



Integrated systems for production

CORPORATE

COMPANY Overview - PRODUCT Lines

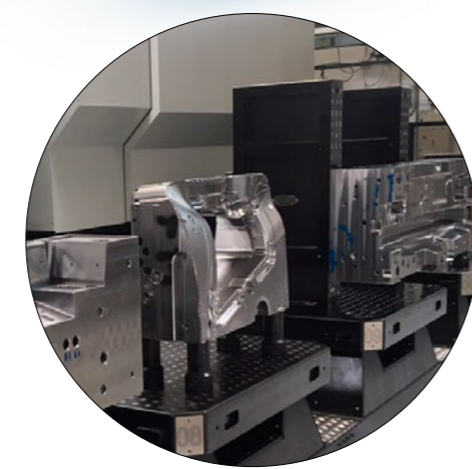
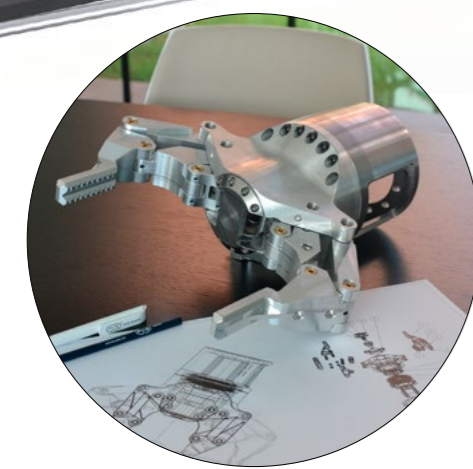


Integrated systems for production

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Capability
Cutting-edge solutions based on real needs for improving the production process efficiency.

Quality and Reliability
We are the first users of our products.

Support
Prompt technical support enriched by an on-line dedicated service.



Founded in 2003, FCS supports the companies technological evolution through innovative systems for the production process optimization, introducing the Industry 4.0 principles

More than **1.200** worldwide users
More than **12.000** machines equipped
Strategic product solutions covered by **patents**



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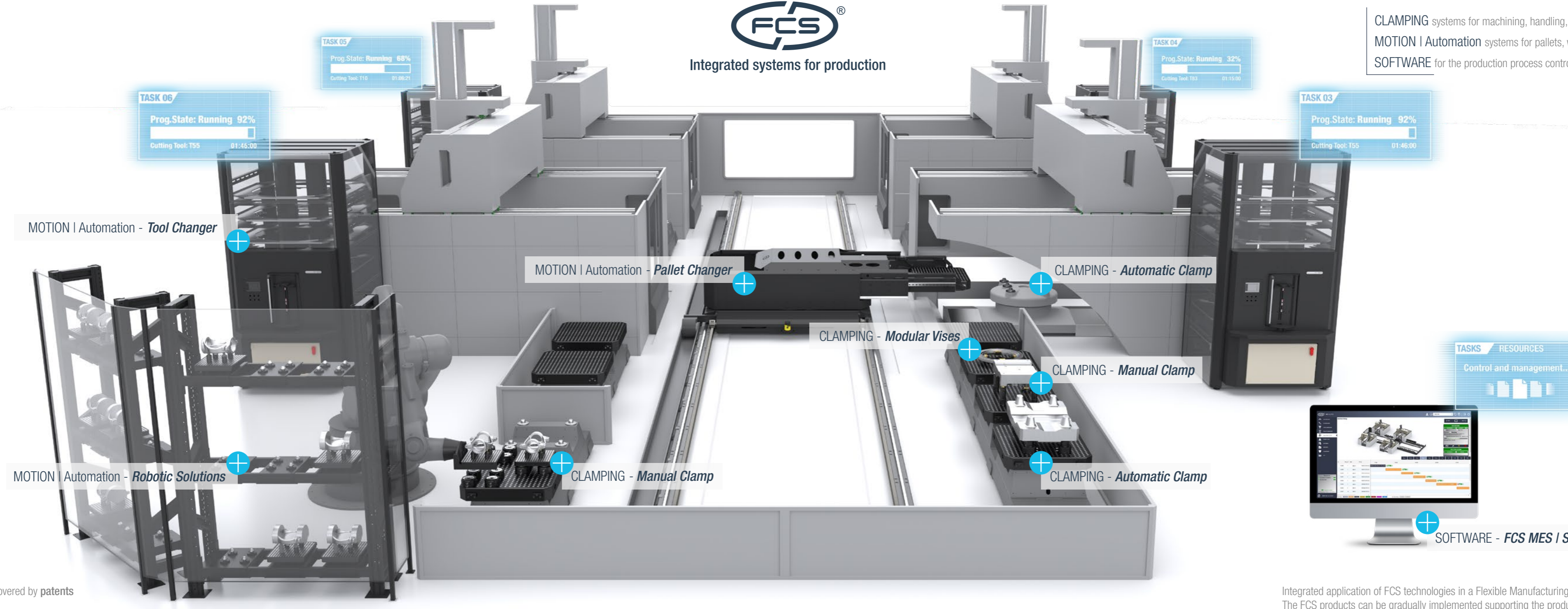
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Integrated systems for production

CLAMPING systems for machining, handling, assembling and testing.
MOTION | Automation systems for pallets, workpieces and cutting tools.
SOFTWARE for the production process control and management.



TASK 06

Prog.State: Running 92%

Cutting Tool: T55 01:45:00

TASK 05

Prog.State: Running 68%

Cutting Tool: T10 01:08:21

TASK 04

Prog.State: Running 32%

Cutting Tool: T83 01:15:00

TASK 03

Prog.State: Running 92%

Cutting Tool: T55 01:46:00

MOTION | Automation - *Tool Changer*

MOTION | Automation - *Pallet Changer*

CLAMPING - *Automatic Clamp*

CLAMPING - *Modular Vises*

CLAMPING - *Manual Clamp*

MOTION | Automation - *Robotic Solutions*

CLAMPING - *Manual Clamp*

CLAMPING - *Automatic Clamp*

TASKS **RESOURCES**

Control and management...



SOFTWARE - *FCS MES | Supervisor*

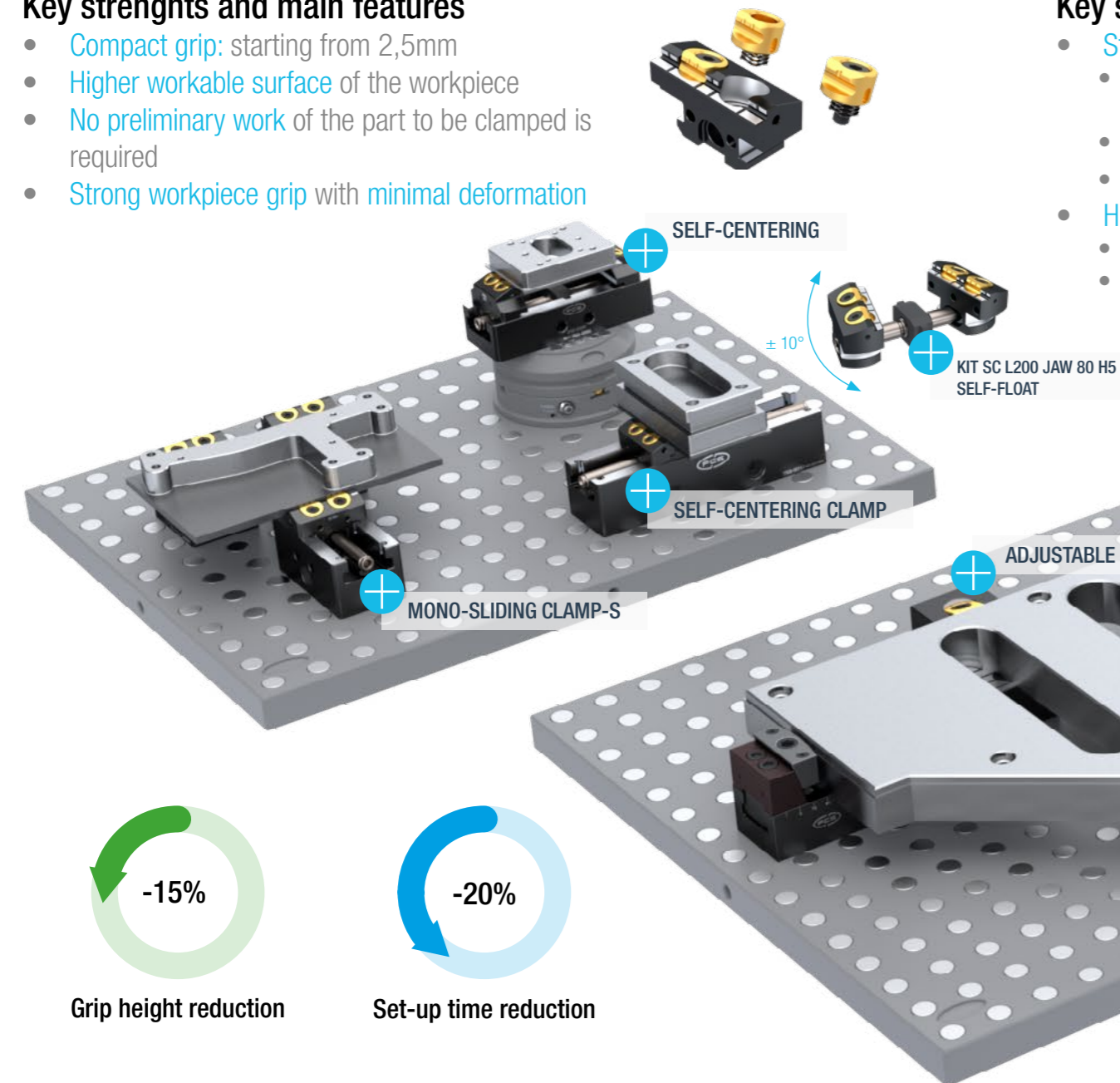
Strategic product solutions covered by patents

