8760 Fastems

360° Automation for 4 and 5 Axis Machine Tools.

Flexible Pallet System FPS

Extendable automation for high mix manufacturing.

- **4 AND 5 AXIS MACHINES** with and without APC units
- **CONFIGURABLE SOLUTION** for any shop floor
- **EASILY SCALABLE** for more machine tools
- **SERVICE** to maintain, extend and develop your FPS

Flexible Pallet System is a modular CNC automation solution that enables lights-out manufacturing and high spindle utilization with 4- and 5-axis milling and mill-turn machine tools. What sets it apart from other solutions are its modular 360-degree design, integration capability with over 90 machine brands, and state-of-art MMS production planning capabilities. FPS can be extended or upgraded if there is a change in production needs.
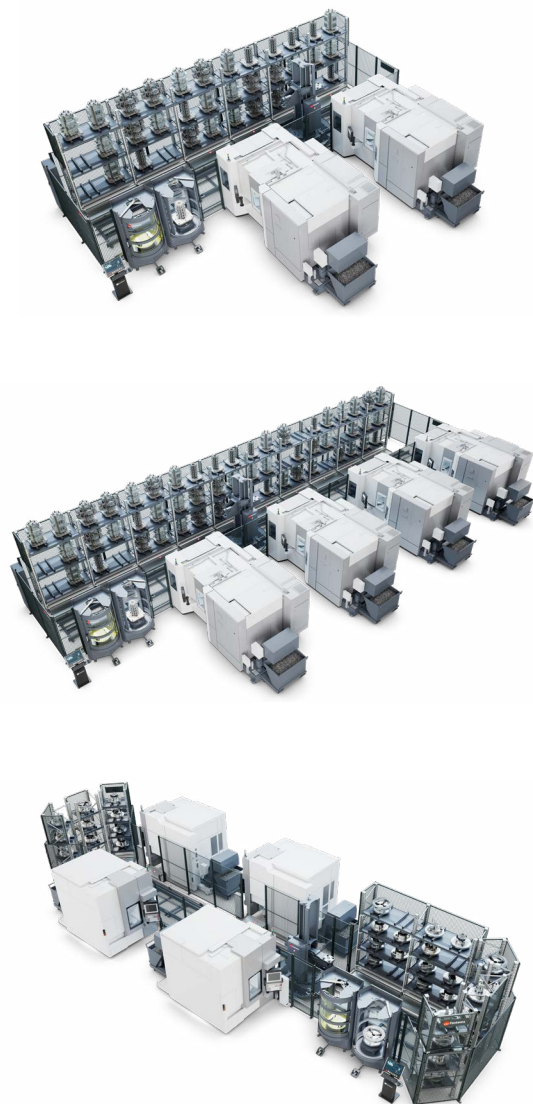
Productivity Comparison with 3 Machine Tools

Triple results

	No automation	with FPS
Investment cost 3 machine tools*	$ 1,200,000	**$ 1,200,000**
Investment cost automation	$ 0	**$ 900,000 ***
Machine tool utilization rate	40 %	**85 % ***
Machining hours / year****	4,800 h	**15,300 h**
Total income per year (machining sales price $ 100 / h)	$ 480,000	**$ 1,530,000**
Payback time	2y 6m	**1y 4m**

*   calculated with a 5-axis HMCs

**   includes automation, 18 pallets and needed machine tool modifications

*** no spindle time loss due manual setup changes + unmanned night shift

**** 50 weeks, 5 days per week, 2 manned shifts (+1 unmanned when automated) per day

Comparison on 3 types of standardized automation systems

|	Machine tool with APC	Pallet pool / tower	Flexible Pallet System (FPS)
Pallets per machine tool	2	12	**Unlimited**
Machine tool brands	–	Limited	**Any**
New or existing machine tools	New	New	**Both**
Machine tools controlled by 1 operator	1	1	**Many**
Shared fixtures between machine tools	–	No	✓
Extendable system	–	No	✓
Cost of extension	Buy a new machine	Buy a new system	**Cost effective extension**
Unmanned production capacity (pallets)	1	12	**Unlimited**
Production reports	No	Per machine	**Entire system**
Real-time automatic KPI reports	–	No	✓
Order priority	Manual	Manual	**Automatic**
Auto-scheduling	–	No	✓
Production order management	–	No	✓
System efficiency	Low	High	**Very high**
Tool data & scheduling	No	No	**Yes**

