

Dry Vacuum Pump [LR/HR/UR Series]

ULVAC's unique approach to utilize the generated heat from within the dry pump body allows the LR/HR/UR series to perform even in the most stringent processes. ULVAC has focused the design efforts into maintaining an extremely uniform high temperature throughout all pump stages making this series pump optimal for CVD and Etch applications.

ULVAC's ECO-SHOCK can be added to the LR/HR/UR pump for additional energy savings of up to 70% for any light processes including pumping air or nitrogen.



LR180

LR90

LR60

Features

- ▶ Low Temperature Pumps
The LR Series pump is designed for either Load Lock or PVD processes.
- ▶ ULVAC's Unique Aluminum Design Allows for Very Uniform Temperature Distribution Throughout the Pump Body.
The HR Series pump is designed for CVD and Etch processes.
- ▶ The ULVAC UR Series Pump is Designed for Applications That Require a Heated Pump, Heated Gas Lines, and/or Heated Exhaust Lines.
- ▶ Excellent Helium Pumping Capability
Canned motor for safety and ease of maintenance.
- ▶ Power Failure Protection
Pump withstands power interruptions of up to 1000msec duration.
- ▶ Superior Corrosion Resistance
Internal components are specially treated providing a high degree of surface hardness and corrosion resistance. This in turn prevents wear and corrosion of internal pump parts when exposed to corrosive gasses.

- ▶ Communication Function
Pump data including warnings and alarms are able to be exported. Extensive pump control is available.
- ▶ CE marking is Available
CE marking is available upon request.

Applications

- ▶ Pump is designed for CVD or Etching applications
- ▶ Pump is designed for PVD, Evaporation, or Heat Treatment processes
- ▶ Reduction of exhaust time for LL chamber (LR series)
- ▶ Pump is designed to handle process gasses that generate powder by products such as Si Crystal growing furnaces
- ▶ Backing pump for turbo-molecular pumps and mechanical booster pumps

Dry Vacuum Pump [LR/HR/UR Series]

Specifications

Model		LR/HR60	LR/HR90	LR180	LR421	LR421-T	UR421-T	LR/HR300	LR/HR600	→	
Pump	DRP	LR/HR60	LR/HR90	LR180	LR421	LR421-T	UR421-T	LR/HR60	LR/HR90	→	
	MBP							PRC-003A	PRC-006A	→	
Max. pumping speed	m ³ /h	50Hz	62	112	183	440	410	359	653	→	
		60Hz	80	126	237			365	701	→	
	L/min	50Hz	1030	1860	3100	7333	6833	5980	10900	→	
		60Hz	1333	2100	3950			6080	11700	→	
	CFM	50Hz	36	66	108	259	242	211	384	→	
60Hz		47	74	139	215			413	→		
Ultimate pressure	Pa	5.0						6.7×10 ⁻¹		→	
	Torr	3.7×10 ⁻²						5.0×10 ⁻³		→	
	mbar	5.0×10 ⁻²						6.7×10 ⁻³		→	
Max. inlet pressure	Pa	Atmospheric pressure *									
Max. exhaust pressure	Pa	1.0 to Atmospheric pressure									
	Torr	7.5×10 ⁻³ to Atmospheric pressure									
	mbar	1.0×10 ⁻² to Atmospheric pressure									
Inlet diameter (type CE)		VG50 (KF40)	VG80 (KF50)		VG100			VG80 (KF80)		→	
Outlet diameter			KF40		VG50			KF40		→	
DRP: Rotor blade surface treatment											
MBP: Rotor blade surface treatment		○									
Weight	kg	180	245	335	415			275	370	→	
Power	Three phase VAC (Hz)	200 (50/60) 220 (60)			180 to 240/380 to 440 (50/60)			200 (50/60) 220 (60)	220 (60)	→	
Current	At ultimate pressure	A	6.9/7.1	11.2	18.9	20.8	23.0	7.0/7.8	12.3/12.9	→	
	At max. load	A	7.0/7.3	11.8	20.6	48.5	52.5	9.6/8.1	19.0/13.8	→	
Cooling water	Supply pressure	MPa	0.1 to 0.3			0.2 to 0.5			0.1 to 0.3		→
		psi	14.5 to 43.5			29.0 to 72.5			14.5 to 43.5		→
	In/Out difference pressure	MPa	> 0.1			> 0.2			> 0.1		→
		psi	> 14.5			> 29.2			> 14.5		→
	Flow rate	L/min	> 5.0			> 4.0			> 5.0		→
N ₂ gas	Supply pressure	MPa	0.1 to 0.5			0.1 to 0.5					→
		psi	14.5 to 72.5			14.5 to 72.5					→
	Regulated pressure	MPa	0.05 to 0.1			0.05 to 0.1					→
N ₂ purge	Shaft purge	SLM	5			5					→
	Gas ballast	SLM	0 to 45			None *1	0 to 45	0 to 195	0 to 45	→	

* Please specify voltage at the time of ordering.

