

## M-038 Precision Rotation Stage

### Unlimited Travel Range, Vacuum-Compatible Versions



M-038.PD1 Rotation Stage

- Ultra-High Resolution
- Max. Velocity 90°/s
- Continuous Rotation Range
- Preloaded Worm Drive for Zero Backlash
- ActiveDrive™ Manual, DC-Servo and Stepper-Motor Drives
- Clear Aperture Ø 40.2 mm
- Vacuum-Compatible Versions Available to 10<sup>-6</sup> hPa

M-038 rotation stages are equipped with an ultra-precise worm gear drive allowing continuous rotation in either direction. Double-row ball bearings allow high load capacity, zero backlash and extremely low wobble. The new and improved

M-038.xx1 versions now feature a larger central aperture and a higher-performance worm wheel drive.

The worm gear ratio of 176:1 allows an extraordinary high position resolution of the turntable.

#### DC-Motor and Stepper Motor Drives

A variety of servo motor and stepper motors are available, besides the manual version.

Model M-038.DG1 equipped with a closed-loop DC motor with shaft-mounted position encoder and precision gearhead providing minimum incremental motion of 3.5 µrad at a design resolution of 0.6 µrad.

Model M-038.2S1 models feature a cost-effective direct-drive, 2-phase stepper motor,

providing very smooth operation and a resolution of 5.45 µrad at a minimum incremental motion of 21 µm.

#### ActiveDrive™

Model M-038.PD is equipped with the highly efficient Active Drive™ direct drive and reaches velocities up to 45°/s. The ActiveDrive™ design, developed by PI, features a high-efficiency PWM (pulse width modulation) servo-amplifier mounted side-by-side with the DC motor and offers several advantages:

- Increased efficiency, by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability, because no external driver is required
- Elimination of PWM amplifier noise radiation, by mounting the amplifier and motor together in a single, electrically shielded case

Coarse position can be read from an adjustable scale ring on the outer edge of the turntable graduated in 2 degree incre-

#### Ordering Information

- M-038.001**  
Rotation Stage, Ø 100 mm, 360°, Manual Drive
- M-038.DG1**  
Rotation Stage, Ø 100 mm, 360°, Closed-Loop DC Motor Gearhead
- M-038.VG1**  
Rotation Stage, Ø 100 mm, 360°, Closed-Loop DC Motor Gearhead, Vacuum Compatible to 10<sup>-6</sup> hPa
- M-038.PD1**  
Rotation Stage, Ø 100 mm, 360°, ActiveDrive™ DC Motor (Includes 24 V Power Supply)
- M-038.VP1**  
Rotation Stage, Ø 100 mm, 360°, ActiveDrive™ DC Motor (Includes 24 V Power Supply), Vacuum Compatible to 10<sup>-6</sup> hPa
- M-038.2S1**  
Rotation Stage, Ø 100 mm, 360°, 2-Phase Stepper Motor
- Ask about custom designs!**

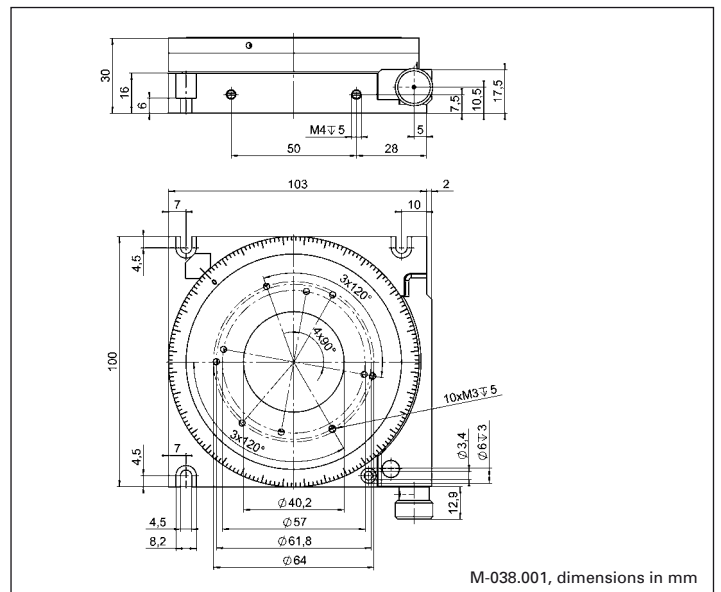
ments. Each M-038 stage is individually broken-in before delivery to achieve the exceptional mechanical precision.

#### Notes

See "Accessories" for adapters, bracket, etc. see page 4-90 ff.



Custom M-038 stages at the coordinate measuring machine



M-038.001, dimensions in mm

