Leading joining technology

SCHAAF®

SCHAAF

Your partner for innovative solutions



SCHAAF – Product quality and cooperation just as you like!

Leading joining technology by SCHAAF

22,000 m² for High-Pressure Hydraulic Technology up to 4000 bar

SCHAAF is an international group of enterprises with home-base in Germany that has specialised in the development and production of joining technologies since 1954. The globally active company thrives on its innovative system solutions and convinces with excellent quality.

SCHAAF develops and manufactures Hydraulic High-pressure Tools, Bolt Tensioners, Hydraulic Nuts, various Connecting Bolts as well as shafts and axles connections. Moreover SCHAAF offers the patented and certified TTG with increased lifetime.



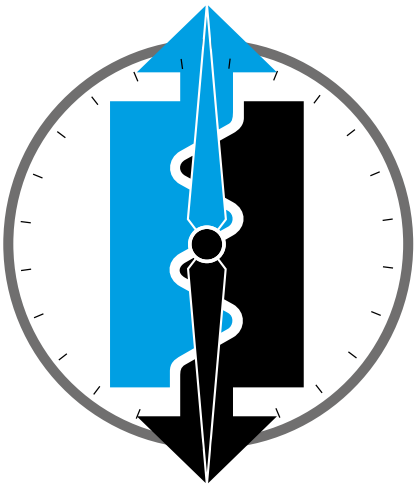
SCHAAF®



The Vision statement is focused on tomorrow and what we would like to become. It sets our company the direction where to go.

VISION

We develop world leading technology in the field of joining technique and thereby inspire our customers. Together we hereby create a future in which material will be saved, resources will be sustained and life will be easier.



The Mission statement is focused on what, and why we are doing that today. It drives the company towards the Vision. Every piece of the mission is to stay on the track to reach our Vision.

MISSION

We create value to our customers in all kinds of industries and offer cooperation in the way they like it.

Locations



SCHAAF Germany

What originally started with a modest production facility and just three office rooms has envolved into an impressive manufacturing of over 22,000 m² over the past fourty years. The construction of our Plant 3 in 2023 marks a significant milestone in SCHAAF‘s history.

This decisive step has not only doubled our production capacities, but also enables us to produce simultaneously at three plants, all located in Erkelenz. Here we continue our production of high-quality tools and equipment.



Our highly modern machinery, in-house testing facilities and an efficient dispatch centre form the backbone of our manufacturing processes. In addition, our in-house joinery and high volume production capabilities give us the flexibility and versatility needed to meet the demands of the future.

A rigorous quality management system is seamlessly integrated into all aspects of our production to ensure that every product that leaves our facilities meets the highest quality standards.



With these three impressive locations, we are well equipped to meet upcoming challenges with confidence and innovation. SCHAAF stands for quality, precision and the continuous pursuit of excellence - and our locations are proof of our daily commitment to these values.



SCHAAF China

After the successful expansion of the sales network in Asia, SCHAAF (Taicang) Co. Ltd was founded in 2007. Under strict quality requirements according to German standards, SCHAAF products have been produced especially for the Chinese market since 2011 on around 3,000 m². This reduces the costs because there are no transports from Germany and the express delivery capability in Asia is increased, without any decrease in quality.



FASTEC Switzerland

The SCHAAF Group has included FASTEC AG, based in Altdorf, since 2010. The production facility of 2,000 m² is equipped with the precision of state-of-the-art machines that is well known in Switzerland. FASTEC specialises primarily on the SCHAAF TTG-Technology, which is a patented process for manufacturing threads in nuts or on bolts with 100% flank contact over the complete area in pretensioned condition.

Milestones

Know-how paired with High-Tech – the best foundation for successful systems.

