

# Miniature Rotation Stage

Compact Dimensions, with DC or Stepper Motor



## DT-34

- Clear aperture, 10 mm Ø
- Compact design
- Unidirectional repeatability up to 350 µrad
- Angular velocity up to 675 °/s
- Integrated optical reference switch

### Overview

Inexpensive compact rotation stage with clear aperture. Available with stepper motor or DC motor.

### Position measuring

- Optical reference switch.
- DC motor version with incremental rotary encoder on the motor shaft.

| Motion                                       | Unit | Tolerance | 3215910030 | 3215920030-0000 |
|----------------------------------------------|------|-----------|------------|-----------------|
| Active axes                                  |      |           | θZ         | θZ              |
| Rotation range in θZ                         | °    |           | 360        | 360             |
| Maximum angular velocity in θZ, unloaded     | °/s  |           | 675        | 195             |
| Linear crosstalk in X with motion in θZ      | µm   | Typ.      | ±50        | ±50             |
| Linear crosstalk in Y with motion in θZ      | µm   | Typ.      | ±50        | ±50             |
| Linear crosstalk in Z with motion in θZ      | µm   | Typ.      | ±8         | ±8              |
| Rotational crosstalk in θX with motion in θZ | µrad | Typ.      | ±100       | ±100            |
| Rotational crosstalk in θY with motion in θZ | µrad | Typ.      | ±100       | ±100            |

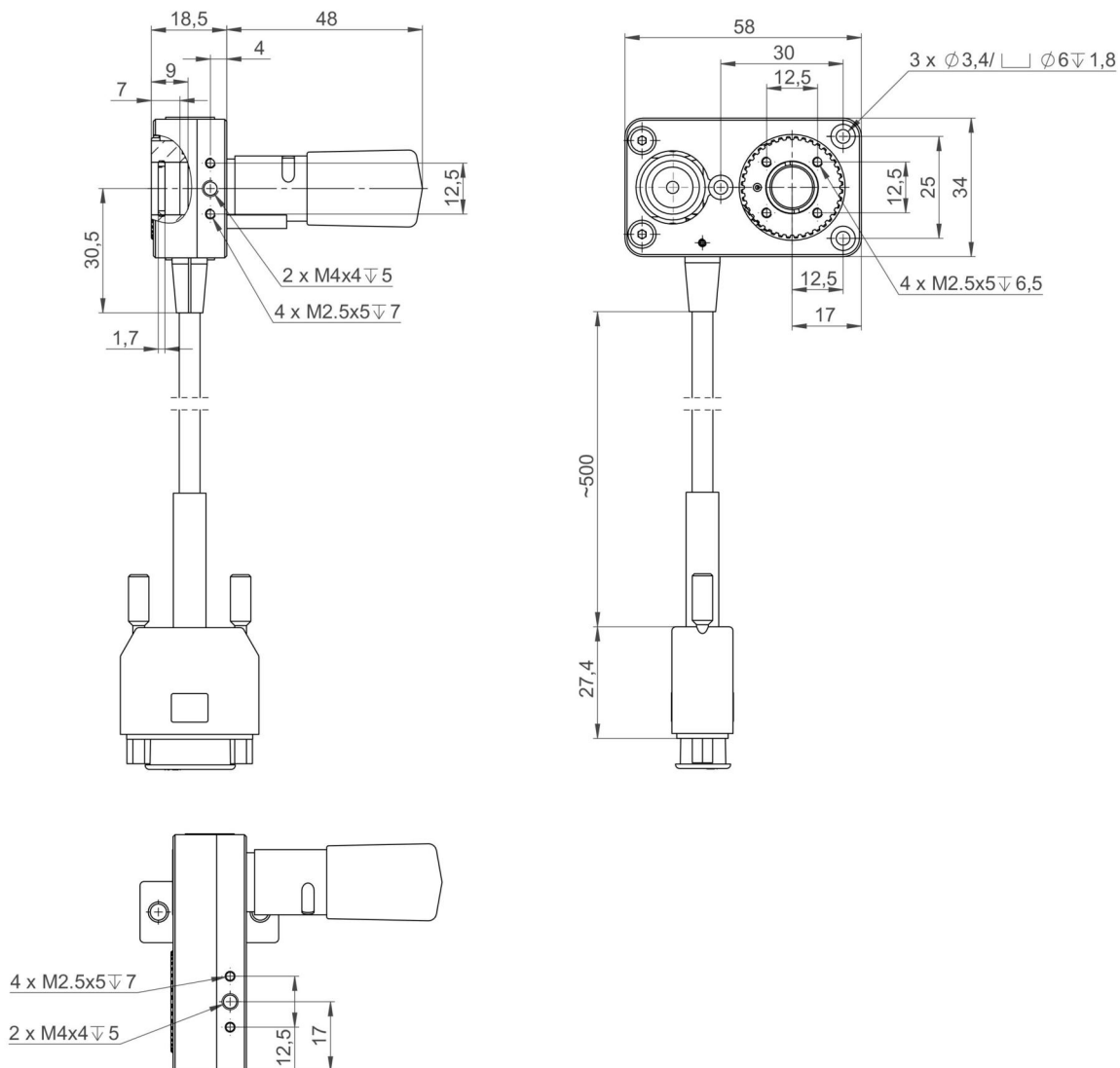
| Positioning                                | Unit            | Tolerance | 3215910030                 | 3215920030-0000 |
|--------------------------------------------|-----------------|-----------|----------------------------|-----------------|
| Integrated sensor                          |                 |           | Incremental rotary encoder |                 |
| Unidirectional repeatability in $\theta_Z$ | $\mu\text{rad}$ | Typ.      | 700                        | 350             |
| Bidirectional repeatability in $\theta_Z$  | $\mu\text{rad}$ | Typ.      | $\pm 1400$                 | $\pm 1000$      |
| Minimum incremental motion in $\theta_Z$   | $\mu\text{rad}$ | Typ.      | 700                        | 350             |
| Sensor resolution                          | Cts./rev.       |           | 2048                       |                 |
| Reference switch                           |                 |           | Optical                    | Optical         |