Integrated application of FCS technologies in a Flexible Manufacturing System.
The FCS products can be gradually implemented supporting the production process improvement.

SYSTEM GRIP VISE

Key strenghts and main features

- Compact grip: starting from 2,5mm
- Higher workable surface of the workpiece
- No preliminary work of the part to be clamped is required
- Strong workpiece grip with minimal deformation



Grip height reduction

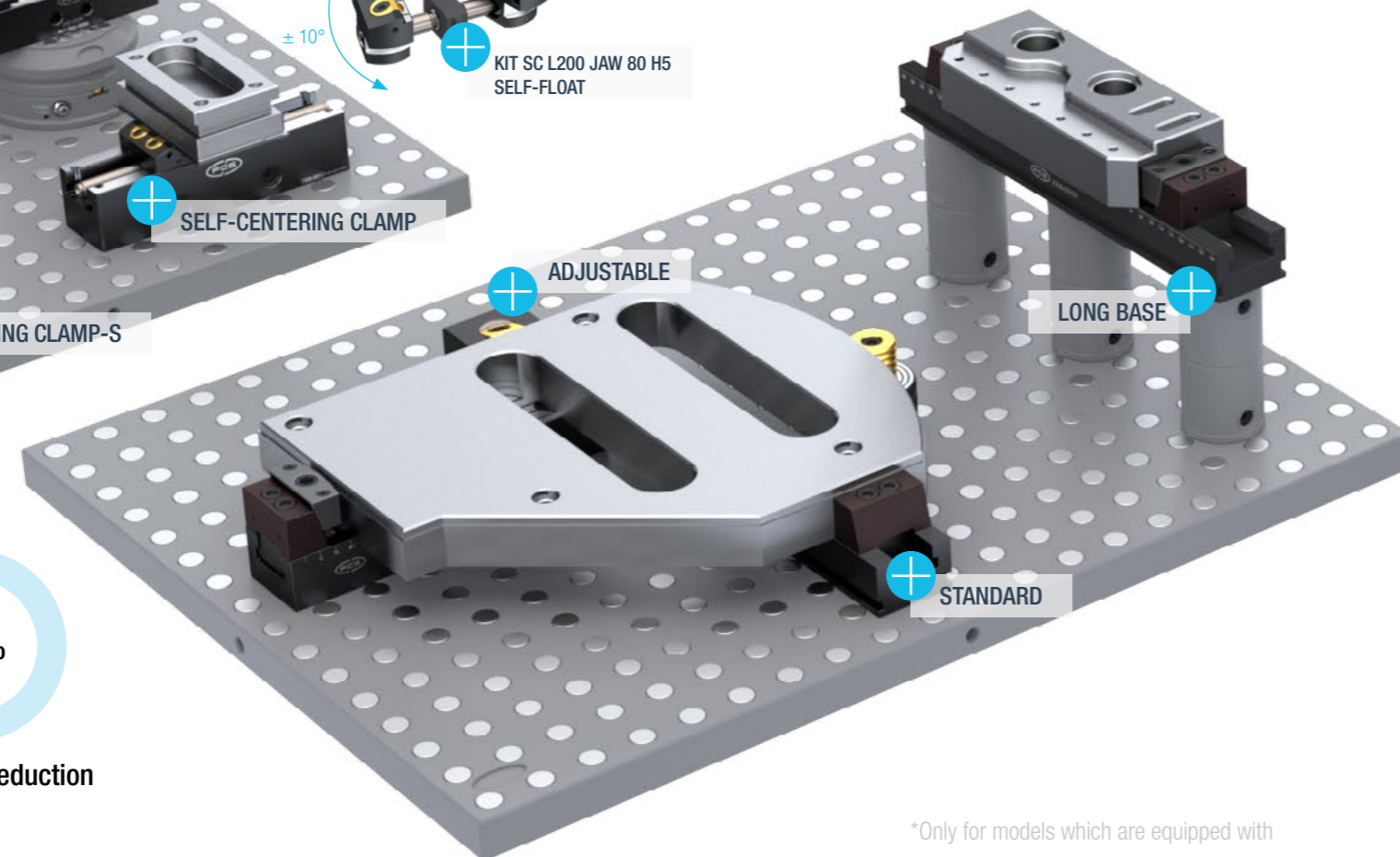


Set-up time reduction

MODULAR GRIP VISE

Key strenghts and main features

- Strong workpiece grip and stability by the following:
 - Main clamping system: wedge clamping mechanism with the option to transfer the clamping force only horizontally;
 - Auxiliary clamping system: gripping insert system*;
 - Adjustable levelling system* (PATENT PENDING);
- High gripping flexibility:
 - different shapes of gripping jaws;
 - different types of inserts (for roughing and finishing)*;

