

TEST REPORT No. 341289

Place and date of issue: Bellaria-Igea Marina - Italy, 12/04/2017

Customer: SESAMO S.r.l. - Strada Gabannone, 8/10 - 15030 TERRUGGIA (AL) - Italy

Date test requested: 21/03/2017

Order number and date: 72654, 22/03/2017

Date sample received: 30/03/2017

Test date: 31/03/2017

Purpose of test: air permeability of a sliding door in accordance with standard UNI EN 1026:2016
and classification in accordance with standard UNI EN 12207:2017

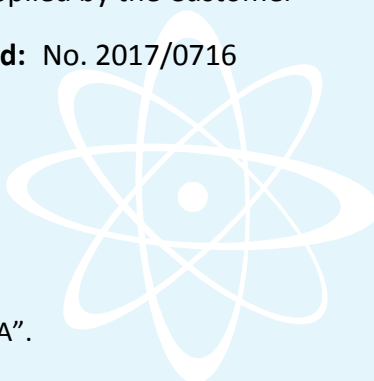
Test site: Istituto Giordano S.p.A. - Via Erbosa, 72 - 47043 Gatteo (FC) - Italy

Sample origin: sampled and supplied by the Customer

Identification of sample received: No. 2017/0716

Sample name*

The test sample is called "ERMETIKA".



(*) according to that stated by the Customer.

LAB N° 0021

Comp. AV
Revis. PB

This test report consists of 17 sheets.
This document is the English translation of the test report No. 341289 dated 12/04/2017 issued in Italian; in case of dispute
the only valid version is the Italian one. Date of translation: 27/04/2017.

Sheet
1 of 17

Description of sample*

The test sample is a solid-panel automatic sliding door comprising:

- wrap-around frame covering the outside of the clear opening and gap for door seals made from extruded anodised-aluminium section with the following characteristics:
 - well-rounded corners;
 - no sharp edges;
 - area for installation of screws/wall plugs;
 - silicone-rubber seal to cover fixing points;
- door operator guaranteeing airtight closure comprising:
 - high-performance low-wear DC gear motor with encoder fitted to motor casing;
 - electronic control unit employing Sesamo Dualcore technology with dual processor and integrated switching power supply;
 - drive system with antistatic timing belt having internal steel-cord reinforcement;
 - heavy-duty extruded-aluminium track designed for fixing to standard walls and self-supporting systems;
 - extruded anodised-aluminium guide rail designed for horizontal and downward travel in order to allow the leaf to move towards the wrap-around frame and create an airtight seal by compressing the seals;
 - anodised-aluminium cover with well-rounded corners and no sharp edges or protrusions;
- leaf formed by:
 - anodised-aluminium extrusions with well-rounded corners designed to withstand high pressure. The heavy-duty top extrusion has a slot for insertion of hanger fixings. On the other hand, the bottom extrusion is shaped in such a way as to form a track for the runners secured to the base of the mock-up (floor);
 - flush-fitting door leaf panel of thickness 60 mm comprising a flame-retardant, expanded-polystyrene core enclosed by fire-resistant MDF edge strips; the entire panel is clad by two fire-resistant MDF panels of thickness 4 mm and faced with two layers of plastic laminate of thickness 0,9 mm;
 - 60Sh/A silicone-rubber perimeter bulb seals and bottom lip seal designed to provide optimum airtightness;
 - runners designed to slide/move and keep the leaf in the correct position in order to obtain an airtight seal;
 - three heavy-duty roller hangers designed to guarantee sliding/linear motion towards the wrap-around frame.

(*) according to that stated by the Customer; the description of the sample also includes Customer-supplied drawings as set out hereafter.

Leaf airtightness is obtained from a combined movement during closure that compresses the seals fitted to the leaf against the wrap-around frame.

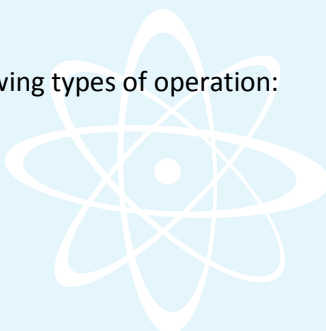
Sample dimensions are as follows:

Opening height	2118 mm
Opening width	1365 mm
Clear opening height	2110 mm
Clear opening width	1350 mm
Leaf height	2152 mm
Leaf width	1450 mm

