fives

Landis TTG 3000

Twin Turret Grinder

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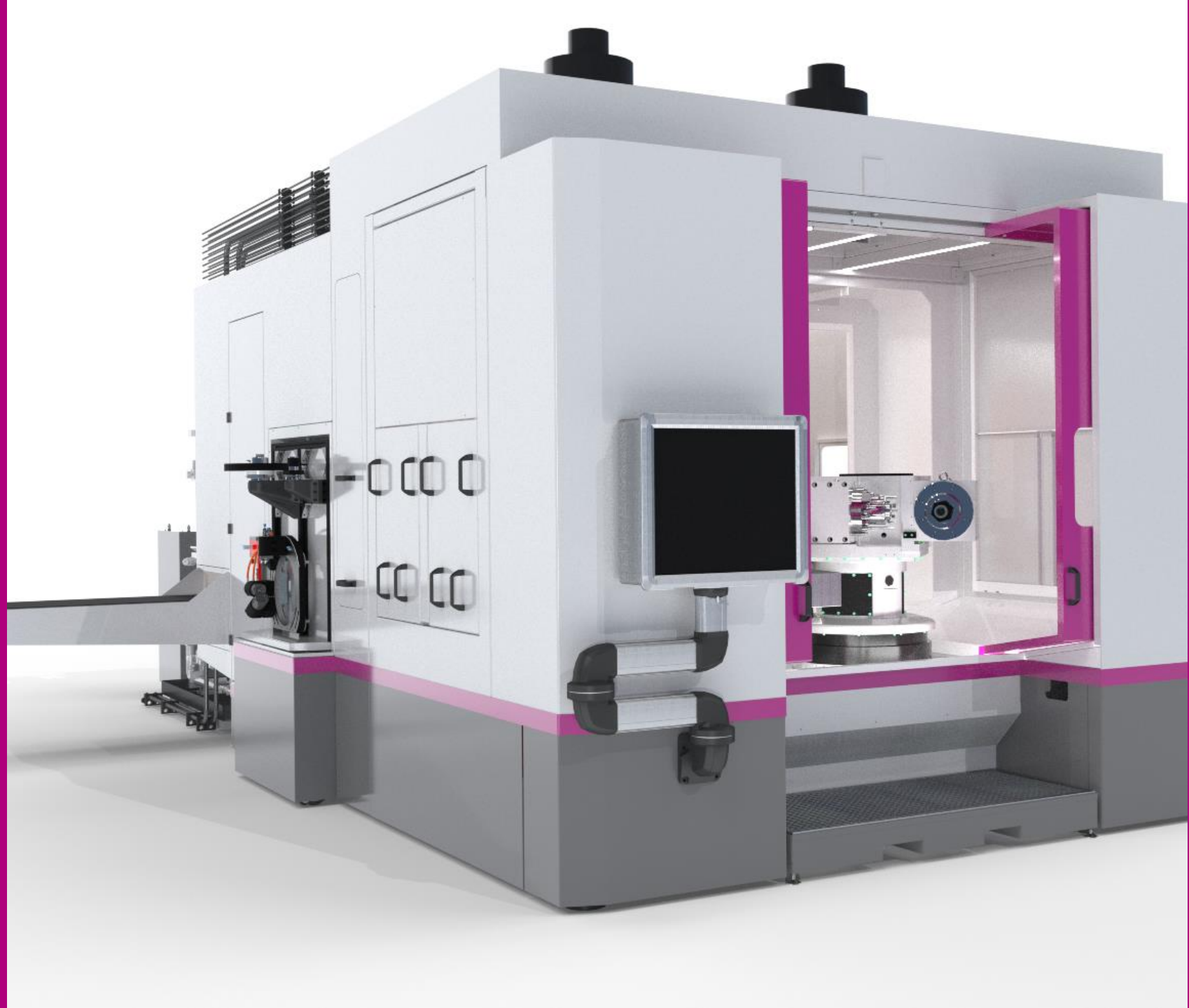

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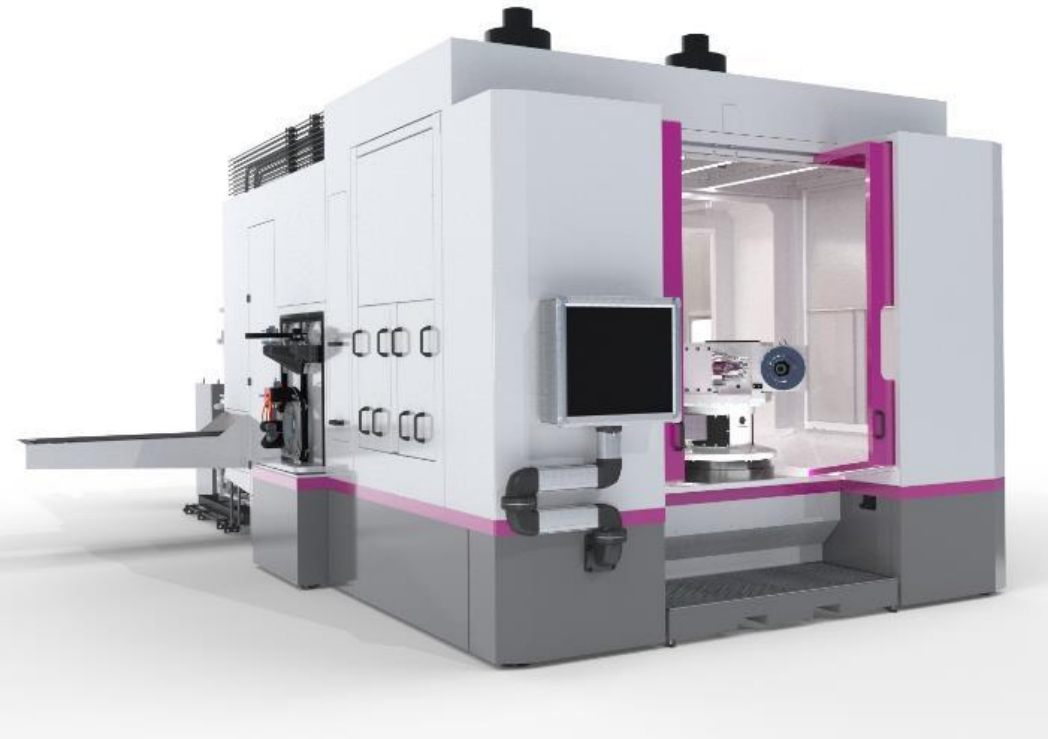
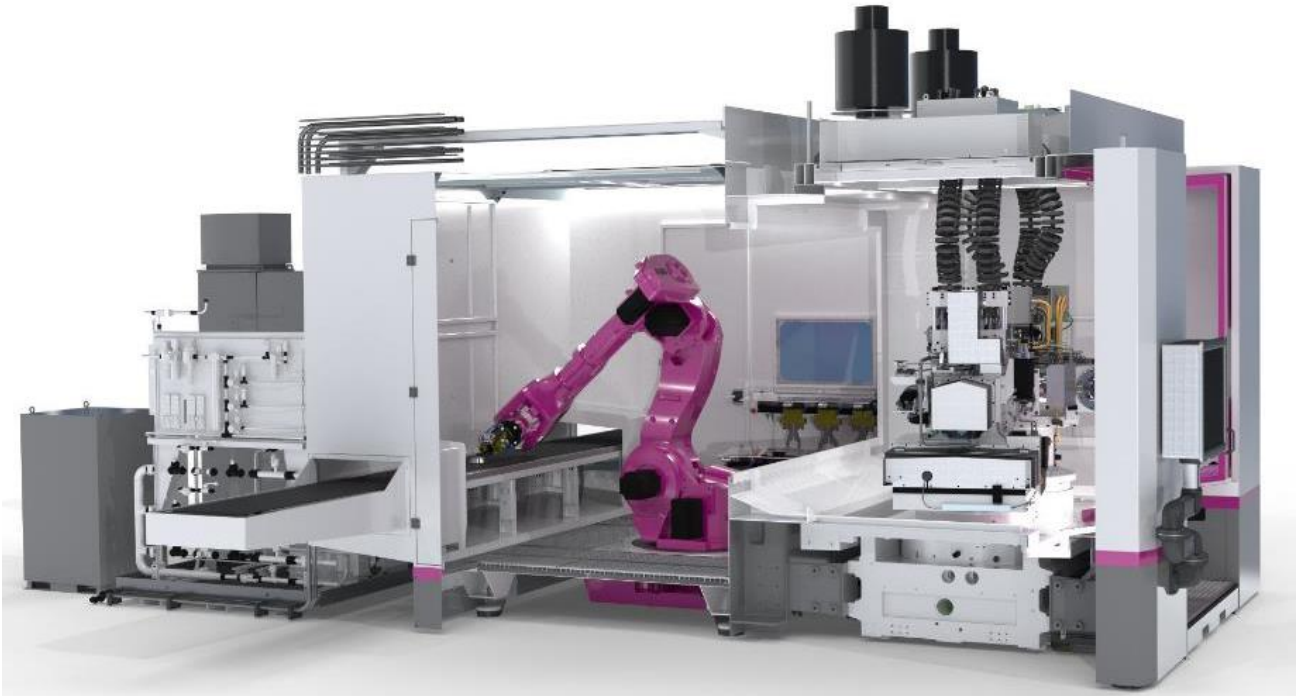
Machine Overview





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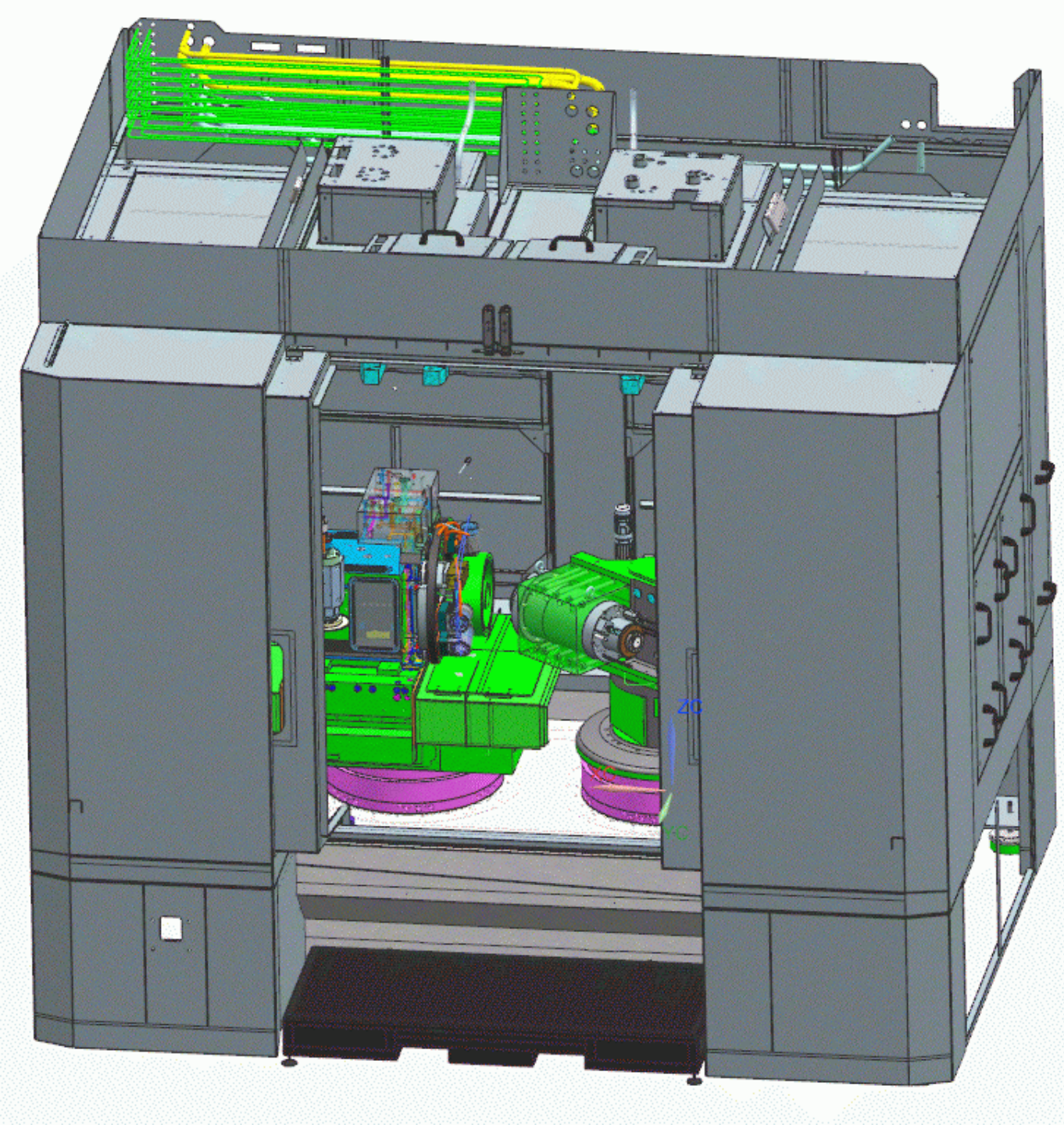
3D Model: Front View

The flexibility of the Bryant TTG grants you the highest level of control on your production runs. From small batches, to high volume, to multiple products in a production run.

Save time on component changeovers and ensure consistently high quality with advanced automation.

In addition, this machine can be engineered to your specific manufacturing and layout requirements.

Like all our Bryant machines, you can be assured of the machine’s exceptional stiffness and high thermal stability, thanks to the thermally isolated hydrostatic twin turrets.



