
SILENCER for DRY VACUUM PUMP

ULVAC

MODEL *RS-01, RS-02, RS-03*

<p>Before using this product, be sure to read this operation manual. Keep this manual with care to use at any time.</p>

INSTRUCTION MANUAL

**Components Division,
ULVAC, Inc.**

<http://www.ulvac.co.jp/>

Before Using This Product

This instruction manual provides methods for proper handling and maintenance of products. This instruction manual includes important information to avoid potential hazards. It is essential to understand specification and maintenance procedure described in this manual.

Before using this product, a general safety-training course that qualifies the safety standard set by government is required.

Also, operators must have special knowledge, skill and license for mechanics, cargo handling and vacuum.

The contents of this manual are subject to change for the improvement of the product, change in specification and revision of manual.

Revised manual will have a new document number assigned, which appears on the top right corner of the document.

Any modification on the product by customers is out of the scope of guarantee therefore ULVAC is not liable in any manner.

For any question, refer to the ULVAC website, or contact your closest sales office or agency.

For Safety Use

This Product is maintenance free, No other works except for connecting and disconnecting are required. Overhaul or repair work is performed by ULVAC. If any trouble occurs, refer to the ULVAC website, or contact your closest sales office or agency.

- This product is designed for installation on dry pump LR series. Please consult for installation on other models.
 - This product is designed for usage in inert gas environment (Air, N₂, Ar).
 - Please avoid exposure to toxic gas, combustible gas, corrosive gas, and explosive gas.
 - Use this product in ventilated indoor room.
 - This product is designed based on laws and regulations applicable at the time this manual is issued. It does not guarantee any changes in laws and regulations in the future.
 - If the equipment in which this product is installed to does not comply with the same laws and regulations, or if this product is modified, the performance and safety of this product cannot be supported. ULVAC shall not be liable in such cases.
 - Personnel who has not received formal safety training (e.g. cargo handling, etc) that is legally approved must not operate this product. Operator must have finished safety training course.
 - Installation and operation of this product must be performed accordingly to the applicable local safety codes and laws (e.g. fire protection law, etc).
 - Before installing or removing this product, make sure that the pump has stopped.
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Safety Denotation

For this manual and for warning denotation of LR series models, technical terms are defined according to the hazardous levels, which workers must understand and follow the rules.

Articles attached with these denotations, describe countermeasures for potential hazards.



DANGER

: Failure to comply with this instruction may result in the possibility of impending death or serious personal injury.



WARNING




: Failure to comply with this instruction may result in the possible death or serious personal injury.



CAUTION

: Failure to comply with this instruction may result in the possibility of a medium degree of personal injury or serious damage to the equipment.

The method for the evasion of danger according to the work item is shown. And the dangerous action, which should not be done, is shown.

 WARNING	
Earthquake Resistant Measures	<ul style="list-style-type: none">● To provide earthquake resistance, the pump should be tightly fixed according to the diagram below. If it is loosely installed, then the pump could topple or move and will produce damages for peripheral devices.● Connected piping should be constructed so that they can absorb vibration and should not produce damages on piping or run off within defined vibration level.
 WARNING	
Silencer and accessory (installation and detaching)	<ul style="list-style-type: none">● Before start work, ensure that all hazardous energies are shut off.● Remove the piping according to the manual provided for the host equipment.● In the pumping operation, after it stops, this product and the accessory are very high temperatures for a while. Detach it after it becomes it at the normal temperature.● Seal up connected entrance completely with the blank flange etc. after detaching this product.● When gases other than the inert gas are exhausted with this product, it is necessary to confirm the gas used before it detaches it. And, please work after securing safety.
 WARNING	
Silencer (main body)	<ul style="list-style-type: none">● This product is not a resisting pressure structure. Especially, please do not drive the pump when there is something that becomes an obstruction of the gas on the exhaust entrance side. Please note that the inner pressure of the silencer goes up, and there is danger of exploding.● This product is required to be installed in the LR series. It doesn't assume the responsibility to use other than this purpose at all. Please consult separately when you install it in another model.● In the handling of the heavy load, please defend general notes concerning safety.● Handle it politely when you unpack packing. Do not drop and add the high impact.● Install, and handle it politely when detaching it. Do not drop and add the high impact.● Please do not damage O ring seat side. It causes Leake.● The gas, which can be exhausted with this product, it provides for inert gas (Air, N2, Ar). Do not exhaust other gases (toxicity gas, combustion gas, corrosion gas, and explosiveness gas).● Set up this product in the ventilated indoor room.● Please send attachment Certificate of Contamination it when it is sent back by our company.

