Trust and Reliability

FIRST

ACCURACY TEST RESULT

VERTICAL MACHINING CENTER

MACHINE TYPE : **MCV-1000**

MACHINE SERIAL No : **40700435**

CHIF INS. 吳國銘

LONG CHANG MACHINERY CO., LTD.
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CE DECLARATION OF CONFORMITY

according to CE Machinery Directive (98 / 37 / EC , 91 / 368 / EEC , 93 / 44 / EEC & 89 / 336 / EEC)

The undersigned Jong Yuan Liaw

authorized by Long Chang Machinery Co., LTD.

certifies that the vertical Machining Center , Type : ***MCV-1000***

manufactured by Long Chang Machinery Co., LTD

no 52 Charn An East Road Taiping, Taichung

TAIWAN , R.O.C.

provided that

it is used and maintained in accordance with the instructions for used and the codes of good practice,

complies with the essential health and safety requirements of the CE Machinery Directive. (and the following standards : EN60204)

serial number ***40700435***

CHIEF INSPECTOR 吳國銘

Qualification

Date : ***2005 / 09 / 06***

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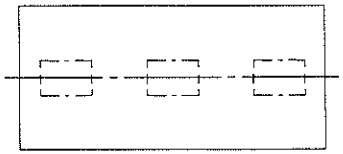
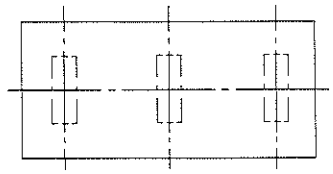
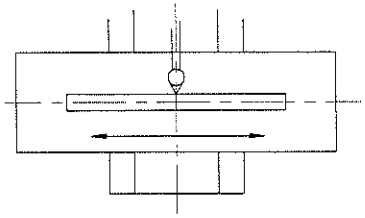
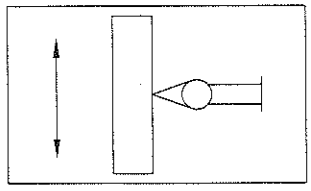
Unit : mm

No.	Inspection item		Measuring method		Tolerance	Measured
1	Straightness on the table Top	a. X - Z	Place the table in the center of the X and Y axis movement, and place a precision level on the upper surface of table at not less then three position (the centre and each end). The maximun difference in readings of the level shall be the measurement value required.		0.05 / m	0.03
		a. Y - Z			0.04 / m	0.04
2	Straightness of table movement in Y-axis direction	a. X - Y	Place the table in the center of the Y-axis movement, and place a straightedge on the upper surface of table. Apply a test indicator to the straightedge, Move the table to the X-axis direction. The maximum difference in readings of the indicator shall be the measurement value required.		0.01 / 500	0.004
		b. Y - Z	Place the table in the center of the X-axis movement, and place a straightedge on the upper surface of table. Apply a test indicator to the straightedge, Move the table to the Y-axis direction. The maximum difference in readings of the indicator shall be the measurement vaule required.		0.01 / 500	0.004

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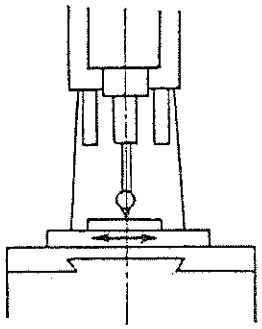
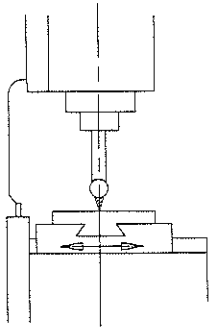
No.	Inspection item	Measuring method		Tolerance	Measured
3	Parallelism of the X-axis movement to the Table Top	Apply the fixed test indicator (for example, to the spindle head) to the straightedge of the table surface, move the table to the X-axis direction and the maximum difference of the test indicator readings in the total moving distance shall be the measurement value required.		0.015 / 500	0.01
	Parallelism of the Y-axis movement to the Table Top	Apply the fixed test indicator (for example, to the spindle head) to the straightedge of the table surface. Move the table to the Y-axis direction and the maximum difference in the test indicator readings in the total moving distance shall be the measurement value required.		0.015 / 500	0.012

