SP3

Try the impossible to achieve the possible.

Hermann Hesse



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

LSP 3	LÜBBERING Standard Programme 3rd generation	8-9
LSP3 system	Fastening system with all L.SP3 components	10-1
LSP3 access	Geared offset head – standard design	12-17
LSP3 access inline	Geared offset head – inline design	18-2
LSP3 access straight	Geared offset head – straight design	24-25
LSP3 touch	Output socket gear	26-27
LSP3 connect	Mounting flange reaction torque return ring indexing adapter	30-3
LSP3 angle	Angle head & angle head stand-alone – 90° 110°	32-37
LSP3 angle HD	Angle head 90° – Hold & Drive	38-39
LSP3 angle touch	Bit holder profiles and flush sockets	40-4 ⁻
LSP3 x-connect	Axial adapter for drive machines with LÜBBERING angle head	42
LSP3 connect	Adapter for drive machines with integrated angle head	43
LSP3 special	Special solutions for different application areas	50-57
LSP3 solution	L.SP3 Projecting set L.SP3 configurator Fastening accessories	64-73



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

LÜBBERING STANDARD PROGRAMME – 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.

1984	The first LÜBBERING geared offset head
1989	LÜBBERING standard programme – Generation 1
1999	LÜBBERING standard programme – Generation 2
2014	LÜBBERING standard programme – Generation 3 (L.SP3)
2015	Red Dot Award 2015
2016	IF Design Award 2016
2017	L.SP3 on the LÜBBERING ShowTruck raum für ideen, live at your premises
2018	L.SP3 Projecting sets for a better product choice











LSP3



LÜBBERING STANDARD PROGRAMME – 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.

+ ACCURATE Process reliability through higher levels of accuracy

+ COMPACT Improved ergonomics through compact design

+ MODULAR Higher flexibility through modular construction

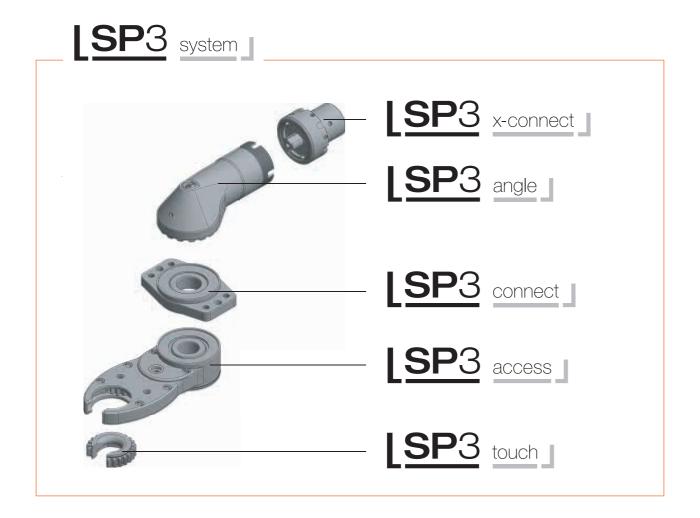
+ EFFICIENT Cost savings from easy maintenance

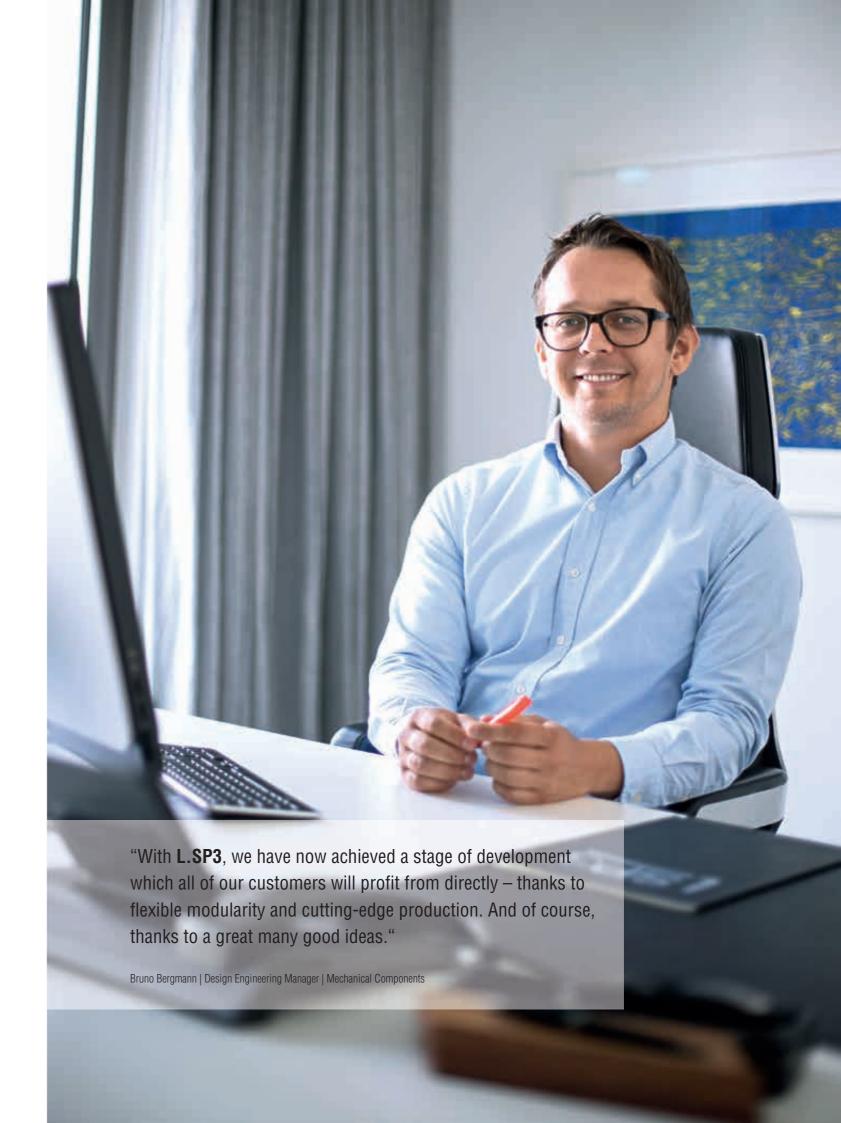


WE KNOW THE BEST WAY TO OPTIMISE A SYSTEM: SYSTEMATICALLY.

L.SP3 system denotes a fastening system with all **L.SP3** components. 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 programme 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







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.

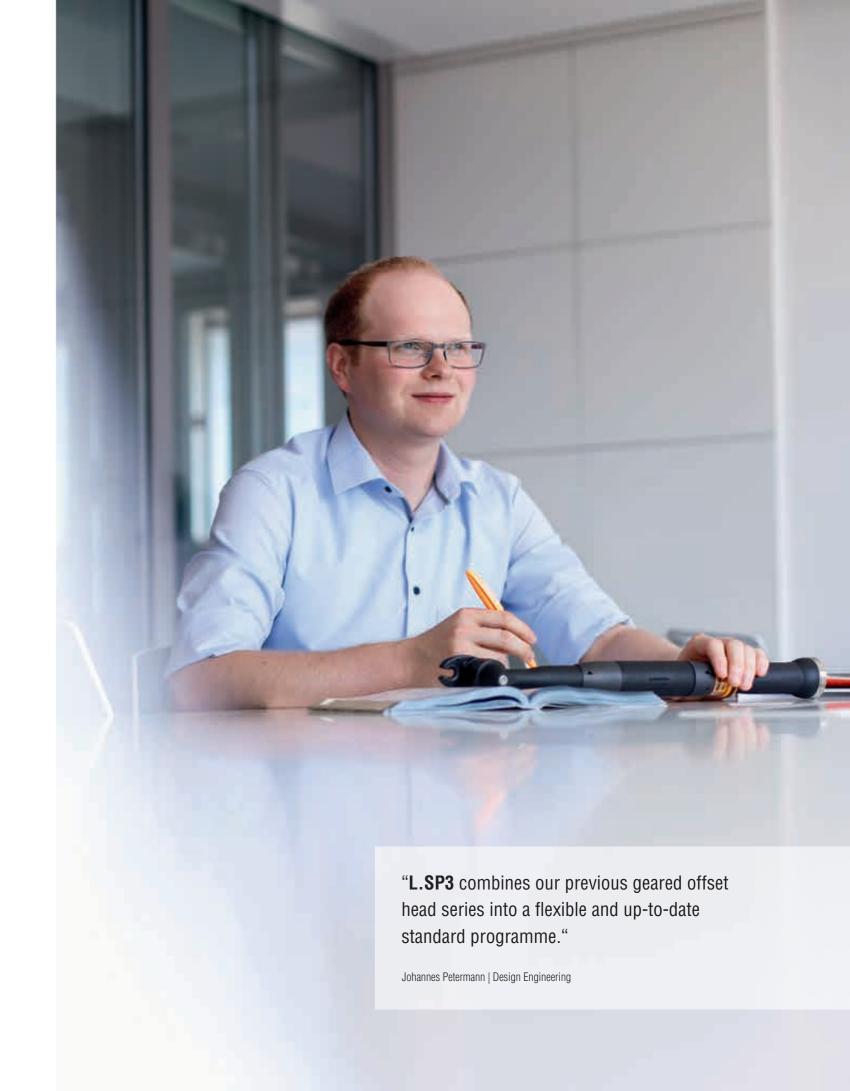
A closed geared offset head is required to fasten nuts and bolts, while an open geared offset head is necessary to fasten pipes and hoses.

