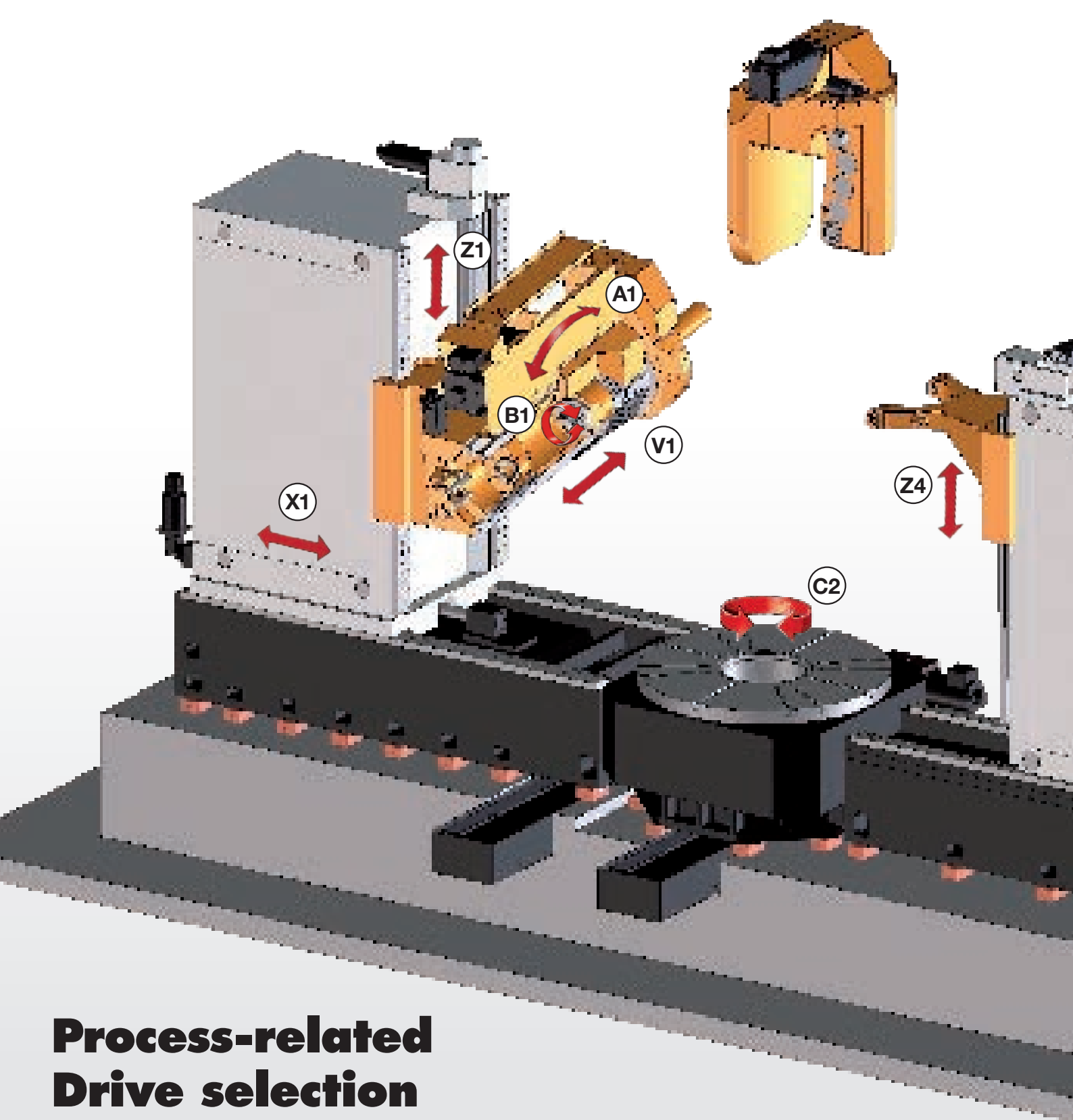


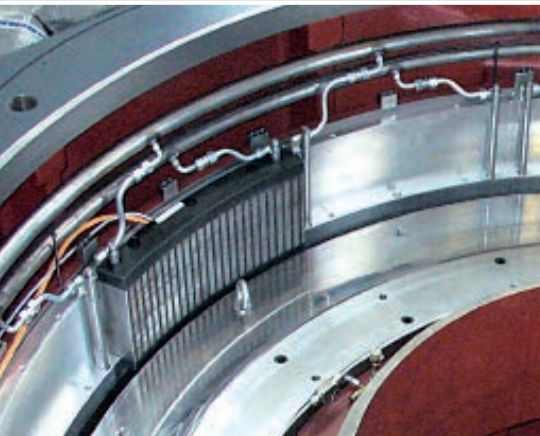
# The CNC-Gear Hobbing Machine LC 2000-16000