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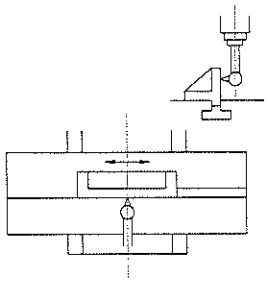
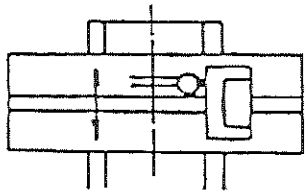
No.	Inspection item	Measuring method		Tolerance	Measured
4	Parallelism of right and left movement of table to side of middle T slot of table.	Place a square surface plate on the table engaging its projection to the side of the middle T slot. Fix a test indicator to a rigid point (to the main spindle or overarm,for xample), and apply this to the vertical surface of the plate, and obtain the readings while moving the table and the surface plate along the whole length of movement. The maximum difference in readings of the indicator shall be the measurement value required.		0.02 / 500	0.003
	Squareness of forward and backward movement of table to side of middle T slot of table.	Place a square surface plate on the table engaging its projection to the side of the middle T slot. Fix a test indicator to a rigid point, and apply this to the vertical surface of the plate, and obtain the readings while moving the table and the surface plate along the whole length of movement. The maximum difference in readings of the indicator shall be the measurement value required.		0.02 / 500	0.012

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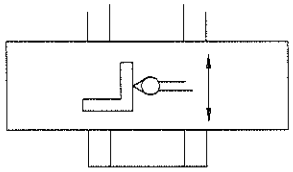
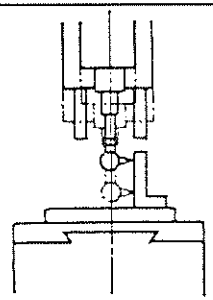
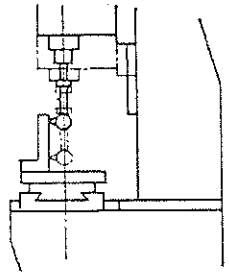
No.	Inspection item		Measuring method		Tolerance	Measured
5	Squareness between the X-Y axis movement	a. X - Y	Place the table in the center of the X axis direction and stand one side of the try square parallel to the X-axis movement on the table. Next, apply the fixed test indicator (for example, to the spindle head) to the other side of the try square,move the table to the Y-axis direction and the maximum difference in the tese indicator readings shall be the measurement value required.		0.015 / 300	0.006
6	Straightness of soindle head movement in Z-axis direction	a. X - Z	Place the table in the center of the X and Y-axis movement, and place a precision level on the upper surface of table at not less than three position (the centre and each end). The maximum difference in readings of the level shall be the measurement value required.		0.005 / 300	0.003
		b. Y - Z			0.005 / 300	0.002

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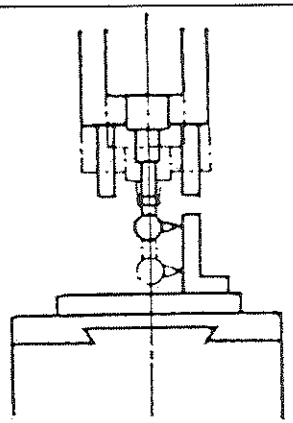
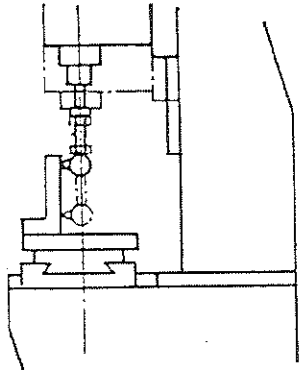
No.	Inspection item		Measuring method		Tolerance	Measured
7	Squareness between the X-Z, Y-Z and X-Y axis movement	a. X - Z	Place the table in the center of the X and Y axis movement and stand one side of the try square on it parallel to the X-axis movement on the table (or stand it parallel to the Y-axis movement on the table). Next, apply the fixed test indicator (for example, to the spindle head) to the square move the table to the Z-axis direction and the maximum difference in the test readings shall be the measurement value required.		0.015 / 300	0.014
		b. Y - Z	Place the table in the center of the X and Y axis movement and stand one side of the try square on it parallel to the Y-axis movement on the table (or stand it parallel to the X-axis movement on the table). Next, apply the fixed test indicator (for example, to the spindle head) to the square move the soindle to the Z-axis direction and the maximum difference in the test indicator readings be the measurement value required.		0.015 / 300	0.012