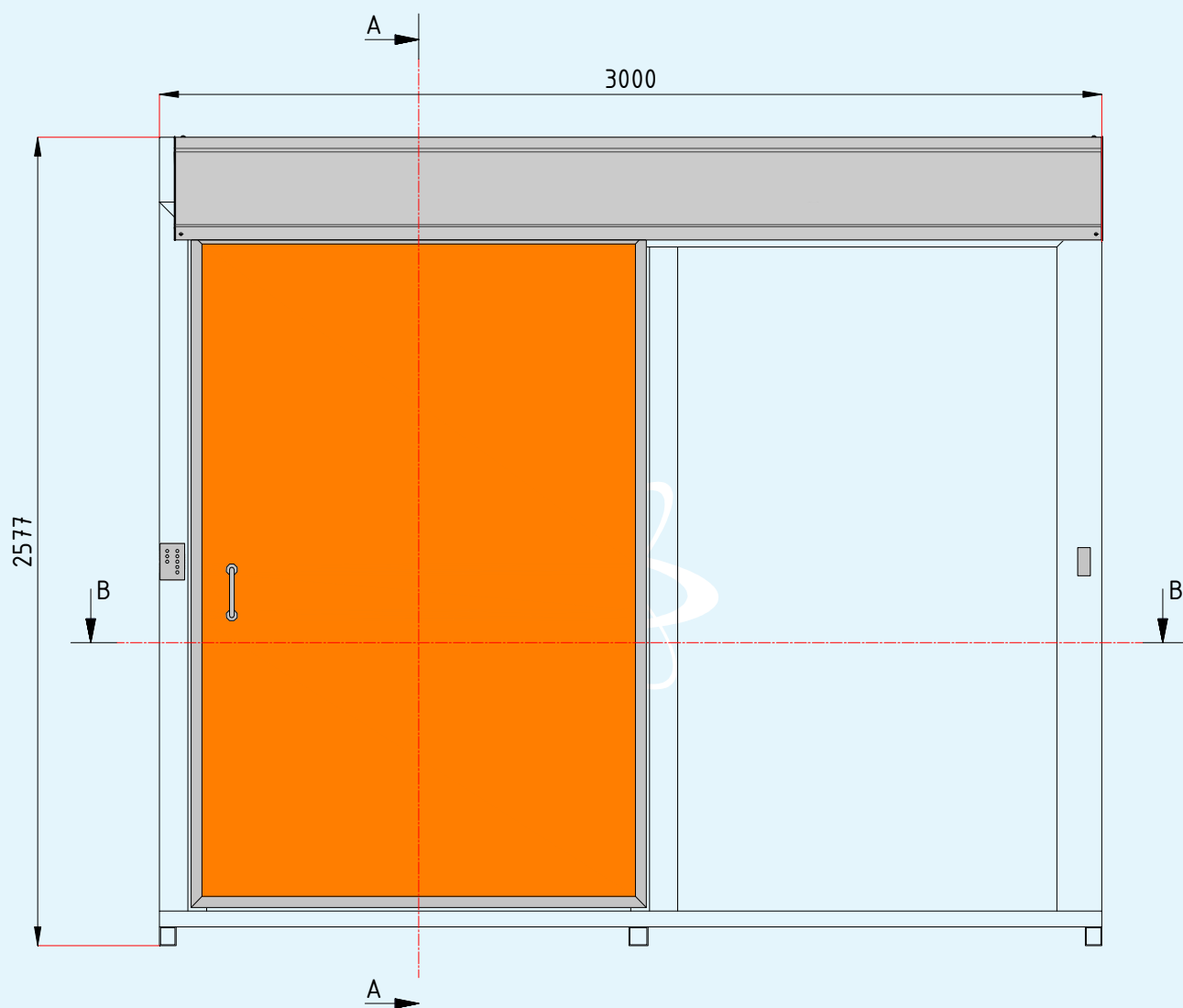
Customer-supplied list of materials

The mock-up includes the following hardware:

