

# EUMASPINNER

12 Years Germany Technology Accumulated and Made by EUMASPINNER



## EUMASPINNER

We do the best that you need

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- The content of catalogue start and valid from July 2019, it will not notice separately if any design change of Spec.
- EUMA has final explanation if the content of catalogue and machine have any difference.

### EUMASPINNER

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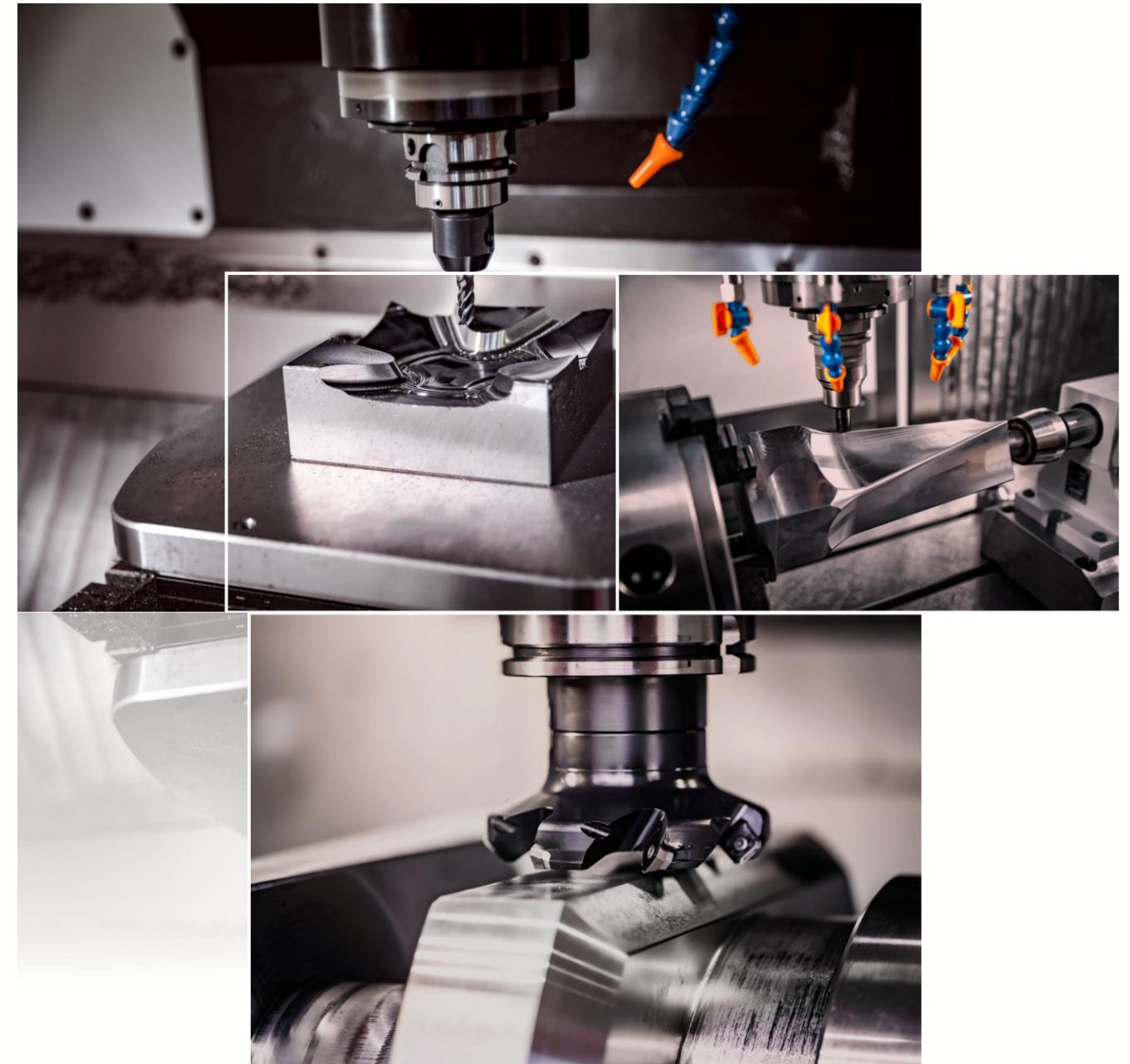
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## EV SERIES VERTICAL MACHINING CENTER

