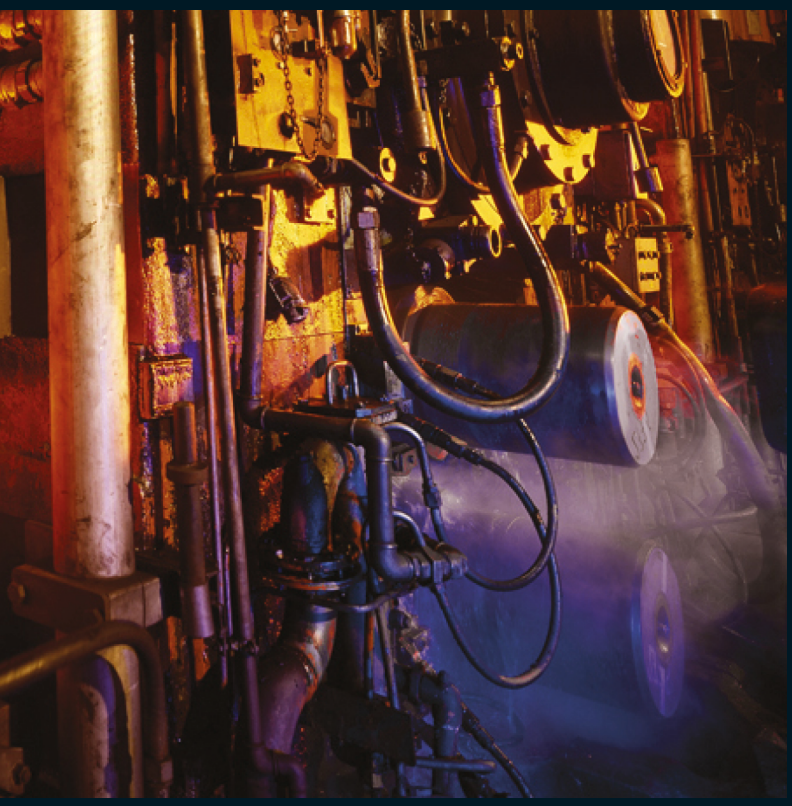
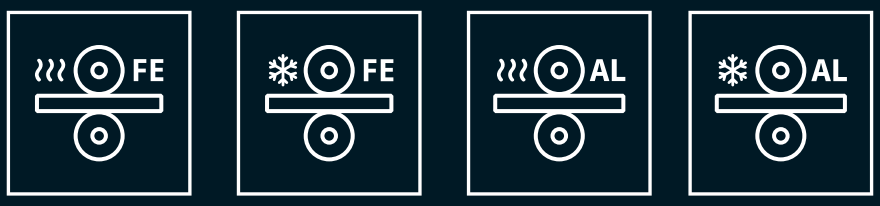
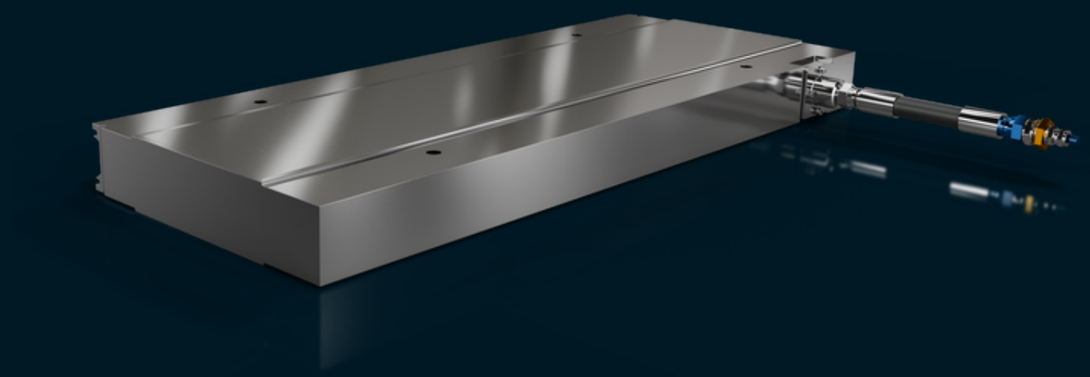
TECHNICAL SPECIFICATION

Force Measurement
RollKraft Rectangular









RollKraft Rectangular

The IMS Rolling Mill Load Cell – Type Rectangular – is a high accuracy force measuring device specifically developed for use in steel and aluminium hot and cold rolling mills.

