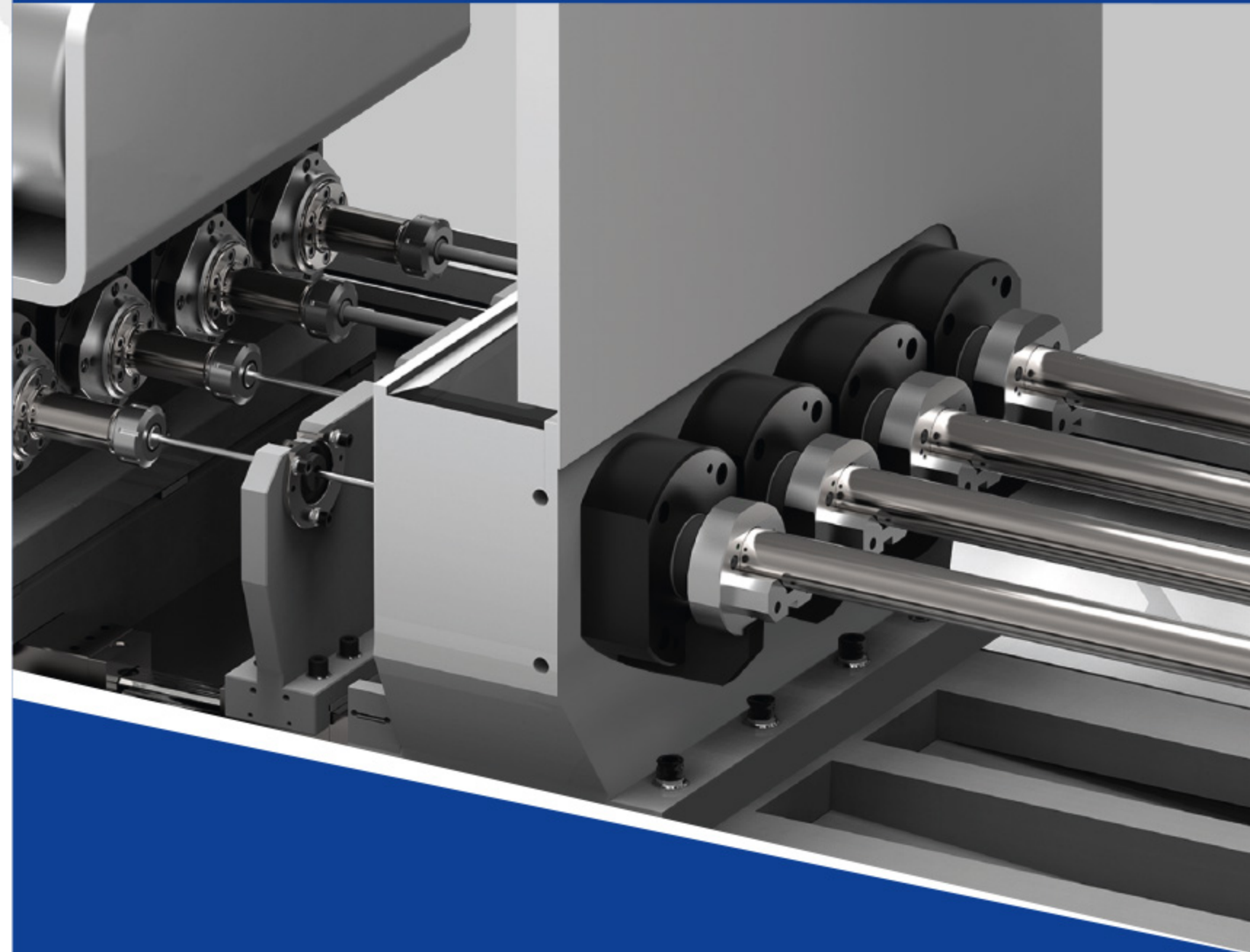


A trusted name in machine tools, recognized globally



PMT-GC-00-0422

# DEEP HOLE DRILLING & HOLE FINISHING SOLUTIONS

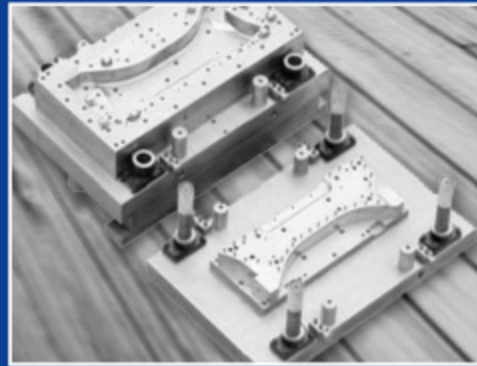


# PRECIHOLE MACHINE TOOLS

Precihole Machine Tools is a leader in providing state-of-the-art solutions for deep hole drilling and hole finishing processes. Precihole has over three decades of experience supplying machine tools solutions for a variety of industries all across the globe. Precihole Machine Tools is an ISO 9001-2015 certified company that values product quality, its customers and employees.

Precihole machines are built in-house from concept to finish with a talented team of experienced and qualified individuals. Machines are tested and proven to the highest standards before dispatch to ensure accuracy, repeatability and performance. Our business processes and operational methodologies ensure that we can offer competitive pricing and aggressive delivery commitments.

Precihole Machine Tools is your partner in providing valuable and cost effective solutions that adhere to the highest levels of quality. Precihole has appointed distributors all over the world to be able to provide service, support and training locally to our esteemed clientele.



# MACHINE TOOL SOLUTIONS

Precihole Machine Tools is a leader in design and manufacture of deep hole drilling and hole finishing solutions since its conception in 1988. We strive to inspire the industry by innovating new technology and products while keeping high standards in quality to the utmost customer satisfaction.

Design and construction of the machine, user friendliness of controls, machine performance, reliability and level of service and support are some of the major factors why customers are attracted repeatedly towards buying Precihole Solutions.

