

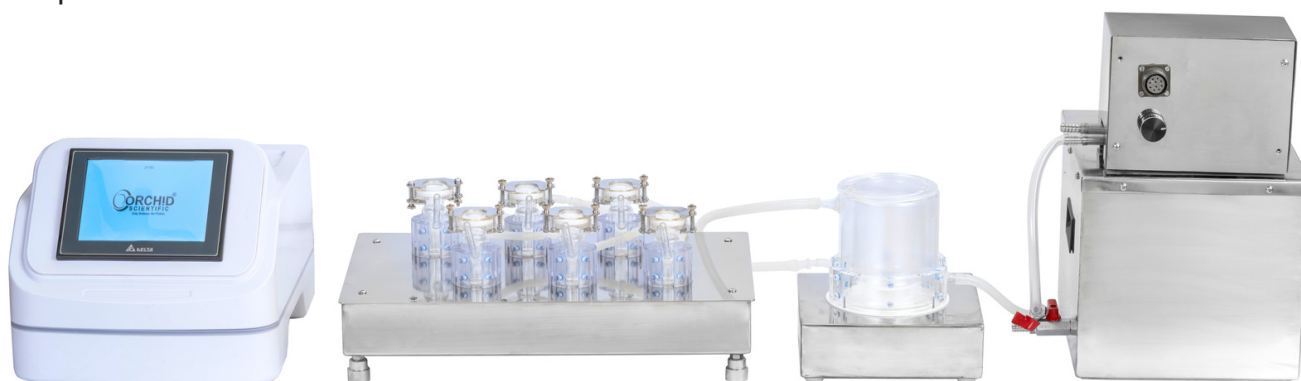
# Diffusion Cell Apparatus (JFDC07-O30)

## IN-VITRO SKIN PERMEATION STUDIES OF TOPICAL FORMULATIONS

The Vertical Franz Diffusion Cell is a simple, reproducible test for measuring the in vitro drug release from creams, ointments and gels. The Franz Cell consists of two primary chambers separated by a membrane. The test product is applied to the membrane via the top chamber- donor compartment. The bottom chamber-receptor compartment contains fluid from which samples are taken at regular intervals for analysis. This testing determines the amount of active drug that has permeated the membrane at each time point.



**Designed To Study Reproducible Test For Measuring The In Vitro Drug Release From Creams, Ointments and Gels.**



## FEATURES:

- Vibration-free electromagnetic stirrer.
- Data logging for stirring speed and temperature at a sampling interval.
- Multi-language screen selection.
- Touch screen display with 20 in-built programs.
- The same system can be upgraded to multi-station by adding one more stirrer unit.
- Audio/visual alarms for sampling intervals.
- Stirring on/off option prior to sampling.
- Highly accurate stirring speeds and temperature.
- Heated circulating water bath with water level sensors to avoid damage to the heating element.
- Double wall Heated circulating water bath ensuring more precise temperature control.
- Password-protected data collection and report generation software with admin features.
- Calibration report generation facility in the software.
- Graphical presentation of data.
- Provision to add experiment title & comment.
- Data can be converted to Excel & Pdf files for further analysis.

**The Transdermal Diffusion cell apparatus is remarkably simple to operate; the system is supplied with:**

- Seven-stage magnetic stirrer with cell holders.
- Heated circulating water bath with water level sensor.
- Touch screen control unit for control of speed and temperature.
- Diffusion Cells & accessories pack.
- Jacked reservoir beaker for diffusion media.