# EV Series

## Structure

- **Super Rigid One-Piece Cast Bed**

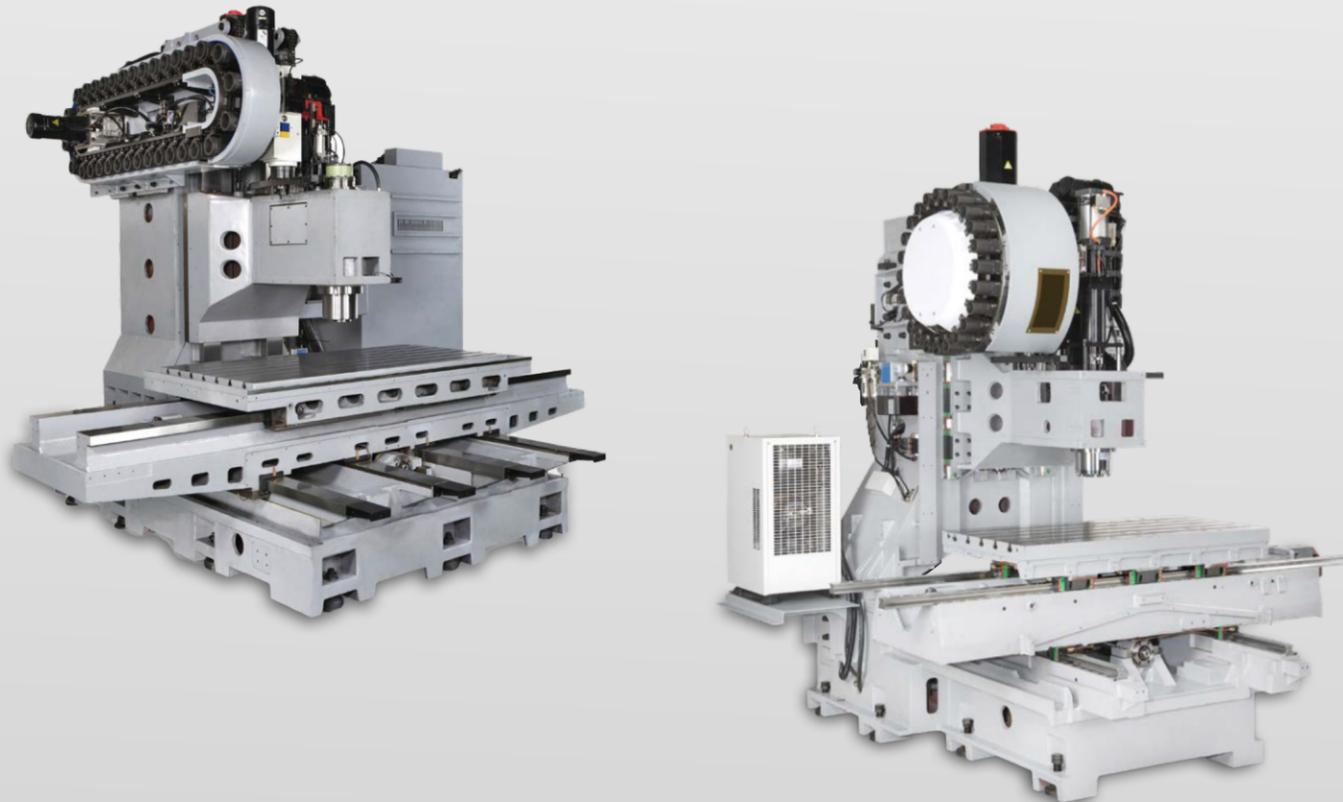
EUMA's EV line of Vertical Machining Centers are made of HT300 castings with an upgraded tensile strength and dampening capacity. They are heat treated to eliminate internal stresses and resist creep or fatigue under various operating conditions and thereby maintain accuracy even under prolonged cutting of even the toughest production part materials and tolerances.

