

# compact 2-axis translation stages series PXY – frame

Microscopy applications often require a nanopositioning element with a high level of positioning accuracy, high guidance accuracy and a large central aperture. The systems in the series PXY combine these characteristics in a compact stage with a large motion range up to 250µm in the x and y directions. The special design of the FEA modeled flexure hinges enables the stage to reach the shortest setting time and reduces the lateral run out in the z-axis down to a few nanometers. Setting and re-setting forces are generated by the stage design principal. Its unique scanning performance

is possible even with high loads mounted on top of the stage.

The flexure guidance system is designed to optimize the accurate motion without mechanical play or friction.

Dynamical scanning performance with highest position accuracy can be accomplished with the use of capacitive feedback sensors. The capacitive feedback works by the direct metrology principal – a feature of all piezoelectric stages. The newly designed stage is able to measure motion and accuracy at the most important point: directly on the moving top

plate. As a result of this principal, its outstanding accuracy performance is achieved.

Required tools can be mounted directly on top of the stage using the pre-existing threading. The stage is available in a vacuum and cryogenic version as well.

#### technical data

- operating voltage: -20 to +130V
- housing: stainless steel; top and bottom plate made of anodized Al

series PXY part no.	unit	PXY 36 T-235-00	PXY 102 T-205-10	PXY 151 T-219-00	PXY 201 T-228-00
axes		x,y	x,y	x,y	x,y
motion per axis (±10%)*	µm	36	100	150	250
capacitance per axis (±20%)**	µF	3.6	1.7	6.0	3.5
resolution***	nm	0.07	0.2	0.3	0.5
resonant frequency***	x/y	Hz	900/900	380/370	430/430
stiffness***	x/y/z	N/µm	38/38/15	1/1/5	2/2/10
max.push force***	x/y/z	N	1368/1368/522	100/100/500	330/330/1500
max.pull force***			137/137/52	10/10/50	33/33/150
dimensions (l x w x h)	mm	100x100x25	80x80x30	145x145x22	74x74x24
central aperture	mm	50x50	Ø40	90x90	30x30
weight	g	700	625	555	300

series PXY with integrated measurement system part no.	unit	PXY 36 CAP T-235-06	PXY 102 CAP T-205-06	PXY 151 CAP T-219-06	PXY 201 CAP T-228-06
motion per axis (±0.2%)*	closed loop	µm	30	80	200
integrated measurement system			capacitive	capacitive	capacitive
resolution***(closed loop)	x/y	nm	1	1	1
typ. repeatability***		nm	7	10	2
max.push force***	x/y/z	N	1368/1368/522	100/100/500	87/87/1250
max.pull force***			137/137/52	10/10/50	8/8/125
dimensions (l x w x h)	mm	100x100x25	80x80x30	145x145x22	74x74x24
weight	g	725	650	575	370

\* typical value measured with NV 40/3 (closed loop NV 40/3 CLE)

\*\* typical value for small electrical field strength

\*\*\* please see chapter's general remarks for explanation

compact 2-axis translation stages

# series PXY – frame

**applications**

- microscopy stage for light transmitting applications
- wafer handling and semiconductor
- mask positioning and lithography
- near field scanning and AFM microscopy
- metrology and material sciences

**options**

- integrated measurement system for each axis
- vacuum version
- cryogenic temperature version
- other modifications available upon request

