



Test Report

Report No	261/4448765 Issue 2	This Report consists of 9 pages
Client	Smart Systems Limited North End Road Yatton Bristol North Somerset BS49 4AW	
Authority & date	Request by Client dated 8 April 2003	
Items tested	1 off aluminium alloy window, Visoline Internally Glazed Tilt/Turn Window System	
Specification	BS 6375:Part 1:1989 Performance of windows - Classification for weathertightness BS 5368:Part 1:1976 (EN42) Methods of testing windows - Air permeability test BS 5368:Part 2:1980 (EN86) Methods of testing windows - Watertightness test under static pressure BS 5368:Part 3:1978 (EN77) Methods of testing windows - wind resistance tests	
Results	See Summary of Results on page 2 Issue 2 of this Report supersedes all previous issues. The amendment giving rise to this issue of the Report can be ascertained by contacting the authorizing signatory	
Prepared by	L Neale	 (Engineer I)
Authorized by	R Avery	 (Engineer I)
Issue Date	14 May 2003	
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of <i>PS082</i> 'General conditions relating to acceptance of testing'. The results contained herein apply only to the particular sample/s tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the General Manager, BSI Product Services, who reserves the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.	



WATERTIGHTNESS TEST RESULTS**Before wind resistance tests****TABLE 2**

Pressure (Pa)	Point at which water leakage occurred
1000	Water, from the sill opening joint, ran onto and over the sill.

WIND RESISTANCE TEST RESULTS

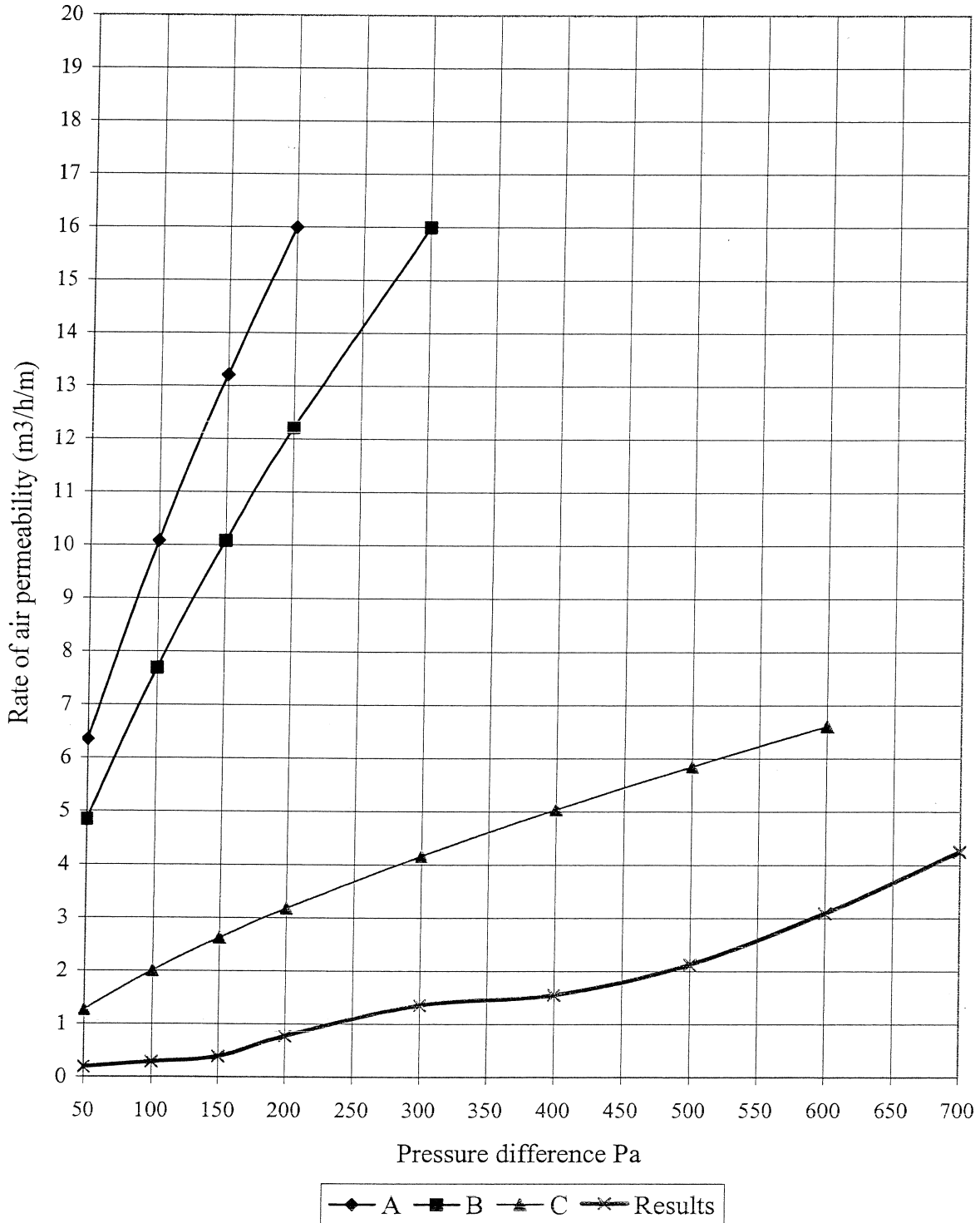
No damage or permanent deformation was recorded after wind loading tests on the external face of the sample at an applied pressure of 1200Pa.