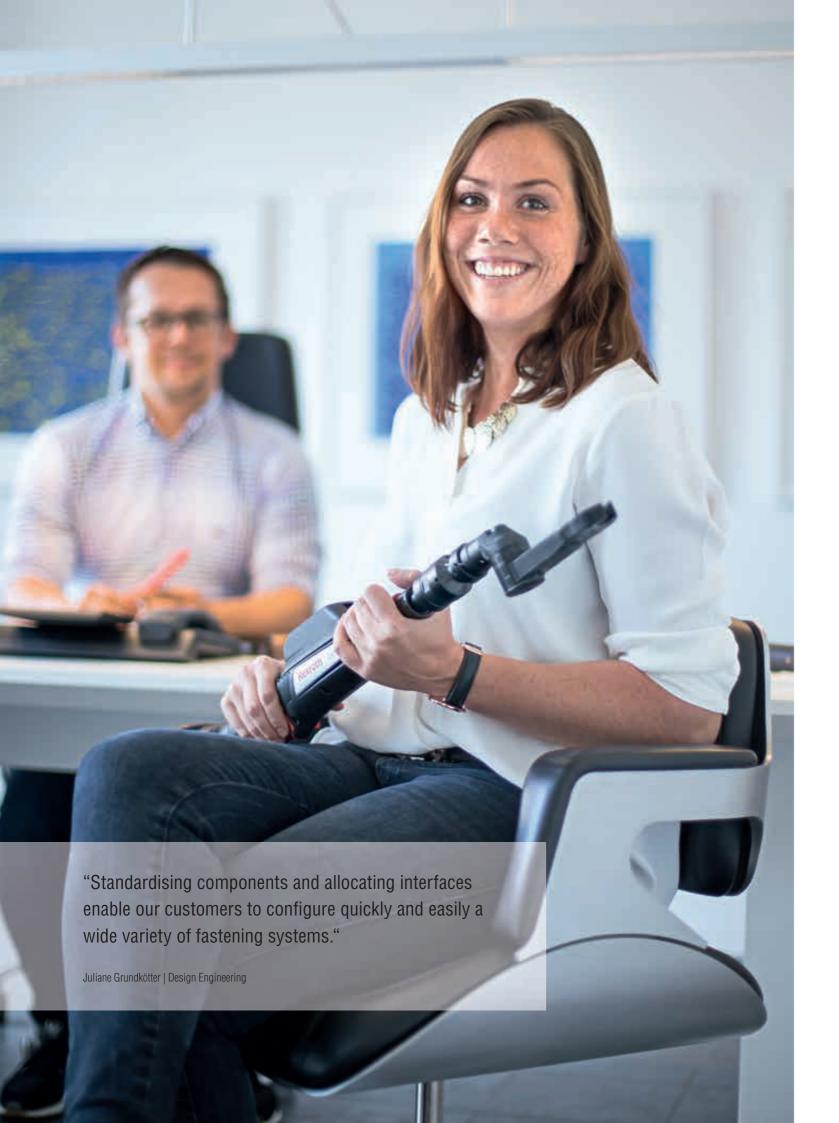
L.SP3 access are the geared offset heads in our new standard programme.

- + Highest accuracy of ± 6% (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 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 highest accuracy of ± 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.



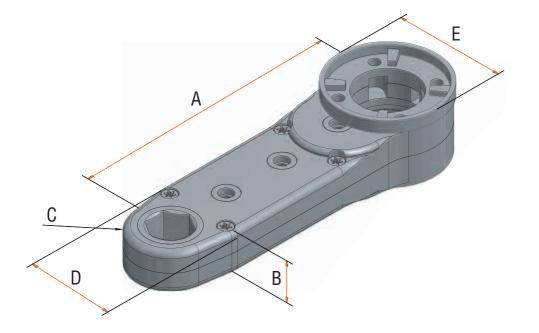
Module	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	12	22	35	55	85	140	190	250
Maximum output torque [Nm]								
2-stage	10	18	29	46	71	116	158	207
3-stage	9	17	27	43	66	109	148	195
4-stage	9	16	26	40	62	102	139	182
6-stage	8	15	24	37	-	-	-	-

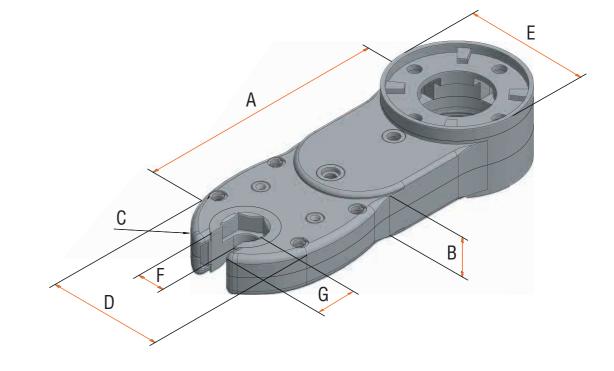


Module	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	_	22	35	55	85	140	190	_
Maximum input torque [Nm]								
2-stage	_	17	27	43	66	109	148	-
3-stage	_	16	26	40	62	102	139	-
4-stage	-	15	24	37	58	95	129	-









Module	12	22	35	55	85	140	190	250
Dimensi	ons							
A [mm]	25 –11	1 35 – 130	35 – 164	43 – 171	51 –138	62 – 130	71 –149	83 – 205
B [mm]	9 – 15	10 – 15	10 –16	14 – 18	17 – 25	26 – 32	29 – 37	20 –32
C [mm]	8 – 11	8 – 13	10 –15	13 –16	15 – 20	18 – 20	19 – 22	25 – 30
D [mm]	15 – 24	17 –29	22 –33	30 – 37	38 – 42	41 –43	43 –45	44 – 45
E [mm]	27	32	37	45	50	58	65	73
max. Al	- [mm] 8 – 10	8 – 13	10 – 14	13 – 16	16 – 21	18 – 20	18 – 24	27-36

Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	-	24-63	29-78	33-108	38-122	44 – 124	60-139	_
B [mm]	-	10-12	11-14	11-18	12-18	18-19	20	_
C [mm]	_	14-21	13-34	16-40	19-63	18-21	24	_
D [mm]	-	32-33	38-40	42 – 55	53 -60	58-60	77-79	_
E [mm]	_	32	37	45	50	58	65	_
F [mm]	-	7-8	7-9	10-13	12-16	14-17	18-21	_
G [mm]	_	10	11-14	12-17	15-19	16-21	22-27	_
max. AF [mm]	_	11	13-14	14-19	17-23	19-23	26-30	_







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.

