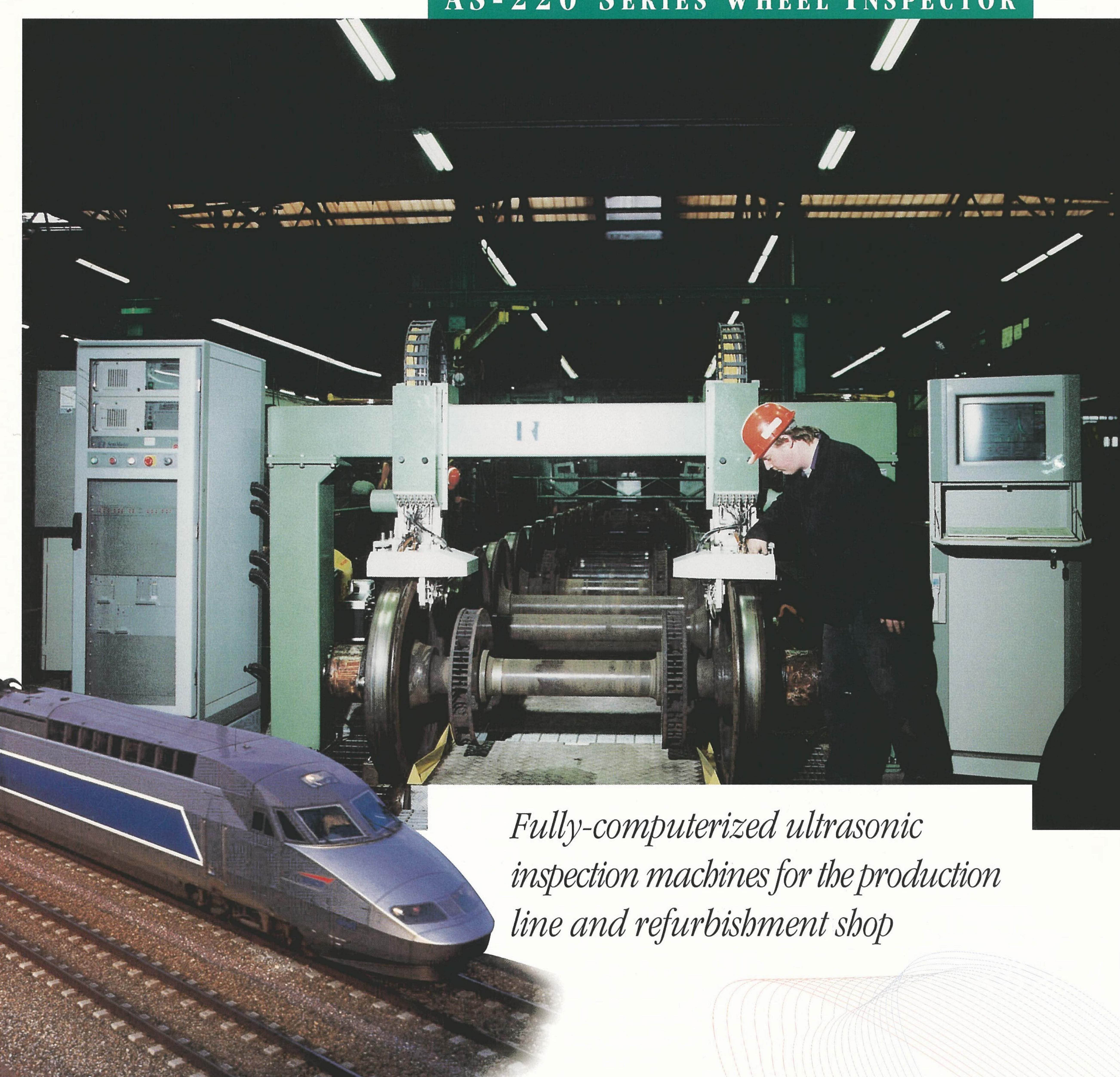
ScanMaster

Train Wheel Ultrasonic Inspection Systems





AS-220 SERIES WHEEL INSPECTOR

PRODUCT DESCRIPTION

Introducing the AS-220 Series

The AS-220 Series Wheel Inspector is a fully computerized ultrasonic inspection machine for train wheels. It includes an easy-to-use operator interface for application-specific tasks, with system mechanics and flexible programming capability to accommodate a wide range of wheel sizes and shapes.

