



# *PERFORMANCE QUALIFICATION PROTOCOL FOR DYNAMIC PASS BOX*

**CUSTOMER:**

**EQUIPMENT: DYNAMIC PASS BOX**

( \_\_\_\_\_ W x \_\_\_\_\_ D x \_\_\_\_\_ H mm)

**SUBMITTED BY:**

**PHARMA ENGINEERS**

PLOT NO. 113/A/1, LANE 8, PHASE II,  
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## PERFORMANCE QUALIFICATION PROTOCOL APPROVAL

This document is prepared by the documentation team of **M/S. PHARMA ENGINEERS** for

**EQUIPMENT** : DYNAMIC PASS BOX (**TAG NO**)

**PLANT /PROJECT** :

**CLIENT** :

Hence this document before being effective shall be approved by Client / Customer

**M/s. PHARMA ENGINEERS:**

	Name	Designation	Signature	Date
Prepared By				
Reviewed By				

**CLIENT / CUSTOMER:**

	Name	Designation	Signature	Date
Reviewed By				
Approved By				

Client:

Supplier/ Manufacturer: PHARMA ENGINEERS, HYDERABAD

Equipment: DYNAMIC PASSBOX ( \_\_\_\_\_ W x \_\_\_\_\_ D x \_\_\_\_\_ H mm)

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**PERFORMANCE QUALIFICATION (PQ)**

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**PERFORMANCE QUALIFICATION (PQ)**

## **1. OBJECTIVE**

The objective of this document is to qualify and certify the performance of dynamic pass box (TAG NO \_\_\_\_\_) with due considerations as specified in DQ of dynamic pass box (TAG NO \_\_\_\_\_).

## **2. FILTER INTEGRITY TEST**

### **PURPOSE:**

This test is to confirm that the HEPA filter was installed in proper assembly and to ensure that no leakage of air in across the filter gasket & to ensure that the filter is with stated rating

### **PRE-REQUISITES**

1. Gas Generator (Leskin 6 nozzle)
2. Photometer (ATI-2I, ATI-2H & PH -5)
3. PAO (Poly-Alpha olefin) Oil.
4. Compressed air at a pressure of (20 PSI)

### **TEST METHOD:**

1. Percentage of leakage between upstream and downstream is to be confirmed across the filter.
2. Cold gas generator is to be selected to generate upstream concentration, for range 20 to 80 micro grams per liter which is equivalent to millions of particles.
3. Arrangements to be made to maintain consist quantity at the upstream side of the filter.
4. Downstream concentration to be measured with the help of photometer
5. The operation of the instrument is to be followed strictly as per the recommendations of the equipment.

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6. Downstream concentration will be displayed in terms of the percentage of leakage, compared to upstream concentration.
7. The allowed percentage of leakage must not be more than filter efficiency.
8. This test is to be conducted for every terminal filter and results to be mentioned in the test data sheet.
9. Care to be taken while conducting the test for selection of oil to generate smoke, which must be non-carcogenic.
10. During the above test, it's recommended to put off the control system of smoke detection.

Instrument Used						
Name			Make			
Model			Sr. No			
Calibrated On			Calibration Due			
TEST RESULTS						
HEPA Filter Identity No	Upstream Concentration		Acceptable downstream (% leakage)	Obtained Result in downstream		Remarks
	µg/Ltr	%		From Filter Face	From Side Joint	

**ACCEPTANCE:**

Percentage of leakage must be less compared to filter efficiency.

However, the acceptance is up to the judgment of experts if any deviations in the readings.

**REMARKS (IF ANY):**

Test conducted By

Test Witnessed By



Client:

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Equipment: **DYNAMIC PASSBOX** ( \_\_\_\_\_ W x \_\_\_\_\_ D x \_\_\_\_\_ H mm)

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**PERFORMANCE QUALIFICATION (PQ)**

**ACCEPTANCE**

Equipment must deliver and maintain laminar air velocities in the range of 90-120 FPM.

However, the acceptance is up to the judgment of experts if any deviation in the readings.

**REMARKS (IF ANY):**



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#### **4. AIRFLOW VISUALISATION TEST**

##### **PURPOSE**

To ensure that the movement of air in the equipment is not stagnant and flow is moderately conventional air flow.

##### **PRE-REQUISITES**

1. Smoke generator
2. Video camera

##### **TEST METHOD:**

1. This test is to be performed after completion of perfect air balancing.
2. Place the Smoke generator just below the filter to ensure air is not stringent.
3. Flow visualization has to be checked by generating smoke near the section grille.
4. Smoke movement to be recorded by video camera and the movement of smoke must be towards return grill, ensuring maximum sweep of the equipment.



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<b>INSTRUMENT USED</b>			
NAME OF INSTRUMENT		MAKE	
MODEL		SERIAL NO.	
CALIBRATED ON		CALIBRATION DUE ON	
<b>TEST RESULTS</b>			
EQUIPMENT MODEL	FILTER NO	AIR FLOW DIRECTION	REMARKS

**ACCEPTANCE**

The flow must be towards return air grill, ensuring maximum sweep of the equipment.

However, the acceptance is up to the judgment of experts if any deviations in the readings.

**REMARKS (IF ANY):**

Test conducted By

Test Witnessed By

Client:

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**PERFORMANCE QUALIFICATION (PQ)**

## **5. PARTICLE COUNTING**

### **PURPOSE**

To check the correct functioning of the equipment with respect to filtration efficiency, by measuring the particle concentration at 0.5 micron as per ISO-14644-1 (2015).

### **PRE-REQUISITES**

1. Particle counter with duly calibrated

### **TEST METHOD:**

1. Test to be conducted while the Equipment is at rest condition i.e. its running at the ideal condition.
2. Particle counter must be having valid calibration certificate.
3. Particle counter must have minimum of 1.7 Cfm capacity.
4. Particle counting must be verified at 0.5 micron only.
5. Number of locations and place of location to be decided before conducting the test.
6. Drawing is to be prepared showing the locations of the particle counting and same drawing is to be attached along with the particle count report.
7. The print out of the particle counter must specify the location number, time interval and sampling time, other than the concentration of particles.
8. All the print outs are to be attached along with this as a test data sheets and it must be signed by the person who had conducted the test as well as person who witnessed the test.



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**PERFORMANCE QUALIFICATION (PQ)**

**ACCEPTANCE**

Particle concentration should comply with ISO-14644-1(2015) standards.  
However, the acceptance is up to the judgment of experts if any deviations in the readings.

**REMARKS (IF ANY):**



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