



# CNC LATHE MSC 5 DUO

Front-loading CNC turning center for maximum productivity



# Customized solutions for your production

EMAG offers three machine series that are perfectly tailored to a wide range of manufacturing requirements: Classic, Modular and Customized. From economical entry-level solutions to highly specialized systems, EMAG can help you find the optimal solution for your production.

## TURNKEY EXCELLENCE

### Complete solutions for all series

EMAG offers comprehensive turnkey solutions for all machines. From the initial process design to successful production implementation, you will benefit from the decades of experience of EMAG's experts. The range of services includes:



Detailed process and tool design  
for optimized machining strategies



Precision cycle time calculation with the  
latest simulation software



Comprehensive project support  
from a single source



Worldwide service and spare  
parts supply

With EMAG, you not only get a machine, but a well-thought-out manufacturing solution that is precisely tailored to your requirements and your budget.







**COMPLETE  
SOLUTIONS  
for all  
series**



**Guaranteed system availability  
and production cycle times**



## OUR SERIES

### 1 *Classic* MACHINES

#### The efficient entry into precision manufacturing

Classic machines combine maximum efficiency with the high quality you expect from EMAG. These machines focus on the essentials and offer an optimized range of functions for typical machining requirements. The base machine is purchased from selected partners and equipped by EMAG with proven process and machining technology, such as chucks and tools. You benefit from EMAG's worldwide service network and fast spare parts supply – the ideal choice for cost-efficient production without compromising on reliability.

### 2 *Modular* MACHINES

#### Customized flexibility

The modular machines, such as the VL series, expand the range to include flexible manufacturing solutions. These machines and system solutions are characterized by a modular design and can be adapted to your specific requirements using a wide range of options. They combine high productivity with outstanding adaptability – ideal for companies with more specific requirements.

### 3 *Customized* MACHINES

#### Maximum individuality

The customized machines, which include the VLC and VSC series, for example, represent tailor-made cutting-edge technology. Each machine is designed exactly according to customer requirements and is particularly suitable for highly complex processes that require maximum precision and specialization. These solutions offer the greatest possible flexibility for implementing individual production concepts.

# Machine concept for the highest precision

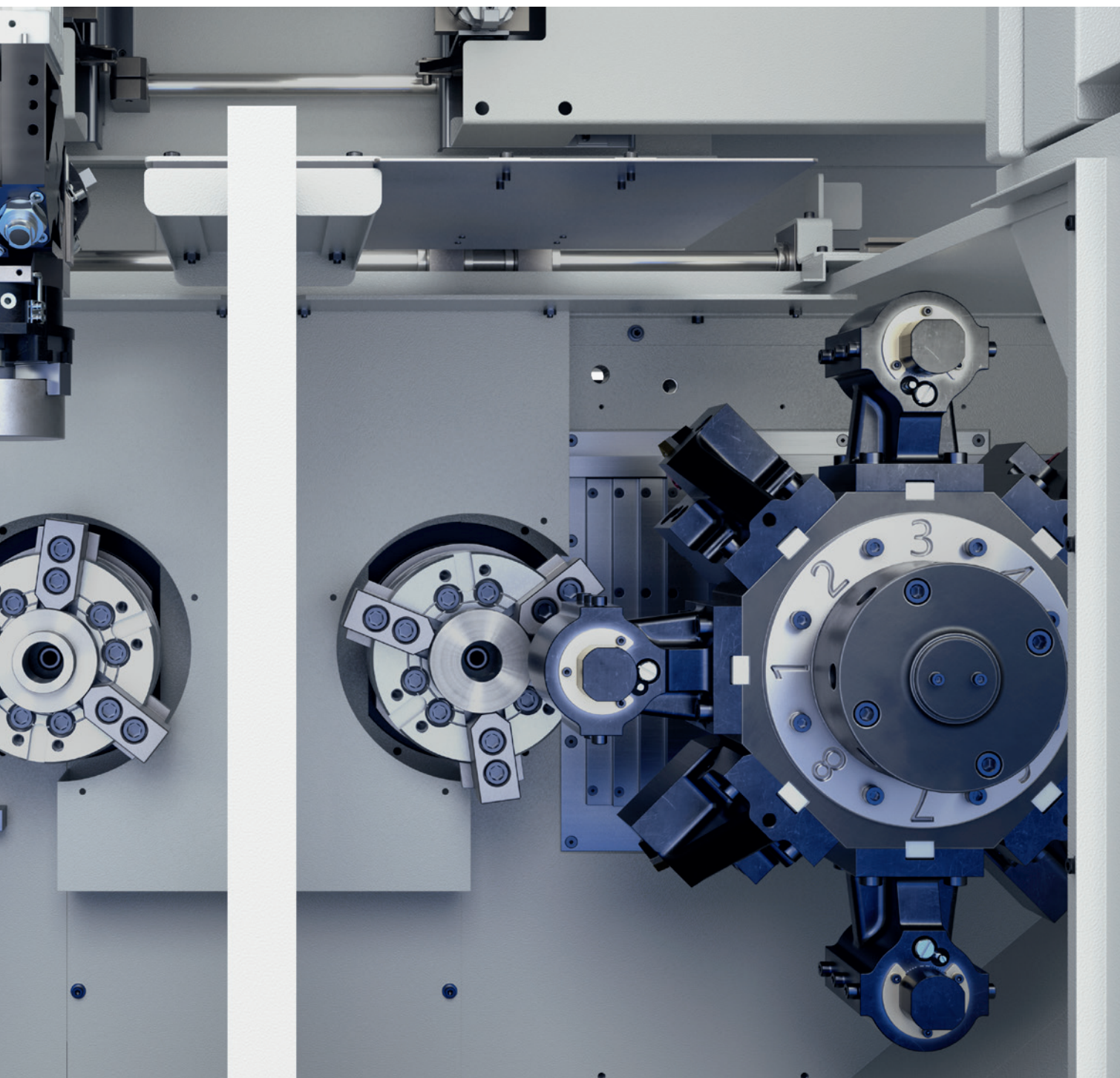
In modern manufacturing, the efficiency of the production processes determines success. With the two-spindle CNC turning machine MSC 5 DUO, EMAG is setting new standards in automated batch production.

