

Accessories

Item	Model	5A-65E	5A-65EF
1.Air blast through spindle_M53		●	●
2.Auto Power off		●	●
3.B,C-axis linear scale system_Heidenhain		●	●
4.DCM collision.(#40)		●	-
5.Full-enclosed splash guard		●	●
6.Foundation bolt, Concrete		●	●
7.Fluorescent lamp x1		●	●
8.Hartford Manual x1		●	●
9.Lubrication system		●	●
10.Operator Panel, Stand type		●	●
11.Spindle air curtain		●	●
12.Spindle oil cooler		●	●
13.Spray around spindle		●	●
14.Software option 1 : Plane Function(#8)		●	●
15.Software option 2 : TCPM(#9)		●	●
16.Table side air blast M50 control		●	●
17.Tool package		●	●
18.X,Y,Z-axis linear scale system_Heidenhain		★	★
19.Auto tool length measurement		★	★
20.Auto workpiece measurement		★	★
21.Correction Ball(KKH250)		★	★
22.Coolant through spindle (20/25/40/75BAR)		★	★
23.Fluorescent lamp x2		★	★
24.Link type chip conveyor & portable chip bucket(1EA)		★	★
25.Oil mist coolant system		★	★
26.Spindle shaft with coolant system (Built-in 24,000rpm spindle)		★	★
27.Spindle coolant (HBO-1000)		★	★
28.Three axis ballscrew coolant system (Vary by model)		★	★
29.Tool 100pcs (for HSK-A63) for 5A-800T/5A-800TF		-	-
30.Tool 120pcs (for HSK-A63) for 5A-800T/5A-800TF		-	-
31.Tool 100pcs (for HSK-A100) for 5A-800T/5A-800TF		-	-
32.Tool 120pcs (for HSK-A100) for 5A-800T/5A-800TF		-	-
33.Air conditioning for electrical cabinet		●	●
34.Spindle Thermo compensation		★	★
35.NC4S(Serial A-4114-5060)		★	★
36.DXF Converter OP_#42(HEIDENHAIN)		★	★
37.kinematicOpt #48		★	★
38.TNCREMOT SOFTWARE(HEIDENHAIN)		★	★
39.Tri-Lamp Device		★	★
40.Mode 4 (HEIDENHAIN)		★	★
41.Tilted working plane command G68.2		-	★
42.RENISHAW AXISET		-	★
43.Tool Center Point Control S677(F)		-	★
44.Rotary table dynamic fixture offset S728(F)		-	★

Standard : ●
Optional : ★

Hartford
EXCLUSIV
HartrolPlus APP

5-Axis Intelligent Machining Center

5A Series
Smartcenter

- 5-year warranty on guideways
- Thermal insulation solutions
- Built-in spindle shaft with cooling system
- 5-axis total error within 0.04mm

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Website



She Hong INDUSTRIAL CO. LTD.

No.3 Jingke N. Road, Taichung City, 408 Taiwan
www.hartford.com.tw Tel: 886-4-23501980 Fax: 886-4-23581793
CAT.No.: 20191127- E11
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Hartford

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We manufacture intelligent machines only



