

LEWA Solution Services

Preventive maintenance, repair,
rebuilding, and support services



LEWA solution services

Assure continuous operation of pump products with maximum reliability, safety, and efficiency.

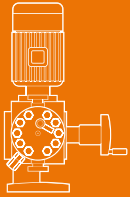
Fully equipped service centers

LEWA operates three certified service centers in the U.S., located in Massachusetts, New Jersey, and Texas. At each center, our experienced, factory-trained technicians can rebuild, repair, and repurpose pumps and components to original design specifications.

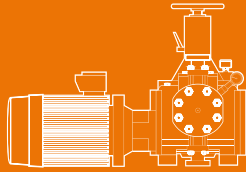
Responsive 24/7 technical support

Our Technical Support Services desk (TSS) can provide live support 24/7 if you have an emergency or require troubleshooting. In most cases, we can quickly dispatch technicians and parts to your site. TSS team members have the training, credentials, and experience to work in environments ranging from chemical plants to hygienic applications, and offshore drilling platforms. Contact information can be found on the back cover.

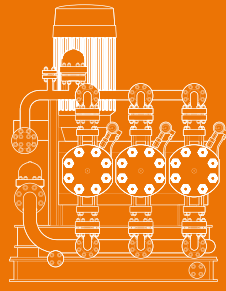
Maintenance service agreements



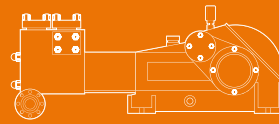
Metering pumps



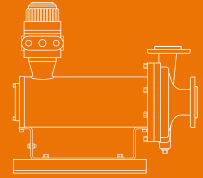
Process pumps



Triplex diaphragm pumps



Triplex plunger pumps



Canned motor pumps

Our modular tier services

Tier 1 services

- Telephone troubleshooting and diagnostics
- Consultation services
- Semi-annual equipment health check
- Site survey and assessment (visit)
- Basic operational training (on-site)

Tier 1

Tier 2 services

- Scheduled preventive maintenance service
- One-on-one assistance for challenging pump issues
- Parts stocking on consignment
- Startup assistance with complete documentation
- Maintenance training seminars (site specific equipment)

Tier 2

Tier 3 services

- Dedicated technical service support 24/7
- Guaranteed priority field service response

Tier 3



Oil and Gas industry

LEWA can perform pump start up and repair service on FPSOs (Floating Production Storage and Offloading) and offshore rigs. We can quickly dispatch parts and specially trained Huet and Boiset certified technicians to most sites within 24 hours. Our offshore qualified team can repair equipment and perform preventive maintenance to keep production high, maximize uptime, maintain high pressure and increase employee safety.



Chemical Process industry

LEWA technicians can service pumps and perform preventive maintenance at chemical facilities. Team members have the required security clearance and safety credentials, including TSA TWIC cards, along with qualified training in SafeLand, SafeGulf, RigPass and Basic Plus Orientation.



Clean Process industry

Proper preventive maintenance is critical in biopharmaceutical and other clean industry production. It ensures your pumps and systems will continue to deliver the required accuracy, reliability... and highly reliable product yield and purity. With a service contract, our qualified technicians can perform preventive maintenance in your clean facility, replace critical parts, and provide training to your onsite personnel.

LEWA solution services

The advantages at a glance

1



24/7 Technical support service desk

We provide responsive technical support 24/7 to guarantee a maximum of flexibility.

2



Worldwide service

LEWA is globally organized. Spare parts and service are quickly available worldwide.

3



Original parts

To ensure highest quality we use only LEWA manufactured spare parts.

4



Certified staff

Our certified staff guarantees that professional service management and monitoring is available 24/7.

5



Flexible service concept

Carrying out service and maintenance work depends on the respective customer requirements, therefore we provide a flexible service concept.

6



System optimization

We are able to troubleshoot your installations using different analyses and systems.

Diaphragm metering pumps

Service and maintenance

LEWA solution services

At LEWA we offer unparalleled knowledge, expertise, and experience with diaphragm metering pumps. With a Solution Services contract, you can achieve maximum operational availability using professionally scheduled system technology, on-time services, and OEM spare parts logistics. There's no better way than a LEWA Solution Services service contract to ensure a full operating life cycle for your LEWA pump.



Maintenance/planning

LEWA service technicians can perform scheduled preventive maintenance to increase operational safety, reduce costs, and assure continuous operations. A service contract can be customized to your individual requirements.



