

# CINCINNATI MACHINES

## *MACH-1*

**High Production VMC**  
*A SMART Series Machine*

UP TO  
1440 IPM  
30,000 RPM

24 TOOL  
ARM-TYPE  
CHANGER

2.3 SEC  
TOOL TO  
TOOL



# State-of-the-Art CAD Technology Throughout

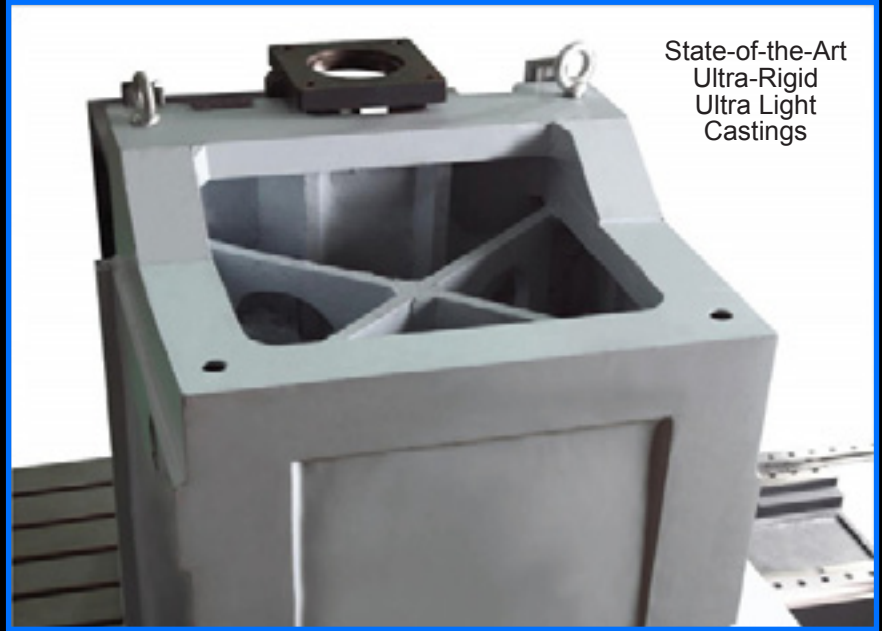
## Starting with the High-Quality HT-300 Naturally Seasoned Castings

Wide variety of available speeds, gear ranges, spindle tapers

From 6,000 rpm up to 30,000 rpm



State-of-the-Art Ultra-Rigid Ultra Light Castings

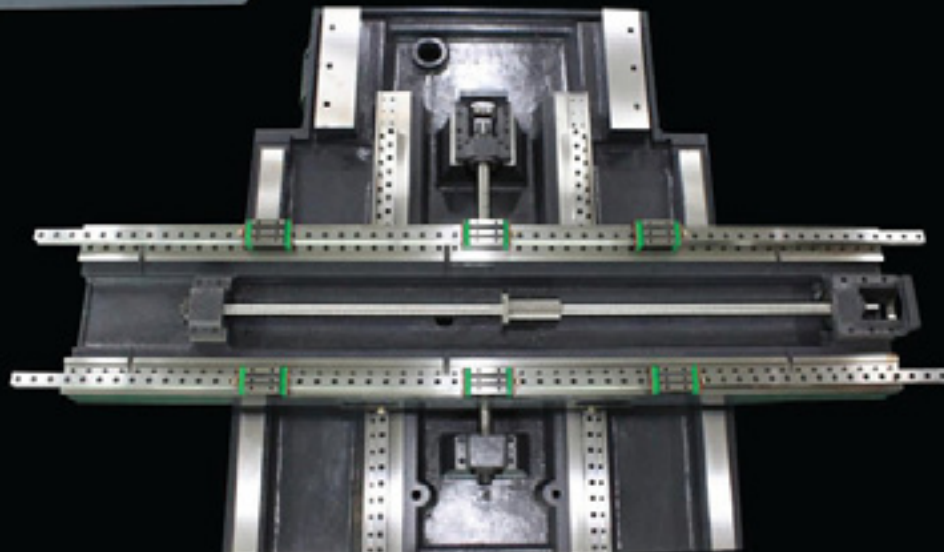


MACH-1 features ultra-rigid yet light weight castings with full support for all machine slides. The part is always fully supported regardless of its table position.



