

HELLER

5-axis
machining centres

F



HELLER solutions: **Knowing how it's done.**

5-axis machining to HELLER quality

Solid machine construction, sound process experience, a wealth of milling expertise – these are the basic ingredients for our F series 5-axis machining centres. The benefits to you are obvious: 5-axis machining with maximum output and top quality, even during continuous operation. The F series is the right choice for anyone wanting to perform numerous functions on one machine and produce reliably, not just today but in the future too.



All information available at:
www.heller.biz/en/f





Key facts

- _ universal 5-axis machining centres with the fifth axis in the tool
- _ flexible in use for powerful 5-sided and simultaneous 5-axis machining
- _ spindle units with swivel head or tilting head kinematics
- _ robust machine design, combined with powerful, high-torque spindle technology
- _ part costs optimised by reducing the number of clamping positions and machining in one set-up
- _ can be used for a wide range of different parts and materials
- _ machines with pallet changer (FP) are optimal for series production
- _ machines with table loading (FT) for workshop-based production and small batch sizes
- _ easy to automate with workpiece or pallet automation
- _ good range of sizes for a broad workpiece spectrum

At a glance



Machine concept

As with all HELLER machines, the main components of the F series were also computed by means of the FEM method. The result is a machine bed optimised for stiffness and a weight-reduced column – that's how we guarantee a high dynamic with perfect precision.

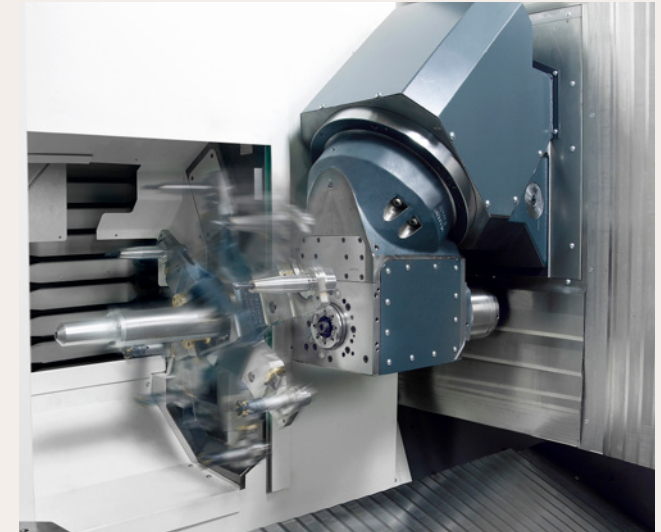
- _ universal 5-axis machining centres with fifth axis in the tool
- _ horizontal basic machine alignment, the table traverses in the Z-direction
- _ machine bed and topology-optimised columns from cast iron for maximum stability in the force flow
- _ maximum precision thanks to linear roll guides and direct, absolute measurement systems (glass scales) with high feed forces
- _ rotary axis B executed as an NC-rotary feed table with gear drive for high circular milling torque and damping



Machining units

Optimised process stability in 5-axis machining is also a question of the right spindle. The F series offers a choice of swivel heads and tilting heads. No matter whether heavy-duty machining of cast iron or steel or high-volume machining of light alloys – the F series offers the ideal solution for your requirements.

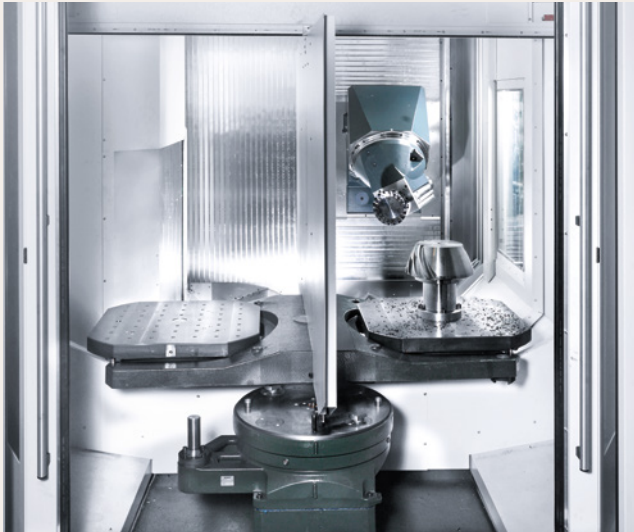
- _ spindle units with two kinematic variants for the fifth axis in the tool
- _ swivel head kinematics for maximum performance in operation
- _ tilting head kinematics with large swivel range for maximum flexibility with complex workpiece geometries
- _ rotational speeds of up to 16,000 rpm for machines with HSK-A 63 tool shank
- _ torques of up to 1,146 Nm for machines with HSK-A 100 tool shank



Tool management

Especially in 5-axis machining, you work daily with a broad range of tools and large tool geometries. No problem for the F series: You can of course continue to be flexible in the use of your tool pool, and rely on short tool setting times, short downtimes and short non-productive times.