2023	Expansion to 22,000 m² (Plant 3)
2022	Series supplier for GE Haliade-X wind turbines (>12 MW power) with TTG Bolts and Nuts
2021	Thread rolling machine for fast, precise and increasing fatigue strength production of TTG and DIN thread bolts
2021	First 24/7 automated production line for large series production
2020	SCHAAF TTG joining elements for 111 turbines for a chinese offshore wind turbine manufacturer
2020	Expansion to 10,000 m² (Plant 2)
2019	TTG Bolts and Nuts for the biggest crane Liebherr has ever built with a bearing diameter of 17,190 mm
2019	ExpaTen QL for all V164 and V174 Turbines (8,5-10 MW)
2018	1st use of the Bolt Robot after only 3 months development time
2015	Order for the world largest forging press (mounting tools) 550MN
2013	Establishment of SCHAAF Service GmbH
2010	Takeover of Fastec AG, Switzerland
2007	Start and Expansion SCHAAF China in Taicang
2005	Expansion to 4,000 m²
1977	Company established by Martin Schaaf
1954	First Bolt Tensioners, designed by Martin Schaaf at the company Wirth

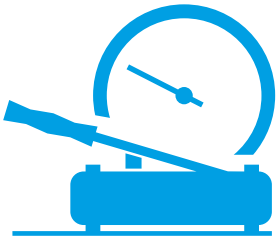

1954


2015


2019

Hydraulic high pressure service

SCHAAF Service GmbH offers comprehensive support for our products, with a strong emphasis on quality, reliability, and precision. Our expertise lies in offering complete Hydraulic High-Pressure services directly from the product manufacturer, ensuring the highest level of assistance and performance. From assembly to operation, we provide support throughout the entire process. Additionally, SCHAAF Service offers worldwide maintenance and repair services as needed.



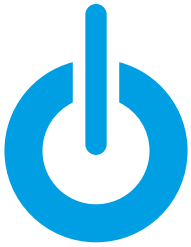
Assembly

SCHAAF Service handles the global assembly and disassembly of products and systems, including their overhaul.



Maintenance

In addition to installation and removal, SCHAAF Service also takes responsibility for the regular maintenance of existing products and tools.



Installation

We provide professional installation and setup services for the corresponding or required software.



Repairs

Our professional team performs prompt repairs for all product and tooling problems, ensuring efficient worldwide support.



Instruction

Our experts provide specific instructions to customers and employees, ensuring the safe and efficient operation.



Trainings

SCHAAF Service offers comprehensive training programs for application and maintenance of our own products as well as external ones.



Offshore converter station



Forging press



Ship-shaftline installation

SCHAAF®
SERVICE



Service by SCHAAF

- Worldwide support
- Quality, reliability and precision
- More than 50 years experience with hydraulic high-pressure tools
- Mounting, demounting, maintenance, installation and repairs
- Instructions and trainings for safe and high efficient operation

Unique features

Innovative partner of the industry!



Technical Design

Own design office with CAD, FEM, CAM and Design on Demand workstations

Consulting

Through our specialist engineers and technicians as well as worldwide on-site representations





Own production

95% in-house production, CAM and PPS supported

Service

Worldwide commissioning support and Maintenance measures





Training

Internally and externally by specialist staff



Documentation
According to the necessary guidelines and customer requirements

Quality assurance
Through a quality management representative as well as 100 % worker self-control; the entire company is certified according to DIN EN ISO 9001:2015.





Test benches
95% in-house production, CAM and PPS supported

Testimonials and tests
According to customer requirements and in-house testbenches for many products





Warehousing
24 hour express service for all stock items and almost all parts that need to be manufactured

Turnkey solutions for your business

Product quality and cooperation as you wish!

SCHAAF is your contact partner right from the project planning stage in order to achieve the best possible result. In-house production and possible assembly ensure a smooth workflow.

1

Development

Customer-oriented solutions with SCHAAF technology

2

Production

SCHAAF in-house production facilities for optimal quality management.

3

Mounting

SCHAAF Service offers support with assembly, on-site training and maintenance.



