

改造方案  
赋予您的泵第二次生命

**Retrofit Solutions**  
Give Your Pump a Second Life





# 变革时代

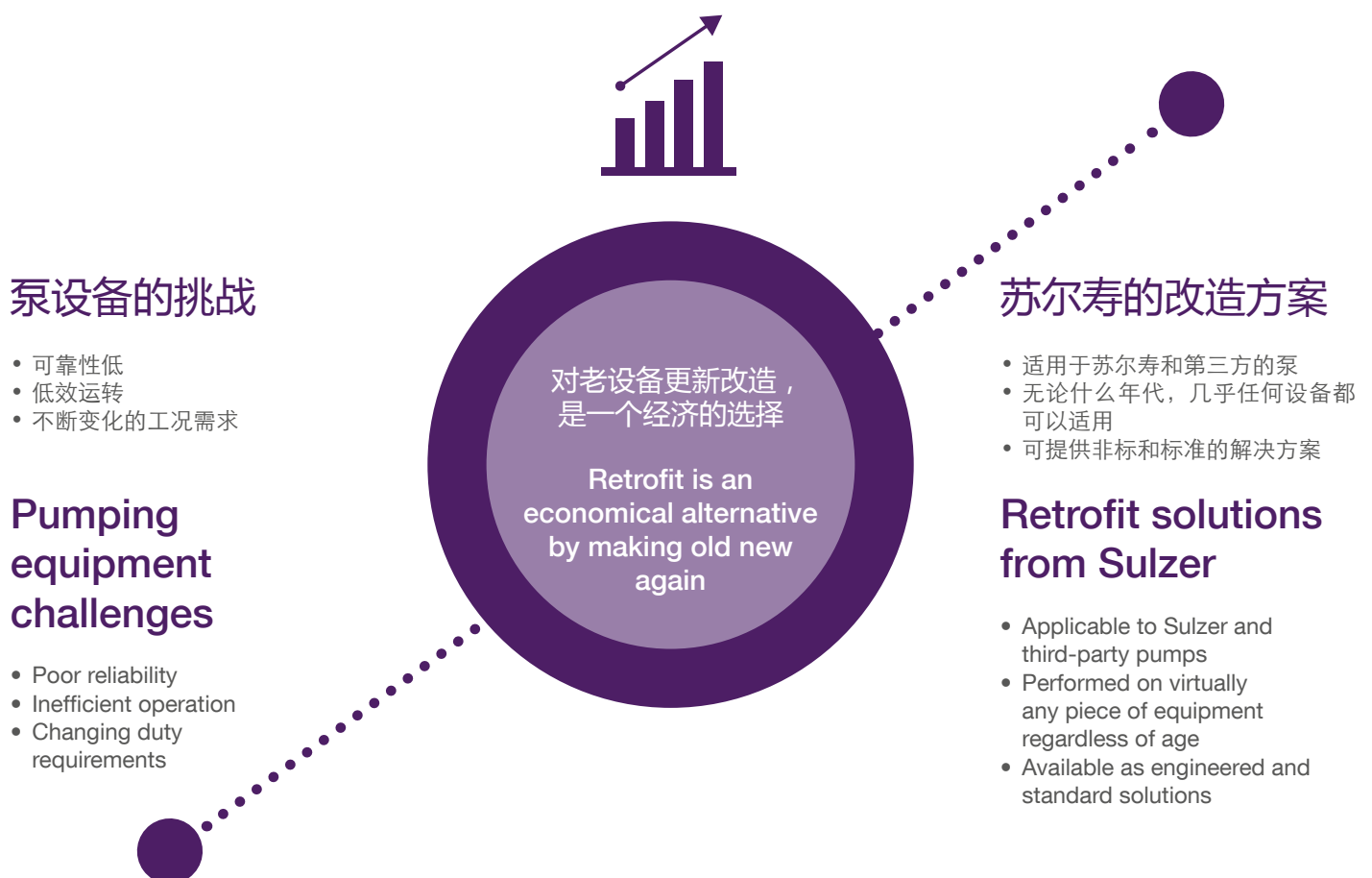
## Time for a Makeover

改造市场在过去几年里蓬勃发展。新的环境法规出台，更高效、可靠的设备以及科技进步所带来的激烈竞争，为老旧系统改造的普及做出了极大贡献。

*The retrofit market has been booming over the past years. New environmental regulations, tougher competition for more efficient and reliable equipment and technological advances contributed greatly to the popularity of retrofit as a solution to aging systems.*

