



Perfect mastery  
of surfaces



BE A CHAMPION  
IN EVERY MATCH

OPS  INGERSOLL  
Fly with the eagle!

Perfect mastery of surfaces like champions

# The new standard of all things



**Rainer Jung, Managing Director**  
Developer, Mastermind, Enthusiast

The sophisticated performance setup of the V-Line with its High-Speed-Eagles means a substantial boost in speed for modern cutting technology.

The world's fastest team sport masters mirror-like surfaces with an efficient short-pass game. We also look for short, highly dynamic methods in the cutting process, which we convert into a total victory for our customers using superior tactics. The V-Line is the result of a cohesive team performance. Its actions are lightning-quick with enormous precision in power play mode and it plays with intelligent automation solutions for you in the Champions Cup.

Use the highly profitable machine concept for scoring accurate and be a champion in every match.

**Be an Eagle Team – be a champion!**

**“The power grows with the goal.  
We love the technological edge.”**



FLY WITH THE EAGLE







DEVELOPMENT  
RESEARCH  
INNOVATION  
TREND SCOUTING

**EagleTec inside**

Our customers around the world have relied on the strong innovative capacity of the experts at OPS-INGERSOLL for two decades. The permanent and continuous research and development of unique performance components with state-of-the-art technology provides our customers with highly-profitable trend scouting and thus long-lasting investment security.

“EagleTec inside” is a commitment and a pioneering promise for every machine that leaves our factory. For our customers and our employees. We want to inspire everyone.

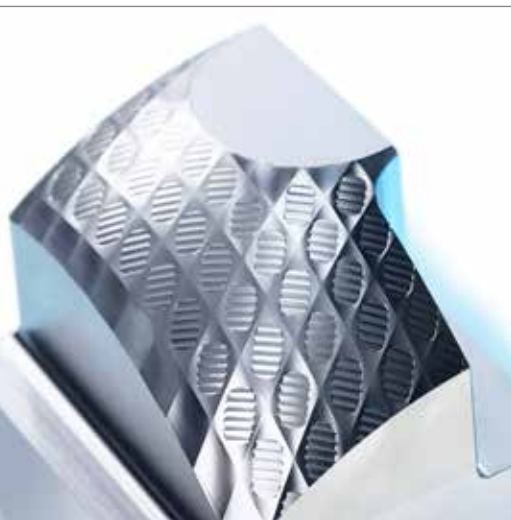
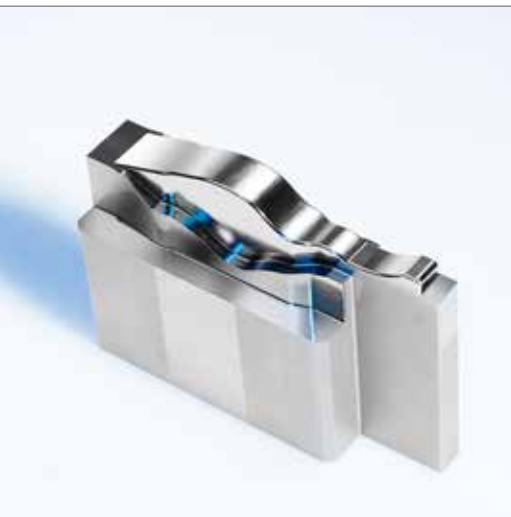
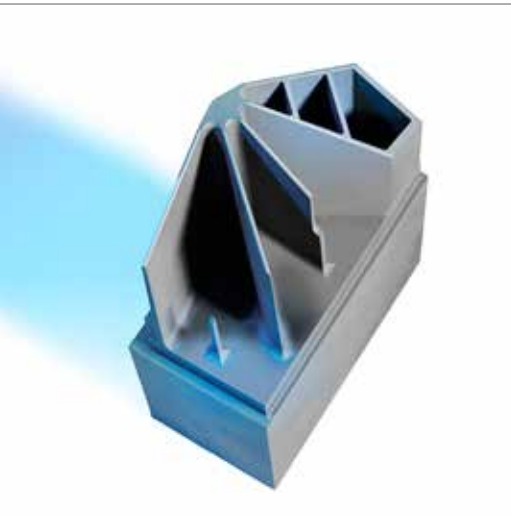
**“Most players are pretty good!  
They go where the puck is.  
I go where the puck will be.”**