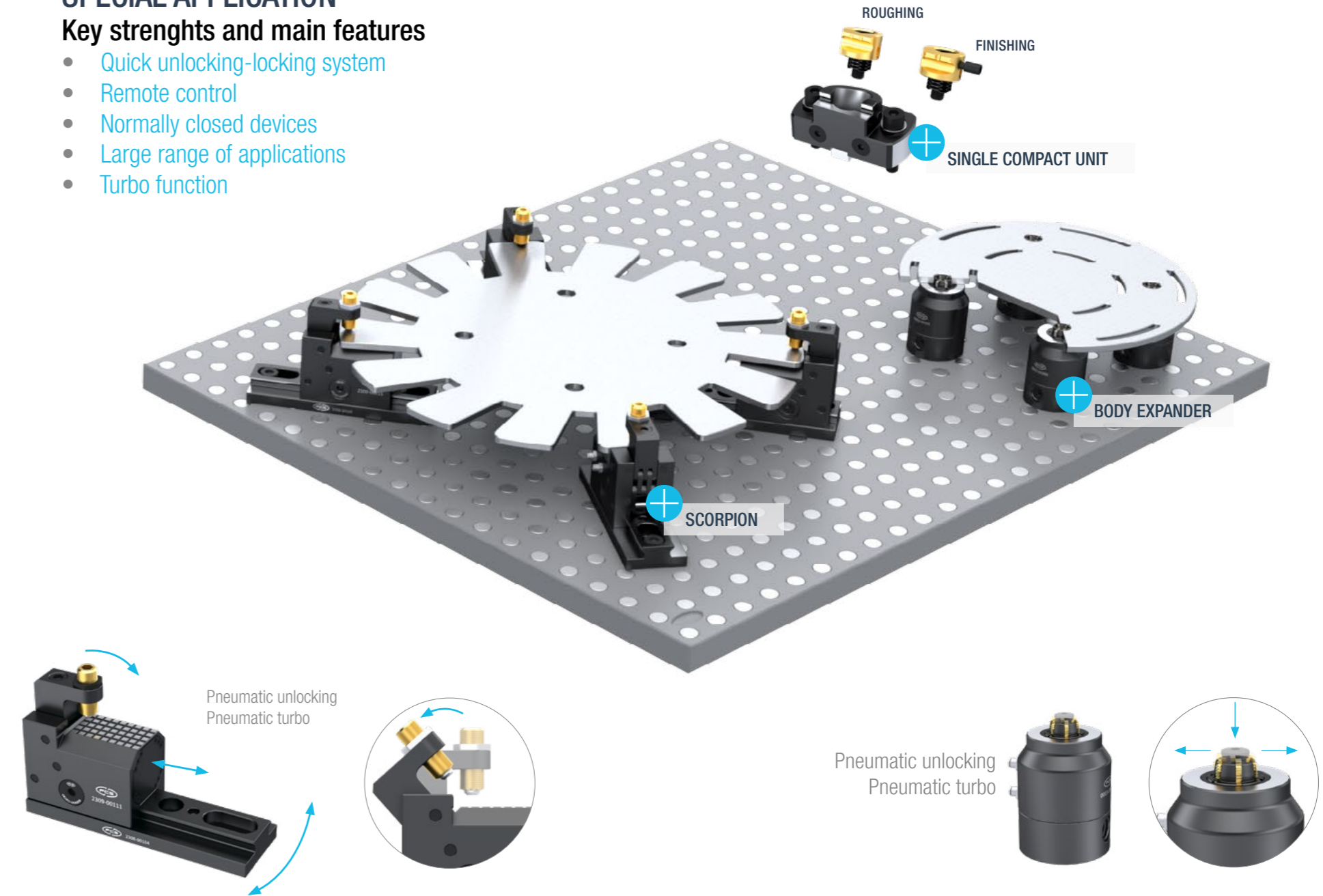


*Only for models which are equipped with

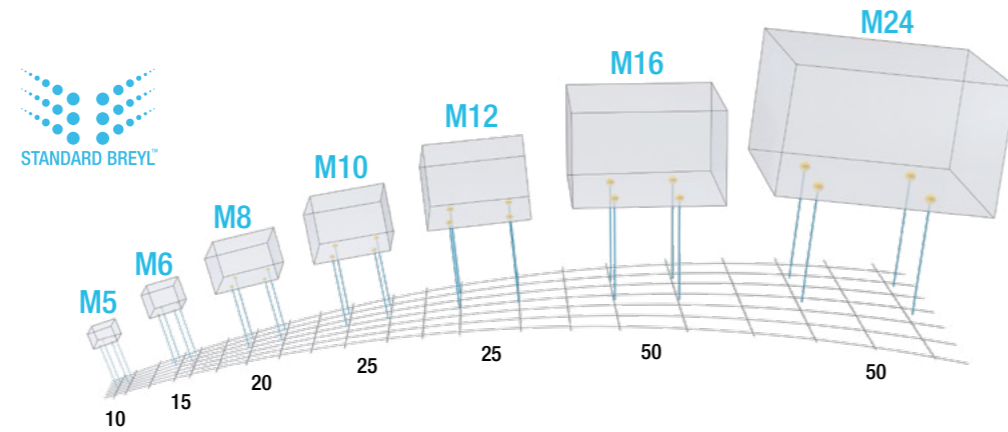
SPECIAL APPLICATION

Key strenghts and main features

- Quick unlocking-locking system
- Remote control
- Normally closed devices
- Large range of applications
- Turbo function

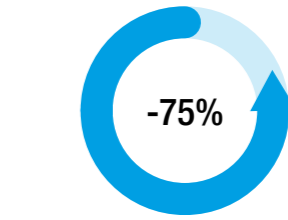


CLAMPING - Grip Vise



Key strengths and main features

- Workpiece always in an **accurate known position** and **orientation**
- **Modularity** in design and **different sizes** of components
- **High clamping forces** with **low torques** and **without forcing** the workpiece **geometry**
- **Minimized vibration**
- **High accuracy**
- **Set-up readjustment** and **adjustable components**
- **Process virtualization**
- **Free 5-faces**
- **Low and easy maintenance**



Set-up time reduction



Higher machine utilization

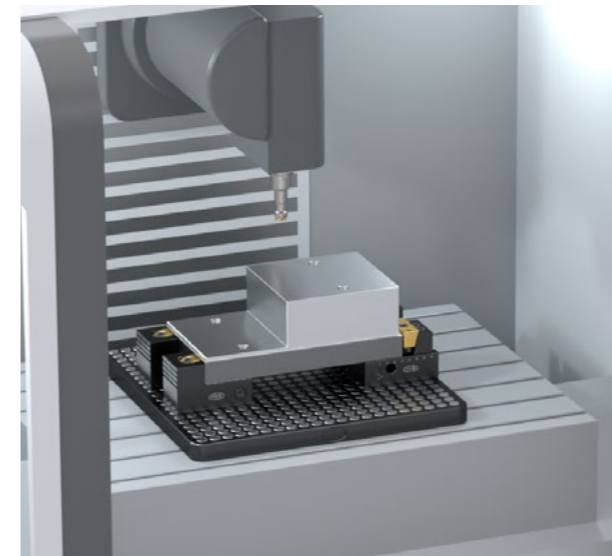
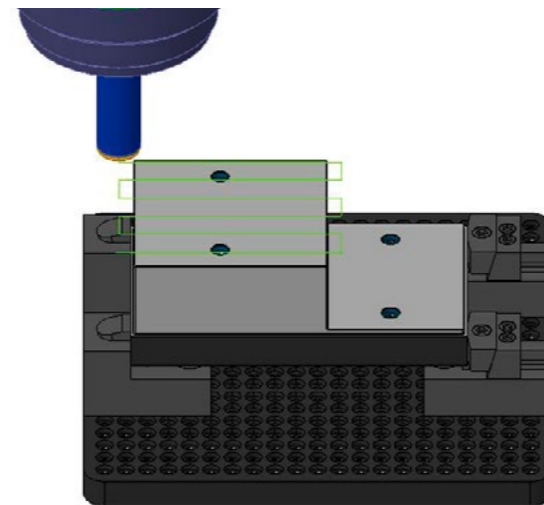
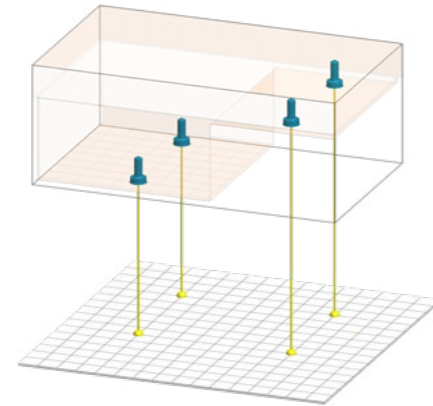
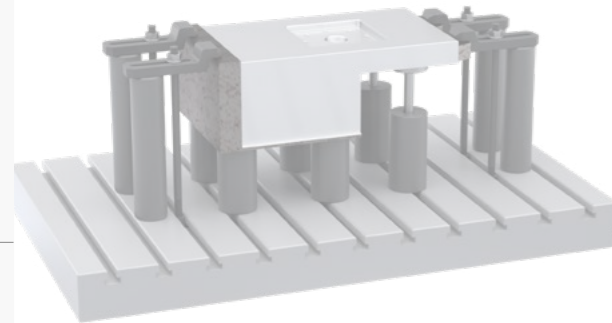
Traditional method

