

Rotomac[®] Rotaries

Eddy Current Rotary Mechanisms to Detect
Seam Type Defects in Tube and Bar



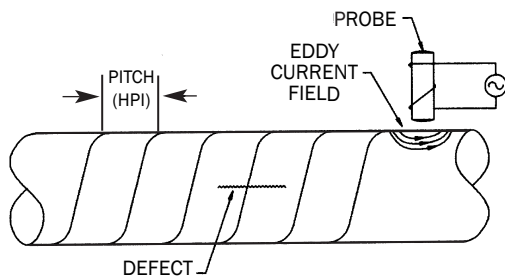
*Rotomac[®] 40mm with triple guide
rolls at entry and exit to ensure
proper positioning of the product*

Rotary Test Technology

Method of Choice for Seam Type Defects

MAC Rotaries use the unique qualities of eddy current rotary probe technology to detect long continuous surface flaws which may not be detected by encircling test coils.

MultiMac® eddy current electronics provide the controls, processing and analysis for the Rotary. MultiMac can also assign channels to an encircling coil test to detect short, intermittent defects, in combination with the rotary test, where needed.



To be consistently detected, the defect length must be greater than the helical pitch (HPI) of inspection. The HPI is a function of the probe's rotational speed and the throughput speed of the test material.

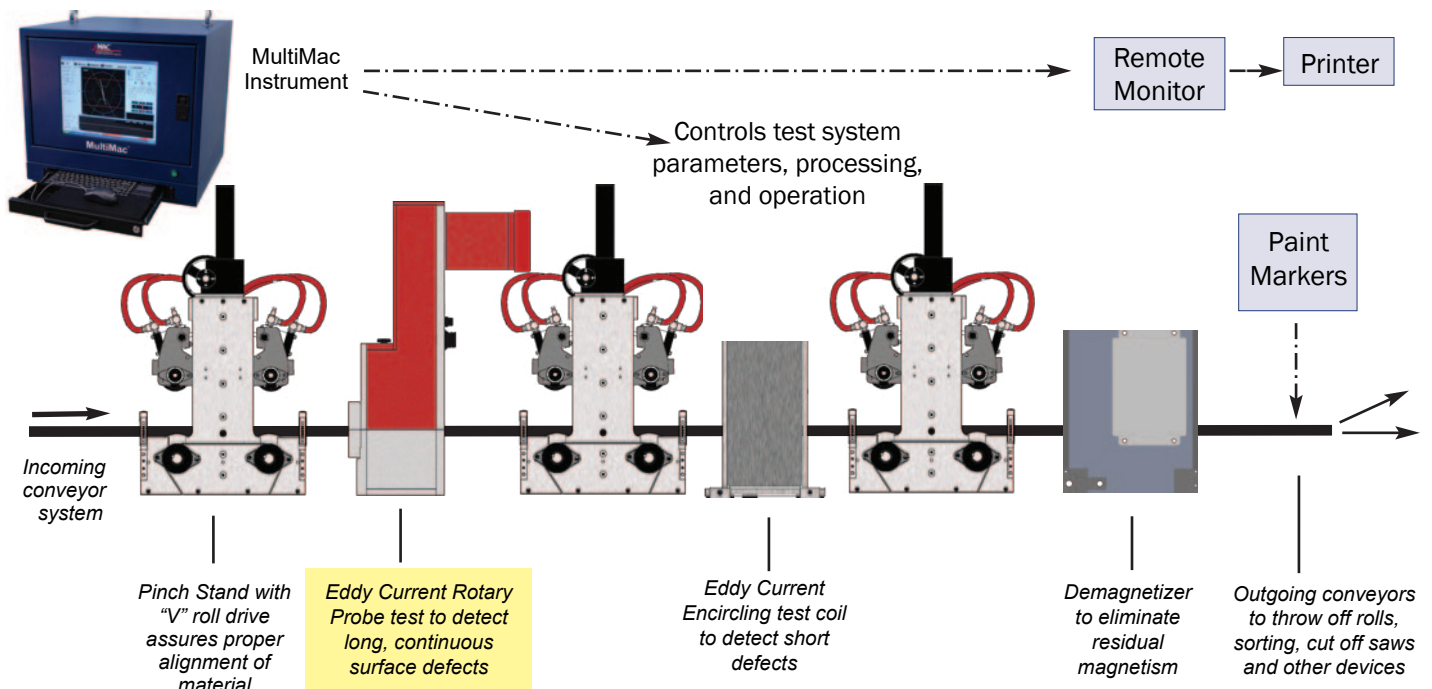
Principles of Operation

Rotary probe technology requires relative motion between the probe and the test material. Two or more probes rotate around the test material, inducing eddy currents.

When the induced eddy currents are disrupted by a surface defect, the change is sensed by the probe, and a flaw signal is sent to the instrumentation for processing and display. The amplitude of the signal for any surface seam is highly proportional to its depth.

