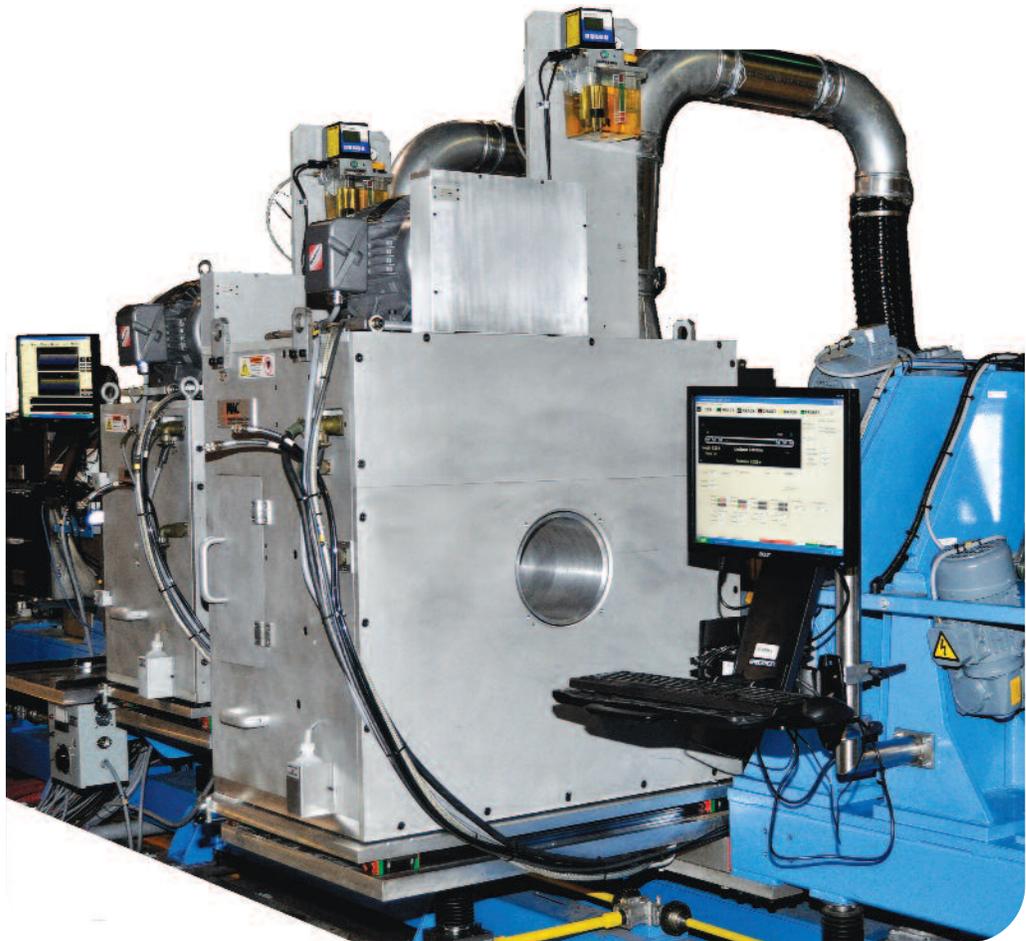


Rotoflux[®]

Flux Leakage Instrument for Detecting Defects in Heavy Wall Magnetic Products



Superior Technology & Performance

The best technology to detect ID/OD defects in heavy wall magnetic tubular products

Utilizing an adjustable magnetizing source, the flux density in the material is brought close to saturation, creating intense flux flow within the material. When a defect interrupts the flux lines, they extend beyond the material and this "leakage flux" can be detected by test sensors.

Superior Performance

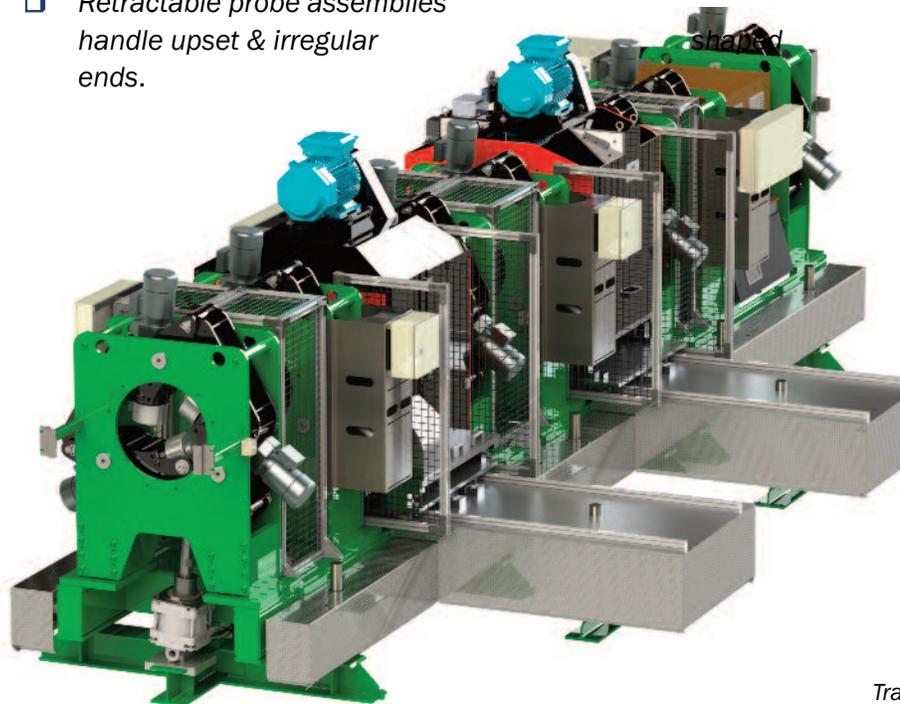
- ❑ 24 separate channels for longitudinal and 48 for transverse defect detection allows for greater test speed.
- ❑ Test for OD and ID surface defects and defects within the wall in carbon steel heavy wall tube
- ❑ Detect longitudinal and transverse defects as small as 5% on the OD and ID, depending on material type and condition.
- ❑ Proprietary wireless data transfer on the 500mm model improves noise performance, and lowers maintenance.
- ❑ Multiplex probe system allows individual probe signal adjustment for accurate defect location and marking.
- ❑ Retractable probe assemblies handle upset & irregular ends.