Deflection/span ratio 1/1167 (maximum allowable 1/175)

No damage or permanent deformation was recorded after wind loading tests on the internal face of the sample at an applied pressure of 1200Pa.

Deflection/span ratio 1/1007 (maximum allowable 1/175)

GRAPH OF AIR PERMEABILITY



AIR PERMEABILITY TEST RESULTS**Before wind resistance tests**

Table 1

Air pressure (Pa)	Blank reading (m ³ /h)	Maximum total air flow (m ³ /h)	Actual rate of air leakage (m ³ /h)	Maximum rate of air leakage (m ³ /h)	Maximum rate of air leakage relative to opening perimeter (m ³ /h/m)
50	7.5	8.0	0.5	1.0	0.19
100	12.5	13.5	1.0	1.5	0.29
150	17.0	19.0	2.0	2.0	0.39
200	21.0	24.0	3.0	4.0	0.77
300	28.0	33.0	5.0	7.0	1.35
400	34.0	41.0	7.0	8.0	1.55
500	40.0	50.0	10.0	11.0	2.13
600	45.0	60.0	15.0	16.0	3.09
700	50.0	72.0	22.0	22.0	4.26
600	45.0	61.0	16.0	-	-
500	40.0	51.0	11.0	-	-
400	34.0	42.0	8.0	-	-
300	28.0	35.0	7.0	-	-
200	21.0	25.0	4.0	-	-
150	17.0	19.0	2.0	-	-
100	12.5	14.0	1.5	-	-
50	7.5	8.5	1.0	-	-

Opening perimeter (m) :5.17

PREPARATION AND METHOD OF TEST

The sample was prepared for test as required by BS 5368:Parts 1, 2 and 3.
The sample was mounted into a plywood surround for installation in the test apparatus.
The joint between the sample and the plywood surround was sealed.

1. **Air permeability**

The air permeability of the sample was determined by the method given in BS 5368:Part 1.

2. **Watertightness**

The watertightness of the sample was determined by the method given in BS 5368:Part 2 using spraying method number 2.

3. **Wind resistance**

The wind resistance of the sample was determined by the method given in BS 5368:Part 3.

