

compact multi dimensional translation stages

TRITOR 400

- highly compact design
- accurate parallel motion by parallelogram design
- high reliability due to solid state hinges
- motion without mechanical play
- high resolution in nm and sub-nm range
- motion up to 400 μm
- precision pin holes for easy mounting

applications:

- optics, laser tuning, fiber positioning
- micromanipulation, biology
- scanning systems
- vacuum and cryogenic applications

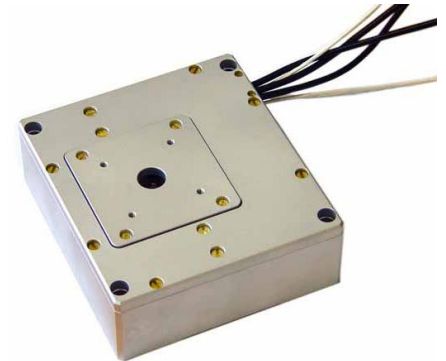


fig.: TRITOR 400 CAP
(vacuum version)

Concept

piezosystem jena was the first to introduce the compact XYZ nanopositioning stage TRITOR, and we can now stand behind this system as the only company to have over 18 years experience in designing and manufacturing of this three axis stage. The unique TRITOR elements are extremely compact but offer motions of up to 400 μm in all three axes. TRITOR elements can be easily combined with other mechanical positioning systems.

Specials

Due to FEA-optimization of these stages you meet highest dynamical performance and excellent guiding accuracy. This is accomplished even with high mass loads in a compact package. Parallel motion is achieved without play due to the mechanical design. As an option, integrated position control systems for overcoming the effect of hysteresis are available. Piezoactuators also function in cryogenic environment, associated with a linear decreasing extension behavior.

Mounting/Installation

TRITOR elements consist of actuators integrated in housing with an internal lever transmission. Since the lever mechanism works in both directions, forces between housing and top plate need to be avoided, as they could damage the stage. The stage is attached by using two diagonal holes. Components can be mounted on the top plate by two diagonal tapped and can be accurately located by using the precision pin holes.

technical data:

series TRITOR		unit	TRITOR 400	TRITOR 400 SG	TRITOR 400 CAP
part no.		-	T-406-00	T-406-01	T-406-06
axes		-	x, y, z		
motion open loop ($\pm 10\%$)*		μm	400	400	
motion closed loop ($\pm 0,2\%$)*		μm	-	320	
capacitance ($\pm 20\%$)** x/y/z		μF	14/14/14		6/6/14
integrated measurement		-	-	strain gage	capacitive
resolution open loop***		nm	0.8	0.8	0.8
resolution closed loop***		nm	-	35	1
typ. repeatability		nm	-	67	40
resonant frequency	x/y/z	Hz	180/280/140		
stiffness	x/y/z	N/ μm	0.3/0.3/0.25		
max. push force	x/y/z	N	120/120/100		
max. pull force	x/y/z		12/12/10		
max. load		N	100	100	40
voltage range		V	-20...+130		
connector	power (x/y)	-	LEMO 0S.302		ODU 3pin
	power (z)	-	LEMO 0S.302		
	sensor	-	-	LEMO 0S.304	LEMO 0S.650
cable length		m	1.0	1.2	1.6
min. bend radius of cable		mm	>15		
body material		-	stainless steel / anodized aluminum		
dimensions (l x w x h)		mm	116x106x40	116.5x106.5x40	116x106x40
aperture outside center		mm	$\varnothing 12.5$		
weight		g	1050	1050	1100

