

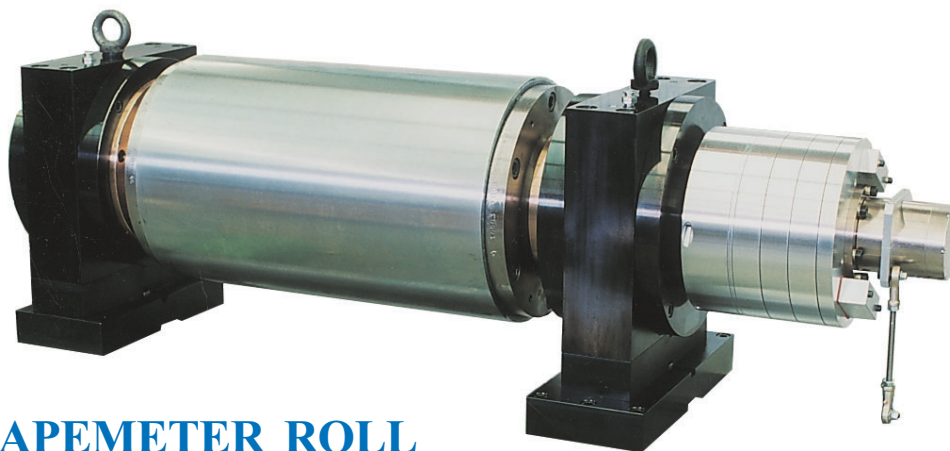
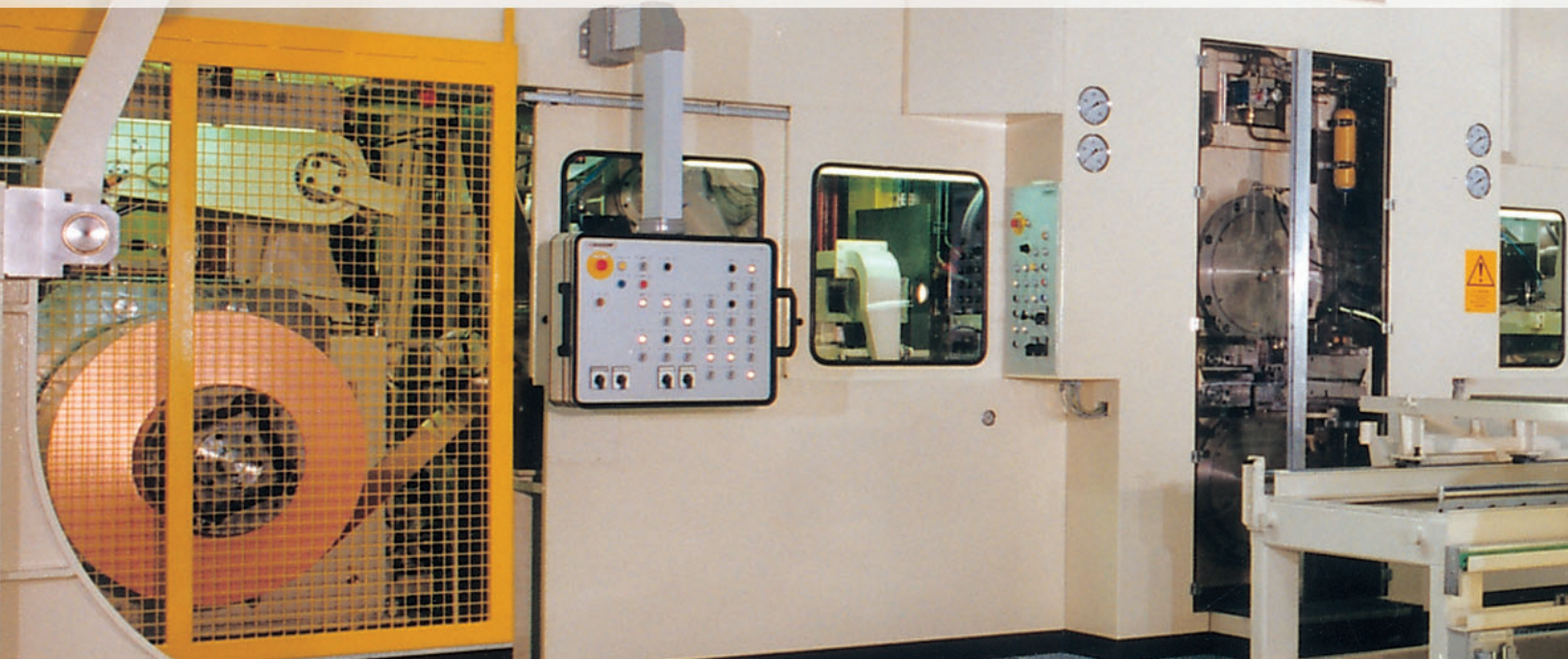
*Precision  
Measurement & Control  
Equipment for Cold Rolling Mills*