The split-bed design of the MSC 5 DUO is the basis for precision in series production. This design separates the work areas mechanically from each other, thus eliminating the transfer of vibrations during simultaneous machining.

**The result:** the highest dimensional accuracy and perfect surface quality for every workpiece.







#### ADVANTAGES:

- 1 Precision through mechanically decoupled work areas
- 2 Constant dimensional accuracy thanks to the thermally stabilized spindle unit
- 3 Maximum process reliability

# Powerful spindle technology for maximum flexibility

The main spindle of the MSC 5 DUO represents the latest in drive technology and was developed specifically for the most demanding of manufacturing tasks. The innovative spindle concept combines the highest precision with maximum performance and exceptional flexibility.

## INNOVATIVE SPINDLE DESIGN:

- » Thermally optimized spindle bearing for maximum precision even during continuous operation
- » Precision bearing with special preload for maximum concentricity
- » Intelligent cooling concept with active temperature monitoring
- » Robust A5 spindle nose for flexible clamping systems up to 210 mm (8 inches)

## WORKPIECES



Planetary gear

Ø 38 mm  
20CrMoH



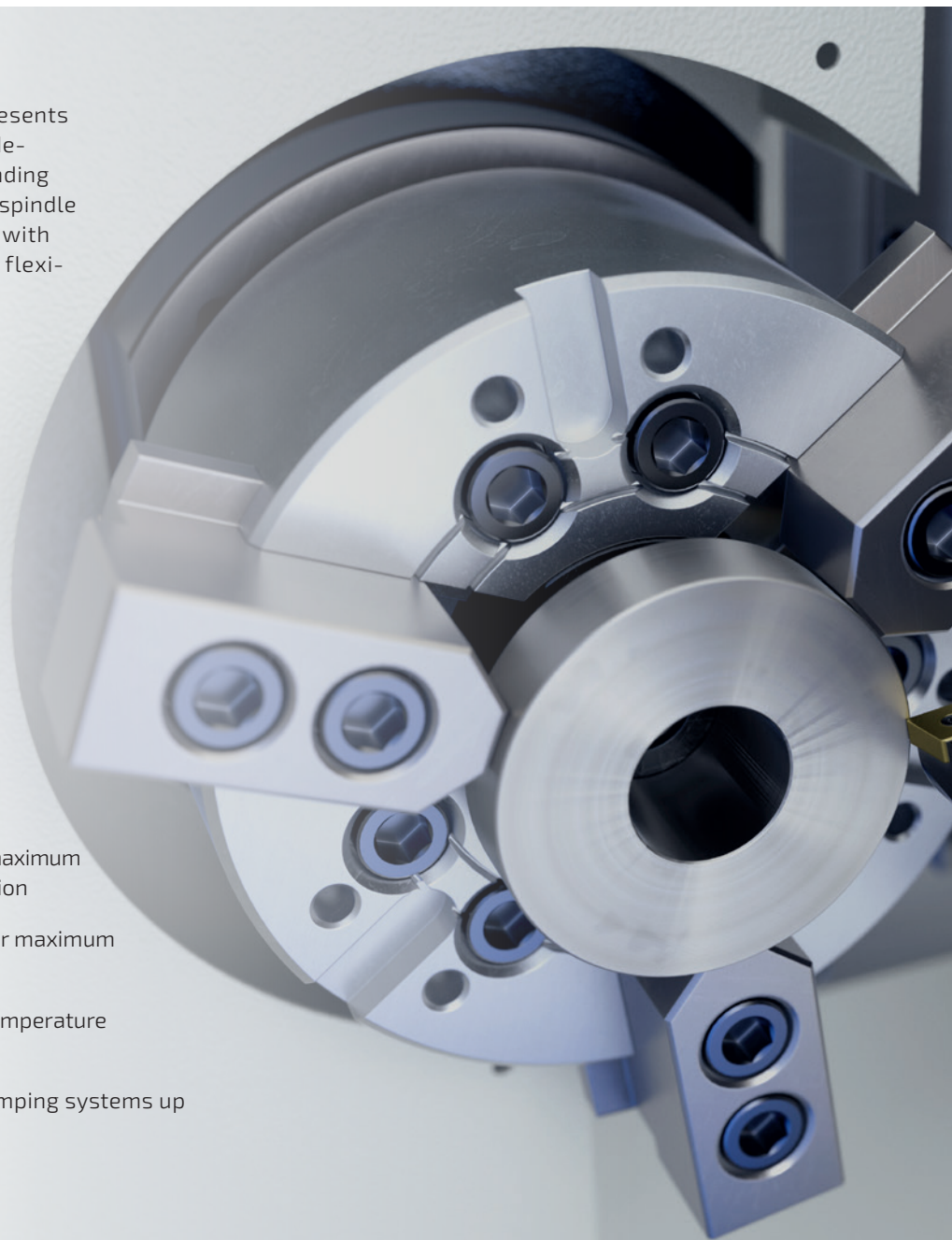
Coupling

Ø 51 mm  
21NiCrMo2



Brake piston

Ø 38,5 mm  
21NC8C





### Basic version:

- » **Maximum speed:** 4,500 rpm for the highest dynamics in finish machining
- » **Powerful drives:** 5.5 kW in continuous operation for continuous high-performance cutting
- » **Peak power:** 7.5 kW for up to 30 minutes for particularly demanding machining operations
- » **Constant torque** in the extended speed range of 1,125–4,500 rpm

### High-performance version:

- » **Increased continuous power output** of 7.5 kW for even more intensive machining processes
- » **Maximum peak power** of 11 kW (30 min) for extreme machining tasks
- » **Optimized torque curve** for maximum power delivery across the entire speed range

## OVERVIEW OF PRODUCTION ADVANTAGES:

### Precision:

- + Concentricity accuracy  $\leq 3 \mu\text{m}$  at the spindle nose
- + Thermal stability even during longer machining cycles
- + Maximum repeatability due to low-backlash bearings

### Performance:

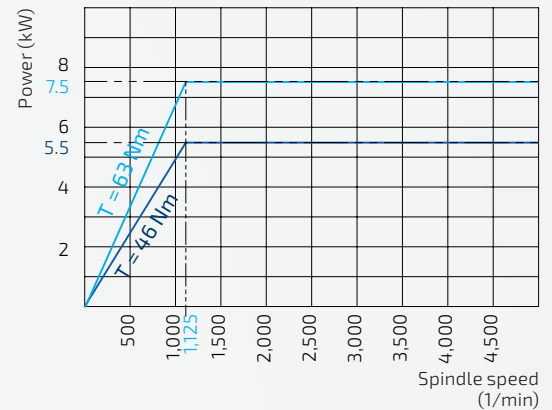
- + Power in reserve for all machining tasks
- + High cutting depths for soft turning

### Flexibility:

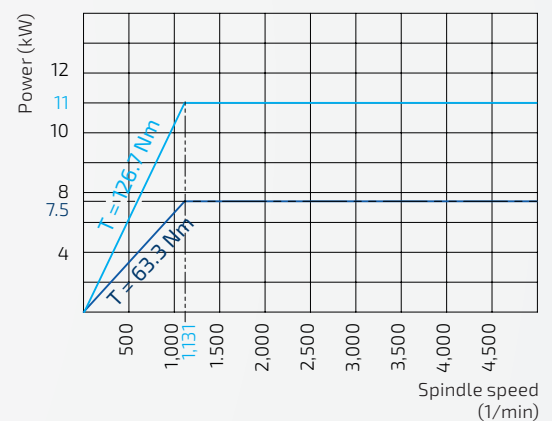
- + Universal applicability from roughing to fine finishing
- + Wide range of compatible chucks
- + Quick chuck changeover thanks to standardized interfaces

