EXPERT'S PRIDE

HORIZONTAL LATHES

GEMINIS
MAHER HOLDING

GEMINIS, WE FOCUS ON THE USER'S EXPERIENCE

We are leaders in the development of horizontal and multi-process lathes.

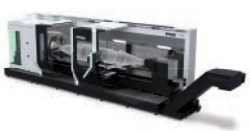
GEMINIS
MAHER HOLDING

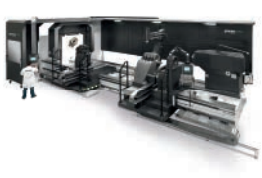
Under the name of GEMINIS and as a leading brand with more than 60 years experience and acknowledged prestige, we develop horizontal and multi-process lathes with cutting-edge technology.

We offer technological, personalized and specialized solutions for the most demanding industrial applications.

The GEMINIS horizontal lathe range comprises the following models:

GT5i | GT7i | GT9 | GT11



ROBUST/SOLID TECHNOLOGY

Our machines are constructed on a bed that makes them extraordinarily robust, providing machining reliability and long-term guarantee. We have the most robust bed on the market.

INDUSTRY 4.0

Our engineering department offers adapted solutions. Easy-to-manage technology with real time data monitoring. Modular machines that can be adapted to multiple tasks. Industry 4.0.

SERVICE

Service forms part of the core of the GEMINIS activity. We place the knowledge and experience of our team of experts at our customers' disposal, supporting them throughout the different phases: definition, installation and use of GEMINIS lathes.

MAHER HOLDING, EXPERTS IN CREATING SOLUTIONS

GEMINIS forms part of **MAHER HOLDING**, an industrial group comprised of machine-tool specialist companies, which provides a portfolio of machining solutions geared towards the industry's complex needs.

Solutions based on a robust and tested user-centred technology, due to its ease of use and flexibility.

The collective capacities of the group subsidiary companies focus on offering a high degree of specialisation in high value added niche sectors that demand high technological specialization.

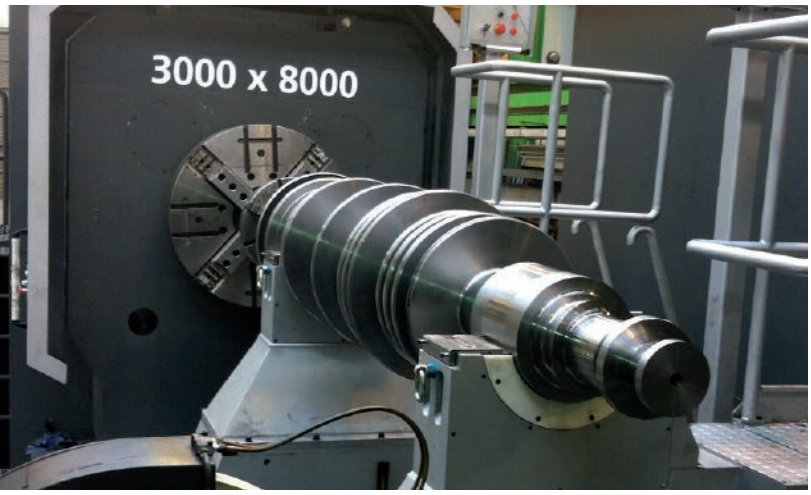
MAHER HOLDING

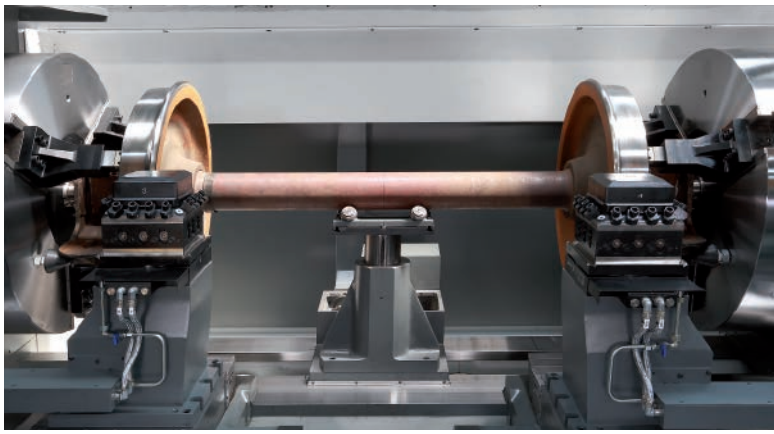
To learn more about **MAHER HOLDING**, **GEMINIS** and sudsidiary companies, visit www.maherholding.es

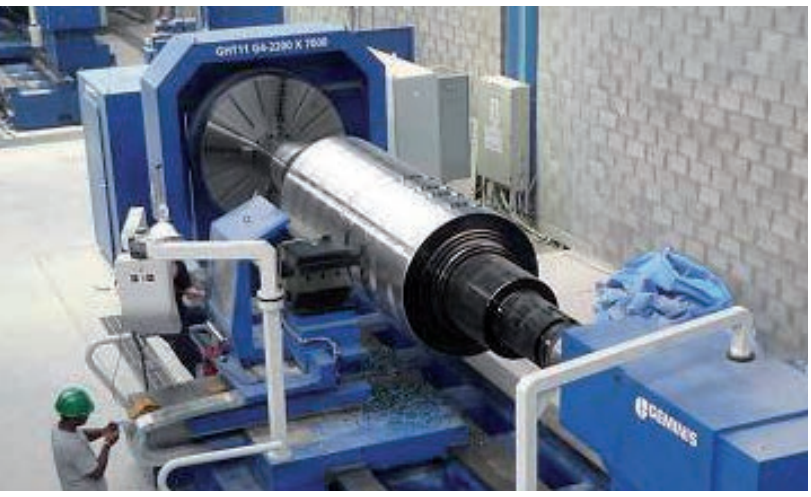
First-class solutions for the customer.

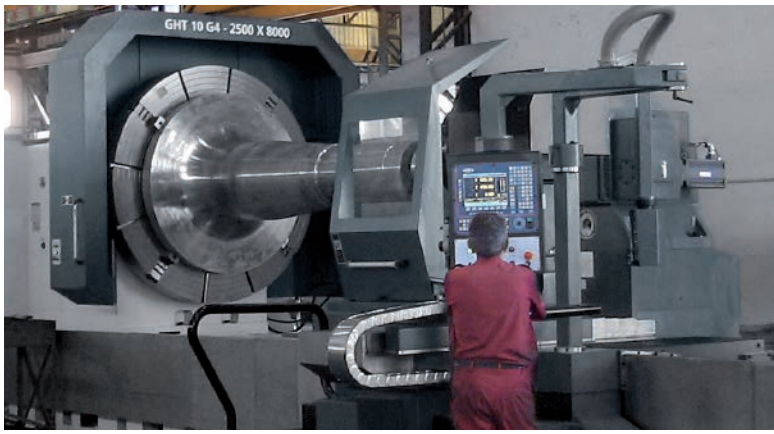
Integral personalized manufacture.

