



**2024**

**GEN TURN CATALOG**



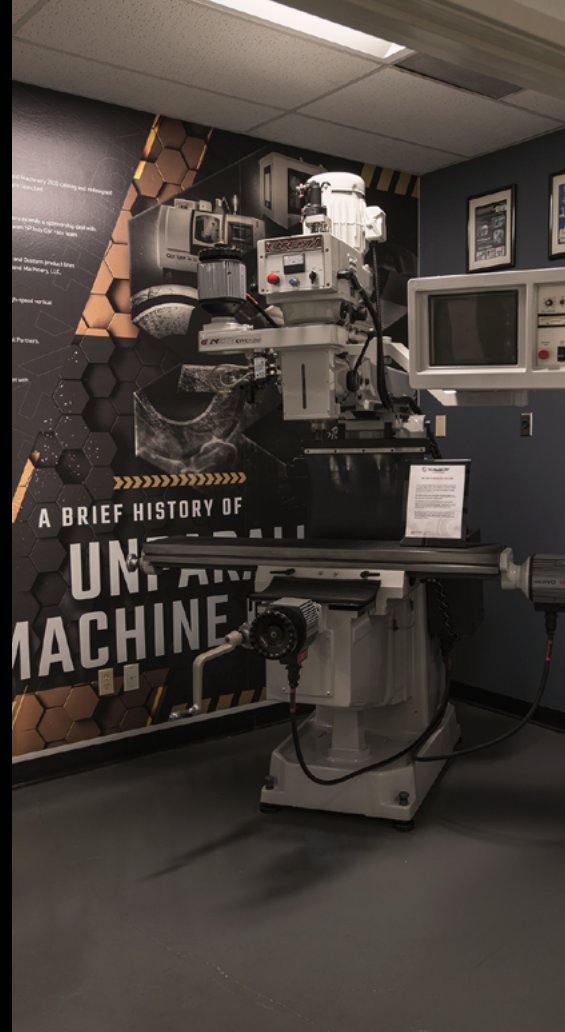
# GEN TURN

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\* Made in Japan



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*At Arrow McLaren, we're focused on building a high-performing team that competes for wins, poles and the championship. We're always looking for any way we can improve our race cars each and every race weekend. Our partners at Expand Machinery help give us the tools and machinery we need to push forward and fight to be at the top of the NTT INDYCAR SERIES."*

**Gavin Ward**  
Team Principal, Arrow McLaren

**PROUD PARTNER OF**



INDYCAR TEAM



# C42 MYS

## 6-Axis CNC Twin Spindle Single Turret with “Y” Axis

- + 6,000 RPM Built In Main and Sub Spindle
- + 10 Station BMT 55 Live Tool Turret
- + 1 5/8” (42 mm) Bar Capacity (2” Optional)
- + Full “Y” Axis for Milling off Centerline
- + Marposs Tool Probe for Ease of Setup
- + 6” Kitagawa Chuck for Main Spindle
- + 5” Kitagawa Chuck for Sub Spindle
- + Parts Catcher with Conveyor Included



**Main Spindle - 42 mm**

Maximum RPM	6,000 RPM Built-in integral spindle motor
Spindle Motor	10-HP (7.5 Kw 30-minute duty rated)
Spindle Nose Mount	A2 - 5
Maximum Barstock Diameter	1 5/8" (42 mm, 1.654")
Spindle Through Hole Diameter	1.98" (50.5 mm, 1.988")
Maximum Chucking Diameter	6"
Maximum Swing Diameter	9.84" (250 mm)
Spindle Center Height	41" (1035 mm)

**Sub Spindle**

Maximum RPM	6,000 RPM Belt-Driven
Spindle Motor	10-HP (7.5 Kw 30-minute duty rated)
Spindle Nose Mount	A2 - 4
Maximum Chucking Diameter	5"
Maximum Travel Distance	11.4" (290 mm B-Axis)

**Axis Specifications**

X-Axis Travel	4.33" (110 mm)
Z-Axis Travel	10.633" (270 mm)
X, Z & B Rapid Traverse Rates	787 IPM (20 m / min)
Y-Axis Travel	2.362" (60 mm, ± 30 mm = 1.181")
Y-Axis Rapid Traverse Rate	31.5 IPM (8 m / min)
X-Axis Servo Motor Power	.67-HP (.5 Kw)
Y & B Axis Servo Motor Power	1.0-HP (.75 Kw)
Z-Axis Servo Motor Power	1.6-HP, 2.4-HP (1.2 Kw, 1.8 Kw with 52 mm bore)

**Tool Turret**

Number of Tool Stations	10-Driven Tool Stations e.g. WTO Quick-Flex toolholders
Driven Tool Speed	6,000 RPM (higher with speeder tools)
Driven Tool Servo Motor	1.34-HP (1.0 Kw)
Indexing Drive	Hydraulic Motor
Indexing Time	0.8-Seconds
Coolant Pressure (both turrets)	135 PSI

**Machine Dimensions**

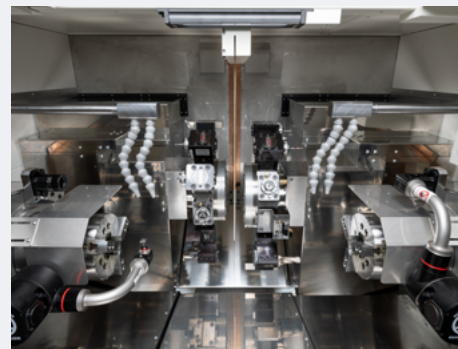
Machine Weight	4,410 lbs (2,000 kg)
Machine Dimensions (W x H x D)	85" x 81" x 60" (w/ rear discharge chip conveyor)
Coolant Capacity	29 gallons (110 liters)
Voltage Requirements	200 vac ±10% (19 Kva 3-PH)
Air Pressure Requirement	0.4 - 0.5 MPa @ 150 L / min.