- **Exceptionally Heavy Ribbed Structure**

The exceptionally heavy ribbing structure is geometrically symmetrical to balance the thermal and dynamic stresses ensuring the highest level of static and dynamic stability needed for constant precision cutting. This structure provides the optimal rigidity and torsional stiffness for high performance manufacturing.

- **Wide Guideway Span**

The extra wide linear guide span minimizes the bending deflection of the structure and provides a massive monolith base and support for heavy loads while maintaining a high level of accuracy. This also provides a stable cutting platform.



## Advanced Design FEA Analysis

- By nearly 20 years of experience in vertical machining center production. EUMASPINNER has developed the optimal machine structure design, amassed technical expertise and experienced engineers. During the 12 years joint venture with German SPINNER, We provided thousands sets this classic EV series vertical machining centers.



## Standard Configuration



### Precision Spindles

- Our precision spindles come with P4 class super precision bearings for strong axial resistance to counter cutting forces. They are permanently greased and lubricated for maximum lifetime and maintenance free requirements. All machines come standard with belt driven or direct drive couplings.
- 6000/8000 belt drive spindle  
10000/12000 direct drive spindle



### Spindle Coolant Chiller

The large capacity spindle coolant chiller re-circulates cooling oil through the spindle cartridge and machine headstock casting to maintain consistent positioning accuracy over a wide ambient temperature range.

### Ball Screws on All Axes

Servo motors and ball screws are used on all axes and are direct coupled for virtually backlash free precise movement. With a low inertia and high efficiency output this combination offers excellent dynamic precision during contour machining.



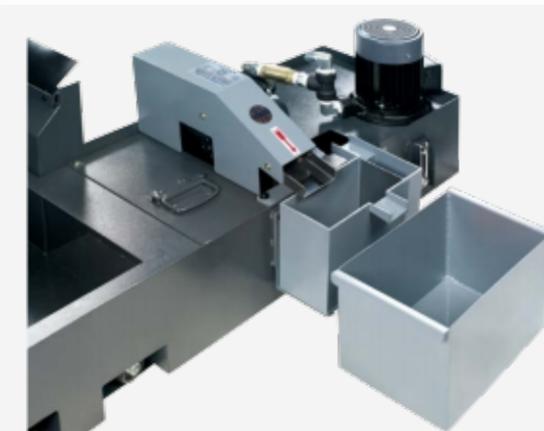
### Precision Guideways and Ball Screw

EV machines all have precision guideways coupled with ball screws for short machining times and longer tool life. Also the heavy-duty precision linear guideways with extra wide rails and a larger contact surface for superior frame rigidity.



### Automatic Tool Changer

This Machine comes standard with a 24 tool magazine with highly efficient and fast tool changes to keep your pace of production high. An optional 32 tool magazine is also available.



### Oil Skimmer

The oil skimmer removes oil slick from the coolant to maintain a cleaner work environment and it greatly reduces the operating cost and provides a greener environment.



### Spindle Oil Cooler



### Automatic Lubrication System Filter

Oil mist filters extract coolant and dust from the enclosed work area keeping it cleaner for high productivity and a safer work environment.



### Control Panel

A Fanuc control panel with touch screen is standard and optional Siemens is also available. Comes with a 90 degree swivel for quick programming and control of the machine.



### Chain Type Chip Conveyor +Cart

## Optional Configuration



**Siemens 828D Control System**



**32 Tool Magazine**



**The forth-axis Trunnion Rotary Table**

The forth-axis trunnion rotary table provides 5-axis machining capability for complex parts which reduces tolerance deterioration due to multiple part transfer and jig change issues.



**Screw Type Chip Conveyor**



**Scraper Type Chip Conveyor**



**Coolant Through Spindle**

For drilling and tapping small diameter deep precise holes we offer a coolant through spindle option. The coolant is dispersed directly at the machining point for eliminating chips that impact drill tip flutes and reduces broken tools.



**Tool Setter**

This optional tool setting system Renishaw TS27R or NC4 can quickly check the tool length and diameter and gather compensation data for improving efficiency and reducing machine idle time.



**Electrical Spindle**

High torque electrical spindle motors 15000rpm are used for supreme power, accuracy and reliability.