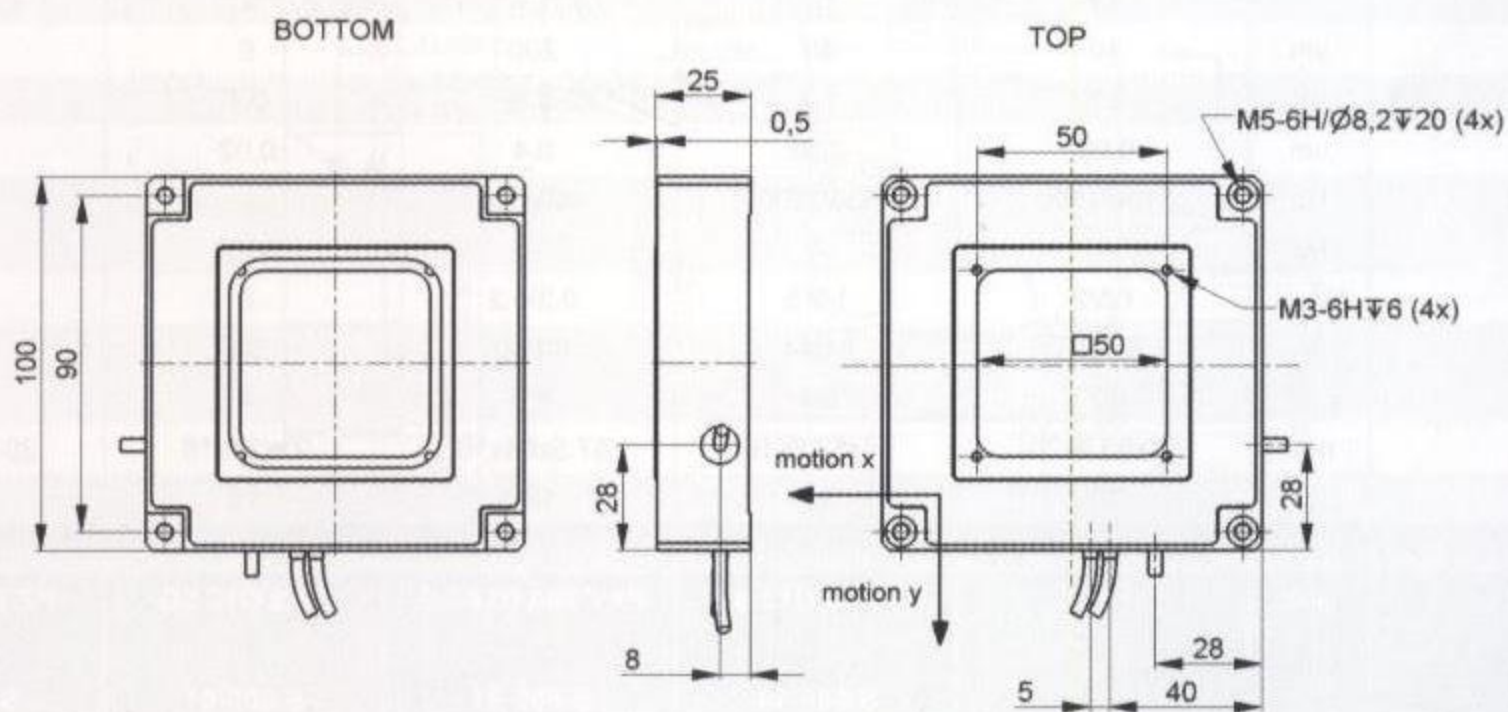
PXY 36 CAP



PXY 151

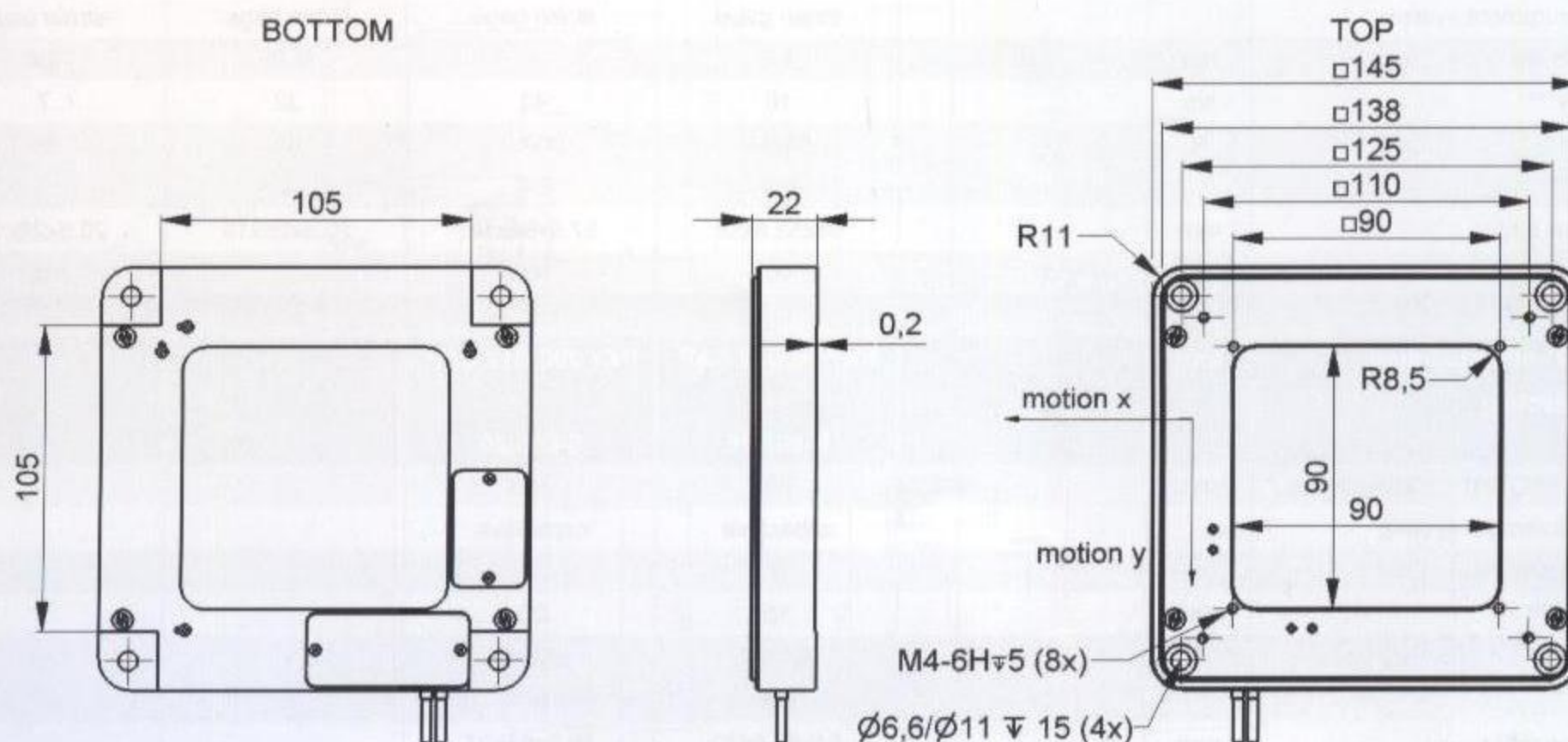
- motion range up to 250µm in x- and y-axis
- central aperture
- high load flexure hinges in parallel design
