

# Maintenance of the installations by ultrasounds

## DESCRIPTION

- The bench of maintenance of the installations by ultrasounds allows the implementation of various techniques of diagnosis of mechanical failures and detection of sealing defect
- The MIU 100 also allows the calculation of realisable energy saving by repair of escapes of compressed air on an installation
- The MIU 100 is delivered complete with technical file, manual teaching and kit for implementation of the failures.
- Kits and testing devices delivered out of compartmentalised cases
- Designed, manufactured and industrial material.
- The didactic interest of the MIU 100 is directed towards various levels and fields of studies



noncontractual illustrations

## TEACHING APPLICATIONS

- Leak detection of air (pipe, connection, valve etc)
- Detection of sealing defects of a tank
- Detection of lubrication defects of stage
- Detection of a chipping of stage
- Detection of an abnormal play of operation and associated adjustment
- Description of the traps inherent in the use of the ultrasounds for operations of diagnosis
- Etc

Revision A

## Description of the material:

### Cartesian manipulator 2 axes + suction cup integrating:

- 1 frame, casing and electric box
- 2 distributors 5/2 flip-flops and 1 distributor 3/2 monostable
- 1 manipulator made up of 2 jacks and a system of aspiration to venturi + suction cups
- pipe transparent flexible devices

### integral air compressor:

- 1 piston compressor with mini engine 0.18kW – 230V
- 1 pulley reducer/belts + spur gearing
- 2 stages with greasing devices
- 1 pressure gauge pressure controller for startup and stopping of the compressor
- mini tank 50L
- 2 modules of regulation filters for management of 2 different pressures.
- Piping with screwed connections

## Description of the kit of defect:

- 1 system of adjustment/maladjustment of the distance between centre on a spur gearing to parallel axes
- 1 system of adjustment/maladjustment of play (slapping in the course of operation)
- 1 stage not lubricated
- 1 scaled stage
- 1 damaged screwed connection
- 1 jack with nontight cylinder head
- 2 pipes bored with leak-flows different/usable on the circuits

## Instrumentation:

- 1 flowmeter with analogical exit 4-20mA compatible with the whole of the installation for comparison of a direct measurement and the measurement by ultrasounds
- 1 differential pressure gauge at analogical exit 4-20mA allowing to evaluate the loss of pressure related to an escape of air.
- 1 wattmeter with analogical exit 4-20mA for measurement of the consumption

## Description of the activities:

- the MIU 100 allows the implementation of the activities of **maintenance** calling upon the use of **ultrasounds inspection**
- On the basis of **MIU 100**, this technique makes it possible **to diagnose mechanical dysfunction** but also to identify **escapes or defects of pneumatic sealing**.
- The pupil can thus carry out the **repair** of the diagnosed defects and **control** quality of it
- The MIU 100 also makes it possible **to calculate the overcost of operation** of a pneumatic installation inherent in the only **escapes of air**.

## Ultrasonic flaw detector MIU 010 (in option)

- **Analyzer** with ultrasounds with integrated memory
- **1 operating software** and connecting cable RS232
- **1 probe with contact** and **1 sensor with flexible stem**
- **1 headphone** and **1 numerical recorder** for filing of "listenings" to the format .wav

***see chart MIU 010 for more detail***

## Utilities:

- **Electricity**: 230V single-phase current

## Compatibility in the range:

The MIU 100 is planned for the placement of the controller by ultrasounds MIU 010