**Wayne Gretzky**  
(Winner of multiple world  
championships in hockey)



Big Points

# Diversity of business sectors



Tool and mould construction

Pressing and metal forming

Aerospace technology

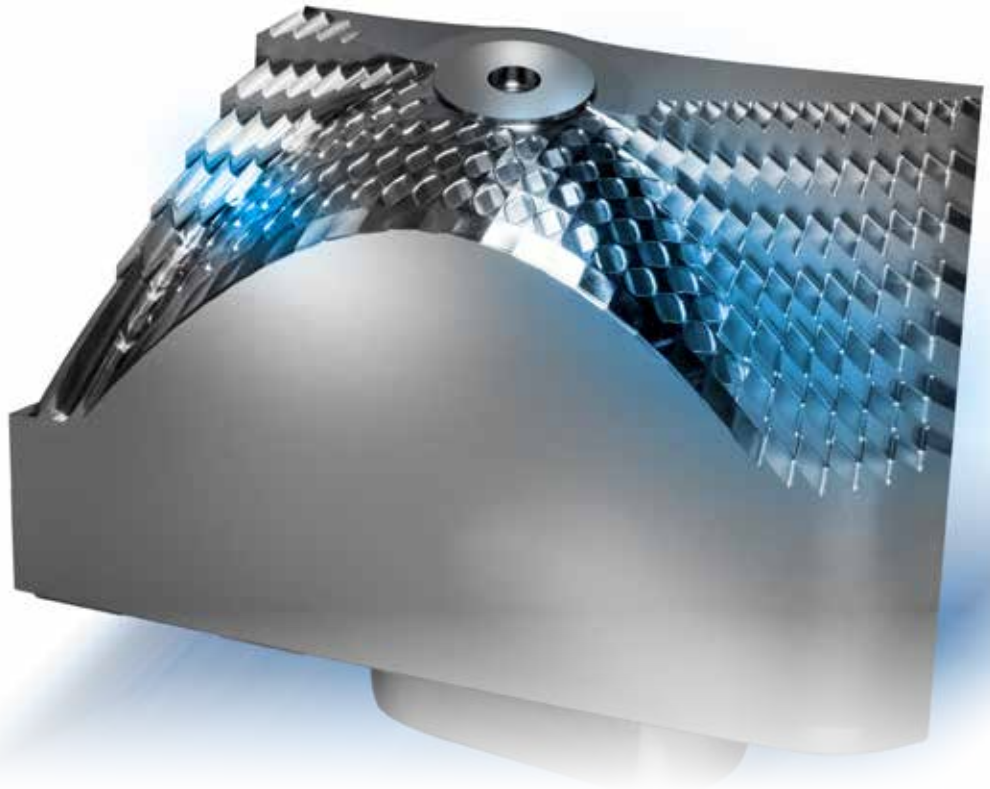
Dental and medical technology

Moulds for  
optical components

Micro-scale processing

Precision part machining

OPS-INGERSOLL offers  
efficient solutions to increase  
productivity.



# Unique Gantry machine concept

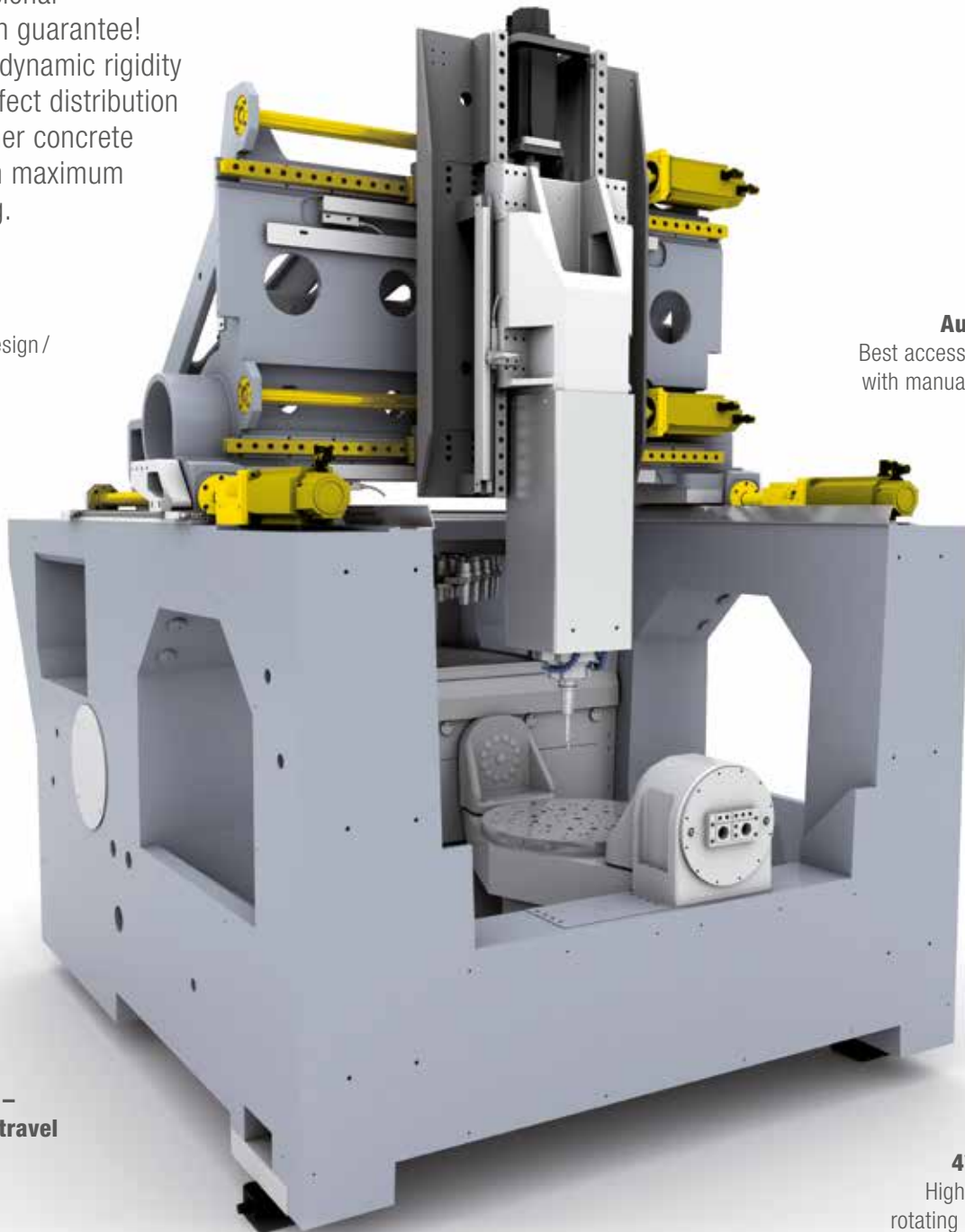
## Excellent machine design

“Dimensional” precision guarantee! Highest dynamic rigidity with perfect distribution in polymer concrete bed with maximum damping.

**Gantry** design / dual drive

**Thermo-symmetric design**  
Temperature compensation / stability

**Automation**  
Best accessibility even with manual operation



Minimum **footprint** – maximum **travel**

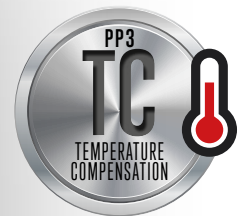
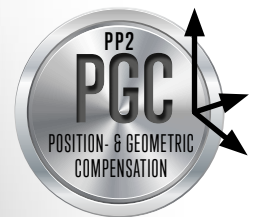
**4<sup>th</sup>/5<sup>th</sup> axis**  
Highly dynamic rotating swivel axis also for heavy weights



FLY WITH THE EAGLE



# Fully enclosed machine – temperature stability



## Precision strategies

Various options for cooling, geometry and temperature error correction for machine and cutting spindle, assure the highest machining precision over the entire range of travel of all 5 axes.