- integrated feed back sensors
- shortest settling time because of high stiffness

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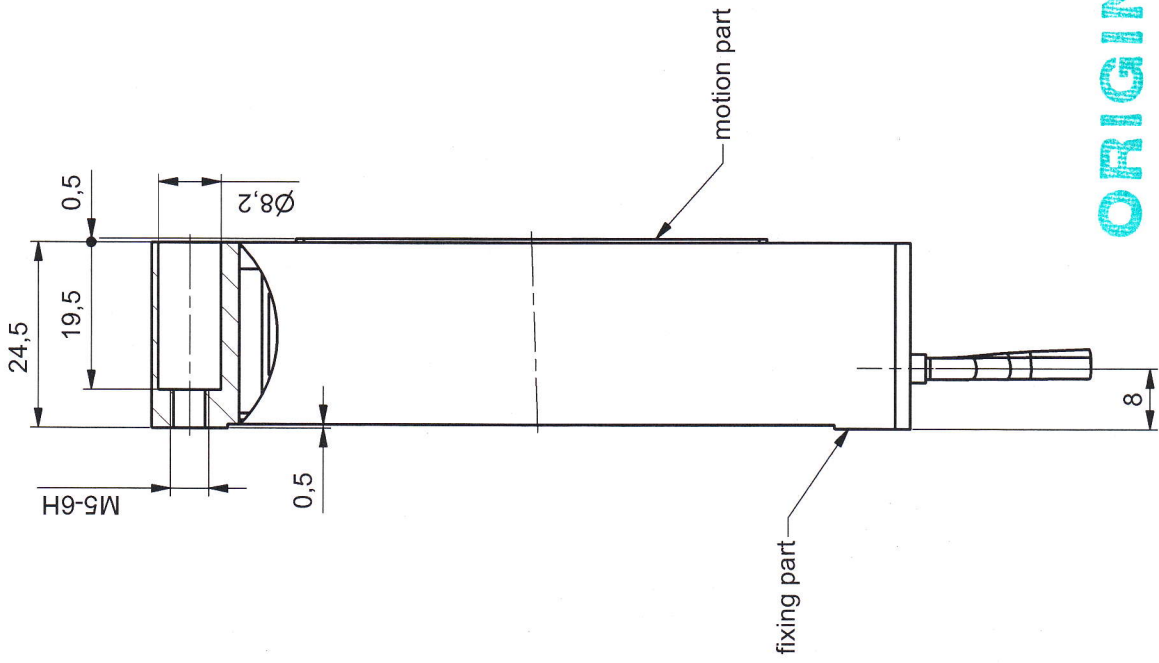