Build Your Own FPS

FPS is modular system that handles machining pallets and zero-point plates of 300-630 mm. Its unique 360-degree design ensures a fit for any shop floor – the machine tools, pallet storage units, and operator loading stations can be placed flexibly on all four sides of the system. Build yours!
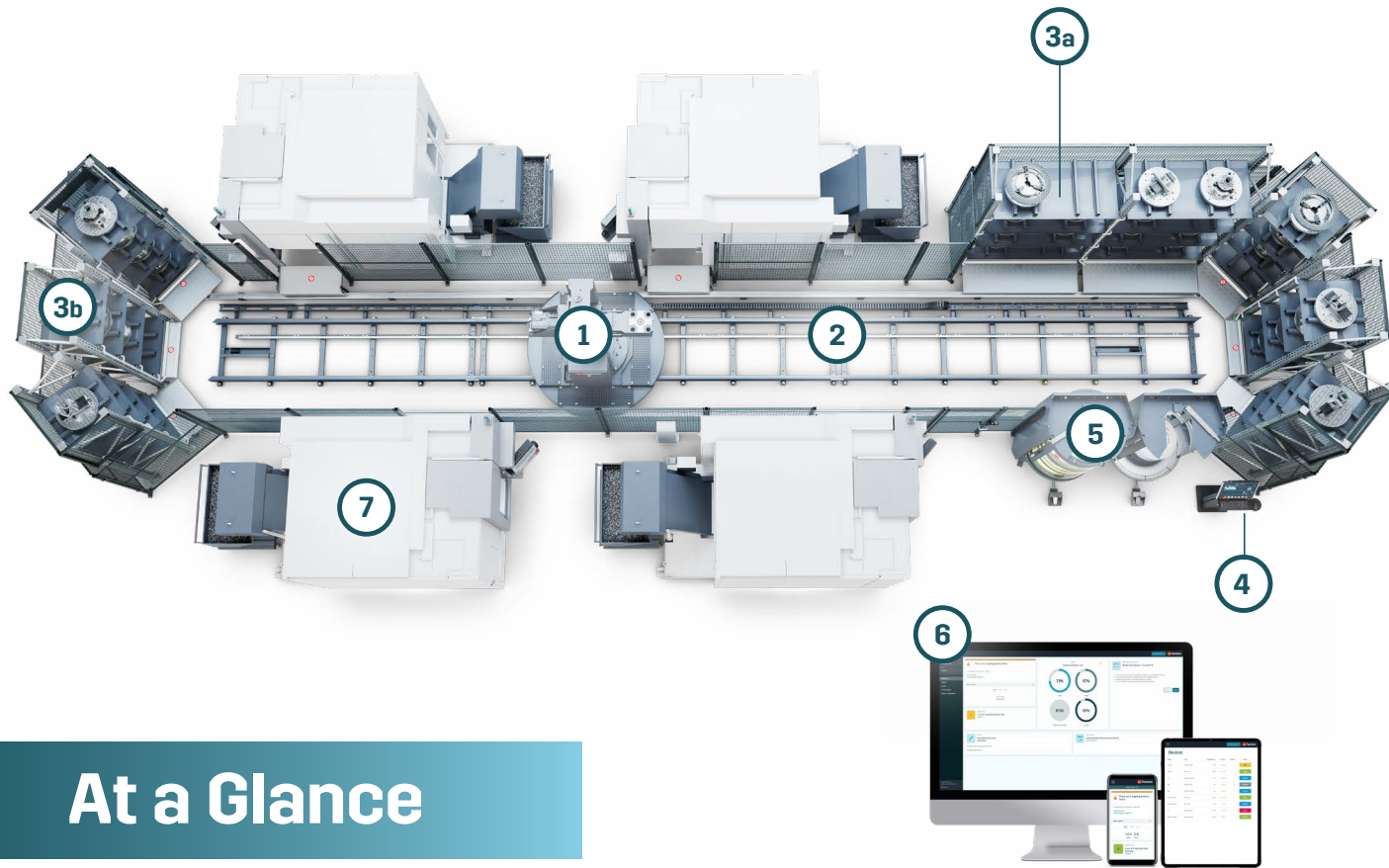
At a Glance

