



Pharmaceutical overview

providing total
steam system solutions

First for Steam Solutions

EXPERTISE | SOLUTIONS | SUSTAINABILITY

spirax
sarco

A full capability in steam system solutions for the g

Meeting the challenge of delivering innovative solutions for both utility and clean systems

From vitamins to vaccines the global pharmaceutical industry is fundamental to enhancing the world's health.

Steam is indispensable to a huge range of plant and high-purity applications within pharmaceutical manufacturing - from HVAC to sterilisation – and can account for a significant percentage of a facility's energy consumption.

As the world's leading authority on steam system engineering our experience can help you comply with stringent industry legislation, health and safety and cGMP.

Our innovative solutions will ensure that the correct quantity, quality and purity steam will reach your process at all times. This will benefit your organisation through increased productivity, minimal downtime, and ultimately reduce your costs and carbon emissions.

Our capability stretches from plant steam and utilities, to packaged solutions and into clean utilities.

Supported by our global network of specialist engineers we are able to use our knowledge and tailor it to benefit your specific business. We can assist you from system concept and design all the way through to operational energy management that will support your implementation of sustainable manufacturing.

When you need someone who understands your processes and the exacting standards that the pharmaceutical industry demands, who better to turn to for all your steam needs than Spirax Sarco?

Benefits:

- Expert advice on critical steam applications in the pharmaceutical environment
- Single source of supply for steam solutions from plant to high-purity applications
- Engineered packages for seamless integration and faster field installation
- The reassurance of full supporting documentation
- Global presence with local service and support
- Support for sustainable manufacturing, from system concept to operational energy management.



Global pharmaceutical sector



The integrated solution

Choosing Spirax Sarco for all your steam needs brings advantages of a single point of supply where service and quality are guaranteed.

Plant steam

Spirax Sarco has developed a comprehensive range of steam and condensate solutions, providing benefits such as improved heat transfer efficiency, reduced corrosion risks, flash steam recovery and improved condensate management. These are aimed at lowering water and effluent charges as well as energy losses, to drive savings and improve your systems performance.

Complete packaged solutions

We offer standard or bespoke engineered packages – from process heating to energy saving solutions. Packages are pre-assembled, sized and configured for optimum performance, seamlessly integrated and factory tested and inspected allowing faster field installation and incurring minimum downtime – all with single source responsibility for lower lifecycle costs.

High purity

Clean and pure steam has formed an important part of Spirax Sarco's business since we pioneered the first true hygienic steam trap in the 1980s and remains core to our high purity range. Our products extend from generation to distribution, to provide pure, dry, endotoxin-free steam. Such is our steam supply expertise and advanced solutions that we can offer you technologies to suit every different steam application, including:

- Steam-in-place
- Sterilisation
- Humidification
- Sanitary heat transfer
- Steam distribution and condensate return
- Steam generation.

Fully compliant documentation

At Spirax Sarco, we work within a fully accredited ISO 9001:2015 audited system instilling quality throughout our operations

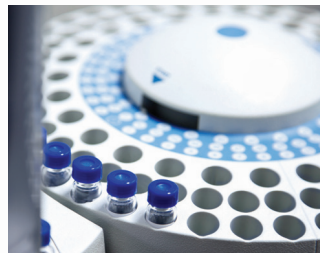
We manufacture in a number of strategically located ISO 9001 and 14001 approved production sites, with specialist facilities for high purity manufacturing.

We continually monitor certification and documentation requirements within the global pharmaceutical industry enabling us to provide you with all documentation necessary to ensure compliance.

So you can rest assured that the solutions you implement are not only compliant with current legislation, but that any recent developments have been swiftly adopted, saving you time and expense.

Spirax Sarco Clean Steam Traps and Air Vents

- Spirax Sarco clean & pure steam solutions deliver 'Gold Standard' EN10204 3.1 Certification, across all wetted parts, including FDA approved element fill as used in our proprietary steam trap technology.
- Spirax Sarco clean & pure steam solutions deliver 'Best in Class' mitigation of contamination risk within the pharmaceutical and biopharmaceutical manufacturing process.



Our products and packages, where appropriate, can be supported with full documentation covering:

- Technical datasheets and drawings
- Pressure /integrity testing
- Full material certification
- FDA and USP class VI approved material certification
- Surface finish certification
- Welding dossiers
- Weld inspection
- FAT protocols
- Design, Installation and Operational Qualification protocols (DQ/IQ/OQ)
- Standard Operating Procedures (SOPs)
- Installation, service and maintenance manuals.

“Spirax Sarco’s solution cut our implementation costs and gave us the compact, high efficiency solution we needed.”

Gilead Alberta spokesperson, Canada

A productive, trouble free system

Keeping your system at optimum efficiency not only reduces your total cost of ownership, but can also increase production efficiency. Our global network of over 1200 specialist engineers means we can support you wherever your location.

Benefit from a well-trained, knowledgeable and professional workforce

We can share our knowledge with you through a range of flexible, effective programmes available worldwide. We will ensure that your team are properly equipped with the skills to run your steam systems and equipment efficiently and effectively whilst providing you with the records necessary to support assessments and legislation.

Let us focus on your steam systems while you focus on your process

Spirax Sarco can provide you with a cost-effective solution for your routine and preventative maintenance. Our qualified and experienced engineers can work alongside your team to improve and sustain your plant's efficiency. We ensure that your processes are trouble-free, health and safety compliant and that steam consistently reaches your point of use at the correct quantity, quality and purity.