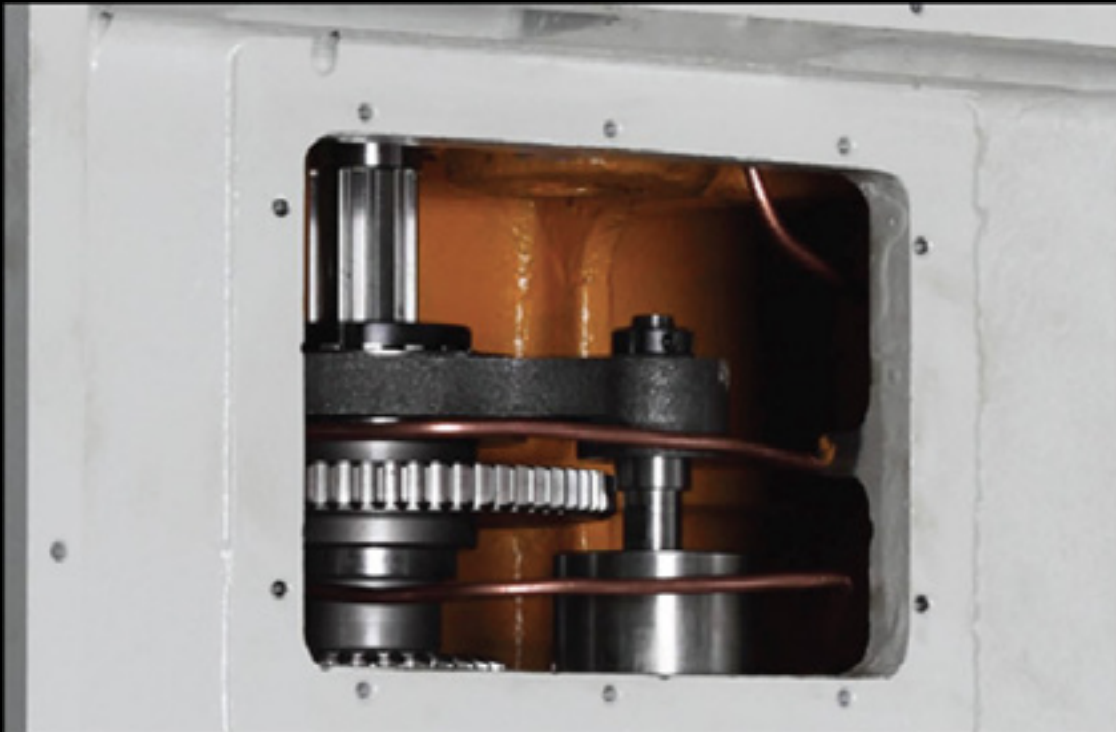
**4-WAYS ON BED PROVIDES MAXIMUM SUPPORT FOR THE EXTRA-WIDE SADDLE**

**TABLE WAYS ARE ALWAYS FULLY SUPPORTED BY THE EXTRA-WIDE SADDLE (NO TABLE OVERHANG) TO ALLOW MACHINING SPEEDS TO 480 IPM AND RAPIDS TO 1440 IPM**



**PRECISION HIGH-SPEED SPINDLES****CHOOSE SPINDLE SPEEDS AND TYPE TO SUIT YOUR NEEDS**

- \*Built-In High-Speed, High-Torque Spindles with speeds from 15-30,000 rpm provide smooth vibration free milling for that mirror finish.
- \*Economical Belt-Driven Spindles with speeds from 6,000 to 12,000 rpm and 40 or 50 Taper.
- \*Direct In-Line Direct-Coupled Spindles provide speeds from 12,000 - 15,000 rpm
- \*2-Speed Gear Box Spindles provide that extra torque. We offer 2 different gear box options, including our gearbox with 3 Times the torque, or the ZF style gear box with speeds from 6,000 to 12,000 rpm and cat 40 or Cat 50 tooling.

