

RL-sizing

Online Help

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1 System Requirements

1.1 Operating System

WINDOWS 2000/XP/Vista

RL-sizing requires a Windows 2000, XP or Vista operating system.

1.2 Memory

256 MB RAM

The memory must provide a 256 MB of RAM.

1.3 Graphics Card

The graphics card must be set for a resolution of at least 800 x 600 pixels.

1.4 Software

RL-sizing is supported by Java Runtime from version 1.6

Results documents are produced in Acrobat Reader from version 6.0.

2 Terms of Usage

Terms of Usage for the RL-sizing software are supplied free of charge by Parker-Origa GmbH.

2.1 General

In the absence of any other special agreements, the use of the RL-sizing software is governed exclusively by these Terms of Usage. By installing, passing on or using this software, the user (customer) acknowledges his understanding and acceptance of these Terms of Usage. The user license is terminated automatically if the Terms of Usage are not observed.

To use the RL-sizing software the user will need a Windows 2000, XP or Vista operating system, 256MB RAM, Java Runtime 1.6 and Adobe Acrobat Reader 6.0. The user hereby agrees to receive product information and operating instructions from the licensor. The RL-sizing software is designed to provide the user with information on individual products from the licensor. Accurate data input remains the sole responsibility of the user. The result from the RL-sizing software constitutes a non-binding suggestion from the licensor and does not replace individual technical consultation.

2.2 User Rights

The licensor supplies the RL-sizing software to the user free of charge as a support tool for sizing its pneumatic linear drives. The licensor grants the user a non-exclusive, simple license to use the software. Copying or passing on to third parties, in whatever manner or for whatever reason, is only permissible with the prior agreement of the licensor. The user undertakes to use the RL-sizing software in compliance with relevant current legislation. The RL-sizing software remains the intellectual property of Parker Hannifin Corp. and is protected by copyright. All rights, especially copyright and other industrial property rights, remain the property of the licensor.

2.3 Guarantee/Liability

The licensor is responsible for the fitness for purpose of the licensed RL-sizing software. It must function without significant technical faults. The user shall inform the licensor of any technical faults that arise if they are the result of technical software errors or incorrect handling of the programming tasks. When requested, the user must provide the licensor with all information and documentation required for removal of the fault.

The licensor shall not be liable to the user or to third parties, either directly or indirectly, for consequential damage such as loss of profits, operational delays or damage to other software caused by the RL-sizing software. The licensor shall also not be liable for the compatibility of the software with the hardware used by the user or for damage arising from incorrect use, input of incorrect data, changes, modification of the RL-sizing software or hardware faults. If the user uses additional software not supplied by the licensor, the licensor shall not be liable for correct functioning of the RL-sizing software nor for resulting faults or damage. The licensor shall be liable, regardless of the legal reason, only for damage caused intentionally or by gross negligence, or for which the licensor has compulsory liability under the Product Liability legislation. Liability for compensation is limited to the damages usually arising in comparable cases. Liability for data loss is limited to the typical costs of replacing the data assuming that security copies were made regularly at intervals appropriate to the circumstances.

The licensor shall not be responsible for the RL-sizing software producing specific results. This also applies to the usability of the RL-sizing software for the agreed purpose or any other purpose. The risk of economically viable usability lies with the user.

The claims of the user expire 12 months after supply of the software.

The licensor has the right to change or add to the Terms of Usage and/or the RL-sizing software at any time. Further development, modification or adaptation of the software is not agreed or guaranteed.

2.4 Final Conditions

The Terms of Usage are governed exclusively by the laws of the Federal Republic of Germany. The regulations of the UN Convention on Contracts for the International Sale of Goods (CISG) are expressly excluded. The court of jurisdiction is, insofar as this is legally permissible, Stuttgart.

If one or more of the clauses of these Terms of Usage become ineffective, illegal or impracticable, the validity of the rest of the Terms of Usage is not affected. Such an ineffective, illegal or impracticable clause shall be replaced by a new clause that shall come as close as possible to achieving the purpose of the original ineffective, illegal or impracticable clause.

The Terms of Usage are translated into various languages for international customers. Only the German and English versions of the Terms of Usage are legally binding.

3 Operation

3.1 General

The RL-sizing software assists users with the sizing of Parker Origa pneumatic linear drives. Once the parameters for a planned application have been input, the program suggests a selection of drives.

Starting the program opens the RL-sizing user interface.

