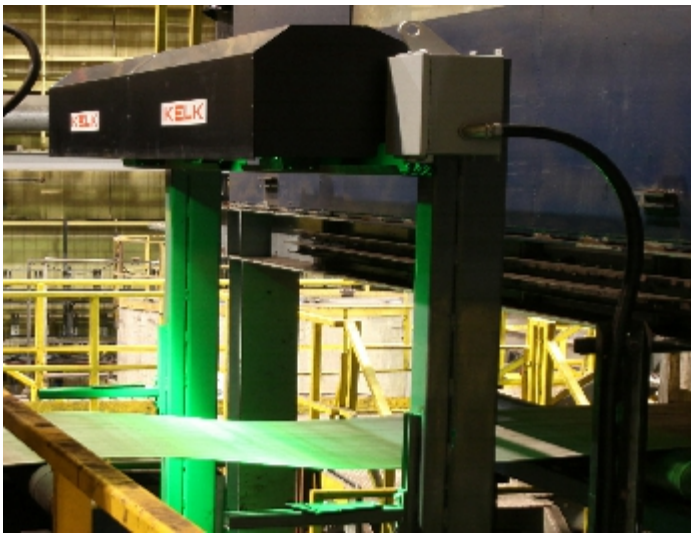
1 DESCRIPTION

The ACCUBAND Strip Width Gage model C765-F is an economical non-contact optoelectronic instrument which measures the width of cold metal strips, slabs and plates. Output data includes strip width and centerline deviation.

Two electronic line scan cameras are mounted on a beam normal to the moving strip. The cameras are automatically positioned over the edges of the strip according to the nominal width supplied by the mill automation system. Each camera scans a narrow region across the edge of the strip, accurately locating the position of the edge. The edge data are then combined with camera separation distance obtained from linear encoders and the strip width and centerline deviation are calculated. Long life front lights are standard to ensure clear imaging of edges with minimum maintenance. A standard MODBUS/TCP or TCP/IP Communications protocol provides access to all process data and gage status information.

2 APPLICATIONS

The ACCUBAND Strip Width Gage is used for process measurement, quality control measurement and for strip steering in:



- Cold Strip Mills
- Temper Mills
- Rewinders
- Slab sorting areas
- Plate finishing areas
- Side trimmers
- Process lines

3 FEATURES

3.1 High on-line width accuracy

3.2 Fast scan rate

3.3 Standard Front light for accurate imaging and low maintenance

3.4 Special air nozzles keep the camera and front light windows clean

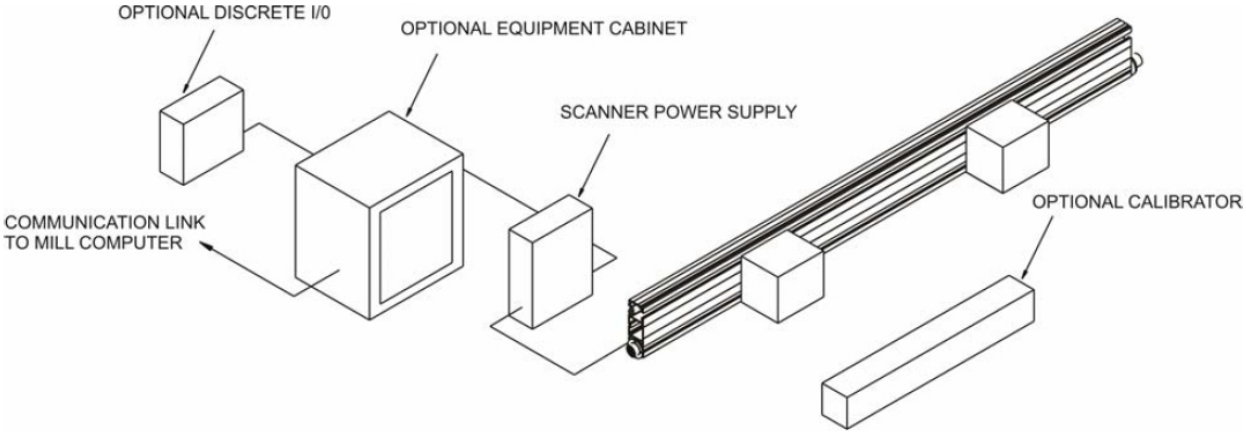
3.5 Low stand-off distance allows compact installation

3.6 Imaging system allows calibration by user's own test plates. Alternatively, KELK can supply a calibrator plate with a Certificate of Accuracy traceable to the National Institute of Standards and Technology.

3.7 Java based Maintenance Interface is accessible from any web browser connected via Ethernet network.

3.8 A comprehensive diagnostic system monitors the operation of the ACCUBAND and gage status signals are provided to the mill host computer. Additional diagnostics can be accessed by service personnel through the maintenance interface.