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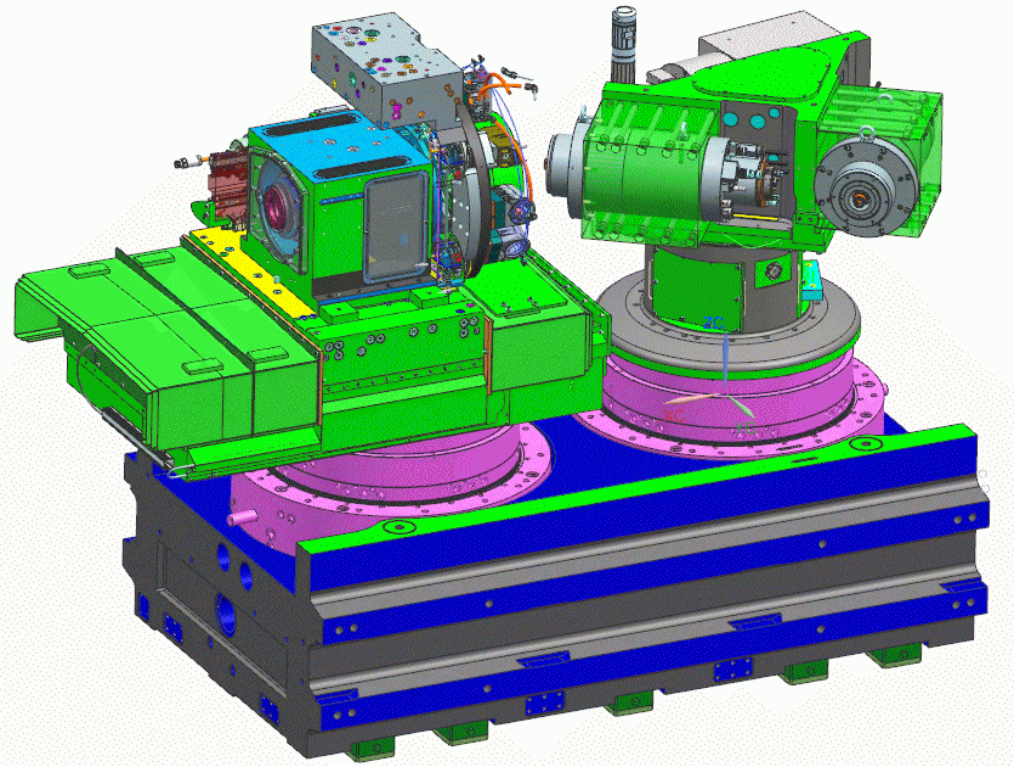
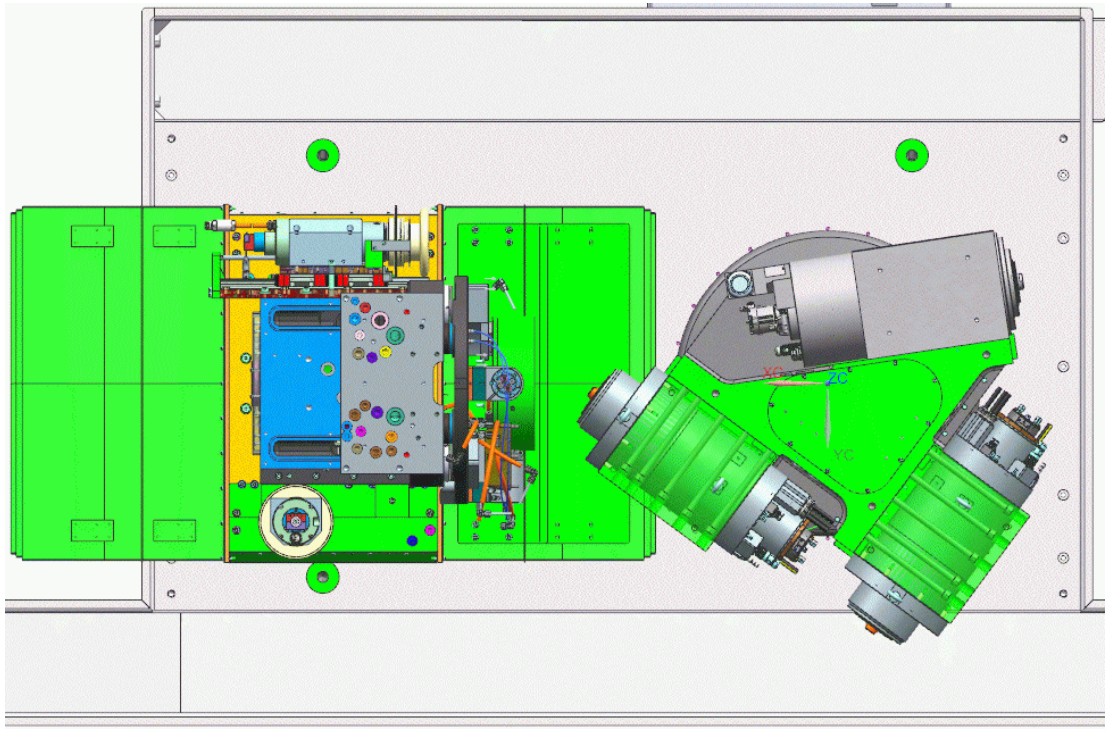
Bed, Turret, Headstock, and Spindles

Front View



Plan View



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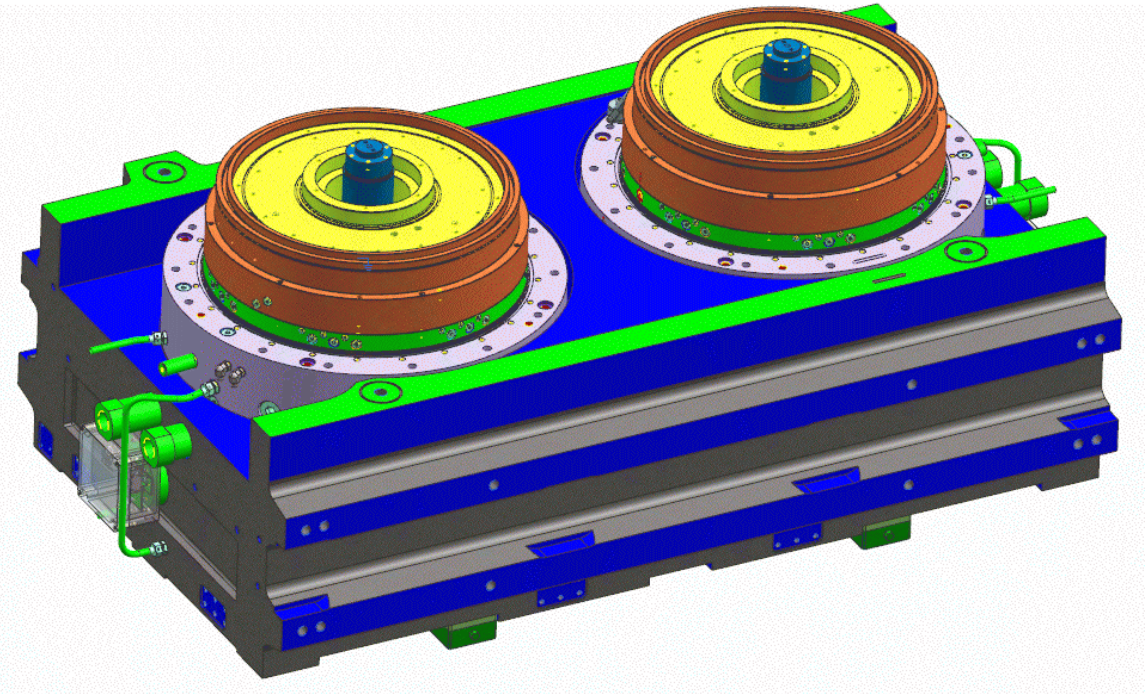
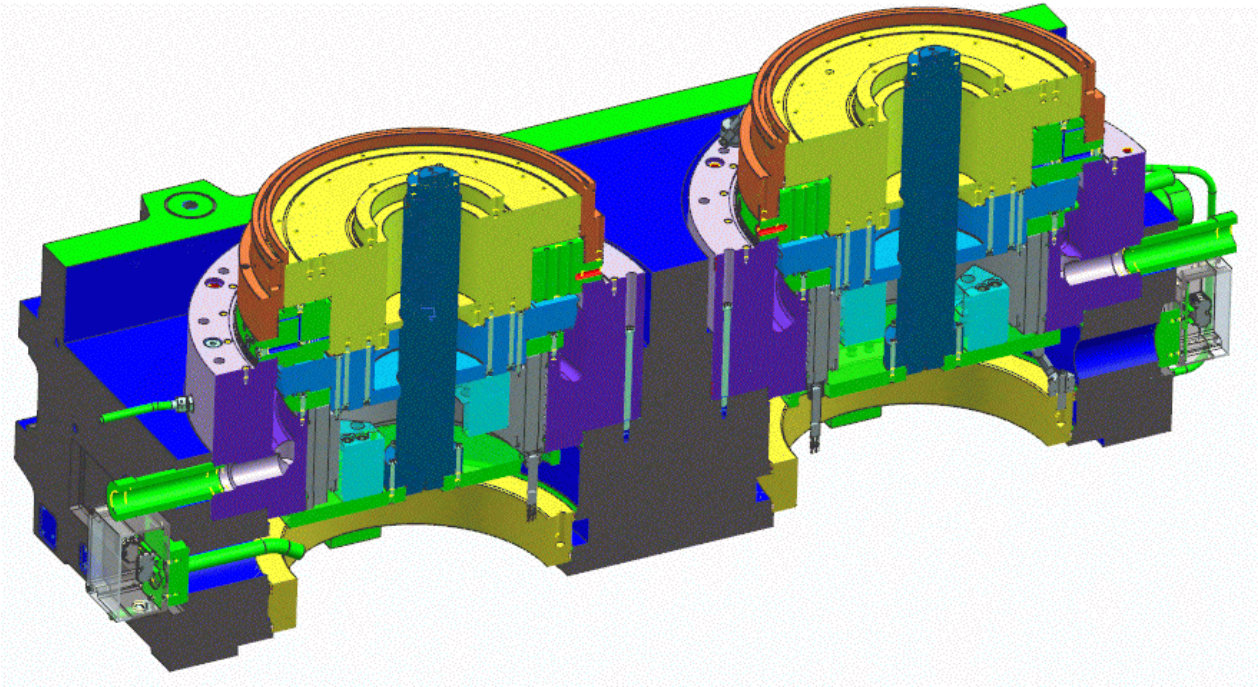
Bed assembly with turrets





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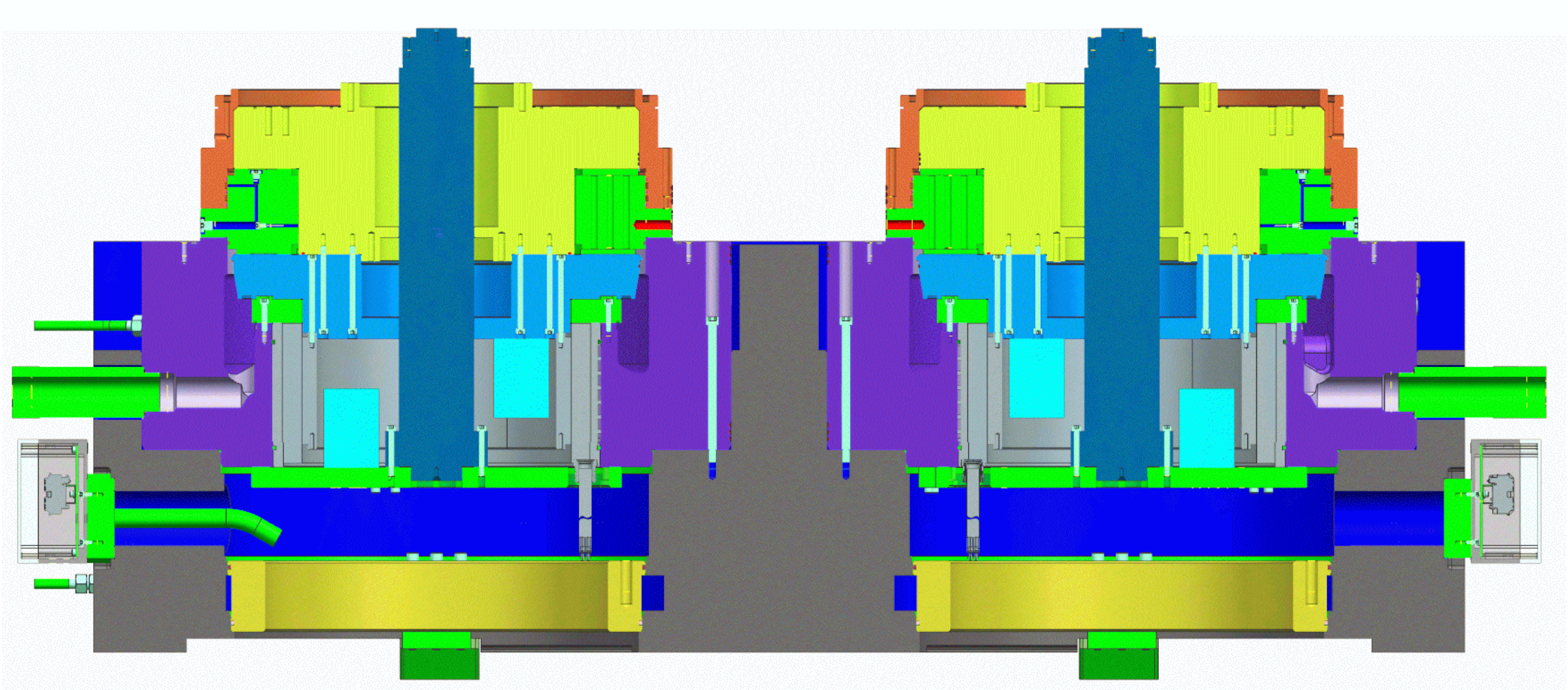
Turret Assembly