The following navigation fields are displayed:

- "Main selection" - installation position and options (with/without brake, seals, corrosion-resistant version, position of the air connection, integrated valves etc.)
- "Input data" - moving mass and/or direct force or calculation with external guide
- "Project data" – user data and description of calculation

If the user then undertakes a calculation, the program generates a list of possible drives in the "Selection" area.

Finally the calculation can be saved as a file with the extension .rlsi, and technical documentation and a parts list can be produced in PDF format.

3.2 Program Startup

RL-sizing can be started from the CD or can be installed first and then started from the PC.

3.2.1 CD

The user must perform the following steps to carry out a calculation with RL-sizing without installing the software:

- Insert the CD.
- The CD starts automatically.
- Follow the instructions.

3.2.2 Installation

The user must perform the following steps after installing the software to carry out a calculation with RL-sizing:

- Programs → RL-sizing → rl-sizing.bat / Double-click on rl-sizing.bat.
- The program is started.
- (On first start-up only) Read the Terms of Usage carefully.
- Click the "Accept" button to open the RL-sizing user interface
Click the "Decline" button to close RL-sizing

Note: To make start-up more convenient, create a shortcut on the Desktop. You can then launch the RL-sizing program straight from there.

3.3 Menu Bar

3.3.1 File

Menu: → File → New calculation

To reset all parameters in the user interfaces.

Menu: → File → Load calculation

To access a previously saved calculation file. (.rlsi file).

Menu: → File → Save calculation

To save the file at the specified path with the existing file name.

Menu: → File → Save calculation as...

To save the file, entering a different path and/or a different file name.

Menu: → File → Print calculation

To create a PDF file with the technical data of the calculation for printing or saving.

Menu: → File → Exit

To close the program.

3.3.2 Language

Menu: → Language → ...

To select the language (e.g. German or English).

3.3.3 Help

Menu: → Help → Online help

To access the online help.

Menu: → Help → Info

To display general information on the RL-sizing program.

Menu: → Help → Terms of usage

To display the general Terms of Usage for the RL-sizing program.

3.4 Navigation Fields

3.4.1 Main Selection



3.4.1.1 Installation Position

The "Main selection" navigation field allows the user to determine the installation position and the location of the carriage.

Carriage

The mass to be moved is mounted on the carriage. The carriage travels along the profile. A distinction is made in the "Installation position" input field between horizontal and vertical motion tasks. Horizontal movements are also differentiated by the location of the carriage, which is dictated by the installation conditions. The mass to be moved can be mounted on the top, side or underside.

Installation position: horizontal, carriage on top



Installation position: horizontal, carriage on the side



Installation position: horizontal, carriage on the underside



Installation position: vertical



3.4.1.2 Options

Information: The selection made under "Main selection" in the "Installation position" and "Options" input fields is saved until this is changed. These values are also not altered by changes to the input data and project data navigation fields.

The user has the following options in the "Options" input field:

He can choose between standard seals (deactivated)

Options

☐ With Viton seals

and VITON seals (for aggressive media and temperatures > 80°C).

Options

☒ With Viton seals

Depending on the operating conditions, the user can also choose between the standard version of a drive or a corrosion-resistant design:

Select the standard version with standard galvanized-steel screws (deactivated)

Options

☐ With Viton seals

☐ Stainless steel version


and the corrosion-resistant version with corrosion-resistant screws and with a guide with a corrosion-resistant guide rail.

Options

☐ With Viton seals

☒ Stainless steel version

Depending on the application, the user can select a standard drive with no brake, with an active brake (brake function during pressurization) or with a passive brake (brake function during loss of pressure). The selection can be made from the drop-down menu:



A drop-down menu with a downward arrow icon. The menu is open, showing three options: "No brake" (highlighted in blue), "Active brake", and "Passive brake".

The air connections can also be selected in the "Options" input field from the number of options that are available:

Standard air connection = with an air connection in each left and right end cap.

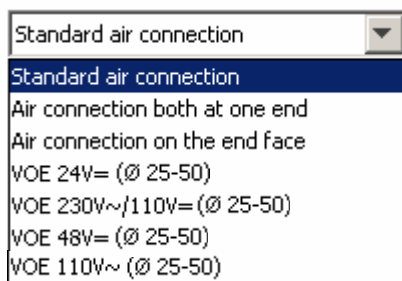
Air connection both at one end = two air connections on one end cap.

Air connection on the end face = with an air connection on the end face in each left and right end cap.