改造：通过改进设计和利用新技术，改善并提升现有设备。

**Retrofit:** to adapt and improve existing equipment, by adding design features or new technology.



# 苏尔寿的优势

## The Sulzer Advantage

### 接受新的挑战

#### Taking on your challenges

苏尔寿通过改造服务，来提高可靠性、降低成本和调整性能，以适应变化的新工况，给您的泵第二次生命。苏尔寿提供量身定制的解决方案，为设备提供增值服务。

*Through its retrofit services, Sulzer gives your pump a second life by improving reliability, minimizing costs and adapting performance to changing processes. Sulzer provides tailored solutions that add sustainable value to your equipment.*



# 您理想的服务伙伴

## Your Ideal Service Partner

用我们的专业知识助您成功

Our expertise dedicated to your success

苏尔寿提供专业的服务，包括诊断和咨询、维护和支持服务、以及技术和经济最优化。我们的专业知识和承诺总是提供可靠性、响应性、快速周转和创新的解决方案。改造，作为技术和经济最优化的一部分，完全融合到全方位服务范围中。

*Sulzer has an exclusive service portfolio which includes diagnostic and consulting, maintenance and support services as well as technical and economic optimization. Our expertise and commitment always deliver reliability, responsiveness, rapid turn-around and innovative solutions.*

*Retrofit, as part of the technical and economic optimization, is fully integrated into the full service range.*