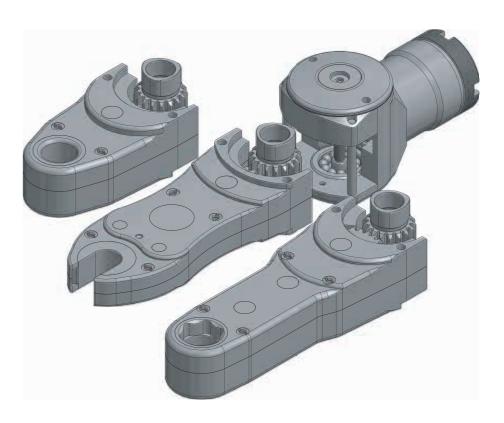
- + Separable housing
- + Simple assembly
- + Wide range of variations

Open design:

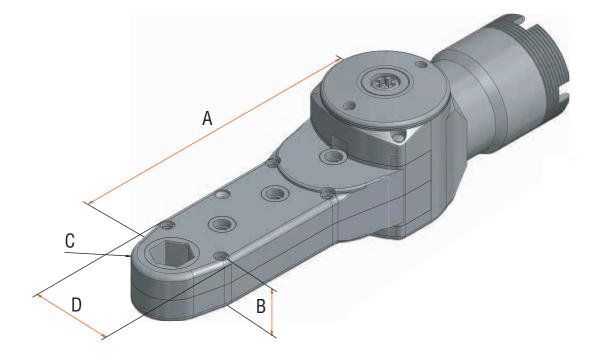
+ Uniform housing for rotation direction left/right

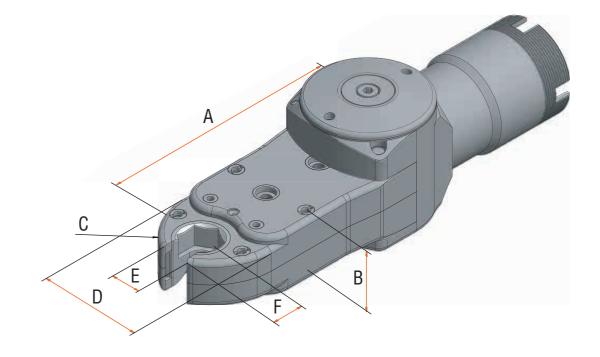
Closed design:

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











Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	30 – 70	37 – 128	44-104	50 – 110	56 – 136	111 – 145	112 – 156	90-197
B [mm]	9 – 15	11 – 14	11 – 20	15 – 18	17 – 25	26 – 32	29 – 37	20-32
C [mm]	8 – 11	10 –13	13 – 15	14 – 15	15 – 20	18 – 20	19 – 22	25-30
D [mm]	21 – 26	24 – 32	30 – 34	31 – 35	36 – 42	41 – 42	43 – 45	51 – 64
max. AF [mm]	8 – 10	10 – 13	13 – 15	15-17	16 – 21	18 – 21	18 – 24	27-36



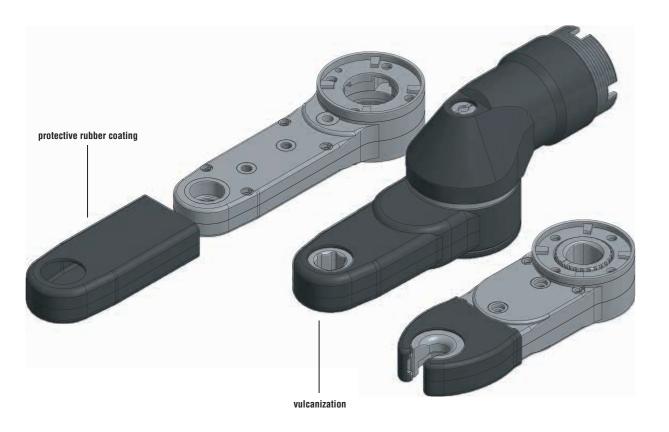
Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	_	40 – 70	51 – 75	51 – 116	63 – 118	73	96 – 149	_
B [mm]	_	10 – 14	12-17	11 – 18	12 – 18	19	20	_
C [mm]	_	13	14	14 – 17	_	18	24	_
D [mm]	_	32-39	39-51	42-55	50-59	58	77-79	_
E [mm]	_	7-8	7 – 9	10 – 13	12 – 17	14	18-21	_
F [mm]	_	9-12	11-15	12-15	15-19	17-28	22-27	_
max. AF [mm]	-	11-13	13-14	14-19	17-23	19	26-30	_

