

SKYFIRE CNC

SVM-2VMC Plus Mini Industrial Machining Center Datasheet

2021 V1.0

New Upgraded Model

SUPER PERFORMANCE

HIGH PRECISION

LOW PRICE



Quick review to help your decisions:

Table 1: Basic Configurations

Model	Enclosure	Spindle System	Spindle Drive	Axis Drive	CNC controller
SVM-2VMC <i>Mini VMC</i>	Full Enclosure	BT30 +PDB	AC SERVO	AC SERVO	5 Axis Industrial CNC Controller

TABLE 2: Option Status & Remarks

Model	PDB	2 nd Spindle Kit	4 th / 5 th Axis Kit	ATC	MPG	Probe System	Center cooling	Toolings
SVM-2VMC <i>Mini VMC</i>	●	√	√	●	√	√	√	√
√ optional					X not optional		● pre-installed	

TABLE 3: Option Index

Optional Installation of SVM-2VMC series
Common Accessories & Tooling
Detector & Measurement Series
Work-holding Series
BT30 Tool Holder Series
ER Collets Series
Mill Tool Series
FAQ
Help Information

History Information:

- 2015: SVM-2VMC model developed and started to sale on market.
- 2017~2018: We gathered feedbacks from customers on machine problems and kept improving detailed designs and production/QC protocol.
- 2019: New SVM-2VMC Plus model was brought to market with excellent machining tolerance and quality control.
- 2020: More upgrades and options were introduced to SVM-2VMC Plus.

Update Log

<i>Date</i>	<i>Contents</i>
2018/01/06	<ul style="list-style-type: none"> ● <i>Upgraded from 4-axis controller to 5-axis / 5-align controller.</i> ● <i>Upgraded AC SERVO Spindle system to support rigid tapping with more accurate control.</i> ● <i>Enhanced spindle motor system with 30% more torque at lower end speed.</i> ● <i>Made Auto Tool Changer as standard configuration.</i> ● <i>4th + 5th axis add-on formally available.</i> ● <i>Enhanced axis ball screw bearings.</i> ● <i>Enhanced coolant system with more powerful pump.</i> ● <i>Other small detail upgrades.</i>
2018/08/01	<ul style="list-style-type: none"> ● <i>Upgrade CNC controller from CNC4650 to CNC 9650 with much higher processing speed and more advanced motion algorithm.</i>
2018/10/12	<ul style="list-style-type: none"> ● <i>Upgrade limit/home sensors to Panasonic IP67 class products to solve the sensor defect problem and improve homing repeat accuracy.</i>
2019/03/01	<ul style="list-style-type: none"> ● <i>Upgrade spindle with NSK bearings to prolong spindle life and allow high speed operation long time.</i>
2019/03/05	<ul style="list-style-type: none"> ● <i>Setup strict QC procedure to ensure machine quality before shipment to ensure customers can get ≤0.01mm machining tolerance.</i>
2019/03/22	<ul style="list-style-type: none"> ● <i>Provide cast iron machine stand upgrade to improve machining stability and surface finishing quality.</i>
2019/03/29	<ul style="list-style-type: none"> ● <i>Add through spindle cooling options and live measurement probe systems.</i> ● <i>WIFI remote control system & WIFI monitoring camera system options</i>
2020/10/31	<ul style="list-style-type: none"> ● <i>Cast iron machine stand option available to improve machining stability and allow high pressure coolant pump installation.</i> ● <i>Full metal pocket magazine of auto tool changer available.</i> ● <i>AC Servo drive 4th axis available</i> ● <i>Other detailed upgrades</i>

SVM-2VMC Plus Mini Industrial Machining Center



SVM-2VMC is a professional small industrial machining center with full AC SERVO systems of spindle and 3-axis driving. It's upgraded to 5-axis & 5-align industrial CNC controller from 2018 version.

SVM-2VMC supports 4th + 5th axis add-on and a slave 2nd high speed engraving spindle.

12-tool Auto Tool changer is a standard installation part from 2018 version.

Rigid tapping is fully supported from 2018 version.

SVM-2VMC Plus version is much more powerful and reliable!