### Torque-performance diagram

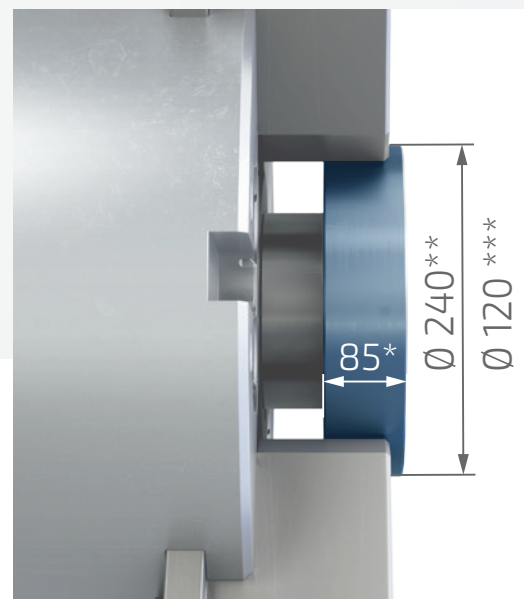
Basic version



High-performance version



— 30-Minute duty cycle  
— Continuous operation



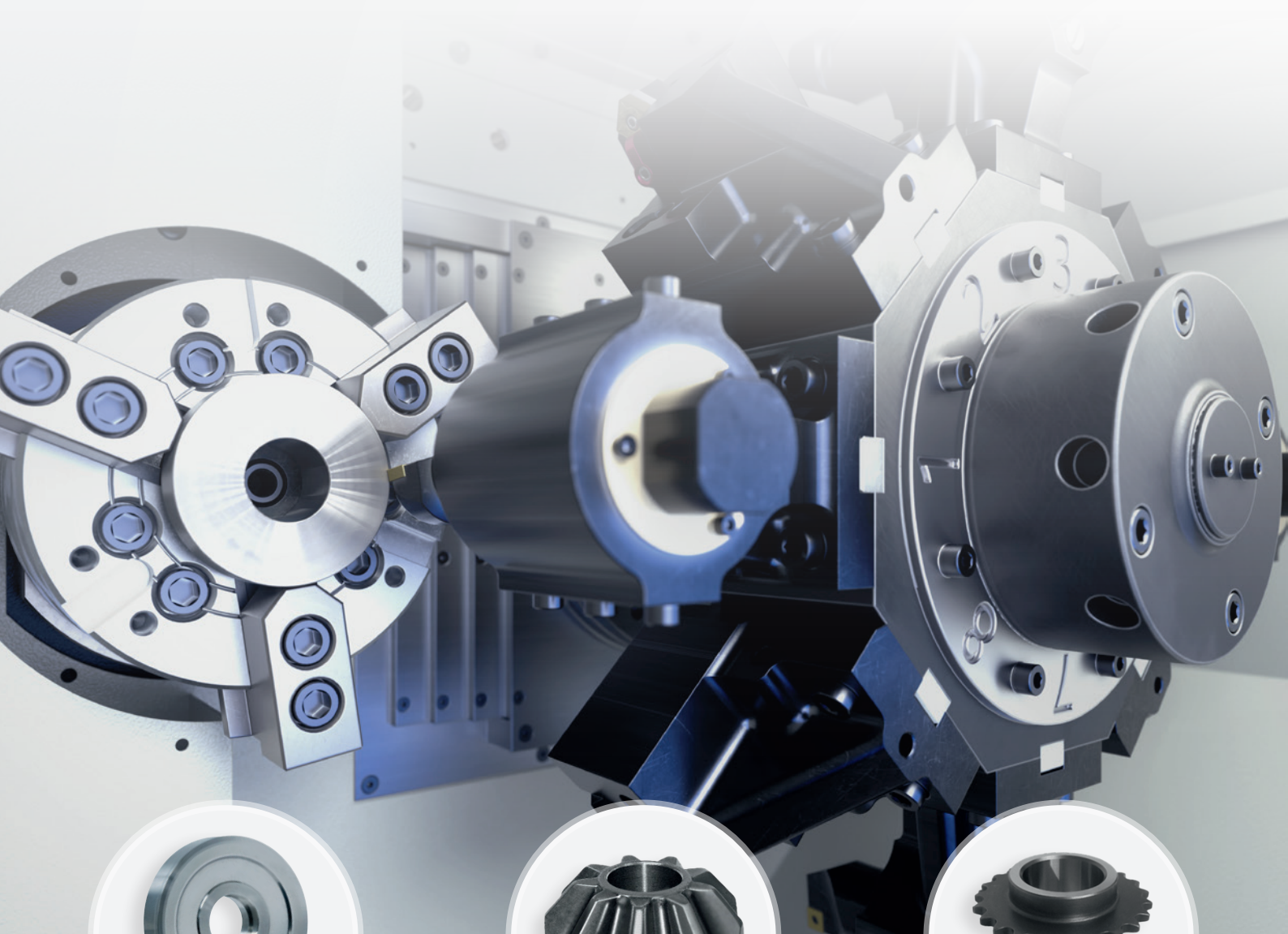
\*Max. turning length (in mm)

\*\*Max. turning diameter (in mm)

\*\*\*Max. turning diameter with gantry loader (in mm)

## Turret - The centerpiece of productivity

The two servo-controlled turrets are the heart of the machine. They each offer 8 tool positions, which can optionally be expanded to 12 positions. The sturdy BMT interface allows the use of boring bars with a diameter of up to 40 mm for internal machining and tools with a 25 x 25 mm shank for external machining. The turret's highly dynamic indexing ensures short tool change times, while precision tool positioning is ensured by an hydraulic clamping process.



