

**ASHRAE-110 Type-Test Report for 1.2m Wide Bench-Type
chemtop1200 CF-120-PP Fume Hood of TopAir, USA**

Ref: ANSI/ASHRAE 110-1995

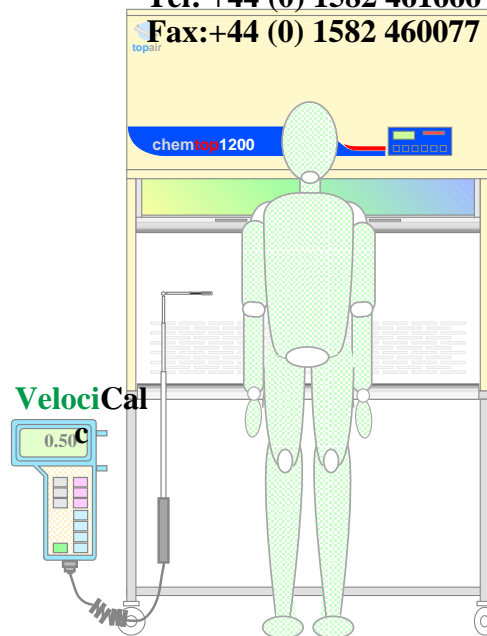
by

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1. INTRODUCTION

ANSI/ASHRAE 110-1995 type tests carried out for 1.2m wide bench-type chemtop1200 CF-120-PP fume hood of TopAir, USA are reported. The detailed information on test methods and procedures can be found in reference 1.

2. DESCRIPTION OF FUME HOOD

The fume hood tested was 1.2m wide bench-type ductless fume hood designed & built by TopAir, USA. The sash opening width was 1125mm and the test height 500mm from the bottom cill airfoil. Other geometric details of the hood are shown in Figure 1.

3. DESCRIPTION OF TEST ROOM FACILITIES

The tests room was at least 7.0m long, 6.0m wide and 4.0m high. The tests facilities include a variable-volume extract air system to adjust the extract volume flow rate to the required value. The make-up air was brought in through the perforated wall/ceiling tiles opposite the tested unit so as to allow a test room pressure in the range of typically -1Pa to -3Pa. The test room differential pressure, temperature, relative humidity and velocity during tests were:

Room differential pressure:	-1Pa
Room air temperature:	25°C - 27°C
Room air relative humidity:	50%
Room air velocity:	much less than 0.1 m/s

4. VELOCITY TESTS

Velocity tests were performed with the sash set at 500mm from the bottom cill airfoil. The velocity type-test grid for the test opening is shown in Figure 2 which also shows the velocity test results.

5. FLOW VISUALISATION TESTS

5.1 Local Visualisation (Low Volume Smoke) Tests

The following observations were made:

Along the opening edge = GOOD

Top LHS corner = GOOD

Top RHS corner = GOOD

Bottom LHS corner = GOOD

Bottom RHS corner = GOOD

5.2 Large Volume Smoke Test

The entry flow to the hood is good. The internal smoke clears within less than 30 sec.

6. CONTAINMENT TESTS

6.1 Static Sash Tests

The containment tests were performed for the same opening as in the velocity tests. Figure 3 shows the positioning of the containment test system with respect to the test opening. Figure 3 also summarises the containment results and show that the fume hood containment performance is very good.

6.2 Probe Traversing Tests at Static Sash Openings

Traversing of the sampling probe along the edges of the test opening resulted in SF6 levels less than 0.010ppm.

REFERENCES

1. **ANSI/ASHRAE 110-1995**, *ASHRAE Guideline, Method of Testing Performance of Laboratory Fume Hoods*, 1995.

