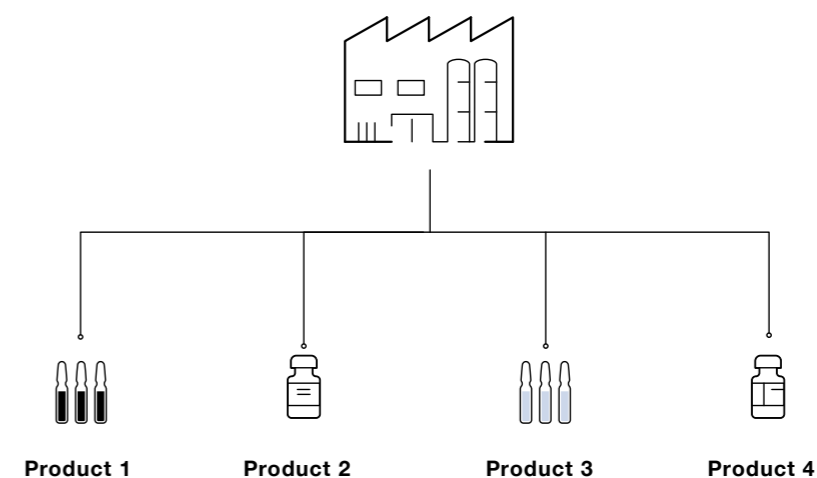




Chromatography without mixing of media

/ **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.

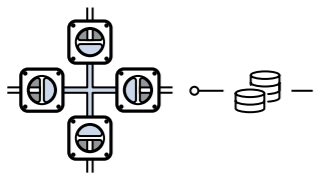
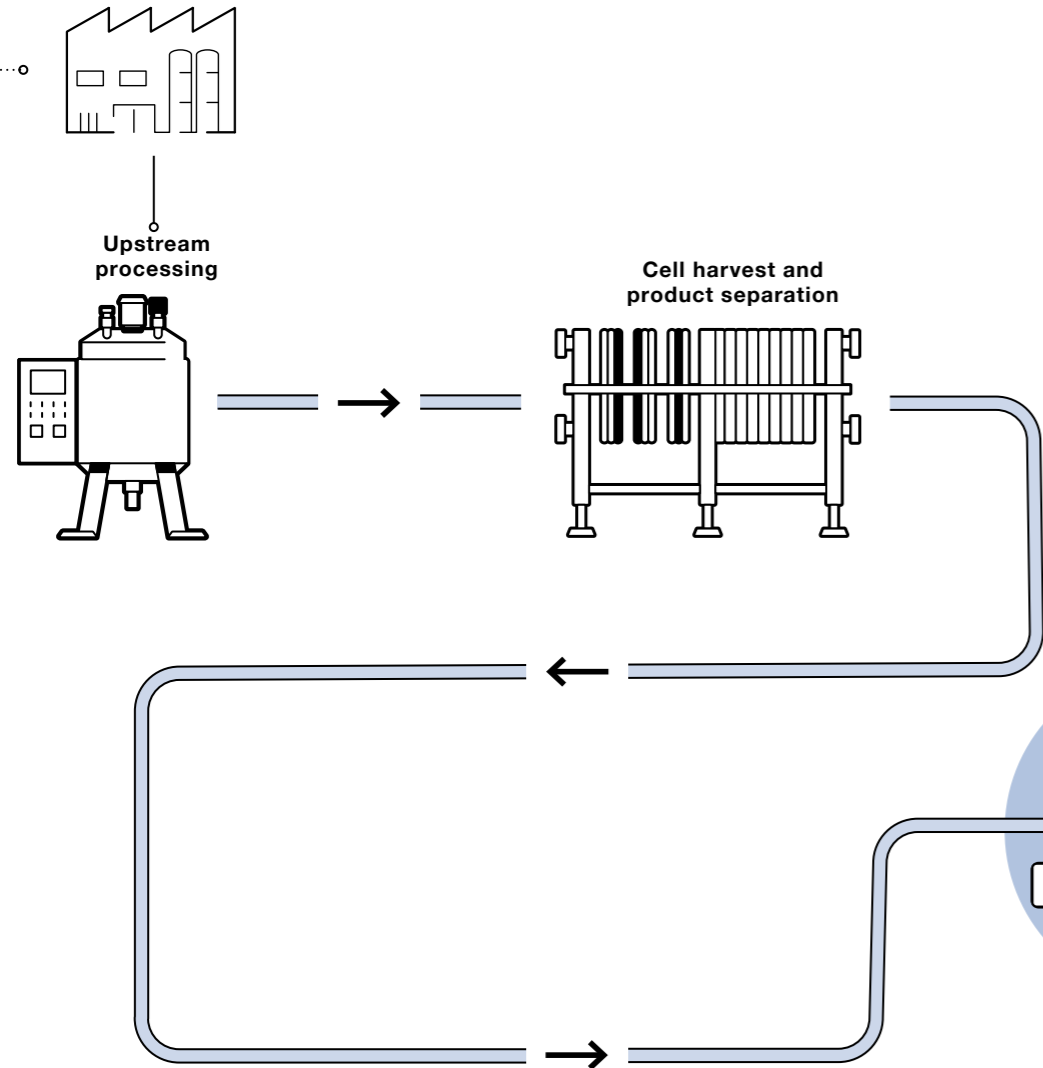
A **biopharmaceutical** company constantly produces high-quality end products – safely and cost efficiently. Avoiding the contamination or mixing of media is the top priority. The demands placed on fluidic systems and machines are correspondingly high.



