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ISO 9001



ISO 14001



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A-SPLP-EN-201711

SP / LP SERIES

Ultra Performance Bridge Type Machining Center



Ultra Performance Bridge Type Machining Center

Due to our advanced developing skills and strict assembly process, the SP series ultra performance bridge type machining center provides optimum rigidity, accuracy, and efficiency.

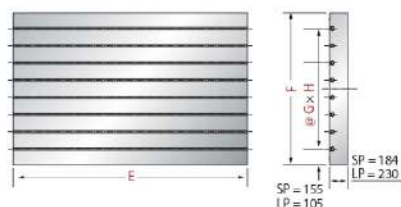
- The modular spindle design offers cutting flexibility for various working conditions.
- Super rigid roller type linear guide ways on the X and Y axes provide heavy-duty cutting, fast movement and low friction capabilities.
- The Z-axis is equipped with hardened and precision ground super rigid box guide ways, which are optimal for heavy-duty cutting conditions. (Opt. : The Z-axis can be adopted with roller type linear guide ways if equipped with high speed direct driven spindle.)



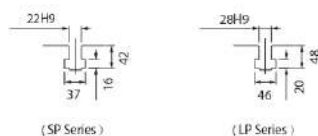
(SP-2016 model shown with optional manual attachment head storage)

Dimensions

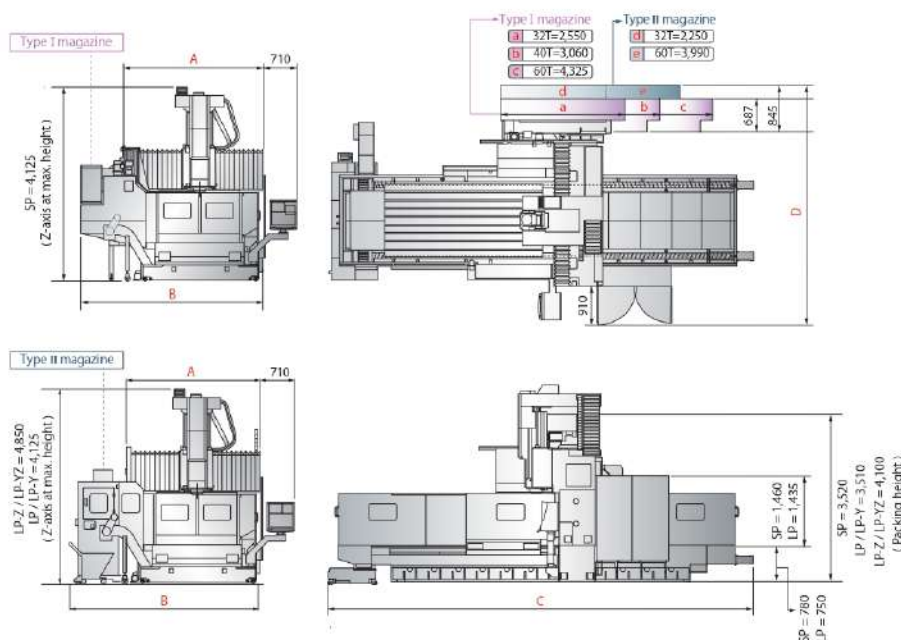
Table Dimensions



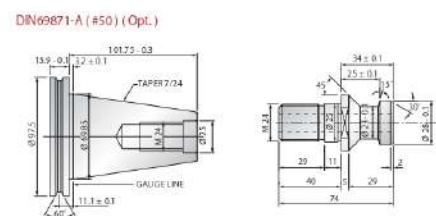
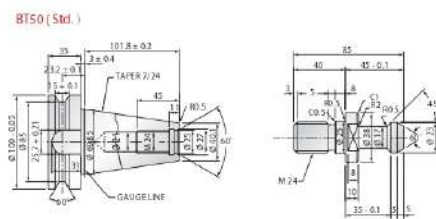
T-slot Dimensions



Machine Dimensions



Tool Shank and Pull Stud Dimensions



									(Unit: mm)
Models		A	B	C	D	E	F	G	H
SP	2016	2,970	3,860	6,750	4,680	2,310	1,500	170	7
	3016	2,970	3,860	8,760	4,680	3,260	1,500	170	7
	4016	2,970	3,860	10,760	4,680	4,200	1,500	170	7
LP	3021	3,650	4,550	8,580	5,375	3,020	2,010	200	9
	4021	3,650	4,550	10,580	5,375	4,020	2,010	200	9
	5021	3,650	4,550	12,680	5,375	5,020	2,010	200	9
	6021	3,650	4,550	14,680	5,375	6,020	2,010	200	9
	3025	4,050	4,950	8,580	5,775	3,020	2,400	200	11
	4025	4,050	4,950	10,580	5,775	4,020	2,400	200	11
	5025	4,050	4,950	12,680	5,775	5,020	2,400	200	11
	6025	4,050	4,950	14,680	5,775	6,020	2,400	200	11
	4033	4,850	5,750	10,580	6,575	4,020	2,400	200	11
	5033	4,850	5,750	12,680	6,575	5,020	2,400	200	11
	6033	4,850	5,750	14,680	6,575	6,020	2,400	200	11
	7033	4,850	5,750	16,630	6,575	7,020	2,400	200	11

