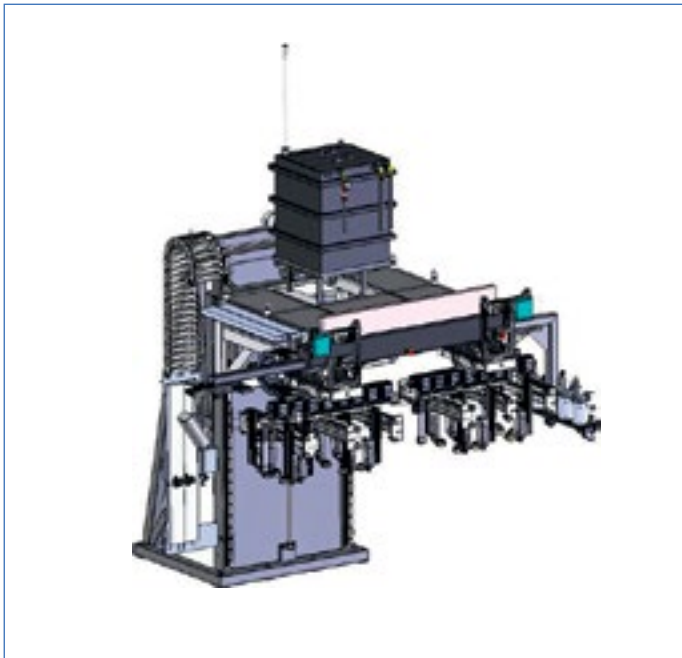


Krautkramer Testing Machines Submerged Arc Welded (SAW) Pipes

SNUP Testing Machine Series



Introduction

Longitudinally or helically SAW welded pipes are still the major component for pipeline constructions around the world. Within the manufacturing process, the pipes have to be ultrasonically tested according to industry-accepted standards. As a result, ultrasonic testing of the weld seam is well-established in production of both types of pipes.

The ultrasonic test is performed after welding and/or after the hydrotester resp. expander. While the test after welding is usually for internal process control, the inspection after the hydrotester/expander is normally the final verification of quality before the pipe is finished and approved for shipment to the customer.

SAW pipes are inspected to detect three main flaw types that can occur during manufacturing: Longitudinal defects along the weld axis, transverse defects perpendicular to the weld axis; and laminations.



The SNUP Ultrasonic Testing Machine Series

SNUP type testing machines from GE Measurement & Control feature high mechanical stability to reduce vibration and superior electromagnetic shielding of signal cables to provide a design which consistently provides outstanding results.

In addition, SNUP testing machines are easy to operate and maintain and offer very fast dimensional change-over and a long operating life.

There are two types of SNUP machines for the inspection of submerged arc welded pipes:

SNUP-LO and SNUP-SP

SNUP-LO is available as SNUP-LO/OFF, which is designed for off-line weld seam testing of longitudinal submerged arc welded pipes (LSAW)

SNUP-SP is available in two versions: SNUP-SP/ON and SNUP-SP/OFF for on- and off-line weld seam testing of helically welded pipes (HSAW)



SNUP-LO/OFF

- Provides ultrasonic testing of LSAW pipes in the production process before or after expansion
- Inspects weld seam, heat affected zones (HAZ) and tube ends (REP)
- Possible test methods depending on the customer's production process
 - Pipe moves under stationary mechanics (lifting frame solution)
 - Machine mechanics moves along the stationary pipe (portal solution)
The portal solution offers shorter test time providing higher throughput & productivity. Untested pipe ends are also shorter
- For pipes with bigger weld seam deviations on small diameters a dedicated mechanics is available which follows the pipe contour.

SNUP-SP/ON & SNUP-SP/OFF

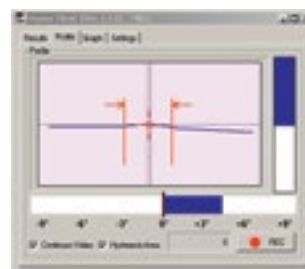
Provides ultrasonic testing of HSAW pipes in the production process at the finished pipe before or after the hydrotester or after welding in case of endless pipes.

