

All We Do Are Clients Demand



**Pre-sales technical information**

**YSBD-110/5T**

**Horizontal boring and milling machining  
center**

 **厦门扬森机械科技有限公司**  
*Xiamen YANGSEN Machinery Technology Co., Ltd*

**Xiamen Yangsen NC Equipment Co., Ltd.**

Add: No.586-590 Shanbian Rd.Dongfu Industrial Zone Haicang Dist, Xiamen, Fujian  
Province, China 361027

T: +86-592-6682467

Website: [www.cncyangsen.com](http://www.cncyangsen.com)



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## 1. Machine features



Machine features:

1. The X/Z axis adopts high-strength and high-speed linear roller guide rails, and the rapid feed can reach 10/10 (m/min); the guide rails of each axis adopt imported heavy-duty roller linear guide rails, and the preload is V3 level, with high load capacity. , stable precision; the Y-axis slideway adopts heavy-duty rigid roller guideway, with a rapid feed rate of 10 (m/min), high precision, and strong rigidity;
2. Equipped with a rigid central water outlet spindle, the nose of the spindle has a unique labyrinth device and a labyrinth blowing device to effectively protect the spindle. The maximum speed of the spindle can reach 3000rpm, which has the characteristics of high rigidity and high precision;
3. The machine tool parts belong to a famous brand of a famous factory and are the top configuration in the industry.



Japan SHOWA oiler



SMC air source processing device



Ouyi Exchanger



High power pump



Schneider Electric Components



Nikki LED lighting

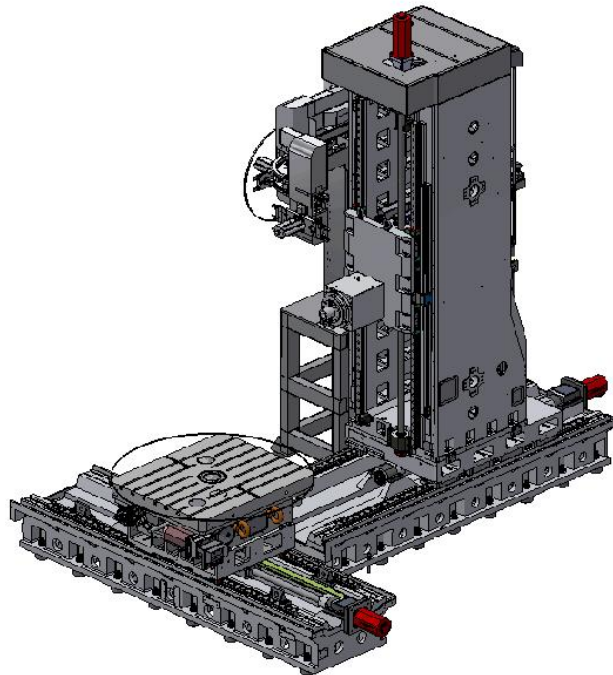


Bright LED warning light with buzzer



Tool magazine

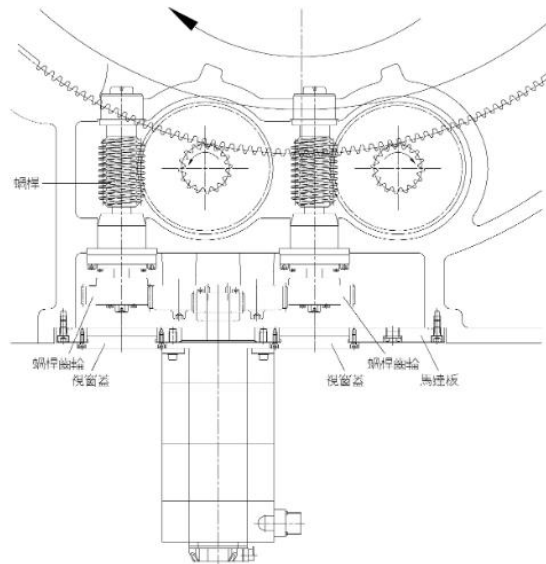
## 2. Optomechanics features



1. 4×90° taper pin positioning, automatic hydraulic locking, digital control AC servo motor, and worm gear system to achieve good backlash compensation, B-direction worktable adopts imported hydraulic cylinder disc locking, a strong clamping mechanism that can Satisfy strong cutting conditions.

