MX_079-9205-100 – Direct Drive XY Stage

High Precision Direct Drive XY Stage with Aperture

MX_079-9205 – Direct drive XY Stage 100mm
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_079-9205 an attractive solution for high precision industrial applications such as laser machining or micro-assembly.

Magnetic Direct Drive
The ironless magnetic drives used in the direct transmission, apply the force directly to the movable part without any friction and practically without cogging. This avoids several undesirable effects limiting the precision, like non-linearities or mechanical play. Ironless magnetic drives are suitable 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. An optional factory calibration to improve positioning accuracy is also available.

Fields of application
Industry and research with High dynamic requirements, metrology, inspection, laser application, etc.

- Fast scanning and positioning
- Travel range 103x103 mm
- Max Speed to 500 mm/s
- Max Acceleration to 1.5g
- Bidirectional repeatability to 0.4µm
- High resolution absolute linear encoder
- Long life recirculating linear ball bearing guides

General Specifications

	MX_079–9205-100				Unit	Note
Motion and position						
Active axis	X-Y					
Travel range	103x103				mm	
Integrated sensor	Absolute optical EnDat 2.2 Optical 1 Vpp (optional)					
Sensor resolution	1				nm	EnDat 2.2
Min. incremental motion	50				nm	
Unidirectional repeatability					µm	
Bidirectional repeatability	±0.3				µm	Typ
Orthogonality	±30				µrad	
Pitch	±20				µrad	Typ
Yaw	±20				µrad	Typ
Flatness	±1				µm	Typ
Straightness	±1				µm	Typ
Max speed[1]	500				mm/s	
Max acceleration[1]	13				m/s^2	
Mechanical properties						
Moved mass X	12				kg	
Moved mass Y	6				kg	
Load capacity in Z[2]	5				kg	
Drive properties						
Drive type	Ironless 3-phase linear motor					
Operating voltage MAX	300				V	
Peak current (X/Y)	8.3	5.5			A_{RMS}	
Max continuous current[3] (X/Y)	2.4	1.6			A_{RMS}	
Peak force (X/Y)	300	200			N	
Continuous force (X/Y)	87	58			N	
Motor force constant	36.3	36.3			N/Arms	
Motor constant (X/Y)	71	48			N^2/W	
Resistance per Phase (X/Y)	6.2	9.3			Ω	
Inductance per Phase (X/Y)	2	3			mH	
Back EMF Phase-$Phase_{peak}$	30				V/m/s	
Magnet Pitch NN	30				mm	
Miscellaneous						
Housing material	Aluminium black anodized					
Operating temperature	18-28				°C	
Humidity	20-80%					
Connector	2x D-Sub hybrid (motor) 2x D-Sub 9 (limit switch) 2x D-Sub 15 (encoder)					

