

LSP3

**„The resolution of one thing
is the creation of another“**

Francesco de Sanctis (1817-1883) italian historian





NEW IDEAS ARE BEST PRODUCED SYSTEMATICALLY: OUR NEW STANDARD PROGRAM L.SP3.

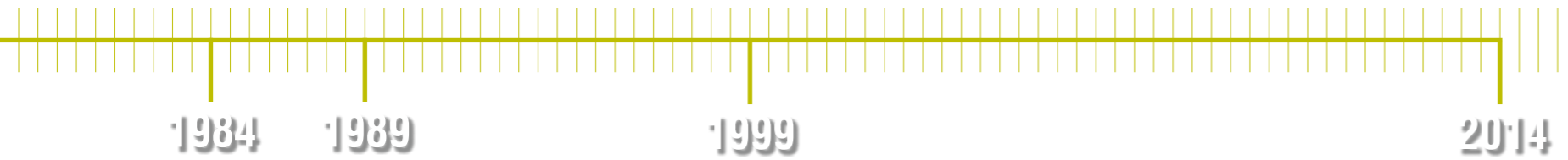


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**PURSUING DEVELOPMENTS, DEVELOPING SUCCESSES.
THAT'S HOW WE KEEP ON MAKING PROGRESS.**

LSP3



LÜBBERING'S STANDARD PROGRAM – THE STORY

Lübbering offers you expertly designed and intelligently conceived products and solutions. That's how it's been since the very beginning and that's how it still is today. We constantly strive to think through everything we do and perfect it – so that you will continue to benefit.

- L 1984** **The first Lübbering geared offset head**
- L 1989** **Lübbering standard program – Generation 1**
- L 1999** **Lübbering standard program – Generation 2**



LÜBBERING STANDARD PROGRAM – GENERATION 3

Modular configuration, ingeniously flexible and highly precise: L.SP3 offers a whole new level of performance in every detail – to enhance the efficiency of your processes.

- L MORE ACCURATE** **Process reliability through higher levels of accuracy**
- L MORE COMPACT** **Improved ergonomics through compact design**
- L MORE MODULAR** **Higher flexibility through modular construction**
- L MORE EFFICIENT** **Cost savings from easy maintenance**

WE KNOW THE BEST WAY TO OPTIMISE A SYSTEM: SYSTEMATICALLY.

L.SP3 system denotes a fastening system with all L.SP3 components. The screw connection itself is only possible in the form of a fastening system. We'd like to present your options here to enable you to choose the components for your fastening system that match the fastening application you require. Read about the benefits of the new standard program on the following pages.