FCS clamping method - Production process

Multipallet system

VIRTUAL activities

REAL activities



CAD

3D Modelling of the workpiece, including also the clamping seats

CAM

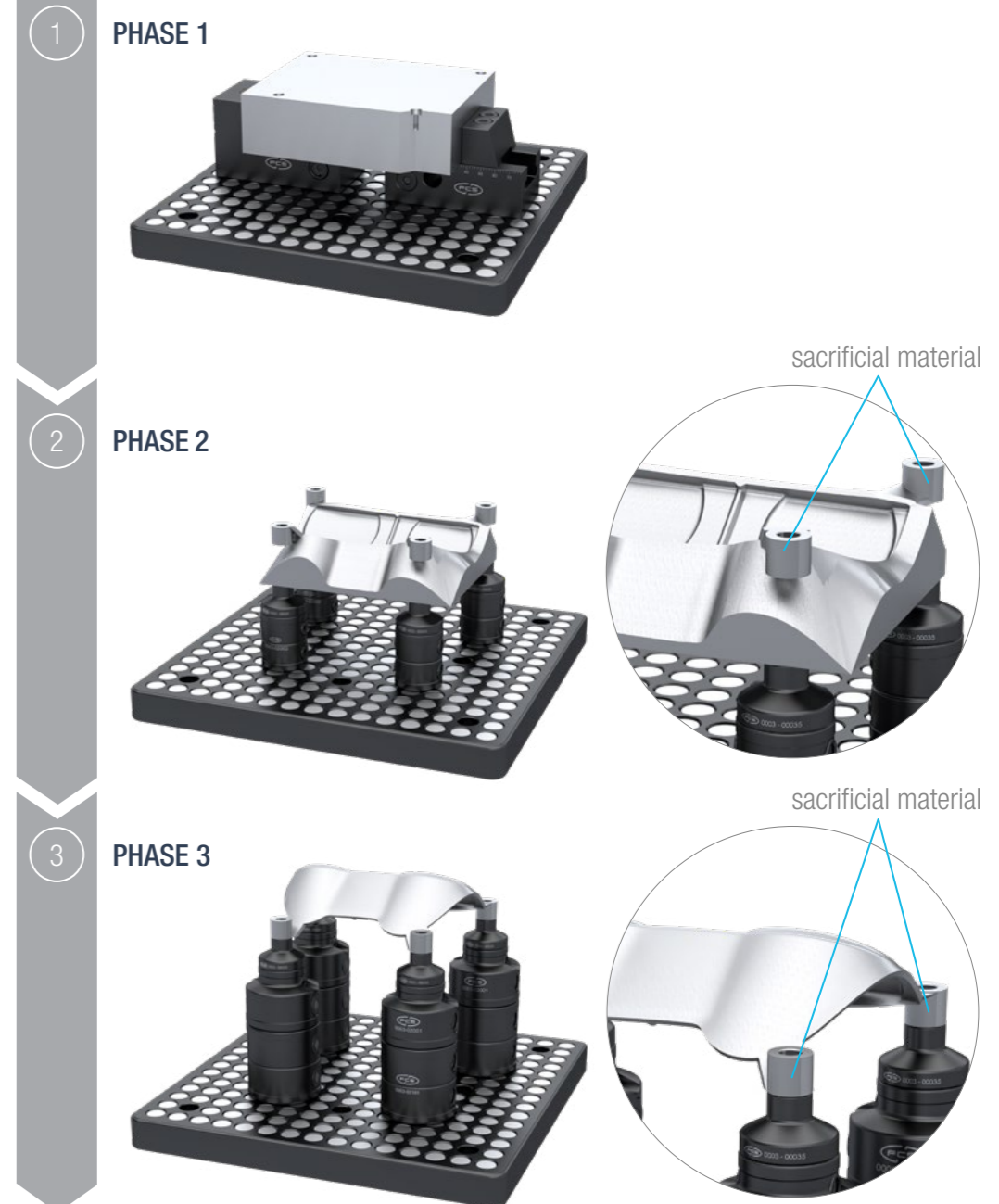
Virtual clamping of the workpiece per each production phase

WORKPIECE MACHINING - VISES

Workpiece clamped by Modular Vises

WORKPIECE MACHINING - CLAMPS

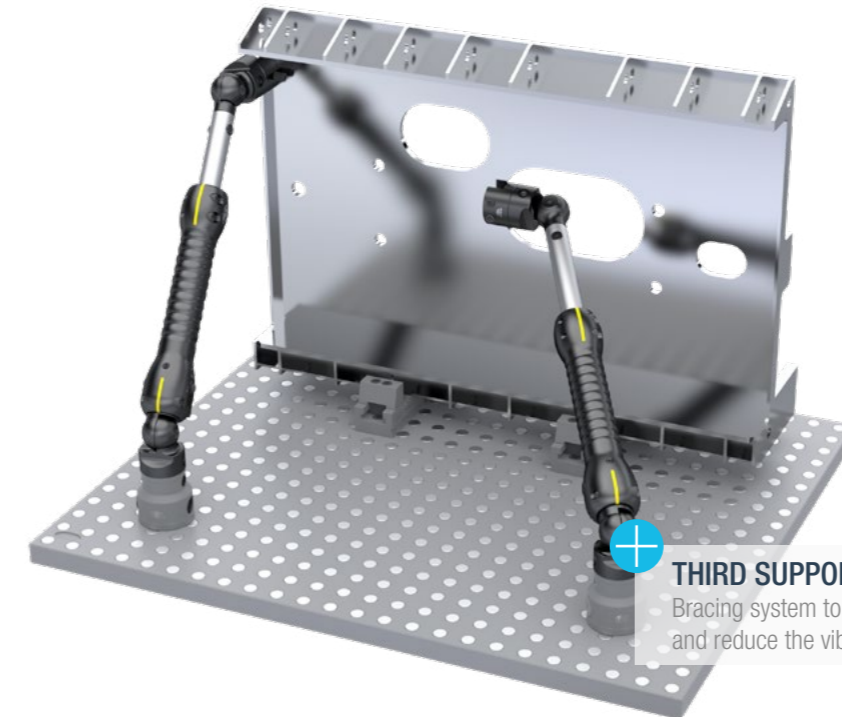
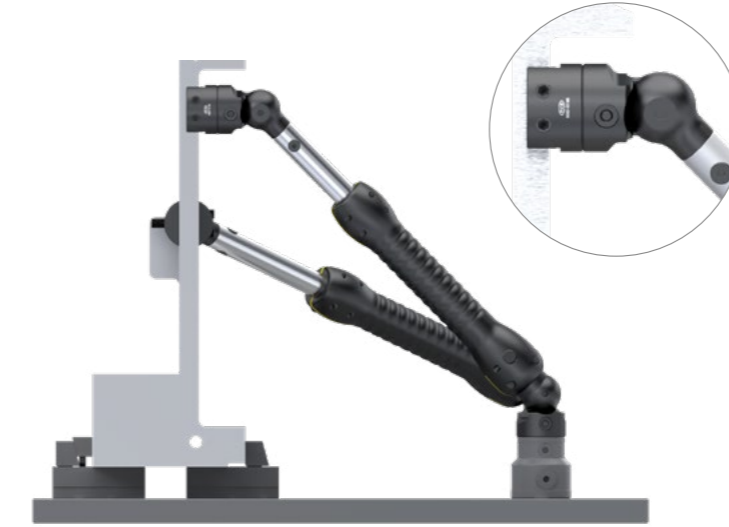
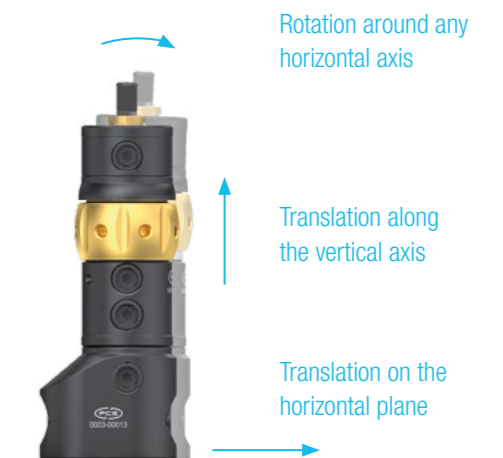
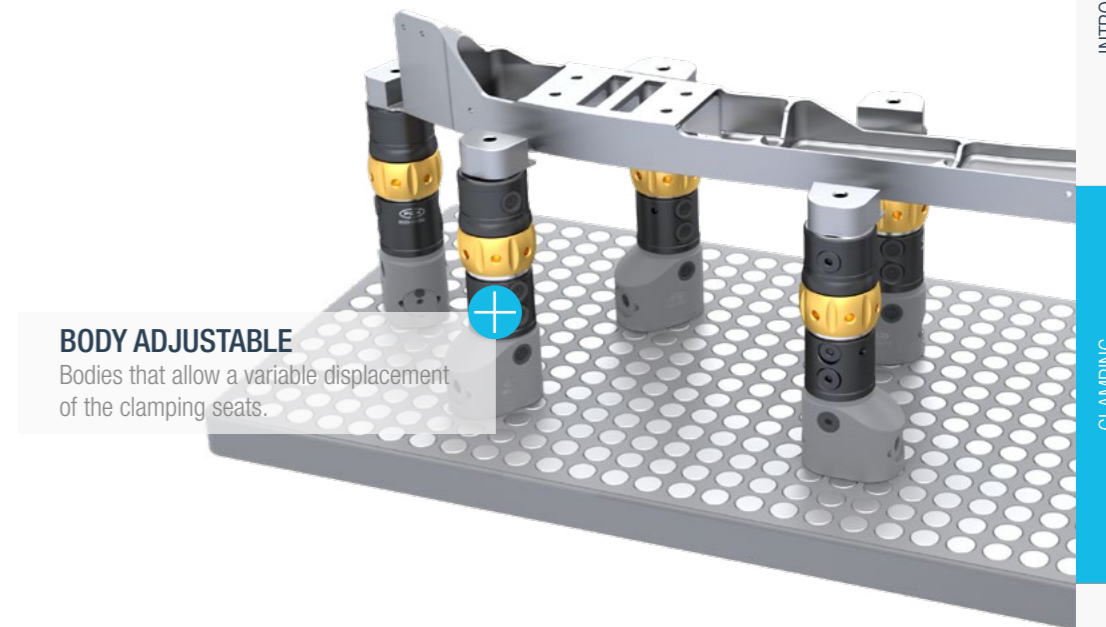
Workpiece clamped by Bodies, Rings and Rods, etc.