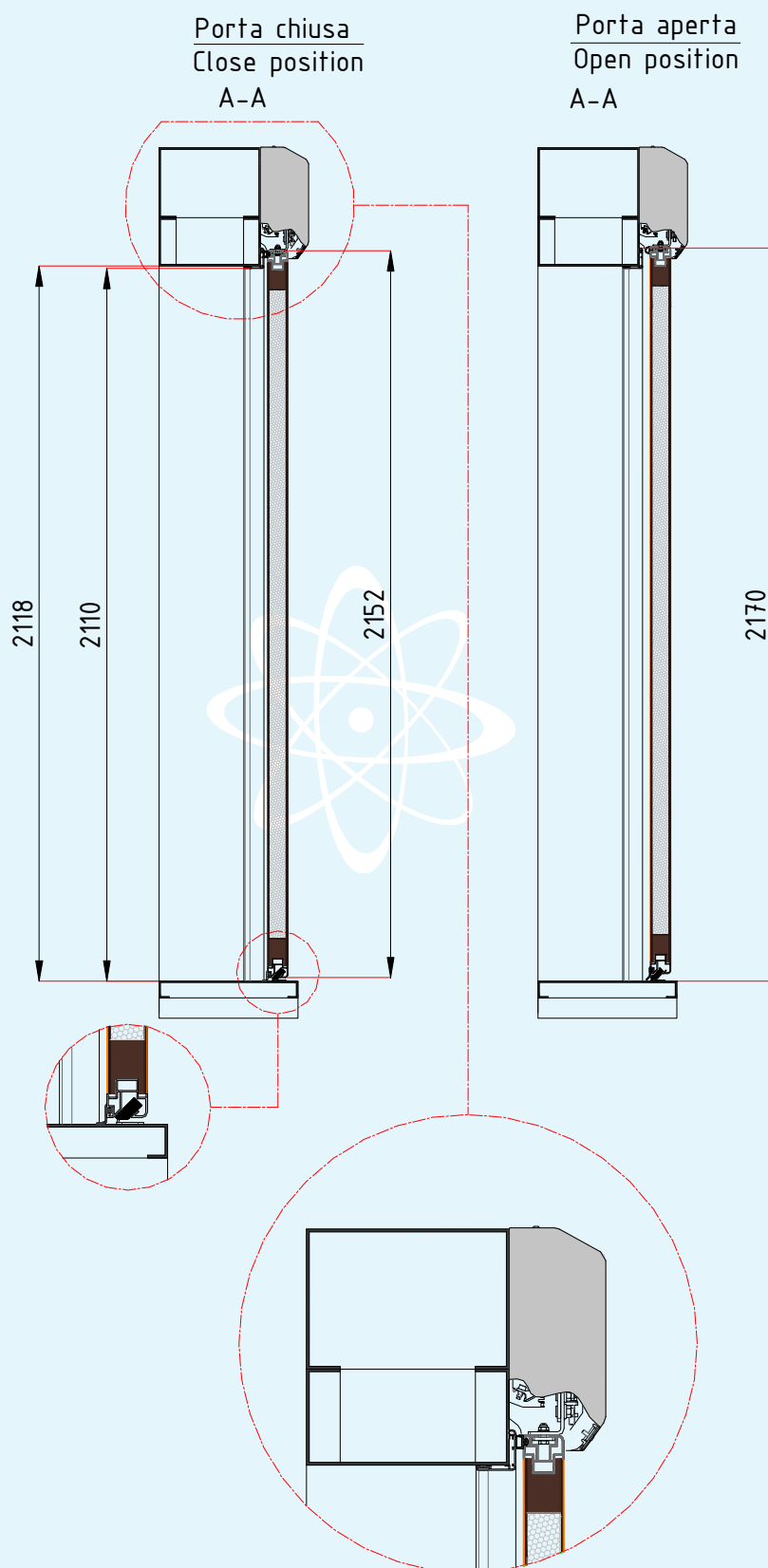
- 1 elbow-operated push button;
- 1 logic switch offering the following types of operation:
 - stop close;
 - stop open;
 - automatic;
 - only exit;
 - partly open;
 - manual opening;
 - reset;
 - battery operation.
- 1 set of storage batteries for opening in event of power outage;
- 1 D-shaped pull handle to facilitate manual opening of the leaf.



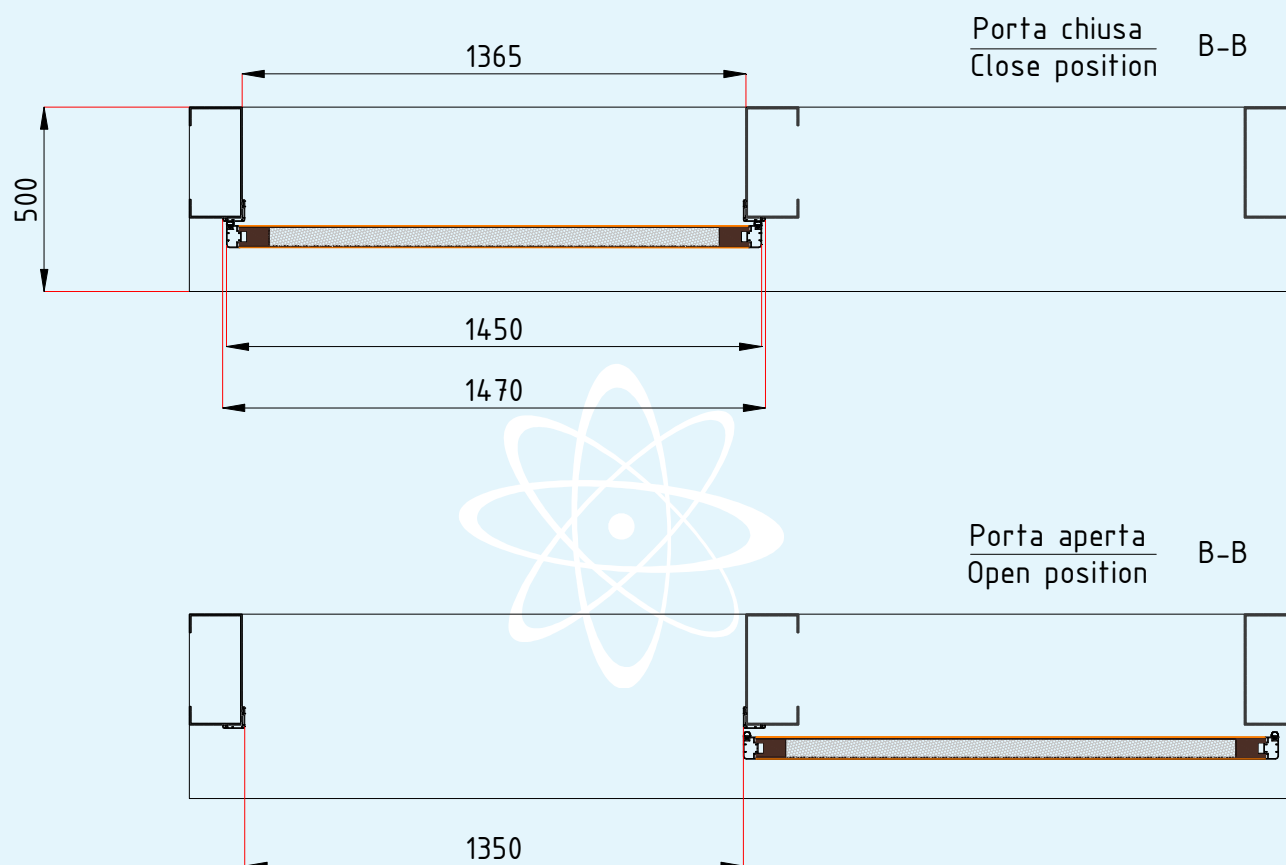
**SAMPLE ELEVATION
(CUSTOMER-SUPPLIED)**



