

Gear-Shaping Machines

LS 80-180 F



LIEBHERR

Productivity and flexibility



The new Liebherr LS 180 F gear shaping machine combines flexibility with productivity

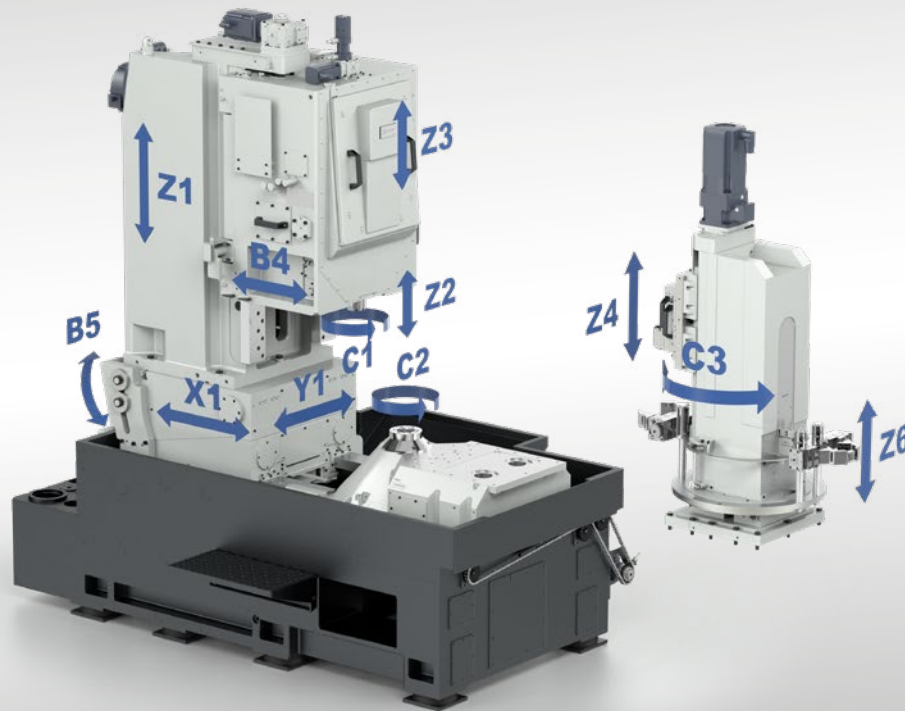
Productivity

The LS 180 F is an extremely compact series production machine. Its integrated automation enables very fast loading of workpieces with a diameter of 180 mm and a maximum weight of 15 kg. Serial production runs are processed very economically through use of internal automation in the form of a ring loader. Additional high productivity is ensured by the shaper head newly developed by Liebherr. This shaper head impresses through its drive power and stiffness. This high drive power means up to 3,000 double strokes per minute can be achieved. This performance delivers outstanding productivity in gear production.

Flexibility

The structural design of an axially moving cutting head slide allows users to machine multiple gearings in one setting. The moving cutting head slide considerably minimises retooling, which in turn contributes to increasing added value. Spur and helical gearings can be produced with ease on the LS 180 F.

The machine concept



LS 180 F highlights

- Automatic changeover from internal to external gear (twin-track cam system)
- SGA – gear shaping with crossed axes
- Small installation area
- 3,000 double strokes per minute (depending on the stroke length)
- SSM method (shuttle stroke method) as an option
- Conventional helical guides from predecessor shaper heads can be used
- Hydrostatically guided cutter spindle

Benefits of a vertical cutting head slide

- Possibility for shaping cluster gears, generating and non-generated profiles and segmented gears in one fixture
- Improved production quality as complete processing is possible in one setting without reclamping
- Long traverse distance for stroke position adjustment and correspondingly reduced equipment
- Utilisation of the maximum stroke length over the entire stroke adjustment range as there is no reciprocal interference between the stroke position and stroke length
- Cost reduction through lowering auxiliary process times, i.e. less effort for retooling and equipment setup

The axes

X1 – Radial travel main column
Y1 – Column offset
Z1 – Stroke position adjustment
Z2 – Stroke length adjustment

Z3 – Stroke travel tool
Z4 – Vertical travel tailstock arm
Z6 – NC-lift station
B4 – Tool relief motion

B5 – Column swivel axis
C1 – Rotary motion tool
C2 – Rotary motion work piece
C3 – Rotary motion ring loader

Technical Data



		LS 80 F	LS 120 F	LS 150 F	LS 180 F
Normal module	mm	5	5	5	5
Max. cutting diameter	mm	80	120	150	180
Stroke length	mm	max. 70	max. 70	max. 70	max. 70
Centre distance cutter spindle/work table	mm	-30 to 285	-30 to 285	-30 to 285	-30 to 285
Column swivel axis (option)	°	-1 to +12	-1 to +12	-1 to +12	-1 to +12
Stroke position range cutter head slide	mm	275	275	275	275
Stroke speeds infinitely variable as standard	DS/min	1,500/2,000/3,000*	1,500/2,000/3,000*	1,500/2,000/3,000*	1,500/2,000/3,000*
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

*depending on the stroke length