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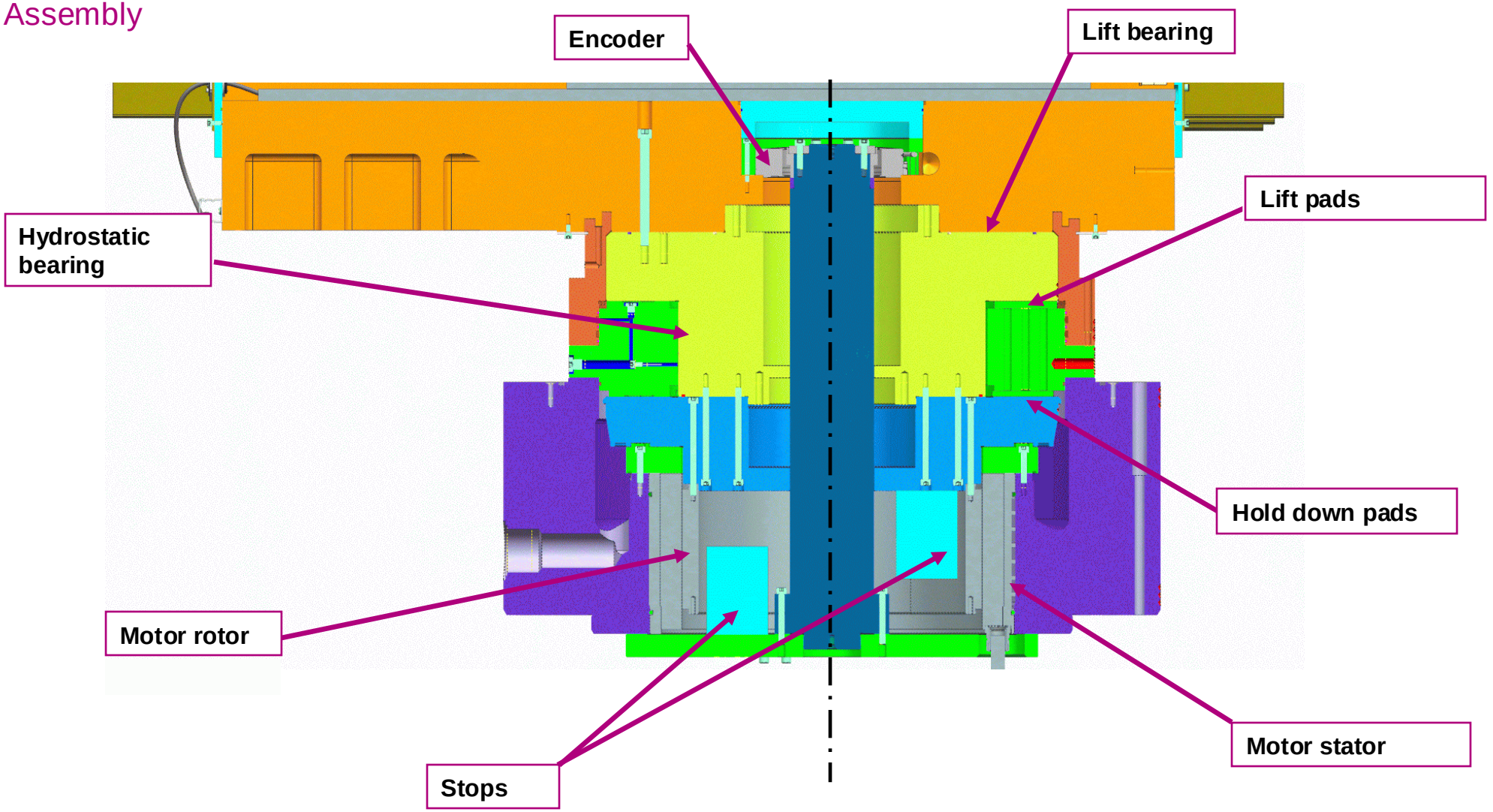
Turret Assembly



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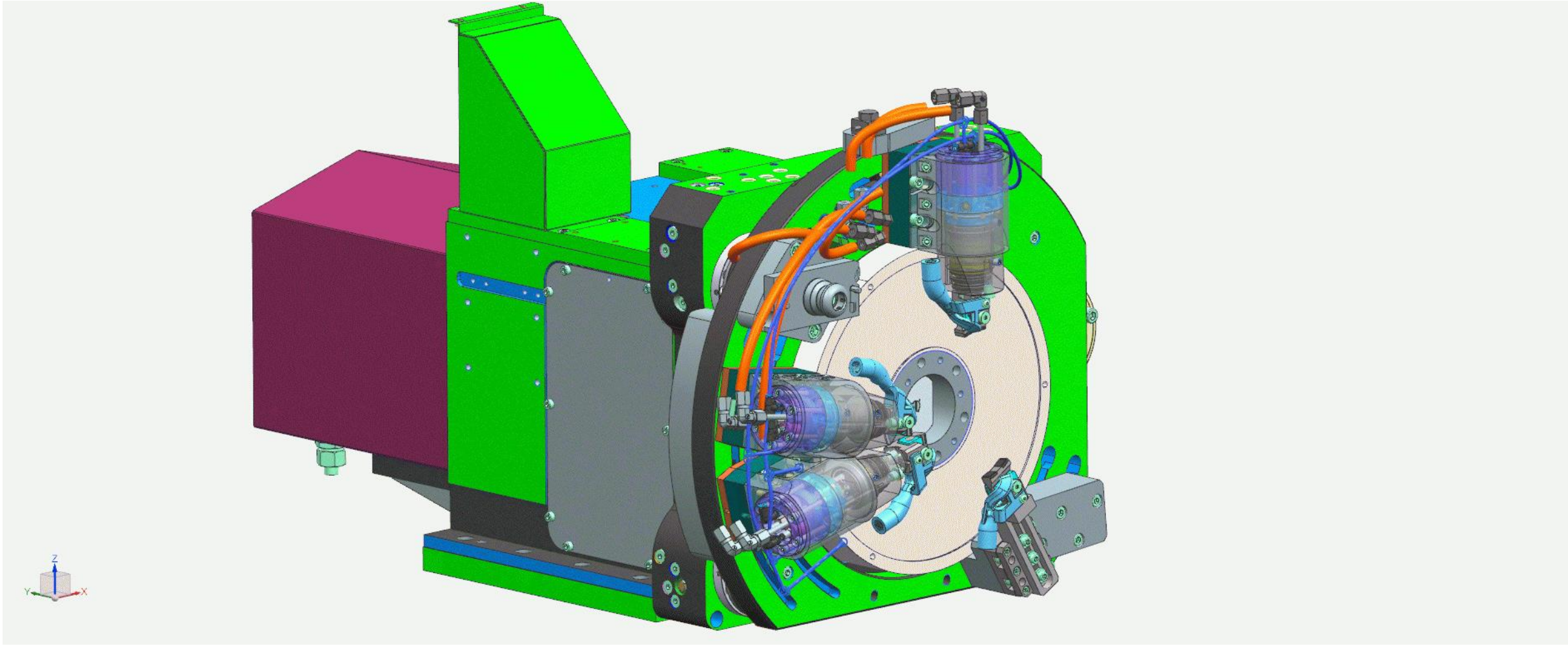
Machine Turret: Headstock Overview



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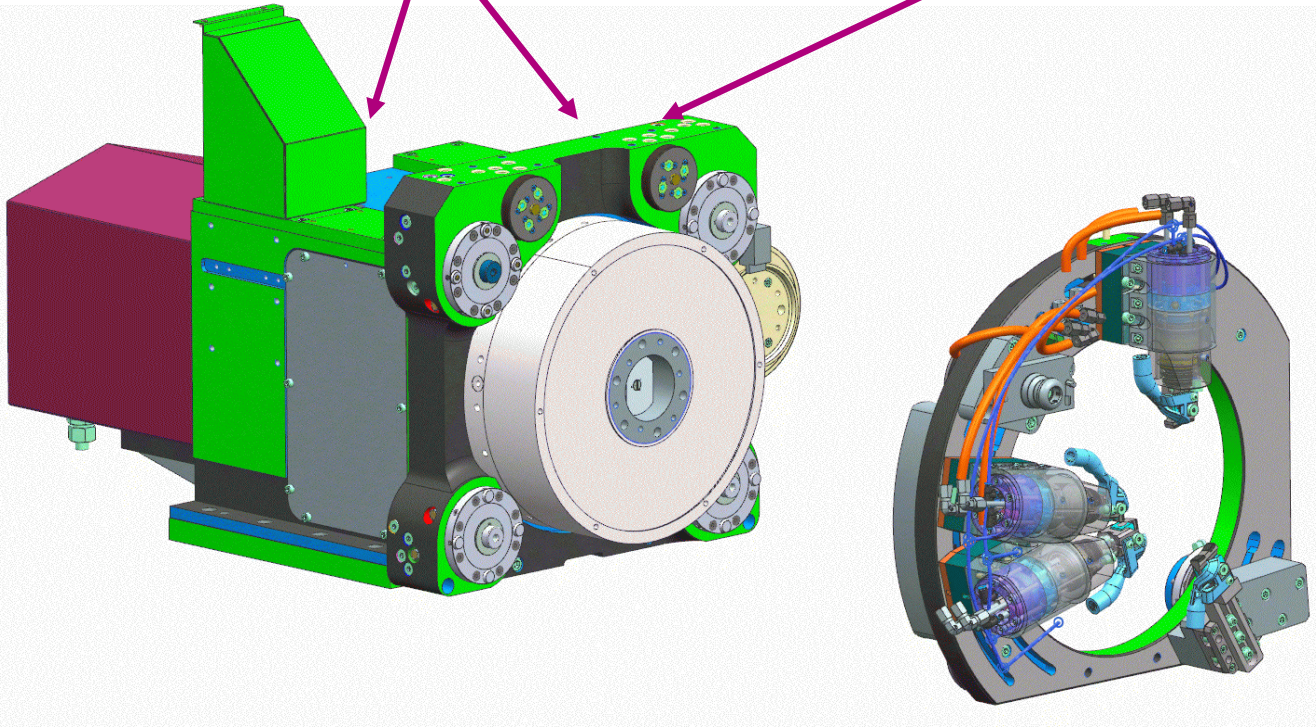
Machine Turret: Headstock Overview

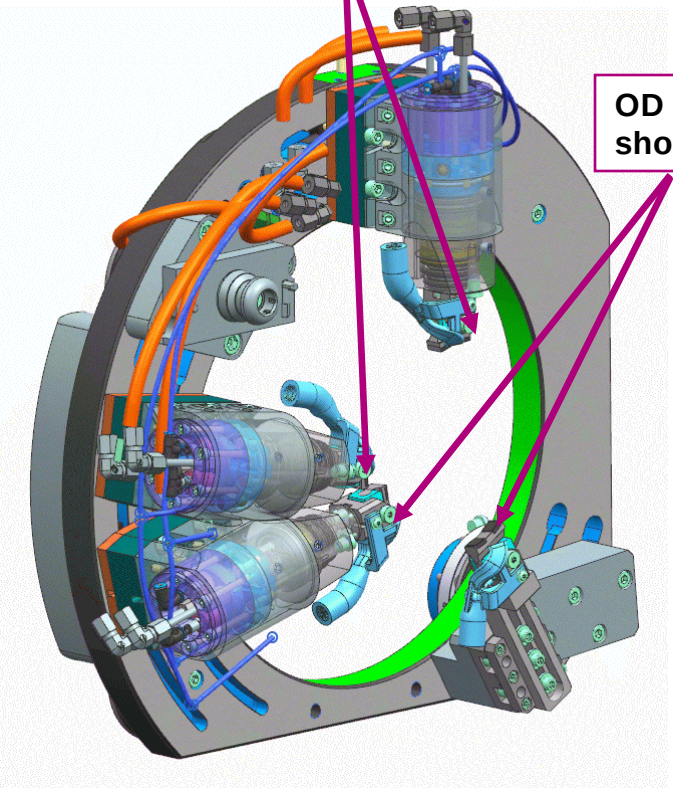
Quick change connection for services

Quick change single point clamps - 4 points



ID grind and shoes
Retractable workrest work rest shoes

OD grind workrest and shoes



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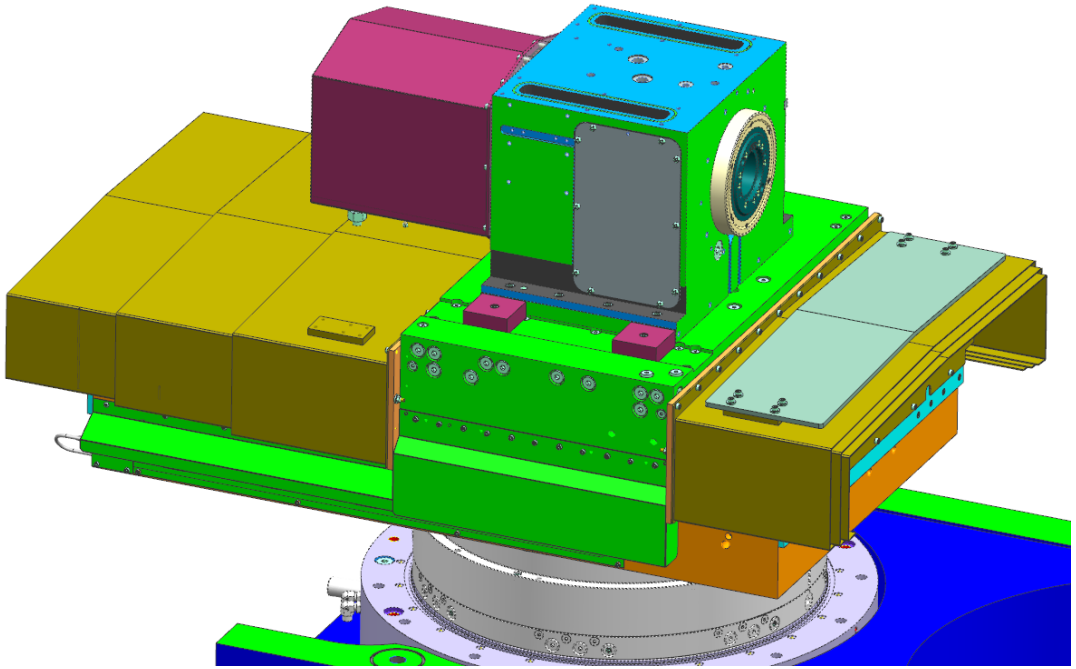
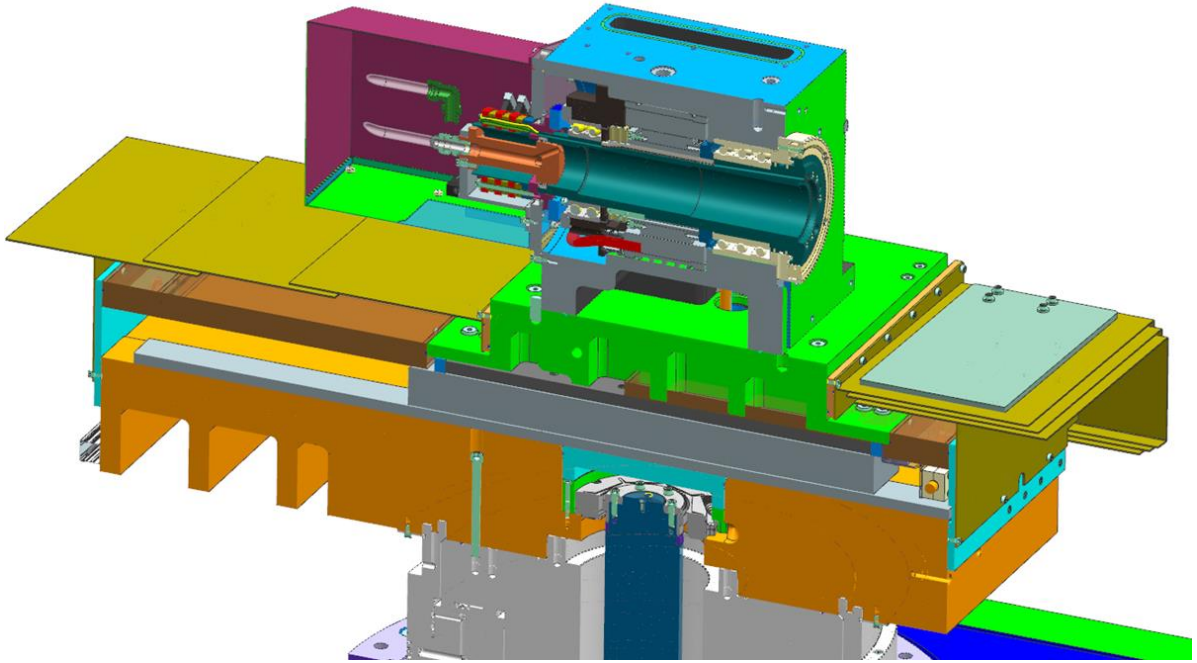
Headstock and Side Assembly