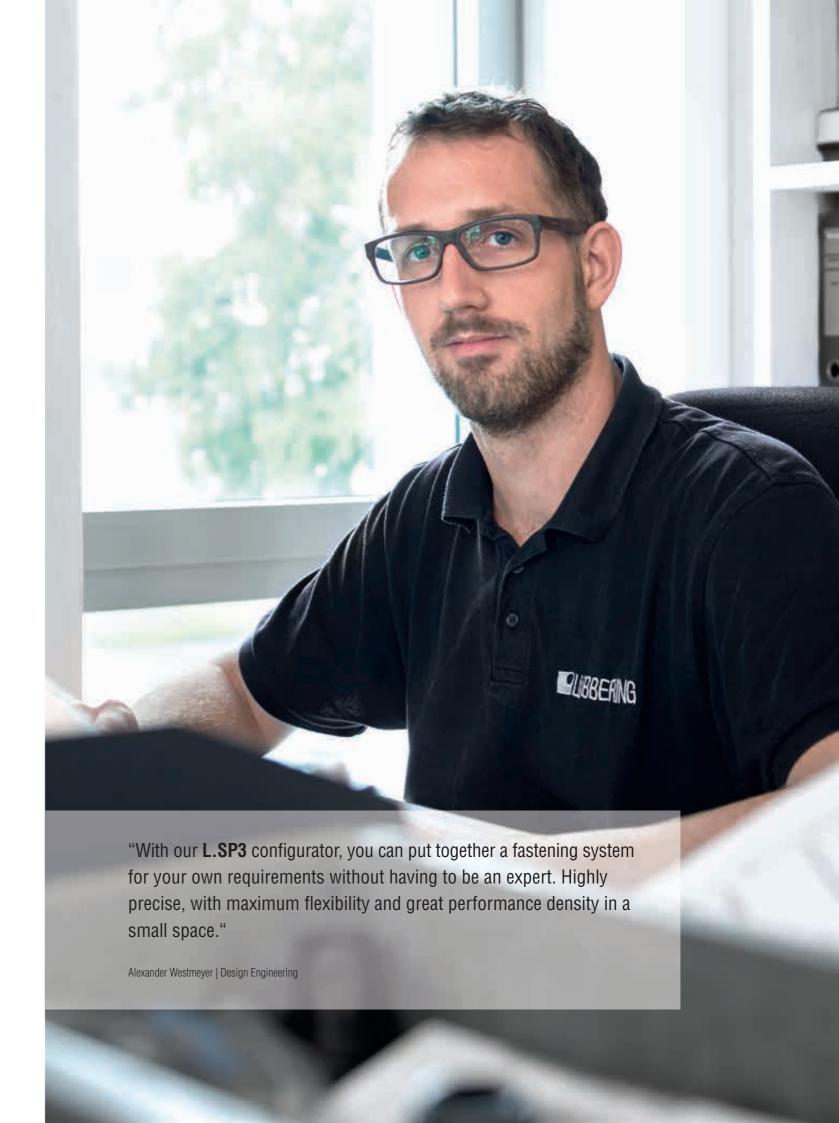


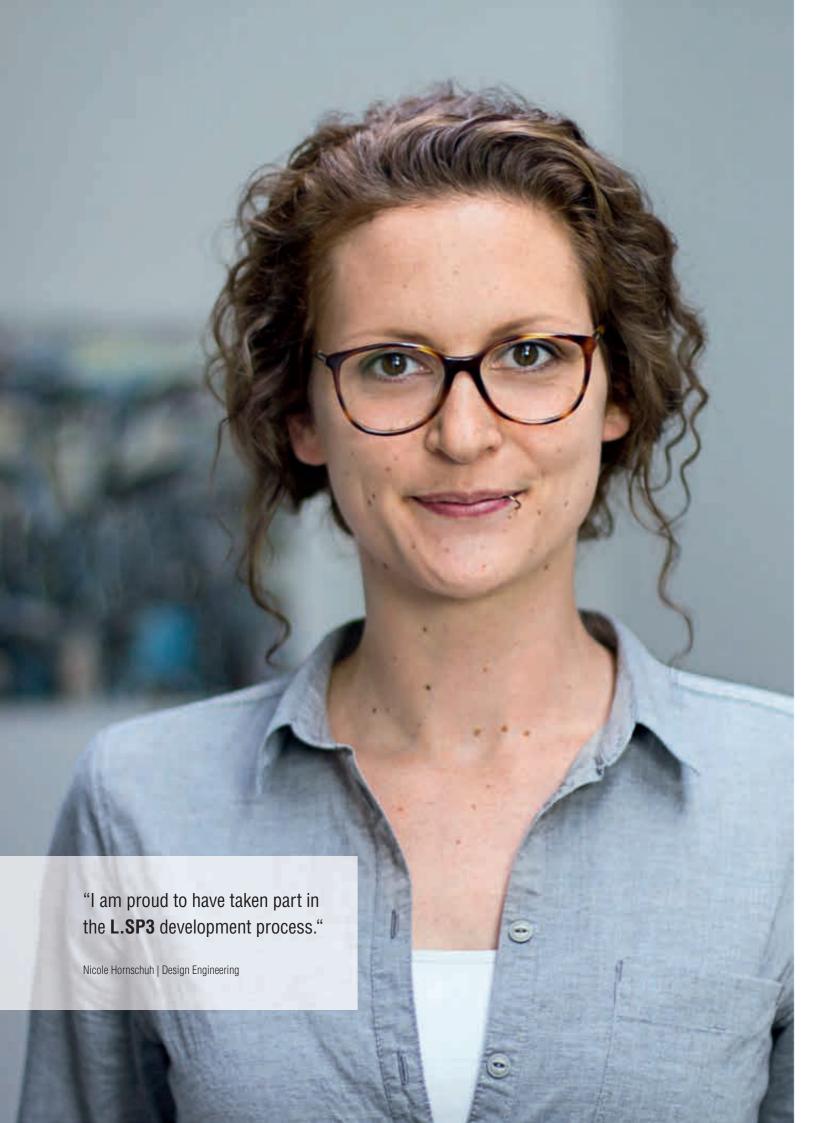
ALWAYS PERFECTLY COATED AND PROTECTED.

A protective rubber coating or a vulcanization protects the components to be fastened and adjoined from damages. Both protection variants consist of silicone-free rubber.

- + Protects against damages and scratches
- + Silicone free rubber
- + Protective coating can be removed or changed
- + Vulcanization offers permanent protection of the fastening system









OUR SOLUTIONS ENSURE CONVENIENT ACCESS – WHICH OTHERS HAVEN'T EVEN REACHED YET.

L.SP3 access straight gives you easy access to hard-to-reach screw connections with a holder function (Hold & Drive). As a complete solution, the axial output with holder is connected with an axial adapter to a pistol grip machine or screw driver.

- + Primary application in the aerospace industry
- + Connected to pistol grip machine or screw driver via axial adapter L.SP3 x-connect
- + Output in threaded axle
- + Highest accuracy of ±5%
- + Sockets interchangeable with holder







TREND-SETTING IN EVERY FORM.

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

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 + Available in different lengths downward offset) of the out-put socket gear. In principle, all output socket gears can be operated in both directions of rotation.

- + Installation direction regardless of design
- + Large selection of standard profiles
- + Fastening with right of left rotation





	OUTPUT SO	CKET PROFILE	S
0	HEX Hexagon profile		SD Square drive
0	DH Double hex	0	Torx E
	AF Width across flats		Torx TX
0	BH Bit-holder	0	IVZ Triple square profile, female
0	SFD Surface drive		AVZ Triple square profile, male
0	DSD Diagonal S drive	0 0	2flach Two-flat
0	PF Pathfinder	0 0	Oktagon Octagon
0	NH Nut holder	0 0	DIN 5480 DIN 5480 Plug-in gearing



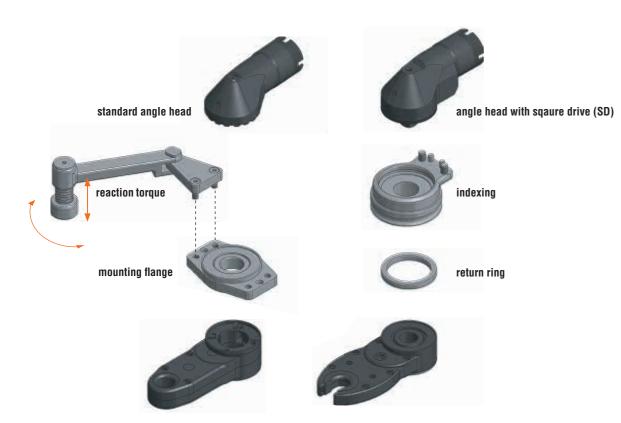




IDEAL COMBINATIONS: MORE EFFICIENCY THROUGH OPTIONAL COMPONENTS.

L.SP3 connect refers to the optional connection elements which make your fastening system even more efficient.

- + Mounting flange enables additional accessories to be attached (such as a reaction torque) in conjunction with a standard angle head
- + Reaction torque offers additional equilibrium of forces as of 60 Nm
- + Return ring allows resetting in both rotation directions, only for open design
- + Indexing allows you to adjust the angle of a geared offset head/angle head; 360° swivel range; in conjunction with a stand-alone angle head



TOTALLY ADJUSTABLE INDEXING: 360 DEGREE ROTATION.



Module	12	22	35	55	85	140	190	250
Adjustable degree indexing	12.9°	11.3°	9.5°	7.8°	7.5°	6.2°	7.2°	6.4°





EXTREMELY COMPACT, UNIQUELY ERGONOMIC.

L.SP3 angle is the perfect ergonomic addition to the + Compact design: 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.

- 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
- + Two transmission ratios as standard available i= 1.45 | i = 2.0