Wheel sizes

From 660mm (26in) to 1050mm (42in) in diameter.

Inspection technique

Contact-type with forced water coupling, recirculation and filtering.

AS-220p for the production line

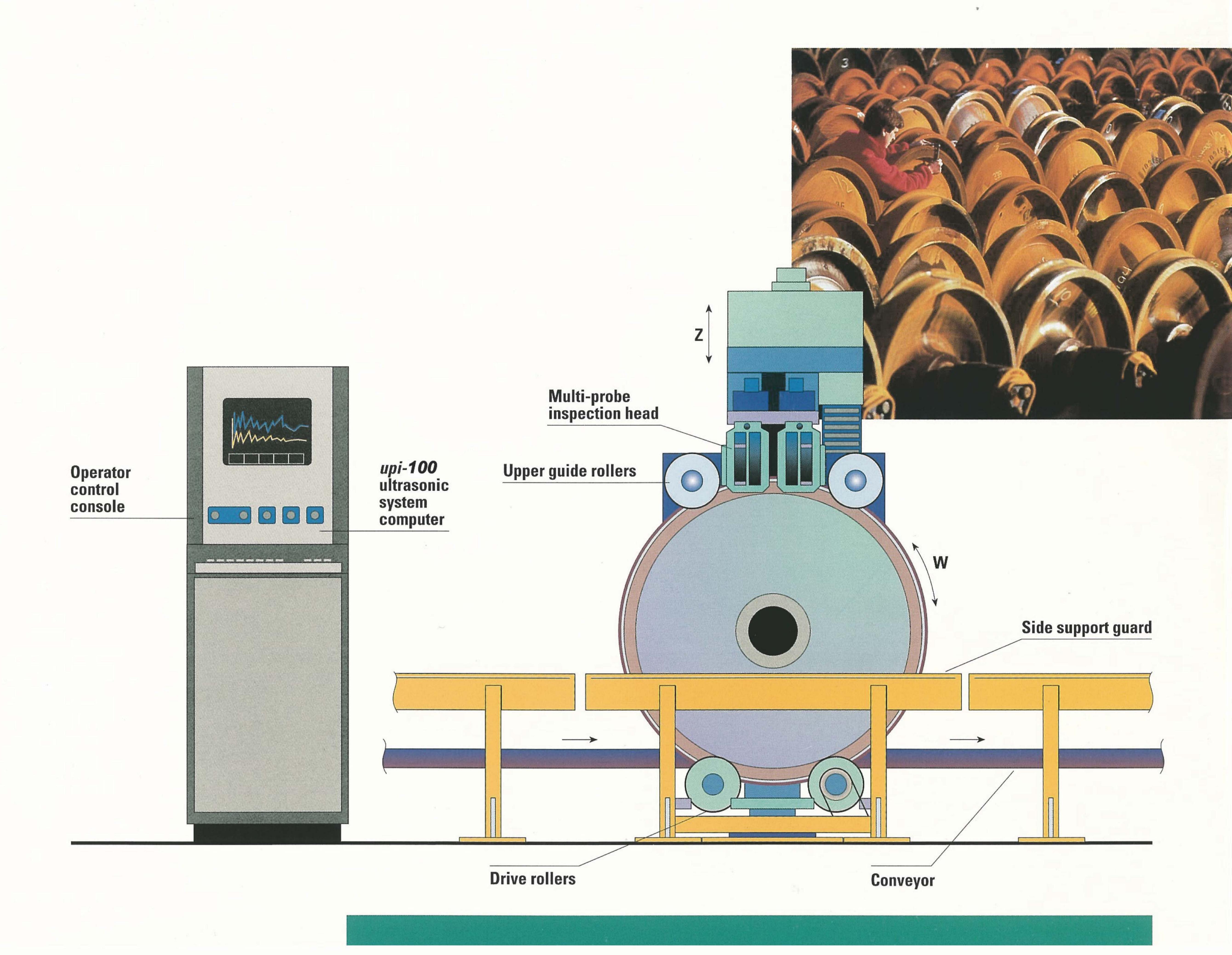
Parts are inspected without interruption at the rate of up to one wheel per minute or less, independent of wheel size or tape, in single or batch loads. Selection of three inspection modes: fully automatic interfaced to a host or external PLC; semi-automatic operation with operator-loaded inspection parameters per batch; or inspection with full manual override.