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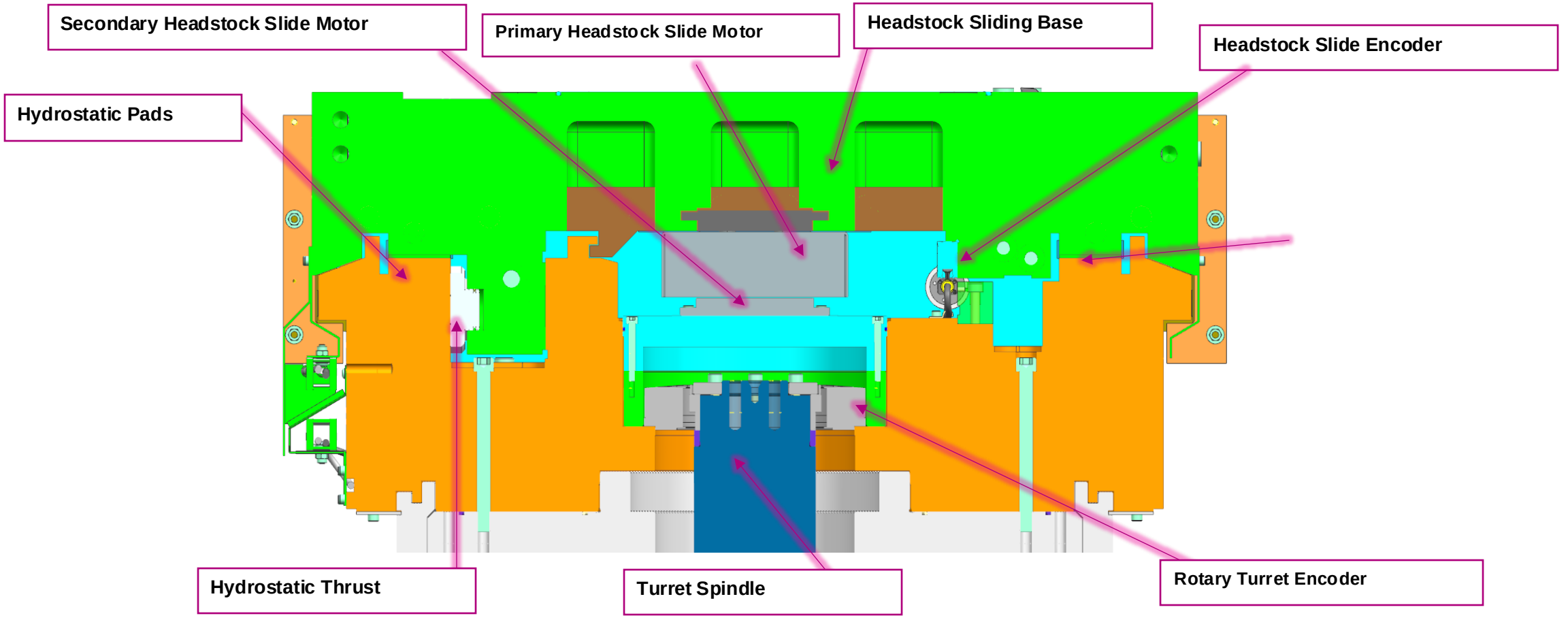
Headstock and Side Assembly



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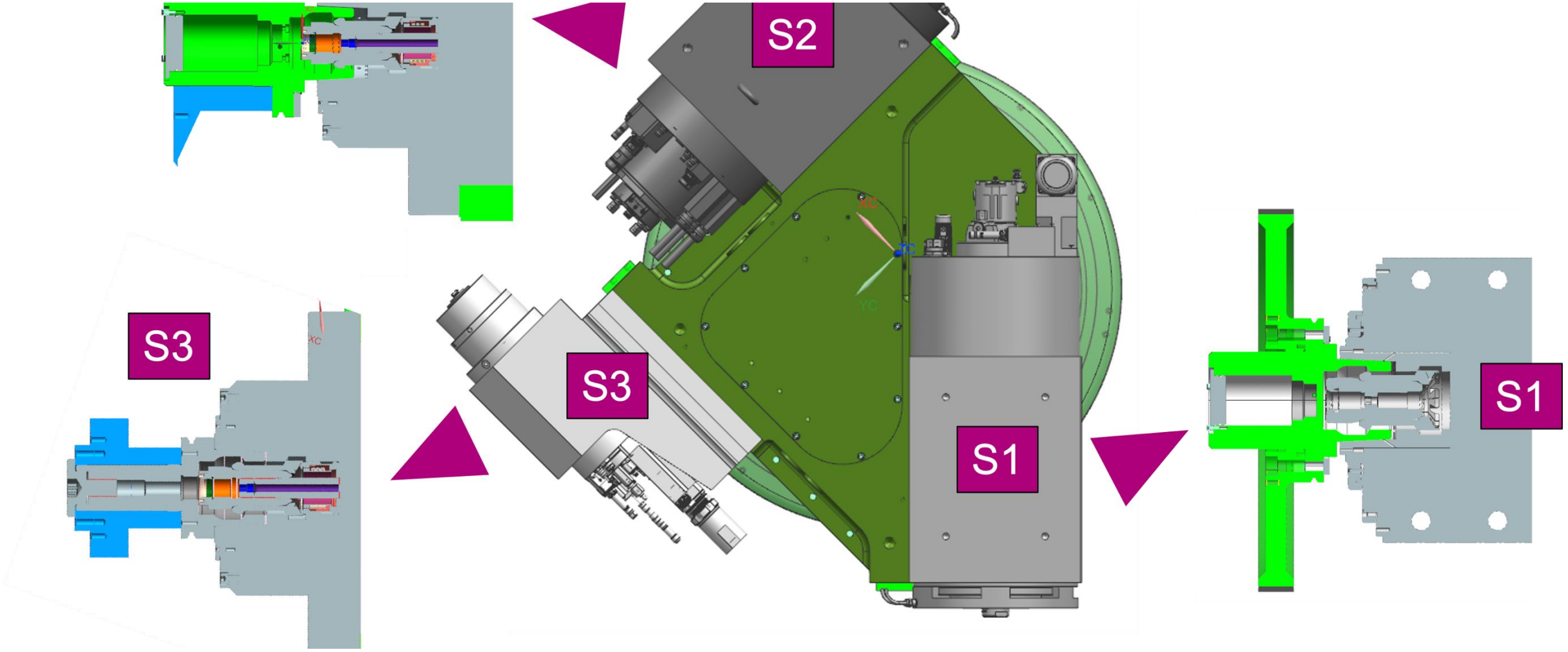
Turret assembly with 3-wheel spindle options



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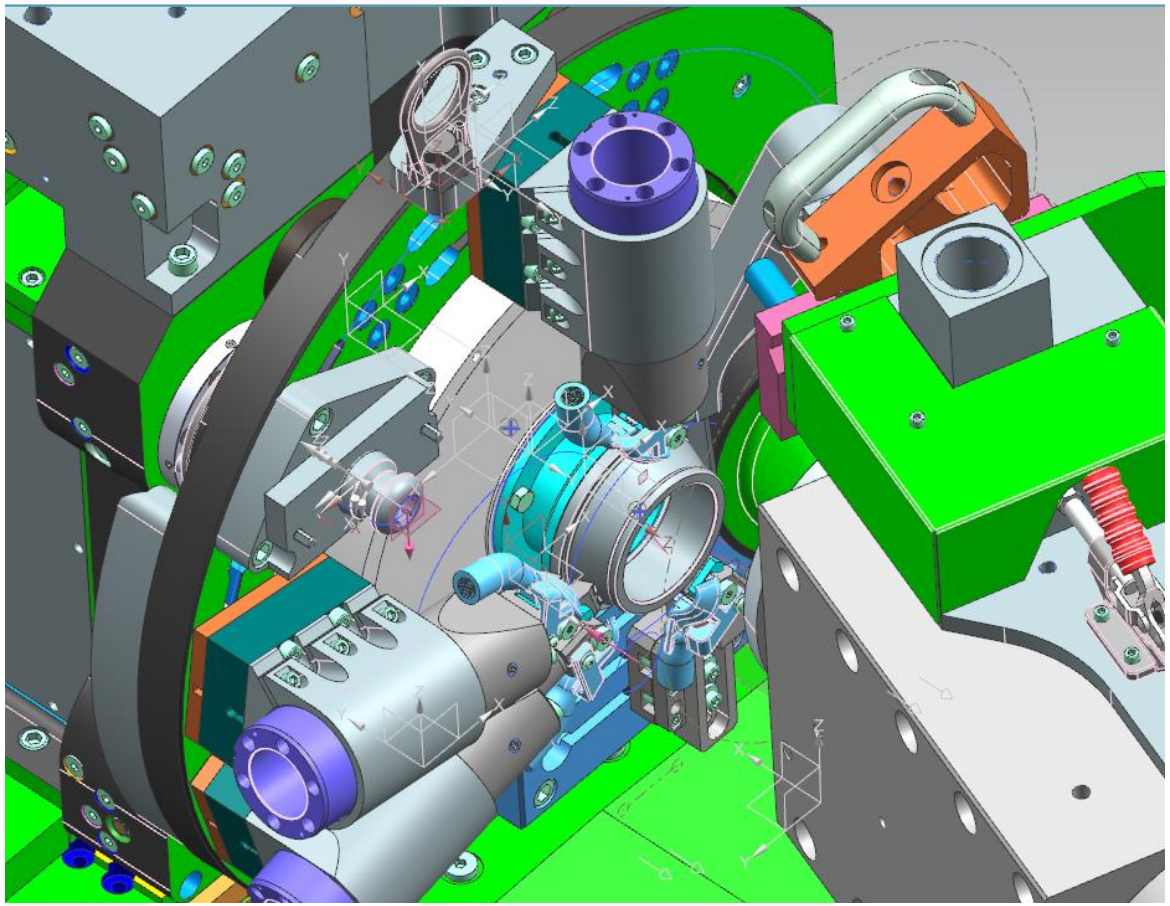
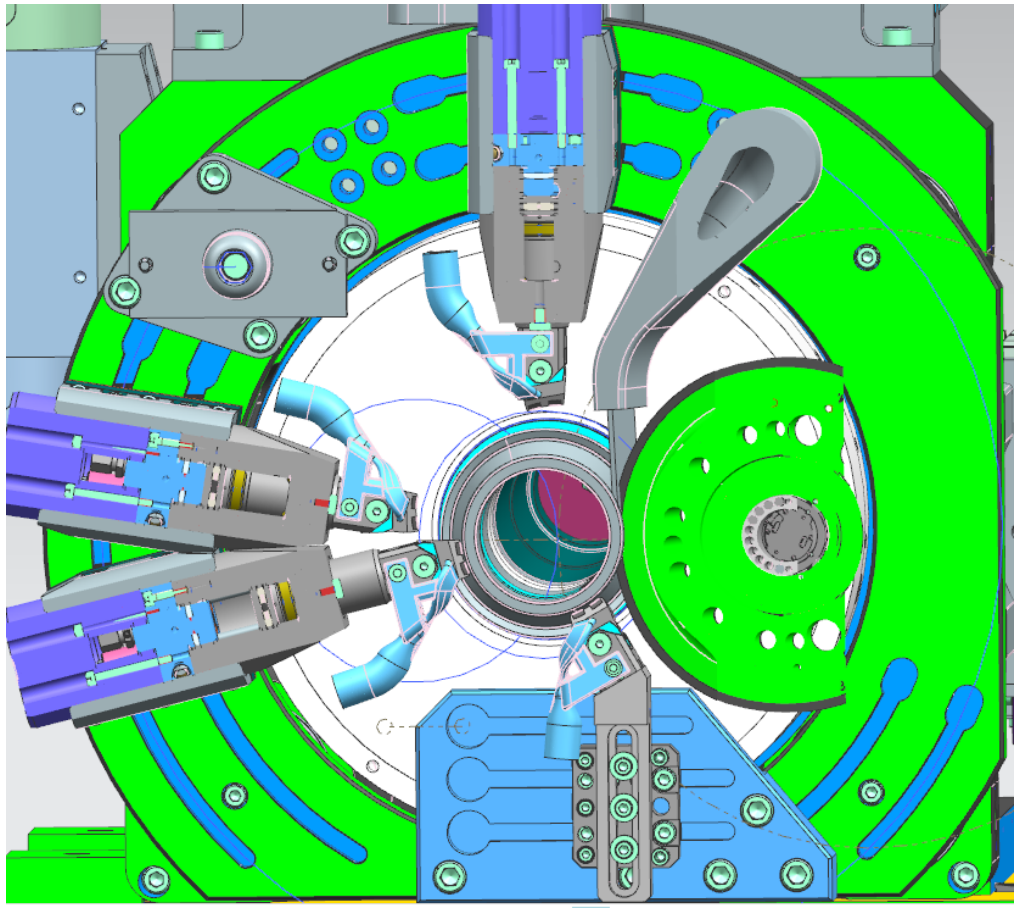
OD Grinding