# A COLD ROLLING MILL FULLY EQUIPPED WITH VOLLMER AUTOMATION GET THE COMPLETE PACKAGE

With Vollmer Measurement and Control Technology you can get the utmost out of your mill

## THE ADVANTAGES:

- precision strip thickness gauges for thickness controlling (option: tandem gauges for permanent zero checking)
- exact strip shape measurement with fast, automatic controlling of all correction elements, no additional space needed
- exact strip thickness controlling by mass-flow measurement and feed-forward-control, thickness gauges at either side
- on-line documentation of all parameters, graphic display and detailed statistic evaluation of the quality parameters



### SHAPEMETER ROLL

for continuous strip shape monitoring. The Vollmer shapemeter roll requires no extra space since it is installed in place of the deflector roll.

### FOUR-HIGH-REVERSING MILL

Strip thickness  
Strip width  
Strip thickness tolerance  
Strip speed  
Coil weight

Work roll replacement in 4 min  
Automatic backup roll replacement  
Conversion to 12-roller-sequence  
Coolant suction system

# Automation Technology Package!

and double reliability in operation)

needed for the Vollmer shapemeter roll

er side of the roll gap

ers

The screenshot displays the VOLLMER VSPC (Vollmer Statistical Process Control) software interface. It features two graphs and a data table. The top graph shows 'Total Measurement Length [m]' on the x-axis (0 to 1200) and thickness in  $\mu\text{m}$  on the y-axis (-30 to 30). The bottom graph shows 'Section Length [m]' on the x-axis (30 to 0) and thickness in  $\mu\text{m}$  on the y-axis (-30 to 30). The data table includes the following information:

08-14-97	VOLLMER	USPC
09:52:59		13.00.0i
Order-No	Order 1	
BCS-No	Order 1.1	
Nominal Thickn. Start	1100.0 $\mu\text{m}$	
Nominal Thickn. End	1000.0 $\mu\text{m}$	
ULV	10.0 $\mu\text{m}$	
LLV	-10.0 $\mu\text{m}$	
Temperature	55 $^{\circ}\text{C}$	
Strip Tension Right	300 $\text{[KN]}$	
Strip Tension Left	800 $\text{[KN]}$	

Below the table, it indicates 'CURRENT MEASUREMENT'.

## VOLLMER STATISTICAL PROCESS CONTROL - VSPC

system for on-line statistical evaluation of measurement data and quality parameters for thorough quality control

