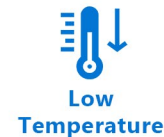
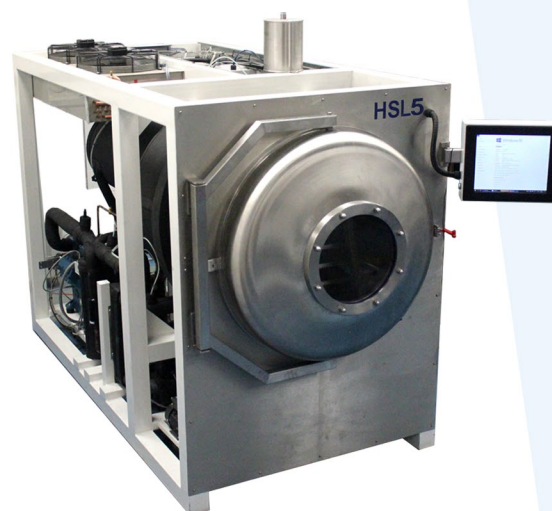




# HSL-5a

## TWO-STAGE REFRIGERATION

Technical Data	HSL-5a
Ice Condenser Capacity	60kg
Ice Condenser Performance	45kg /24h
Ice Condenser Temperature	-85°C
Defrost	Hot water
Shelf temperature	-60°C to 65°C ±1K
Shelves	8+1 316L Stainless
Shelf Area	4.6m <sup>2</sup>
Shelf Spacing	65mm
Trays	4 per Shelf
Vial Stoppering	Ram from below
Vial Size	2, 3 & 5ml
Heat Transfer	Circulated Dowtherm J
Circulation Pump	Panworld Mag Drive Pump
Heating	6kw immersion heater
Cooling systems	Water cooled
Refrigeration - Condenser	2 Stage Condenser R404A, CFC Free
Refrigeration - Shelves	2 Stage Shelves R404A CFC Free
Vacuum (Achievable)	0.001mbar
Vacuum Pump	Pfeiffer Duo 65 & Mist filter
Vacuum Flow Rate	65m <sup>3</sup> /h
Vacuum Isolation	Pneumatic vacuum valve
Vacuum Measure	Pirani AGPn200 Sensors
Vacuum Maintain	Precision vacuum bleed valve
Gas Intake	Intake port with micron filter
Vacuum Chamber	316L Cylinder
Chamber Access Door	Insulated dished door (2 skin)
Chamber Visibility	400mm Diameter viewport
Temperature Probes	8 wired mobile probes
Power Supply	380-415v 80a 3~
Mode of operation	Programmable Control
Control System	PLC with Windows Scada & UPS



## Key Features

H-Series Freeze Driers are the ideal solution for high end pharmaceutical, clean room, pilot & production use.

Our low temperature H-Series range provides the capability to reach temperatures as low as -85°C, as well as features such as advanced temperature, pressure, time control, ice condenser temperature sensor.

The HSL-5a is a general-purpose, high performance pilot unit ideal for drying a variety of products at low temperatures. It is available in a clean room version where the accessible parts are external to the clean room.

Conforms to GAMP 5, CFR21 part 11.

