VF108 Vertical high speed Introduction

Use our wisdom to supply you the best solution

Sky Master-Kraft
China-Germany Investment
### VF108 Technical Parameter

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>VF108</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard controller</strong></td>
<td></td>
<td>FANUC 0i MF</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X axis travel (work-table)</td>
<td>mm</td>
<td>1080</td>
</tr>
<tr>
<td>Y axis travel (saddle)</td>
<td>mm</td>
<td>600</td>
</tr>
<tr>
<td>Z axis travel (spindle head)</td>
<td>mm</td>
<td>600</td>
</tr>
<tr>
<td>Distance between column</td>
<td>mm</td>
<td>100-700</td>
</tr>
<tr>
<td>Distance from spindle center to column cover</td>
<td>mm</td>
<td>630</td>
</tr>
<tr>
<td><strong>Work table</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table size (length×width)</td>
<td>mm</td>
<td>1280×600</td>
</tr>
<tr>
<td>Max. table load</td>
<td>kg</td>
<td>1000</td>
</tr>
<tr>
<td>T slot size (width×distance×quantity)</td>
<td>mm</td>
<td>18×100×5</td>
</tr>
<tr>
<td><strong>Spindle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle taper</td>
<td></td>
<td>HSK-A63</td>
</tr>
<tr>
<td>Max. spindle speed</td>
<td>rpm</td>
<td>15000 (direct driven)</td>
</tr>
<tr>
<td>Spindle motor power (continual working/30mins)</td>
<td>kW</td>
<td>7.5/11</td>
</tr>
<tr>
<td>Spindle torque</td>
<td>N.m</td>
<td>47.7/70</td>
</tr>
<tr>
<td><strong>X/Y/Z</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid traverse (X/Y)</td>
<td>mm/min</td>
<td>36000</td>
</tr>
<tr>
<td>Rapid traverse (Z)</td>
<td>mm/min</td>
<td>24000</td>
</tr>
<tr>
<td>Cutting feed rate on (X/Y/Z)</td>
<td>mm/min</td>
<td>1-10000</td>
</tr>
<tr>
<td><strong>ATC (option)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC type</td>
<td></td>
<td>Arm type</td>
</tr>
<tr>
<td>Tool capacity</td>
<td>pcs</td>
<td>24</td>
</tr>
<tr>
<td>Max. tool diameter</td>
<td>mm</td>
<td>φ80/φ150</td>
</tr>
<tr>
<td>Max. tool length</td>
<td>mm</td>
<td>350</td>
</tr>
<tr>
<td>Max. tool weight</td>
<td>kg</td>
<td>8</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VDI/DGQ3441</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full travel positioning accuracy</td>
<td>mm</td>
<td>P0.010</td>
</tr>
<tr>
<td>Repeatability accuracy</td>
<td>mm</td>
<td>Ps0.008</td>
</tr>
<tr>
<td><strong>Air pressure</strong></td>
<td>MPa</td>
<td>0.6-0.8</td>
</tr>
<tr>
<td><strong>Supply voltage &amp; frequency</strong></td>
<td></td>
<td>3/PE, AC380V, 50Hz</td>
</tr>
<tr>
<td><strong>Power requirement</strong></td>
<td>kVA</td>
<td>30</td>
</tr>
<tr>
<td><strong>Machine size (length/width/height)</strong></td>
<td>mm</td>
<td>4400×3510×2837</td>
</tr>
<tr>
<td><strong>Machine weight</strong></td>
<td>kg</td>
<td>7250</td>
</tr>
</tbody>
</table>

"VF" means "vertical high speed" "108" means "X axis travel is 1080mm"

※ We reserve the right to change technical parameter for improvement of our products without giving notice to customers.
Mainly use for machining high precision mould or non ferrous metal high speed machining, fulfill the concept of the high speed Machining center:

- High Rotate Speed—direct connected spindle 15000rpm, build in spindle with 15000rpm
- High Feeding Speed—maximum cutting speed 10m/min
- Fast Reaction—all three axes equip with large torque servo motor, the maximum acceleration can reach 0.5G, the X-axis’ s acceleration can reach 0.3G when under 1 ton of load.
- High accuracy—all three axe's position accuracy is 0.006mm, the repeat accuracy is 0.004mm
Machine Structure - Frame

- Use cross-shaped saddle in VMC structure
- One-piece integrated die-cast iron column with invert ‘Y’ shape
- Reasonable arrangement for whole machine, convenient operation
- Easy to handle with chip remove and drainage

★ The casting material is from Germany with unique composition ratio, which is 30% higher than domestic cost

★ Every casting part have a test bar which can analyze the real material character

★ FEM analysis to optimize the rigidity for machine

Worktable movement in left and right --- X axis
Saddle movement in front and back ----- Y axis
Spindle movement in up and down --- Z axis
Structure feature – machine bed

The large connect surface between bed and column which enhance the whole machine’s stability

The inside of the machine bed use multi-layered rib design. The cross-section of the linear guide way and the stand column use three layers of strengthening rib, it provide good stability and deformation ability.
Structure feature - Column

The cross ribs in column improve the torsion rigidity and stability.

One-piece integrated casting for column and ATC interface seat, the shoulder carry design is patented, keep the machine with stable accuracy in long time.

The invert Y shaped column with large span keep excellent rigidity.

Z axis is driven by big power motor (torque 45Nm), compare with mechanical balance system, the cost increase 10%, but improve the 3 axis response speed and circular profile accuracy in direction changing obviously.
Structure feature- Saddle

The traditional saddle has a square hole for the convenience of slide block installation, but this design will reduce the torsion rigidity of saddle greatly.

The VF108 is designed with many stronger ribs at the bottom of saddle, the place for slide block installation is enhanced, this design improve 40% torsion ability although it adds the additional difficulty.
Structure feature – Work table

- Bessel optimized supporting point design
- Stable loading, high torsion rigidity

Worktable loading: **1000kg**

T slot size: **5×18×100mm**
Structure feature-Spindle head

- The spindle head structure is from Germany Kraft craft and design experience combines with FEM to ensure the rigidity.
- Max spindle speed: 15000rpm;
- Tool shank HSK-A63, BBT40;
- The spindle head is designed in thin-wall (15mm thickness only) but with many enhance ribs, compare with other factory, this light-weight design can save 50kgs and as well as the dynamic improvement.
Analysis and optimization
Worktable stress analysis diagram

<table>
<thead>
<tr>
<th></th>
<th>Rated</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading</td>
<td>1T</td>
<td>2T</td>
</tr>
<tr>
<td>Deformation</td>
<td>&lt; 0.005mm</td>
<td>&lt; 0.010mm</td>
</tr>
</tbody>
</table>
Analysis and optimization
- Column, spindle head stress analysis diagram

Analysis condition:
Spindle head move to the top,
Stress at the side of spindle

<table>
<thead>
<tr>
<th>Rated</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading</td>
<td>279kgf</td>
</tr>
<tr>
<td>Deformation</td>
<td>&lt; 0.012mm</td>
</tr>
</tbody>
</table>
Analysis and optimization
-whole machine stress analysis diagram

Analysis condition:
2 ton load on the worktable
Spindle head at the lowest position
Add force to the side of the spindle

<table>
<thead>
<tr>
<th></th>
<th>Rated</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading</td>
<td>279kgf</td>
<td>1000kgf</td>
</tr>
<tr>
<td>Deformation</td>
<td>0.013mm</td>
<td>0.047mm</td>
</tr>
</tbody>
</table>
USA SETCO Direct driven spindle

★ American SETCO is a company focus on designing and manufacturing high performance and high precision spindle.
★ The maximum rotate speed is 15000rpm, the spindle use ceramic rolling parts and grease lubrication. The maximum rotate speed is 20000rpm; ensure the spindle works well overtime
★ The spindle motor is directly connected to the spindle, eliminated the middle part, decrease vibration, increase the rotate accuracy and reaction time of the spindle.
INNA (German) electric spindle

★ INNA (German) build in spindle’s components use world know manufacturer’s products, from component to finish product need to past hundreds of inspections, make products without default.

