GF Machining Solutions

Our Solutions – for You

AgieCharmilles
Microlution
Mikron Mill
Liechti
Step-Tec
System 3R

Milling

Spindles

Wire cutting

Die sinking

Hole drilling

Laser

Additive Manufacturing

Tooling

Automation

Customer Services

GF Machining Solutions: all about you

When all you need is everything, it's good to know that there is one company that you can count on to deliver complete solutions and services. From world-class electrical discharge machines (EDM), Laser texturing and Additive Manufacturing through to first-class Milling and Spindles, Tooling, Automation and software systems—all backed by unrivalled customer service and support—we, through our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies, help you raise your game and increase your competitive edge.

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GF Machining Solutions

At a glance

Based in Switzerland and maintaining a presence on 50 sites worldwide, GF Machining Solutions is a globally active group and source of strength to its customers.

A Division of the Georg Fischer Corporation (Switzerland), GF Machining Solutions has 3,102 employees and generated sales of CHF 916 million in 2016.

With production centers in Switzerland, Sweden and China, sales companies worldwide, and a global network of Centers of Competence and TechPoints, GF Machining Solutions is committed to resolving your challenges and keeping you soaring high above your competitors.

Core technologies

Milling

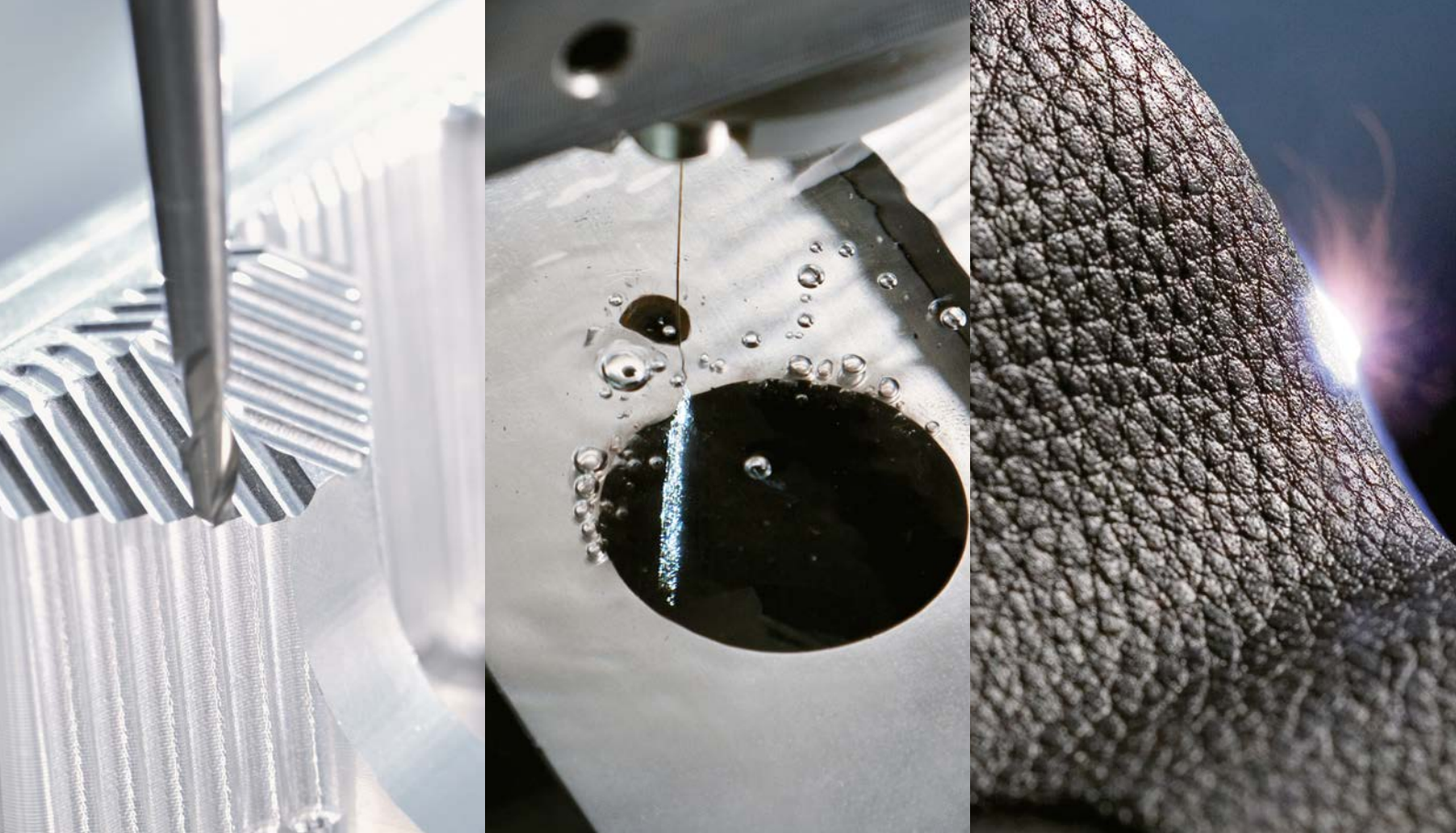
Precision tool and mold manufacturers enjoy a competitive edge with our Mikron MILL S (high-speed Milling) solutions' fastest precise machining. Complex part manufacturers attain above average productivity due our Mikron MILL P (high-performance Milling) solutions' performance and Automation. Customers seeking fastest return on investment benefit from the affordable efficiency of our Mikron MILL E (high-efficiency Milling) solutions. Liechti Dedicated Solutions for turbine maufacturing promise unbeatable productivity gains.

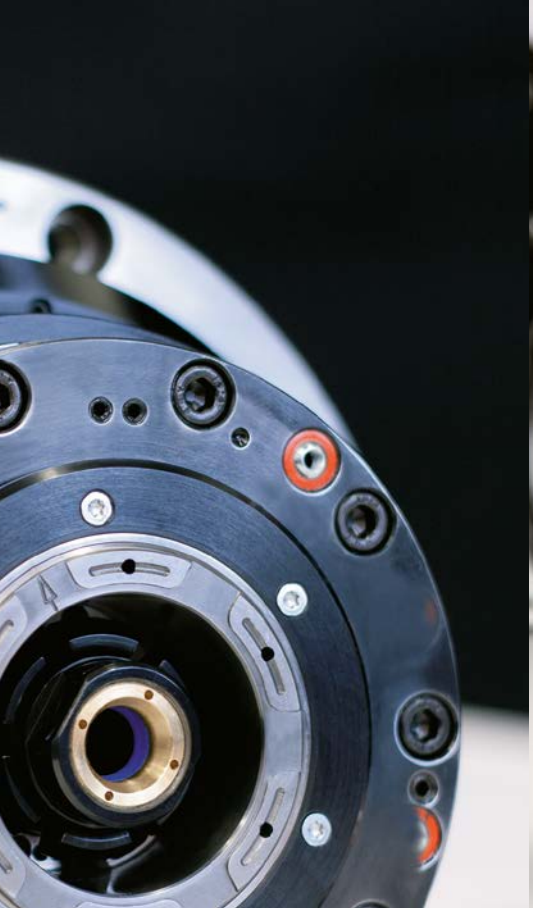
EDM

Our customers in tool and mold making and precision parts manufacturing worldwide experience highest form accuracy and peerless precision with our wire-cutting, die-sinking, and hole-drilling EDM technologies. EDM can be used to machine conductive materials of any hardness to an accuracy of up to one one-thousandth of a millimeter with no mechanical action.

Laser

Aesthetic and functional texturing is easy and infinitely repeatable with our digitized Laser technology. Even complex 3D geometries, including precision parts, are textured, engraved, microstructured, marked and labeled. Our Additive Manufacturing (AM) solutions, developed together with the global AM leader EOS, offer the mold industry limitless design possibilities for improving overall process efficiency.





11
12

Spindles

As part of GF Machining Solutions, StepTec is engaged in the very first stage of each machining center development project. Compact design combined with excellent thermal and geometric repeatability ensure the perfect integration of this core component into the machine tool.

Tooling and Automation

Our customers experience best autonomy while maintaining extreme accuracy, thanks to our Tooling systems for palletizing workpieces and electrodes in order to link various machines and processes together. In parallel, our Automation and control software solutions optimize machine utilization for greater return on investment.

Customer Services

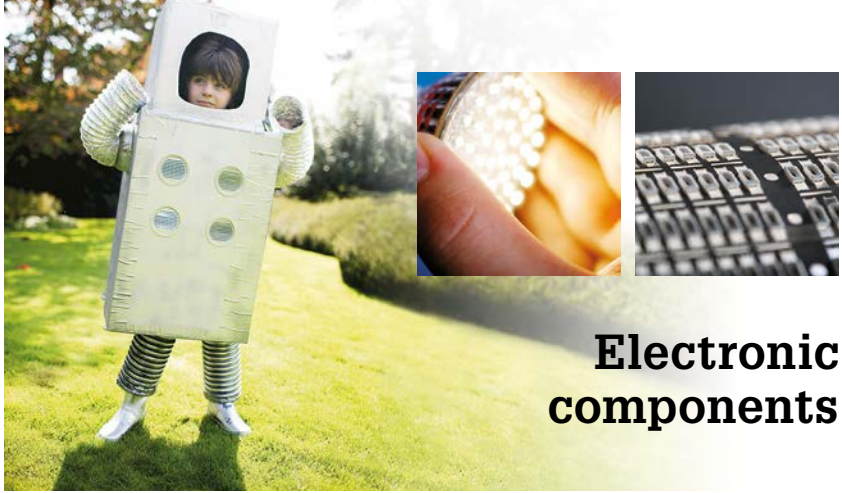
Ensuring the best performance throughout the lifetime of our customers' equipment is the aim of our three levels of support. Operations Support offers the complete range of original wear parts and certified consumables. Machine Support includes spare parts, technical support, and a range of preventive services to maximize machine uptime. Business Support offers customer-specific business solutions.

Dedicated Solutions

GF Machining Solutions is the partner of choice to successful tool, mold and die makers in fast-growing market segments like electronic components, information and communications technology and automotive, and to producers of high-value parts for aerospace and aeronautics, the automotive industry, and many other industrial areas.

Driving your productivity

Global automotive production is expected to increase in the range of 35 percent in the next five years and automotive companies can't afford to relax their efforts around new technologies to meet increasing regulatory environmental and safety standards. GF Machining Solutions delivers the superior performance, flexibility, and reliability essential to the production of hardware and electronic connectors for automotive lighting, tires and tire applications, turbochargers, and airbags and interiors.



Electronic components

Connecting you to success

Driven by demand for consumer electronic goods — mainly mobile communication devices — and growing penetration of electronic systems in automobiles, the global market for electronic components is experiencing steady growth. Manufacturers of electronic components count on us for the innovative machining technologies that ensure highest productivity, flawless precision, highly repeatable form accuracy, and state-of-the-art Automation solutions.

Medical and dental

Advancing your manufacturing health

Aging populations in the advanced economies, population growth in developing economics, more and better medical treatments, individualization of healthcare, and measures to make healthcare spending more efficient are driving innovation in medtech manufacturing. GF Machining Solutions keeps your operation healthy by delivering the innovation, precision, productivity and service you require in the production of high-quality medical and dental parts.

Information and communications technology (ICT)

Shaping the digital universe

As the digital universe unfolds at breakneck speed and with astonishing complexity, so do the demands on ICT manufacturers to rapidly produce an increasing number of mobile devices with highly complex components. We lead the way to the factory of the future, with flexible, reliable, and customizable machining solutions and manufacturing strategies to drive your productivity and flexibility today, tomorrow, and beyond.

Aerospace

We keep you flying

Aerospace OEMs and their value chains face immense challenges to stay on course to meet increased global travel demand and ambitious international emissions reduction targets. We provide our aerospace partners with the technologies and expertise that ensure superb quality, integrity and accuracy in manufacturing processes in a time when aerospace components — and the demands they fulfill — are becoming increasingly complex.

AgieCharmilles

CUT 200 Dedicated

Dedicated to high-accuracy machining of fir tree slots on compressor and turbine disks

- High profile accuracy
- Ability to machine extremely hard materials while preserving surface integrity
- Savings on high tooling costs
- High flexibility for multi-axis machining
- Process traceability and machine connectivity solutions

Main specifications		CUT 200 Dedicated
Travel X, Y, Z	mm (in)	350 x 220 x 220 (13.78 x 8.66 x 8.66)
Travel U, V	mm (in)	350 x 220 (13.78 x 8.66)
Tilting axis A	°	± 25; accuracy ± 7.2''
Rotary axis C	°	360; accuracy ± 10''
Max. taper angle / height	° / mm (in)	± 30/220 (± 30/8.66)
Max. workpiece diameter	mm (in)	150 < 550 (5.91 < 21.65)
Max. workpiece weight	kg (lbs)	250 (551.16)
Wire diameters	mm (in)	0.33 to 0.2 (0.013 to 0.007)
Weights/types of spool	kg (lbs)	16/K200 to 25/K250 (35.27/K200 to 55.12/K250)
Protection against electrolytic effects		From roughing through finishing
Max. cutting speed	mm^2/min (in^2/hour)	400 (37.7)
Min. finishing	µm Ra	0.3 (11.81 µ-inch RMS)
Process traceability		eTracking software
Connectivity		MTConnect, eConnectivity
3D probing system with dynamic fixture offset compensation		Automatic correction of disk concentricity errors related to C rotary axis

Dedicated Solutions

AgieCharmilles

LASER P 1200 U Dedicated

Raise your brand's visibility

- Greater accessibility
- From bicycle to truck tire molds, on the same machine
- Easily execute your operations with the unique tire dedicated software

Main specifications		LASER P 1200 U Dedicated
Focal length	mm (in)	160/254 (6.3/10)
Machine dimensions *	mm (in)	2240 x 2605 x 2845 (88.2 x 102.6 x 112)
X,Y, Z travels	mm (in)	1200 x 900 x 1200 (47.2 x 35.4 x 47.2)
B axis table diameter	mm (in)	800 (31.6)
Max. workpiece diameter	mm (in)	Ø 1700 (Ø 66.93)
Max. workpiece weight	kg (lbs)	1700 (3748)
Ytterbium pulsed fibre laser	W	50/100

* Width x depth x height

Dedicated Solutions

Liechti

Blisk machines

Main specifications	go-Mill 600	go-Mill 800	g-Mill 850/1150/1350
Blisk dia. max.	600 mm (23.6")	800 mm (31.5")	850 mm/1150 mm/1350 mm (33.5"/45.3"/53.1")
Spindle (S1)	18 000/20 000 rpm, 166 Nm, 20 kW	15 000 rpm, 120 Nm, 25 kW	18 000/20 000 rpm, 166 Nm, 20 kW
Tool changer	19 or 31 positions, HSK-A63 or HSK-A80	40 or 92 positions, HSK-A80	50, 97 or 144 positions, HSK-A63 or HSK-A80
Quality inspection	Workpiece and tool measuring	Workpiece and tool measuring	Workpiece and tool measuring
CAM	Liechti TURBOSOFT plus	Liechti TURBOSOFT plus	Liechti TURBOSOFT plus
Foot print	3.4 x 4.8 m (11.2 x 15.7 ft)		