1. Kind and explanation of warning label displayed in this product

The warning label is installed in this product. Please confirm it before using.



When the pump is driven, the silencer surface temperature becomes a high temperature. There is danger of the burn by the adventitious contact. In the pumping operation, after it stops, this product and the accessory are very high temperatures for a while Please do not touch. after it stops Please work after confirming the normal temperature fall.



Do not run the Pump on blocking the Exhaust outlet or putting any device that might hamper gas passage onto the outlet. Inner pressure rises and the silencer might explode.

2. Environmental Requirements for Installation

Following installation and storage requirements should be met.

Storage and installation requirements

Description	Requirement
Temperature and humidity (for storage)	- 30 - 60° C, less than 95%RH
Temperature and humidity (for operation)	5 - 40° C, less than 95%RH
Altitude (Above sea level)	Not exceeding 1000m
Exterior vibration	Not exceeding 0.5G

3. Installation method

Install to the exhaust side of a dry pump. It must be positioned so that direction of each plaque (warning label) corresponds to the flow of the gas, as mentioned in the figure 1.

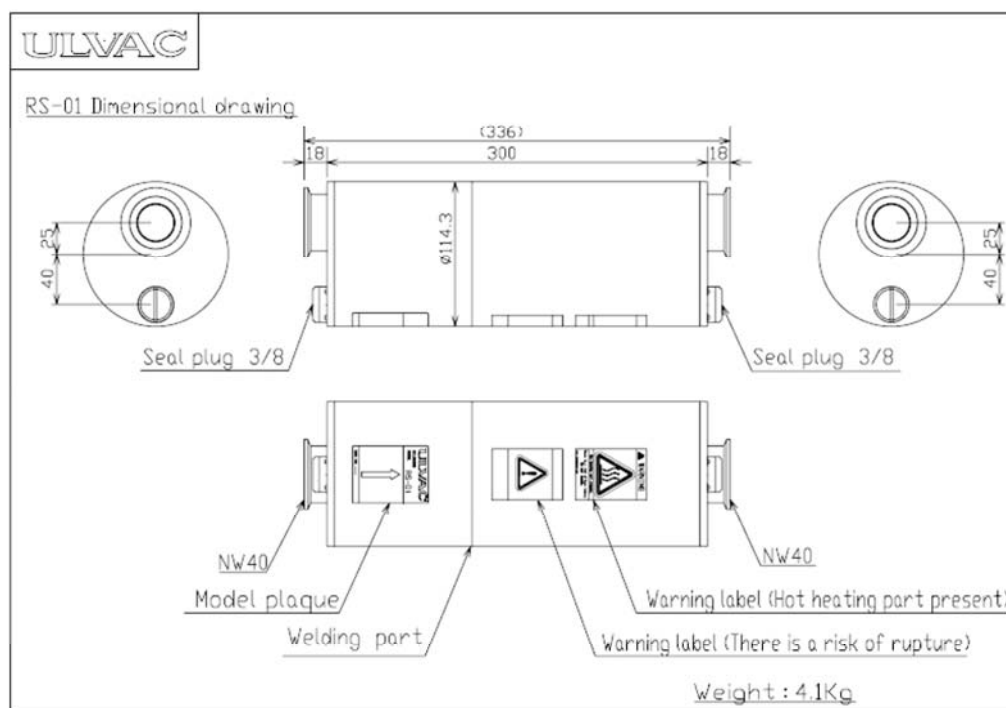


Fig1. RS-01 Dimensional drawing
(LR60, LR90, LR300, LR600, LR1200)

