

The Generating and Profile Gear Grinding Machines LCS 600-1200

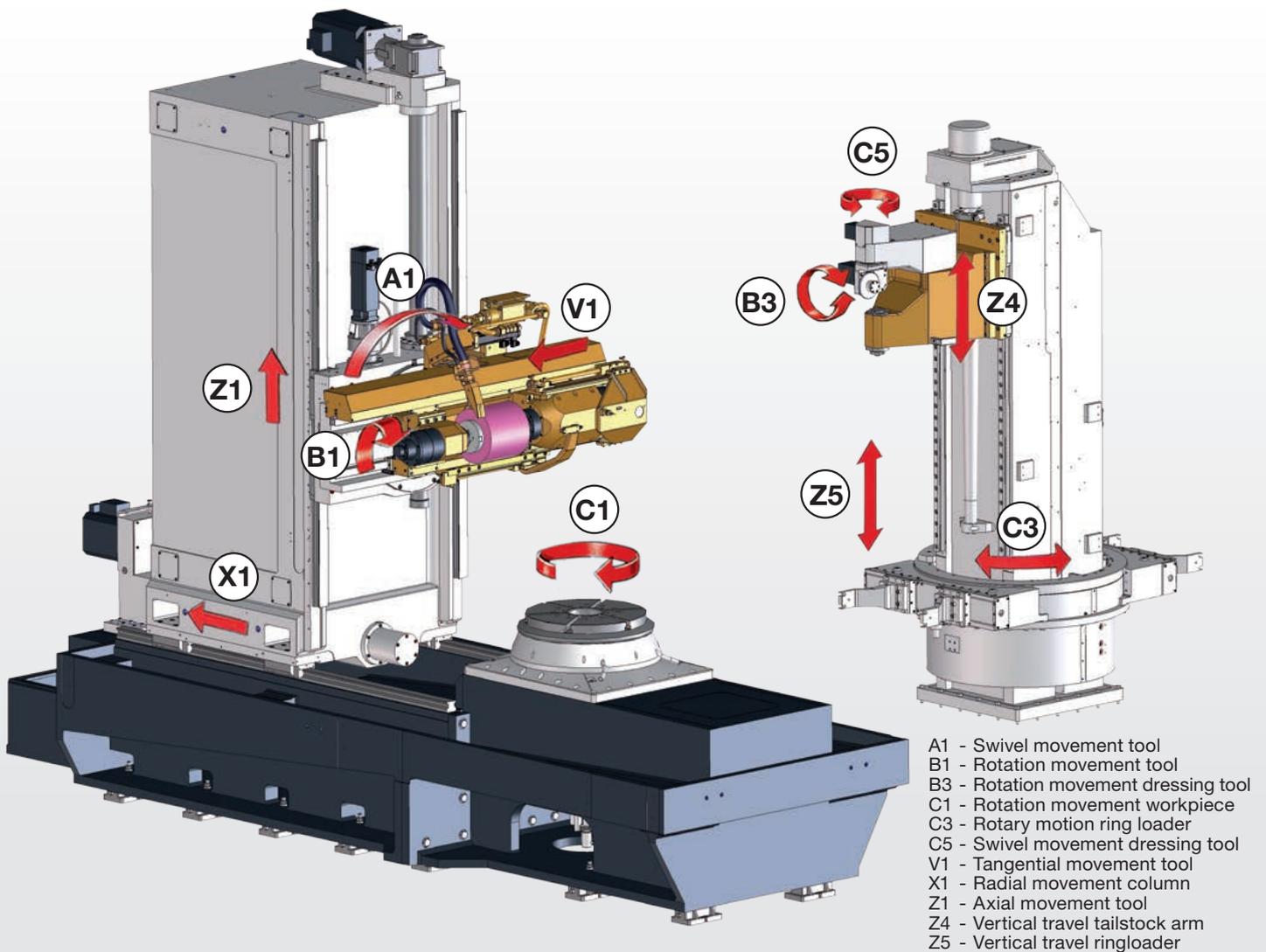


LIEBHERR

The Generating and Profile Gear Grinding Machines LCS 600-1200

With the new LCS series 3 Liebherr has developed a machine system for the hard finishing of gears, which is characterised by its special efficiency and universality: generating or profile grinding with dressable or plated CBN tools. Gear grinding with dressable snails or disks is a successful and proven technology and has today reached a remarkable efficiency with

modern sinter corundum tools. As Liebherr covers both technologies with the LCS series, the user can work with completely new possibilities, particularly with grindings of large gears as for example used in the wind power industry.