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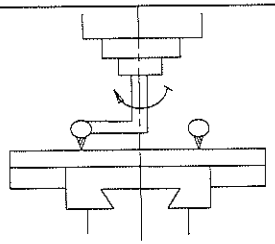
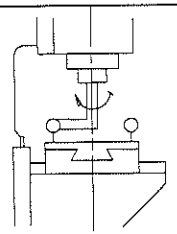
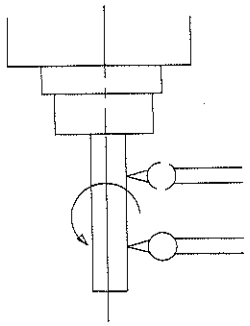
No.	Inspection item		Measuring method		Tolerance	Measured
8	Squareness between the Table Top and the spindle center Line	a. X - Z	Place the table in the center of the X and Y axis movement. Apply the test indicator attached to the spindle to the Table Top. Swing this around and the difference in the test indicator readings shall be the measurement value required.		0.015 / 300	0.011
		b. Y - Z			0.015 / 300	0.012
9	Run-out of the spindle taper hole	Entrance vicinity of the test bar	Inesrt the test bar to the spindle hole. Apply the test indicator at its entrance vicinity and tip and the maximum difference in the readings during the spindle rotation shall be the measurement value required.		0.008	0.003
		Position of 300 m/m			0.015	0.012

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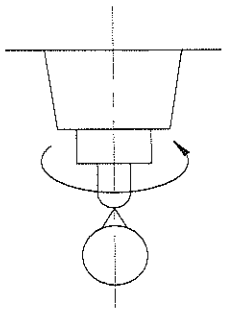
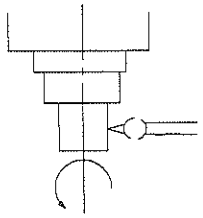
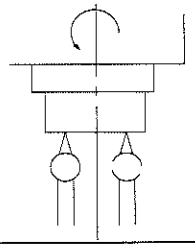
No.	Inspection item	Measuring method		Tolerance	Measured
10	Axial run-out of the spindle	Insert the test bar to the spindle hole. Apply the test indicator to its tip and the maximum difference in readings during the spindle rotation shall be the measurement value required.		0.005	0.002
11	Spindle nose run-out	Apply a test indicator against the spindle nose. Rotate the spindle and obtain readings of the indicator. The maximum difference in readings shall be the movement value required. Apply a test indicator close the periphery on the end face of the main spindle. Rotate the spindle and obtain the maximum difference un readings of indicator. Shift the point of indicator to the opposite side of the same end face of spindle and repeat the process. The larger of the two maximum differences shall be the measurement value required.		0.01	0.008
	Run-out of spindle			0.01	0.005

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No.	Inspection item		Measuring method	Tolerance	Measured
12	Positioning accuracy of the rectilinear Motion	X Axis	Make movement to the positive (or negative) sense and stop in advance at a position which is to be the reference position.Perform successive positioning from the reference position, in rapid traverse as a rule, by the measuring interval specified in the table. Take the difference between the actual travelling distance and the commanded value at each stopping position and take the maximum difference. Perform this measurement over almost full stroke and 1/2 of the largest of the maximum differences with plus-minus shall be the measured value. Execute the positioning accuracy inspection to the positive and negative senses such as X,Y and Z axis directions respectively.	VDI/DGQ3441 P 0.01 / FULL STROKE	0.008
		Y Axis			0.004
		Z Axis			0.004

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No.	Inspection item		Measuring method	Tolerance	Measured
13	Repetitional positioning Accuracy of the Rectilinear Motion	X Axis	Measure the stop position, repeating positioning 7 times under the identical conditions, from the same sense with the optional one point as the gauge mark, by rapid feed as a rule and find 1/2 of the maximum difference in the readings. Select this gauge mark in the respective position in the middle of the movement and to almost both ends, and the maximum value in the above 3 obtained with plus-minus sign attached, shall be the measured value required. Execute the repetitional positioning accuracy inspection respectively to the positive or negative sense such as X, Y and Z axis directions.	VDI/DGQ 3441 PS 0.005 / FULL STROKE	0.002
		Y Axis			0.002
		Z Axis			0.002

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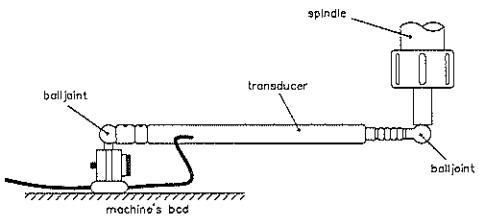
No.	Inspection item	Measuring method		Tolerance	Measured
14	Circularity Accuracy inspection		RENISHAW BALLABR DIAGNOSTICS	X-Y 0.02/ 300	8.8 um