

Power Saving Accessory for Dry Pumps [ECO-SHOCK ES4A]

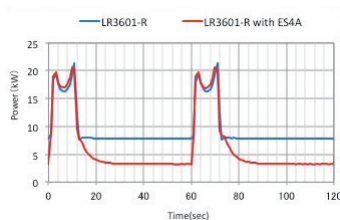
ECO-SHOCK is a revolutionary dry pump accessory that can reduce power consumption by attaching to the dry pump exhaust line.

ES4A is optimal model for the power saving and reduction of dry pump for the frequently air exhaust of Load/Unload chamber or for back pump of turbo-molecular pump which takes long time to reach to the ultimate pressure.



Features

- ▶ **ECO-SHOCK contributes to energy saving**
The power consumption of the dry pump can be reduced substantially. (Ex.) Max. 59% of power reduction at ultimate pressure running and 34% of power reduction at repeatedly chamber gas exhausting. (Ratio of our company's LR3601-R) *1 *2 *3



As the effect which suppresses the heat generation of the dry pump, it can reduce the electric power of the air-conditioning equipment too.

- ▶ **Excellent results when used with a multi-stage root type dry pump. *4**
Very effective when dry pump runs lower than 1000Pa.
- ▶ **No reduction in pumping speed at all pressure range**
ECO-SHOCK doesn't depend on dry pump revolving-speed-control, for that there is no degradation of the exhaust speed.
- ▶ **Easy installation**
Easy installation by attaching a valve unit to the exhaust pipe. *5 *6

Application

- ▶ **Countermeasure for dry pump power saving**
Power saving of dry pumps that is used in frequently exhaust such as Load / Unload chambers.

Power saving of dry pumps where is using a big amount sealing gas.

Power saving of dry pumps that the exhaust velocity is high at atmospheric pressure. (Example) Equivalent to ULVAC's model LR180,LR421,LR3600,LR3601,LR3601-R

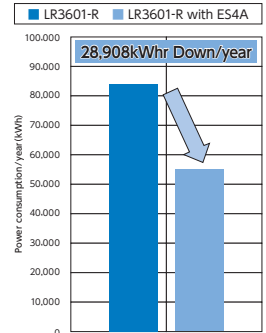
- *1 Measure example of 300L chamber repeatedly air exhaust in the tact of 60 seconds.
- *2 Not capable to use in applications such as flammable, burn ability and toxic gas exhausts or for solid/fluid suction.
- *3 Power reduction ratio depends on the attachment model and the conditions of use.
- *4 Dry pump which exhaust port can operate with no problem under vacuum is applicable. Do not install to the dry pump which exhaust port can not operate under vacuum.
- *5 The installation method differ on the dry pump model type and structure. (A modification is required with LR3600,LR3601 (-R) pump to mount ECO-SHOCK)
- *6 Modification could be required prior to installation of the ECO-SHOCK. Contact your nearest ULVAC service center for installation.

Patent is registered (China,Japan,Korea,Singapore,Taiwan)

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Effects

ULVAC pump model		LR1800	LR3601-R
Pumping speed *7	Mechanical booster pump	1784m ³ /hr (29700L/min)	3200m ³ /hr (53333L/min)
	Dry pump	237m ³ /hr (3950L/min)	440m ³ /hr (7333L/min)
Average power consumption *8 *9	At ultimate pressure	Without ES4A	6.0kW
		With ES4A	2.7kW
		Power save	55%
	At repeatable pumping *10	Without ES4A	7.2kW
		With ES4A	5.7kW
		Power save	21%



