

## *g*-Mill 550

**The ultra-dynamic machining center  
for 5-axis machining of blisks  
impellers, turbine blades and  
other complex parts**



# *g*-Mill 550

## The ultra-dynamic machining center

The LIECHTI *g*-Mill 550 is an extremely dynamic 5-axis machining center for complex parts such as turbine blades, blisks and impellers. The leading edge technology employed enables high speed milling with g-rate acceleration for machining the flow profiles encountered in the engine and turbine industries.

The *g*-Mill 550 features extremely dynamic rotational and linear axes. The refined, cutting edge design, combined with LIECHTI TurboSoft CAM programming makes acceleration in the g-range possible, allowing more than 30% gains in productivity.

The LIECHTI *g*-Mill 550 sets new standards in the volume manufacture of turbine and engine components and other complex parts.





# Production concept 7000

## for suitably optimized automation of ultra-dynamic production

### Optimized automation

Tool and part handling, as well as monitoring and control functions can be individually adapted to the particular use, with the aim of providing the best possible performance and maximum availability.

### Tools

#### For improved flexibility in autonomous production, up to 144 tools

A tool magazine-chain of 50 tools is standard. This can be expanded with a 2 or 3 magazine chain, making lengthy, unsupervised and flexible production possible.

#### For improved security of tool control and monitoring

The laser tool measuring system measures the diameter and length of individual tools on the set-up bench. Incorrect positioning or broken tools are identified and pre-sets checked. Torque monitoring is a useful option for rough cutting operations.

The aim of **production concept 7000** is

Normal operation is 2000  
hours a year

2 and 3 shift  
4000 hours a

A year = 8760 hours

### Production concept 7000

The ultra-dynamic *g-Mill 550* machining center is not only set up for high levels of performance, but also minimizes production downtime with individual automation and straightforward maintenance.



### Parts

#### 1:1 Part changer

The double gripper takes the palletized blank and automatically replaces the finished part on the rotary table.

#### Magazine 1 is a loading and unloading station

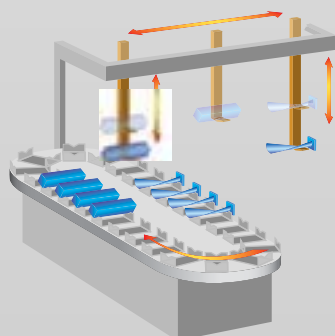
The finished part is taken from the plate in a flash and a new blank is put in its place. The station can also be fitted with a tailstock to align blanks.

#### A 20-part magazine for autonomous shift operation

The perfect solution for autonomous shift operation. A variety of parts can even be programmed for flexible production.

#### A 50-round magazine with a portal robot

For un-machined rods weighing up to 5 kg and with short machining times, a portal robot with a 50-round magazine is the perfect solution. Un-machined blanks of various sizes are directly loaded, unloaded and aligned at the loading and unloading stations and the machined blades are removed in the same manner.



#### Automated tail stock design

The tip width can be programmed for various blade lengths, because the tailstock is equipped with a measuring system.

## with systems guaranteeing maximum availability of the ultra-dynamic center

minimum of 7000 production hours a year



## A clear design concept

### Setting-Operating housing

The realization of a brilliant idea. The operating housing is small, well sealed and can be lifted off easily from the work area. It provides unimpeded, easy access for all maintenance and repair work.

### Easy crane loading

Heavy blisk blanks can be easily loaded with a crane through the large door to the clamping position.

### Easy access for repairs

**The cartridge spindle** is the most highly used component and must be lubricated to guarantee a long life. Its flange must be removed from the front for repairs. It can be pulled out from the front and easily replaced with the repaired spindle. Its points can be connected from the back.

### The roller guides and ball-screw spindles

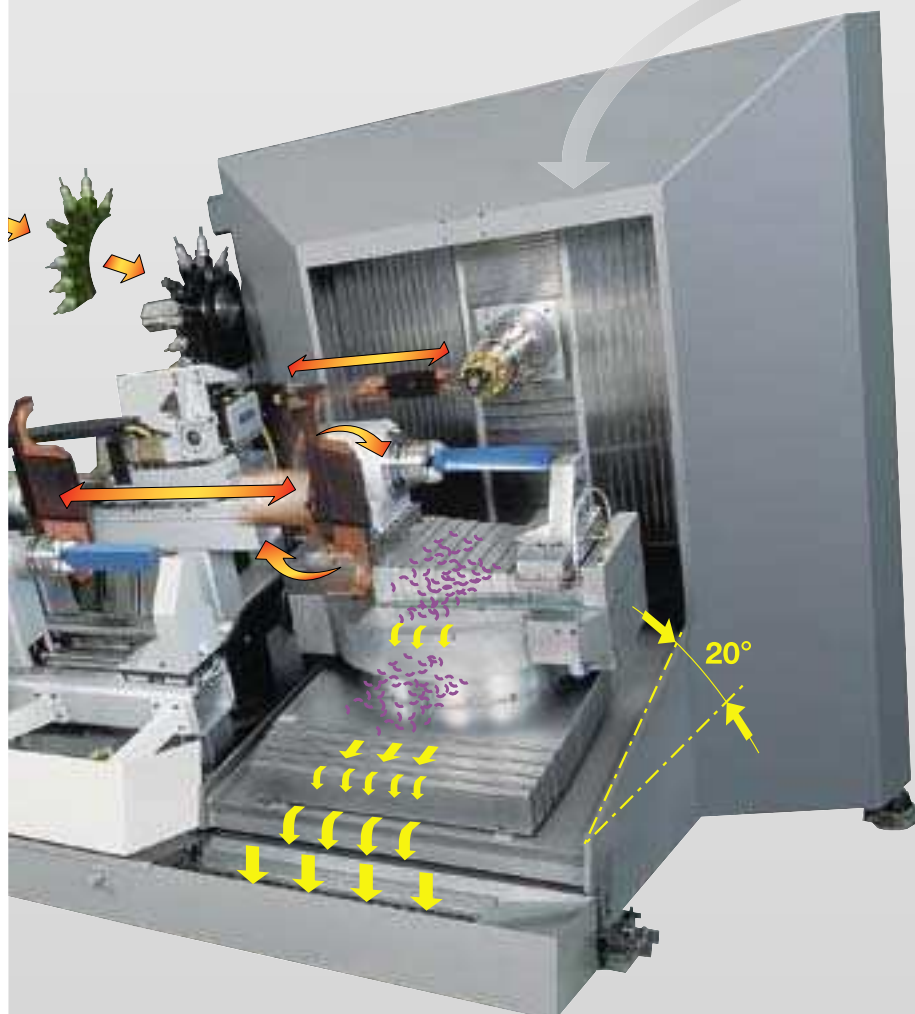
are connected to the main lubricant source and, therefore, need little maintenance.

### Safe access

- to the tools
  - to the servomotors
- because these are positioned outside the operating area.

### The unique 20° angled design

of the mono-block makes it easier to rinse down the chips and provides an unobstructed view of the workpiece and spindle, for monitoring the work area.



**Compact off-cut conveyors, with integrated coolant preparation,** operate with a scraper conveyor and are positioned directly under the front of the machine. Pre and main filtration cleans to a degree of purity of < 0.05mm. The pumps guarantee external cooling at 100 l/min at up to 3 bars and cooling via the tool at 50 bars and 28 l/min.

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