**SECTION A:A
(CUSTOMER-SUPPLIED)**



**SECTION B:B
(CUSTOMER-SUPPLIED)**



Sample measurements

Overall dimensions	width	1470 mm
	height	2170 mm
Operable dimensions	width	1450 mm
	height	2150 mm
Overall area		3,190 m ²
Operable area		3,118 m ²
Operable perimeter		7,20 m

Normative References

The test was carried out in accordance with the requirements of standard UNI EN 1026:2016 dated 14/04/2016 "Windows and doors - Air permeability - Test method" with test parameters and classification of results according to standard UNI EN 12207:2017 dated 26/01/2017 "Windows and doors - Air permeability - Classification".

Test apparatus

The test was carried out using a computerised semiautomatic control and measurement system capable of performing all tests with the parameters requested by the normative references and fitted with the following equipment:

- for the measurement of air leakage rate: pressure differential devices (orifice plates, nozzles and Venturi tubes) compliant with standards ASME MFC-14M:2003 "Measurement of fluid flow using small bore precision orifice meters", UNI EN ISO 5167-1:2004 dated 01/10/2004 "Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 1: General principles and requirements" and UNI EN ISO 5167-2:2004 dated 01/10/2004 "Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 2: Orifice plates";
- for measurement of pressure inside the test chamber: differential pressure transducers;
- Mitutoyo Corporation 5500 mm digital tape measure.

Pre-test conditioning of sample

The sample was conditioned for four hours immediately prior to testing under the environmental conditions specified in the following table.

Temperature	$(18 \pm 3) ^\circ\text{C}$
Relative humidity	$(48 \pm 10) \%$

Environmental conditions during test

Atmospheric pressure	$(1020 \pm 10) \text{ hPa}$
Ambient temperature	$(18 \pm 1) ^\circ\text{C}$
Relative humidity	$(48 \pm 5) \%$

Test method

The test was performed using detailed internal procedure PP049 in the revision applicable at time of testing. The sample was fitted to the test apparatus and subjected in sequence to:

- measurement of air permeability under positive pressure;
- measurement of air permeability under negative pressure.

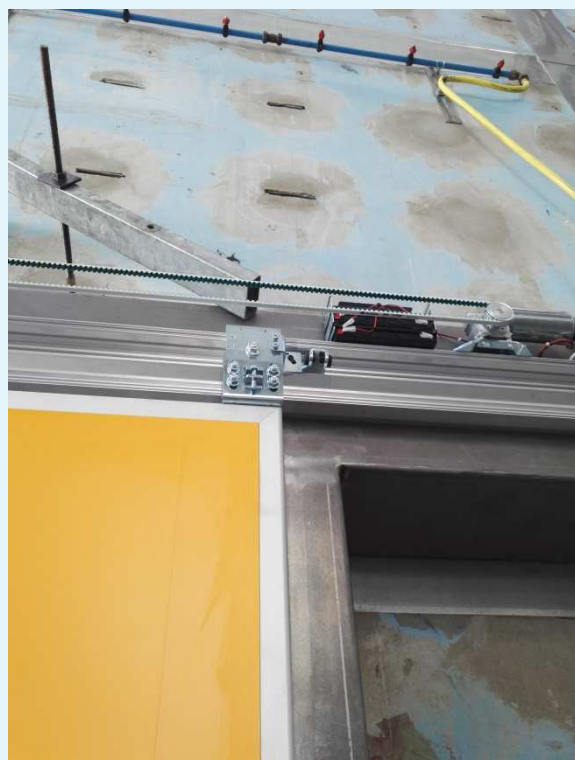
Test results

The test results are set out hereafter in the form of photos, tables and respective graphs.