# CW42 MY

## 8-Axis CNC Twin Spindle Twin Turret with Dual “Y” Axis

- + 6,000 RPM Built In Main and Sub Spindle
- + 12 Station BMT-55 Turret for Main and Sub Spindle
- + 1 5/8" (42 mm) Bar Capacity (2" Optional)
- + Full “Y” Axis for Milling off Centerline on both turrets
- + Marposh Tool Probe for Ease of Setup for each turret
- + 6" Kitagawa Chuck for Main and Sub Spindle
- + Parts Catcher with Conveyor Included
- + Dual 135 PSI High Pressure Coolant Pumps



**Main Spindle - 42 mm**

Maximum RPM	6,000 RPM Built-in integral spindle motor
Spindle Motor	10-HP (7.5 Kw 30-minute duty rated)
Maximum Barstock Diameter	1 5/8" (42 mm, 1.654")
Spindle Through Hole Diameter	1.98" (50.5 mm, 1.988")
Maximum Chucking Diameter	6" (152 mm)
Maximum Swing Diameter	14.76" (375 mm)
Spindle Center Height	40.8" (1035 mm)

**Sub Spindle**

Maximum RPM	6,000 RPM Built-in integral spindle motor
Spindle Motor	10-HP (7.5 Kw 30-minute duty rated)
Maximum Barstock Diameter	1 5/8" (42 mm, 1.654")
Spindle Through Hole Diameter	1.98" (50.5 mm, 1.988")
Maximum Chucking Diameter	6" (152 mm)
Maximum Swing Diameter	14.76" (375 mm)
Spindle Center Height	40.8" (1035 mm)

**Axis Specifications**

X-Axis Travel (both turrets)	6.693" (170 mm)
Z-Axis Travel (both turrets)	12.598" (320 mm)
X & Z Rapid Traverse Rates	787 IPM (20 m / min)
Y-Axis Travel (both turrets)	2.362" (60 mm, ± 30 mm = 1.181")
Y-Axis Rapid Traverse Rate	31.5 IPM (8 m / min)
X & Y Feed Motor Power	1-HP (.75 Kw)
Z Axis Feed Motor Power	1.6-HP (1.2 Kw)

**Tool Turret**

Number of Tool Stations	12-Driven Tool Stations eg.: WTO Quick-Flex toolholders
Tool Mount	BMT-55 Base Mount Tooling
Driven Tool Speed	6,000 RPM (higher with speeder tools)
Driven Tool Power	1.34-HP 1 Kw
Indexing Drive	Servo Motor
Indexing Time	1-Second
Coolant Pressure (both turrets)	135 PSI

**Machine Dimensions**

Machine Weight	10,584 lbs (4,800 kg)
Machine Dimensions (W x H x D)	113" x 93" x 65" (2.6 m x 2.02 m x 1.63 m)
Coolant Capacity	80 gallons (300 liters)
Voltage Requirements	200 vac ±10% (40 Kva 3-PH)
Air Pressure Requirement	0.4 - 0.5 MPa @ 150 L / min.





## Hybrid 20 mm 8-Axis CNC Swiss Machine

- + Double "Y" Axis and Double "C" Axis
- + Simultaneous Main & Sub-Spindle Machining
- + 30-Tools with 8-Driven Tools Standard
- + Removable Rotary Synchronous Guide-Bushing
- + Cutting Oil Chiller for Consistent Thermal Stability
- + High-Performance Mitsubishi M-830 Control



**Main Spindle**

Maximum RPM / Spindle Bearing	10,000 RPM / 5-Bearing Spindle, 3-Front, 2-Rear Ball Bearings
Main Spindle Servo Moto (2.2 / 3.7 kw)	5-Horsepower 15-minute Duty-Rated (3-HP Constant Duty-Rated)
Collet Style for Main & Sub Spindle	Hardinge TF - 25S / Southwick & Meister TS - 25 / Star SR - 20
Collet Actuation System	Pneumatic Piston-Driven Toggle Clamp Feed-Finger Style
Synchronous Rotary Guide-Bushing	TD25S (20 mm Round, 16 mm Hex, 12 mm Square)
Maximum Barstock Diameter	20 mm (Collet Range - 1/16" - 13/16" / 0.0200" - 0.813")
Maximum Distance Between Spindles	23.6" (600 mm)
Spindle Centerline Height	42" (1,060 mm)

**Main Spindle Tooling**

OD Tool Holders - S1	6 - 12 mm Square Shank Turning Tool Holders
ID Internal Tool Holders - S1	4 - 22 mm Shank Round Tool Sleeve Bores
ID Deep Hole Drill Positions - S1	2 - 22 mm Shank Round Tool Sleeve Bores
Cross Slide Live Tools - S1	5 - ER -16 Cross Slide Live Tools, 8,000 RPM, 1.6 HP (1.2 Kw)
Axial Front Slide Live Tool Option - S1	3 - ER - 16 Front Slide Live Tools - Optional in lieu of 1 Cross Tool
Maximum Drilling / Tapping Capacity	10 mm Drilling Capacity / M8 Tap - Main Spindle
Cross Drilling / Tapping Capacity	8 mm Drilling Capacity / M6 Tap - Driven Cross Tools

**Sub-Spindle**

Sub-Spindle RPM / Spindle Bearing	8,000 RPM / 4-Bearing - Quad-Duplex Pair Configuration
Sub-Spindle Servo Moto (2.2 / 3.7 kw)	5-Horsepower 15-Minute Duty-Rated (3-HP Constant Duty-Rated)
Collet Style for Main & Sub-Spindle	Hardinge TF - 25S / Southwick & Meister TS - 25 / Star-SR20
Collet Actuation System	Pneumatic Piston-Driven Toggle Clamp Feed-Finger Style
Maximum Barstock Diameter	20 mm (Collet Range - 1/16" - 13/16" / 0.0200" - 0.813")
Finished Parts Ejector & Air Blast	Included (Can Pass Long 20 mm Parts Through the Sub Spindle)
Maximum Workpiece Length for Front Ejection	110 mm Maximum Part Length for Front Ejection from Sub Spindle

**Sub-Spindle Tooling**

OD Tool Holders - S2	3 - 10 mm Square Shank Turning Tool Holders
ID Internal Tool Holders - S2	4 - 22 mm Shank Round Tool Sleeve Bores
ID Internal Tool Holders - S2 (8 possible)	3 - ER - 16 Fixed Tools - Ø3/8" Max.
Sub-Spindle Axial Live Tools - S2 (8 possible)	3 - ER - 16 Axial Live Tools, 4,000 RPM, 1.0 HP (0.75 Kw)
Backworking Machining Length	6.1" Maximum Turning Length / 3.14" Maximum Boring Length
Maximum Drilling / Tapping Capacity	10 mm Drilling Capacity / M8 Tap - Sub-Spindle
Maximum Cross Drilling / Tapping Capacity	8 mm Drilling Capacity / M6 Tap - Driven Cross Tools