List of instrumentation used during tests:

1. Miran 203 infrared gas analyser - SN: 8278 (*containment tests*)
2. VelociCalc 9545-A - SN: 0713014 (*velocity tests*)
3. Drager Flow Check tracer smoke generator (*smoke visualisation*)

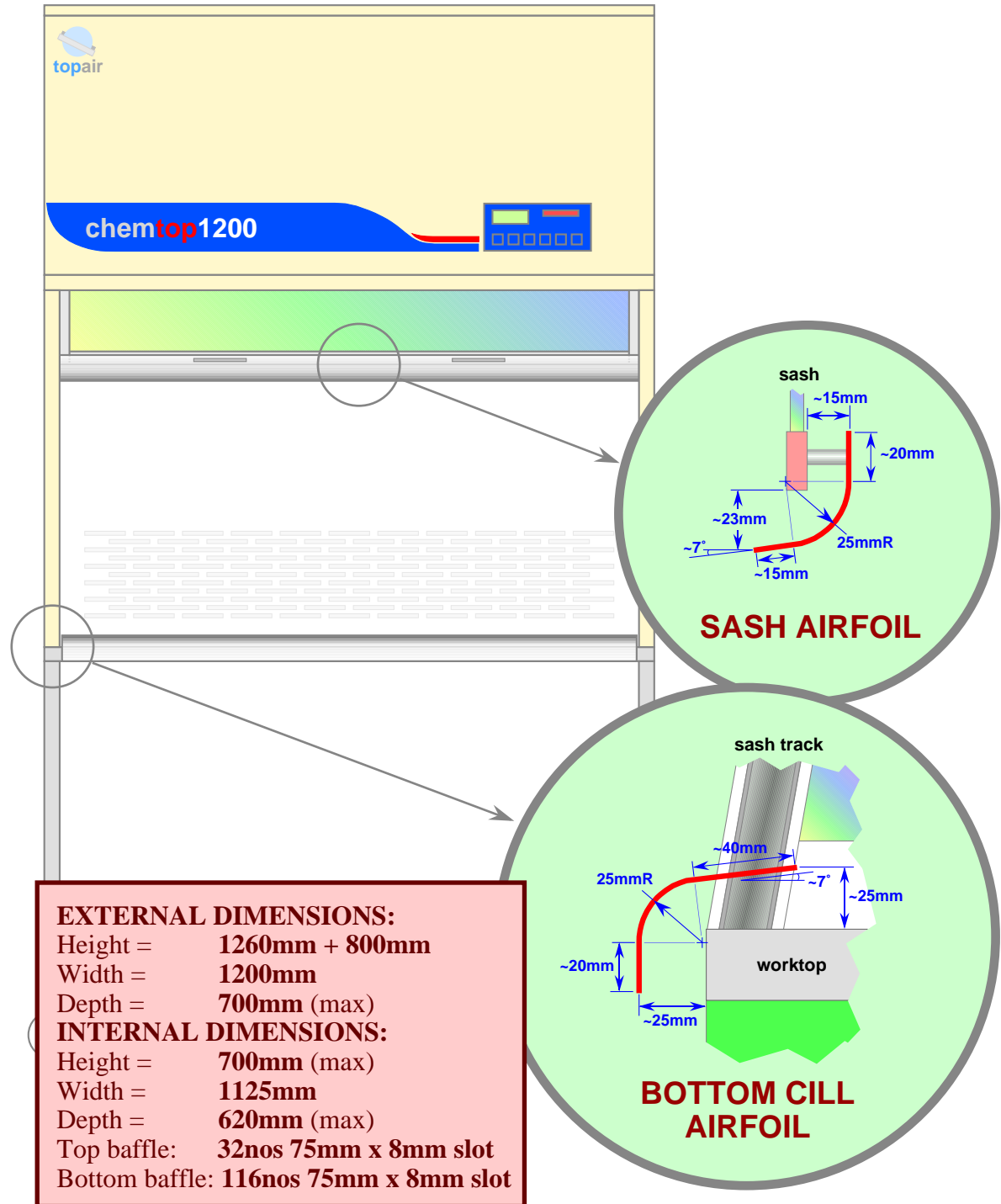


Figure 1 Geometric features of 1.2m wide bench-type chemtop1200 CF-120-PP ductless fume hood of TopAir.