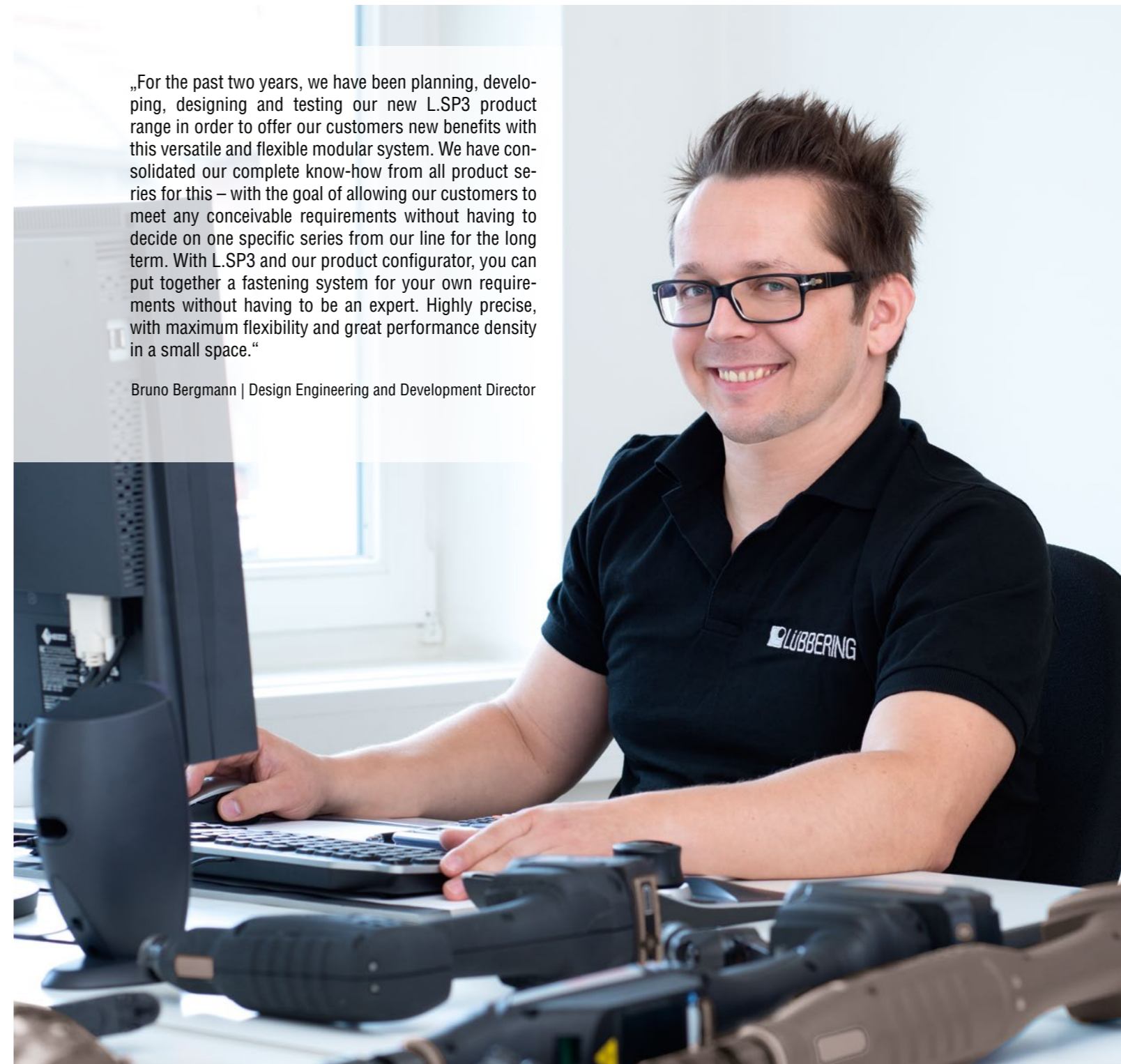
- + Individually combinable
- + Configured for every application
- + Optional additional components
- + Wide range of variations possible thanks to modular system
- + Environmentally-friendly production
- + High availability and easy maintenance

L.SP3 system



„For the past two years, we have been planning, developing, designing and testing our new L.SP3 product range in order to offer our customers new benefits with this versatile and flexible modular system. We have consolidated our complete know-how from all product series for this – with the goal of allowing our customers to meet any conceivable requirements without having to decide on one specific series from our line for the long term. With L.SP3 and our product configurator, you can put together a fastening system for your own requirements without having to be an expert. Highly precise, with maximum flexibility and great performance density in a small space.“

