

## **Maintenance in instrumentation**

Maintenance with concept and technology focusing on results



## Specific knowledge for reliable instruments.

Due to its close relation with operation and process control, Instrumentation is a fundamental discipline to continued process industries. Maintenance Solutions Division of ANDRITZ offers to Clients maintenance contracts, as assuming the responsibility of managing and implementing conventional Instrumentation, as managing specialized modules, such as analytics, metrology, automation and valves.

## Conventional instrumentation

### Differentials

- Active in the management of contracts since 1993
- Experience in major projects: "greenfield" and "brownfield"
- Large specific instrumentation training bank
- Technologies integration capacity, ranging from pneumatic instrumentation through Fieldbus
- Technological exchange between the diverse hired contracts
- Management systematics and remote support



### Structuring activities:

- Definition of assets criticality
- Definition of families of equipment
- Structuring of maintenance software: CMMS (Computerized Maintenance Management System)
- Definition of maintenance policies per families of equipment
- Elaboration of maintenance plans and procedures
- Issuing of ISO 9001 and 14001 working manuals and instructions
- Definition of spare parts
- Registration of technical information
- Organization of technical documentation

### Scope of the function

- Control loops in general
- Field instrumentation and accessories
- Primary measuring elements: sensors, detectors and meters
- Field instrumentation: pneumatic, analogical, digital, intelligent and radioactive
- Control valves
- Image systems: cameras and monitors
- Electronic and pneumatic instrumentation laboratory
- Valves workshop

### Routine activities:

- Maintenance strategies
- Routine and shutdown planning
- Implementation of improvements
- Time and condition-based preventive maintenance
- Planned and emergency corrective maintenance
- Detective and predictive maintenance and inspection routes
- Tuning of control loops
- Metrological management
- 24 hour assistance
- Technical management of materials
- Issue of technical and managerial reports

## Analytical instrumentation

In Analytical Instrumentation, Maintenance Solutions Division of ANDRITZ offers services ranging from factory's analyzers to a complete maintenance structure. MS Division can also assume full responsibility of the function, from the management of analyzers' performance to the purchase and importation of spares. The purpose is to provide even more reliability to analytical process and environmental variables.



### Differentials

- Pioneer in Brazil in analytical instrumentation contracts, active in this modality since 1992
- Largest number of contracts of this nature, catering to more than 3,500 process analyzers and 3,200 pieces of laboratory equipment
- Application engineering team of engineers and technicians with wide experience in Analytics
- Sindus PAC - online predictive monitoring system for all factory analyzers
- Technological support and parts from the analyzers' division, which has been developing and manufacturing analyzers and sampling systems since 1988
- Web learning, through interchange between MS Division's various contracts and partnerships with strategic suppliers
- Specialty certified through ISO 9001 since 1998

### Activities

- Strategies of maintenance and service
- Preventive maintenance plans and inspection routes
- Preventive, predictive, corrective and proactive maintenance
- Engineering of maintenance and application
- Online predictive monitoring of analyzers
- Technical procedures and checklists of calibration and maintenance
- Spare parts lists and technical management of stocks
- Control indicators and monitoring systematic

### Scope of the function

- PH meters
- Conductivity analyzers
- Gas analyzers
- CEMs
- Chromatographs
- Sampling systems
- Opacimeter
- Turbidimeters
- Silica analyzers
- Consistency analyzers
- Kappa, whiteness and residual analyzers
- Refractometers, etc.

- Technical-managerial reports
- 24h assistance with technicians on call support
- Monitoring and support in audits
- Improvements in problematic sampling systems
- Suppliers research, purchasing, imports and nationalization of spare parts

# Valves

As a final control element extremely critical to the productive process, the specialized management of the Maintenance Solutions Division of ANDRITZ in the Valves function makes a tremendous impact on the product's quality, energy and chemical consumption, as well as operational availability. Furthermore, a large part of the instrumentation budget goes to this category of equipment.



## Differentials

- Control valve's management since 1993
- Valves Technical Center: repairs in valves, actuators and positioners, carrying out analysis of failures root cause and control of valve signatures
- Maintenance Solutions Division of ANDRITZ guarantees to clients access to the best technological solutions from each supplier, assisting in the choice of the best alternative from cost and performance's point of view.
- Over 12,000 control valves under MS Division's responsibility
- Proprietary offline valve analysis system

## Sindus-OPP valves

Valves module with capacity of performing predictive online monitoring even in valves without an intelligent positioner.