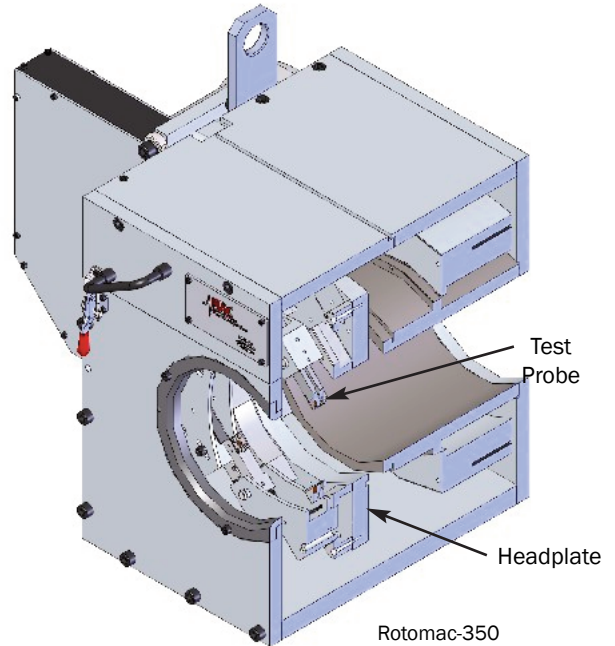
In general, either a higher rotational speed, or a greater number of test probes, at a given throughput speed, enables shorter defects to be detected.

TYPICAL SYSTEM COMPONENTS INCLUDING ROTARY PROBE & ENCIRCLING COIL TESTS



Rotomac® Rotary Features

- ❑ Operate with MultiMac® II or Minimax® II eddy current electronics.
- ❑ Systems with two or four probes, each with its own detector channel.
- ❑ Accurate Distance Compensation ensures a uniform defect signal, even with off center or out of round material.
- ❑ Choose test headplates for surface or air ride configurations, depending on surface conditions, sizes, and test specifications.
- ❑ Dynamic breaking for quick stop of test probe headplate rotation.
- ❑ Rotary probes, unlike encircling test coils, are not affected by throughput speed changes such as occur in parts forming, because the probes spin continually around the test material at a fixed speed.
- ❑ Operates automatically as defects in the bar or wire create flaw signals, activate alarms, paint markers and other devices.



Rotomac® HS 20mm features fast Eddy Current testing to detect longitudinal defects in tube or rod ranging from 2 - 20mm diameter. Operates at speeds up to 18,RPM.

Rotomac® Applications

Testing Wire, Rod & Bar

- ❑ Test cold drawn wire & cut length bar stock.
- ❑ Test magnetic & nonmagnetic material from 1/8" (3mm) to 7.1" (180mm) diameter.
- ❑ Test material 6mm to 40mm with the Rotomac® 40 and 2mm - 20mm diameter with the Rotomac HS 20mm.
- ❑ Test in line with continuous wire operations such as drawing, parts forming, or straight and cut.
- ❑ Operate in-line with straighteners or off-line in a separate test station.
- ❑ In parts forming, such as in springmaking, Rotomac® can identify a flaw prior to forming, and reject the piece after cutting and forming operations.
- ❑ Use Rotomac® 25RM for slow throughput applications such as Cold Heading, Spring Making and Parts Forming operations.
- ❑ Use Rotomac® HS 20mm for high speed operations.

ROTOMAC® EDDY CURRENT ROTARIES

ROTARY MODEL	MATERIAL DIAMETER	ROTARY SPEED	NUMBER OF TEST PROBES	NOTES <i>Surface or Air Ride Probes, LH or RH feed, Different Headplates & Small Diameter Package, are some of the available selections.</i>
Rotomac-HS 20mm	2mm - 20mm (0.0787" - 0.787")	Up to 18,000 RPM Continuously variable	Two	Quick twist-on bushing holders
Rotomac-HS 25mm	2-mm - 25mm (0.0787" - 0.984")	Up to 8000 RPM Continuously variable	Two	Quick twist-on bushing holders
Rotomac-RM 25mm	3mm - 25mm (0.125" - 0.984")	up to 1300 RPM Continuously variable	Two	Air Ride probes. Throughput speed up to 12 meters/min.
Rotomac-40mm	3 mm - 40mm (0.125" - 1.6")	Up to 6000 RPM Continuously variable	Two or Four	Requires bushings. With or without triple roll inlet and outlet guides
Rotomac-90mm	12.7mm - 88.90mm (0.5" - 3.5")	Up to 3000 RPM Continuously variable	Two or Four	With or without triple roll inlet and outlet guides
Rotomac-150mm	12.7mm - 150mm (0.5" - 5.9")	Up to 1800 RPM Continuously variable	Two or Four	With or without triple roll inlet and outlet guides
Rotomac-180mm	50mm - 180mm (2.0" to 7.0")	Up to 1200 RPM Continuously variable	Two or Four	With or without triple roll inlet and outlet guides

All Rotaries are CE Compliant



An Eddy Current Rotomac® 150mm rotary inspects cold finished bars at a US mill.