*Some parts in the pictures are optional

KEY FEATURES:

- Compact SKYFIRECNC original design
- Super rigid/high quality **HT250** resin sand casting iron structure
- Precision **LINEAR WAYS** for all 3 axis
- Enhanced **heavy duty roller type** linear ways for Z axis
- **C3** class ground ball screws for all 3 axis
- Industrial level motion **accuracy**
- Super powerful **AC SERVO** spindle driving system
- Precision **AC SERVO** driving system for all 3 axis
- Industrial standard **BT30** spindle unit & pneumatic **power drawbar**
- **12-tool Auto Tool Changer** installation
- Professional/easy 4th axis+ 5th axis expanding capability
- Support **Rigid Tapping** functions
- **5-Axis&5-align** Industrial CNC controller with full tech. support
- **Full Auto** central lubrication system for all motion parts

Dimensions

Table Size:	760mm×240mm / 30"×9.8"
Table Slots:	5×14mm Slots
Travel Range (X Y Z):	400mm×250mm×400mm / 15.7"×10"×15.7"
MAX Spindle Nose to Table:	450mm / 17.7"
MIN Spindle Nose to Table:	50mm / 2"
Spindle Center to Column:	280mm / 11"

Motion Features

Max On Table Weight:	100Kgs
Max Feed Rate:	10MPM / 393IPM
Positional Tolerance:	0.005mm/200mm
Repeatable Tolerance:	≤0.005mm
XYZ Traveling Tolerance:	≤0.01mm /200mm
1 st Spindle Radio/Axial Run Out:	≤0.003mm at taper

Spindle Configurations

1 st Spindle Taper:	BT30
1 st Spindle Max Speed:	10000RPM
1 st Spindle Driving System:	2.2Kw AC SERVO Motor System
1 st Tool Changing:	Pneumatic Power Drawbar
Auto Tool Changer:	BT30-12 Tool ATC

3-Axis Configurations

3 Axis Driving:	0.75kw/Axis AC SERVO Motor System
3 Axis Motion:	H Class Linear Ways For All 3 Axis
Ball Screws:	C3 Class Ground Type Ball Screws
Bearings:	P4 Class Precision Bearings

CNC Control System

CNC Controller:	ADTECH CNC9650 5-axis & 5-align CNC controller
Max Axis Control Number:	5 Axis
Rigid Tapping Support:	Yes
Auto Tool Changer Support:	Yes
Additional Control Panel:	Included

Power Requirements

Power Input:	200-240VAC 50/60HZ Single Phase (220/380VAC 3-Phase optional)
Power Consumption:	Typical 5Kw

Miscellaneous Features

Machine Enclosure:	Full Enclosure with Cabinet Stand
Machine Head Balancing:	2x Nitrogen Springs
Lubrication:	Auto Central Lubrication
Work Light:	LED Work Light
Coolant System:	Integrated Coolant System and Chip Collector
Mist Cooling System:	<i>Optional</i>
Hand-held MPG:	<i>Optional</i>
Air Blow Gun:	Included
Air Source:	>0.5Mpa

Overall Features

Overall Dimensions(L*W*H):	LWH 1000*1500*1700mm
Net Weight:	≈780kgs
Package Dimensions(L*W*H):	LWH 1200*1600*1900mm
Gross Weight:	≈880kgs
Package Type:	Composite Plywood Crate

Standard Accessories

Machine Feet:	FOOT-MASTER Casters(or adjustable feet) 4pcs (or fixed feet with cast iron stand)

Optional Installations of SVM-2VMC:

- SKYFIRE HVR-6 Harmonic Drive 6" 4th Axis Installation
Enable the machine to do 4 axis cutting job
ZERO backlash / Tolerance<3' / Easy Servo Drive(Optional AC Servo drive)



- 125mm 3-jaw Chuck Kit for HVR-6
O.D 125mm chuck + adapter plate



- SKYFIRE HVR-8 Harmonic Drive 8" 4th Axis Installation
Enable the machine to do 4 axis cutting job
ZERO backlash / Tolerance<3' / Easy Servo Drive(Optional AC Servo drive)



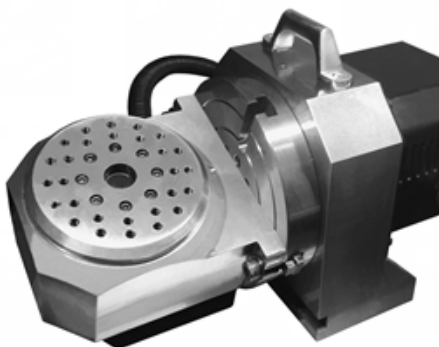
- 160mm 3-jaw Chuck Kit for HVR-8
O.D 160mm chuck + adapter plate