★ Compare to belt type spindle and direct connected spindle, build in spindle has many advantages:
1. The Spindle and the electric motor has a compacted structure, easy to install, also save space;
2. No power transfer type of design made the spindle run smoother, no outside force. Smaller load on the spindle bearing, kept the precision as long as possible. Quick reaction, no vibration
3. achieve higher speed, made better dynamic accuracy and more stable
4. Because lacking of the traditional electric motor, the weight of Z-axis is 80kg lighter, increase the dynamic performance by 15%
The 3 axis servo motor direct connect with the ball screw through gapless elastic coupling and with special pre-stretching which can prevent thermal deformation to keep ball screw with stable accuracy and rigidity as well as the running precision.
Germany INA linear guide way

All three axis use Germany high rigidity G2 grade (High then other factory C3 grade), ball type linear guide way with max loading, less wear, high accuracy and can bear the load from any direction on cross section.

The guide way and the slide block both use precise machining, the two side surface can use as positioning line, therefore you can use this component in any combination, interchangeability is assured while the other brand only use one side surface as positioning line which is not convenience for maintenance.
Japan SHOWA lubrication system

The full set of SHOWA lubrication system is imported from Japan (including electric lubricate pump, oil pipe, joint, oiler and so on), feed the oil to the slide block and other parts need lubrication with Self-timing and quantitative, the lube system has the measurement switch of liquid level and pressure in order to keep the system with long and stable working.

Light for spindle head

The strip-type light is on the top of the splash guard, and there is an extra LED lamp with big power on the spindle head for convenience observing.
Japan SMC pneumatic system

1. The whole set of SMC pneumatic system is imported from Japan
2. Ensure the air supply with clean and dry
3. Prolong the lifetime for pneumatic components.
4. The integral layout for pneumatic system is reasonable and elegant
5. Convenience for observe and maintenance

Phoenix labeling
Each self-made wire or cables are labeling in two side for convenience production and maintenance
TNP spindle chiller

Spindle chiller is standard accessory, 1kW cooling capacity, spindle temperature rise is only 2°C which can force the spindle with circulating cooling, remove heat rapidly to prevent the spindle from thermal expansion, improve machining accuracy and the surface quality for workpiece.

Temperature sensor is fixed on the casting part of main machine, sensing the real temperature to ensure the cooling result.
TNP water cooling machine

VF1615A/B equip a powerful water cooling machine as standard, cooling power can reach up to 4.5kW, match with coolant specifically for spindle, can control temperature change within 2 degrees, stop spindle’s heat extension, increase machining accuracy and surface quality.

The temperature probe was fixed to the casting part of the machine body, to get the real temperature, ensure the temperature accuracy.
Taiwan Key Arrow chain chip conveyor

Wobang oil skimmer

The oil skimmer can separate the oil from the coolant tank which can prolong the life time of cutting liquid.

Chain type chip conveyor is standard, remove the chips safely and effectively
★ the chip output port is equipped with protection guard and alarm label to protect the operator.
★ There is an emergency stop button on the chain chip conveyor, it’s convenience for operator to press it under the emergency situation.
( Certified by Germany Tuv and got the CE already )
Japan NAJEC telescope cover

★ 3 axis telescope with high tolerance matching and with imported scraping strip to protect the ball screw and liner guide way as well as good dustproof ability.
★ Anti-collision design, lower voice in fast running.
★ the accuracy difference is less than 2um with or without the telescope cover, which can guarantee the good running accuracy and stability.