# 我们的足迹遍布全球

## Our Footprint Spans Across the Globe

### 全球布局

#### A global approach for a local presence, 24/7

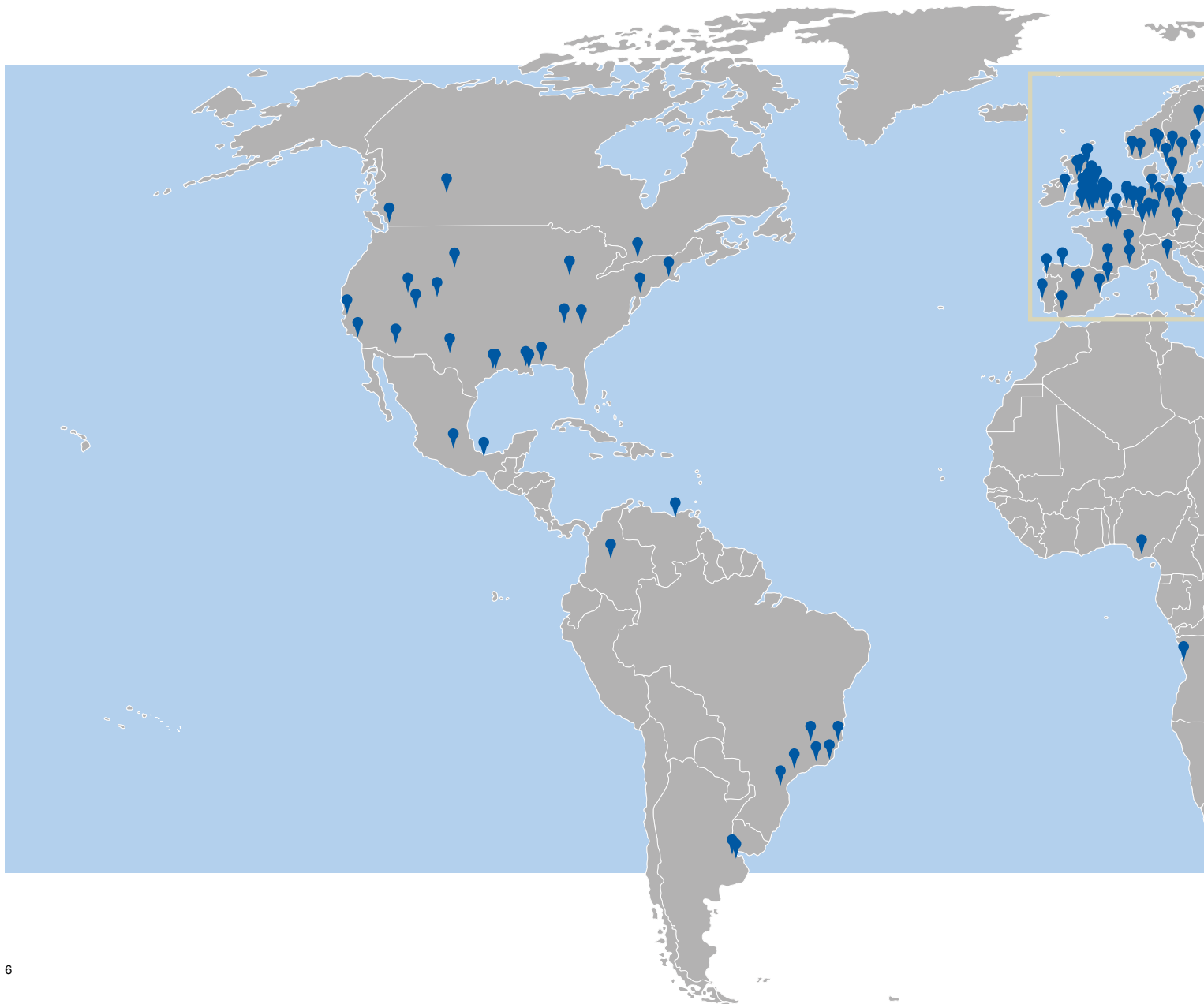
挑战往往不期而遇，苏尔寿无论何时何地，都可以为您量身定制解决方案。

*Because challenges occur unexpected, Sulzer provides solutions customized to your needs - whenever and wherever.*

苏尔寿拥有业内最大的旋转设备服务网络，全球超过 100 多个服务网点就近为您服务。每个服务网点都具备机加工能力，拥有动平衡设备、专业检测仪器，我们配备专业人员，为您和您的设备提供服务。苏尔寿成功的关键是，具有验证改造方案的能力。在发货前确保性能及无故障调试运转。苏尔寿全球公司均有试验台设备，每一个都适用于特定的应用和市场需求。

Operating one of the largest service networks in its field, Sulzer is close to your business with more than 100 service facilities around the world. Each service center is equipped with machine tools, balancing equipment and inspection facilities, and is staffed by specialists dedicated to supporting customers and their equipment.

Key to the success of Sulzer is its capability to fully test retrofit solutions prior to delivery to ensure performance and problem-free commissioning. Sulzer runs test beds all over the world – each dedicated to the needs of specific applications and markets.





欲知更多本地服务网点的信息，敬请访问  
[www.sulzer.com/service-centers](http://www.sulzer.com/service-centers)

For more information about your local  
service center, please go to  
[www.sulzer.com/service-centers](http://www.sulzer.com/service-centers)

# 我们的足迹遍布全球

## Dedicated Service Solutions for Leading Industries

随着经验和对象的不不断拓展，苏尔寿在多个工业领域都可提供领先的服务方案。

*Sulzer, thanks to its extensive experience and wide service portfolio, provides cutting-edge service solutions in many industries.*

### 石油和天然气 Oil and gas



作为石油和天然气行业的世界领导者，苏尔寿了解有效性、可靠性及效率的重要。我们在研发领域持续投入并不断打破技术壁垒，所提供的服务解决方案足以应对上、中、下游各领域内最严苛的技术标准。

As a world-leader in the oil and gas industry, Sulzer understands that availability, reliability and efficiency are keys. With a constant desire to push back technical barriers, we provide services to meet the most stringent specifications in the upstream, midstream and downstream fields.

### 发电 Power generation



苏尔寿拥有多年为传统及可再生能源发电应用提供服务及维护的经验，维护对象包括透平、泵、压缩机、发电机和电动机等。您提出挑战，我们负责解决。

Sulzer has many years of experience in the maintenance of turbines, pumps, compressors, generators and motors used in both conventional and renewable power generation applications. You set out the challenge and we provide the right solution.

### 水和其他行业 Water and more



长期、广泛的客户合作及项目经验，使我们积累了净水及废水处理行业强大的应用专业知识与技术。从停机维护到实时监控，我们对您设备的呵护贯穿始终。

Customer relations have enabled Sulzer to build up strong application expertise in the water and wastewater areas. From breakdown to maintenance and monitoring services, we take care of your investment throughout its lifetime.



# 成功的解决方案源于经验和技术的结合

## Combining Experience and Technology for Successful Solutions

苏尔寿以特有的经验和技術对项目改造进行支持，提供有竞争力的改造方案，使现有的设备适应不断升级的需求。

*With a unique range of experience and technologies to support retrofit projects, Sulzer offers competitive retrofit solutions allowing existing equipment to be adapted to evolving needs.*

### 水力设计的改进

#### Improved hydraulic design

- 用世界领先的专业知识评估或解决现有设备性能问题
- 将经过验证的解决方案应用于实践，或必要时提供新设计，给客户提定制的水力方案
- 先进的水力方案能使设备达到最佳的效率并平稳运行
- 使用苏尔寿自己的软件计算流体力学，可以验证和微调性能曲线
- 模型试验，必要时，采用实际制造和在测试实验室验证的方式，以保证水力性能



