

Technical Data



FRAZER

Linear axes	type	Box version	Open version
X-Axis (longitudinal)	mm	3000 / 4000 / 5000	6000 / 7000 + Nx1500
Y-Axis (vertical)	mm	1500	1500 / 2000
Z-Axis (transversal) – RAM	mm	1100	1100
Thrust (X, Y, Z axes)	N	10 000	10 000
Rapid feed	m/min	35	35
Max. Acceleration	m/s ²	2.0	2.0

Rotary table		Milling	Turning
Dimensions (Dia.)	mm	1000	1000
Max. loading capacity	kg	3000	2500
Positions	Nr.	360 000	360 000
Max. speed	rpm	20	350
Max. torque S1 (S6)	Nm	2500 (5000)	1400 (5100)
Power S1 at 300 rpm	Kw	–	43
Max. torque with clamped table	Nm	5000	7000
Motor	type	torque	torque

Milling heads	C axis ° – resolution	A axis ° – resolution	Power kW – S6 (S1)	Torque Nm – S6 (S1)	Spindle speed rpm	Tool taper
Universal mechanical heads						
Universale indexed	0.02	0.02	32 (25)	742 (580)	5000	ISO 50 HSK-A-100
Universale C with torque motors	0.001	0.001	33 (25)	640 (480)	8000	ISO 50 HSK-A-100
Heads with electrospindle						
T3E – twist continuous head	0.001	0.001	48 (40) 33 (28)	148 (123) 105 (89)	12 000 20 000	ISO 50 HSK-A-100 HSK-A-63
Tilting C axis*	0.001	–	41 (34) 25 (21)	313 (260) 120 (100)	8000	ISO 50 HSK-A-100 HSK-A-63

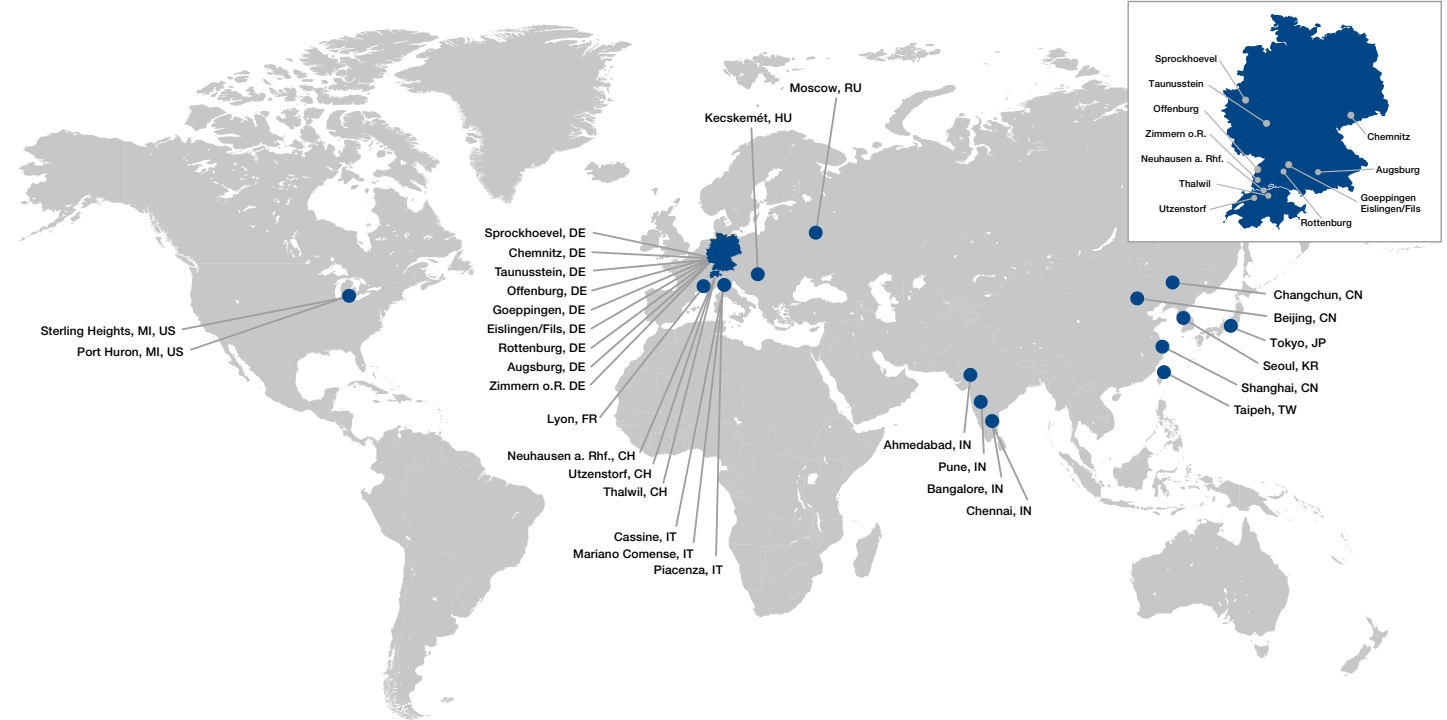
Tool magazine		Disk-type	Disk-type	Horizontal chain type	Horizontal chain type	Vertical chain type**
Positions	quantity	24	30	40	60	40 / 60
Tool taper	type	ISO 50 HSK-A-100	HSK-A-63	ISO 50 HSK-A-100	HSK-A-63	ISO 50 HSK-A-100
Tool max. Ø (with tools side by side)	mm	110	76	110	76	125
Tool max. Ø (with alternate tool position)	mm	200	150	200	150	250
Tool max. length	mm	300	300	300	300	400
Tool max. weight	Kg	15	8	15	8	20