Flange

Ø 52 mm  
CrNi1810



Bevel gear

Ø 38 mm  
20MnCr5



Sprocket wheel

Ø 46 mm  
21NiCrMo2



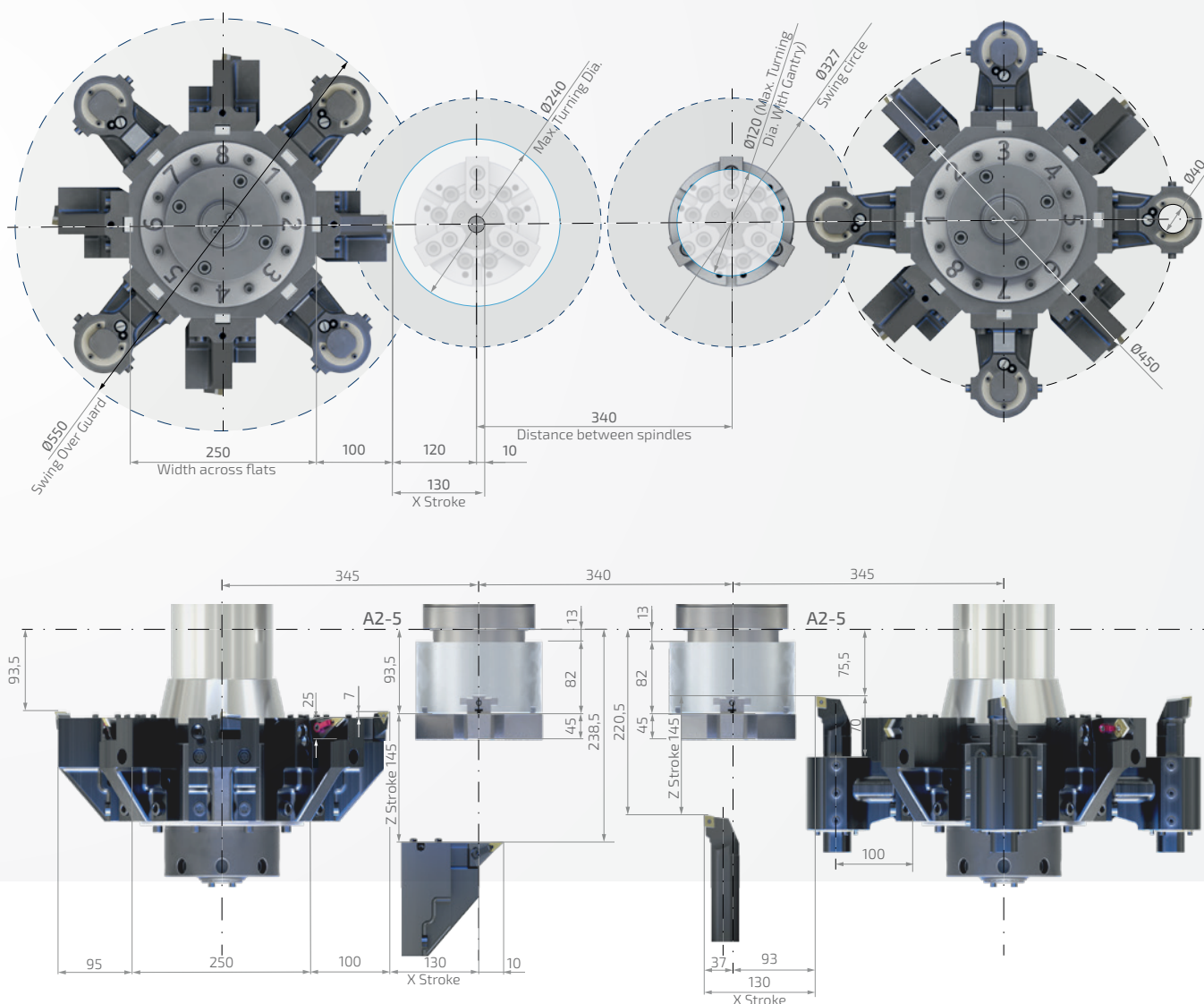
## TECHNOLOGICAL EXCELLENCE:

### Basic structure:

- » 8 standard tool positions in the basic version
- » Optionally expandable to a turret variant with 12 positions
- » High-precision BMT tool interface
- » Solid base construction for maximum stability
- » Integrated coolant supply through the turret

### Tool receptors:

- » Drill rod holders for drill rods up to 40 mm in diameter for demanding interior work
- » Standardized drill rod holder for tools with a 25 x 25 mm shaft
- » Defined stop surfaces for precision tool positioning



