



AMS[®]
In Pursuit of Excellence

TWIN SPINDLE

Vertical Machining Centers



GEMINI MINI SERIES
GEMINI Jr.
GEMINI Jr. XL
GEMINI XL
GEMINI 460 XL
GEMINI MAX

AceMicromatic
Group Company

Twin Spindle Vertical Machining Centers

The new era has seen continuous demand from the customers to improve machine accuracies, productivity in terms of machining cycle time and need for automation interface. To meet the demands of the customers AMS has developed few special machining centers.

With the increase in input costs including infrastructure and man power costs, machine tool users have become more cautious in the resource utilization. These conditions have led to development of the twin spindle machines "Gemini" where the productivity of the machine is nearly double to that of single spindle machines with similar specifications.

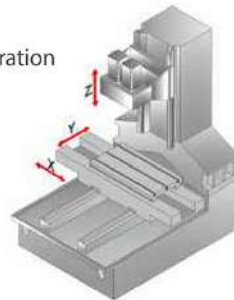
The twin spindle machines are also advantageous as they occupy lesser floor space as compared to two similar machines together and can be operated by a single operator or by a single robot. The machines are built on sturdy structures to house the two spindles which are precisely assembled to obtain high accuracies. The twin spindle machines have gained popularity in the auto-component manufacturing industry due to its suitability for high volume production and structural rigidity.



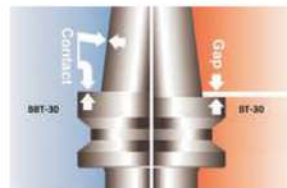
High Speed Spindle

AMS Gemini Machines equipped with high rigid, high speed spindle with quadruplex back to back arrangement, optimally pre loaded and grease lubricated. The spindle are dynamically balanced to perform better. Spindles with BT30, BT40 & BT50 are available as standard. HSK A63 & A100 tapered spindles are offered as options. The Gemini-mini is available with BBT-30 spindle as well.

Axes Configuration



BBT-30 Spindles



BBT is a spindle system that provides dual contact between the spindle face and the flange face of tooling. BBT greatly increase tool rigidity, reduce run out and add significant productivity to machining applications. The unique tool holding technology increases surface contact with the tool holder, maximizing rigidity and clamping pressure. There is a significant advantage in tool life, accuracy and cutting capability when compared to standard tool holders.

Quality & Inspection



The machine geometric accuracies are fully inspected to assure the highest accuracy standards. The high precision laser unit is applied for inspecting positioning accuracy & repeatability & ball bar tester to inspect the geometric error & ensures superior circular accuracy through parameter adjustment.



Cutting inspection

Heavy cut & NAS test before shipment, each AMS machine is subject to cutting tests which are combined with proper parameter adjustments to guarantee the best possible cutting quality.

Automatic Tool Changer



Gemini Jr, Gemini XL, Gemini 460, Gemini Mini and Gemini Max are with 20 x 2 tool automatic tool changer as standard feature.

Automatic pallet changer

The automatic pallet changer system on the machine reduces unproductive time during machining. Machining can be carried out on one pallet, while the other can be used for preparation (seating and clamping of work-pieces etc.).

Rotary type pallet changer option is available on some of the Gemini models.

Rotary Pallet Changer	Gemini Mini S	Gemini Mini L	Gemini Jr./Jr. XL	Gemini XL	Gemini 460 XL
Pallet size (mm)	600 x 400	800 x 400	700 x 450	800 x 450	920 x 450
Max. load on pallet (Kgf.)	200	200	300	350	300
Pallet changing time (Sec.)	10	10	10	12	12
Machine (width x depth)	2500 x 4100	3000 x 4100	2500 x 3800	3200 x 4200	3200 x 4200

Centre distance between spindles

Gemini mini S	: CD 250 mm
Gemini mini L	: CD 360 mm
Gemini jr. / jr. XL	: CD 250 mm
Gemini XL / Max	: CD 400 mm
Gemini 460	: CD 460 mm

Accuracy

	VDI DGQ 3441	ISO 230-2
Positioning	0.015 mm	0.010 mm
Repeatability	± 0.005 mm	± 0.003 mm



Coolant system



Std. Coolant tank



Grundfos or Wanner Pump

Through coolant increases tool life, allows higher cutting speeds, and clears chips during deep hole drilling. Two systems are available.