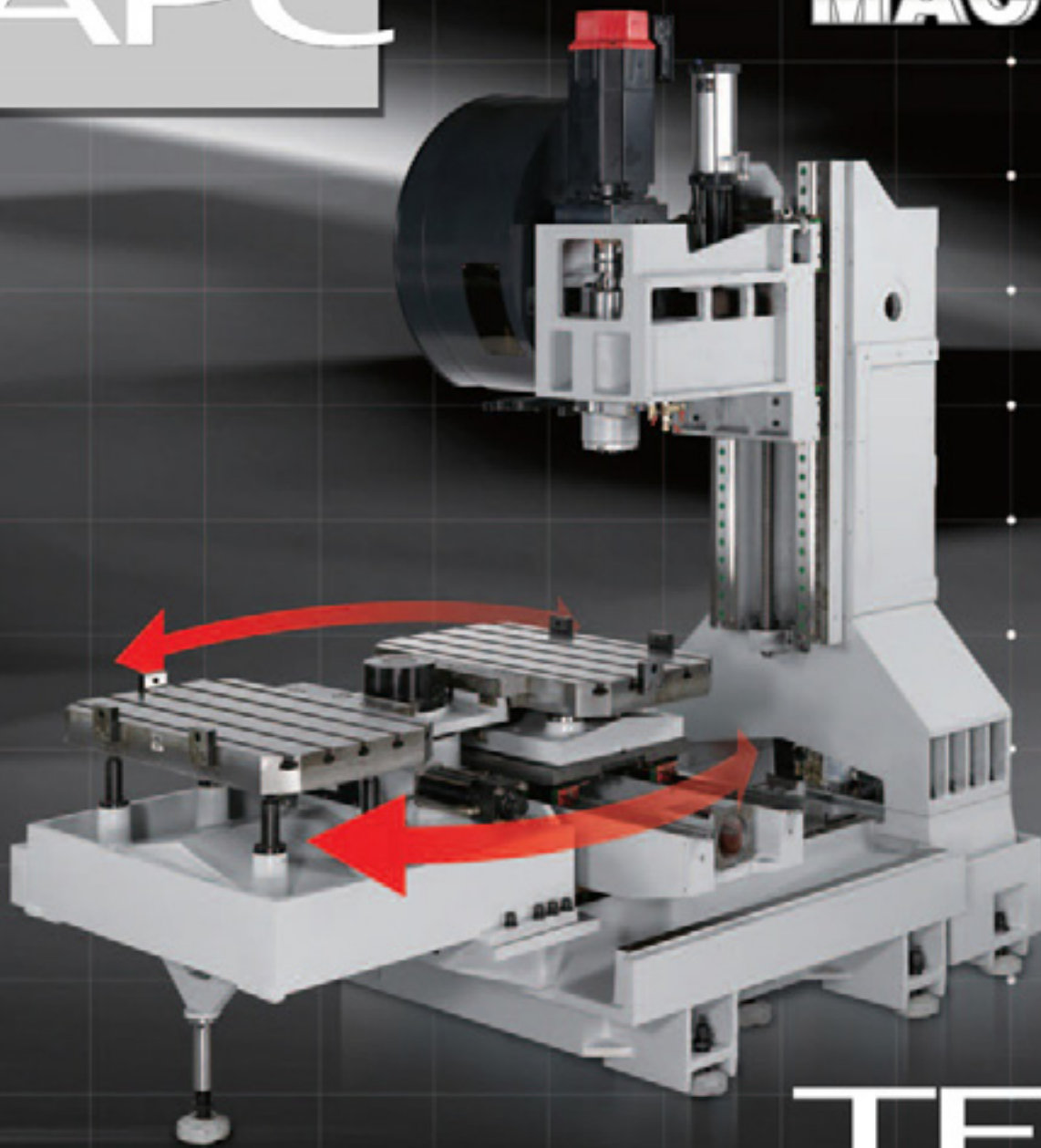
**OPTIONAL 2-SPEED GEAR BOX (TRIPLE TORQUE)****OTHER AVAILABLE STANDARD OPTIONS:**

- \*ROTARY TABLES \* ROTARY/TILT TABLES
- \*THRU-THE-SPINDLE COOLANT,
- \*CHIP CONVEYOR, \*LINEAR SCALES,
- \*TOOL PROBE, \*PART PROBE
- \*AUTOMATIC PALLET SHUTTLE