**Axis**

Main Spindle Stroke	9.840" Single Stroke (250 mm)
Maximum Turning Length - Rotary Bushing	7.48" (190 mm)
Maximum Turning Length - Without Bushing	2.36" (60 mm)
X1, Y1, Z1, X2, Y2, Z2 Rapid Traverse Rate	944 IPM (24 m / minute)
X1, Y1, Z1 Axis Motor Power	1-Horsepower (.75 Kw)
X2, Y2, Z2 Axis Motor Power	.67-Horsepower (.5 Kw)
Minimum Input Unit	0.0001" (0.001 mm = 40 millionths / inch)

**Specifications**

Machine Dimensions (L x W x H)	118" x 55" x 78" (2,846 x 1,284 x 2,024 mm) +31" for Conveyor
Machine Weight (Heaviest in Class)	5,954 lbs (2,700 kg)
Coolant Pump Power	1.5-Horsepower (1.2 Kw)
Coolant Tank Capacity	58-gallon Coolant Tank (220 L) (Cutting Oil Only, No Coolant)
Lubrication Distribution (2-liter Capacity)	Way Lube Distributed at 3-6 cc / 15-Minute Cycle
Machine Power Requirements	220 vac ±5%, 53-amps, 20 Kva, 3-phase, 60 Hz
Air Requirements	85-PSI at 6-CFM for Parts Catcher, Parts Ejector, & Air Blast



## Hybrid 42 mm 8-Axis CNC Swiss Machine

- + Bar Capacity to  $\varnothing$  1-5/8"
- + Double "Y" Axis and Double "C" Axis
- + Simultaneous Main & Sub-Spindle Machining
- + 30-Tools with 8-Driven Tools Standard
- + Optional Rotary Synchronous Guide-Bushing
- + High-Performance Mitsubishi M-830 Control



**Main Spindle**

Maximum RPM / Spindle Bearing	6,000 RPM / 5-Bearing Spindle, 3-Front, 2-Rear Ball Bearings
Main Spindle Servo Moto (5.5 / 7.5 kw)	10-Horsepower 15-minute Duty-Rated (7.5-HP Constant Duty-Rated)
Collet Style for Main & Sub Spindle	Traub - 42 / 173E
Collet Closer Style	Lever Action Collet Closer – Driven by Hydraulic Piston
Guide-Bushing Type	Optional Rotary Guide-Bushing uses Hardinge STM38 Bushings
Bar Diameter	Ø1/4" - 1-5/8" (Ø5 - 42 mm) without Guide-Bushing
Maximum Turning Length (Rotary Bushing)	12.20" Single Stroke (310 mm) (Rotary Guide-Bushing Optional)
Maximum Turning Length (without Bushing)	4.13" (105 mm)
Spindle Bore	Ø1.732" (Ø44 mm)

**Main Spindle Tooling**

OD Tool Holders – S1	6 - 16 mm (5/8") Square Shank Tool Holders
ID Internal Tool Holders – S1	5 - 25 mm Shank Round Tool Sleeve Bores
ID Deep Hole Drill Positions – S1	2 - 25 mm Shank Round Tool Sleeve Bores
Cross Slide Live Tools – S1	6 - ER - 20 Collet Chuck Spindles, 4,000 RPM, 2-HP (1.6 Kw)
Axial Front Slide Live Tool Option – S1	3 - ER - 20 Front Axial Live Tools - Optional in lieu of 1 Cross Tool
Maximum Drilling / Tapping Capacity	13 mm Drilling / M10 Tapping
Cross Drilling / Tapping Capacity Option	10 mm Drilling Capacity / M6 Tapping

**Sub-Spindle**

Sub-Spindle RPM/Spindle Bearing	6,000 RPM / 4-Bearing - Quad-Duplex Pair Configuration
Main Spindle Servo Moto (2.2 / 3.7 kw)	10-Horsepower 15-minute Duty-Rated (7.5-HP Constant Duty-Rated)
Collet Style for Main & Sub Spindle	Traub - 42 / 173E
Maximum Barstock Diameter	1-5/8" (42 mm) (42 mm Parts can Through the Sub Spindle)
Spindle Bore	Ø1.732" (Ø44 mm) (uses Hydraulic Piston Lever Action Collet Closer)
Finished Parts Ejector & Air Blast	Included
Maximum Workpiece Length for Front Ejection	110 mm Maximum Part Length for Front Ejection from Sub Spindle

**Sub-Spindle Tooling**

OD Tool Holders – S2	3 - 16 mm Square Shank Turning Tool Holders
ID Internal Tool Holders – S2	5 - 25 mm Shank Round Tool Sleeve Bores
ID Internal Tool Holders – S2 (8 possible)	3 - ER - 16 Fixed Tools – Ø3/8" Max.
Sub Spindle Axial Live Tools – S2 (8 possible)	3 - ER - 16 Axial Live Tools, 4,000 RPM, 1.0 HP (0.75 Kw)
(8-sub spindle tool block can mix live & fixed tools, or 2 radial live tools can be substituted for 2 axial tools on sub spindle tool block)	
Maximum Drilling / Tapping Capacity	13 mm Drilling Capacity / M10 Taping on Sub-Spindle
Maximum Cross Drilling / Tapping Capacity	8 mm Drilling Capacity / M6 Tapping

**Axis**

Main Spindle Stroke	12.20" (310 mm)
X1, Y1, Z1, X2, Y2, Z2 Rapid Traverse Rate	944 IPM (24 m / minute)
X1, Z1 Axis Motor Power	2-Horsepower (1.4 Kw)
X2, Y1, Y2, Z2 Axis Motor Power	1-Horsepower (.75 Kw)
X1, Y2 Linear Ways	Ball-Bearing Linear Ways (Point Contact)
Z2, Y1, Z1, Z2 Linear Ways	Roller-Bearing Linear Ways (Line Contact - Twice as Rigid)
Minimum Input Unit	0.0001" (0.001 mm = 40 millionths / inch)

**Specifications**

Machine Dimensions (L x W x H)	121" x 67" x 83" (3,073 x 1,702 x 2,108 mm) +29" for conveyor
Machine Weight	11,024 lbs (5,000 kg)
Coolant Pump Power	1-3/4-Horsepower (1.3 Kw) with Flow Confirmation Monitor)
Coolant Tank Capacity	65-gallon Coolant Tank (250 L) (Cutting Oil Only, No Coolant)
Lubrication Distribution (2-liter Capacity)	Way Lube Distributed at 3-6 cc / 15-Minute Cycle
Machine Power Requirements	220 vac ±5%, 80-amps, 30 Kva, 3-phase, 60 Hz
Air Requirements	85-PSI at 6-CFM for Parts Catcher, Parts Ejector, & Air Blast