CE safety door switch

All machine equip with safety door interlock according to CE standard, protect the operator effectively.
**FANUC NEW SERIES— 0i-MODEL F SYSTEM**

- **SKY MASTER-KRAFT standard configure 0i-MODEL F**
- **TYPE 1** (other manufactories normally choose TYPE 5)

- 15” display is available
- Max. total control axes:
  - 9 axes (one path)
  - Max. feed axes: 7  Max. spindle axes: 2
  - Max. feed axes: 11 axes (two paths)
  - Max. feed axes: 9  Max. spindle axes: 4
- Loader control: Max. 2 paths☆
- Servo HRV+ control
- High quality machining package☆
- FSSB high speed rigid tapping
- Machining preparing support☆
- Support various industrial bus
- Integrate Servo Guide Mate

- **15” color LCD**
- **10.4” color LCD**
- **8.4” color LCD/MDI**

MORE

MORE ACCURACY AND EFFICIENT

Automation+
Servo control accuracy improvement

<table>
<thead>
<tr>
<th></th>
<th>Old</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha_i$-B</td>
<td>$\alpha iA1000$ 1,000,000/rev.</td>
<td>$\alpha iA4000$ 4,000,000/rev.</td>
</tr>
<tr>
<td>$\alpha i$-A</td>
<td>$\alpha iA16000$ 16,000,000/rev.</td>
<td>$\alpha iA32000$ 32,000,000/rev.</td>
</tr>
<tr>
<td>$\beta i$-B</td>
<td>$\beta iA128$ 128,000/rev.</td>
<td>$\beta iA1000$ 1,000,000/rev.</td>
</tr>
</tbody>
</table>

Electromagnet loop optimized

( $\alpha iS$-B, $\beta iS$-B )

$0.1\mu m$ control is available

$\alpha iS/\beta iS$ motor

Approx

$1/3$

$\alpha iS$-B/$\beta iS$-B motor

300%
FANUC NEW SERIES— 0i-MODEL F SYSTEM

Smart overlap
High speed and high quality machining

Efficiency1
Theoretical error display

SKY MASTER STANDARD

G00 → G00
G01 → G00
G00 → G01

Overlap path
Program path

Workpiece

Speed
Time

Overlap
G00
G01
FANUC NEW SERIES— 0i-MODEL F SYSTEM

FSSB HIGH SPEED RIGID TAPPING
Advanced digital servo technology

SKY MASTER STANDARD

Efficiency 2
Theoretical error display

E.g.: S3000 20mm Pitch 1mm tap

Normal rigid tapping
Error: 60pulse
1 cycle: 1815ms

FSSB high speed rigid tapping
Error: 50pulse
1 cycle: 1392ms

Cycle time save 23%

Optical cable
Spindle intelligent rigid tapping

Advanced digital servo technology

Apply FSSB optical transmission

SKY MASTER STANDARD

Enhance spindle reaction speed

Efficiency 3

Theoretical error display

- Fully perform the spindle acceleration/deceleration capacity
- Reduce cycle time significantly
- No need to adjust

Use the max. torque

E.g.: Pitch 1mm, 25 circle thread, S5000

Apply FSSB high speed rigid tapping

Spindle speed 4000 min⁻¹/div

Synchronization error 50 p/div

Torque 100% / div

Intelligent rigid tapping

200 ms/ div
PMC Function Block
Efficient PMC program

Function Block (FB)

IN1 OUT1
IN2 OUT2

Internal ladder logic

Parameter

FB define
FB definition

Efficiency 4
PM C modulation programming

Create ladder logic using FB

SKY MASTER STANDARD
High quality machining package

Accuracy

Micro-line blocks processing ability enhances 200%

AI contour control II
Jerk control
Smooth tolerance control
Machining quality level adjustment function

Packaging function, especially for mould machining
FANUC NEW SERIES— 0i-MODEL F SYSTEM