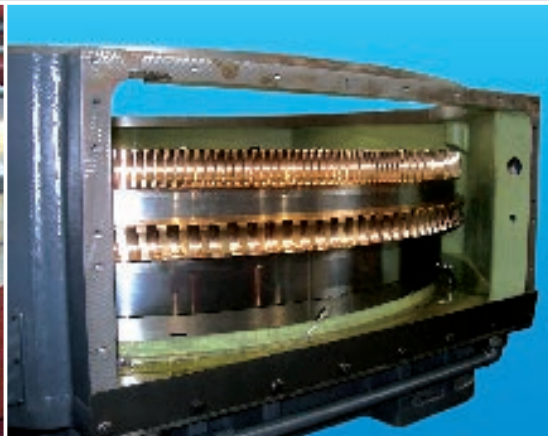
**LIEBHERR**



# Process-related Drive selection



Direct drive



Double worm drive

# Efficiency

Is performance-related cutting possible on your machine? As nowadays the economical requirement is more important than ever, modern machines are required.

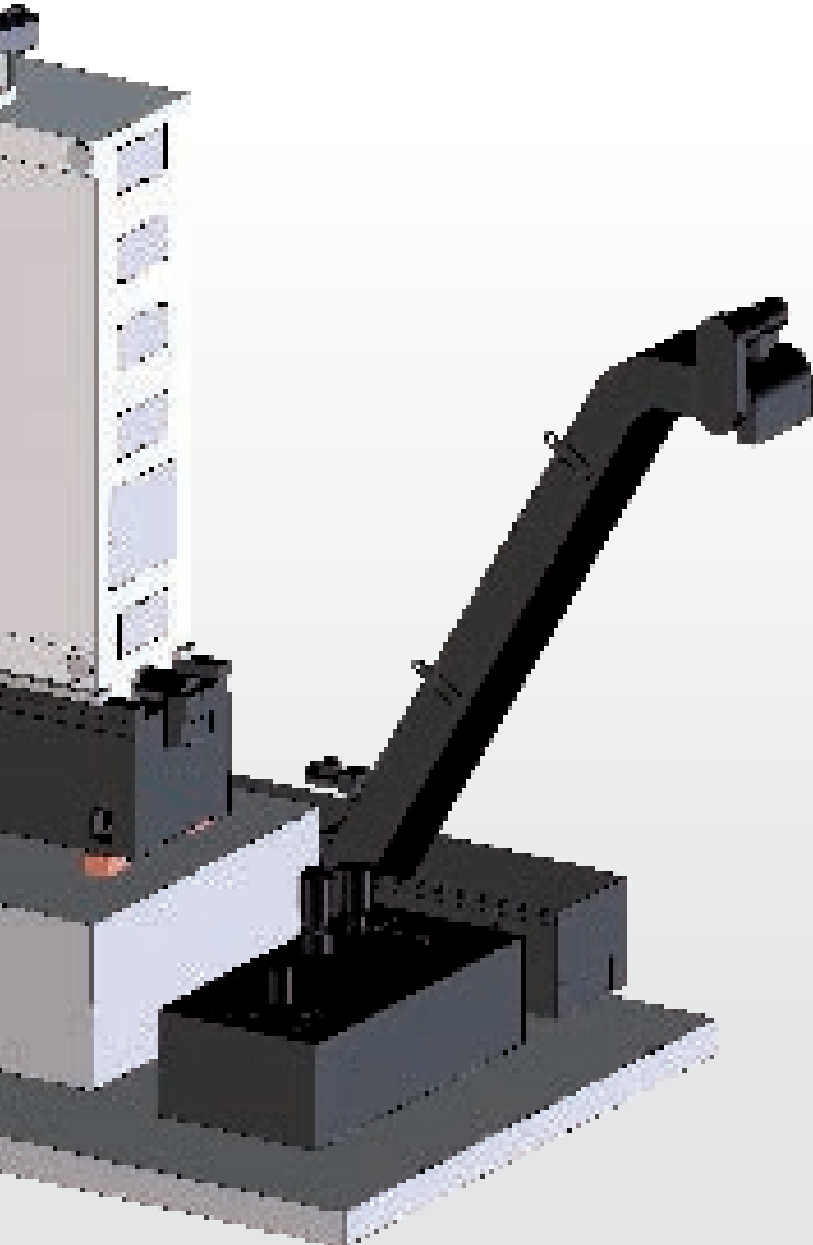
The Liebherr series LC ensures reliable processing of the required torques and cutting forces. The capability of modern CNC-Gear hobbing machines is emphasized herewith.