# 32-GT

## 2 or 3-Axis CNC Gang-Tooled Lathe

- + 32 mm 1-1/4" Bar Capacity
- + 6,000 RPM A2-5 Spindle
- + 7.5 Horsepower
- + Parts Catcher Standard
- + Live Tooling Options
- + 8-Station Turret Optional



**Axis Travel**

X-Travel	8.46" (215 mm)
Z-Travel	5.98" (152 mm)
Maximum Turning Diameter/Length	7.87" / 5.5" (200 mm / 140 mm)
Swing Over Bedways	12.59" (320 mm)

**Axis Feeds**

Rapid Traverse – X, Z	787 IPM 20 m / minute
Rated Cutting Feedrate	236 IPM 6 m / minute
Mechanical Way System – X/Z	Box Ways / Turcite® Coated & Pressure Lubricated
Slant Bed Angle	20° Slant Bed Angle for Tooling
Axis Drive Motor Power – X-Axis	1.0-HP .75 Kw
Axis Drive Motor Power – Z-Axis	1-1/3-HP 1.0 Kw
Ballscrew Diameter – X, Z	32 mm
Positioning Accuracy – X/Z- X/Z	±0.00015" / ±0.004 mm
Positioning Repeatability – X/Z	±0.00008" / ±0.002 mm
Least Input Command Increment	0.0001" / 0.000040" / 0.001 mm / (40-millionths in metric)

**Spindle**

Spindle Nose Mount	A2 - 5
Spindle Speed	6,000 RPM
Maximum Tapping Spindle Speed	2,000 RPM
Maximum Bar Capacity	1-1/4", 32 mm
Spindle Bore	34 mm
Spindle Bearing – Inside Diameter	70 mm (80 mm Optional)
Spindle Motor Power – 3.7 / 5.5 kw	7.5-HP / 5.5 Kw (10-HP 7.5 Kw Spindle Motor Optional)
Spindle Motor Torque	26 ft lbs 35Nm
Spindle Motor Drive Coupling	Belt Drive
Spindle Runout	≤ 0.000040" T.I.R.

**Tool Plate / Tool System**

Tool Plate Overall Dimensions	8.66" x 36.45" / 220 mm x 706 mm
Tool Plate T-Slot Dimensions	21 mm Base & 12 mm Neck Width, (8 mm Base Height / 17 mm total)
T-Slots	3 T-Slots on 63 mm Centers (See Power Point for Drawings)
Turning Tool Shank Size	20 mm 3/4" Square Shank
Internal Tool Shank Size	32 mm 1-1/4" (25 mm for Optional Tool Turret Bores)
Optional Driven Tool Horsepower (.75 kw)	1-Horsepower with 2:1 Speed Reduction for Increased Torque
Optional Driven Tool Collet Size (1/2")	2-ER20 Collets in a Hydraulic Positioned Upper/Lower Format

**Specifications**

Air Service Requirements	85 PSI @ 5-scfm / 5.5 Kg / cm <sup>2</sup>
Electrical Requirements - Connected Load	10 Kva, 28-Amps 220 vac ±5%, 60-Hz
Coolant Tank Capacity / Motor Power	21-gallons / 1/2-HP / 80-liters / 2-amps
Lubrication Pump	150 watts
Hydraulic Pump Motor / Pressure	1-HP / 500 PSI / .75 Kw / 32-bar
Floor space requirements (W x D x H)	81" x 64" x 64" (282 x 135 x 183 cm) + Chip Conveyor
Machine Weight	4,850 lbs (2,200 kg)
Warranty – 1-year machine warranty	3-year Mitsubishi Control, Motors, & Drive Warranty



# 32-NCY

## 4-Axis CNC Mill/Turn CNC Lathe

- + 36 mm 1 3/8" Bar Capacity
- + 18-Tools with 7-Driven Tools Standard
- + "C" Axis and "Y" Axis with 19" Travel
- + 1,181 IPM Rapid Rates
- + Parts Catcher and Chip Auger Included



**Axis Travel**

CNC Controlled Axis	4-Axis (X, Y, Z, C) with High-Performance C-axis
X-Axis Travel (Vertical Tool)	7.5" (190 mm) Linear Ways
Y-Axis Travel (Cross Tool)	19.3" (490 mm) Linear Ways – True Y-axis
Z-Axis Travel (Sliding Headstock)	6.5" (165 mm) Linear Ways
C-Axis Travel (Rotational Axis)	360 degrees (360,000 Radial Positions)

**Spindle**

Spindle Bore	1.456" (37 mm)
B&S#22 or Traub A - 32 Collet Capacity	1.25" (32 mm), 1-3/8" (36 mm) Collet Adapter Available
Spindle Speed Range	100-6,000 RPM
Spindle Horsepower	10-HP 3,000 RPM Spindle Motor (2:1 Pulley Ratio)
Spindle Center Height	38" (965 mm)
Rigid Tapping on Main Spindle	Yes
Spindle bearing (Ø110 mm)	5-Ball Bearing Spindle, 3-Front & 2-Rear Bearings

**Tooling System**

Number and Size of Turning Stations	6 Tools of 1/2" or 12 mm (5 stations of 5/8" Optional)
Number of Internal Static Tools	5 ID Tool Stations (25 mm Bores) for Tool Bushings/Collets
ID Bores (Round Shank)	25 mm Bore for ER - 20 Collet, Split or Solid Tool Bushings

**Driven Tool System**

Number of Cross Working Driven Tools	4-Cross Driven Tool Stations with ER20 Collet Holders
Number of End Working Live Tools	3-Axial Driven Tool Stations with ER20 Collet Holders
Size of Driven Tools (Round Shank)	ER - 20 Collet Capacity (1/16"–1/2") (1-13 mm) Diameter
Rigid Tapping with Driven Tools	Included for Main Spindle and Driven Tools
Driven Tool Programmable Range	0-4,000 RPM – Step-Less Speed Range
Driven Tool HP	Radial 2.0-HP (1.5 Kw), Axial 1.0-HP (0.75 Kw)