- Heavy-duty roughing
- Ultra-dynamic finishing
- Finished blisk in one setup
- Uncompromising airfoil machining
- Turnkey solution from one single source
- CAM programming with specialized TURBOSOFT plus CAM software

Dedicated Solutions

Liechti

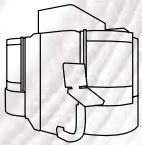
Blade machines

Main specifications	go-Mill 350	Turbomill 800 g/1400 g Turbomill 800 g Twin/1400 g Twin	Turbomill 2000 gx/2600 gx Turbomill 2000 gx Twin	Turbomill 800 i/1400 i
Blade length max. (incl. fixture)	350 mm (13.8")	800 mm/1400 mm (31.5"/55.1")	2000 mm/2600 mm (78.7"/102.4")	800 mm/1400 mm (31.5"/55.1")
Blade swing dia. max.	350 mm (13.8")	Single: 450 mm (17.7") Twin: 2 x 300 mm (2 x 11.8")	Single: 700 mm (27.6") Twin: 2 x 395 mm (2 x 15.5")	400 mm (15.7")
Spindle	(S6) 20 000 rpm, 120 Nm, 36 kW	(S1) Single: 16 000/19 000 rpm, 200 Nm, 28 kW | Twin: 2 x 20 000 rpm, 120 Nm, 25 kW	(S1) Single: 16 000/19 000 rpm, 200 Nm, 28 kW | Twin: 2 x 20 000 rpm, 120 Nm, 25 kW	(S1) 15 000 rpm, 120 Nm, 25 kW
Tool changer	30 or 60 positions, HSK-A63	Single: 32/60 positions, HSK-A63 Twin: 60/90 positions, HSK-A63	32, 60 or 90 positions, HSK-A63 40 positions, HSK-A80	20, 32 or 60 positions, HSK-A63
Automation	16-position part changer	Pallet changer, 6S part handling	Pallet changer, 6S part handling	Pallet changer, 6S part handling, bar feeder
CAM	Liecht TURBOSOFT plus	Liecht TURBOSOFT plus	Liecht TURBOSOFT plus	Liecht TURBOSOFT plus

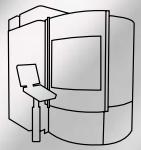
High-speed Milling

Across a wide variety of industries and applications, manufacturers of precision tools and molds and dies enjoy a competitive edge, thanks to the fastest, precise machining delivered by our high-speed Milling solutions.

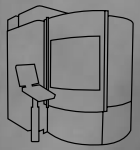
Three- and five-axis



MILL X 400
MILL X 400 U

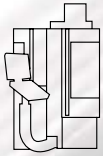


MILL X 600
MILL X 600 U

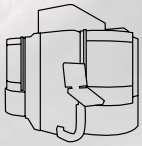


MILL X 800

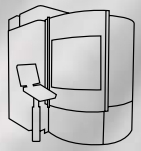
Five-axis



HSM 200U LP

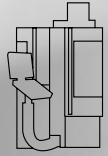


MILL S 400 U
MILL S 400 U Precision

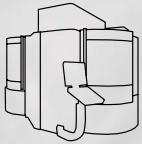


MILL S 600 U

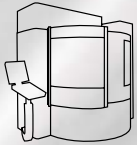
Three-axis



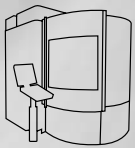
HSM 200 LP



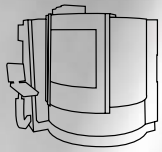
MILL S 400
MILL S 400 Precision



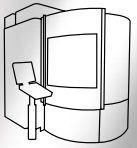
HSM 500 (Graphite)
MILL S 500 (Graphite)
MILL S 500 Precision



MILL S 600



HSM 700



MILL S 800

200 | 400 | 500 | 600 | 700 | 800

X travel (mm)

Mikron

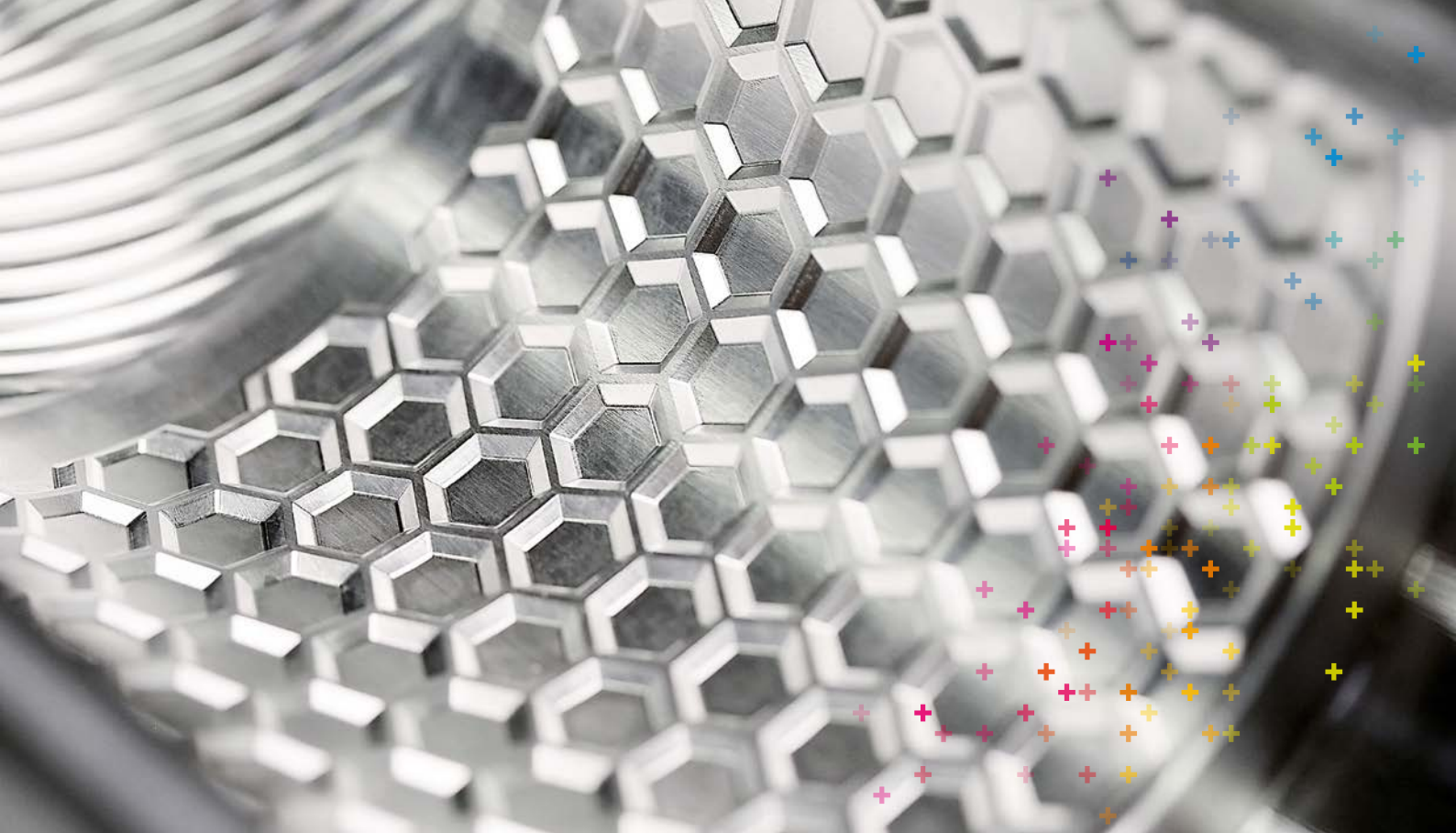
HSM 200 LP
HSM 200U LP

Highly productive, compact solution for highest precision part and mold makers

- Highest precision, best surface finish
- Fastest high-precision solution on the market
- Most compact fully automated precision cell
- Integrated measuring and control system

Main specifications		HSM 200 LP	HSM 200U LP
Travel X, Y, Z *	mm (in)	160 x 160 x 200 (6.3 x 6.3 x 7.87)	160 x 160 x 200 (6.3 x 6.3 x 7.87)
Swiveling axis / tilting axis	°	– / –	+30 / -120 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	50 000 (HSK-E32) / 8.5 / 3.4	50 000 (HSK-E32) / 8.5 / 3.4
Rapid traverse X, Y, Z	m /min (ipm)	42 (1653)	42 (1653)
Rapid traverse: swiveling / rotating	rpm	– / –	150 / 250
Clamping surface / max. load (incl. pallet)	mm / kg (lbs)	in accordance with pallet / 20 (44)	in accordance with pallet / 8 (17.6)
Tool magazine	piece	30 / 60 (HSK-E32)	30 / 60 (HSK-E32)
Automation: pallet size / number	mm / piece	GPS 120/14, 70/20 | MacroMagnum 156/12 Macro 116/14, 70/20, 54/20 ITS 148/12, 115/14, 72/20	GPS 120/14, 70/20 | MacroMagnum 156/12 Macro 116/14, 70/20, 54/20 ITS 148/12, 115/14, 72/20
Max. load (incl. pallet)	kg (lbs)	20 (44)	8 (17.64)
Control unit	Heidenhain / FANUC	iTNC 530 HSCI / 31i B5	iTNC 530 HSCI / 31i B5

* Longitudinal x lateral x vertical



Mikron

MILL S 400 (U/Precision)
MILL S 500 (Precision/Graphite)

Perfect surface finish, very high accuracy, unbeaten speed for mold and die makers

Main specifications		MILL S 400	MILL S 400 U	MILL S 500
Travel X, Y, Z *	mm (in)	500 x 450 x 360 (19.68 x 17.72 x 14.17)	500 x 240 x 360 (19.68 x 9.45 x 14.17)	500 x 450 x 360 (19.68 x 17.72 x 14.17)
Swiveling axis / tilting axis	°	– / –	+110 /-110 / n x 360	– / –
Working Spindle (40 % ED, S6)	rpm / kW / Nm	42 000 (HSK-E40) / 13.5 / 8.8	42 000 (HSK-E40) / 13.5 / 8.8	42 000 (HSK-E40) / 13.5 / 8.8
Rapid traverse X, Y, Z	m /min (ipm)	61 (2401)	61 (2401)	61 (2401)
Rapid traverse: swiveling / rotating	rpm	– / –	165 / 250	– / –
Clamping surface / max. load **	mm / kg (lbs)	in accordance with pallet / 120 (265)	in accordance with pallet / 25 (55)	590 x 450 / 200 (440)
Tool magazine	piece	20 / 40 (HSK-E32) 18 / 36 / 68 /168 / 308 (HSK-E40)	20 / 40 (HSK-E32) 18 / 36 / 68 /168 / 308 (HSK-E40)	20 / 40 (HSK-E32) 18 / 36 / 68 /168 / 308 (HSK-E40)
Automation: pallet size / number	mm / piece	GPS 240/10 | Dynafix 280/7, 350/7 UPC 320/7	MacroMagnum 156/18 | ITS 148/20	–
Max. load (incl. pallet)	kg (lbs)	90 (198)	25 (55)	–
Control unit	Heidenhain	iTNC 530 HSCI	iTNC 530 HSCI	iTNC 530 HSCI
Optional Spindles	60 000 (HSK-E32) / 8.5 / 3.5 | 42 000 CoolCore (HSK-E40) / 13.5 / 8.8 | 30 000 (HSK-E40) / 13.5 / 8.8			

* Longitudinal x lateral x vertical ** incl. pallet

- Five-axis pioneer with best configuration for mold and die
- Fastest High Speed Milling HSM solution on the market
- High precision, best surface finish over long machining processes
- Integrated Automation and measuring system

	MILL S 400 Precision	MILL S 400 U Precision	MILL S 500 Precision	MILL S 500 Graphite
	500 x 450 x 360 (19.68 x 17.72 x 14.17)	500 x 240 x 360 (19.68x9.45x14.17)	500 x 450 x 360 (19.68 x 17.72 x 14.17)	500 x 450 x 360 (19.68 x 17.72 x 14.17)
	– / –	+110/-110 / n x 360	– / –	– / –
	42 000 (HSK-E40) / 11 / 3.5	42 000 (HSK-E40) / 11 / 3.5	42 000 (HSK-E40) / 11 / 3.5	42 000 (HSK-E40) / 13.5 / 8.8
	42 (1653)	42 (1653)	42 (1653)	61 (2401)
	– / –	165 / 250	– / –	– / –
	in accordance with pallet / 120 (265)	in accordance with pallet / 25 (55)	550 x 450 / 120 (265)	590 x 450 / 200 (440)
	18 / 36 / 68 /168 / 308 (HSK-E40)	18 / 36 / 68 /168 / 308 (HSK-E40)	18 / 36 / 68 /168 / 308 (HSK-E40)	20 / 40 (HSK-E32) 18 / 36 / 68 /168 / 308 (HSK-E40)
	GPS 240/10 | Dynafix 280/7, 350/7 | UPC 320/7	MacroMagnum 156/18 | ITS 148/20	–	–
	90 (198)	25 (55)	–	–
	iTNC 530 HSCI	iTNC 530 HSCI	iTNC 530 HSCI	iTNC 530 HSCI

Mikron

MILL S 600 (U)
MILL S 800

High accuracy, perfect surfaces, best speed for medium-size, multi-cavity molds

- Five-axis pioneer with best configuration for mold and die
- Fastest high-speed Milling (HSM) solution on the market
- Powerful and user-friendly smart machine module
- Best ergonomics and integrated Automation

Main specifications		MILL S 600	MILL S 600 U	MILL S 800
Travel X, Y, Z *	mm (in)	600 x 600 x 500 (23.62 x 23.62 x 19.68)	800 x 600 x 500 (31.49 x 23.62 x 19.68)	800 x 600 x 500 (31.49 x 23.62 x 19.68)
Swiveling axis / tilting axis	°	– / –	+30/-110 / n x 360	– / –
Working Spindle (40 % ED, S6)	rpm / kW / Nm	36 000 (HSK-E50) / 33 / 21	36 000 (HSK-E50) / 33 / 21	36 000 (HSK-E50) / 33 / 21
Rapid traverse X, Y, Z	m /min (ipm)	61 (2401)	61 (2401)	61 (2401)
Rapid traverse: swiveling / rotating	rpm	– / –	60 / 150	– / –
Clamping surface / max. load **	mm / kg (lbs)	900 x 600 / 500 (1102)	in accordance with pallet / 120 (265)	900 x 600 / 1000 (2204)
Automation: pallet size / number	mm / piece	600/800 x 600 / 4	GPS 240/10 | Dynafix 280/7, 350/7 UPC 320/7	600/800 x 600 / 4
Max. load (incl. pallet)	kg (lbs)	500 (1102)	90 (198)	800 (1764)
Control unit	Heidenhain	iTNC 530 HSCI	iTNC 530 HSCI	iTNC 530 HSCI
Optional Spindles	42 000 CoolCore (HSK-E40) / 13.5 / 8.8 | 42 000 (HSK-E40) / 13.5 / 8.8 | 30 000 (HSK-E40) / 13.5 / 8.8			
Tool magazines (piece)	18 / 36 / 68 / 168 / 308 (HSK-E40) | 15 / 30 / 60 / 120 / 170 / 220 (HSK-E50)			

