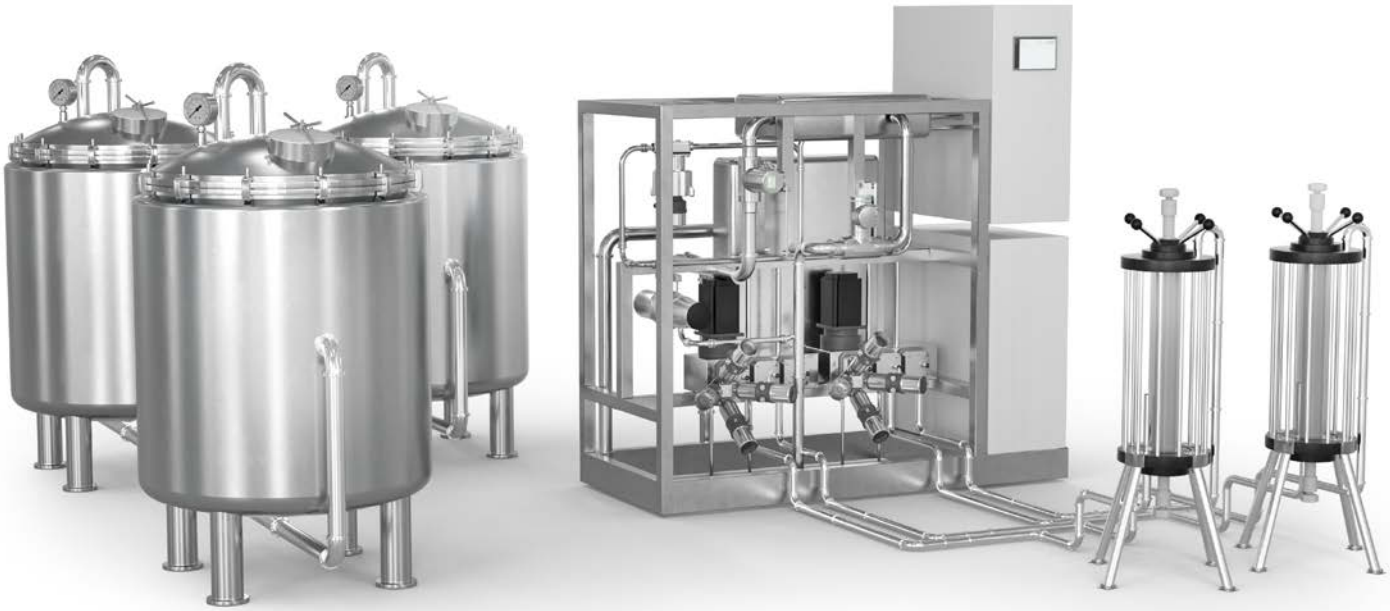


Media separation

Chromatography without mixing of media

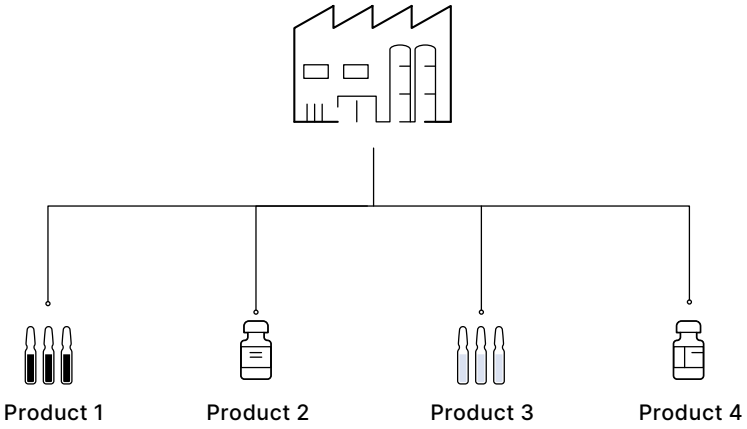
We make ideas flow.

bürkert
FLUID CONTROL SYSTEMS

Chromatography efficiency

The objective of the chromatography process is clear: At the end, the maximum amount of the sometimes extremely expensive end product shall be extracted. Mixing must be avoided at all costs. Therefore, you need a system that is easy to rinse and offers an absolute minimum of dead space. Since the demands on product quantity and quality are constantly increasing, plant availability and efficiency must be high. Valves with minimum dead space that accelerate the process and save time during repair and maintenance activities make a valuable contribution. Since time is money.