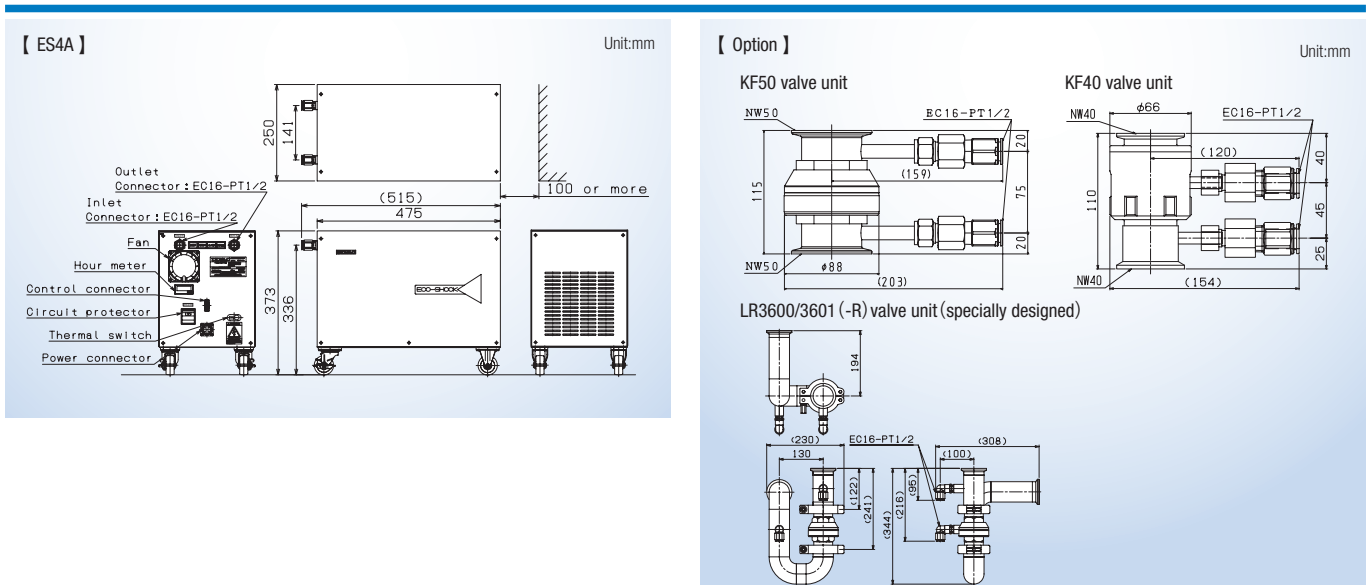
*7 At 60Hz power *8 At Seal Gas 5SLM *9 Include ES4A Power

*10 Measure example of 300L chamber repeatedly air exhaust in the tact of 60 seconds.

Specifications

Model	ES4A	
Power	Requirements	AC200 ~ 220V±5% 50/60Hz 1phase
	Consumption	400W (Maximum)
Control system	Input	Remote activation / stop (Electrical energize DC 24V wet contact.) Prepare the dry contact of equal to or more than 2.0 A contact-ratings. *Pin jumper connection is required to operate the manual Start/Stop by circuit protector.
	Output	① Activation checker ② Energy saving checker ③ Main unit alarm ④ Over-current alarm
	Display	Display Running time, Output signal status ① to ④
Connection port	φ16mm tube connector *Recommend for tubing length of 1.5m less	
Dimensions	250mm×475mm×373mm	
Weight	32kg	
Standard accessories	Power connector, Control connector, Connection tube 3m 1pc, Manual	
Option	KF40 valve unit	
	KF50 valve unit	
	LR3600/3601 (-R) valve unit (specially designed)	
	Vibration control brackets	

Dimensions



ULVAC, Inc. Components Division

www.ulvac.co.jp/en

Overseas Sales in Japan TEL +81-467-89-2261

USA : ULVAC Technologies, Inc. TEL +1-978-686-7550
 GERMANY : ULVAC GmbH TEL +49-89-960909-0
 CHINA : ULVAC (SHANGHAI) Trading Co.,Ltd. TEL (86)21-6127-6610
 TAIWAN : ULVAC TAIWAN, Inc. TEL +886-3-579-5688
 KOREA : ULVAC KOREA, Ltd. TEL +82-31-683-2922
 SINGAPORE : ULVAC SINGAPORE PTE LTD TEL +65-6542-2700

PHILIPPINES : ULVAC SINGAPORE PTE LTD Philippines Branch TEL +63-46-437-7700
 VIETNAM : ULVAC SINGAPORE PTE LTD Vietnam Representative Office TEL +84-8-6255-6762
 INDONESIA : ULVAC SINGAPORE PTE LTD Indonesia Representative Office TEL +62-21-8990-5070
 THAILAND : ULVAC (THAILAND) LTD TEL +66-2-7388883
 MALAYSIA : ULVAC MALAYSIA SDN. BHD. TEL +60-3-5121-4700
 INDIA : ULVAC, Inc., India Branch TEL +91-40-27007006

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