

CHETO

CNC DEEP HOLE DRILLING WITH MILLING



CHETO

CNC DEEP HOLE DRILLING WITH MILLING

innovative
MACHINE TOOLS

CE

Location

CHETO TECHNOLOGICAL CENTER:

Área de Acolhimento Empresarial
UI-Loureiro, Lotes 13-21
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Portugal
GPS. 40°48'00.5"N | 8°30'35.3"W

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WORLDWIDE PRESENCE

■

INNOVATIVE CONCEPT
TO OPTIMIZE
DEEP HOLE DRILLING,
STANDARD DRILLING
AND MILLING

■





INNOVATIVE machine tools

CHETO was officially established in 2009, when the founders started a project to fully develop a deep hole drilling and milling machine-tool up to 7-axis, specialized for the mold making and energy industry.

Since then, a continuous improvement and investigation allowed CHETO to offer the market a versatile product with high levels of accuracy and reliability.

This concept quickly positioned CHETO as a world-renowned brand. With machines sold in four continents, it is our goal to keep improving and innovating, to offer a highly competitive and value-creating product.



Management
System
ISO 9001:2015

www.tuv.com
ID 9105076158



CHETO CONCEPT

deep hole drilling



90 SECONDS



milling

60%
reduction in drilling time

90%
reduction on parts' set-up time

20%
reduction in mold delivery time

*comparing with traditional process

IXN3000 | Registered design



CHETO CNC deep hole drilling with milling

CHETO All in one



DEEP HOLE DRILLING
MACHINE



RADIAL DRILLING
MACHINE



MILLING MACHINE



TAPPING MACHINE



BORING MACHINE

Working all around the part in a single setup (mold industry)

PLANING/SHAPING

BORING

THREADING

REAMING

ROUGHING

REFRIGERATION CIRCUITS

Why choose us?

1. Long experience and know-how in Deep Hole Drilling solutions
2. Mature products with high mechanical and technological quality, accuracy and reliability
3. World reference in Deep Hole Drilling process
4. Solutions according to customer's specific needs and requirements
5. Product Development Strategy - Develop and deliver high valuable equipment to increase our customer's competitiveness, efficiency and profitability
6. Equipment with state of the art technology
7. Multitasking machine tools
8. User-friendly controller with pre-defined **CHETO** cycles make it easy to increase efficiency

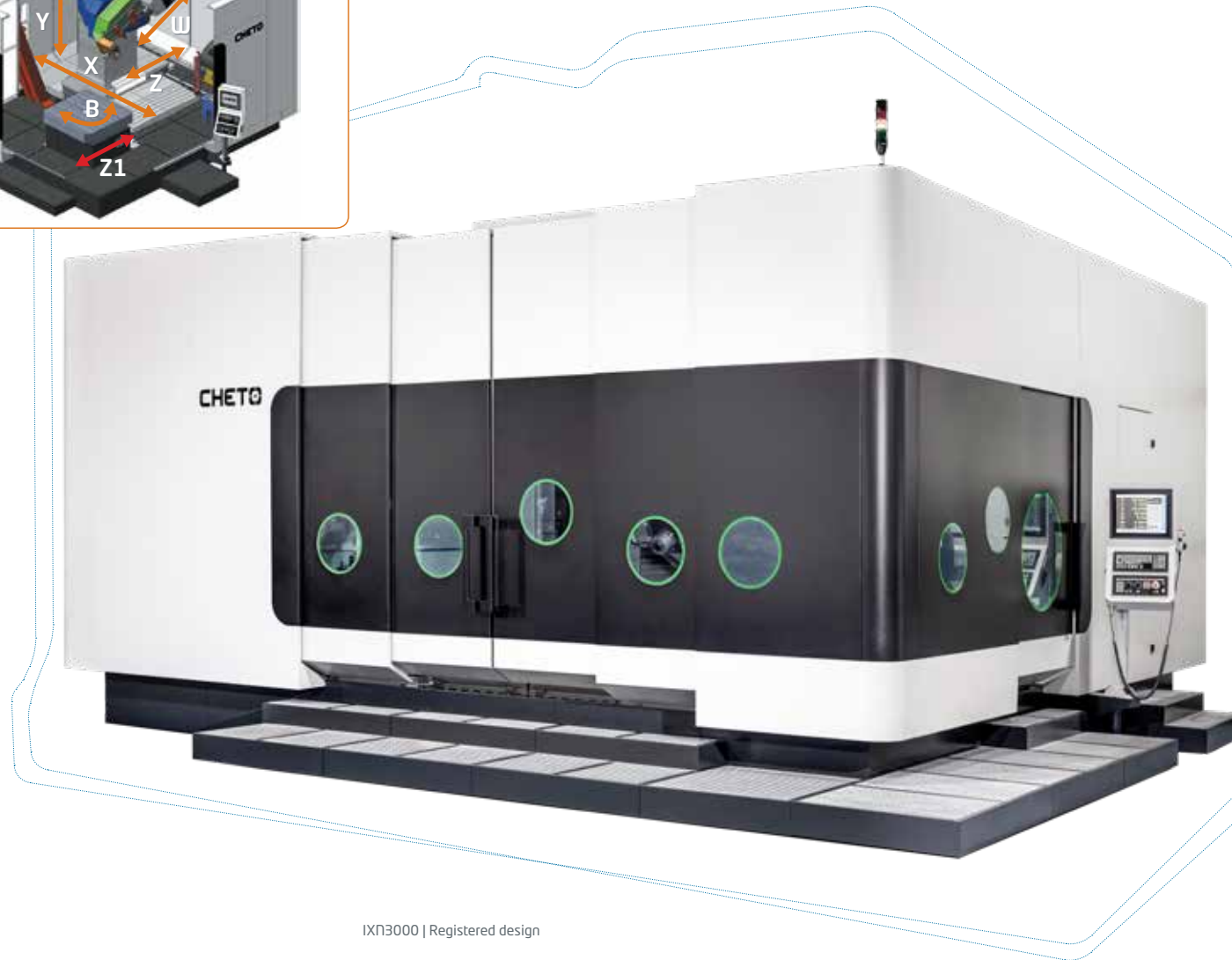
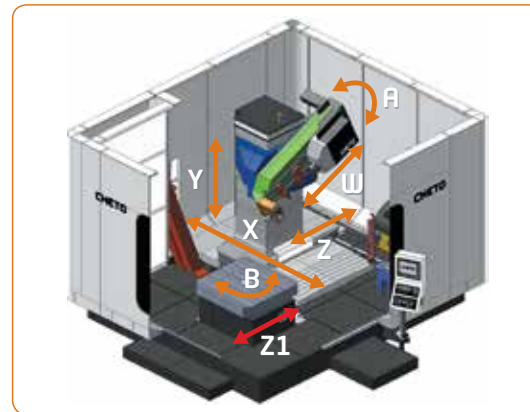