- Inspects weld seam, heat affected zone (HAZ), tube ends (REP) and provides statistic test of base material (OPR)
- Test method: Pipe moves under stationary mechanics (lifting frame solution)

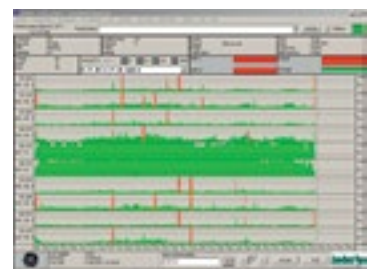


Properties and features for both SNUP-LO and SNUP-SP machine types:

- **Automated weld seam following** by laser tracking of weld seam edges – also for large seam widths (up to 100 mm)
- **Online view of weld seam following**
- **Operation terminal** located directly at the test mechanics for quick and easy calibration
- **Freely configurable paint marking devices**, incl. acoustical and optical indication
- **Strip chart visualization** and recording of test data
- **Automated test report generation**
- **Stable coupling conditions** due to angle beam probes with water gap coupling
- **Hardened wear shoes** guide the probes on the pipe. These are easy to exchange and offer a long operating life.
- **Motorized adjustment of probes:** The dataset of ultrasonic parameters also includes the corresponding probe positions. This results in significant shorter changeover times - especially in conjunction with phased array probes.
- **Water circulation system with self-cleaning filter** or conventional band filter



Weld seam following - online view



Strip chart visualization

Technical Data

SNUP-SP/ON & SNUP-SP/OFF

Typical specimen dimensions (other values on request)

Pipe diameter	> 355 mm
Wall thickness	≤ 25.4 mm
Pipe length	5-24 m or "endless"
Weld seam width	≤ 35 mm

SNUP-LO/OFF

Typical specimen dimensions (other values on request)

Pipe diameter	> 355 mm
Wall thickness	≤ 80 mm
Pipe length	5-18 m
Weld seam width	≤ 150 mm

Types of Defects

- Longitudinal and transversal flaws in the weld seam, oblique flaws if required
- Laminations in the heat affected zone (HAZ)
- Test of the pipe end for laminations and/or longitudinal cracks (included in weld seam tester or as separate machine)

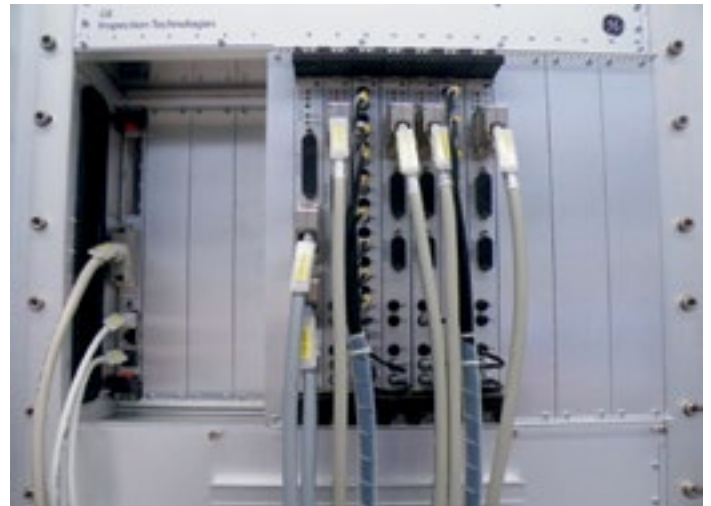
Typical Specifications

- API 5L/ISO 3183
- DNV-OS-F101
- Shell DEP-31.40.20.37-Gen.
- [...]

Ultrasonic Testing Machine Electronics

(includes optional items)

- Modular system electronics VIS (conventional) or VPA (Phased Array)
- Easy to operate Microsoft Windows™ GUI
- VME Bus Controller
- Pulse Repetition Frequency 20 kHz max.
- Use of conventional and Phased Array probes with the same VPA electronics
- Double threshold evaluation possible (warning/alarm)
- Extensive monitoring functions, self-test and diagnostic support
- Strip chart for displaying the longitudinal position of the indication
- Automated test report
- Automated transmission of results to a pipe mill server



Scan the QR code with your smartphone or go to [youtube.com/watch?v=bOjdzHX78B8](https://www.youtube.com/watch?v=bOjdzHX78B8) to see a video and learn more about the SNUP



www.ge-mcs.com

GEIT-60020EN (04/13)