Bruno Bergmann | Design Engineering and Development Director





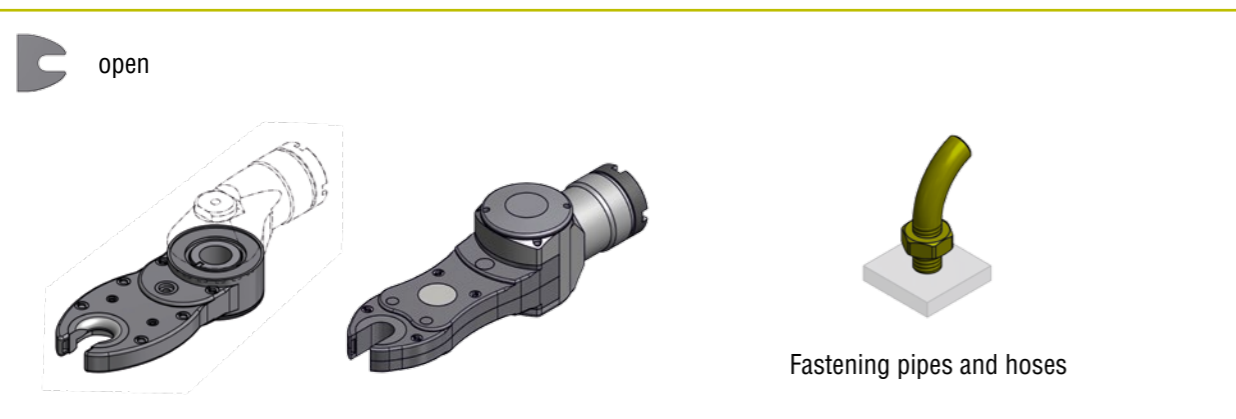
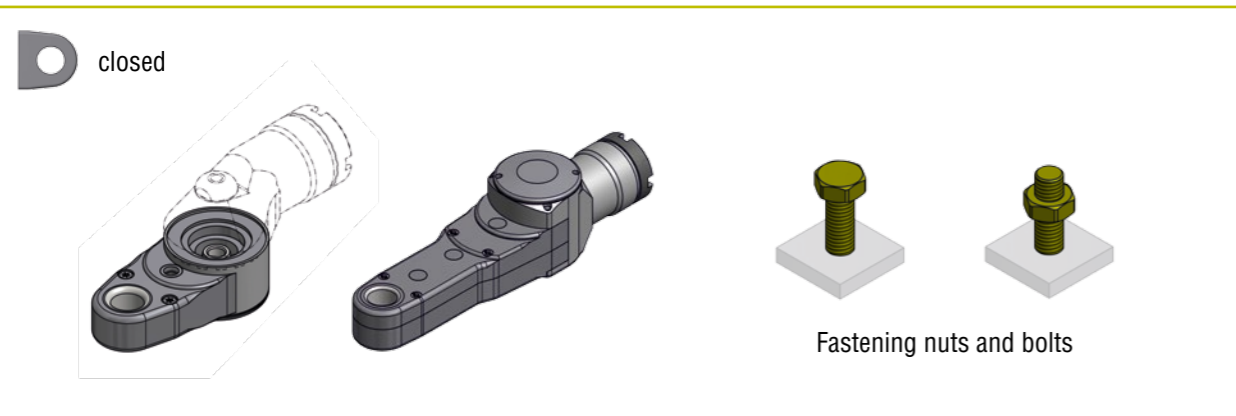
EXCEPTIONALLY ERGONOMIC ACCESS. SO YOU CAN REACH MORE.

Geared offset heads grant you access to screw connections in hard-to-reach places and transfer the desired torque which is needed to make the screw connection.

A closed geared offset head is required to fasten nuts and bolts, while an open geared offset head is necessary to fasten pipes and hoses.

L.SP3 access are the geared offset heads in our new standard program.

- + **± 6% higher precision (closed design)**
- + **Uniform housing for all types of interfaces**
- + **Compact design: optimised ergonomics**
- + **Highly modular**
- + **Uniform housing for rotation direction left/right (open design)**



„L.SP3 combines our previous geared offset head series, such as Basic-Line and Aero-Line, into a new, flexible and up-to-date standard program. We conducted intensive product analysis for the development process in order to identify all potentials for improvement and we designed the new series from the ground up based on the results. As a result, L.SP3 has become more than a standard program: It also makes it much easier for our customers to create their own individual special designs. For me personally, it was important for us to examine new production methods such as turning and milling without clamping in a chuck, in addition to the over 25 years of technical experience we have. And this was a resounding success – which has made myself and our customers very happy.“

Rudolf Mense | Design Engineering and Development



„It was a great and valuable experience for me to have the chance to take part in this exciting project immediately after completing my advanced training to the position of technical business administrator. My task in the L.SP3 project was internal component management. This predominately involved standardising components and allocating interfaces using our system – with the goal of enabling our customers to quickly and easily configure a wide array of fastening systems themselves.”





Juliane Grundkötter | Design Engineering






L.SP3 access geared offset heads are available in standard or inline designs, with various output torques (1 -207 Nm), in various lengths (2, 3, 4 or 6 gear stages) as well as in open and closed designs.

