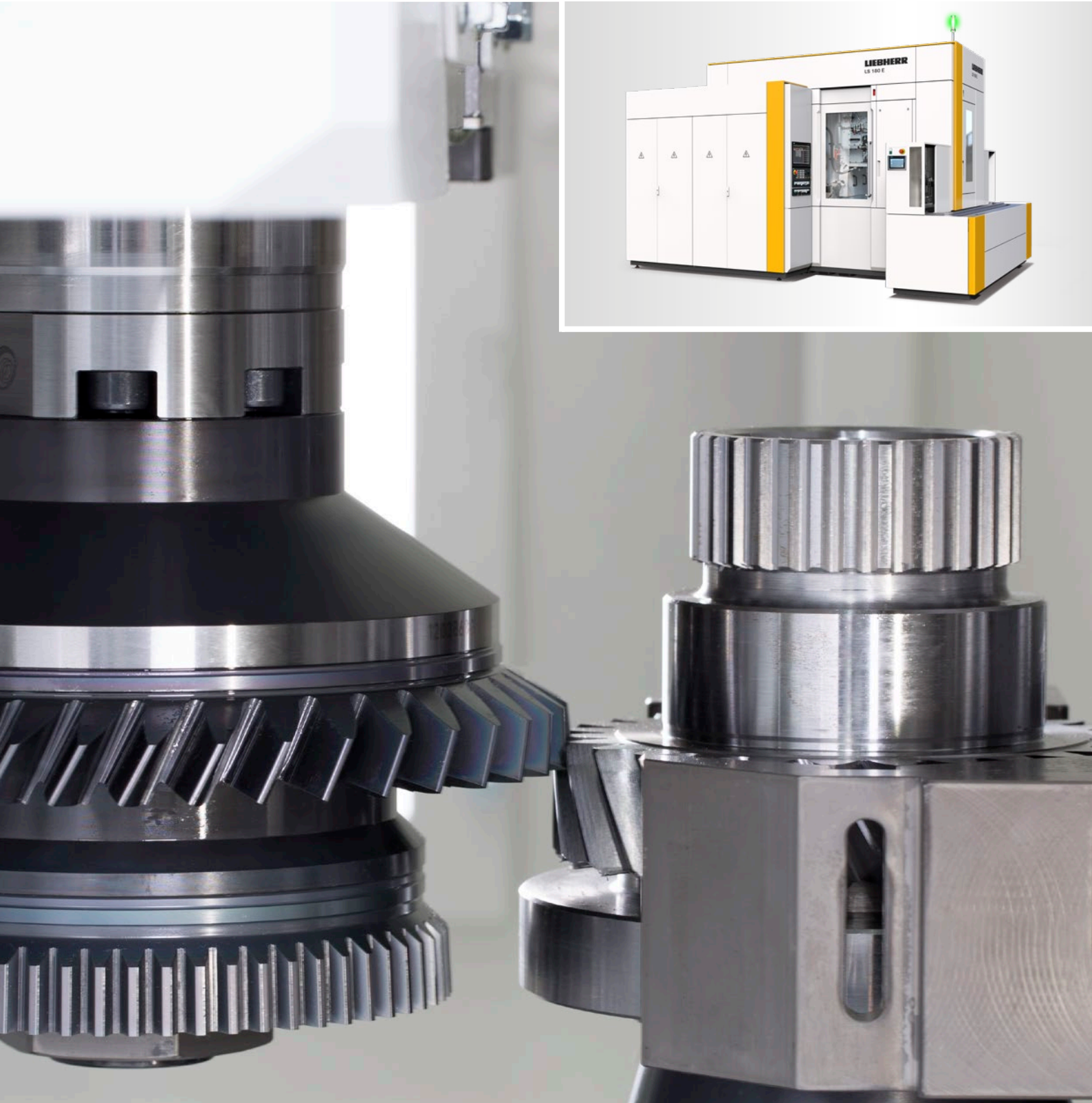


Gear Shaping Machines LS 80-180 E with electronic helical guide



LIEBHERR

Productivity and flexibility



Greatest flexibility for a variety of workpieces

Liebherr gear shaping machines are optimized to satisfy all the requirements for universal usability. The machine is designed with an axially movable cutter head slide, which enables a wide variety of parts to be manufactured with minimal setup times. At the same time, the variable machining position enables multiple gears to be machined in one clamping set-up fixture. Thanks to the additional combination with an electronic helical guide, the LS 180 E provides maximum flexibility along with peak productivity. The electronic helical guide makes it effortless to use the control system for setting and carrying out lead corrections, angle corrections or allowances for subsequent hardening. The machine concept is suitable for wet machining as well as dry machining. The internal ringloader concept lends itself is ideal for cost-efficient and effective manufacturing. This can be used for loading and unloading workpieces in almost no time. For external automation, Liebherr offers various systems such as a plastic chain conveyor or a chain box mounted right on the machine.

