

TRITOR 101 and TRITOR 102

3D piezo positioning stages with central opening

Concept:

The piezo 3D stage series TRITOR 101 and 102 are extremely compact and offer motions of up to 100 µm in XYZ direction. The unique cube like mechanical design allows motion without play. They are well suited for many 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 3D piezo stage models TRITOR 101 and 102 with their central apertures of 30 mm and 40 mm were developed considering such applications. High stiffness, in combination with excellent straightness of motion, make the TRITOR series ideal for high precision in the nano meter range for optics, laser-technique, and any other type of high resolution positioning application.

Specials:

Piezo electrical actuators can act much faster, and with a higher accuracy to a signal change, than any motorized drive available. Each axis can be controlled separately in closed loop mode. An integrated sensor system is an available option that guarantees accuracy in the nanometer range. The simultaneous motion, available in XYZ directions, offers a large degree of freedom during use. All stages of the TRITOR series can be made with special materials for extraordinary applications such as vacuum or cryogenic applications. There is also a version with threading for mounting objectives.

Assembling:

The stages are designed to be mounted, by the use of two through holes located diagonal from each other. Components can be mounted on the top plate by two diagonal tapped holes and can be accurately located by using the precision pin holes.

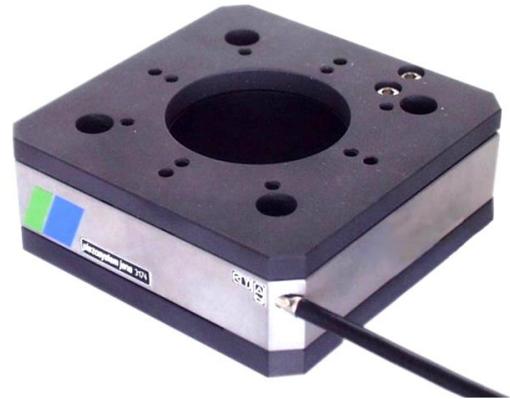


Image: TRITOR 102

Product highlights:

- 3D nano positioning stage
- central opening (up to 40 mm)
- XYZ motion range 100 µm
- optional integrated feedback sensors
- motion without mechanical play
- highest positioning resolution
- stage design for microscopy platforms
- high resonant frequency precise for line scanning application
- SG and CAP sensors available
- version with threading (RMS up to M32)

Application:

- AFM and Microscopy
- Micromanipulation
- Cantilever adjustment

TRITOR 101 and TRITOR 102

Technical data:

series TRITOR 101 (opening Ø 30 mm)		unit	TRITOR 101	TRITOR 101 SG	TRITOR 101 CAP
part no.		–	T-404-00	T-404-01	T-404-06
axes		–		X/Y/Z	
motion in open loop (±10%)*		µm	100	100	100
motion in closed loop *		µm	–	80	80
electrical capacitance per axis (±20%)		µF	1.7	1.7	1.7
integrated measurement system		–	–	SG	CAP
resolution***		nm	0.2	2	1
typ. repeatability		nm	–	±18	±11
resonant frequency (X/Y/Z)		Hz	420/410/360	420/410/360	420/410/360
stiffness (X/Y/Z)		N/µm	1/1/1	1/1/1	1/1/1
max. force generation (X/Y/Z)	pull	N	10/10/10	10/10/10	10/10/10
	push		100/100/100	100/100/100	100/100/100
cable length		m	1.0	1.2	1.6
material		–	stainless steel/aluminum		
dimensions (LxWxH)		mm	68 x 68 x 30	68 x 68 x 30	80.5 x 80.5 x 30
central opening Ø		mm	30	30	30
weight		g	480	570	650

series TRITOR 102 (opening Ø 40 mm)		unit	TRITOR 102	TRITOR 102 SG	TRITOR 102 CAP/ TRITOR 102 CAP with threading****
part no.		–	T-405-00	T-405-01	T-405-06/T-405-06D-CT
axes		–		X, Y, Z	
motion in open loop (±10%)*		µm	100	100	100
motion in closed loop *		µm	–	80	80
electrical capacitance per axis (±20%)		µF	1.7	1.7	1.7
integrated measurement system		–	–	SG	CAP
resolution***		nm	0.2	2	1
typ. repeatability		nm	–	±17	±10
resonant frequency x/y/z		Hz	330/320/210	330/320/210	330/320/210
stiffness x/y/z		N/µm	1/1/1	1/1/1	1/1/1
max. force generation x/y/z	pull	N	10/10/10N	10/10/10	10/10/10
	push		100/100/100	100/100/100	100/100/100
cable length		m	1.0	1.2	1.6
material		–	stainless steel/aluminum		
dimensions (LxWxH)		mm	80 x 80 x 30	80 x 80 x 30	80 x 80 x 30
central opening Ø		mm	40	40	40
weight		g	520	610	700

