Laboratory Vacuum Systems (LVS)

LVS 210 T ef | 115234

Advantages

- analytically pure, oil free vacuum
- user friendly
- designed for permanent operation
- maintenance-free drive system and proven long diaphragm life
- wide vacuum and flow range to match application
- fully chemically resistant
- inlet separator to protect pump from liquid and particle ingestion
- exhaust condenser for optimal solvent recovery
- modular design to tailor the system to your application needs

Scope of Delivery

- Chemical duty diaphragm pump mounted on chassis
- ON/OFF switch and internal protective thermal switch for the motor, mains cable and plug
- vibration isolating feet
- inlet separator
- exhaust condenser (except for LVS 300 Z)
- gas ballast valve (except for LVS 105 T - 10 ef)
- 8mm inlet / exhaust hose nozzle

Range of Applications

- rotary evaporators
- vacuum ovens
- multi-user networks (Netvac)
- solvent concentration

Description

LVS systems are specially designed for solvent distillation / evaporation applications. They comprise an oil-free chemical duty diaphragm pump (MPC) with optional control packages, liquid containment and exhaust vapour condenser. All wetted parts are made from high quality chemically resistant materials with clear plastic coated glassware to allow solvent and acid vapours to be pumped.

Model options

The LVS systems are available with a range of vacuum control options; *unregulated*, *manually regulated* and *three different electronic control packages* are available.

Unregulated

- When ultimate vacuum is required at all times.

LVS 300 Z

Manually regulated

- A fine control valve is used to regulate the vacuum by acting as a bleed valve. Options available with one or two manual regulators.

LVS 301Z

Standard digital control (cv)

- The standard electronic control package uses a chemically resistant solenoid valve to control the process vacuum while the pump runs continually.
- The user defined vacuum and hysteresis levels are used to open and close the control valve thus maintaining vacuum at the process between the high and low control points. This is known as two point control.

LVS 310 Z

Economic digital control (en)

- Economic control uses the same two point control system, but as cv replaces the control valve with a relay which turns the pump on and off to maintain the process vacuum between the user defined vacuum and hysteresis levels. This method greatly reduces power consumption and extends the lifetime of the pump.
- Economic control is particularly useful for multi-user vacuum networks where the pump is located away from the user.

LVS 310 Z en

Ecoflex digital control (ef)

- Ecoflex control varies the speed of the pump constantly to maintain the user defined vacuum level regardless of changes in the process requirements.
- The Ecoflex method exhibits genuine single point (hysteresis-free) control and therefore a stable vacuum level.
- Single point control results in up to 40% increase in evaporation rates with minimal bumping or foaming of precious samples. This is particularly important in ultimate rotary evaporation.

LVS 310 Z ef

Highlight LVS 105 T - 10 ef

LVS 105 T - 10 ef | 114184

Advantages

- analytically pure, oil free vacuum
- deep 2 mbar ultimate vacuum
- Ecoflex vacuum control
- built in solvent library
- multi-lingual digital display
- user friendly
- heated pump heads to stop vapours condensing inside of the pump
- designed for permanent operation
- maintenance-free drive system and proven long diaphragm life
- fully chemically resistant
- compact design
- inlet separator to protect pump from liquid and particle ingestion
- exhaust condenser for optimal solvent recovery

Scope of delivery

- Chemical duty diaphragm pump built inside casing
- ON/OFF switch and internal protective thermal switch for the motor, mains cable and plug
- Built in digital vacuum controller with ecoflex control software and solvent library
- vibration isolating feet
- inlet separator
- exhaust condenser
- pump head heating
- 8mm inlet / exhaust hose nozzle

ROdist professional package
with LVS 105 T - 10 ef | 112033

Description

The LVS 105 T - 10 ef is the perfect partner for your rotary evaporator, but can also be used for a range of other applications such as vacuum ovens, solvent concentration and multi-user vacuum networks. Its deep 2 mbar ultimate vacuum and high free flow of 20 l/min make it ideal for use with both high and low boiling point solvents - even allowing non-volatiles such as DMF to be evaporated at 30ºC. It combines a powerful built in chemical duty diaphragm vacuum pump with Ecoflex control principals. Heating of the pump heads allows a consistent clean vacuum without gas ballasting.

