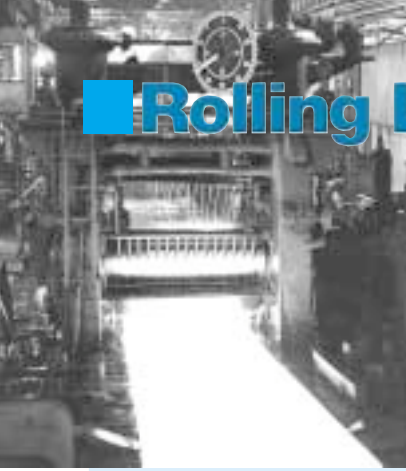
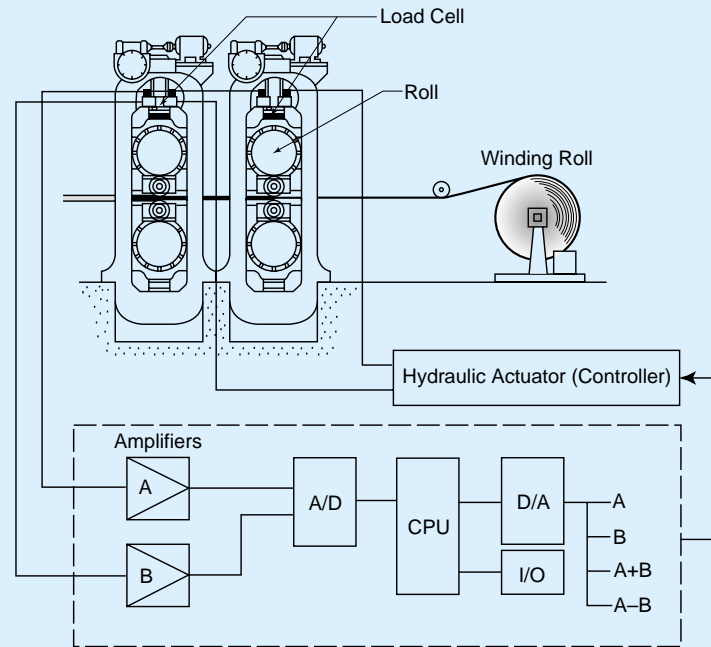


Rolling Load Measurement and Control



To ensure equal thickness in steel plates and strips, KYOWA's load cells enable proper control of the rolling load by measuring it at the bearings of rolls. Recently, square, pillow block type load cells are increasingly used for this purpose.



Washer-Type Load Cells LCW-D-S/E-S

Load cells in the LCW-D-S/E-S series have a flat washer-shape design which ensures easy installation even to an existing rolling mill by only processing the screw nut. A tailor-made model is also available for installation to each individual rolling mill. The difference between the LCW-D-S and LCW-E-S is the cable entry side.

- Hermetically sealed with inert gas
- Heat- and oil-resistant cable
- Long-term, highly stable performance under harsh operating conditions



LCW-D-S



LCW-E-S

Models and Rated Capacities

Model		Rated Capacity
LCW-D-1MNS	LCW-E-1MNS	1MN
LCW-D-2MNS	LCW-E-2MNS	2MN
LCW-D-3MNS	LCW-E-3MNS	3MN
LCW-D-5MNS	LCW-E-5MNS	5MN

LCW-S-*MNS with rated capacity ranges from 5MN to 30MN are available on special order.

Performance

Nonlinearity: $\pm 1\%$ RO
 Hysteresis: $\pm 1\%$ RO
 Repeatability: 0.3%RO max.
 Rated Output: 1mV/V (2000×10^{-6} strain) min.

Environmental Capabilities

Safe Temperature Range: -20 to 100°C
 Compensated Temperature Range: -10 to 80°C

Mechanical Properties

Safe Overload Rating: 150%

Square Load Cells

LCD-D-S

Designed for steelmaking lines, load cells in the LCD-D-S series provide the following features:

- Safe overload rating as high as 200%
- Highly reliable structure (IP64)



Models and Rated Capacities

Model	Rated Capacity
LCD-D-500KNS	500kN
LCD-D-1MNS	1MN
LCD-D-1500KNS	1.5MN
LCD-D-2MNS	2MN
LCD-D-3MNS	3MN
LCD-D-3500KNS	3.5MN
LCD-D-5MNS	5MN

Performance

Nonlinearity: $\pm 1\%$ RO
Hysteresis: $\pm 1\%$ RO
Repeatability: 0.5%RO max.
Rated Output: 0.8mV/V (1600 x 10⁻⁶ strain) min.

Environmental Capabilities

Safe Temperature Range: -20 to 100°C
Compensated Temperature Range: -10 to 80°C

Mechanical Properties

Ultimate Overload Rating: 400%
Safe Overload Rating: 200%
Structure: Degree of protection IP64 (splashproof in conformity with JIS C 0920)
Enclosure: Metallic finish (stainless steel)

Instrumentation Controller

WDC-816A

The WDC-816A is designed for load cells mounted to steel rolling mills. It measures the rolling loads detected by load cells and outputs corresponding voltage/current signals to the host computer in a prescribed format. The compact, lightweight and slender design ensures easy installation of multiple units, while a keypad, the WCD-810B-KB, allows setting and commanding away from the amplifier.

The WDC-816A converts 4 kinds of fundamental parameters—allotted rolling loads, their balance and rolling load with two load cells A and B—to voltage or current signals and then outputs the signals. It can also output signals such as biting-in, overload, one-sided running, and power condition, to cope with the demands of the field.

2-channel Load Cell Conditioner & Multiplexer

Number of Input Channels: 2 (sides A and B)
Applicable Load Cells: 350Ω strain-gage load cells (up to 4 units can be connected in parallel)

Control Input Interface

Number of Input Channels: 16 (open collector)
Input Signals: Auto Zeroing, Calibration, Ax2, Bx2, Desk/Local (both local side electric room and desk side operating room), Low, Load-on Interlock Cancellation

Control Output Interface

Number of Output Channels: 10 (open collector)
Output Signals: Load-on 1 and 2, Overload 1 and 2, Answer Back (Auto Zeroing in Progress, A x 2 in Progress, B x 2 in Progress, During Low, Calibration in Progress), Power-on, NFB Alarm, Error



WDC-816A



WCD-810B-KB