4. **Repeat tests**

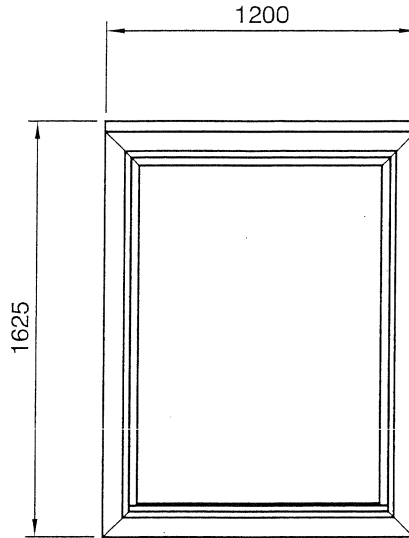
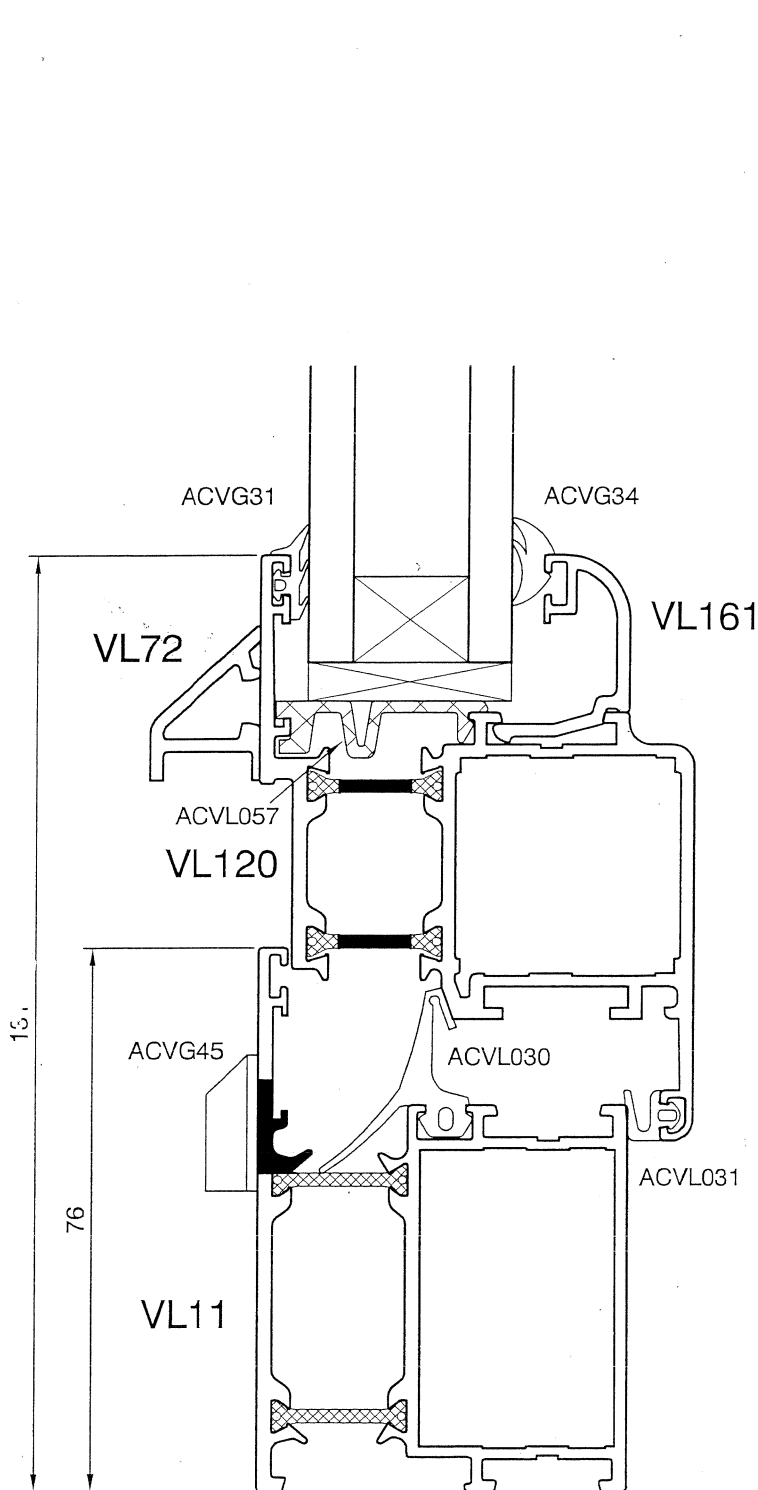
After testing for resistance to wind loading the tests 1 and 2 were repeated.