*turning option available
**available for Frazer Open only

Subject to change without notice.

About FFG Europe & Americas

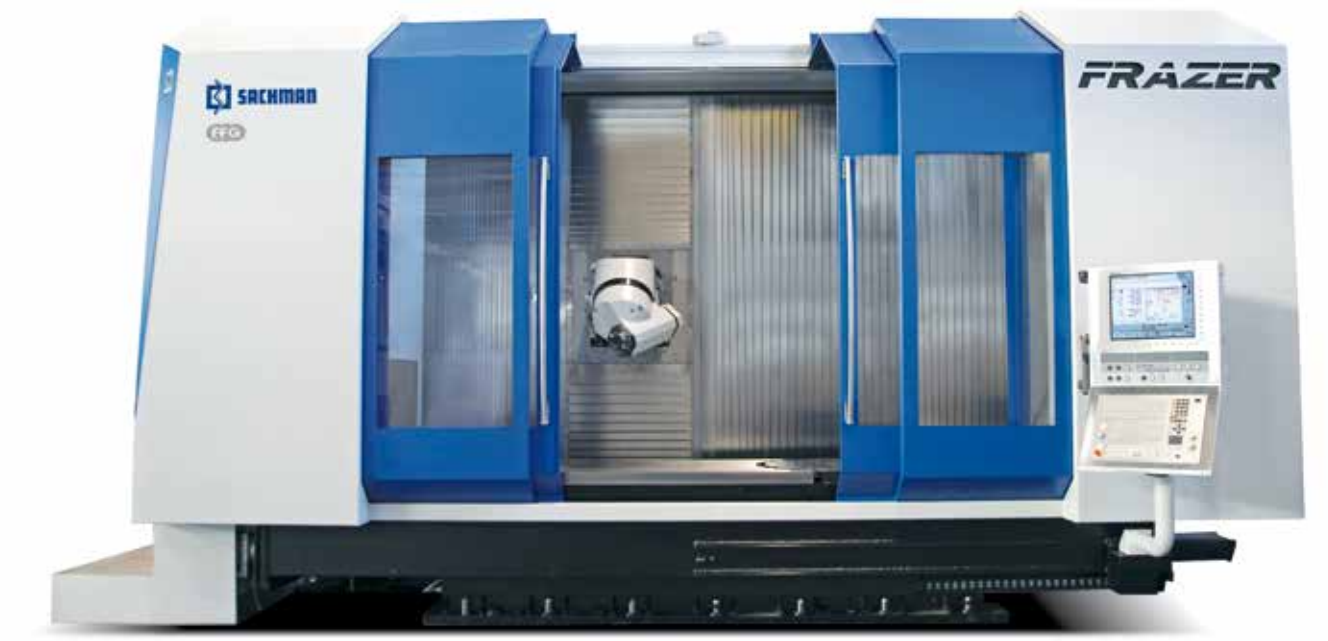
The FFG entities in Europe and the Americas unite major players from the German, Italian, Swiss and American machine tool industry with a broad range of milling, turning, grinding, and gear manufacturing technology, and the knowhow of the renowned machine tool brands VDF Boehringer, Hessapp, IMAS, Jobs, MAG, Meccanodora, Modul, Morara, Pffiffer, Rambaudi, Sachman, Sigma, SMS, Tacchella and Witzig & Frank. Since 1798, these brands have substantially contributed to the progress in industrial manufacturing and are well known as reliable and innovative equipment and systems solutions suppliers for the automotive and truck, aerospace, machine building, general machining, railway industry, energy and heavy engineering industries. While being an independent group, these entities benefit from the strengths and opportunities of the global Fair Friend Group. They stand for premium technology within FFG.