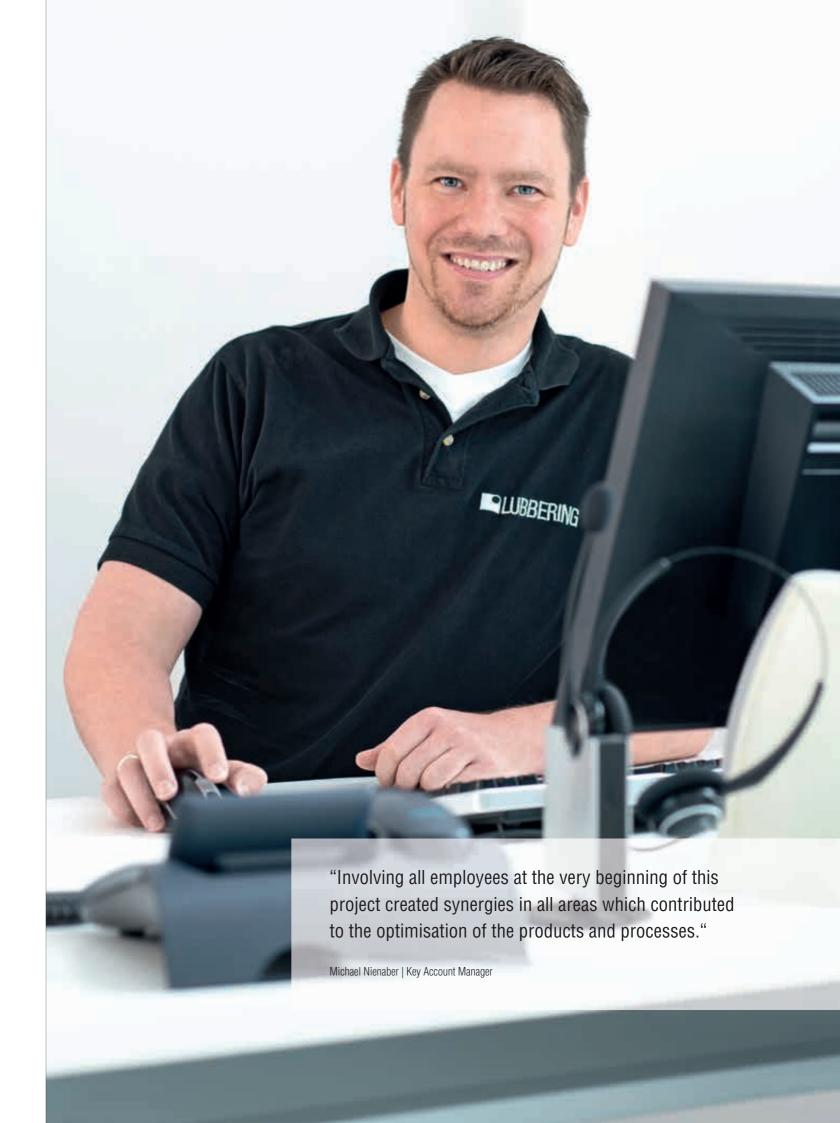


SELF-CONTAINED, PRECISE AND READY-TO-USE.

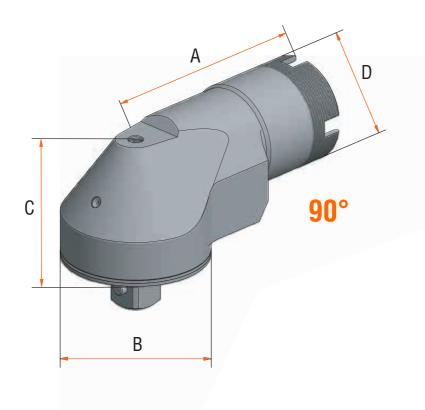
L.SP3 angle as a stand-alone tool has the same function as angle heads do as components, except that there is no geared offset head. All that has to be done is to attach conventional sockets.

- + Compact design
- + Torque transmission with highest accuracy of ± 4%
- + Highly efficient
- + Versions in 90° and 110°
- + Two transmission ratios as standard available i= 1.45 | i = 2.0





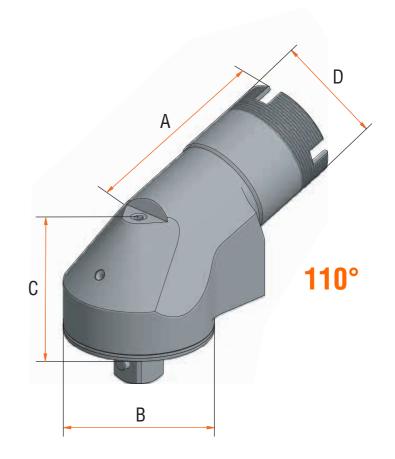




Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	50	51	60	77	78	96	103	109
B [mm]	26	31	35	42	50	56,5	65	72,5
C [mm]	27	30	33	41	44	47	51	52
D [mm]	22	28	30	36	36	48	52	58
max. AF [mm]	1/4" 3/8"	3/8"	3/8" 1/2"	3/8" 1/2"	1/2"	1/2"	1/2" 3/4"	3/4" 1"

Module	i	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	1.45	9	16	26	41	64	105	143	188
Maximum input torque [Nm]	2.0	6	12	18	29	45	74	100	132
Maximum output torque [Nm]		12	22	35	55	85	140	190	250

i=transmission ratio



Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	44	45	53	68	69	84	91	97
B [mm]	26	31	35	42	50	56,5	65	72,5
C [mm]	24	29	31	37	43	47	51	52
D [mm]	22	28	30	36	36	48	52	58
max. AF [mm]	1/4" 3/8"	3/8"	3/8" 1/2"	3/8" 1/2"	1/2"	1/2"	1/2" 3/4"	3/4" 1"

Module	i	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	1.45	9	16	26	41	64	105	143	188
Maximum input torque [Nm]	2.0	6	12	18	29	45	74	100	132
Maximum output torque [Nm]		12	22	35	55	85	140	190	250

i=transmission ratio







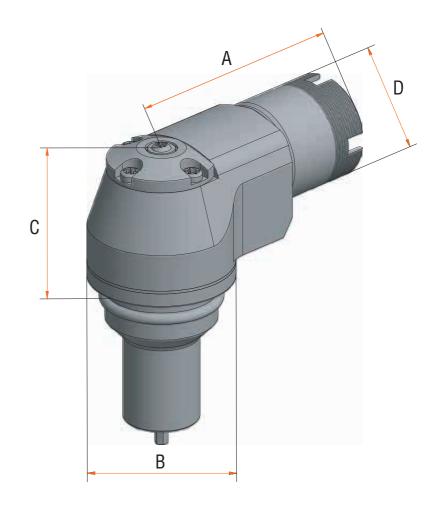
EVERYTHING HAS TO FIT TOGETHER PERFECTLY, SO WE ADJUST OUR WORK TO MATCH YOURS PRECISELY.

L.SP3 angle HD is an angle head with a hollow polygon shaft that accommodates various holder systems. This angle head comes with an outer hexagon that can take different nuts.

The perfect solution for fastenings requiring the bolt to be fixed in order to avoid twisting while the nut is fastened.

- + Compact design
- + Installing various holders and sockets
- + Torque transmission with highest accuracy level
- + Transmission ratio i=2.0





Module	12	22	35	55	85	140	190	250
Dimensions								
A [mm]	_	51	60	77	78	96	103	109
B [mm]	_	31	35	42	50	57	65	73
C [mm]	_	36	39	47	49	59	62	67
D [mm]	_	28	30	36	36	48	52	58

Module	i	12	22	35	55	85	140	190	250
Maximum input torque [Nm]	2.0	_	12	18	29	45	74	100	132
Maximum output torque [Nm]		_	22	35	55	85	140	190	250

i=transmission ratio





FLEXIBLE. INTERCHANGEABLE. VERSATILE.

L.SP3 angle touch is the ideal complement to the **L.SP3 angle** as a stand-alone tool. Bit holder profiles are available in the 90° and 110° versions with three different bit holding systems: locking ring, cap nut or quick-change.

Another advantage of **L.SP3 angle** is the individual use of flush sockets. These nuts with a flush profile are available with various output profiles and profile depths. Thus, they ensure for every application – depending on the maximum width across flats and profil depth – the perfect solution.

- + 3 different bit holding systems
- + Torque transmission with highest accuracy level of ± 4%
- + High availability
- + Interchangeable outputs
- + Versions in 90° and 110°
- + Two transmission ratios as standard available i=1.45 | i=2.0



bit holder profiles

locking ring, cap nut or quick-change

flush sockets

sockets with flush or protuding end, available with various output profiles and profile depths







SIMPLY ASSEMBLE THE PARTS WHICH BELONG TOGETHER: OUR FASTENING SYSTEM WITH ANY DRIVE MACHINE.

L.SP3 x-connect is an axial adapter which is used if the fastening system, including a LÜBBERING angle head, is connected to a drive machine. In this way, the mechanical connection between the LÜBBERING fastening system and the drive unit is created.

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



ALWAYS PERFECTLY CONNECTED: DRIVE MACHINES WITH ANGLE HEAD.

L.SP3 connect is an adapter to connect the LÜBBERING geared offset head with a non-LÜBBERING angle head. By the fact that we create designs of any customary propulsion technology, we are able to configure and to equip those with our geared offset heads.

It is not only possible to adapt the items to angle and straight screwdrivers but also to propulsion technology in automated assembly lines.