Standard Equipment

- CNC FAGOR 8065
- Electronic handwheel
- Digital drives
- Nitrogen double counterweight
- Absolute linear encoders in axis X, Y, Z
- Absolute angular encoders in axis A, B
- Telescopic covers in all axis (except W)
- RTCP/Kinematics
- Rigid tapping
- Quick change between drilling/milling
- Coolant tank with automatic filtering
- Submerged pumps for oil recirculation
- High pressure pump 80 bar, 100 l/min | 1,160 psi, 26.5 gal/min
- Automatic chip conveyor
- Complete cover with doors, glass windows and ceiling

Optional Equipment

- CNC HEIDENHAIN TNC 640
- Wise software system
- ATC up to 250 tools (up to 600 mm | 23.6 in tool length)
- ATC Gun drill up to 5 tools
- Machine prepared for automatic pallets system
- Spindle tilting +25°/-25°
- Spindle gearbox
- Y axis = 1500 mm | 59.1 in
- W axis = 2000 mm | 78.7 in
- Z1 axis = 700 mm | 27.6 in
- Exhaustion system
- Electronic probe and Laser measuring system



IXN3000 | Registered design

Technical Data

	1000		2000		3000	
CNC Axis						
W drilling one stroke	1630 mm	64.2 in	1630 mm	64.2 in	1630 mm	64.2 in
X longitudinal travel	1000 mm	39.4 in	2000 mm	78.7 in	3000 mm	118.1 in
Y vertical travel	1000 mm	39.4 in	1200 mm	47.2 in	1200 mm	47.2 in
Z cross travel	800 mm	31.5 in	800 mm	31.5 in	800 mm	31.5 in
B table rotation	360,000		360,000		360,000	
A tilting rotation	+25°/-15°		+25°/-15°		+25°/-15°	
Drilling capacity						
Max. drilling stroke W+Z	1630+800 mm	64.2+31.5 in	1630+800 mm	64.2+31.5 in	1630+800 mm	64.2+31.5 in
Drilling capacity	ø5-40 mm	ø0.2-1.58 in	ø5-40 mm	ø0.2-1.58 in	ø5-40 mm	ø0.2-1.58 in
Milling capacity						
Milling	300 cm³/min	18.3 in³/min	400 cm³/min	24.4 in³/min	500 cm³/min	30.5 in³/min
Rigid tapping	M30		M32		M34	
Helical threading	Standard		Standard		Standard	
Spindle unit						
Spindle taper	ISO 50 DIN 69871		ISO 50 DIN 69871		ISO 50 DIN 69871	
Speed	0-4500 rpm		0-4500 rpm		0-4500 rpm	
Power	11/15 kW	15/20 hp	15/22 kW	20/30 hp	22/33 kW	30/45 hp
Torque	140/200 Nm	103/148 ft-lbs	191/287 Nm	141/212 ft-lbs	280/420 Nm	207/310 ft-lbs
Automatic rotary table						
Table size	1300x1300 mm	51.2x51.2 in	1600x1300 mm	63.0x51.2 in	1800x1600 mm	70.9x63.0 in
Positioning type	360,000		360,000		360,000	
Max. load in rotation	10 Ton	22,047 lbs	20 Ton	44,093 lbs	30 Ton	66,139 lbs
Layout dimensions						
Total weight	25 Ton	55,116 lbs	28 Ton	61,730 lbs	34 Ton	74,958 lbs
Foot print (WxL)	7140x5760 mm	281.1x226.8 in	8690x6160 mm	342.1x242.5 in	9520x7410 mm	374.8x291.7 in