Precihole has over 1000 successful installations of machines spread all over the world. There are over 150 different applications in industries like Automotive, Die and Mold, Defense, Oil and Gas, Aerospace, Energy, Medical Implants, Hydraulic Cylinders, Instrumentation Heavy Engineering etc. where Precihole machines have been installed.

Precihole's Machine Tool Solutions can be broadly classified into the following categories:

## DEEP HOLE DRILLING

- Micro Gun Drilling Machines
- Single Axis Gun Drilling Machines
- Multi Axis Gun Drilling Machines
- BTA (STS) Drilling Machines
- Ejector Drilling Machines

## HOLE FINISHING

- Skiving & Burnishing Machines
- Honing Machines
- Reaming Machines
- Lapping Machines

## SPECIAL PURPOSE MACHINES

- Customized Deep Hole Drilling Machines
- Facing, Centering and Chamfering Machines
- Broaching Machines

## THE PRECIHOLE ADVANTAGE

- Over three decades of proven experience in providing machine tools to the industry
- One stop shop for all deep hole drilling and hole finishing solutions
- Solutions are customized to suit individual project requirements and scale
- Solutions are industry proven for reliability, repeatability and accuracy
- Solutions provide an excellent return on investment
- Worldwide delivery and local technical support in all major markets



# SINGLE AXIS GUN DRILLING MACHINES

Precihole's GVN Series Gun Drilling Machines are built to manufacture high precision parts. Machines incorporate the latest technology available for this process in the world. Machines are customized to suit volume requirements and provide excellent straightness, surface finish and bore tolerance. Length to diameter ratios of up to 125 are possible. These machines are complete solutions that include features needed for continuous and repeatable performance over many years.