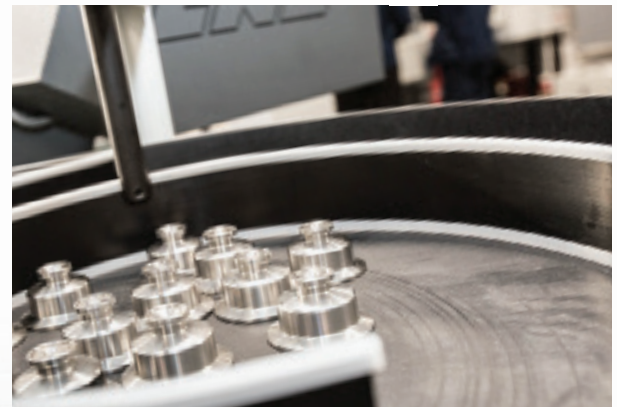
Furthermore, a preventive maintenance regime can support your quality critical systems that are subject to continuous performance evaluation.

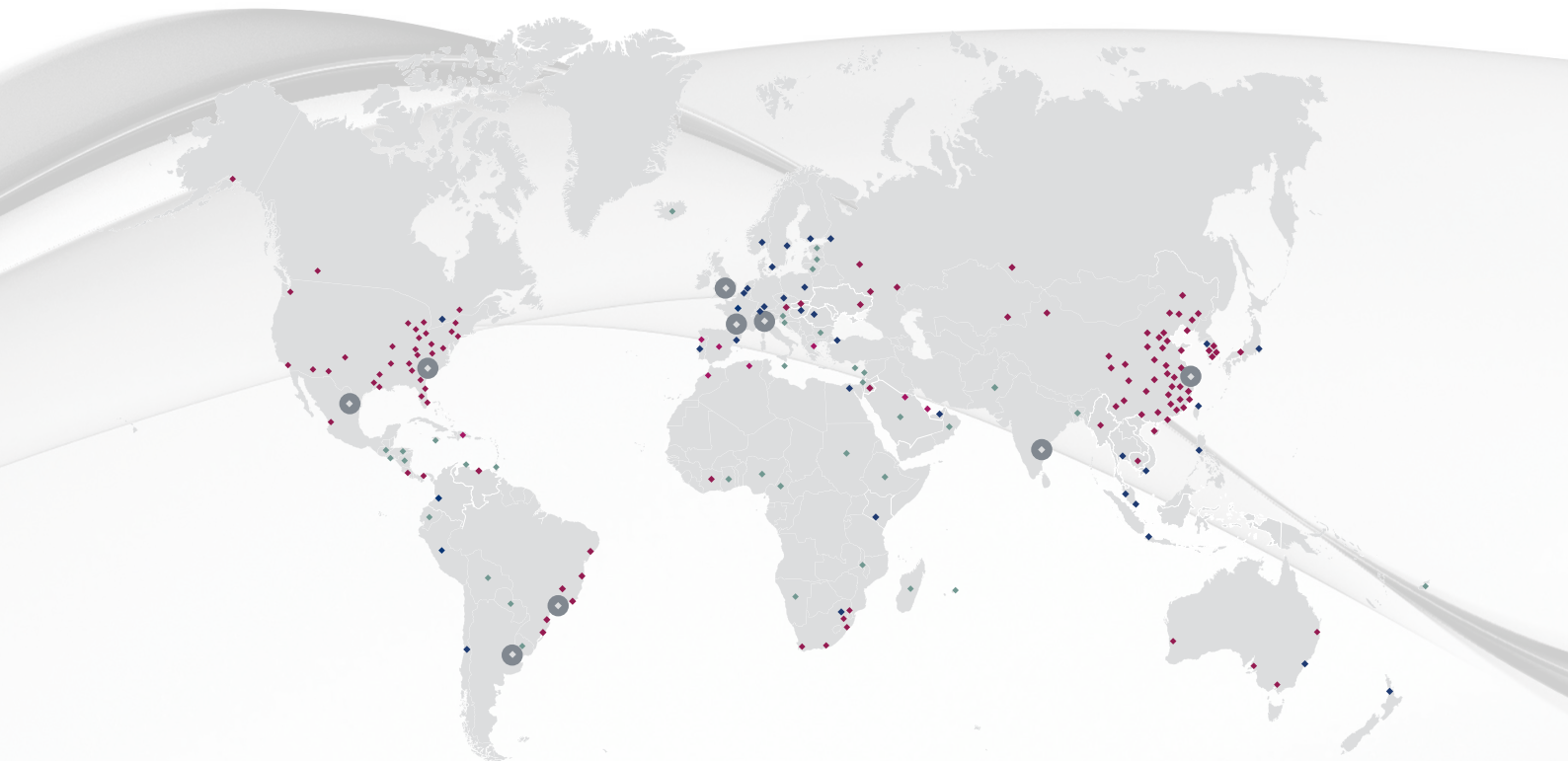
Our dedicated Clean Steam Centre of Excellence incorporating an ISO7 cleanroom

Spirax Sarco are focused on meeting customer expectations for clean and pure steam systems.

We also recognise and supply the industry need for full product material traceability as part of our manufacturing process.