Designed in accordance with the highest engineering standards, the system ensures reliable and precise measurement of roll force for process control, equipment protection, and product quality assurance.

Utilizing advanced strain gauge technology and a robust mechanical design, all IMS load cells deliver stable performance under the severe operating conditions typically found in rolling mills, including high mechanical loads, vibration, temperature variations, and environmental contamination.

When integrated with IMS measuring and automation systems, the load cell provides accurate force feedback for Automatic Gauge Control (AGC) and other process optimization functions, supporting rolling mills in achieving higher productivity and improved product quality.

Key Advantages

- precise roll force measurement with high measuring accuracy, as well as excellent repeatability and long-term stability
- robust mechanical design
- manufactured from high-strength alloy steel, the load cell is designed to withstand extreme rolling forces and shock loads
- sealed construction ensures reliable operation in harsh mill environments exposed to water, oil, dust, and scale
- high temperature stability
- unique compensation techniques ensure stable measurement performance even in high-temperature rolling applications
- environmental protection for reliable operation under severe industrial conditions

System Compability

- easy integration with modern automation systems and mill control platforms
- long service life and low maintenance
- robust design minimizes maintenance requirements and ensures reliable long-term operation

Typical Applications

- hot and cold rolling mills
- flat and long products
- tandem, roughing, plate, section mills etc.

Specifications

Nominal measuring range	0.6 – 75 MN
Maximum excitation voltage	≤ 15 VDC
Nominal resistance of strain gauge bridge	> 300 Ω
Nominal sensitivity	1.7 mV/V
Combined error [*1)]	≤ ± 0.5 % of full scale output
Deflection	≤ 0.1 % at nominal load
Thermal zero drift	≤ ± 0.008 % / °C (20 °C ~ 100 °C / 68 °F ~ 212 °F)
Insulation resistance	> 2 GΩ
Operating temperature range	- 20 °C ~ 150 °C / - 4 °F ~ 302 °F
Limit load	300 % of nominal load
Breaking load	500 % of nominal load
Degree of protection according to EN60529 (IEC529)	IP69K / IP68
Storing temperature range	- 24 °C ~ 150 °C / - 40 °F ~ 302 °F

