

AFTER SALES SERVICES

Screw pumps & systems



**LEISTRITZ - THE SERVICE PROVIDER
FOR SCREW PUMPS**

PERFECT SERVICE FOR SCREW PUMPS

Increase the productivity of your plant

As a specialist for screw pumps, Leistriz offers you an attractive portfolio of services and advice throughout the product's service life. This applies for screw pumps from other manufacturers as well and guarantees consistently high productivity and availability for the plant operator.

Our international service team is reachable at any time and guarantees global availability of service technicians, including innovative methods of communication such as smart glasses, for example.



The key certifications:

- AEO-certificate
- EG-certificate EX9 15 12 78292 003
- EG-certificate EX9 15 12 78292 004
- DIN EN ISO 9001
- DIN EN ISO 14001
- DIN EN ISO 50001
- OHSAS 18001
- TR TS-certificate TP TC 010 004 020
- TR TS-certificate TP TC 12

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OUR AFTER SALES SERVICES:

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MAINTENANCE, REPAIR AND OVERHAUL IN LEISTRITZ SERVICE CENTERS

You're in the best hands with us

Without a doubt, maintenance, repair and overhaul of screw pumps should be carried out on site whenever possible in order to save time and costs. But in some cases, operational safety aspects or the scope of the necessary work force us to perform further activities in a Leistriz service workshop.

Examples of this are:

- Measurement of all components
- Ultrasonic testing
- Non-destructive crack testing
- Spectral analysis
- Spraying of bearing seats and housings
- Test runs of the screw pump after overhaul or repair (only possible at the head office in Nuremberg)

Consequently, we maintain four of our own service workshops for screw pumps or employ selected, qualified, certified and reliable partners so that your screw pump can be put back into operation as soon as possible. We carry out repairs on all screw pumps - whether from Leistriz or from other manufacturers.



COMMISSIONING, MAINTENANCE, REPAIR AND OVERHAUL ON SITE

We take care of a smooth start-up and operation of your pump

The commissioning of a pump is a critical step to which particular importance must be attached. Our experienced service technicians help you to prevent mistakes and train your staff at the same time. You can maintain or even increase the availability of your screw pump with regular preventive maintenance and by replacing wear parts in accordance with our proven recommendations. This is confirmed by surveys of our customers. The measures derived depend on the age or operational life and supplement your small daily and weekly supervision activities. Often, onsite repairs enable continuous operation on either a permanent or temporary basis.

Are your screw pumps running perfectly? Wonderful! What about at least a brief qualified condition examination (Health Check) including risk assessment performed by us? You can thus be sure that your pump will continue to perform well for a long time. Regardless of the manufacturer, we evaluate your entire inventory of screw pumps.

Our offering:

Simple activities

- Rework of spindles, contact surfaces and bearing bushings
- Removal of corroded areas
- Installation of spare parts

Advanced activities

- Regrinding of spindles
- Supervision of repairs by qualified local partners or our service technicians

Challenging activities

- Diagnosis and recording of the current condition
- Determination of additional measures

» In addition to the screw pumps manufactured by ourselves, Leistriz also repairs screw pumps of all known manufacturers.

If continued operation and repair on site is not possible, we will help you to transport your screw pump to the nearest Leistriz workshop or to our headquarters in Nuremberg as quickly as possible. In an emergency, a qualified Leistriz service technician will be with you within 48 hours, even in remote locations. Our qualified service technician decides regarding an on-site repair by himself or, if necessary, with support from other experts at our headquarters.





ORIGINAL

LEISTRITZ SPARE PARTS

Nothing fits better

We are convinced: nothing fits better than spare parts from Leistritz, whether for our own pumps or for pumps from other manufacturers. Our customers confirm this. Because we are the most experienced screw pump manufacturer in the world. Over almost 100 years, we have produced approx. 10 million screw pumps. Regardless of how old they are, you can get perfectly fitting and top quality spare parts in OEM quality from us.

The safest method of achieving high availability and reliability is an appropriate inventory of spare parts, combined with regular maintenance as well as continuous or regular condition monitoring.