Quality requirements such as accuracy, stability and temperature resistance are fulfilled with this machine concept.

Stable processes are realized during pre- and finish hobbing.

Is dry hobbing of gears having large modules ( $m > 10$ ) possible?

YES - see machining example



- X1 - Radial travel main column
- V1 - Tangential travel tool
- Z1 - Axial travel tool
- B1 - Rotary motion tool
- C2 - Rotary motion work piece
- A1 - Swivel motion tool
- Z4 - Vertical travel tailstock arm



Machining example

# Hob heads

## Generating hob head FK4.1

- Drive capacity 53 KW
- Module 24/30
- max. hob speed 250 1/min
- max. hob diameter 320 mm
- max. hob length 440 mm
- max. tangential travel 300mm
- max. tangential speed 500 mm/min

## Generating hob head FK4.2

- Drive capacity 70 KW
- Module 30/40
- max. hob speed 250 1/min
- max. hob diameter 450 mm
- max. hob length 700 mm
- max. tangential travel 450 mm
- max. tangential speed 500 mm/min

## Internal hob head IFK4.11

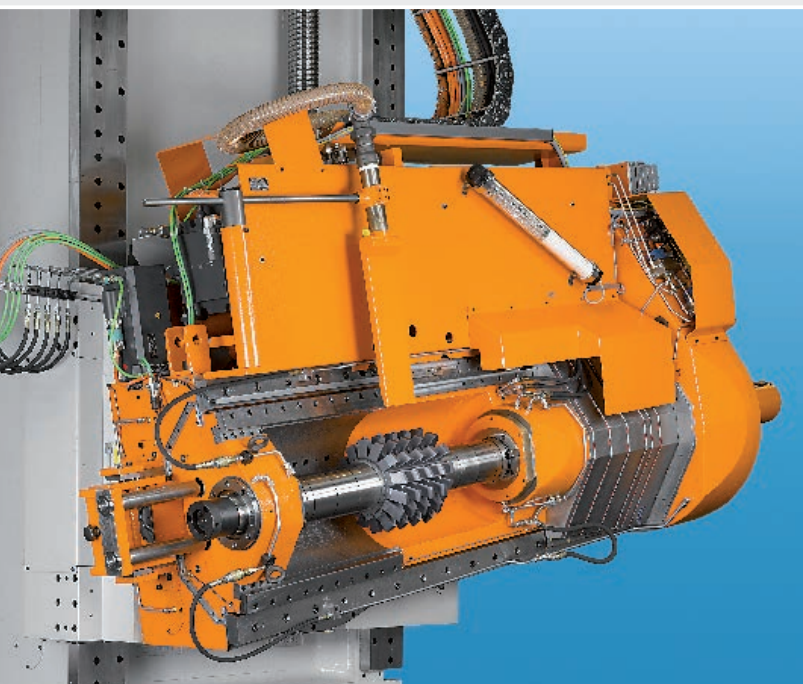
- Drive capacity 53 KW
- Module 25
- max. hob speed 250 1/min
- Hob-nominal diameter 380/420 mm
- max. hob diameter 500 mm
- max. hob width 90/120/160 mm
- max. hob head swivelling angle +/- 25 °
- max. ring height of the workpiece to be machined 500 mm
- max. ring thickness of the workpiece to be machined 400 mm

## Internal hob head IFK4.21

- Drive capacity 53 KW
- Module 30
- max. hob diameter 520mm
- min. root diameter of the hob 360 mm
- max. hob width 120mm
- max. ring height of the workpiece to be machined incl. clamping fixtures 1000 mm
- max. ring thickness of the workpiece to be machined 500 mm