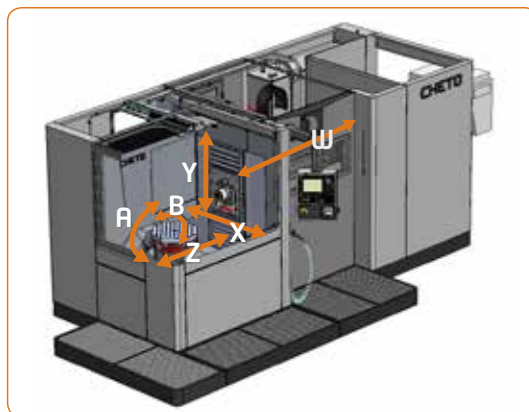


Standard Equipment

- CNC FAGOR 8065
- Wise software system
- Electronic handwheel
- Digital drives
- Nitrogen double counterweight
- Absolute linear encoders in axis X, Y, Z
- Absolute angular encoders in axis A, B
- RTCP/Kinematics
- Rigid tapping
- Quick change between drilling/milling
- Internal coolant tank with automatic filtering
- High pressure pump 80 bar, 100 l/min | 1,160 psi, 26.5 gal/min
- Automatic chip conveyor
- Complete cover with glass windows and ceiling
- Internal ATC 16 tools (up to 400 mm | 15.8 in tool length)

Optional Equipment

- CNC HEIDENHAIN TNC 640
- ATC up to 112 tools (up to 600 mm | 23.6 in tool length)
- Machine prepared for automatic pallets system
- Exhaustion system
- Electronic probe and Laser measuring system



SiC | Registered design

Technical Data

650

CNC Axis

W drilling one stroke	1120 mm	44.1 in
X longitudinal travel	650 mm	25.6 in
Y vertical travel	840 mm	33.1 in
Z cross travel	500 mm	19.7 in
B table rotation	360,000	
A table tilting	+90°/-45°	

Drilling capacity

Max. drilling (one-step)	760 mm	29.9 in
Drilling capacity	Ø4-25 mm	Ø0.16-0.99 in

Milling capacity

Milling	250 cm³/min	15.3 in³/min
Rigid tapping	M16	
Helical threading	Standard	

Spindle unit

Spindle taper	HSK-A63	
Speed	0-11800 rpm	
Power	21/26 kW	28/35 hp
Torque	80/101 Nm	59/75 ft-lbs

Automatic rotary table

Table size	500x500 mm	19.7x19.7 in
Positioning type	360,000	
Max. load in rotation	750 kg	1,654 lbs

Layout dimensions

Total weight	14 Ton	30,865 lbs
Foot print (WxL)	6790x3160 mm	267.3x124.4 in

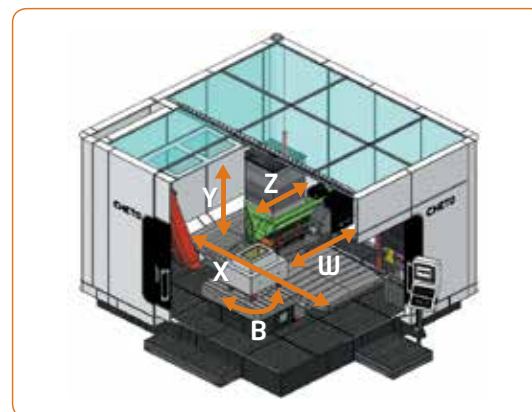


Standard Equipment

- CNC FAGOR 8065
- Electronic handwheel
- Digital drives
- Nitrogen double counterweight
- Absolute angular encoders in axis B
- Telescopic covers in all axis (except W)
- RTCP/Kinematics
- Rigid tapping
- Quick change between drilling/milling
- Coolant tank with automatic filtering
- Submerged pumps for oil recirculation
- High pressure pump 80 bar, 100 l/min | 1,160 psi, 26.5 gal/min
- Automatic chip conveyor
- Complete cover with doors, glass windows and ceiling

Optional Equipment

- CNC HEIDENHAIN TNC 640
- Wise software system
- ATC up to 250 tools (up to 600 mm | 23.6 in tool length)
- ATC Gun drill up to 5 tools
- Absolute linear encoders in axes X, Y, Z
- Spindle gearbox
- Y axis = 1500 mm | 59.1 in
- W axis = 2000 mm | 78.7 in
- Exhaustion system
- Electronic probe and Laser measuring system



