Roll Force Measurement System

FEATURES

- Prevent mill overloading
- Increase roll life
- Control product quality
- Zero tracking with manual override
- Local and remote indication
- Easy retrofit for existing mills
- Direct replacement for RFS-3 and Model 56000 systems from BLH Nobel

APPLICATIONS

- Hot and cold rolling mills
- Overload safety
- New and retrofit

DESCRIPTION

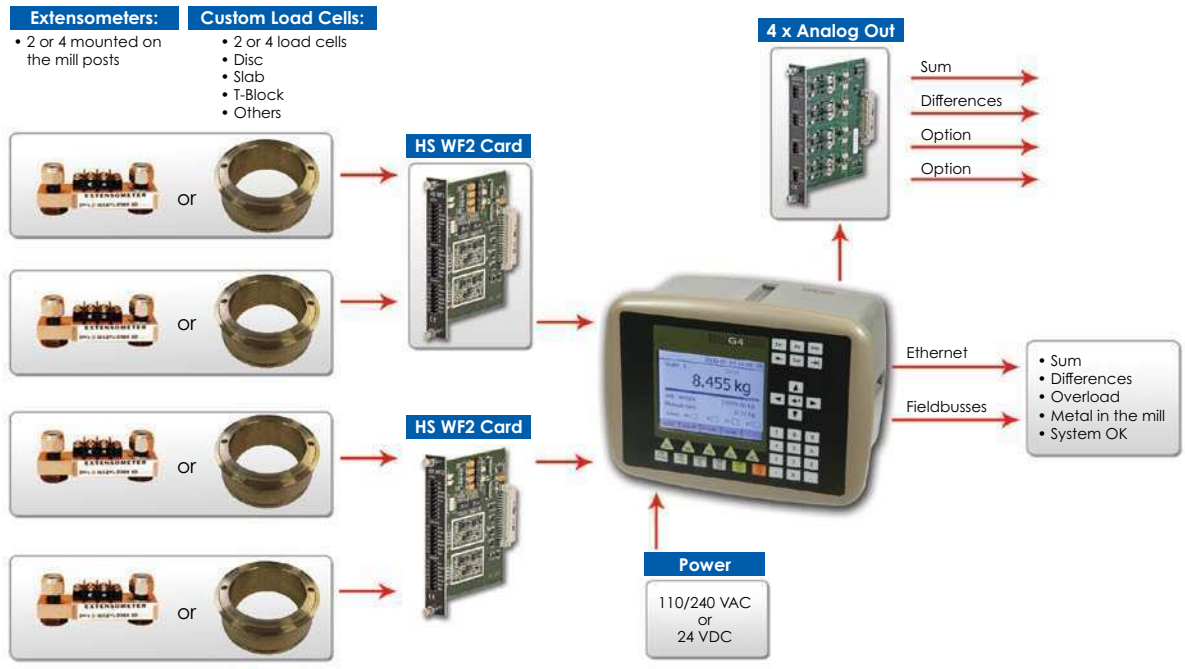
Rolling mill separation forces are measured accurately and conveniently with the RFS-4 system.

Extensometers on the mill posts or load cells in the screw provide an electrical signal proportional to the mill separation force. A G4 instrument with tailor-made software reads signals from both sides of the mill and amplifies them.

The G4 has up to 8 channels to provide accurate and reliable information on sum (total), difference (work-drive), work total, and drive total values that can be displayed on the graphic color display.

Analog signal outputs for each value are available on the rear panel rack terminals. Separate relay outputs are provided for “Metal in the Mill” and “Mill Overload” conditions.

CONFIGURATION



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BLH NOBEL
A VPG Brand

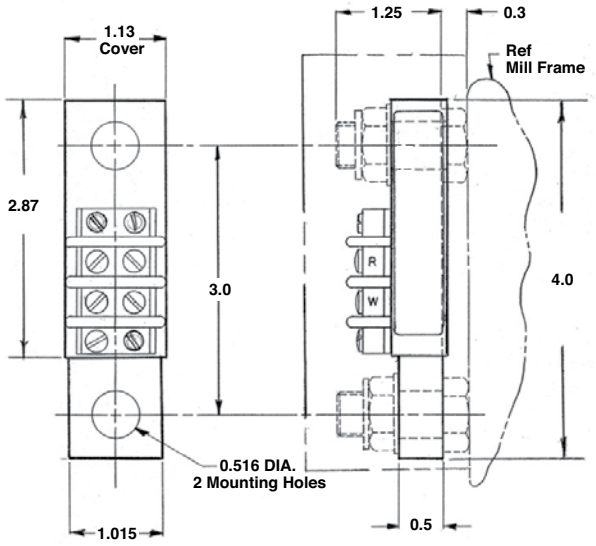
Roll Force Measurement System

SPECIFICATIONS—CONTROLLER (G4)