\*All dimensions in mm

## Automation - Efficient gantry charging system for short non-productive times

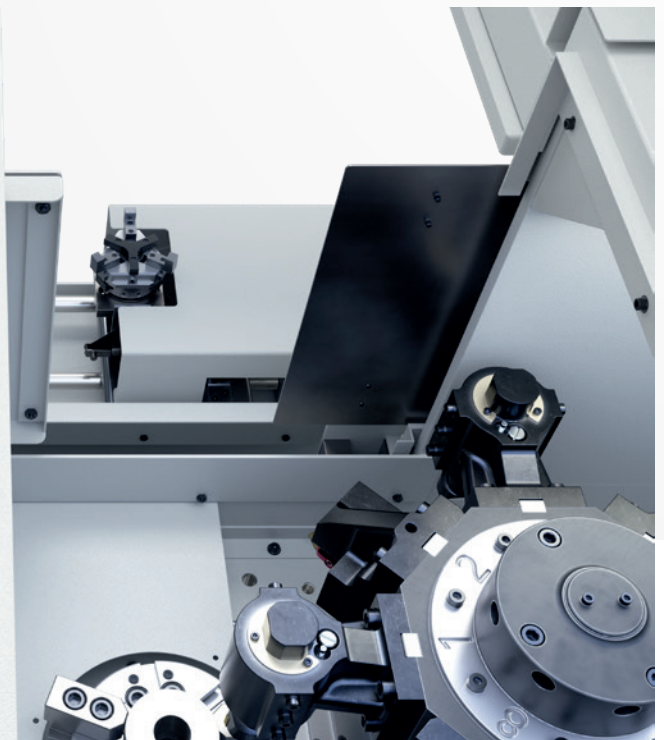
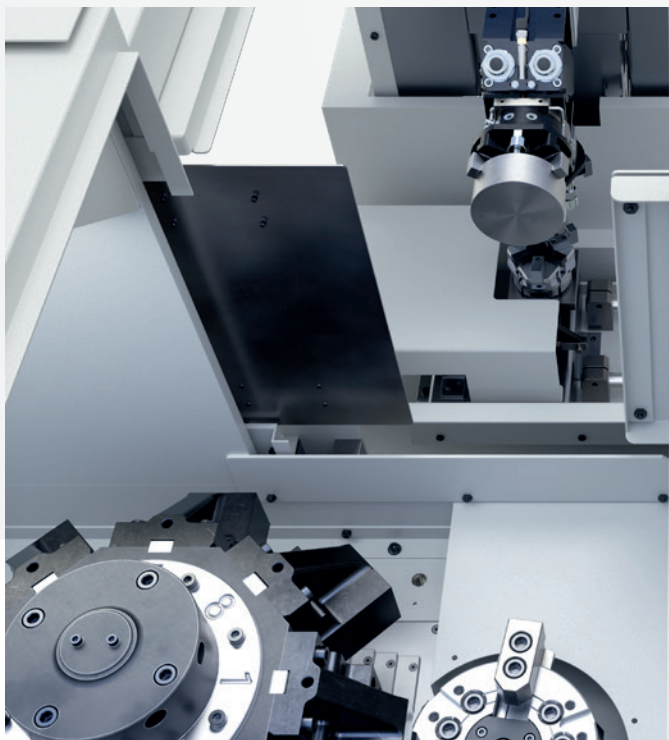
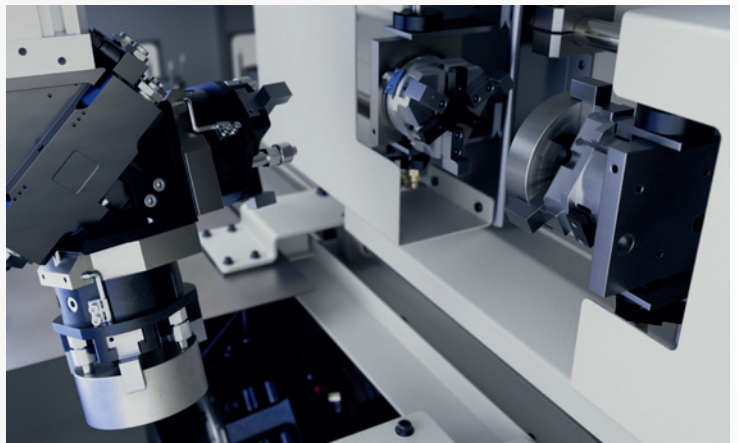
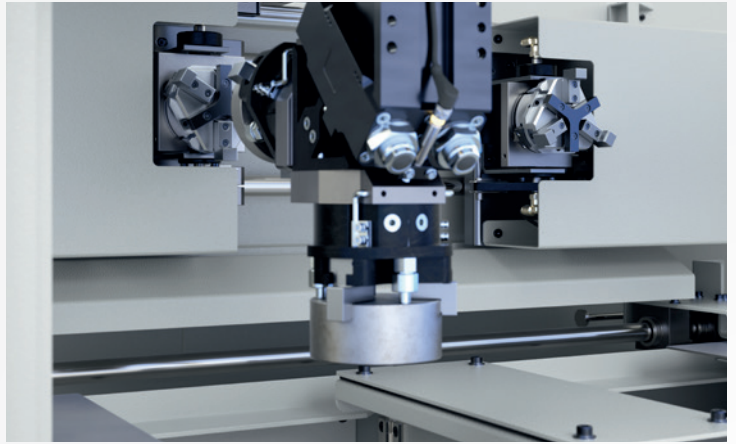
The 3-axis gantry loading system integrated into the machine ensures fast and precision loading and unloading of workpieces. The standard integrated part turner enables complete machining of the workpieces from two sides. The flexibly configurable workpiece pallets can be adapted to different workpiece geometries, while the automatic workpiece feeding and removal supports low-manned production.

### + Compact design:

The integration of the stacker system into the machine saves space and facilitates automation without taking up additional room.

### + Flexible pallet system:

Suitable for various workpiece diameters and compatible with workpieces up to 120 mm in diameter and 85 mm in length.