Longitudinal Rotoflux® Rotary Assembly

Transverse & Longitudinal Defect Detection meets API standards for OCTG product

By utilizing both Transverse and Longitudinal flux leakage technologies, seams, laps, weld line defects as well as transverse defects can be detected, meeting critical API 5CTand 5L, ASTM E570, and ISO requirements.



500mm Longitudinal/Transverse Rotoflux System



Transverse Rotoflux Rotary

Rotoflux Operation & Control

Versatile, Intuitive Operation

- ❑ All standard parameters, including sensitivity, filters, and thresholds for each probe are set through on-screen menus.
- ❑ Each probe can be independently adjusted, or automatically calibrated, for gain or sensitivity on-screen.
- ❑ Windows® OS platform to store results and unlimited setups.
- ❑ Software controlled setup of flawtrack output delay, applicable to any of six outputs, and end suppression.
- ❑ Special operation mode can suppress signals from acceptable welds in welded steel.
- ❑ On screen guide helps operators differentiate between most ID and OD defects. Color coded triangles help highlight the signals.

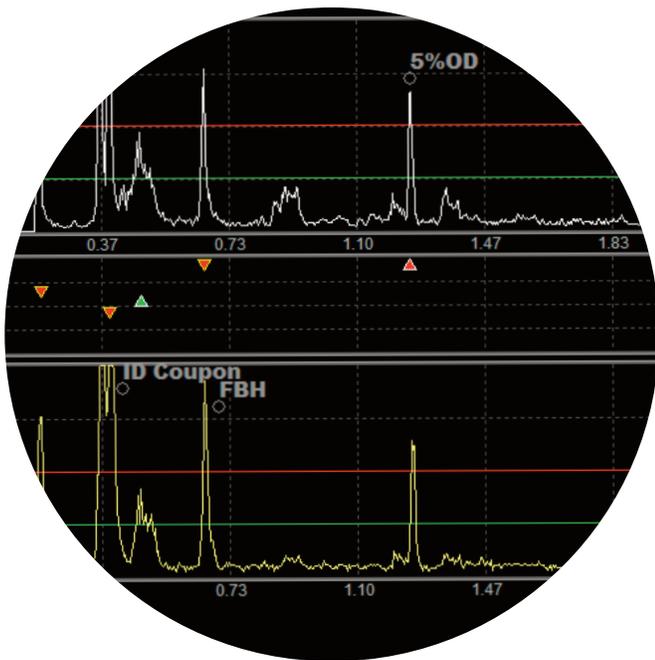


Chart Screen & Multi Screen

The Chart display shows the maximum ID and OD signals from any channel during an operator preset period of time. Multiplex probes detect both low and high frequency flux patterns.

By using selective filter circuits, the higher frequency signals, usually indicative of surface or near surface defects, can be displayed in the OD portion of the screen, while the lower frequency signals, which generally come from deep internal and ID defects, can be seen in the ID section. This gives the operator a convenient guide which is sufficient, in most cases, to differentiate between ID and OD defects.

Each channel can be viewed independently, with zoom in capability, in the Multi-Screen.

Track Screen

The Track Screen is used to change encoder and similar settings, without the need to make individual changes for each stored setup, when adjusting for timing.



Rotoflux® Flux Leakage Applications

- ❑ Preferred technology to detect OD and ID defects in heavy wall magnetic tubular products.
- ❑ Inspect for defects in drill pipe, casing, sucker rods & coupling stock
- ❑ Detect longitudinal and transverse defects to comply with required standards for OCTG pipe.
- ❑ Inspect for weld line defects.



An installation at a large European tube mill featuring both longitudinal and transverse Rotoflux® rotaries to test to a 5% or 10% notch level on common OCTG products in a size range of 50 - 180mm (1.97" - 7") diameter. Inspection complies with API 5CT - Rev 8 specifications. The Longitudinal flux leakage unit includes rotating magnet poles and sensors. The Transverse unit places the magnet poles in a fixed position perpendicular to the axis of the tube.

| ROTOFLUX ROTARY | | | |
|-----------------|-----------------------------------|------------------------------------|-------------------------------------|
| TYPE NO. | SIZE RANGE OF TEST MATERIAL* | TEST SPEED** (Longitudinal) | TEST SPEED** (Transverse) |
| 190mm | 50.8mm - 193mm, (2" - 7-5/8") | 0 m/m - 122 m/m, (0 fpm - 400 fpm) | 6 m/m - 122 m/m, (20 fpm - 400 fpm) |
| 400mm | 101.6mm - 365.1mm, (4" - 14.375") | 0 - 60 m/m, (0 - 200 fpm) | 6 m/m - 60 m/m, (20 fpm - 200 fpm) |
| 500mm | 125mm - 500mm, (5" - 19.6") | 0 - 60 m/m, (0 - 200 fpm) | 6 m/m - 60 m/m, (20 fpm - 200 fpm) |

* Smaller diameters down to 1-1/2" (38.1mm) may be tested on the Type 190mm with the addition of a small diameter package
 ** Exact Test Speed depends on the size and wall thickness of the tube to be tested

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