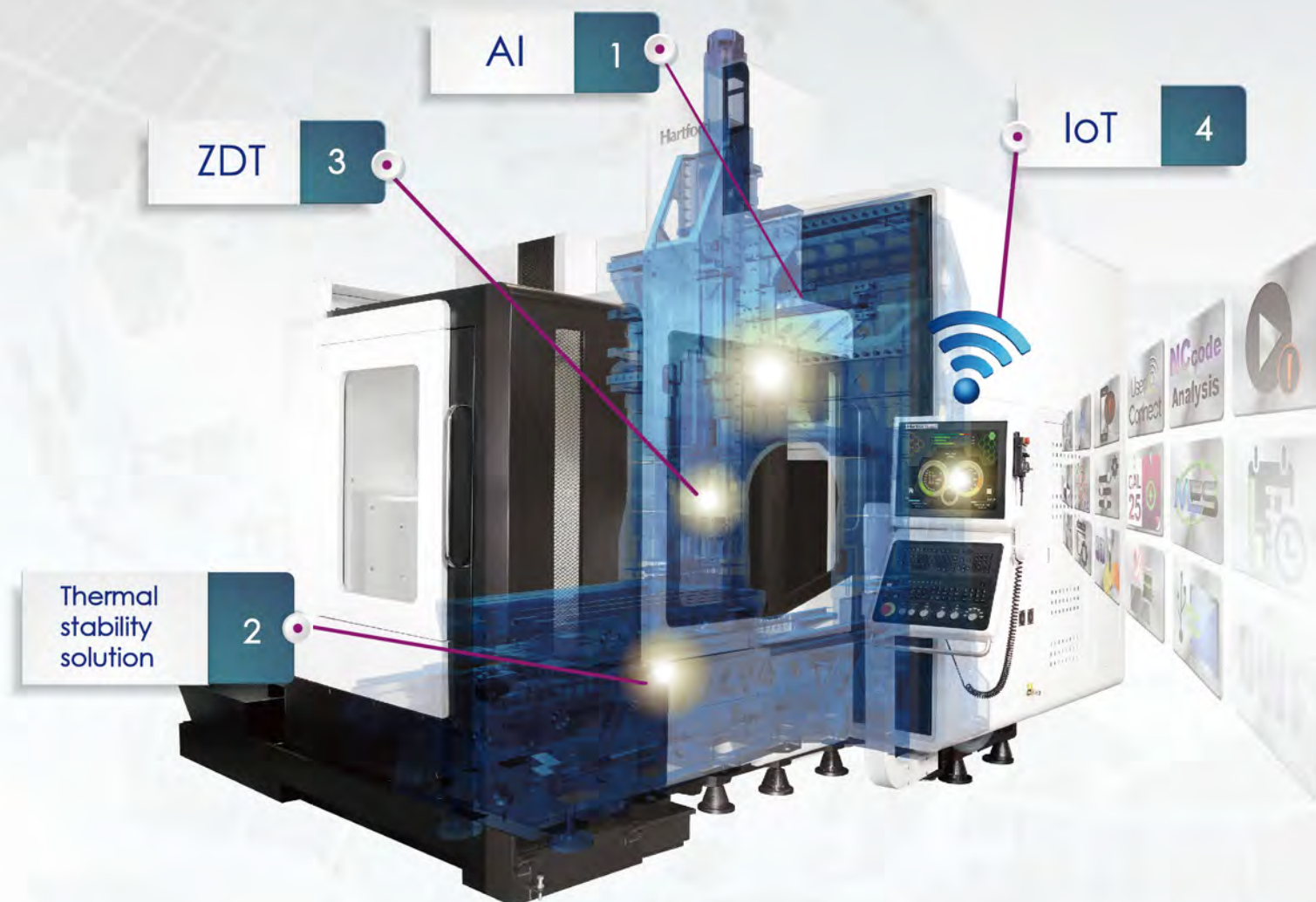
A.I. Applications inside, Hartrol Plus is the control which provides machining status with advanced features.

Imagine what future machines ought to be outlined.

AiSmartControl



Hartford
redefine the future



Major functions
of Hartford AI
controller



Facial
Recognition
system-Face ID



AI Environment
Thermal
Displacement
Compensation



AI Efficient
Lubrication
Management



Broken Tool
Detection
System



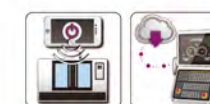
Highlight on
Intelligent
Auger



AI Navi

IoT

- + Remote Warm-up & Turn-on
- + Hartrol Plus Sync & Update
- + User Connect



Thermal stability solution

- + Spindle Thermal Compensation
- + Casting Thermal Compensation
- + Thermal Symmetry / Thermal Balancing



ZDT

- + Diagnosis Report on Spindle Operation
- + Alarm Report System



AI

- + Facial Recognition System
- + AI Efficient Lubrication Management
- + Smart Efficient Chip Collection



How to quickly implement automation?

Hartford Robot Production Cell

Easy to get started

Hartford Robocell provides you a professional robot training and rich automation experience, to let you quickly learn and easily operate your automation systems

Quality control monitoring

Automation systems have to pass all the strict Quality Control tests at every stage like design, assembly, testing, final inspection and shipment, complete quality control processes for all the products.

Professional analysis

Robocell Machining optimization service, to let you be on the top by using professional machining methods

What definition of Automation interface only :



- 1. Automatic Door
- 2. Automatic Interface
- 3. Pneumatic/ Hydraulic Interface
- 4. Other options

1. Automatic Door

- Pneumatic/Automatic Door System_Operating Door
- Pneumatic/ Servo Automatic Door System_Right Side Door

2. Automatic Interface

- I/O Preparation
- Profibus Link Preparation
- CC-Link Preparation
- EtherNet/IP Link Preparation

3. Pneumatic/ Hydraulic Interface

- 1/2/3 Cell Automatic Pneumatic/ Hydraulic Interface in the machine

4. Other options

- High Pressure Spray Nozzle with Automatic Preparation
- HStainless Base
- High-volume chip-removal system comprising dual side augers

Superior Value in Mould Making

A perfect demonstration for machining accuracy and ability.

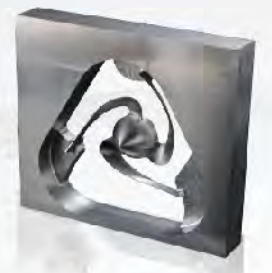
Hartford 5A series is specially designed for simple and complex parts in small lot production, which require high precision 5-axis machining.