① **Pallet manipulator**
   • 360-degree pallet transportation
   • Long reach

② **Manipulator rail**
   • build the system that fits on your floor
   a) 6-meter module
   b) 3-meter module

③ **Pallet storage**
   • configurable for different load heights
   • two different heights per system
   a) Side module for 4-8 pallets
   b) End module for 6-12 pallets

④ **Cell controller**
   • touch operating panel
   • ergonomic with adjustable height

⑤ **Loading station**
   • ergonomic operation
   • clamping and unloading the parts
   • at a glance system status

⑥ **myFastems**
   • easy system maintenance with immediate connection to Fastems service

⑦ **Machine tool(s)**
   • with or without automatic pallet changer
   • 300 to 630 mm pallets
   • over 90 brands already integrated with Fastems

6 m

3 m

4-8 pallets per module,
details on page 10

6-12 pallets per end storage,
details on page 10
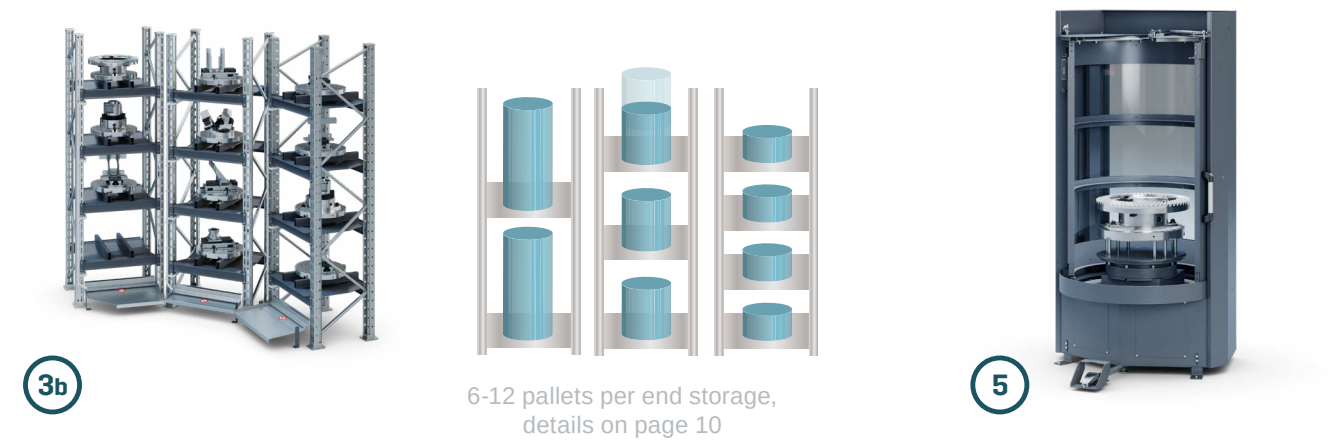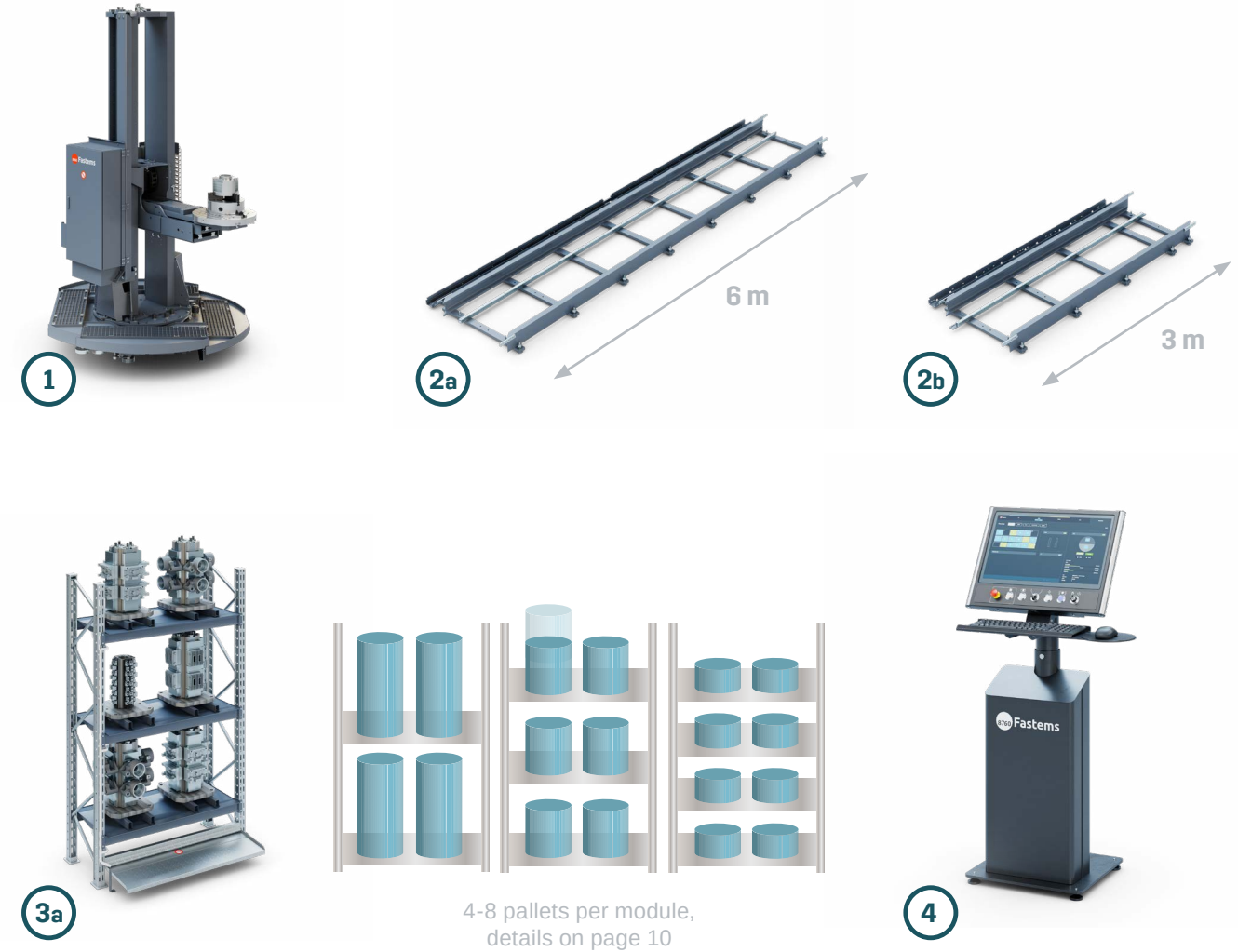
Technical specs and dimensions on page 10.