Repair and wear parts service

Through a combination of LEWA know-how, experience, and factory parts, we can perform repairs with the utmost precision and care. Whether reconditioning pumps at a LEWA facility or onsite, we always consider the optimum cost-benefit ratio. After we diagnose the problem, you'll receive a binding offer to assure cost transparency. Spare part recommendations are also provided.

Our logistics department and service team work together to ensure fast shipment and installation of original, high-quality LEWA parts, often within 24 hours. This can help you avoid costly shutdowns and saves money.



Parts	Replacement Schedule*	Reason
Diaphragm	Generally not to exceed a period of 20,000 hours. Depends on customer SOP, operating time and fluids.	Diaphragms have multiple layers to improve flexibility and strength. Failures from heat, chemical attack, excessive suction pressure, torque abrasion, and dry operation all affect the cycle life.
Check valves	Every 20,000 hours	Low or fluctuating flow rates can occur when dirt, scratches, or worn valve seatings occur.
Gear oil and hydraulic fluid	Every 20,000 hours	Ensure maximum efficiency and component life.
Pressure relief valve (PRV) – check or reset pressure setting	Every 20,000 hours or after a diaphragm failure	Improper settings could result in reduced pump output or system component damage.
Air filter	Every 40,000 hours	Rapid exchanges of air follow the stroke speed. Keeping the wire mesh path clear allows a smooth exchange of air. A dirty filter can become a source of unstable hydraulic balance and an external barrier growth location.
Upper bearing	Every 40,000 hours	Lubrication is dependent on splashing. Slow motor speeds for long periods of time can limit the lubrication to this bearing. Improper speed settings could result in reduced pump output or system component damage.

Selection of parts targeted for replacement is based on understanding system risks.

* Results not typical

Canned motor pumps

Service and maintenance



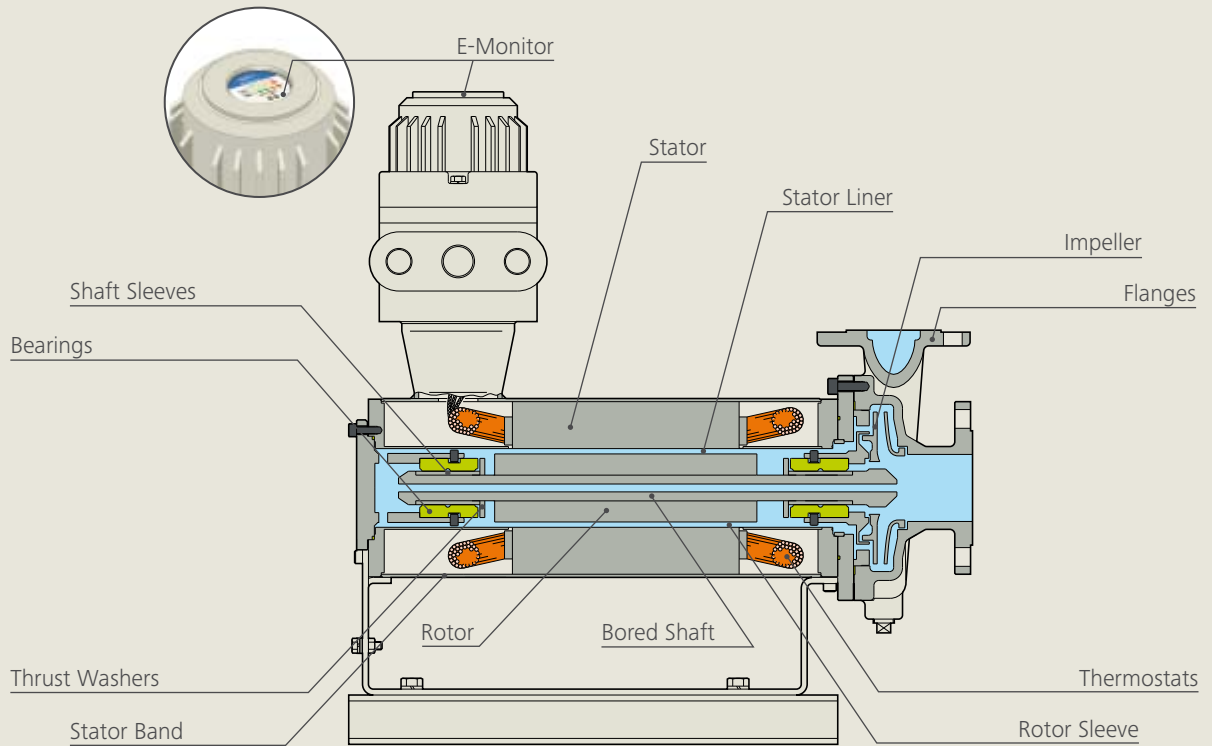
A LEWA Solution Services contract offers an array of services and options to assure full pump operating life cycle for your canned motor pump. At our certified facility in Houston, Texas, technicians can perform standard repairs and part replacements, as well as specialized services like stator and rotor rewinding, and stator relining.