1. CTS with Grundfos Pump (21 bar pressure)
2. CTS with Wanner Pump (50 bar pressure).

Coolant Tank:

Large capacity chip tray, reliable & trouble free, convenient & easy to maintain

CNC Control System Options



Fanuc OIMATE MD / OIMD



Siemens 828D

Fanuc OIMF is standard for Gemini Series

Siemens 828 is optional for Gemini mini Series

Chip Conveyor



Removing chips is very important in terms of productivity & environmental protection. AMS provides various chip handling systems for better work environment. Coil conveyor & screw conveyor also offered

	Al Chips	Cast Iron Chips	Steel (Short Chips)
Scraper	✓	✓	
Slat cum scraper	✓	✓	✓
Magnetic		✓	✓

Chip Conveyor



Removing chips is very important in terms of productivity & environmental protection. AMS provides various chip handling systems for better work environment. Coil conveyor & screw conveyor also offered for cast iron and steel applications.

	Al Chips	Cast Iron Chips	Steel (Short Chips)
Scraper	✓	✓	
Slat cum scraper	✓	✓	✓
Magnetic		✓	✓

Tool Management



Work & Tool offset



Touch probe



Tool setter



Tool breakage detection

CNC Control System Options

Operator friendly control system with 10.4" Colour LCD (Fanuc)

FANUC 0iMF is standard for all models

Siemens 828D is optional

Mitsubishi M80BVU can also be offered



FANUC 0iMF



Siemens 828D



Mitsubishi M80BVU

Tooled up Solutions

The application engineering team of AMS has wide experience in identifying the process for machining and providing suitable work holding and tooling solutions. This ranges across the markets from high speed & productivity solutions for the automotive industry to the high precision and accuracy solutions for the aerospace or mould making industry. This not only includes support in selection of the most suitable machines but also designing the fixtures and identification of the ideal cutting tool for the selected process. The entire prove out of the components to meet the desired cycle time can be undertaken when solutions are opted for.

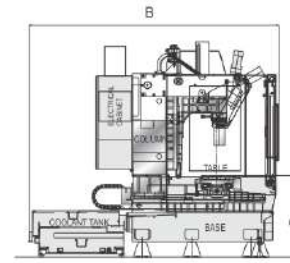
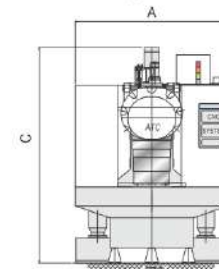


Automation Solutions

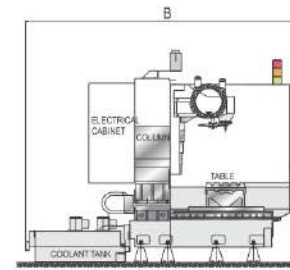
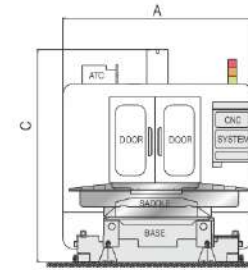
It is a constant endeavor to provide better productivity on our products. Our machines are made suitable for automation interface of different types. With the experience of providing machining solutions AMS is capable of augmenting the manufacturing process with integration of automation solutions. Either semi-automated with auto-unloading or fully automated with unmanned operations there are myriad of options to choose from suiting the machining process and layout. Our automation solutions provide enhanced productivity, output consistency and minimized dependency on man power.



Machine Layout



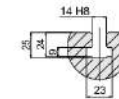
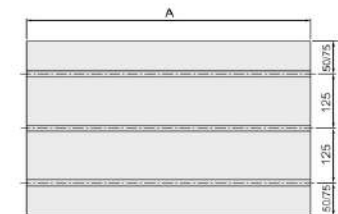
* For Dart s, DTC-400 & DTC-400XL-L



* For Super Dart

	A (Width)	B (Depth)	C (Height)	D
DART S	1700	2800	2500	840
DTC-400/DTC-400XL	1800	2800	2500	885/835
DTC-400XL-L	2100	2800	2700	850
Super Dart	2200	3300	3000	925