**Oil Mist Collector**

Oil mist filters extract coolant and dust from the enclosed work area keeping it cleaner for high productivity and a safer work environment.

**Workpiece Measurement Device**

- This optional work piece measuring system Renishaw OPM40 or RPM40 performs automatic measurement to reduce machine downtime and reduce human error.
- Automatic compensation for workpiece coordinate and workpiece.
- Upgrading product quality while lowering defect percentage.
- Reduce waste.



**Grating Scale**

Accurate measurement of displacement, monitoring of machine tool motion state, to ensure machining accuracy and efficiency.

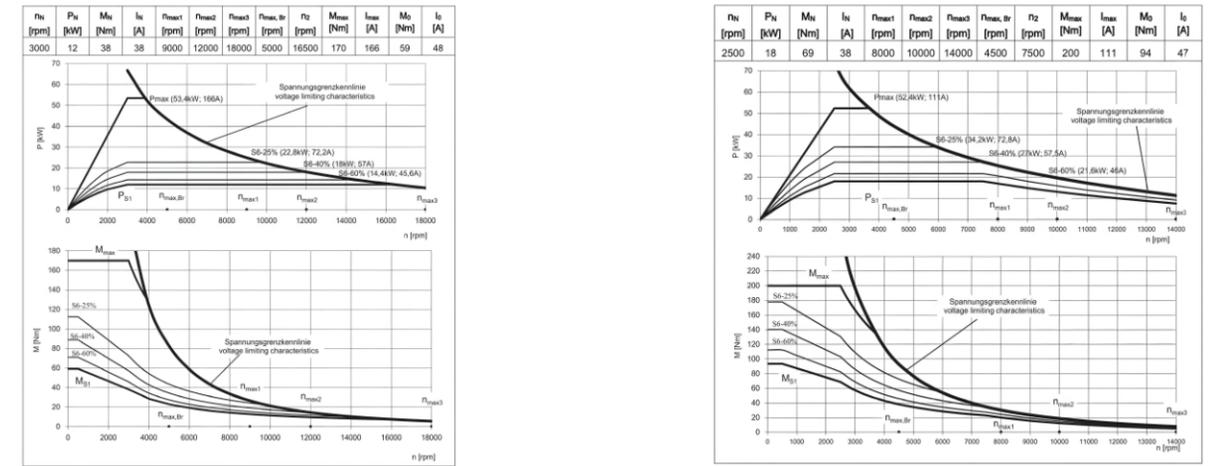
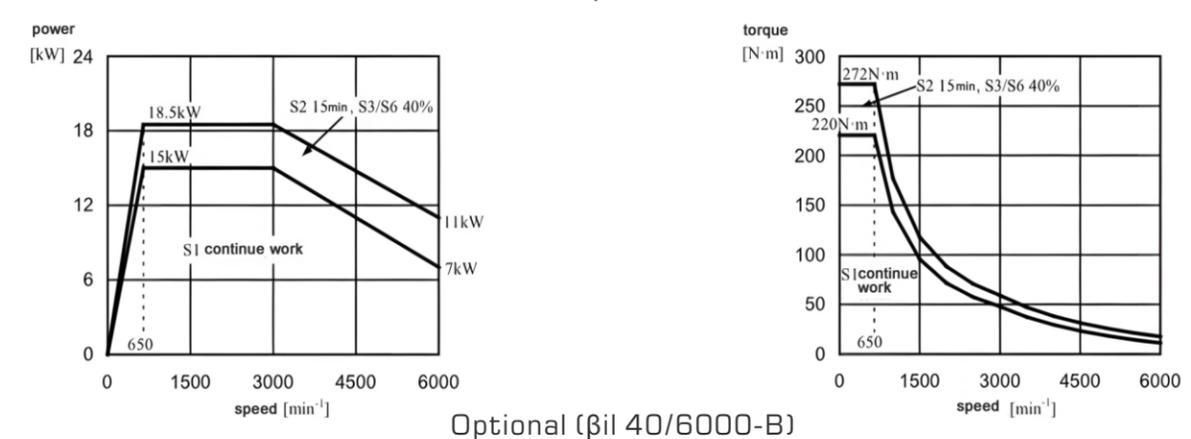
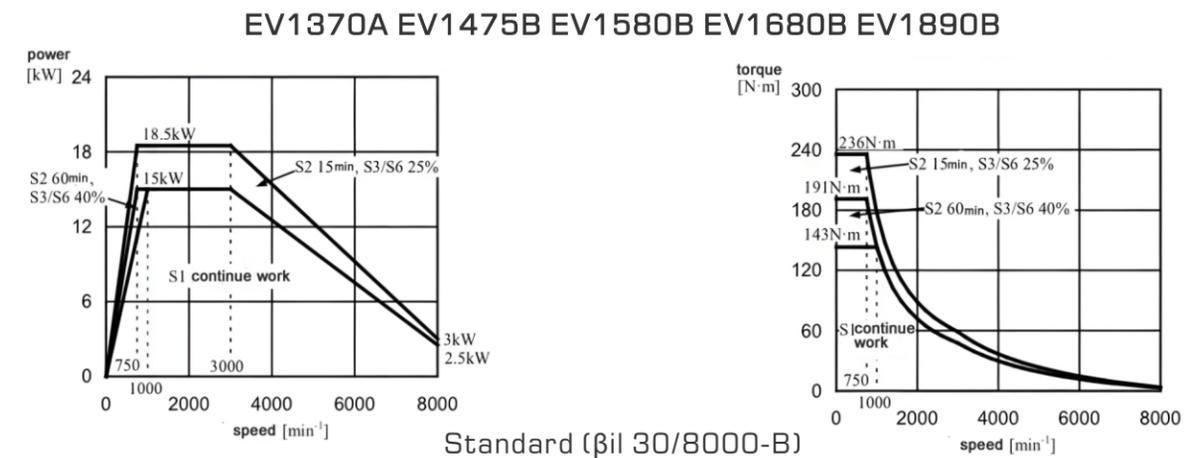
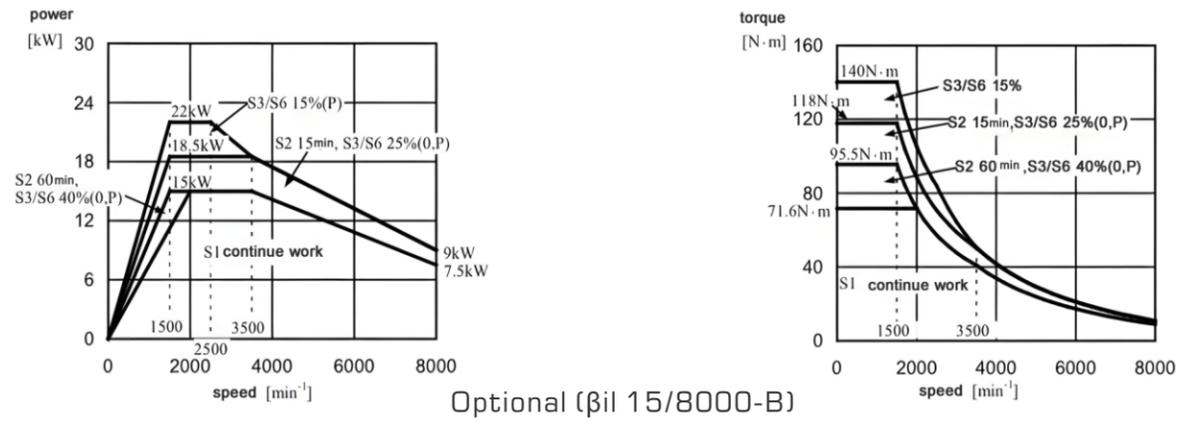
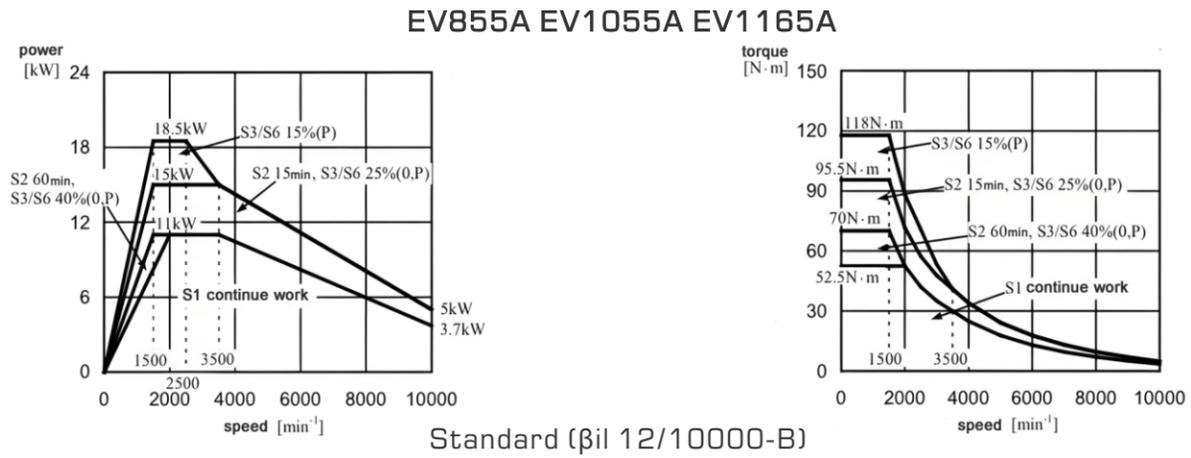
**Electrical Box Air Conditioning**