Pump maintenance, diagnosis, and repair

Nikkiso canned motor pumps are equipped with the E-Monitor, enabling customers to perform simple maintenance tasks like mechanical bearing replacements. E-monitors will signal when this replacement is required.

Maintenance is important to preventing failure modes such as:

- Bearing wear
- Motor failure
- Liner breach/water intrusion
- Corrosion/erosion
- Overheating/loss of cooling
- Improper operation (below min flow, above max flow)
- Dry running/cavitation
- Suction restrictions/inadequate NPSHr
- Inadequate reverse circulation flow



Canned motor pump standard repair services include:

- Disassemble, clean and inspect
- Dimensional inspection against manufacturing drawings
- Electrical testing of motor (hi-pot/surge test)
- Replace all wear parts (bearings, sleeves, thrust washers, gaskets)
- Balance rotating assembly
- Performance test
- Electrical inspection (acceptance criteria report)

Specialized services available

- Stator and rotor re-wind
- Stator re-canning
- Weld repairs
- Hydraulic/air leak testing
- Balancing of components
- Re-Rates/upgrades/modifications
- Non-destructive testing—dye penetrant, PMI and x-ray

Replacement pumps can include:

- Addition of cooling jacket
- Change impeller trim and recalibrate E-monitor for changes in process conditions
- Upgrade to 4-20 mA remote indicating E-monitor

Trade replacement pump program

Remanufacture of canned motor pumps to factory specifications.

Partner products

Service and maintenance

Our Partner products: SkoFlo, LitreMeter, Flowguard

We offer repairs both in the field and in our shop. These repairs are accomplished by our skilled technicians, who are available 24 hours a day and have access to stocked diaphragms and bladders at our Houston, Texas facility. A full written report and recommendations are provided following each repair.



SkoFlo Flow Control Valves

Used in the manufacturing of multipoint chemical injection systems.

- Single stage and Multi Stage Back-Pressure - Regulators
- Flow Control Valves
- Our services include inspection, rebuild and testing



LitreMeter Flow Measurements

LitreMeter is a manufacturer of positive displacement flow measuring devices.

LEWA Houston Operations services:

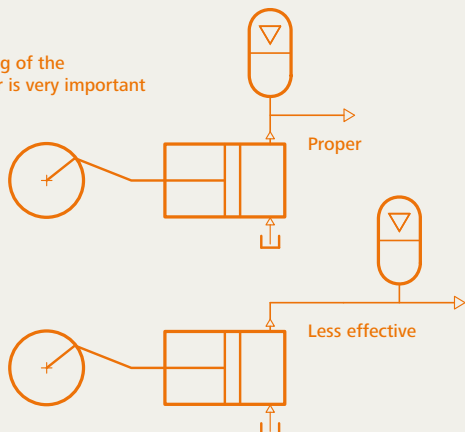
- Electronic uploads and trouble shooting
- Inspection, parts replacement
- Testing



Flowguard dampeners

Flowguard pulsation dampeners are gas-filled, flexible membrane vessels installed on the pipeline. As part of our onsite service visit, our technician will perform a complimentary inspection that consists of monitoring and/or adjusting the gas pressure pre-charge. We offer factory trained replacement services for bladders, and/or diaphragms, gauges, and charging valves. In our shop, we can pressure test for leaks. We can also facilitate a third party x-ray of the dampener shell for possible stress cycle related defects and provide an evaluation of the units remaining service life.