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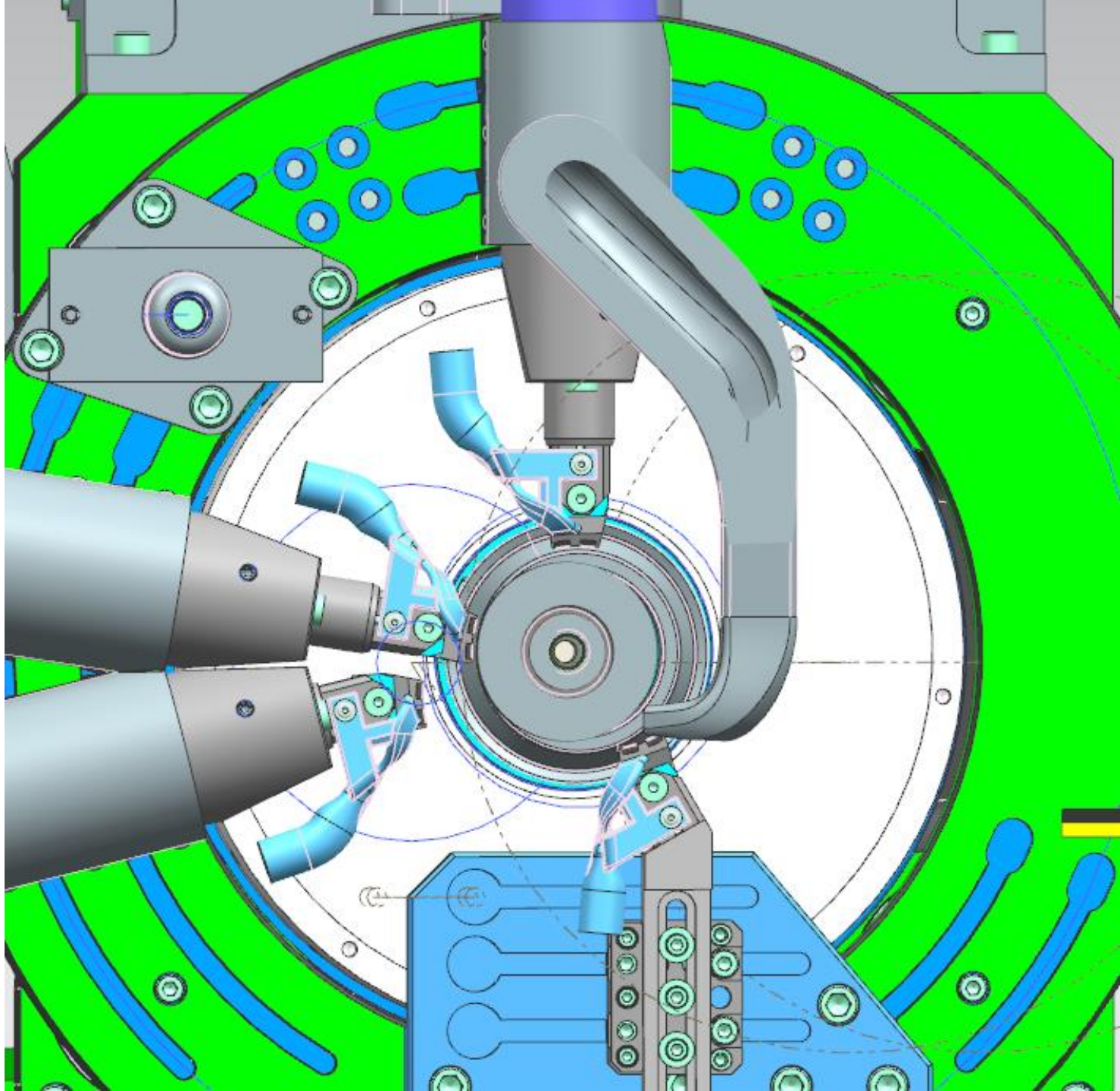
ID Grinding



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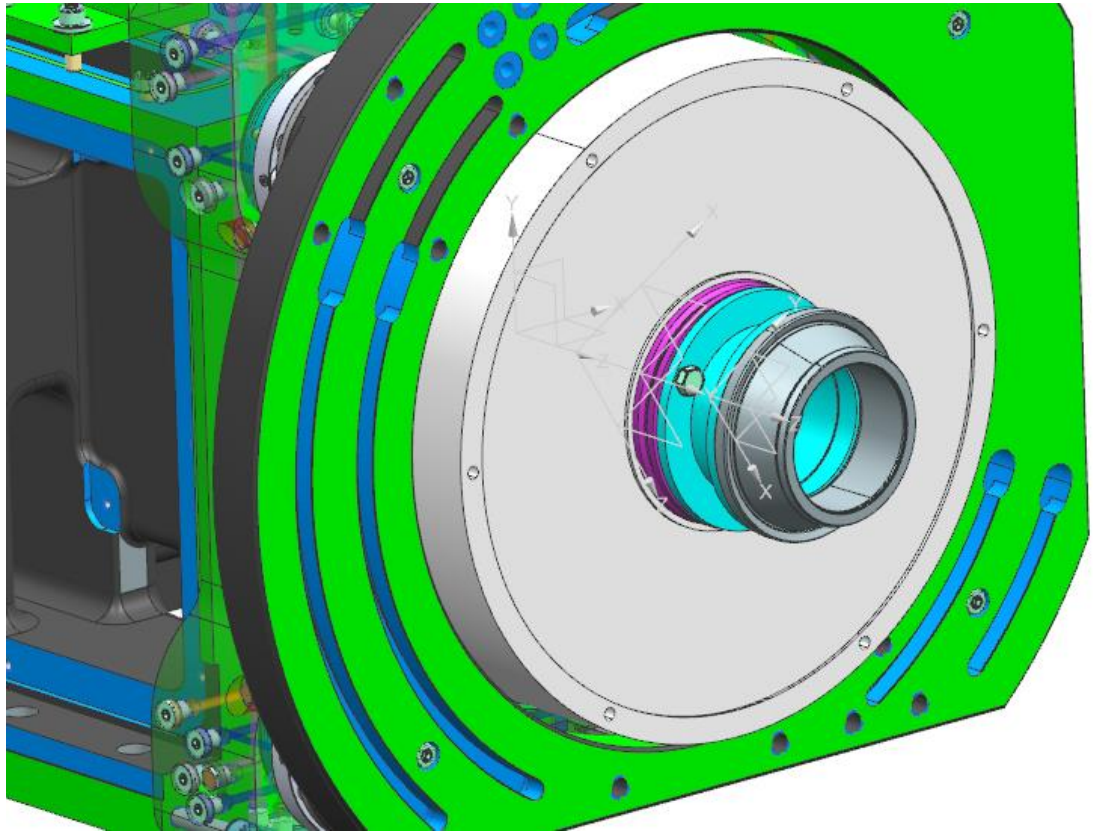
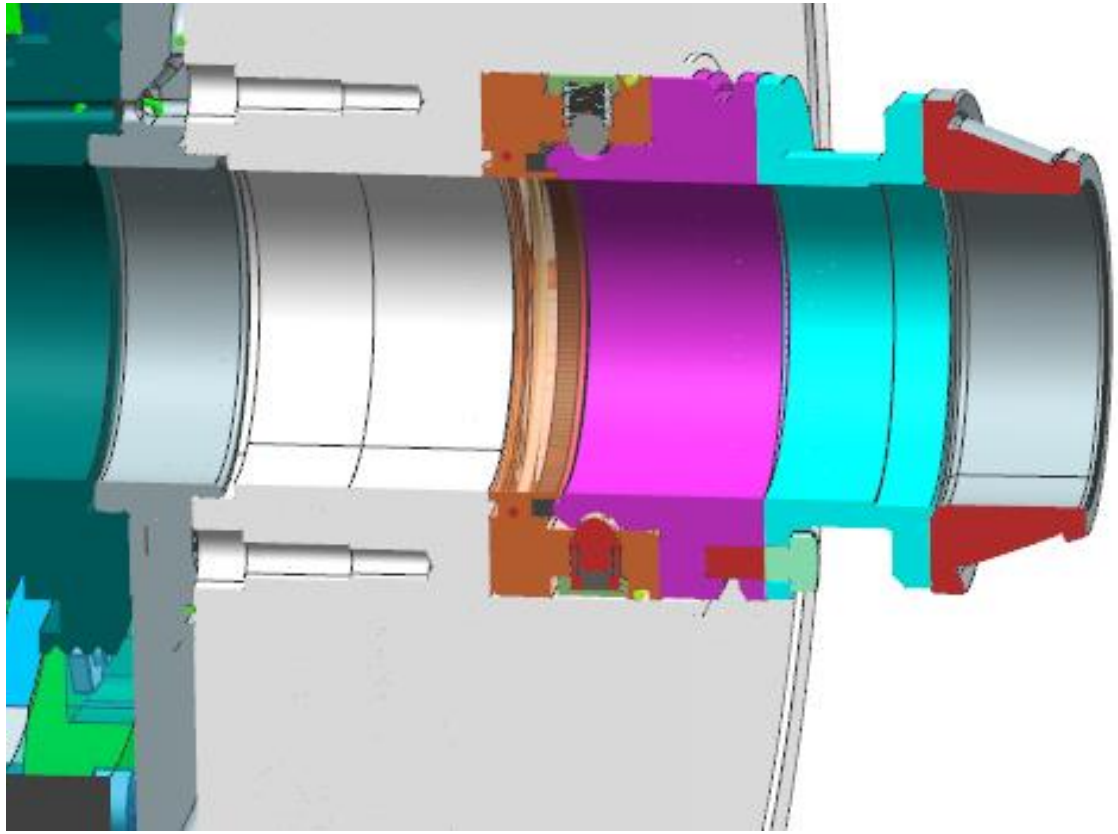
Quick change pole extender





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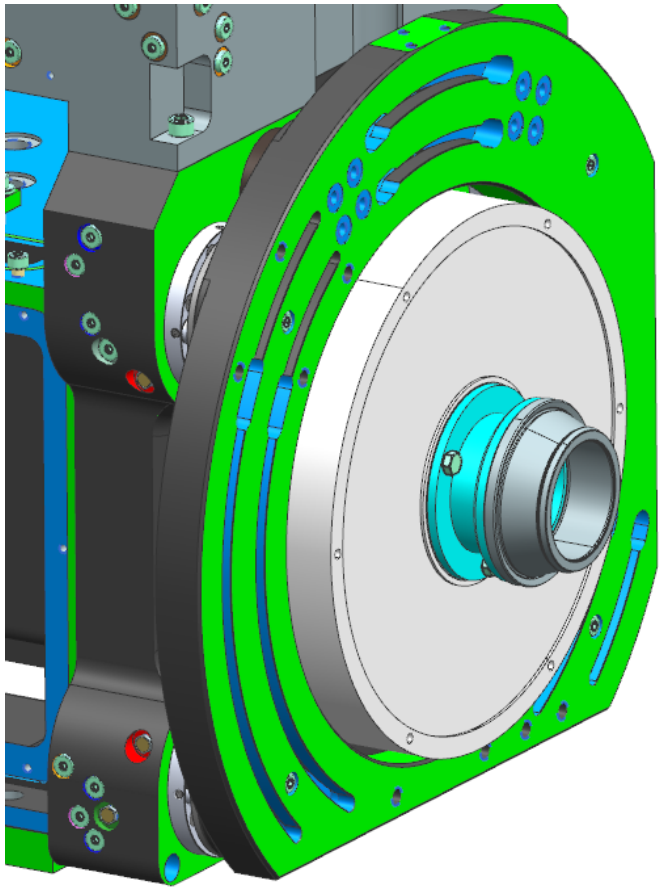
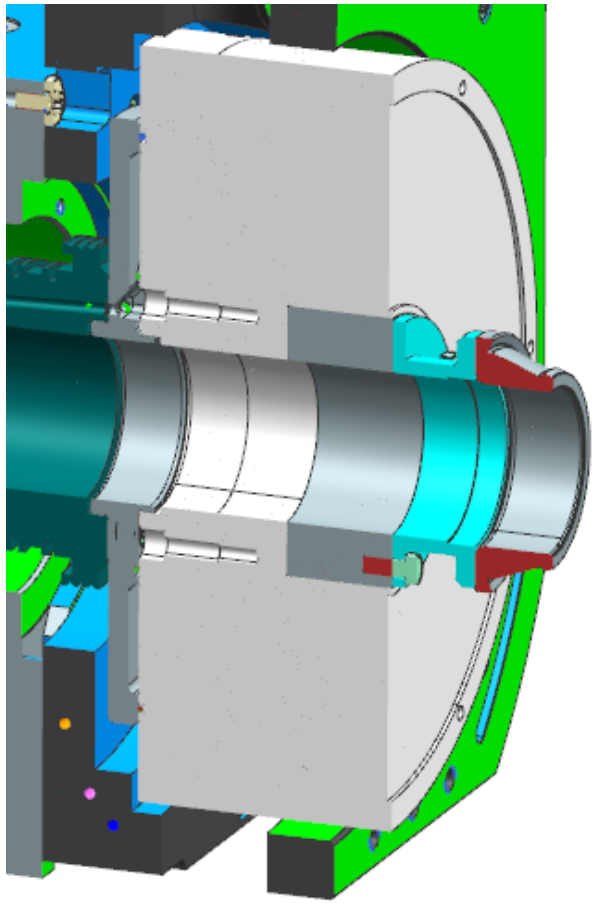
Fixed Pole Extender