**Axis Drives**

Rapid Travers Rate – X, Y, & Z axis	1,181 IPM (30 m / minute)
Maximum Federate for Thread Cutting	236 IPM (6 m / minute)
Minimum Programmable Input	0.0001" (0.001 mm = 40 millionths of an inch)
C-Axis Resolution	0.001 degree (360,000 Radial Positions)
Brushless AC Servo Motor Drive	X = 2-HP (1.5 kw), Y&Z = 1.5-HP (1.0 Kw)
Ballscrew Diameter	25 mm Diameter - 10 mm Pitch Double-Nut Ballscrews

**System Requirements**

Electrical Requirements	16 Kva – 42 amps @ 220 vac ±5% 3-Phase
Pneumatic Requirements	85 PSI @ 10-cfm for Parts Catcher and Spindle Brake
Hydraulic System Capacity	10-gallon (40 liter) Hydraulic Tank, 500 PSI Pressure
Coolant Pump Motor / Tank Capacity	3/4 HP w/ Flow Sensor / 50-gallon Tank with Dual Filtration
Automatic Metered Lubrication system	3-6cc / 15-minute (Adjustable Lubrication Flow Rate)

**Specifications**

Floor Space – L x W x H	86" x 74" x 76" (2,184 x 1,880 x 1,930 mm)
Machine Spindle Center Height	38" (965 mm)
Machine Net Weight	6,172 lbs (2,800 kg)





## 7-Axis CNC Swiss Machine without guide bushing

- + 36 mm 1 3/8" Bar Capacity
- + Dual "C" Axis and "Y" Axis with 19" Travel
- + 27-Tools with 11-Driven Tools
- + Simultaneous Main & Sub-Spindle Machining
- + Parts Catcher Included
- + 1,181 IPM Rapid Rates
- + Available with Mitsubishi or Syntec CNC Control



### Main Spindle

Maximum RPM / Spindle Bearing	6,000 RPM / 5-Bearing Spindle, 3-Front, 2-Rear $\varnothing$ 110 mm
Spindle Motor	10-HP 3,000 RPM spindle Motor, 2:1 Pulley Ratio
Collet Nose	Brown & Sharpe #22 or Traub A - 32
Drawtube Bore	1.456" (37 mm)
Maximum Barstock Diameter	1.25" (32 mm) Standard 1.375" (36 mm) with Adapter
X-Axis Travel	7.28" (185 mm)
Y-Axis Travel (true Y-Axis, not compound Y)	19.29" (490 mm)
Z-Axis Travel	6.50" (165 mm)
Rapid Travel Speed: X, Y, Z	1,181 IPM (30 m / minute)
Minimum Input Unit	40 millionths (0.00004") (0.001 mm)
OD Turning Tool Positions	6 OD Tools (1/2" or 12 mm) (5-5/8" Tool Plate Available)
ID Turning Tool Positions	5 ID Tools
OD Turning Tool Size	1/2" or 12 mm (5/8" or 16 mm Optional)
ID Turning Tool Bore Size	25 mm
Spindle Center Height	40" (1,015 mm)

### Sub Spindle

Sub Spindle RPM / Spindle Bearing	6,000 RPM / 4-Bearing / Quad-Duplex Pair Configuration
Sub Spindle Motor	5-HP 3,000 RPM Spindle motor, 2:1 pulley ratio
Collet Nose	Brown & Sharpe #22 or Traub A - 32
Maximum Barstock Diameter	1.250" in Collet Chuck (1.080" (27.5 mm) Pass Thru)
X-Axis Travel	11.53" (293 mm)
Z-Axis Travel	11.61" (295 mm)
Minimum Input Unit	0.0001" (0.001 mm = 40 millionths inch)
ID Turning Tool Bore Size	25 mm
Air Blast Nozzle	Included
Finished Parts Ejector	Included, Along with Parts Catcher & Parts Conveyor Belt

### Live Tooling

Cross Slide Live Tools	4-ER - 20 Cross Slide Live Tools, 4,000 RPM, 2.0 HP (1.5 Kw)
Front Slide Live Tools	3-ER - 20 Front Slide Live Tools, 4,000 RPM, 1.0 HP (0.75 Kw)
Live Tool Collet Size	ER - 20 Collet, $\varnothing$ 1/2" (0.5-13 mm) Tool Shank Capacity
Max RPM for Live Tools	4,000 RPM (1 cross live tool can be substituted on sub spindle tool block)

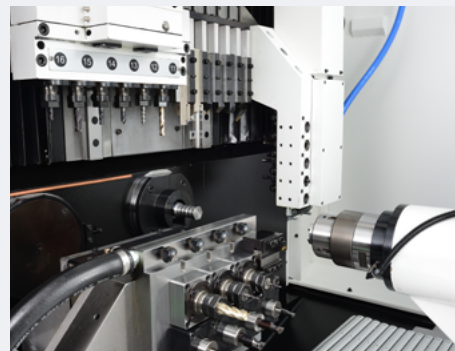
### Specifications

Machine Length	101" (2,565 mm) { *+ 36" for Chip Conveyor}
Machine Depth	68" (1,727 mm)
Machine Height	80" (2,032 mm)
Machine Weight	8,000 lbs (3,628 kg)
Coolant Pump	Dual 50 PSI 3/4-HP Coolant Pumps for Main and Sub Spindle
Coolant Tank Capacity	63-gallon Coolant Tank, with Coolant Flow Confirmation Sensor
Lubrication Distribution	Way Lube Distributed at 3-6 cc / 15-minute Cycle
Machine Power Requirements	220 vac $\pm$ 5%, 63-amps, 3-phase, 60 Hz
Air Requirements	85-PSI at 10-CFM for Parts Catcher, Parts Ejector, & Air Blast



## 8-Axis CNC Swiss Machine with 2" Bar Capacity

- + 2" Bar Capacity with 6,000 RPM Spindle
- + Full "C" Axis on Main Spindle and Sub Spindle
- + Full "Y" Axis on Main Spindle and Sub Spindle
- + 33 Total Tool Positions with 13 Live Tools
- + Simultaneous Main and Sub-Spindle Machining
- + Parts Catcher and Chip Conveyor Standard



**Main Spindle**

Maximum RPM / spindle bearing	6,000 RPM
Spindle Motor	10-HP (7.5 Kw)
Collet Nose / Spindle Bore	Traub A-52 / 52 mm (uses TRB - 52 collet)
Maximum Barstock Diameter	2" (51 mm)
Maximum Cut Length	4.33" (110 mm)
Spindle Center Height	43.3" (1,100 mm)