Internal hob head IFK4.21



Generating hob head FK4.2/FK4.1



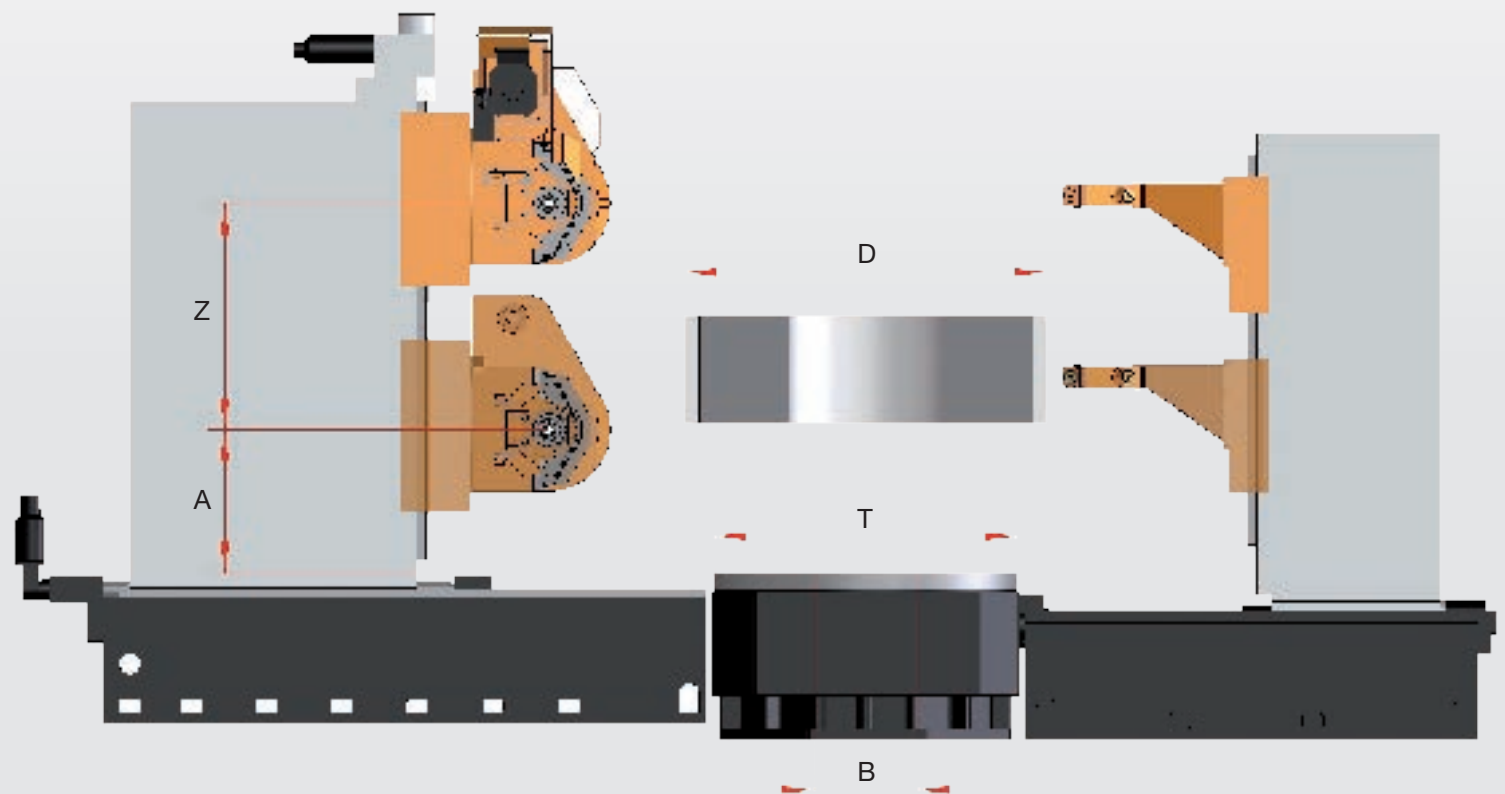
Internal hob head IFK4.11

# Technical Data

## Hobbing machine with external hob

|  |       | LC 2000<br>LC 2500 | LC 2500<br>LC 3000<br>LC 4000<br>LC 6000<br>LC 8000 | LC 8000<br>LC 10000<br>LC 12000<br>LC 16000 |
|--|-------|--------------------|---|---|
| Max. nominal module during hobbing/profile milling | mm    | 24/30              | 30/40   | 60/100                                      |
| Max. workpiece diameter (D)                        | mm    | 2,000-2,500        | 2,500-8,000   | 8,000-16,000                                |
| Hob slide travel (Z)                               | mm    | 1200/1500/1800     | 1200/1500/1800/2400                                 | 1800/2400                                   |
| Lowest hob head pos. above table (A)               | mm    | 600                | 650/600   | 900   |
| Table diameter (T)                                 | mm    | 1500/2000          | 2000/3000   | 5000/7000(11500)                            |
| Table speed  | 1/min | 7/5                | 5   | 4(8)  |
| Table load   | kN    | 200/300            | 300/450   | 2000  |
| Table bore continuous                              | mm    | 500/690            | 690/1000  | 1500  |
| Max. hob head swivelling angle                     | °     | +/- 45°            | +/- 45°   | +/- 25°                                     |
| Max. shift travel/tangential travel                | mm    | 300                | 450   | 700   |
| Max. hob diameter                                  | mm    | 320                | 450   | 650   |
| Max. hob length                                    | mm    | 440                | 700   | 900   |
| Hob speeds   | 1/min | 250                | 250   | 150   |
| Drive capacity hob spindle                         | kW    | 53                 | 70  | 120   |
| Total connected load                               | kW    | 125                | 165   | 320   |

Execution with internal hob head optional



# Machine Tools and Automation Systems by Liebherr

With around sixty years of experience in the field, Liebherr is one of the world's leading manufacturers of CNC gear cutting machines, gear cutting tools and automation systems. These innovative products are the result of advanced ideas, highly qualified employees and the latest manufacturing systems at each of their locations. They are characterised by economy, ease of use, quality and reliability in combination with a high degree of flexibility.