Table Details



Model	Clamping Area		T-Slots		
	A	B	S	N	Pitch
DART - S	650	350	14	3	125
DTC - 400	650	400	14	3	125
DTC - 400XL-L	850	410	14	3	125
Super Dart	900	480	14	3	125

Standard Features

- Rigid tapping
- Tool shank: BT-30
- Three tier indication lamp
- Work light
- Full guarding
- Coolant tank & Chip tray
- Laser calibration & ball bar test
- 12 tool front mounted ATC for Dart s, DTC-400 & DTC-400L
- 16 tool pocket tilting type ATC for DTC-400XL
- 20 tool side mounted ATC for Super Dart
- Panel cooler for electrical cabinet

Optional Features

- Increased day light area
- Tool shank: BBT-30
- Tool shank: HSK A50 (Super Dart)
- Wider guarding
- Through spindle coolant system
- Coolant gun & Chip flushing system
- Chip conveyor
- Higher spindle speed
- Automatic pallet changer
- Spindle power: 7.5/5.5 kW for Dart S
- & DTC-400
- Front Auto door
- CNC Rotary table / Index table
- TPM Friendly machine
- Toolled up solutions & Automation

Specifications

		Gemini Mini - s	Gemini Mini - L	Gemini Jr	Gemini Jr XL	Gemini XL	Gemini 460 XL	Gemini Max
CAPACITY								
Longitudinal travel (X - Axis)	mm	400	600	500	500	600	600	750
Headstock travel (Y - Axis)	mm	400	450	450	450	450	450	500
Cross travel (Z - Axis)	mm	500	500	600	600	600	600	600
Spindle face to table top	mm	190 - 690	160-660	125 - 725	125 - 725	145 - 745	145 - 745	285-885
Distance between two spindles	mm	250	360	250	250	400	460	400 / 550
Distance from floor to table top	mm	960	960	975	975	985	985	985
TABLE								
Table size	mm x mm	800 x 400	1100 x 450	900 x 450	900 x 450	1200 x 480	1200 x 480	1400 x 520
T - slot Table	size	M 12@100 P	M 12@90 P	M 12@100 P	M 12@100 P	M 12@100 P	M 12@100 P	M 16@100 P
Max. load on Table	kgf	350	250	500	500	500	500	1000
SPINDLE & AXES								
Spindle taper		7 / 24 No.30	7 / 24 No.30	7 / 24 No.40	7 / 24 No.40	7 / 24 No.40	7 / 24 No.40	7 / 24 No.50
Spindle speed - Std.	rpm	60 - 6000	60 - 6000	80 - 8000	80 - 8000	80 - 8000	80 - 8000	40-4000
- Opt.		80 - 8000	80 - 8000		100-10000	100-10000	100-10000	
Spindle power	kW	11	11	7.5 / 5.5 (2)	7.5 / 5.5 (2)	7.5 / 5.5 (2)	7.5 / 5.5 (2)	26 / 22 (2)
Spindle power - Opt	kW				11 / 7.5 (2)	11 / 7.5 (2)	11 / 7.5 (2)	
Rapid traverse - X / Y / Z	m/min	50 / 50 / 40	50 / 50 / 40	24 / 24 / 24	50 / 50 / 40	50 / 50 / 40	50 / 50 / 40	40 / 40 / 40
Feed rate	mm/min	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000
Guideway Type		LM	LM	LM	LM	LM	LM	LM
ACCURACY -- As per ISO 230-2								
Positioning accuracy	mm	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Repeatability	mm	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003
AUTOMATIC TOOL CHANGER								
Tool change system		Twin Arm	Twin Arm	Twin Arm	Twin Arm	Twin Arm	Twin Arm	Twin Arm
Tool storage capacity - Std.	Nos.	20 (2)	20 (2)	20 (2)	20 (2)	20 (2)	20 (2)	20 (2)
Pull stud		MAS 403	MAS 403	MAS 403	MAS 403	MAS 403	MAS 403	MAS 403
Max. tool dia with adjacent	mm	63	63	80	80	80	80	125
pockets full / empty	mm	80	80	155	155	155	155	250
Max. tool length	mm	200	200	250	250	250	250	350
Max. tool weight	kgf	3	3	8	8	8	8	15
Chip to chip time**	sec	3.9	3.9	5.9	4	4	4.1	6
Tool shank type - Std.		BT-30	BT-30	BT-40	BT-40	BT-40	BT-40	BT-50
- Opt.		BBT-30	BBT-30		HSK A63	HSK A63	HSK A63	HSK A100
CNC System - Std. FANUC		0iMF	0iMF	0iMF	0iMF	0iMF	0iMF	0iMF
- Opt. Siemens		828 D	828 D	-	-	-	-	-
Power supply (Basic Machine)	kVA	23	25	25	25	40	40	80
Basic machine weight	kgf	5200	5500	6000	6000	7500	7500	10500