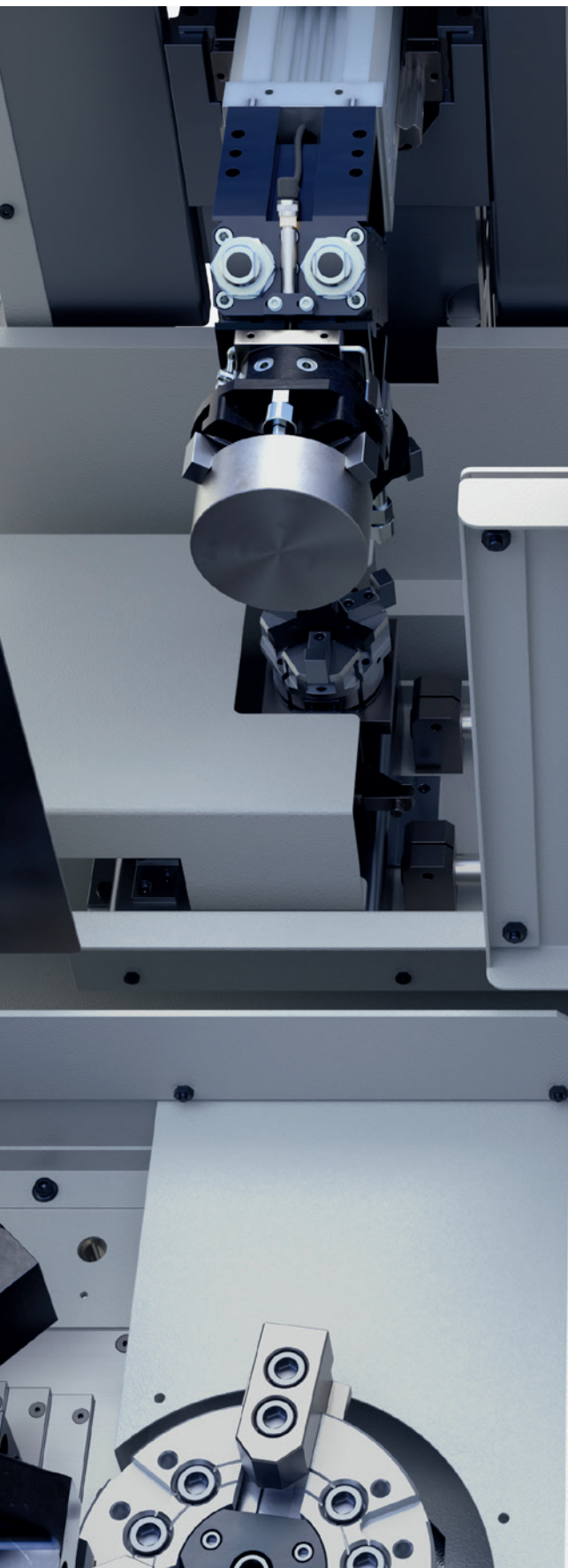


### 3-AXIS GANTRY LOADING SYSTEM:

- » Fast loading and unloading times
- » Precision parts transport
- » Integrated parts turner
- » Flexibly configurable workpiece pallets
- » Automatic workpiece feeding and unloading
- » 3-axis portal for loading/unloading of the two spindles
- » Operation via the machine control



## Technical data



Workpiece dia., max.	mm in	240 9,5
Chuck dia., max.	mm in	165/200 6,5/7,9
Swing dia., max.	mm in	327 12,9
Workpiece length, max.	mm in	145 5,5
Workpiece weight, max.	kg	3

### Main spindle

» Rated power, 30 % / 100 %	kW	7,5 / 5,5