* LR pump designed for low operating temperature of the pump body. The HR is for high temperature pump body operation. While the UR series is for Ultra High pump body temperature.

* The HR300, HR600, HR1200, UR600, UR1200, UR1800 and UR3601-TT models should all be operated below 200Pa (1.5 Torr).

* The LR3601-R/TR/TTR allows improved exhaust speed performance at a high pressure.

* LR3601-R/TR/TTR is an improved high exhaust performance model in the high-pressure area.

Operation Mode

Dry Pump Operation Mode		1	2	3
N ₂ flow rate	SLM	0	5	5 to 50 *

* Please specify Pump Operation Mode.

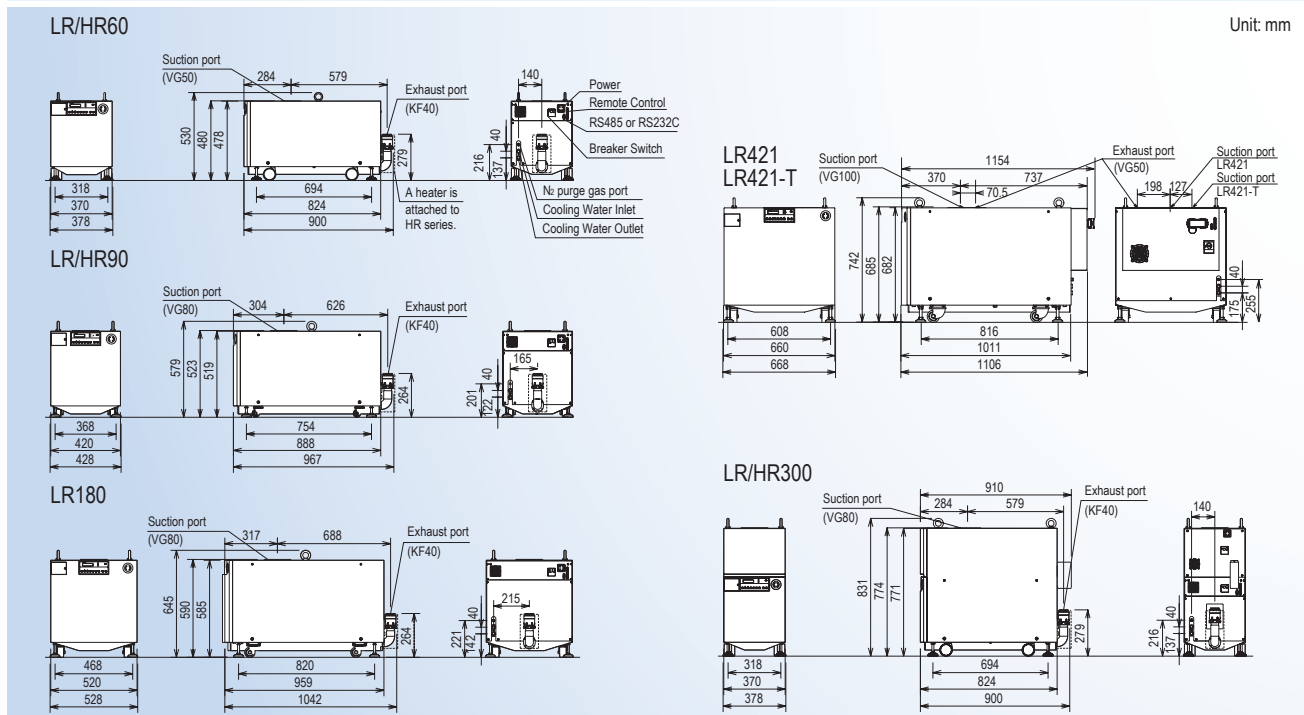
* Pump Operation Mode 3 is not available in these models.

* N₂ flow rate of UR3601-TT and UR421-T is 5 to 200SLM.

Silencer (Option)

Model	Material	Surface treatment	Weight (kg)	Flange Connection
RS-01	SUS304	GBB treatment	4.1	KF40
RS-02	SUS304	GBB treatment	8.3	KF40
RS-03	SUS304	Polished plate	12.5	KF50

Dimensions



Note: The pump flange needs to be supported.