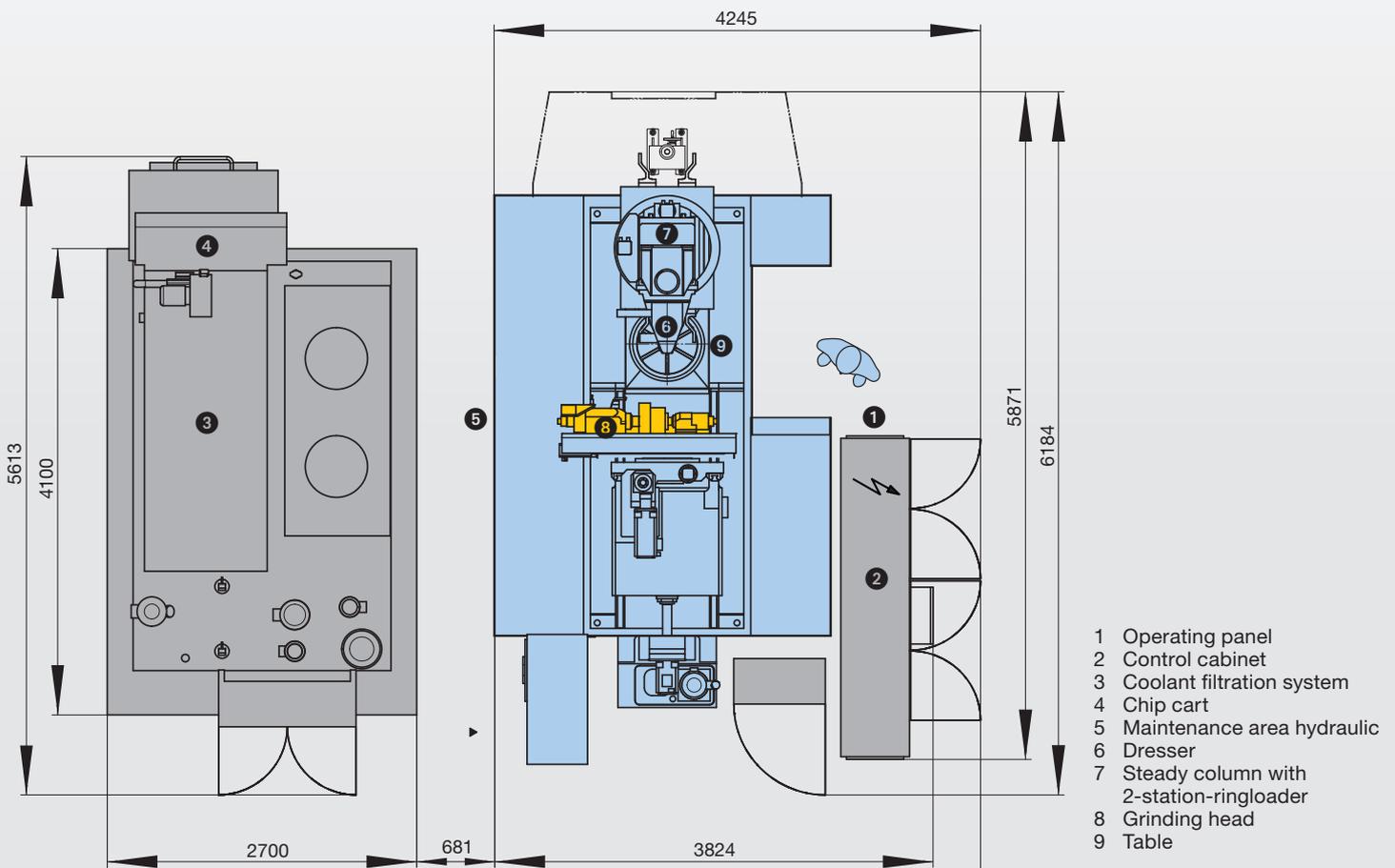


The grinding head is based on a proven design principle with spindle speeds up to 12,000 rpm. Its high thermal stability is a prerequisite for profile grinding. Active tool clamping on both ends guarantee high tool rigidity. Therefore, a cutting speed of 100 m/s is easily achievable.

With the 2-station ringloader workpieces up to 600 mm in diameter can be automatically loaded and unloaded.

Technical Data

		LCS 600	700	1000	1200
Workpiece diameter	mm	600	700	1.000	1.200
Max. workpiece speed	min ⁻¹	350	350	250	250
Max. module (generating grinding)	mm	10	10	10	10
Max. module/profile height (profile grinding)	mm	20/50	20/50	20/50	20/50
Max. axial travel	mm	1.000	1.000	1.000	1.000
Min. position above table	mm	200	200	200	200
Max. position above table	mm	1.200	1.200	1.200	1.200
Drive capacity grinding spindle	kW	35	35	35	35
Max. tool speed	min ⁻¹	12.000	12.000	12.000	12.000
Tool dia. (generating grinding)	mm	320	320	320	320
Tool dia. (profile grinding)	mm	320	320	320	320
Max. CBN-tool dia. (generating grinding)	mm	170	170	170	170
Max. CBN-tool dia. (profile grinding)	mm	220	220	220	220
Max. tool length	mm	230	230	230	230
Max. tangential travel	mm	320	320	320	320
Grinding head swivel angle	Grad	± 35° (45°)	± 35° (45°)	± 35° (45°)	± 35° (45°)
Axial speed	mm/min	10.000	10.000	10.000	10.000
Radial speed	mm/min	8.000	8.000	8.000	8.000
Tangential speed	mm/min	10.000	10.000	10.000	10.000
Weight of machine with steady column	ca. kg	25.000	25.000	28.000	28.000
Total connected load	ca. kVA	60	60	60	60



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



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