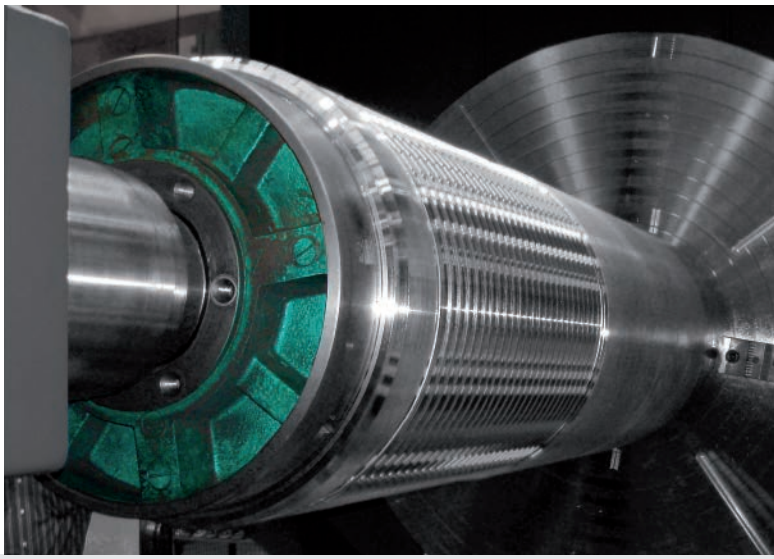
Responses for highly specialized technologies.

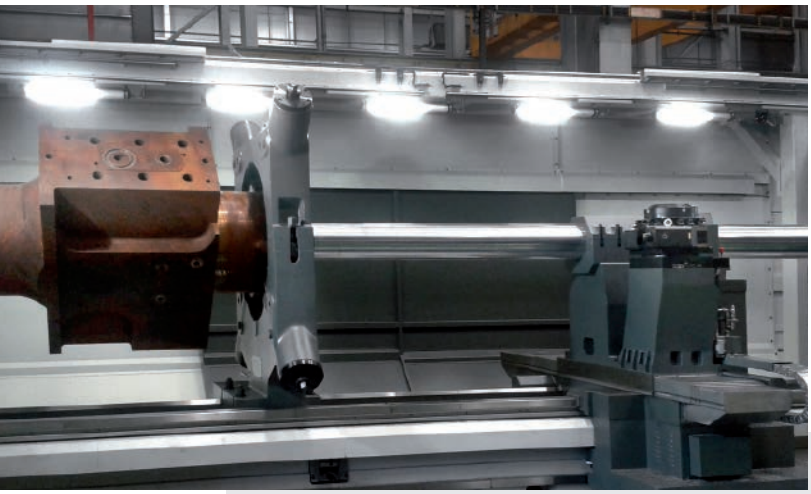












GUARANTEE AND RELIABILITY

Here are a few of the many reasons:

- We design and manufacture the most robust bed on the market.
- Our solutions have long-term guarantee and extraordinary reliability.
- The engineering department offers customers manufacturing solutions, and we advize them on any needs.
- We develop R&D projects together with end customers and we provide them with long-term support.

These are the reasons why we are acknowledged as partners of leading customers, in sectors such as Railway, Iron and Steel, Oil and Gas, Power Generation, Wind Energy, Naval, Defence or Cranes.

Our group is a pioneer in designing engineering techniques.

Our customers are our best guarantee.

Extensive technological know-how together with great service, support and response capacity.

PROUD TO BE AN EXPERT

Our customers are our best guarantee.

At GEMINIS we have an engineering team that provides customers with machining solutions, we advise them by indicating the best solution for their needs, we develop R&D projects with them, we commit to long-term support.
This has led us to be acknowledged as partners of leading manufacturers in their sectors.

CONFIGURABILITY:

At GEMINIS we have an extensive catalogue of standardised solutions that allow us to configure the machine that best adapts to customers' machining and productivity needs. Our technicians support customers when determining the configuration that best satisfies their OEE availability, performance and quality objectives.

MULTI-PROCESS:

At GEMINIS, we have developed a very competitive solution for complex and high added value parts, which can be machined from start to finish, without releasing them from the clamping elements. This increases the lathe OEE availability and the machining quality, as it prevents downtime due to machine changeovers, standardising the machining.

THESE ARE OUR BEST REASONS

STEEL MANUFACTURING	OIL&GAS	POWER GENERATION	RAILWAYS	NAVAL	DEFENSE
Siemens Vai	FMC Technologies	Siemens	Alstom	Navantia	US Navy
Danieli	Aker Solutions	Alstom	Ansaldo - Hitachi	Hakkinen	US Coast Guard
SMS Meer	General Electric	General Electric	CAF	Baliño	HSW
Tata Steel	Cameron	BHEL	Renfe	Saudi Aramco Maritime Yard	General Atomics
Arcelor Mital	Vetcogray	TGM Turbinas	Euskotren		General Dynamics
Vallourec	Tenaris Tamsa	Alfa Laval	Talgo		FGK
S+C	Oss-Nor	Rolls Royce	SNCF		
BGH	Venture Gulf	Gamesa	Cofmow - Indian		
Gerdau	Sino Gulf	Acciona	Railways		
US Steel	Saudi Aramco	Ecotecnia	TMR Vernayaz		
	Delta Corporation		Railtech		

GTi

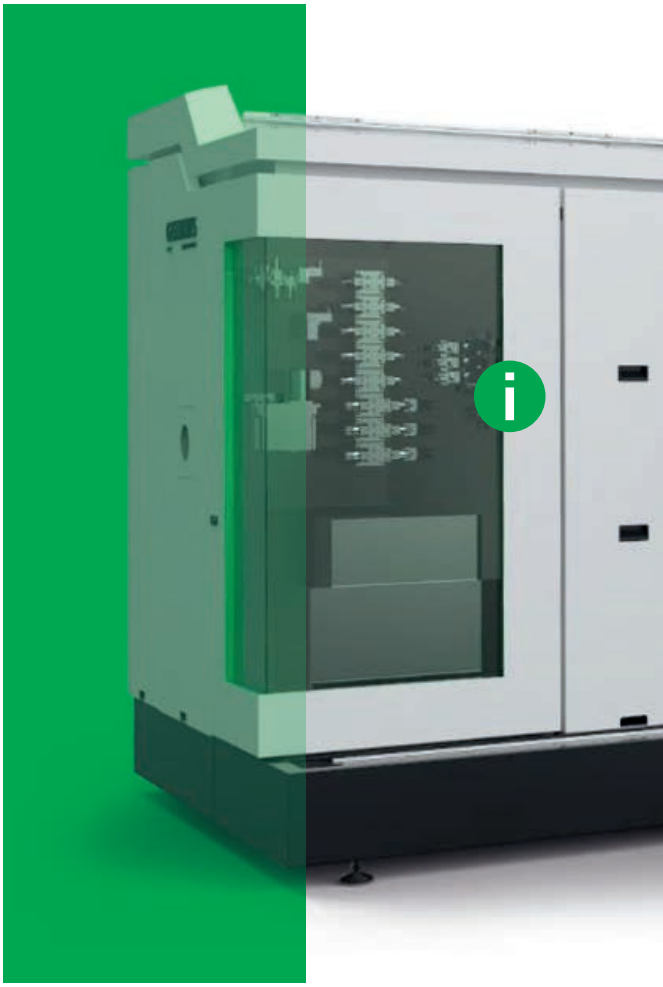
RANGE ADVANTAGES

A range with greater rigidity and enhanced ergonomics, as well as machine customization options.