Technical Data

	1000		2000		3000	
CNC Axis						
W drilling one stroke	1630 mm	64.2 in	1630 mm	64.2 in	1630 mm	64.2 in
X longitudinal travel	1000 mm	39.4 in	2000 mm	78.7 in	3000 mm	118.1 in
Y vertical travel	800 mm	31.5 in	1200 mm	47.2 in	1200 mm	47.2 in
Z cross travel	800 mm	31.5 in	800 mm	31.5 in	800 mm	31.5 in
B table rotation	360,000		360,000		360,000	
Drilling capacity						
Max. drilling stroke W+Z	1630+800 mm	64.2+31.5 in	1630+800 mm	64.2+31.5 in	1630+800 mm	64.2+31.5 in
Drilling capacity	ø5-40 mm	ø0.2-1.58 in	ø5-40 mm	ø0.2-1.58 in	ø5-40 mm	ø0.2-1.58 in
Milling capacity						
Milling	300 cm³/min	18.3 in³/min	400 cm³/min	24.4 in³/min	500 cm³/min	30.5 in³/min
Rigid tapping	M30		M32		M34	
Helical threading	Standard		Standard		Standard	
Spindle unit						
Spindle taper	ISO 50 DIN 69871		ISO 50 DIN 69871		ISO 50 DIN 69871	
Speed	0-4500 rpm		0-4500 rpm		0-4500 rpm	
Power	11/15 kW	15/20 hp	15/22 kW	20/30 hp	22/33 kW	30/45 hp
Torque	140/200 Nm	103/148 ft-lbs	191/287Nm	141/212 ft-lbs	280/420 Nm	207/310 ft-lbs
Automatic rotary table						
Table size	1300x1300 mm	51.2x51.2 in	1600x1300 mm	63.0x51.2 in	1800x1600 mm	70.9x63.0 in
Positioning type	360,000		360,000		360,000	
Max. load in rotation	10 Ton	22,047 lbs	20 Ton	44,093 lbs	30 Ton	66,139 lbs
Layout dimensions						
Total weight	21 Ton	46,298 lbs	23 Ton	50,707 lbs	28 Ton	61,730 lbs
Foot print (WxL)	5000x5510 mm	196.8x216.9 in	5970x5510 mm	235.0x216.9 in	6725x5850 mm	264.8x230.3 in



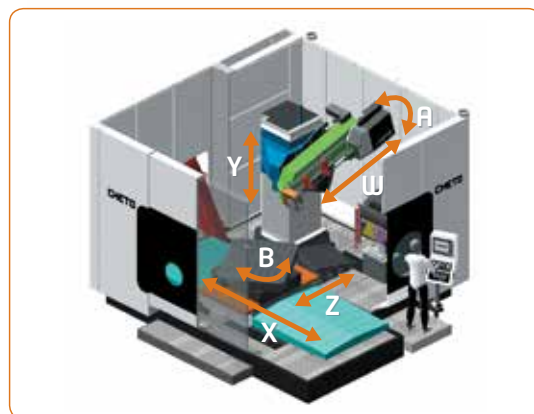


Standard Equipment

- CNC FAGOR 8065 Windows 7
- Electronic handwheel
- Digital drives
- Nitrogen double counterweight
- Absolute linear encoders in axis X, Y, Y1, Z
- Absolute angular encoders in axis A, B
- Telescopic covers in all axis (except W)
- RTCP/Kinematics
- Rigid tapping
- Quick change between drilling/milling
- Coolant tank with automatic filtering
- Submerged pumps for oil recirculation
- High pressure pump 80 bar, 100 l/min | 1,160 psi, 26.5 gal/min
- Automatic chip conveyor
- Complete cover with doors, glass windows and ceiling

Optional Equipment

- CNC HEIDENHAIN TNC 640
- Wise software system
- ATC up to 250 tools (up to 600 mm | 23.6 in tool length)
- Mirror version
- Spindle gearbox
- Y axis = 1500 mm | 59.1 in
- W axis = 2000 mm | 78.7 in
- Exhaustion system
- Electronic probe and Laser measuring system





6 AXIS

MT 1500 | 2500

Technical Data

	1500		2500	
CNC Axis				
W drilling one stroke	1630 mm	64.2 in	1630 mm	64.2 in
X longitudinal travel	1500 mm	59.1 in	2500 mm	98.4 in
Y vertical travel	1000 mm	39.4 in	1200 mm	47.2 in
Z cross travel	650 mm	25.6 in	650 mm	25.6 in
B table rotation	360,000		360,000	
A tilting rotation	+25°/-25°		+25°/-25°	
Drilling capacity				
Max. drilling stroke W+Z	1630+650 mm	64.2+25.6 in	1630+650 mm	64.2+25.6 in
Drilling capacity	ø5-40 mm	ø0.2-1.58 in	ø5-40 mm	ø0.2-1.58 in
Milling capacity				
Milling	400 cm³/min	24.4 in³/min	500 cm³/min	30.5 in³/min
Rigid tapping	M32		M34	
Helical threading	Standard		Standard	
Spindle unit				
Spindle taper	ISO 50 DIN 69871		ISO 50 DIN 69871	
Speed	0-4500 rpm		0-4500 rpm	
Power	15/22 kW	20/30 hp	22/33 kW	30/45 hp
Torque	191/287 Nm	141/212 ft-lbs	280/420 Nm	207/310 ft-lbs
Automatic rotary table				
Table size	1300x1300 mm	51.2x51.2 in	1600x1300 mm	63.0x51.2 in
Positioning type	360,000		360,000	
Max. load in rotation	10 Ton	22,047 lbs	15 Ton	33,070 lbs
Layout dimensions				
Total weight	29 Ton	63,935 lbs	34 Ton	74,958 lbs
Foot print (WxL)	5090x5500 mm	200.4x216.5 in	6090x5500 mm	239.8x216.5 in

