



ROLLMAX DISC LOAD CELL

1 DESCRIPTION

KELK Disc Load Cells are electromechanical sensors used to measure force or load in harsh environments. Their long service life in metals rolling mills has proven them reliable and accurate under severe operating conditions and high overloads.

Strain gages, as measuring elements, permit the use of DC excitation to provide exceptionally fast response to changes in force or load.

2 APPLICATIONS

The shape and millworthy construction of KELK ROLLMAX Disc Load Cells makes them particularly well-suited for use in metals rolling mills, where they are fitted for measurement and control of roll separating forces and, ultimately, Automatic Gage Control (AGC). In this application they are usually mounted between the screw and top back-up chock in mills with roller bearings or plain bearings. The roll separating force is transmitted through precision loading plates that distribute the load uniformly over the load cell surface.

As well as in rolling mills, KELK Disc Load Cells can be used in other types of machinery to measure force or load.

ROLLMAX 5 YEAR WARRANTY

ROLLMAX Load Cells are warranted not only against defects in workmanship or material, but against failure of any kind, however caused, for a period of FIVE YEARS.

(For details contact KELK)

KELK Disc Load Cells interface with ROLLMAX DSP2 Digital Signal Processors or with older P1000 Processors and P400 Analog Signal Amplifiers. A wide variety of standard features are available to meet individual roll force measurement requirements.

To help ensure a successful installation a detailed drawing showing the cell and adjacent mill components is prepared by KELK engineers.

Each load cell is fitted with a 10 meter (33 foot) Teflon cable as standard (other lengths are available). This is permanently attached, has four conductors shielded, and is armoured for protection.

3 FEATURES

- Mechanically interchangeable with other disc-shaped load cells.
- Manufactured from a single high strength stainless steel forging.
- Hermetically sealed, welded construction, filled with dry inert gas for long term stability.
- Excellent accuracy.
- Durable and accurate over a wide range of temperatures.
- Custom sized for each individual application.
- Custom loading plates and load cell housings are available from KELK.

4 SPECIFICATIONS

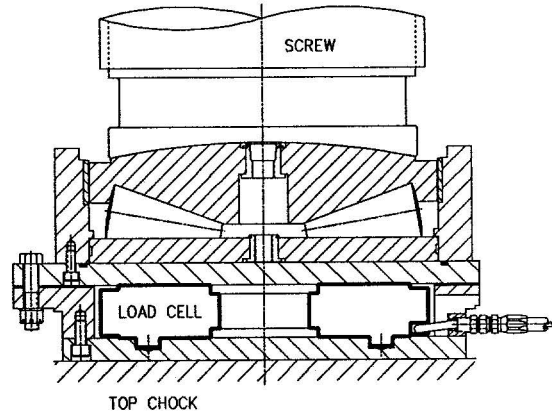
4.1 Model:	DLCXXXX-YY, where XXXX is the capacity in tonnes (a four-digit number) and YY identifies a unique set of application dimensions.
4.2 Capacity Range:	Up to 7,500 MT.
4.3 Bridge Resistance:	120 ohms minimum.
4.4 Excitation Voltage:	20 VDC maximum.
4.5 Output:	1.0 to 1.8 mV per volt of excitation at rated load.
4.6 Response Time:	Less than 0.1 mS.
4.7 Combined Error ¹	Within ± 0.5 % of full scale output.

- 4.8 Thermal Zero Shift:** $\pm 0.005\%$ (50 parts per million) of full scale output per °C temperature change over the compensated range of 20°C to 100°C (68°F to 212°F).
Optional range: 20°C to 150°C (68°F to 302°F).
- 4.7 Load Limits:** 300% of rated load without zero shift.
500% of rated load without change in characteristics.
700% of rated load without mechanical damage.
- 4.8 Operating Temperature Range:** -20°C to 150°C (-4°F to 302°F).
- 4.9 Storage Temperature Range:** -40°C to +180°C (-40°F to +356°F).
- 4.10 Compression:** 0.1% of cell height at rated load.
- 4.11 Calibration:** Traceable to the National Institute of Standards and Technology (formerly the National Bureau of Standards).

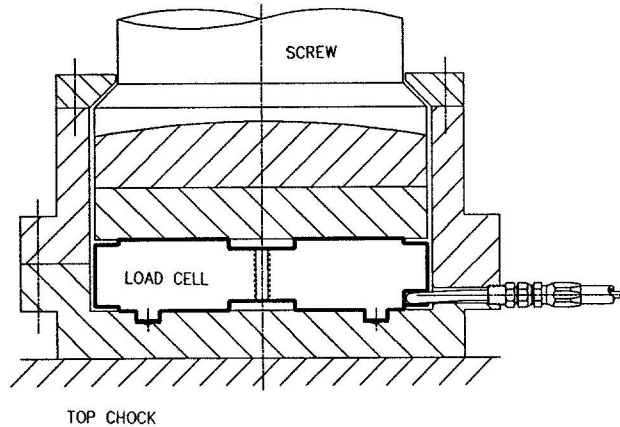
¹) Combined Error is defined as the maximum deviation, which includes Linearity, Hysteresis and Repeatability.

5 TYPICAL INSTALLATION

5.1 USUAL MOUNTING LOCATION



WITH ROLLER BEARINGS



WITH SOLID BEARINGS

Note: In the application shown, if sufficient room is available, a bronze load distribution ring is typically recommended to compensate for any surface irregularities on, or out of flatness of, the mill housing interface.