

WELD SEAM DETECTOR SND30

Weld seam detection in tubes

R 2000 series SND30

Magnetic functional principle

Microcontroller based

For positioning tasks

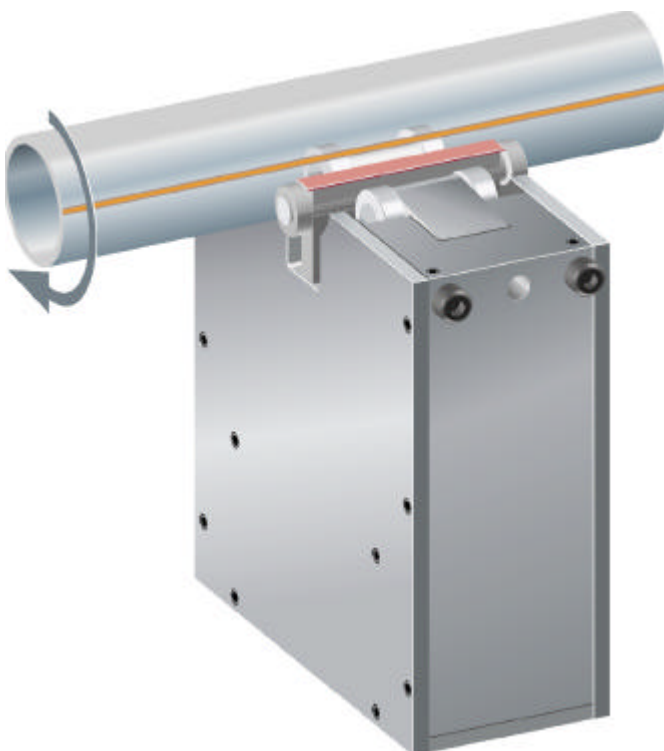
For steel and non magnetic stainless steel tubes with a diameter ranging from 10 to 250 mm and a wall thickness up to 5 mm depending on sensor type and tube material

Digital display of operations parameter

Programmable for 30 different tubes

Opto coupled 8-Bit PLC parallel interface for input and output

Output relay for motor control



Description:

The processing of tubes requires the fully automatic location of weld seams and the positioning of the tubes. The weld seam detector SND30 was specifically developed for this task and is an advanced version of the proven system SND8.

Sensors:

Two sensors are available:

- NS9S: This electro magnetic sensor is suited for tubes with wall thicknesses up to approx. 3.00 mm. The sensor exerts no magnetic forces if switched off after measurement.
- NS10S: This permanent magnetic sensor is suited for tubes with wall thicknesses up to approx. 2.00 mm. The maximum wall thickness results in magnetic forces of approx. 14 kgf which have to be overcome by mechanical means.

Function:

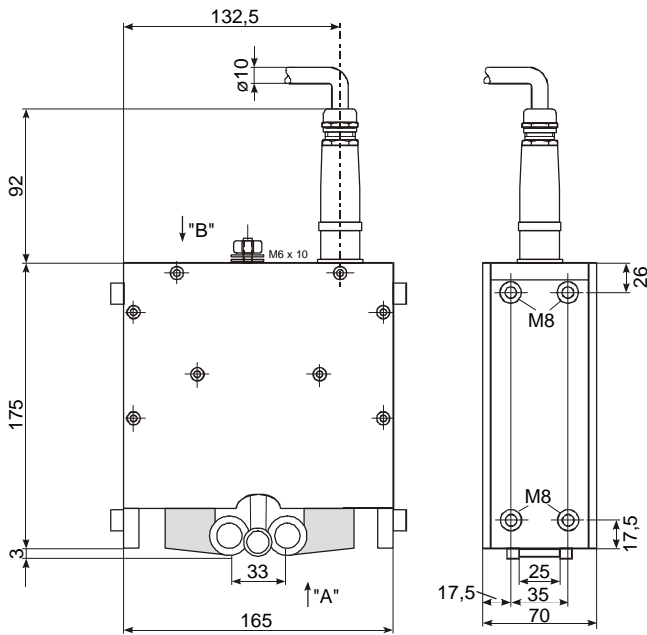
The SND30 enables the positioning of weld seams in tubes in any predetermined angle. Location and positioning are based on the magnetic leaking flux principle and auto optimizing methods (teach-in) of digital signal processing concepts.