» Spindle nose		A2-5
» Motor speeds, max.	1/min	4.500

### CNC control

FANUC Oi-TF Plus

### X-axis

» Type of guideways		roller bearings
» X-axis stroke	mm in	130 5,1
» X-axis rapid traverse	m/min	24

### Z-axis

» Type of guideways		Ram type
» Z-axis stroke	mm in	145 5,5
» Z-axis rapid traverse	m/min	24

### Tooling system

» Revolver type		Servo
» Number of tools	max.	8
» External shank turning tool	mm in	25 x 25 1 x 1
» Maximum boring bar diameter	mm in	40 1,6

### Portal

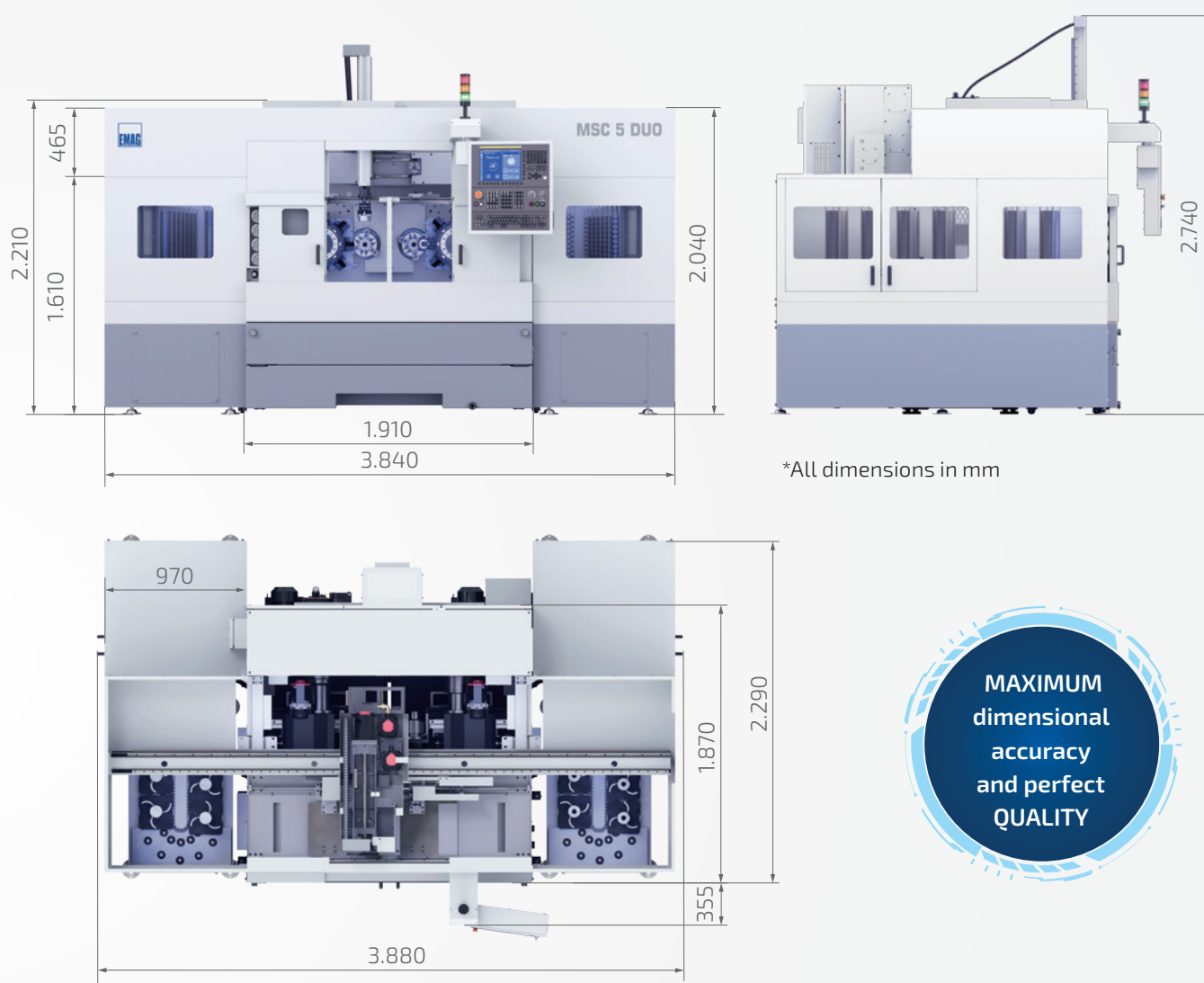
» Portal capacity	kg	3
» Max. workpiece dia.	mm in	120 4,7
» Max. workpiece length	mm in	85 3,3