The Ecoflex control continuously adjusts the pumping speed to match the vapour load of the process and allows the pump to exhibit single point control which reduces bumping and foaming whilst achieving increased evaporation rates. The built in multi-lingual digital vacuum controller allows easy adjustment of the desired vacuum level as well as the option to select common solvents from the built in solvent library. An inlet trap protects the pump from ingesting liquids and particles and an exhaust vapour condenser is included for optimal solvent recovery.

Overview of Systems

Flow rate / Free Air Displacemant m^3/h @50Hz	Ultimate Pressure mbar	Manual Vacuum Control	Standard Two Point Vacuum Control	Ecoflex Vacuum Control	Economic Vacuum Control	Welch Model	Number of Unregulated Connections	Number of Manual Regulated Connections	Number of Controller Regulated Connections	With Dial Vacuum Gauge	With Digital VCZ 521Controller	With LED VCZ 424 Controller	Ordering Information 230V, 50/60Hz, 1Ph
1.2	2			x		LVS 105 T-10 ef			1		x		114184
1.0	8	x				LVS 101Z w/ gauge		1		x			115027
↓	↓		x			LVS 110Z			1		x		115024
2.0	2	x				LVS 201T		1					115037
↓	↓	x				LVS 201T w/ gauge		1		x			115037-10
↓	↓		x			LVS 210 T			1		x		115034
2.2	2			x		LVS 210 T ef			1		x		115234
2.3	8					LVS 300 Z	1						115041
↓	↓	x				LVS 301Z		1					115047
↓	↓	x				LVS 301Z w/ gauge		1		x			115047-10
↓	↓	x				LVS 302 Z		2					115043
↓	↓		x			LVS 310 Z			1		x		115044
↓	↓	x	x			LVS 311Z		1	1		x		115045
↓	↓		x			LVS 320 Z			2			x	115046
2.6	8			x		LVS 310 Z ef			1		x		115244
4.5	2					LVS 600 T	1						115051
↓	↓	x				LVS 601T		1					115057
↓	↓	x				LVS 601T w/ gauge		1		x			115057-10
↓	↓	x				LVS 602 T		2					115053
↓	↓		x			LVS 610 T			1		x		115054
↓	↓	x	x			LVS 611T		1	1		x		115055
↓	↓		x			LVS 620 T			2			x	115056
4.9	2			x		LVS 610 T ef			1		x		115254
8.3	2		x			LVS 1210T			1		x		115064
9.1	2			x		LVS 1210T ef			1		x		115264
Netvac LVS Systems													
2.3	8				x	LVS 310 Z en			1		x		115248-02
4.5	2				x	LVS 610 T en			1		x		115258-02

Every LVS system is supplied with a Chemical Duty Diaphragm Pump and a DN 8 hose connector. Some configurations also come with a vacuum control package and capture solvent recovery system depending on your needs. Comes pre-assembled and ready to use.