- Award Winning Design, continuously improved and proven over the past 3 decades
- Offers Best Value and Return on Investment in the Industry
- Modular Construction that allows high level of flexibility for standard components
- Option for 2 spindle or 4 spindle configuration provides high productivity
- Touch Screen and Programmable Logic Controls for ease of use
- Quick and Operator Friendly Setup change-overs
- Multiple types of automation can be incorporated

## SALIENT FEATURES

- Component Counter rotation to ensure excellent straightness
- Use of ball screw and servo drives for linear motion
- Multiple tool steadies to provide tube support
- Rotating Cone or Self Centering chuck arrangement for part clamping
- High pressure coolant and fine filtration system
- Oil chilling and Automatic Lubrication
- Mitsubishi / Siemens PLC controls with touch screen HMI
- Integrated design to reduce overall machine footprint

MODEL		GVN 08C	GVN 12C	GVN 20C	GVN 25C	GVN 40C
Drilling Diameter Range	mm	Ø2 - Ø8	Ø3 - Ø12	Ø5 - Ø20	Ø8 - Ø25	Ø8 - Ø40
	in	Ø0.08 - Ø0.3	Ø0.12 - Ø0.47	Ø0.197 - Ø1	Ø0.315 - Ø1	Ø0.31 - Ø1.57
Spindles	nos.	1/2/4			1/2	
Max. Drilling Depth	mm	400 / 600 / 100				
	in	16 / 24 / 40				
Part OD Range	mm	10 - 50		12 - 75		15 - 100
	in	0.4 - 2		0.47 - 3		0.6 - 4
Part Clamping System		Hydraulic Cone Clamping / Chuck Clamping				
Max. Component Weight	kg	30		50		70
	lbs	67		111		155
Counter Rotation Speed	rpm	300			140	
Drill Feed Range	mm/min	0 - 1000				
	in/min	0 - 40				
Rapid Traverse	mm/min	10000		8000		4000
	in/min	393		315		157
Power Per Spindle	kW	1.5		2.2		5.5
	hp	2		3		7.5
Spindle Speed	rpm	2000 - 12000		1200 - 10000		600 - 400
						600 - 3300
Coolant Tank Capacity (Max)	liters	850 / 900 / 1100			1050 / 1100 / 1250	
	gal	225 / 238 / 290			277 / 290 / 330	
Max. Coolant Pressure	kg/cm <sup>2</sup>	120		100		80
	psi	1740		1450		1160
						870
						1000



## MICRO GUN DRILLING MACHINES

Precihole's GVN Series Micro Gun Drilling Machine is designed to accommodate requirements for micro gun drilling applications in medical, aerospace and automotive industries. Machine can be customized to accommodate production volume requirements and provide excellent straightness, surface finish and bore tolerance. Length to diameter ratios of up to 75 are possible on this machine. Precihole's own component manufacturing experience over 30 years helps ensure that all the necessary complexities in small hole drilling of such applications are incorporated in the design of key features on this machine.



## THREE AXIS KNEE TYPE GUN DRILLING MACHINES

Precihole's XYGVN Series Knee Type Multi Axis Gun Drilling Machines are designed to accommodate requirements for drilling multiple holes in small and medium size molds in Die and Mold industry. Machine can be customized to accommodate size and stroke requirements for various prismatic parts. Lot of off centered long hole application in automotive industries can be done efficiently. These machines provide excellent location accuracy and repeatability, straightness, surface finish and bore tolerance. Length to diameter ratios of up to 100 are possible on these machines.



