ACCURATE INFLATION SYSTEM (AIS)
FOR DETERMINATION OF CONDOM BURSTING PROPERTIES (MALE/FEMALE)

Performance specifications

Flow Accuracy:	Better than ± 1,0 %
Volume Accuracy:	Better than ± 1,0 %
Pressure Accuracy:	Better than ± 1,0 %
Pressure Overload:	160 kPa

Physical specifications

Dimension:	550*550*1450 mm
Casing:	Enamel lacquered 2 mm steel plate
Walls:	Sound insulated walls (40 mm acoustical insulation)
Front:	Transparent (6 mm) with automatic shutter

Sensors

Flow control:	Mass Flow Controller
Pressure:	High static differential transducer of stainless steel
Atmospheric:	Individually controlled atmospheric sensor in each chamber
Temperature:	Individually controlled temperature sensor in each chamber
Self-diagnostic:	Before each test the cabinet will perform a self-tare pressure test. This self-diagnostic test will not affect the testing time or capacity but ensure the pressure measurement accuracy.

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VALENDOR AB, Vargmötesvägen 4, SE-186 30 Vallentuna, Sweden, Phone +46(0)8 514 302 44
info@valendor.se | www.valendor.se

General specifications

Rod and clamping device:	Conical rod for direct mounting of the condom. Equipped with mechanical locking-clamp which movements are precisely controlled and integrated with the inflation cycle.
Computer and connections:	The software can be run on any modern computer and the system is connected through USB.
Live backup system:	Testing data is saved in real time, thus reducing data loss if equipment is switched off or if there is power cut during testing.
Safety validation:	AIS fulfills the requirements in the European Council Directive 89/392/EEC relating to machinery.
Electrical connection:	230 V / 50 Hz
Compressed air requirements:	Minimum 4 bar dry, clean, oil-free air

Capabilities for Female condom testing

Adapters are available for testing of various kinds of Female Condoms.

Calibration

Valendor's Accurate Inflation System has been factory calibrated before delivery with traceability to international normal.

AIS's Automatic calibration programs give rapid and easy calibration procedures. Valendor's Displacement Calibration Instrument (DCI) is designed to operate at conditions equal those at air inflation test of condoms. At volume calibration, the pressure increases in the same manner as at inflation of a condom. The "bursting" volume is measured at the actual pressure and temperature of the inflated air.

The DCI enables in-house calibration with results traceable to international normal. The calibration tool is designed for using with Accurate Inflation System's software for calibration. Using this tool will eliminate the need of external calibration services, all calibration can be performed in-house.

Future extensions

All AIS configurations are prepared for future extension with additional modules to a maximum of 12 bursting chambers.

Important considerations

Accuracy ensures conformity

AIS uses a digital mass flow controller for flow control and measurement, enabling precise measurement of bursting volume at actual pressure and temperature. Systems, which are not able to correct deviations caused by changes in pressure and temperature may not be able to meet the requirements for accuracy in current standards.

Faster Testing

The flow rate is controlled 20 times per second and is not affected by changes in ambient or process air pressure or temperature. Therefore, the flow rate can be set to 30 liters/min. Systems that are not able to compensate the flow rate for pressure and temperature changes are only advised to use flow setting 27 liters/min. The difference means that you save time for each air bursting test.

Calibration

Known problems with common calibration procedures

Validation of a flow meter or a volume meter against internationally or nationally standards is a qualified procedure and may cost much more than the meter itself. Highly trained technicians, who are not available everywhere, must perform these types of calibration.
Validation and audit checks as well as routine checks are very complicated for systems determining bursting volume by gas meter or systems, which measure time-to-burst at known flow rates. These checks require determination of ambient conditions as well as determination of pressure and temperature of process air. A trained technician usually performs these checks.

Valendor's Solution

AIS's Automatic calibration programs along with Valendor's Displacement Calibration Instrument (DCI) enables easy, straight forward in-house calibration traceable to international normals.

Mounting - A Source for Errors

The mounting of the condom is usually one of the most critical parts of the air bursting test. There are several causes for measuring uncertainty. The operator may:
-damage the condom when unrolling it or mounting it on the rod
-damage the condom placing the clamping ring on mount
- stretch the condom too much or not smoothen it properly which results that either too short or too long part of the condom is inflated

AIS's Easy Mounting

AIS's rod with tapered design and textured surface and the mechanical clamp with a distinct locking point to eliminate the above-mentioned problems. The technician unrolls the condom directly on the rod. Trained technicians can normally keep the loading length within 150±1mm

VALENDOR reserves the right to modify this specification in part or as a whole.