**Sub-Spindle**

Sub spindle RPM / spindle bearing	6,000 RPM / 4-bearing Quad-Duplex pair configuration
Spindle Motor	6-HP (4.4 Kw)
Collet Nose / Spindle Bore	Traub A - 42 / 43mm (uses TRB - 42 collet)
External Air Blast nozzle	Included for both main & sub spindle
Finished Parts Ejector & air blast	Included for sub spindle

**Axis Specifications**

X <sup>1</sup> -axis Travel	8.66" (220 mm)
Y <sup>1</sup> -axis Travel (true Y-axis, not compound Y)	24.41" (620 mm)
Z <sup>1</sup> -axis Travel	16.0" (406 mm)
X <sup>2</sup> -axis Travel	14.9" (379 mm)
Y <sup>2</sup> -axis Travel (true Y-axis, not compound Y)	5.11" (130 mm)
Z <sup>2</sup> -axis Travel	18.1" (460 mm)
Rapid Traverse Rate – X <sup>1</sup> , X <sup>2</sup> , Y <sup>1</sup> , Z <sup>1</sup> , Z <sup>2</sup>	1,181 IPM (30 m / min)
Rapid Traverse Rate – Y <sup>2</sup>	196 IPM (5 m / min)
Axis Drive Servo Horsepower: X <sup>1</sup> / Y <sup>1</sup> / Z <sup>1</sup>	1-3/4 / 1-3/4 / 1-1/8 HP (1.3 Kw / 1.3 Kw / .85 Kw)
Axis Drive Servo Horsepower: X <sup>2</sup> / Y <sup>2</sup> / Z <sup>2</sup>	1-1/8 / 1.0 / 1-1/8 HP (.85 Kw / .75 Kw / .85 Kw)
Minimum input unit	0.0001" (0.001 mm = 40 millionths inch)

**Tooling**

Main 33-Tool Positions Standard	<i>All live tools are gear driven w/ ø42 mm bearings - no belts!</i>
Main Spindle Cross slide radial live tools	6-ER - 20 cross slide live tools, 6,000 RPM, 2.0 HP (1.5 Kw)
Main Spindle Front slide axial live tools	3-ER - 20 front slide live tools, 6,000 RPM, 1.0 HP (0.75 Kw)
Main Spindle OD Turning Tool Positions	6 (5x 5/8" + 1x 3/4") (5x16 mm) + (1x20 mm)
Main Spindle ID Turning Tool Positions	5 ID Tool Bores (25 mm)
Sub Spindle ID Turning Tool Positions	5 ID Tool Bores (25 mm) (back of main tool bores)
Sub Spindle ID Turning Tool Positions	4 ID Tool Bores (static holders in sub spindle tool block)
Sub Spindle Back slide axial live tools	4-ER-20 (can add 4 more) 6,000 RPM, 4.0 HP (3 Kw) (1 radial live tool can be substituted on sub spindle tool block)

**Specifications**

Machine Length	113" (+ 31" for chip conveyor)
Machine Depth	71" (1,803 mm)
Machine Height	78" (1,981 mm)
Machine Weight	13,880 lbs (6,300 kg)
Coolant Pump	Dual 50 PSI 1-HP Coolant Pumps for main and sub spindle
Coolant Tank Capacity	63-gallon coolant tank, with coolant flow confirmation sensor
Lubrication distribution	Way lube distributed at 3-6 cc / 15 minute cycle
Hydraulic System Power / Capacity	1-HP / 12-gallons (0.75 Kw / 46 L)
Machine Power Requirements	220 vac ±5%, 35 Kva, 3-phase, 92 amps, 60 Hz
Air Requirements	85-PSI at 10-CFM for parts catcher, parts ejector, & air blast



## 6-Axis CNC Dual Gang-Tooled Lathe

- + 52 mm 2" Bar Capacity
- + Twin 15-HP 6,000 RPM Opposed Spindles
- + Dual Parallel Gang-Tooled Cross-Slides
- + Simultaneous Main & Sub-Spindle Machining
- + "C"-Axis on both spindles for Live Tooling Options
- + Faster than a Twin-Spindle Twin-Turret Lathe



**Main & Sub Spindle**

Spindle Motors: 11 kw 30-minute rated	15 HP (Spindle Motor Chiller Included)
Maximum RPM	6,000 RPM with Spindle Orient
Spindle Bearing	5-Bearing Spindle, 3-Front Ball Bearings, 2-Rear
Spindle Nose	A2 - 5
Collet Nose	Traub A - 52 (3J, 22J, 16C, S20 adapters available)
Drawtube ID	2.086" (53 mm)
Collet Capacity	2.047" (52 mm)
Spindle Center Height to Cross-Slide	3.464" (88 mm)
Spindle Center Height to Floor	42.2" (1,070 mm)

**Machine Axis**

Axis Drives & Motors (1.0 kw)	1.35-HP Mitsubishi Mel-Pro Motors and Drives
X-Axis Travel: Twin Cross-Slides	13" (330 mm) on Both Gang Slides
Z-Axis Travel: Twin Opposed Spindles	10.63" (270 mm) (on Both Main and Sub Spindle)
Axis Servo Motor Power	X-Axis 2.0 HP (1.5 Kw), Z-Axis 1.5 HP (1.0 Kw)
Rapid Travel Speed – X & Z	1,181 IPM (30 m / minute)
Z-Axis Thrust	714 lbs Thrust (8,574 in / lbs)
Minimum Input Unit	0.0001" (0.001 mm = 40 millionths of an inch)

**Tooling**

OD Turning Tool Size	3/4" Standard
ID Turning Tool Size	20 mm (3/4" Available)
Cross-Slide T-Slot dimensions	5-T-Slots on 32 mm Centers (10 mm Slot, 18mm Base)

**Fluid Systems**

Coolant Tank Capacity	52-Gallons (210 L) with Coolant Flow Monitor
Coolant Pump	Dual 3/4-HP, 45-PSI Pumps (for Main and Sub Spindle)
Hydraulic System: (550 PSI)	10 gallons (45 liters) ISO VG32 (Mobil DTE-24)
Spindle Oil Cooler System	5.5 gallons (25 liters) ISO 10 (Mobil Velocite No. 6)
Way Lubrication Distribution (ISO-VG68)	.5 gallons (2-liters) Distributed at 3-6 cc / 15-Minute Cycle