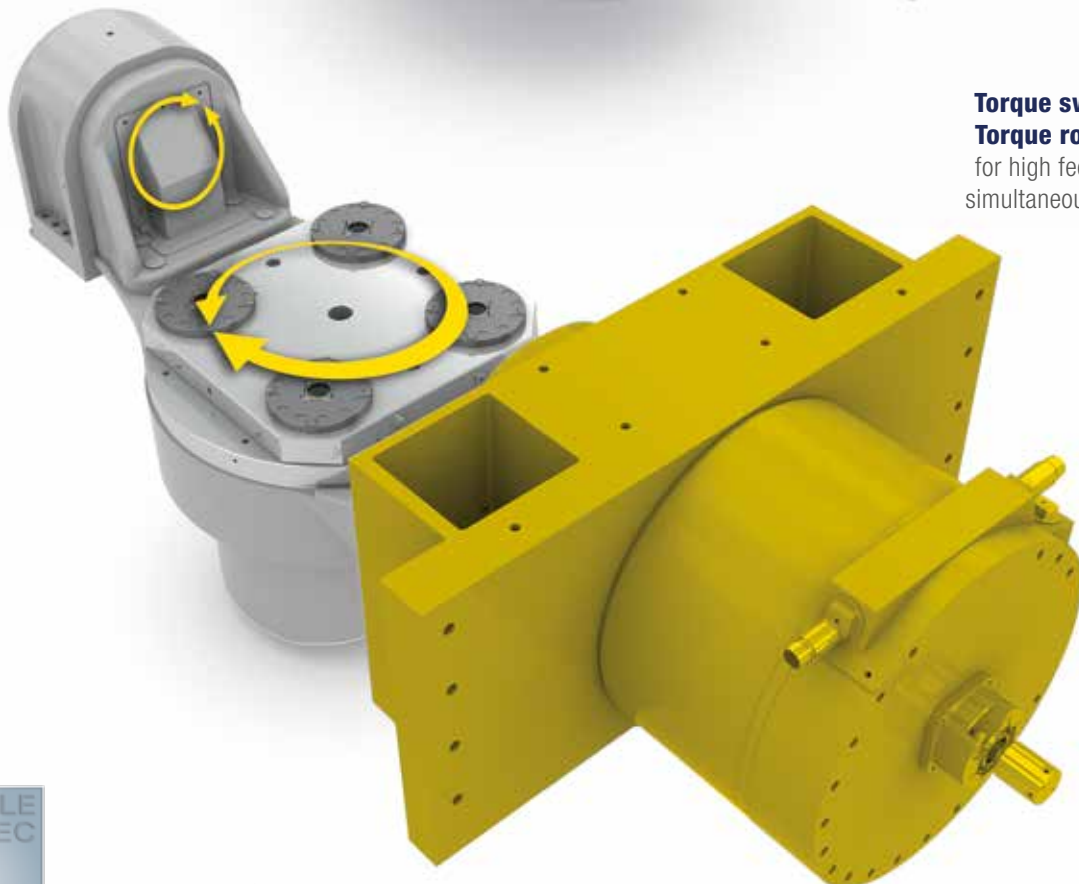


4<sup>th</sup>/5<sup>th</sup> axis – energy efficient force transmission

# Optional gear or torque drive



**Geared swivel axis /  
Torque rotation axis**  
for high-precision machining



**Torque swivel axis /  
Torque rotation axis**  
for high feed rates with  
simultaneous machining





### **Intelligent load movement**

The 4<sup>th</sup>/5<sup>th</sup> axis is designed to accommodate loads of up to 500 kg. The available work space is utilised ideally with the central arrangement and low position of the swivel axis. The swivel angle of up to 140° enables optimal machining conditions from all sides.

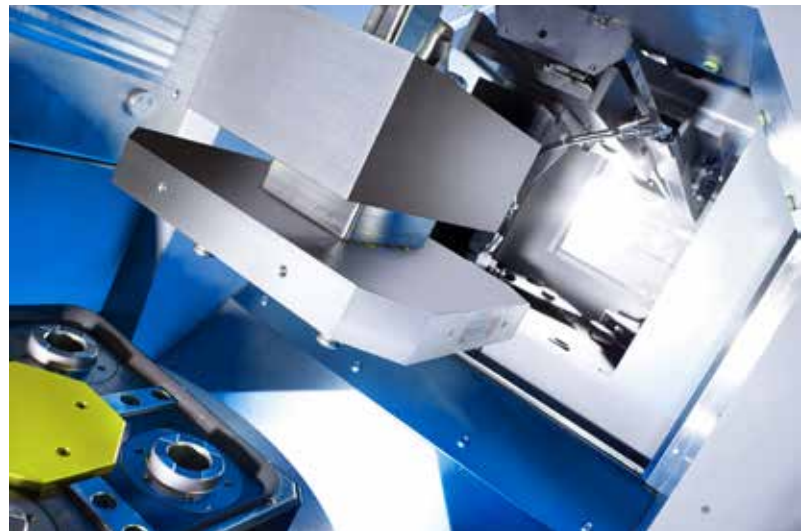
# Outstanding automation compatibility without limitation on manual operation



## Flexible connection of handling systems

All of our machines are prepared for automation, whether as a single machine, as a cell, or line automation.

OPS-INGERSOLL can supply the entire process chain, including automation, measuring machine, cleaning station and software.