Spirax Sarco will reflect industry practice expectations by following cGMP (Good Manufacturing Process) throughout our production facility.





Operating Companies

EMEA

- | | | |
|-----------------|-------------|--------------|
| Belgium | East Africa | South Africa |
| Czech Republic | Maghreb | Spain |
| Denmark | Middle East | Sweden |
| Egypt | Norway | Switzerland |
| Finland | Netherlands | Turkey |
| * France | Poland | * UK |
| Germany | Portugal | |
| Hungary | Romania | |
| * Italy | Russia | |

Americas

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| * Argentina | Colombia |
| * Brazil | * Mexico |
| Canada | Peru |
| Chile | * USA |

Asia Pacific

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|----------------|-------------|
| Australia | New Zealand |
| * China | Philippines |
| Hong Kong | Singapore |
| * India | South Korea |
| Indonesia | Taiwan |
| Japan | Thailand |
| Malaysia | Vietnam |

* Manufacturing sites

Sales Offices

EMEA

- Austria
- Greece
- Ivory Coast
- Jordan
- Kazakhstan
- Slovak Republic
- Ukraine

Americas

- Costa Rica
- Panama

Asia Pacific

- Cambodia
- Myanmar

Distributors

EMEA

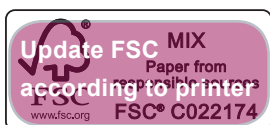
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| Algeria | Iceland | Mauritius |
| Bahrain | Israel | Morocco |
| Bulgaria | Kuwait | Namibia |
| Cameroon | Latvia | Nigeria |
| Croatia | Lebanon | Oman |
| Cyprus | Lithuania | Qatar |
| Ethiopia | Madagascar | Saudi Arabia |
| Estonia | Malawi | Slovenia |
| Ghana | Malta | Sudan |

Americas

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| Bolivia | Guatemala | Nicaragua |
| Dominican Republic | Honduras | Paraguay |
| Ecuador | Jamaica | Trinidad and Tobago |
| El Salvador | Netherland Antilles | Uruguay |

Asia Pacific






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| Bangladesh | Fiji | Pakistan |
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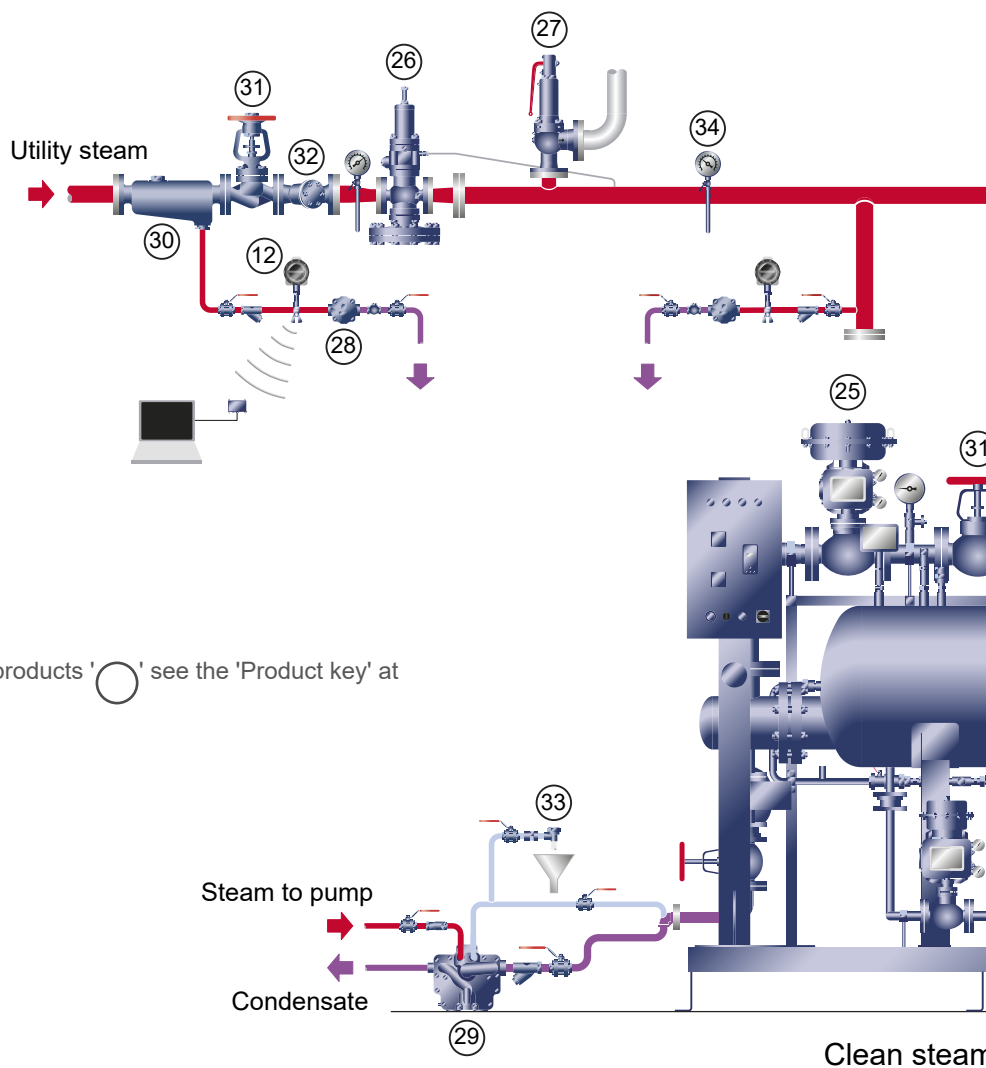


