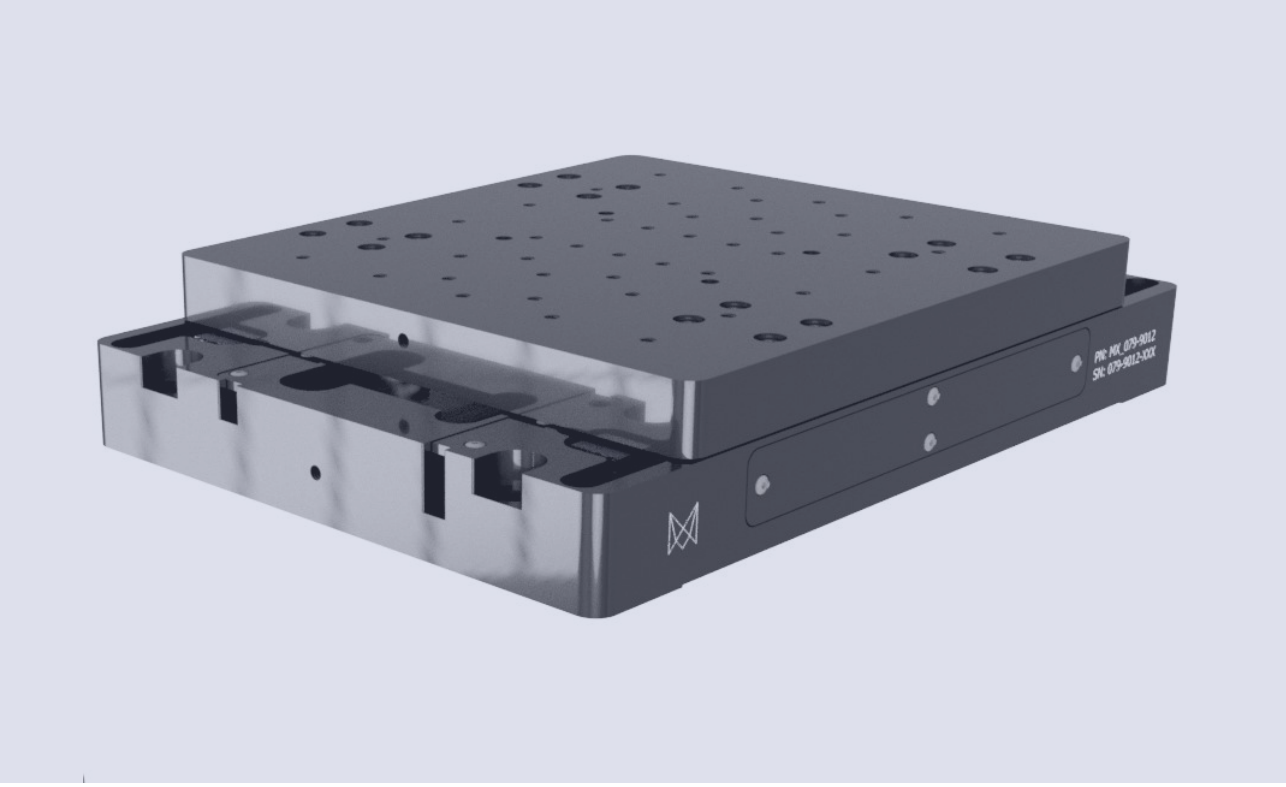
MX_079 – 9012 – High Precision Dynamic Stage

High Accuracy Dynamic Linear Stage



MX_079 – 9012 – Linear Stage 50mm
Long live recirculating linear ball bearing guides are distinguished by a beneficial combination of high load capacity, lifetime, maintenance-free operation, and guiding accuracy. This makes the MX_079-9012 an attractive solution for high precision industrial applications.

Magnetic Direct Drive
The direct transmission through ironless magnetic drive avoids friction and mechanical play. The drives with zero cogging for super-smooth velocity and position control fit also for high velocity and acceleration

High resolution absolute linear encoder
Direct position measurement with absolute linear encoders are available as standard options. The direct measure of the position consents to reach high accuracy and enable minimum incremental motion down to 50 nm and sub-micrometer repeatability.

Fields of application
Industry and research with High dynamic requirements.

- Fast scanning and positioning
- Travel range 50 mm
- Scanning frequencies of more than 10 Hz
- Max Speed to 200 mm/s
- Bidirectional repeatability to 0.5µm
- Long life recirculating linear ball bearing guides

General Specifications

	MX_079 – 9012-50			Unit	Tolerances
Motion and position					
Active axis	X (Z[1])				
Travel range	50			mm	
Integrated sensor	Noncontact linear enc.,				
Sensor resolution	1			nm	
Min. incremental motion	50			nm	Typ.
Unidirectional repeatability				µm	
Bidirectional repeatability	0.5			µm	Typ.
Pitch	50			µrad	Typ.
Yaw	40			µrad	Typ.
Horizontal Straightness	1			µm	Typ.
Vertical Straightness	1			µm	Typ.
Max Speed	200			mm/s	
Mechanical properties					
Load capacity in Z	50			N	
Drive properties					
Drive type	Ironless 3-phase linear motor				
Operating voltage MAX	300			V	
Peak current	2.8			ARMS	
Max continuos current[2]	0.8			ARMS	
Peak force	100			N	
Continuous force	29			N	
Motor force constant	36.3			N/Arms	
Motor constant	24			N²/W	
Resistance per Phase	18.5			Ω	
Inductance per Phase (X/Y)	6			mH	
Back EMF Phase-Phase$_{peak}$	30			V/m/s	
Magnet Pitch NN	30			mm	
Miscellaneous					
Housing material	Aluminum black anodized				
Operating temperature	18-28			°C	
Humidity	20-80%				