The electrical cabinet is equipped with refrigerated air conditioning system, low electrical component failure and long life.

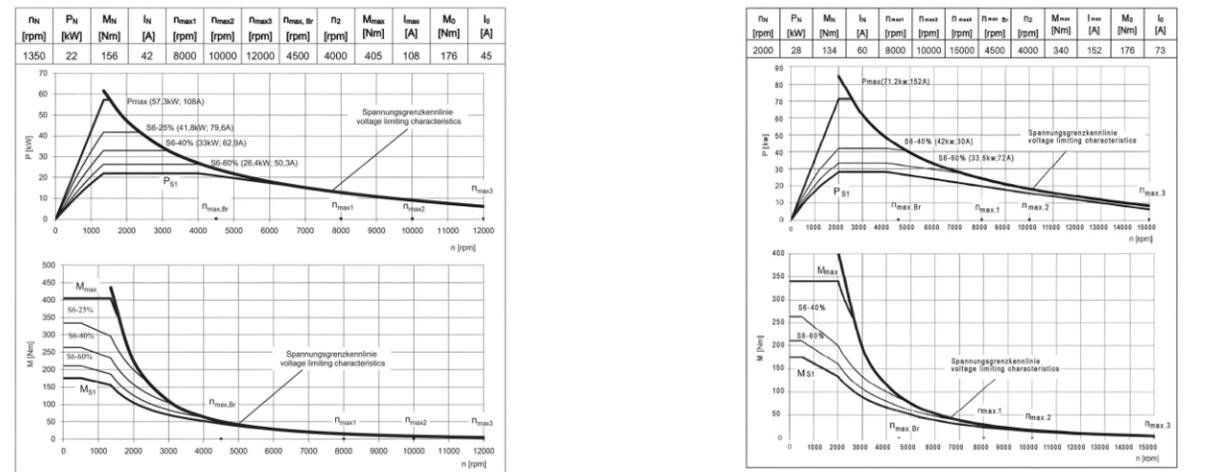


# Diagram of Motor and Torque (FANUC and SIEMENS system)

## EV855A EV1055A EV1165A



## EV1370A EV1475B EV1580B EV1680B EV1890B



**EUMASPINNER'S** 14 basic accuracies have far exceeded those of major well-known brands

No	Item	EV-1165A
1	1300mm flatness of the worktable surface	0.01mm
2	Parallelism between X axis and worktable	0.002mm
3	Parallelism between Y axis and worktable	0.003mm
4	Parallelism between T slot and X axis	0.004mm
5	Perpendicularity of Z axis and X axis	0.002mm
6	Perpendicularity of Z axis and Y axis	0.004mm
7	Perpendicularity of X axis and Y axis	0.002mm
8	X/Y/Z positioning accuracy	0.005mm