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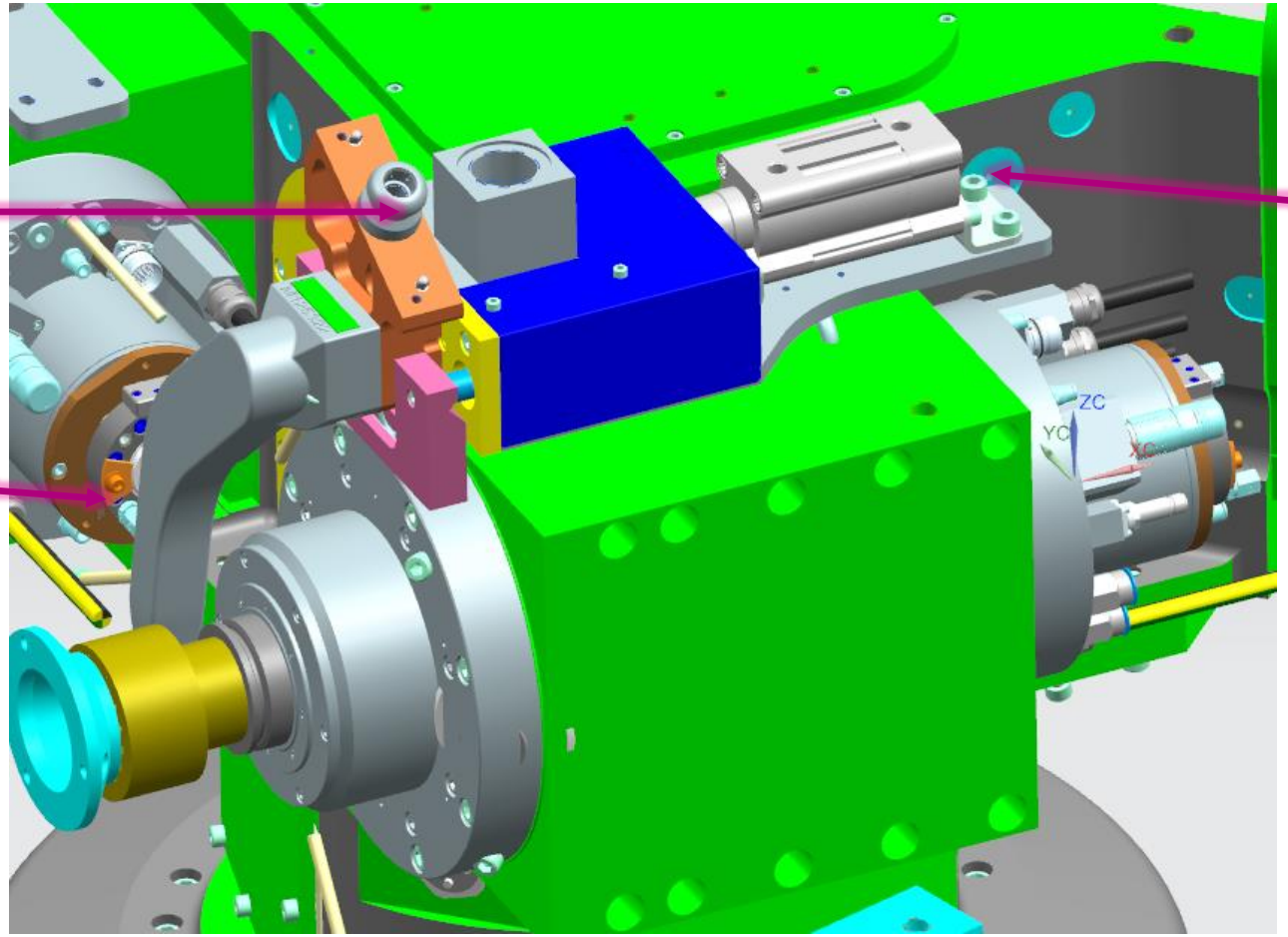
Quick change coolant nozzle



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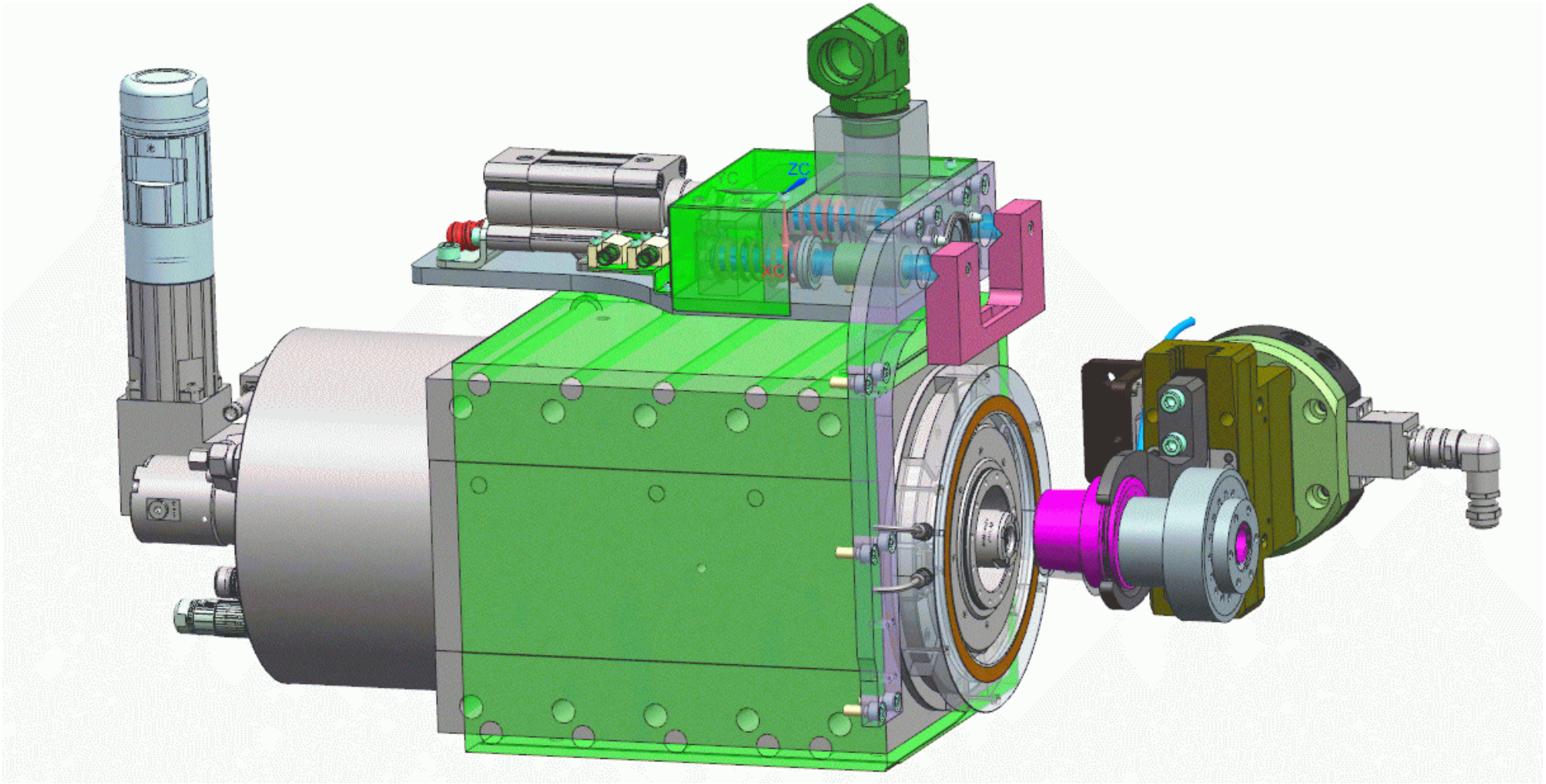
Loader wheel gripper view



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Dressing cycle for CBN wheel

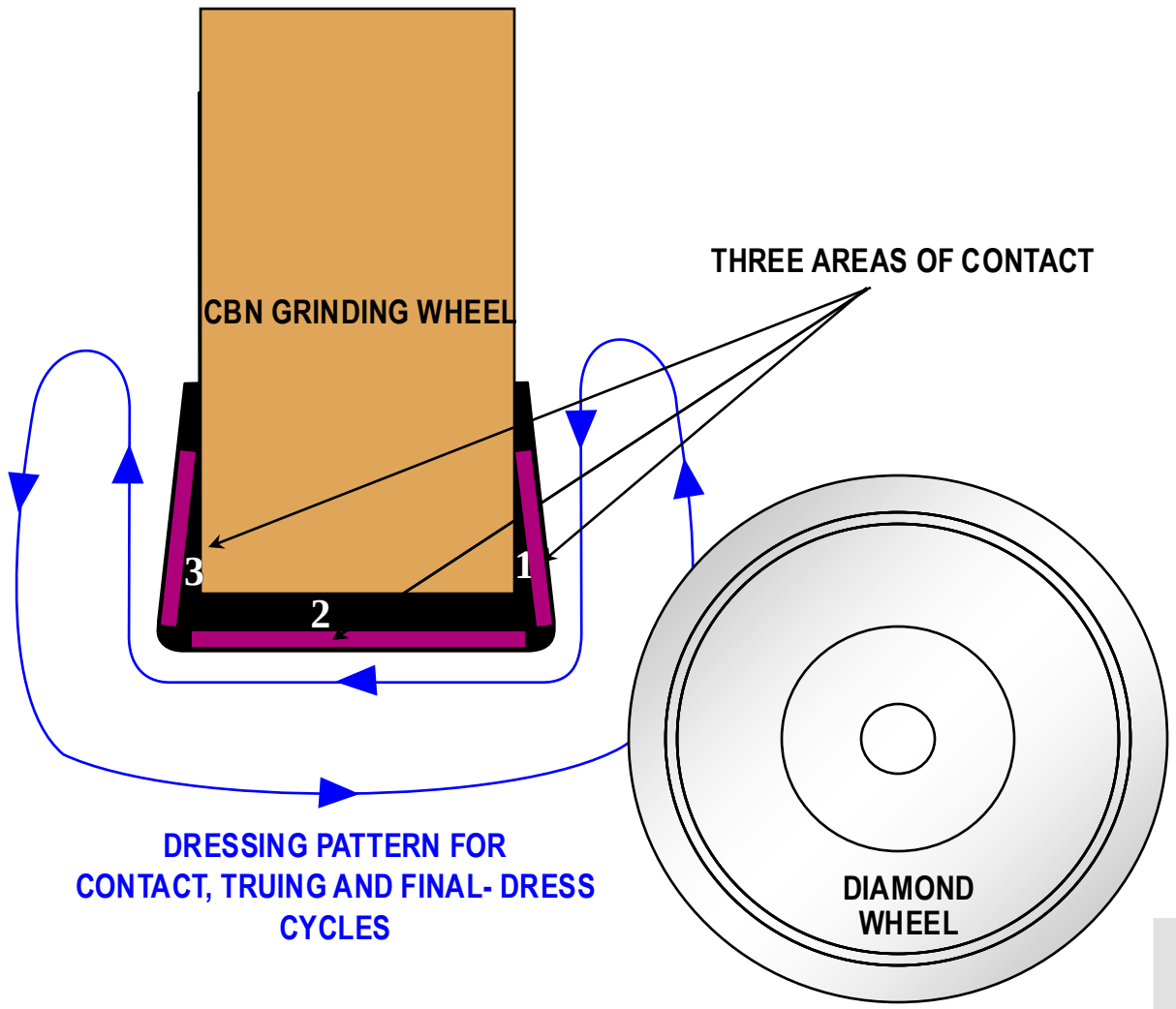
CRASH CYCLE
Starting at 0.08mm clear, the grinding wheel follows a pre-determined profile over the Diamond Dresser in a single pass. If there is contact during the cycle, the dress will be aborted.

CONTACT CYCLE
The grinding wheel starts from the stand-off position of 0.08mm clear. The wheel continues to increment toward the diamond until either 1, 2, or 3 is in contact. On the side or face contacted, the wheel backs off 0.02mm and continues following the profile until contact is made on the other 2 areas. Generally, one of the other 2 areas will be contacted first so again the wheel backs off 0.02mm. The cycle continues until the last side or face is contacted.

TRUING CYCLE
The grinding wheel now approaches the diamond from the known contact point relative to both face & sides. It feeds in 0.003mm and follows the pre-determined profile over the Diamond repeating until a continuous contact signal is received by the sensing system.

FINAL DRESS CYCLE
The grinding wheel feeds in 0.002mm and follows the pre-determined profile over Diamond once at the desired rate to condition the wheel.

PROBE DIAMOND
To establish diamond and wheel wear.