*MACH-1*

# APC

# CINCINNATI MACHINES



# TE850



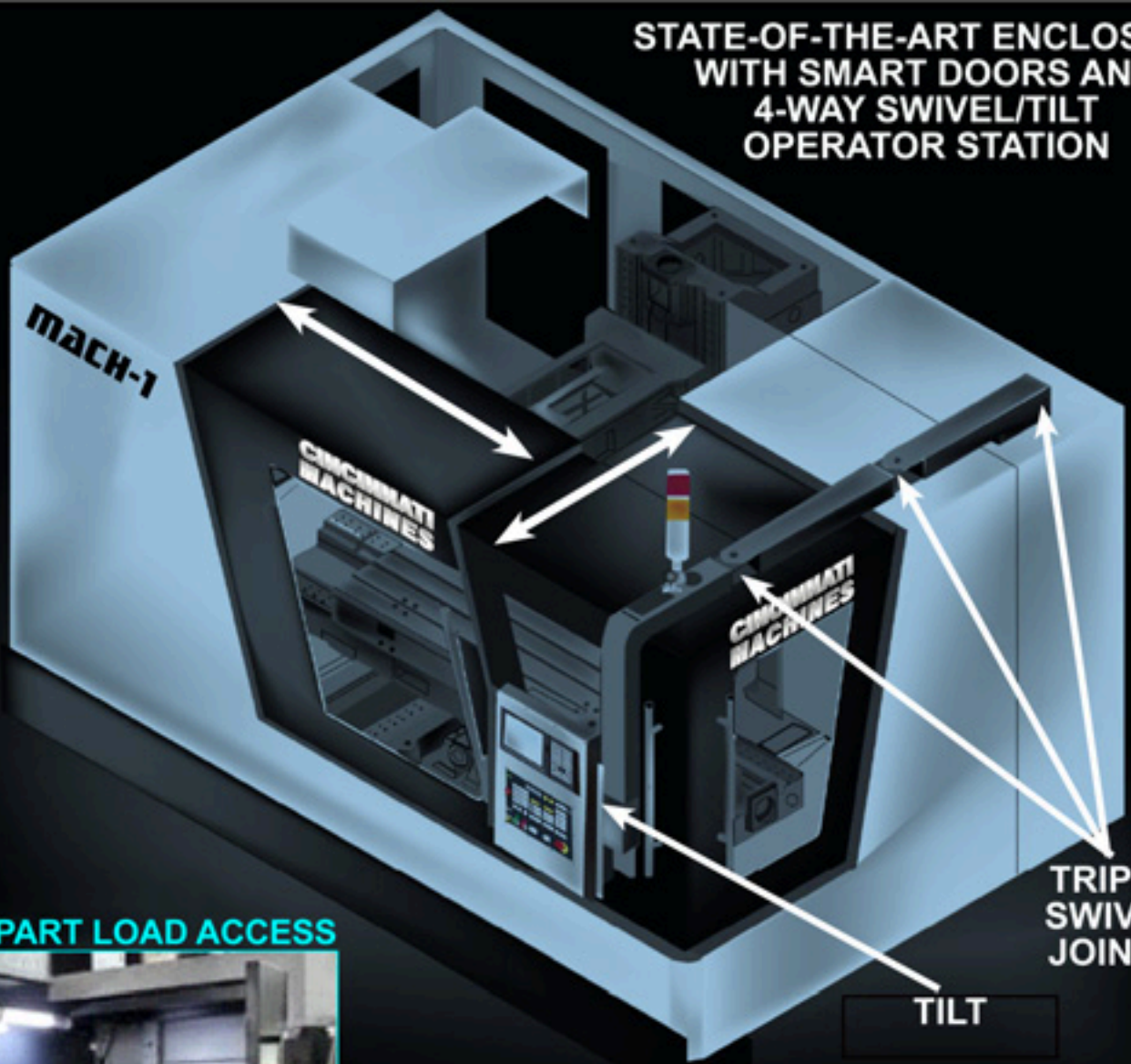
## AUTOMATIC PALLET CHANGER

Pallet Dimensions	850 x 500 mm
No. of Pallets	2
Pallet change time	7 sec. ± 1 sec.
Load Capacity	250 kgs
Net weight	550 kgs
Gross weight	700 kgs
Floor space	2810x800x3300 mm

***mach-1***

**STATE-OF-THE-ART ENCLOSURE  
WITH SMART DOORS AND  
4-WAY SWIVEL/TILT  
OPERATOR STATION**

**UNIQUE  
SMART  
DOORS  
OPEN IN 2  
DIRECTIONS  
TO ALLOW  
MAXIMUM  
OPERATOR  
ACCESS  
& EASY  
LOADING &  
UNLOADING  
OF PARTS**



**TRIPLE  
SWIVEL  
JOINTS**

**TILT**

**WIDE OPEN PART LOAD ACCESS**



**UNIQUE SMART OPERATOR STATION FEATURES  
TRIPLE SWIVEL JOINT PENDANT ARM THAT  
SUPPORTS THE PENDANT WITH A TILTING SWIVEL.  
OPERATOR STATION CAN BE EASILY SWUNG AWAY  
FOR PART LOADING/UNLOADING.**