## SALIENT FEATURES

- Component Counter rotation to ensure excellent straightness
- Use of ball screw and servo drives for linear motion
- Multiple tool steadies to provide tube support
- Rotating Cone or Self Centering chuck arrangement for part clamping
- High pressure coolant and fine filtration system
- Oil chilling and Automatic Lubrication
- Mitsubishi / Siemens PLC controls with touch screen HMI
- Integrated design to reduce overall machine footprint

MODEL		GVN 06C
Drilling Diameter Range	mm	Ø1 - Ø6
	in	Ø0.04 - Ø0.25
Spindles	nos.	1 / 2
Drilling Depth	mm	300
	in	12
Drill Feed Range	mm/min	0 - 1000
	in/min	0 - 40
Power per Spindle	kW	1.5
	hp	2
Spindle Speed Range	rpm	1000 - 24000
Component Outer Diameter (Max)	mm	Ø40
	in	Ø1.5
Foot Print (L x W)	mm	3000 x 2000
	ft	10 x 6.5

MODEL		XYGVN 12	XYGVN 20	XYGVN 25	XYGVN 40
Drilling Diameter Range	mm	Ø3 - Ø12	Ø5 - Ø20	Ø8 - Ø25	Ø8 - Ø40
	in	Ø0.12 - Ø0.5	Ø0.19 - Ø0.79	Ø0.315 - Ø1	Ø0.30 - Ø1.5
Spindles	nos.		1/2		1
Drilling Depth	mm		600 / 1000		
	in		24 / 40		
Drill Feed Range	mm/min		0 - 1000		
	in/min		0 - 40		
Rapid Traverse	m/min	10000	8000	8000	4000
	in/min	393	315	315	157
Power per Spindle	kW	2.2	5.5	7.5	15
	hp	3	7.5	10	20
Spindle Speed Range	rpm	1200 - 10000	600 - 6400	600 - 3300	350 - 3500
X Axis Travel x Y axis Travel	mm		500 x 300		
	in		20 x 12		
Working Envelope	mm		500(W) x 300(H)		
	in		20(W) x 12(H)		
Max. Component Weight on Table	kg		1000		
	lb		2200		
Spindle Center Height from Table Top	mm		50 - 350		
	in		2 - 14		

# BTA DEEP HOLE DRILLING MACHINES

Precihole's BVN Series BTA (STS) Deep Hole Drilling Machines are built to operate in continuous production mode for drilling large holes in shafts. Machines feature state of the art technology that produces holes with excellent straightness, bore tolerance and surface finish. These machines are complete solutions that include all features needed for continuous and repeat able performance over many years.

## SALIENT FEATURES

- Rigid and Robust design to allow precise and vibration free movement of machine elements
- Use of ball screw or rack and pinion with servo drives for linear motion
- Proprietary designed pressure head to allow optimum oil flow and tool guiding
- Vibration dampeners to absorb vibrations and reduce tube whipping to improve hole straightness
- Self centering chuck clamping at both ends on rotating setup for quick setup of parts
- High pressure coolant and fine filtration system
- Oil chilling and Automatic Lubrication
- Fanuc / Siemens CNC controls with customized screens for monitoring machine parameters
- Provision for adding other processes like Counter boring, Trepanning, Pull Boring, Skiving and Roller Burnishing, Bottle Boring on same machine

MODEL			BVN 40P	BVN 65P	BVN 100P	BVN 180P
Solid Drilling Range	mm		Ø12.7 - Ø40	Ø19 - Ø65	Ø25 - Ø100	Ø50 - Ø180
	in		Ø0.5 - Ø1.5	Ø0.74 - Ø2.5	Ø0.98 - Ø3.9	Ø1.97 - Ø7
Counter Boring (Max)	mm		---	Ø100	Ø175	Ø300
	in		---	Ø4	Ø7	Ø12
Drilling Length	mm		500 - 2000	1000 - 3000	1500 - 6000	2000 - 12000
	in		20 - 80	40 - 120	60 - 240	80 - 480
Tool head	Spindle Power	kW	15	22	37	74
		hp	20	30	50	100
	Spindle Speed Range	rpm	400 - 2500	250 - 1750	100 - 1300	50 - 650
Work Head	Spindle Power	kW	3.7	11	18.5	30
		hp	5	15	25	40
	Spindle Speed	rpm	120	40		25
Coolant System	Coolant Flow	LPM	160	400	700	1200
		GPM	43	107	187	320
	Tank Capacity	L	2500	4000	6000	10000
		G	660	1060	1600	2600