AS-220r for the refurbishment shop

Ultrasonic inspection generally precedes all re-machining operations. Wheels are inspected in sets, each set comprising a pair of wheels and the connecting axle. Automatic compensation for wheel-to-wheel variations in detection sensitivity.

AS-220p mechanics

Column-supported multi-channel inspection head with drive and idler rollers, coupling water circulation and filtration unit. Installed in the inspection cell on the production line. Optional parts sorter for PASS/FAIL.



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AS-220r mechanics

Gantry-based, dual multi-channel inspection heads, coupling water circulation and filtration unit, and elevator platform with integrated rolls for raising and rotating the wheel set.

Multi-probe inspection head

Accommodates automatically to wheel diameter and tread shape for simultaneous inspection from tread and rim. Independently suspended, stainless-steel bubbler and wear shoe for each probe, ensuring smooth contact for all wheel shapes and sizes.

Ultrasonic electronics

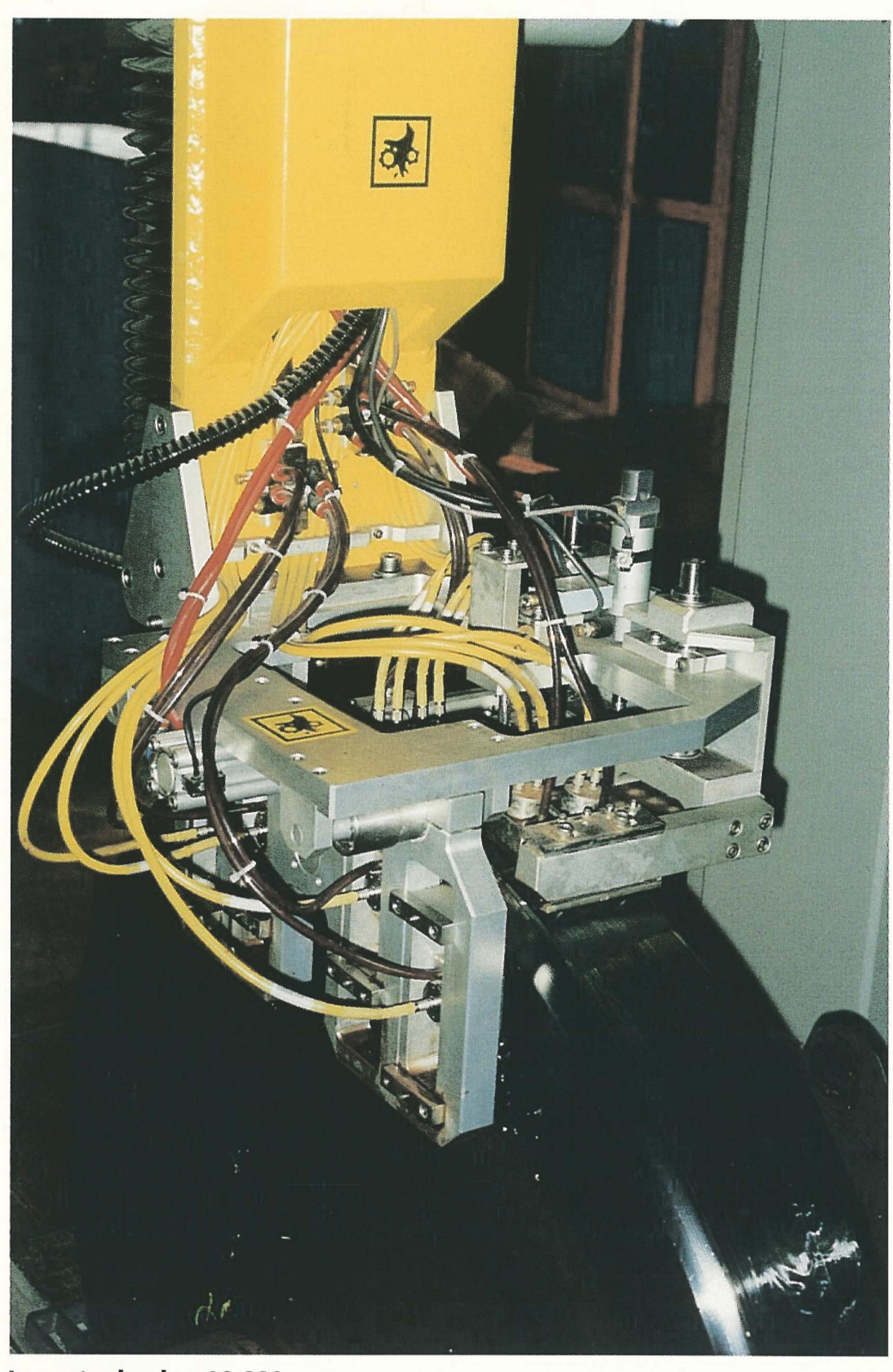
upi-100 rack-mount ultrasonics, including a remote-mounted RPP2 or RPP4 tunable square-wave pulser preamplifier for each channel. Up to 16 channels for AS-220p and up to 32 channels for AS-220r. One or two hardware gates per channel.