You can also get the current state-of-the-art technology and quality for screw pumps produced by other manufacturers from us. As a result, it doesn't matter whether the original manufacturer still exists or not. Therefore, we proceed as follows and guarantee you a world-leading top quality:

- Measurement of the respective parts
- Incorporation of the data measured into our design program
- Use of this data to design and, where applicable, optimize bearings, spindles and housings in accordance with the state of the art or your own specifications
- In-house manufacturing in accordance with our strict quality guidelines



Our service employees carrying out a roughness measurement on a customer's spindle

In addition to spare parts, we also offer complete replacement pumps.

The Leistritz range includes:

- Standard parts
- Catalog parts
- Technically challenging components such as spindles

With a number of provisions such as a web-based spare parts shop, stocking of many spare parts, innovative spare parts concepts and, where necessary, expedited production, we ensure the quick and easy availability of a wide range of spare parts.



TECHNICAL SERVICE & ENGINEERING

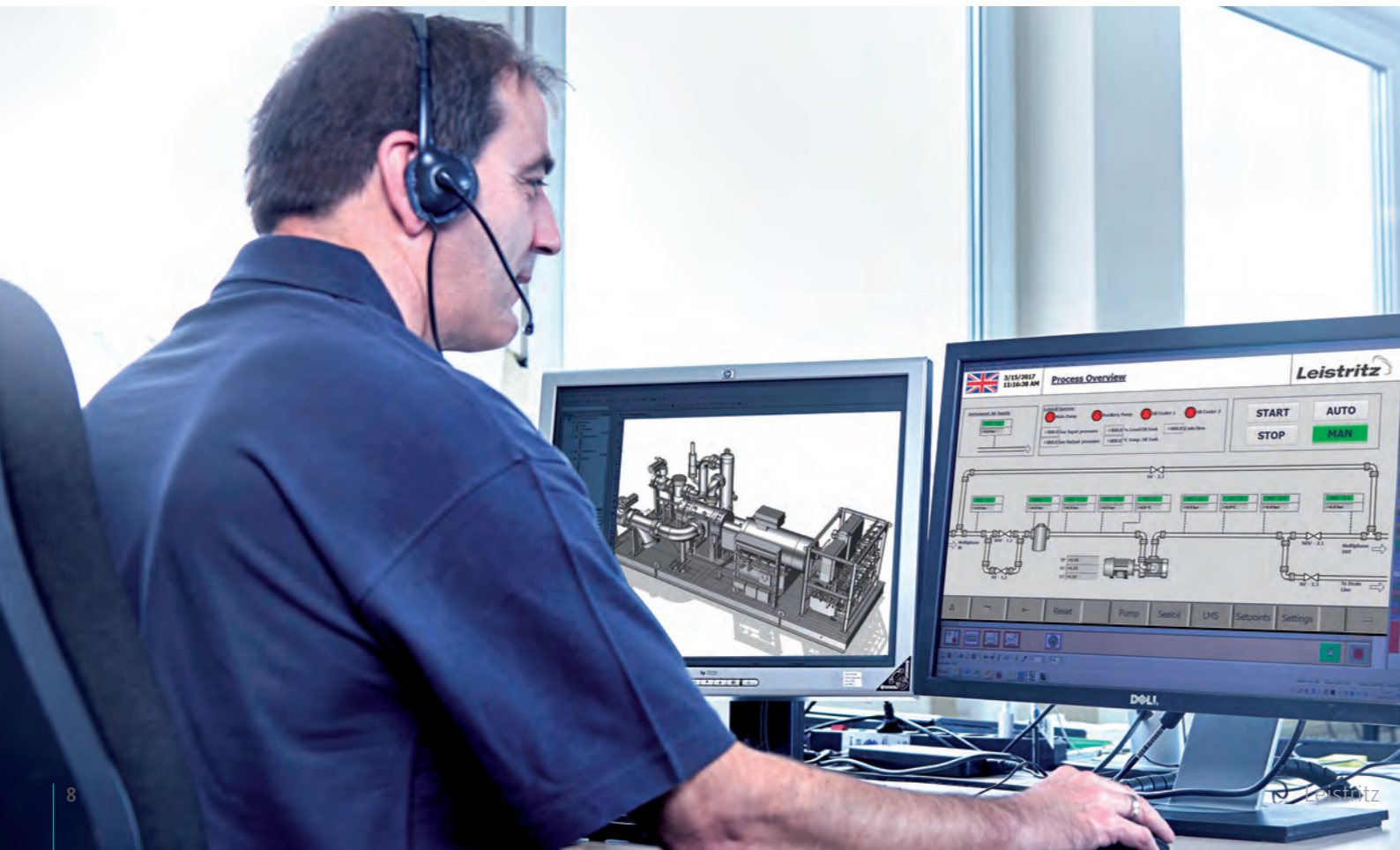
Your experts in any situation

While you concentrate entirely on your core business, we look after your pumps. As an expert in screw pumps, Leistriz is at your side with an extensive service portfolio – always with the aim of ensuring high availability and reliability for your screw pumps. In general, plant operators have three fundamental questions how we can help with our diagnostics, practical recommendations and solutions.

- Are there already signs which indicate a negative development or which must be monitored?
- Can the screw pump still be operated safely in the current condition, is the condition in a critical state or just how do we need to react?
- What must be done or changed in order to ensure reliable operation and high availability of the pump and to avoid problems in the future?

Depending on the situation, we use sophisticated instruments in order to make a quick, detailed and reliable statement. For example:

- Condition monitoring with trend measurement in order to be able to act fast
