

## Liquid Ring “Camel” Medical Vacuum Base Mount Modular System Duplex Expandable Triplex System (20 – 30 HP)

### SPECIFICATION

#### Vacuum System

The duplex expandable to a triplex medical vacuum system is fully compliant with the latest edition of NFPA 99. The system consists of two steel framed simplex modules with an oil-free liquid ring vacuum pump coupled to a standard NEMA frame motor and a reservoir tank mounted on each module. A triplex system control panel is mounted on one of the modules. A standalone corrosion resistant receiver sized for appropriate demand is provided for the system. The system is completely tested prior to shipment. The installer, during installation, provides wiring and intake manifold piping between the modules with provisions for the future expansion module.

#### Vacuum Pump

The pump is a Nash Vectra GL series oil-free, single-stage, positive displacement, cone-ported and non-pulsating liquid ring type. Materials of construction are all iron with steel shaft, ductile iron lobe, head, rotor and end plate. The shaft seals are standard internal mechanical seals, John Crane type 21.

#### Vacuum Pump Drive

The pump is direct driven. Torque is transmitted from the motor to the pump through a shaft coupling.

#### Vacuum Pump Motor

The motor is a continuous duty, NEMA rated, open drip proof, 1200 RPM with 1.15 service factor suitable for 208V or 230/460V, 60 hertz, 3 phase electrical service.

#### Intake Piping

Each vacuum pump has a factory piped intake with an intake check valve to prevent backflow through off-cycle units, a vacuum relief valve and an isolation valve. The installer, at installation, provides an intake manifold.

#### Re-circulation and Seal Water

The system includes a dielectric union, anti-siphon valve, strainer, solenoid valve, flow control valve and an orifice union. Under normal operation, the system does not use more than 1 gpm of seal water per operating pump. The system includes a reservoir sufficient for up to 48 hours of operation without a fresh water supply. The reservoir serves as a separator/silencer. A shell and tube heat exchanger is installed for each pump to remove the heat of compression. The chilled water requirement is:

- a) 20 HP vacuum system - 12 gpm chilled water/pump.
- b) 30 HP vacuum system - 15 gpm chilled water/pump.

#### Vacuum Receiver

The vacuum receiver is corrosion resistant, ASME Code stamped and rated for a minimum 125 PSIG design pressure.

#### Control System

The triplex control system is NEMA 12 and U.L. labeled. The control system provides automatic lead/lag sequencing with circuit breaker disconnects with external operators for each vacuum pump motor, full voltage motor starters with overload protection, a 120V control circuit transformer for each motor circuit, visual and audible reserve unit alarm with isolated contacts for remote alarm, hand-off-auto lighted selector switches and runtime hourmeters. A programmable logic controller (PLC) controls the automatic sequencing of all vacuum pumps and automatic activation of reserve unit if required. The control system includes a manually adjustable minimum run timer to minimize starts and stops on the package. A vacuum gauge is provided in the control panel.