Specifications

→	UR600	LR/HR1200	UR1200	LR1800	UR1800	LR3601	LR3601-T(TT)	LR3601-R*	LR3601-TR(TTR)* ^k	UR3601-TT
→	UR90	LR/HR90	UR90	LR180	UR180	LR421	LR421-T	LR421	LR421-T	UR421-T
→	PRC-006A	PRC-012A		PRC-018A		PRC-036C	PRC-036C(-T)	PRC-036D	PRC-036D (D-T)	PRC-036C-T
→	653	1012 1051	1012	1701 1784	1701		3200			2700
→	10883	16900 17500	16867	28350 29700	28350		53333			45000
→	384	596 618	596	1001 1048	1001		1883			1589
→							6.7×10^{-1}			
→							5.0×10^{-3}			
→							6.7×10^{-3}			
→							Atmospheric pressure *			
→							1.0 to Atmospheric pressure			
→							7.5×10^{-3} to Atmospheric pressure			
→							1.0×10^{-2} to Atmospheric pressure			
→	VG80 (KF80)	VG100 (KF100)		VG150 (KF100)				VG150		
→		KF 40						KF 50		
→	○	○*	○	○*	○	×	T:× TT:○	×	TR:× TTR:○	○
→	370	420		545		660	720	660	720	
→		200 (50/60) 220 (60)						180 to 240/380 to 440 (50/60)		
→	16.4	13.7/15.4	18.9	21.4	29.2	31.0		35.4		39.8
→	17.3	24.2/18.9	22.4	39.8	34.9	58.4		82.0		68.3
→			0.1 to 0.3					0.2 to 0.5		
→			14.5 to 43.5					29.2 to 72.5		
→			> 0.1					> 0.2		
→			> 14.5					> 29.2		
→			> 5.0					> 4.0		> 5.0
→							0.1 to 0.5			
→							14.5 to 72.5			
→							0.05 to 0.1			
→							7.3 to 14.5			
→							5			
→		0 to 45		0 to 195		None * 1	0 to 45	None * 1	0 to 45	0 to 195

* ○ = with × = with out

* MBP of LR300, LR600, LR1200, and LR1800 can choose the existence of a surface treatment.

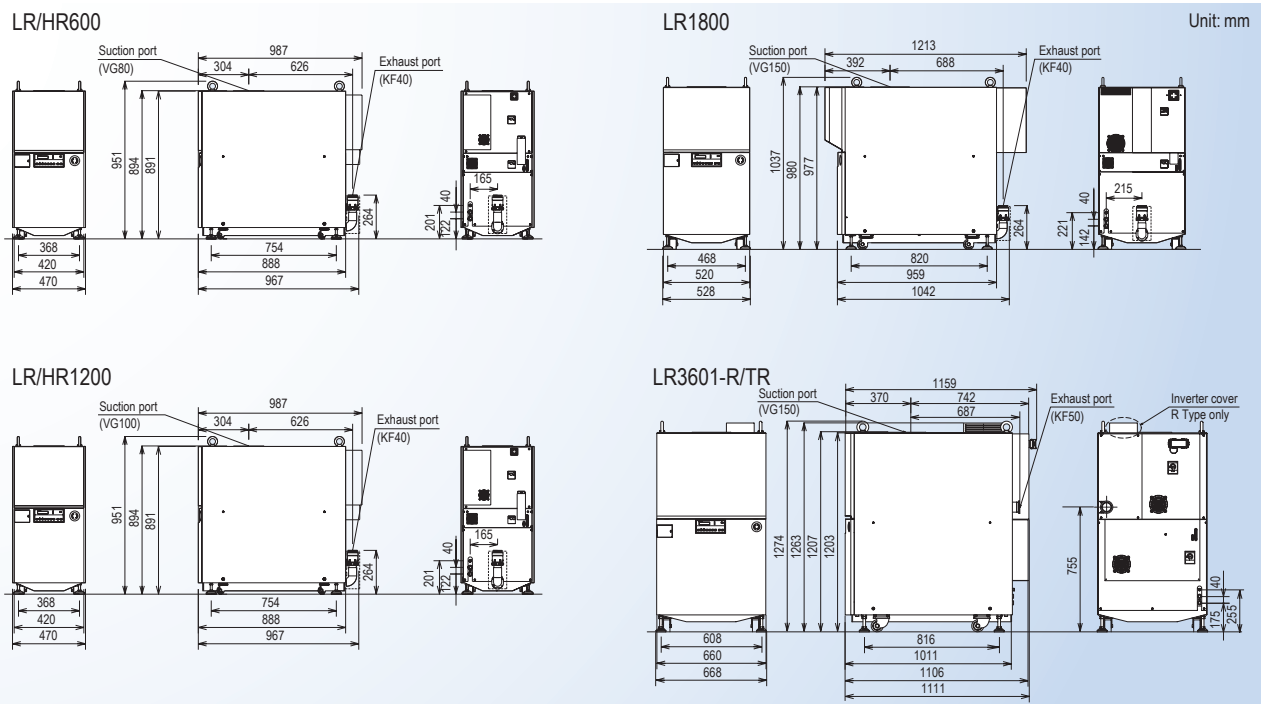
* Additionally, a pump with gasballast use is possible to quote. Please contact us for the selection and quotation.