Positioning of the dampener is very important

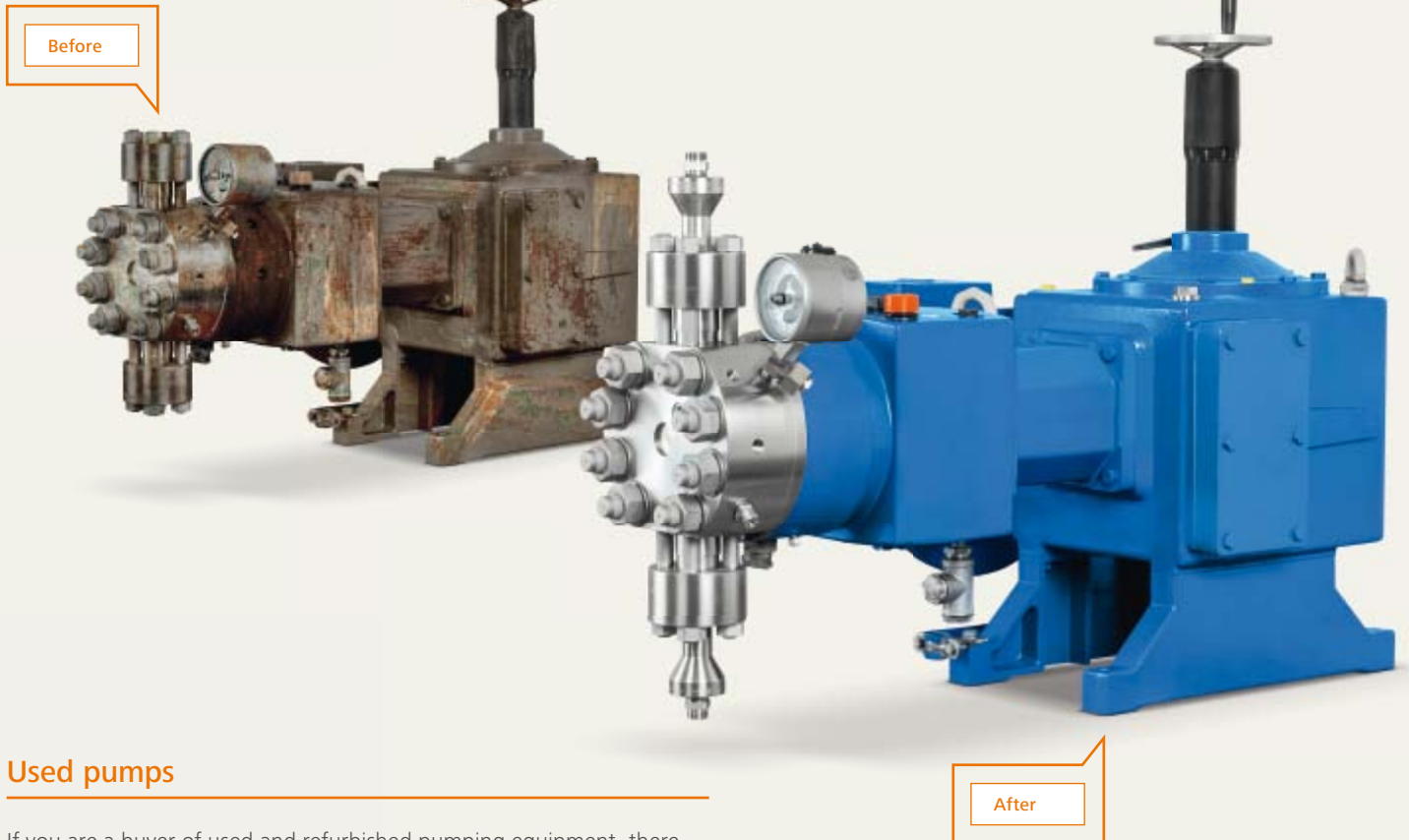


Benefits

- Reduces pipe vibrations
- Reduces pump load and suppresses the surge
- Produces a near steady fluid flow
- Aids in equipment longevity
- Protects meters and in-line instrumentation from pulsations
- Reservoir for make-up fluid on inlet

Refurbished machines

Pre-owned or re-purposed LEWA pumps



Used pumps

If you are a buyer of used and refurbished pumping equipment, there are numerous LEWA pump choices available having sold over 50,000 units worldwide. Take advantage of our access to all operating and parts manual details by serial number. Whether you are refurbishing a single unit or an entire process line, we look forward to be your partner. A refurbished or used equipment customer saves both time and money.

