

# STRIP SHAPE

## BFI SHAPEMETER ROLL

### APPLICATION

- ▶ Metal strip

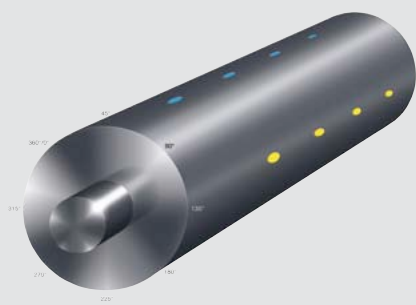
### FUNCTION

- ▶ Shape measurement using piezoelectric load sensors according to the proven patent of the VDEh-Betriebsforschungsinstitut (BFI)

### ADVANTAGES

- ▶ Solid roll body with homogeneous steel surface
- ▶ Patented partition system for measurement on wedge strip
- ▶ The shapemeter rolls can be reground on the same grinding machines that are used for the grinding of the deflector rolls.





### PROCESS PARAMETERS

Material to be measured	metal strip
Strip speed	> 5 m/min
Strip thickness	≥ 0.005 mm
Max. strip tension	depending on diameter and width of the roll

### MEASUREMENT PARAMETERS

Load sensor	piezoelectric
Measurement ranges	3, switchable
Measurement resolution	0.1 I-unit
Measurement accuracy	< 2 I-units
Max. strip temperature	180 °C
Sensor linearity	< 0.3 %
Sensor load capacity	72 - 144 kN
Sensor hysteresis	< 0.5 %
Sensor rigidity	9 kN/μm
Design	axial bores to hold the load sensors
Roll surface	hardened (58 HRC+3) and ground steel surface, special coatings possible
No. of bores	Wrap angle < 35° => 60° pitch, max. 6 bores Wrap angle < 65° => 90° pitch, max. 4 bores Wrap angle < 65° => 120° pitch, max. 3 bores
Measuring zone width	typically 26 and 52 mm (others possible)
Resolution of the angle position sensor	1°

### DIMENSIONS

Roll diameter	200 - 500 mm
Roll body width	Roll diameter > 300 mm: Measuring width + 170 mm Roll diameter < 300 mm: Measuring width + 270 mm
Grinding range	6 mm of roll diameter, 3 mm for foil measurement

### CONNECTIONS / CONSUMPTIONS / ENVIRONMENT / OTHERS

Interfaces	PROFIBUS DP, Ethernet (TCP/IP), hardware (digital and analog in- and outputs)
Supply voltage	1 x 110 - 230 V AC, 50 - 60 Hz
Installed load	2 kW
Protection class	IP65
Ambient temperature	Gauge: 0 - 45 °C Control cabinet: 5 - 35 °C
Relative humidity	0 - 95 %
Cable length	max. 100 m, larger lengths with intermediate terminal boxes possible
Data transmission	optical, digital with PCM from the roll rotary signal transmitter
Measured value output	per revolution
Evaluation computer	CompactPCI (user interface, statistics, 3D graphics, etc.)
Accessories	Transport lifting beam, grinding adapter, calibration device for calibration and checking of the measuring instrument capability

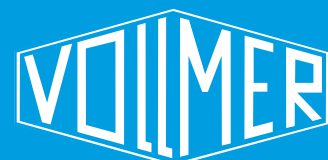
### OPTIONS

Shape control	Saddle adjustment, shifting, bending, cooling, intermediate roll shifting
Partition system	Patented method for shape measurement on wedge strips
Detection of width and position of strip	CCD camera above and light bar below the strip
Drive	Coupling, complete drive control system
Coating	Chrome, tungsten carbide, plastic, (polyurethane)
Foil measurement	special roll design



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