#### SYSTEM SPECIFICATION AND MODELS:

Specification	Model
	<b>JFDC 07 (Single Stirrer Unit)</b> <b>JFDC 07 x 2 (Dual Stirrer Unit)</b>
<b>Stirrer Drive (JSU07)</b>	
Stirrer drive	7 stage electromagnetic: 01 (JFDC 07) 7 stage electromagnetic: 02 (JFDC 07 x 2)
Material of construction of enclosure	S.S. 304
RPM Indicator	Digital (Touch Screen)
Stirring Speed Range & Accuracy	200- 800 rpm ( $\pm 1.0\%$ )
<b>Heated Circulating Water Bath (WCS02)</b>	
Material of construction of enclosure	Double wall S.S. 304
Temperature range and accuracy	5°C Above ambient to 60°C ( $\pm 1.0$ °C)
Inter cell temperature variation	$\pm 1.0$ °C
Inter cell stirring speed variation	$\pm 1.0$ %
Temperature Indicator	Digital (Touch screen)
Certifications	CE Compliant
Power requirements	220/230V AC 50Hz, 110/120V AC 50-60Hz*

\*Needs to be specified in order information

## ORDERING INFORMATION:

Model	Stirring drive	Heated circulating water bath	Cells Supplied	Accessories supplied	Optional
JFDC 07	7 stage electromagnetic stirrer drive: 01	Double wall Heated circulating water bath: 01 unit	<p>Glass diffusion cell of 20ml capacity with 20mm exposure area: 07Nos</p> <p>(20ml cells are by default. If user wants to select any other capacity of cells, same can be done with prior notification*)</p>	<ul style="list-style-type: none"> <li>• Cell Clamps:7,</li> <li>• Adequate Silicon Tubing for Interconnection,</li> <li>• Lid for cell sampling arm: 7</li> <li>• Stirring bars: 7</li> <li>• Silicon rings:7</li> <li>• Dosage compartment:7</li> <li>• Support disc:7</li> <li>• Alignment ring:7</li> <li>• Luer lock connectors for cell</li> <li>• Interconnections: 6pairs</li> <li>• IQ, OQ documents</li> <li>• Ethernet cable</li> <li>• Software DVD, Inlab calibration certificate for Diffusion cell and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Diffusion cell of 5ml, 7ml, 12ml</li> <li>• Precise sample withdrawal glass syringe</li> <li>• NABL accredited lab calibration certificate for diffusion cell</li> <li>• PVT documentation</li> </ul>
JFDC 07 x 2 (Dual stirrer unit)	7 stage electromagnetic stirrer drive: 02	Double wall Heated circulating water bath: 01 unit	<p>Glass diffusion cell of 20ml capacity with 20mm exposure area: 14 Nos</p> <p>(20ml cells are by default. If user wants to select any other capacity of cells, same can be done with prior notification*)</p>	<ul style="list-style-type: none"> <li>• Cell Clamps:14</li> <li>• Adequate Silicon Tubing for Interconnections</li> <li>• Lid for cell sampling arm: 14</li> <li>• Stirring bars: 14</li> <li>• Silicon rings:14</li> <li>• Dosage compartment:14</li> <li>• Support disc:14</li> <li>• Alignment ring:14</li> <li>• Luer lock connectors for cell</li> </ul>	

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|--|--|--|--|---|--|
|  |  |  |  | <ul style="list-style-type: none"> <li>• Interconnections: 12pairs</li> <li>• IQ, OQ documents</li> <li>• Ethernet cable</li> <li>• Software DVD, Inlab calibration certificate for Diffusion cell and equipment</li> </ul> |  |
|--|--|--|--|---|--|

**Performance Verification Test (PVT) for Diffusion Cell Apparatus:  
(Suitable for Model JFDC 07)**

The Vertical Diffusion Cell (VDC) is an in vitro laboratory device for the study of drug release and permeation of semi-solid topical formulations and topical patches. Franz Diffusion Cell is a type of VDC. It is the industry standard for IVRT as well as IVPT studies. However, this Franz diffusion cell needs to pass physical acceptance criteria and performance verification test before performing IVRT/IVPT studies.