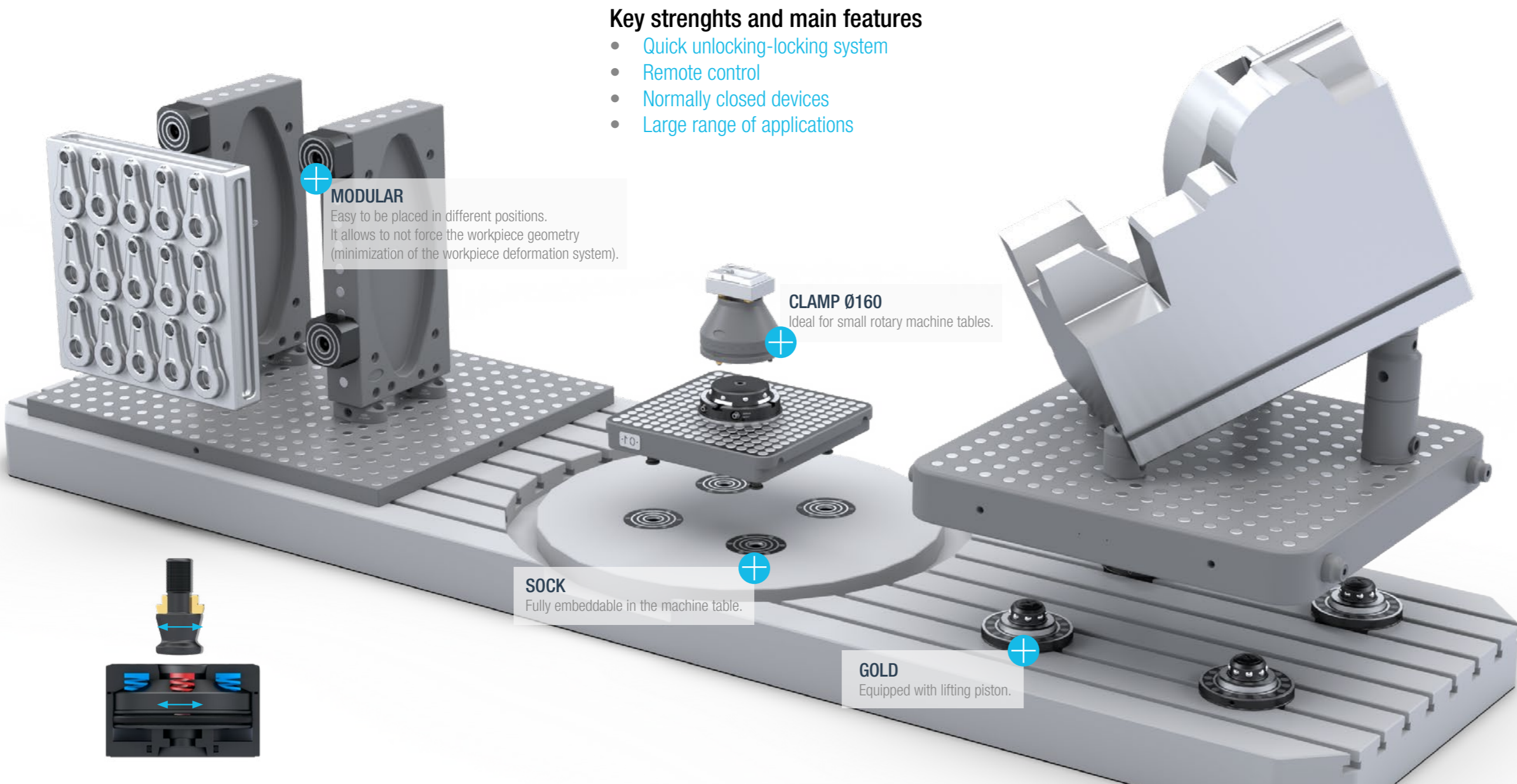
HORIZONTAL *Clamping*CLAMPING - *Manual Clamp*

VERTICAL Clamping



ADJUSTABLE Clamping

CLAMPING - *Manual Clamp*



Key strenghts and main features

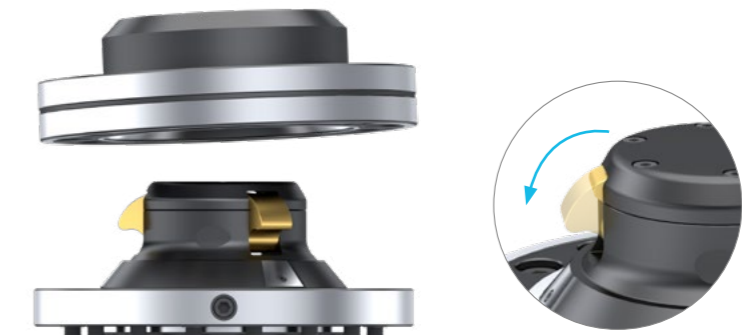
- Quick unlocking-locking system
- Remote control
- Normally closed devices
- Large range of applications

MODULAR
Easy to be placed in different positions.
It allows to not force the workpiece geometry
(minimization of the workpiece deformation system).

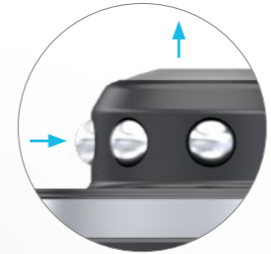
CLAMP Ø160
Ideal for small rotary machine tables.

SOCK
Fully embeddable in the machine table.

GOLD
Equipped with lifting piston.



SPIDER
It allows engagement without
precise planarity and coassiality.