All drawings are subject to change without notice. For latest version please check [www.piezोजना.com](http://www.piezोजना.com)

PXY 36 CAP

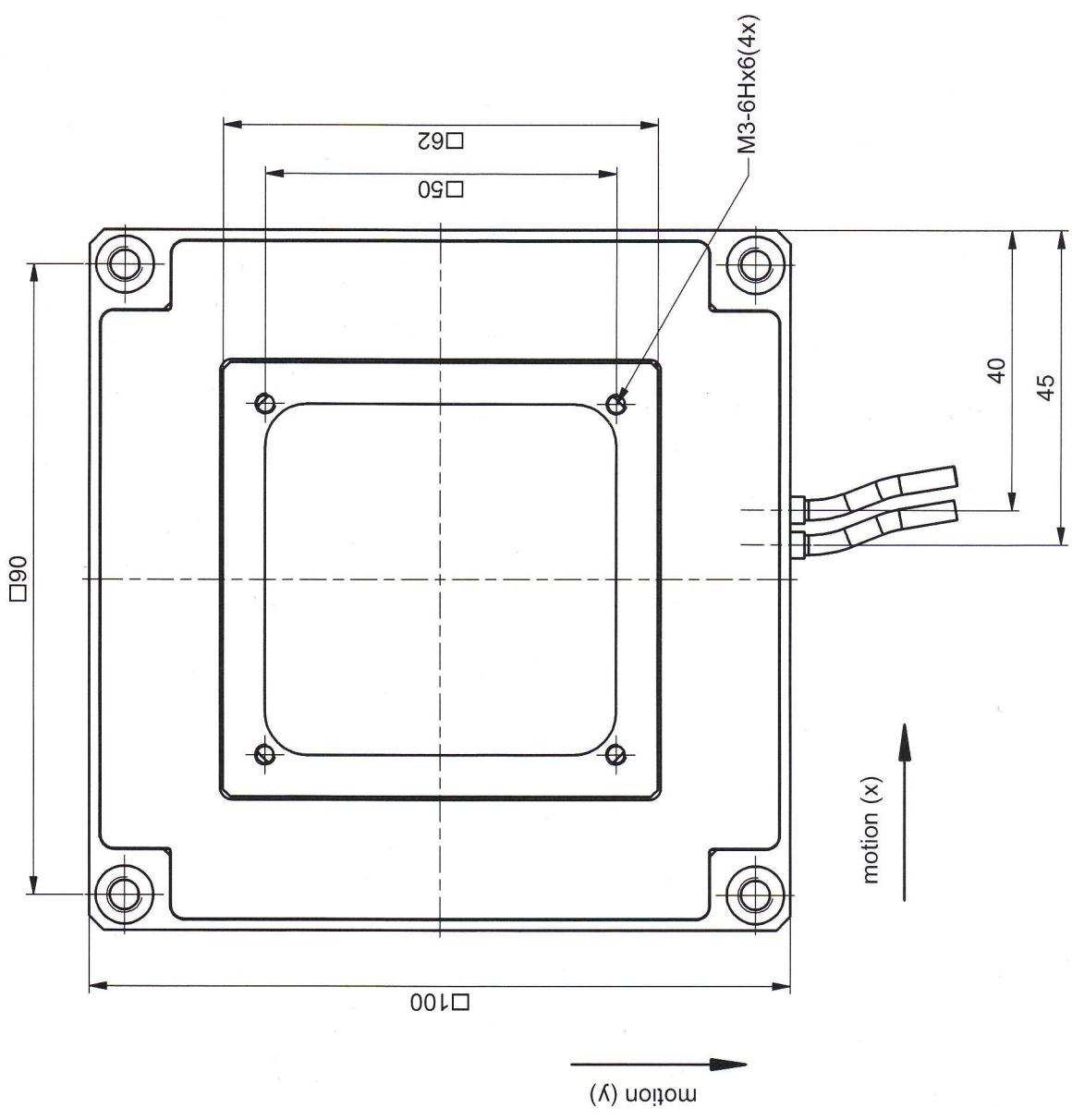


PXY 151



**ORIGINAL**

standard cable length: 1000mm



part.-no.	T-235-00	part.-name	PXY 36
file name	PT23500	OK: date/sign.	06. JUNI 2012
	scale	customers drawing	
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