- Tail Stock for 4th Axis
Help to hold long rod material on the 4th axis



- SKYFIRE HHR-4 Harmonic Drive 4" 5th Axis Installation
Enable the machine to do 5 axis cutting job
5th axis add-on kit for HVR-6/8 4th axis



- 2nd High Speed Engraving Spindle Kit Installation
Enable the machine to engrave art works like a CNC router
800W / 24krpm / ER11 / Water cooled / Spindle+VFD & liquid cooling unit



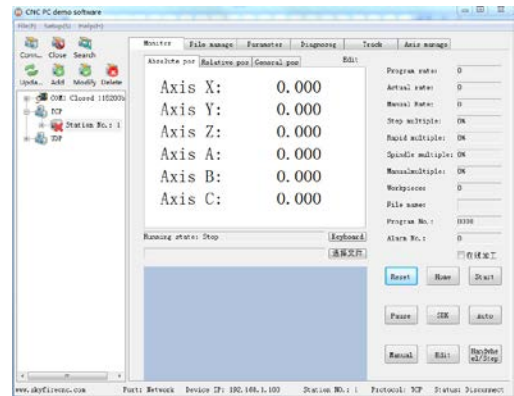
- Mist Cooling Kit Installation
Enable the machine to cool tools with air flow and mist
Air/Liquid volume adjustable / Including control valve



- Hand-held MPG
Enable the machine axis to be controlled by MPG
100PPR; 5 axis control



- WIFI Remote Control Module Installation
Allow monitor machine status, upload/download programs, change system parameters from remote computer with WIFI connection.
WIFI control module / WIFI antenna / Remote control software



- WIFI Remote Monitoring Camera Installation
Monitoring machine work status on Remote computer or cell phone.
1080P / IP66 waterproof



- Other BT30 Spindle Unit Upgrade
Center cooling spindles / water cooling spindles etc. Please inquire us directly.



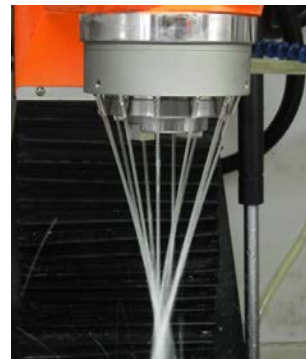
- 3.7kw AC SERVO Spindle Motor System Upgrade
Give the spindle more power to improve cutting efficiency
**Must be with 220VAC/380VAC 3phase power supply*



- High Speed Electric Spindle Upgrade
BT30 taper / 4Kw / 24krpm / Support ATC
Excellent for high speed, high quality milling
**Must be with 220VAC/380VAC 3phase power supply*



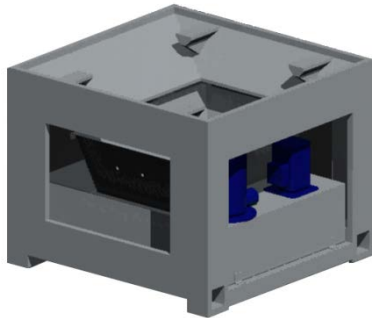
- Spindle Ring Jet Cooler Upgrade
360° coolant flood injection / Help to cool spindle unit



- Through Spindle Cooling System Upgrade
BT30 Center cooling spindle / High Pressure Pump System / Rotate coolant connector / Coolant filter System / Shift between center cooling and sprayers



- Cast Iron Machine Stand Upgrade
Improve machining stability / Improve machining accuracy and quality



- Full Metal ATC Magazine Upgrade
More accurate Positioning / No broken / Smoother tool changing motion



Degrade Options:

- REMOVE Auto Tool Changer-BT30-12T
Change tools manually only (PDB still installed)



- change to 4-Axis CNC Control System
Support max 4 axis only / No rigid tapping, float tapping only



- More Machine Options please inquire us directly.