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Sample photo



Sample close-ups

Measurement of air permeability under positive pressure

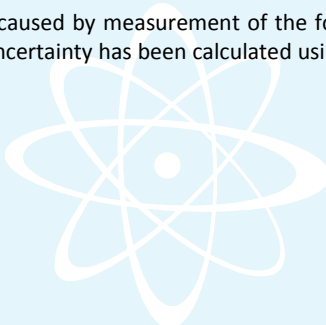
Nota per il compilatore:

Pressure		Air flow rate*		
nominal	test	total	related to overall area and relative uncertainty**	related to opening joint length and relative uncertainty**
[Pa]	[Pa]	[m ³ /h]	[m ³ /h·m ²]	[m ³ /h·m]
50	51	1,23	0,386 ± 0,023	0,171 ± 0,010
100	98	1,96	0,614 ± 0,028	0,272 ± 0,012
150	150	2,77	0,869 ± 0,051	0,385 ± 0,023
200	199	4,47	1,40 ± 0,39	0,62 ± 0,17
250	248	17,90	5,6 ± 3,1	2,5 ± 1,4
300	298	103,01	32 ± 13	14,3 ± 5,9
450	448	913,18	286 ± 32	127 ± 14
600	599	1773,62	556 ± 45	246 ± 20

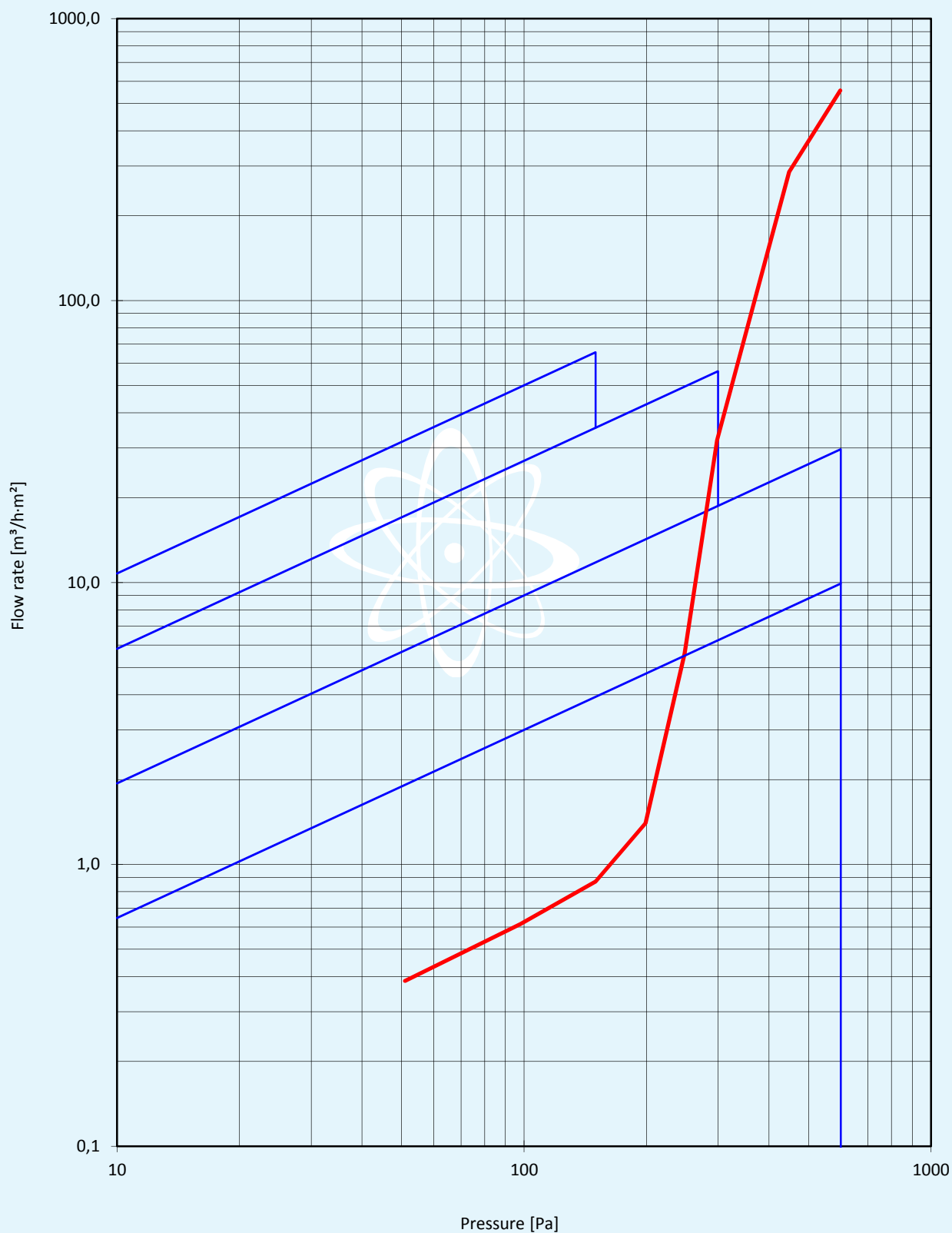
(*) figures refer to pressure of 101,3 kPa and temperature of 293 K.