- Theoretical and/or practical training so that you gain a better understanding and expertise
- Consulting services for service life extension and increase of availability, e.g. through supply concepts
- Energy efficiency analysis
- Health Check



HEALTH CHECK

Let's play it safe

A Health Check is a cost-effective inspection of a screw pump on site and does not replace regular maintenance. In addition to the pump itself, our experts assess the environment and the general conditions.

When is a Health Check worth considering?

- On a low budget
- Support for the operators in maintenance decision, strategy
- No or temporary possibility of downtime
- Risk assessment because the condition of the screw pump is unknown

What does a Health Check include?

It is separated into two parts which are provided to the customer in a report:

- Availability check and assessment (risk assessment, installation, spare parts, tools, customer competence)
- Reliability and condition check or assessment (maintenance, lubrication, visual inspection, performance, vibration)

Why should a Health Check be performed?

- Risk assessment
- Evaluation of the condition of the screw pump
- Suggestions for optimized availability and reliability
- Professional technical condition documentation

Execution

Health Checks are performed by specially trained staff. They have several years of experience in vibration measurements on screw pumps and are well experienced in vibration measurement methods and equipment.

RETROFITS & MODERNIZATION

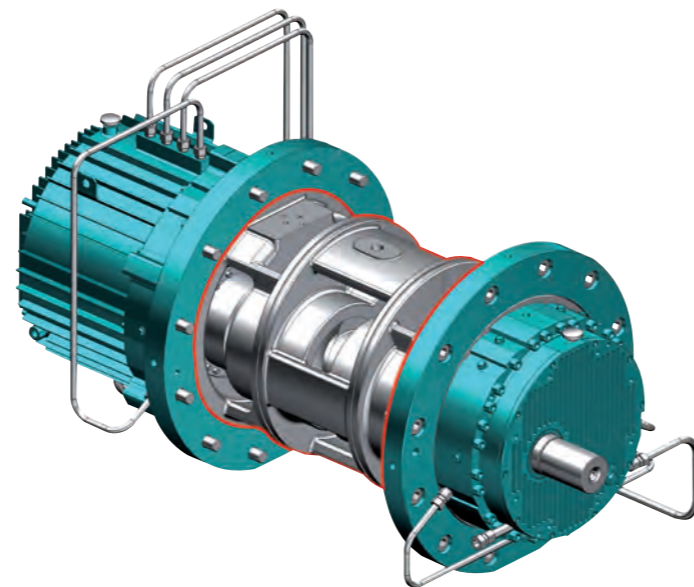
Improved performance and efficiency



We have the following options:

- At first we investigate if existing components can be used for an improvement of performance.
- If not, we replace the necessary components or the entire Leistriz screw pump, or the pump from another manufacturer. Regardless of whether original drawings are available or not.
- Upon request, we update outdated technical solutions using state-of-the-art components.

If you have a fleet of multiple identical pumps in one or more systems, we offer you a solution which guarantees the lowest possible amount of downtime. Contact us!