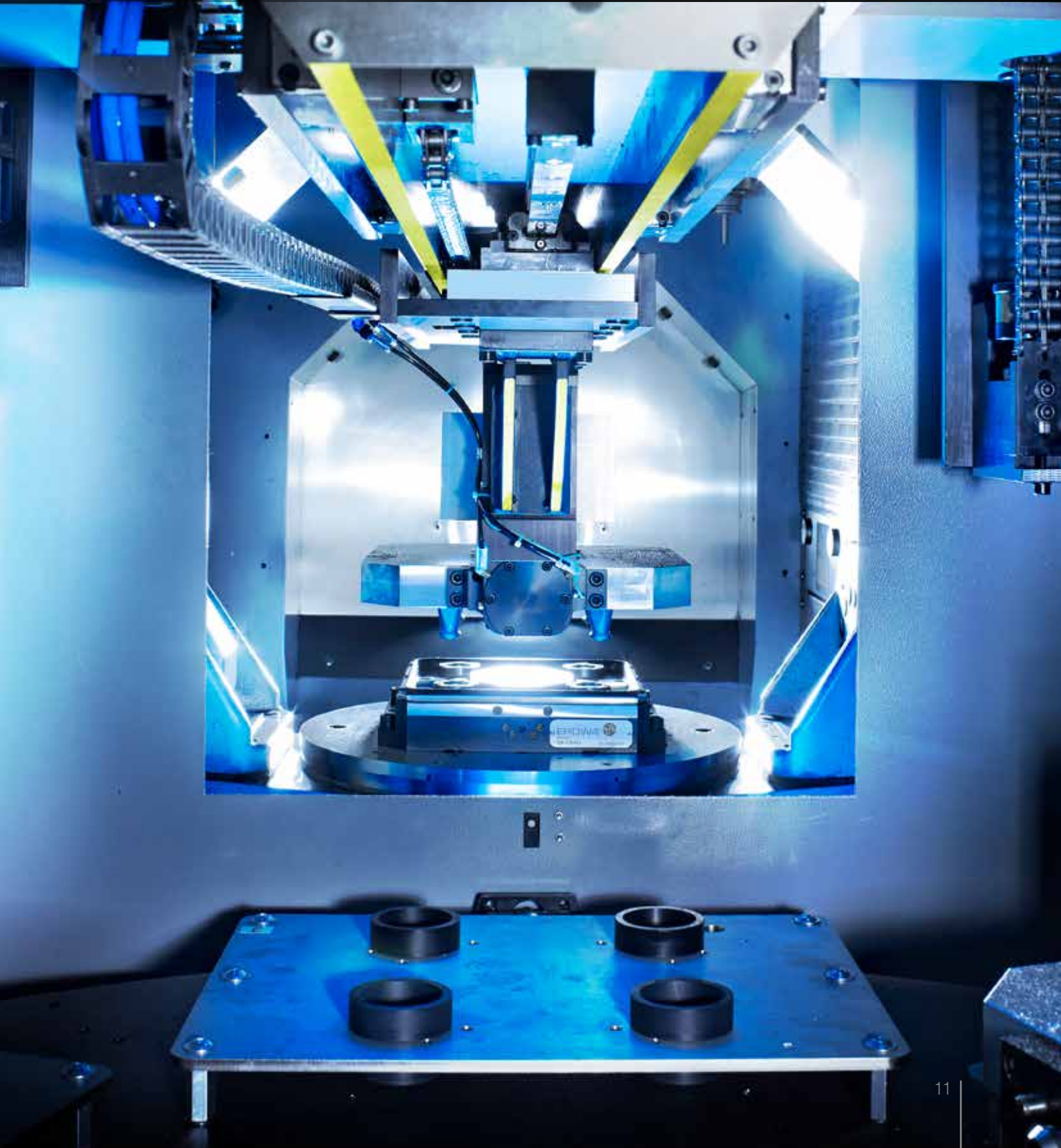




## Multi-flex access

The possibility of loading with tools and workpieces from multiple sides offers ideal conditions for compact automation solutions without limiting the operator's accessibility to the work space. The large front door is a key feature.

Pallets with dimensions of up to 500 x 500 mm can be exchanged automatically. Heavy workpieces are loaded from above by crane.



Precision, power, perfection – EagleTec inside!

# V9 – The universal power pack

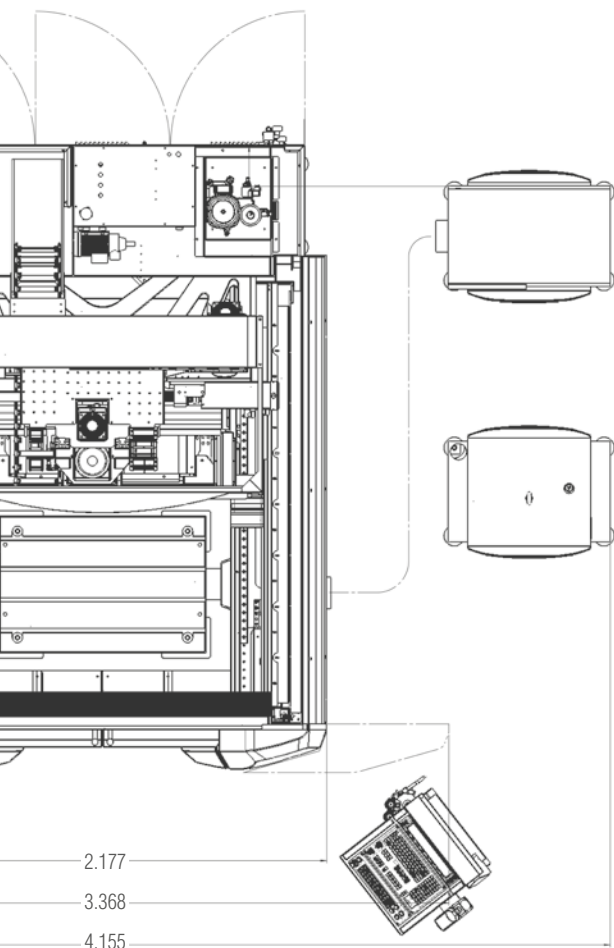
Machine height:  
2.850

3.064



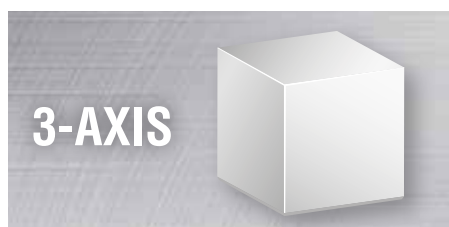
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All dimensions specified in mm