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

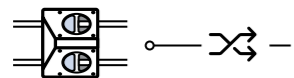
Media separation — Challenge

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



Conventional solutions

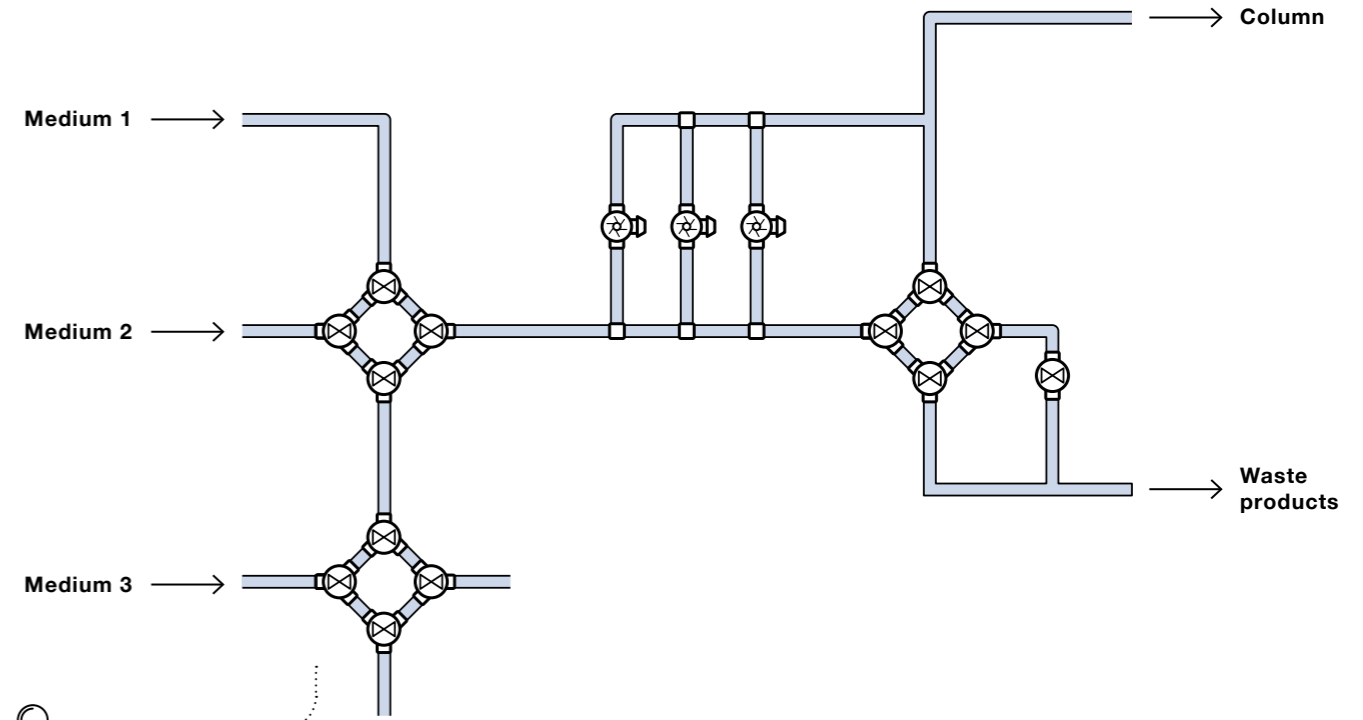
Valve diverter consisting of four valves in which the media must travel an inefficiently long distance and the dead space is quadrupled.