(**) uncertainty considers contributions caused by measurement of the following quantities: air flow rate, test chamber pressure and size of sample; expanded uncertainty has been calculated using a coverage factor "k" of 2, corresponding to a confidence level of 95,45 %.

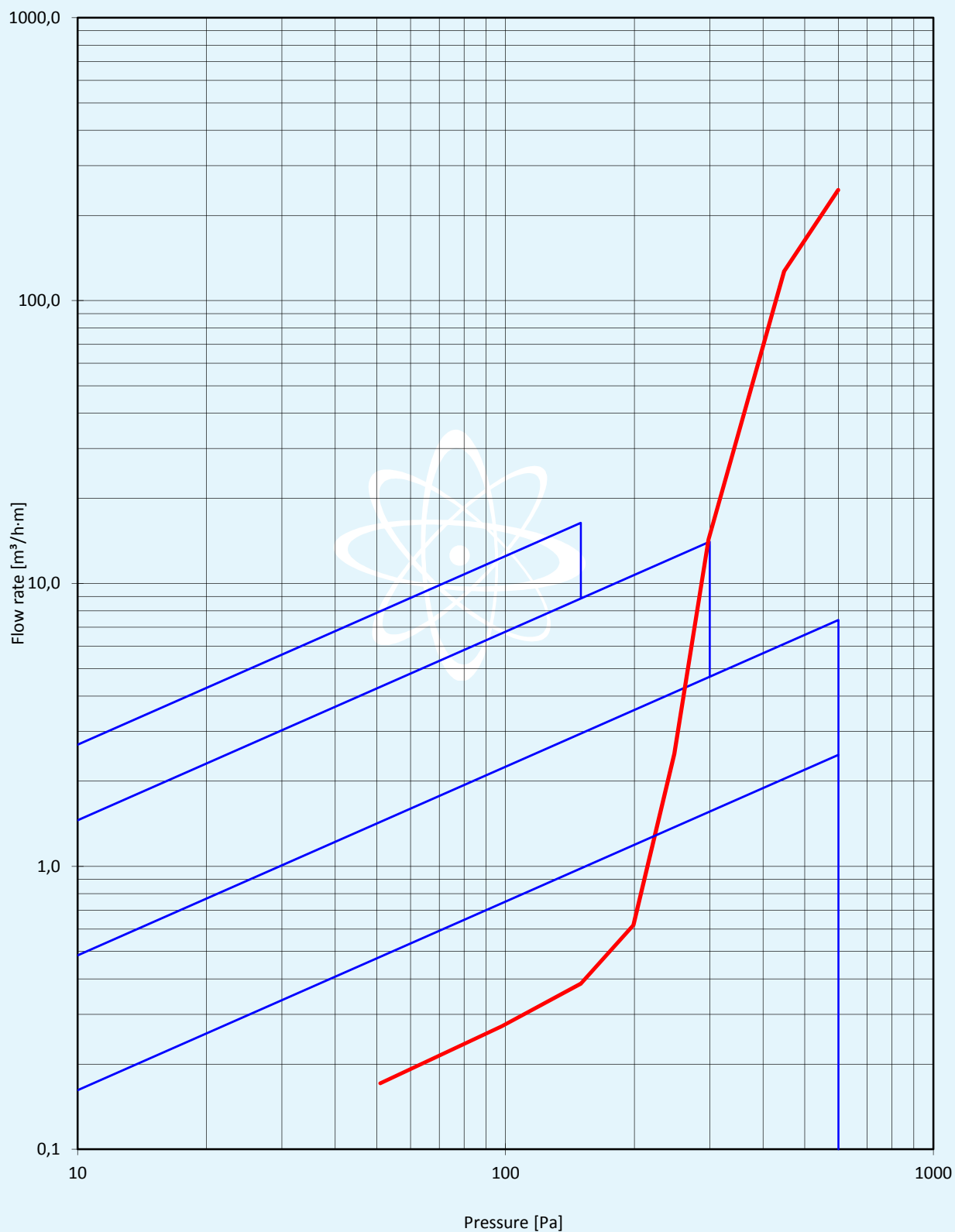
Observations: //



**DIAGRAM OF AIR PERMEABILITY
RELATED TO OVERALL AREA
(positive pressure)**



**DIAGRAM OF AIR PERMEABILITY
RELATED TO OPENABLE JOINT LENGTH
(positive pressure)**



Measurement of air permeability under negative pressure

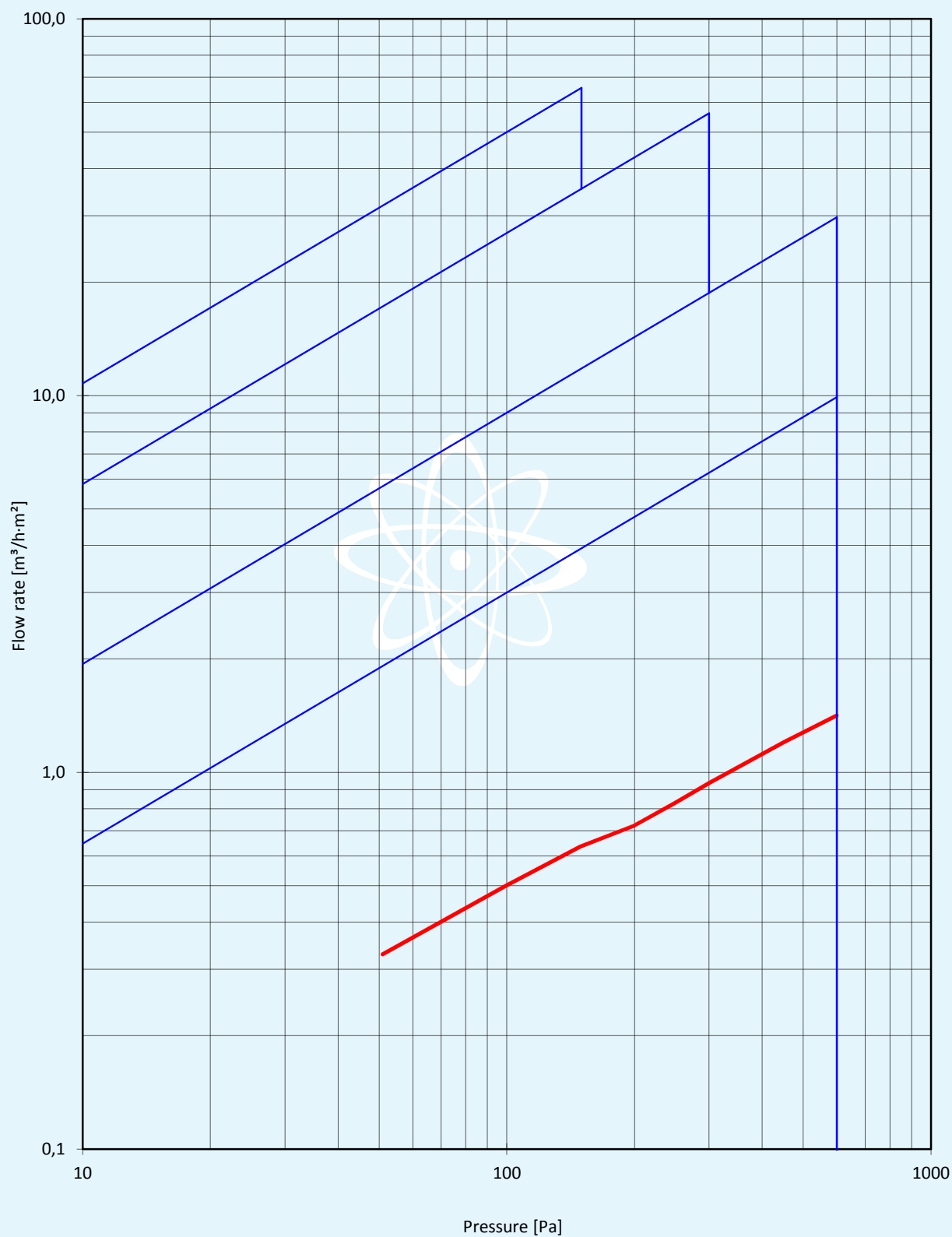
Pressure		Air flow rate*		
nominal	test	total	related to overall area and relative uncertainty**	related to opening joint length and relative uncertainty**
[Pa]	[Pa]	[m ³ /h]	[m ³ /h·m ²]	[m ³ /h·m]
50	51	1,05	0,329 ± 0,022	0,146 ± 0,010
100	99	1,59	0,498 ± 0,024	0,221 ± 0,011
150	149	2,03	0,635 ± 0,024	0,281 ± 0,011
200	199	2,30	0,720 ± 0,026	0,319 ± 0,011
250	249	2,64	0,829 ± 0,030	0,367 ± 0,013
300	300	2,99	0,936 ± 0,032	0,415 ± 0,014
450	451	3,84	1,203 ± 0,040	0,533 ± 0,018
600	599	4,51	1,414 ± 0,047	0,626 ± 0,021

(*) figures refer to pressure of 101,3 kPa and temperature of 293 K.