The strengths of L.SP3 access include the transmission of torques with an accuracy level of $\pm 6\%$ as well as the transmission of high torques in the smallest possible designs.

Furthermore, it consists of a uniform housing shape for all types of interfaces – for both closed and open geared offset head designs. This homogeneity makes it easy to expand the fastening system by adding extra components. The impressive number of product variations is the result of the various combinations of a small number of standardised component assemblies.

D	Module	12	22	35	55	85	140	190	250
	Maximum input torque [Nm]	12	22	35	55	85	140	190	250
	Maximum output torque [Nm]								
	2-stage 	10	18	29	46	71	116	158	207
	3-stage 	9	17	27	43	66	109	148	195
	4-stage 	9	16	26	40	62	102	139	182
	6-stage 	8	15	24	37	–	–	–	–

C	Module	12	22	35	55	85	140	190	250
	Maximum input torque [Nm]	–	22	35	55	85	140	190	–
	Maximum output torque [Nm]								
	2-stage 	–	17	27	43	66	109	148	–
	3-stage 	–	16	26	40	62	102	139	–
	4-stage 	–	15	24	37	58	95	129	–



„The passion and perseverance that we at Lübbering apply in order to reach our goals never fails to impress me. Involving all employees at the very beginning of this project created synergies in all areas, which contributed to the optimisation of the products and processes. These synergy effects now enable us to put our customers' requirements into practice even quicker and with even better results thanks to L.SP3. This is how we've used our technological competence to once again drive forward our customers' success.”

Michael Nienaber | Key Account Manager – Fastening Technology

IMPRESSIVELY WIDE RANGE OF APPLICATIONS. ESPECIALLY WHEN THINGS GET TIGHT.

L.SP3 access inline features a straight-lined design which improves the accessibility of screw connections in very tight spaces. The highlight of L.SP3 access inline is that the drive modules are interchangeable. They come in three lengths, which can be used as needed.

+ **Separable housing**

+ **Simple assembly**

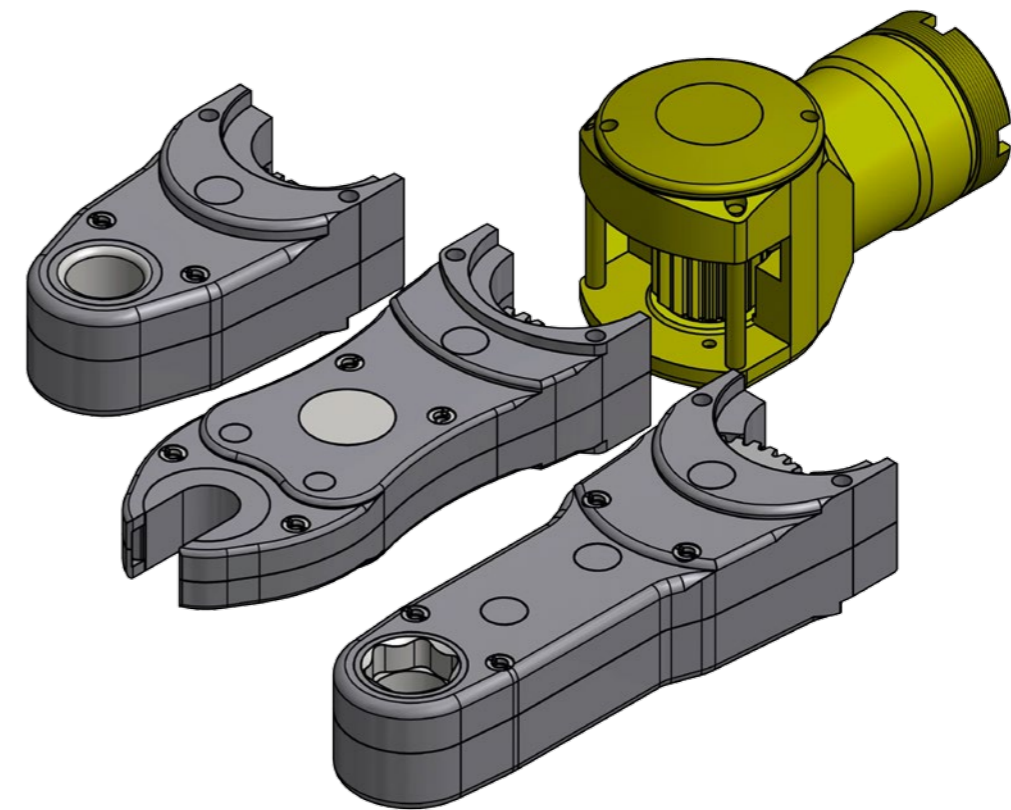
+ **Wide range of variations**

Open design:

+ **Uniform housing for rotation direction left/right**

Closed design:

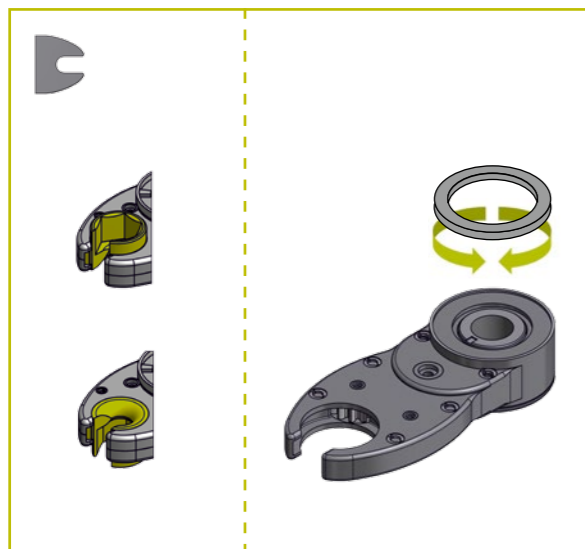
+ **Uniform housing for the upward/downward installation direction for offset heads with counter units**



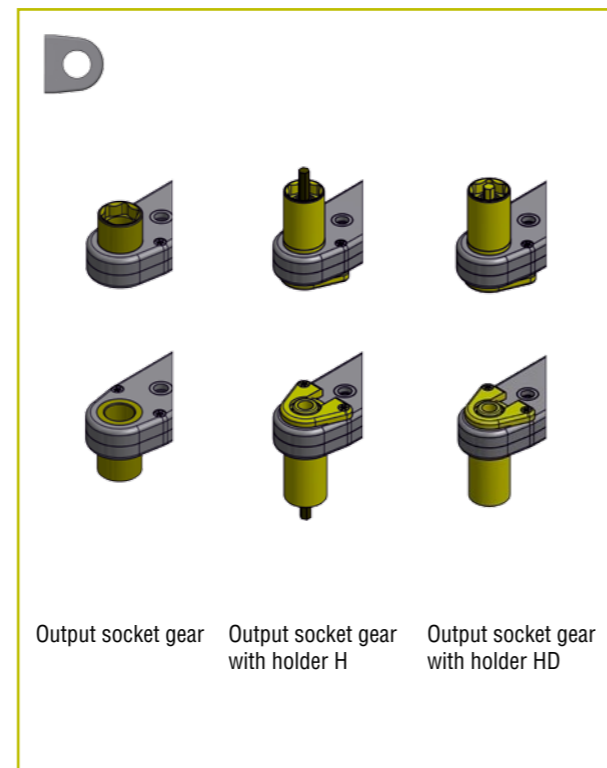
TREND-SETTING IN EVERY FORM.

L.SP3 touch are the output socket gears for our new standard program. We offer you a wide range of output socket profiles for various fastening applications.

- + Installation direction regardless of design
- + Large selection of standard profiles



The rotation direction to be blocked must be set according to the desired output direction of rotation (right or left rotating) and the direction of installation (upward or downward offset) of the output socket gear. In principle, all output socket gears can be operated in both directions of rotation.



OUTPUT SOCKET PROFILES

	HEX Hexagon profile		SD Square drive
	DH Double hex		Torx E
	SW Width across flats		Torx TX
	BH Bit-holder		IVZ Triple square profile, male
	SFD Surface drive		AVZ Triple square profile, female
	DSD Diagonal S drive		2flach Two-flat
	PF Pathfinder		Oktagon Octagon
	NH Nut holder		DIN 5480 DIN 5480 Plug-in gearing





L.SP3 SETS THE NEW STANDARD IN FASTENING TECHNOLOGY – MADE IN HERZEBROCK.