The applications engineering permits new functionalities such as smart tailstock, temperature compensation models or the **SMART MANUFACTURING** application option.

What also sets us apart:

- Our 4-range head stocks.
- Greater chip removal capacity.
- Greater chip removal precision.
- Modular design.
- Improved finishing capabilities.
- Integration of latest-generation multi-process accessories.
- Greater ergonomics.



CARRIAGES:

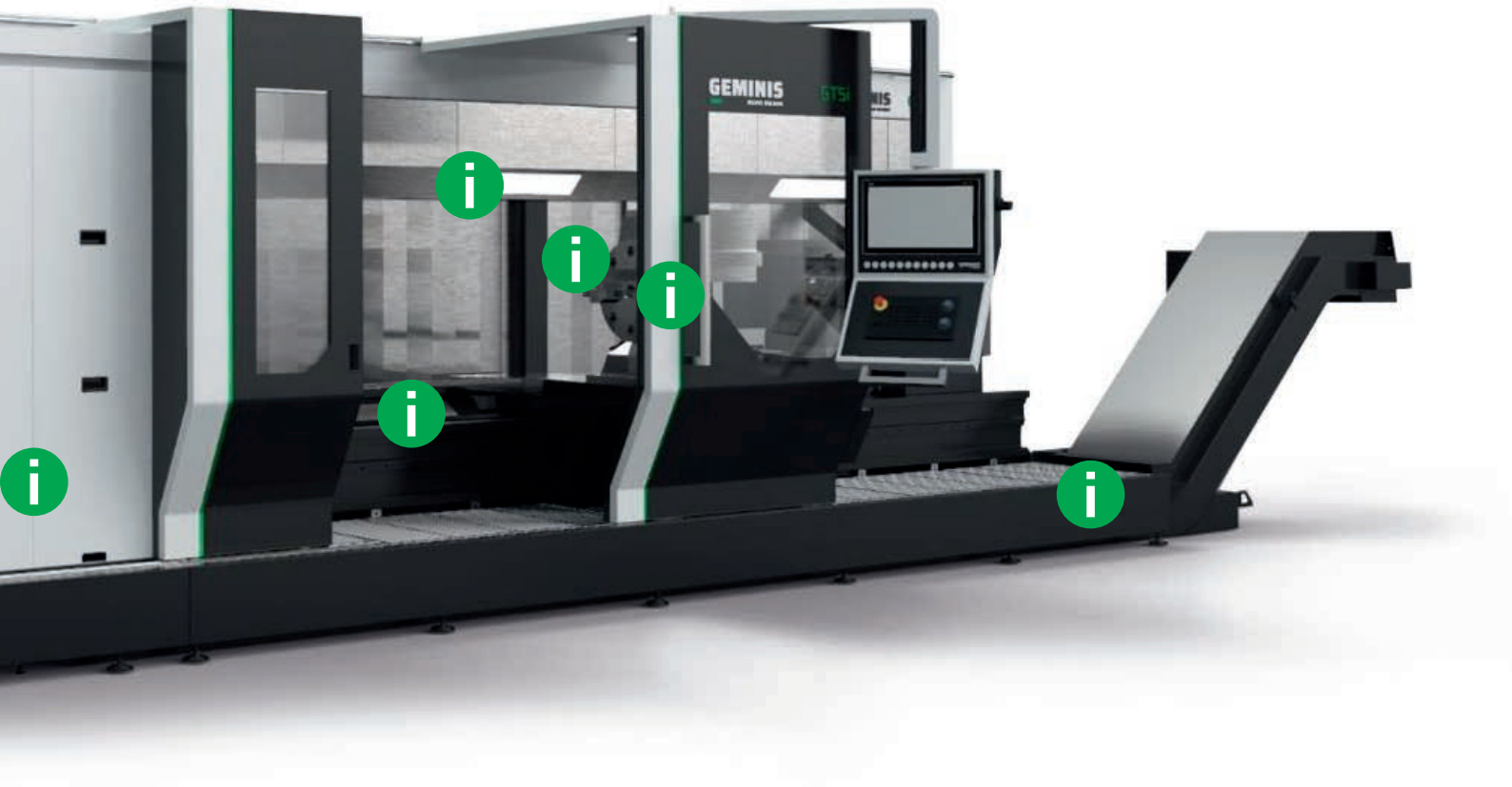
- Bigger and more rigid.
- Less exposed to cutting fluid and chips.
- Directly driven transverse axis.
- Improved drive system with double rack-pinion and two motors (master/slave) with electronic pre-load.

CHIP DISCHARGE:

- At the front.
- Less chip accumulation.
- Thermal and dimensional stability of the bed.
- Greater cleanliness.
- Cable channel not exposed to chips.

THE RESEARCH THAT MAKE US BETTER

10 years studying our machines combined with our customers' needs have resulted in the new GTi range.



HEAD STOCK:

- Better headstocks: **C Axis**.
- Greater bearing ø.
- Greater axis.
- Better clamping.
- Greater positioning precision.

STRUCTURAL BODIES:

- Design optimization by means of finite element calculation.
- Better-dimensioned bodies.
- 20% more rigid than before.

DRIVE PART:

- Better dynamism and precision.
- Optimised and redesigned kinematic chain.
- Better locking.

BED:

- Rib optimization.
- Additional guide to provide better support.
- Lower height for improved ergonomics.
- Greater rigidity.

TAIL STOCK:

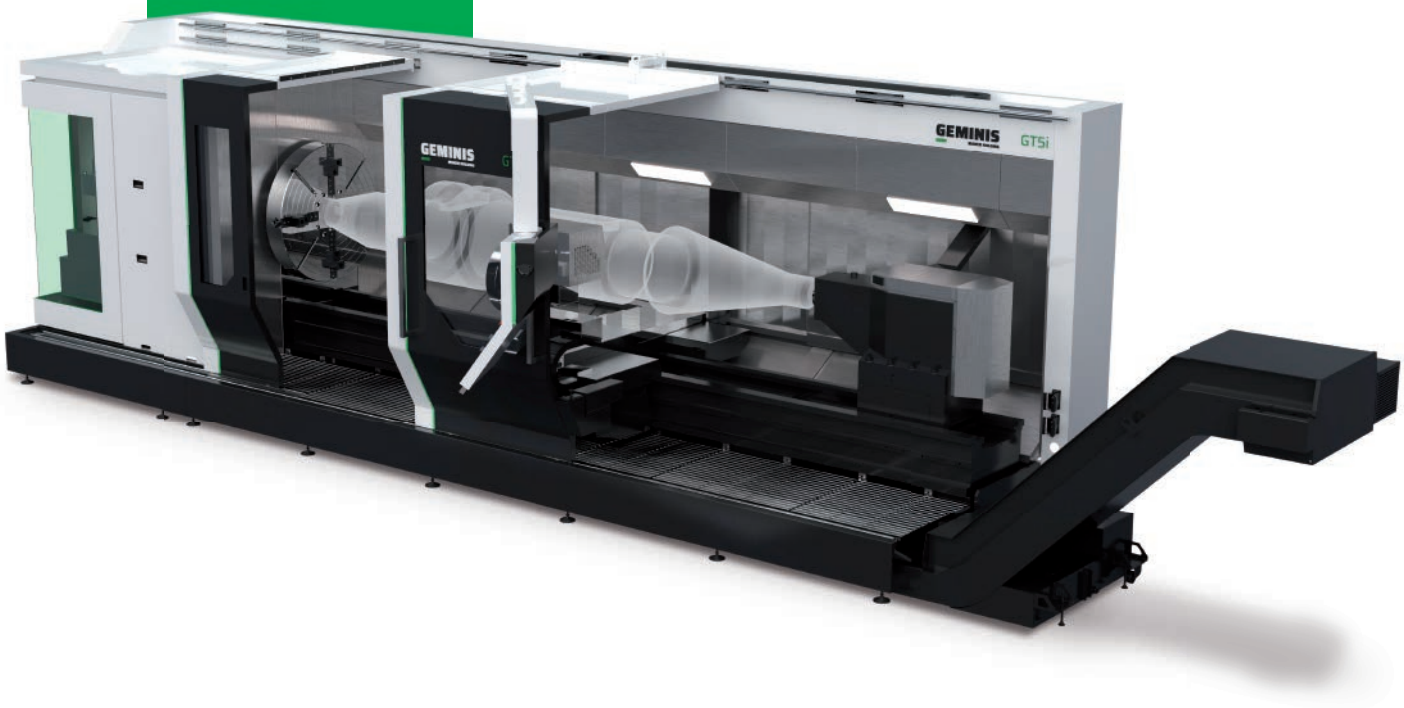
- Better mass distribution: Better tolerance.
- Greater rigidity.
- Smart tail stock option.

APRON:

- Enhanced lighting.
- Door collisions are avoided.
- Added window for better view of the work area.
- Window to view the maintenance zone.
- More comfortable.
- Better leak tightness.

GT5i

	GT5 G2	GT5 G4
Swing over bed	**1,200**/1,400 **(mm)**	**1,200**/1,400 **(mm)**
Swing over carriage	**850**/1,050 **(mm)**	**900**/1,100 **(mm)**
Max weight between centers	**6,000**-12,000 **(kg)**	**6,000**-12,000 **(kg)**



MEDIUM HEAVY SERIES		GT5i G2			GT5i G4		
CAPACITY	Swing over bed **(mm)**	**1200**/1400			**1200**/1400		
	Swing over carriage **(mm)**	**850**/1050			**900**/1100		
TAIL STOCK	Quill diameter **(mm)**	**160**/220			**160**/220		
	Max weight between centers **(kg)**	**6000** - 12000			**6000** - 12000		
HEAD STOCK	Main motor (S1-100%/S6-40%) **(kW)**	**30/45**	37/55.5	51/78	**30/45**	37/55.5	51/78
	Torque (S1-100%/S6-40%) **(Nm)**	**6400/9500**	7800/11800	14000/21600	**6400/9500**	7800/11800	14000/21600
	Speed range **(rpm)**	**0 - 1400**	0 - 1400	0 - 800	**0 - 1400**	0 - 1400	0 - 800
	Ø bar through **(mm)**	**130**		162	**130**		162
	Ø head stock bearing **(mm)**	**190**		240	**190**		240
CARRIAGES	Z-axis travel **(m)**	**1...24**			**1...24**		
	X-axis travel X **(mm)**	**700**			**700**		
	Y-axis speed **(m/min)**	**10**			**10**		
	X-axis speed (m/min)	**8**			**8**		
	Forward force Fz DPC (S1-100% /S3-40%) **(N)**	**26000/34000**		36000/43000	**26000/34000**		36000/43000
	Forward force Fx (S1-100%/S3-40%) **(N)**	**15000/21000**		22000/30000	**15000/21000**		22000/30000
BED	Bed guide width **(mm)**	**655**			**1000**		
	Bed height **(mm)**	**650**			**700**		

Standard values / Option

GEMINIS
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GT7i

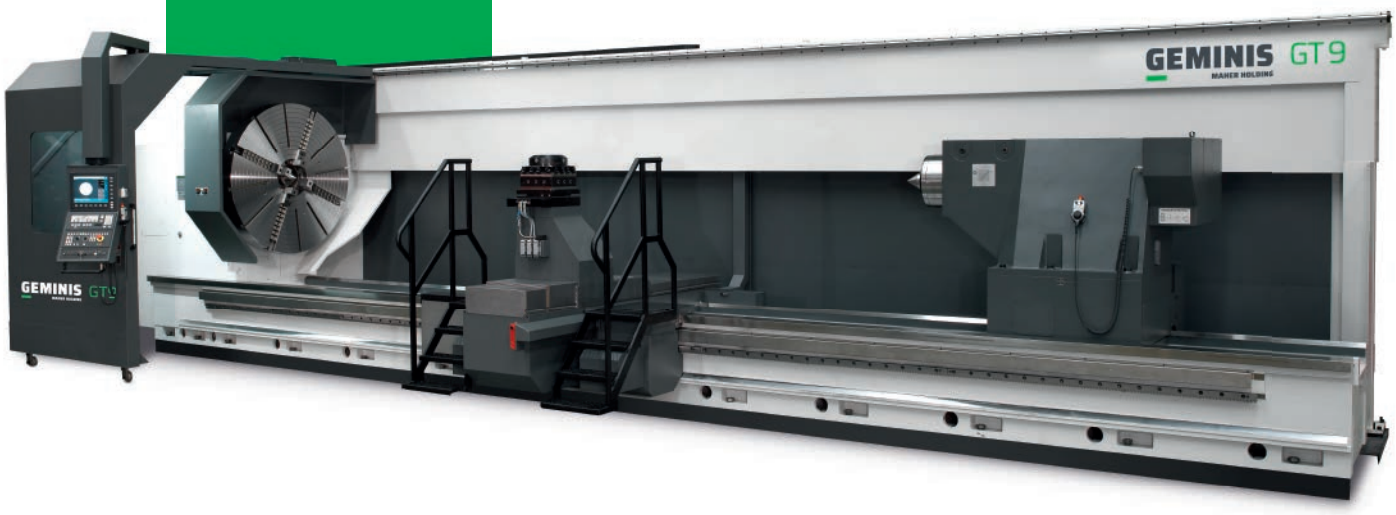
	GT7 G2	GT7 G4
Swing over bed	**1,600**/1,800 **(mm)**	**1,600**/1,800 **(mm)**
Swing over carriage	**1,200**/1,400 **(mm)**	**1,300**/1,500 **(mm)**
Max weight between centers	**12,000**-25,000 **(kg)**	**12,000**-25,000 **(kg)**