No	Item	EV-1165A	
9	X/Y/Z repeat positioning accuracy	0.003mm	
10	Spindle axial drifting	0.001mm	
11	Spindle taper radial runout	a) spindle part	0
		b) 300mm from spindle	0.003mm
12	Dynamic parallelism between Spindle and Z axis	a) X axis	0.002mm
		b) Y axis	0.003mm
13	Dynamic verticality of spindle and X axis	0.002mm	
14	Dynamic verticality of spindle and Y axis	0.003mm	

## Parameter & Configuration

Specification	unit	EV-855A	EV-1055A	EV-1165A	EV-1370A
X-axis travel	mm	810	1000	1100	1300
Y-axis travel	mm	550	550	650	720
Z-axis travel	mm	560	580	650	720
Distance (spindle nose and table)	mm	130-690	120-700	120-770	130-850
Distance (spindle and column)	mm	595	595	673	735
Worktable size	mm	1000x550	1100x550	1300x650	1400x700
Max. Load on worktable	kg	650	650	900	1000
T-slot size (width*distance*number)	mm	18x90x5	18x90x5	18x120x5	18x90x5
Spindle taper	type	ISO 40	ISO 40	ISO 40	ISO 40
Feed rate (X/Y/Z)	m/min	48/48/32	48/48/32	36/36/24	36/24/24
Cutting feed rate (X/Y/Z)	mm/min	20000	20000	15000	15000
Ball screw (X/Y/Z)	mm	φ40/16	φ40/16	φ40/12	φ40/12
Linear guideway	mm	35/45/45	35/45/45	45/45/45	45/45/45
Tool shank type	type	BT40	BT40	BT40	BT40
Tool magazine capacity	pcs	24	24	24	24
Max. tool dia. (adjacent/no adjacent)	mm	φ80/φ150	φ80/φ150	φ80/φ150	φ80/φ150
Max. tool length	mm	250	250	250	250
Max. tool weight	kg	8	8	8	8
Tool change method	type	arm type	arm type	arm type	arm type
Tool change time (tool to tool)	sec.	2	2	2	2
Main motor speed	rpm	10000(12000)	10000(12000)	10000(12000)	8000(6000)
Main motor power	kw	11/18 (11/22)	11/18 (11/22)	11/18 (11/22)	22/33 (28/42)
Main motor torque	Nm	52.5/118(70/159)	52.5/118(70/159)	52.5/118(70/159)	143/236 (176/260)
X/Y/Z axis feeding motor power	kw	3/3/3	3/3/3	3/3/3	3.8/4.9/4.9
X/Y/Z axis feeding motor torque	Nm	20/20/27	20/20/27	20/20/36	18/27/27
Turning coolant motor power	kw	1.0+1.0	1.0+1.0	1.0+1.0	1.0+1.0
Required air pressure	kg/cm <sup>2</sup>	6.5	6.5	6.5	6.5
Required power	kva	25	25	30	30
X/Y/Z-axis positioning accuracy	mm	0.008 (0.005)	0.008 (0.005)	0.008 (0.005)	0.008 (0.006)
X/Y/Z-axis repositioning accuracy	mm	0.005 (0.003)	0.005 (0.003)	0.005 (0.003)	0.005 (0.004)
Machine weight	kg	5200	5500	6000	7000
Machine size (L x W x H)	mm	2700 x2400x2850	3000x2400x2850	3100x2600x3050	3400x2900x3300
CNC control	-	FANUC OIMF PLUS	FANUC OIMF PLUS	FANUC OIMF PLUS	SIEMENS 828D

### Standard Configuration

- Fully enclosed cover
- Arm type tool changer with 24 tool magazine
- Direct drive spindle
- Spindle oil cooling device
- Spindle and cutting air blowing
- X/Y/Z-axis roller guideway P-class
- X/Y/Z-axis ball screw C-class
- Cutting coolant system
- Automatic centralized lubrication system
- Air gun+coolant gun
- Cabinet air conditioner
- Oil-water separator
- Transformer (380V→220V)
- Manual pulse generator
- RS232C interface/USB/Ethernet
- Working lights
- Pause and work completion light
- Fault indicator light
- Automatic power off system M30
- Adjustment level bolts and support blocks
- Basic tool box
- Chain-plate automatic chip conveyor+trolley
- FANUC Oi-MF CNC system with 10.4" color screen