### Workpiece dimensions



**3-AXIS**

X/Y/Z  
800/600/500 mm  
max. 2.000 kg



**5-AXIS**

Ø 600 mm / H = 550 mm  
max. 500 kg

## Setup – Technical data

|  |  |
|--|--|
| Travel distances                                       | X = 800 mm; Y = 600 mm; Z = 500 mm   |
| Travel speed   | max. 30 m/min  |
| Acceleration   | max. 15 m/s <sup>2</sup>   |
| Table clamping surface                                 | X = 1.000 mm, Y = 660 mm   |
| Max. T-slot table load capacity                        | up to 2.000 kg   |
| Table  | T-slot table expandable over 4 <sup>th</sup> /5 <sup>th</sup> axis   |
| T-slot   | 4 x 18 H12   |
| Distance between HSK-spindle nose and table, min./max. | 175 / 675 mm<br>70 / 570 mm (with UPC-clamping system and pallet)  |
| Workpiece size 3-axis X/Y/Z                            | 800 / 600 / 500 mm (max. 2.000 kg)   |
| Workpiece size 5-axis                                  | Ø 600 mm; H = 550 mm (max. 500 kg)   |
| Connected load   | 32 kVA   |
| High-frequency spindle selection                       | HSK E40: 1 - 42.000 rpm<br>HSK E50: 1 - 36.000 rpm<br>HSK A63: 1 - 18.000/26.000 rpm   |
| Spindle power  | 15 kW / 17 kW / 25 kW  |
| Tool changer selection                                 | 88 positions (HSK E40)<br>72 positions (HSK E50)<br>48 positions (HSK A63)<br>Optional: external tool changer for all spindles up to 175 positions   |
| Minimum lubrication                                    | Included   |
| CNC control unit                                       | HEIDENHAIN TNC 640   |
| Dimensions   | 3.064 x 2.177 mm; H = 2.850 mm   |
| Total weight   | 11.500 kg  |
| Options  | HSC round swivel table:<br>Geared B-axis +140 degrees / -60 degrees<br>Torque B-axis +140 degrees / -60 degrees<br>Torque-C-axis 100 rpm<br>Workpiece weight: 250 kg (alternatively 500 kg)  |
| Further options  | CNC control unit HEIDENHAIN iTNC 530 HSCi<br>Laser system for tool measurement<br>Automatic cutter cleaning station<br>Infrared measuring sensor<br>PowerInspect - 3D-measuring<br>Graphite exhaust system<br>Oil mist suction unit<br>Wet machining<br>ATS - Aerosol dry lubrication<br>Chip conveyor<br>SMS Alarm<br>Ready-for-Automation<br>Software options HEIDENHAIN<br>EcoTec |

## Dual Gantry drive

Highly dynamic dual drives optimise the force application points and thereby create the best conditions to actively eliminate unevenly distributed applications of force and vibrations.



## High-level cutting spindles

From HSK E40 / HSK E50 to HSK A63.

All spindles are optionally available with internal coolant supply. The following types of media can be used: air, water or aerosol - an unique cutting medium for very low consumption.







### **Mastering precision factors**

Minimal path deviations and perfect vibration damping result in the highest surface quality and a long cutting tool life.



V-Line provides the highest flexibility in the cutting process

# Change to a new dimension of the future







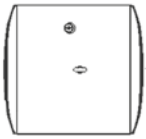
### **Internal or external?!**

Maximum capacity! Integrated in the machine bed, it takes up minimal space! An external changer is optionally available for tool capacities of up to 175 positions. It can also be designed as a combined workpiece and tool changer.

Precision, power, perfection – EagleTec inside!

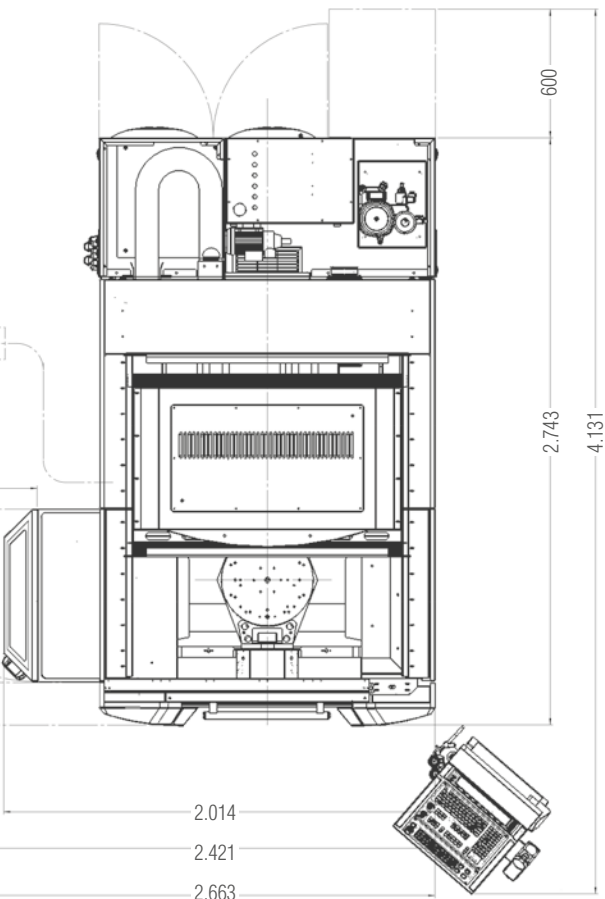
# V5 – The highly dynamic precision marvel

