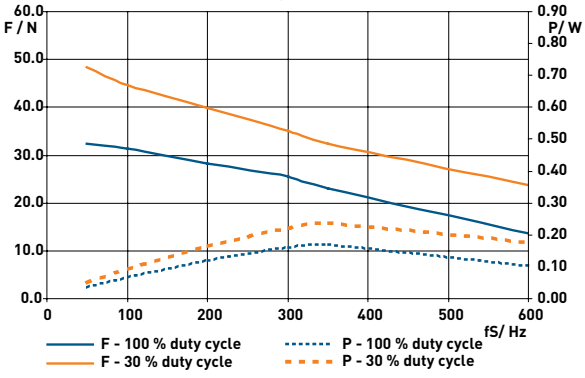
The shaft guidance has strong influence on motor live time.

## Performance Chart

UCE1 - Pull-in range constant voltage

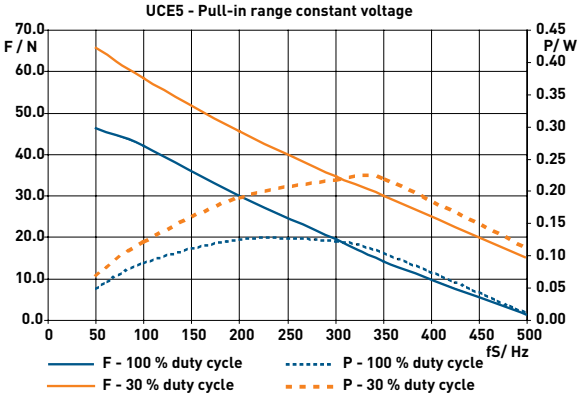



UCE1 - Pull-in range chopper (24 Ohms)

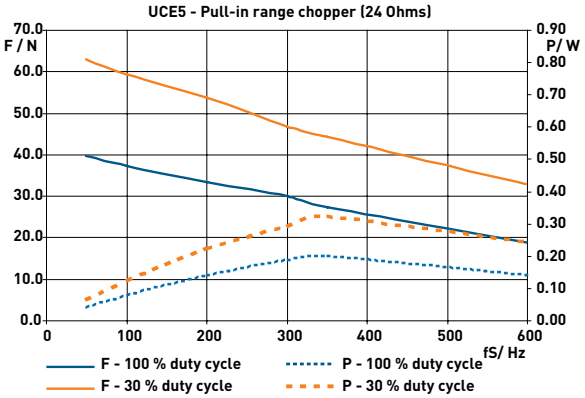



100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

UCE5 - Pull-in range constant voltage

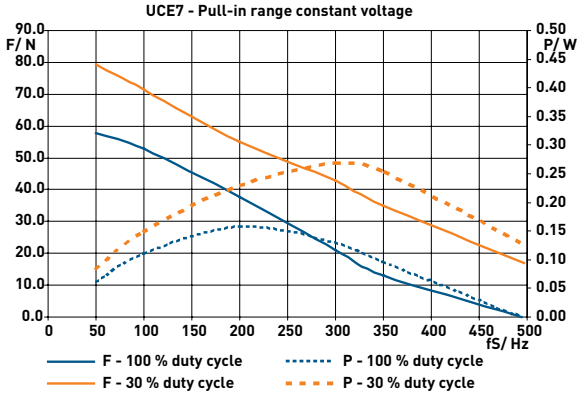



UCE5 - Pull-in range chopper (24 Ohms)

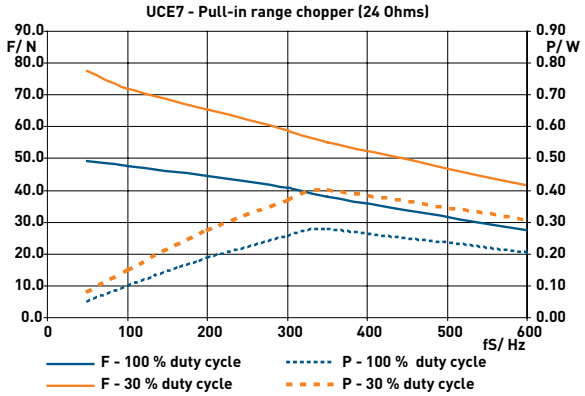



100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

UCE7 - Pull-in range constant voltage




UCE7 - Pull-in range chopper (24 Ohms)




100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

## Performance Chart