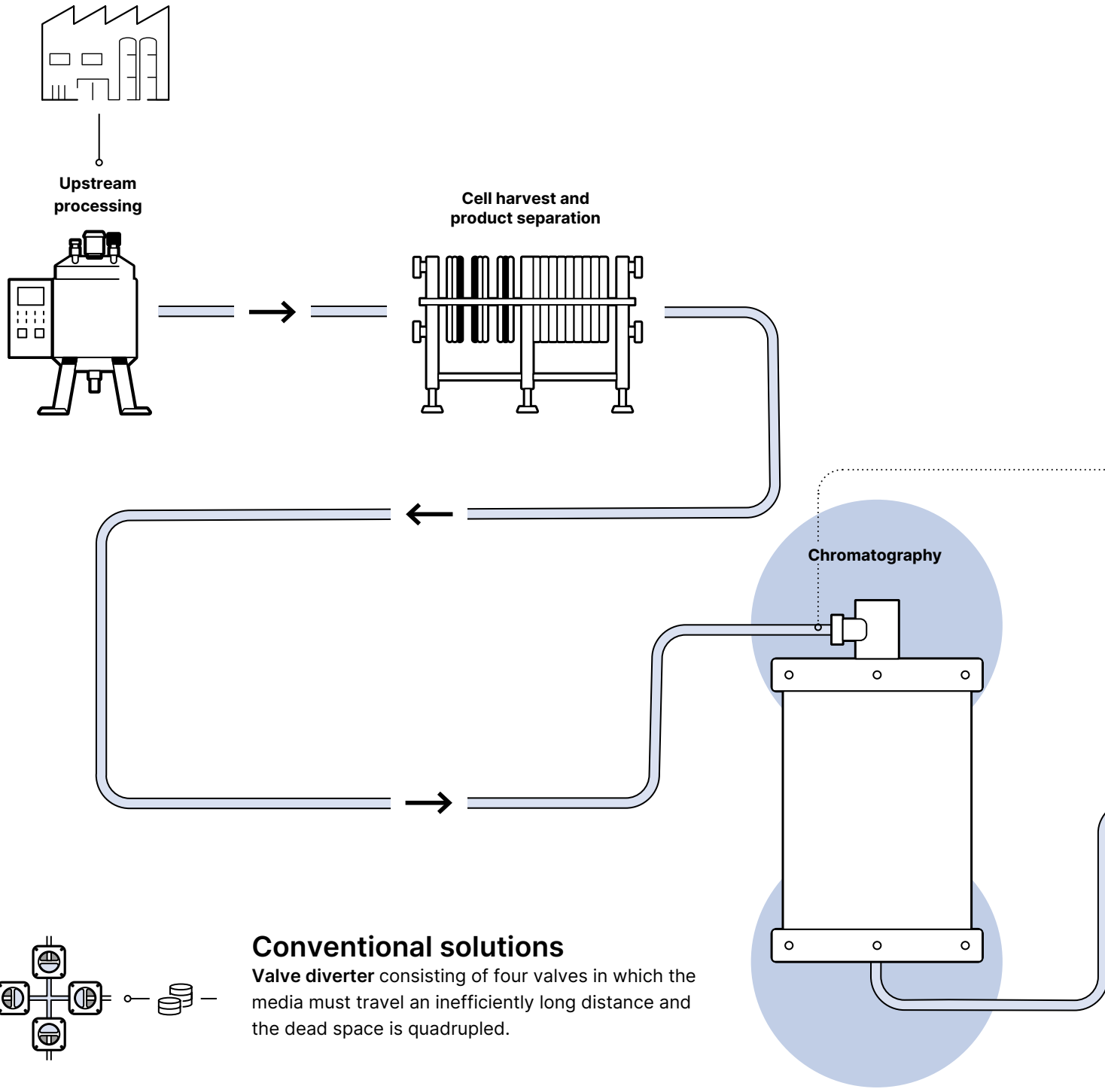
A biopharmaceutical company constantly produces high-quality end products – safely and cost efficiently. Avoiding the contamination or mixing of media is the top priority. The demands placed on fluidic systems and machines are correspondingly high.



Do you want to optimise your chromatography process and ensure the quality of the end product? Discover more on the following pages.

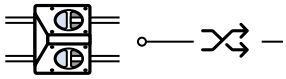
Precise media separation

Optimise key steps in the chromatography process with detailed solutions, thereby improving product quality and plant efficiency.



