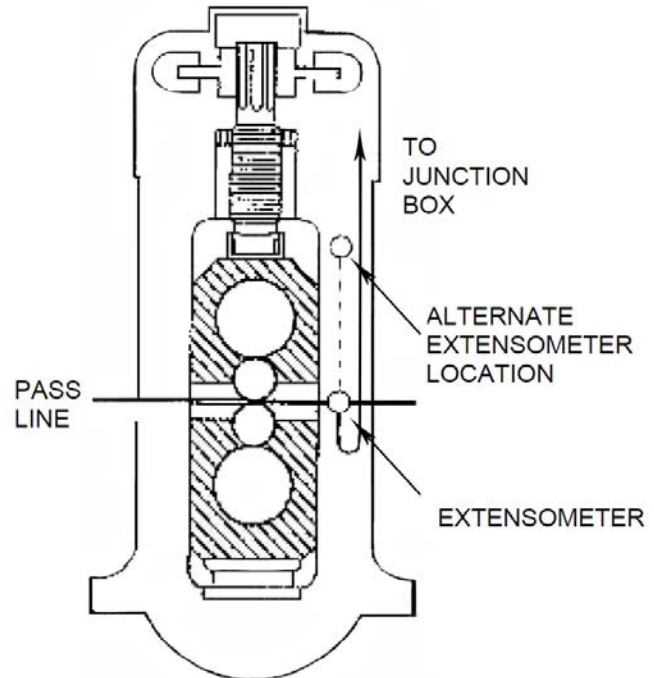




MODEL Z1058 STRAIN GAGE EXTENSOMETER



TYPICAL ROLLING MILL INSTALLATION

1 DESCRIPTION

The strain gage extensometer is a sensor that can be conveniently mounted on the surface of the rolling mill housing to measure the stretch induced by the rolling force. It can also be used on forming or punch presses. The extensometer output is proportional, within certain limitations, to the forces producing the stretch. Extensometers are typically used on existing rolling mills when it is physically and economically impractical to install load cells and where high accuracy of the load measurement is not necessary. They are often used to provide "metal-in-mill" signals as well as an indication of total and differential rolling load. A total of two sensors are used, one on the outside of the operator side housing the other on the outside of the drive side housing.

In a rolling mill the accuracy of force indication depends upon the ability to relate the measurements at the sensor location to the actual force on the roll gap. A mathematically derived transfer constant may be sufficient in some cases; however, when higher accuracy is required, or when mathematical correlation is difficult, a means of physical calibration must be used. A portable calibration kit complete with special low profile "roll gap" load cells is available from KELK for this purpose.

2 FEATURES

- The extensometer is easily mounted on the mill housing using the mounting kit provided which includes the necessary bolts and drilling template required for installation.
- The sensing element is housed in a sealed enclosure with the entire cavity filled with potting compound to protect it from damage due to heat, impact, water and mill lubricants.
- An electrical lead cable, 4-conductor, shielded, 10 meters (30 feet) is connected to the sensor and terminated for screw connection at the junction box.
- A steel reinforced, oil resistant hydraulic hose assembly protects the electrical cable.

3 SPECIFICATIONS

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| 3.1 Capacity: | 0 to 100 microstrain.* |
| 3.2 Excitation Voltage: | 15 VDC or VAC maximum. |
| 3.3 Output: | 1.0 mV per volt of excitation at 100 microstrain. |
| 3.4 Response Time: | Less than 1.5 mS (at amplifier output). |
| 3.5 Hysteresis and Linearity: | Less than 0.1% of full scale output for hysteresis and linearity combined. |
| 3.6 Repeatability: | Less than 0.1% of full scale output. |
| 3.7 Thermal Zero Shift: | Less than 0.006% (60 parts per million) of output per °C after site adjustment is complete. |
| 3.8 Load Limit: | 250 microstrain without electrical zero shift. |
| 3.9 Operating Temperature Range: | -10°C to +150°C (14°F to +302°F). |

Note: One microstrain equals an extension of one part per million. For steel with an elastic modulus (E) of 210,000 Mpa (30.5 x 106 psi), the equivalent stress for microstrain extension is 210 kPA (30.5 psi).

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| 3.10 Electrical Leads: | Teflon insulated, 4-conductor, shielded cable, 10 meters (30 feet) attached to the unit and terminated for screw connection at the junction box. |
| 3.11 Hose Assembly: | To protect the electrical leads, a steel reinforced, BUNA “N” (for steel mill applications) or TEFLON (for aluminum mill applications) hydraulic hose is supplied. |
| 3.12 Installation Kit: | <ul style="list-style-type: none">• Model Z1058-A bolts with metric threads• Model Z1058-B bolts with U.N. threads |

4 DIMENSIONS