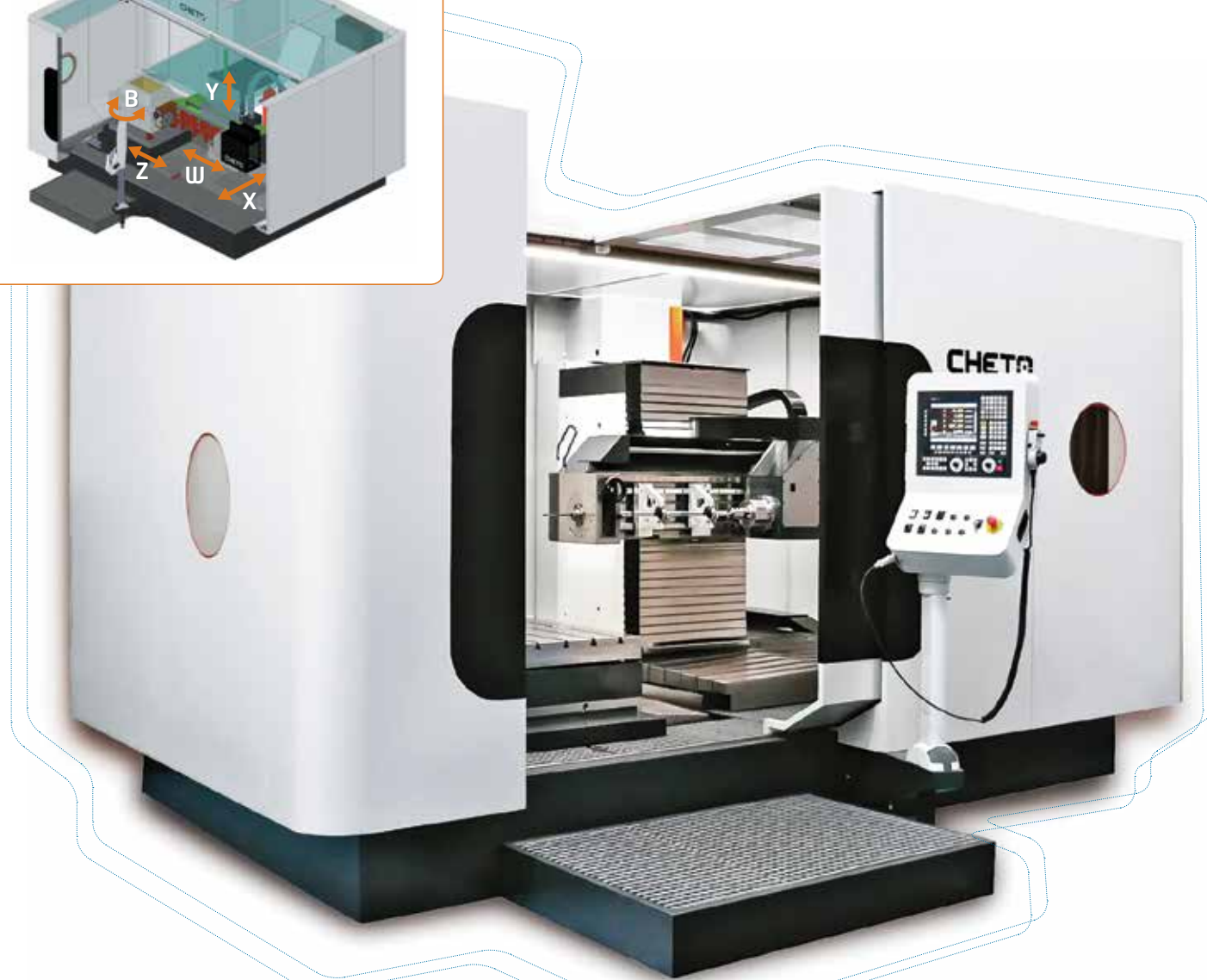
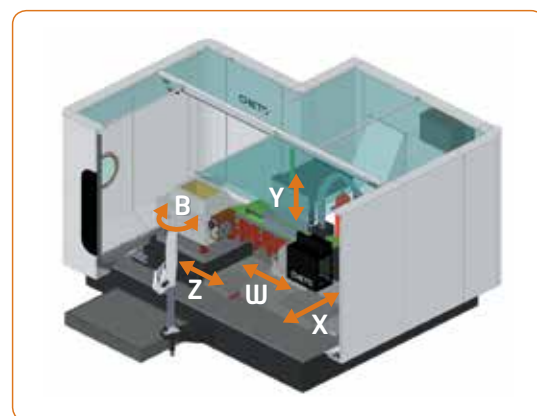


Standard Equipment

- CNC FAGOR 8055i Power
- Electronic handwheel
- Digital drives
- Nitrogen double counterweight
- Absolute angular encoders in axis B
- Telescopic covers in all axis (except W)
- RTCP/Kinematics
- Rigid tapping
- Quick change between drilling/milling
- Coolant tank with automatic filtering
- Submerged pumps for oil recirculation
- High pressure pump 70 bar, 90 l/min | 1,015 psi, 23.8 gal/min
- Automatic chip conveyor
- Complete cover with doors, glass windows and ceiling

Optional Equipment

- CNC FAGOR 8060-M
- CNC HEIDENHAIN TNC 620
- Wise software system
- ATC 24/40 tools
- Absolute linear encoders in axes X, Y, Z
- Exhaustion system
- Electronic probe and Laser measuring system



Technical Data

1000

CNC Axis

W drilling one stroke	1550 mm	61.0 in
X longitudinal travel	1000 mm	39.4 in
Y vertical travel	600 mm	23.6 in
Z cross travel	500 mm	19.7 in
B table rotation	360,000	

Drilling capacity

Max. drilling stroke W+Z	1550+500 mm	61.0+19.7 in
Drilling capacity	ø4-25 mm	ø0.16-0.99 in

