

MAGNAFLUX TESTING

Magnaflux testing can be performed at any time and is mostly used to inspect for cracks on the roll necks. Cracks in the neck portion of the roll are typically circumferential and are usually located in the form area. Magnaflux testing as described here cannot be performed on the roll body surface because the strength of the magnetic field used would induce magnetism into the surface which can be detrimental to the quality of the rolled product. The test is performed by inducing a magnetic field in the longitudinal direction with the area to be tested in the middle. A fine magnetic powder is then lightly blown over the area in-between the two magnetic poles. Any interface (crack) between the two poles acts to distort the magnetic field which attracts the fine magnetic particles, highlighting the crack. Magnaflux is accurate at highlighting large, wide cracks, however, if the crack is too narrow, fewer magnetic particles will be attracted to the interface and the crack will not be highlighted. The following is a simplified procedure for magnaflux testing.

- Clean the portion of the roll neck to be tested using solvent to remove any oil, grease, dirt or build-up.
- Place both poles of the electromagnetic yokes in the longitudinal direction over the area of the neck to be tested (Figure 1).
- Activate the electromagnetic yokes to induce the magnetic field across the area to be tested.
- While the yokes are energized, take the blower bulb in one hand, and carefully and evenly, squeeze the bulb to apply the magnetic particles to the area under the yokes (Figure 1).
- Move the yokes circumferentially around the area of the neck being tested and continue to apply the magnetic powder.
- As the magnetic powder adheres to interfaces, the cracks are then highlighted as thin lines of magnetic particles.

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FIGURE 1
Magnaflux test being performed on a shoulder radius.

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