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Horizontal Milling Center with Longitudinal Moving Column



Knocking out Machining Costs

Two Versions, Endless Possibilities

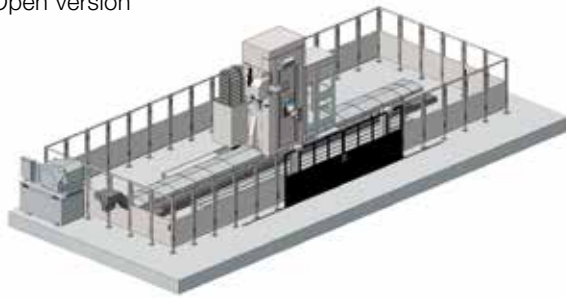
Frazer, is the Sachman medium-size moving column milling center completing the range of Universal Milling Machines for 5-sided/5-axis machining. The machine is available in two versions:

- ▶ Box version



Courtesy of Tecnologia Meccaniche

- ▶ Open version



Frazer design principles:

- ▶ Monolithic column with thermosymmetrical structure sliding on X axis
- ▶ X and Y axes movement on multi-pad roller guides with wide section
- ▶ Vertical Y-axis movement with three linear guides for maximum rigidity and accuracy
- ▶ Z-axis (transversal) designed with ram with monolithic thermosymmetrical structure travelling on 4 re-circulating roller linear guides
- ▶ Detection systems designed with optical scales
- ▶ Environment-friendly

Frazer machines feature:

- ▶ Very high performance at competitive price
- ▶ Extremely low hourly costs
- ▶ High dynamics (speed up to 35 m/min and acceleration up to 2 m/s²)
- ▶ Easy loading/unloading
- ▶ Best ergonomics and chip removal capacity

The application markets

The project driver of the horizontal milling center Sachman Frazer is to satisfy the modern market demands in terms of high productivity and product quality at a very affordable price for:

- ▶ General engineering
- ▶ Moulds and dies
- ▶ Aerospace



Frazer Box – Frazer Open

Frazer Box has a longitudinal mobile column structure (with X-axis strokes varying from 3 to 5 metres) and cross movement provided by a ram, which allows the machine to work in pendulum modality on two separate machining zones or to machine a single long component. Several configuration possibilities make Frazer Box suitable for subcontractors (general engineering and moulds&dies) ensuring extremely low hourly costs.



Frazer Open, configuration with guarding enclosure and longer X-axis strokes (up to 30 m), offers wider engineering possibilities of front units (rotary and/or roto-translating tables, fixed beds etc.) and customized solutions to meet the requirements of both subcontractors and large industrial groups, in the aerospace and general engineering fields.



The Box version features:

- ▶ Fully enclosed working area, with guarding integrated into machine bed for fully effective chip and coolant collection
- ▶ Perfect symmetry thanks to the BOX in BOX system with 4 linear guides on machine ram
- ▶ Minimized foundation costs and maximum machine rigidity and compactness thanks to the single structure base
- ▶ Rotary table integrated into machine bed with turning option available
- ▶ Several milling heads available depending on different machining requirements

The Open version features:

- ▶ Perfect symmetry thanks to the BOX in BOX system with 4 linear guides on machine ram
- ▶ Optimized guide-ways location for the highest rigidity and compactness
- ▶ Fixed table with high loading capacity
- ▶ Operator platform travelling with the column
- ▶ Several milling heads available depending on different machining requirements

Accessories

1 Turning option

Frazer is available also in the Millturn version with rotary table embedded in the fixed table. This worktable, driven by torque motors, is a continuous axis both for milling and turning operations.



2 New milling head

A new Universal milling head (Universale C) with endless positioning and torque motors (8000 rpm max. rotation speed) is also available. This head assures high positioning speed and high accuracy.



3 Frazer can be equipped with continuous positioning or indexed mechanical heads (minimum resolution with 0,02° indexing). The universal indexed head ensures maximum positioning accuracy and high chip removal capacity through precise HIRTH double-crown gear.



4 Frazer can also be equipped with: continuous heads with different type electrospindles having various power and speed solutions for machining light alloy and high speed mould finishing and semi-finishing operations.

5 Different capacity tool magazines

- ▶ Box Version: floor mounted, with ISO 50/HSK-A-100 or HSK-A-63 tool holder, tool changing through double gripper arm and random tool pocket management
- ▶ Open Version: vertical chain-type tool magazine, mounted on column