MEDIUM HEAVY SERIES		GT7i G2			GT7i G4		
CAPACITY	Swing over bed **(mm)**	**1600**/1800			**1600**/1800		
	Swing over carriage **(mm)**	**1200**/1400			**1300**/1500		
TAIL STOCK	Quill diameter **(mm)**	**220**/320			**220**/320		
	Max weight between centers **(kg)**	**12000** - 25000			**12000** - 25000		
HEAD STOCK	Main motor (S1-100%/S6-40%) **(kW)**	**51/78**	74/111	95/140	**51/78**	74/111	95/140
	Torque (S1-100%/S6-40%) **(Nm)**	**14000/21600**	19000/28600	30000/44800	**14000/21600**	19000/28600	30000/44800
	Speed range **(rpm)**	**0 - 800**	0 - 800	0 - 700	**0 - 800**	0 - 800	0 - 700
	Ø bar through **(mm)**	**162**		150	**162**		150
	Ø head stock bearing **(mm)**	**240**		260	**240**		260
CARRIAGES	Z-axis travel **(m)**	**1...24**			**1...24**		
	X-axis travel X **(mm)**	**900**			**900**		
	Y-axis speed **(m/min)**	**10**			**10**		
	X-axis speed (m/min)	**8**			**8**		
	Forward force Fz DPC (S1-100% /S3-40%) **(N)**	**36000/43000**	43800/59000		**36000/43000**	43800/59000	
	Forward force Fx (S1-100%/S3-40%) **(N)**	**22000/30000**	32200/42000		**22000/30000**	32200/42000	
BED	Bed guide width **(mm)**	**905**			**1250**		
	Bed height **(mm)**	**800**			**850**		

Standard values / Option

GT9

	GT9 G2	GT9 G4
Swing over bed	**2,000**/2,200/2,400 **(mm)**	**2,000**/2,200/2,400 **(mm)**
Swing over carriage	**1,600**/1,800/2,000 **(mm)**	**1,700**/1,900/2,100 **(mm)**
Max weight between centers	**25,000**-60,000 **(kg)**	**25,000**-60,000 **(kg)**



MEDIUM HEAVY SERIES		GT9 G2	GT9 G4
CAPACITY	Swing over bed **(mm)**	**2000**/2200/2400	**2000**/2200/2400
	Swing over carriage **(mm)**	**1600**/1800/2000	**1700**/1900/2100
TAIL STOCK	Quill diameter **(mm)**	**320** - 450	**320** - 450
	Max weight between centers **(kg)**	**25000** - 60000	**25000** - 60000
HEAD STOCK	Main motor (S1-100%/S6-40%) **(kW)**	**95/140** - 150/221	**95/140** - 150/221
	Torque (S1-100%/S6-40%) **(Nm)**	**30000/44800** - 72000/106000	**30000/44800** - 72000/106000
	Speed range **(rpm)**	**0 - 700**	**0 - 700**
	Ø bar through **(mm)**	**150**	**150**
	Ø head stock bearing **(mm)**	**260** - 480	**260** - 480
CARRIAGES	Z-axis travel **(m)**	**1...24**	**1...24**
	X-axis travel X **(mm)**	**1060**	**1060**
	Y-axis speed **(m/min)**	**10**	**10**
	X-axis speed (m/min)	**8**	**8**
	Forward force Fz DPC (S1-100% /S3-40%) **(N)**	**57000/75500** - 83000/115000	**57000/75500** - 83000/115000
	Forward force Fx (S1-100%/S3-40%) **(N)**	**44000/60000** - 62500/87500	**44000/60000** - 62500/87500
BED	Bed guide width **(mm)**	**1350**	**1750**
	Bed height **(mm)**	**650**	**680**

Standard values / Option

GEMINIS
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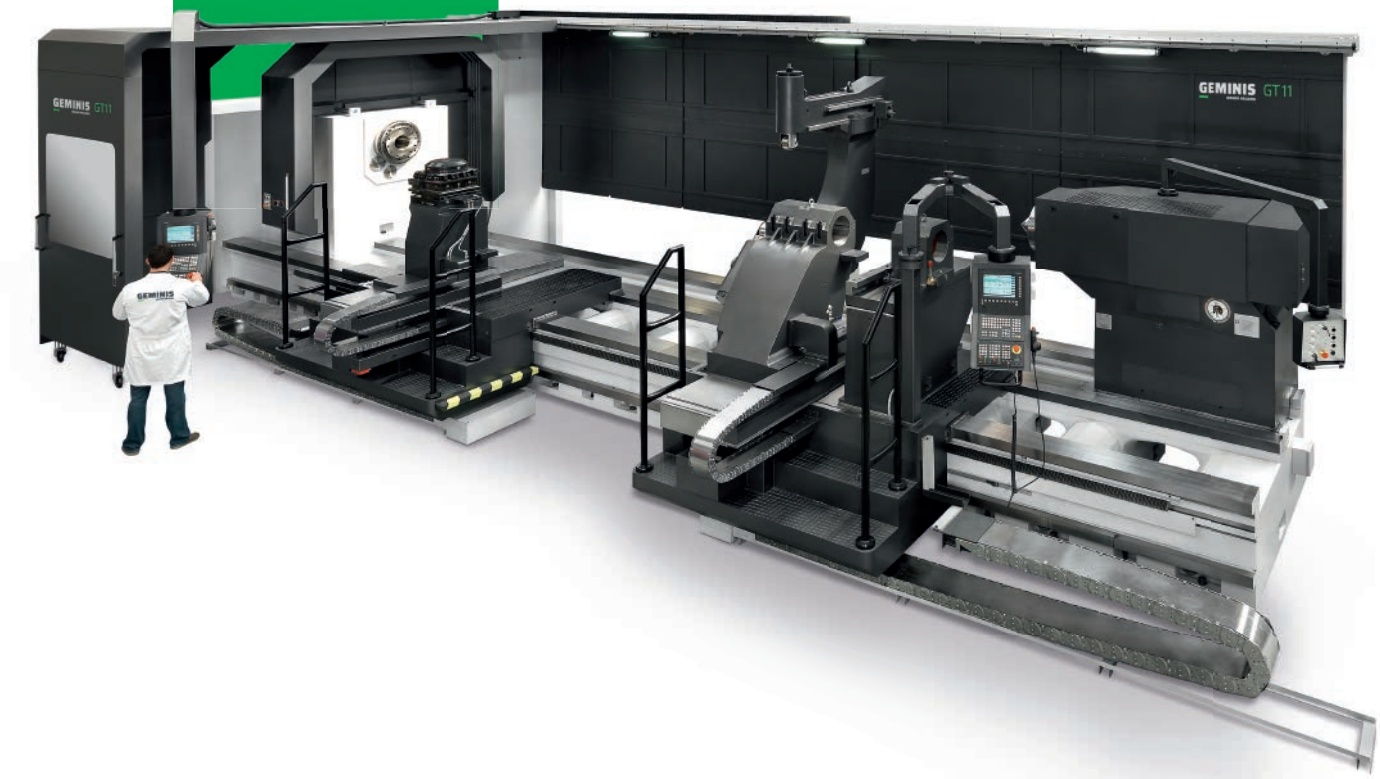
GT11