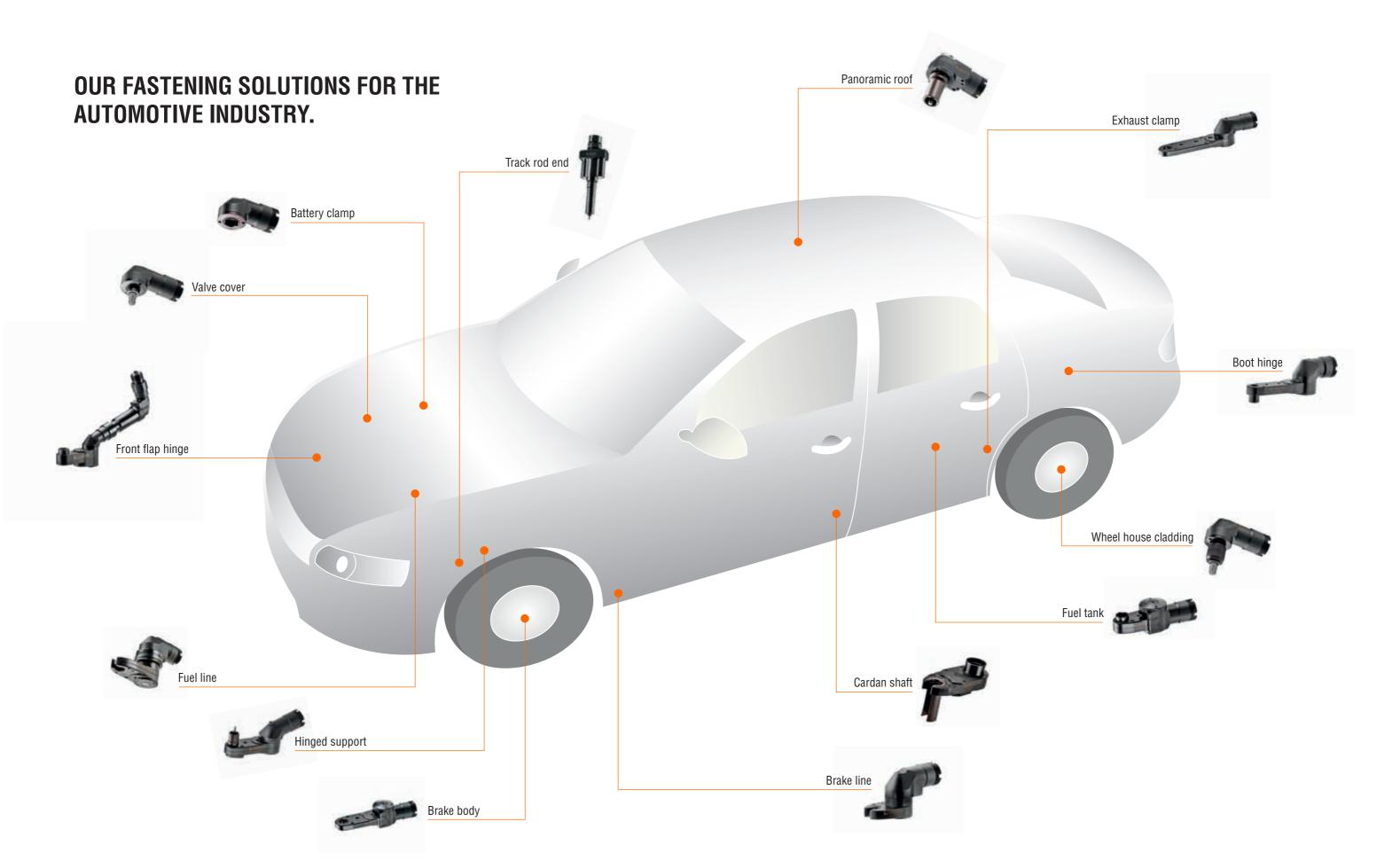
- + Standardised adapter interfaces
- + Screw, clamp or welding adapters can be used depending on angle head design

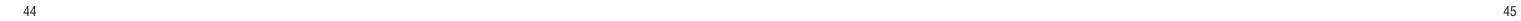


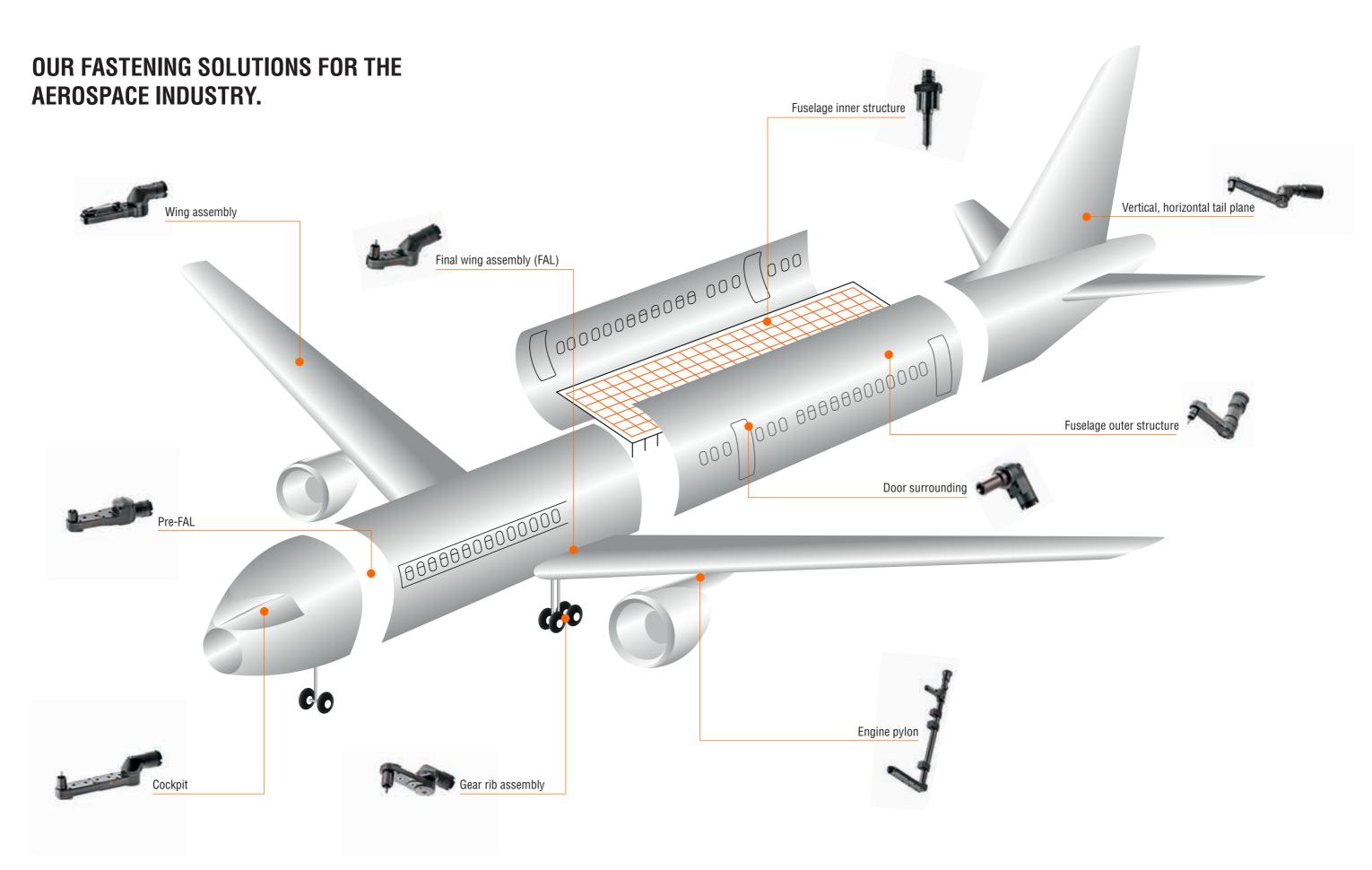














OUR FASTENING SOLUTIONS FOR THE AEROSPACE INDUSTRY.