MAINTENANCE CONTRACTS

Assurance - signed and sealed

Many plant operators are seeking to secure a defined level of reliability, availability, reaction time or range of services from manufacturers of screw pumps or service providers.

With our network of service workshops spanning the globe, the qualified team of central and local specialists, and the solidity of a company with a German headquarter, we are the right partner for you.

If you are interested in one or more of the following agreements, then get in touch with us.

- Extended warranty period (after commissioning, repair or reconditioning)
- Maintenance contracts
- Condition-based maintenance

	Servicing and Maintenance Matrix				Operation condition			
	daily / permanently	after half year or 4000 Operatinghours - Major visual inspection	after two years or 16000 hours - Maintenance	after 5 years or 40000 hours - General Overhaul	Who does the service	Whole Pump is running	At System Standstill	In Workshop
Service Work					Vendor	Operator		
Monitor Operation behaviour and record, monitor and check/analyse specific operating data.	x	x	x				x	x
Perform a visual inspection of the MPP System according to the IOM's of the Subvendor Items.	x	x	x				x	x
Check the MPP System for any unusual running noises.		x	x				x	x
Perform a visual inspection of all the instrumentation for signs of damage and to ensure that it functions correctly		x	x				x	x
Check all major screw connections.		x	x				x	x
Check any special tools and/or accessories supplied are complete and in good visible condition.		x	x				x	x
Check any spare parts and/or capital spares are complete and in good visible condition.		x	x				x	x
Perform a visual inspection of the timing gears		x	x				x	x
Check alignment and tightening torque of screws at coupling according to the IOM's of the Subvendor Items.		x	x				x	x
Perform Maintenance according to instruction Manual of the Sealant & Lube Oil System Chapter 7.3		x	x				x	x
Drawn the pump.			x				x	x
Install lifting equipment			x				x	x
Dismantle the pump for mechanical seal and bearing change.			x				x	x
Clean all parts with suitable medium.			x				x	x
Visual inspection of all dismantled parts including fittings and sealing areas.			x				x	x
Assemble pump with new bearings, mechanical seals and seals (Gaskets, O-rings)			x				x	x
Commissioning of pump.			x				x	x



MONITORING & SUPERVISION

Data are the raw material of the 21st century. Use them smart!

Through digitization and use of process and condition data, we work together with you to bring your equipment into the next stage of development and thus realize an increase in efficiency and higher availability. Precisely tuned sensors make it possible to monitor the pump.

You decide WHAT and HOW!

We offer you a variety of options:

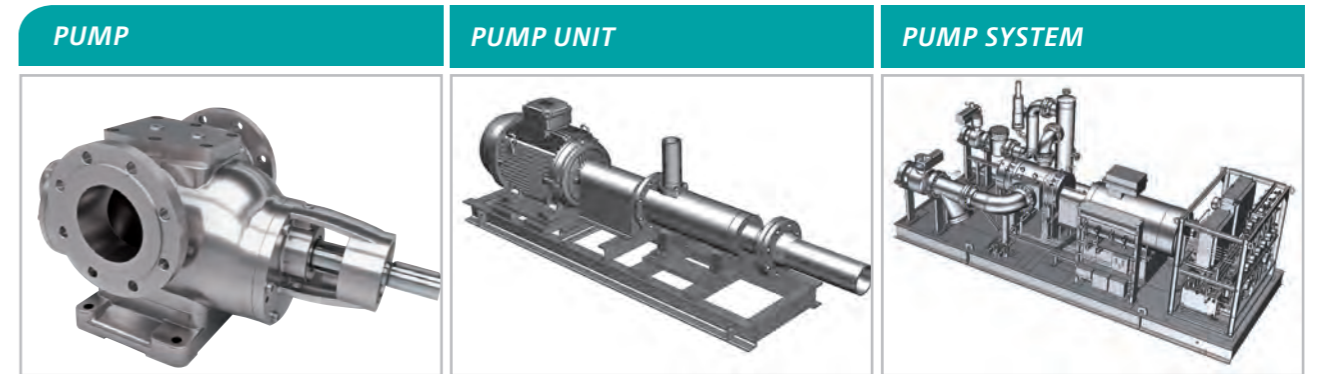
- BEARING MONITORING
- PUMP MONITORING
- SYSTEM MONITORING
- SYSTEM CONTROL



All individual modules can be combined with each other.