The SND30 functions in conjunction with a programmable logic controller (PLC) with which it communicates via an 8-bit parallel interface. The adaptation of this system to the type of tube requires parameter programming and automatic learn-mode steps (teach-in).

The weld seam location process requires the following steps:

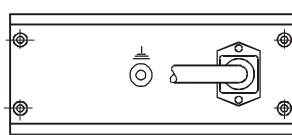
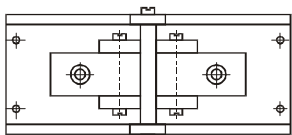
- The PLC prepares the tube for the detection process (moving the tube to the sensor or moving the sensor to the tube).
- The tube is rotated with a drive which is either controlled by the PLC or by the SND30 (output relay). **During this process the rotation of the drive has to remain constant and the sensor must be positioned against the tube.**
- The weld seam detection process is completed after a maximum of 4 tube rotations. The SND30 reports to the PLC the weld seam position and then rotates the tube to the required angle. The tube is now ready for further processing.

Sensor NS9S



View "A"

View "B"

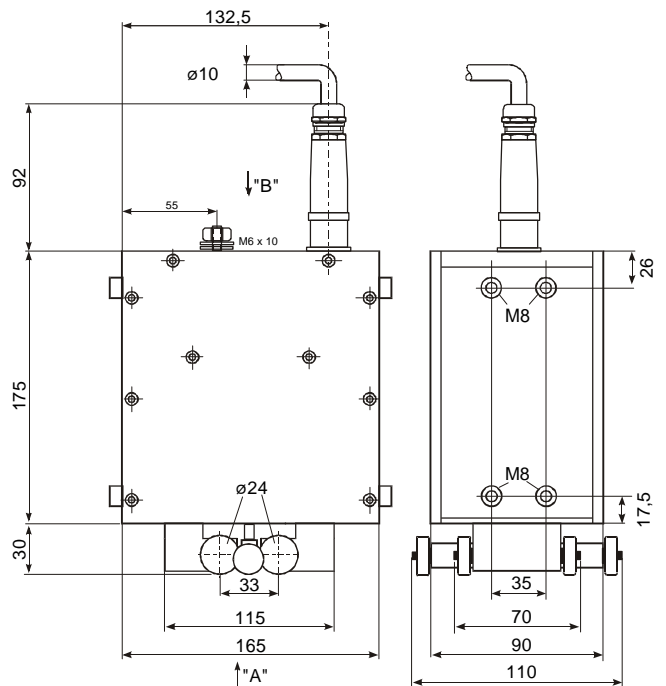


Ambient temperature: 0 - 40°C Enclosure meets: IP53
Enclosure made of: nickelplated brass Weight: 9,5 kg

Cable KNS9S

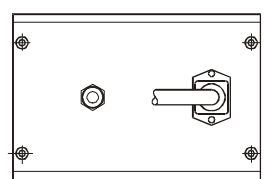
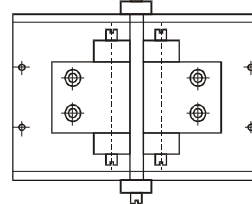


NS12



View "A"

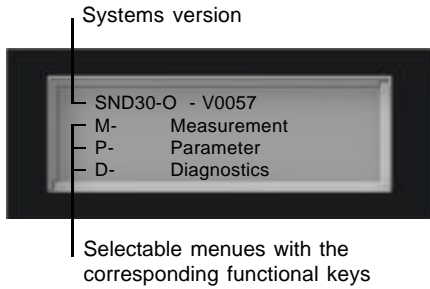
View "B"