The assembly of aeronautical components require a special fastening technique. A large part of this process involves the use of the Hold & Drive fastening system. The fastening quality can only be guaranteed if the counterholder system of the geared offset head holds the bolt while the geared offset head fastens the nut. The high

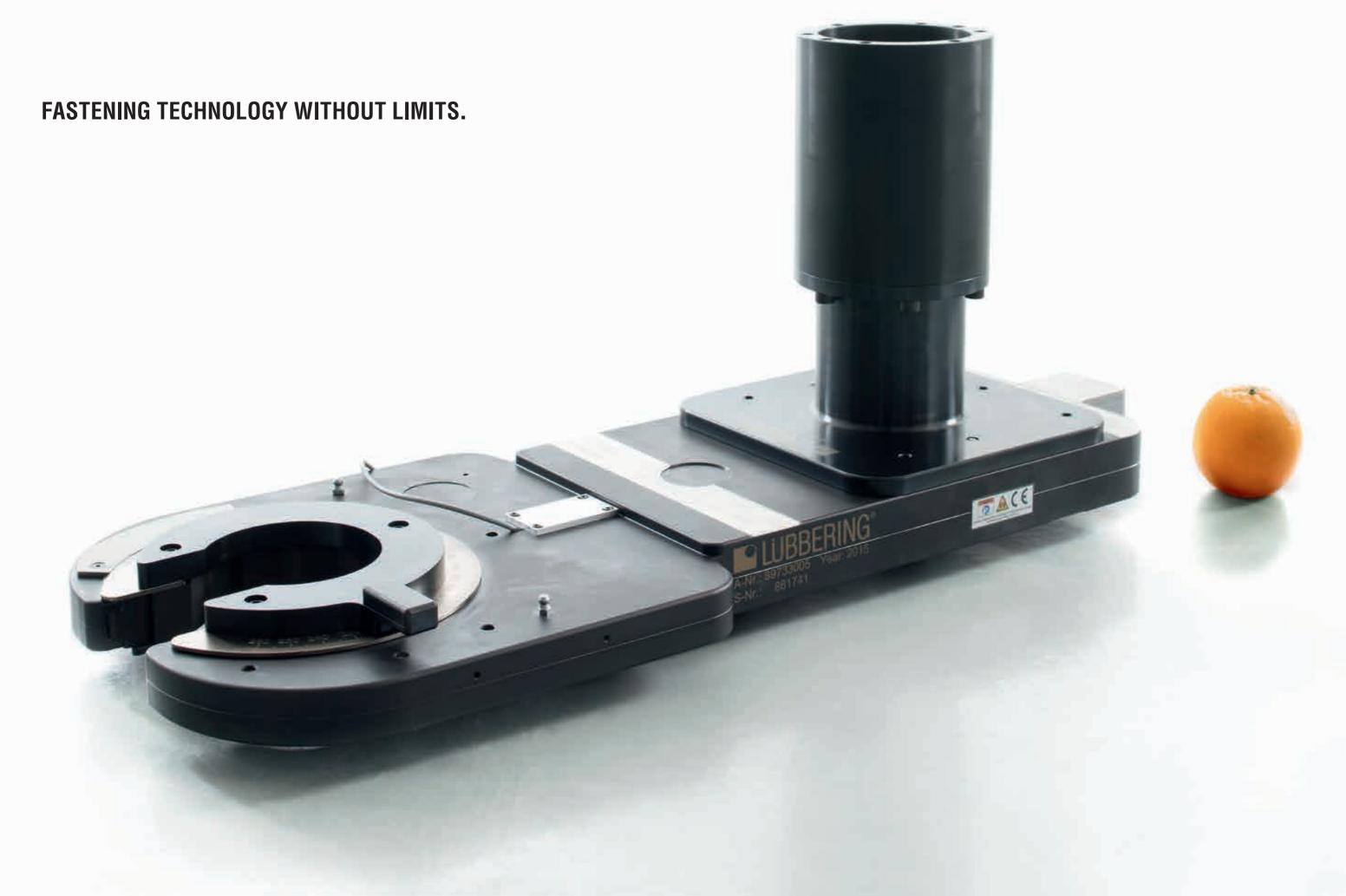
complexity of the components combined with confined spaces and the high demand of the assembly ergonomics make LÜBBERING flexible fastening solutions indispensable. Particularly indexable adaptions create the required flexibility.



The modularity of L.SP3 allows various combinations within the fastening system. Output gears and counterholder can be integrated. These fastening systems can be additionally equipped with counter-holder plates and counter-holder waves. During the hold & drive fastening process, the spring loaded counter holder wave is able to cushion the fastening process. Interchangeable counter-holder bits which are integrated within the counter-holder wave can be selected according to the used connector sizes. counter-holder bit in end position counter-holder bit in start position

During this process the nut is turned on the bolt and the counter-holder wave moves vertically against the fastening direction up to its end position.







WE ALWAYS FIND A SOLUTION FOR EVERY FASTENING **SITUATION – FASTENING WITH PASSION.**

LÜBBERING develops, designs and produces individual sufficient, special solutions are needed – solutions made fastening solutions for almost every possible fastening by LÜBBERING. application whether at a car or aeroplane, in shipbuilding, for white goods or in other areas of application. In areas from implementing up to maintenance – everything from where the conventional standard fastening tool is not

one source.

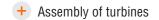






YOUR FASTENING PROBLEM IS OUR CHALLENGE.







+ Exhaust pipe braket fastening, differential gear



+ Assembly of electric motors



+ Angled spring-loaded work piece holder



+ Rear seatbelt left/right



+ Flywheel on motor



+ Gearbox fastening



+ Frame fastening caravan



+ Breakline on ESP



+ Servomotor fastening



+ Door hinges in B-pillar



+ Fuel injector fastening



ANYTHING IS POSSIBLE.







+ Turbine fastening



+ Rear axle pivot bearings



+ Washing drum fastening



+ Frame fastening



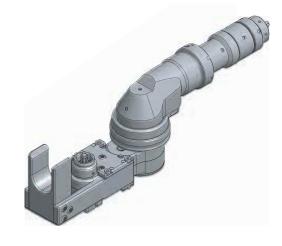
+ Drive shaft fastening



+ Chassis fastening, 270°, indexable counter-holder



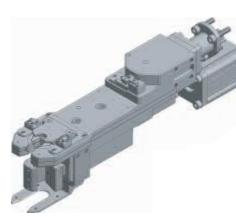
+ Chassis stabilizer fastening



+ Hinge support fastening



+ Camber adjustment



+ Wheel alignment



+ Underbody tank strape fastening







COMPACT. ACCURATE. EFFICIENT. THE MODULAR SYSTEM FOR EVERY APPLICATION.





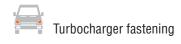






LSP3









Pre-assembly oil-damper









L.SP3 PROJECTING SET: TO MAKE SURE YOU KNOW WHERE YOU ARE HEADING.

The **L.SP3** projecting set offers you an easy and straightforward way of carrying out a feasibility study and with it, maximum confidence in choosing the right product.

Different sets are available for different torques. Each of these sets comes in a high-quality suitcase, containing foam cutouts in which the components are safely stored.

The modular design of the **L.SP3** product series allows many different fastening systems to be configured and assembled out of one projecting set.

It only takes a few steps until you hold a simplified fastening system in your hands and you are then able to check your fastening space easily on your own.