Ultrasonic instrument software

ScanMaster production-line software with easy-to-program set-up screens and screen-displayed alarms for flaw indications. Two programmable alarm thresholds per gate, programmable alarm duration and number of counts for alarm, and up to 8 programmable digital output ports.

Control console

Environment-proof rack-mount cabinet with 17" VGA monitor and pullout tray for mouse and keyboard provide full control of system ultrasonics. MAC Windows 2000/XP -based programmable process controller for integration into the production line.







Inspection head on AS-220p

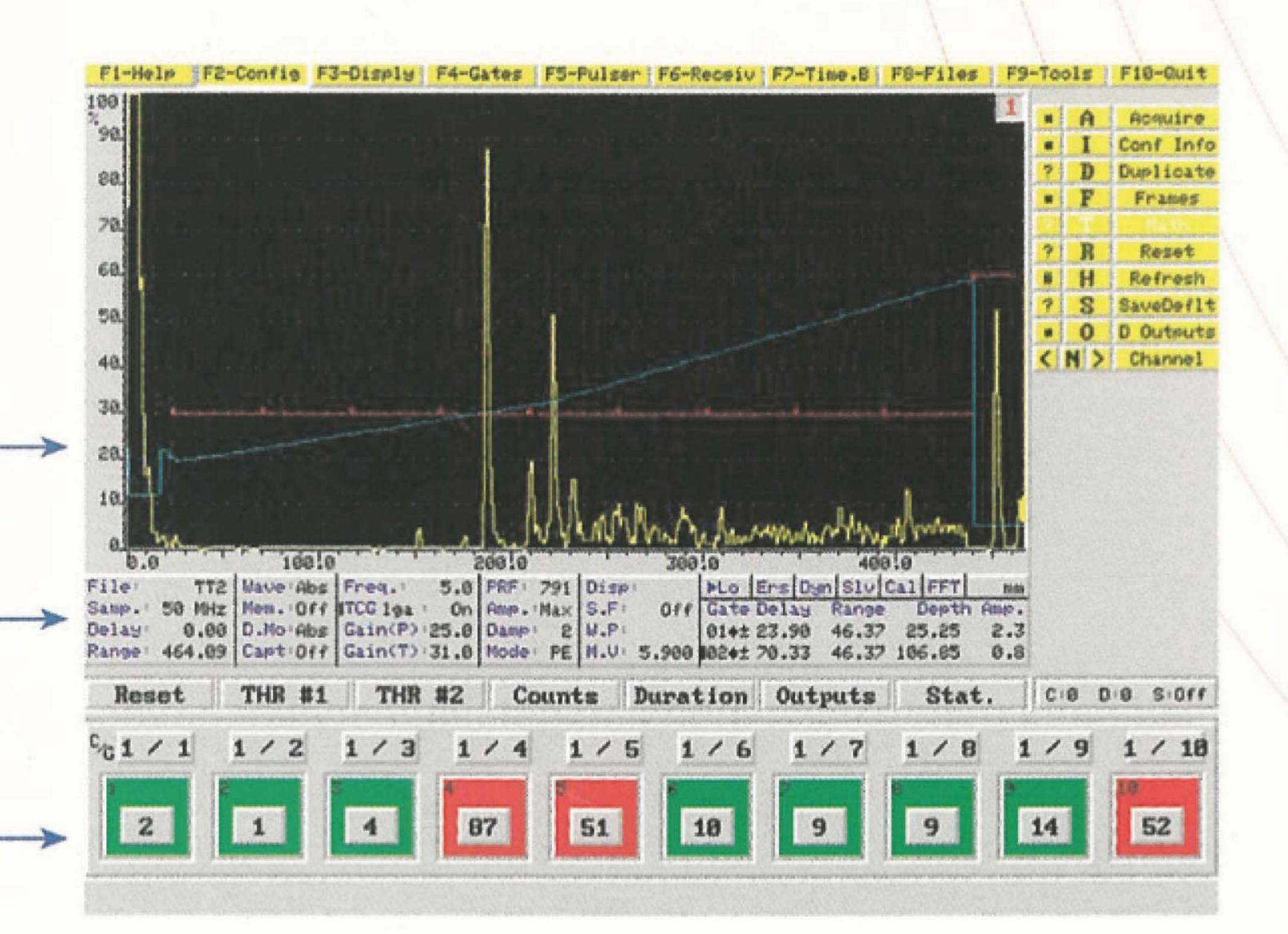
AS-220 SERIES WHEEL INSPECTOR

upi-100 operator screen display

A-scan window

Parameters set-up window

Alarm status window



SUMMARY INSPECTION SPECIFICATIONS

Suitable wheel sizes

From 660mm (26in) to 1050mm (42in) in diameter.

Inspection technique

Contact-type with forced water coupling, recirculation and filtering.

Number of inspection channels

Up to sixteen channels for **AS-220p**, up to thirty-two channels for **AS-220r**. One or two hardware gates per channel, with one or two operator-selected threshold levels per gate.

Type TDN or T2DN 4 and 5MHZ normal beam probes. Type RSA 2, 2.25, 4 and 5MHz shear wave probes. Detection

sensitivity to KSR 0.8 (No.2 flat-bottom hole) or equivalent.

Inspection coverage

Transducers

Full coverage of wheel rim and tread.

Inspection resolution

Flaw detection to American Association of Railroads Manual of Standards and Recommended Practices, or as otherwise required by the customer.

Rim thickness

Optional detection of wheel rim thickness.

Inspection rates

To less than 60 sec per wheel for AS-220p, 180 sec for AS-220r.

Number of set-up files in memory

Virtually unlimited in number of wheel sizes and tapes.

Set-up recall time from upi-100 files' directory

Typically five seconds with command from host computer. Typically 20 to 30 seconds if done manually.

Ultrasonic attenuation compensation

Automatic gain compensation for attenuation deviation from calibration standards. (AS-220r only)

Mechanical set-up time for new wheel dimensions

Inspection head accommodates automatically to each wheel diameter and tread profile.

I/O interface

Programmable digital output ports for audio-visual alarms, paint spray and process control.

Flaw marking type and marking accuracy

Type: waterproof paint marking. Accuracy: +/- 10mm (1/2") along wheel circumference.

Report documentation

Optional inspection report, individual or batch reporting. Records channel, signal amplitude, equivalent flaw size,

and depth.

COBPORATE OFFICES

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