

STOKES VACUUM

PHARMACEUTICAL Freeze Dryers

Stokes freeze dryers have been designed to meet the demanding requirements of the pharmaceutical industry. The result is equipment that will perform reliably and productively within your most critical operating parameters.

Features

- All systems meet CGMP requirements.
- Various control systems are available to automate the drying cycle, steam sterilization and condenser defrost.
- Patented internal stoppering system — maintains sterility and provides adjustable stoppering pressure. The system is drift-free, and stoppers all common vial sizes.
- Chambers and external condensers are ASME code stamped and are available in various types of stainless steel.
- Efficient plate-type condenser design.
- Dual refrigeration and vacuum systems significantly reduce product loss due to equipment failure.
- Modular design to fit your installation space requirements.



Standard and custom designed pharmaceutical lyophilization units in sizes ranging from 24 to 450 sq. ft. All units meet CGMP requirements and include stoppering, ASME Code stamped chambers and condensers and advanced microprocessor control systems.

STOKES® LYOPHILIZER SPECIFICATIONS

MODEL	24-PV	48-PV	72-PV	132-PV	220-PV	450-PV
SHELVES: AREA (M ²) NUMBER SIZE (WxD) (CM) CLEARANCE (CM) TEMPERATURE RANGE	24 FT ² (2.23 M ²) 4 2'x3' (60.96x91.44) 4.25" (10.79) -55°C to +85°C	48 FT ² (4.46 M ²) 4 3'x4' (91.44x121.92) 4.8" (12.19) -55°C to +85°C	72 FT ² (6.69 M ²) 6 3'x4' (91.44x121.92) 4.5" (11.43) -50°C to +85°C	132 FT ² (12.26 M ²) 11 3'x4' (91.44x121.92) 4.5" (11.43) -50°C to +85°C	220 FT ² (20.45 M ²) 11 5'x4' (152.4x121.92) 4.5" (11.43) -50°C to +85°C	450 FT ² (41.81 M ²) 15 5'x6' (152.4x182.88) 4.5" (11.43) -50°C to +85°C
CONDENSER: AREA (M ²) CONDENSING RATE (°) ICE CAPACITY (°) VAPOR VALVE SIZE LOCATION	27 FT ² (2.51 M ²) 4.4 LBS/HR (2 L/H) 103 LBS (47 L) 10"/EX. COND. INTERNAL (°)	50 FT ² (4.64 M ²) 12.5 LBS/HR (5.5 L/H) 220 LBS (100 L) N/A INTERNAL ONLY	50 FT ² (4.64 M ²) 12.5 LBS/HR (5.5 L/H) 220 LBS (100 L) 16"/EX. COND. EXTERNAL	125 FT ² (11.61 M ²) 27 LBS/HR (12.5 L/H) 550 LBS (250 L) 24"/EX. COND. EXTERNAL	265 FT ² (24.62 M ²) 42 LBS/HR (19 L/H) 1160 LBS (525 L) 36"/EX. COND. EXTERNAL	(2) 265 FT ² (49.24 M ²) 80 LBS/HR (36.5 L/H) 2320 LBS (1050 L) 30"/EX. COND. EXTERNAL
INTERNAL STOPPERING:	HYDRAULIC-UP	MECHANICAL	MECHANICAL	MECHANICAL	MECHANICAL	MECHANICAL
REFRIGERATION: MAIN COMPRESSOR AUXILIARY (SHELF) COMPRESSOR	(1) 10 HP, TWO STAGE (1) 2 HP, SINGLE STAGE	(1) 20 HP, TWO STAGE (1) 3 HP, SINGLE STAGE	(1) 20 HP, TWO STAGE (1) 3 HP, SINGLE STAGE	(2) 20 HP, TWO STAGE (1) 5 HP, SINGLE STAGE	(2) 30 HP, TWO STAGE (1) 7½ HP, TWO STAGE	(4) 30 HP, TWO STAGE (1) 30 HP, TWO STAGE
VACUUM SYSTEM: TYPE (STOKES) DISPLACEMENT EVACUATION TIME TO (100) (°) LEAK-UP RATE (OVERALL SYSTEM)	MODEL V-013-2 20 CFM (9.44 L/SEC.) 25 MIN. 55µ/HR	MODEL 149H 80 CFM (37.76 L/SEC.) 15 MIN. 30µ/HR	MODEL 149H 80 CFM (37.76 L/SEC.) 15 MIN. 30µ/HR	MODEL 212H 150 CFM (70.8 L/SEC.) 20 MIN. 25µ/HR	MODEL 212MB 245 CFM (115.6 L/SEC.) 20 MIN. 20µ/HR	(2) MODEL 212MB (2) 245 CFM (231.28 L/SEC.) 20 MIN. 15µ/HR
UTILITIES: ELECTRIC (°) COOLING WATER (PEAK) @ 85°F COOLING WATER (AVG.) @ 85°F STERILIZING RATES—HEAT UP/HOLD APPROX. INSTALLATION AREA (WxDxH) (CM) APPROX. WEIGHT	230/3/60-85 FLA 15 GPM 8 GPM 50 #/HR & 3 #/HR 58"x72"x74" 147.3x182.9x188 4500 # (2041 kg)	230/3/60-170 FLA 35 GPM 11 GPM 175 #/HR & 5 #/HR 13'3"x15'11"x9'4" 403.9x485.1x284.5 18000 # (8181 kg)	230/3/60-170 FLA 35 GPM 11 GPM 175 #/HR & 5 #/HR 13'3"x15'11"x9'4" 403.9x485.1x284.5 19,700 # (8936 kg)	460/3/60-145 FLA 67.5 GPM 16.5 GPM 245 #/HR & 7 #/HR 13'3"x18'2"x12'8" 403.9x553.7x386.1 29,240 # (13,263 kg)	460/3/60-290 FLA 97.5 GPM 19 GPM 425 #/HR & 10 #/HR 14'4"x19'11"x12'8" 436.9x607.1x386.1 39,200 # (17,781 kg)	460/3/60-352 FLA 225 GPM 40 GPM 605 #/HR & 6.5 #/HR 16'x37'6"x15'2" 487.7x1143x462.3 62,500 # (28,350 kg)

REQUEST BULLETINS 750-2 AND 660-B