**4-WAY SWIVEL TILT OPERATOR STATION**



# MACH-1 Specifications

Model	<i>MACH-1 SIX</i>	<i>MACH-1 EIGHT</i>	<i>MACH-1 TEN</i>	<i>MACH-1 ELEVEN</i>	<i>MACH-1 TWENTY</i>	<i>MACH-1 TWENTY</i>	<i>MACH-1 SIXTY</i>
<b>Controller</b>	FANUC-Oi-MD with Beta Motor	FANUC-Oi-MD with Beta Motor	FANUC-Oi-MD with Beta Motor	FANUC-Oi-MD with Beta Motor	FANUC-Oi-MD with Alpha Motor	FANUC-Oi-MD with Alpha Motor	FANUC-Oi-MD with Alpha Motor
<b>Table</b>							
Area Table Size	31.5 x 19.6	37.5 x 23.6	43.3 x 23.6	47.2 x 23.6	51.2 x 27.5	59 x 27.5	67 x 27.5
Table Working Surface	25.5 x 19.6	33.4 x 23.6	40 x 23.6	43.3 x 23.6	47.2 x 23.6	55 x 25.5	63 x 27.5
T-Slot	.7 x .2 x 3.14	.7 x .2 x 3.9	.7 x .2 x 3.9	.7 x .2 x 3.9	.7 x .2 x 4.7	.74 x .2 x 4.7	.78 x .2 x 4.7
Table Weight Capacity (lbs.)	1100	1760	2200	2200	2640	3300	3740
<b>Travel</b>							
X/Y/Z - Axis Travel	25.5/19.6/19.6	33.4/23.6/23.6	40/23.6/23.6	43.3/23.6/23.6	47.2/23.6/24.4	55/25.5/24.4	63/27.5/24.4
Spindle Nose to Table Top	4.3-24	5.9-29.5	5.9-29.5	5.9-29.5	4.3-28.7	4.3-28.7	4.3-28.7
<b>Spindle</b>							
Spindle Taper	CAT 40	CAT 40	CAT 40	CAT 40	CAT 40/50	CAT 40/50	CAT 40/50
Spindle R.P.M.	CAT 40-10,000 rpm (12000, 15000, 18000, 20000 rpm), (CAT 50-6000, 8000, 10000)						
Transmission Method	Timing Belt (In-Line, Built-in, 2-Speed Gear Box Optional)						
Spindle Motor (hp)	7.5/10	15/20	15/20	15/20	20/25	20/25	20/25
<b>Automatic Tool Changer</b>							
Tool Changer Type	Arm Type	Arm Type	Arm Type	Arm Type	Arm Type	Arm Type	Arm Type
Tool Loading Capacity	24 Tools	24 Tools	24 Tools	24 Tools	24 Tools	24 Tools	24 Tools
Tool Selection Method	Bi-Directional, Random						
Max. Tool Dia./Length	φ3.15 / 12"					φ4 (5) / 12"	
Max. Tool Weight (lbs)	15					33	
Tool Shank Spec.	Cat (BT) 40					Cat (BT) 50	
Tool Changer Time	T-T:2.3 Sec.; C-C: 4.5 Sec.					T-T:3.5 Sec.; C-C: 7 Sec.	
<b>Three-Axis Motor</b>							
X/Y/Z-Axis Servo Motor (kw)	1.8/1.8/1.8BS	1.8/1.8/1.8BS	1.8/1.8/1.8BS	1.8/1.8/1.8BS	4.0/4.0/4.0BS	4.0/4.0/4.0BS	4.0/4.0/4.0BS
3-Axis Cutting Feed Rate (ipm)	480	480	480	480	480	480	400
3-Axis Rapid Traverse XYZ (ipm)	1440/1440/1440	1440/1440/960	1440/1440/960	1440/1440/960	1440/1440/960	1440/1440/960	1440/1440/960
<b>Others</b>							
Machine Dimensions (L x W x H)	89 x 114 x 90	89 x 114 x 94	89 x 114 x 94	89 x 114 x 94	155 x 124 x 130	171 x 124 x 130	180 x 126 x 130
Machine Weight / Gross Weight (lbs)	8800	14300	16500	17380	220240/21560	23760/24860	27500/30000

**MACH-1** Accuracies: *MACH-1 SIX* thru *ELEVEN* 0.00019" Positioning, 0.00011" Repeatability. *MACH-1 TWENTY* thru *SIXTY* 0.00031" Positioning, 0.00019" Repeatability.

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