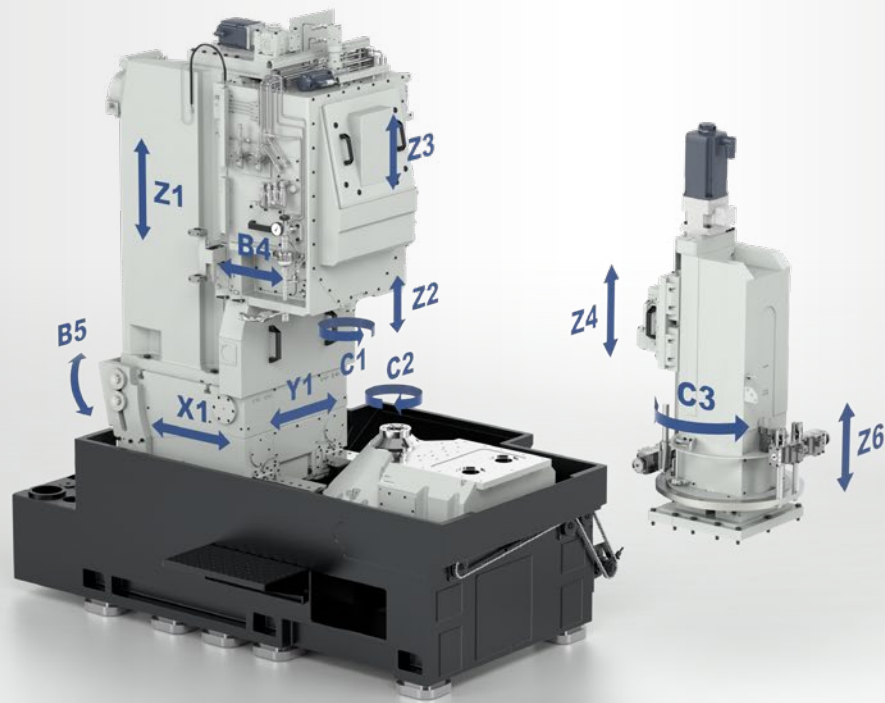
Highlights of the LS 180 E

- Greatest flexibility for production
 - Machining of external and internal gears and splines
 - Shaping of multiple gears with different helix angles
 - Easily programmable helix angles up to 50° with correction options
- Eliminates time-consuming set-up process
- Introduces tooth lead modifications (programmable)

Application areas

- Contract manufacturing of large quantities
- Universal contract manufacturing for small batch sizes

The machine concept



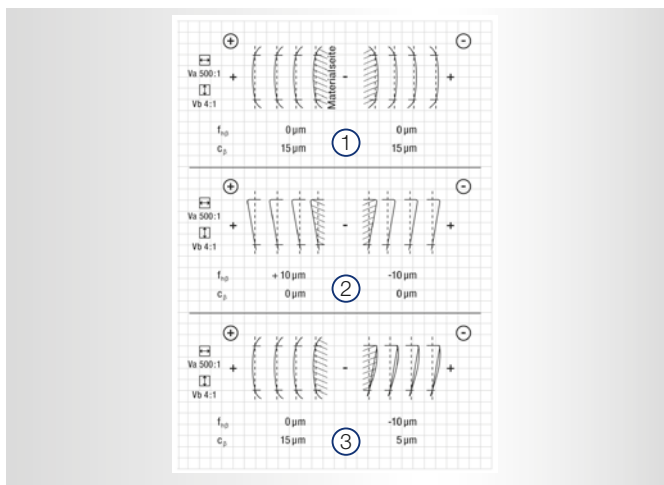
Axes

X1 - Radial movement of column slide
 Y1 - Lateral column offset
 Z1 - Stroke positioning axis
 Z2 - Stroke length adjustment

Z3 - Tool stroke movement
 Z4 - Tailstock vertical movement
 Z6 - NC lifting station
 B4 - Tool back-off movement

B5 - Column swivel axis
 C1 - Tool rotary movement
 C2 - Workpiece rotary movement
 C3 - Ringloader rotary movement

Possible modifications of the tooth traces



1 - Symmetrical crowning

- Option of two flanks with back-off cam
- Option of one flank with CNC movement

2 - Symmetrical taper

- Option of two flanks with back-off cam in the microrange
- Option of two flanks with swivel column in the degree range
- Option of one flank with CNC movement

3 - Asymmetrical crowning and flank angle modification

- Only 1 flank is possible
- Special design of the CNC movement

Technical data



		LS 80 E	LS 120 E	LS 150 E	LS 180 E
Normal module	mm	5	5	5	5
Max. cutting diameter	mm	80	120	150	80
Stroke length	mm	max. 70	max. 70	max. 70	max. 70
Center distance cutter spindle / work table	mm	-30 to 285	-30 to 285	-30 to 285	-30 to 285
Axis angle of cutter spindle / work table	°	+/- 0,5	+/- 0,5	+/- 0,5	+/- 0,5
Column swivel axis (optional)	°	-1 to +12	-1 to +12	-1 to +12	-1 to +12
Stroke position range cutter head slide	mm	275	275	275	275
Radial axis feed of column slide	mm/min	5,000	5,000	5,000	5,000
Stroke speed	DS/min	1,500	1,500	1,500	1,500
Total weight	kg	approx 13,000	approx 13,000	approx 13,000	approx 13,000
Outside dimensions	(L x W x H) mm	5,000 x 3,480 x 2,950	5,000 x 3,480 x 2,950	5,000 x 3,480 x 2,950	5,000 x 3,480 x 2,950