General mechanical engineering



Windenergy



Hydroenergy



Powerplant technology



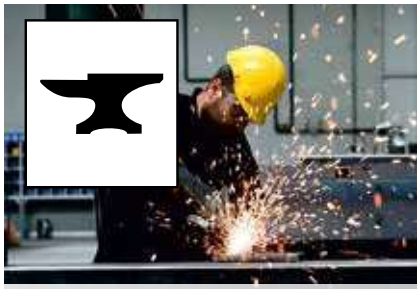
Engines and gearboxes



Shipbuilding



Cranes and construction machinery



Metal industry



Chemical industry

SCHAAF®



Key solutions

- Patented joining technologies for the entire industry
- System provider with own development department
- Many years of experience with hydraulic tensioning tools
- Support in the planning phase for optimal and cost-reducing results
- 100% system solution through coordinated accessories
- Renowned certifications, including ISO 9001

SCHAAF TTG-Technology

Bolts and nuts of the future

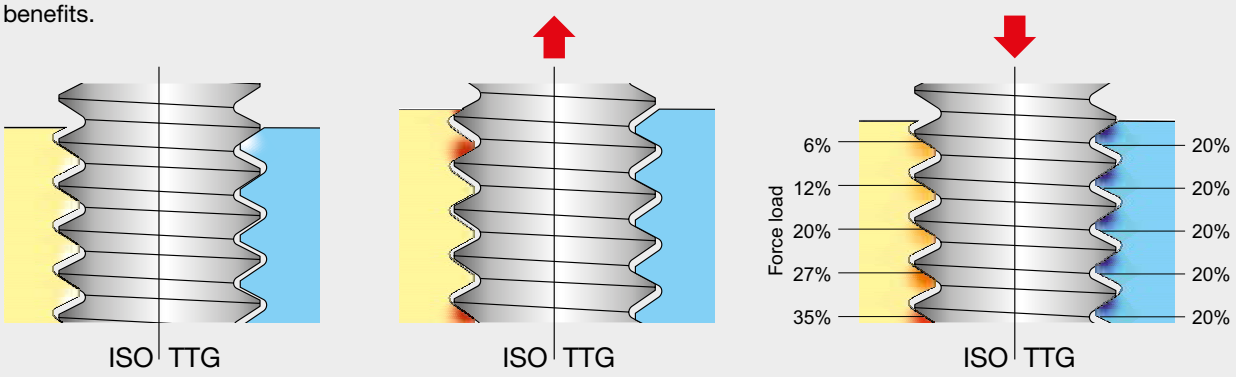
The TTG patented by SCHAAF has been studied extensively in several test procedures by the Fraunhofer-Gesellschaft as part of its technology research and has been awarded internationally valid certificates.