MOTION | Automation - *Tool Changer*

Key strenghts and main features

- **Modular** structure
- **Expansion** for existing tool magazine
- **Tower** structure for space-saving
- **Customized tool configuration**
- **Customized arm**
- **PLC connection** with **CNC** machine or **FCS MES**
- **Tool holder types** (Max tool length and diameter 650mm, Ø325mm):
 - HSK 50-63-80-100
 - ISO 40-45-50
 - BT 30-40-50
 - CAPTO C6-C8-C10



ST46 Tool changer

ST46 1.2 (ROTARY)
 HANDLING CAPACITY (MAX TOOL WEIGHT) (kg): 15
 OVERALL DIMENSIONS (mm): 1300x1750
 H3000-H3500
 MAX TOOL SIZE (mm): Ø125, L600
 STORAGE CAPACITY (mm)***: From 100 to 150 tools
 MACHINES ENSLAVED: MANY

ST46 1.8 (ROTARY)
 HANDLING CAPACITY (MAX TOOL WEIGHT) (kg): 25
 OVERALL DIMENSIONS (mm): 1800x2250
 H3000-H3500
 MAX TOOL SIZE (mm): Ø125, L600
 STORAGE CAPACITY (mm)***: From 120 to 180 tools
 MACHINES ENSLAVED: MANY

ST46 2.3 (ROTARY)
 HANDLING CAPACITY (MAX TOOL WEIGHT) (kg): 25
 OVERALL DIMENSIONS (mm): 2300x2750
 H3000-H3500
 MAX TOOL SIZE (mm): Ø125, L600
 STORAGE CAPACITY (mm)***: From 160 to 300 tools
 MACHINES ENSLAVED: MANY

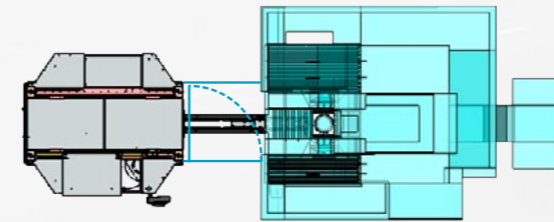
ST46 1.5 (LINEAR)
 HANDLING CAPACITY (MAX TOOL WEIGHT) (kg): 35
 OVERALL DIMENSIONS (mm): 1500x(2000x1680xN of modules) H3500
 MAX TOOL SIZE (mm): Ø325, L600
 STORAGE CAPACITY (mm)***: From 80+50xN to 150+120xN tools
 MACHINES ENSLAVED: MANY

***For further details see the corresponding catalogue.

MOTION | Automation - *Pallet Changer*

Key strenghts and main features

- **Compact design**
- **Configurable pallet storage** different levels and pallet sizes
- **High arm elongation** y-stroke
- **Machines enslaved** 1



FIX 400
 HANDLING CAPACITY (kg): 350*
 MAX PALLET SIZE (mm): 400x400
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 24 - 250x250 H450*, 16 - 350x350 H450*, 12 - 450x450 H450*

FIX 650
 HANDLING CAPACITY (kg): 1500*
 MAX PALLET SIZE (mm): 650x650
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 6 - Ø1000, H900*



FIX Pallet changer

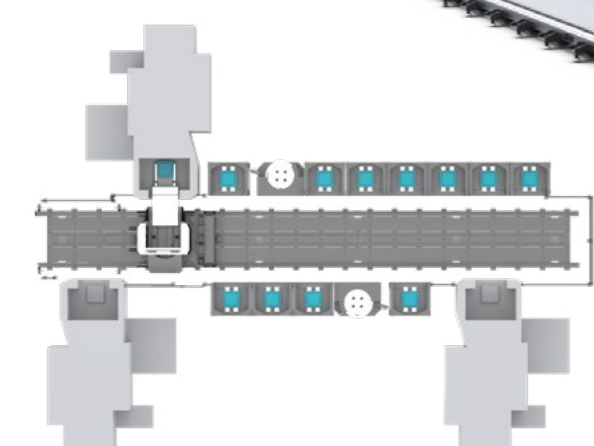
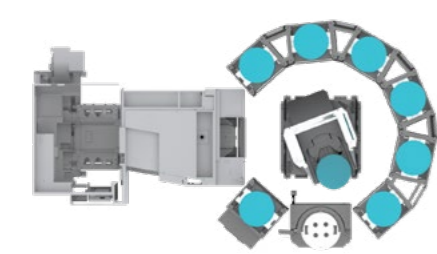
*Pallet+Workpiece

Key strenghts and main features

- Vertical axis allows to handle different workpiece heights
- Configurable layout based on user's needs
- Enslavement of more CNC machines
- Machines enslaved 1 or 2 (rotary) – many (linear)



RP Pallet changer



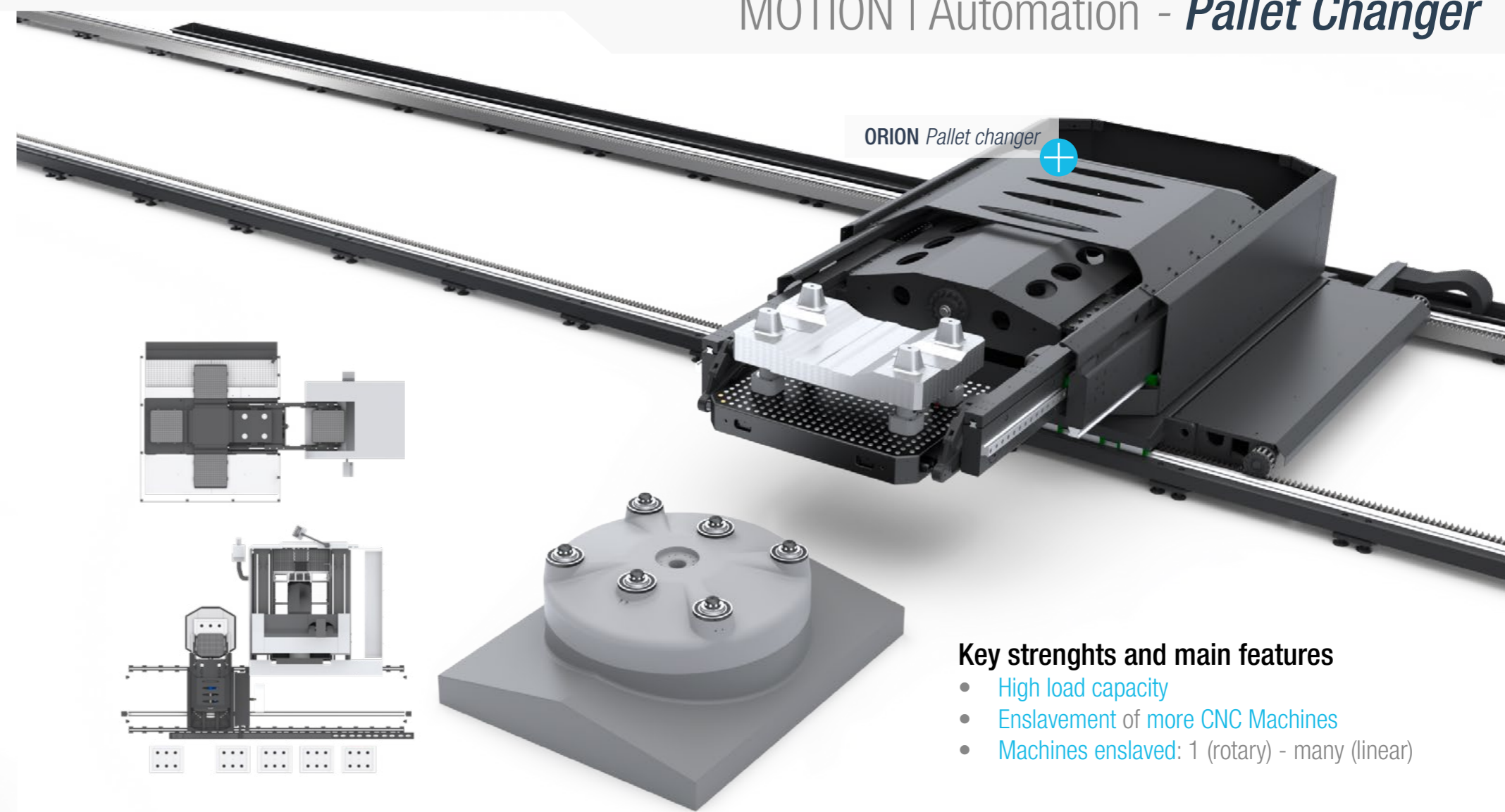
RP 400 (H3250, H3750) (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 500*
 MAX PALLET SIZE (mm): 400x400
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 custom-configured - Ø600, H800*

RP 600 (H3250, H3750) (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 1000*
 MAX PALLET SIZE (mm): 650x650
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 custom-configured - Ø900, H1000*