* Longitudinal x lateral x vertical ** incl. pallet

Mikron

HSM 500 (Graphite) HSM 700

Complement to our die-sinking EDM for mold, die and especially electrode making

- The original HSM machine
- Highest manufacturing dynamic and speed in this range
- Ideal for quick setup and changing jobs
- Great ergonomics

Main specifications		HSM 500	HSM 500 Graphite	HSM 700
Travel X, Y, Z *	mm (in)	500 x 450 x 350 (19.68x17.72x13.78)	500 x 450 x 350 (19.68x17.72x13.78)	700 x 600 x 500 (27.56x23.62x19.68)
Swiveling axis / tilting axis	°	– / –	– / –	– / –
Working Spindle (40 % ED, S6)	rpm / kW / Nm	42 000 (HSK-E40) / 13.5 / 4.2	42 000 (HSK-E40) / 13.5 / 4.2	42 000 (HSK-E40) / 13.5 / 4.2
Rapid traverse X, Y, Z	m /min (ipm)	20 / 42 (787 / 1642)	20 / 42 (787 / 1642)	20 / 40 (787 / 1564)
Rapid traverse: swiveling / rotating	rpm	– / –	– / –	– / –
Clamping surface Max. load (incl. pallet)	mm kg (lbs)	550 x 450 200 (440)	550 x 450 200 (440)	900 x 600 800 (1764)
Tool magazines	piece	18 / 36 (HSK-E40)	18 / 36 (HSK-E40)	18 / 36 (HSK-E40)
Automation: pallet size / number	mm / piece	–	GPS 240/10 | Dynafix 280/7, 350/7 UPC 320/7	–
Max. load (incl. pallet)	kg (lbs)	–	90 (198)	–
Control unit	Heidenhain	iTNC 530 HSCI	iTNC 530 HSCI	iTNC 530 HSCI
Optional Spindles	30 000 (HSK-E40) / 12 / 8.8 | 36 000 (HSK-E50) / 32 / 20 **			

* Longitudinal x lateral x vertical ** HSM 700

Mikron

MILL X 400
MILL X 400 U

Maximum flexibility, highest productivity for small, complex, light parts

- Highly dynamic and reliable
- Powerful and user-friendly smart process improvement module
- High precision, best surface finish over long machining processes
- Integrated Automation and measuring system

Main specifications		MILL X 400	MILL X 400 U
Travel X, Y, Z *	mm (in)	500 x 450 x 360 (19.68 x 17.72 x 14.17)	500 x 240 x 360 (19.68 x 9.45 x 14.17)
Swiveling axis / tilting axis	°	– / –	+110 / -110 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	42 000 (HSK-E40) / 13.5 / 8.8	42 000 (HSK-E40) / 13.5 / 8.8
Rapid traverse X, Y, Z	m /min (ipm)	100 (3937)	100 (3937)
Rapid traverse: swiveling / rotating	rpm	– / –	165 / 250
Clamping surface Max. load (incl. pallet)	mm kg (lbs)	in accordance with pallet 120 (265)	in accordance with pallet 25 (55)
Tool magazine	piece	20 / 40 (HSK-E32) | 18 / 36 / 68 / 168 / 308 (HSK-E40)	20 / 40 (HSK-E32) | 18 / 36 / 68 / 168 / 308 (HSK-E40)
Automation: pallet size / number Max. load (incl. pallet)	mm / piece kg (lbs)	GPS 240/10 | Dynafix 280/7, 350/7 | UPC 320/7 90 (198)	MacroMagnum 156/18 | ITS 148/20 25 (55)
Control unit	Heidenhain	iTNC 530 HSCI	iTNC 530 HSCI
Optional Spindles	60 000 (HSK-E32) / 8.5 / 3.5 | 42 000 CoolCore (HSK-E40) / 13.5 / 8.8 | 30 000 (HSK-E40) / 13.5 / 8.8		

* Longitudinal x lateral x vertical

Mikron

MILL X 600 (U)
MILL X 800

Highest productivity at maximum flexibility for precise, complex, light parts

- Highly dynamic and reliable
- Powerful and user-friendly smart process improvement module
- Best ergonomics and integrated Automation

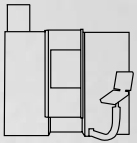
Main specifications		MILL X 600	MILL X 600 U	MILL X 800
Travel X, Y, Z *	mm (in)	600 x 600 x 500 (23.62 x 23.62 x 19.68)	800 x 600 x 500 (31.49 x 23.62 x 19.68)	800 x 600 x 500 (31.49 x 23.62 x 19.68)
Swiveling axis / tilting axis	°	– / –	+30/-110 / n x 360	– / –
Working Spindle (40 % ED, S6)	rpm / kW / Nm	36 000 (HSK-E50) / 33 / 21	36 000 (HSK-E50) / 33 / 21	36 000 (HSK-E50) / 33 / 21
Rapid traverse X, Y, Z	m/min (ipm)	100 (3937)	100 (3937)	100 (3937)
Rapid traverse: swiveling / rotating	rpm	– / –	60 / 150	– / –
Clamping surface / max. load **	mm / kg (lbs)	900 x 600 / 500 (1102)	in accordance with pallet / 120 (265)	900 x 600 / 1000 (2204)
Automation: pallet size / number	mm / piece	600/800 x 600 / 4	GPS 240/10 | Dynafix 280/7, 350/7 UPC 320/7	600/800 x 600 / 4
Max. load (incl. pallet)	kg (lbs)	500 (1102)	90 (198)	800 (1764)
Control unit	Heidenhain	iTNC 530 HSCI	iTNC 530	iTNC 530 HSCI
Optional Spindles	42 000 CoolCore (HSK-E40) / 13.5 / 8.8 | 42 000 (HSK-E40) / 13.5 / 8.8 | 30 000 (HSK-E40) / 13.5 / 8.8 | 24 000 (HSK-A63) / 28 / 28			
Tool magazines (piece)	18 / 36 / 68 / 168 / 308 (HSK-E40) | 15 / 30 / 60 / 120 / 170 / 220 (HSK-E50) | 30 / 48 / 120 / 170 / 220 (HSK-A63)			

* Longitudinal x lateral x vertical ** incl. pallet

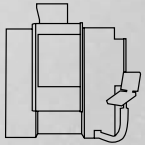
High-performance Milling

Automation readiness and above-average productivity are among the many reasons manufacturers of precise parts consistently choose our high-performance Milling solutions for their applications across a broad range of industries.

Five-axis

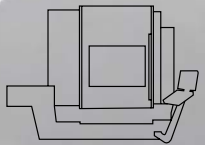


MILL P 500 U

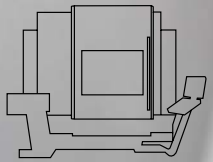


MILL P 800 U

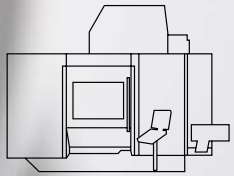
Five-axis



HPM 1150U

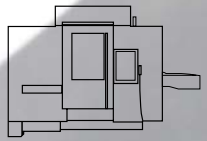


HPM 1350U



HPM 1850U

Three-axis



MILL P 900

600 800 1000 1200 1400 1850

X travel (mm)

Mikron

MILL P 500 U (D)

Dynamic Milling of complex forms and tough materials

- Accuracy on parts and process reliability
- Flexibility for your production
- Business efficiency
- Maximizes productivity

Main specifications		MILL P 500 U	MILL P 500 U D
Travel X, Y, Z *	mm (in)	500 x 600 x 450 (19.7 x 23.6 x 17.70)	500 x 600 x 450 (19.7 x 23.6 x 17.70)
Swiveling axis / tilting axis	°	+91/-121 / n x 360	+91/-121 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	20 000 (HSK-A63) / 36 / 120	20 000 (HSK-A63) / 36 / 120
Rapid traverse X, Y, Z	m /min (ipm)	45 (1772)	61 (2401)
Rapid traverse (swiveling, rotating) 200 kg	rpm	50 / 140	50 / 140
Clamping surface Max. load	mm kg (lbs)	Ø 500 five-axis: 200 / 400 / 600 (441 / 881 / 1322)	Ø 500 five-axis: 200 / 400 / 600 (441 / 881 / 1322)
Tool magazine	piece	30 / 60 / 120 / 170 / 215	30 / 60 / 120 / 170 / 215
Control unit	Heidenhain / Siemens	TNC 640 / –	TNC 640 / 840D sl
Automation: pallet size / number [mm / piece]	400 x 400 / 12 | 500 x 500 / 9 | 500 x 630 / 7		
Optional Spindle	36000 (HSK-E50) / 33 / 21.3		

* Longitudinal x lateral x vertical

Mikron

MILL P 800 U (D)
MILL P 800 U ST

Highest productivity for batches of precise parts and medium to heavy molds

- Your precision center: 365 days a year
- Best surface finish on light or heavy parts
- Highly flexible parts production
- Finish your job in just one setup
- Reliable, efficient unmanned third shift

Main specifications		MILL P 800 U	MILL P 800 U D	MILL P 800 U ST
Travel X, Y, Z *	mm (in)	800 x 800 x 550 (31.5 x 31.5 x 21.65)	800 x 800 x 550 (31.5 x 31.5 x 21.65)	800 x 800 x 550 (31.5 x 31.5 x 21.65)
Swiveling axis / tilting axis	°	+91/-121 / n x 360	+91/-121 / n x 360	+91/-121 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	20 000 (HSK-A63) / 36 / 120	20 000 (HSK-A63) / 36 / 120	20 000 (HSK-T63) / 36 / 120
Rapid traverse X, Y, Z	m /min (ipm)	45 (1772)	61 (2401)	61 (2401)
Rapid traverse (swiveling, rotating)	rpm	25 / 35	50 / 60	50 / 800
Clamping surface Max. load	mm kg (lbs)	Ø 500 or 631 five-axis: 500 (1102) three-axis: 800 (1763)	Ø 500 or 631 five-axis: 500 (1102) three-axis: 800 (1763)	Pallet Ø 550 and 730 Table Ø 500 or 730 five-axis: 800 (1764)
Tool magazine	piece	30 / 60 / 120 / 170 / 215 / 245	30 / 60 / 120 / 170 / 215 / 245	60 / 120 / 170 / 215
Control unit	Heidenhain / Siemens	TNC 640 / –	TNC 640 / 840D sl	TNC 640 / 840D sl
Automation: pallet size / number [mm / piece]		400 x 400 / 12 | 500 x 500 / 9 | 500 x 630 / 7		
Optional Spindle		28 000 (HSK-A63) / 36 / 36 CoolCore | 36000 (HSK-E50) / 33 / 21.3		

* Longitudinal x lateral x vertical

Mikron

MILL P 900

Best surface quality, high positioning and contour accuracy

- Strong 20,000 rpm Spindle for roughing and finishing
- Longtime accuracy
- Temperature-controlled machine base and cooling water
- Best ergonomic
- Shorter machine idle time
- Big front door, adapted to the size of table

Main specifications		MILL P 900
Travel X, Y, Z *	mm (in)	900 x 600 x 450 (35.4 x 23.6 x 17.7)
Working Spindle (40 % ED, S6)	rpm / kW / Nm	20 000 (HSK-A63) / 36 / 120 | 36 000 (HSK-E50) / 33 / 21.3
Rapid traverse X, Y, Z	m /min (ipm)	30 (1181)
Tool magazine	piece	30 / 60
Automation: pallet size / number	mm / piece	Delphin 400 x 400 / 5
Max. load (incl. pallet)	kg (lbs)	1000 (2204)
Control unit	FANUC	31i-B

* Longitudinal x lateral x vertical

Mikron

HPM 1150U/1350U HPM 1850U

Precise results, very good surface finish on large parts and molds

- Highest precision and best surface finish in this range
- Compact solution even with integrated Automation
- Great ergonomics
- CNC choice upon application

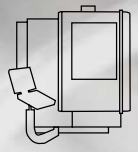
Main specifications		HPM 1150U	HPM 1350U	HPM 1850U
Travel X, Y, Z *	mm (in)	1000 x 1150 x 700 / 895 (39.37 x 45.28 x 27.56 / 35.24)	1350 x 1150 x 700 / 895 (53.15 x 45.28 x 27.56 / 35.24)	1850 x 1400 x 720 / 905 (72.83 x 55.12 x 28.35 / 35.63)
Swiveling axis / tilting axis	°	+16 / -120 / n x 360	+16 / -120 / n x 360	-20 / +120 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	15 000 (HSK-A63) / 38 / 193	15 000 (HSK-A63) / 38 / 193	15 000 (HSK-A63) / 38 / 193
Feed rate / rapid traverse X, Y, Z	m / min (ipm)	15 / 30 (590 / 1181)	15 / 32 (590 / 1260)	15 / 40 (590 / 1575)
Feed rate / rapid traverse (swiveling, rotating)	rpm	11, 40 / 20, 40	11, 40 / 20, 40	11, 30 / 20, 30
Clamping surface / max. load	mm / kg (lbs)	Ø 1000 / 1100 (2425)	Ø 1100 / 1600 (3527)	Ø 1600 / 5000 (11023)
Automation: pallet size / number Max. load	mm / piece kg (lbs)	– –	Ø 1000 / 3 1000 / 1500 (2204 / 3307)	1000 x 1250 / 3 1750 (3858)
Control unit	Heidenhain / Siemens	iTNC 530 / 840D sl	iTNC 530 / 840D sl	iTNC 530 / 840D sl
Optional Spindles	24 000 (HSK-A63) / 30 / 75 | 15 000 (ISO-40) / 38 / 193 ** | 10 000 (HSK-A100) / 34 / 324			
Tool magazines (piece)	30 / 46 / 92 (ISO-40) ** | 30 / 46 / 92 / 238 (HSK-A63) ** | 170 (HSK-A100) ** | 46 / 120 / 238 (HSK-A63) *** | 30 / 170 (HSK-A100) ***			

* Longitudinal x lateral x vertical ** HPM 1150U, 1350U *** HPM 1850U

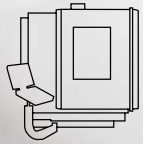
High-efficiency Milling

Customers experience fastest return on their capital investment in parallel with achieving increased capabilities and efficiency, thanks to our high-efficiency Milling solutions.