** Valid for standard specifications *All specifications are subject to change without prior notice

AMS ACE MANUFACTURING SYSTEMS LTD.

In Pursuit of Excellence

Plot No. 467 - 469, 4th Phase, Peenya Industrial Area, BANGALORE - 560 058, INDIA.

Tel: +91-80-28360508 / 41828100, Fax: +91-80-28362791, E-mail: helpdesk@amsindia.co.in

Marketed and Serviced by: MICROMATIC MACHINE TOOLS PVT. LTD.

Ahmedabad +91 99242 89992; Ambattur +91 98407 85521; Aurangabad +91 240 2552309, 6511434; Bangalore +91 80 40200555; Belgium +91 99800 02597; Bommasandra +91 80 27894836; Chandigarh +91 98710 91057; Chakan +91 2135 322002; Chennai +91 44 40440700; Coimbatore +91 422 4506183, 6588959; Delhi +91 11 22414232/42448095; Faridabad +91 129 4047000; Gurgaon +91 124 4745500 / 4745500; Hyderabad +91 40 23070496; Pithampur +91 73899 39190, 73899 39191; Jamshedpur +91 657 6539931; Kolhapur +91 230 246044, 2460123; Kolkata +91 33 23648781/82/83 /64578825; Luckhiana +91 97791 28298; Mumbai +91 22 26861009/1976/7271/7272; Nasik +91 253 6610254; Pune +91 20 40712111/27479661/9662; Rajkot +91 281 6548369/2923048/3012775; Raipur +91 4172 272732; Rohtak +91 99668 91055; Rudrapur +91 95570 30224, +91 97201 06532; Tambaram +91 44 22265531; Thane +91 22 25893006; Trichy +91 9843265434, 9786016643

INTERNATIONAL: (Email: muralidhararao@amsindia.co.in), T: +91-80-41828120, M: +91 9880189913

ACCURATE INTERNATIONAL
TRADING FZCO, DUBAI
T: +91 14 6389323
E: info@accurateindia.com

MICROMATIC MACHINE TOOLS SHANGHAI CO. LTD,
CHINA
T: +86-021-58665031
E: raguramachandran@jacemmicromatic.net.cn

BAEYOUNG MACHINERY CO.
KOREA
T: +82-51 796-1258
E: ryan.lee.ha@gmail.com

SAEILO GMBH
GERMANY
T: +49-0446-9247-0
E: bm@saelio.de

BROTHER ENGINEERING LTD
UK
T: +44-01792 832346
E: bu@brother-engineering.com

SIRTECH S.R.L.
ITALY
T: +39 0778 402027
E: info@sirtech.it

CERI
FRANCE
T: +33 2 3340 2785
E: acabia@ceri-mo.fr

TECNUM SERVICE S.A de C.V.
MEXICO
T: +52 1 442 5400255
E: direccion@tecnum.com.mx

JTEK TOYODA
AMERICAS
THAILAND
T: +661 253 0340
E: groeder@toyoda.com

URAL-TOOL-PUMORI LTD.
RUSSIA
T: +7 (342) 215-45-18
E: oleg@upumori.ru

MACHINERY EMPORIUM (1995) CO., LTD.
ROMANIA
T: (+40-21) 233 33 37
E: gabriel.stefanovici@yigra.ro

VIGRA MARKETING & SERVICES R.L.,
ROMANIA
T: (+40-21) 233 33 37
E: gabriel.stefanovici@yigra.ro

Visit us @www.amsl.in