| Drive Properties                             | Unit            | Tolerance | 3215910030 | 3215920030-0000       |
|----------------------------------------------|-----------------|-----------|------------|-----------------------|
| Drive type                                   |                 |           | DC motor   | 2-phase stepper motor |
| Motor resolution                             | Full steps/rev. |           |            | 24                    |
| Nominal voltage                              | V               |           | 12         | 12                    |
| Peak voltage                                 | V               |           | 48         | 48                    |
| Nominal current, RMS                         | A               | Typ.      | 0.32       | 0.25                  |
| Drive torque clockwise in $\theta_Z$         | N·m             | Max.      | 0.08       | 0.08                  |
| Drive torque counter-clockwise in $\theta_Z$ | N·m             | Max.      | 0.08       | 0.08                  |
| Resistance phase-phase                       | $\Omega$        | Typ.      | 19.8       | 12.5                  |
| Inductance phase-phase                       | mH              |           | 0.25       | 6.3                   |

| Mechanical Properties            | Unit | Tolerance | 3215910030              | 3215920030-0000         |
|----------------------------------|------|-----------|-------------------------|-------------------------|
| Bearing type                     |      |           | Ball bearings           | Ball bearings           |
| Worm gear reduction              |      |           | 24986 : 567             | 774566 : 5103           |
| Moved mass in X, unloaded        | g    |           | 100                     | 100                     |
| Permissible push force in X      | N    | Max.      | 2.5                     | 2.5                     |
| Permissible push force in Y      | N    | Max.      | 2.5                     | 2.5                     |
| Permissible push force in Z      | N    | Max.      | 15                      | 15                      |
| Permissible torque in $\theta_X$ | N·m  | Max.      | 2.5                     | 2.5                     |
| Permissible torque in $\theta_Y$ | N·m  | Max.      | 2.5                     | 2.5                     |
| Overall mass                     | g    |           | 150                     | 150                     |
| Material                         |      |           | Black anodized aluminum | Black anodized aluminum |