TEST RESULTS

1. Air permeability - The results are recorded in Table 1 on page 6 of this Report and shown graphically on page 7.
2. Watertightness - The results are recorded in Table 2 on page 8 of this Report.
3. Wind resistance - The results are recorded on page 8 of this Report.
4. Repeat tests - The results of the repeat tests are recorded in Tables 3 and 4 on page 9 of this Report.

THIS DRAWING IS FOR INFORMATION PURPOSES ONLY AND DOES NOT IMPLY SMART SYSTEMS LTD APPROVAL OF THE PROPOSAL AS DRAWN.

TECHNICAL INFORMATION



FINISH - WHITE P.P.C.

CONSTRUCTION - MECHANICAL CLEATS

HARDWARE

FAPIM COMPONENTS - BASIC PARTS TILT BEFORE TURN WITH ADDITIONAL LOCK POINT 'H' AND 'W'.

- ACFA063
- ACFA065
- ACFA069
- ACFA078
- ACFA082

GLASS - 6/16/6 TOUGHENED SEALED UNITS

FIXING - SCREWED INTO TIMBER SUB FRAME FOR TEST PURPOSES

ADDITIONS - IN058 EXTENSION TO HEAD

DATE
28-03-03

TITLE
VISOLINE TILT BEFORE TURN WINDOW

SCALE
1:1

DWG No.
TWV-01

DESCRIPTION OF SAMPLE

Sample type -	Tilt/turn
Material -	Aluminium alloy
Finish -	Powder coated
Construction -	Mitred with mechanically jointed cleats
Fixing -	Screwed into a timber sub frame for test purposes
Fittings -	A six point locking (four roller cams and two mushroom bolts) Fapim Components tilt/turn gearing operated by a single handle 1 off run up block
Weatherstripping -	EPDM weatherseals
Glass -	Double glazed, 6-16-6mm toughened glass sealed unit
Glazing system -	Internal beads and gaskets
Sample dimensions -	Length: 1200mm Height: 1620mm
Date of test -	10 April 2003
Laboratory temperature -	19°C
Test chamber temperature -	19°C

TEST, EXAMINATION AND ASSESSMENT OF ONE ALUMINIUM ALLOY WINDOW

INTRODUCTION

At the request of Smart Systems Limited the aluminium alloy window, detailed on pages 3 and 4, was tested and assessed to the requirements of BS 6375:Part 1:1989, as indicated on the following pages of this Report. This request was made in Purchase Order No 50436 from the Client dated 8 April 2003.

It is emphasized that assessments have not been made against the other Clauses of the Specification.

This Report only relates to the actual sample which has been tested and assessed.

TEST SAMPLE

1 off tilt/turn window

Date sample received: 3 April 2003

SUMMARY OF RESULTS

1. Air permeability The sample met the requirements of Test Pressure Class 600Pa (Graph C) given in BS 6375:Part 1.
2. Watertightness The sample met the requirements of Test Pressure Class 300Pa given in BS 6375:Part 1.
3. Wind resistance The sample met the requirements of Clause 7 of BS 6375:Part 1 at an applied air pressure of 1200Pa.

AIR PERMEABILITY TEST RESULTS**After wind resistance tests****TABLE 3**

Test Pressure (Pa)	Maximum rate air infiltration m ³ /h	Maximum rate air infiltration m ³ /h/m length of opening joint
600	12.0	2.32

WATERTIGHTNESS TEST RESULTS**After wind resistance tests****TABLE 4**

Pressure (Pa)	Point at which water leakage occurred
1000	Water, from the sill opening joint, ran onto and over the sill