Intelligent backlash
Further optimize system function

SMART

Position compensation
Motion command
Speed control
Servo motor
Position feedback
Position deviation

e.g

Normal backlash compensation
2mm/div
Intelligent backlash compensation
2mm/div

SKY MASTER
STANDARD

【Model】
Close to motor
Far from motor
Ball screw
Extension
Retraction
Backlash

Error, reduce overcut
Smooth tolerance control

Reduce the accuracy adjusting time and steps
Achieve the high accuracy machining.
- Automatic recognize the optimum machining speed.
- Reduce the mechanical shock during the processing of micro line blocks.
- Easy to adjust

Accuracy
HRV+ control
Advanced digit servo technology

- Servo HRV+, optimize current loop control to achieve high respond
- Nanoscale high speed and high accuracy machining
- 0iF system, HRV+ control can also be applied on the βi-B servo motor
FANUC NEW SERIES— 0i-MODEL F SYSTEM

Smart front control

Further optimize system function

SMART

Before adjusting

After adjusting

Suppress machine vibration

SKY MASTER STANDARD

Vertical stripe improved

Servo Motor

Ball screw
## FANUC NEW SERIES— 0i-MODEL F SYSTEM

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICTURE function</td>
<td>Dynamic graph display</td>
</tr>
<tr>
<td>Data server</td>
<td>Program storage capacity 2M</td>
</tr>
<tr>
<td>3-dimensional coordinate system conversion</td>
<td>AICC 2 (Max. preview blocks 400)</td>
</tr>
<tr>
<td>Machine alarm messages diagnosis</td>
<td>Nano smooth</td>
</tr>
<tr>
<td>Remote diagnosis</td>
<td>Interpolated straightness compensation 3027 points</td>
</tr>
<tr>
<td>CNC status informing function</td>
<td>Interpolation type pitch error compensation</td>
</tr>
<tr>
<td>CNC double display screen function</td>
<td>Optimum torque acceleration/deceleration</td>
</tr>
<tr>
<td>Quick macro call</td>
<td>5 axes system</td>
</tr>
<tr>
<td>Addition of custom macro common variables</td>
<td>8 grades data protection</td>
</tr>
<tr>
<td>Addition of workpiece coordinate system</td>
<td>Handwheel feed retract</td>
</tr>
</tbody>
</table>
Main electrical components in electric cabinet

- FANUC system driver module
- Schneider circuit breaker from France
- OMRON middle relay from Japan
Main electrical components in electric cabinet

- Schneider thermal overload relay from France
- Schneider AC contactor from France
- IDEC miniature relay from Japan
Main electrical components in electric cabinet

★ As the max. wire connection space has been reserved, the multi wires connection is convenient and available by using the spring connecting terminal.

★ The bridge pieces can connect any number of terminals, so that can achieve the multi position connection.
Personalized operation panel   TOSOKU hand wheel form Japan

Apply the excellent durable CYCLE START and FEED HOLD buttons to guarantee the service life.

Iron chips-proof and oil-proof frame design for each buttons, every buttons are convenient to replace.

Conform to national safety standard, equipped with EMG and enable buttons.
IGUS cable from Germany

Meet TUV European standard, classified according to the color.