Models		A	B	C	D	E	F	G	H
LP	3021Y	4,050	4,950	8,580	5,375	3,020	2,010	200	9
	4021Y	4,050	4,950	10,580	5,375	4,020	2,010	200	9
	5021Y	4,050	4,950	12,680	5,375	5,020	2,010	200	9
	6021Y	4,050	4,950	14,680	5,375	6,020	2,010	200	9
	4025Y	4,850	5,750	10,580	5,775	4,020	2,400	200	11
	5025Y	4,850	5,750	12,680	5,775	5,020	2,400	200	11
	6025Y	4,850	5,750	14,680	5,775	6,020	2,400	200	11
	5033Y	5,490	5,750	12,680	6,575	5,020	2,400	200	11
	6033Y	5,490	5,750	14,680	6,575	6,020	2,400	200	11
7033Y	5,490	5,750	16,630	6,575	7,020	2,400	200	11	

Models		A	B	C	D	E	F	G	H
LP	3021Z	4,160	4,850	8,580	5,375	3,020	2,010	200	9
	4021Z	4,160	4,850	10,580	5,375	4,020	2,010	200	9
	5021Z	4,160	4,850	12,680	5,375	5,020	2,010	200	9
	3025Z	4,560	5,250	8,580	5,775	3,020	2,400	200	11
	4025Z	4,560	5,250	10,580	5,775	4,020	2,400	200	11
	5025Z	4,560	5,250	12,680	5,775	5,020	2,400	200	11
	6025Z	5,730	5,250	14,680	5,775	6,020	2,400	200	11
	4033Z	5,370	6,050	10,580	6,575	4,020	2,400	200	11
	5033Z	5,370	6,050	12,680	6,575	5,020	2,400	200	11
	6033Z	5,370	6,050	14,680	6,575	6,020	2,400	200	11
7033Z	5,370	6,050	16,630	6,575	7,020	2,400	200	11	

* This chart is based on 1,000 mm Z travel; please contact AWEA for 1,200 or 1,400 mm dimensions.

Models		A	B	C	D	E	F	G	H
LP	3025YZ	5,235	6,050	8,580	6,175	3,020	2,400	200	11
	4025YZ	5,235	6,050	10,580	6,175	4,020	2,400	200	11
	5025YZ	5,235	6,050	12,680	6,175	5,020	2,400	200	11
	6025YZ	5,235	6,050	14,680	6,175	6,020	2,400	200	11
	4033YZ	6,060	6,750	10,580	6,735	4,020	2,400	200	11
	5033YZ	6,060	6,750	12,680	6,735	5,020	2,400	200	11
	6033YZ	6,060	6,750	14,680	6,735	6,020	2,400	200	11
	7033YZ	6,060	6,750	16,630	6,735	7,020	3,010	200	14

*This chart is based on 1,000 mm Z travel; please contact AWEA for 1,200 or 1,400 mm dimensions.

Specifications are subject to change without notice.

i Console

AWEA's self-developed **i Console** intelligent software enhancement system provides you with a user-friendly interface, real-time machine status information and diagnosis functions. It not only effectively reduces complex working processes but also enables intelligent machining abilities.

Option

(For 10.4" LCD only)



Multiple Functions Status Display



- Real time operation information
- Tool list
- Work piece measurement
- M code illustration
- PLC function
- Calculator
- CNC optimize parameter (Opt.)
- Spindle thermal compensation (Opt.)

Trouble Shooting



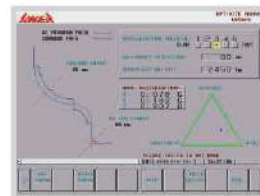
When an alarm appears, the program will display the cause for the alarm and a suitable troubleshooting procedure. Users can easily troubleshoot minor problems to avoid down time.

Circular Work Piece Measurement



The circular work piece program can calculate the center coordinate of a work piece by measuring the point A, B and C coordinates. The calculated center coordinate can be transferred to the work piece coordinate system (G54 ~ G59).

CNC Optimized Parameter



From rough cutting to fine machining, users can select different work modes, define the allowable tolerances and enter the weight of the work piece. Based on this input the **i Console** program will modify machining parameters to reduce machining time.