### 轉台傳動結構:

- 工作臺採用超大型研磨齒輪，配合雙窩桿、渦輪消除結構確保精度
- 工作臺結合取消耐磨片，採靜壓技術，確保工作臺精度的穩定性及使用壽命



2. The spiral chip conveyor interface is reserved in the machine, and the cutting flushing device is equipped to automatically discharge the chips in time, avoiding the thermal influence of the chips on the machine tool, and ensuring the high precision of the machine tool;

3. The wood mold of the casting is made of aluminum-wood combination, resin sand casting, high



strength, and the brand is HT300 densely baked cast iron as the material mold.

4. Turntable parameter

Specification		Unit	1250
Worktable size(L*W)		mm	1250*1250
Center hole diameter		mm	Ø140H7
flat full height		mm	480
servo motor		FANUC	AIF30/4000
Minimum division unit		Deg.	0.001°
Segmentation accuracy		Sec.	±5"
Repeatability		Sec.	±2"
Total reduction ratio			1:576
Applicable environment temperature		°c	18°-40°
Oil pressure source pressure		kg/cm <sup>2</sup>	35
Maximum number of rotations on the disk		RPM	3.47
Locking torque		Kg	17058
workpiece load	horizontal	kg	5000
Turntable weight		kg	4300

3. Technical parameters



Subject	Specification	Unit	YSBD-110/5T
Travel	X/Y/Z-axis	mm	2000/1800/1500/550
	Spindle Nose to worktable	mm	65-1865
	Spindle center to Column	mm	-125-1925
	X/Y Guideway		Roller guide
	Z Guideway		hard rail
Worktable	Worktable Size (LW)	mm	1250*1250
	Maximum Table Load	kg	5000
	Table Screw	No/mm	0.001
Spindle	Spindle Type (Model number / mounting	mm	BT50
	Spindle Speed	rpm	3000
	Spindle Drive Type		gear type
	Boring bar diameter	mm	φ 110
Feedrate	Rapid Traverse(X/Y/Z)	m/min	10/10/10/6
	Cutting Feedrate (X/Y/Z)	mm/min	10000
Tool Changer (Options)	Automatic Tool Changer		track type
	Type of Tool Shank	type	BT50
	Tool Storage Capacity	tools	40
	Max. Tool Diameter (Adjacent)	mm	125
	Max.Tool Diameter (Empty)	mm	250
	Max.Tool Length	mm	500
	Max.Tool Weight	sec	14
Motor	Spindle Motor	kw	Aii22/8000
	Three-Axis Servo Motor	kw	AIF30/4000/AIF40B/3000/AIF30/4000/AIF22/3000
	Cutting water pump motor	m/h-m	4-60
Accuracy	X/Y/Z/W positioning accuracy	mm	0.01/0.01/0.01/0.012
	X/Y/Z/W repeated positioning accuracy	mm	0.005/0.008/0.005/0.008
Power Required	Power Requirement	kva	50
	Air Pressure Requirement	Kg/cm	6~8
Other	External Dimensions ((L/W/H))	mm	6600*5150*5250
	Gross Weight	t	30

**4. List of main accessories**



No.	Name	Quantity	Manufacturer	Specification Model
1	CNC system	1 set	Japan FANUC	FANUC-OI-MF
2	Electric spindle	1 set	Japan FANUC	Aii22/8000
3	X, Y, Z, W servo motor	1 set	Japan FANUC	AIF30/4000/AIF40B/3000/AIF30/4000/AIF22/3000
4	Spindle front bearing	1	NSK/FAG	
5	Spindle rear bearing	1	NSK/FAG	
6	X, Y, Z axis screw bearings	1	NSK/FAG	
7	X,Y,Z axis ball screw	1	PMI/THK	
8	X-axis linear guide	2	INA/PMI/THK	65
9	Y-axis hard rail	2	--	
10	Z-axis linear guide	2	INA/PMI/THK	65
11	Spindle unit	1	YANGSEN	BBT50
12	Tool magazine (optional)	1	Deda/Okada	40T
13	Cutting fluid pumps	1	YANGSEN	
14	Automatic lubrication system	1	Japan Masawa/SKF	4L
15	Main pneumatic components	1	SMC/Airtac	
16	Main electrical components	1	Schneider	
17	Electric cabinet air conditioner	1	Ruike	
18	CNC turntable (with circular grating)	1	Xuyang	1250*1250 (0.001)
19	Hydraulic station	1	Taiwan	
20				

If the supplier can not supply, it will be replaced with the brand of the same quality.