Rental pumps

Our rental pump service can equip you for short-term tasks. You can use rental pumps to avoid loss of production while bridging repair and maintenance times. We stock several models and can help you choose the right solution.

Buy-back

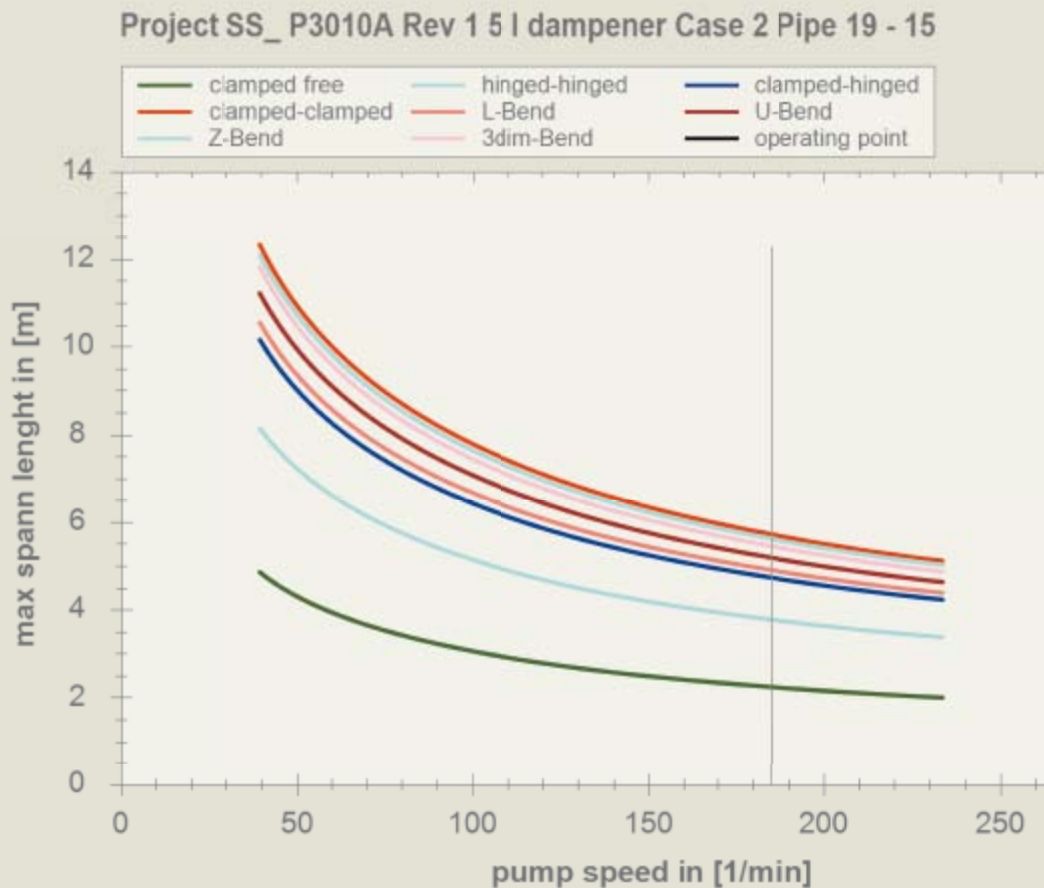
Closing, modification, or other changes in your plant can mean that the previously used pumps are no longer required. We would be pleased to discuss the buy-back agreement terms with you.

Piping interface

Pulsation simulation and analysis

Acoustical simulation analyses

A pump's piping system has acoustic reflections that can amplify the pressure pulsation to excessive levels. Amplified pressure pulsation can result in pump issues including damage, pump cavitation, excessive pipe vibration, and PSV chatter.