Five-axis

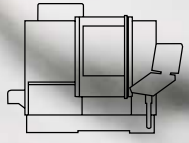


MILL E 500 U

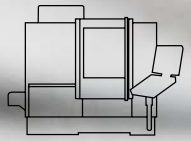


MILL E 700 U

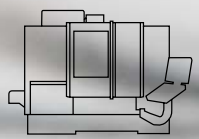
Three-axis



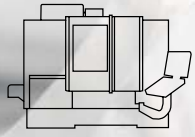
HEM 600



HEM 800

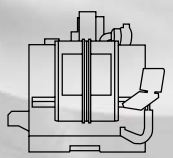


HEM 1000

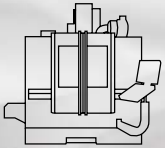


HEM 1200

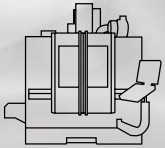
Three-axis



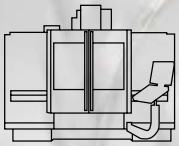
VCE 600 Pro



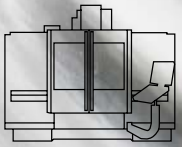
VCE 800 Pro
VCE 800W Pro



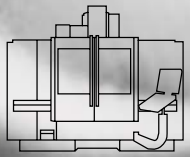
VCE 1000 Pro



VCE 1200 Pro



VCE 1400 Pro



VCE 1600 Pro

600 | 800 | 1000 | 1200 | 1400 | 1600

X travel (mm)

Mikron

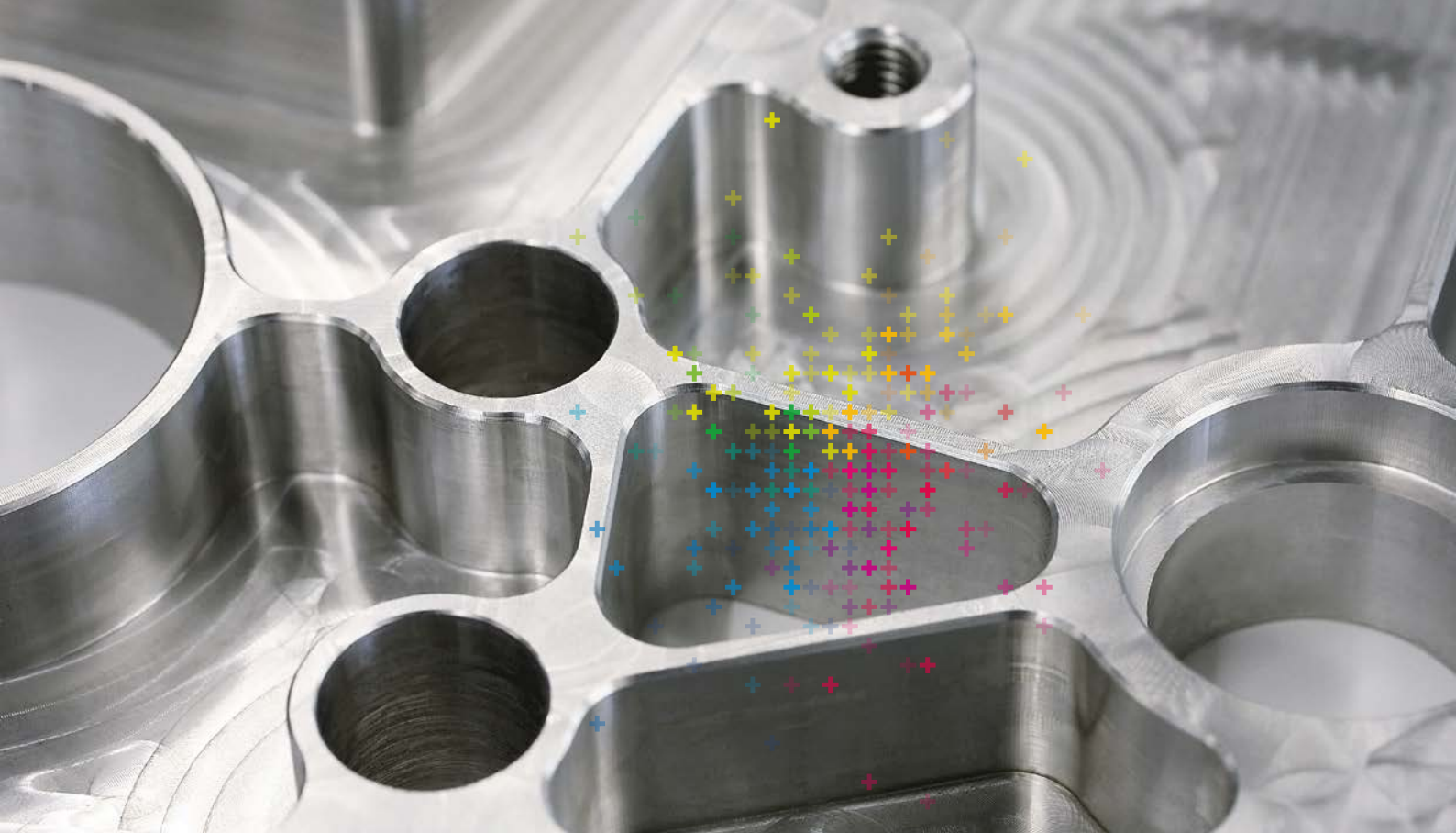
MILL E 500 U
MILL E 700 U

Five-axis simultaneous machining

- Easiest step up into five-axis applications with fast return on investment (ROI)
- Highly configurable to fit the application
- Standard solution with above-average benefits (reliability and productivity)

Main specifications		**MILL E 500 U** (RTT 5-Ax / RTT 5-Ax Simultan)	**MILL E 700 U** (RTT 5-Ax / RTT 5-Ax Simultan)
Travel X, Y, Z *	mm (in)	500 x 450 x 400 (19.68 x 17.71 x 15.75)	700 x 600 x 500 (27.55 x 23.62 x 19.68)
Swiveling axis / tilting axis	°	-65 /+120 / n x 360	-65 /+120 / n x 360
Working Spindle (40 % ED, S6)	rpm / kW / Nm	20 000 (HSK-A63) / 36 / 120 **	20 000 (HSK-A63) / 36 / 120 **
Feed rate / rapid traverse X, Y, Z	m /min (ipm)	30 (1181)	30 (1181)
Feed rate / rapid traverse (swiveling, rotating)	rpm	32 / 112 (Linear) | 17 / 28 (Gearbox)	32 / 112 (Linear) | 17 / 28 (Gearbox)
Clamping surface / max. load	mm / kg (lbs)	Ø 500 / 3+2, 5-Axis 200 (441), XYZ 300 (661)	Ø 630 / 3+2, 5-Axis 300 (661), XYZ 400 (882)
Tool magazines (piece)		30 / 60 (ISO- BT-CAT 40) | 60 (HSK-A63)	30 / 60 (ISO- BT-CAT 40) | 60 (HSK-A63)
Automation: pallet size / number Max. load	mm / piece kg (lbs)	UPC (320 x 320), Dynafix (350 x 350) / 7 MTS, Delphin (400 x 400) / 5 200 (441)	UPC (320 x 320), Dynafix (350 x 350) / 7 MTS, Delphin (400 x 400) / 5 200 (441)
Control unit	Heidenhain/FANUC	iTNC 530 HSCI FS / Oi-MD	iTNC 530 HSCI FS / Oi-MD
Optional Spindles	12 000 (ISO / BT-40) / 20 / 97 **(Heidenhain 40 % ED, S6)** | 12 000 (ISO / BT-40) / 15 / 95 **(FANUC 60%, S3)**		

* Longitudinal x lateral x vertical ** Heidenhain



Mikron

HEM 600/800/1000/1200

Affordable solution for simple to complex individual molds and parts or series

Main specifications		HEM 600	HEM 800
Travel X, Y, Z *	mm (in)	650 x 530 x 600 (25.6 x 20.87 x 23.62)	850 x 530 x 600 (33.46 x 20.87 x 23.62)
Working Spindle (40 % ED, S1)	rpm / kW / Nm	9 000 (ISO / BT-40) / 9.5 / 71 **	9 000 (ISO / BT-40) / 9.5 / 71 **
Feed rate / rapid traverse X, Y	m /min (ipm)	15 / 30 (590 / 1180)	15 / 30 (590 / 1180)
Feed rate / rapid traverse Z	m /min (ipm)	15 / 30, 24** (590 / 1180, 945**)	15 / 30, 24** (590 / 1180, 945**)
Clamping surface Max. load	mm kg (lbs)	850 x 560 500 (1102)	1050 x 560 800 (1764)
Tool magazine	piece	24 / 30 (ISO/BT-40) | 30 (HSK-A63)	24 / 30 (ISO/BT-40) | 30 (HSK-A63)
Control unit	Heidenhain/FANUC	TNC 620 / Oi-MD	TNC 620 / Oi-MD
Optional Spindle (Heidenhain)	14 000 (ISO / BT-40) / 9.5 / 42		
Optional Spindle (Heidenhain S6)	18 000 (HSK-A63) / 39 / 46.6		
Optional Spindles (FANUC)	9000 (ISO / BT-40) / 15 / 105 | 14 000 (ISO / BT-40) / 15 / 63		
Optional Spindles (FANUC S3)	9000 (ISO / BT-40) / 22 / 154 | 14 000 (ISO / BT-40) / 22 / 90		

* Longitudinal x lateral x vertical ** Heidenhain

- Quick to set up and easy to control
- Versatile solution for a wide range of applications
- Standard solution with above-average reliability and efficiency

HEM 1000	HEM 1200
1050 x 530 x 600 (41.34 x 20.87 x 23.62)	1250 x 530 x 600 (49.21 x 20.87 x 23.62)
9 000 (ISO / BT-40) / 9.5 / 71	9 000 (ISO / BT-40) / 9.5 / 71
15 / 30 (590 / 1180)	15 / 30 (590 / 1180)
15 / 30, 24** (590 / 1180, 945**)	15 / 30, 24** (590 / 1180, 945**)
1250 x 560 1000 (2204)	1450 x 560 1200 (2645)
24 / 30 (ISO/BT-40) | 30 (HSK-A63)	24 / 30 (ISO/BT-40)
TNC 620 / Oi-MD	TNC 620 / Oi-MD

Mikron

VCE 600/800(W)/1000/1200/1400/1600 Pro

Reliable solution for simple to complex single molds and parts or series

Main specifications		VCE 600 Pro	VCE 800 Pro	VCE 800W Pro
Travel X, Y, Z *	mm (in)	600 x 500 x 540 (23.62 x 19.68 x 21.26)	800 x 500 x 540 (31.5 x 19.68 x 21.26)	860 x 560 x 600 (33.86 x 22.05 x 23.62)
Working Spindle (40 % ED, S6)	rpm / kW / Nm	10 000 (ISO / BT-40) / 18.5 / 149	10 000 (ISO / BT40) / 18.5 / 149	10 000 (ISO / BT40) / 18.5 / 149
Rapid traverse X, Y	m / min (ipm)	40 (1575)	40 (1575)	40 (1575)
Rapid traverse Z	m / min (ipm)	40 (1575)	40 (1575)	40 (1575)
Clamping surface Max. load	mm kg (lbs)	700 x 500 800 (1764)	910 x 500 1100 (2425)	1000 x 560 1350 (2976)
Tool magazine	piece	24 / 40 (ISO/BT-40)	24 / 40 (ISO/BT-40)	24 / 40 / 60 (ISO/BT-40)
Control unit	Heidenhain	iTNC 620	iTNC 620	iTNC 620
Optional Spindles	14 000 (ISO / BT-40) / 18.5 / 106 | 6000 (ISO-50) / 18 / 350 ** | 16 000 (ISO / BT-40) / 14.75 / 94 ***			

* Longitudinal x lateral x vertical ** VCE 1600 Pro *** VCE 600 / 800 / 800W / 1000 Pro

- Highly reliable and versatile solution
- Quick to set up and easy to control
- Wide range of configurations and retrofittable options to accomodate varied requirements

	VCE 1000 Pro	VCE 1200 Pro	VCE 1400 Pro	VCE 1600 Pro
	1020 x 560 x 600 (40.16 x 22.05 x 23.62)	1200 x 600 x 675 (47.24 x 23.62 x 26.57)	1400 x 650 x 675 (55.12 x 25.6 x 26.57)	1600 x 900 x 800 (63 x 35.43 x 31.5)
	10 000 (ISO / BT40) / 18.5 / 149	10 000 (ISO / BT40) / 18.5 / 209	10 000 (ISO / BT40) / 18.5 / 209	10 000 (ISO / BT40) / 18.5 / 209
	40 (1575)	32 (1260)	32 (1260)	24 (945)
	40 (1575)	24 (945)	24 (945)	24 (945)
	1000 x 560 1350 (2976)	1220 x 620 1700 (3748)	1400 x 620 1700 (3748)	1700 x 850 2000 (4409)
	24 / 40 / 60 (ISO/BT-40)	24 / 40 / 60 (ISO/BT-40)	24 / 40 / 60 (ISO/BT-40)	30 / 40 / 60 (ISO / BT-40) | 24 / 40 (ISO-50)
	iTNC 620	iTNC 620	iTNC 620	iTNC 620

smart machine

GF Machining Solutions' smart machine modules bring new intelligence to the Milling process and support operations to achieve better results. Higher precision, protection, productivity — each of the modules fulfills a specific task and add a specific value. Modularity allows the user to select the modules that are the best options for improving his process.

smart advantages

+ Greater accuracy in shorter machining times
+ Increase in the workpiece surface quality as well as the surface and shape accuracy
+ Recognition of critical machining strategies
+ Improved process safety
+ Higher availability
+ Better operating comfort
+ Considerable increase in reliability in unmanned operation

smart results

Process improvement is often a complex task. smart machine modules' objective is to enable effective process improvement through a user-friendly interface.

The smart machine is constantly being further developed. Currently available modules can be found at **www.gfms.com**.

Precision
Unrivaled exactness, shorter machining times and improved shape accuracy

OSS Operator Support System
OSS extended
OSS extreme

ITC Intelligent Thermal Control

ITC-5X
Intelligent Thermal Control for five-axis machining

ITM Intelligent Tool Measurement

Protection
Improved process safety without sacrificing machine performance

APS Advanced Process System

PFP Power Fail Protection

CAMplete TruePath System
Simulation and optimization tool

MSP Machine Spindle Protection

Productivity
Optimized performance and machine availability, lower production costs

OSS Operator Support System
OSS extended
OSS extreme

RNS Remote Notification System

Environment
Eco-friendly machine management still with performance in focus

Econowatt
Energy efficient and has a warm-up system

Step-Tec Spindles

Renowned for co-engineering motor Spindles with OEM partners as part of new machine tool developments, Step-Tec is uniquely positioned to ensure high sustainability of its products for your benefit. Our Spindles stand out for their Swiss quality, reliability, excellent price/performance ratio, superb ratio of performance to compactness and weight, energy efficiency, thermostability and symmetry of thermal impact, and integrated sensors for Spindle monitoring.