Milling capacity

Milling	250 cm³/min	15.3 in³/min
Rigid tapping	M22	
Helical threading	Standard	

Spindle unit

Spindle taper	ISO 40 DIN 69871	
Speed	0-6000 rpm	
Power	5,5/7,7 kW	7,5/10,5 hp
Torque	52,5/73,5 Nm	38,7/54,2 ft-lbs

Automatic rotary table

Table size	1000x1000 mm	39.4x39.4 in
Positioning type	360,000	
Max. load in rotation	4 Ton	8,819 lbs

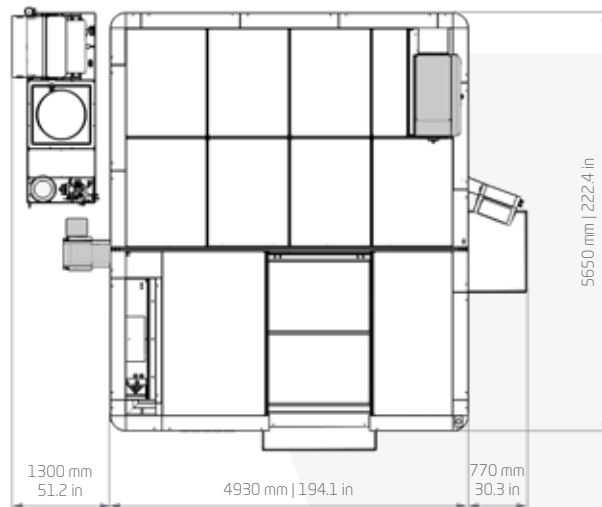
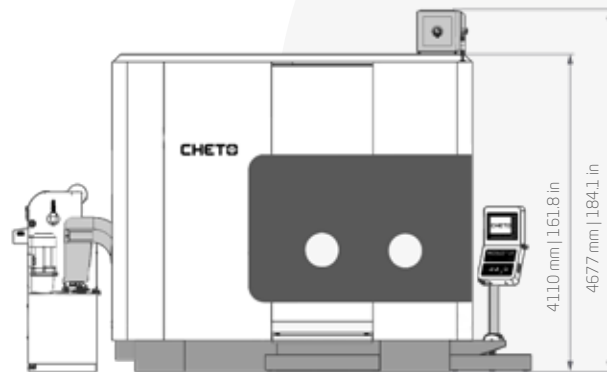
Layout dimensions