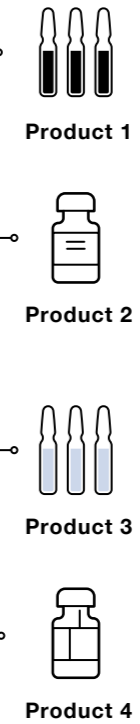
Block solution with two chambers in which media can mix.

The valves

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



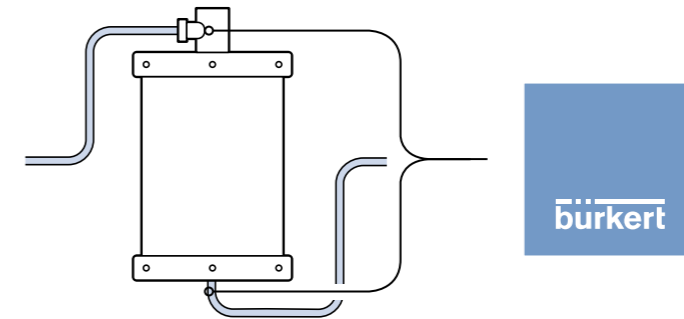
Filling



/ Media separation with Robolux / Designed for the control of ultra-pure, sterile and aseptic media, the Robolux Multi-way 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



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.

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.

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.

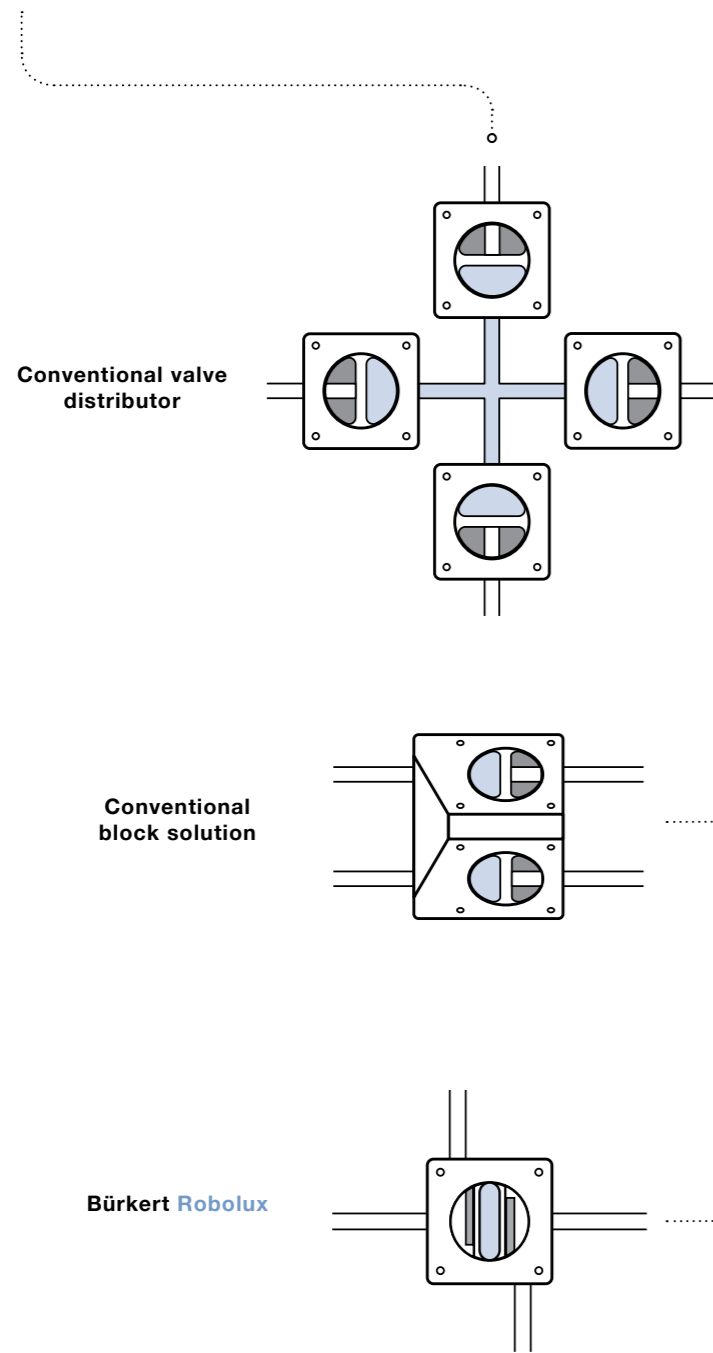
Reducing downtime



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.