Conventional solutions

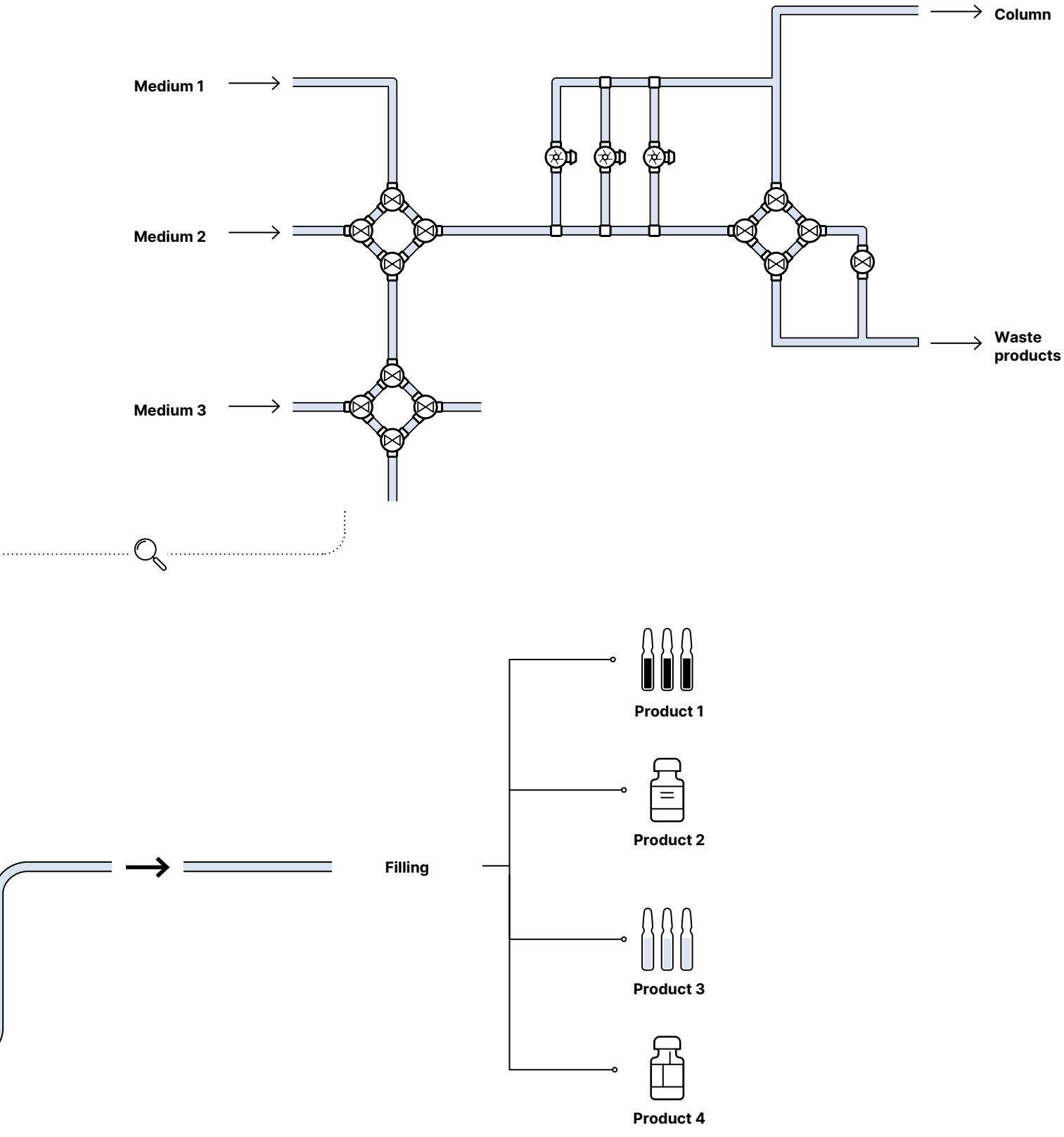
Valve diverter consisting of four valves in which the media must travel an inefficiently long distance and the dead space is quadrupled.



Block solution with two chambers in which media can mix.

The valves

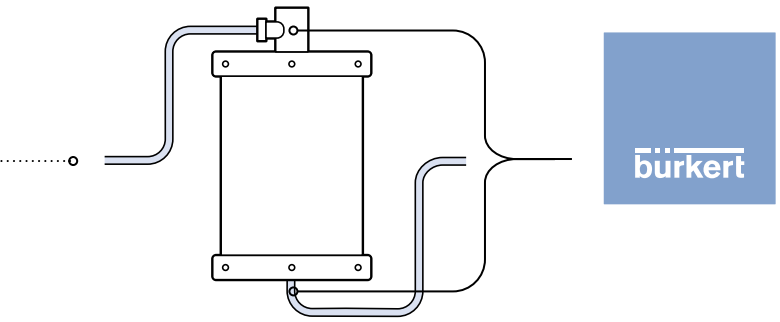
control and distribute the media into and out of the chromatography column – precisely and efficiently.