[*1)] includes linearity deviation, hysteresis and repeatability error

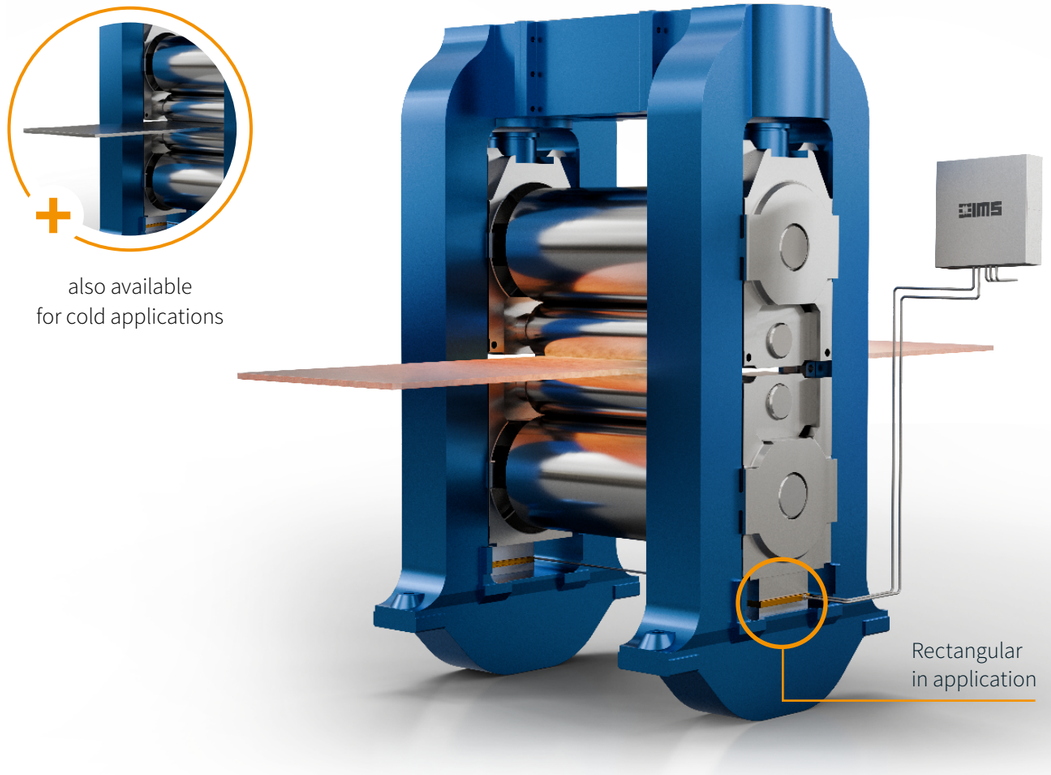


Figure 1: *Illustration of a rolling stand equipped with RollKraft Rectangular and RollKraft Controller (MMV) in application*

Force Distribution

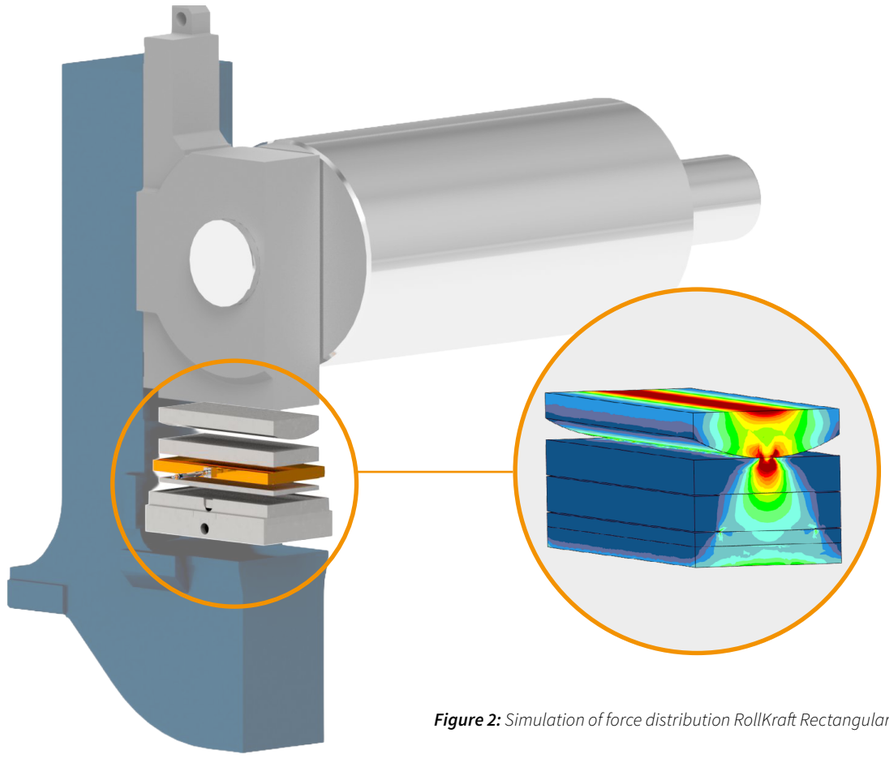


Figure 2: *Simulation of force distribution RollKraft Rectangular in application*

Installation Setup

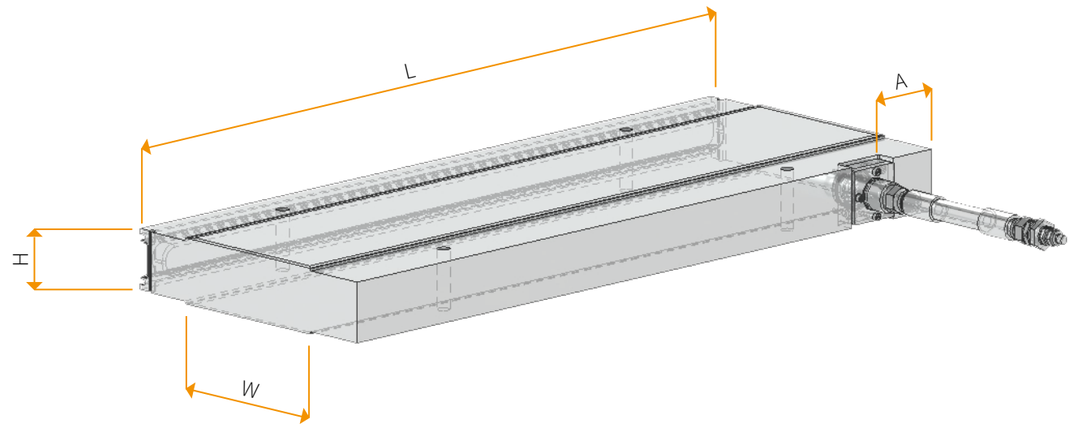
IMS RollKraft Rectangular Load Cells are suitable for integration into a wide range of rolling mills and metal processing lines. To ensure reliable and accurate force measurement, several fundamental installation principles should be taken into account during system design and integration:

- The entire rolling force must be transmitted through the load cell to ensure that the measured signal accurately represents the actual process load.
- For optimum measurement performance, the load cell should be positioned as close as possible to the point where the rolling force is generated, i.e. the roll gap. This minimizes the influence of structural deflections and parasitic force paths.
- The mechanical arrangement should be designed such that the load cells are subjected predominantly to compressive forces. Exposure to bending moments, lateral forces, and torsional stresses should be minimized, as these can adversely affect measurement accuracy and long-term performance.

A sufficiently large, flat and rigid mounting surface must be provided on the lower section of the mill stand to accommodate the load cell beneath the lower back-up roll bearing.

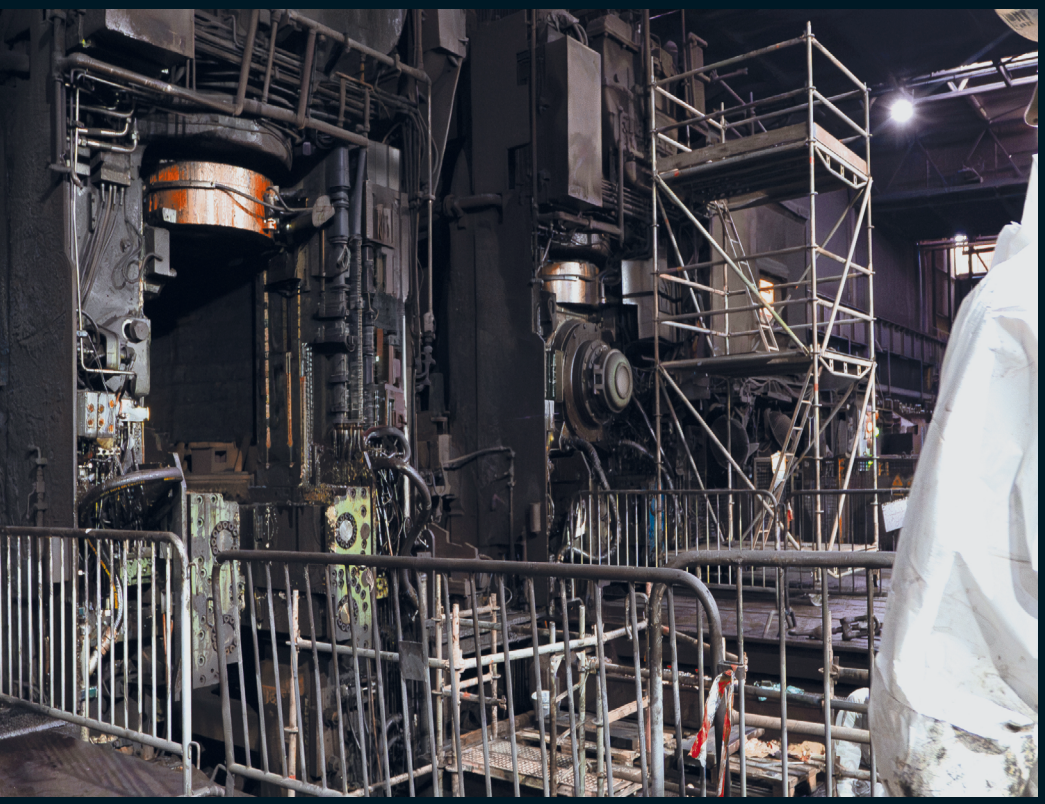
This installation arrangement offers the advantage that the load cell remains fully integrated within the structure and does not require special handling or consideration during roll changes.

Mechanical Dimensions
RollKraft Rectangular



Characteristics

L mm (inch)	W mm (inch)	H mm (inch)	A mm (inch)
Customized	Customized	74 (2.91)	Customized





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