### Dimensions

» Total weight	kg	~ 4500
» Overall dimensions of the machine	mm in	~3815 x 1872 x 2171 ~150 x 74 x 85



## Dimensions of the machine



MAXIMUM  
dimensional  
accuracy  
and perfect  
QUALITY



The latest generation of Fanuc Oi TF Plus control offers extensive possibilities for process optimization. While machining is in progress, programs that follow can be created or optimized. Standardized interfaces make it easy to integrate the machine into existing production lines.

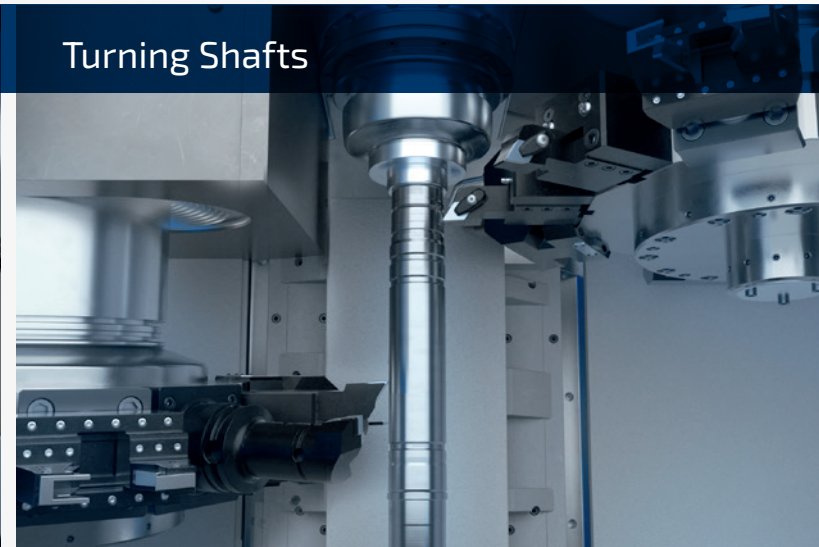
The control is specially designed for turning operations. With control of up to 15 axes in single-channel mode and 18 axes in dual-channel mode, the Oi-TF Plus offers the essential functions required for efficient turning operations, making it the ideal choice for batch producers seeking reliable performance.

# TECHNOLOGY. CONNECTED.

Turning Chucked Components



Turning Shafts



Gear Grinding



Cylindrical Grinding



Out-of-round Gr

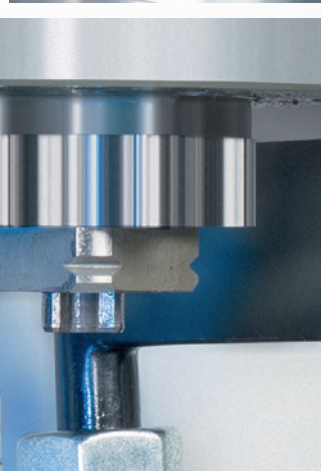




Milling



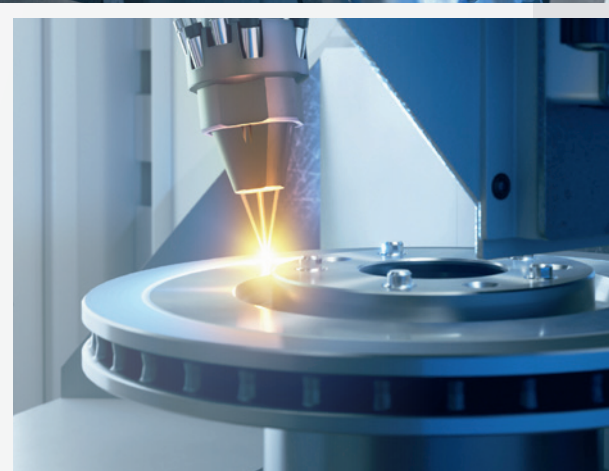
Gear Hobbing



Grinding



ECM/PECM



Laser Processing

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All EMAG  
Locations



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