## 6. Standard accessories

No.	Name	No.	Name
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1	Half enclosed hood	13	Warning light (with buzzer)
2	Automatic lubrication system	14	Floor blocks
3	Toolbox	15	Workpiece Cooling System
4	working lamp	16	Network transmission and CF card function
5	Electrical box heat exchanger	17	Auto Chip removal machine
6	Spindle air curtain dustproof system		
7	Machine cleaning water gun		
8	Rigid tapping		
9	Iron chipping disc and chip storage box		
10	M30 automatic power off device		
11	Portable chip blowing air gun		
12			

### 7. Optional accessories

No.	Name	No.	Name
1	Siemens, Mitsubishi CNC systems and other CNC systems	7	60T Tool magazine
2	Spindle oil cooling device	8	CTS
3	Three-axis optical scale	9	Oil Mist Collector
4	Electrical cabinet thermostat control device (air conditioning)	10	Workpiece on-line probe: Primo-ruby ball head diameter 4mm
5	Chip fluid water cooling device	11	Renishaw NC4-F145
6	Automatic tool inspection device	12	

If the user chooses other special configurations, please contact the technical department.

### 8. List of attached tools and document



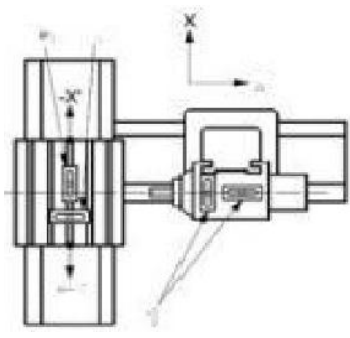
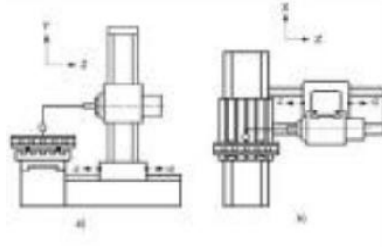
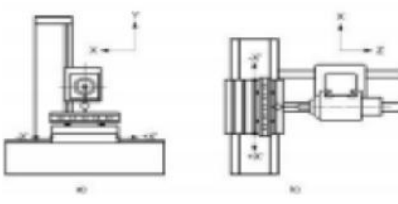
No.	Name	Specifications or markings	quantity	Remark
1	Allen key	1.5---10	1	
2	Screwdriver	Flathead	1	
3	Screwdriver	Phillips	1	
4	Thread seal tape		2	
5	Glass cement	Porcelain white	1	
6	Manual Pulse Generator		1	
7	Card Reader		1	
8	Memory card		1	
9	Data cable	5 meters, 20 meters	2	
10	Bail wire		1	
11	Screw		1	
12	Triode		1	
13	Corrugated pipe joints		1	
14	Hold-all		1	
15	Foundation bolt		6	
16	Instruction book		1	
17	Certificate of conformity		1	

9. Machine tool precision

1.1 Geometric accuracy inspection

(Test items and methods refer to IS01703-3)