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

** typical value for small electrical field strength

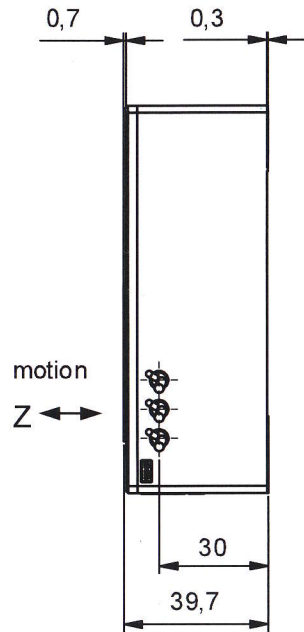
*** Because of the ceramic's solid-state phenomena based extension and the striction- and friction-free guidance design the whole assembly's resolution is only limited by the noise of the power amplifier and metrology.

recommended configurations:

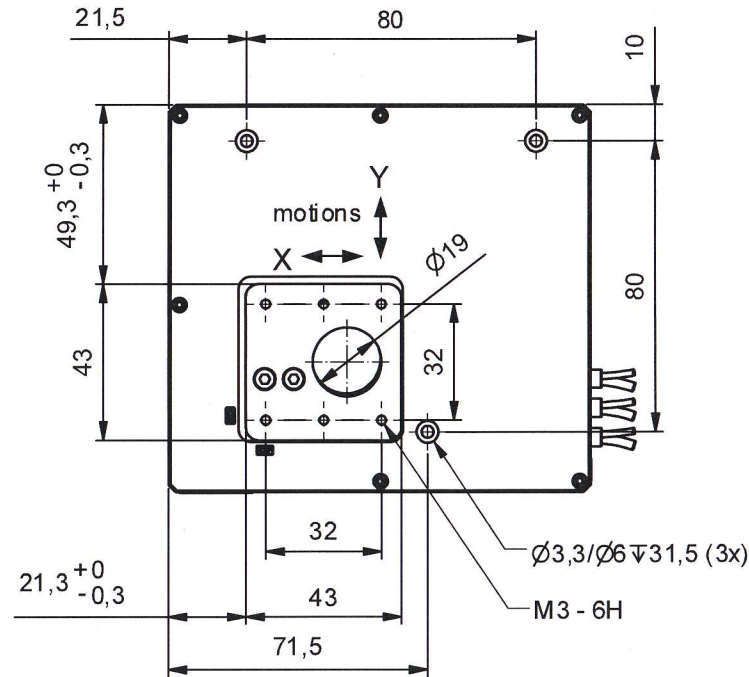
actuator	TRITOR 400	T-406-00
amplifier/controller	3 x ENV 40	E-103-10
power supply unit	ENT 40	E-103-13
PC interface	EDA 4	E-202-40
casing for all modules	63 TE	E-103-97
actuator	TRITOR 400 SG	T-406-01
amplifier/controller	3 x ENV 40 SG	E-240-100
power supply unit	ENT 40	E-103-13
PC interface	EDA 4	E-202-40
casing for all modules	84 TE	E-103-91
actuator	TRITOR 400 CAP	T-406-06
amplifier/controller	2 x ENV nanoX 40 CAP	E-240-600
amplifier/controller	1 x ENV 40 CAP	E-103-60
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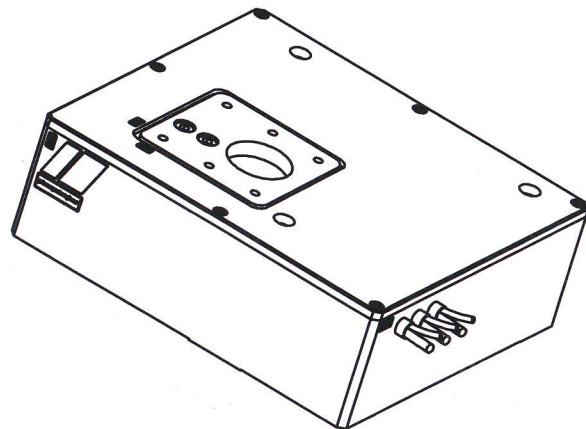
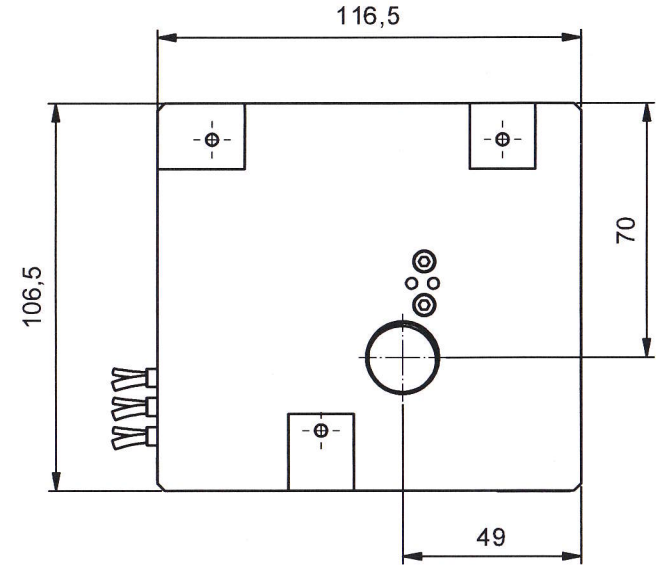
side view