Grey: control cable
Black: power cable
Orange: servo power cable

Apply IGUS cable for electrical assembling
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Specification</th>
<th>Quant.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control system</td>
<td>FANUC 0i MF</td>
<td>1set</td>
<td>FANUC(Japan)</td>
</tr>
<tr>
<td>2</td>
<td>Angular contact ball bearing</td>
<td>30TAC62BSUC10PN7B</td>
<td>15 sets</td>
<td>NSK(Japan)</td>
</tr>
<tr>
<td>3</td>
<td>X axis ball screw</td>
<td>Dia. 40mm, pitch 12mm, precise grade</td>
<td>1set</td>
<td>PMI(Taiwan)</td>
</tr>
<tr>
<td>4</td>
<td>Y axis ball screw</td>
<td>Dia. 40mm, pitch 12mm, precise grade</td>
<td>1set</td>
<td>PMI(Taiwan)</td>
</tr>
<tr>
<td>5</td>
<td>Z axis ball screw</td>
<td>Dia. 40mm, pitch 12mm, precise grade</td>
<td>1set</td>
<td>PMI(Taiwan)</td>
</tr>
<tr>
<td>6</td>
<td>Spindle system</td>
<td>Direct driven HSK A63-15000rpm</td>
<td>1set</td>
<td>SETCO(USA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Build-in HSK A63-15000rpm</td>
<td>1set</td>
<td>INNA(Germany)</td>
</tr>
<tr>
<td>7</td>
<td>X axis linear guide way</td>
<td>35mm heavy loading ball type</td>
<td>1set</td>
<td>INA(Germany)</td>
</tr>
<tr>
<td>8</td>
<td>Y axis linear guide way</td>
<td>45mm heavy loading ball type</td>
<td>1set</td>
<td>INA(Germany)</td>
</tr>
<tr>
<td>9</td>
<td>Z axis linear guide way</td>
<td>45mm heavy loading ball type</td>
<td>1set</td>
<td>INA(Germany)</td>
</tr>
<tr>
<td>10</td>
<td>ATC</td>
<td>24pcs arm type</td>
<td>1set</td>
<td>GIFU(Taiwan)</td>
</tr>
<tr>
<td>11</td>
<td>Heat exchanger</td>
<td>TA-05F</td>
<td>1set</td>
<td>TNP(Foreign investment)</td>
</tr>
<tr>
<td>12</td>
<td>Spindle chiller</td>
<td>TO-10PTB-21S 220V 50/60HZ</td>
<td>1set</td>
<td>TNP(Foreign investment)</td>
</tr>
<tr>
<td>13</td>
<td>Pneumatic system</td>
<td>AMG250C-03D and other accessories</td>
<td>1set</td>
<td>SMC(Japan)</td>
</tr>
<tr>
<td>14</td>
<td>Lubrication system</td>
<td>LCB45111R-CH (including accessories)</td>
<td>1set</td>
<td>SHOWA(Japan)</td>
</tr>
<tr>
<td>15</td>
<td>Three axes telescope cover</td>
<td>LCB45111R-CH (including accessories)</td>
<td>3sets</td>
<td>NAJEC (Japan)</td>
</tr>
<tr>
<td>16</td>
<td>Miniature circuit breaker</td>
<td>DPNK10A2P</td>
<td>3pcs</td>
<td>SCHNEIDER(France)</td>
</tr>
<tr>
<td>17</td>
<td>Alternating current contactor</td>
<td>LC1D09M7C</td>
<td>5pcs</td>
<td>SCHNEIDER(France)</td>
</tr>
<tr>
<td>18</td>
<td>Intermediate relay</td>
<td>MY2NGSDC24V</td>
<td>3pcs</td>
<td>OMRON(Japan)</td>
</tr>
<tr>
<td>19</td>
<td>Miniature relay</td>
<td>RJ2V-C-D24 8A</td>
<td>13pcs</td>
<td>IDEC/OMRON(Japan)</td>
</tr>
</tbody>
</table>

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Protection guard feature

 Equip with full-enclosed splash guard
◆ Safety
◆ Elegant
◆ Convenient and speedy operation

No drag chain for Z-axis, easy for maintenance
Protection guard feature

Pneumatic and lubrication unit, easy to observe and maintenance

The oil cooler was installed on the supporting rack, left side back of the machine

The machine back side is designed with full-enclosed structure, elegant appearance

The electric cabinet was installed at the right side back of the machine, easy for cable management
Protection guard feature

There are more than 2 layer filter unit in the coolant tank to ensure the water pump in regular working.