DRESSING PATTERN FOR CONTACT, TRUING AND FINAL- DRESS CYCLES

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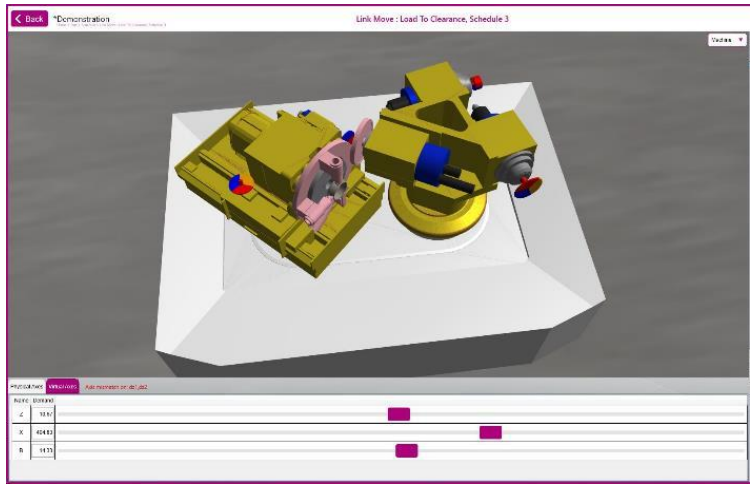
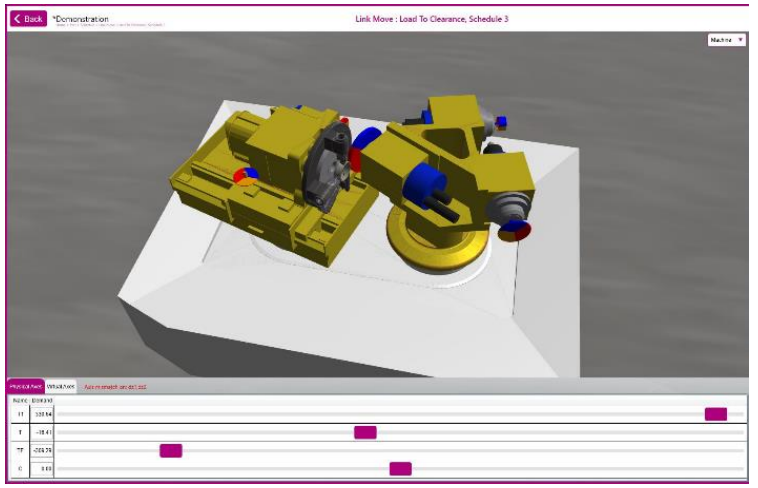
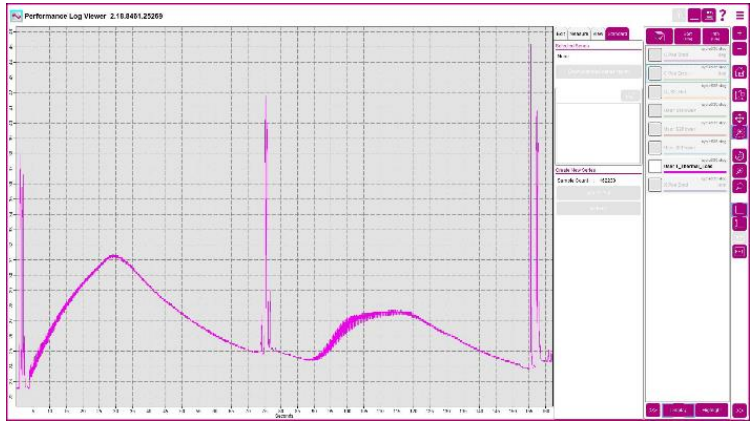
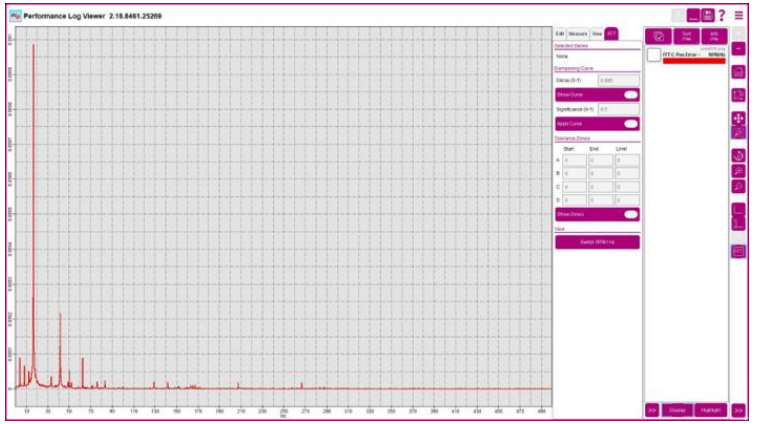
Software Overview: Digital Twin









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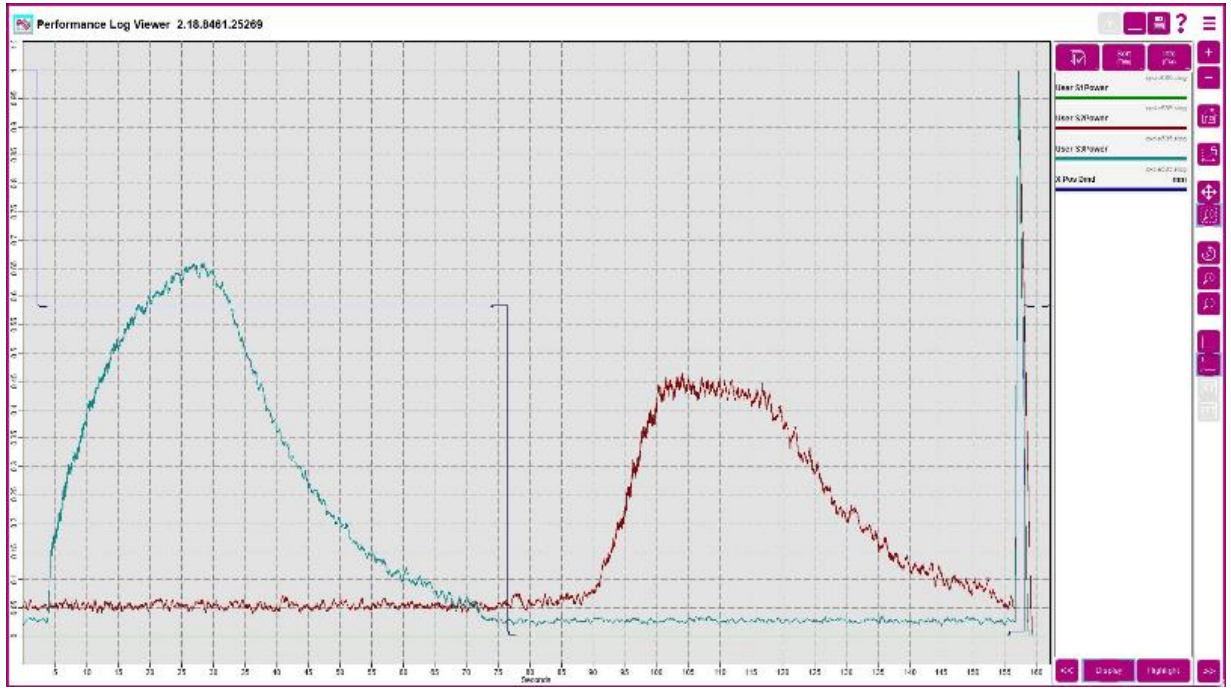
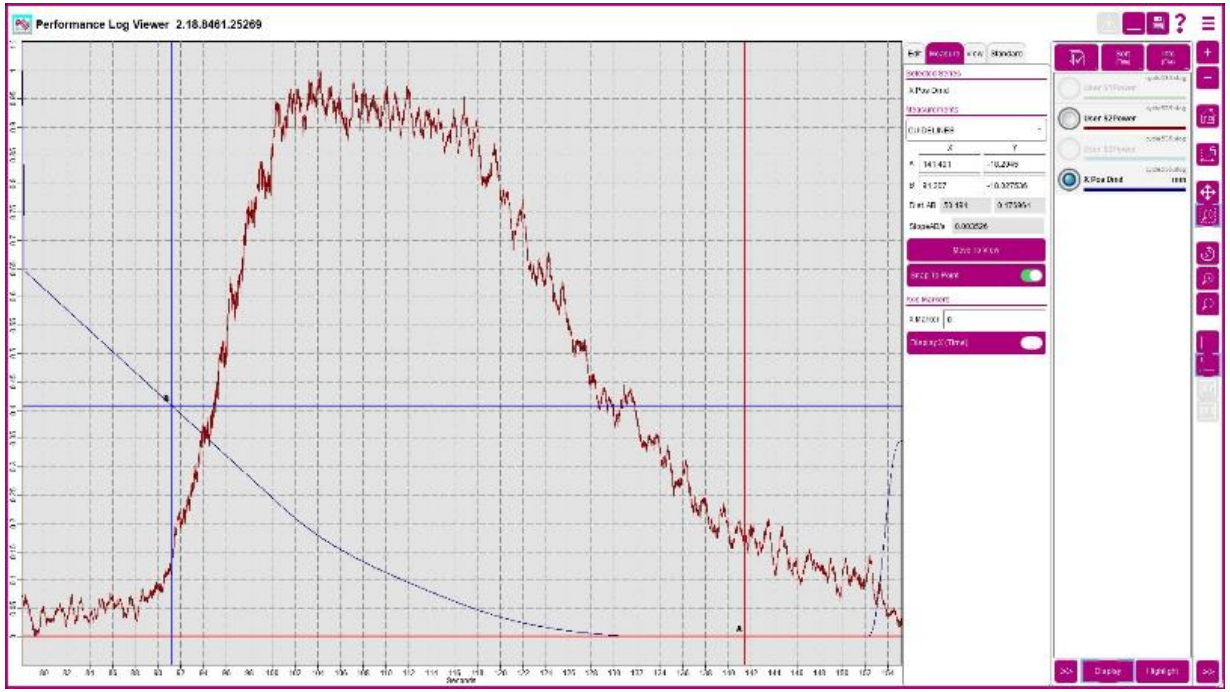
Software Overview: Log Viewer

Spindle Power Feed - X



Spindle Power X feed – Rapid end point



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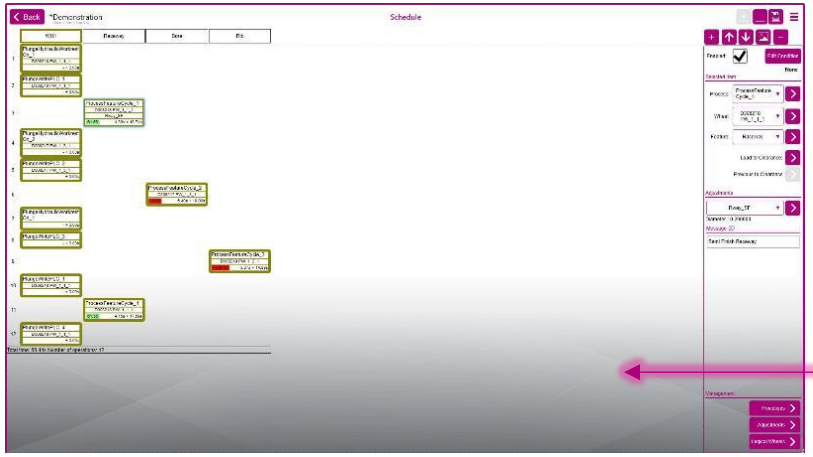
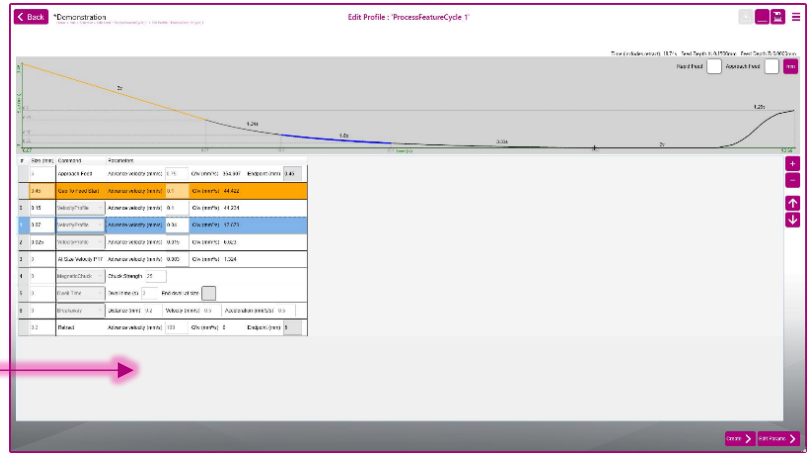
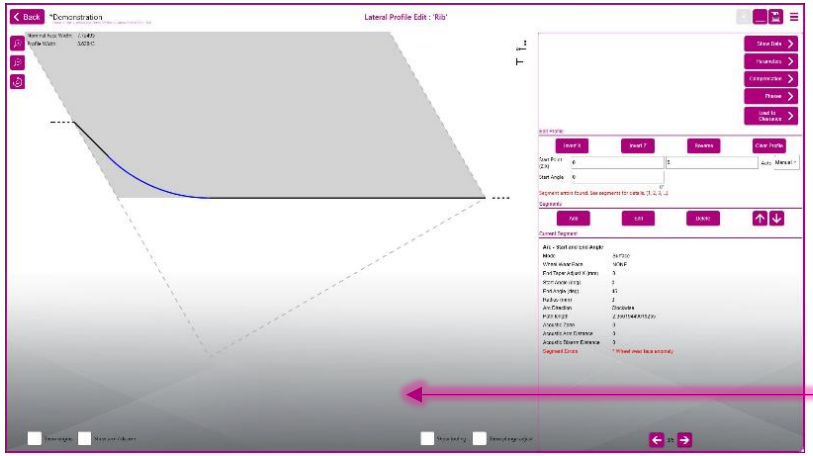
Software Overview: Part Program Editor



Grind Schedule

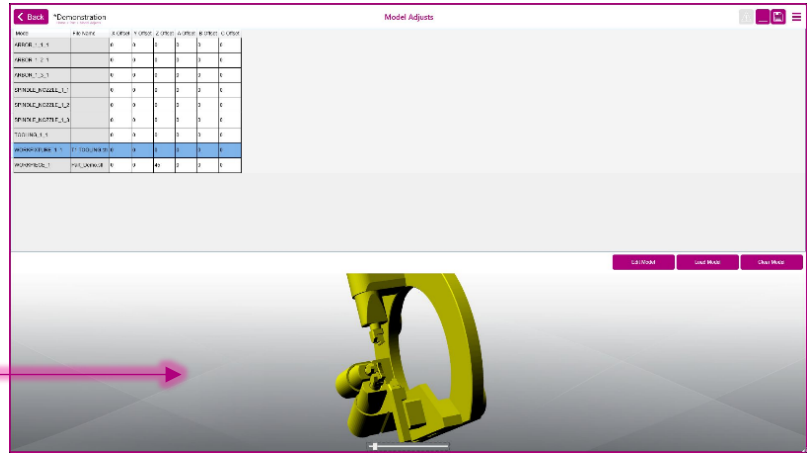
Grind Plunge Definition





Dress Profile

Part Tooling Import



TTG 3000

Model	Landis TTG 3000
Grinding capacity*	
Max. grinding diameter (OD)	350 mm (13.8”)
Max. external grinding length	100 mm (3.9”)
Max. internal grinding length	100 mm (3.9”)
Grinding spindle turret	
Swivel range	+/- 150°
Turret bearing	Hydrostatic
Turret	3
Wheel type	Conventional / CBN / Diamond
Max. wheel Ø	250 mm (9.8”)
Wheel surface speed	120 m/sec (394 ft/sec)
Max. ID spindle speed	60,000 rpm

Workhead turret	
Swivel range	+/- 135°
Turret bearing	Hydrostatic
Turret motor torque	1050 Nm
Workhead speed	1-1,250 RPM
Linear axis travel (infeed)	350 mm (13.8”)
Linear axis bearing	Hydrostatic
Linear axis drive	Linear Motor
Dimensions	
Machine dimensions (W X D x H)	1,800 x 1,950 x 2,400 mm (6’ x 6.4’ x 8’)

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Flexible Process

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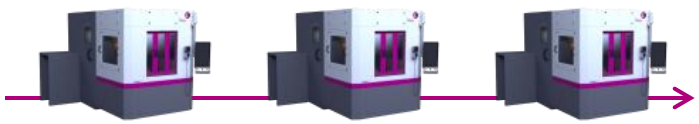
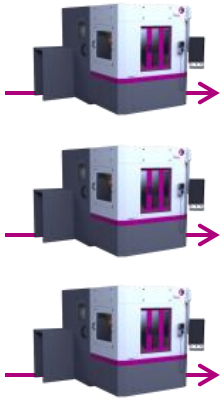
Flexible Process- Serial vs. Combined Process



PROCESS SOLUTION 1: Serial Process

Each machine is able to execute a single operation with a cycle time as much as possible in line with line productivity.