Product portfolio

+ Standard diameter: 120, 140, 150, 240 and 290 mm
+ Customer project specific diameter: 90, 287 and 320 mm
+ Power range: up to 130 kW
+ Torque range: up to 1200 Nm
+ Rotational speed: up to 60,000 rpm
+ Drive technology: closed loop, vector controlled
+ Motor technology: high-efficiency synchroneous or asynchroneous

Service solutions

+ SEP—Spindle Exchange Program: 24-hour dispatch time for specified exchange Spindles
+ SFR—Spindle Factory Repair: 10-day turnaround time for Spindle repair (excluding transport)
+ Preventive Spindle maintenance and diagnostics
+ Service Academy: training for maintenance staff (machine tool manufacturer or end user)

Step-Tec
HVC120

Excellent speed/performance ratio, labyrinth completely sealed

Tool interface	HSK-E32
Speed max. (rpm)	50,000/60,000
Ø Dimension x length (mm)	120 x 429
Weight (kg)	22.4
Power (kW)	8.5
Torque (Nm)	3.5

Step-Tec
HVC140

High speed, super precision

Tool interface	HSK-E40
Speed max. (rpm)	42,000
Ø Dimension x length (mm)	140 x 492
Weight (kg)	34
Power (kW)	13.5
Torque (Nm)	8.8

Step-Tec
HVC150

Excellent weight/power ratio, integrated axial movement sensor (AMS) system

Tool interface	HSK-E50
Speed max. (rpm)	36,000
Ø Dimension x length (mm)	150 x 528
Weight (kg)	40.5
Power (kW)	33
Torque (Nm)	21.3

Step-Tec
HPC190

Low Spindle weight, ideal for linear motor applications

Tool interface	HSK-A63/A80
Speed max. (rpm)	24,000/18,000
Ø Dimension x length (mm)	190 x 660
Weight (kg)	89/91
Power (kW)	36/33
Torque (Nm)	120/160

Step-Tec
HPC240

Specific design for a swivel head

Tool interface	HSK-A63/A100
Speed max. (rpm)	24,000/10,000
Ø Dimension x length (mm)	240 x 735/240 x 748
Weight (kg)	130/152
Power (kW)	50/35
Torque (Nm)	75/325

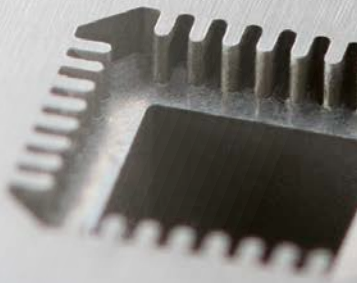
Step-Tec
HPC290

High torque, greatest rigidity

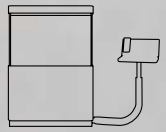
Tool interface	HSK-A/T100
Speed max. (rpm)	15,000
Ø Dimension x length (mm)	290 x 665
Weight (kg)	198
Power (kW)	46
Torque (Nm)	366

Wire cutting

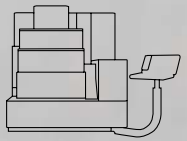
GF Machining Solutions' wire-cutting EDM is fast, precise and increasingly energy efficient. From ultraprecise machining of miniaturized components down to 0.02 mm to powerful solutions for demanding high-speed machining with respect to surface accuracy, our wire EDM solutions position you for success.



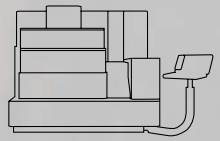
No compromise



CUT 1000
CUT 1000 OilTech

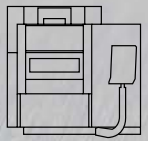


CUT 2000 S
CUT 2000 OilTech

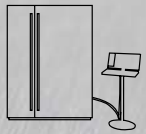


CUT 3000 S

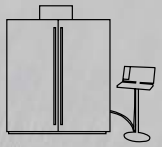
Performance and versatility



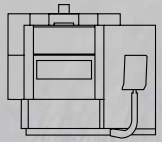
CUT P 350



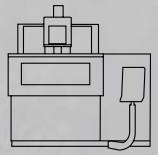
AC Progress VP2



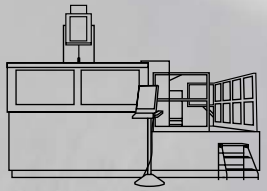
AC Progress VP3



CUT P 550

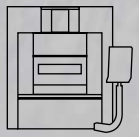


CUT P 800

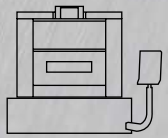


CUT P 1250

Productivity



CUT E 350



CUT E 600

220 | 350 | 500 | 550-600 | 800 | 1250

X travel (mm)

AgieCharmilles

CUT 1000
CUT 1000 OilTech

Uncompromising micromachining accuracy

- Dedicated to micro applications
- Perfect surface quality
- Unattended machining and high productivity with automatic threading in microholes and automatic wire changer
- IVU Advance for measurement directly on the machine
- Extreme precision down to ± 1.0 µm

Main specifications		CUT 1000	CUT 1000 OilTech
Travel X, Y, Z	mm (in)	220 x 160 x 100 (8.66 x 6.29 x 3.93)	220 x 160 x 100 (8.66 x 6.29 x 3.93)
Travel U, V	mm (in)	± 40 (1.57)	± 40 (1.57)
Max. part dimensions *	mm (in)	300 x 200 x 80 (11.81 x 7.87 x 3.14)	300 x 200 x 80 (11.81 x 7.87 x 3.14)
Max. part weight	kg (lbs)	35 (77)	35 (77)
Max. taper angle / height	° / mm (in)	3 / 80 (3.14)	3 / 80 (3.14)
Wire diameters	mm (in)	0.07 – 0.20 (0.003 – 0.008) 0.02 – 0.05 (0.0008 – 0.002) **	0.07 – 0.20 (0.003 – 0.008) 0.02 – 0.05 (0.0008 – 0.002) **
Wire spool	kg (lbs)	2 x 8 (17.6)	2 x 8 (17.6)
Min. surface roughness Ra	µm (µin)	0.05 (2)	0.05 (2)

* Length x depth x height ** Option

AgieCharmilles

AC Progress VP

High performance, productivity for high-tech applications

- Mechanical concept ensures maximum precision, repeatability
- Autonomy: convenient setup, fast wire changing, reliable threading
- 3D probing and setup for faster workpiece preparation
- DUO TEC technologies to save time and wire cost

Main specifications		AC Progress VP2	AC Progress VP3	AC Progress VP4
Travel X, Y, Z	mm (in)	350 x 250 x 256 (13.78 x 9.84 x 10.00)	500 x 350 x 426 (19.70 x 13.78 x 16.80)	800 x 550 x 525 (31.50 x 21.65 x 20.67)
Travel U, V	mm (in)	±70 (2.75)	±70 (2.75)	800 x 550 (31.50 x 21.65)
Max. part dimensions *	mm (in)	750 x 550 x 250 (29.50 x 21.65 x 9.80)	1050 x 650 x 420 (41.30 x 25.60 x 16.50)	1300 x 1000 x 510 (51.18 x 39.37 x 20.08)
Max. part weight	kg (lbs)	200 (440)	400 (880)	3000 (6613)
Max. taper angle / height	° / mm (in)	30 / 100 (3.94)	30 / 100 (3.94)	30 / 500 (19.68) | 45 / 500 (19.68) **
Wire diameters	mm (in)	0.15 – 0.33 (0.006 – 0.013) 0.05 – 0.10 (0.002 – 0.004) **	0.15 – 0.33 (0.006 – 0.013) 0.05 – 0.10 (0.002 – 0.004) **	0.15 – 0.33 (0.006 – 0.013) 0.07 – 0.10 (0.003 – 0.004) **
Wire spool	kg (lbs)	8, 25** (17.6, 55**)	8, 25** (17.6, 55**)	25 (55)
Min. surface roughness Ra	µm (µin)	0.2, 0.1** (8, 4**)	0.2, 0.1** (8, 4**)	0.2, 0.1** (8, 4**)

* Length x depth x height ** Option

AgieCharmilles

CUT 2000 S
CUT 3000 S

Uncompromising accuracy, perfect surfaces and high productivity

- IVU for onboard optical process control
- Exclusive Automatic Wire Changer for higher productivity with wires down to 0.05 mm
- THREADING-EXPERT for easy threading even under difficult conditions
- Extreme precision down to ±1.5 µm

Main specifications		CUT 2000 S	CUT 3000 S
Travel X, Y, Z	mm (in)	350 x 250 x 256 (13.77 x 9.84 x 10)	500 x 350 x 256 (19.7 x 13.77 x 10)
Travel U, V	mm (in)	± 70 (2.7)	± 70 (2.7)
Max. part dimensions *	mm (in)	750 x 550 x 250 (29.5 x 21.6 x 9.8)	1050 x 650 x 250 (41.3 x 25.6 x 9.8)
Max. part weight	kg (lbs)	200 (440)	400 (880)
Max. taper angle / height	° / mm (in)	30 / 100 (3.93)	30 / 100 (3.93)
Wire diameters	mm (in)	0.10 – 0.30 (0.004 – 0.012) 0.05 – 0.07 (0.002 – 0.003) **	0.10 – 0.30 (0.004 – 0.012) 0.05 – 0.07 (0.002 – 0.003) **
Wire spool	kg (lbs)	25 (55)	25 (55)
Min. surface roughness Ra	µm (µin)	0.07 (2.7)	0.07 (2.7)

* Length x depth x height ** Option

AgieCharmilles

CUT 2000 OilTech

**Uncompromising accuracy,
oil machining for perfect surfaces**

- Best results in all situations with large range of oil-based technologies
- Machines finest details with maximum precision and surface finish
- Exclusive Automatic Wire Changer for higher productivity
- Extreme precision down to ±1.5 µm

Main specifications		CUT 2000 OilTech
Travel X, Y, Z	mm (in)	350 x 250 x 256 (13.77 x 9.84 x 10)
Travel U, V	mm (in)	± 70 (2.7)
Max. part dimensions *	mm (in)	750 x 550 x 250 (29.5 x 21.6 x 9.8)
Max. part weight	kg (lbs)	200 (440)
Max. taper angle / height	° / mm (in)	30 / 100 (3.93)
Wire diameters	mm (in)	0.10 – 0.30 (0.004 – 0.012) 0.05 – 0.07 (0.002 – 0.003) **
Wire spool	kg (lbs)	25 (55)
Min. surface roughness Ra	µm (µin)	0.05 (2)

* Length x depth x height ** Option

AgieCharmilles

CUT P series

Limitless possibilities

Main specifications		CUT P 350	CUT P 550
Travel X, Y, Z	mm (in)	350 x 220 x 220 (13.78 x 8.66 x 8.66)	550 x 350 x 400 (21.65 x 13.78 x 15.75)
Travel U, V	mm (in)	350 x 220 (13.78 x 8.66)	550 x 350 (21.65 x 13.78)
Max. part dimensions *	mm (in)	1000 x 550 x 220 (39.37 x 21.65 x 8.66)	1200 x 700 x 400 (47.24 x 27.55 x 15.75)
Max. part weight	kg (lbs)	750 (1653)	1500 (3307)
Max. taper angle / height	° / mm (in)	30 / 220 (8.66) | 45 / 220 (8.66) **	30 / 400 (15.75) | 45 / 400 (15.75) **
Wire diameters	mm (in)	0.33 – 0.070 (0.013 – 0.003) Standard: 0.33 – 0.15 (0.013 – 0.006)	0.33 – 0.070 (0.013 – 0.003) Standard: 0.33 – 0.15 (0.013 – 0.006)
Wire spool	kg lbs	1.6 to 8 (16, 25)** 3.52 to 17.6 (35.2, 55)**	1.6 to 8 (16, 25)** 3.52 to 17.6 (35.2, 55)**
Min. surface roughness Ra	µm (µin)	0.08 (3.2)	0.08 (3.2)

* Length x depth x height ** Option

- Ultra-high-speed cutting with IPG-DPS generator technology
- EXPERT systems for every complex machining situation
- 100 percent Automation with slug management solutions
- Boost efficiency with SMART consumables

CUT P 800	CUT P 1250
800 x 550 x 510 (31.50 x 21.65 x 20.08)	1250 x 850 x 100-800 (49.2 x 33.5 x 3.9-31.5)
800 x 550 (31.50 x 21.65)	1250 x 850 (49.2 x 33.5)
1300 x 950 x 510 (51.18 x 39.37 x 20.08)	2300 x 1300 x 800 (90.6 x 51.2 x 31.5)
3000 (6613)	6000 (13228)
30 / 510 (20.08) | 45 / 510 (20.08) **	30°/ 800 (30°/ 31.5)
0.30 – 0.15 (0.012 – 0.006)	0.30 – 0.15 (0.012 – 0.006)
25 55	25, 45** 55, 100**
0.2 (8)	0.3 (12)

AgieCharmilles

CUT E 350/600

Put efficiency at your fingertips in your workshop

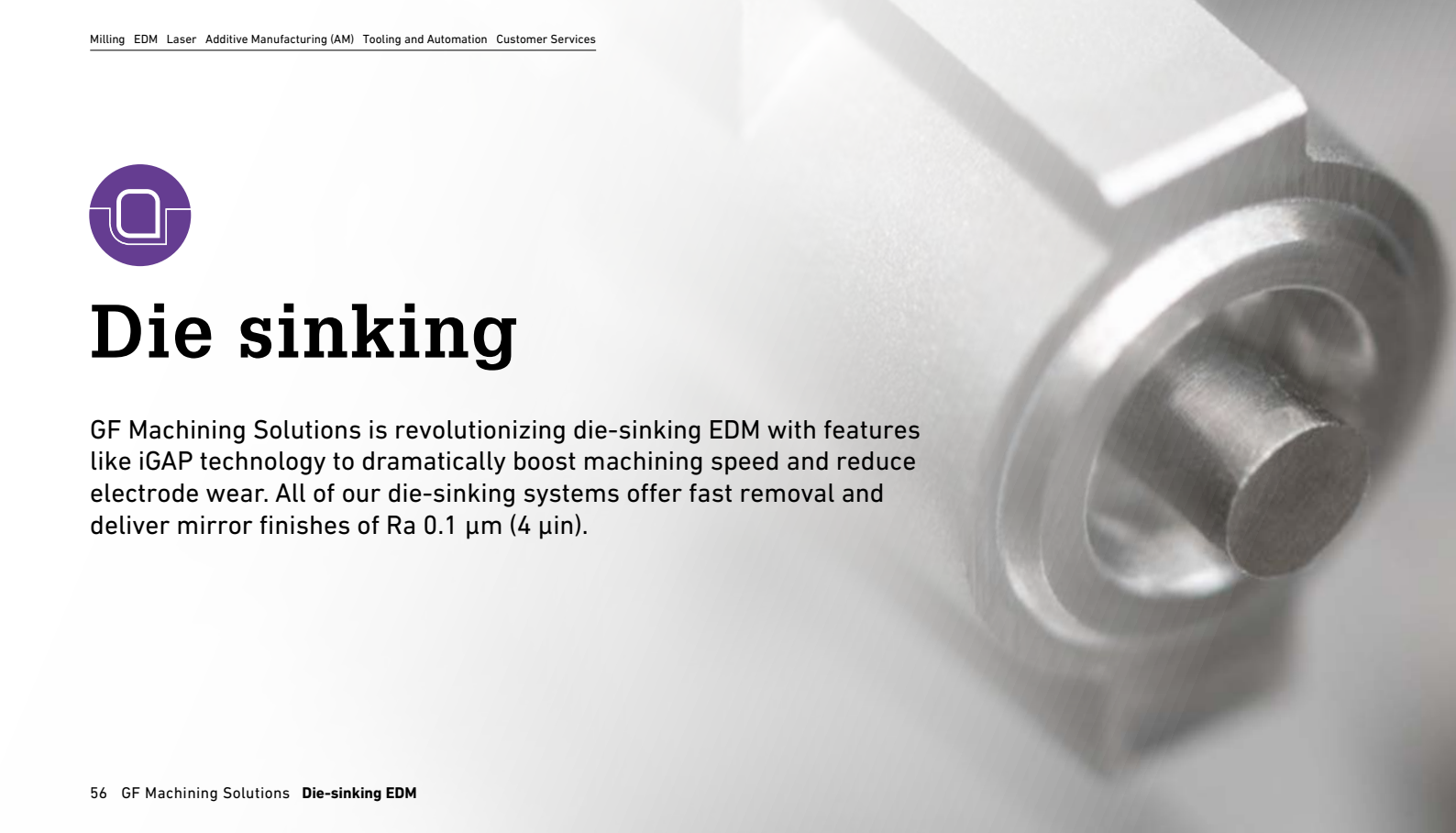
- New easy-to-use and smart AC CUT HMI
- Robust and speed-oriented process
- Excellent accuracy and surface finish
- Outstanding production repeatability
- 3 m/min travelling speed secured by proven collision protection