„When designing L.SP3, it was very important for us to combine our knowledge, skills and experience in the fields of production and assembly and incorporate them as a whole. In combination with our cutting-edge production methods, we here in Herzebrock have created an entirely new standard in fastening technology. The modular concept has enabled us to significantly reduce the complexity of our processes. This has also considerably increased our stock inventory so that we can now supply our customers even faster than before.“

Robin Kampe | Production

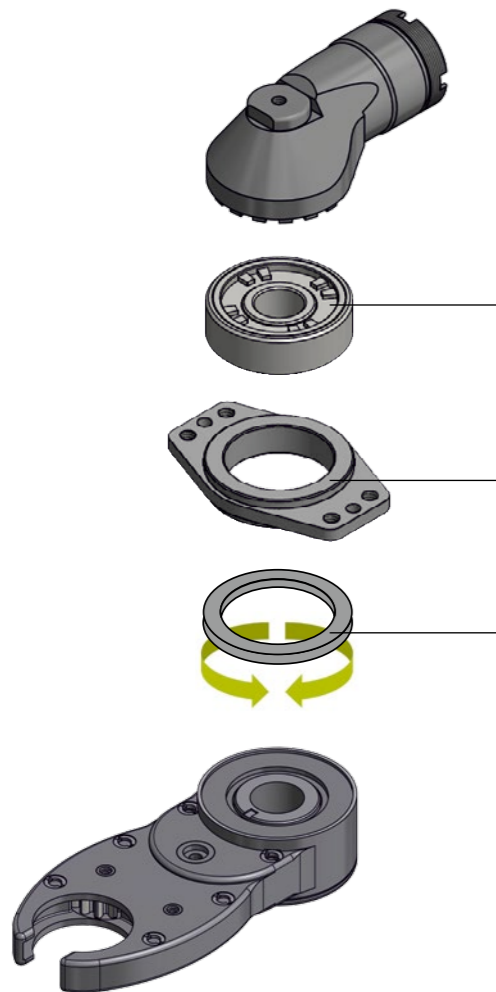
PERFORMANCE AND HEADS: ALWAYS AN IDEAL COMBINATION



L.SP3 connect refers to the optional connection elements which combine individual components to form a fastening system.

- + **Combination of 3 different additional components**
- + **Simple and convenient addition to the fastening system**
- Open design (see return ring):*
- + **Resetting device mechanically blocks on the right or left**
- + **Sensory resetting device**

ADAPTER VERSIONS FOR L.SP3 SYSTEM



LSP3 connect

Indexing

- Allows you to adjust the angle of a geared offset head / angle head
- 360° swivel range

LSP3 connect

Flange

- Enables additional accessories to be attached (such as a reaction arm)

LSP3 connect

Return ring

- Allows resetting in both rotation directions (open design only)

If the optional L.SP3 connect index, flange or ring are not desired, L.SP3 angle can be mounted directly (i.e. without an adapter) onto the geared offset head (see page 24).

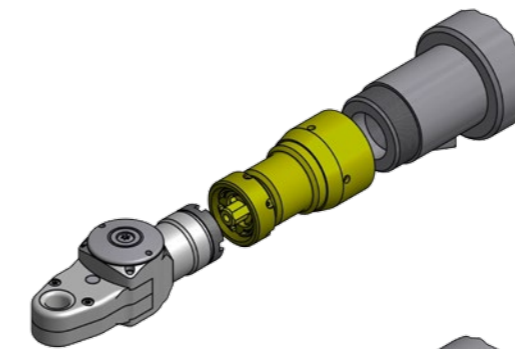


SIMPLY ASSEMBLE THE PARTS WHICH BELONG TOGETHER.

