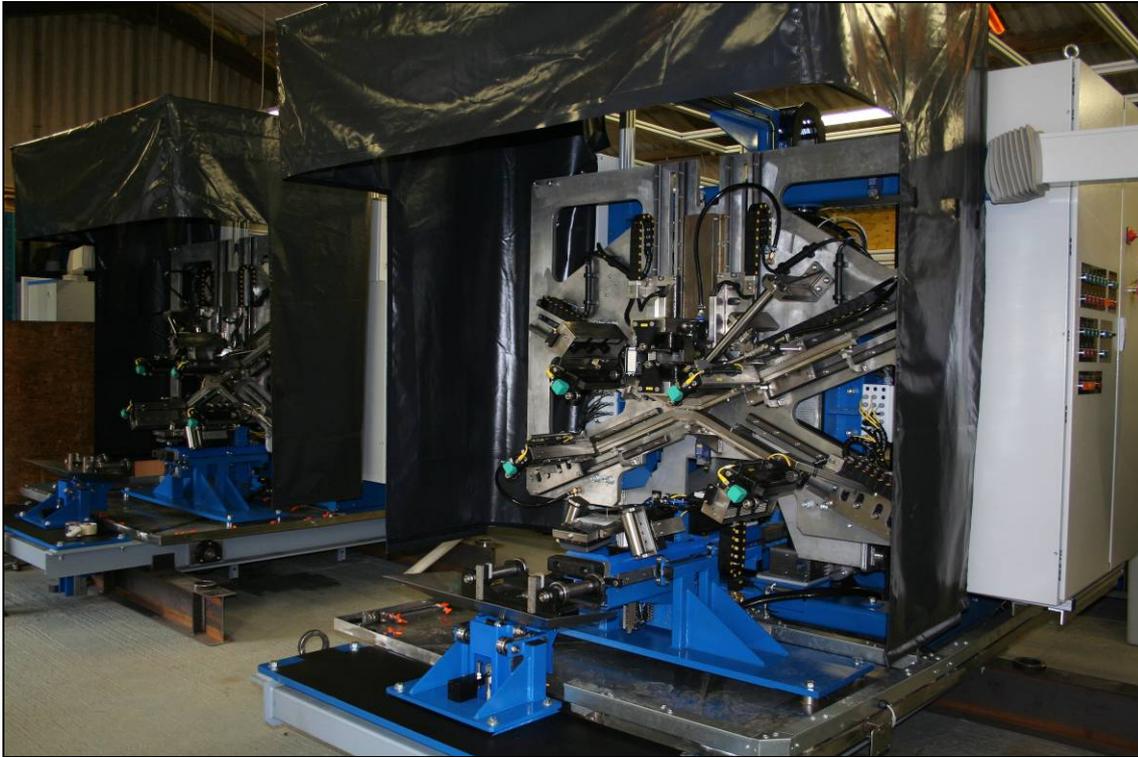


MAGNETIC PARTICLE & ULTRASONIC INSPECTION OF S.A.W. PIPE ENDS



This equipment is specifically for use in detecting surface and near surface discontinuities at the ends of S.A.W. pipe regardless of direction. The system will inspect both ends of the pipe simultaneously up to 500mm in from each end.

The system meets or exceeds the requirements set out in the following Magnetic particle inspection standards; ISO13334:1997(E), ISO13665:1997(E), EN 10246-12:2000 and EN10246-18:2000 and other international specifications. See the reverse of this brochure.

Pipe Diameter Range 400mm to 1200mm

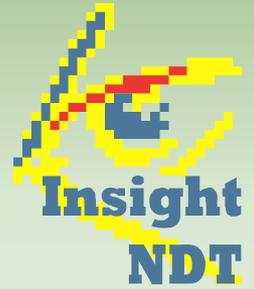
Pipe length can vary between 8 to 13 metres

Non-contact and therefore no wearing parts

Fast throughput continuous operation, approx inspection surface speed 50mm per second

Improves test integrity over traditional hand yoke methods

Relatively low capital cost and running cost through lower electrical current requirements



Telephone
+44 (0)1981 541122

Fax
+44 (0)1981 541133

Email
Sales@InsightNDT.com

Web Site
www.InsightNDT.com

**Insight NDT
Equipment Ltd**
The Old Cider Mill
Kings Thorn
Herefordshire
HR2 8AW

Directors
Mark Willcox BSc (Hons)
Jiang Li BSc (Hons)

