Product Advantages

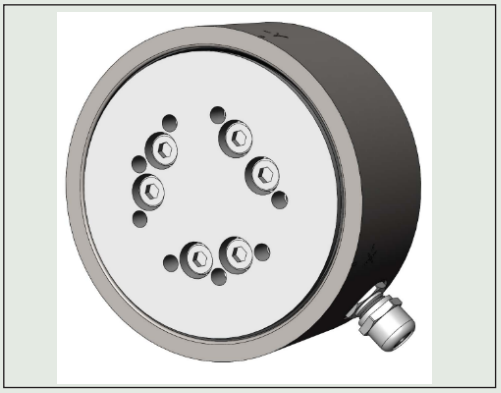
One of the Smallest 6-Axis Sensors in the World: The Mini45 has a compact, low-profile design with a through-hole to allow passage of linkages or cables.

Extremely High Strength:

- EDM wire-cut from high-yield strength stainless steel.
- Maximum allowable single-axis overload values are 5.7 to 25 times rated capacities.

High Signal-to-Noise Ratio: Silicon strain gages provide a signal 75 times stronger than conventional foil gages. This signal is amplified, resulting in near-zero noise distortion.

IP65 and IP68 (4m) Versions Available: The IP65 version of the transducer is available for use in wet environments. The IP68 version is for underwater environments to a maximum depth of 4 meters in fresh water. Contact ATI Industrial Automation for drawings and more information.



The Mini45 F/T transducer
EDM wire-cut from high yield-strength stainless steel

Typical Applications

- Telerobotics
- Robotic surgery
- Robotic hand research
- Finger-force research

English Calibrations

SENSING RANGES	Calibrations		
Axes	US-30-40	US-60-80	US-120-160
Fx, Fy (±lbf)	30	60	120
Fz (±lbf)	60	120	240
Tx, Ty (±lbf-in)	40	80	160
Tz (±lbf-in)	40	80	160

RESOLUTION	System Type*					
Axes	CTL	Net/DAQ	CTL	Net/DAQ	CTL	Net/DAQ
Fx, Fy (lbf)	1/40	1/80	1/20	1/40	1/10	1/20
Fz (lbf)	1/40	1/80	1/20	1/40	1/10	1/20
Tx, Ty (lbf-in)	1/44	1/88	1/22	1/44	1/11	1/22
Tz (lbf-in)	1/88	1/176	1/44	1/88	1/22	1/44

Metric Calibrations

SENSING RANGES	Calibrations		
Axes	SI-145-5	SI-290-10	SI-580-20
Fx, Fy (±N)	145	290	580
Fz (±N)	290	580	1160
Tx, Ty (±Nm)	5	10	20
Tz (±Nm)	5	10	20

RESOLUTION	System Type*					
Axes	CTL	Net/DAQ	CTL	Net/DAQ	CTL	Net/DAQ
Fx, Fy (N)	1/8	1/16	1/4	1/8	1/2	1/4
Fz (N)	1/8	1/16	1/4	1/8	1/2	1/4
Tx, Ty (Nm)	1/376	1/752	1/188	1/376	1/94	1/188
Tz (Nm)	1/752	1/1504	1/376	1/752	1/188	1/376

*CTL: Controller F/T System; Net: Net F/T System; DAQ: 16-bit DAQ F/T System. The resolution is typical for most applications and can be improved with filtering. Resolutions quoted are the effective resolution after dropping four counts of noise (Net/DAQ) or eight counts of noise (CTL). All sensors calibrated by ATI.
Applied loads must be within range in each of the six axes for the F/T sensor to measure correctly (refer to the transducer manual for complex loading information).