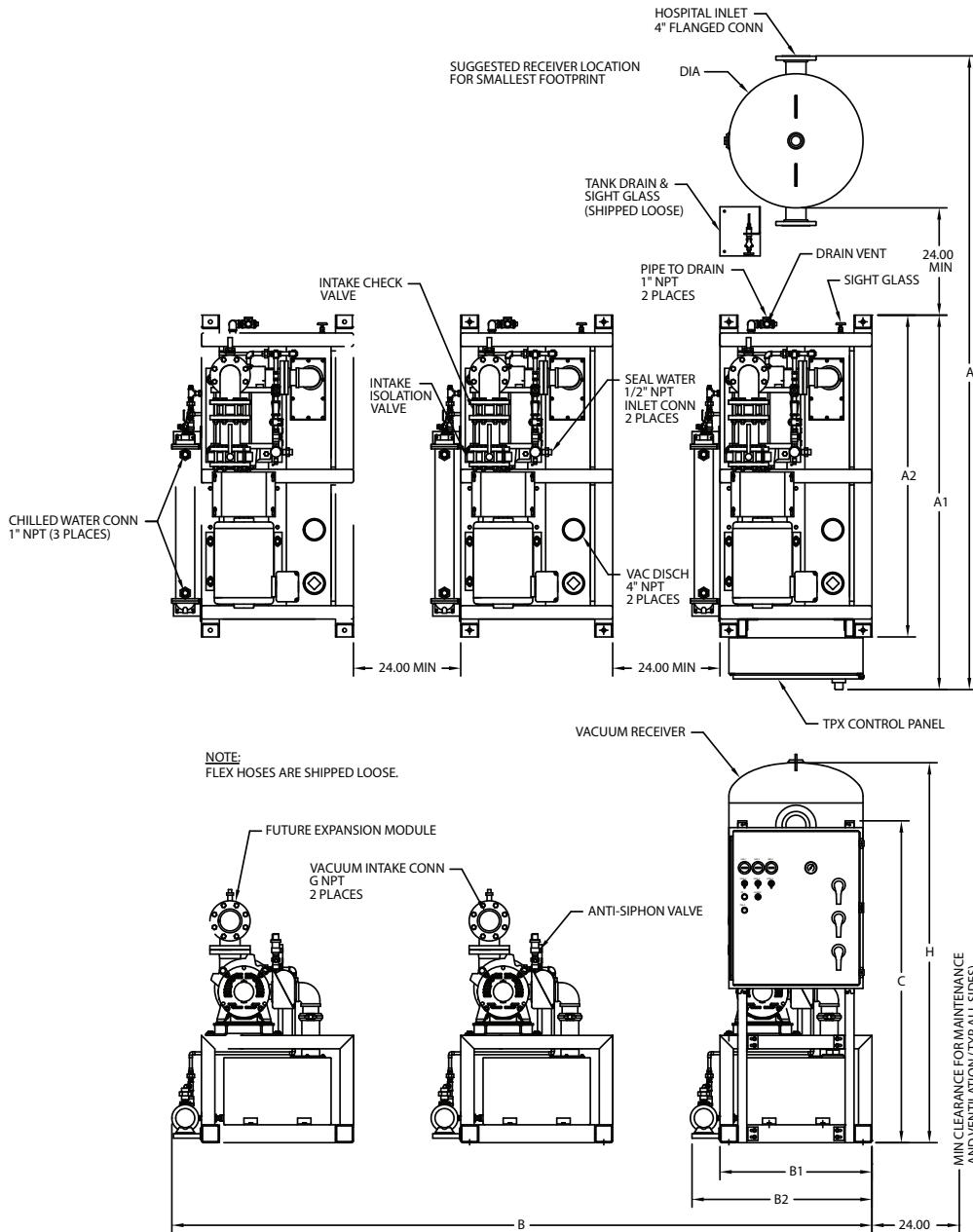
#### Accessories (shipped loose)

Intake flexible hose	2
Discharge flexible hose	2
Seal water flexible hose	2
Heat exchanger flexible hose	4
Vibration isolator	8



Vacuum System Specifications <sup>1</sup> (Expanded System)											
System Model No.	HP	Capacity <sup>2</sup> @19" Hg	Seal Flow <sup>3</sup> (gpm)	Cooler Flow <sup>4</sup> (gpm)	Noise <sup>5</sup> Level	Receiver <sup>6</sup> (Gallons)	System FLA @ 60 Hz <sup>7</sup>			Module Weight (lbs.)	
							208V	230V	460V	Vacuum <sup>8</sup>	Receiver
LVS-20D-RC220V-T	20	123 scfm (246 scfm)	1	12	77 (80)	220*	185	160	80	3590 (5251)	565
LVS-20D-RC400V-T	20	123 scfm (246 scfm)	1	12	77 (80)	400	185	160	80	3590 (5251)	650
LVS-30D-RC220V-T	30	175 scfm (350 scfm)	1	15	73 (76)	220*	276	238	119	4082 (5989)	565
LVS-30D-RC400V-T	30	175 scfm (350 scfm)	1	15	73 (76)	400	276	238	119	4082 (5989)	650

- Notes:**
1. Normal operating condition at a maximum ambient of 105°F. Consult factory for higher ambient conditions.
  2. All capacities are shown as NFPA system capacities (reserve vacuum pump on standby).
  3. Seal water flow rates should be at a minimum of 35 psi and with a maximum temperature of 80°F per pump. Contact factory for water quality requirements.
  4. Chilled water flow rates are based on a maximum inlet water temperature of 50°F per pump. For higher chilled water temperature, contact factory.
  5. All noise levels are shown in dB(A) with the reserve pump on standby
  6. \* Indicates standard receiver.
  7. FLA is rated for expandable panel.
  8. Total weight for a 20 hp simplex module w/ triplex control panel (1929#) and 20 hp simplex modules (1661# ea.)  
Total weight for a 30 hp simplex module w/ triplex control panel (2175#) and 30 hp simplex modules (1907# ea.)

**Standard Configuration**


COMPLETE SYSTEM MODEL NUMBER	UNIT (HP)	PUMP MODEL	RECEIVER (GALLONS)	DIMENSIONS (IN)										SQ FEET REQUIRED
				A*	A1	A2	B*	B1	B2	C	G	H	DIA	
LVS-20D-RC220V-T	20	GL-80	220	142	84	72	157	34	41	72	4	85	30	95
LVS-20D-RC400V-T			400	148								101	36	97
LVS-30D-RC220V-T	30	GL-100	220	142	84	72	157	34	41	72	4	85	30	95
LVS-30D-RC400V-T			400	148								101	36	97

20HP/220GAL SHOWN (DIA24-223X-SSB)

\* SUGGESTED SYSTEM DIMENSIONS