top



bottom

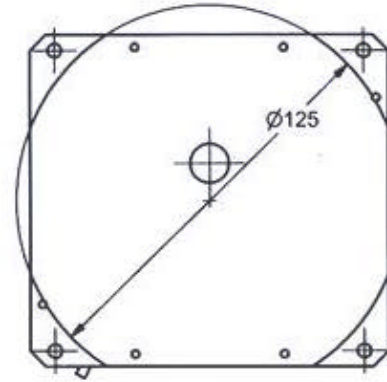
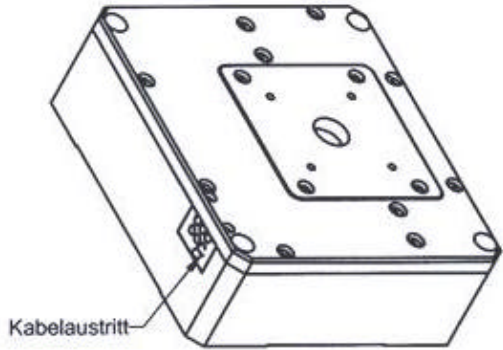
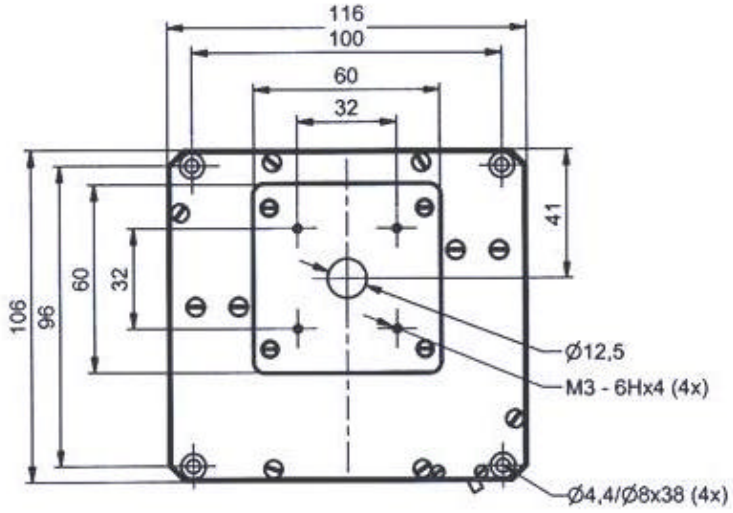


Achtung [Attention]:

Alle Abmaße in der Zeichnung gelten auch für TRITOR 400 (T-406-00).
 [All dimensions included this drawing also relevant for TRITOR 400 (T-406-00)]

ORIGINAL

part-no.		part-name	
T-406-01(00)		Tritor 400 SG	
file name	REV01	OK: date/sign.	
PT40601		21. JAN. 2010	
scale		customers drawing	
1:2		piezosystem jena	



