



**compact multi dimensional translation stages  
series TRITOR**

**150 V**

- with free central hole (30 mm / 40 mm)
- highly compact design results in superior performance
- 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 100  $\mu\text{m}$
- precision pin holes



TRITOR 102



TRITOR 101 CAP

**applications:**

- optics, laser tuning, fiber positioning
- micromanipulation, microscopy
- scanning systems
- vacuum and low temperature

**options:**

- integrated measurement system for each axis
- vacuum design
- other modifications available on request

**technical data:**

operating voltage: -20 to +130 V  
temperature range: -20 to 80 °C  
housing: stainless steel; top and bottom plate made of anodized Al  
connector: LEMO  
cable length: 1 m

*piezosystem jena's* unique TRITOR elements are extremely compact but offer motions of up to 100  $\mu\text{m}$  in all three axes. Parallel motion is achieved without play due to the mechanical design.

As an option, an integrated strain gauge measurement system and capacitive measurement system for overcoming the effect of hysteresis are available. TRITOR elements can be easily combined with other mechanical positioning systems. They are well suited for many various applications reaching from optical research to OEM systems.

Probe alignment in microscopes usually requires an open center space (e.g. for the passage of light). The models TRITOR 101 and 102, with their 30 and 40 mm free central holes, were developed considering such applications. Each axis is mechanically pre-loaded, making the TRITOR 101 and 102 systems very well suited for dynamical applications.

The element, with its solid state hinges, is made of stainless steel except for the bottom and top plate, which are made of black-anodized aluminum. The TRITOR 101 and 102 translation systems can be driven by any amplifier from *piezosystem jena*.

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series TRITOR		unit	TRITOR 101	TRITOR 102
part no.			T-404-00	T-405-00
axis		-	x, y, z	x, y, z
motion ( $\pm 10\%$ )**	open loop	$\mu\text{m}$	100	100
operating voltage		V	-10...150	-10...150
capacitance each dir. ( $\pm 10\%$ )***		$\mu\text{F}$	1.7	1.7
resolution*		nm	0.2	0.2
resonant	x-direction	Hz	420	330
	y-direction	Hz	410	320
	z-direction	Hz	360	210
stiffness	x-direction	N/ $\mu\text{m}$	1.0	1.0
	y-direction	N/ $\mu\text{m}$	1.0	1.0
	z-direction	N/ $\mu\text{m}$	1.0	1.0
force generation (blocking force)	x-direction	N	40	40
	y-direction	N	40	40
	z-direction	N	32	32
dimensions	length L	mm	68	80
	width B	mm	68	80
	height H	mm	30	30
central free space		mm	$\varnothing 30$	$\varnothing 40$
distance of drills	C	mm	32	40
	hole P	mm	$\varnothing 4.4 / \varnothing 8 \times 26$	$\varnothing 4.4 / \varnothing 8 \times 27$
	E	mm	40	60
	F	mm	50	50
	M	mm	M3 x 5	M3 x 5
	N	mm	$\varnothing 3 \text{ G7} \times 4$	$\varnothing 3 \text{ G7} \times 5$
connector	voltage	-	LEMO 0S.302	LEMO 0S.302
weight		g	480	520
TRITOR with strain gauge feedback system		unit	TRITOR 101 SG	TRITOR 102 SG
part no.			T-404-01	T-405-01
motion ( $\pm 10\%$ )**	open loop	$\mu\text{m}$	100	100
	closed loop	$\mu\text{m}$	80	80
resolution*	closed loop	nm	2	2
typ. non-linearity		%	0.12	0.07
typ. repeatability		nm	50	40
dimensions	length L	mm	68	80
	width B	mm	68	80
	height H	mm	30	30
connector	sensor SG	-	LEMO 0S.304	LEMO 0S.304
weight		g	570	570
TRITOR with capacitive sensor feedback system		unit	TRITOR 101 CAP	TRITOR 102 CAP
part no.			T-404-06	T-405-06
motion ( $\pm 10\%$ )**	open loop	$\mu\text{m}$	100	100
	closed loop	$\mu\text{m}$	80	80
resolution*	closed loop	nm	1	1
typ. non-linearity		%	0.08	0.04
typ. repeatability		nm	23	20
dimensions	length L	mm	80.5	80
	width B	mm	80.5	80
	height H	mm	30	30
connector	sensor CAP	-	LEMO 0S.650	LEMO 0S.650
weight		g	650	650

- \* measured with E-240-100 amplifier
- \*\* typical value measured with -20V to 130V
- \*\*\* typical value for small electrical field strength

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