

**Fire Test Report No.:** 80220-019

---

**Customer:** VID ApS, Denmark

**Project:** Fire extinguishing performance test of VID Model BB in simulated bed fire.

**Location of tests:** DFL Danish Fire Laboratories, Svendborg, Denmark

**Operators DFL:** Mr. Alex Palle  
**Dates of testing:** Feb. 18. 2008

**Pages:** Report: 8, Total: 8

---

**Synopsis:**

VID ApS did on Feb 18. 2008 conduct a fire test at DFL Danish Fire Laboratories, Svendborg, Denmark. The purpose of the fire test was to test the performance of Model BB in a simulated bed fire.

**Report checked & approved by:**

---

080220 H. Abrahamsen  
**Laboratories manager**  
**DFL ApS**

---

080220 A. Palle  
**Operator**  
**DFL ApS**

## Table of contents:

1	Purpose of tests	page 2
2	Test set-up	page 2
3	Measuring systems	page 3
4	Test procedures	page 3
5	Test data & test results	page 4
6	Conclusion	page 4
7	Appendix	page 5

### 1: Purpose of tests:

The purpose of the fire test was to test the performance of Model BB in a simulated bed fire.

### 2: Test set-up:

#### 2.1 Test hall:

The tests were conducted in the fire test hall of DFL, Svendborg, Denmark. The test hall was heated, and had the dimensions of 10m x 10m and 5m height.

#### 2.2 Test set-ups:

The fire test set-up consisted of a hospital bed with a height of 600mm placed in a 3300mm x 4300mm simulated elder room with the ceiling height of 2500mm.

The Model BB was installed as specified in Model BB datasheet VID70601-BB.

Temperature was measured with 0,5 mm. type K thermocouple. The temperature was logged with an Agilent Data logger (DFL 2007-014-M).

The fuel package consisted of:

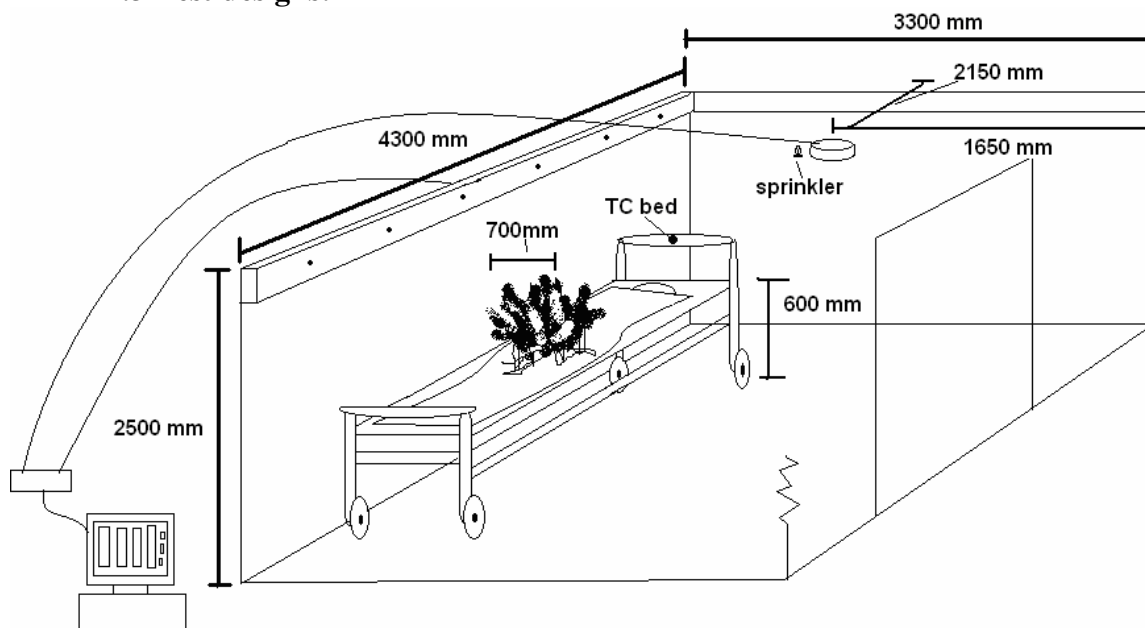
1 x non-fire retardant polyether mattress with a density of approximately 33 kg/m<sup>3</sup> tested and approved in accordance with IMO 5660-1 (ASTM E-1354)

3mm Plywood panels tested and approved in accordance with IMO resolution A.653(16) placed on all walls.

1 x mannequin doll covered with one down duvet + 100% cotton cover.

The fire was ignited in the centre of the bed 700mm from the wall with 50 ml heptanes.

### 2.3 Test designs:



### 3: Measuring systems:

The temperature was measured with a 0,5 mm. thermocouple, type K. The water pressure was measured with a pressure gauge (DFL-2007-002-M) and the water flow was measured with a flow meter (DFL-2007-012-M)






A fast response sprinkler with  $RTI < 50 \text{ ms}^{1/2}$  and nominal release temperature of 68 degree C was installed next to the smoke detector 950mm from ignition point.

### 4: Test procedures:

#### Test No. 80218-1, Model BB

1. The Model BB PC monitor system was connected and started up.
2. The fire was ignited and stopwatch started.
3. 25 seconds after ignition the selected alarm temperature on the Model BB was reached.
4. 2 minutes and 17 seconds after ignition the Model BB smoke detector detected smoke.
5. 2 minutes and 20 seconds after ignition the selected rise of heat on the Model BB was reached and the system activated.
6. 2 minutes and 30 seconds after ignition the fire was extinguished.
7. The water pressure was 4,0 bar and the water flow was 19,6 l/min

**5: Test data & test results:**

	Alarm on temp	Alarm on smoke detector	Alarm on rise of heat	System activation	Fire extinguished
<b>Time after ignition</b>	25 sec.	2 min. 17 sec.	2 min. 20 sec.	2 min. 20 sec.	2 min. 30 sec.
<b>Temp by bed</b>	18 degree C	22 degree C	24 degree C	24 degree C	23 degree C
<b>Fire</b>					

<b>Material:</b>	Mattress	Down Duvet + cotton cover	Mannequin doll	Plywood panels	x
<b>Damage:</b>	No damage	No damage on the underside of the duvet. Damage only in ignition area.	No damage	No damage	x

**6: Conclusion:**

Tests 80218-1 showed that the Model BB was able to activate automatically and extinguish the fire.

Automatic system activation 3 seconds after smoke alarm

Fire was fully extinguished 10 seconds after system activated.

The time from the fire was started to the fire was extinguished was 2 min 30 sec.

Total water consumption: 3,26litre.

Water flow during the system activation: 19,6l/min. with active system, nozzles in a length of 4300mm along the wall.

The fast response sprinkler did not activate during the test.

Alarms were provided when smoke detector activated and when the system activated.

**7: Appendix:**

1. Measuring equipment:

- Data logger: DFL 2007-014-M
- Multiplexer: DFL 2007-053-M
- Video recorder: DFL 2007-040-O
- Flow meter: DFL 2007-012-M
- Pressure gauge: DFL 2007-002-M

2. Test data

**Alarm on temp, 25 sec after ignition:**



**Alarm on smoke detector, 2 min 17 sec after ignition:**



**Alarm on rise of heat, 2 min 20 sec after ignition:**



**System activation:**



**Fire extinguished:**



**Smoke detector, fast responds sprinkler:**