Liebherr employs approximately 1,200 people in the field of machine tools and automation technology and has production facilities in Kempten and Ettlingen (Germany), Collegno (Italy), Saline (Michigan, USA) and Bangalore (India). They are supported by expert and reliable marketing and service specialists at a large number of locations worldwide.

## System Solutions for Gear Cutting Machines

The Liebherr range in the field of gear cutting machines includes gear hobbing machines, gear shaping machines and hobbing and profile grinding machines, all noted for their high degree of stability and availability. Liebherr can supply all technologies required for the manufacture of high-quality gears and is continuously developing these technologies. Particular importance is attached to the energy efficiency of the machines.

Gear cutting machines from Liebherr are supplied to renowned manufacturers of gears and gearboxes as well as large-scale slewing rings worldwide. They are in demand primarily from the automotive and construction machinery industries and also increasingly from the windpower industry for the manufacture of gears for wind turbines.

## High-Quality Gear Cutting Tools

Liebherr manufactures high-quality precision tools for the soft and hard machining of gears and all Liebherr gear cutting machines are fitted with these tools. The range also includes Lorenz stock tools and products customised for specific applications.

## Automation Systems for a Wide Range of Applications

Liebherr has a wide range of products for linear portals, pallet-handling systems, conveyor systems and robot integration for projects in all areas of production and can provide above-average availability of systems.

[www.liebherr.com](http://www.liebherr.com)



### Liebherr-Verzahntechnik GmbH

Werk Ettlingen  
Gear cutting tools  
Hertzstraße 9-15  
76275 Ettlingen, Germany  
☎ +49 (0)7243 708-0  
Fax +49 (0)7243 708-685  
tools.lvt@liebherr.com

### Liebherr-Utensili S.r.l.

Gear cutting tools  
Via Nazioni Unite 18  
10093 Collegno TO, Italy  
☎ +39 (0)114 248711  
Fax +39 (0)114 559964  
info.lut@liebherr.com

### Liebherr-Gear Technology Inc.

Machine tools  
**Liebherr Automation Systems Co.**  
Automation systems  
1465 Woodland Drive  
Saline, MI 48176-1259, USA  
☎ +1 7344 297225  
Fax +1 7344 292294  
info.lgt@liebherr.com

### Liebherr-Machine Tools India Pvt. Ltd

Machine tools  
353/354, 4th Main, 9th Cross, 4th Phase  
Peenya Industrial Area  
Bangalore - 560 058, India  
☎ +91 (0)80 41 273033  
Fax +91 (0)80 41 272625  
info.mti@liebherr.com

### Liebherr-Verzahntechnik GmbH

Machine tools, automation systems  
Kaufbeurer Straße 141, 87437 Kempten, Germany  
☎ +49 (0)831 786-0, Fax +49 (0)831 786-1279  
www.liebherr.com, e-mail: info.lvt@liebherr.com