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Series Production on Small Batch Size with Shortest Changeover.

This requires not only a flexible gear-cutting machine but also dynamic automation equipment. Changeover has to be quickly, but not at the expense of safety or reliability. Technological evolution goes toward high-gash hubs, deep-hole hubs and to high durable chloride hubs. NPC eliminates deficiencies in the production equipment, but also raises accuracy requirements on the machine tool.

Communication must be plain in both directions. From human to machine and vice versa. Modern information technology provides the basis for this understanding. The operator knows the demands of the machine tool and their current operating status. Within a network system a machine tool has to operate as an intelligent partner.

Smoothly functioning gear-cutting machines are not enough. Batch production requires machines that fit into production systems, permit quick changeover to new tasks and assure high production safety.

The 6 fundamental machine motions are realized with short drives.

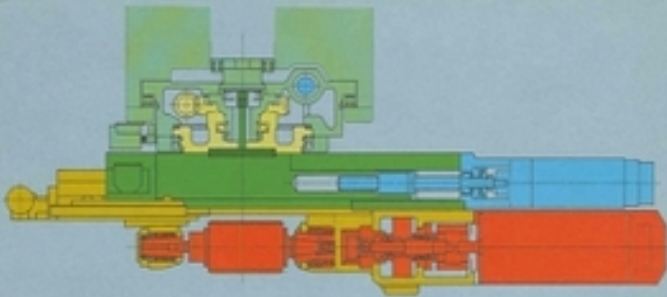
Radial motion (X), tangential motion (Y) and axial motion (Z) are driven by frequency-controlled AC motors via pre-loaded ball screws. Lateral guidance and undergrip are assured by pre-loaded linear roller guides.

Retrol motion (A) is generally provided by an NC axis, enabling - for instance - automatic machining of different members of a cluster gear. Hub drive (B) presents both - a high torque spindle with short, backlash-free drive line - as well as an accurate positioning axis for gear-finishing applications. Workpiece rotation (C) is realized by a high-speed, high-torque AC motor with pre-loaded gear leads, providing high table speeds as well as precise synchronization to the hub.

Additional NC axes in the toolstock area give a high flexibility to automation functions. As a standard the toolstock arm (D) is NC-controlled, with programmable axial clamping force. Depending on application, the ring loader can be equipped with NC pockets (T1 and T2) or pocket elevation (D1 and D2) or rotational indexing (C). The last option turns the NC ring loader into a multi-pocket NC ring magazine.



State-of-the-Art Drive Technology Smooth Operation at the Highest



Performance where necessary.

The AC motor transfers its power directly to the roller spindle by a short pre-loaded gear drive, without long spine shafts and bevel gears. The hub arbor is automatically changed to drive and roller bearing, allowing the use of standard and special hubs in single and multiple clamping. Pre-set rollers or assemblies can be exchanged within 1 minute. Optional automatic tool change, manual check and tool identification is available.

All linear movements occur through pre-loaded, full guideways with modern ceramic synchronous coating, hardened and ground steel guideways, adjustable linear roller bearings. The result: low friction, smooth operation and exact positioning of the slides.

Pre-loaded drives for hub and workpiece spindle along with antifriction roller bearings provide fast and accurate tool and workpiece motions, especially necessary for a gear-hobbing machine.

Liebherr Quick-Change Fixture Sys Machine and Periphery from One

| | | | | | |
|------------|----|------------------------|-----------------|----|----------------------|
| Category | :- | Gear Related Machines | Serial No | :- | |
| Model | :- | LC 252 | Country | :- | Germany |
| Make | :- | LIEBHERR | Type of Machine | :- | Gear Hobbing Machine |
| Year | :- | 2000 | Weight | :- | 0.0 |
| Dimensions | :- | | Power | :- | |
| Location | :- | Mumbai Warehouse,India | Asking Price | :- | On Request |

Specification :-

Max Dia. Gear: 9.840 ' / 249.9 mm

Max Diametral Pitch: 4.23

Horz/Vert: Horz

Weight : 22440 Lbs

Workpiece Diameter Max. 9.84

Module Max. 4.23 NDP Axial Travel Max. 9.84

Workpiece No. Teeth 4 No. Hob Starts 7 Work Table Dia. 9.84

Index-Gear Dia. 11.22

Center Distance Hob/Table Min. 59

Max. 10.43 Hob Head Swivel +/- 45 Hob Arbor Tapers Main ISO 40 Counter ISO 30 Shift / Tang.

Travel Max 7.87 Hob Diameter Max 5.71

Hob Length Max 9.06' Feeds Axial 196 IPM 5000 mm/min.

Radial 196 IPM 5000 mm/min. Tangential 393 10,000 mm/min.

Hob Speed Range Max. 600 RPM Hob Drive Capacity Max. 20.4 HP. Power Requirements 32 kva

Total Machine Weight 22,440 Lbs. Liebherr CNC Control with 6 Axis Features RS-232 DNC and All Options.

Magnetic Chip Conveyor Oil Mist Collector Coolant Filtration Unit Coolant and

Lube Refrigeration Unit Heavy Duty Hob Headed for Carbide Cutting Liebherr State of the Art Change Over Feature

Description :-

Liebherr 252 CNC Gear Hobbing Machine

Workpiece Diameter Max. 9.84'

Module Max. 4.23 NDP

Axial Travel Max. 9.84'

Workpiece No. Teeth 4

No. Hob Starts 7

Work Table Dia. 9.84'

Index-Gear Dia. 11.22'

Center Distance

Hob/Table Min. 59 - Max. 10.43

Hob Head Swivel +/- 45

Hob Arbor Tapers Main ISO 40

Counter ISO 30

Shift / Tang. Travel Max 7.87

Hob Diameter Max 5.71'

Hob Length Max 9.06'

Feeds

Axial 196 IPM 5000 mm/min.

Radial 196 IPM 5000 mm/min.

Tangential 393 10,000 mm/min.

Hob Speed Range Max. 600 RPM

Hob Drive Capacity Max. 20.4 HP.

Power Requirements 32 kva

Total Machine Weight 22,440 Lbs.

Liebherr CNC Control with (6) Axis Features

RS-232 DNC and All Options.

Magnetic Chip Conveyor

Oil Mist Collector

Coolant Filtration Unit

Coolant and Lube Refrigeration Unit

Heavy Duty Hob Head for Carbide Cutting

Liebherr State of the Art Change-Over Feature