[1] *Obtained with motor bus power supply 95 V*

[2] *Limited by desired performance*

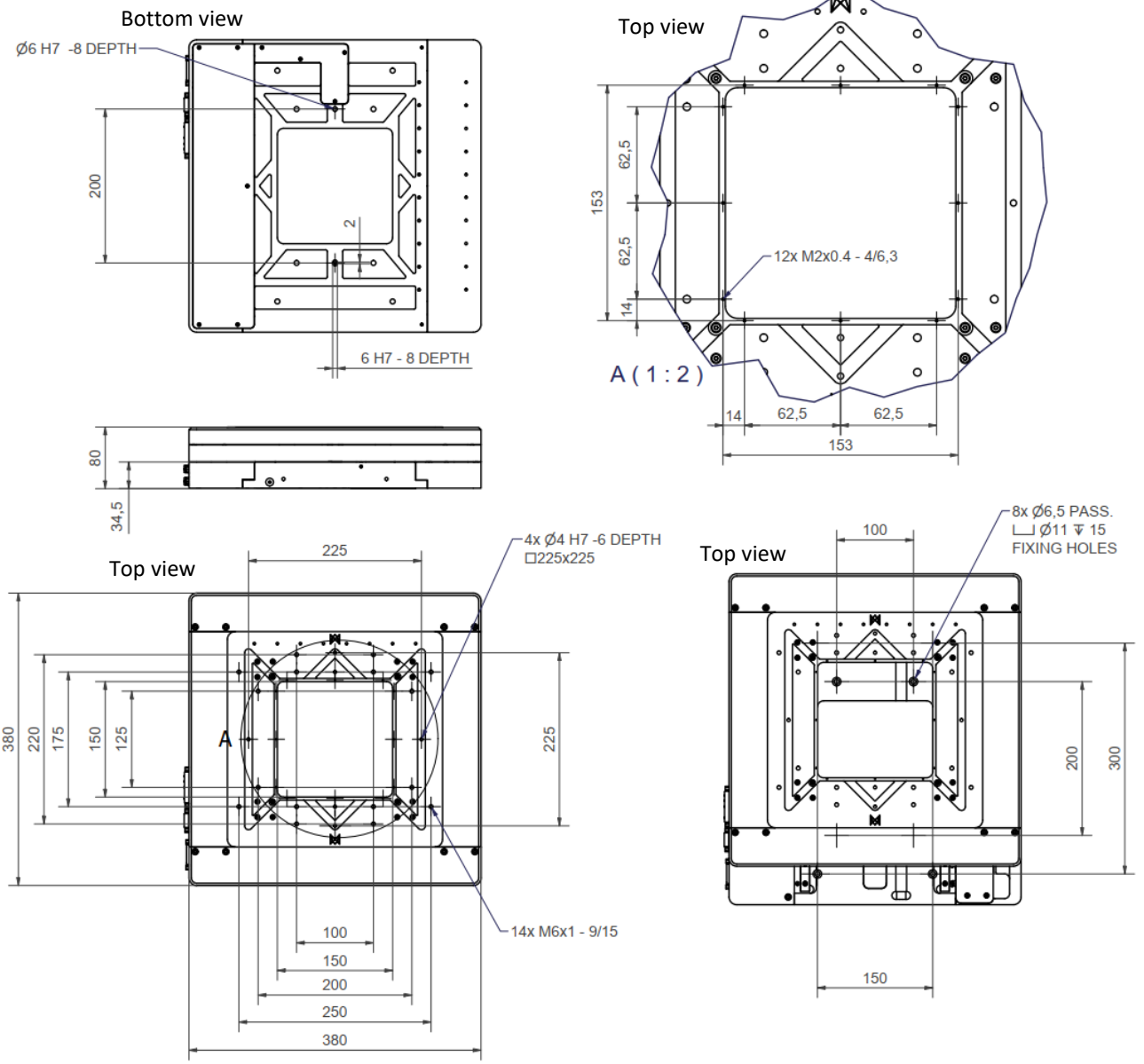
[3] *Coils at 110 °C*

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.

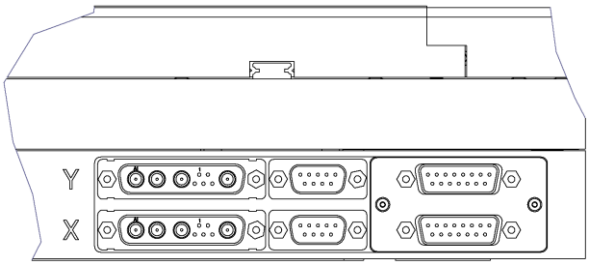
Customized solutions & manufacturing
Mecartex provides innovative solutions for very high precision applications, offering complete support from development through production while maintaining a short time-to-market.

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_079-9205-100



Electrical Interface MX_079-9205-100



	Description
D-Sub hybrid connector 9W4 male – Motor	*Example: Molex FM9W4S-K121*
A1	Motor phase A
A2	Motor phase B
A3	Motor phase C
A4	PE
1	Motor PTC 1k typ
2	Motor PTC 1k typ
3	Motor NTC
4	Motor NTC
5	
D-Sub 9 male – Limit switch - PNP open-collector transistor[4)]	
1	0 V
2	Switch POS 24V
3	Switch NEG 24V
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 -

4) Limit switch connection diagram