ORIGINAL

part-no. T-406-06		part-name Tritor 400 CAP	
file name PT40606		OK: date/sign. 30. MRZ. 2006 <i>ks</i>	
scale 1:2		customers drawing piezosystem jena	

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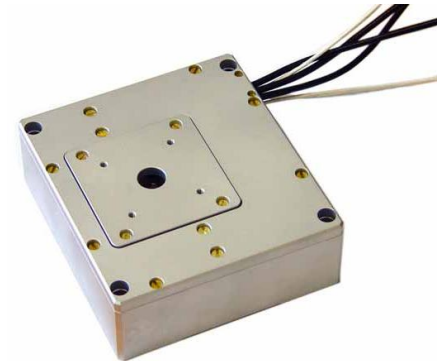


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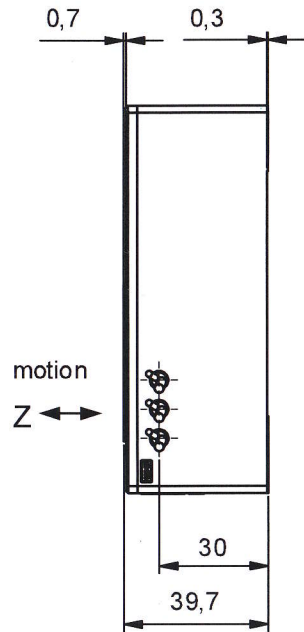
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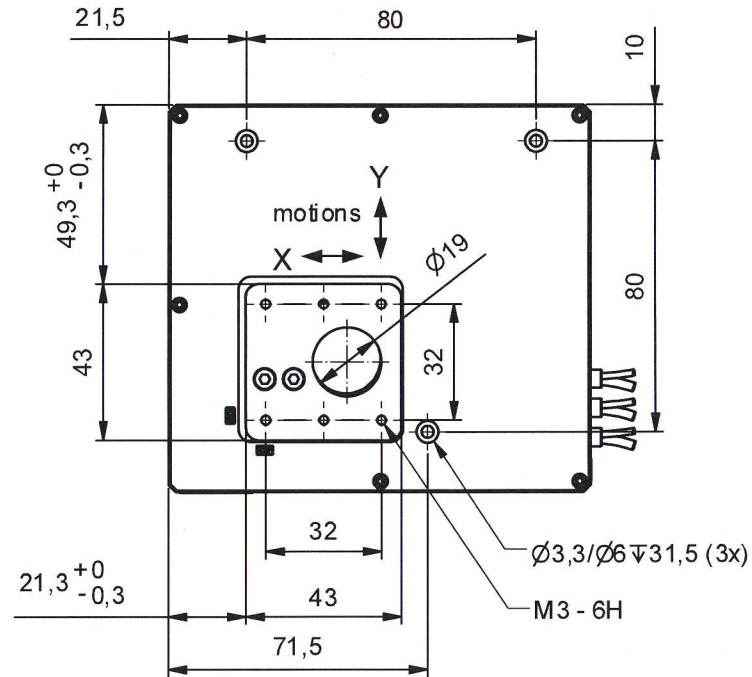
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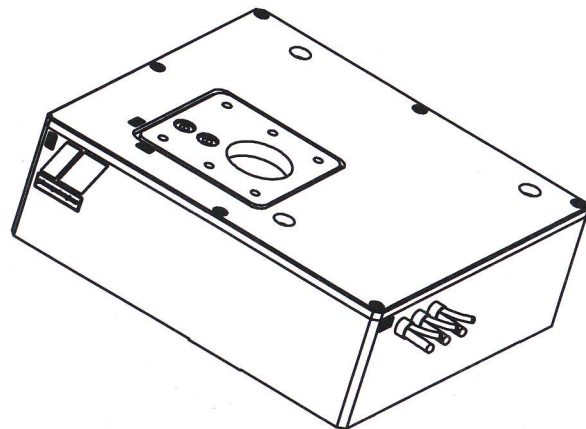
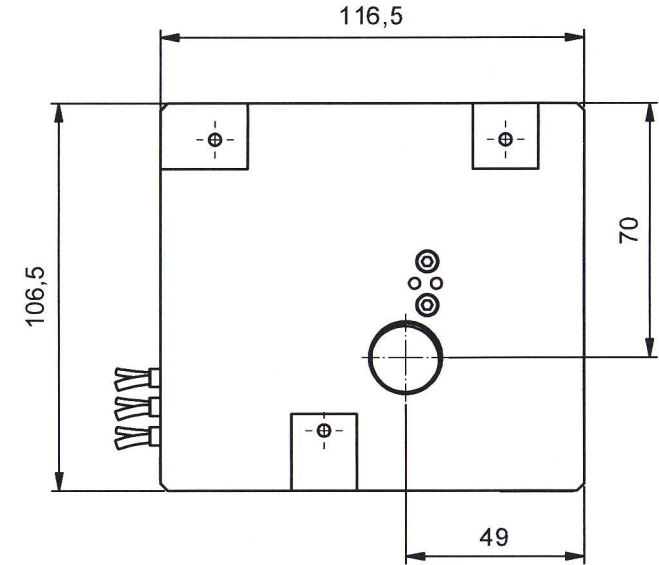
side view