Connection Types

Manual Regulated Connections

Controller Regulated Connections

With Dial Vacuum Gauge

With a Digital Vacuum Controller

Simultaneous operation of two independent vacuum processes

Comments Vacuum Control

Manual

- Vacuum is adjusted by user turning the regulator

Standard Two Point Control

- Vacuum is automatically controlled at set point using on/off solenoid valve

Ecoflex

- Pump speed is automatically varied to control vacuum

Economic

- Pump automatically turns on/off based on demand for vacuum

Technical Data

WELCH Formerly ILMVAC
by Gardner Denver

Final pressure <8 mbar	LVS 101Z w/ gauge	LVS 110 Z	LVS 300 Z	LVS 301Z	LVS 301Z w/ gauge	LVS 302 Z	LVS 310 Z	LVS 311 Z	LVS 320 Z (424)
Parameter									
Free Air Displacement, m³/h @ 50Hz	1,0	1,0	2,3	2,3	2,3	2,3	2,3	2,3	2,3
Free Air Displacement, l/min	16,7	16,7	38	38	38	38	38	38	38
Ultimate pressure, mbar	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Intake/Exhaust connection	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8
Sound level	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44
Dimensions(W/D/H), mm	360/310 /445	360/310 /445	360/310 /395	360/310 /445	360/310 /445	360/310/ 445	360/310 445	360/310 /445	360/310 /445
Weight, kg	11,60	11,70	16,1	16,30	16,30	16,3	17,8	18,1	18,4
Ordering Information									
230V 50/60Hz	115027	115024	115041	115047	115047-10	115043	115044	115045	115046
115V50/60Hz	115027-01	115024-01	115041-01	115047-01	115047-11	115043-01	115044-01	115045-01	115046-01

Final pressure <2 mbar	LVS 201T	LVS 201T w/gauge	LVS 210 T	LVS 600 T	LVS 601T	LVS 601T w/gauge	LVS 602 T	LVS 610 T	LVS 611T	LVS 620 T (424)	LVS 1210 T
Parameter											
Free Air Displacement, m³/h @ 50Hz	1,8	1,8	1,8	4,5	4,5	4,5	4,5	4,5	4,5	4,5	8,3
Free Air Displacement, l/min	33	33	33	75	75	75	75	75	75	75	138
Ultimate pressure, mbar	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Intake/Exhaust connection	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8
Sound level	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44	< 44
Dimensions(W/D/H), mm	360/310 /445	360/310 /445	360/310 /445	360/310 /395	360/310/ 445	360/310 /445	360/310 /445	360/310 /445	360/310 /445	360/310 /445	540/310 /445
Weight, kg	15,0	15,3	15,7	23,2	23,50	23,50	23,5	24,7	25,0	25,3	36,1
Ordering Information											
230V 50/60Hz	115037	115037-10	115034	115051	115057	115057-10	115053	115054	115055	115056	115064
115V50/60Hz	115037-01	115037-11	115034-01	115051-01	115057-01	115057-11	115053-01	115054-01	115055-01	115056-01	115064-01

Ecoflex	LVS 310 Z ef	LVS 105 T - 10 ef	LVS 210 T ef	LVS 610 T ef	LVS 1210 T ef
Parameter					
Free Air Displacement, m³/h @ 50Hz	2,6	1,2	2,2	4,9	9,1
Free Air Displacement, l/min	43	20	36	81	151
Ultimate pressure, mbar	< 8	< 2	< 2	< 2	< 2
Intake/Exhaust connection	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8	Hose nozzle DN8
Sound level	< 44	< 44	< 44	< 44	< 44
Dimensions(W/D/H), mm	360/310/445	250/260/435	360/310/445	360/310/445	540/310/445
Weight, kg	19,9	9,5	19,0	26,8	37,1
Ordering Information					
90...260VAC	-	114184	-	-	-
230V 50/60Hz	115244	-	115234	115254	115264
115V50/60Hz	115244-01	-	115234-01	115254-01	-

Accessories & Configurations

700183-11

828857-18

828839

620637-01

Glassware

CAT. No.	Accessories	for
700183-08	Exhaust condenser complete	all LVS models
700183-11	Exhaust condenser complete	LVS 105 T - 10 ef
828857-18	Drain	all LVS condensor, with hose nozzle DN 10, with KS 35
828839	Receiving flask coated, 500ml	

Software Connection Kit

- For connection of PC to digital controller in LVS systems
- Kit includes CD with software and RS232 connection cable
- CAT. No. 620637-01

112575

828310-4

700300-02

Rotary Evaporator Kit

- Quick and easy connection to rotary evaporators
- Kit includes 2m vacuum hose, cooling water hose and clamps
- CAT. No. 112575

Vacuum Hose

- Red rubber vacuum hose, 8mm ID, 5mm wall thickness
- CAT.No. 828310-4

Water Valve

- 2 way water flow valve for the demand-responsive cooling water supply.
- Input: G 3/4 inch sleevenut,
- output: hose nozzle for hose inside diameters 8 mm
- CAT. No. 700300-02

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