Total weight	14 Ton	30,865 lbs
Foot print (WxL)	6340x5380 mm	249.6x211.8 in

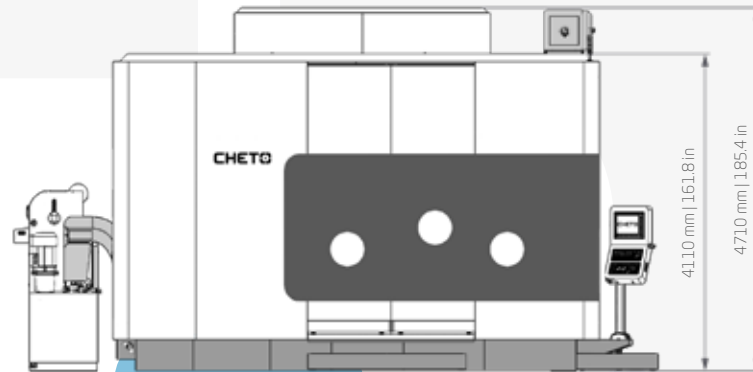


FOOT PRINT CHETO MACHINES

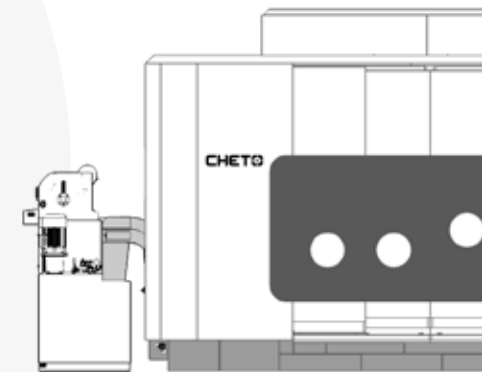
IXn1000 —



IXn2000 —

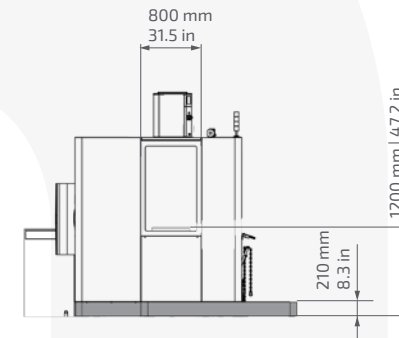
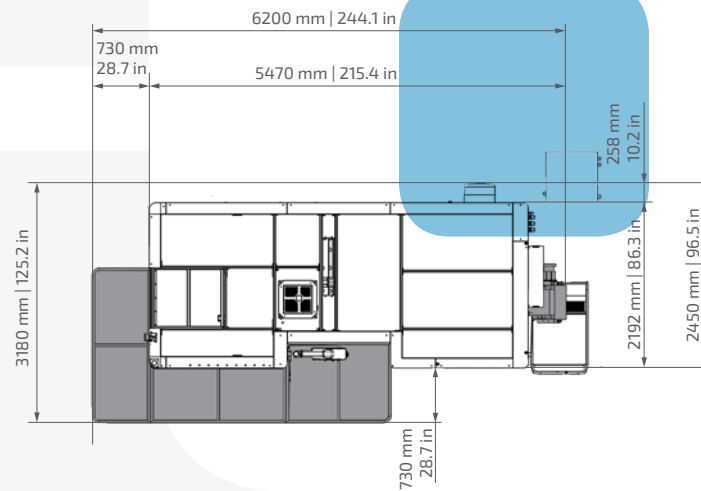
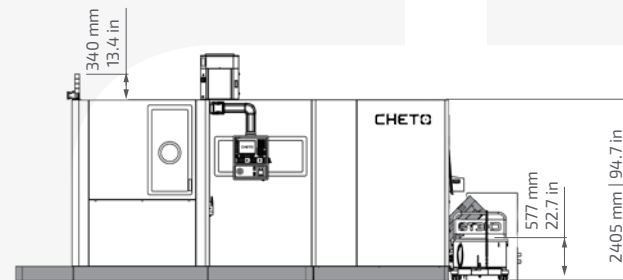
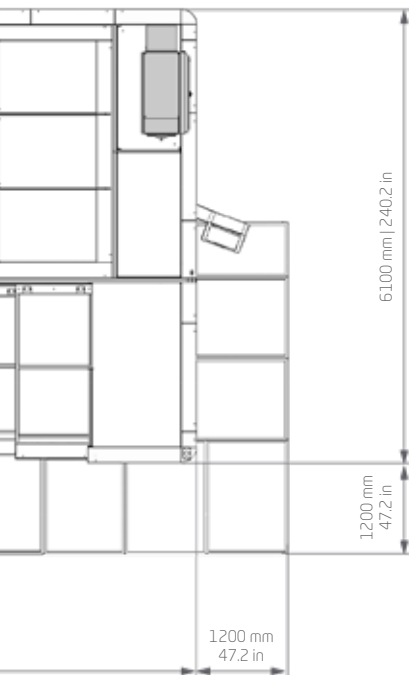
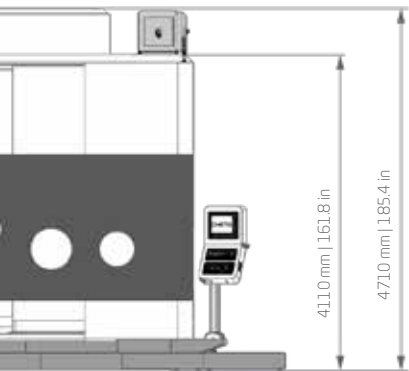


IXn3000 —



FOOT PRINT CHETO MACHINES

SIC650



Registered Design

Subject to technical change without notice

DESIGN AND STRUCTURE

Internal development

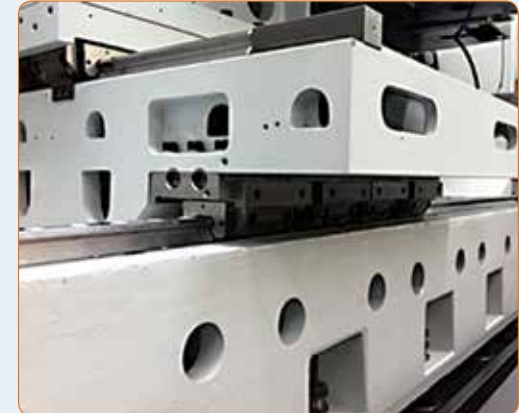
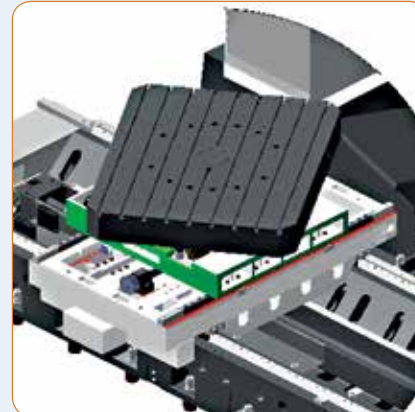
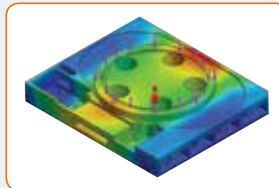
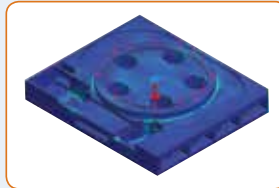
- User-friendly
Fitting the customer needs

FEM

- Finite Element Method

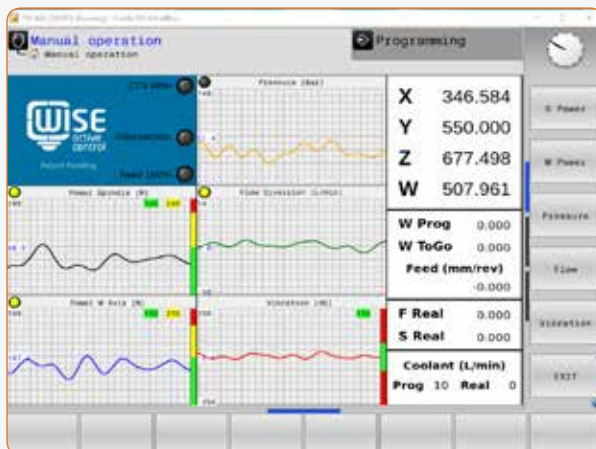
Structure

- The best performance with all structure components in cast iron



Cast iron structure

WISE SOFTWARE SYSTEM



Wise software system is an application developed by **Cheto Corporation** for deep hole drilling machines whose main objective is to adapt machining parameters on-line to optimize the material cutting process and tool lifetime without the presence of an alert operator and drilling expert.