	GT11 G2	GT11 G4
Swing over bed	**2,400**/3,500 **(mm)**	**2,400**/3,500 **(mm)**
Swing over carriage	**1,800**/2,900 **(mm)**	**1,900**/3,000 **(mm)**
Max weight between centers	**45,000**-150,000 **(kg)**	**45,000**-150,000 **(kg)**



MEDIUM HEAVY SERIES		GT11 G2	GT11 G4
CAPACITY	Swing over bed **(mm)**	**2400** - 3500	**2400** - 3500
	Swing over carriage **(mm)**	**1800** - 2900	**1950** - 3050
TAIL STOCK	Quill diameter **(mm)**	**450** - 600	**450** - 600
	Max weight between centers **(kg)**	**45000** - 150000	**45000** - 150000
HEAD STOCK	Main motor (S1-100%/S6-40%) **(kW)**	**113/166** - 182/272	**113/166** - 182/272
	Torque (S1-100%/S6-40%) **(Nm)**	**54000/79500** - 87300/130500	**54000/79500** - 87300/130500
	Speed range **(rpm)**	**0 - 400**	**0 - 400**
	Ø bar through **(mm)**	**150**	**150**
	Ø head stock bearing **(mm)**	**480** - 520	**480** - 520
CARRIAGES	Z-axis travel **(m)**	**1...24**	**1...24**
	X-axis travel X **(mm)**	**1230**	**1230**
	Y-axis speed **(m/min)**	**10**	**10**
	X-axis speed (m/min)	**8**	**8**
	Forward force Fz DPC (S1-100% /S3-40%) **(N)**	**83000/115000**	**83000/115000**
	Forward force Fx (S1-100%/S3-40%) **(N)**	**62500/87500**	**62500/87500**
BED	Bed guide width **(mm)**	**1850**	**2250/2500**
	Bed height **(mm)**	**750**	**800**

Standard values / Option

GT RANGE

MEDIUM HEAVY SERIES

	GT5i G2	GT5i G4	GT7i G2	GT7i G4
CAPACITY				
Swing over bed **(mm)**	**1200**/1400	**1200**/1400	**1600**/1800	**1600**/1800
Swing over carriage **(mm)**	**850**/1050	**900**/1100	**1200**/1400	**1300**/1500
TAIL STOCK				
Quill diameter **(mm)**	**160**/220	**160**/220	**220**/320	**220**/320
Max weight between centers **(kg)**	**6000** - 12000	**6000** - 12000	**12000** - 25000	**12000** - 25000
HEAD STOCK				
Main motor (S1-100%/S6-40%) **(kW)**	**30/45** 37/55.5 51/78	**30/45** 37/55.5 51/78	**51/78** 74/111 95/140	**51/78** 74/111 95/140

Standard values / Option

HEAVY SERIES

	GT9 G2	GT9 G4	GT11 G2	GT11 G4
CAPACITY				
Swing over bed **(mm)**	**2000**/2200/2400	**2000**/2200/2400	**2400** - 3500	**2400** - 3500
Swing over carriage **(mm)**	**1600**/1800/2000	**1700**/1900/2100	**1800** - 2900	**1950** - 3050
TAIL STOCK				
Quill diameter **(mm)**	**320** - 450	**320** - 450	**450** - 600	**450** - 600
Max weight between centers **(kg)**	**25000** - 60000	**25000** - 60000	**45000** - 150000	**45000** - 150000
HEAD STOCK				
Main motor (S1-100%/S6-40%) **(kW)**	**95/140** - 150/221	**95/140** - 150/221	**113/166** - 182/272	**113/166** - 182/272

Standard values / Option

CLAMPING ACCESSORIES

The GEMINIS clamping accessories permit anchoring the parts and machining them safely, guaranteeing finish quality. Moreover, we have automated options which result in anchoring time reduction and improve our lathe availability.

CHUCKS

· Manual.
· Automatic: pneumatic or hydraulic.
· Smart Chuck.

TAIL STOCKS

· Manual.
· Motorised.
· Smart tailstock.

STEADIES

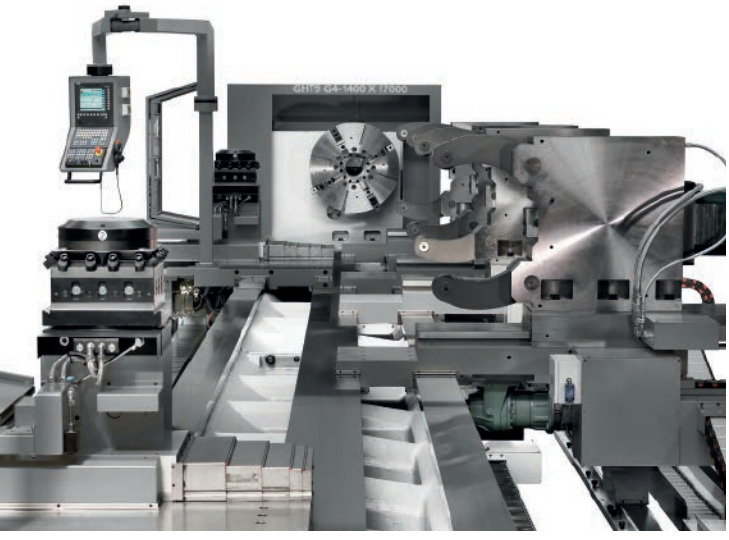
· Manual.
· Automatic: hydraulic or hydrostatic.

AUTOMATED LOADING / UNLOADING

· Machines prepared to be integrated into automated loading and unloading systems.
· Pre-placement of parts in the lathe.

PROTECTIONS

· Additional door.
· Integrated apron.
· Automatic doors.
· Stainless steel interior.



MACHINING OPERATIONS

GEMINIS has an extensive catalogue of machining devices and solutions allowing for different finishing options in parts. Based on a horizontal lathe, a wide variety of tools and devices can be fitted to completely machine a part, pursuant to the most demanding quality requirements, and reducing exchange times.

MILLING

- Light, on motorized turret.
- Milling column.
- Turning and milling column with automatic tool exchange and storage.
- Y and B axes machining options.

BORING

- Lightweight, on turret.
- On carriage.

POSITIONING

- C-axis.
- Twin Drive: multiplies the precision of C-axis by 10.

FINISHING

- Burnishing device.
- Polishing device.

TURRETS

- Manual.
- Square.
- Disc.
- Motorised.
- With movement on Y-axis.