You can choose whether to use our software or whether to integrate it into your own IT infrastructure.

MONITORING & CONTROL MODULE



MONITORING

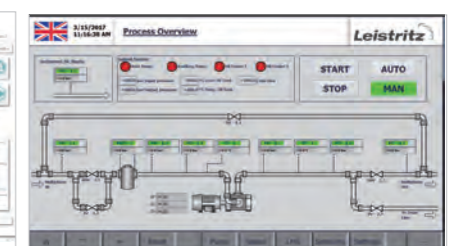
MONITORING MODULE

SMART PUMP SENSOR	SCREW PUMP MONITOR	SYSTEM MONITORING
<p>Component monitoring:</p> <ul style="list-style-type: none"> ➤ Bearing temperature ➤ Vibration ➤ etc. 	<p>Pump monitoring:</p> <ul style="list-style-type: none"> ➤ Load condition ➤ RPM ➤ Temperature ➤ Vibration ➤ Lubrication condition ➤ etc. 	<p>System monitoring:</p> <ul style="list-style-type: none"> ➤ Pumps ➤ Drive system ➤ Lube oil system ➤ Barrier fluid system ➤ Safety equipment ➤ Valve setting ➤ etc.

CONTROL

CONTROL MODULE

PUMP CONTROL	SYSTEM CONTROL
<p>Pump control:</p> <ul style="list-style-type: none"> ➤ Integration of pump control into higher-level system solutions (PLC, SCADA, etc.) 	<p>System control:</p> <ul style="list-style-type: none"> ➤ Comprehensive system control according to the customer's requirements





ADVICE/TRAINING

Knowledge helps to prevent mistakes

We bring your pumps up-to-date and train your staff in theory and practice. Our experts provide advice on availability, efficiency improvement and safe operation of the pump. We use state-of-the-art methods of communication, such as smartGlasses, for this.

In our PUMP ACADEMY, we communicate specialist knowledge which is tailored to your needs – whether in the form of training courses on site or in our training centers. We offer you:




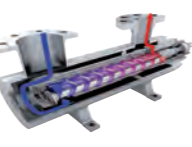


- Multi-level, individual training programs
- Practical training



smartGlasses for augmented reality - virtual service



PUMP RANGE

SERIES	USE FOR	PUMP TYPE	PERFORMANCE DATA			
			Flow rate	Pressure	Viscosity	Temperature
L2N	Low pressure duty, suitable for transport of slightly abrasive and corrosive, high or low viscous fluids with poor or good lubricity.		900 m ³ /h 3,960 GPM	16 bar 232 psi	100,000 cSt	280°C 536°F
L3N	Low pressure duty, suitable for transport of non-abrasive lubricating fluids.		700 m ³ /h 3,100 GPM	16 bar 232 psi	15,000 cSt	180°C 356°F
L3M	Medium pressure duty, suitable for transport of non-abrasive lubricating fluids.		300 m ³ /h 1,320 GPM	80 bar 1,160 psi	10,000 cSt	280°C 536°F
L3H L3V L3U	High and ultra high pressure duty, suitable for transport of non-abrasive, slightly abrasive and corrosive, high or low viscous fluids with poor or good lubricity.		200 m ³ /h 880 GPM	280 bar 4,060 psi	10,000 cSt	280°C 536°F
L4N L4M L4H	Low, medium and high pressure duty, suitable for transport of abrasive/non-abrasive, corrosive/non-corrosive, lubricating/non-lubricating, high or low viscous fluids.		5,000 m ³ /h 22,000 GPM	150 bar 2,175 psi	150,000 cSt	350°C 662°F
L5N	Low pressure duty, suitable for transport of slightly abrasive and corrosive, high or low viscous fluids with poor or good lubricity.		1,700 m ³ /h 7,500 GPM	10 bar 145 psi	100,000 cSt	280°C 536°F

This list offers a general overview of the standard pump range by Leistritz. Various options and systems are individually configured according to customer requirements and tested on our test bench (drive power up to 4 MW) in Nuremberg.

PUMP TECHNOLOGY

Available for you all over the world

USA

Leistritz Advanced Technologies Corp., Allendale
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Germany

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