Unit: mm

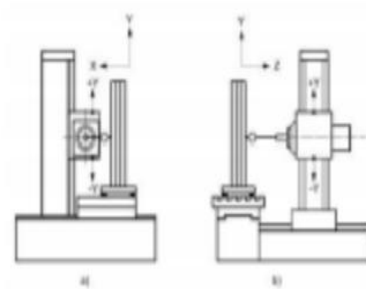
No.	Test items	Test content	Detection diagram	Tolerance	Result
1	<p>Straightness of the work surface</p> <p>XY-oriented</p> <p>YZ-oriented</p>	<ol style="list-style-type: none"> <li>1. Move the table to the center of the X-axis travel.</li> <li>2. Move the column to the center of the Z axis travel.</li> <li>3. Place the precision level in the center of the workbench and adjust the level to zero.</li> <li>4. Move the table (X-axis) to measure at least 3 places in the center and both ends.</li> <li>5. The max difference in readings is the measured value.</li> </ol>		0.04mm/1000mm	
2	<p>The right angle between the mutual movement of the axes</p> <p>Z-Axis Straightness</p> <p>X-Axis Straightness</p>	<ol style="list-style-type: none"> <li>1. Move the table to the center of the X axis travel.</li> <li>2. Move the spindle to the center of the X-axis travel.</li> <li>3. Place the square gauge on the workbench parallel to the Z axis.</li> <li>4. Fix a scale on the spindle head and make it stand against the square gauge.</li> <li>5. Return the gauge to zero.</li> <li>6. Move the column in the direction of the Z axis and read the gauge data.</li> <li>7. The max difference between the gauge readings is the measured value.</li> </ol> <ol style="list-style-type: none"> <li>1. Move the table to the center of the X axis travel.</li> <li>2. Move the spindle to the center of the Z-axis travel.</li> <li>3. Place the square gauge on the workbench parallel to the X axis.</li> </ol>	 	0.02mm/1000mm	0.02mm/1000mm

4. Fix a scale on the spindle head and make it stand against the square gauge.
5. Return the gauge to zero.
6. Move the workbench in the X-axis direction and read the gauge data.
7. The maximum difference between the gauge readings is the measured value.

1. Move the worktable to the center of the X-axis travel.
2. Move the spindle to the center of the Z axis travel.
3. Place the correction rod on the workbench parallel to the Y-axis.

Y-Axis  
Straigh  
tness

4. Fix a scale on the spindle head and make it bear against the calibration rod .
5. Return the gauge to zero.
6. Move the spindle head along the Y axis, and read the gauge data.
7. The maximum difference between the gauge readings is the measured value.



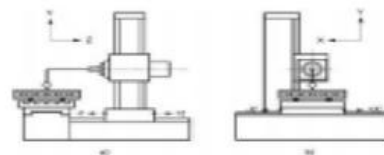
0.03mm/  
1000mm

1. Parallelism  
between  
movement in  
the x-axis  
direction and  
the worktable

5

2. Parallelism  
between  
movement in  
Z-axis direction  
and main axis

1. Fix the gauge on the spindle and touch the work surface.
2. Return the scale to zero.
3. Move the table along the X-axis direction, and read the gauge data.



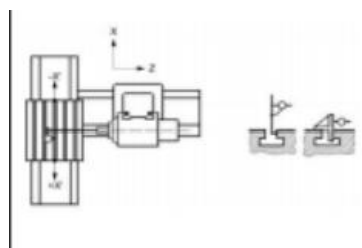
0.04mm/  
1000mm

Parallelism  
between  
movement in  
the X-axis  
direction and  
the side of the  
T-slot of the

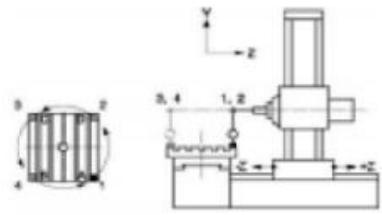
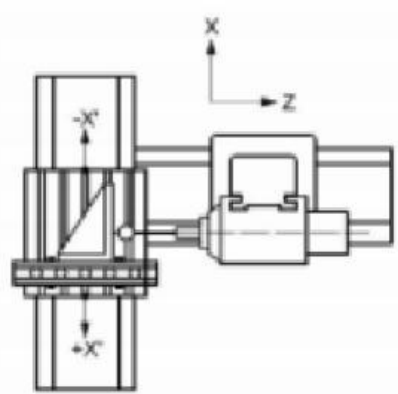
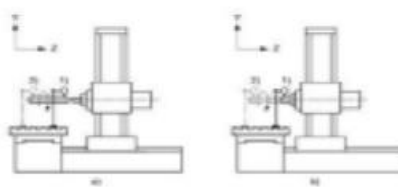
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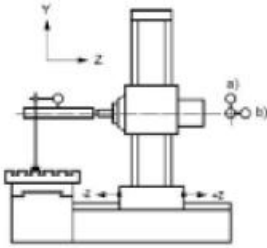
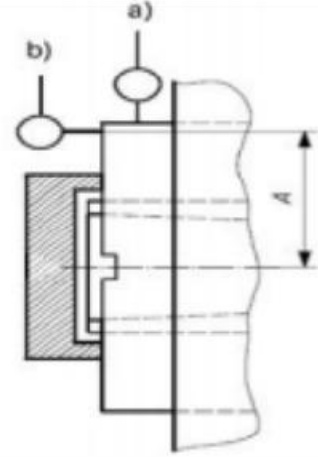
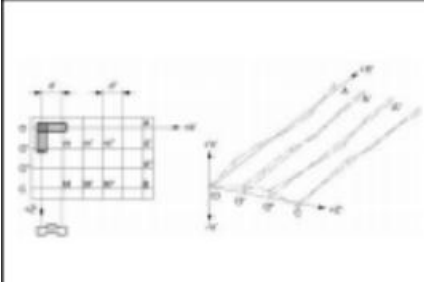
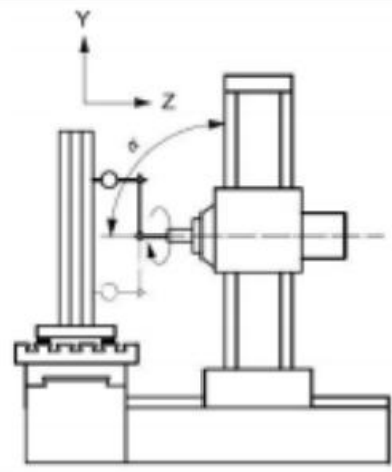
4. The max difference between the gauge readings is the measured value.