[1] Gravity compensation to be defined

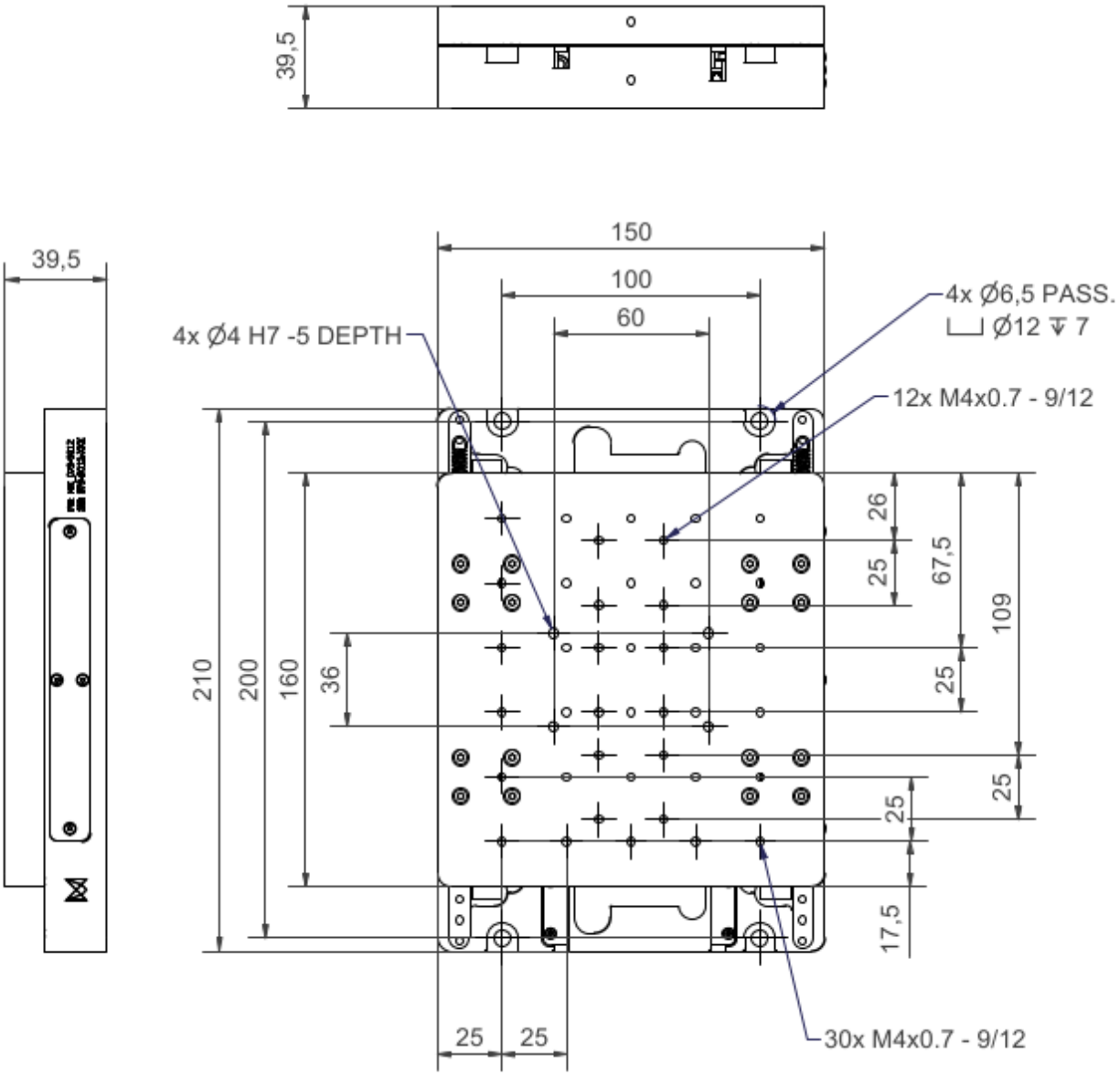
[2] *Coils at 110 °C*

Mecartex is a cutting-edge company operating in the field of high precision applications.
The company, founded in early 2002 offers 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 – MX079-9012-50



Electrical Interface MX_079-9012-50

	Description
D-Sub hybrid connector 5W5 male – Motor	*Example: Molex FM5W5S-K121*
A1	Motor phase A
A2	Motor phase B
A3	Motor phase C
A4	Frame
1	PTC-1k-typ
2	PTC-1k-typ
3	NTC
4	NTC
5	
D-Sub 9 male – Limit switch - PNP open-collector transistor[2]	
1	0 V
2	Switch POS (output 1)
3	Switch NEG (output2)
4	
5	
6	24 V
7	
8	
9	
D-Sub 15 male – Sensor EnDat 2.2	
1	
2	0 V
3	
4	5 V
5	Data +
6	
7	
8	Clock +
9	
10	0 V
11	
12	5 V
13	Data -
14	
15	Clock -

[2] *Limit switch connection diagram*