TACTIC™

A Product of Magnetic Analysis Corp.

BULLETIN 570

MAGNETIC ANALYSIS CORP.

Flow-Coupled Ultrasonic Tube and Bar Tester

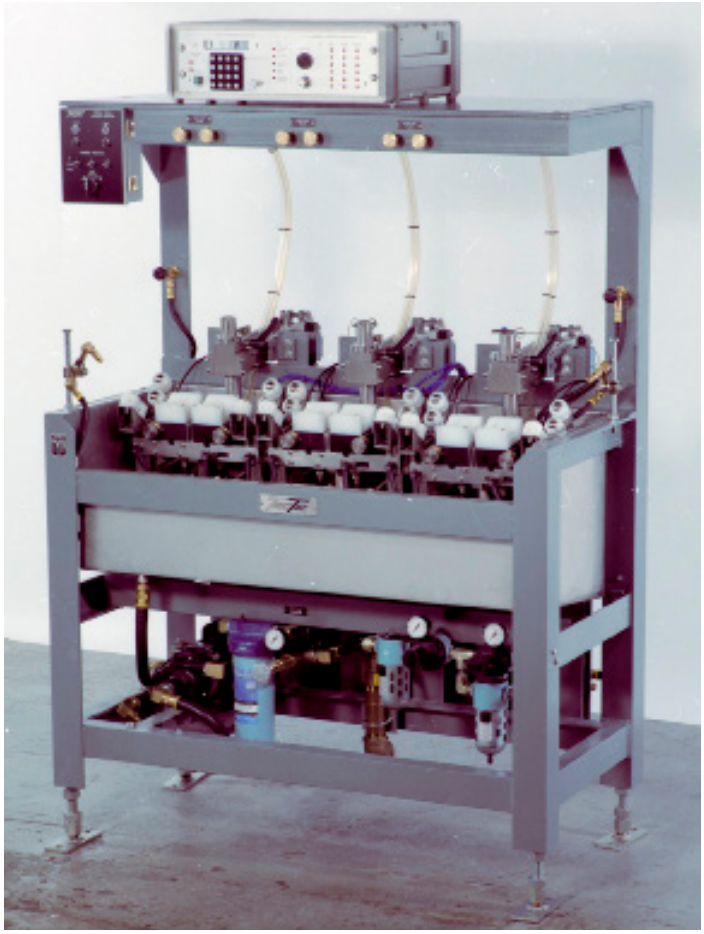
Model 57 Flow-Coupled, Multi-Probe Ultrasonic Tube & Bar Tester

TACTIC Model 57 Ultrasonic Tube and Bar Testers provide all the advantages of 100% immersion inspection of rotating cylindrical material without requiring either a full immersion tank or a glanded pass-through ("stuffing box") tank. The advantages of immersion versus "contact" inspection include the ability to employ focused transducers with full adjustment of focus and angulation, freedom from couplant variations, and absence of face plate wear.

TACTIC's Model 57 Testers utilize patented "flow coupler" transducer shoes, proven effective by many years of use in our Model 55 On-mill Tube Weld Testers. In Model 57 Testers each pair of upward-facing coupling shoes is in an air-actuated "carrier" assembly that rises to engage and "follow" the underside of a rotating bar or tube passing over it. Coupling water flows without turbulence from the shoes to the material surface and then to a "drip-tank" reservoir from which it is filtered and recirculated. Carrier contact with the material is by means of four TACTIC Model 900 recirculating Ball Transfers as used in our large tank Model 444/446 Followers. When properly adjusted there is little or no surface contact or wear of the coupling shoe face plates that direct the flow of couplant from transducer to material. test systems to meet our customers' needs.

Face plates, contoured for each specified diameter, are available for straight or angle beam inspection. The spacing between transducers in each carrier is calibrated and adjustable to facilitate "interlaced scanning", thus permitting higher throughput speeds with multichannel instrumentation.

A Model 57-X Tester, configured to accommodate a desired number of transducers (as indicated by a dash number after the model number), may be placed in a user-supplied rotary feed line, or may be furnished with a TACTIC conveyor system. (A letter "B" after the model number indicates a tester for bars only.) Typical specifications are given in the table below. These may be altered on special order to suit user needs or preferences.