VAT Registration No.
771 3060 50

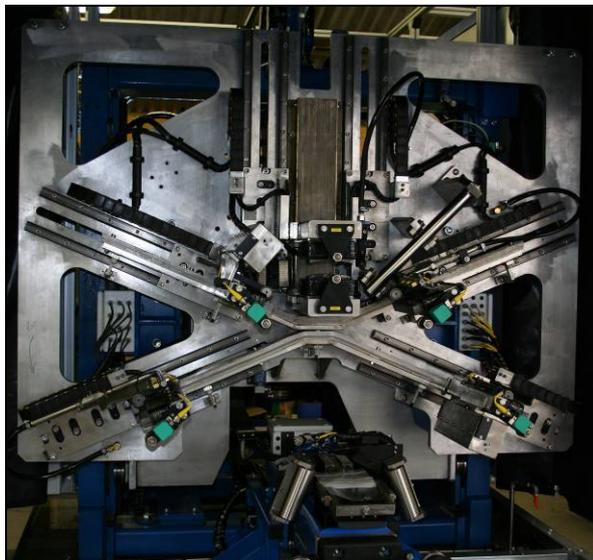
Registration No.
4198815 England

Registered Office
21 St Owen Street, Hereford,
Herefordshire HR1 2JB

Magnetic Particle Inspection of the ends of SAW pipe is a long established technique for the detection of surface breaking longitudinal cracks as part of the mill production routine quality control process. However this is normally a manual and labour intensive task.

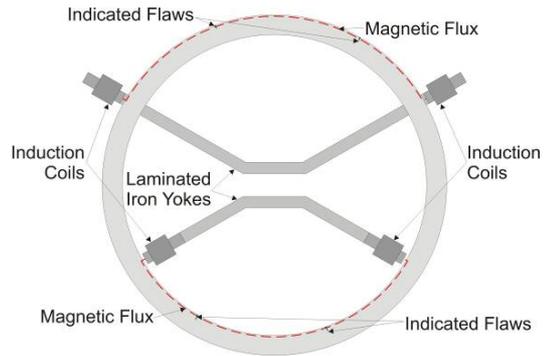
Our pipe end inspection system provides simultaneous magnetic particle and ultrasonic inspection of the Internal and external surfaces of the end 500mm of the pipe as well as the inspection of the bevel.

The common method of applying this technique is to use a hand yoke and an inspection technician at each end of the pipe; this has a obvious high labour cost particularly when inspecting the three surfaces at the end of the pipe. Also most conventional hand yokes do not allow the inspection of 500mm from the end of the pipe, due to size and weight constraints.



Our pipe end inspection system has three very large yokes which can be seen in the photograph above; in which progressively only a short length of the surface at the end of the pipe is magnetised circumferentially and inked whilst the pipe rotates. With the special viewing arrangements adjacent to each of the magnetising yokes it is thus not necessary to stop the pipe even for inspection purposes. Transverse flux is induced by the yoke – for full magnetic particle inspection of the pipe end it is necessary to have three yokes.

The first and second yoke magnetise a short length of the inside and outside surface of the end of the pipe by generating an A.C. flux between the pole piece ends.



The third yoke magnetises a short length of the bevel of the pipe, by generating an A.C. flux between the pole piece ends across the end thickness. The three yokes will reveal all longitudinal and radial flaws.

A.C. flux with its attendant skin effect will traverse the inside, outside and bevel surfaces of the pipe end, creating a transverse magnetic field in the required direction. Indicating ink applied immediately before each yoke will allow particles to move through the fluid layer to the defect edges during the magnetising phase.

Immediately after each magnetising position will be a viewing camera system which incorporates LED black lights. The images from the viewing cameras are recorded for review by the operator. The operator can then determine if the pipe end is flawed or not.

Since the yokes are operating continuously with A.C., as the pipe rotates the pipe end is subjected to a reducing A.C. reversing polarity field and therefore is automatically demagnetised.

This system can be further enhanced by the addition of an Ultrasonic inspection system for the pipe ends. The ultrasonic system is shown below.



The Ultrasonic system meets the requirements set out in the following Ultrasonic inspection standards; ISO13663:1995(E), ISO11496:1993(E), EN 10246-16:2000 and EN10246-17:2000.