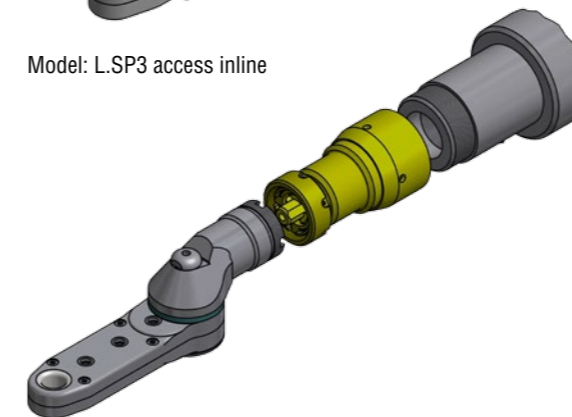


L.SP3 x-connect is an essential connection element used for connecting in a straight-lined arrangement.

- + **Connection of a wide range of drive units**
- + **Compact design guarantees low weight**
- + **Optionally available with integrated planetary gearbox**



Model: L.SP3 access inline



Model: L.SP3 access and L.SP3 angle

LSP3 x-connect

Axial

- Individual interfaces allow adaptation to a wide variety of drive units
- Quick and easy tool changing



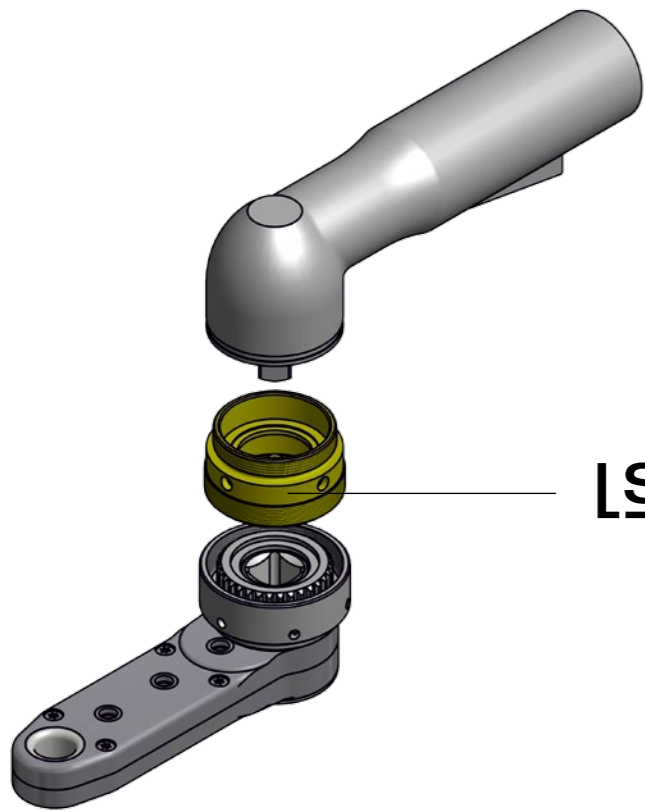


IT IS ALWAYS GOOD WHEN YOU HAVE THAT SPECIAL IDEA.



It is also possible to connect a geared offset head to a drive unit with its own angle head.

- + Standardised adapter interfaces
- + Screw, clamp or welding adapters can be used depending on angle head design
- + Also available as indexing



LSP3 connect Adapter for drive unit with its own angle head



„We at LÜBBERING have been developing, designing and producing high-precision geared offset heads, assembly tools and fastening systems for 25 years. The requirements on these special tools have become more and more stringent over the years, which has constantly motivated us to design several product series, such as the Basic-Line, Aero-Line and High-Line, for various fields of application, such as the aerospace, automotive and general industry. With L.SP3, we have now achieved a stage of development which all of our customers will profit from directly – thanks to flexible modularity and cutting-edge production. And of course, thanks to a great many good ideas.“