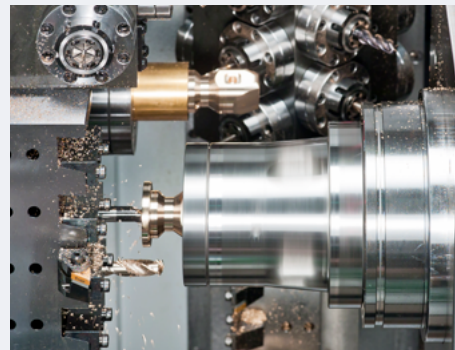
**Specifications**

Length	118" (2,980 mm) + 25" Chip Conveyor
Width	54" (1,356 mm) + 21" Coolant Tank
Height	78" (1,760 mm)
Net Weight	9,922 lbs (4,500 kg)
Power Requirements	220 vac ±5%, 3-Phase, 60-Hz, 63 Amps, 24 Kva
Air Requirements	85-PSI, 10-cfm (Parts Catcher, Parts Ejector, Air Blast)



## 9-Axis Mill / Turn Lathe with 12-Angle Tools

- + 52 mm 2" Bar Capacity
- + Twin 15-HP 6,000 RPM Opposed Spindles
- + 36-Tool Positions - 18-Driven Tools
- + Machine at Any Angle with 12-Tool "B"-Axis
- + "B" Axis and Dual "Y" Axis for Front & Back Work
- + Simultaneous Main & Sub-Spindle Machining



**Main Spindle**

Maximum Bar Diameter	A2 - 5 Spindle with 2.008" (51 mm) Bar Capacity
Collet Size / Spindle Bearings	Traub TRB - 52 / 5 x 90 mm Ball Bearings, 3-Front, 2-Rear
Maximum Spindle Speed	6,000 RPM (Integral Motor Spindle)
Servo Spindle Motor Horsepower	15-HP (11 Kw) Peak, 10-HP (7.5 Kw) 30-min. Rated

**X1, Y1, Z1 Axis**

X1, Y1, Z1 Axis Servo Motor	X1 = 1.3 HP. (1.0 Kw) Y1 / Z1 = 2.0 HP. (1.5 Kw)
X1 Axis Travel	10.63" (270 mm)
Y1 Axis Travel	18.11" (460 mm)
Z1 Axis Travel	9.84" (250 mm)
Minimum Programmable Input	0.00004" resolution (0.001 mm)
X1, Y1, Z1 Rapid Travel Rate	1,181 IPM (30 m / min) / 0.0001 mm resolution

**Main Spindle Tooling**

Number of Driven Tools	6 axial & 6 radial driven and "Any-Angle" tools
Driven Tool Motor Power	5-HP (3.5 Kw)
Driven Tool Spindle Speed	2,500 RPM Maximum Driven Tool Spindle Speed
Driven Tool Collet Size	ER - 20 Collet Spindles (up to 1/2" Tool Shank)
OD Tools	5 - 20 mm OD Tool Holders Available
ID Boring Tools	5 - 25 mm ID Bores Available for Tool Bushings

**Sub-Spindle**

Maximum Bar Diameter	2.008" (51 mm)
Collet Size	Traub TRB - 52
Maximum Spindle Speed	6,000 RPM (Integral Motor Spindle)
Servo Spindle Motor Horsepower	15-HP (11 Kw) Peak, 10-HP (7.5 Kw) 30-min. rated

**X2, Y2, Z2 Axis**

X2, Y2, Z2 Axis Servo Motor	X2 / Z2 = 1.3 HP (1.0 Kw) Y2 = 2.0 HP (1.5 Kw)
X2 Axis Travel	18.89" (480 mm)
Y2 Axis Travel	18.11" (460 mm)
Z2 Axis Travel	10.63" (270 mm)
X2, Y2, Z2 Rapid Travel Rate	1,181 IPM (30 m / min)
Minimum Programmable Input	0.0001" (0.001 mm = 40 millionths of an inch)
Ball screw Diameter	25 mm Diameter with 10 mm Pitch for All Axes

**System Requirements**

Number of Axial Driven Tools	3 Axial Driven Tools, Uses ER - 20 Collets
Number of Radial Driven Tools	3 Radial Driven Tools, Uses ER - 20 Collets
Driven Tool Motor Power	2.7-HP (2.0 Kw)
Driven Tool Spindle Speed	2,500 RPM Maximum Driven Tool Spindle Speed
Driven Tool Collet Size	ER - 20 Collet Spindles (up to 1/2" Tool Shank)
OD Tools	4 - 20 mm OD Tool Holders Available
ID Boring Tools	4 - 25 mm ID Bores Available for Tool Bushings

**Specifications**

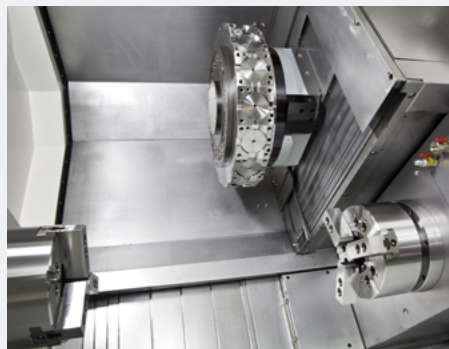
Coolant System	80-Gallon Tank, 4-Coolant Pumps with Flow Control
Electrical Requirement	110-Amps, 42 Kva, 220 vac ±5%, 3-Phase
Air Requirements	85 PSI, 20-cfm, for Parts Catcher, Ejector, Oil Mist Unit
Machine Weight	12,345 lbs (5,600 kg)
Machine Dimensions	110"* x 85" x 82" (W x D x H) [* + 38" for Chip Conveyor]





## 6-Axis Mill / Turn Lathe with 16-Tool Turret

- + 78 mm 3" Bar Capacity
- + Twin 4,000 RPM Opposed Spindles
- + 16-Driven Tool Positions each station can mount multiple tools
- + "Y" Axis with  $\pm 1.968$ " Travel
- + Full "C" Axis on Main and Sub-Spindle
- + Complete Front & Back Work



**Capacity**

Turning Diameter Maximum / Standard	Ø12.2" (310 mm) / Ø8.2" (210 mm)
Center Distance	41.7" (1,061 mm) Between Spindle Centers
Turning Length	24.8" (630 mm) Maximum