Common Accessories / Tooling for SVM-2VMC:

Detector & Measurement series:

- Electronic Tool Setter-Type A
*This type tool setter is fixed-mounted on worktable and suitable to work with ATC.
It outputs measuring and limit signals / Air blower&valve integrated*



- Mechanical Tool Setter-Type C
*This type tool setter is only manually used to measure Z height.
50mm height / magnet bottom / easy and economic*



- Optical Edge Finder-20LB High Precision Type
OD20mm / 10mm ball / LED-BEEP/ Repeatability 0.005mm



- EP40 3D Probe
Φ20mm shank/ exchangeable stylus/ LED indicators / Repeatability 0.001mm



- EP60 3D Probe
BT30 holder/ exchangeable stylus/ LED indicators / Repeatability 0.001mm



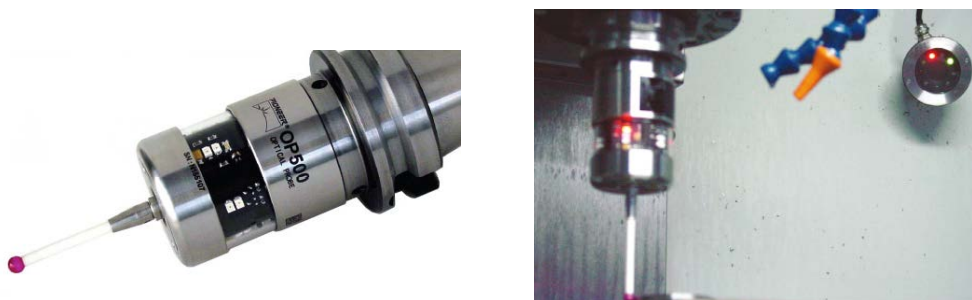
- TP300 3D Probe
*Φ16mm shank/ exchangeable stylus/ LED indicators / wired signal output
 Repeatability 0.001mm*



- TP400 3D Probe
*BT30 holder included/ exchangeable stylus/ LED indicators / wired signal output
 Repeatability 0.001mm*



- OPS-20M Workpiece Measurement Probe System
*BT30 holder / Live measurement before/during/after machining
 Infrared transmission / Software kit / Repeatability 0.001mm*



- TTC200+S Tool Calibrator System
Live tool offset for both tool length and diameter / auto wear compensation
Tool broken detection



Work-holding Series:

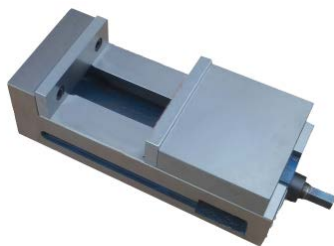
- 5" Angle Clamp Precision Mill Vise



- 6" Angle Clamp Precision Mill Vise



- 6" Heavy Ground Precision Mill Vise



- M12-58pcs Clamping Kit



- Precision Parallels Kit (18pcs)



BT30 Tool Holder Series:

- BT30 -ER11/16/20/25/32-L60 Mill Tool Holder Series
Taper Runout ≤ 0.005mm / Suitable to common milling works



- BT30 -ER11/16/20/25/32-L60-H Mill Tool Holder Series
High Precision/High Speed Series
Dynamic balanced / Up to 24krpm / Taper Runout ≤ 0.003mm



- BT30-APU08-L80 Drill Tool Holder
max 8mm / Precision



- BT30-APU13-L100 Drill Tool Holder
max 13mm / Precision



- BT30-APU16-L100 Drill Tool Holder
max 16mm / Precision



- BT30-FMB22-L45 Face Mill Holder



- BT30-FMB27- L45 Face Mill Holder



- BT30-SCA22-L75 Saw Cutter Holder



- BT30-F1-12/18 Boring Tool Kit

F1-12 O.D 50mm; F1-18 O.D 75mm / Full Set Insert Cutter Boring Arbors



- BT30-NBH2084 Boring Tool Kit

Boring Range $\phi 8$ - $\phi 280$ / Turning Step 0.01mm / high precision



- BT30 Pull Stud-45degree



- BT30 Tool Locker



ER Collets Series:

- ER32 Collets-AA/AAA class high precision
1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20mm
(inch series 3/32" -25/32" available)



- ER25 Collets-AA/AAA class high precision
1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16mm
(inch series 1/16" -5/8" available)



- ER20 Collets-AA/AAA class high precision
1/2/3/4/5/6/7/8/9/10/11/12/13mm
(inch series 1/16" -1/2" available)



- ER16 Collets-AA/AAA class high precision
1/2/3/4/5/6/7/8/9/10mm
(inch series 1/32"-13/32" available)



- ER11 Collets-AA/AAA class high precision
1/2/3/4/5/6/7mm
(inch series 1/8", 1/4" available)