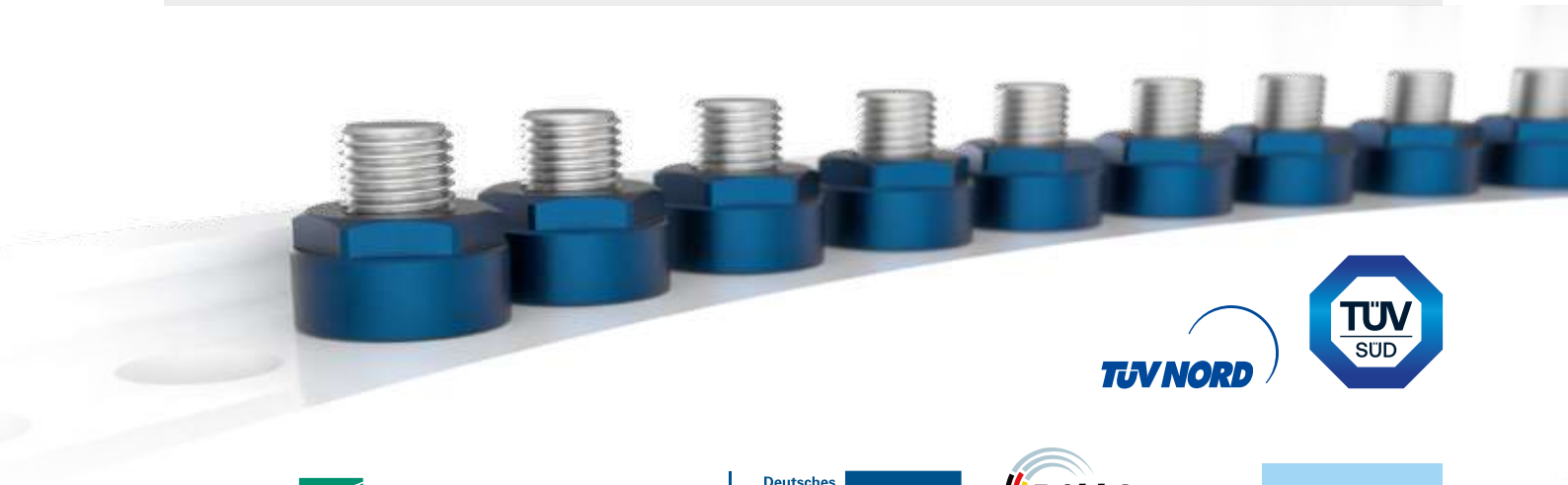


TTG

Targeted equal force in the thread area

TTG, a patented manufacturing process for creating threads in nuts or on bolts ensures optimum fitting accuracy in the thread when tightened. This innovative method not only enhances durability but also enables bolts with TTG to withstand significantly higher loads due to the higher fatigue class and the increased residual force. Consequently, the connection diameter can be reduced, leading to substantial material savings. Additionally using TTG leads to less loss of force over time. Threads featuring TTG revolutionize connection possibilities and offer cost-saving benefits.





Fraunhofer
Deutsches Institut für Bautechnik DIBt
DAkkS Deutsche Akkreditierungsstelle
DNV
TÜV NORD
TÜV SÜD

Tooling

Bolt Tensioning techniques up to 4000 bar



Bolt Tensioner

Axial Bolt tensioning using a removable tool

Torsion-free generation of axial tensioning force – Economical use of bolt material capacity from size M8 to S1000 and bigger.



World record
Bolt Tensioner S1000



Hydraulic Nuts

Axial Bolt tensioning using a hydraulic nut that stays on the bolt-connection.

Torsion-free generation of axial-tensioning force. Quicker tightening and loosing of your connection for regular maintenance – compared to Bolt Tensioner.





Multiple Stud Nut

Axial bolt tensioning using torque (MSN)

Simple option to achieve torsion-free axial tensioning force with increased mounting effort. The MSN replaces the standard nut in a bolted connection.



Joining Elements

Shaft and axle connections up to 4000 bar



ExpaTen

The Perfect Fastening Bolt

ExpaTen bolts not only provide a 100% non-positive and form-fitting connection for transferring high torque, but they can also be easily disassembled and reused even after enduring high levels of stress. These bolts from Ø100 – Ø400 mm ensure a safety advantage of 5 compared to regular bolt torque transmission.









GripLoc

The Optimal Shaft Coupling

GripLoc couplings from Ø100 – Ø1,000 mm offer the ideal solution for connecting two flangeless shafts through radial shrinking. With our specially patented design, customers can confidently mount and dismount the coupling, backed by a lifetime guarantee.





GripCon

Radial force transmission in unreachable never seen before compactness

The patented SCHAAF GripCon takes the design and performance of hydraulic coupling bolts to a new level. Designed in Ø18 – Ø400 mm for weight, cost and space saving use. GripCon maximises safety, reliability and remains removable even after years of service.





Joining Elements

Shaft and axle connections up to 4000 bar



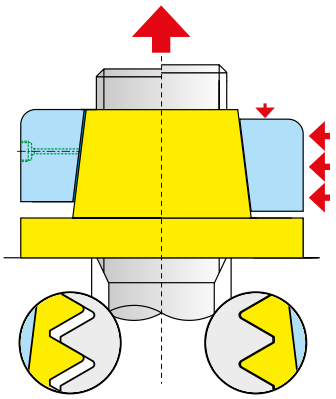
ExpaHub

The Optimum Connection for Shafts and Hubs

ExpaHub enables the seamless connection of two cylindrical parts, combining cylindrical inner and outer diameters. This connection allows for the transmission of high torque while ensuring easy disassembly and reassembly.