## FACING & CHAMFERING MACHINES

Precihole manufactures a special purpose, highly versatile machine for facing, chamfering and centering of cylindrical shafts. Accuracy and repeatability on these operations is critical for the parts to be located and aligned properly during further machining operations. If the part is improperly faced or chamfered, the part does not seat properly in the cone leading to inaccuracies in gun drilling operations. This machine engages the component simultaneously at both ends. The combined facing and chamfering operation uses a special tool that ensures high productivity. Two hydraulically operated self-centering work holding vices hold the part accurately. Total cycle time is generally less than 30s. Automation for loading and unloading of parts can be added as an option on the machine.



### SALIENT FEATURES

- Use of ball screw and servo drives for linear motion
- Simultaneous facing and chamfering operation at both ends using special tools
- Hydraulic self centering work holding vices for part clamping
- Mitsubishi / Siemens PLC controls with touch screen HMI
- User friendly screens, simplified machine operation
- Chip conveyor and filtration system for flushing chips

MODEL		FCVW 50
Part OD range (Ø)	mm	15 - 50
	in	0.47 - 2
Spindles	nos.	2 ( one at either end)
Max. Part Length	mm	600 / 1000
	in	24 / 40
Part Clamping System		Hydraulically Operated Self Centering Vices
Max. Component Weight	kg	40
	lbs	89
Feed Range	mm/min	0 - 500
	in/min	0 - 20
Rapid	mm/min	5000
	in/min	200
Spindle Speed	rpm	500 - 2500
Power Per Spindle	kW	5.5
	hp	7.5

## VERTICAL HONING MACHINES

Precihole's Vertical honing machines are next gen solutions that provide state of the art features and world class performance while providing the best value in the industry. They are designed to hone holes from Ø5 mm (0.2") to Ø50 mm (2") and part lengths of upto 1500 mm (60") long. Precihole has combined 30+ yrs of deep hole drilling and hole finishing machine development experience into these solutions. They are complete solutions comprising of machine, tooling, tooling accessories and honing oil suited perfectly for gun barrel honing.



