

# PIEZOELECTRIC Force Sensor

**ENDEVCO  
MODEL  
2312**

## Model 2312

- **Designed for Model Exciter**
- **Measures Compression and Tension**
- **Rigid Quartz Construction**
- **Charge Mode, no External Power Required**



Actual size

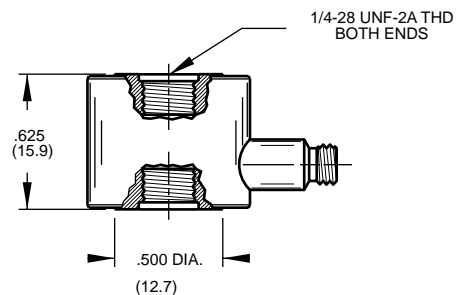
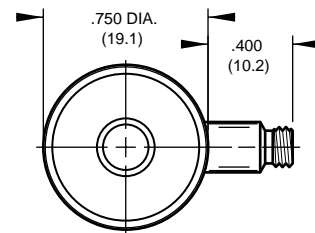
### DESCRIPTION

The ENDEVCO Model 2312 is a charge mode, piezoelectric force transducer designed specifically for use with vibration exciters (thrusters) in modal measurements and dynamic analysis.

The 2312 is designed with very high stiffness and strength. Physically, the sensor is almost as rigid as a comparably proportioned piece of solid steel. When inserted between the test article and a vibration exciter, such as an electrodynamic shaker, it accurately measures the input force without changing the mechanical characteristics of the structure.

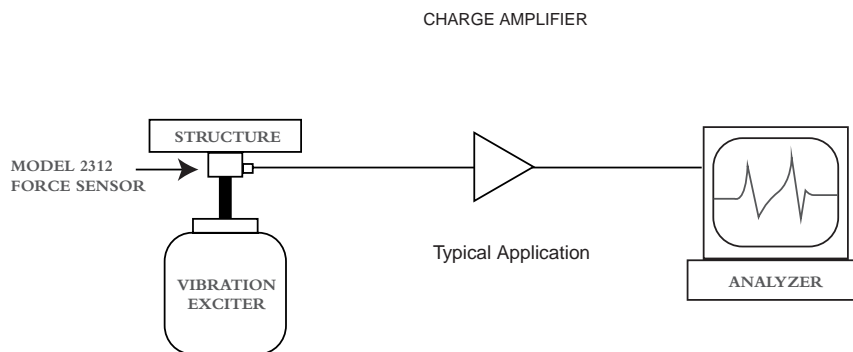
The very high resonance frequency of the 2312 allows for the measurement of short duration, fast rise time force transients. The high impedance, charge output requires the use of low noise cable and a charge amplifier. Signal ground is connected to the outer case of the unit.

Endevco model 133 or OASIS are recommended signal conditioners for use with the 2312 force sensors.



MODEL 35902-XXX

STANDARD TOLERANCE  
INCHES (MILLIMETERS)  
.XX = +/- .03 (.X = +/- .8)  
.XXX = +/- .010 (.XX = +/- .25)



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MODEL  
2312**

**ISOTRON® Force Sensor**

**SPECIFICATIONS**

The following performance specifications are typical values, referenced at +75°F (+24°C), unless otherwise noted.

DYNAMIC CHARACTERISTICS	Units	Value
Sensitivity	pC/lbF (pC/N)	- 18 (-4)
Mounted Resonance Frequency, Unloaded	kHz	75
Maximum Compression	lbf (lbN)	15000 (67 000)
Maximum Tension (1)	lbf (N)	500 (2224)
Linearity	%FS	± 1

**OUTPUT CHARACTERISTICS**

Output Polarity	Compression force produces negative output,tension force produces positive Output	
Output Type	Charge	
Capacitance, Nom.	pF	18
Insulation Resistance	Ω	1 X 10 <sup>12</sup>

**ENVIRONMENTAL CHARACTERISTICS**

Temperature Range	°F (°C)	-100 to 500 (-73 to 260)
Humidity	Epoxy Sealed	
Maximum Shock, Unloaded	g	10000
Coefficient of Thermal Sensitivity	%/°F(%/°C)	0.01 (0.005)

**PHYSICAL CHARACTERISTICS**

Dimensions	See outline Drawing	
Weight	grams	28
Case Material	17-4 PH Stainless Steel	
Electrical Connector, Radial	10-32 Coaxial	
Mounting Provision,	1/4-28 UNF-2B 0.175 deep Top and Bottom	
Mounting Torque	lbf-in (N)	24 (2.)

**CALIBRATION**

SUPPLIED:		
SENSITIVITY	pC/lbf	

**ACCESSORIES**

EHM1213	MOUNTING STUD 1/4 - 28 to 1/4 - 28 0.38" LENGTH
EHM1214	IMPACT CAP , stainless steel

**NOTES**

1. Tension rating is limited by the transducer design
2. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.