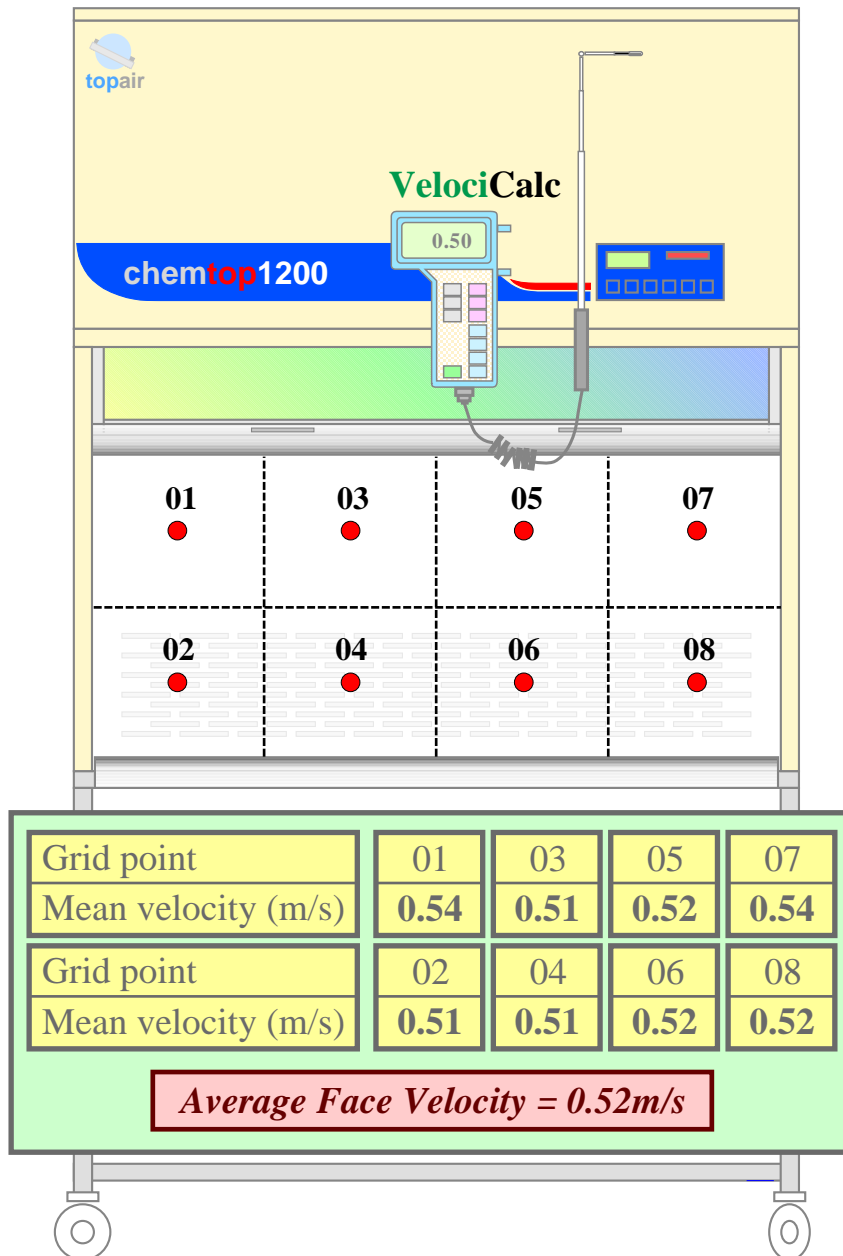


Figure 2 Velocity type-test grid and results.

- The mannequin is at 100mm away from the sash plane and positioned at locations shown below.
- The sampling probe is at the breathing zone of the mannequin and 75mm away from the sash plane.
- The test gas injector is positioned on the work top at locations shown below. At all locations, the injector is at 150mm in from the sash plane.
- The test gas is 100% SF6.
- The test gas flow rate is 4.0lt/min.