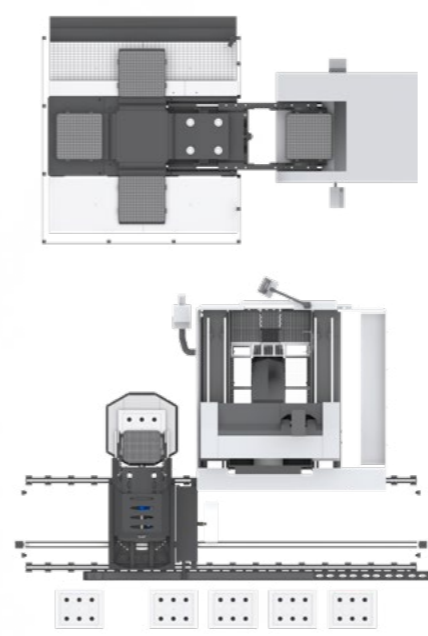
RP 800 (H3250, H3750) (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 1500*
 MAX PALLET SIZE (mm): 800x800
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 custom-configured - Ø1250, H1200*

RP 1000 (H3250, H3750) (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 3100*
 MAX PALLET SIZE (mm): 1000x1000
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 custom-configured - Ø1600, H1600*

*Pallet+Workpiece



ORION Pallet changer



Key strenghts and main features

- High load capacity
- Enslavement of more CNC Machines
- Machines enslaved: 1 (rotary) - many (linear)

ORION 500 (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 1000*
 MAX PALLET SIZE (mm): 500x500
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 8 (ROTARY), custom-configured
 (LINEAR) - 550x550, H**

ORION 800 (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): 2000*
 MAX PALLET SIZE (mm): 800x800
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 4 (ROTARY), custom-configured
 (LINEAR) - 850x850, H**

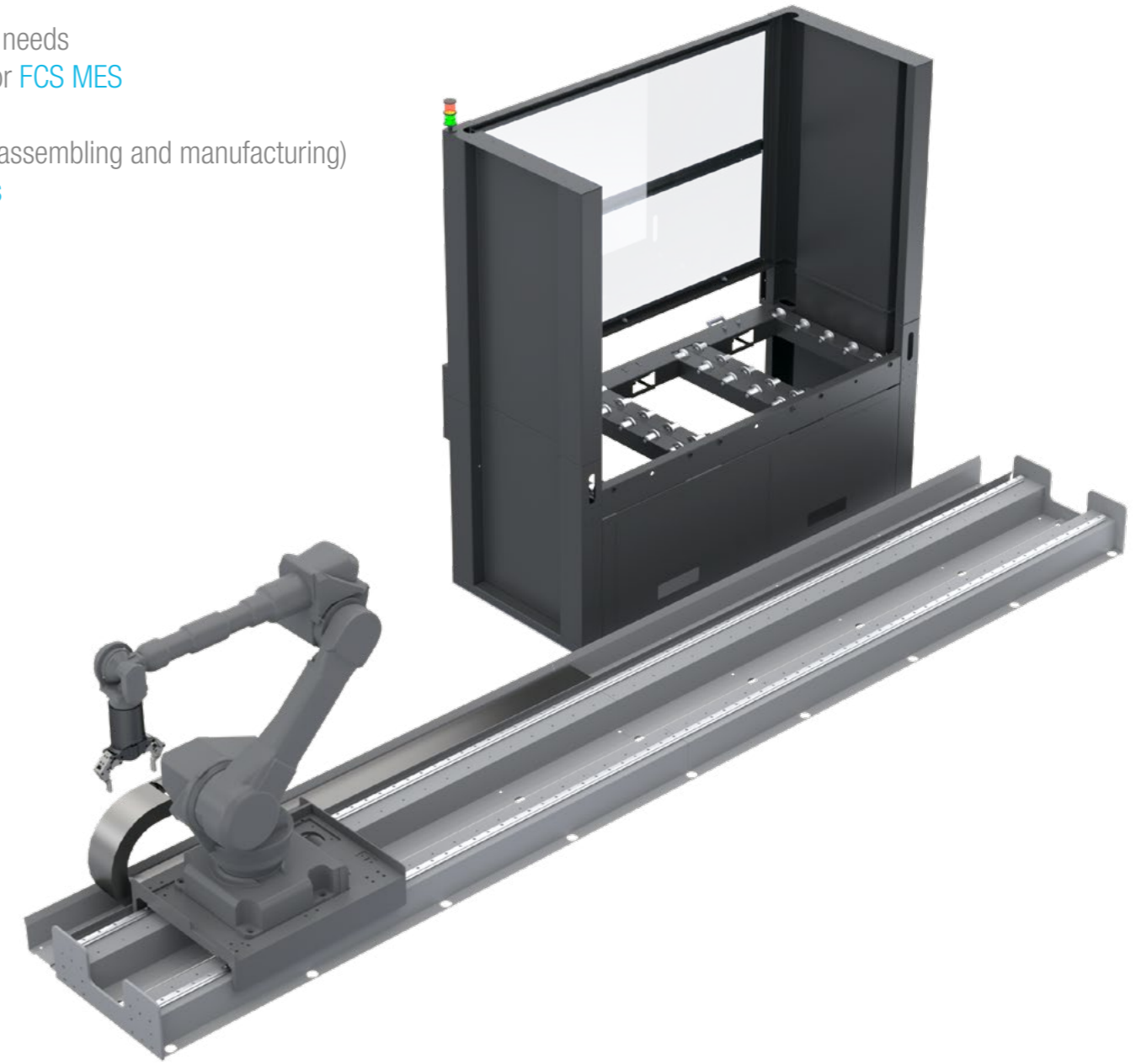
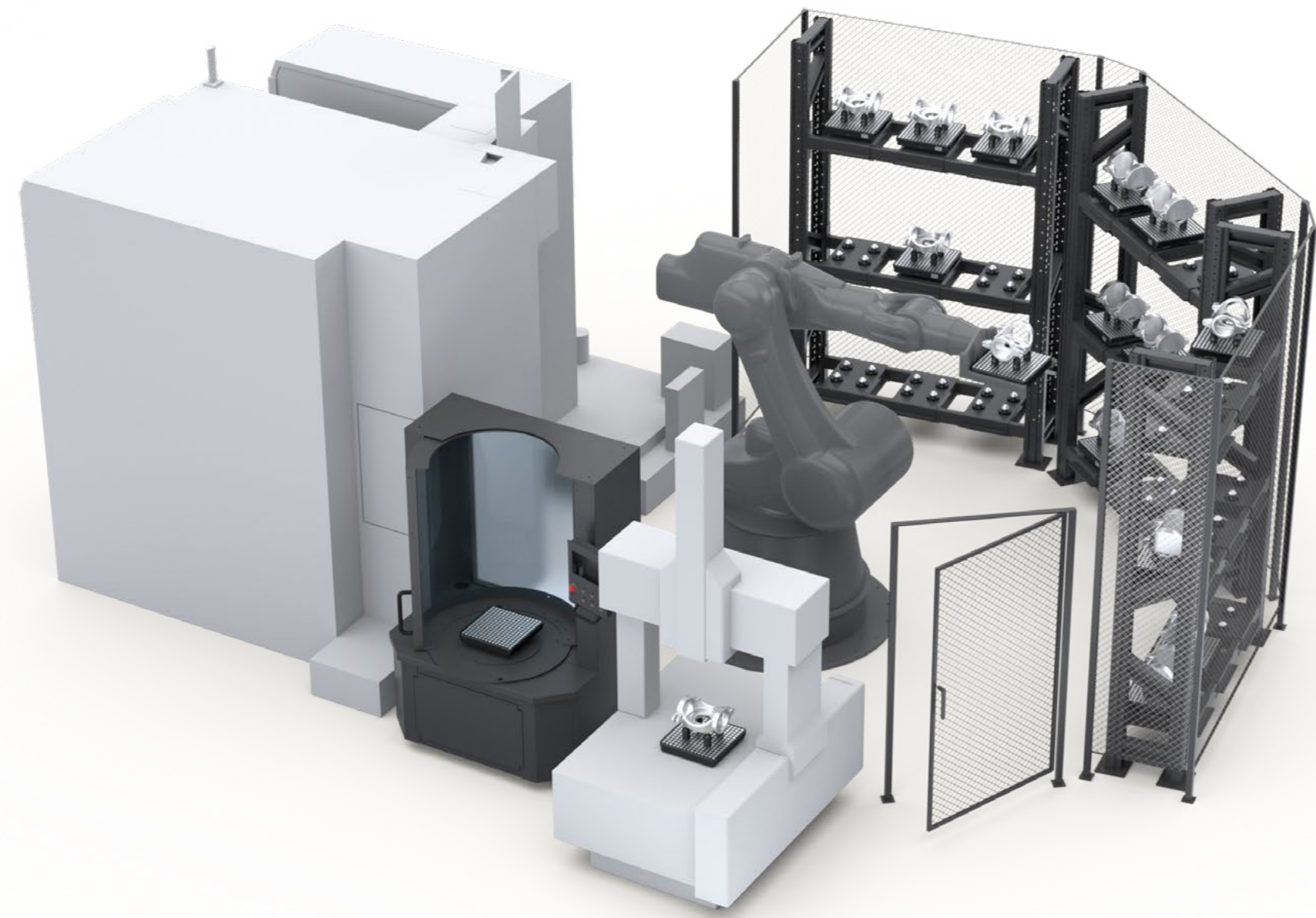
ORION 1000 (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): up to 10000*
 MAX PALLET SIZE (mm): 1000x1000
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 4 (ROTARY), custom-configured
 (LINEAR) - 1050x1050, H**