VOE = Valve Open Electrical - this involves operating 3/2 directional control valves integrated into the end cap that

can be selected with various operating voltages.

The selection can be made from the drop-down menu:



3.4.2 Input Data

Main selection

Input data

Project data

3.4.2.1 Loads

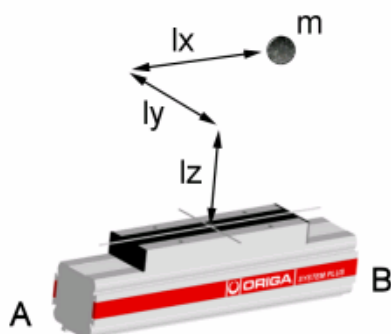
The user specifies the effect of mass and/or force in the Loads input field.

The user can fit an external guide, if required.

Mass

The mass to be moved and its distance from the carriage must be specified by the user. The length of the lever arms l_x , l_y and l_z are determined relative to the central mounting point on the carriage.

Note: The external moving mass generates moments that are expressed as static or dynamic moments. Static moments are caused by gravity ($M = m * g * l$). The dynamic moments are calculated based on the deceleration of the carriage in the end position ($M = m * a * l$).

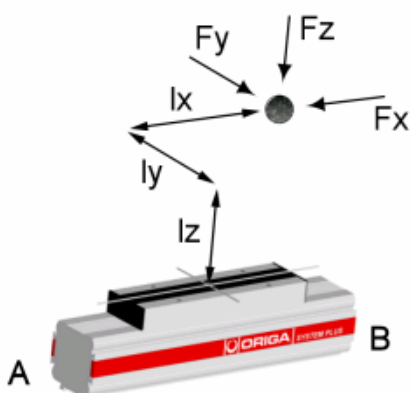


Force

If forces occur that can operate alone or in addition to the moving mass, they must be specified by the user. Forces in the F_x , F_y and F_z directions can be input.

The point of impact on which the force acts is determined by the length of lever arms l_x , l_y and l_z relative to the central mounting point on the carriage.

Note: Forces generate moments that are expressed as static moments. Static moments are caused by the force ($M = F \cdot l$).



External Guide

The user can fit an external guide to take up the moments and forces of the moving mass. The force F_{ext} ($m \cdot g \cdot \mu$) resulting from the movement is automatically calculated and taken into account by the program after the friction coefficient μ is input.

The point of impact on which the force F_{ext} acts is determined by the length of the lever arm l_z centrally to the mounting point on the carriage.

Note: The force F_{ext} generates a moment M_y , which is expressed as a static moment ($M_y = F_{ext} \cdot l_z$). The input fields for mass and force are no longer taken into account when the external guide field is activated.

If the user selects "external guide," the program suggests only the linear drive, not a combination of linear drive and guide.

☒ Calculation with external guide

Friction coefficient μ :

If this function remains deactivated,

☐ Calculation with external guide

RL-sizing calculates either all possible standard cylinders with no guide or, if with guide is selected in the Options input field (see section 3.4.2.2),

Options

☒ With guide

all possible combinations of linear drive and adapted guide by Parker Origa

Further inputs are required in the Loads input field, in addition to the details already referred to such as moving mass and/or forces and their lever arms, to calculate the pneumatic linear drive:

Stroke length: mm

Number of double strokes per hour:

Required time: s

Total hours of operation:

Working pressure: bar

The details of the stroke length and the required time are used to determine the final speed of the carriage in the end position. This value is used to calculate the decelerations that occur over the permissible energy of the end cushioning and to select the corresponding drives. If shock absorbers are used, the final speed is used to calculate the shock absorber.

The number of double strokes per hour and the total hours of operation are used to calculate the lifetime in km. The loads on the ORIGA cylinder are saved for a lifetime of 8000 km. No linear drive is shown in the selection screen for lifetimes over 8000 km. (Please consult our technical sales team on this issue.)

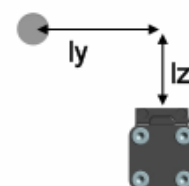
The movement force of the drive is expressed using the available working pressure.

3.4.2.2 Options

As well as selecting the drives with or without guide, the Options input field also lets you specify whether the carriage should be cushioned with shock absorbers in the end position. The Y and Z distances must be stated so that the loads on the carriage can be calculated. With the allocation non-adjustable or adjustable, the desired type of shock absorber can be selected.