QUICK DEVICE EXCHANGE SYSTEM

- Quick device exchange system.
- Improvement in machine OEE availability.
- Reduction of adjustment times.

MEASUREMENT ELEMENTS

- Parts measurement.
- Tools measurement.

GRINDING

- Lightweight, on motorized turret.
- Milling unit.
- Gap & Crash: closed loop.
- Specific GEMINIS cycles.

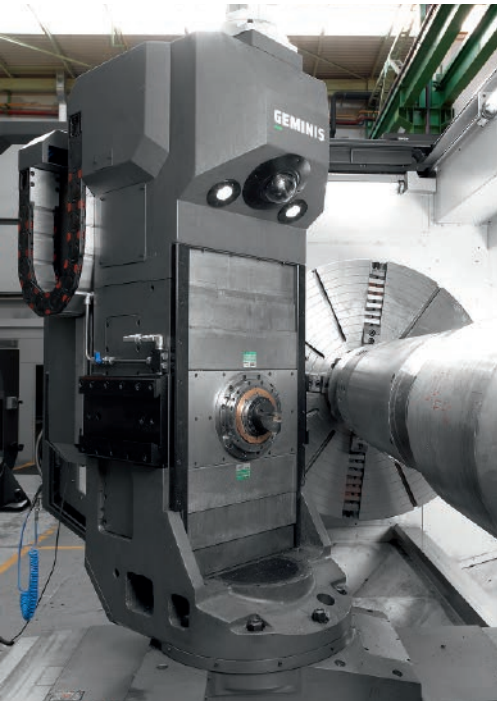
VALUES THAT WE CAN REACH IN MACHINING OPERATIONS

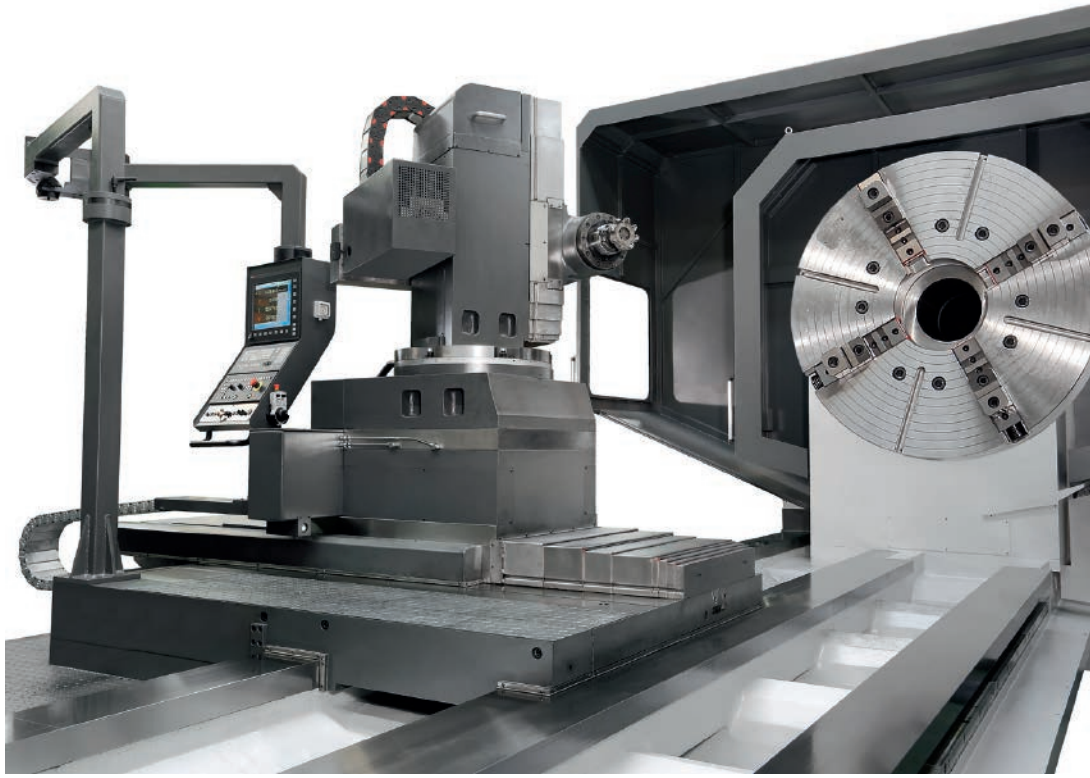
Turning:

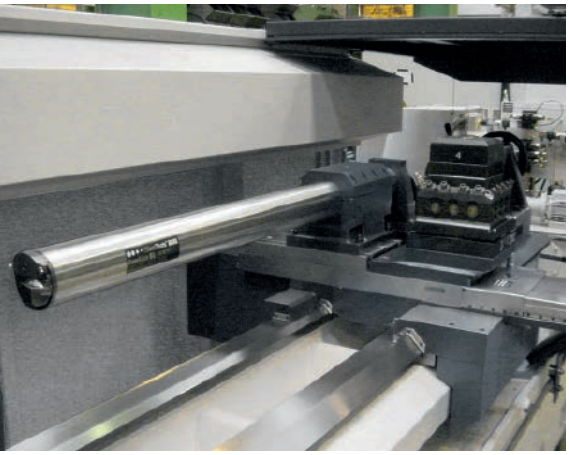
- Ra 0.6 µm
- Runout 0.01 µm
- Dimensional tolerance IT 5

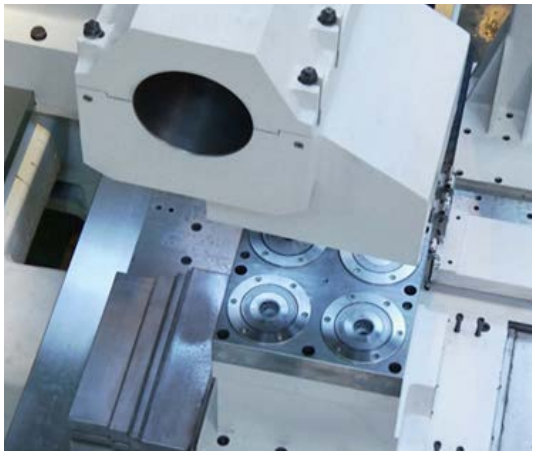
Grinding:

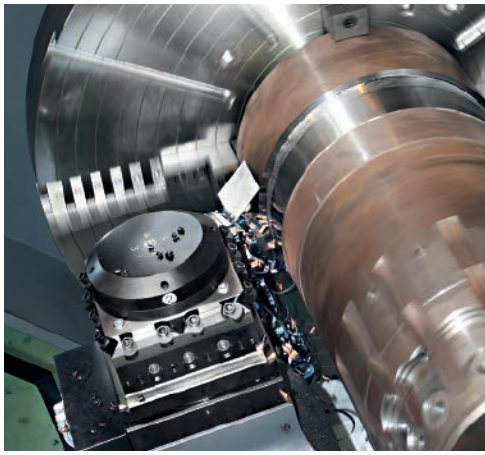
- Ra 0.2 – 0.4 µm
- Runout 0.005 – 0.01 µm
- Dimensional tolerance IT 5