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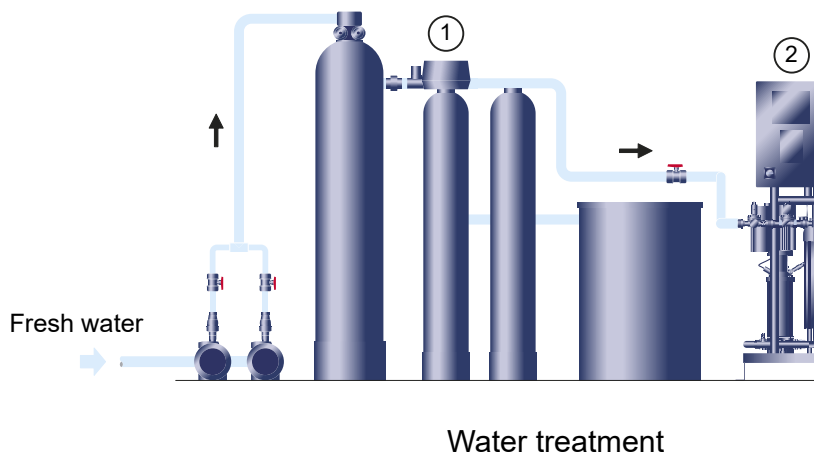
Spirax Sarco offer an extensive range of solutions to the pharmaceutical industry, helping our customers to reduce energy costs, improve product quality and increase product throughput.

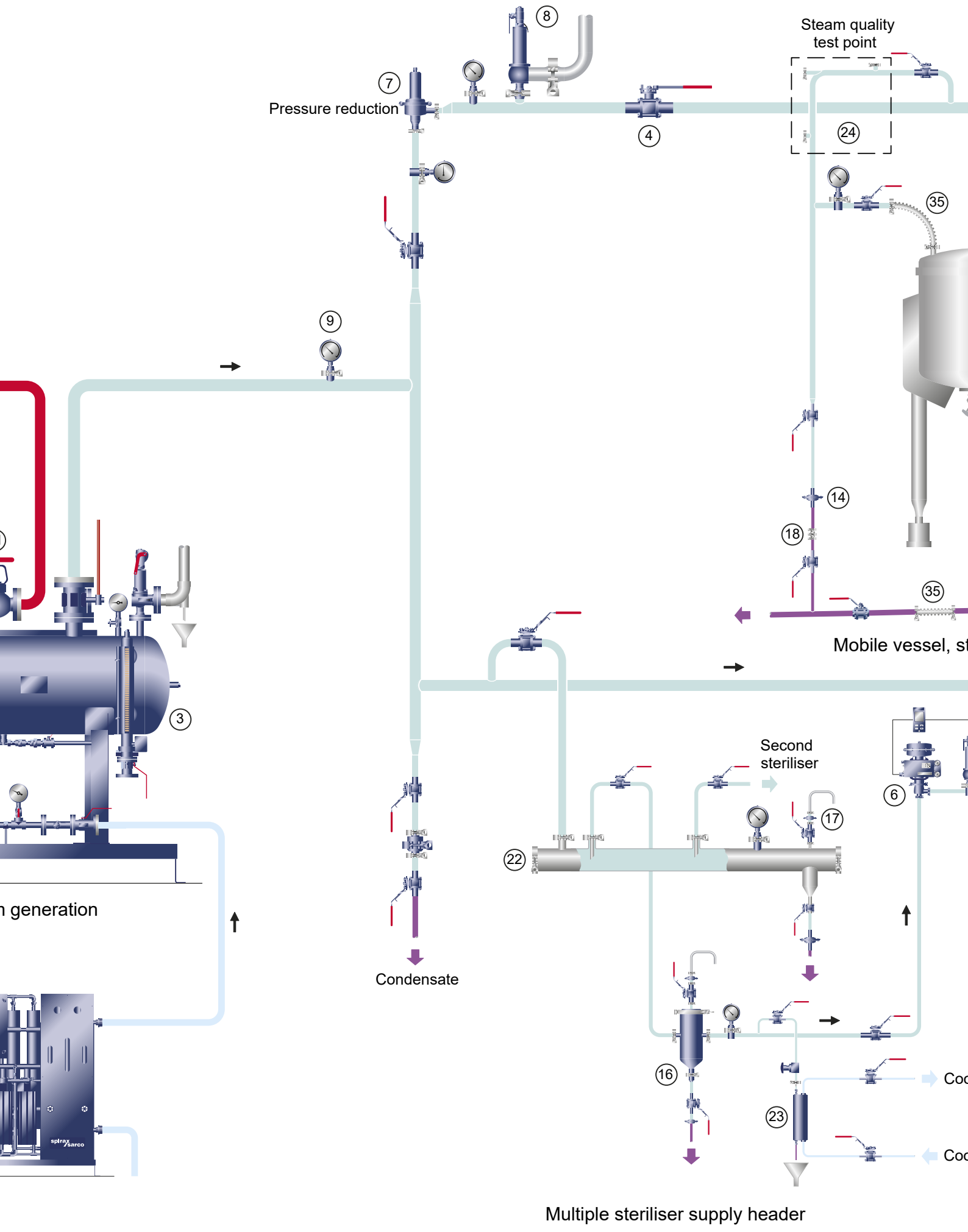
The symbols below highlight some of the many areas where we can help you to achieve and exceed your business targets.