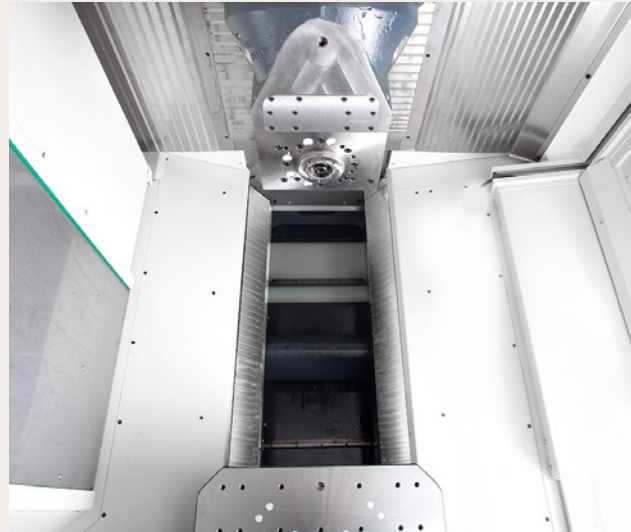
- _ chain-type magazines with up to 240 places for FP 4000 (HSK-A 63) or up to 150 places for machines with HSK-A 100 (SK/BT 50)
- _ rigid tool holder mounted on both sides of a double chain for optimised traversing dynamics
- _ rack-type magazines with 409 places for FP 4000 (HSK-A 63) or up to 425 places for machines with HSK-A 100 (SK 50)
- _ tool changer with two NC-axes and high dynamic for short chip-to-chip times



Workpiece management

The F series can of course be configured exactly to your requirements. As a workshop machine with large work area, ideally suited for single part production or as a production machine with pallet changer and the corresponding automation solution for series production.

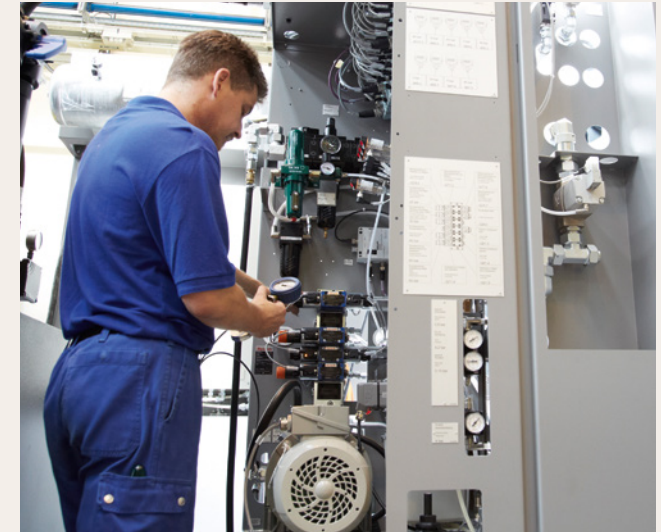
- _ pallet changer [FP] with lift/swivel principle and a total payload of up to 8 t [16 t for FP 16000 with push/swivel principle]
- _ table loading [FT] with three-part door for optimised workpiece handling and access to the work area
- _ NC-rotary feed table with gear drive for high tangential and circular milling torque, as well as efficient damping
- _ infinitely rotating, manual workpiece setting station, lockable at 90° indexing with foot unlocking [FP]
- _ optionally with media interface for hydraulic workpiece clamping



Supply and disposal

The F series offers extremely fast and effective chip disposal. The work area of these machining centres is designed such that chips are prevented from accumulating and are quickly transported out of the machine. Individually matched to your operating process, you select the best conveyor and coolant methods to suit you. Precision and process guaranteed!

- _ central media supply area at the rear
- _ coolant units [optional] with paper band filter technology or vacuum rotation filter technology with high tank volume
- _ internal coolant supply at 50 bar [70 bar as an option]
- _ work area shower with numerous adjustable nozzles flushes the workpiece and the fixture
- _ free chip fall and central chip conveyor for quick disposal to the rear [FP 4000]
- _ chip disposal with spiral conveyors to the rear to a transverse conveyor [sizes 6000-16000]



