

NON-DESTRUCTIVE TESTING

METALCASTING

USER CASE: RESONANT INSPECTION OF BRAKE ANCHORS

PROBLEM

An automotive parts supplier of brake anchors was experiencing cracks in the finished parts. Heavy pressure from the supplier’s customer drove the parts supplier to batch inspecting via magnetic particle technique and redundant 200% visual inspection.

SOLUTION

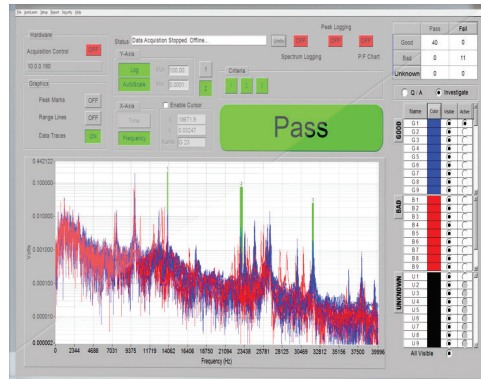
A pass/fail criteria template was developed from trial parts then implemented in an on-line quality inspection system. Cracks in flawed parts were easily detected at high throughput rates using the NDT-RAM resonant inspection technique. The system automates objective whole part inspection at approximately 3 seconds per part using an industrial conveyor and synchronized industrial impactor.

BENEFIT

One hundred percent part quality inspection via NDT-RAM assured objective and reliable inspection. Reliable design provided fast and efficient operation 24 hours per day, 7 days per week, 365 days per year with high throughput. As a result, both magnetic particle and visual inspection were eliminated on this part, saving both time and money.



Typical Components



Frequency spectrum of sample parts

FREQUENCY CRITERIA				
	Freq 1	Freq 2	Freq 3	Freq 4
Average Passed (Hz)	820.3	6717.8	16772.5	19749
Std Dev Passed (Hz)	0	5.1	30.3	15.2
Average Failed (Hz)	1025.4	6843.8	16693.4	19664.1
Std Dev Failed (Hz)	41	46.9	427.7	35.2
Passed - Failed (Hz)	-205.1	-126.0	79.1	84.9

Note the large frequency difference (shown in red) between (passed – failed) for first two frequency criteria