ShrinkNut

The Maintenance-Free Bolt Connection with TTG

ShrinkNut is effortlessly installed using a hydraulic tool and clamped onto the bolt. It serves as the perfect nut for vibrating connections, eliminating the need for welding and enabling easy disassembly when required.





Oil press fit

Hydraulic nut for oil press fit installation

100% customised hydraulic nut for different applications. The dimension, force and pressure can change to customer wishes.





Joining Elements

Custom Solutions in High-Pressure Hydraulic Technology up to 4000 bar



Custom Solutions

High-Pressure Cylinders
Our expertise lies in customizing high-pressure cylinders with a wide range of functionalities, including weight reduction, short stroke, long stroke, hollow cylinders, lifting cylinders, and cylinders designed for extreme loads. Our goal is to provide tailored solutions that address the specific requirements of our customers. Our aim is to support our clients in solving their challenges by delivering specialized designs that cater to their individual needs.





Hydraulic Mounting and Dismounting Devices

Customized and standardized mounting and dismounting devices for hubs on conical or cylindrical shaft seats.





Ring Tensioner

Ring Tensioner are customized and can be used in systems that require quick tensioning procedures.

The distinguishing feature of the Ring Tensioners is that several Bolt Tensioners are integrated in or on a ring structure or alike and work simultaneously so that several bolt threads can be pretensioned at the same time.





SCHAAF®

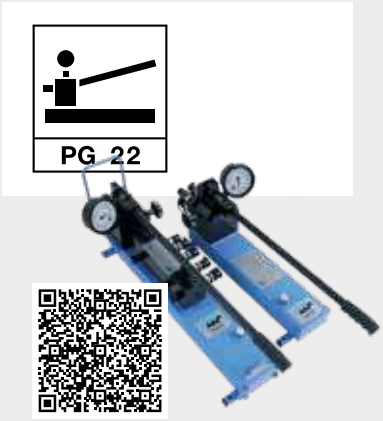


Quality management

- All products are checked for material quality, dimensional accuracy, proper operation, and pressure resistance
- Quality assurance measures during order execution
- Each product is delivered with detailed documentation
- SCHAAF products and services comply with national and international norms and standards, legal regulations and specific customer requirements

Product Extensions

Pumps and High-Pressure Units, Accessories



Hand Lever Pumps

Hydraulic pressure up to 4000 bar

The hand lever pumps are designed and produced by SCHAAF. The extremely rugged design ensures a long service life. All pumps are therefore perfectly suited for rough conditions at workshop or field.









High-pressure Units

Pressure up to 4000 bar

Electric and air driven pump units for workshops and field applications. 100% designed and produced by SCHAAF with optional software for documentation of the complete bolting process like Mounting Documentation System (MDS) or a fully automatic two-circuit high-pressure control (STG).





Accessories

Nipple, adaptor, hoses, gauges

SCHAAF designs and manufactures all needed hydraulic high pressure accessouries to connect and pressurize the tools with the high pressure pumps.





SCHAAF®

Simplifying Complexity, Emphasizing Significance!

Exemplary quality management throughout the production process

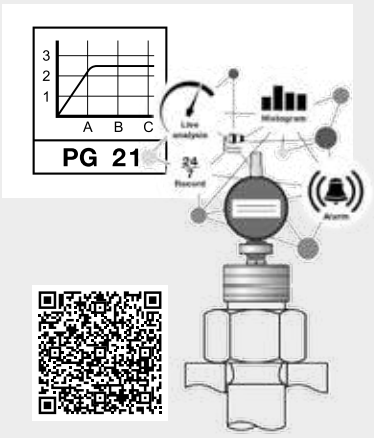
At SCHAAF GmbH & Co. KG, our commitment to quality can be felt and seen in every aspect of our production process. Our unwavering dedication to consistency within our company is the reason for our stakeholders strong trust. Our philosophy is rooted in the diligent implementation of a comprehensive quality policy and a continuous drive for improvement. Strong principles and implementation of highest quality standards and targets are deeply ingrained within our organization. They ensure that SCHAAF products and services consistently meet the requirements of national and international standards, regulatory frameworks, and the specific needs of our esteemed customers.