The diversity of operations, the lack of raw materials homogeneity, the deficient parameter settings, and intersection holes often lead to the reduction of the tool lifetime.

As hole intersections are a constant matter on mold making, and considering the difficulty of these operations, it's common to have problems on final results as unexpected hole drifts, premature tool wear or tool break.

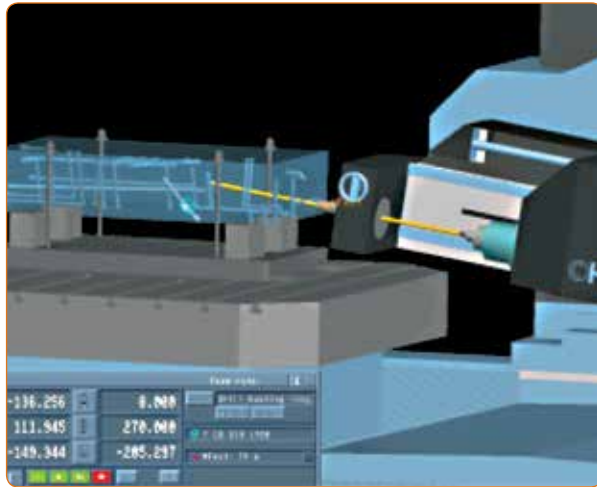
All these effects may lead to costs that are never covered by a budget, and are later called extraordinary costs of nonconformance.

Process Control

- The system continuously monitors machine's critical variables of the working process (oil pressure, oil flow, vibrations, power consumption, etc.), and automatically adjusts the drilling parameters in order to keep a stable and continuous process.

Intersections Control

- The system automatically detects intersections in the process and sets the parameters accordingly to keep the quality of the operation and to protect the tool lifetime.



tebis
THE CAD/CAM EXPERTS

www.tebis.com

Founded in 1984, Tebis AG is a dynamic and rapidly growing technical software solutions company headquartered in Munich, Germany specialising in the development of CAD/CAM systems. Tebis cutting-edge solutions allow our customers of the Tool, Die, Mold and Aerospace manufacturing industries be industry leaders by utilizing the most advanced and reliable software to easily control their manufacturing processes.

Tebis supplies turnkey installations and provides a full software service including assessment, implementation, training and hotline support.

More than 8,200 Tebis CAD/CAM systems are being utilized by approximately 1,950 customers worldwide ranging from small tech companies to global brand-name manufacturers, including most automotive companies.

Tebis CAD/CAM and Viewer stations are recognized by these sectors as solid components of highly efficient design and manufacturing process chains.



HEIDENHAIN

www.heidenhain.com

TNC 640 - The numeric control to mill and drill

The HEIDENHAIN TNC 640 is a high-end numeric control for deep hole drilling and combined machining centers up to 18 axis. The TNC 640 offers the user numerous workshop-oriented functions and many advantages:

- Optimized motion control
- High machining speeds
- Outstanding contour accuracy
- Short processing times
- Fully digital structure and integrated digital drive control
- Clear and dialog-assisted user interface



FAGOR
FAGOR AUTOMATION

www.fagorautomation.com

Control system FAGOR with most advanced technology

- Digital drives, fiber-optics communication
- Feed hand wheel
- Easy operation based on pop-up menus
- Standard and **CHETO** conversational cycles
- Linear/angular absolute encoders
- PC simulator available
- Next job programming/simulation while executing other job
- Friendly operator safety
- Maintenance tools for easy failure diagnosis
- Easy inclined plane functions
- Advanced tool inspection

LINEAR GUIDANCE SYSTEMS



Screws

- Rectified
- High precision
- Adapted to **i4.0**

IXN/PW models

- Screw $\varnothing 40$ mm | $\varnothing 1.58$ in (axis W)
- Screw $\varnothing 63$ mm | $\varnothing 2.48$ in (axis X, Z)
- Screw $\varnothing 50$ mm | $\varnothing 1.97$ in (axis Y)

MT model

- Screw $\varnothing 40$ mm | $\varnothing 1.58$ in (axis W)
- Screw $\varnothing 63$ mm | $\varnothing 2.48$ in (axis X)
- Screw $\varnothing 50$ mm | $\varnothing 1.97$ in (axis Y, Z)

CC model

- Screw $\varnothing 40$ mm | $\varnothing 1.58$ in (axis X, Y, Z and W)



Roller guides

- High precision
- High pre-load
- Adapted to **i4.0**

IXN/PW/MT models

- 4 slides by guide (axis X, Y)
- 3 slides by guide (axis Y, W)

CC model

- 3 slides by guide (axis X, Z)
- 2 slides by guide (axis Y, W)



Versatility

- Quick change between drilling and milling



Deep hole drilling accessories

- Whip guides



- Guide bushes



- Spindle taper



- Tool extender



- Steady rests

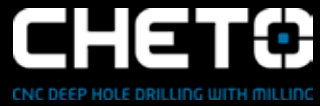


- Pull stud



CHETO





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