Rectangular Work Piece Measurement



The rectangular work piece program can calculate the center coordinate and the slant angle of a work piece by measuring the point A, B, C, D and E coordinates; the calculated center coordinate can be transferred to the work piece coordinate system (G54 ~ G59).

Manual Tool Length Measurement



After manually measuring the tool length, the controller will automatically calculate the tool tip position and input the data into the tool length offset table.

SP Series

SP Series

		SP-2016	SP-3016	SP-4016
SPECIFICATIONS				
X-axis travel	mm	2,100	3,060	4,000
Y-axis travel	mm	1,600		
Z-axis travel	mm	760		
Distance from spindle nose to table top	mm	200 ~ 960		
Distance between columns	mm	1,700		
TABLE				
Table size (X direction)	mm	2,310	3,260	4,200
Table size (Y direction)	mm	1,500		
Table load capacity	kg	8,000	10,000	12,000
SPINDLE				
Spindle taper		BT50 / DIN50 (Opt.) / CAT50 (Opt.)		
Spindle motor (cont. / 30 min.)	kW (HP)	22 / 26 (30 / 35)		
Spindle speed	rpm	6,000		
FEED RATE				
X-axis rapid feed rate	mm/min	20,000	20,000	15,000
Y / Z axes rapid feed rate	mm/min	20,000 / 15,000		
Max. cutting feed rate	mm/min	10,000		
TOOL MAGAZINE				
Tool magazine capacity	T	32 (24 / 40 / 60 Opt.)		
Max. tool diameter / adj. pocket empty	mm	Ø125 / Ø215		
Max. tool length (from gauge line)	mm	400		
Max. tool weight	kg	20		
ACCURACY				
Positioning accuracy (JIS B 6338)	mm	± 0.015 / Full Travel		
Positioning accuracy (VDI 3441)	mm	P ≤ 0.020 / Full Travel	P ≤ 0.025 / Full Travel	P ≤ 0.030 / Full Travel
Repeatability (JIS B 6338)	mm	± 0.003		
Repeatability (VDI 3441)	mm	Ps ≤ 0.020	Ps ≤ 0.020	Ps ≤ 0.025
GENERAL				
Power requirement	V	220 ± 10 %		
Pneumatic pressure requirement	kg/cm ²	5 - 8		
Hydraulic tank capacity	liter	120		
Lubrication oil tank capacity	liter	6		
Coolant tank capacity (pump)	liter (HP)	420 (2 HP)		
Machine weight	kg	19,000	23,000	28,000

Standard Accessories

- Spindle cooling system
- Centralized automatic lubricating system
- Fully enclosed splash guard w/o roof (SP series)
- Coolant system with pump and tank
- Twin screw type chip auger
- Caterpillar type chip conveyor and bucket
- Foundation bolt kit
- Tool box
- Alarm light
- Water gun
- Automatic power-off system
- Tool magazine : 32T

Optional Accessories

- Spindle:
 - 4,000 rpm gear spindle
 - 8,000 / 10,000 / 12,000 rpm direct-driven spindle
 - 6,000 / 8,000 rpm built-in motorized spindle
- Z travel extension : 1,000 mm
- Column raiser : 200 / 300 / 400 / 500 mm
- Attachment head (Manual) :
 - 35° / 90° / Extension / Universal Head
- Attachment head (Automatic) :
 - 35° / 90° / Extension / Universal Head
- Tool magazine : 40 / 60 / 90 / 120 T

- X / Y / Z axes optical linear scale (HEIDENHAIN)
- Spindle thermal compensation
- Coolant through the tool adapter
- Coolant through the spindle (Form A)
- Automatic tool length measurement
- Automatic work piece measurement
- CNC rotary table
- Oil skimmer
- Oil mist cooling system