**Main Spindle**

Spindle Nose / Bearing Diameter	A2 - 6 (Bearing Diameter 4.72" / Ø120 mm)
Spindle Bar Capacity	Ø3.070" (78 mm Drawtube ID)
Chuck Size Included	Ø10" (with 78 mm Bore)
Spindle Center Height	40" (1,000 mm)
Maximum Spindle Speed	60 - 4,000 RPM (Integral Refrigerated Spindle)
Main Spindle Motor Power 15 / 22 kw	30-HP (30-minute duty rating) / 20-HP (constant duty rating)

**Sub-Spindle**

Spindle Nose	A2 - 6
Spindle Bar Capacity	Ø2.7559" (70 mm drawtube ID)
Chuck Size Included	Ø8" (Ø10" optional)
Maximum Spindle Speed	60 - 4,000 RPM (Integral Spindle)
Main Spindle Motor Power 11 / 15 kw	15-HP (30-minute duty rating) / 10-HP (constant duty rating)

**Live Tool Turret**

Number of Turret Stations	16 (Any combination of 16 ID, OD or Live tool stations)
Index Time (Adjacent Tool / 180° index)	0.2 seconds / 1.2 seconds High-Speed Servo Indexing
Live Power Tool / RPM 3.7 / 5.5 kw	7.5-HP / 6,000 RPM, 14.75 ft lbs torque (20 Nm)
Tool Size / Collet Size	1" (25 mm) (for square tool & 32 mm round tools) / ER-32 collets
Tool Holder Type & Size	BMT - 65 Base Mount Tooling

**B & C-Axis**

B-Axis Rapid Traverse Rate	1,573 IPM (40 m / minute)
B-Axis Travel	29.31" (744 mm)
C-Axis Spindle Radial Resolution / Speed	360,000 Radial Positions with Full Contouring Capability / 600 RPM

**Axis Specifications**

Axis Travel – X / Y / Z Axis	X = 9.05 / Y = ±1.968" / Z = 23.7" (230 mm) / (±50 mm) / (700 mm)
Rapid Travers Rate – X / Y / Z Axis	630 / 236 / 1,574 IPM (16 / 6 / 40 m / minute)
Axis Motor Power	3-HP in X, Y, Z axis
Axis Continuous Thrust Rating	X = 2,142, Y = 2,924, Z = 1,425 pounds of Thrust Force
Minimum Programmable Input	0.0001" (0.001 mm = 40 millionths of an inch)

**Fluid Capacity**

Hydraulic System	8-gallons (30 Liters) with 5-HP (3.5 Kw) Pump Motor
Dual Coolant Pumps	2 x 1.7 HP Pumps for Tooling / 2 Pumps for Chip Flushing
Coolant Tank	74-gallon (280 Liters) coolant tank

**Specifications**

Machine Weight	17,650 lbs (8,000 kg)
Electrical Requirement	56 Kva, 220 vac ±5%, 3-phase, 60 Hz, 130 amps
Air Requirement	85-PSI @ 8-cfm for Parts Catcher, Ejector, Oil Mist Lubricator
Machine Dimensions	Length 145"* / Depth 82" / Height 82" (*+44" for Chip Conveyor)



## 8-Axis Mill / Turn Lathe with Twin 16-Tool Turrets

- + 78 mm 3" Bar Capacity
- + Twin 4,000 RPM Opposed Spindles
- + Glass Scale Feedback on X1 & X2 Axes
- + 32-Driven Tool Positions each station can mount multiple tools
- + "Y" Axis with 3.936" Travel
- + Simultaneous Main & Sub-Spindle Machining
- + Full "C" Axis on Main and Sub-Spindle



**Capacity**

Turning Diameter	7.48" (190 mm) maximum, 6.7" (170 mm) standard
Turning Length / Center Distance	15.75" (400 mm) / 36.22" (920 mm) between centers

**Main Spindle / Sub-Spindle**

Spindle nose / Bearing Diameter	A2 - 6
Spindle Bar Capacity	3.08
Chuck Size (Optional)	8" with 68 mm bore
Spindle Center Height	46.45" (1,180 mm)
Maximum Spindle Speed	60 - 4,000 RPM (Integral Spindle)
Spindle Motor Horsepower	30-HP peak, 20-HP (30-minute duty rating)
Sub Spindle motor horsepower	20-HP peak, 15-HP (30-minute duty rating)

**Live Tool Turrets**

Number of Turret Stations	32 (Any combination of 32 ID, OD or Live tool stations)
Index Time (Adjacent Tool / 180° index)	0.2 seconds / 1.2 seconds High-Speed Servo Indexing
Live Power Tool / RPM	7-HP / 6,000 RPM, 14.75 ft lbs torque (20 Nm)
Tool Size / Collet Size	25 mm (for square tool and round tool) / ER - 32
Tool Holder Type & Size	BMT - 65 Base Mount Tooling

**Y, C, & B-Axis**

Y-Axis Travel	3.93" of Travel - ±1.968" off of Centerline (±50 mm)
Y-Axis Rapid Feed Rate	236 Inch Per Minute (6 m / minute)
C-Axis Spindle Radial Resolution	360,000 Radial Positions with Full Contouring Capability
B-Axis Distance Between Spindles	36" (914 mm)
B-Axis Rapid Traverse Rate	1,573 IPM (40 m / minute)
B-Axis Travel	25.59" (650 mm)

**Axis Specifications**

Axis Travel - X1, X2 - Axis	X1 5.9" (150 mm), X2 9.05" (230 mm) with Glass Scale Feedback
Axis Travel - Z1, Z2 - Axis	Z1 17.32" (440 mm), Z2 17.32" (440 mm)
Rapid Travers Rate - X1, X2 -Axis	630 IPM (16 m / minute)
Rapid Travers Rate - Z1, Z2 - Axis	1,573 IPM (40 m / minute)
Minimum Programmable Input	0.0001" (0.001 mm = 40 millionths of an inch)

**Fluid Capacity**

Hydraulic System	10.5-gallons (40 Liters) with 3-HP (2.2 kw) Pump Motor
Dual Coolant Pumps	2 x 1.7 HP Pumps for Tooling & 2 Pumps for Chip Flushing
Coolant Tank	70-gallon (280 Liters) Coolant Tank

**Specifications**

Machine Weight	22,751 lbs (10,320 kg)
Electrical Requirement	49.5 Kva (220 vac ±5%, 3-phase, 60 Hz, 130 amps)
Air Requirement	85-PSI @ 8-cfm for Parts Catcher, Ejector, Oil Mist Lubricator
Machine Dimensions	Width 165" / Depth 88" / Height 84" (Includes Chip Conveyor)