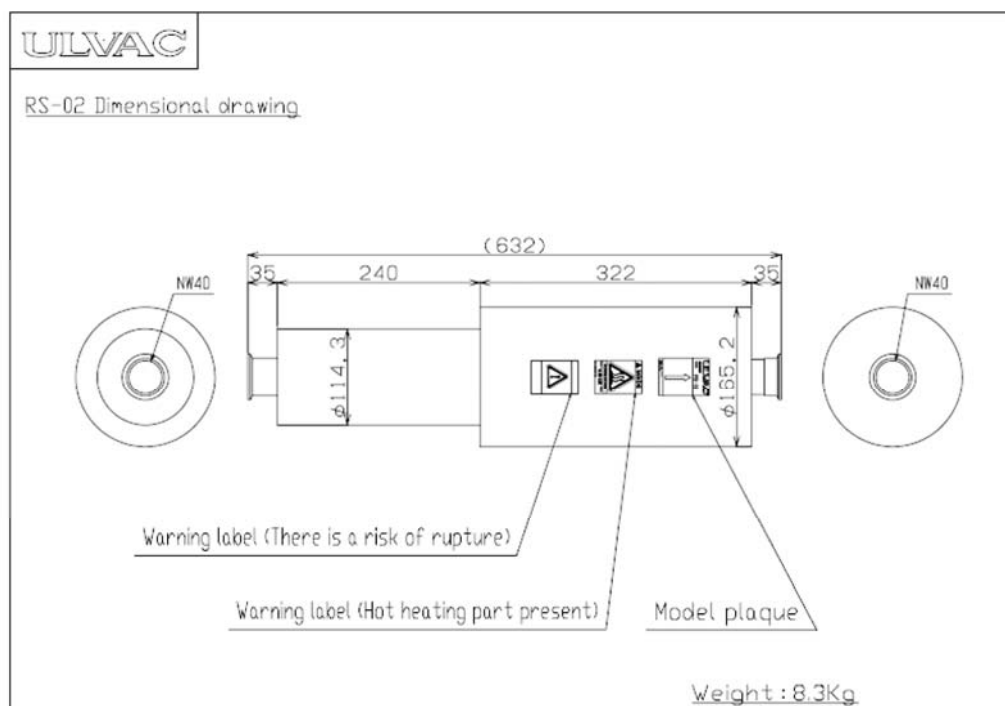


Fig2. RS-02 Dimensional drawing
(LR180, LR1800)

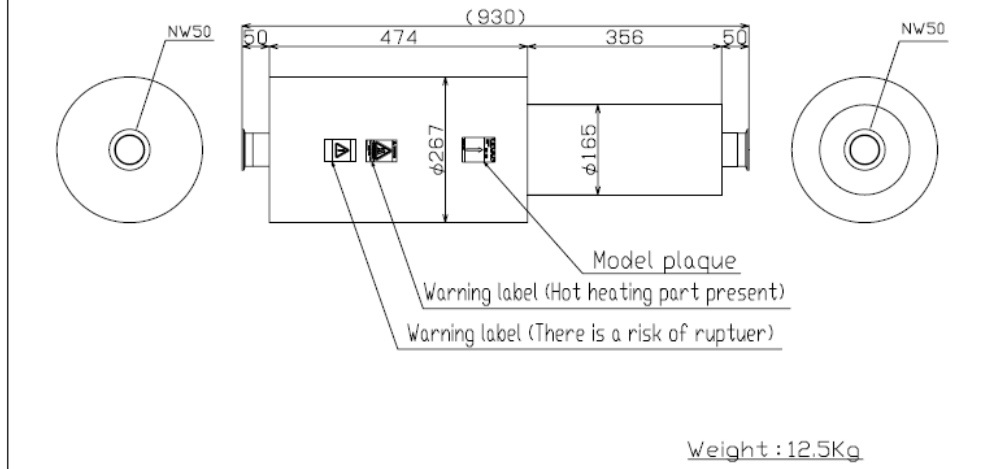


Fig3. RS-03 Dimensional drawing
(LR421、LR421-T、LR3601、LR3601-R)

4. Product Warranty

This product is shipped after careful inspection at ULVAC. However, in case of any failure under ULVAC's responsibility, such as defect in manufacturing and damage during transportation (depending on shipping term and the applicable contract), customers shall inform ULVAC, Inc. or the local ULVAC representatives. ULVAC will repair or exchange it at free of charge.