Manufacturing Management Software MMS

· Automatic production scheduling

· Ready-made interfaces for hundreds of machine tools

· Recognizes resource bottlenecks in advance

· Automatic KPI reporting

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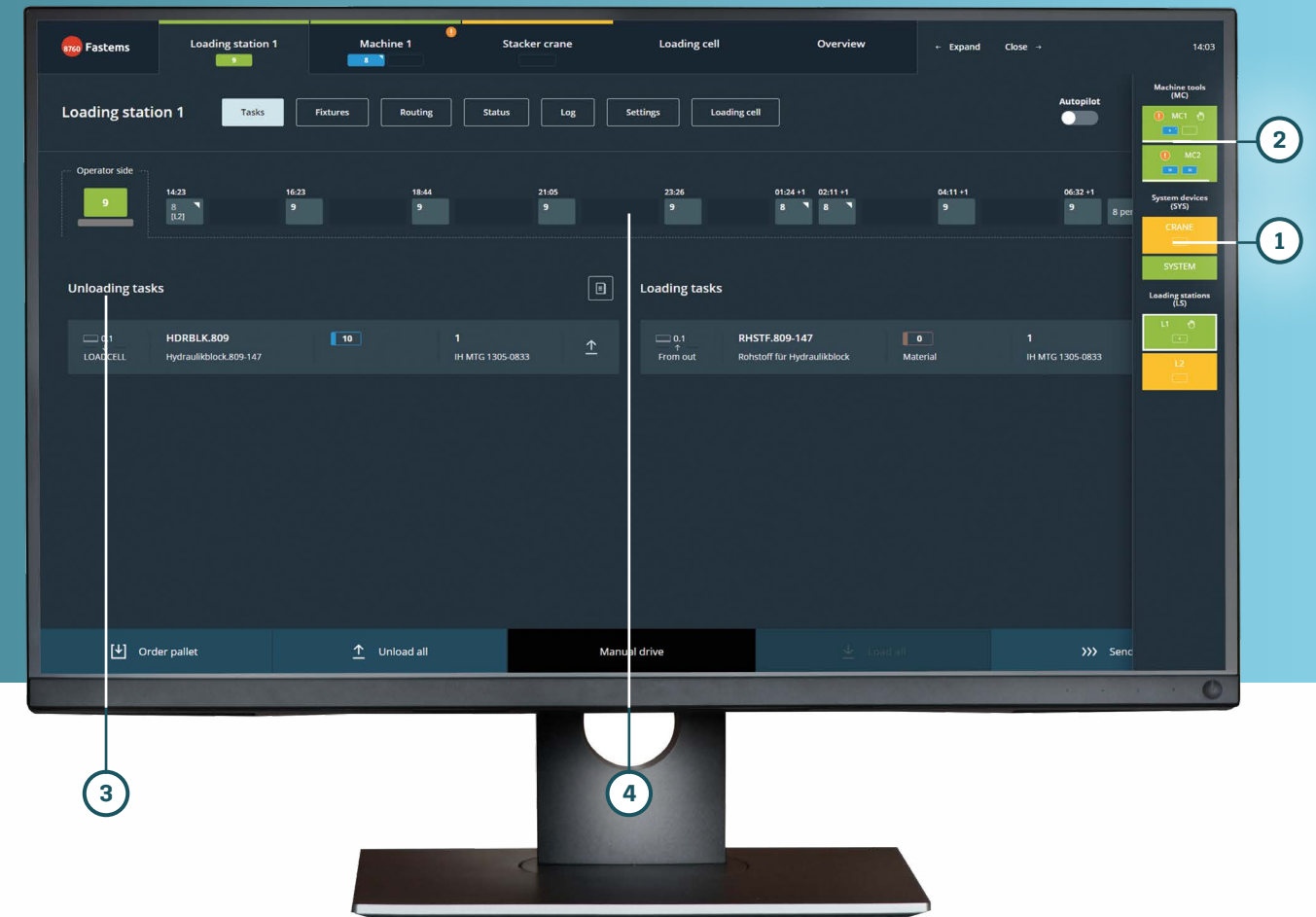
Easy Production Control

The control system of FPS, Manufacturing Management Software MMS, is designed specifically for high-mix manufacturing needs. It is a tool for everyone working in production or managing it, giving a real-time view of production activities. Most importantly, it identifies exactly what needs to be done next to ensure timely deliveries and maximum spindle utilization.