GEMINIS









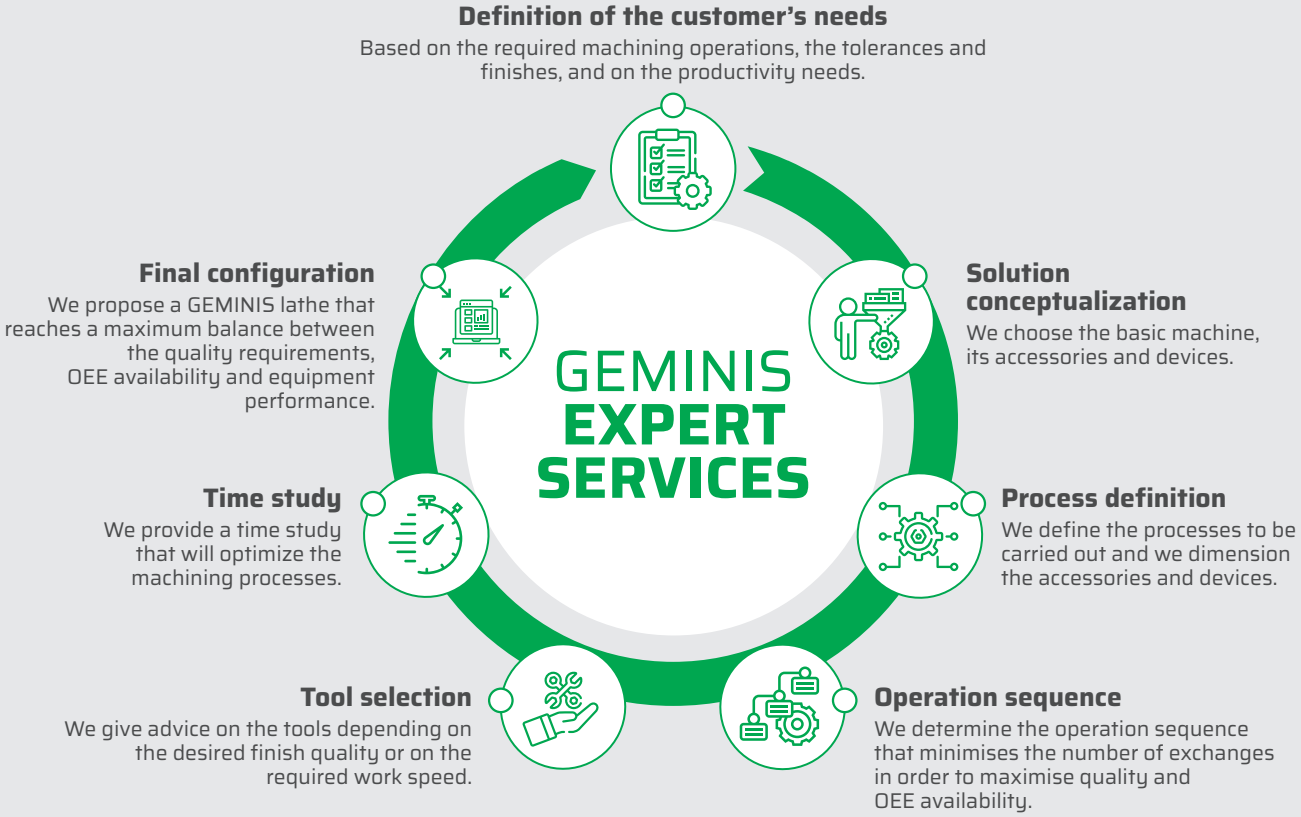
GEMINIS EXPERT SERVICES

ENGINEERING

Customer-centered in your purchase decision.
We make the machines that customers need.

Our engineering area integrates the technical and application engineering departments, working jointly to develop the solution that best satisfies the objectives of quality, OEE availability and profitability required by our customers.

The starting point for this team is the customer's machining and productivity needs, which enable them to configure the technical solution that maximizes the machine OEE. They carry out machining process studies that bring about results such as operation sequences, recommendations on tools and time studies, allowing customers to optimize their return on investment, reaching the required quality standards.



THE PRODUCT IS THE CORE. THE SERVICE, TOO.

Our EXPERT SERVICES offer our customers the most complete package in a THREE-FOLD service.

INSTALLATION AND START-UP

Services on demand that will foster the start-up of the machine.

1. Support services during machine installation.
2. Turnkey installation.
3. Machine start-up.
4. Operator training.

AFTER-SALE

Services for integral maintenance throughout the whole machine lifecycle.

1. Telephone advice service.
2. Remote assistance.
3. On-site repairs.
4. Spare parts.
5. Preventive maintenance: Finger Print.
6. Predictive maintenance: Smart Check.
   Integration of tools that permit predictive maintenance.
7. CAM integration and post-processors:
   a_ Simulation systems.
   b_ Collision detection.
8. Up-dating.

LEAN DIGITAL MANUFACTURING

At GEMINIS we develop solutions for Smart Factories.

Our Smart Machines integrate Industry 4.0 solutions, tapping into the new opportunities offered by the digital era. We bring the Lean Digital Manufacturing concept closer to our customers.

SMART FACTORY

The best tool to know the state and performance of all your machine, and increase their efficiency, quality and profitability.

Using smart sensors and with an interface developed by GEMINIS, we achieve the integral management of all the Industry 4.0 solutions, simplifying the planning process. There are multiple advantages:

- Screen with attractive and direct design.
- It provides additional information about the processes in execution, from any device with Internet connection.
- Clear data about the temperature, electricity consumption and speed state of the different motors.
- It permits the selection of cutting conditions.
- Information about total time elapsed of the program in execution.
- Data on position and type of tools in use, and on activated alarms.
- Real-time display and analysis of the execution of the machining operations.
- The custom developed software safely sends the main parameters to the cloud: downtime, real machining times, power consumed,...
- Integration with CAD/CAM and ERP programs without requiring additional hardware.
- Verification of the maintenance operations required and job planning instructions.
- Comparative analysis of different machines connected to the system.
- OEE calculation.
- Statistics history for analysis.

SMART APPS

We use smart sensors controlled by applications installed in our machines.

- Temperature compensation system.
- Smart tail stock.
- Tool wear prediction.
- Tool breakage prediction.
- Dynamic part balancing system.
- Dynamic Grinding wheel balancing system.
- Smart lubrication.
- Kinematic axis adjustment.
- Volumetric compensation.
- Specific machining cycles.
- 3D monitoring.
- Predictive analysis of bearings.
- Predictive analysis of gearings.
- Guide adjustment analysis.

SMART HMI

Interface developed by GEMINIS for the integral management of all the Industry 4.0 solutions.

- Monitoring.
- Geminis Smart Factory.
- Integral tool management.
- Integrated maintenance plan.
- Integrated user manual.
- Drawing viewer.
- Specific machining cycle library.
- Self-diagnosis cycles.

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