Force Measurement Transducer

FEATURES

- Simple bolt-on installation
- No mill stand alterations required
- Accuracy: ±0.85% of full scale output
- Repeatability: 0.5% of full scale output
- No damage results from accidental mill overload

APPLICATIONS

- Rolling mills
- Overload safety systems

DESCRIPTION

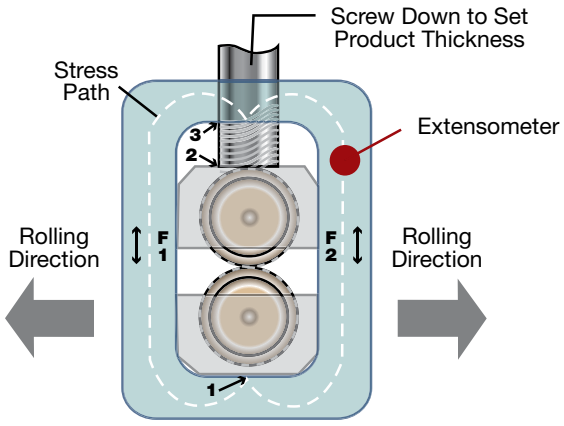
Extensometers govern the accuracy of the Roll Force Measurement System. Although similar in operating principal to a load cell, an extensometer is calibrated in strain (or stretch) instead of load. Actually, where maximum roll force may vary considerably from mill to mill, post strain remains within a range of 33 to 130 microinches per inch. Extensometers are designed for optimum performance over this range.

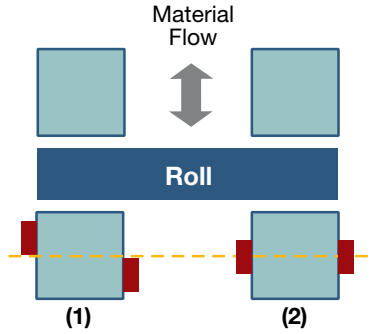
Installing extensometers on both the work and drive sides of the mill enables the user to achieve a balanced force at all times.

With extensometers installed, the mill posts become an active part of the measuring system. The entire mill housing with the attached extensometer can be considered a “load cell”.

For additional system information, please refer to the G4 and RFS4 datasheets.

CONFIGURATION





Permissable locations of extensometers
(1) Offset an equal but opposite amount from post centerline
(2) On the centerline

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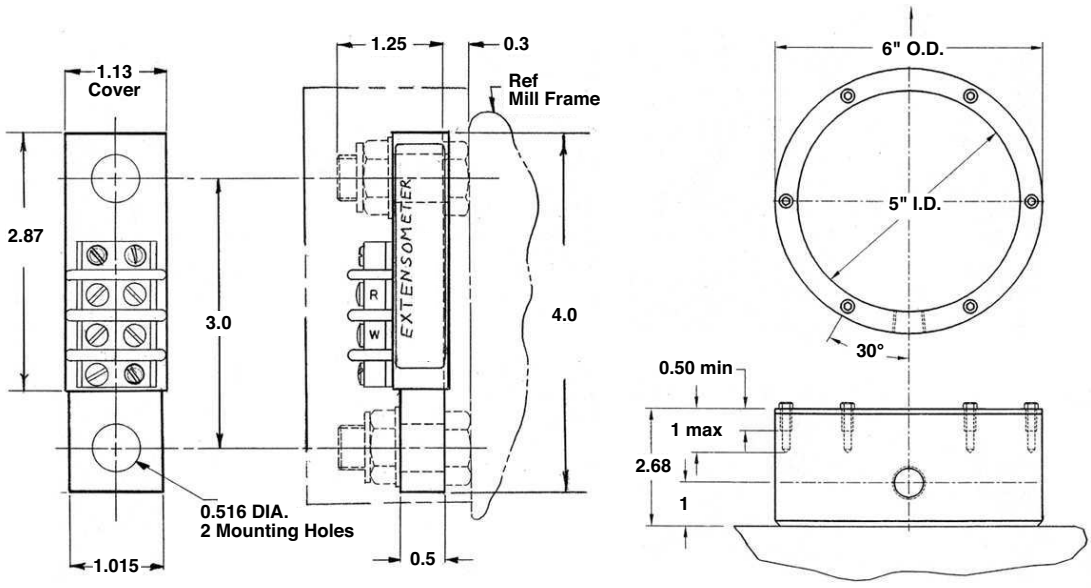
OUTLINE DIMENSIONS



Extensometer Outline

Cover Outline

SPECIFICATIONS

PARAMETER	VALUE
PERFORMANCE	
Accuracy[1]	<±0.85% of FSO
Nonlinearity	<±0.25% of FSO
Hysteresis	<±0.40% of FSO
Repeatability	±0.5% of FSO
Calibrated output	8 mV/V ±0.5% = 66.6 µm/m (microstrain)
OVERLOAD CAPABILITY	
Zero[2]	300% of FSO (24 mV/V)
Maximum	550% of FSO (44 mV/V)

PARAMETER	VALUE
STRAIN BRIDGE	
Input resistance	525 Ω ±125 Ω
Output resistance	350 Ω ±50 Ω
Insulation resistance	5000 MΩ
Excitation	10 VDC
Thermal effects (24°C to 65°C; 75°F to 150°F)	
Zero[3]	±0.055%/°C (±0.03%/°F) of FSO
Rated output	±0.011%/°C (±0.006%/°F) of reading
Operating temperature range	–17°C to 121°C (1°F to 250°F)

[1] Accuracy is the Root Sum of the squares of nonlinearity, hysteresis, repeatability and span.
[2] Cancelled by the instrument Zero Adjust capability.
[3] The autozero capability of the instrument cancels any thermal zero shift.

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