Not only does the MMS consider the pallets that need to be loaded in the machine tools next, but it also checks and ensures that all the other machining resources are there in time – NC programs, cutting tools, and raw materials. When a rush job is received or anything sudden happens, MMS automatically adjusts the production plan.

Choose from 3 MMS Plans

STANDARD

Easy to operate - enabling continuous, unattended production for you.

• Pallets are machined based on order-based work queue or FIFO.
• Intuitive user interface with guidance helps operator to focus on the most important tasks.
• Optional ERP interface.

ADVANCED

Offers transparent and predictive ways to keep you in control.

• Fine scheduling includes production order and resource simulation for up to 96 hours in advance.
• The MMS checks that all the needed NC programs and tools are available via machine tool integration.
• Order completion dates are calculated up to 6 months ahead.

ULTIMATE

Utilize your existing manufacturing data.

• Define your key performance indicators and view them at a glance with customizable Dashboard.
• Real-time machine status monitoring for continuous production optimization.
• Real-time remote monitoring with alarm functionality for unmanned production.

At a Glance

1 **Stacker crane status**

2 **Machine tool view**
  - With or without APC
  - Current NC program and machined part details

3 **Loading station status**

4 **Operator loading/ unloading backlog tasks**

5 **Machining schedule**

6 **Cutting tool tasks**
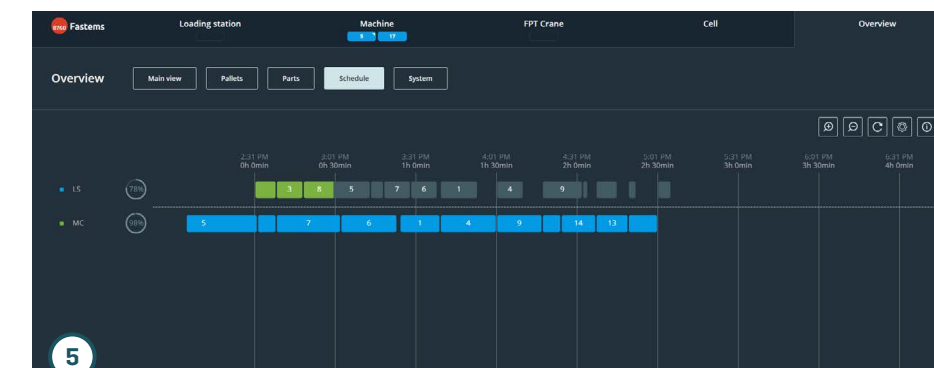
MMS can schedule production automatically based on production orders or FIFO.

WHEN	TOOL		REQUIRED	MISSING LIFE
2:38 PM	6001	Shoulder milling tool CoroMill 390	1 pcs	00:00:55
2:38 PM	6044	Ball nose cutter for roughing CoroMill® 216	16 pcs	05:40:05
2:38 PM	6056	Deep and narrow grooving CoroMill QD	3 pcs	02:10:10
4:41 PM	3006		3 pcs	03:07:16

MMS Advanced package enables tool planning and status views for the easier cutting tool maintenance.