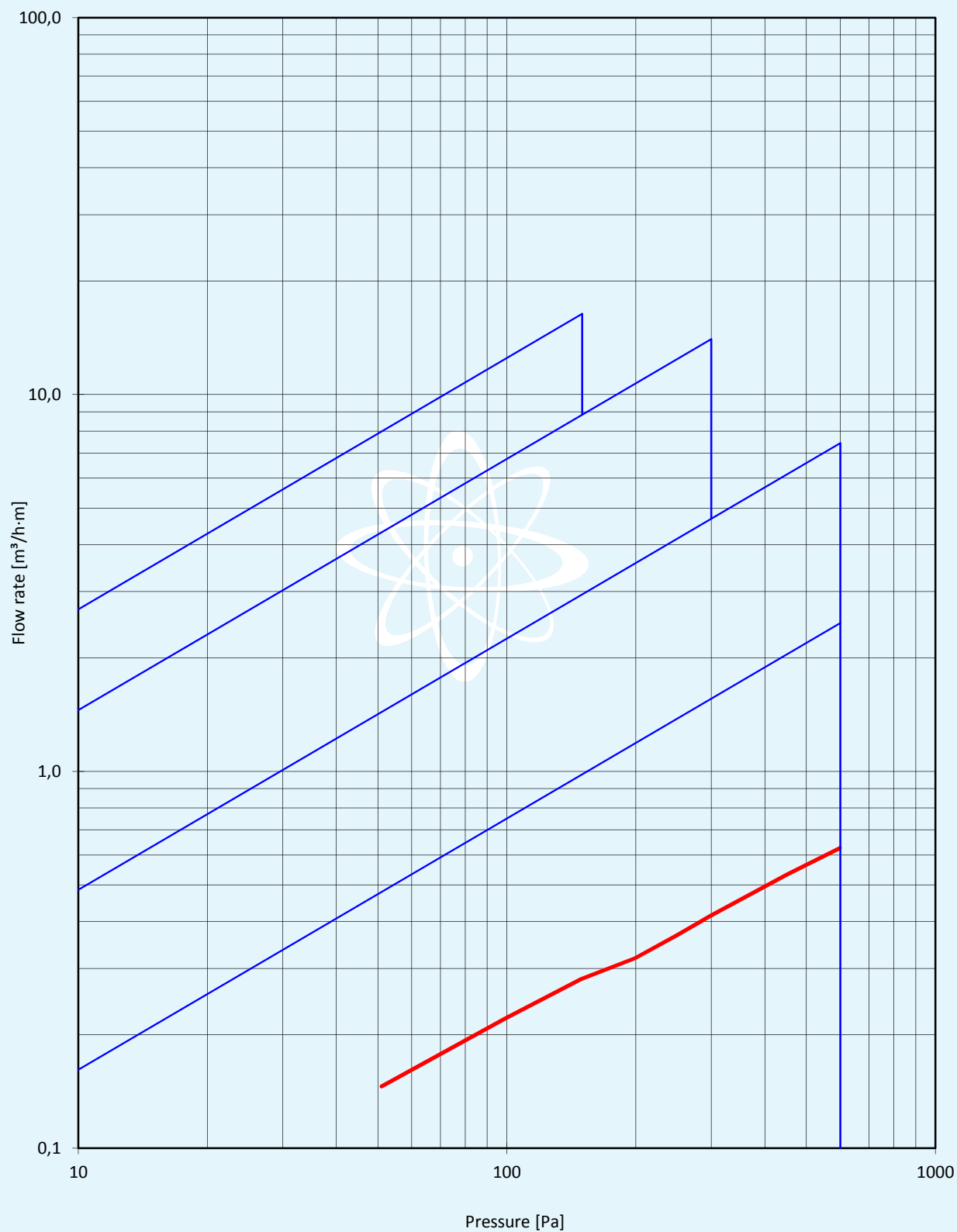
(**) uncertainty considers contributions caused by measurement of the following quantities: air flow rate, test chamber pressure and size of sample; expanded uncertainty has been calculated using a coverage factor "k" of 2, corresponding to a confidence level of 95,45 %.

Observations: //

**DIAGRAM OF AIR PERMEABILITY
RELATED TO OVERALL AREA
(negative pressure)**



**DIAGRAM OF AIR PERMEABILITY
RELATED TO OPENABLE JOINT LENGTH
(negative pressure)**



Classification

In accordance with the tests performed, the results obtained and the provisions of standard UNI EN 12207, the test sample comprising a sliding door called "ERMETIKA" submitted by the company SESAMO S.r.l. - Strada Gabannone, 8/10 - 15030 TERRUGGIA (AL) - Italy, is awarded the performance classes listed in the following table.

Test type		Test standard	Classification standard	Class*
Air permeability under positive pressure	related to overall area	UNI EN 1026	UNI EN 12207	2
	related to opening joint length			1
	final			2
Air permeability under negative pressure	related to overall area	UNI EN 1026	UNI EN 12207	4
	related to opening joint length			4
	final			4

(*) classification has been determined on the basis of values obtained by measurement during testing in line with clause 2.6 of ILAC-G8:03/2009 "Guidelines on the reporting of compliance with specification".

The results given refer exclusively to the test sample itself and are only valid under the same conditions in which testing was carried out.

This test report alone shall not be considered a certificate of conformity.

Test Technician:
Dott. Ing. Paolo Bertini

Head of Security and Safety Laboratory:
Dott. Andrea Bruschi

Chief Executive Officer

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