

1. INSTALLATION AND SETTING UP

1.1 INTRODUCTION

The calibration syringe is a device which is compound fo a cylindric chamber and a piston. The hand-forced movement of the piston empties the internal air of the syringe. The volume of the syringe is known accurately, so it permits to calibrate spirometers.

1.2 PRELIMINARY OBSERVATIONS

This syringe has been manufactured following strict quality controls. Nevertheless, accidents in the supply or in the storage can happen, so it is convenient to check the device and its accessories before installing.

WARNING

IF ANY DAMAGE IN THE PACKAGING IS FOUND, CONTACT THE TRANSPORT AGENCY AND DISTRIBUTOR IMMEDIATELY BEFORE PROCEEDING TO INSTALL THE DEVICE. DO NOT DISPOSE OF PACKING, BAGS ETC. UNTIL THE CORRECT FUNCTIONING OF TH E EQUIPMENT HAS BEEN THOROUGHLY CHECKED.

The 5121 calibration syringe consist of the following items and accessories:

CODE	QUANTITY	DESCRIPTION
512-100-000	1	5121 CAL. SYRINGE
512-120-001	1	TUBE-REGISTER
512-120-MU2	1	5121 CAL. SYRINGE USER'S MANUAL

These code numbers may be used to order replacements of accessories.

RESPONSIBILITY OF MANUFACTURER

SIBEL S.A. will hold itself responsible for the safety, reliability and correct functioning of this device only when:

Reparations, servicing and modifications both inside and outside the warranty period are carried out by SIBEL S.A.'s technical personnel

Then equipment is used by qualified personnel and according to the recommendations in this User's Manual.

1.3 CONTROLS, INDICATORS AND CONNECTIONS

N11

Handle of the piston axis.

N12

Air output.

N13

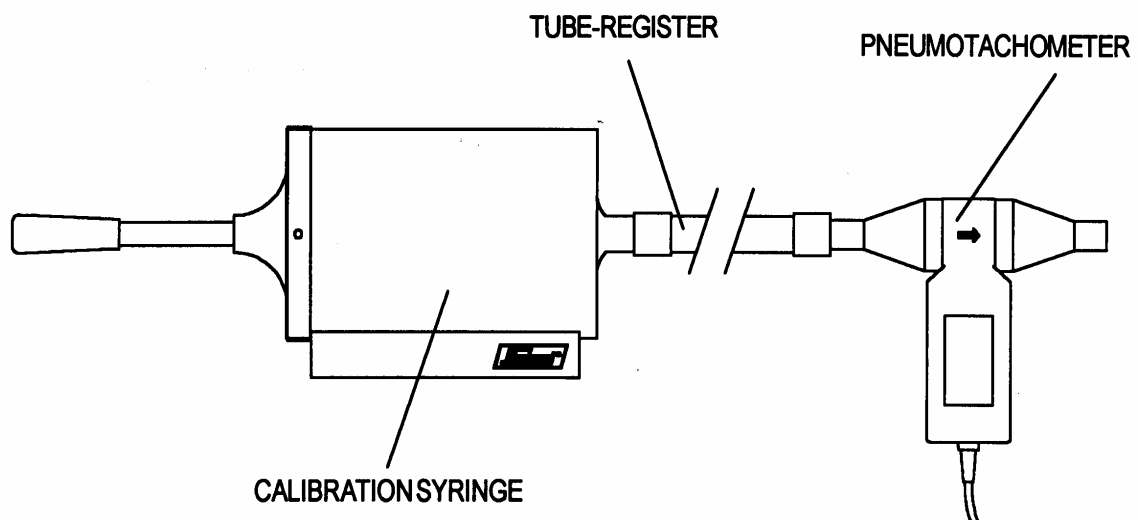
Air input.

N14

Tube-register.

N15

Connection to a pneumotachometer.



1.4 INSTALLATION

The syringe has to be connected to the tube-register and its free side has to be connected to the air-inlet of the pneumotachometer which has to be calibrated. the tube-register must be put straightly in the same direction of the syringe axis.

The working environmental conditions are:

- Environmental Temperature between 0 a 50°C.
- Relative Humidity less than 75% (without condensation).

2. TECHNICAL SPECIFICATIONS

Volume:	3 litres \pm 1%
Mechanism:	hand-forced piston.
Dimensions :	340x150x180 (mm)
Weight:	1.1 Kgs.

3. FUNCTIONAL DESCRIPTION

The movement of the piston axis in all its path produces an air flow whose volume is the syringe volume. This volume is mechanically known as 3 liters with a maximal error of $\pm 1\%$. This property permits calibrating pneumotachometers by adjusting the measured volume to the well-known volume of the syringe. This adjustment can be made with different speeds to check the dynamic response of the pneumotachometer to calibrate.

All the spirometer manufacturers must specify with its pneumotachometer a calibration procedure for the syringe. This procedure must be followed faithfully.

4. PRESERVATION, PREVENTIVE AND CORRECTIVE MAINTENANCE

The 5121 calibration syringe requires a preservation and preventive maintenance, as do any equipment and particularly those with medical applications. It has the object of assure the safety of the patient, operator and environment and guarantee the reliability and accuracy of the functions for which it was made. This entails a series of routines that must be performed.

4.1 PRESERVATION

The preservation is necessary to keep the device functioning correctly. The person who carries out this operation needs no special technical knowledge except familiarity with the functions and handling of the device. The user of the device should normally do the job himself. The tasks to be carried out are as follows:

Wipe the syringe gently with a cloth dampened in water, then wipe it dry. Special care must be taken that no liquid enters the machine.

With the tube-register do the same procedure.

Do not use abrasive substances or solvents

4.2 PREVENTIVE MAINTENANCE

The preventive maintenance consist of all the actions designed to keep the machine in good working order.

4.2.1. CHECKING

The user can check the aspect of the syringe, tube-register and connections periodically. In this operation verify that any part is broken.

4.2.2. GREASING THE SYRINGE

Every six month grease the axis:

- i) Pull the piston backwards.
- ii) Put 5 or 6 drops industrial oil (type SAE 20-40 or similar) rotating the syringe.
- iii) At the same time spin radially the axis and move longitudinally.

4.3 CORRECTIVE MAINTENANCE

Corrective maintenance refers to leaving the equipment in good working condition when, after malfunction or improper use, the device no longer works and needs to be repaired.

When a malfunction which impedes normal use is detected, contact SIBEL S.A.'s After Sales Service, specifying the type of problem produced in the greatest detail possible.