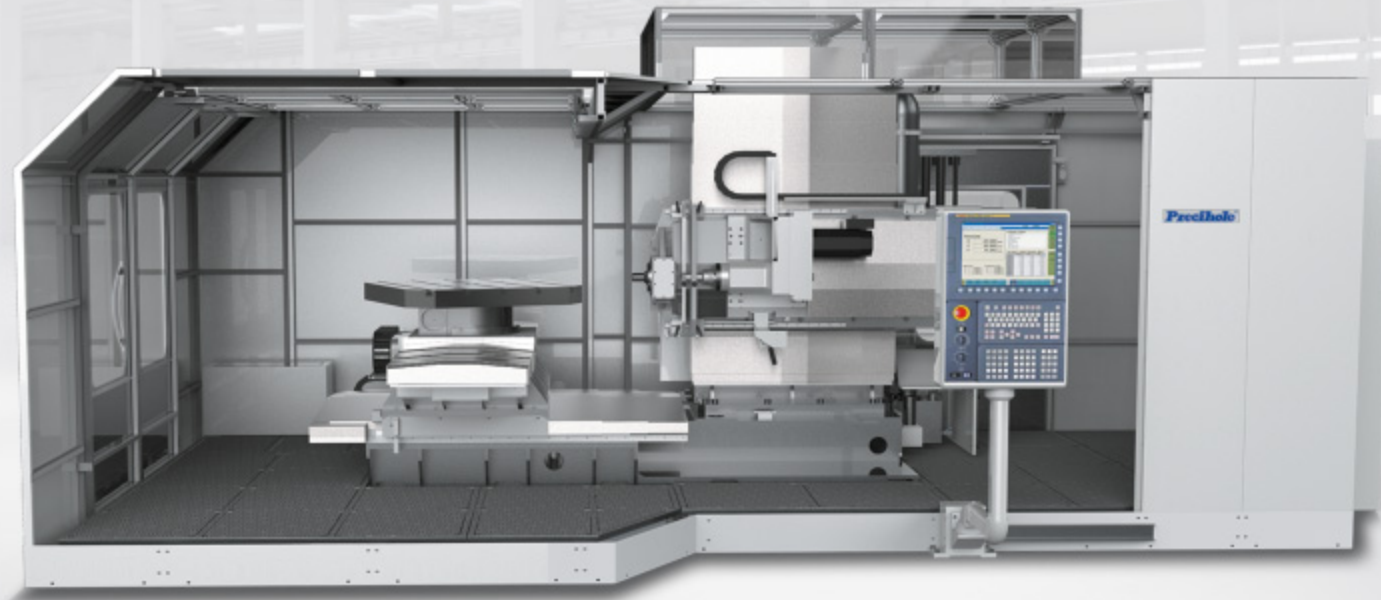
### SALIENT FEATURES

- All electric servo motors for linear motion, spindle rotation and tool expansion
- Precision manufactured vertical column to support single or multiple spindles
- Operator friendly self learning controls with custom screens
- Five micron fine coolant filtration systems with oil chilling and magnetic separator for optimal performance
- Optional air gauging systems for automatic size control
- Quick change liner indexing table and part loading fixtures
- Double expansion technologies for larger diameter holes

MODEL		VHM 20	VHM 50
Honing Diameter Range (Ø)	mm	Ø5 - Ø20	Ø10 - Ø50
	in	Ø0.2 - Ø0.78	Ø0.4 - Ø2
Spindles	nos.	1 / 2	
Max. Honing Depth	mm	1500	
	in	60	
Barrel OD Range	mm	15 - 60	20 - 100
	in	0.59 - 2.36	0.78 - 4
Max. Part Weight	kg	40	100
	lbs	89	220
Stroking Speed	m/min	10 - 30	
	ft/min	33 - 100	
Spindle Speed	rpm	10 - 1500	10 - 800

# MULTI-AXIS COLUMN TYPE DEEP HOLE DRILLING MACHINES

Precihole's XYGVNCL Series Column Type Multi Axis Gun Drilling Machines satisfy all requirements for drilling and milling of multiple deep holes in large size molds for Die and Mold industry and Tube sheets. Machines can be customized to accommodate size and stroke requirements. These machines provide excellent location accuracy and repeatability, straightness, surface finish and bore tolerance. Length to diameter ratios of up to 100 are possible on these machines.



# SKIVING AND ROLLER BURNISHING MACHINES

Precihole's SBN Series Skiving and Roller Burnishing Machines are built to operate in a high production mode for accurate size & best bore finished hydraulic cylinder tubes. Machines incorporate use of state of the art technology that enables cycle times to be 30-40 times faster than honing. Machines are customized to suit volume requirements and provide excellent surface finish and wall thickness consistency across the length of the tube. These machines are complete solutions that include features needed for continuous and repeatable performance over many years.



## SALIENT FEATURES

- Adequate axes strokes to accommodate large size mold bases
- Use of ball screw and servo drives for linear motion
- Rigid cast iron column construction to provide required accuracy
- High pressure coolant and fine filtration system
- Oil chilling and Automatic Lubrication
- Fanuc / Siemens CNC controls with customized screens for monitoring machine parameters