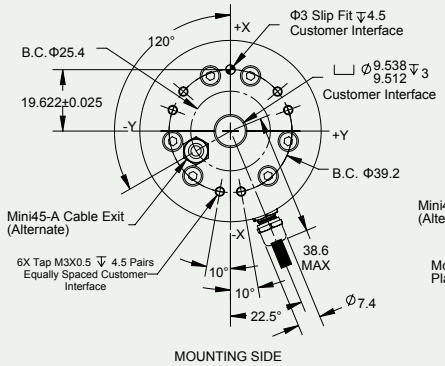
Single-Axis Overload	English	Metric
Fxy	±1100 lbf	±5100 N
Fz	±2300 lbf	±10000 N
Txy	±1000 lbf-in	±110 Nm
Tz	±1200 lbf-in	±140 Nm
Stiffness (Calculated)	**English**	**Metric**
X-axis & Y-axis force (Kx, Ky)	4.2×10^5 lb/in	7.4×10^7 N/m
Z-axis force (Kz)	5.6×10^5 lb/in	9.8×10^7 N/m
X-axis & Y-axis torque (Ktx, Kty)	1.5×10^5 lbf-in/rad	1.7×10^4 Nm/rad
Z-axis torque (Ktz)	3.1×10^5 lbf-in/rad	3.5×10^4 Nm/rad
Resonant Frequency (Measured)		
Fx, Fy, Tz	5200 Hz	
Fz, Tx, Ty	4200 Hz	
Physical Specifications	**English**	**Metric**
Weight*	0.862 lb	0.0391 kg
Diameter (OD,ID)*	2.28 in, 0.373 in	57.9 mm, 9.5 mm
Height*	0.988 in	25.1 mm

*Specifications are for non-IP rated models. Diameter excludes any connector or cable features.

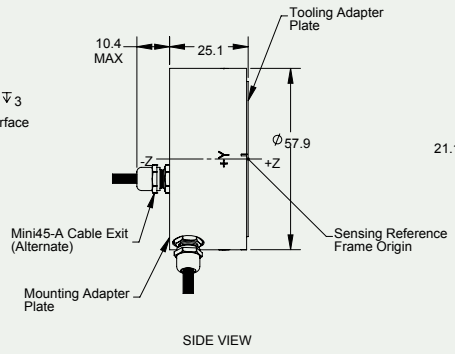
"ATI's sales support has been invaluable in helping us select the appropriate sensor and explaining detailed technical issues. I am extremely pleased with the ATI sensor we have chosen. It has enabled us to measure forces exerted by a physician, during a medical procedure, which have never been measured before."

Nathan Delson, PhD
Director, Mechanical Engineering Design Center
University of California, San Diego
Department of Mechanical and Aerospace Engineering

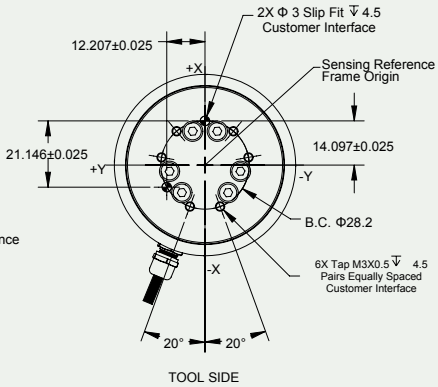
ATI INDUSTRIAL AUTOMATION | www.ati-ia.com | MINI45



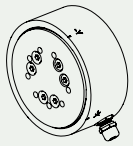
MOUNTING SIDE

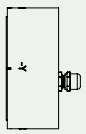


SIDE VIEW



TOOL SIDE


MINI45-R ISOMETRIC VIEW


ALTERNATE CABLE EXIT MINI45-A

Notes:
1. Material: Stainless Steel
2. Tool and Mounting Adapters have M3 tapped holes and 3mm dowel pin holes for interfacing.
3. **WARNING: DO NOT LOOSEN OR REMOVE INTERFACE PLATES DUE TO POTENTIAL DAMAGE.**
4. Standard connector (not shown) has 17mm diameter & is 67.5mm long.
5. Cable is IP65 rated only at transducer end.

Customer Drawing # 9230-05-1443