Machine height:  
2.450



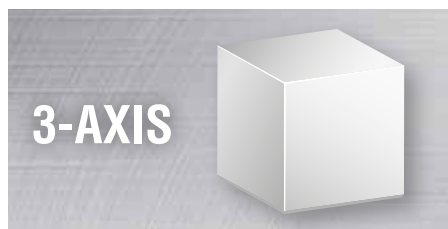
FLY WITH THE EAGLE





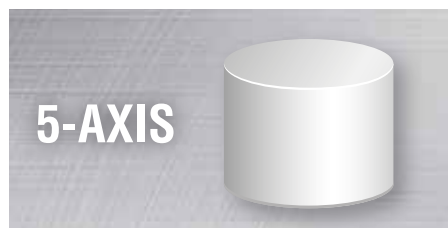
All dimensions specified in mm

### Workpiece dimensions



**3-AXIS**

X/Y/Z  
550 / 400 / 400 mm  
max. 500 kg



**5-AXIS**

Ø 400 mm / H = 380 mm  
max. 250 kg

## Setup – Technical data

|  |  |
|--|--|
| Travel distances                                       | X = 550 mm; Y = 400 mm; Z = 400 mm   |
| Travel speed   | max. 30 m/min  |
| Acceleration   | max. 15 m/s <sup>2</sup>   |
| Table clamping surface                                 | X = 650 mm; Y = 500 mm   |
| Max. T-slot table load capacity                        | up to 500 kg   |
| Table  | T-slot table expandable over 4 <sup>th</sup> /5 <sup>th</sup> axis   |
| T-slot   | 5 x 14 H12   |
| Distance between HSK-spindle nose and table, min./max. | 155 / 555 mm<br>50 / 450 mm (with UPC-clamping system and pallet)  |
| Workpiece size 3-axis X/Y/Z                            | 550 / 400 / 400 mm (max. 500 kg)   |
| Workpiece size 5-axis                                  | Ø 400 mm; H = 380 mm (max. 250 kg)   |
| Connected load   | 32 kVA   |
| High-frequency spindle selection                       | HSK E40: 1 - 42.000 rpm<br>HSK E50: 1 - 36.000 rpm   |
| Spindle power  | 15 kW / 17 kW  |
| Tool changer selection                                 | 32/100 positions (HSK E40)<br>32/80 positions (HSK E50)  |
| Minimum lubrication                                    | Included   |
| CNC control unit                                       | HEIDENHAIN TNC 640   |
| Dimensions   | 2.800 x 2.020 mm; H = 2.450 mm   |
| Total weight   | 8.500 kg   |
| Options  | HSC round swivel table:<br>B-axis -120 degrees/+60 degrees<br>C-axis 40 rpm<br>Workpiece weight: 250 kg  |
| Further options  | CNC control unit HEIDENHAIN iTNC 530 HSCi<br>Laser system for tool measurement<br>Automatic cutter cleaning station<br>Infrared measuring sensor<br>PowerInspect - 3D-measuring<br>Graphite exhaust system<br>Oil mist suction unit<br>Wet machining<br>ATS - Aerosol dry lubrication<br>Chip conveyor<br>SMS Alarm<br>Ready-for-Automation<br>Software options HEIDENHAIN<br>EcoTec |

## V5 – even more highlights

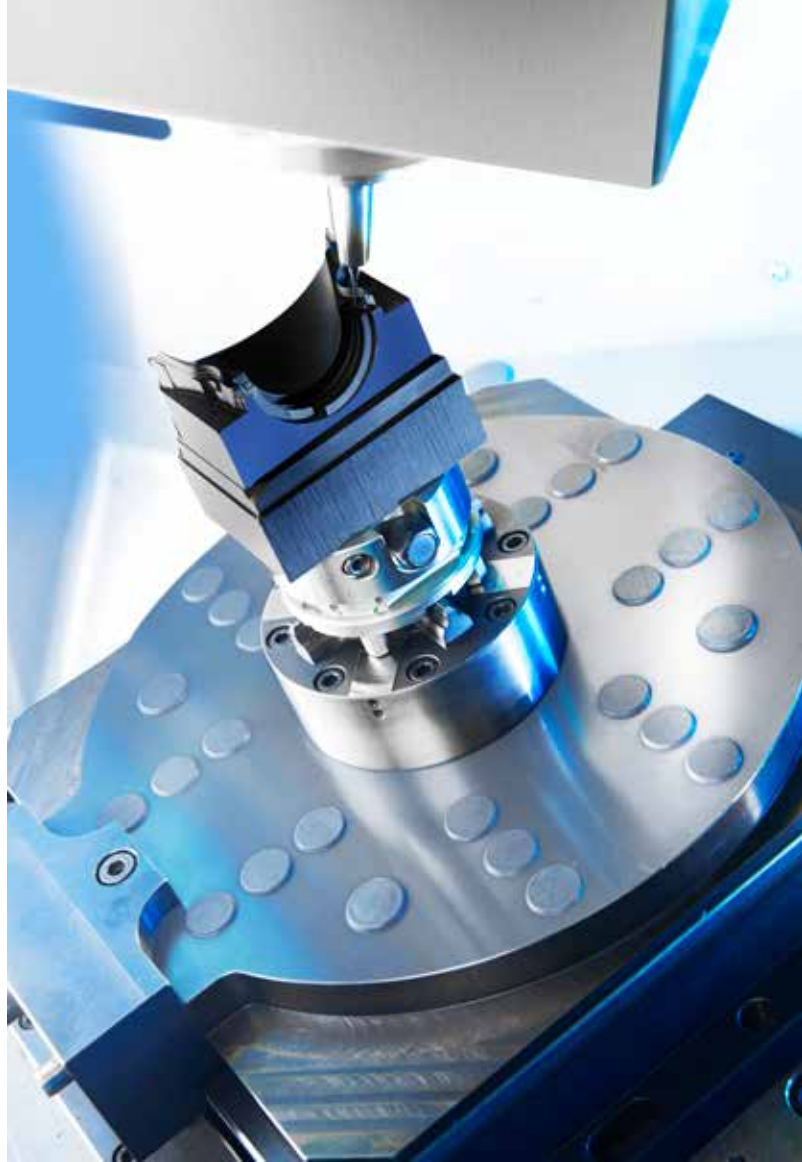
Compact outer dimensions with maximum travel, up to 250 kg change weight with 4<sup>th</sup>/5<sup>th</sup> axis with pallets of 400 x 400 mm. Outstanding accessibility for automation and operator is also provided here. Special protected laser measuring system.



### Quick double-gripper

For the shortest tool change times, particularly during production applications.





