



AIR BEARING SHAPEMETER

SHAPE MEASUREMENT FOR THE ROLLING INDUSTRY

The Air Bearing Shapemeter, provided by Primetals Technologies, is designed to provide accurate on-line shape measurement of rolled metal sheet and foil material.

The modular construction of the instrument enables it to be tailored to any specific application without compromising its full operating capability.

CONSTRUCTION

The Air Bearing Shapemeter roll comprises a series of hardened, precision ground rotors, supported by an air film on a stationary stainless steel arbor. This design results in low inertia rotating elements with negligible frictional resistance, inherent of air bearings, thereby eliminating the need for helper drives. Connected by a detachable pneumatic umbilical cord the electronics are mounted remotely from the roll for easy access and protection from harsh mill environments.

RELIABILITY

Reliability has been proven over the past 40 years through sturdy construction and simple design.

REFERENCES

With over 600 references worldwide, the Air Bearing Shapemeter is one of the most sensitive measuring devices for the shape measurement of rolled sheet material.

BENEFITS

- Highly accurate on-line shape measurement
- Low on site maintenance
- May be maintained by customer on site
- Robust, modular design
- Small installation envelope
- Proven reliability
- No helper drive required
- Highly sensitive
- Continuous Output



Specifications	
Number of rotors	To suit application
Rotor width	25 mm to 120 mm
Strip Width	Up to 3 m
Strip thickness range	2 x 0.005 mm to 5 mm
Roll speed	>3000 m/min
Signal response time	<30 ms
Signal resolution	0.11 N
Signal output	Signal I/O remote I/O via Profibus DP Link
Operating temperature	200°C maximum

FEATURES

The Air Bearing Shapemeter, provided by Primetals Technologies, provides the user with the following features and benefits:

- Rotor widths available from 25mm to 120mm to suit resolution requirements
- Low inertia and negligible friction eliminates the need for an external drive
- Bearing exhaust air prevents ingress of contaminants
- Small installation envelope provides flexibility for fitting in confined spaces
- Simple design and modular construction allows straightforward on-site maintenance
- Continuous signal output provides a fast response to minimize control delays
- Remotely located electronics
- Quickly detachable signal umbilical

OPTIONS

- Multi-position retraction mechanism for accurate vertical positioning
- Rotor coatings in tungsten carbide, chromium or flash chrome
- Automatic trend alignment for optimum signed integrity

OPERATING PRINCIPLE

An array of jets supply each rotor with air from a common plenum chamber in the centre of the arbor. The differential pressure measured between the top and bottom of the inside of each bearing is proportional to the load applied to the rotor. Hence, the tension is calculated at each rotor position across the width of the strip to provide the tension profile or 'shape' of the rolled strip.

Each differential pressure output is measured by means of a high integrity pneumatic transducer, which is remotely located in the transducer housing attached to the end of the shapemeter arbor via an armoured signal umbilical. Each measuring channel has a single moving part, the rotor. All other parts are stationary, including the measurement and signal transfer elements.

The signal outputs provide continuous readings that are independent of mill speed allowing a fast signal response and high accuracy even at low rolling speeds.

Primetals Technologies Limited
A joint venture of Siemens,
Mitsubishi Heavy Industries and Partners

9 Enterprise Way | Christchurch |
Dorset, BH23 6EW

primetals.com
Order No. T05-1-N184-L2-P-V1-EN
Printed in Linz | © 02.2015

The information (including, e.g., figures and numbers) provided in this document contains merely general descriptions or characteristics of performance based on estimates and assumptions which have not been verified. It is no representation, does not constitute and/or evidence a contract or an offer to enter into a contract to any extent and is not binding upon the parties. Any obligation to provide and/or demonstrate respective characteristics shall only exist if expressly agreed in the terms of the contract. These estimates and assumptions have to be analyzed on a case-to-case basis and might change as a result of further product development. Primetals Technologies excludes any liability whatsoever under or in connection with any provided information, estimates and assumptions. The provided information, estimates and assumptions shall be without prejudice to any possible future offer and/or contract. Any use of information provided by Primetals Technologies to the recipient shall be subject to applicable confidentiality obligations and for the own convenience of and of the sole risk of the recipient.

ClimatePartner
printed climate-
neutrally

Certificate Number:
006-53612-0411-1001
www.climatepartner.com