Main specifications		CUT E 350	CUT E 600
Travel X, Y, Z	mm (in)	350 x 250 x 250 (13.78 x 9.84 x 9.84)	600 x 400 x 350 (23.60 x 15.75 x 13.78)
Travel U, V	mm (in)	± 45 (3.54)	± 50 (3.93)
Max. part dimensions *	mm (in)	820 x 680 x 245 (32.28 x 26.77 x 9.64)	1030 x 800 x 345 (40.55 x 31.50 x 13.58)
Max. part weight	kg (lbs)	400 (960)	1000 (2204)
Max. taper angle / height	° / mm (in)	30/56 (2.20) or 25/96 (3.78)	30/56 (2.20) or 25/96 (3.78)
Wire diameters	mm (in)	0.15 – 0.30 (0.006 – 0.012) 0.10 (0.004) **	0.15 – 0.30 (0.006 – 0.012) 0.10 (0.004) **
Wire spool	kg (lbs)	8, 25** (17.6, 55**)	8, 25** (17.6, 55**)
Min. surface roughness Ra (carbide/steel)	µm (µin)	0.12/0.18 (4.72/7.05)	0.12/0.18 (4.72/7.05)

* Length x depth x height ** Option

Die sinking

GF Machining Solutions is revolutionizing die-sinking EDM with features like iGAP technology to dramatically boost machining speed and reduce electrode wear. All of our die-sinking systems offer fast removal and deliver mirror finishes of Ra 0.1 µm (4 µin).

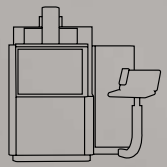


Mold and die

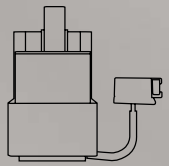
Productivity and flexibility

Microprofile

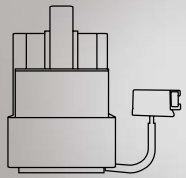
High precision



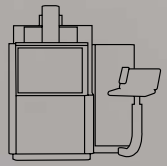
FORM S 350



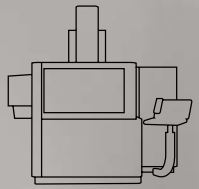
FORM X 400



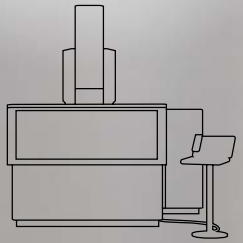
FORM X 600



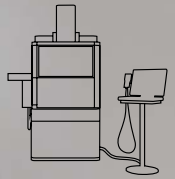
FORM P 350



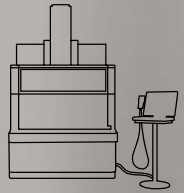
FORM P 600



FORM P 900



FORM E 350



FORM E 600

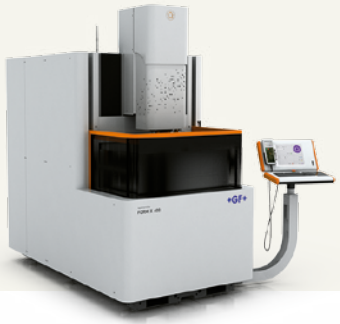
350 400 600 900

X travel (mm)

AgieCharmilles

FORM X 400/600

Highest precision in complex applications



- Machine body assembled with highest accuracy
- Global thermostabilization for ultimate stability regardless of your production rate
- Uncompromising repeatability in microprofiles
- Outstanding accuracy

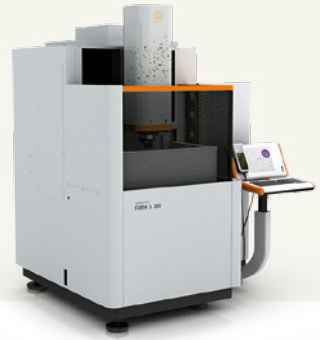
Main specifications		FORM X 400	FORM X 600
Travel X, Y, Z	mm (in)	400 x 300 x 350 (15.75 x 11.81 x 13.78)	600 x 400 x 500 (23.62 x 15.75 x 19.68)
Max. part dimensions *	mm (in)	820 x 580 x 250 (32.28 x 22.83 x 9.84)	1200 x 800 x 350 (47.24 x 31.50 x 13.78)
Max. part weight	kg (lbs)	800 (1763)	2000 (4409)
Max. electrode weight	kg (lbs)	50 (110)	50 (110)
Distance table/chuck	mm (in)	170 – 520 (6.69 – 20.47)	200 – 700 (7.87 – 27.56)
Electrode changer	Pos.	140, 210 (combi)	140, 210 (combi)
Current	A	80, 140**	80, 140**
Min. surface roughness Ra	µm (µin)	0.08 (2)	0.08 (2)

* Length x depth x height ** Option

AgieCharmilles

FORM S 350

Designed for maximum respect of details in micro applications



- Exclusive generator concept (ISPG) with specific microtechnologies
- Optimize productivity, produce better details with fewer electrodes
- Lasting accuracy, equipped with thermostabilization module
- Automation ready: Optimize your production with an external robot or internal changers
- Be ready for miniaturization

Main specifications		FORM S 350
Travel X, Y, Z	mm (in)	350 x 250 x 300 (13.78 x 9.84 x 11.81)
Max. part dimensions *	mm (in)	790 x 530 x 300 (31.1 x 20.87 x 11.81)
Max. part weight	kg (lbs)	500 (1102.31)
Max. electrode weight	kg (lbs)	50 (110)
Distance table/chuck	mm (in)	150 – 450 (5.91 – 17.72)
Current	A	80, 140 **
Min. surface roughness Ra	µm (µin)	0.08 (3.2)

* Length x depth x height ** Option

AgieCharmilles

FORM P 350/600/900

Productivity and flexibility ideally combined

- Compact and rigid mechanical concept
- Flexible data entry, adaptable to the work environment
- High performance over time
- Suitable for a vast range of Automation solutions
- Productivity through reliability

Main specifications		FORM P 350	FORM P 600	FORM P 900
Travel X, Y, Z	mm (in)	350 x 250 x 300 (13.78 x 9.84 x 11.81)	600 x 400 x 450 (23.62 x 15.75 x 17.72)	900 x 700 x 500 (35.43 x 27.56 x 19.68)
Max. part dimensions *	mm (in)	790 x 530 x 275 (31.10 x 20.87 x 10.83)	1220 x 870 x 470 (48.03 x 34.25 x 18.50)	1814 x 1215 x 600 (71.42 x 47.83 x 23.62)
Max. part weight	kg (lbs)	500 (1102)	1600 (3350)	3000 (4409)
Max. electrode weight	kg (lbs)	50 (110)	50 (110)	50 (110)
Distance table/chuck	mm (in)	150 – 450 (5.91 – 17.72)	150 – 600 (5.91 – 23.62)	322 – 822 (12.68 – 32.36)
Electrode changer	Pos.	80 , 160 (combi), 20 (FTC)	80, 160 (combi)	10 left, 10 right
Current	A	80, 140**	80, 140**	80, 140**
Min. surface roughness Ra	µm (µin)	0.08 (3.2)	0.08 (3.2)	0.08 (3.2)

* Length x depth x height ** Option

AgieCharmilles

FORM E 350/600

Most cost-efficient die-sinking solution for general mold and die applications

(Available on the European market from January 2018)

- Outstanding price/performance ratio
- Innovative and compact design reduces fixed costs
- Highly flexible and easy to use
- Cross-table design and linear glass scales for positioning accuracy
- AC FORM HMI maximizes productivity

Main specifications		FORM E 350	FORM E 600
Travel X, Y, Z	mm (in)	350 x 250 x 250 (13.78 x 9.84 x 9.84)	600 x 400 x 400 (23.60 x 15.75 x 15.75)
Max. part dimensions *	mm (in)	800 x 500 x 265 (31.49 x 19.68 x 10.43)	1000 x 700 x 400 (39.37 x 27.55 x 15.75)
Max. part weight	kg (lbs)	200 (440)	1000 (2204)
Max. electrode weight	kg (lbs)	50 (110)	100 (220)
Distance table/chuck	mm (in)	230 – 480 (9.06 – 18.90)	250 – 650 (9.85 – 25.60)
Electrode changer	Pos.	16	26
Current	A	80	140
Min. surface roughness Ra	µm (µin)	0.1 (4)	0.1 (4)

* Length x depth x height

Hole drilling

Designed for drilling parts made of hard materials like hardened steel or carbide, our high-speed drilling solutions are sensible complements to GF Machining Solutions' wire-cutting EDM systems. The easy-to-use, computer numerical control (CNC), high-speed vertical DRILL 20 can accommodate electrodes as small as 0.02 mm (0.00078 in.).

AgieCharmilles

DRILL 20

Quick, simple, precise and reliable

- Short setup time
- Easy data input
- Powerful, fully CNC Windows control with touchscreen
- Includes as standard a vast range of technologies

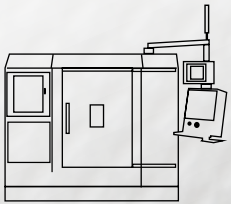
Main specifications		DRILL 20
Travel X, Y, Z	mm (in)	300 x 200 x 300 (11.8 x 7.8 x 11.8)
Work table *	mm (in)	400 x 300 (15.7 x 11.8)
Max. part weight	kg (lbs)	300 (660)
Max. machining depth	mm (in)	200 (7.78)
Electrode guide travel	mm (in)	100 (3.9)
Electrode diameters	mm (in)	0.1 – 3 (0.004 – 0.12)
Generator	A	30
Machine dimensions **	mm (in)	910 x 1340 x 1940 (35.8 x 52.7 x 76.4)

* Length x width ** Width x depth x height

Laser texturing, engraving, cutting and drilling

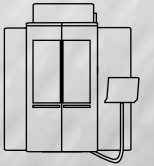
GF Machining Solutions brings the machining process full circle with its clean, fully digitized Laser technology, delivering detailed aesthetic and functional texturing, engraving, cutting, drilling, microstructuring, marking and labeling.

GF Machining Solutions' Microlution brand develops and builds Laser manufacturing systems optimized for small part production. Microlution focuses on integrating femtosecond Lasers and multi-axis scanning systems into its world-class machine tools, resulting in systems that are capable of producing highly accurate parts in a competitive cycle time. Key applications include micro-hole drilling and fine cutting.



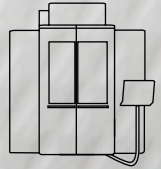
ML-5

Ø 280 x h 350



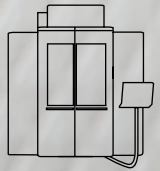
LASER P 600 U

Ø 420 x h 530



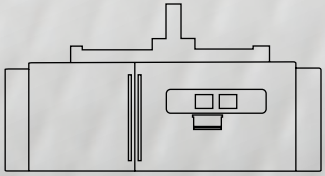
LASER P 1000 U

Ø 510 x h 480



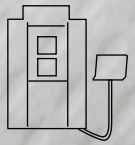
LASER P 1200 U

Ø 920 x h 790



LASER P 4000 U

4000 x 3000 x 1170



LASER P 400

Ø 120 x h 120

Maximum workpiece dimensions in five-axis operation (mm)

Microlution

ML-5

Three- or five-axis micromachining platform optimized for small parts

- Increased productivity
- Exceptional precision, speed, and quality
- HAZ-free, ultrafast Laser micromachining
- Available with integrated five-axis scanning system allowing for accurate sidewall taper control during hole drilling and fine cutting operations

Main specifications		ML-5
Machine dimension *	mm (in)	2310 x 1050 x 2260 (90.94 x 41.34 x 88.97)
Machine weight (machine only)	kg (lbs)	2730 (6018)
X,Y, Z travels	mm (in)	280 x 350 x 300 (11 x 13.8 x 11.8)
Rotary 4/5 axis **	°	A +95°-45° / C 360°
Laser sources	W	10/20/50