		LP-3021	LP-4021	LP-5021	LP-6021	LP-3025	LP-4025	LP-5025	LP-6025	LP-4033	LP-5033	LP-6033	LP-7033
SPECIFICATIONS													
X-axis travel	mm	3,000	4,000	5,000	6,000	3,000	4,000	5,000	6,000	4,000	5,000	6,000	7,000
Y-axis travel	mm	2,100 (2,800 Opt.)				2,500 (3,200 Opt.)				3,300 (4,000 Opt.)			
Z-axis travel	mm	760 (1,000 / 1,200 / 1,400 Opt.)											
Distance from spindle nose to table top	mm	200 ~ 960				(200 ~ 1,200 / 200 ~ 1,400 / 200 ~ 1,600 Opt.)							
Distance between columns	mm	2,300				2,700				3,500			
TABLE													
Table size (X direction)	mm	3,020	4,020	5,020	6,020	3,020	4,020	5,020	6,020	4,020	5,020	6,020	7,020
Table size (Y direction)	mm	2,010				2,400				2,400 (3,010 Opt.)			
Table load capacity	kg	10,000	12,000	15,000	18,000	12,000	15,000	18,000	20,000	15,000	18,000	20,000	20,000
SPINDLE													
Spindle taper		BT50 / DIN50 (Opt.) / CAT50 (Opt.)											
Spindle motor (cont. / 30 min.)	kW (HP)	22 / 26 (30 / 35)											
Spindle speed	rpm	Z-axis : 1,000 / 1,200 / 1,400 mm ; 4,000 / 5,000 / 6,000 Gear Spindle (Opt.) ; 6,000 (Std.) 6,000 / 8,000 Built-in Spindle (Opt.) ; 8,000 / 10,000 / 12,000 Direct-driven Spindle (Opt.)											
FEED RATE													
X-axis rapid feed rate	mm/min	20,000	15,000	10,000	10,000	20,000	15,000	10,000	10,000	15,000	10,000	10,000	7,500
Y / Z axes rapid feed rate	mm/min	15,000 (Std.) Y : 10,000 (Y-axis : 4,000mm Opt.) *1 Z : 10,000 (Z-axis : 1,000 / 1,200 / 1,400mm Opt.) *1											
Max. cutting feed rate	mm/min	10,000	10,000	8,000	5,000	10,000	10,000	8,000	5,000	10,000	8,000	5,000	5,000
TOOL MAGAZINE													
Tool magazine capacity	T	32 (40 / 60 / 90 / 120 Opt.)											
Max. tool diameter / adj. pocket empty	mm	Ø127 / Ø215											
Max. tool length (from gauge line)	mm	350 (400 Opt.)											
Max. tool weight	kg	20											
ACCURACY													
Positioning accuracy (JIS B 6338)	mm	± 0.015 / Full Travel											± 0.010 / Full Travel
Positioning accuracy (VDI 3441)	mm	P ≤ 0.025 / Full Travel	P ≤ 0.030 / Full Travel	P ≤ 0.040 / Full Travel	P ≤ 0.050 / Full Travel	P ≤ 0.025 / Full Travel	P ≤ 0.030 / Full Travel	P ≤ 0.040 / Full Travel	P ≤ 0.050 / Full Travel	P ≤ 0.030 / Full Travel	P ≤ 0.040 / Full Travel	P ≤ 0.050 / Full Travel	P = 0.040 / Full Travel
Repeatability (JIS B 6338)	mm	± 0.003											
Repeatability (VDI 3441)	mm	Ps ≤ 0.020	Ps ≤ 0.025	Ps ≤ 0.030	Ps ≤ 0.035	Ps ≤ 0.020	Ps ≤ 0.025	Ps ≤ 0.030	Ps ≤ 0.035	Ps ≤ 0.025	Ps ≤ 0.030	Ps ≤ 0.035	Ps = 0.030
GENERAL													
Power requirement	V	220 ± 10 %											
Pneumatic pressure requirement	kg/cm ²	5 - 8											
Hydraulic tank capacity	liter	120											
Lubrication oil tank capacity	liter	6											
Coolant tank capacity (pump)	liter	650 (2 HP)				750 (2 HP)				1,000 (2 HP)			
Machine weight	kg	33,000	38,000	41,000	45,000	36,000	40,000	44,000	50,000	47,000	50,000	58,000	75,000

*1 Please check with our sales representative the possibility for machine sizes other than listed in this catalog, as well as additional options.

Specifications are subject to change without notice.

Standard Accessories

- Spindle cooling system
- Centralized automatic lubricating system
- 4 pcs splash guard (LP series)
- Tool magazine : 32 T
- Coolant system with pump and tank
- Twin screw type chip auger
- Caterpillar type chip conveyor and bucket
- Foundation bolt kit
- Tool box
- Alarm light
- Air gun
- Automatic power-off system

Optional Accessories

- Spindle :
4,000 / 5,000 / 6,000 rpm gear spindle
8,000 / 10,000 / 12,000 rpm direct-driven spindle
6,000 / 8,000 rpm built-in motorized spindle
- Spindle taper : DIN50 / CAT50
- Y travel extension : 2,800 / 3,200 / 4,000 mm
- Z travel extension : 1,000 / 1,200 / 1,400 mm
- Column raiser : 200 / 300 / 400 / 500 mm
- Attachment head (Manual) :
35° / 90° / Extension / Universal Head
- Attachment head (Automatic) :
35° / 90° / Extension / Universal Head
- Tool magazine : 40 / 60 / 90 / 120 T
- X / Y / Z axes optical linear scale (HEIDENHAIN)
- Spindle thermal compensation
- Coolant through the tool adapter
- Coolant through the spindle (Form A)
- Automatic tool length measurement
- Automatic work piece measurement
- CNC rotary table
- Oil skimmer
- Oil mist cooling system