Options

☐ With guide
☒ With shockabsorber Distance Y: mm Distance Z: mm
☒ Non-adjustable ☐ Adjustable
 Minimum load for cylinder or guide: %



A change to the minimum load for cylinder or guide offers the opportunity to reduce the selection of drives and to make it easier to understand. All linear drives that are possible for the applications are shown with a minimum load of 0%. The larger diameters of the linear drives are no longer shown with a larger minimum load.

3.4.2.3 Selection

When the user has input all the required data in the Loads and Options input field, clicking on the "Calculate" button generates a selection of drives.

Note: If parameters are then changed in the input field, the selection must be regenerated.

Selection

Calculate

All linear drives that are possible for the application are shown after the "Calculate" button is pressed. Example: Calculating only drives with no guide and without shock absorber. All possible linear drives are shown if the minimum load for cylinders is set to 0%.


Options

☐ With guide
☐ With shockabsorber

Minimum load for cylinder or guide: %

Selection

Cylinder	Guide	Guide type	Shockabsorber A	Shockabsorber B
OSP-P16-vD	-	-	-	-
OSP-P16-vD tandem	-	-	-	-
OSP-P25	-	-	-	-
OSP-P25 tandem	-	-	-	-
OSP-P32	-	-	-	-
OSP-P32 tandem	-	-	-	-
OSP-P40	-	-	-	-
OSP-P40 tandem	-	-	-	-
OSP-P40-vD	-	-	-	-
OSP-P40-vD tandem	-	-	-	-
OSP-P50	-	-	-	-

Drive load:  27%

All the possible linear drives can be shown by moving the scroll bar. Clicking on the desired drive shows its drive load with a bar and with the corresponding % value (example: OSP-P25 with 27% load).

The drive load for the drives can be increased if the number of possible drives is restricted. Example: minimum load for cylinder 10%

Options

☐ With guide
☐ With shockabsorber

Minimum load for cylinder or guide: %

Selection

Cylinder	Guide	Guide type	Shockabsorber A	Shockabsorber B
OSP-P16-vD	-	-	-	-
OSP-P16-vD tandem	-	-	-	-
OSP-P25	-	-	-	-
OSP-P25 tandem	-	-	-	-
OSP-P32	-	-	-	-

Drive load: 27%

The selection of the linear drives possible for the application is reduced; the drive load for the selected drive is shown with a bar and the % value.

We generally recommend a drive load of up to 70% maximum.

If the user selects shock absorber in the "Options" input field, this is included when the data input is calculated and, depending on the selection, shown with either a linear drive with no guide or with an adapted Parker Origa guide.

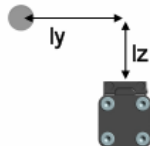
For example: calculating only drives with no guide but with shock absorber.

Clicking on the desired drive shows its drive load with a bar and with the corresponding % value. The shock absorber suitable for the diameter is also shown together with its drive load with a bar and the % value.

Options

☐ With guide
☒ With shockabsorber Distance Y: mm Distance Z: mm
☒ Non-adjustable ☐ Adjustable

Minimum load for cylinder or guide: %



Selection

Cylinder	Guide	Guide type	Shockabsorber A	Shockabsorber B
OSP-P16	-	-	SA10S2N	SA10S2N
OSP-P16 tandem	-	-	SA10S2N	SA10S2N
OSP-P25	-	-	SA14S	SA14S
OSP-P32	-	-	SA20x25	SA20x25

Drive load: 40%
Loadings shockabsorber side A: 68%
Loadings shockabsorber side B: 68%

A pdf document is generated that lists the selected linear drive with the relevant specifications and that also suggests a selection of required accessories.

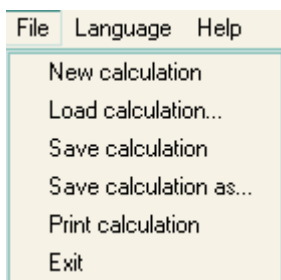
This document can be printed out from the project data navigation screen.

3.4.3 Project Data



In Project data, the user can input his contact information. The input field for the description of the planned application is very important. Here the application can be described and changes made in the course of the calculation process can be documented.

The technical data for the calculation can be accessed, checked and then printed or saved as a pdf document by selecting "Print calculation" under File on the menu bar. A pdf document is generated that lists the selected linear drive with the relevant specifications and that also suggests a selection of required accessories.



Note: To return to the program from a pdf document, the pdf file must be closed. In this way the user can avoid a situation where changes are made in parallel in the program but are not updated in the PDF document.