Customer centricity is paramount at SCHAAF GmbH & Co. KG. to understand and fulfill our customers‘ desires and requirements is especially important to us. Safety, functionality, reliability, performance, health considerations, environmental sensitivity, comfort, design, materials, delivery time, service life, serviceability, and maintenance are critical parameters guiding our efforts to swiftly and flexibly offer and deliver the ideal solutions for our customers.



Product Extensions

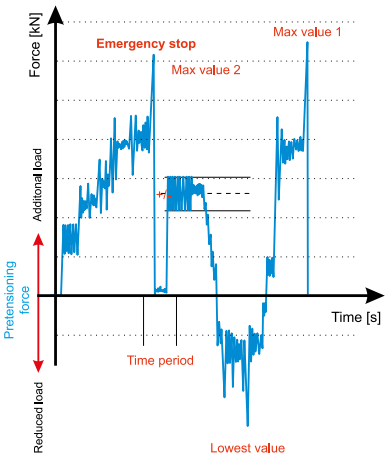
IoT / Software solutions for High-Pressure Hydraulic Technology up to 4000 bar



OBLM

Online Bolt Load Monitoring

A measuring solution to control and measure the bolt force during operation in real time.
Software incl. hardware







FSTS

SCHAAF solution for a Tower Flange Stud Tensioning System

The design of our tools is focused on simplicity, aiming to achieve cost reduction and intuitive operation for the user. One example of this approach is the absence of additional motors for tool operation.
Alternative Bolt Robot: Fully automatic fastening of tower flanges to minimize operator efforts and to save time.





Software development

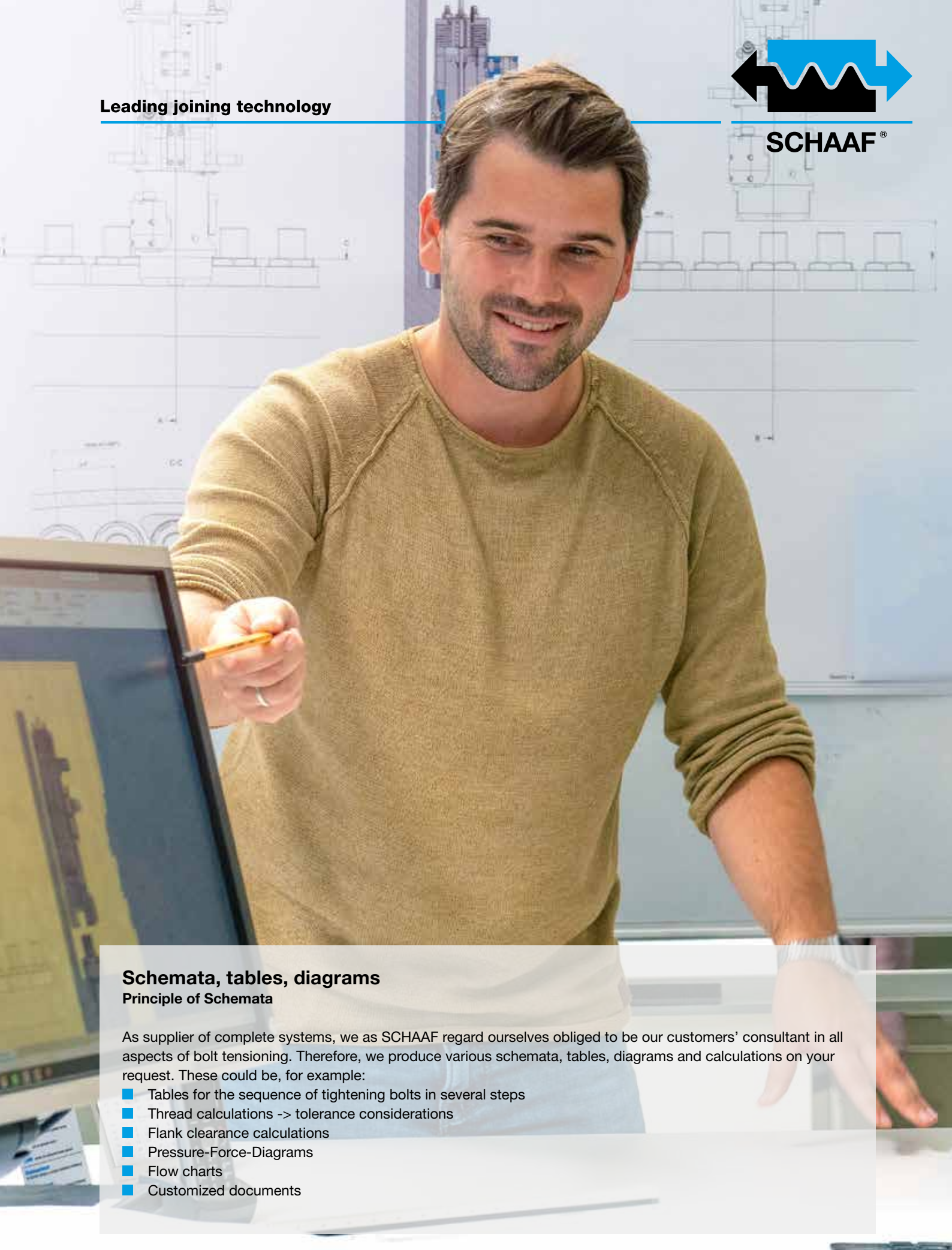
Individual software solutions for controlling, monitoring and documentation of bolt connections including the tensioning process.