* typical value measured with NV40/3 CLE amplifier

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology

**** RMS up to M32 threading available

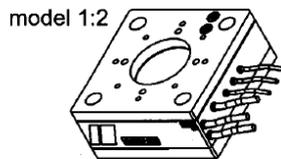
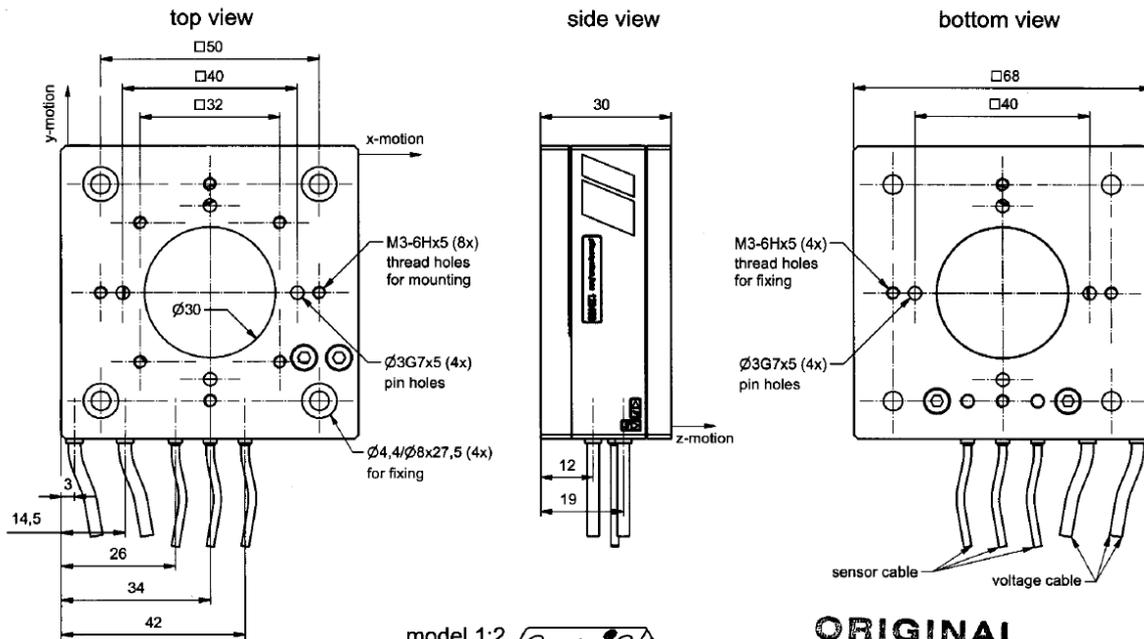
TRITOR 101 and TRITOR 102

Types of connectors:

Product name	Description	Specials	Part. No Suffix.
TRITOR 101 Digital			T-404-00 D
TRITOR 101 SG Digital			T-404-01 D
TRITOR 101 CAP Digital			T-404-06 D
TRITOR 102 Digital			T-405-00 D
TRITOR 102 SG Digital			T-405-01 D
TRITOR 102 CAP Digital			T-405-06 D
		connector Sub-D 15	
		plug voltage: LEMO 0S.302	T-404-01 E
TRITOR 101 SG Extern	Version with sensor pre-amplifier for the use		T-405-01 E
TRITOR 102 SG Extern	of additional functionalities: Interchange		
TRITOR 101 CAP Extern	ability, ASI	plug sensor SG: ODU 4pin	T-404-06 E
TRITOR 102 CAP Extern		plug sensor CAP: LEMO 0S.650	T-405-06 E
			T-404-00
TRITOR 101		plug voltage : LEMO 0S.302	T-404-01
TRITOR 101 SG			T-404-06
TRITRO 101 CAP	Connector style according to the piezo		
TRITOR 102	controller series ENV, 30V300 OEM and 12V40	plug sensor SG: LEMO 0S.304	T-405-00
TRITOR 102 SG	OEM	plug sensor CAP: LEMO 0S.650	T-405-01
TRITRO 102 CAP			T-405-06

Rights reserved to change specifications as progress occurs without notice!

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ORIGINAL

part-no.		part-name	
T-404-01		Tritor 101 SG	
file name		OK date/sign.	
PT40401		27. SEP 2017	
rev.02		scale	
1:1		customers drawing piezosystem jena	

Example: TRITOR 101 SG. For further drawings please visit www.piezosystem.com.