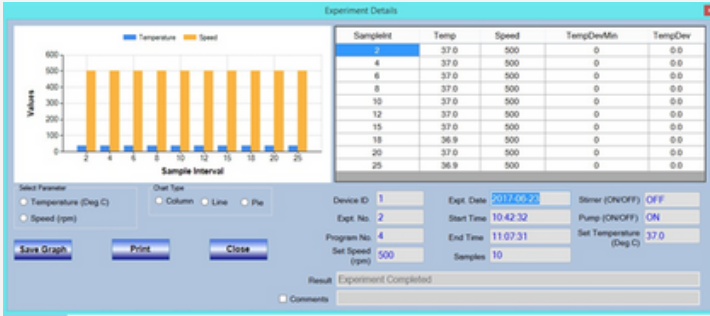
**Benefits of Performance Verification Test (PVT) a USP requirement:**

- Globally recognized method for Metrology aspects: PVT covers both mechanical and analytical parts of franz diffusion cell apparatus.
- Ability to uncover the influence of unforeseen system variables in franz diffusion cell apparatus.
- Ability to compare intra/inter lab variation: PVT is a holistic test and involves system suitability testing by reference standard material (USP 1% Hydrocortisone cream), a validated reference standard cream with pre-established testing characteristics.
- A necessity for IVRT/IVPT studies

**PVT test will cover:**

- Physical Acceptance Criteria according to USP General Chapter <725> and <1724> for parameters like the capacity of cells, the diameter of the orifice, the temperature of receptor medium, the temperature of the membrane surface, and magnetic stirrer speed.
- Performance Verification Test of VDC Systems using the USP Hydrocortisone Cream for parameters like Cumulative amount of drug (Hydrocortisone) release per square cm and Confidence Interval using HPLC as an analytical method.

Note: Orchid’s continuing product development makes specifications subject to change without prior notification.



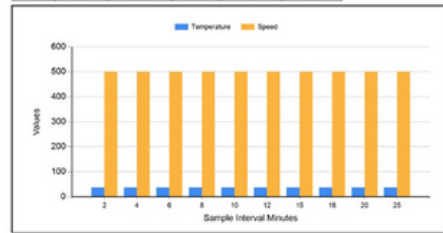
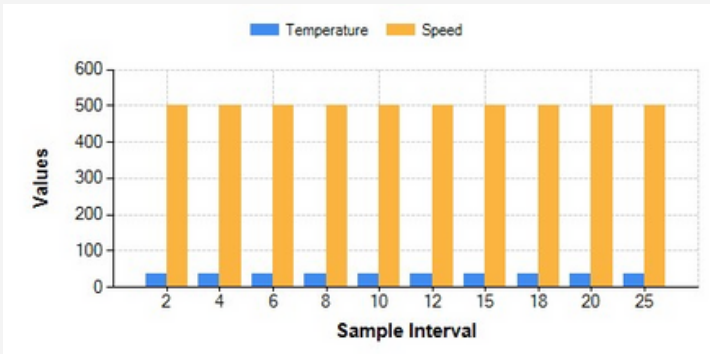
**Experiment Report**  
Diffusion Cell Apparatus

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Device ID: 1      Experiment No: 2      Program No: 4  
 Experiment Date: 2017-06-23      Start Time: 10:42:32      End Time: 11:07:31  
 Set Temperature (Deg C): 37.0      Set Speed (rpm): 500      No. of Samples: 10  
 Stirrer at Sampling: OFF      Water Circulation Pump: ON

Result: Experiment Completed  
 Comments: add comments here

Sr.No.	Sample Interval (Min)	Temperature (Deg. C)	Speed (rpm)	Time of Temperature Deviation (Min)	Temp Deviation (Deg. C)
1	2	37.0	500	0	0.0
2	4	37.0	500	0	0.0
3	6	37.0	500	0	0.0
4	8	37.0	500	0	0.0
5	10	37.0	500	0	0.0
6	12	37.0	500	0	0.0
7	15	37.0	500	0	0.0
8	18	36.9	500	0	0.0
9	20	37.0	500	0	0.0
10	25	36.9	500	0	0.0



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