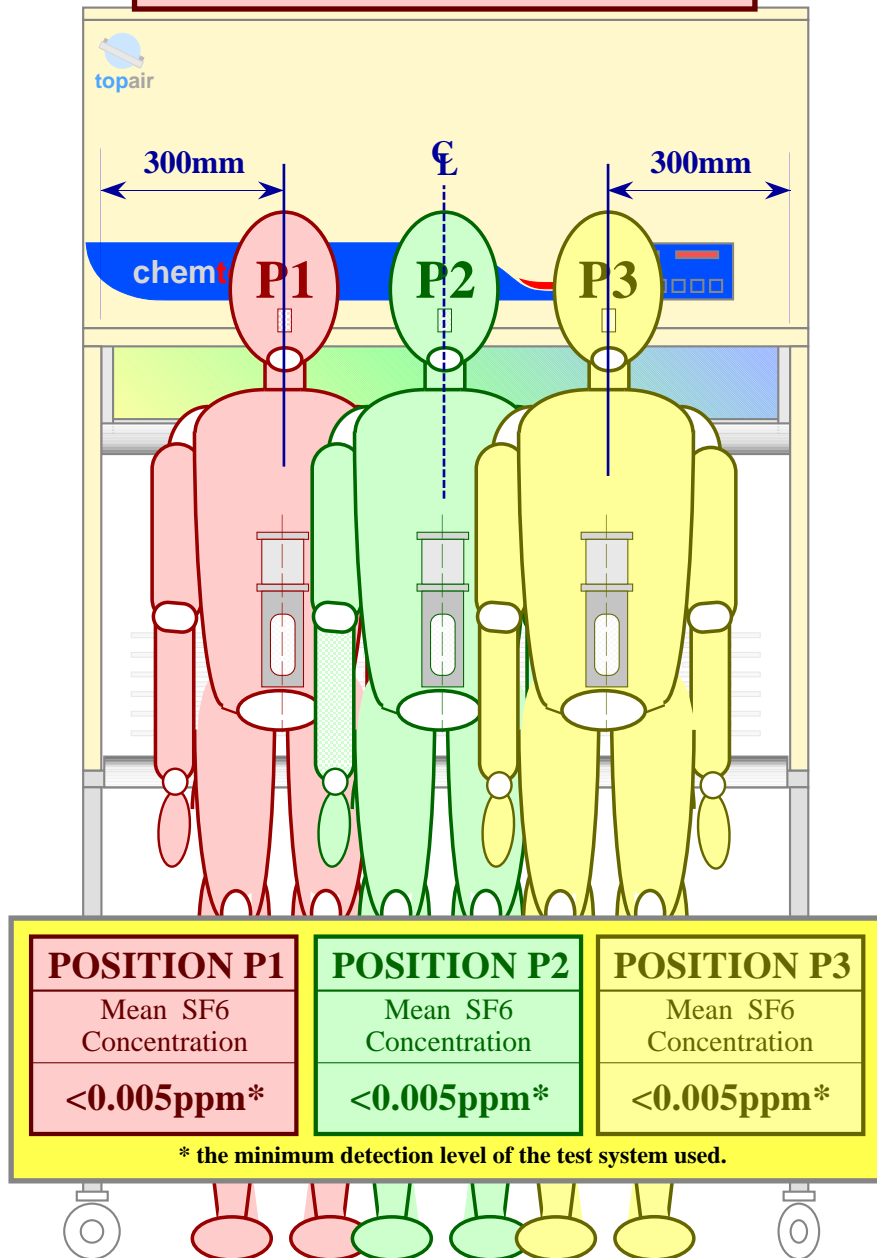


Figure 3 Positioning of ASHRAE containment test system and results.

CERTIFICATE OF TYPE TESTING IN ACCORDANCE WITH ASHRAE 110-1995

CERTIFICATE & REPORT NO: INV/ASHRAE110/563-B
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Fume Hood Type:

chemtop1200

CF-120-PP ductless bench type

External Dimensions:

Height = 2060mm
(1260mm + 800mm)

Width = 1200mm

Depth = 700mm (max)

Internal Dimensions:

Height = 700mm (max)

Width = 1125mm

Depth = 620mm (max)

Baffle Gap Dimensions:

Top: 32x75mmx8mm slots

Bottom: 116x75mmx8mm slots

Fume Hood Manufacturer:

TopAir USA

3182 Monterey Drive

Merrick

NY 11566

USA



Fume Hood Flow:

Test opening width: 1125mm

Test opening height: 500mm

Face velocity: 0.52m/s

This is to certify that the fume hood described above has been type-tested in accordance with ASHRAE 110-1995 and resulted in performance characteristics given in the corresponding test report.

Tested and Certified by: Dr A F Bicen

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A handwritten signature in blue ink that reads 'A.F. Bicen'.