TSI / TMS
Maintenance monitoring of hydraulic tools. Operation and maintenance monitoring of hydraulic tools and aggregates





SCHAAF®



Schemata, tables, diagrams

Principle of Schemata

As supplier of complete systems, we as SCHAAF regard ourselves obliged to be our customers' consultant in all aspects of bolt tensioning. Therefore, we produce various schemata, tables, diagrams and calculations on your request. These could be, for example:

- Tables for the sequence of tightening bolts in several steps
- Thread calculations -> tolerance considerations
- Flank clearance calculations
- Pressure-Force-Diagrams
- Flow charts
- Customized documents

Quality conscious action

Continuous improvement

Personnel Management at SCHAAF: Driving Efficiency and Quality Consciousness

At SCHAAF, our personnel management is guided by the conviction that only qualified and quality-conscious employees can ensure high efficiency in product development and manufacturing. Each member of our staff plays a vital role in achieving the company's goals and is committed to continuous improvement in both thinking and performance. To facilitate this, our executive management provides every staff member with the necessary freedom and training to meet requirements, maintain the quality management system, and continually enhance the company's operations. In doing so, we establish and maintain lasting customer trust in the capabilities of SCHAAF, solidify our position as an industry leader, and ensure long-term job security.









Quality Management: Establishing a Convincing Quality Image

To achieve the best possible outcomes for our customers and secure the company's existence and success, SCHAAF's management places a strong emphasis on the quality of daily performance, internal and external collaboration, and the resulting products and services. The quality of all SCHAAF products is meticulously planned, executed, and certified. Our continuously updated quality management system, monitored and evaluated by the executive management, reinforces our commitment to quality and contributes to the outstanding reputation of our company. SCHAAF products of superior quality are approved for application and delivered to customers only when they have successfully met the requirements to the fullest extent.

DAkkS Deutsche Akkreditierungsstelle
IAF Member of Multilateral Recognition Arrangement
DNV
TÜVRheinland® Precisely Right.
MAN B&W
ALSTOM
Bureau Veritas 1828

SCHAAF®

Focus on SCHAAF

Know-how paired with High-Tech – the best foundation for successful systems.













Leading joining technology

SCHAAF®



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Several customer awards confirm again and again, that SCHAAF comes to mind due to innovative developments and dozens of patents worldwide regarding optimised processes and quality the addition “Leading joining technology” is right.

Follow us!

www.schaaf-gmbh.com

SCHAAF develops and produces world leading technology in the field of joining technique in all sectors of the industry.

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