Model 57B-6 6-probe Bar Tester with Model 1088 Indicator/Controller

- **Tankless Immersion Inspection**
- **Multi Probes for High-speed Testing**
- **"Following" Action for Crooked Material**

Magnetic Analysis Corporation ~ 103 Fairview Park Drive, Elmsford, New York 10523-1544 USA ~
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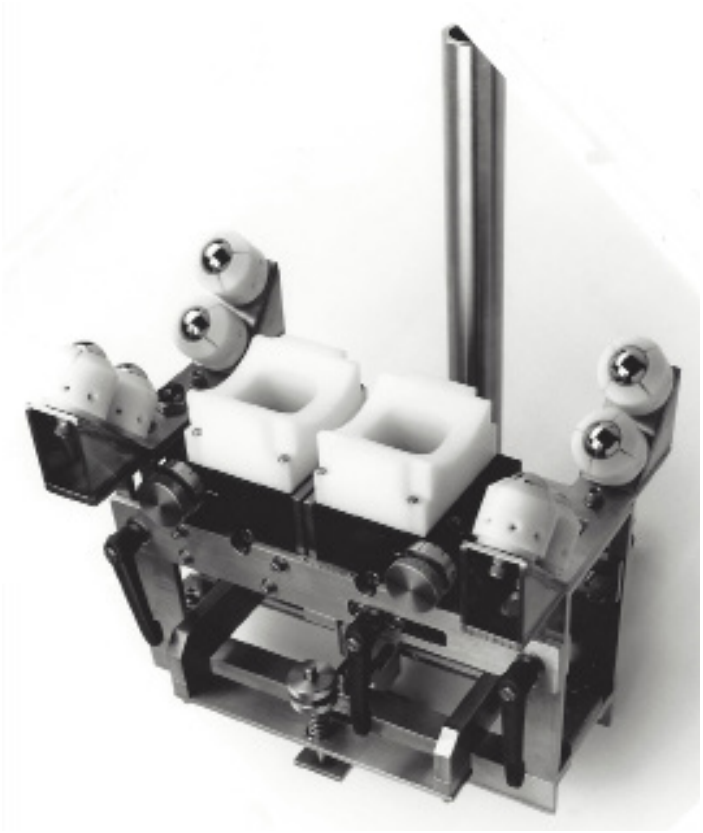
SPECIFICATIONS	
Material Diameter Range	2-1/2 to 7.0 in. (63.5 to 180 mm)
Following Range for Horizontal & Vertical Displacements	± 1/2 in. (13 mm)
Approximate Dimensions	Height: 66 in.(1830 mm); Width: 30-1/4 in. (770 mm) Length: (12 + 6 x Dash No.) inches (304.8 + 152.4 x Dash No. mm) e.g. Model 57-6 = 12 + 6 x 6 = 48 in.(1220 mm) Long
Typical Height of Material Bottom from Floor	40 - 44 in. (1015 - 1115 mm)
Bottom Line Height Increase with Diameter	1 - 2 inches (25 - 50 mm)
Electrical Power	220-240/120 VAC, 3/6 A., 50/60Hz, 1 phase
Air Supply	80 psi (5.6 Kg/cm^2), dry, filtered, 3 cu.ft/min (.09 cu.M/min.)
Water Supply	15 - 30 psi (1 - 2 Kg/cm^2)
Drain Water Connection	1-1/2" MPT
Transducers	TACTIC P/N A27562-5, 1.75" (44.45 mm) Diam. x 3.0" (76 mm) Lg. Frequency, focal and beam lengths are chosen to suit test and material specifications.