## Activities

- Maintenance and application engineering
- Failures analysis / continuous improvement
- Routine and shutdown planning
- Predictive maintenance and inspection routes
- Time and condition-based preventive maintenance
- Planned and emergency corrective maintenance
- Management of online valve predictive networks
- Redimensioning and reliability of stock
- Technical management of services in the workshop
- Monitoring and support in audits

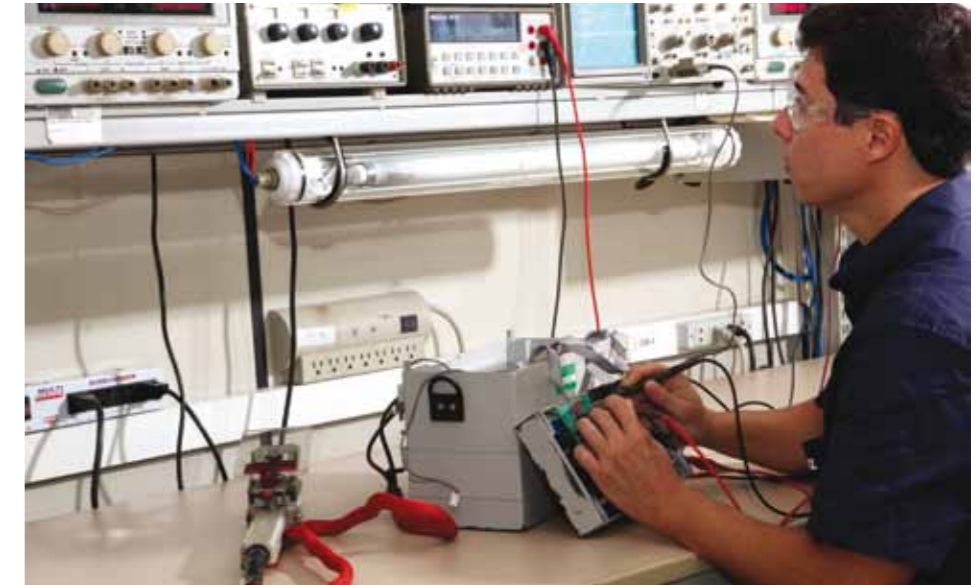
## Scope of the function

- Control and on/off valves
- Safety valves
- Manual valves
- Actuators
- Conventional and intelligent positioners

# Metrology

Maintenance Solutions Division of ANDRITZ strives to provide greater reliability in measurements, additionally to meet metrological requirements of ISO 9001 and ISO 14001 regulations, in issues related to monitoring and measuring.

To ensure that systems provide accurate information, it is necessary to have systematic metrological control over them, by means of calibrations with results that are traceable and with estimated uncertainties, so as to control and maintain measurement errors of systems within the acceptable levels for measuring purposes.



## Differentials

- Experience: active in this segment since 1993
- Managerial approach (peace of mind for the customer)
- Orientation for measurement reliability (gains in quality and productivity)
- Exclusive software for metrological management purposes
- Specialty certified through ISO 9001 since 1998

## Activities

- Implementation and maintenance of routines for the metrological control of instruments
- Definition and documentation of quality procedures associated to metrology
- Control of instruments calibration expiring date
- Calibration scheduling
- Calibration with proprietary methodologies
- Emission of calibration certificates
- Selection and follow-up of calibrations carried out by other suppliers
- Critical analysis of calibration registers
- MSA (Measurement Systems Analysis) studies (trends, R&R, stability and linearity)

## Scope of the function

- Instruments registration
- Physical identification of instruments
- Management of standards calibration
- Planning of calibration interventions
- Calibrations execution
- Critical analysis of suppliers' calibration certificates
- Maintenance of calibration registers
- Indicators surveys
- Periodicity adjustments in instruments
- Communication of non-conformities identified in instruments
- Participation in quality audits of second and third parties

- Organization of calibration registers and other associated documents
- Emission of non-conformity reports
- Improvement of existing measurement systems
- Monitoring and support in audits

# Automation

In the area of Automation, Maintenance Solutions Division of ANDRITZ is active in digital systems for process control, involving maintenance, configuration and implementation of improvements in several groups of equipment and processes.



## Differentials

- Automation management experience in big industrial groups since 1993.
- Automation projects development capacity integrating several technologies and manufacturers.
- Existing contracts with full remote access to engineering stations or PLCs networks, thus expanding the capacity of remote technical support by experts.
- Wide range of specific trainings in automation.
- Technological interchange systematic between contracts.
- Use of the Sindus OPP tool.

# Automation



## Scope of the function

- Configuration and maintenance
- Programmable Logic Controllers (PLC)
- Control CPU
- Engineering stations
- Operation stations
- Video monitors
- Peripheral devices
- Industrial communication boards and networks
- Distributed Digital Control Systems (DDCS)
- Information systems
- Plant Information (PI) software
- Supervisory
- I/O units

# Automation



## Activities

- Establishment of preventive and predictive maintenance plans
- Planning and scheduling of interventions on equipment and programs
- General and/or sectorial shutdown services planning, supervision and execution
- 24h assistance with technicians in a special shift or on-call support
- Corrective maintenance
- Interlocking diagnosis
- Control loops tuning
- Review of control strategies
- Configuration activities
- Implementation of joint activities with other departments
- Control indicators and monitoring systematics
- Maintenance engineering, improvements and failure analysis
- Maintenance record management
- Maintenance of technical documentation
- Specification and approval of replacement materials
- Technical management of contracted services
- Analysis of Profibus network used in network analyzers

### Sindus ANDRITZ Ltda

60 Pátria Avenue, Porto Alegre, Brazil | Zip Code 90230-070  
 Phone: +55 51 2121 4400 | Fax: +55 51 3062 0063

[www.andritz.com](http://www.andritz.com)  
[contact.andritzms@andritz.com](mailto:contact.andritzms@andritz.com)