Specification	unit	EV-1475B	EV-1580B	EV-1680B	EV-1890B
X-axis travel	mm	1400	1500	1600	1800
Y-axis travel	mm	750	800	800	900
Z-axis travel	mm	750	700	700	800
Distance (spindle nose and table)	mm	150-900	155-855	160-860	105-905
Distance (spindle and column)	mm	875	855	885	992
Worktable size	mm	1500x700	1600x800	1700x800	2000x900
Max. Load on worktable	kg	1000	1200	1500	1800
T-slot size (width*distance*number)	mm	18x100x7	22x110x7	22x110x7	22x125x7
Spindle taper	type	ISO 50	ISO 50	ISO 50	ISO 50
Feed rate (X/Y/Z)	m/min	36/24/24	20/20/20	20/20/20	20/20/20
Cutting feed rate (X/Y/Z)	mm/min	10000	10000	10000	10000
Ball screw (X/Y/Z)	mm	φ40/12	φ50/10	φ50/10	φ50/10
Linear guideway	mm	45/55*4/45	55/45*4/55	55/45*4/55	55/55*4/55
Tool shank type	type	BT50	BT50	BT50	BT50
Tool magazine capacity	pcs	24	24	24	24
Max. tool dia. (adjacent/no adjacent)	mm	φ110/φ220	φ110/φ220	φ110/φ220	φ110/φ220
Max. tool length	mm	350	350	350	350
Max. tool weight	kg	15	15	15	15
Tool change method	type	arm type	arm type	arm type	arm type
Tool change time (tool to tool)	sec.	3	3	3	3
Main motor speed	rpm	8000(6000)	8000(6000)	8000(6000)	8000(6000)
Main motor power	kw	22/33 (28/42)	22/33 (28/42)	22/33 (28/42)	22/33 (28/42)
Main motor torque	Nm	143/236 (176/260)	143/236 (176/260)	143/236 (176/260)	143/236 (176/260)
X/Y/Z axis feeding motor power	kw	3.8/4.9/4.9	3.8/4.9/4.9	3.8/4.9/4.9	3.8/4.9/4.9
X/Y/Z axis feeding motor torque	Nm	18/27/27	18/27/27	18/27/27	18/27/27
Turning coolant motor power	kw	1.0+1.0	1.0+1.0	1.0+1.0	1.0+1.0
Required air pressure	kg/cm <sup>2</sup>	6.5	6.5	6.5	6.5
Required power	kva	35	35	35	35
X/Y/Z-axis positioning accuracy	mm	0.008 (0.006)	0.009 (0.007)	0.009 (0.007)	0.009 (0.007)
X/Y/Z-axis repositioning accuracy	mm	0.005 (0.004)	0.006 (0.004)	0.006 (0.005)	0.006 (0.005)
Machine weight	kg	7500	8000	9500	10000
Machine size (L x W x H)	mm	3700x2900x3300	4000x3300x3550	4100x3300x3550	4300x3400x3550
CNC control	-	SIEMENS 828D	SIEMENS 828D	SIEMENS 828D	SIEMENS 828D

### Optional Configuration

- Tool magazine 32 position
- Spindle:belt type/ direct drive type/ electrical type
- Spindle speed:6000/8000/10000/12000/15000rpm
- Spindle taper:HSK/BT/BBT
- Spindle inner coolant 20bar/30bar/50bar/70bar
- Italian BF gear reducer
- 4-axis rotary table
- Oil mist collector
- XYZ axis Heidenhain grating scale
- Workpiece measuring device Renishaw OMP40-2/RMP40
- Tool setting device Renishaw TS27R/NC4
- Post-processing
- Automatic door with cylinder
- Spindle and ball screw thermal deformation compensation
- Rotating window
- CO class ball screw for Ultra precision production
- Structure optimization, better castings, increase weight
- Spindle surround spray
- Chip-conveyor(Scraper type or screw type)
- SIEMENS 828D