Maintain extend, and develop...
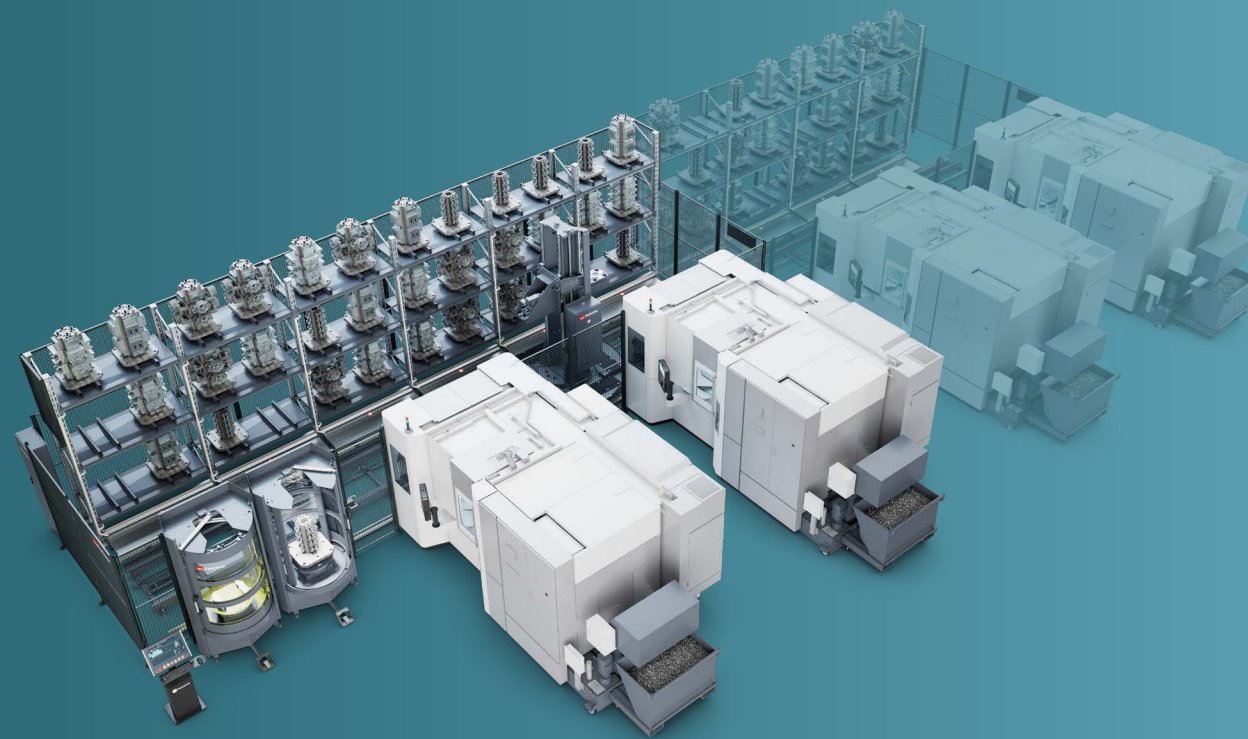
... throughout the whole life-cycle of your system..

Stay aware & optimize your system

myFastems – Your Digital Service

BE INFORMED

- Real-time information and notifications, accessible anywhere and anytime
- First-aid tips and recovery instructions available for proactive problem-solving

ENHANCED SERVICE MANAGEMENT

- Easy access to service history and reports
- Guided spare part inquiries with photos
- Recommendations on replacing spare part key components

WE ARE ONE CLICK AWAY

- Increase system' run time with direct access to our 24/7 assistance
- Get support more efficiently with error-coded support requests

EXTENDED PERSPECTIVE

- Follow service KPIs (utilization, automation index, MTBF, MTTR) for improvement opportunities based on measured data)
- Utilize the full potential of your system with optional monthly reports for comprehensive system insights.