top



bottom

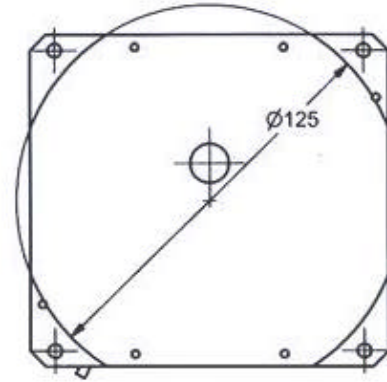
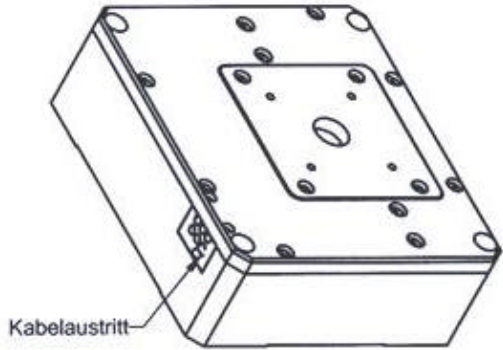
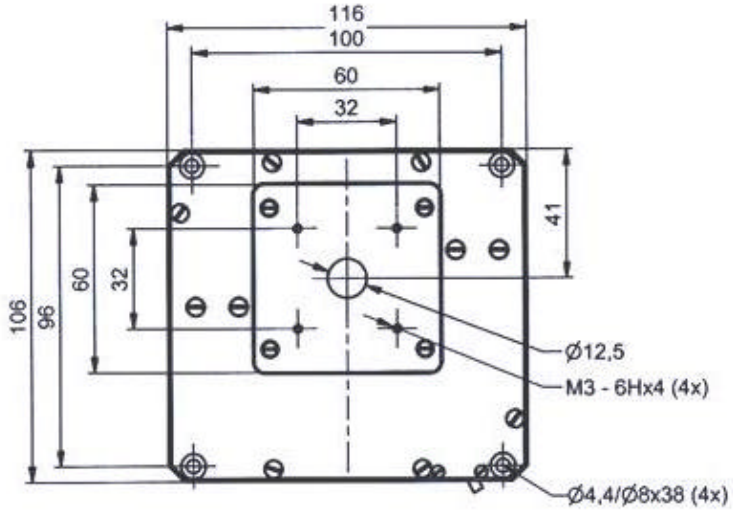


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PT40601		21. JAN. 2010	
scale		customers drawing	
1:2		piezosystem jena	



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