- 4.1 Subject of warranty 1) Silencer for dry pump RS-01、02、03
- 4.2 Warranty term 1) Domestic business in Japan: one year after shipping date from ULVAC.
2) Direct export transaction: one year after date of B/L
- 4.3 Warranty scope 1) Domestic business in Japan: Damaged product during delivery. Product that does not satisfy the standard specifications under conditions described in this document such as temperature range, power etc.
2) Direct export transaction: Damaged product during delivery (depending on shipping term and the applicable contract). The warranty scope shall follow INCOTERMS2000. Product that does not satisfy the standard specifications under conditions described in this document such as temperature range, power etc.
- 4.4 Procedure 1) Domestic business in Japan: ULVAC will send a replacement, or customers return the defective items to ULVAC, Inc. or to the local ULVAC representatives for repair. If field service is required, customers shall ask ULVAC, Inc. or the local ULVAC representatives.
2) Direct export transaction: ULVAC will send a replacement or customers return the defective items to ULVAC, Inc. or to the local ULVAC representatives for repair. Any cost for return shall be discussed separately.
- 4.5 Indemnification 1) Failure occurred after expiration of warranty period
2) Failure caused by force majeure, such as fire, storm, flood, earthquake, lightning strike, war etc.
3) Failure occurred due to operational error or faulty usage.
4) Products remodeled, disassembled or repaired without ULVAC's provision.
5) Failure occurred under abnormal environment, such as intense electromagnetic field, radiation, high-temperature, high-humidity, presence of flammable gases, corrosive gases, dust etc.
6) Failure caused by noise.
7) Product deficiency or secondary patent violation occurred to customers, from suit to ULVAC by third party for patent infringement.
8) The reason of the failure deemed unsatisfying the specified usage condition by ULVAC technical staff.
9) Consumable parts
- 4.6 Others 1) In case, special agreement or memorandum for specifications is made individually.
2) Customers shall inform ULVAC when this product is exported out of Japan. Customers shall take necessary procedures according to Foreign Exchange and Foreign Trade Law.
3) For questions customers shall check the model and serial number and consult the local representative or ULVAC, Inc.
<http://www.ulvac.co.jp/eng/support/index.html>
4) The contents of this document are subject to change without notice in future.

ULVAC Components Certificate of Contamination

This is a request from ULVAC for the customers to certify safe condition of ULVAC components returned. Before sending in the component for repair or inspection, please fill all the details below and sign at the bottom, and then submit this document to your closest service station or sales office.

For any components exposed to harmful substances, please consult with your local ULVAC service station or sales office prior to filling in this form.

To ULVAC, Inc.

Model :

Serial No. :

Application :

Repair/inspection requested _____

Trouble symptom _____

Note _____

Contact person(of ULVAC):_____

Date:

Contaminant (please check the applicable box.)

☐ I guarantee that this component is not contaminated with harmful substances.

☐ This component is contaminated with the following harmful substances.

	Name of contaminant (molecular formula)	Characteristics	Check
1			<input type="checkbox"/> Harmful <input type="checkbox"/> Harmless
2			<input type="checkbox"/> Harmful <input type="checkbox"/> Harmless
3			<input type="checkbox"/> Harmful <input type="checkbox"/> Harmless
4			<input type="checkbox"/> Harmful <input type="checkbox"/> Harmless
5			<input type="checkbox"/> Harmful <input type="checkbox"/> Harmless

Name

Division

Name of organization

Phone

Fax

E-mail

Please pack the product carefully before shipment. The shipper (user) shall be liable for damages caused by contaminant during transportation to ULVAC. ULVAC may decline to repair the product depending on the substance contained or the degree of contamination.

To be filled in by ULVAC	Received by	
Request for MSDS: Yes/No		
ULVAC job No.		