One OP will represent the bottleneck of the line, therefore all other OP will have not saturated machines.



FIVES SOLUTION: Combined Process

Each machine is able to execute multiple operations.

No bottlenecks of the line will affect saturation of machines. Each machine can be considered as a single line.

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Combined Operations

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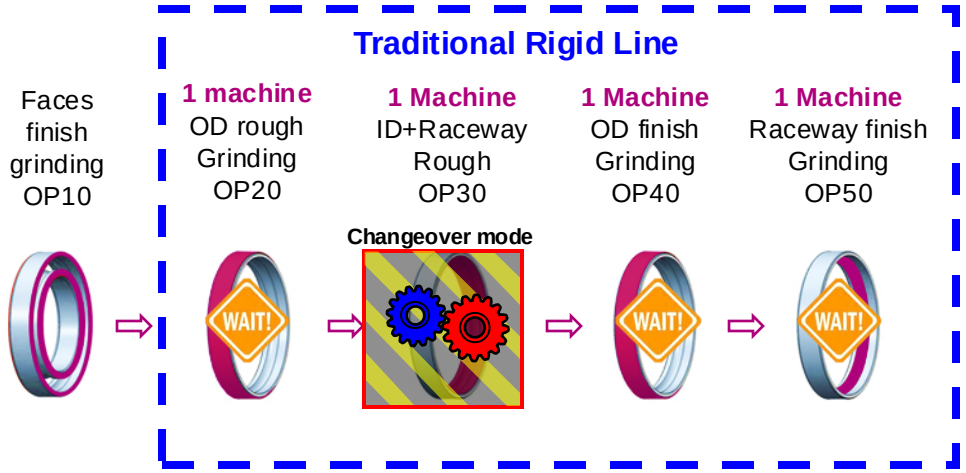
Solution Competitiveness: Machine Availability



While an OP is in changeover mode, the previous and the following OPs cannot be in production. Once the last machine has been set, the line will require a «line fine tuning»

With each machine being independent, during the changeover of any machine all others can continue to be in production

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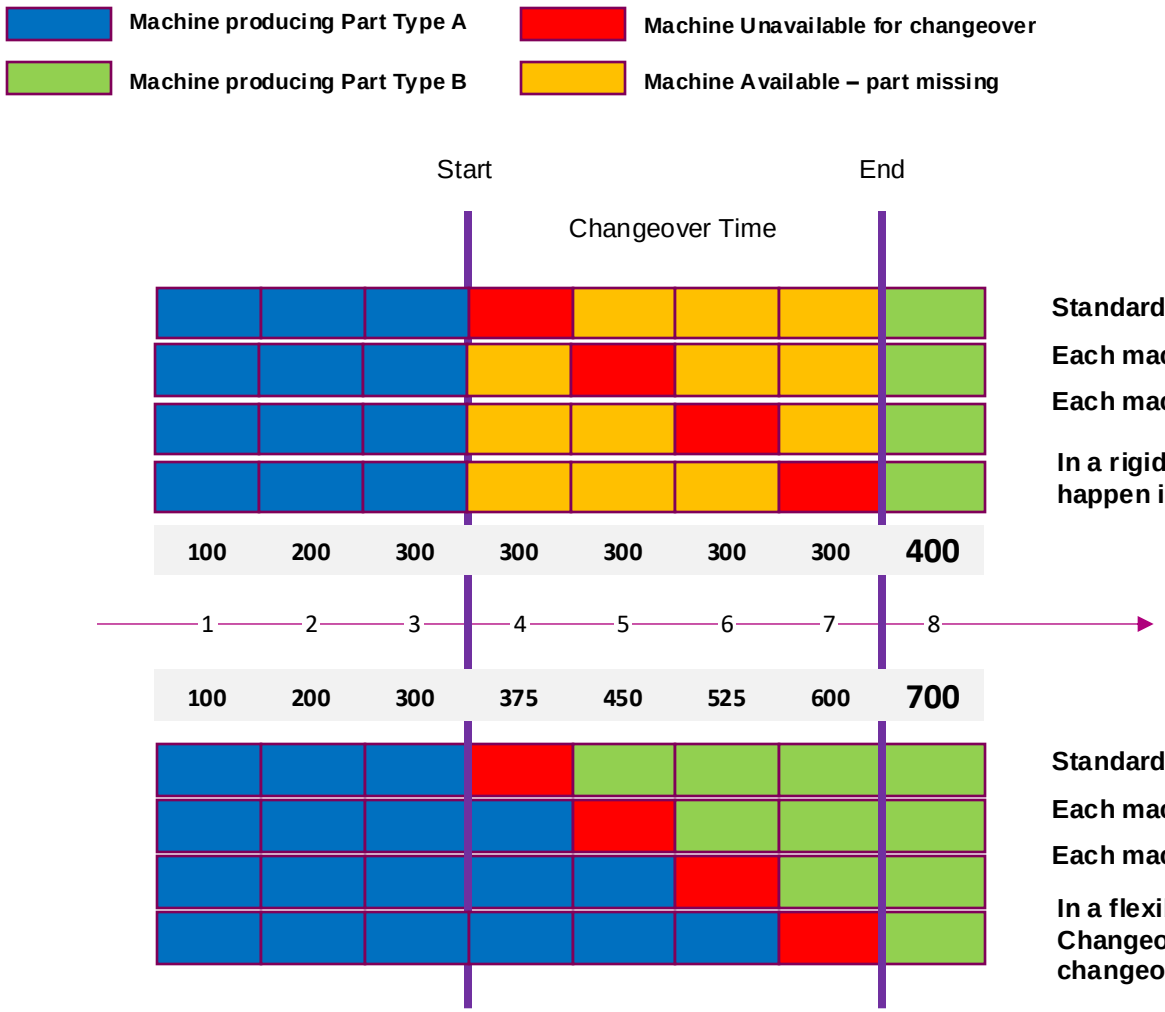
Solution Competitiveness: Machine Availability



Standard production: 100pcs/h

Each machine executes a single operation on 100 pieces per hour

Each machine requires 1h for changeover

In a rigid line, when one OP is down, the entire line is down. Changeover will happen in 4 hours causing a loss of production: 400pcs per changeover

Standard production: 100pcs/h.

Each machine produces 25 finished parts each hour

Each machine requires 1h for changeover

In a flexible line, when one machine is down, remaining machines can continue to produce. Changeover will happen in 4 hours, causing a loss of production of only: 100pcs per changeover

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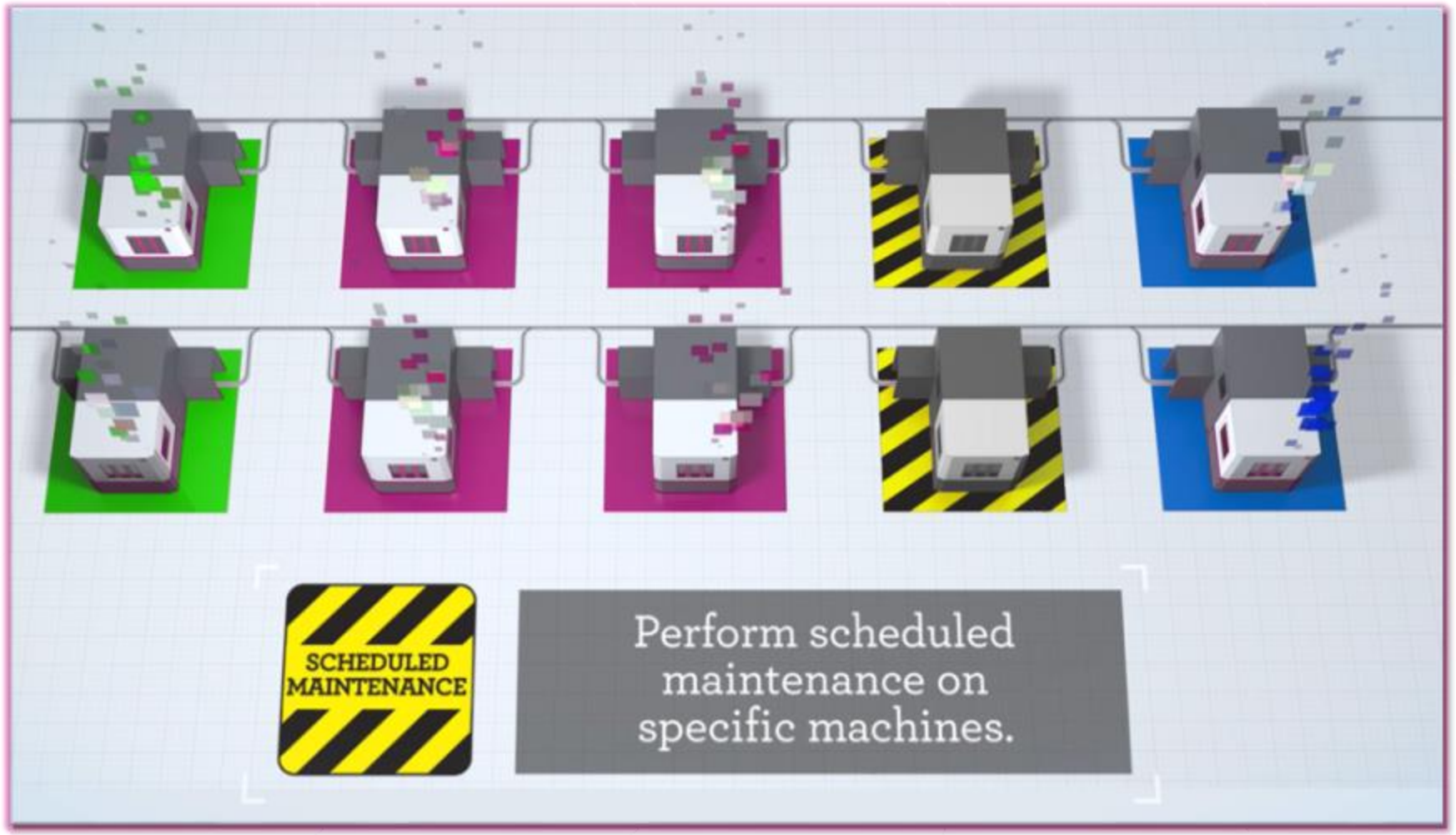
Flexible Solution for Manufacturing



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Key Benefits: One Machine= One Line

Reduced Cycle time:
- Only one Loading/Unloading time per all operations instead of one L/U time per operation
- No bottlenecks (no machines waiting for others)

Higher plant flexibility:
- Possible to grind into same machines rings with different process (sequence of operations)

Reduced Changeover time:
- No need of sequencing changeovers: one machine correspond to one line
- Only one changeover time per all opeartions instead of one changeover time per machine

Warehouse reduction:
- Possibility to assign each machine to a different batch and reduce the stock warehouse

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Machine Details

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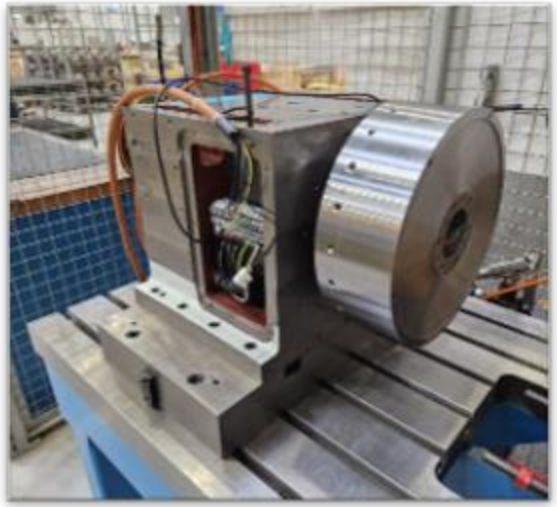
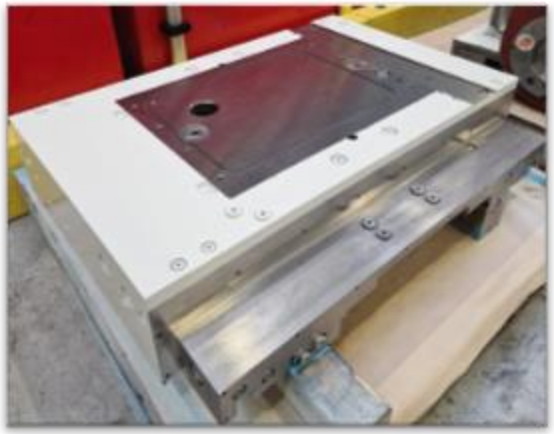
Bed Castings/ Slideways/ Headstock Manufacture





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Solution Competitiveness: Machine Availability

INDUSTRY CAN DO IT

“Every day we work for a virtuous industry, a cutting-edge industry, a mutually responsible industry, an exciting industry, for us all.”

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