Keep your systems running as they should, and more

Lifecycle Services

RELIABILITY – GENUINE FASTEMS SPARE PARTS

Spare part offerings
- Expert spare part support and engineering over the lifecycle
- Ensure the fitting spare parts for your system
- 12-month warranty for Fastems spare parts

Global delivery
- Flexible delivery globally
- Express shipment possibility within 24 hours for stock parts

SCALABILITY & ADAPTABILITY

Modify and extend when needed
- Enhance your system via software update and new modules
- Extend with additional hardware

Improve your competence throughout the whole life cycle through:
- Comprehensive training for operators and maintenance personnel
- Process optimization support by our experts
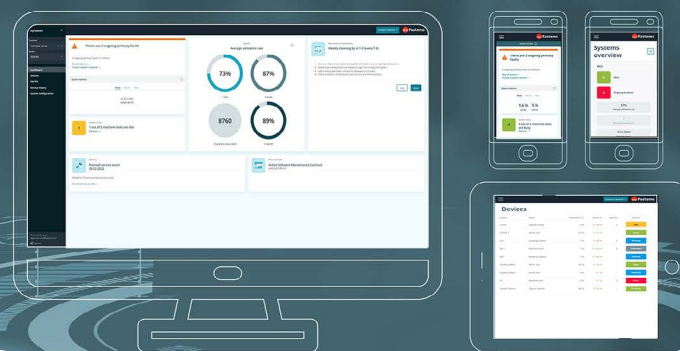
AVAILABILITY – SERVICE LEVELS

Selected services for your needs
- Preventive maintenance: scheduled on-site visits from Fastems experts
- 8760 support: professional 24/7 technical remote support

Continuous software advancement
Ensured reliability and performance of software system through:
- New functionalities and features
- Security and compliance updates

Technical Datasheet

FLEXIBLE PALLET SYSTEM		FPS-500			FPS-1000		
LOAD	Pallet sizes	300-500 mm			500-630 mm		
	Maximum load diameter (D)	Ø 630 mm (24.80")			Ø 900 mm (35.43")		
	Maximum load weight [1]	500 kg (1,102 lbs)			1,000 kg (2,205 lbs)		
STORAGE MODULES	Maximum load height (H) [1]	1,200 mm (47.24")	600 mm (23.62")	300 mm (11.81")	1,200 mm (47.24")	800 mm (31.50")	450 mm (17.72")
	Storage levels	2	3	4	2	3	4
	Pallets / side module	4	6	8	4	6	8
	Pallets / end module	6	9	12	6	9	12
STORAGE CAPACITY	Side modules / base system	4			3		
	Side modules / 6-meter extension	4			3		
	Side modules / 3-meter extension	2			1		
LENGTH	Base system length	7,120 mm (280.32")			7,280 mm (286.61")		
	6-meter extension length	5,960 mm (234.65")			6,120 mm (240.95")		
	3-meter extension length	2,980 mm (117.32")			3,010 mm (118.50")		
	End storage length	1,000 mm (39.37")			1,450 mm (57.09")		
WIDTH & HEIGHT	System width [2]	3,040 mm (119.69")			4,000 mm (157.48")		
	System height	3,100-3,650 mm (122.05-143.70")			3,500-4,100 mm (137.80-161.42")		
	Transport height	2,800 mm (110.24")			2,800 mm (110.24")		

WEIGHT
500 kg or
1,000 kg

H 350-1,200 mm

D 300-630 mm

FEATURES
- 2-4 pallet shelves depending on load height
- Modular solution for also low-ceiling facilities
- Can be installed next to a wall
- Extendable for multiple machine tools
- Integrated coolant handling
- Ergonomic MMS cell controller with touch panel

1 Including pallet
2 Excluding loading stations

Plan Your System

Rethink your CNC manufacturing.

▶ **Production is a team play. We help you to integrate your data systems, machines and people to work as ONE. By doing so you reduce costs, increase revenue, improve lead times and ensure consistent quality while minimizing waste, WIP and delays.**

Fastems supplies intelligent CNC automation, software and services for high mix CNC manufacturing. We are an open integrator with a library of ready-made machine interfaces for over 90 different machine tool brands.

KEY NUMBERS:

- 40+ years of automation experience
- 5,000+ installations in Europe, North America, and Asia
- extendable & long-life systems
- 24/7 customer support

Read more at
www.fastems.com/fps