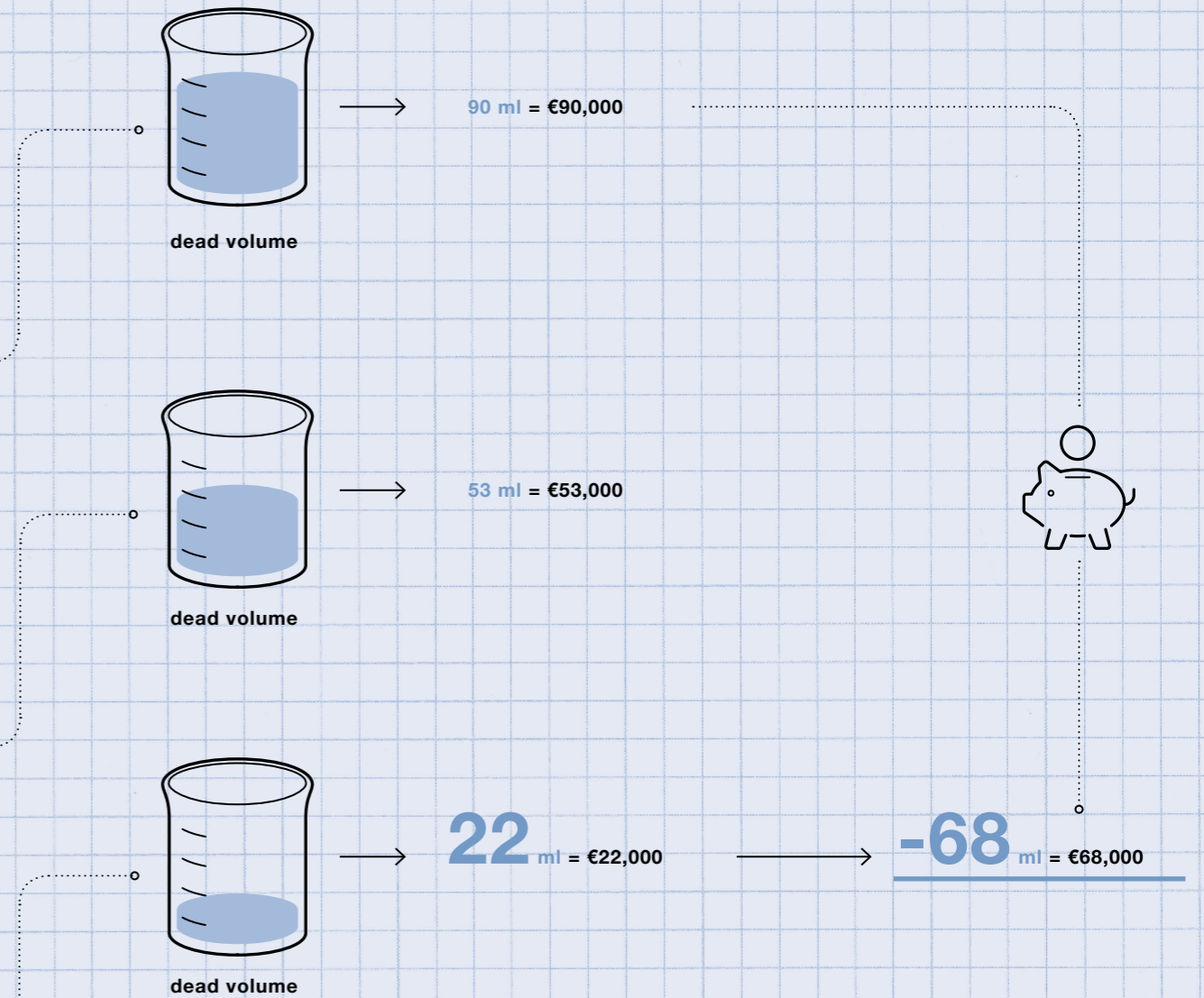
Media separation — Prevent mixing

/ 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.



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



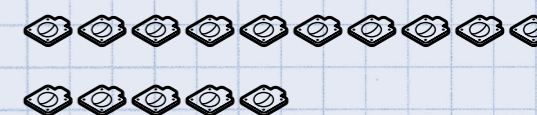
Administration	1 x	9 min
Logistics	1 x	7 min
Replacement	30 x	990 min
Quality & documentation	30 x	360 min

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





Media separation

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