

# **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.

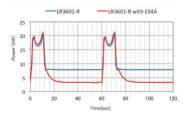


### Features

### ➤ 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 reduces 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)





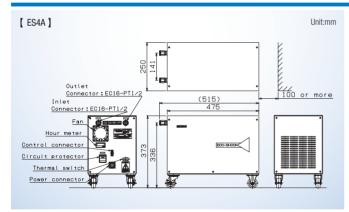
# **Power Saving Accessory for Dry Pumps [ECO-SHOCK ES4A]**

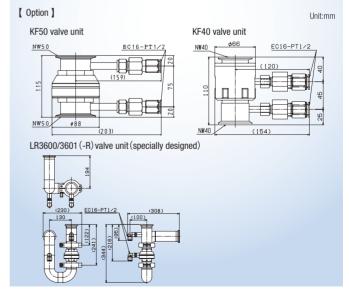
#### **Effects ULVAC** pump model LR1800 LR3601-R ■ LR3601-R ■ LR3601-R with ES4A 3200m3/hr (53333L/min) Pumping speed \*7 Mechanical booster pump 1784m3/hr (29700L/min) 28,908kWhr Down/yea speed Dry pump 237m3/hr (3950L/min) 440m<sup>3</sup>/hr (7333L/min) Without ES4A 6.0kW 7.8kW At ultimate Average power consumption pressure With ES4A 2.7kW 3.2kW \*8 \*9 Power save 55% 59% Without ES4A 7.2kW 9.6kW At repeatable \*10 pumping With ES4A 5.7kW 6.3kW Power save 21% 34% \*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

Openinations		
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	①Activation checker ②Energy saving checker ③Main unit alarm ④Over-current alarm
	Display	Display Running time, Output signal status ①to④
Connection port		$\phi$ 16mm 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**

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