Acceptable Table

Kit type	Agreement	Clamp	Outer ring	Connection Flange	Stay
RS-01 Kit A	LR60,LR90,LR300	1	1	—	—
RS-01 Kit B	LR600,LR1200	2	2	1	1
RS-02 Kit A	LR180(LR60,LR90,LR300)	2	2	1	1
RS-02 Kit B	LR1800(LR600,LR1200)	2	2	1	1
RS-03 Kit A	LR421(-T)	1	1	1	1
RS-03 Kit B	LR3601(-T/TT/R/TR/TTR)	3	3	1	1



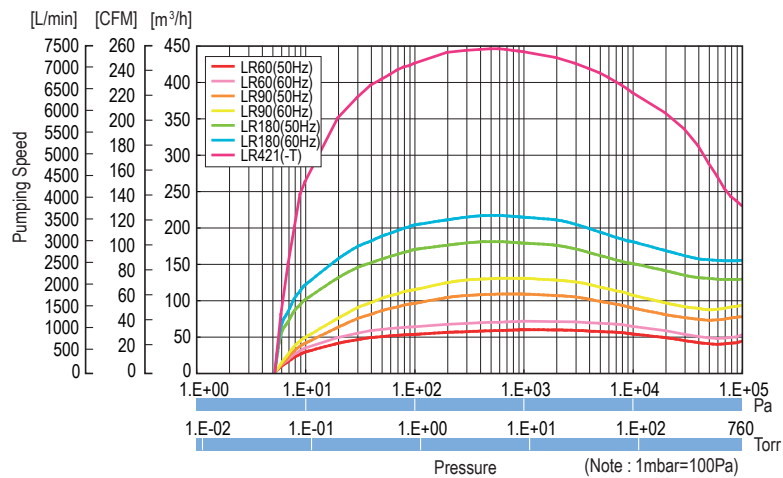
Dimensions



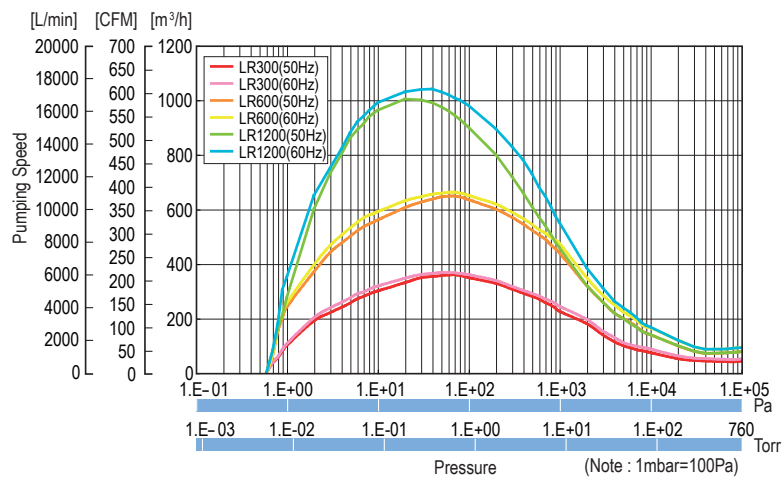
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Pumping Speed Curves

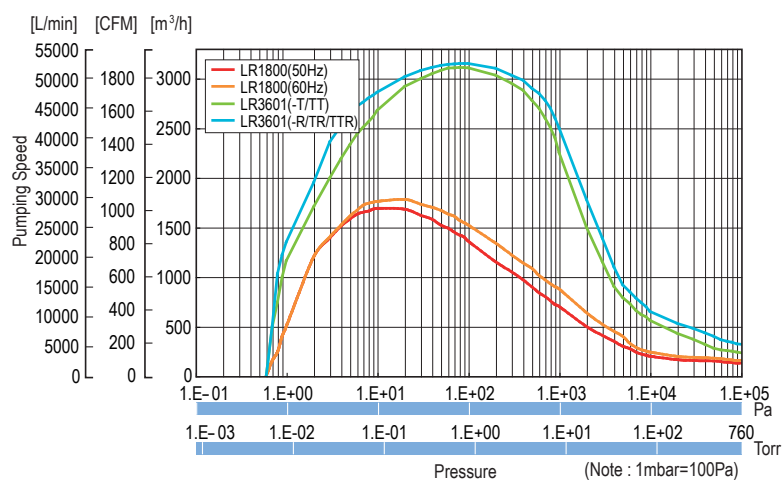
▶ LR60, 90, 180, 421



▶ LR300, 600, 1200



▶ LR1800, 3601



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