**Innovative for  
all materials**

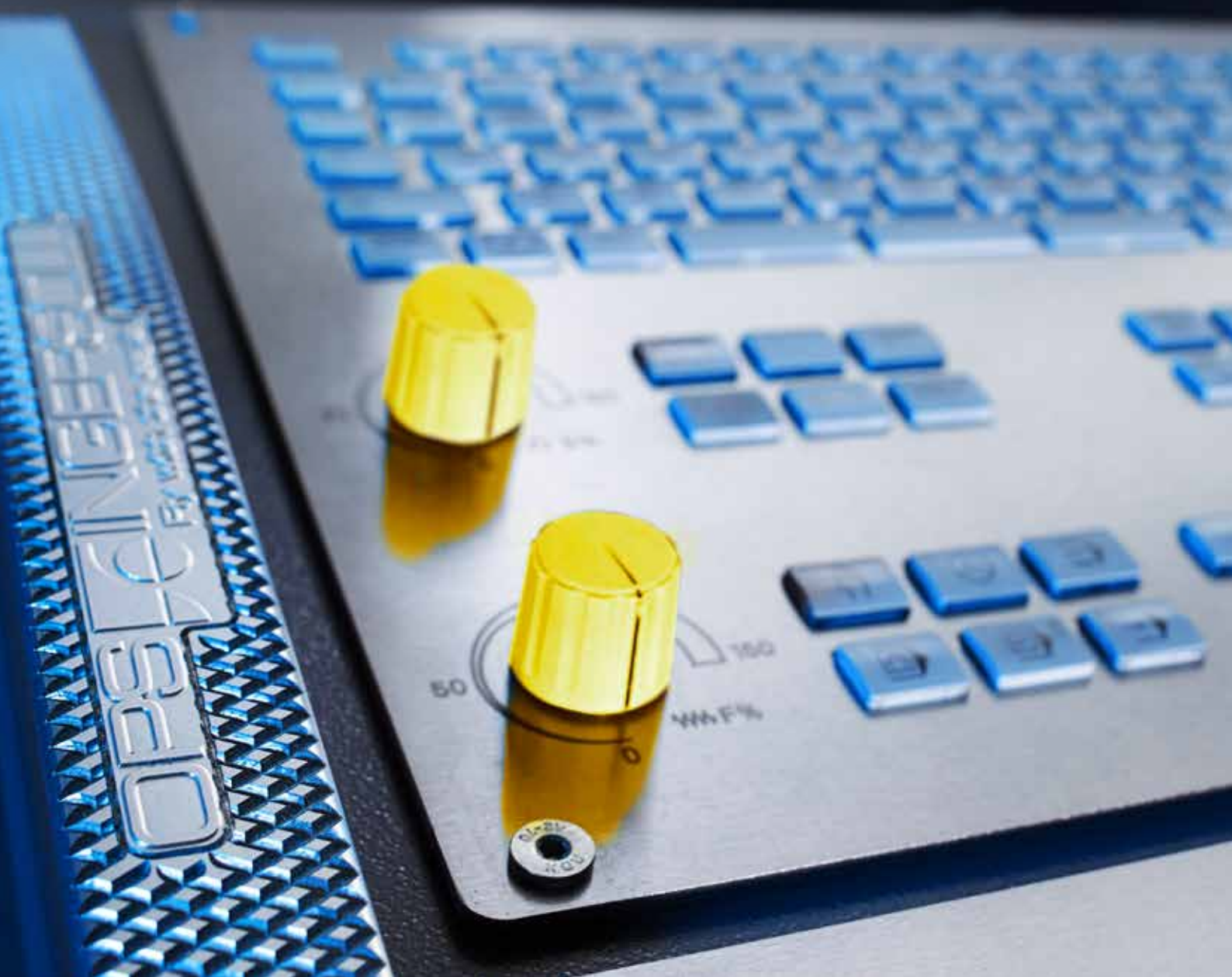
In addition to precision machining of steel parts, the V-Line is also especially well-suited for automated machining of graphite electrodes and other dust-forming materials. This is achieved due to the fully enclosed design.



High speed symbiosis

Perfectly matched for each other

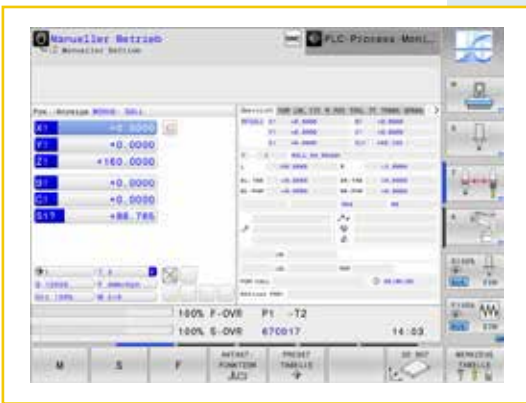
**HEIDENHAIN**





**TNC 640**  
**The control unit**  
**of the latest generation**

With strategies especially optimised for HSC and 5-axis machining, top results are achieved even with workpieces having different sizes. The specific concept of the V-Line in combination with the new features of the control unit, enables outstanding surfaces and precision with simultaneous optimisation of the machining time.





Best accessibility  
for easy maintenance.