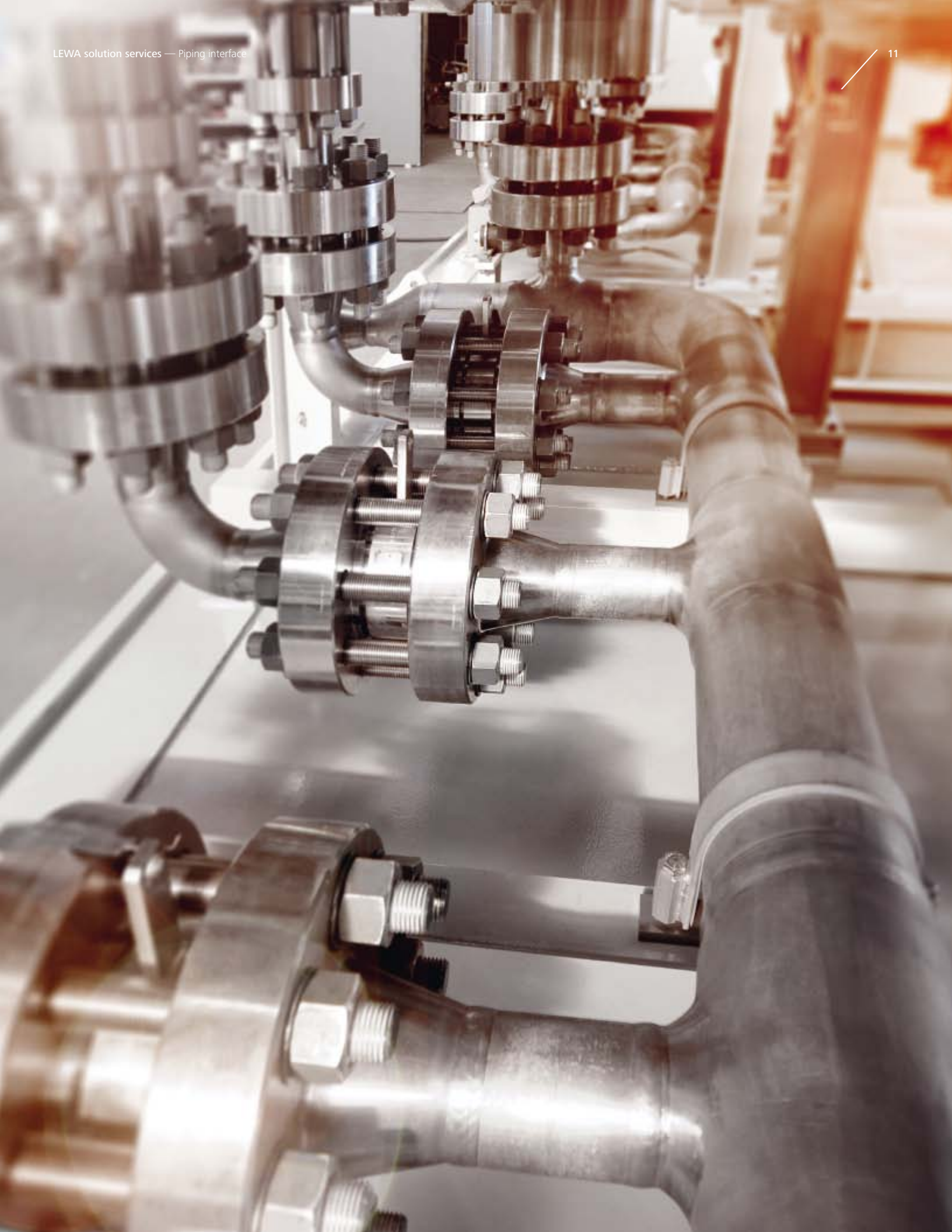


Pulsation analyses

Ensuring proper interaction between a pump system and the pipes connected to it is important, particularly for reciprocating positive displacement pumps. We can troubleshoot your installation using pulsation analyses and piping and installation calculation. These analyses are based on your system's complexity, kinematics, number of cylinders, stroke frequency, and the fluid's characteristics.

Specialized software

We conduct analytical studies with pump design software that provides information about the installation including: Pump volumetric efficiency, inlet pressure loss, and minimum suction pressure required. Pipeline pressure profile of cavitation pressure losses, overload, and resonance pressure pulsation fluctuations at critical speed.



Diagnostics

Pump performance monitoring tool

Annual monitoring

LEWA diaphragm process (LDF to LDH) and triplex (G3S to G3T) pump models (2015) equipped with M4, M8, M9 pump heads benefit from scheduled preventative maintenance by accessing measurable values of pump's condition, resulting in increased life and reduced operating costs.



LEWA Diagnostic Kit (LDK) for Tier 2 service contract customers

- Monitoring to pump's actual known operating condition
- Early wear diagnosis of valve and hydraulic problems
- Maximizes the life of wearable components





With Solution Services, your pump will be backed by LEWA's precision engineering, unmatched product knowledge, and global customer support network – the very strengths that have made us a leader for 60 years.

Regional Sales Offices

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