4 SYSTEM CONFIGURATION



4.1 MILL-MOUNTED PARTS

4.1.1 SCANNER:

The **Scanner** comprises two CCD line scan cameras and front lights, positioned above the strip on a mounting beam with the camera positioning drive. All parts are sealed and protected for use in a cold mill environment. Air purge nozzles keep the optical windows free of contaminants. Modular construction allows rapid on-site replacement of the cameras, front lights and positioning drive if necessary. It is mounted on a line normal to the strip at a height between 0.5m and 2m above the strip. The installation height can be modified to fit onto an existing scanner support structure.

4.1.2 SCANNER POWER SUPPLY:

The **Scanner Power Supply** provides DC power to the Scanner. It is housed in a wall-mounted NEMA 4/IP65 cabinet and also serves as the junction box for wiring between the Scanner and Width Gage Processor. It also includes a touch screen display to allow maintenance personnel to easily verify system operation and calibration while working in close proximity to the scanner.
In a typical installation, the Scanner Power Supply must be installed in an accessible location within 10 meters (33 feet) of the scanner. An option for longer distances is available.

4.2 OTHER EQUIPMENT

4.2.1 WIDTH GAGE PROCESSOR:

The Width Gage Processor is a 19 inch rack mounted processor with an Ethernet link to the user's host computer. It must be installed within 90 meters of the Scanner Power Supply.

4.3 DOCUMENTATION

Users' manuals, including installation drawings, are provided. English language is standard, other languages are available as an option.

(Consult KELK for details).

4.4 SCOPE OF SUPPLY

4.4.1 STANDARD EQUIPMENT, MODEL C765-F:

- 1 Scanner
- 1 Scanner Power Supply
- 1 Rack Mount Width Gauge Processor
- Standard MODBUS/TCP or TCP/IP protocol for communications with the host computer
- Documentation

4.4.2 OPTIONAL EQUIPMENT, MODELS C765-F:

- Electronics Cabinet
- Calibrator
- Discrete I/O kit for analog and logic I/O
- KELK Datalogger
- Customization of communications protocol with the host computer

- Standard kit of spares, including:
  - 1 - Line scan camera
  - 1 - Front light
  - 1 - Camera Positioning Drive
  - 1 - Temperature Probe Assembly
  - 1 - Power Supply

- Mounting Posts
- C-Frame Mounting

(For other requirements, consult KELK).

5 SPECIFICATIONS

5.1 PERFORMANCE

5.1.1 ON-LINE ACCURACY: Better than ±0.4 millimeters (0.015 inches) to ±2 sigma. (1550mm [61”] field of view)

5.1.2 STATIC REPEATABILITY: Better than ±0.16 millimeters (0.006 inches) to ±2 sigma.

5.1.3 MEASUREMENT FREQUENCY: Up to 1,000 measurements per second.

5.2 ENVIRONMENT

5.2.1 SCANNER STANDOFF HEIGHT: 500 to 2,000 mm*

5.2.2 MATERIAL WIDTH RANGE: 500mm minimum to 1850 maximum*

(*Other dimensions are available, Consult KELK).

5.2.3 MATERIAL TEMPERATURE RANGE: Standard for Cold Mill

5.2.4 EDGE MOVEMENT:

- **Hop:** ±10mm when width deviation is limited to ±10mm.
- **Lateral:** Nominal ± 100mm for each edge.

(Consult KELK for specific application details).

5.3 COMMUNICATIONS

5.3.1 MILL COMPUTER INTERFACE: 500 to 2,000 mm*

- **Network:**
  - Physical layer: Cat5e, Coax, fibre optic
  - Link layer: Ethernet
  - Network layer: MODBUS/TCP or TCP/IP
- **Note: With optional OPC server, supports HMI and SCADA systems including:**
  - GE Cimplicity
  - Siemens SIMATIC HMI
  - Intellution iFix
  - Wonderware InTouch

(Consult KELK for customized communication protocols).