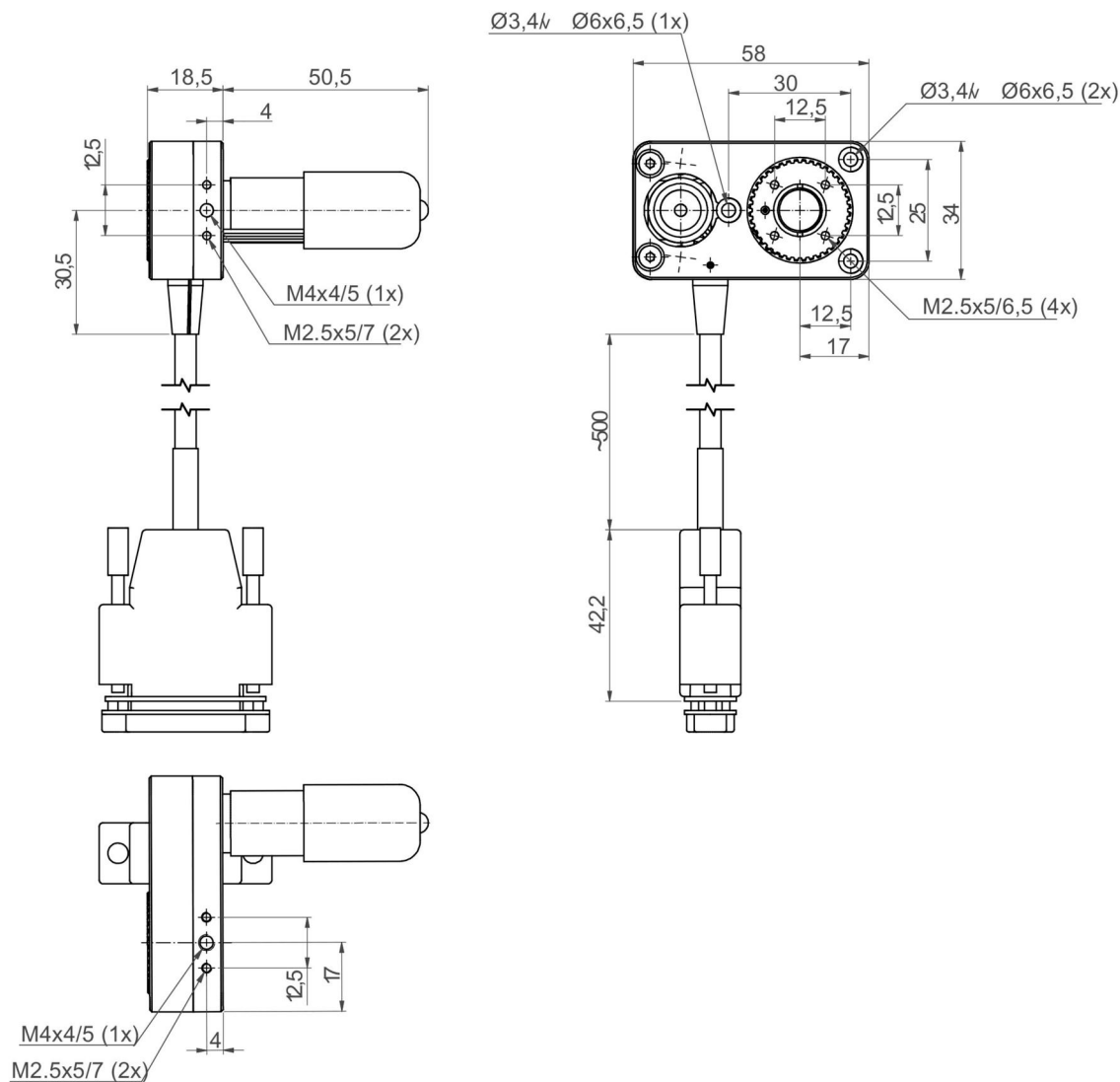
| Miscellaneous                     | Unit               |  | 3215910030                                                          | 3215920030-0000                                               |
|-----------------------------------|--------------------|--|---------------------------------------------------------------------|---------------------------------------------------------------|
| Operating temperature range       | $^{\circ}\text{C}$ |  | 5 to 40                                                             | 5 to 40                                                       |
| Connector                         |                    |  | D-sub 15-pin (m)                                                    | D-sub 15-pin (m)                                              |
| Recommended controllers / drivers |                    |  | C-863<br>C-885 with C-863.20C885<br>C-884<br>ACS modular controller | C-663.12<br>C-885 with C-663.12C885<br>ACS modular controller |

## Drawings / Images



DT-34 with stepper motor, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

## Drawings / Images



DT-34 with DC motor, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

## Order Information

### 3215910030

Miniature rotation stage; DC motor; 360 ° rotational angle; 15 N load capacity; 675 °/s maximum angular velocity; incremental rotary encoder, 2048 cts./rev. sensor resolution

### 3215920030-0000

Miniature rotation stage; 2-phase stepper motor; 360 ° rotational angle; 15 N load capacity; 195 °/s maximum angular velocity