Operation, maintenance and control

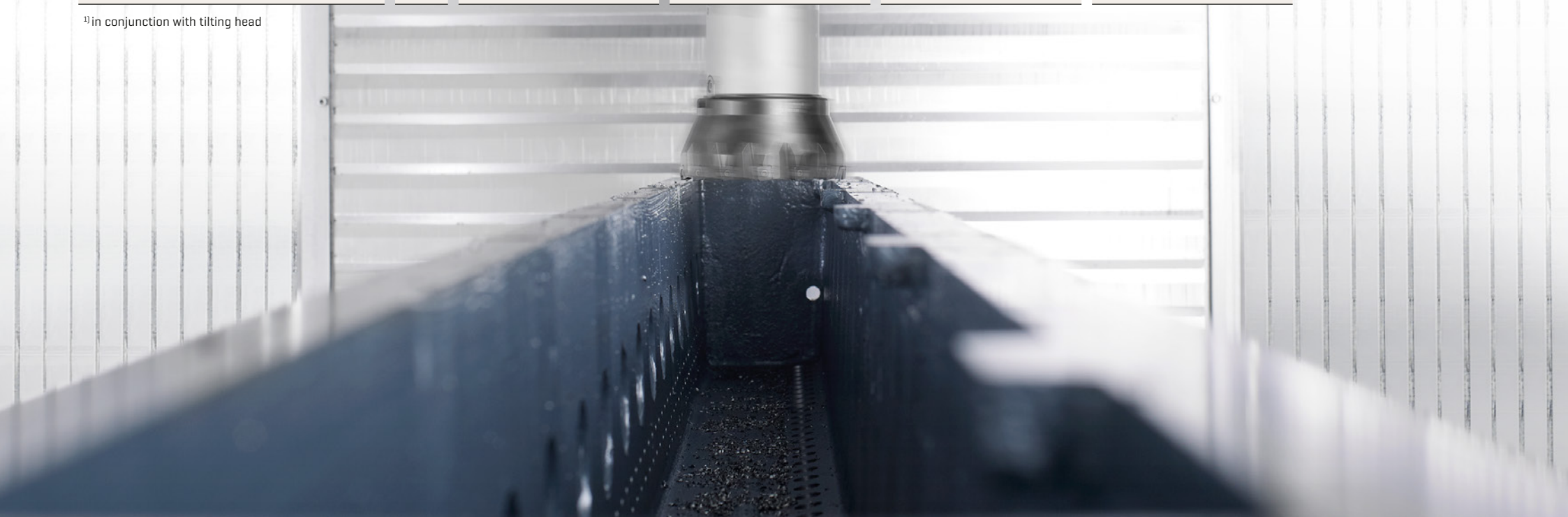
No matter whether on the workpiece setting station, during tool setting, programming or maintenance – your comfort and safety and, above all, the productivity of your manufacturing facility is paramount at all times.

- _ clear operating concept and good accessibility to all work areas
- _ smooth-running doors [3-part for table loading] and optimally arranged operating elements
- _ supply units and maintenance points concentrated at just a few locations
- _ all maintenance-relevant components can be accessed quickly and easily
- _ Siemens SINUMERIK 840D sl state-of-the-art machine controller for maximum performance with 5-axis machining
- _ HELLER Operation Interface and main operating unit in console design as standard for machines with table loading

Technical data

		FP 4000	FP 6000	FT 6000	FP 8000	FT 8000
Positioning range X/Y/Z	mm	800/800(900) ³⁾ /1,045	1,000/1,000/1,300	1,000/1,000/1,300	1,250/1,200/1,400	1,250/1,200/1,400
Tool shank SK/BT for selected units available as alternative	Size	HSK-A 63	HSK-A 100	HSK-A 100	HSK-A 100	HSK-A 100
Clamping surface Nominal size	mm	500 x 630	630 x 630	Ø 1,000	800 x 800	Ø 1,100
Clamping load	kg	1,400	1,400	1,400	2,000	2,000
		FP 10000	FP 14000	FP 16000	FT 16000	
Positioning range X/Y/Z	mm	1,600/1,400/1,600	2,400/1,600/1,600	2,400/1,600/1,600	2,400/1,600/1,600	
Tool shank SK/BT for selected units available as alternative	Size	HSK-A 100	HSK-A 100	HSK-A 100	HSK-A 100	
Clamping surface Nominal size	mm	1,000 x 1,000	1,000 x 1,000	1,250 x 1,600	Ø 1,300	
Clamping load	kg	4,000	4,000	8,000	8,000	

³⁾ in conjunction with tilting head



Productivity over the full spectrum



4-axis machining centres

H

Tailor-made off the peg: Flexibly configurable 4-axis machining centres with unbeatable productivity for unique capacity



5-axis machining centres

HF

Productivity in 5 axes: 5-axis machining centres with the fifth axis in the workpiece for dynamic and productive machining



5-axis machining centres

F

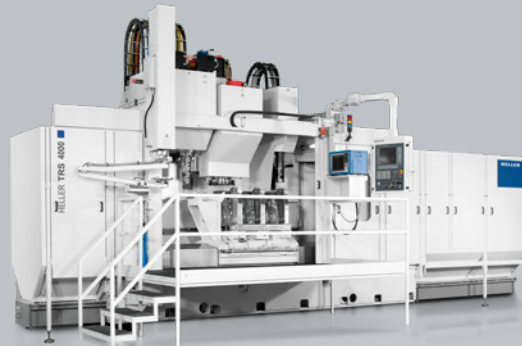
The benchmark in 5 axes: 5-sided and simultaneous 5-axis machining with the fifth axis in the tool



5-axis milling/turning machining centres

C

Complete machining at its best: Combined milling/turning jobs on one machine



Flexible manufacturing systems

Highly-productive series production of light duty to heavy duty automotive components



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- Mexico**
Querétaro
- USA**
Troy ⚙️

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- Italy**
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Appenzell

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- India**
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- Singapore**
Singapore
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