Dual-probe Carrier for Model 57 Tester

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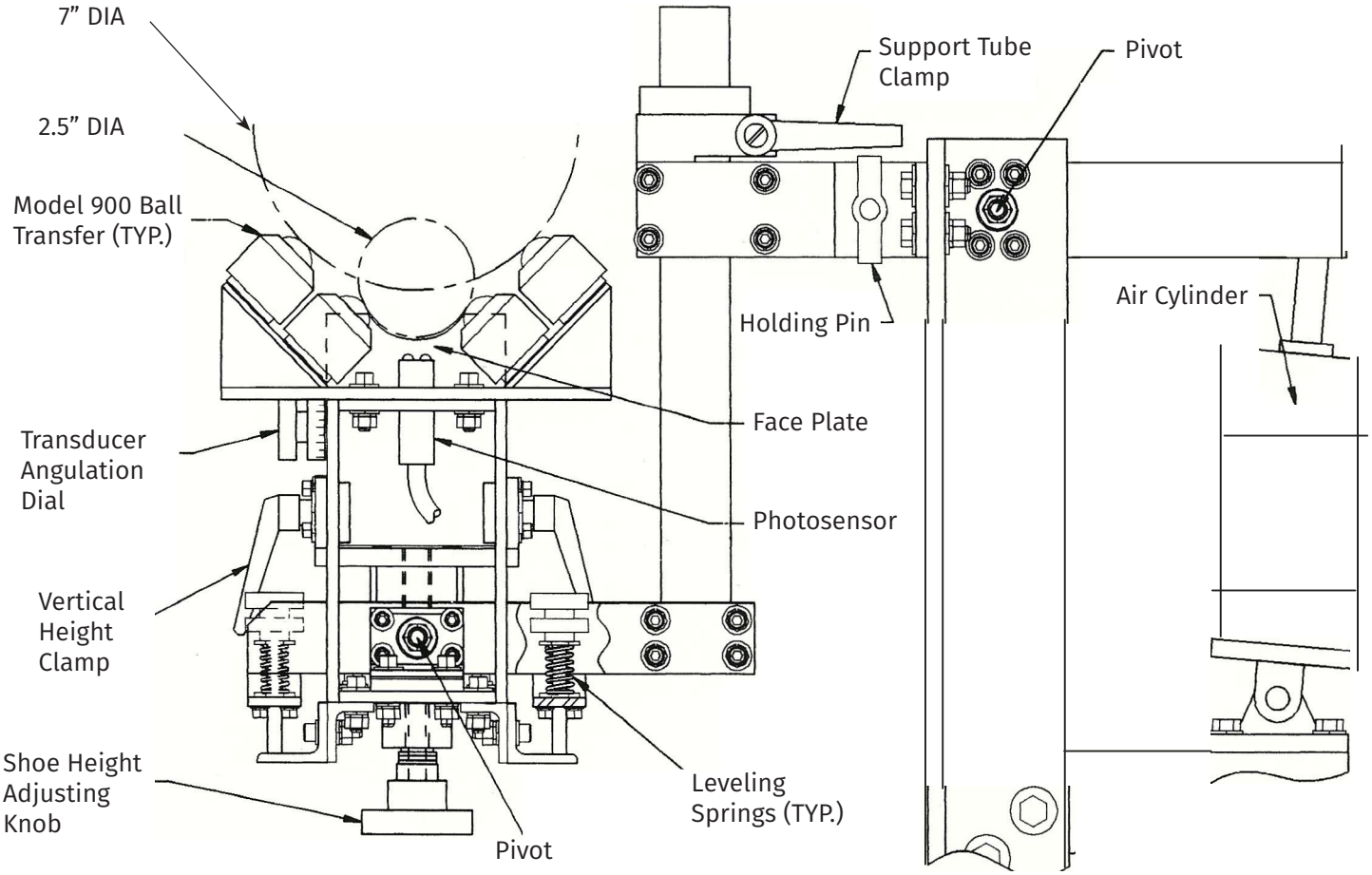

Carrier Assembly for Model 57 Transducer Shoes

The drawing above shows how the vertical support tube of a carrier assembly is attached by a clamp to a pivoted arm, the other end of which is connected to an air cylinder. The arm is initially held in a horizontal position by a removable “pin” so that the support tube may be clamped at the proper height for the ball transfers to engage the bottom of the material to be tested. The carrier body itself is attached by another pivot to a horizontal member that is fixed to the bottom of the support tube. The double pivot action allows the carrier to follow any horizontal and vertical excursions of the test piece as it passes through the Tester.

The various clamps and control knobs on the carrier enable the shoes to be positioned correctly and the transducers to be oriented and angulated as necessary to perform the desired test. Two photosensors on the centerline of the carrier detect the presence, or absence, of a piece of test material so that the carrier may be raised and lowered automatically.

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