1. Fix the gauge on the spindle and touch the side of the table T-slot.
2. Return the gauge to zero.
3. Move the table along the X-axis direction, and read the gauge data.



0.03mm/  
1000mm

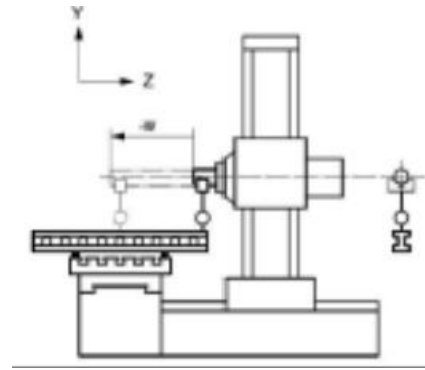
	worktable	<ol style="list-style-type: none"> <li>The max difference between the gauge readings is the measured value.</li> </ol>			
7	Parallelism between X-axis movement and worktable surface	<ol style="list-style-type: none"> <li>Fix the gauge on the spindle and touch the work surface.</li> <li>Reset the gauge to zero.</li> <li>Move the table along the Z-axis direction, and read the gauge data.</li> <li>The maximum difference between the gauge readings is the measured value.</li> </ol>		0.02mm/ 1000mm	
8	Perpendicularity between the movement of the table in the X-axis direction and the Z-axis direction	<ol style="list-style-type: none"> <li>Move the table to the center of the X-axis stroke.</li> <li>Move the spindle to the center of the Z-axis stroke and measure different positions along the width of the worktable</li> <li>Put the square ruler on the workbench parallel to the X-axis.</li> <li>Fix a scale on the spindle head and make it stand against the square scale.</li> <li>Reset the scale to zero</li> <li>Move the spindle head along the Z-axis direction, and read the gauge data.</li> <li>Move the table along the X-axis direction, and read the gauge data.</li> <li>The maximum difference between the gauge readings is the measured value.</li> </ol>		0.03mm/ 1000mm	
9	Deflection in spindle taper hole	<ol style="list-style-type: none"> <li>Insert the test rod into the spindle taper hole</li> <li>Put the gauge against its fixed end and 300mm away from the fixed end</li> <li>The difference between the gauge readings obtained during the spindle rotation is the measurement</li> </ol>		a.Fixed end: 0.01  b.300mm : 0.02	
10	Spindle hole circle deflection	<ol style="list-style-type: none"> <li>Insert the test rod into the taper hole of the spindle</li> </ol>		0.02mm/ 300mm	