Your advantages:

- + Easy to assemble
- + Simple and fast feasibility study
- + Ensures a correct product choice
- + Realistic demonstration of the product portfolio
- + Individual components made of POM that are high quality CNC milled
- + Modular product series L.SP3
- + Different sets for different torque areas





Set-No.	Torque	Module			
Set 01	7-26 Nm	12 22 35			
Set 02	27-85 Nm	55 85			
Set 03	65-135 Nm	140			
Set 04	105-195 Nm	190			
Set 05	165-231 Nm	250			



67

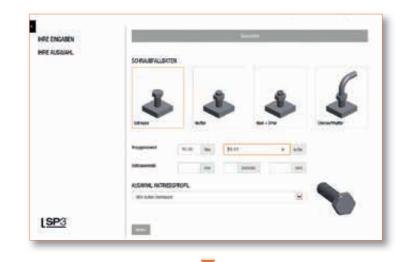
C

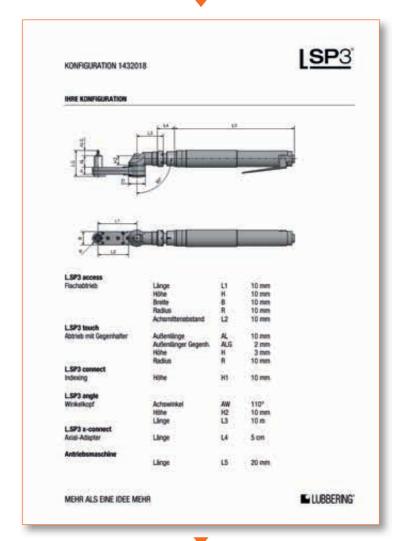
CONFIGURE YOUR PERSONAL L.SP3 SOLUTION.

Angled, complex or extra-tight – the **L.SP3** configurator will help you to find the right tool for any application situation which is still so hard to reach.

- + Entire fastening system configurable: from socket gears to drive units from many manufacturers
- + Available online on mobile devices
- Own login account
- + Save configurations and call them up at any time
- + Send requests directly from the configurator
- + Easy handling



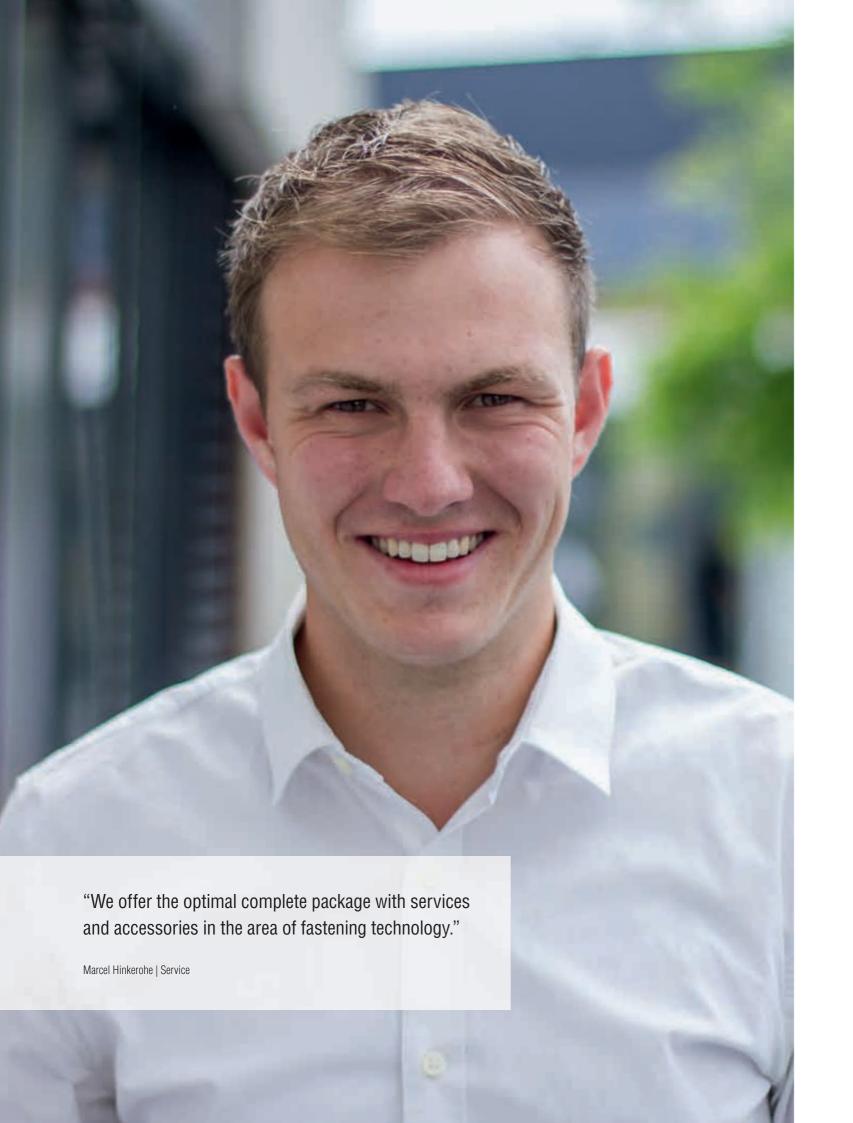






Please send your configuration directly from the configurator and so request an offer for your fastening system.

www.luebbering.de/configurator



SICO

COLOUR MARKING FOR YOUR APPLICATIONS.

The professional marking system for conspicuous colour marking in manufacturing and quality control.

L.SICOPOINT has been developed to enable trouble-free, economical and process-controlled colour marking of quality fastenings. L.SICOPOINT is an efficient system that can be used effectively in many different manufacturing areas and in quality control. Due to its clearly defined interfaces, the L.SICOPOINT colour marking system can be easily integrated into your existing manufacturing sequences.

- + Optimum and easy marking
- + Fast installation and comfortable control
- + High application safety
- + Immediate and quick change of marking cartridges



VARI GRIP

ALWAYS HAVE YOUR FASTENING TOOL TO HAND.

L.VARIGRIP stands out due to its simplicity. A tool holder that can be used whenever tools must be available. The patented innovation of the L.VARIGRIP is its rotating + Stable and robust steel core effect. Variable positions enable several tools to be held in a userfriendly way. A rubber surface prevents the tools from being scratched and guarantees a secure hold. In that way, this LÜBBERING tool holder guarantees the optimum + Your tool is always next to you holding of various fastening and mounting tools.

- + Scratching protection through vulcanized surface
- + Easily adjustable for all common fasteners





LSMR

OUR SERVICES CONTAIN CORE VALUES. THESE ENSURE THAT OUR CUSTOMERS GAIN ADDED VALUE.

LÜBBERING products enjoy a worldwide reputation for In our Product, Application and Maintanance workshops excellence and provide the highest levels of quality and accuracy. In order to sustain this throughout the entire selection of the product as well as applications. Our product lifecycle, LÜBBERING also offers a wide range of experienced and highly-qualified team is always ready to services. We are your partner, from the first design idea to provide professional support. the service contract.

we guide and train our customers and partners in the



FOUR PRODUCT CATEGORIES. FOR UNRIVALLED INDIVIDUAL SERVICE.





Feasibility study | Prototyping | Life cycle simulation | L.SP3 Projecting set





Running-in | Trimming | Machine capability analysis





Maintenance agreement | Express repair





75

Product workshop | Application workshop | Maintenance workshop

WE'RE SETTING OFF IN ALL DIRECTIONS FOR YOU – BECAUSE THERE'S ALWAYS ROOM FOR IDEAS.

The **raum für ideen** is aimed at customers, partners and people interested in LÜBBERING. First, we coordinate with you and organise the event at your premises. We send written invitations to your employees and colleagues and provide you with posters for the event which are individually tailored to your needs.

Planning engineers, machine operators and maintenance technicians can see the quality and versatility of LÜBBERING products live in person – like at an exclusive trade fair. They can test fastening solutions at fastening stations and can evaluate a wide spectrum of geared offset heads ranging from our standard **L.SP3** to our sophisticated special geared offset head.



raum für ideen*













www.good-fastening.com

(EN)

LUBBERING

Johannes Lübbering GmbH Industriestraße 4 33442 Herzebrock-Clarholz GERMANY

Fon: +49 (52 45) 83 09-0 Fax: +49 (52 45) 83 09-250 info@luebbering.de www.luebbering.de Luebbering (UK) Ltd. UNITED KINGDOM

Luebbering Corporation UNITED STATES

Luebbering Tools Trading (Shanghai) Co., Ltd. CHINA