* Width x depth x height ** Option

AgieCharmilles

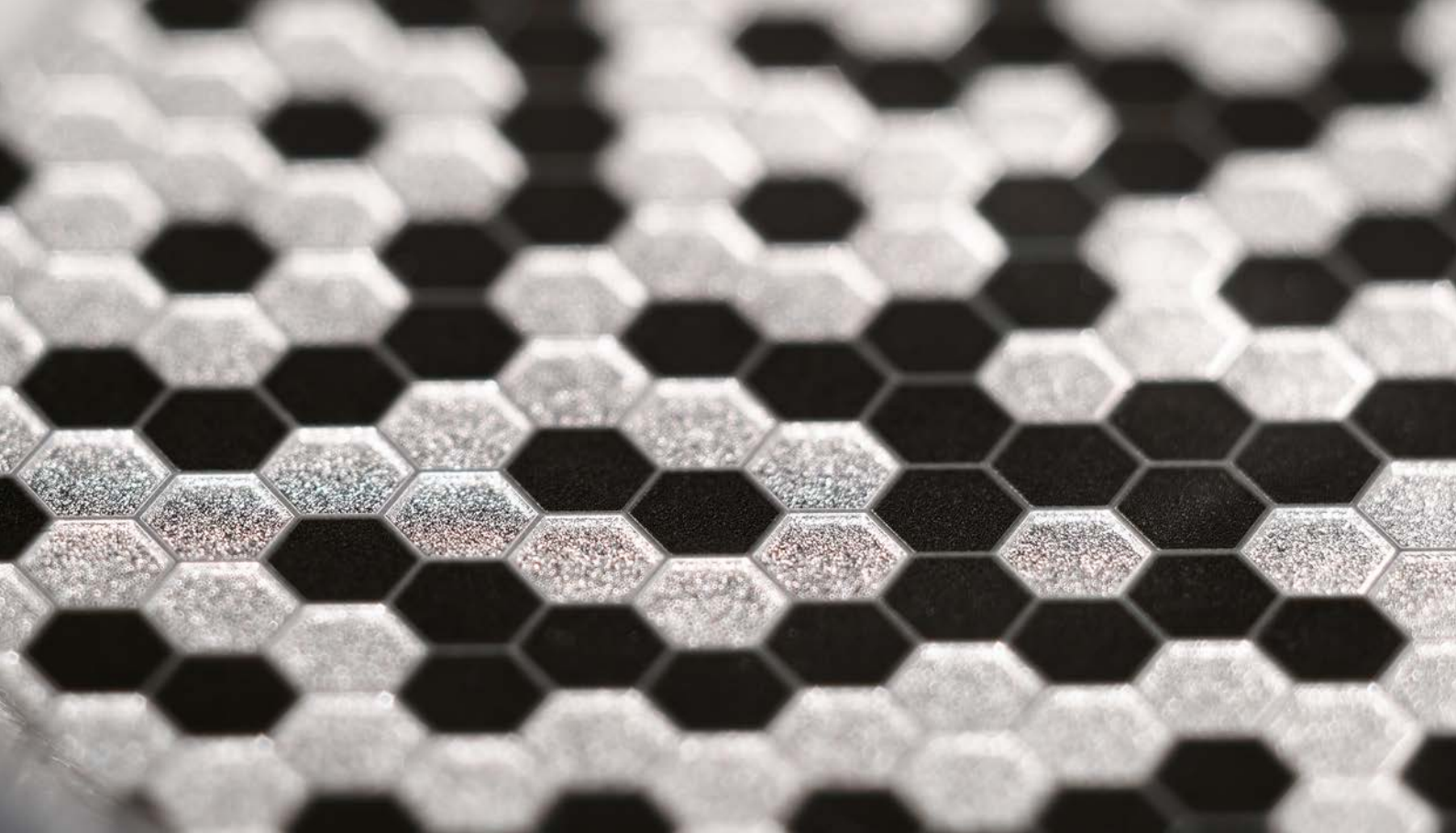
LASER P 400

A concentration of technologies for production of small precision parts

- Compact and high-performance Laser solution
- Dual Laser: nano and/or femto
- Three- or five-axis solution for engraving and texturing
- GF Machining Solutions' all-in-one software concept
- Clean and fully digitized process

Main specifications		LASER P 400
Dimension of complete equipment *	mm (in)	1230 x 2330 x 2490 (48.42 x 91.73 x 98.03)
Machine weight (machine only)	kg (lbs)	2400 (5291.09)
Maximum workpiece dimensions 3Ax/5Ax *	mm (in)	600 x 400 x 250 / Ø120 x h120 (23.62 x 15.75 x 9.84 / Ø4.72 x h4.72)
Maximum workpiece weight 3Ax/5Ax	kg (lbs)	50/4 (110/8.82)
Table size **	mm (in)	680 x 400 (26.77 x 15.74)
X,Y, Z travels	mm (in)	600 x 400 x 300 (23.62 x 15.75 x 11.81)
Rotary 4/5 axis ***	mm (in)	A 115°-105°/B 360° (A 4.53°-4.13°/B 14.17°)
Laser sources	W	Multi-Laser sources: nanosecond and/or ultrashort pulsed laser ***
Power consumption		Electrical: 3 x 400 Vac + ground; 6 kVA Pneumatic: 6 bars 500 l/h (132.09 gal/h)

* Width x depth x height ** Length x width *** Option



AgieCharmilles

LASER P 600/1000/1200 U

The five-axis texturing world reference in mold and die

- Versatile five-axis solution for engraving and texturing
- GF Machining Solutions' all-in-one software concept
- Flexible Automation solutions
- Clean and fully digitized process

Main specifications		LASER P 600 U	LASER P 1000 U	LASER P 1200 U
Ytterbium pulsed fiber Laser	W	20/30/50/100	20/30/50/100	50/100
Focal length	mm (in)	100/160/254 (3.9/6.3/10)	100/160/254 (3.9/6.3/10)	100/160/254 (3.9/6.3/10)
Machine dimensions *	mm (in)	2050 x 2280 x 2770 (80.7 x 89.8 x 109)	2240 x 2605 x 2845 (88.2 x 102.6 x 112)	2240 x 3395 x 2930 (88.2 x 133.7 x 115.3)
Approx machine weight	kg (lbs)	5000 (11023)	6500 (14330)	8700 (19180)
Max. power consumption	kW	4	4	4
X,Y, Z travels	mm (in)	600 x 460 x 830 (23.6 x 18.1 x 32.7)	1000 x 550 x 880 (39.4 x 21.6 x 34.6)	1200 x 900 x 1200 (47.2 x 35.4 x 47.2)
Laser titling axis A	°/s, °	180, 210	180, 210	180, 210
Max. 5 axis machining volume	mm (in)	Ø 370 x 530 ** (Ø 14.6 x 20.9 **)	Ø 510 x 480 (Ø 20.1 x 18.9)	Ø 865 x 790 (Ø 34.1 x 31.1)
Max. workpiece volume	mm (in)	Ø 420 x 530 (Ø 16.5 x 20.9)	Ø 510 x 480 (Ø 20.1 x 18.9)	Ø 920 x 790 (Ø 36.2 x 31.1)
Max. workpiece weight 5 axis	kg (lbs)	75 (165)	150 (330)	1700 (3748)

* Width x depth x height ** FL160

AgieCharmilles

LASER P 4000 U

Unique five-axis Laser texturing solution for extra-large tools

- Unique machine design for large molds
- Five-axis solution for engraving and texturing
- Large access and easy loading
- GF Machining Solutions' all-in-one software concept
- Clean and fully digitized process

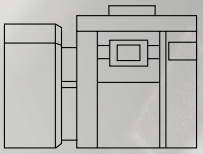
Main specifications		LASER 4000 U
Ytterbium pulsed fiber Laser	W	50/100
Focal length	mm (in)	330/420 (6.3/10/12.3/16.5)
Machine dimensions *	mm (in)	7000 x 10000 x 5250 (275.6 x 393.7 x 206.7)
Approx machine weight	kg (lbs)	32000 (70548)
Max. power consumption	kW	12.5
X,Y, Z travels	mm (in)	4000 x 3000 x 1500 (157.5 x 118.1 x 59)
Laser titling axis A	°/s, °	180, 270
Max. 5 axis machining volume	mm (in)	2800 x 1800 x 1170 (110.2 x 70.9 x 46.1)
Max. workpiece volume	mm (in)	4000 x 3000 x 1170 (157.5 x 118.1 x 46.1)
Max. workpiece weight 5 axis	kg (lbs)	> 20000 (> 44092)

* Width x depth x height

Additive Manufacturing (AM)

Transcend conventional cooling to produce mold inserts as never before and gain unlimited ability to reduce lead time and total costs with our configured-for-you Additive Manufacturing (AM) solution. Get the thermal management benefits of conformal cooling and optimized channels for plastic injection and die casting.

Profit from access to our complete, dedicated solution and approach for mold and die. At the same time, position your business for success with our AM team supporting you in defining the best manufacturing strategy for your specific market segments and products.



AM S 290 Tooling

250 x 250 x 305

Maximum workpiece dimensions in five-axis operation (mm)

AgieCharmilles

AM S 290 Tooling

Increase mold performance with the benchmark in AM

- Quality proven EOS technology
- Shorter cycle time
- Improved part quality
- Greater design flexibility
- Shorter lead time

Main specifications		AM S 290 Tooling
Building volume X Y Z	mm (in)	250 x 250 x 305 (9.84 x 9.84 x 12.00)
Ytterbium fiber Laser	W	400
Scan speed	m/s	up to 7
F-theta lens; focus diameter	µm (in)	100 (0.004)
Nitrogen generator		integrated
Power consumption	kW	max 8.5 (typical 3.20)
Machine dimension including console *	mm (in)	2500 x 1300 x 2190 (98.42 x 51.18 x 86.22)
Weight	kg (lbs)	~ 1250 (2755)

* Width x depth x height

Based on
quality proven
EOS technology

Tooling and Automation

Experience proves that measures to reduce your machines' idle time are significantly more worthwhile than chasing seconds in the actual machining process. It's a matter of focusing on the whole: total throughput time instead of process time in a particular machine.

Our Tooling, Automation and software products are developed to increase your productivity and ensure a greater return on your capital equipment investment.

Tooling

- Increased productivity and profitability (reduced setup times)
- Quality assurance (high system accuracy)
- Consistency in production (no influence from operators)
- Increased flexibility (quick and easy to change between different types of jobs)
- Linking different machines together (different processes and/or brands) with no loss of accuracy

Automation (including software)

- Increased productivity: Many customers with Automation run their machines 20 or more hours per day 7 days/week.
- Reduced lead times: Run your machines 140 instead of 40 hours per week
- Quality assurance
- Consistency in production
- Increased flexibility
- Increased competiveness
- Linking different machines together (different processes and/or brands)
- Automation possible for batch quantity of one piece

System 3R

MacroJunior MacroCombi

Extreme flexibility both in electrode production and in die-sinking EDM

- Small electrodes (MacroJunior) and large electrodes (MacroCombi) in the same chuck
- Maximum workpiece weight: MacroJunior 1 kg, MacroCombi 20 kg
- Maximum electrode weight: MacroJunior 1 kg, MacroCombi 10 kg
- Pallets:
  Ø 25 and 32 mm (MacroJunior)
  54 x 54 and 70 x 70 mm (MacroCombi)
- Allows fully automated production

System 3R

Macro

The number one system for high accuracy in both mold-and-die and part production

- Increases, competitiveness, flexibility and profitability
- Maximum workpiece weight: 50 kg
- Maximum electrode weight: 20 kg
- Pallets:
  Ø 75 mm
  Ø 116 mm
  54 x 54 mm
  70 x 70 mm
- Allows fully automated production

System 3R

MacroMagnum

The larger version of the Macro system

- The position of the reference surfaces provide "Macro-class" stability and accuracy
- Suitable for applications with high machining forces
- Maximum workpiece weight: 100 kg
- Pallets: Ø 142-156 mm
- All Macro pallets can be used as well
- Allows fully automated production

System 3R

Matrix

Optimized for metal-cutting machining

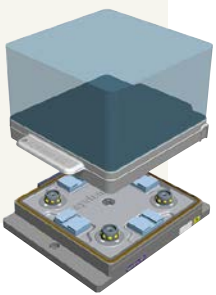
- The through hole allows high/long workpieces to be sunk into the chuck for stable/rigid fixation
- Features low construction height and has ultraprecise indexing
- Maximum workpiece weight: up to 200 kg
- Available in several different dimensions (pallet sizes Ø 110-260 mm)
- Allows fully automated production

System 3R

Dynafix

Allows machining with optimal cutting data

- Locking mechanism with built-in soft-landing function
- Chuck adapters provide access to other reference systems in System 3R's extensive product range
- Maximum workpiece weight: 250 kg
- Pallets: 280 x 280 mm to 400 x 400 mm
- Allows fully automated production



System 3R

WEDM

System 3R offers the most comprehensive product range on the market

- Handles all types of workpieces: rectangular or round, small or large, thin or thick, tall or short
- Collision-free clamping within the working area
- Setup in the machine done in seconds
- Exceptional flexibility
- Allows presetting of workpieces outside the machine
- Allows fully automated production

System 3R

Nano accuracy

Provides sub-micron repeatability and extreme index accuracy

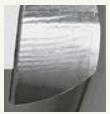
- Repeatable accuracy: less than 0.001 mm
- Suitable for micromachining
- The Macro and Matrix product programs can be delivered in a Nano version.

System 3R

VDP Technology

Reduces cutting forces by up to 25%

- Lengthens tool life by up to 30%
- Helps meet shorter lead times. VDP allows machining with higher cutting data. A capacity increase of 30% is within your reach.
- Improves surface quality



Without

With

System 3R

GPS 70 and 120

The perfect tooling for watchmaking, medical, dental and fine-mechanics applications

- Maximum workpiece weight: GPS 70, 10 kg and GPS 120, 20 kg
- Pallets: Ø 70 and 120 mm
- Pallets in aluminum and steel, ready for Automation
- Aluminum pallets due to the attractive price, very suitable for volume parts production
- Allows fully automated production applications

System 3R

GPS 240

Suited for three- and five-axis milling, grinding and EDM applications; round versions of chuck and pallets for lathe applications

- 240 x 240 mm size specifically designed for collision free 5-axis machining
- 40cc pattern through holes for fixation of workpieces or vices
- Maximum 100 kg workpiece weight
- Cast aluminum and solid milled pallets ready for Automation

System 3R

Delphin

A modular zero-point system making it possible to design the pallet and workpiece clamping for your machine tool to the size needed

- Repetition accuracy < 5 µm
- High holding forces
- Pneumatic and hydraulic versions
- Standard chucks and baseplates, plus customized solutions
- Automation ready

System 3R

Delphin Big

Delphin Big is the perfect zero-point clamping system to palletize your large and heavy workpieces (>2000 kg)

- Repeatable accuracy ±0.005 mm
- Handle up to 10-ton workpiece weight with high holding forces
- Hydraulic actuated
- Automatic air cleaning of the Z references and pallet presence control
- Allows fully automated production

System 3R

WorkPal 1 (WP1)

Compact, easy-to-use pallet changer perfect for smaller size workpieces and electrodes

- Small footprint—only 1.2 m^2
- Can serve one machine and up to 60 magazine positions
- Maximum handling weight of 50 kg
- Long reach of > 1600 mm
- Ideal for milling and wire-cutting EDM applications

System 3R

WorkPartner 1+ (WPT1+)

Modular magazine design concept for capacity optimization of workpieces and electrodes on minimal floor space

- Small footprint: 1,730 x 1,290 mm minimum, 2,430 x 1,860 mm maximum
- Magazines possible on three sides for up to 240 positions
- Can serve two machines changing both electrodes and workpieces
- Maximum handling weight of 80 kg
- Ideal for milling and die-sinking EDM applications

System 3R

FANUC Stationary

TRANSFORMER concept using FANUC six-axis industrial robots

- Can serve up to three machines
- Maximum handling weight of 700 kg
- Same accessories as the TRANSFORMER
- Longer reach and more complex movements possible
- Ideal for precision parts production applications