### ILL:

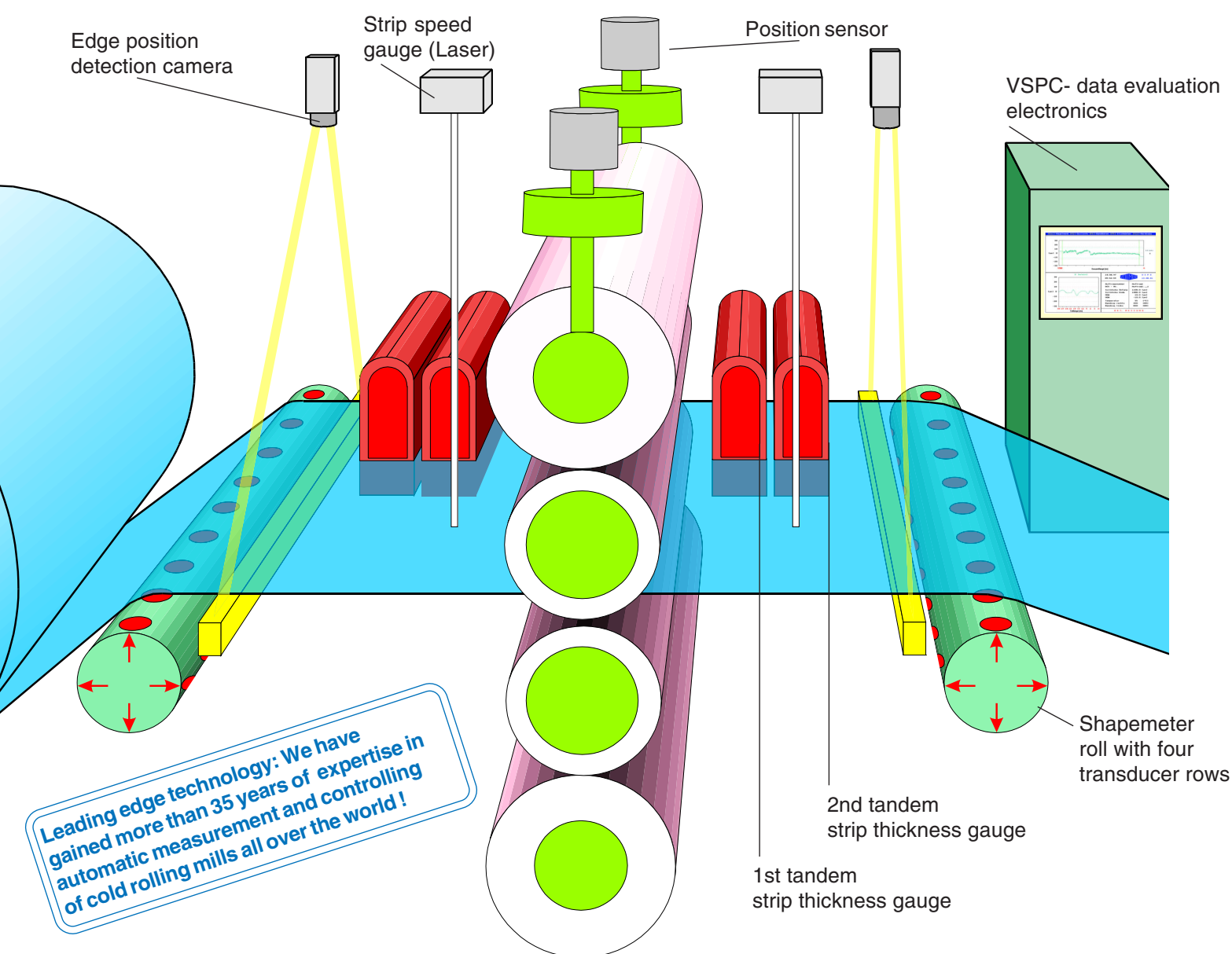
- $\geq 0,02 \text{ mm}$
- $\leq 600 \text{ mm}$
- $\pm 1 \mu\text{m}$
- $\leq 1000 \text{ m/min}$
- $\leq 9000 \text{ kg}$

minutes  
placement in 20 minutes  
t in 20 minutes

## STRIP THICKNESS GAUGES

for continuous thickness monitoring, tandem gauges for ultimate accuracy.





Meas. amplifiers  
1st and 2nd  
thickness gauge left

Correction elements  
data display, pass list,  
pass list library

Graphical display of the strip shape  
and of the control activities concern-  
ing all correction elements

Meas. amplifiers  
1st and 2nd thick-  
ness gauge right

Chart recorder for  
rolling parameters and  
measurement data