ORION 1200 (ROTARY, LINEAR)
 HANDLING CAPACITY (kg): up to 10000*
 MAX PALLET SIZE (mm): 1200x1200
 STORAGE CAPACITY - WORKPIECE SIZE (mm):
 4 (ROTARY), custom-configured
 (LINEAR) - 1250x1250, H**

* Pallet + Workpiece.
 ** Height depending on the CNC machine.

Key strenghts and main features

- Configurable layout based on user's needs
- PLC connection with CNC Machine or FCS MES
- Customized FCS grippers
- Wide range of operations (handling, assembling and manufacturing)
- Interaction with more CNC Machines



Application examples of flexible manufacturing cells.

INTRODUCTION

CLAMPING
Modular Visers / Manual Clamp
Automatic Clamp

MOTION | Automation
Tool Changer / Pallet Changer
Robotic Solutions

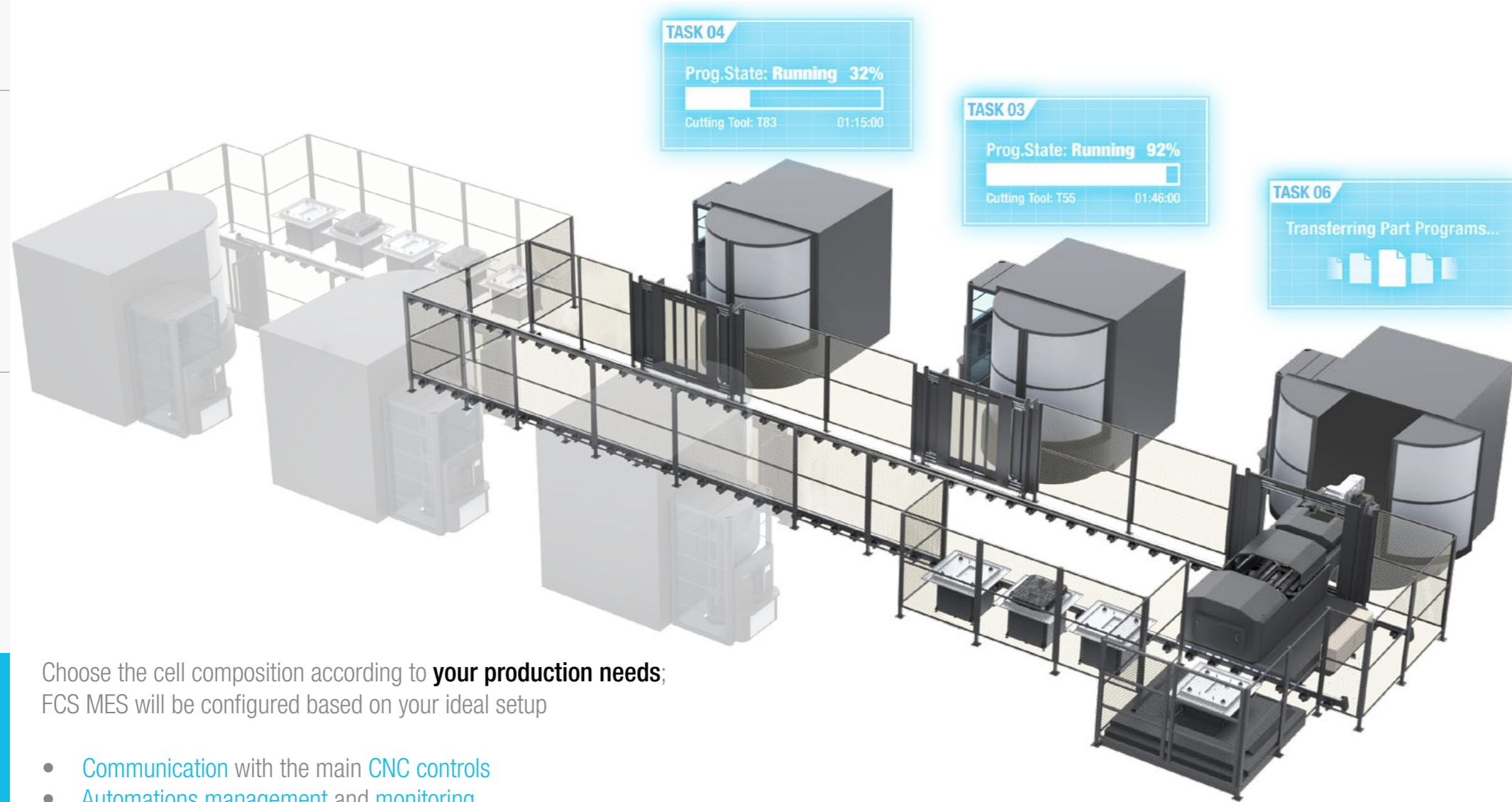
SOFTWARE
FCS MES / Supervisor

INTRODUCTION

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Automatic Clamp

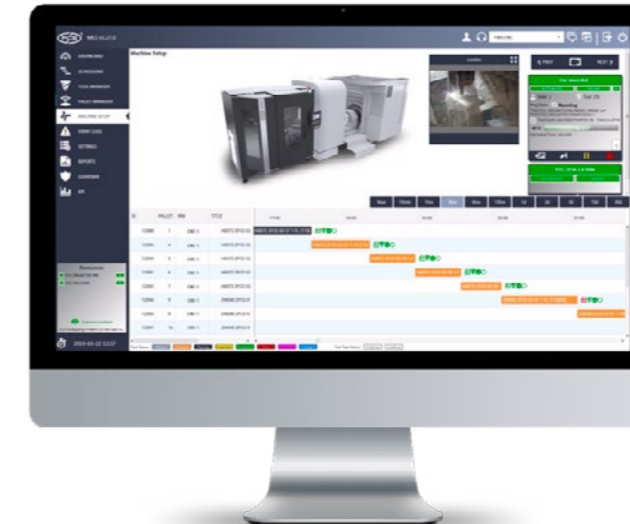
MOTION | Automation
Tool Changer / Pallet Changer
Robotic Solutions

SOFTWARE
FCS MES / Supervisor



Choose the cell composition according to **your production needs**;
FCS MES will be configured based on your ideal setup

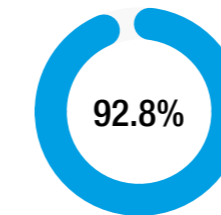
- Communication with the main CNC controls
- Automations management and monitoring
- Modular design for following the production cell expansion



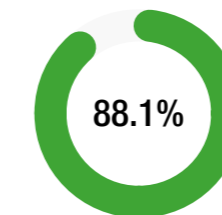
Simple and intuitive **USER Experience**

The user is guided in the machining setup following a safe and always controlled process

- CAM data import
- Dynamic and flexible scheduling
- Production data monitoring *(cutting tools, pallets, files, etc.)
- Automated creation of the launch file
- Notification alerts
- KPI charts for the performances evaluations



Utilization



Availability



Connected to your **IT Ecosystem**

FCS MES grows together with the companies and makes available the productions data to the **management systems**

- Stored Procedure communication
- Web Service communication

* The full functionality of the FCS MES software is conditioned by the information availability provided by the CNC control.



Integrated systems for production

Scan to get
full access to FCS
products information



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