Models
T6-70 T6-360
T6-165 T6-700
T6-210

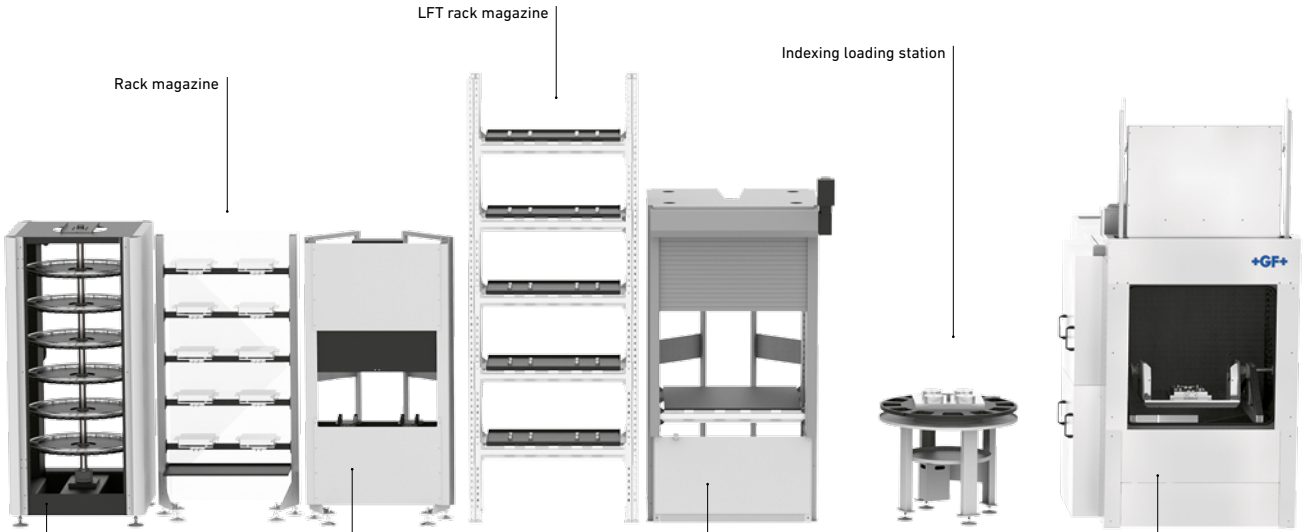
System 3R

FANUC Linear

Ultimate flexibility on rails

- Can serve up to 12 machines with up to 30 m travel
- Basically limitless magagine capacity
- Rails can easily be extended to accommodate more machines
- Up to 2 m/s linear speed
- Ultimate flexibility with tailor-made layout solutions

Models
T6L-70 T6L-360
T6L-165 T6L-700
T6L-210


LFT rack magazine
Rack magazine
Indexing loading station
+GF+
Rotary magazine
Multiple loading station
(smaller workpieces)
Multiple loading station
(larger workpieces)
Washing machine

System 3R

WorkShopManager (WSM)

User-friendly cell management software

Preparation: WorkCenter

- Create an order
- Assign operations and NC programs
- Retrieve offset values
- Release the order for production

Execution: CellManager

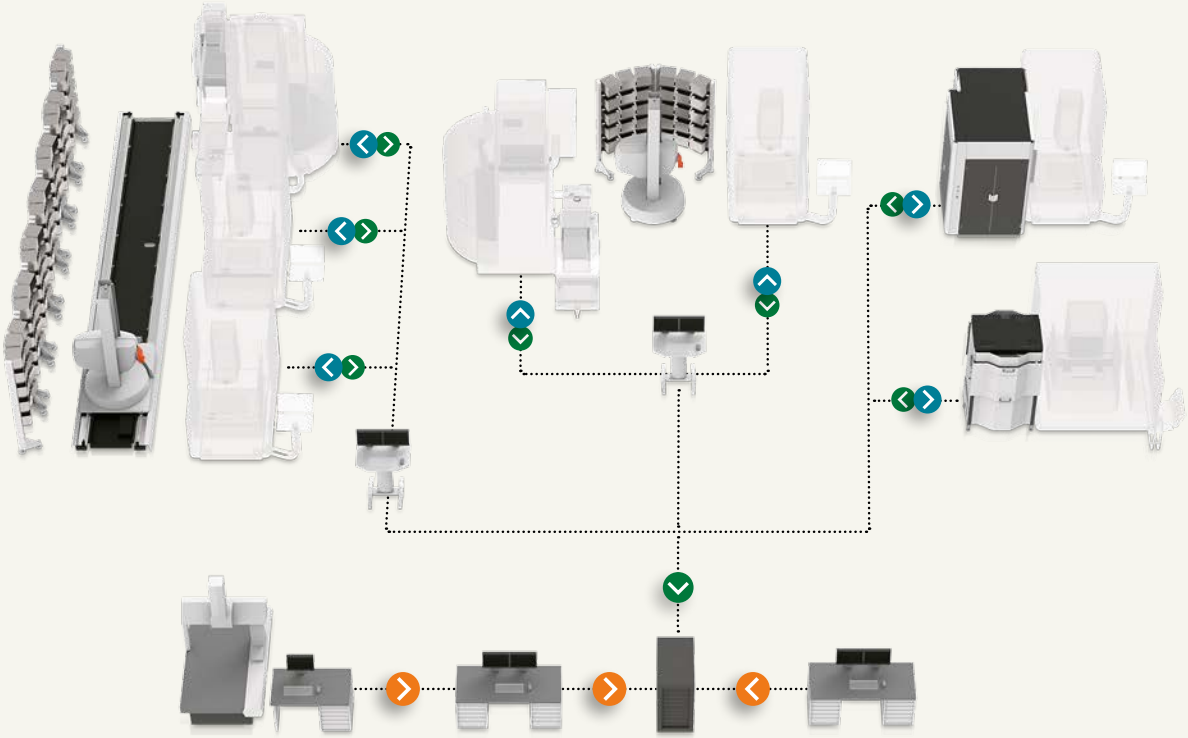
- Manages the pallet ID codes and magazine positions
- Creates priority lists
- Automatically starts available jobs in the order of the priority list
- Updates the information in the database with the status and machining times of individual orders

Monitoring: CellMonitor

- Display status of all cells
- Display status of individual machines and processes

Statistics: WSM Statistics

- Retrieve and analyze cell utilization data
- Retrieve and analyze order data



Customer Services

Solutions for you

Equipment availability, productivity and continuous improvement are essential drivers for your business. Therefore your service strategy today is a crucial success factor.
GF Machining Solutions Customer Services offers you a modular concept with three levels of support. You choose the services that best fits to your specific needs.

Anywhere, anytime in the world
Wherever you are in the world, you are supported by a local Customer Services team to ensure the optimal uptime of your machine. Your local Customer Services team:
+ understands your needs
+ is ready to quickly deliver the solution
+ speaks your language

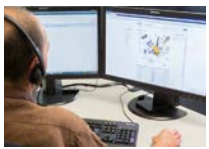
Operations Support
Solutions to boost your applications. Achieve optimum levels of performance and precision in your daily operations with certified consumables and original wear parts.

Machine Support
Secure your sustainable machining success. Optimize your uptime with original spare parts, expert technical support, and preventive maintenance and advanced services.

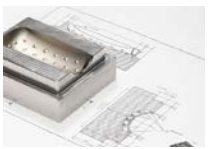
Business Support
Realize the full potential of your equipment Add value to your capital machine investment as your business evolves, with solutions tailored to your specific needs.

Original wear parts

Electrodes


Helpline

Service interventions


Application support and feasibility studies

Dedicated service solutions

Certified wires

Filters

Spare parts

Preventive services

Customer training

Upgrades, options and accessories

Toolholders

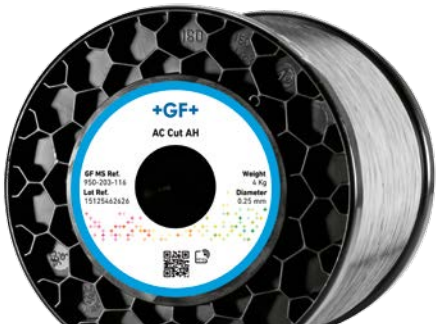
Benefit from GF Machining Solutions' expertise to best adapt your tool holders to the specificities of our machines' performance. The chain spindle, toolholder, tool, and part clamping are key to achieve highest performance. GF Machining Solutions has selected the best products to fit your tool holding needs. Let us recommend the best technology for your applications, from shrink to collet over hydraulic.

- Best price guarantee
- Optimum performance
- Reduce wear and damage to other components (e.g., Spindle)
- All components perfectly fit our machines and applications
- Benefit from 100 percent of our application knowledge
- Secure future codeveloped innovations
- Everything from one partner

SMART wire

Discover the Limitless Possibilities of GF Machining Solutions' premium SMART wires bring to the AgieCharmilles CUT P series and its dedicated technologies and take a significant step toward greater serviceability, traceability and quality control throughout your wire-cutting EDM process.

- Ensure quality consistency through detection of wire characteristics
- Minimize human errors with automatic wire detection
- Ensure process continuity with Detection of remaining wire length
- Stock and process traceability
- Process optimization and part cost calculation



New graphite grade AC-K900

Graphite's extraordinary characteristics make it the perfect material for electrodes. It offers many advantages, including low wear, easy machining and thermostability to provide very high cost effectiveness.

Benefit from our new grade AC-K900

- Premium graphite for fine and super-fine finishing applications
- Extend our actual range of graphite grades
- Suitable for finest machining processes, molds for finest structures, and multi-cavity dies
- Ensure high surface quality and shape precision

Maintenance contract
Ensure the full productivity potential of your machine

New for 2017: Protect and Secure service packages for LASER P 400 with femto source

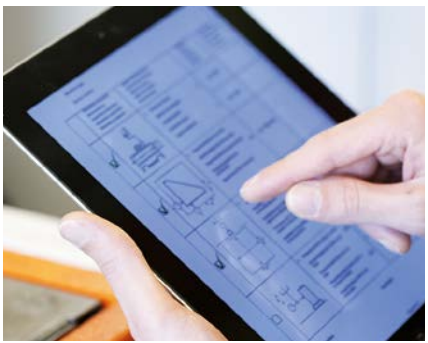
- Let our highly trained service engineers help protect your key components
- Quickly get your Laser source back up and running with our exchange service
- Be confident that your main components are covered

rConnect activation kit
Open up new digital service possibilities for your existing GF Machining Solutions machine

- rConnect keeps you connected to digital services at any time and wherever you are
- Greater revenue through higher level of availability and reduced downtime
- Secure connection based on the latest technology
- A significant step in the direction of smart services to increase your efficiency

rConnect Messenger
You can get your machine park data on your mobile device. Features are machines' statuses, messages and programing, and sending a service request.

- Always informed—everywhere
- All technologies—one app
- Process improvement
- Support request—everywhere



Customer training

Your satisfaction is highly dependent on the competencies of your machine's operators. The investment in people is therefore a major success factor in reaching your ambitious goals and ensuring continuous growth.

Realize the full potential of your GF Machining Solutions equipment along the full product life cycle with GF Machining Solutions Academy training—a qualitative and valuable must for manufacturing success.

Explore the GF Machining Solutions Academy Booklet 2017, presenting all available standard training modules to ramp up your machine operators' skills so they can grow together with your business.

Benefits

- To be certified on proper and safe machine use
- Realize your machines' full capabilities
- Improve part quality and optimize machining time
- Increase operator autonomy
- Optimize maintenance operations and costs

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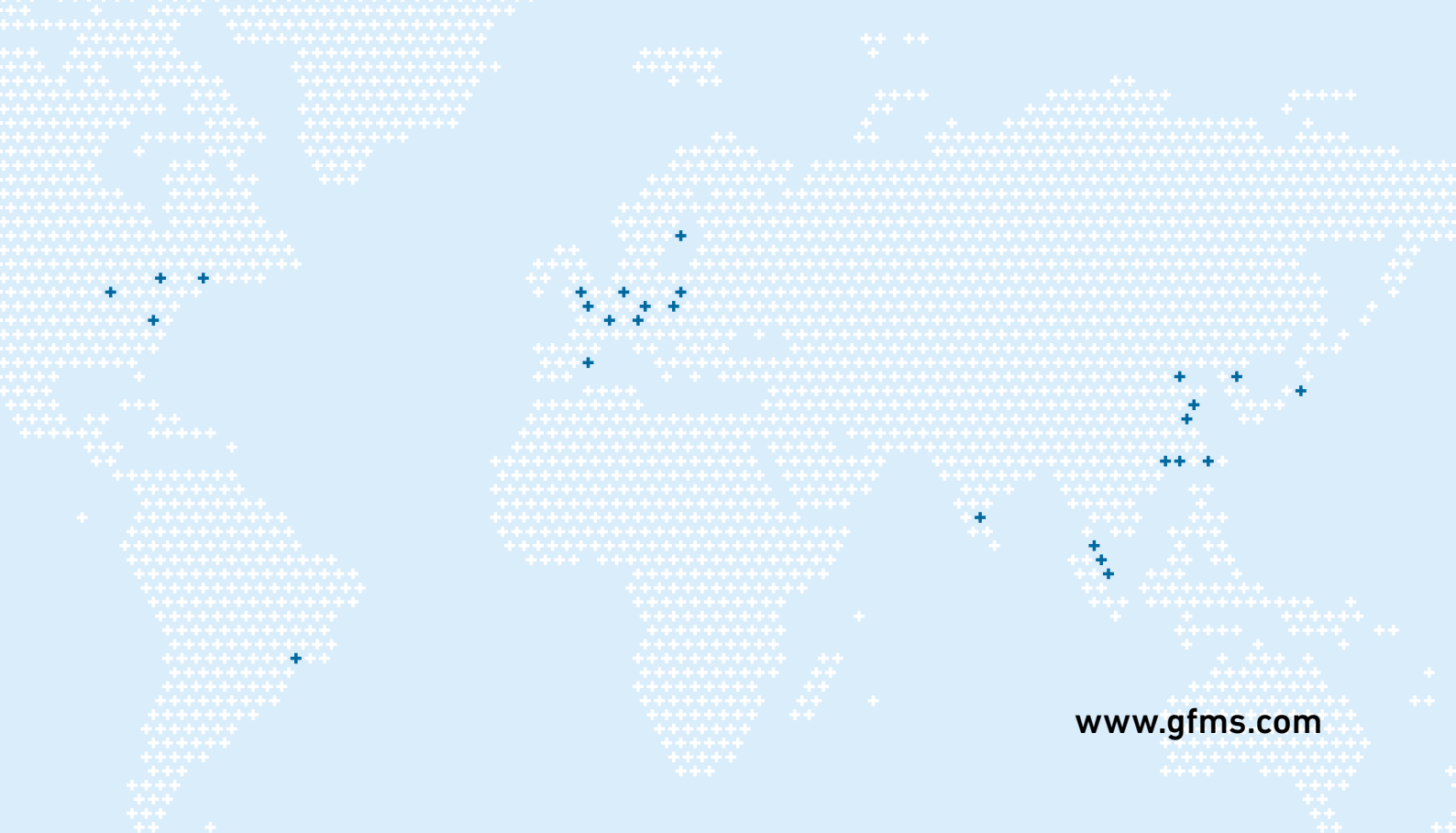
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GF Machining Solutions

At a glance

We enable our customers to run their businesses efficiently and effectively by offering innovative Milling, EDM, Laser, Additive Manufacturing, Spindle, Tooling and Automation solutions. A comprehensive package of Customer Services completes our proposition.

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