-  Improved maintenance
-  Energy saving opportunities
-  Process time improvements
-  Product quality assurance
-  Water savings
-  Product software available
-  Chemical savings

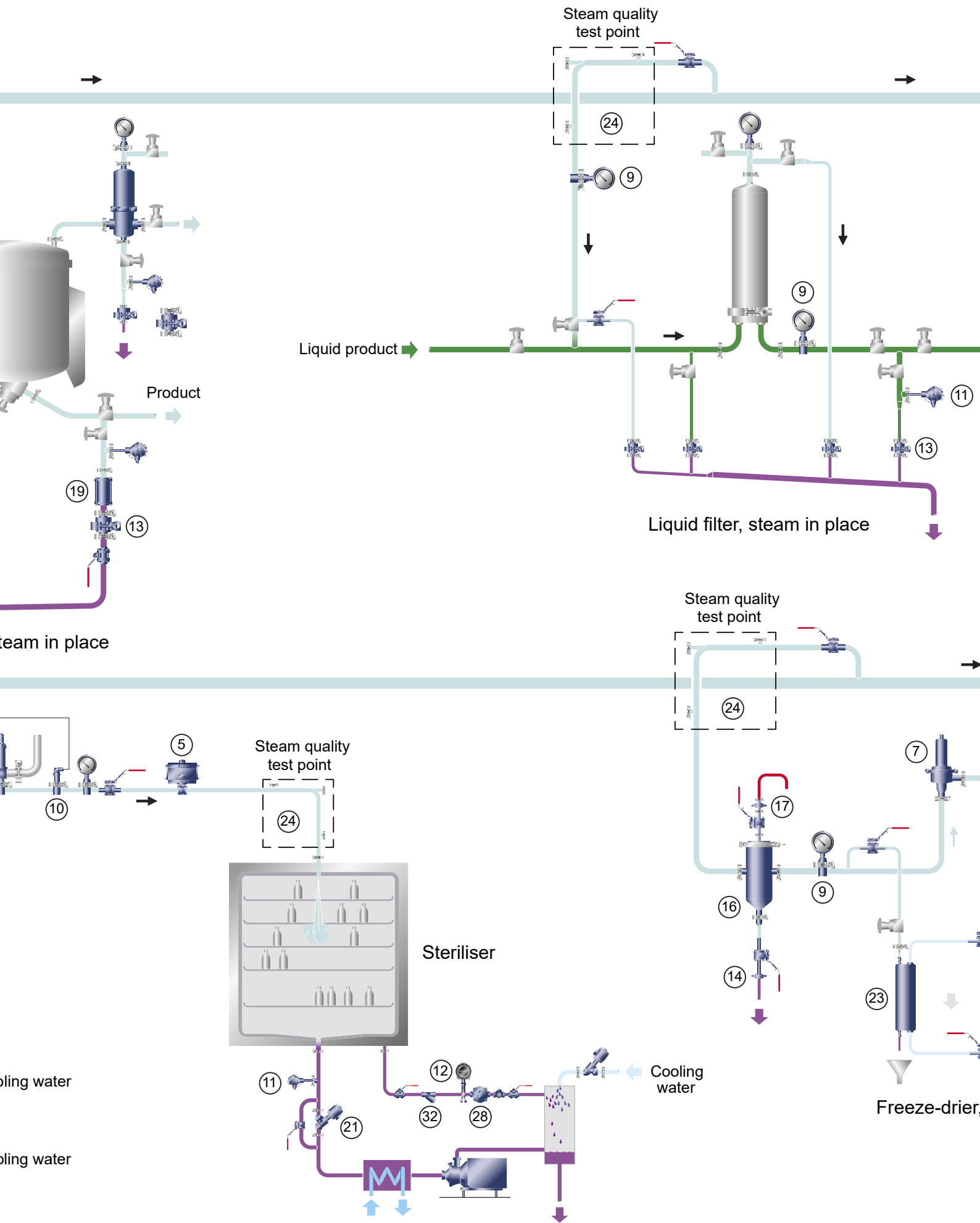


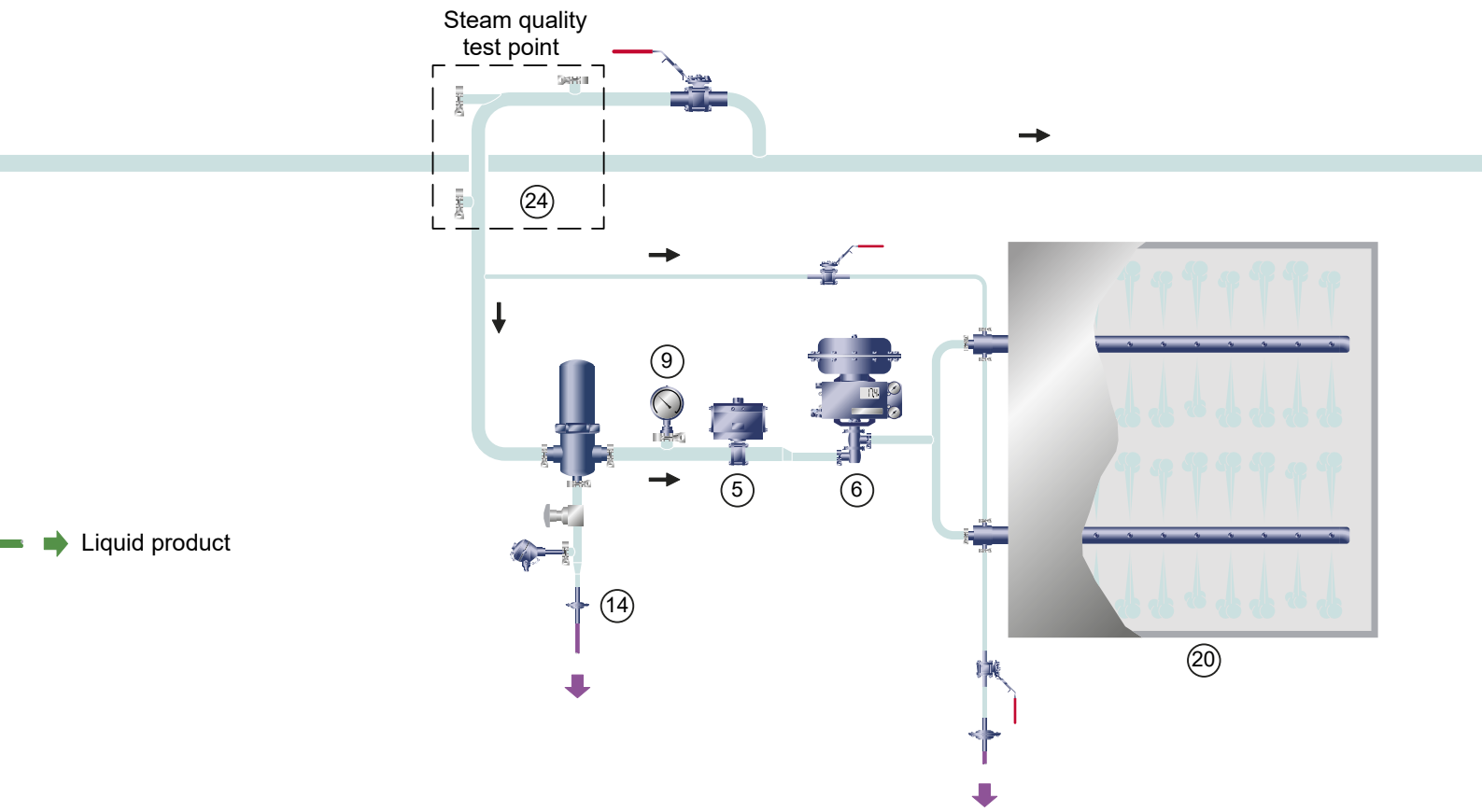
For identification of the highlighted products '○' see the 'Product key' at the end of the overview.