11	Deflection of spindle end face	<ol style="list-style-type: none"> <li>2. Then put the gauge against the surface a and surface b, and the worktable moves along the Z axis.</li> <li>3. The maximum difference between meter readings is the measured value.</li> </ol>		0.01mm
12	Deflection of the outer circle of the spindle	<ol style="list-style-type: none"> <li>1. The gauge is in contact with the surface a of the outer edge of the spindle end.</li> <li>2. Find the maximum difference of the readings during the rotation of the spindle, which is the measured value.</li> <li>1. Put the measuring probe in contact with the b surface of the outer edge of the spindle</li> <li>2. Rotate the spindle and measure the maximum difference of its readings, which is the measured value</li> </ol>		0.01mm
13	Workbench 0°, 180° deviation	<ol style="list-style-type: none"> <li>1. Move the table to the center of the X axis travel.</li> <li>2. Place the spirit level on the workbench at 0°.</li> <li>3. Set the workbench to 0° and 180° and read the horizontal data.</li> <li>4. The maximum difference between the level readings is the measured value</li> </ol>		0.03mm/ 1000mm
14	Column left and right deflection and deviation of forward and backward inclination	<ol style="list-style-type: none"> <li>1. Move the worktable to the center of the X-axis travel</li> <li>2. Put the square ruler on the workbench parallel to the X-axis.</li> <li>3. Fix a scale on the spindle head and make it stand against the surface of the square scale</li> <li>4. Reset the scale to zero</li> <li>5. Rotate the spindle slowly and read the gauge data</li> <li>6. The maximum difference between the gauge readings is the measured value</li> </ol>		0.02mm/ 500mm

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Parallelism between movement in W-axis direction and working surface

1. Move the worktable to the center of the X-axis travel
2. Put the square ruler on the workbench parallel to the Z-axis.
3. Reset the gauge to zero.
4. Move the main shaft along the W axis and read the gauge data.
5. The maximum difference between the gauge readings is the measured value



2D+0.01  
5mm  
4D ±  
0.02mm  
6D-0.06  
mm

## 10. Installation, testing, training and inspection

1. Installation and commissioning: After the machine tool reaches the customer factory, our service engineer will go to the customer factory in time and conduct installation, debugging and on-site training.
2. Customers can choose to send operators to the company to be responsible for the early training for about a week, and the company will provide working meals, transportation expenses and accommodation at their own expense. Then the company in the customer installation and debugging field training.
3. Acceptance: precision acceptance, according to the supplier to provide the factory accuracy inspection table, in the customer conditional inspection, inspection, to do not have the inspection conditions of inspection items, such as positioning accuracy, spindle cone hole accuracy inspection rod test, not in the buyer, or negotiate by the buyer to the supplier factory for testing acceptance.

## 10.After-sales service concept

1. Pre-sale service: Yangsen's sales team will provide users with the best processing solutions, including machine tool selection, option configuration, tool and fixture selection, lubricating oil, cutting fluid management and other series of services. And can provide turnkey works.
2. Repair reaction time: Our company has a service team of up to 100 people, and equipped with a complete service vehicle, after receiving the user notice, the response within 2 hours.
3. Parts inventory: Yangsen has a special production workshop and parts inventory in Xiamen, strong strength, complete inventory, commonly used parts inventory in each office, to provide users with the fastest maintenance parts.



4. Machine maintenance: All the machine tools within the warranty period enjoy free maintenance service, and the machine tools outside the warranty period can be purchased at an economical and reasonable price. And according to customer needs, planning equipment management, maintenance process.
5. Charge for maintenance after the warranty period: The charge standard is clear, only the cost, to open, fair, fair concept service users.
6. Special old user service department: Closely track the use of machine tools and handle maintenance complaints in time.
7. Maintenance supervision: The general manager is also the director of the after-sales service department to supervise the maintenance service quality in real time and protect the rights of customers.

## **11. Working conditions of machine tools**

1. Three-phase AC power supply:  $380V \pm 10\%$ ,  $-15\%$ ;  $50Hz \pm 1Hz$
2. Ambient temperature:  $8\sim 40C$
3. Relative humidity: 80%
4. Pressure of air source:  $0.6 \sim 0.8 MPA$

## **Xiamen Yangsen NC Equipment Co., Ltd.**

The company's products are constantly developed and improved, and the specifications may be changed without notice. Some pictures in this material may include a selection item.

This information picture is for reference only, subject to the actual product. We will be as accurate as possible, but we are not responsible for errors or missing information.