- World leading expertise applied to re-rating or solving performance problems on existing equipment
- Proven solutions applied where practical, or new designs developed from first principles when necessary, to provide bespoke hydraulic solutions
- State-of-the-art hydraulic tools applied to achieve optimum efficiency and smooth hydraulic operation
- Computational Fluid Dynamics, using our own unique software, available to verify and fine tune performance
- Model testing, when necessary, both virtually and in the test lab, to validate real world performance

### 高等级的材料和涂层

#### Higher-grade materials and coatings

- 对于泵腐蚀和冲蚀的基本原理的认识，可指导我们在使用中克服磨损问题
- 改进内部流道，并结合应用先进的耐腐蚀材料，能够显著地延长泵的使用寿命
- 通过掌握材料、涂层和冶金方面的失效分析的详尽知识，来解决腐蚀和 / 或组件故障问题



- Fundamental understanding of the root causes of corrosion and erosion issues within pumps is applied to overcoming wear problems in service
- Improvements to detail of internal flow paths, in conjunction with modern wear resistant materials, are utilized to achieve significant life extensions
- Detailed knowledge on materials and coatings and metallurgical failure analysis applied to resolving corrosion and/or component failures

### 机械设计的提高

#### Mechanical design upgrades

- 适用 / 修改任何现有的设备，以达到提高可靠性和延长寿命的目的
- 运用最先进的设计方法升级组件到整泵 / 芯包替换
- 设计师具有丰富的产品知识、第三方设备经验和多年设备设计实践经验
- 所有的设计工作符合行业和苏尔寿内部的设计标准，包括设计载荷和应力分析
- 先进的转子动力学建模能力，确保在所有的预期性能的条件下转子组件的稳定性和运行平稳



- Adaptation/modification of any existing equipment in order to achieve improved reliability and extended life
- Upgrades at component level through full pump modernization/ cartridge replacement applying cutting-edge design methods
- Designers with sound product knowledge, third-party equipment experience as well as with many years of equipment design
- All work conducted in accordance with industry and Sulzer in-house design standards, with critical design loadings and stress levels fully assessed
- Advanced rotordynamic modeling capabilities ensure rotating element stability and smooth running under all anticipated performance conditions

### 二次设计

#### Re-engineering

- 三维坐标测量工具用来捕捉复杂的零件的几何形状，可应用在大修、维修和 / 或第三方设备改造上
- 重新设计的部分完全符合苏尔寿标准，这得益于苏尔寿的专业技术和产品质量标准
- 过程充分控制并记录。从最初的调查、到设计与制造、以及最终检验的全过程



- A process used to augment our capabilities during overhaul, repair and/or retrofit of third-party equipment, 3D coordinate measurement tools used to capture complex component geometry
- Re-engineered parts developed in full accordance with Sulzer standards, benefitting from Sulzer know-how and product quality standards
- Process fully controlled and documented from initial findings through design and manufacture to final inspection

# 在线改造方案的解答

## Online Retrofit Solution Finder

导致泵性能问题的条件和原因非常多。苏尔寿设计了这个改造方案搜索引擎，这是一个在线工具，用以引导用户查询常见的泵性能和工艺相关问题的改造方案。访问在线地址为：  
[www.sulzer.com/retrofit-solution-finder](http://www.sulzer.com/retrofit-solution-finder)。

*There is a wide range of conditions that can lead to pump related performance problems. Sulzer designed the Retrofit Solution Finder, an online tool to guide users to potential retrofit solutions for many common pump performance and process related problems.*

*Visit [www.sulzer.com/retrofit-solution-finder](http://www.sulzer.com/retrofit-solution-finder) to access the online solution finder.*



更多的改造方案，请访问：[www.sulzer.com/retrofit](http://www.sulzer.com/retrofit) 或联系[retrofit@sulzer.com](mailto:retrofit@sulzer.com)

For more information about retrofit solutions, please visit [www.sulzer.com/retrofit](http://www.sulzer.com/retrofit)  
or contact [retrofit@sulzer.com](mailto:retrofit@sulzer.com)

获得更多信息，请联系：[retrofit@sulzer.com](mailto:retrofit@sulzer.com)

For more information, please contact [retrofit@sulzer.com](mailto:retrofit@sulzer.com)  
[www.sulzer.com/retrofit](http://www.sulzer.com/retrofit)



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