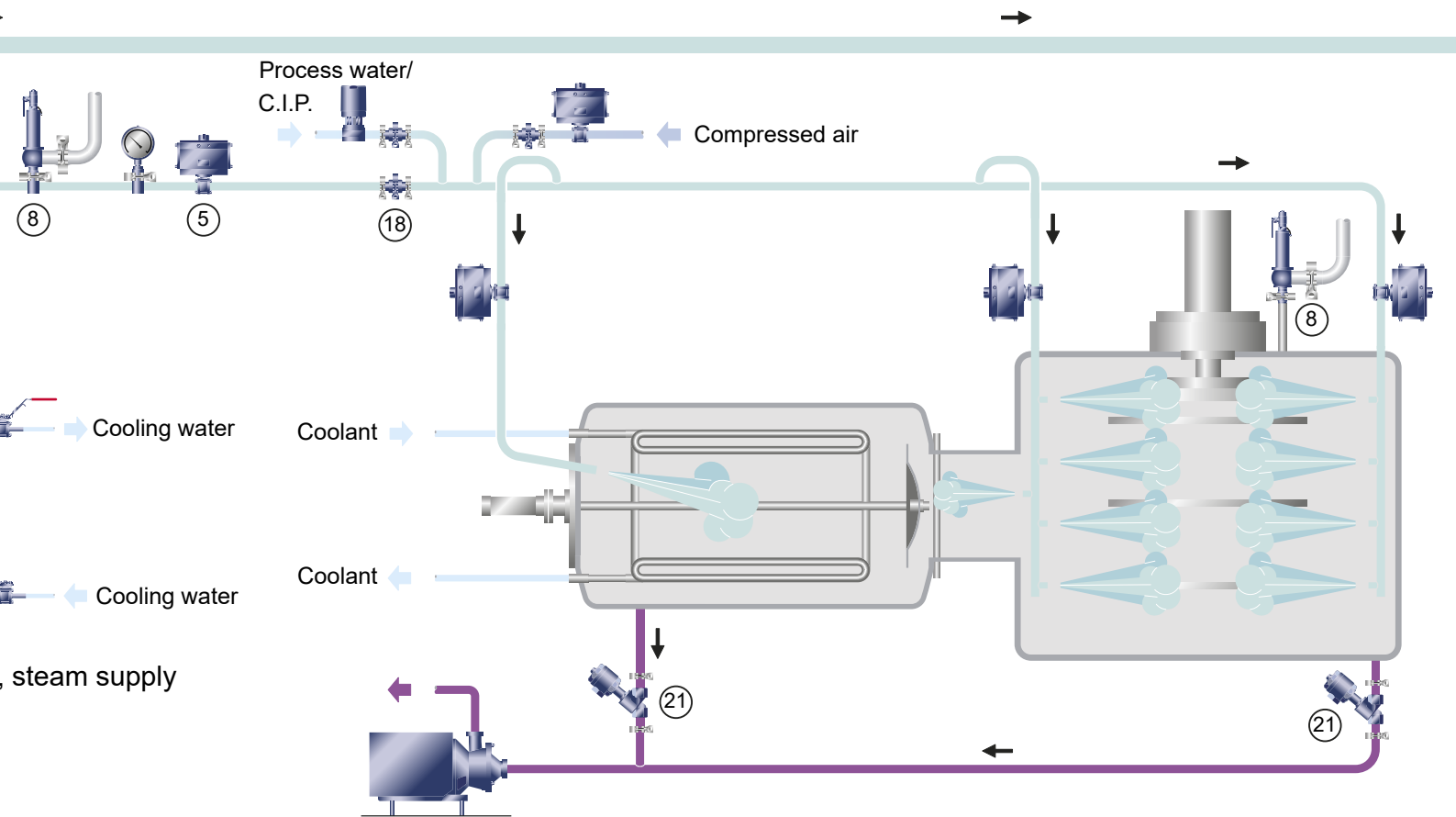


Multiple steriliser supply header

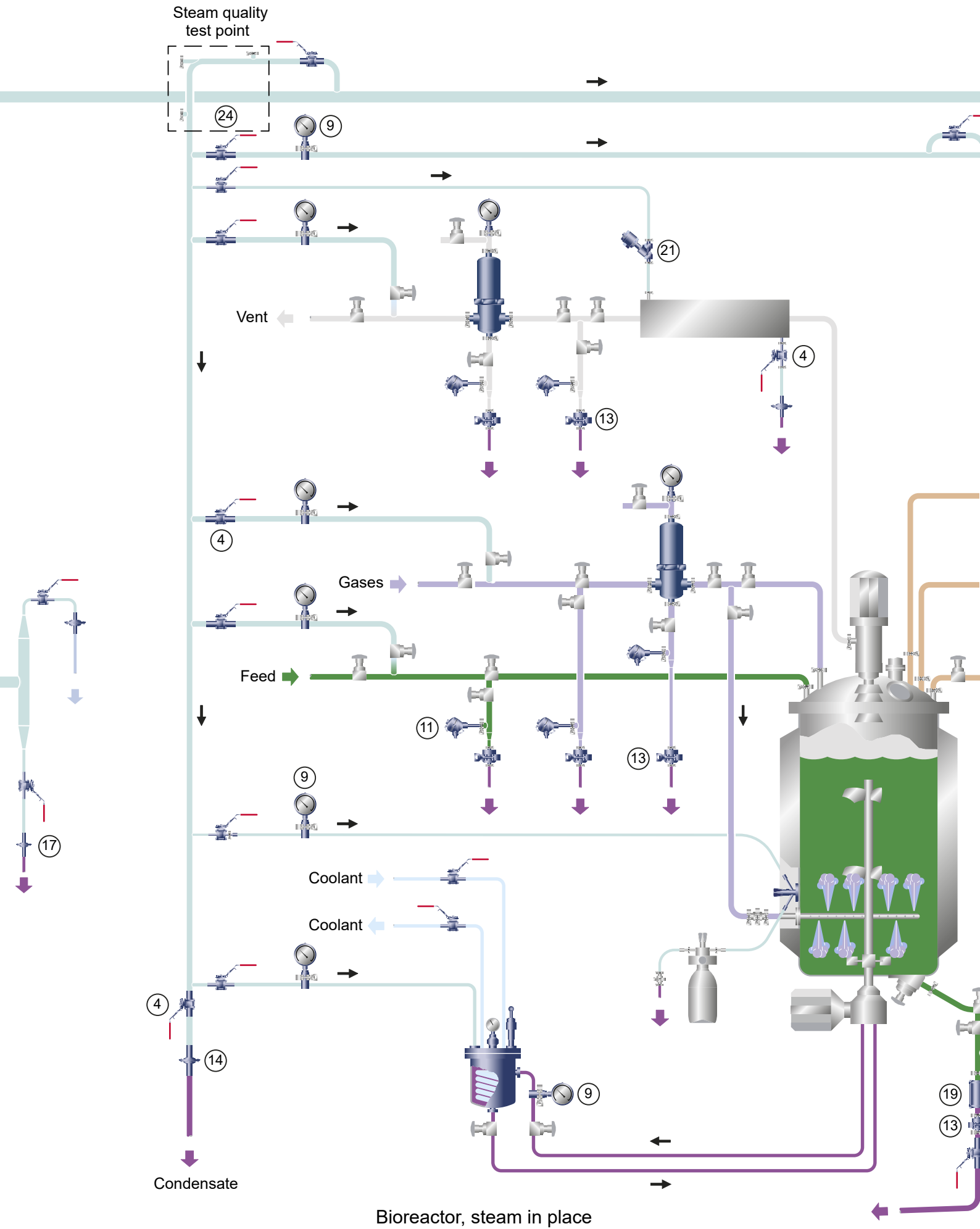


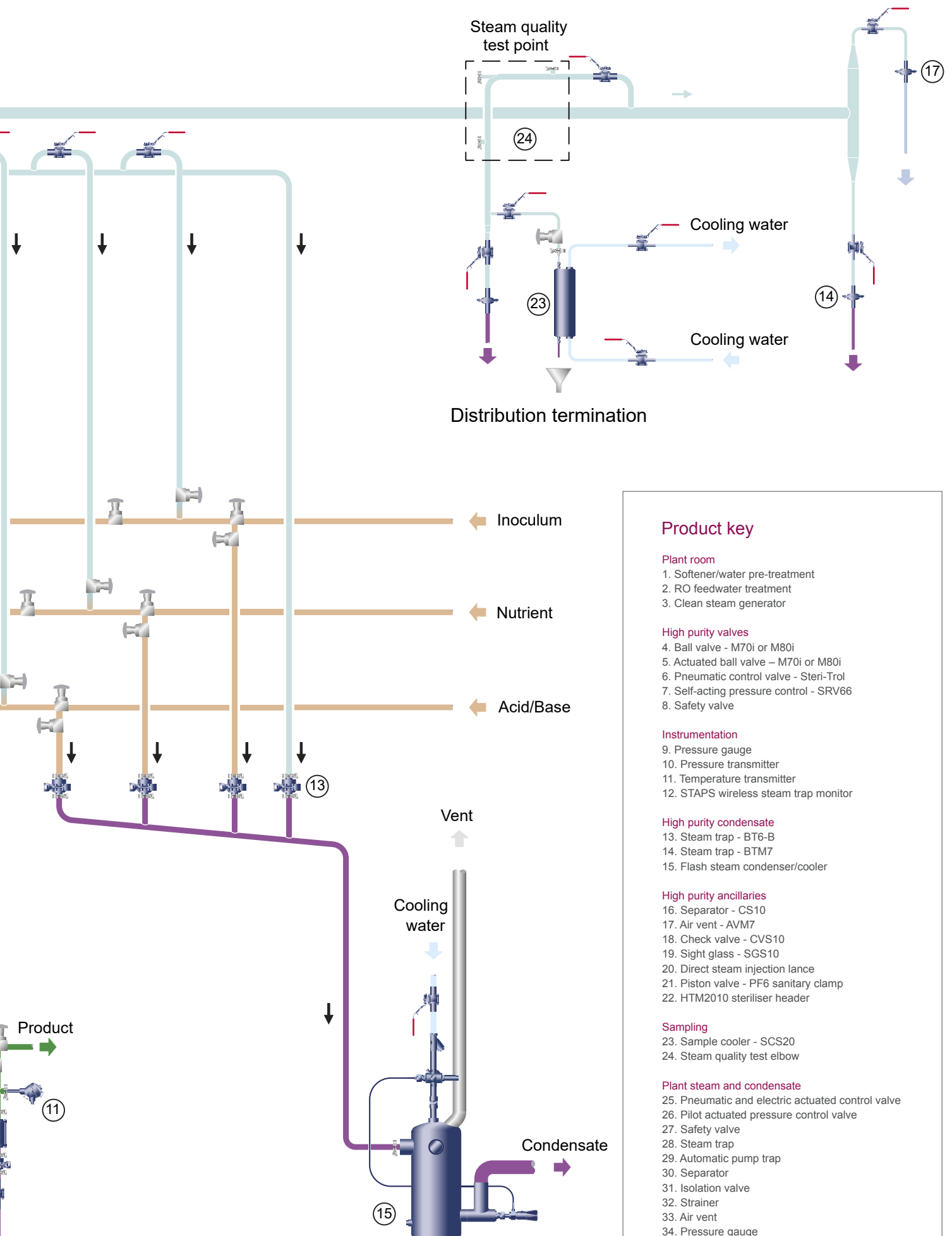


HVAC Direct steam injection humidification



Freeze drier, steam in place





Product key

Plant room

1. Softener/water pre-treatment
2. RO feedwater treatment
3. Clean steam generator

High purity valves

4. Ball valve - M70i or M80i
5. Actuated ball valve - M70i or M80i
6. Pneumatic control valve - Steri-Trol
7. Self-acting pressure control - SRV66
8. Safety valve

Instrumentation

9. Pressure gauge
10. Pressure transmitter
11. Temperature transmitter
12. STAPS wireless steam trap monitor

High purity condensate

13. Steam trap - BT6-B
14. Steam trap - BTM7
15. Flash steam condenser/cooler

High purity ancillaries

16. Separator - CS10
17. Air vent - AVM7
18. Check valve - CVS10
19. Sight glass - SGS10
20. Direct steam injection lance
21. Piston valve - PF6 sanitary clamp
22. HTM2010 steriliser header

Sampling

23. Sample cooler - SCS20
24. Steam quality test elbow

Plant steam and condensate

25. Pneumatic and electric actuated control valve
26. Pilot actuated pressure control valve
27. Safety valve
28. Steam trap
29. Automatic pump trap
30. Separator
31. Isolation valve
32. Strainer
33. Air vent
34. Pressure gauge
35. Flexible coupling