6 WHAT USERS MUST PROVIDE

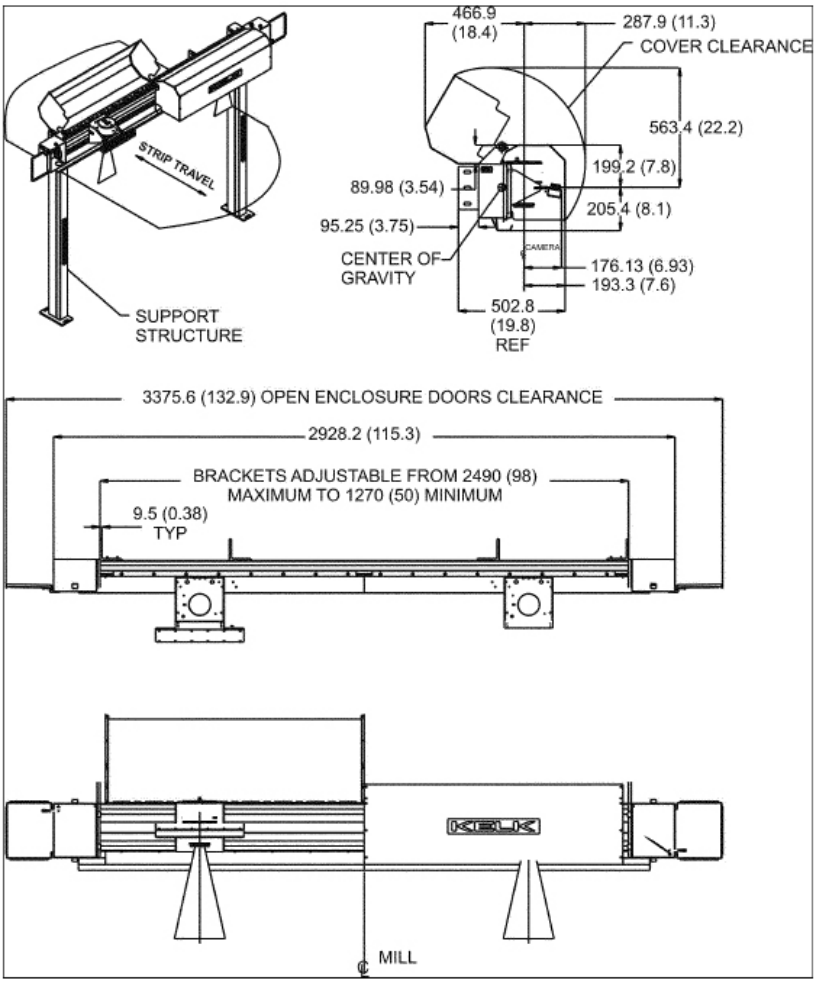
6.1 Mounting structure for the Scanner
6.2 An area under the roll table free of reflecting surfaces
6.3 Power to the Scanner Power Supply
6.4 Interconnecting power and signal cables and hoses (not included in the standard scope of supply)
6.5 Space for 19” Rack Mount, 1U high, Width Gage Processor
6.6 Filtered compressed air for the Scanner

6.7 Ambient Temperature:

- **Scanner:** 60°C (130°F) maximum.
- **Scanner Power Supply:** 60°C (130°F) maximum.

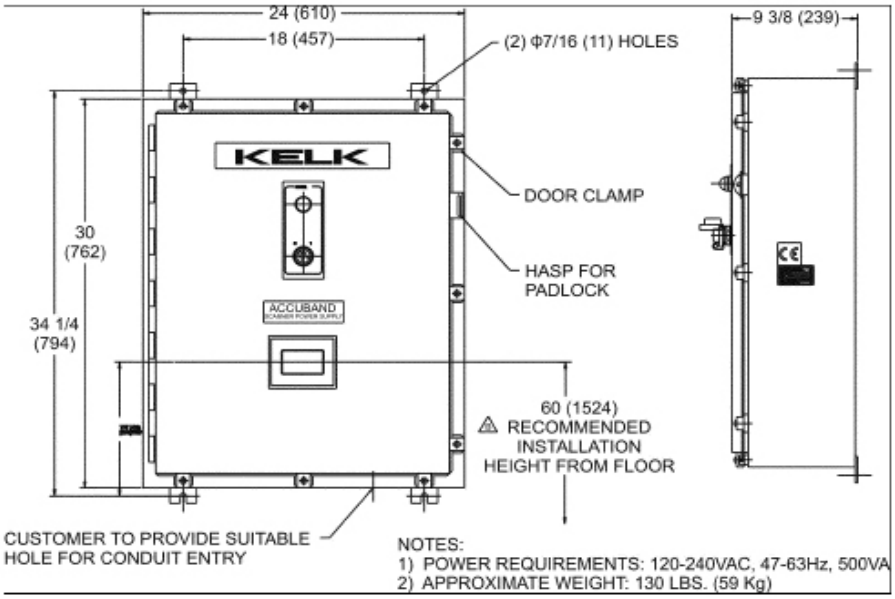
7 DIMENSIONS

7.1 SCANNER DIMENSIONS



Scanner Weight: 90 kgs (200 lbs)

7.2 SCANNER POWER SUPPLY DIMENSIONS



7.3 PROCESSOR