Media separation with Robolux

Designed for the control of ultra-pure, sterile and aseptic media, the Robolux Multiway Diaphragm Valve offers the ideal solution for chromatography. The special feature of the patented Robolux technology: The diaphragm actuates two valve seats at the same time. This avoids dead spaces, reduces the flow volume while saving time and money.

Robolux
Type 2036



Value added

Minimising contamination

Thanks to the Robolux's minimum dead volume and optimised fluidic design, the chromatography system can be cleaned quickly and without residue, even with aggressive CIP media. There is no mixing of media. This helps to prevent follow-up costs and contamination and ensures the quality of the end products.

Optimum use of production space

The extremely compact design provides operators with significantly more space, which speeds up maintenance and repair activities. By switching from conventional solutions to the compact Robolux, you increase your output and thus your plant efficiency – without the need for extra space.

Maximum extraction of the end product

In order for you to be able to extract the maximum possible amount of the sometimes extremely expensive end product at the end of the chromatography process, mixing must be prevented. You save money through the safe and efficient distribution, extraction and emptying of the columns.

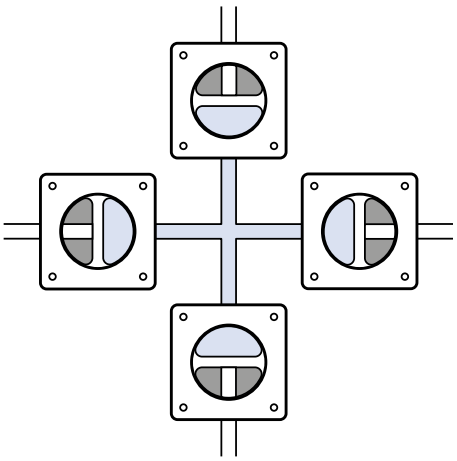
Reducing downtime

The faster you put the plant back into operation after maintenance, the more efficient your capacity utilisation will be. Since Robolux has two valve seats actuated by one diaphragm, routine diaphragm change takes only half as long as with, e.g., a conventional solution.

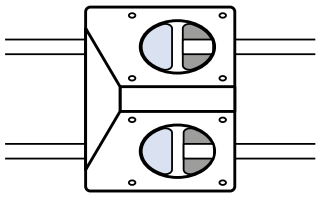
No dead space – no mixing

Be it product ingredients, solvents or cleaning agents: If substances remain unintentionally in the dead space of a valve, it leads to the mixing of media – and thus to consequential costs. By minimising the existing dead volume, you reduce the risk of product mixing and increase the process speed through shorter distances.