Alexander Westmeyer | Design Engineering

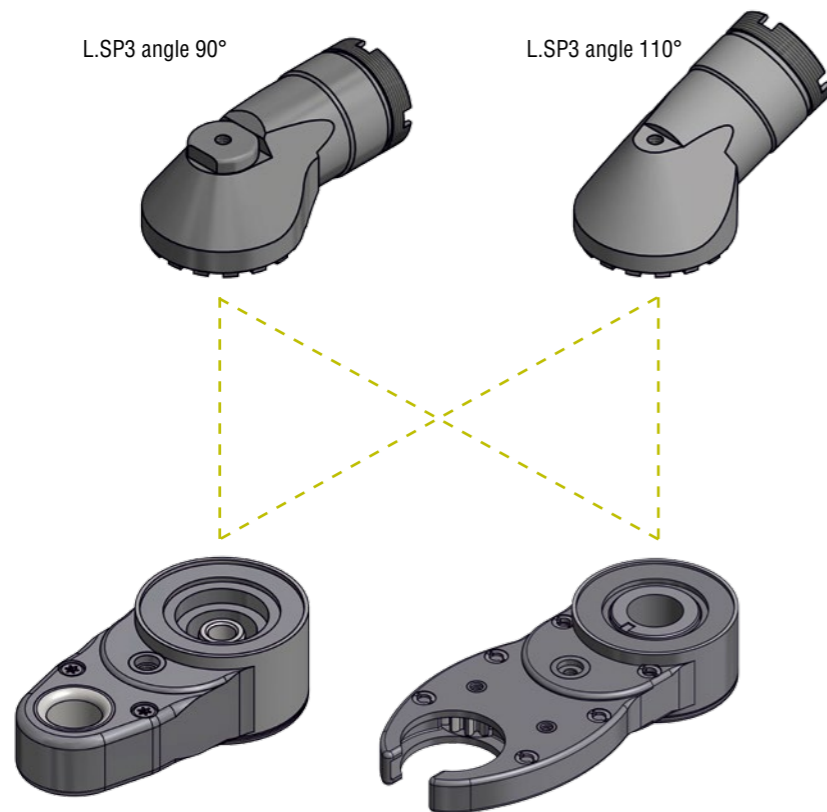


EXTREMELY COMPACT, UNIQUELY ERGONOMIC.



L.SP3 angle is the perfect ergonomic addition to the L.SP3 access geared offset head. L.SP3 angle is an angle head which serves to improve access to screw connections, thus improving work ergonomics. The angled heads are available in 90° and 110° as needed and serve to redirect the rotational movement and change the torque and rotation speed between the drive unit and the geared offset head. The uniform interfaces of the components can easily be connected with L.SP3 access geared offset heads without a separate adapter.

- + **Compact design: optimised ergonomics**
- + **Reduced installation size: low installation height in conjunction with L.SP3 angle**
- + **Reduced weight: thanks to the omission of an adapter**
- + **Versions in 90° and 110°**
- + **Easy maintenance**



„We designed L.SP3 to meet assembly requirements by allowing the use of many identical parts, which considerably simplifies workflows in the assembly process. What’s more, L.SP3 system is also highly compact, individually configurable and extremely versatile. It is all based on an extremely high-grade material made of refined black steel. It already feels great during the assembly process – and even more so when the customer puts it to use. After all, our painstaking workmanship and design allows L.SP3 to be used for work which is delicate and effective in equal measures.“

Ralf Berheide | Assembly





SELF-CONTAINED, PRECISE AND READY-TO-USE.

L.SP3 angle as a stand-alone tool has the same function as angle heads do as components, except that there is no geared offset head. All that has to be done is to attach conventional sockets.

- + Compact design
- + Torque transmission with a precision of over $\pm 4\%$
- + Highly efficient



Module	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	9	16	26	41	64	105	143	188
Maximum output torque [Nm]	12	22	35	55	85	140	190	250



HOW TO CONTACT US

VIA OUR ONLINE ENQUIRY FORM:

You can use our online enquiry form to send us your individual enquiries quickly and easily. The form lists and asks you about the exact parameters you need and uses this information to assemble a geared offset head to matched with the right components.

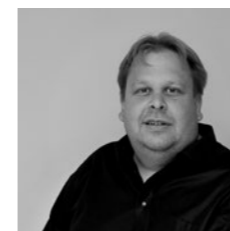


Scan the QR code with your smartphone and the required app and you will be forwarded directly to the form.
<http://anfrageformular.luebbering.de>

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„The development of the L.SP3 is an important milestone for us. After all, it's how we will make sure our customers stay miles ahead of the competition.”

Achim & Johannes Lübbering





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