Ambient temperature: 0 - 40°C
Enclosure made of: nickelplated brass

Enclosure meets: IP53
Weight: 14 kg

Special features



Selectable menus with the corresponding functional keys



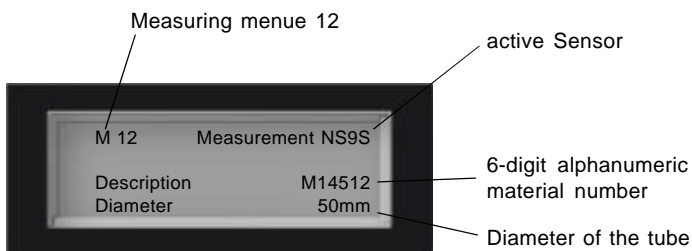
Reduced weld seam detection

Weld seam detected

Reduced weld seam detection



Measuring operation



Diagnostics

- Language Deutsch/English
- Password protected system configuration
- Tube signal analysis
- Service function

Technical Data

Operating voltage: 230/115VAC, 50/60Hz

Power consumption: 80 VA

Signal inputs:

8 data inputs 24V DC with joint common

1 opto coupled control input 24V DC

Electronic output version:

8 opto coupled data outputs 24VDC with joint common

1 opto coupled data input 24V DC

1 output relay (N.O.) max. 250 VAC / 30 VDC / 8 A

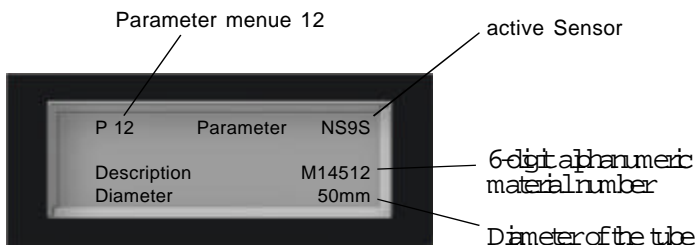
Enclosure meets: IP 65

Ambient temperature: 10 - 40°C

Weight: 7kg

Parameter - Programming

- 30 Parameter - Program memory
- Dialog to change values with arrow buttons and confirmation with ENTER button



Weld seam detection

∅ = tubes ranging from 10mm to 250mm diameter

N = possible tube rotations RDM

$$\frac{200}{\emptyset} < N < \frac{6000}{\emptyset} \text{ but 5 RDM as minimum}$$

t_D = detection time in seconds

$$t_D = 1 + \frac{250}{N}$$

Order data

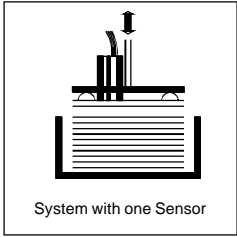
SND30 Weld Seam Detector

NS9S Weld Seam sensor

KNS9S Sensor cable

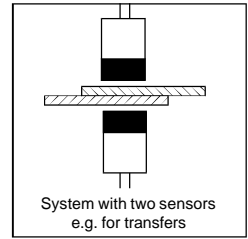
NS12S Weld Seam sensor

PRODUCT PROGRAM DOUBLE SHEET CONTROL

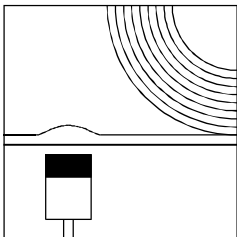


A product family is available to satisfy varying requirements:

- For ferrous and non-ferrous materials
- Touch and non-touch systems
- With or without force of attraction
- Adjustment via teach-in or potentiometer
- Stand - alone systems or remote control via PLC
- One Channel or up to 60 pre-programmable channels
- For original equipment or retrofitting



PRODUCT PROGRAM SHEET THICKNESS MEASUREMENT



From a broad product program suitable sheet thickness measurement and sheet thickness control instrument can be selected

- For ferrous and non-ferrous materials
- Non contact or contact measurement
- Simple units for limit control
- Sophisticated systems with elaborate documentation satisfying SPC requirements