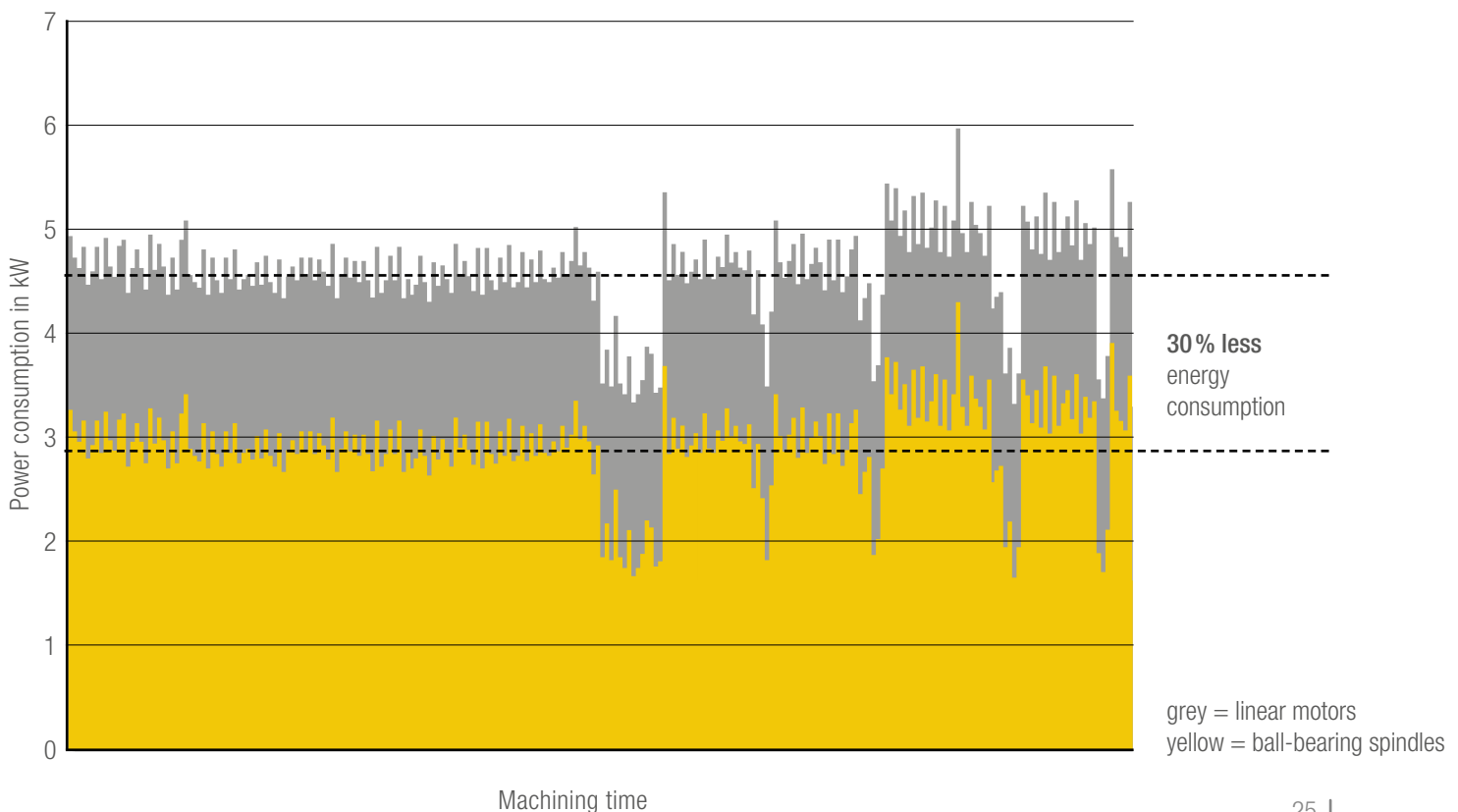


Reduce basic energy consumption, conserve resources, save money. EcoTec thinks and regulates for you and is designed to ensure that energy is only consumed when it is actually needed. It monitors and regulates optionally selectable warm-up programs, programmable wake-up functions, idle states after program end, and much more. Intelligently designed to reduce energy consumption to an absolute minimum!



**The highly efficient drive technology reduces energy requirements by one-third**

Ball-bearing spindles in comparison with linear motors



# Cooling lubricant concepts and chip removal individually for each application



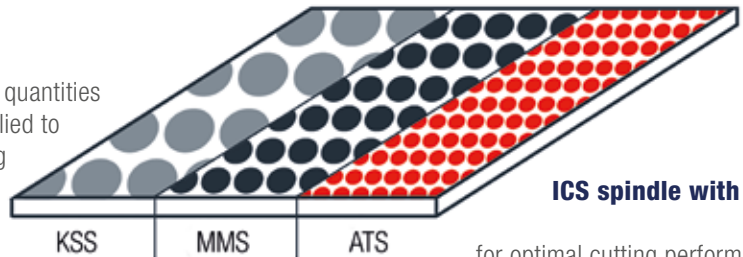
**Variable and compact water management  
system in various configurations.**



# Lubricant application comparison

**The formula for ATS:**  
**Reduce heat instead of combating it.**

An extremely fine aerosol is created with smallest quantities of lubricant. This is constantly regulated and supplied to the tool blade without any loss. Optimal lubricating particle application effectively reduces the creation of friction heat.



**ICS spindle with ATS**

for optimal cutting performance  
and the best surface quality  
(ICS spindles up to 42.000 rpm)



We offer optimal cooling lubricant concepts for every application.

# Service management



## Spare parts

As a guarantee of the availability of your machines, a rapid and flexible supply of spare parts is of essential importance to your economic success. Thanks to our comprehensive stock of spare parts, we can react to your requirements on short notice.

## Application support

An important part of the OPS-INGERSOLL service spectrum is the know-how transfer of our application technology. Our team of experts consists of experienced tool and mould makers, who advise and support you in the implementation of your technical requirement.





# FAST DIRECT FLEXIBLE PERFECT

## Maintenance

Regular maintenance intervals reduce downtime and increase reliability and thus the service life of your machines.

## Training

In our Training and Technology Centre, we can provide you with theoretical and practical training to refine your expertise and operator skills. Benefit from the know-how of our experts!



## The Success Factory

Outstanding customer solutions are created here. This is where passionate and experienced mechanical engineering experts live. This is our home!

## Quality finale

Well thought-out, highly efficient production processes assure the high quality of all machines from the design to the delivery. This assures enthusiastic customers!









# TEAM EAGLE

League champions with  
perfect mastery of surfaces



## The **EXPERT** Principle Complete process performance

The 4 success factors for profitable  
process organisation:

- 1 EAGLE technologies
- 2 Automation solutions
- 3 Process experts
- 4 Application know-how



**OPS**  **INGERSOLL**  
Fly with the eagle!

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