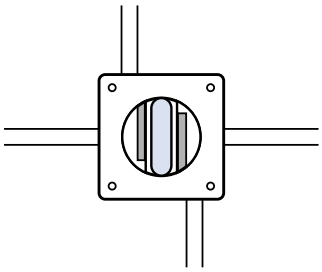
Conventional valve distributor



Conventional block solution

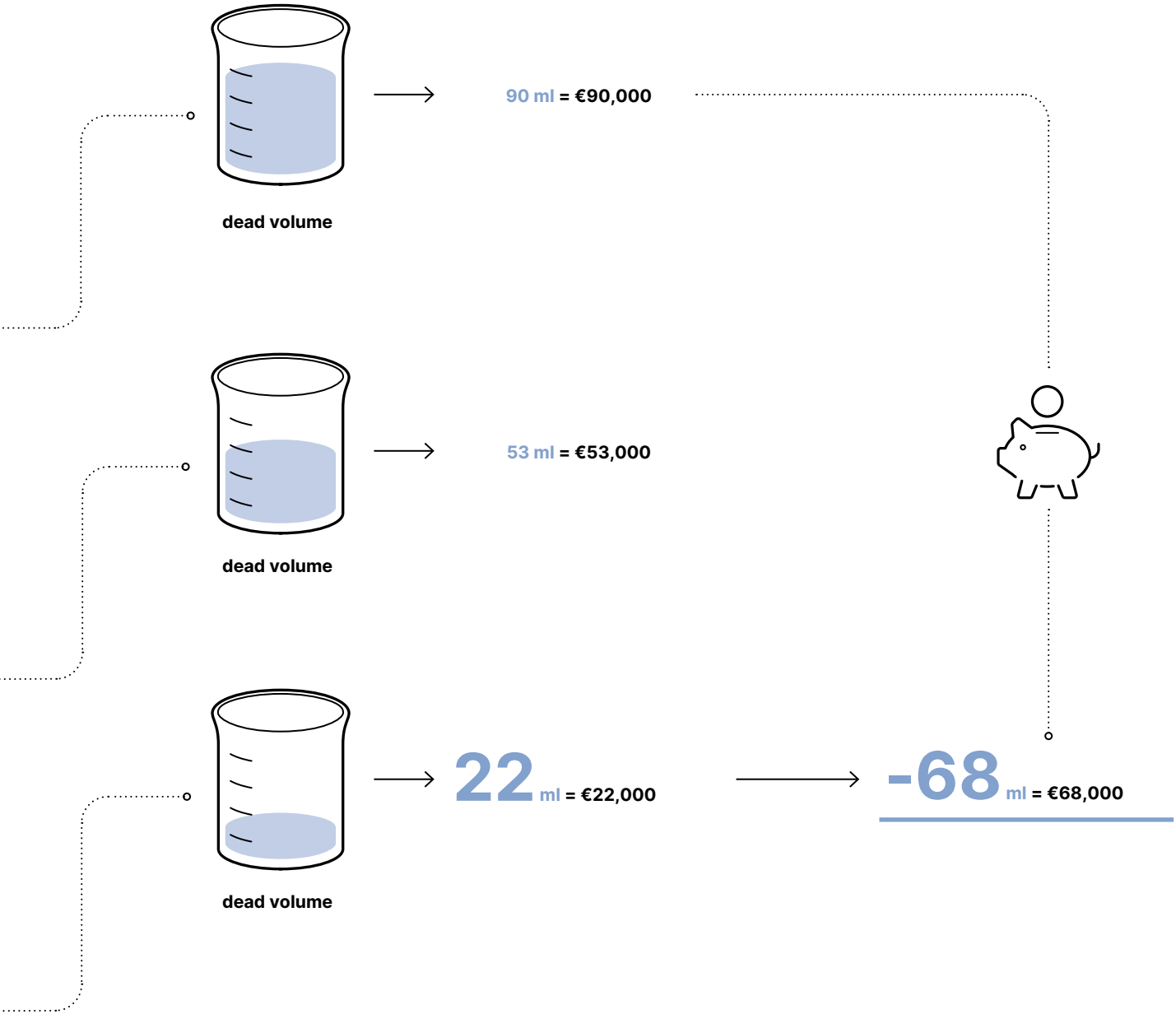


Bürkert Robolux



Example calculation

Three fluidic concepts result in three differently sized dead volumes. Your profit is based on the respective reduction of product mixing. The following example calculation shows potential savings using a fictitious value of €100,000 per 100 ml of the chromatography end product as an example.



Minimise downtime, increase availability

In contrast to conventional valve solutions with two diaphragms, Robolux works with only one diaphragm. This saves money on spare parts and time on replacement and maintenance activities.

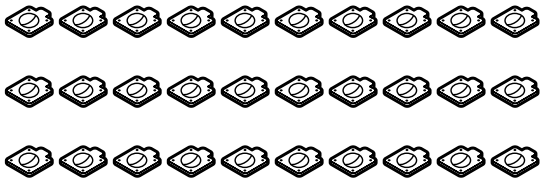
Robolux
Sectional model

Example calculation

There are many valves in a chromatography system, the diaphragms of which are usually replaced once a year. The following calculation illustrates the potential time savings when replacing a conventional solution with Robolux. In this example, we assume 30 valves in the chromatography sector for a conventional solution. With Robolux you only need 15 diaphragms.

Conventional solution

30 diaphragms

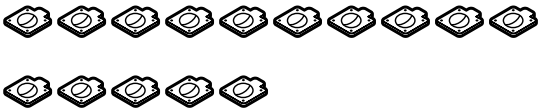


Administration	1 x	**9 min**
Logistics	1 x	**7 min**
Replacement	30 x	**990 min**
Quality & documentation	30 x	**360 min**
Total time required:		**1,366 min**

= almost 23 hours

Robolux

15 diaphragms



Administration	1 x	**9 min**
Logistics	1 x	**7 min**
Replacement	15 x	**495 min**
Quality & documentation	15 x	**180 min**
Total time required:		**961 min**

= almost 11.5 hours

Maintenance savings 11.5 hours = 1½ working days

Time required to replace 1 diaphragm	
Administration (select diaphragm and order, staff training)	9 min
Logistics (storage and retrieval)	7 min
Replacement (disassembly and assembly, setting accessories)	33 min
Quality & documentation (receiving inspection, evaluation and documentation of the diaphragm)	12 min
Total	**61 min**

07/2025

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