



Orbis+ - Profile Perfection

ORBIS+

ROTATING GAUGE FOR CONTINUAL MEASUREMENT OF HOT STEEL

The Orbis+ is the leading on-line gauge for rod and bar rolling mills. The gauge has evolved to keep pace with technological advances in both computing power and optical equipment, whilst maintaining backward compatibility with previously supplied gauges, ensuring long service life.

The basic system includes an in-line gauge head, capable of surviving the harsh environment of a rolling mill and an operator workstation, which will display the product dimensions and profile in both numeric and graphical form.

FULLY ROTATING OPTICS

Fully rotating optics enable the gauge to measure and display the dimensions of round and non-round shapes regardless of the orientation of the product.

The optical system is mounted on a rotating assembly consisting of a collimated light source and line scan camera(s), this is sealed from the mill environment, viewing the product through easily accessible windows.

The back light is a collimated source which utilises a LED and lens assembly, which produces a collimated beam across the field of view. As the product passes through the gauge it obscures the light path causing a shadow to be seen by the line scan camera(s) and this is converted into an absolute measurement by a simple calibration algorithm.

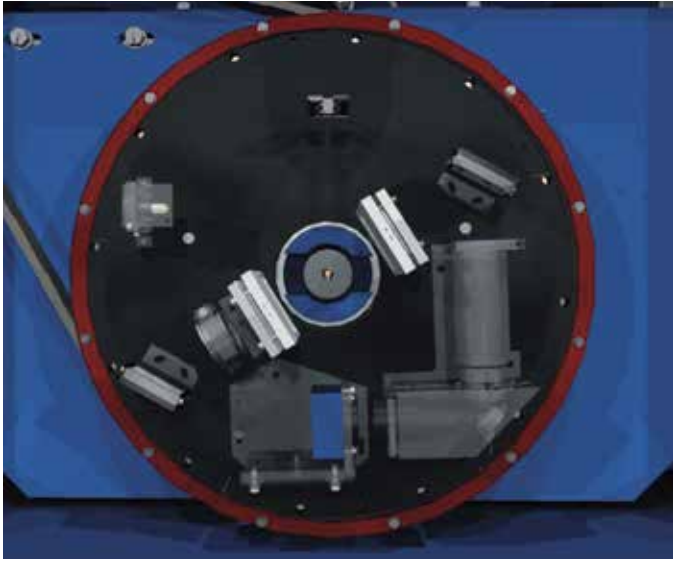
An optional pyrometer may be used to provide the product temperature; this input is used to correct the hot dimensions into cold corrected measurements before being displayed on the operator screen, allowing rapid judgements to be made on any mill adjustments required.

REFERENCES

The Orbis+ has 200 references installed over a period of 20 years.



Orbis+ User display interface



Orbis+ Optics arrangement



Orbis+ gauge in the off line position

UTILITIES

- Power
- System - 110/220V ac @ 10A
- Water - 35L/Min @1 - 1.5Bar
- Air - Instrument: ISO8573.1:1-2, 4m³/Hr @ 1Bar
- Air - Mill: ISO8573.1:1-3, 4m³/Hr @ 2Bar

OPTIONS

- Large Figure Display
- Statistical Process Package (SPC)
- Mill Data Link Connectivity (TCP/IP)
- Remote Monitor expansion
- Trolley assembly

SCREEN

As with previous versions of the Orbis gauge the operator is given both graphical and numeric information. Dimensions provided are selectable using a simple menu, allowing the display to be configured, to give the operator a screen which only provides information required. The graphical area is in the form of a polar plot which has the advantage of magnifying bar defects (overfill, underfill, roll cross, etc) enabling the operator to immediately identify potential problems in the rolling process.

SHAPES

The following shapes represent the majority of solid Rod and Bar that the gauge can profile: Rounds, Rebar/Debar, Hexagons, Flats, Squares, and Octagons. Other shapes may be measured please contact us for further details.

ADVANTAGES OF ORBIS+

- More profiles per metre than other technologies
- High on-line accuracy regardless of oscillation / vibration
- Dual or Single camera depending on model
- Solid state illumination (LED)
- Processing system backward compatible with previous gauges
- Radio Link for camera data
- SPC (Statistical Process Control) Option available

OPERATING DATA

Performance	Orbis1+	Orbis2+
Product size (mm)	4 - 30	4 - 120
Product size (inches)	5/32 - 1 5/8	5/32 - 4 23/32
Accuracy (mm)	+/- 0.01	+/- 0.02
Accuracy (inches)	+/- 0.0005	+/- 0.0008
Rotation speed (RPM)	200	100
Full profile time (Sec)	0.15	0.3
Profiles per minute	400	200

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