MX_033 – 9001 XYZ Very High precision Stage

Parallel kinematics XYZ Flexure's Stage

MX_033 – 9001
Thanks to the flexures's bearings, this XYZ stage has intrinsically an outstanding precision, reliability and dynamics. Absolutely free of friction, wear and backlash, this device perfectly fit clean rooms and vacuum requirements. Based on a delta parallel kinematics, the MX_033-9001 is an attractive solution for lifetime and maintenance-free positioner. The minimum incremental motion is not mechanically limited and is, according with the sensor resolution, in nanometer range.

Magnetic Direct Drive and Optical scale version
The voice-coil drives combined with an optical linear scale, makes this device completely friction and mechanical play free. The drives for super-smooth velocity and position control fit also for high velocity and acceleration requirements.

Rotative DC motor version
For less demanding dynamics characteristics, a version with rotative DC motors is also available.

Absolute linear encoders are available for both versions as standard options.

Fields of application
Industry and research with High dynamic requirements.

- Parallel kinematic design
- Flexures guides
- Fast positioning
- Scanning frequencies > 10Hz (control depending)
- Max Speed to 50 mm/s
- Single axis stoke ±2.25 mm
- Cleanliness
- Reliability

General Specifications

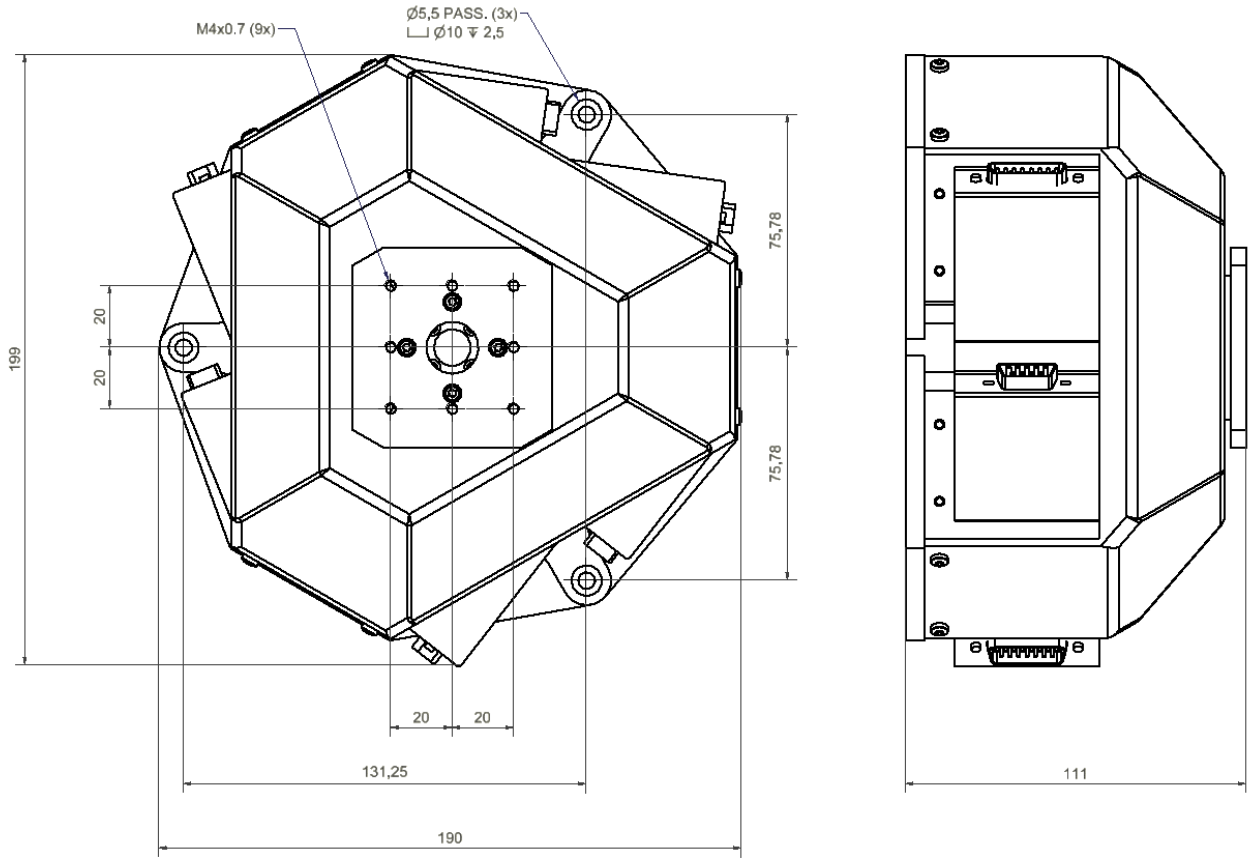
	MX_033-9001-HD	MX_033-9001-DC		Unit	Tolerances
Motion and position					
Active axis	XYZ	XYZ			
Single axis stroke	5.5	5.5		mm	
Cubic cartesian volume	±1.15	±1.15		mm	
Integrated sensor	Optical absolute linear enc.	Noncontact linear enc.,			
Sensor resolution	1	1		nm	
Min. incremental motion	5	50		nm	Typ.
Unidirectional repeatability	0.1	0.2		µm	
Bidirectional repeatability	0.2	0.4		µm	
Straightness	3	3		µm	
Flatness	3	3		µm	
Max Speed	50	7.5		mm/s	
Mechanical properties					
Load capacity in Z	0.2	0.5		kg	
Overall mass	5	5		kg	
Drive properties					
Drive type	Voice-coil	Rotative DC			
Resistance	2.9	54.6		Ω	
Voltage @FP	16.8	24		V	
Current @FP	5.8	0.19		A	
Force constant	76			N/A	
Inductance	0.74	1.2		mH	
Peak force FP	44	50		N	
Continuous force	13.8	50		N	
Actuator constant	4.46			$N/W^{0.5}$	
Electric time constant	0.25	8		ms	
Power @FP	97.2	6		W	
Thermal resistance	13.1	4/24.5		°C/W	
Max winding temp	150	125		°C	
Miscellaneous					
Housing material	Steel	Steel			
Operating temperature	18-28	18-28		°C	
Humidity	20-80%	20-80%			

Mecartex is a cutting-edge company operating in the field of high precision applications.
The company, founded in early 2002 offer micro-positioning devices with high dynamics and precision and base solutions with motion control.

Customized solutions & manufacturing
Mecartex provides innovative solutions for very high precision applications, offering complete support from development through production while maintaining a short time-to-market.

Flexures technology
Mecartex offers a unique expertise in flexures. This technology enables extremely accurate movements and has numerous advantages like high reliability, frictionless, contamination' proof or cleanliness

Mechanical Interface – MX_033-9001



Electrical Interface – MX_033-9001

Actuator 3x Dsub 9 Male

	Description				
D-Sub	*Signal*	*#*	*Signal*	*#*	*Signal*
1	Mot +	4		7	
2		5		8	
3		6	Mot -	9	

Sensor 3x Dsub 15 Male

	Description				
D-Sub	*Signal*	*#*	*Signal*	*#*	*Signal*
1	-	6	-	11	-
2	0V	7	-	12	5V Sensor
3	-	8	Clock +	13	Data -
4	5V	9	-	14	-
5	Data +	10	0V Sensor	15	Clock -