- ER Nut Spanners
(ER16-A / ER20-A / ER25-UM / ER32-UM)

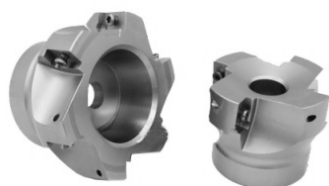


Mill Tool Series:

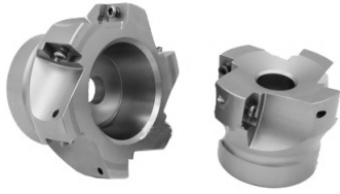
- Full series Mill/Drill/Tapping Tools and Inserts
**please ask for tool price list*



- BAP400R50-22-4T Face Mill Tool



- BAP400R63-22-5T Face Mill Tool



- KAP400R50-22-4T Face Mill Tool *(For Aluminum Cuts)*



- KAP400R63-22-4T Face Mill Tool *(For Aluminum Cuts)*



- BAP300R-10/12/16/20- Mill Shank Series



- Other tools please inquire us directly
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FAQ:

- What are the advantages of SKYFIRE CNC machines compared to other brands at similar size?

SKYFIRE CNC milling machines are small industrial CNC machining center but not hobby level ones. All SKYFIRE CNC machines are made at standard industrial level for small scale but precision machining works. SKYFIRE CNC machines have many superior features including full 3-axis linear ways, full AC SERVO spindle and 3-axis motion systems, industrial CNC controllers, 4th / 5th axis set and ATC installations etc. Many other detailed advantages are listed in the datasheets too.

Besides the advantages above, SKYFIRE CNC machines are about 2/3 price of other similar size CNC machines of other brands but 2X performance of them. No matter you are a personal machinist or professional machining manufacturer, SKYFIRE CNC will be your best high performance/low cost choice. Many machine models/options to make sure you will find one that most suitable to you. What's more, we provide customized machines as you want.

- What's the difference between SVM-2VMC and SVM-2VMC Workstation?

The only difference is the CNC controller system. SVM-2VMC has standard industrial CNC controller. Compared to PC based controllers, it's more reliable for constant machining works.

SVM-2VMC Workstation is equipped with PC based CNC controller. It's more flexible and expandable. Users can develop many personalized configurations on the machine.

- What materials can SVM-2 series mill?

SVM-2 series is rigid and powerful to mill any material from Aluminum, brass, mild steel, stainless steel to Titanium. After our many tests on the materials, SVM-2 has shown stable and reliable milling performance.

- How about the 4th axis and 5th axis set?

Our Harmonic Drive 4th and 5th axis sets are of high industrial level accuracy with zero backlash. So please don't compare them to the cheap ones retrofitted from manual rotary table. We can install the 4th /5th set together with your machine, or you can purchase and install them by yourself later.

- Can I order a customized SVM machine?

Yes. The advantage of SKYFIRE CNC is that we can provide customized machine as you required. We have full R&D capability to provide upgrades or modifications based on our machine frame. So if you have such ideas just talk to us directly.

- How I start to use the machine?

Please refer to our latest machine manuals that containing the knowledge you need.

- What shipment methods available?

For oversea customers, we can provide ocean shipping to your sea port (CIF/FOB). And we can also provide TO DOOR delivery worldwide. It's all depends on you. Please talk to us directly about the shipping method. If we have a local distributor nearby, the distributor will handle it for you.

- What warranty do I have?

Normally, we provide 1 year warranty for all of the machine parts. Any warranted parts failed due to quality reason, we will send you a new one free for replacement. If you buy our machines from one of our distributors, the distributor will provide services as well. Beyond the warranty period, we will keep provide services and replacement parts at cost price.

****Easy damaged parts like SPINDLE, GLASS DOOR/WINDOW are not included in 1 year warranty. So please check carefully once you receive the machine and report to us.*

Help Information:

Due to the continuous improvement of our products, such as the technical parameters in this datasheet are modified without prior notice. If you have any questions or view the contents of this datasheet and the details of all time, please put the consultation, we will be very glad to answer your questions, advice and criticism.

SKYFIRE CNC reserves right of final interpretation of this document.

Please visit our website www.skyfirecnc.com for more information.

Any ordering question Please email sales@skyfirecnc.com for answers ASAP.

Any technical questions please email support@skyfirecnc.com for our service ASAP.

You can also add our Skype: skyfirecnc for direct communication.

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