MODEL		XYGVN 20CL	XYGVN 25CL	XYGVN 40CL
Drilling Diameter	mm	Ø4 - Ø25		Ø8 - Ø40
	in	Ø0.15 - Ø1		Ø0.3 - Ø1.5
Spindles	nos		1	
Drilling Depth	mm	600	1000	1000/1200/1500
	in	24	40	40/48/60
Drill Feed	mm/min		0 - 1000	
	in/min		0 - 40	
Rapid Traverse	mm/min		4000	
	in/min		157	
Spindle Power (Drilling)	kw		7.5	15
	hp		10	20
Spindle Speed Range	RPM		650 - 7500	400 - 3500
Table Size	mm	1000 x 1000	1200 x 1200	1500 x 1500
	in	40 x 40	48 x 48	60 x 60
Horizontal Traverse ( X )	mm	600	1000	1500
	in	24	40	60
Vertical Traverse	mm	600	1000	1500
	in	24	40	60
Rotary Table ( B )	deg.	-	Optional / 360°	Optional / 360°
Clearance Axis ( W )		-	Optional	Optional
Max Component Weight	kg	3000	5000	8000
	lbs	6600	11000	17500

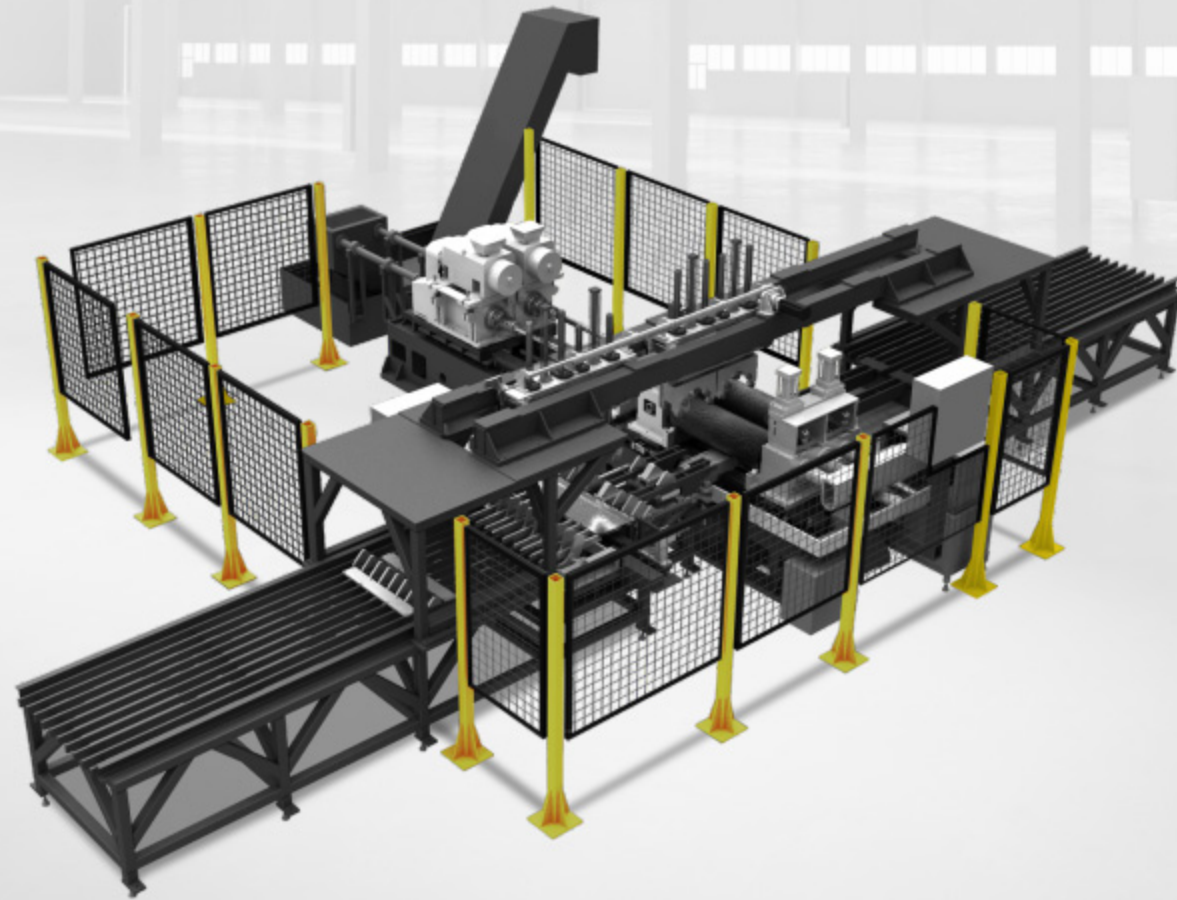
## SALIENT FEATURES

- Rigid and Robust design to allow precise and vibration free movement of machine elements
- Use of ball screw or rack and pinion with servo drives for linear motion
- Multiple tool steadies to provide tube support
- Hydraulic vice clamping for clamping tubes for slender or longer tubes
- High pressure coolant and fine filtration system
- Oil chilling and Automatic Lubrication
- Fanuc / Siemens CNC controls with customized screens for monitoring machine parameters
- Automatic loading unloading arrangement

MODEL		SBN 150	SBN 250
Skiving & Burnishing Range	mm	Ø40 - Ø150	Ø50 - Ø250
	in	Ø1.57 - Ø6	Ø2 - Ø10
Skiving & Burnishing Length	mm	1000 - 10000	
	in	40 - 394	
Configuration		Tool Rotating and Feeding, Part Stationary	
Tool Head			
Spindle Power	kw	51	74
	hp	68	99
Spindle Speed Range	rpm	150 - 1600	100 - 1300
Coolant System			
Coolant Flow	LPM	600	1000
	GPM	159	264
Tank Capacity	L	4000	6000
	G	1057	1585
Coolant Pump Power	kw	11	18.5
	hp	15	25