Oil water separate machine

Chain chip conveyor

Chip dropping port (2 place)
Option - Measuring accessory

German Blum Contact type tool set

Japan Metrol contact type tool set
Option- GIFU (Taiwan) tool magazine

GIFU HSK A63-24 tool capacity tool magazine

Imported from Taiwan, ATC capacity 24pcs, Arm type, fast speed for tool exchanging with full-closed splash guard to prevent the chip
Option - Germany linear scale HEIDENHAIN

All three axis can equip with Heidenhain absolute linear scale, the minimum resolution is only 0.05μm, real-time monitor the moving parts to ensure the accuracy for positioning accuracy and repeatability accuracy.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Absolute</th>
<th>Incremental</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Get the position data immediately, no need to make the moving axis back to reference point</td>
<td>Must execute the moving axis back home position every time</td>
</tr>
<tr>
<td>2</td>
<td>The reading head use two couple seal side by side with good protection</td>
<td>The reading head is protected by single seal</td>
</tr>
<tr>
<td>3</td>
<td>Transmission by digit signal which has excellent anti-interference ability</td>
<td>Transmission by sine waves which is easy to be interference</td>
</tr>
</tbody>
</table>

Sky Master only use Geran Heidenhain absolute linear scale, Other factory main use Fagor and with Incremental type
<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Option</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>FANUC 0i MF absolute type</td>
<td>MITSUBISHI.M80</td>
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<tr>
<td>2</td>
<td>Fine quality machining package</td>
<td>Linear scale (Heidenhain)</td>
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<tr>
<td></td>
<td>a) AICC II</td>
<td>Voltage stabilizer</td>
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<td></td>
<td>b) Jerk control</td>
<td>Tool measuring system</td>
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<tr>
<td></td>
<td>c) Smooth tolerance control</td>
<td>Workpiece measuring system</td>
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<td></td>
<td>d) Machining quality level adjustment function</td>
<td>Direct driven spindle 15000rpm BBT40</td>
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<tr>
<td>3</td>
<td>3 colors warning light</td>
<td>Build-in spindle 15000rpm HSK-A63</td>
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<tr>
<td>4</td>
<td>Working area light</td>
<td>Coolant through spindle center</td>
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<td>5</td>
<td>Portable MPG</td>
<td>4th axis</td>
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<td>6</td>
<td>Ethernet DNC machining</td>
<td>Arm type ATC 24pcs</td>
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<td>7</td>
<td>Automatically power off</td>
<td>Oil mist recycle machine</td>
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<td>Transformer</td>
<td>Chain chip conveyor</td>
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<td>Door interlock</td>
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<td>Spindle air sealing</td>
<td>Operation manual</td>
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<td>Direct driven spindle 15000rpm HSK-A63</td>
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<td>12</td>
<td>Spindle chiller</td>
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<tr>
<td>13</td>
<td>Rigid tapping</td>
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</tr>
</tbody>
</table>

※ We reserve the right to change technical parameter for improvement of our products without giving notice to customers.
Application field

wildly applied for different small & precise component, high precision mould machining

Benz testing part: Inspect the all kinds of accuracy indication and dynamic precision

Testing part: Computerized control function testing part, inspect system’s different accuracy and quality comparison

Light mould: for real world accuracy testing, surface smoothness inspection and dynamic accuracy testing

Real mould/product machining: use small tool diameter, high rotate speed and high feeding speed to machine the mould or product, inspect combine accuracy
Application field

SkyMaster strongly recommend BLASER from Switzerland s the cutting fluid for our high speed VF series

- BLASER cutting fluid can improve the surface smoothness of the mould;
- BLASER cutting fluid can extend the service time of the cutting tool;
- BLASER cutting fluid is the most suitable cutting fluid for our machine.

We recommend Swiss BLASER brand cutting fluid for precision molding customers

The mould’s surface is shiner, grains are beater when Swiss BLASER brand cutting fluid being used
One end-user’s factory
THANKS

SKY MASTER- KRAFT

Many thanks for your time for SKYMMASTER
PPT introduction

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