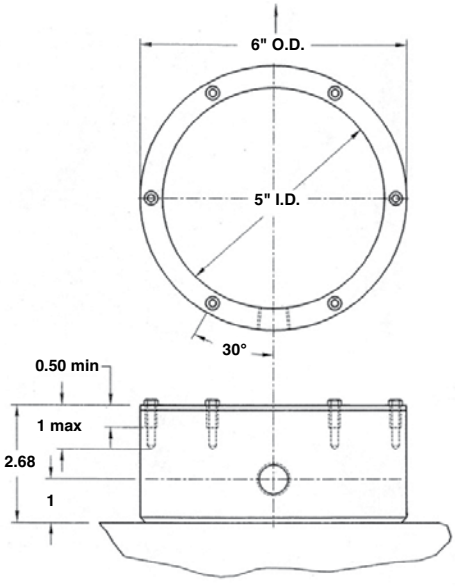
PARAMETER	VALUE
CPU MODULE	
Interfaces	Isolated
Ethernet	Process data and control
Protocol	Modbus TCP
RS232 and RS485 ports	For process data and control
Protocol	Modbus RTU
Baud rate	Up to 115 kbaud
Fieldbus	For process data and control
Available fieldbusses	Profibus or DeviceNet
USB, supported units	Version 1
Keyboard	USB keyboard for PC
Memory stick	USB type for PC; for backup and restore of set-up parameters; and for change to a new program version

PARAMETER	VALUE
USER INTERFACE	
Display	Color TFT LCD screen with backlighting, 5.7" 320x240 pixels
Keyboard	Touch screen and 34 membrane keys
ENVIRONMENTAL CONDITIONS	
Temperature range	
Operating temperature	–10 to +50°C
Storage temperature	–25 to +85°C
Protection	IP65 (front panel)
EMC, RF	CE (Industrial), UL, cUL
POWER	
DC supply module	19–29 VDC, 40 W
AC supply module	115/230 VAC 50/60 Hz, 40 W

OUTLINE DIMENSIONS—EXTENSOMETER



Extensometer Outline



Cover Outline

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SPECIFICATIONS—EXTENSOMETER	
PARAMETER	**VALUE**
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)
Overload capability, maximum	550% of FSO (44 mV/V)
Strain bridge	
Input resistance	525 Ω ±125 Ω
Output resistance	350 Ω ±50 Ω
Insulation resistance	5000 MΩ
Excitation	10 VDC
Thermal effects, zero [2]	±0.055%/°C of FSO
Thermal effects, rated output	±0.011%/°C of reading
Operating temperature range	–17°C to 121°C

[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.

[4] Specifications only valid for extensometer, not application.

SPECIFICATIONS—LOAD CELL: All load cells are customized in specifications and dimensions.	
PARAMETER	**VALUE**
Accuracy [1]	1.0% of RO
Nonlinearity	0.5% of RO
Hysteresis	0.5% of RO
Repeatability	0.25% of RO
Calibrated output	2 mV/V
Capacity	1–15 MN
Strain bridge	
Input resistance	350 Ω ±5 Ω (or 700 Ω ±10 Ω)
Output resistance	350 Ω ±5 Ω (or 700 Ω ±10 Ω)
Insulation resistance	5000 MΩ
Excitation	5–30 VDC
Thermal effects, zero [2]	±0.04%/°C of RO
Thermal effects, rated output	±0.04%/°C of reading
Operating temperature range	–40°C to 100°C (more upon request)

[1] Accuracy is the root sum of the squares of nonlinearity, hysteresis, repeatability and span.

[2] The autozero capability of the instrument cancels any thermal zero shift.

[3] Specifications only valid for load cell, not application.

BLH Nobel is continually seeking to improve product quality and performance. Specifications may change accordingly.

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