# SPECIAL PURPOSE DEEP HOLE DRILLING MACHINES

Precihole Machine Tools specializes in design and manufacturing of special purpose machines for deep hole drilling and hole finishing applications. We have experience in manufacturing machines for over 150 special applications in various industries where the requirements did not fit any of our standard machines. Our team of highly experienced engineers works closely with the customer to define requirements, study the underlying process, come up with a concept, then design, manufacture and prove out the machine. Every special machine undergoes thorough testing on the floor before dispatch to ensure smooth working in production mode.



## TWIN SPINDLE AUTOMATIC BTA DRILLING MACHINE

Drilling Range	mm	Ø25 - Ø80
Drilling Depth	mm	320 - 950
Component		Billets
Component Material		Alloy Steel, SS, Duplex
Component Diameter	mm	Ø180 - Ø350
Component Loading / Unloading		Automatic
Number of Spindles		2
Chip collecting system		Scraper Type Conveyor
Spindle Motor	kW	39 per Spindle
Coolant Tank Capacity		7500 Liters
Total Connected Electric Power	kW	275
Spindle Speed	RPM	150 - 1300
Feed Rate	mm/min	20 - 400
Rapid Rate	mm/min	5000
Floor Area	sq. mm	11200 x 6800

# TOOLING ACCESSORIES AND GUN DRILL REGRINDING MACHINE

Precihole manufactures high quality, precision spares and tooling accessories for their deep hole drilling and hole finishing machines. These accessories fit perfectly on the machine. Precihole guarantees good performance and life on these OEM parts. Customers are highly encouraged to buy and use machine spares and tooling accessories from Precihole only.

## GUN DRILLING



## BTA



## GUN DRILL REGRINDING MACHINE

Precihole's Gun Drill Regrinding Machines are built for precise resharping of gun drills in a single setup. These machines are versatile and improve turnover for sharpening gun drills. They are operator friendly and incorporate a range of drills from Ø2.5 mm to Ø30 mm

## SALIENT FEATURES

- Compact and Operator friendly Ergonomic Design
- All-in-one solution incorporating all necessary features
- Rigid Cast iron Construction for long life
- Precise and Controlled movement of dials for better setting
- Special double-sided diamond wheel
- Magnifying glass and Light included
- Storage and Electrical Cabinet

