M-035

DC-Motor-Driven Precision Tangent-Arm Rotation Stages

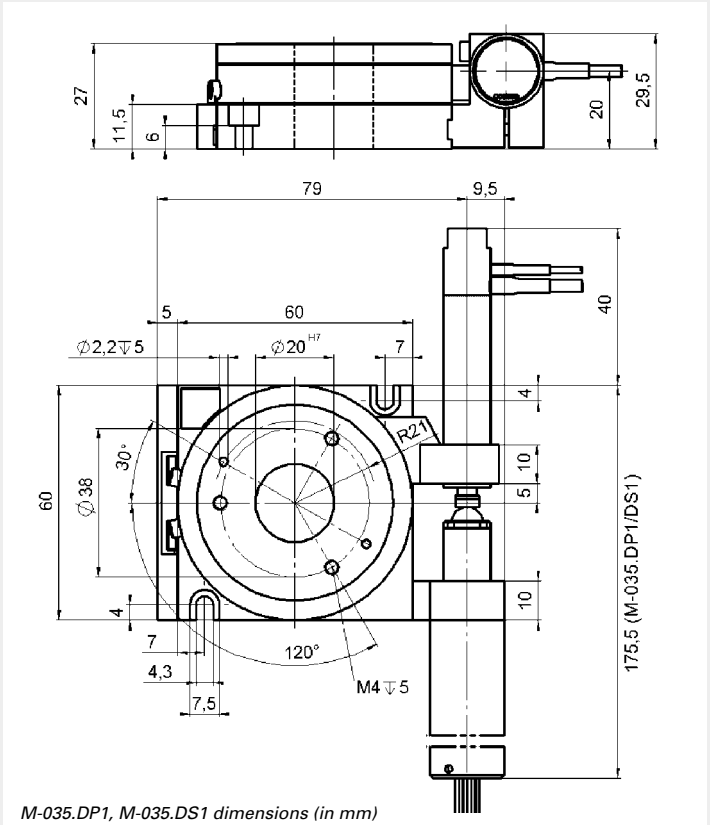
M-035.DP1 rotation stage with DC Mike and PZT fine drive

- **Closed-Loop DC Motor with 1 µrad Resolution**
- **Piezo Option for High-Resolution, Dynamic Scanning and Tracking**
- **360° Coarse Range, 12° Fine Range**
- **20 mm ∅ Clear Aperture**
- **Limit Switches**

M-035 series precision rotation stages feature high resolution, excellent repeatability and minimum wobble. The stages are equipped with double-row ball bearings for minimum backlash and high load capacity. Both the rotation platform and the scale ring (graduated in 2-degree increments) can be independently coarse positioned over 360 degrees and then locked with screws.

The basic version, the M-035.D01, is equipped with a DC-servo-motor drive (model M-227.10, see page 7-66 for further details and recommended motor controller) providing a positioning range of ±6.3 degrees. A set of limit switches eliminates the possibility of overtravel. (See page 7-49 for information on how to convert linear input into rotation).

High-Resolution Piezo Option
The M-035.DS1 and M-035.DP1 versions provide an additional piezoelectric fine adjustment over a range of ±520 µrad. The piezoelectric fine adjustment also allows dynamic operation such as scanning or tracking. The .DS1 version is equipped with a closed-loop PZT drive (model P-841.30), while the .DP1 version comes with an open-loop PZT drive (model P-840.30). Both drives provide a linear range of 45 µm and sub-nanometer linear resolution (see the "PZT Actuators" section for further details and recommended controllers).



M-035.DP1, M-035.DS1 dimensions (in mm)

Ordering Information

M-035.D01
Rotation Stage, ∅ 60 mm, DC-Motor Drive

M-035.DP1
Rotation Stage, ∅ 60 mm, DC-Motor + PZT Drive

M-035.DS1
Rotation Stage, ∅ 60 mm, DC-Motor + Closed-Loop PZT Drive

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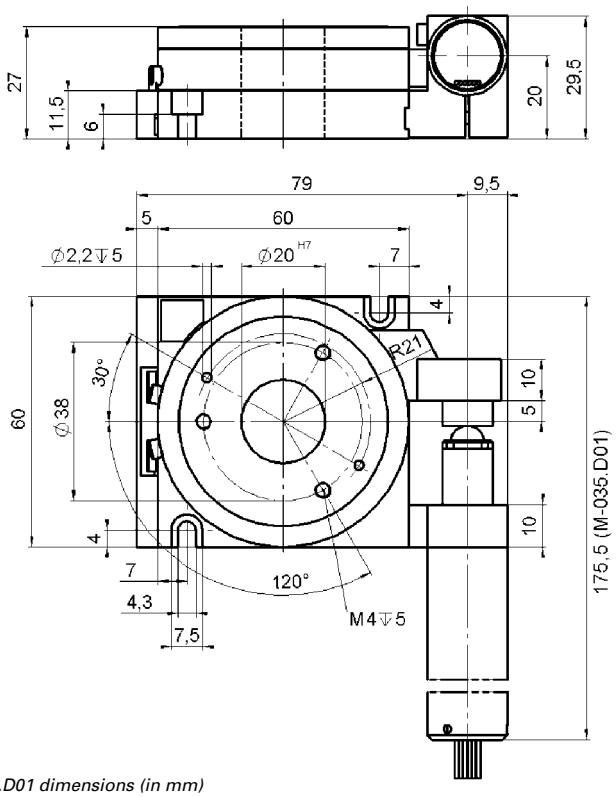

M-035.D01 dimensions (in mm)

Technical Data

Models	M-035.D01	M-035.DP1	M-035.DS1	Units	Notes see p. 7-96
Rotation range, coarse	360	360	360	deg	
Rotation range, motorized	±6.3	±6.3	±6.3	deg	
Rotation range (PZT drive)	-	±520	±520	µrad	
Min. incremental motion (PZT drive)	-	1	1	µrad	
Repeatability (PZT drive)	-	-	2	µrad	
Design resolution (DC motor)	0.08	0.08	0.08	µrad	A3
Min. incremental motion (DC motor)	2	2	2	µrad	A4
Rotation / linear input	22.7	22.7	22.7	µrad / µm	A5
Tangent arm length	44	44	44	mm	A5
Unidirectional repeatability	10	10	10	µrad	
Backlash	50	50	50	µrad	
Wobble	< 150	< 150	< 150	µrad	
Max. velocity	1.2	1.2	1.2	deg/sec	
Maximum axial force	±300	±300	±300	N	
Maximum torque (θ_x, θ_y)	±3	±3	±3	Nm	
Maximum torque CW*	3	3	3	Nm	
Maximum torque CCW*	0.05	0.05	0.05	Nm	
Drive	M-227.10 DC-Mike	M-227.10 DC-Mike	M-227.10 DC-Mike		
PZT drive	-	P-840.30	P-841.30		D1
Weight	0.6	0.65	0.67	kg	
Body material	Al, St	Al, St	Al, St		L
Recommended motor controller	C-842, C-844, C-860	C-842, C-844, C-860	C-842, C-844, C-860		D2
Recommended PZT controller (codes explained p. 6-46)	-	A, C, G	D, H		

** CW: clockwise; CCW: counter-clockwise*