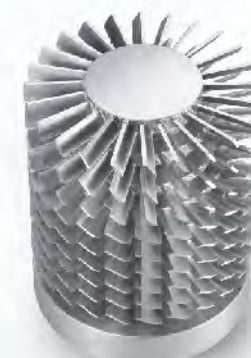
1. Tire (for 5-axis controller)



2. Bullet blade (for 5-axis controller)



3. Hollow fan (for 5-axis controller)



Generator Blades

- Work piece Size: $\varnothing 160$ cylinder
- Special features : Flake machining B,C axes machining.

Tool	Rpm	Feed rate	Machining Time
D8R4mm Aluminum Ball End Mill	10000	3000	02:58:56
D4R2mm Aluminum Ball End Mill	12000	2000	25:26:15
D4R1mm Aluminum Ball End Mill	12000	1000	02:08:38
Total time			36:33:49



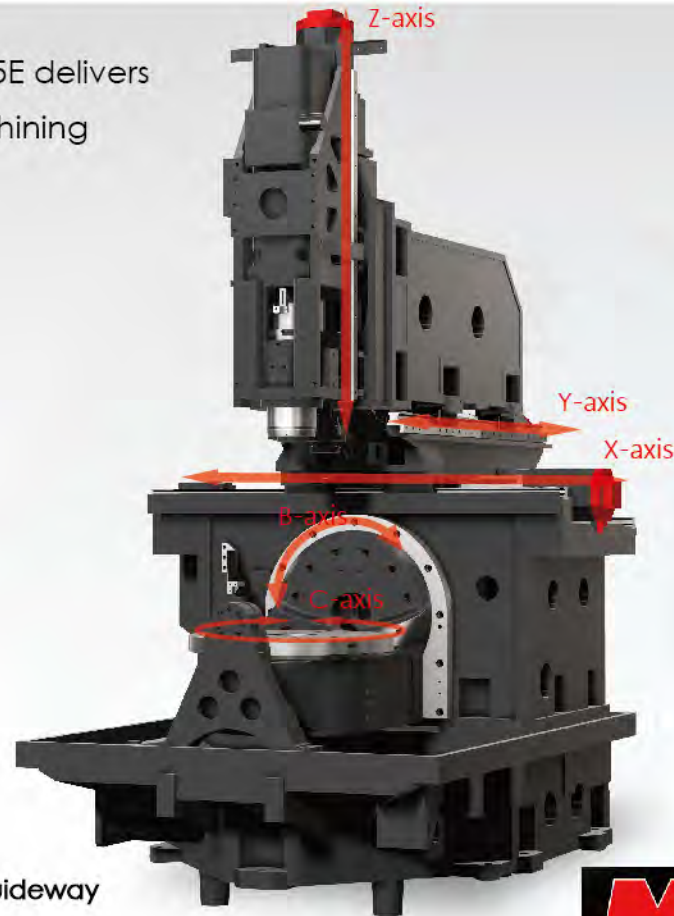
Turbine Blade

- Work piece Size: $\varnothing 450$ cylinder
- Special features : 5 axes blade module application, 5 axes machining with Table-Table type.

Tool	Rpm	Feed rate	Machining Time
D80 Rough Mill	2200	6000	03:28:35
D10R5mm Aluminum Ball End Mill	8000	3000	101:45:58
D10R5mm Aluminum Ball End Mill	10000	3000	01:55:32
D10R5mm Aluminum Ball End Mill	10000	3000	01:22:54
Total time			108:32:59

High rigidity structure design on 5A-65E

The single arm structure design of 5A-65E delivers higher rigidity, support and better machining capability.



Full range of linear guideway five-year warranty:

Warranty coverage will not apply under following conditions

1. Improper operation (collision)
2. Lack of regular cleaning of accumulated debris causing damage to the linear rails & carriages.



X-axis guide ways are set on stepped bed

- This makes better support for machine.
- Machine rigidity is much better.
- Deformation is not an issue for machine



Full-support design on Y-axis

- Weight sagging problem is improved.
- Machining accuracy is enhanced.



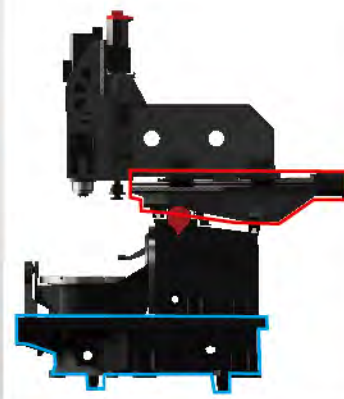
Overlap design on 3-axis

- Workpiece does not move with 3-axis.
- The impact on 3-axis positioning accuracy is minimized.
- Cutting accuracy is better



Enlarge design on base

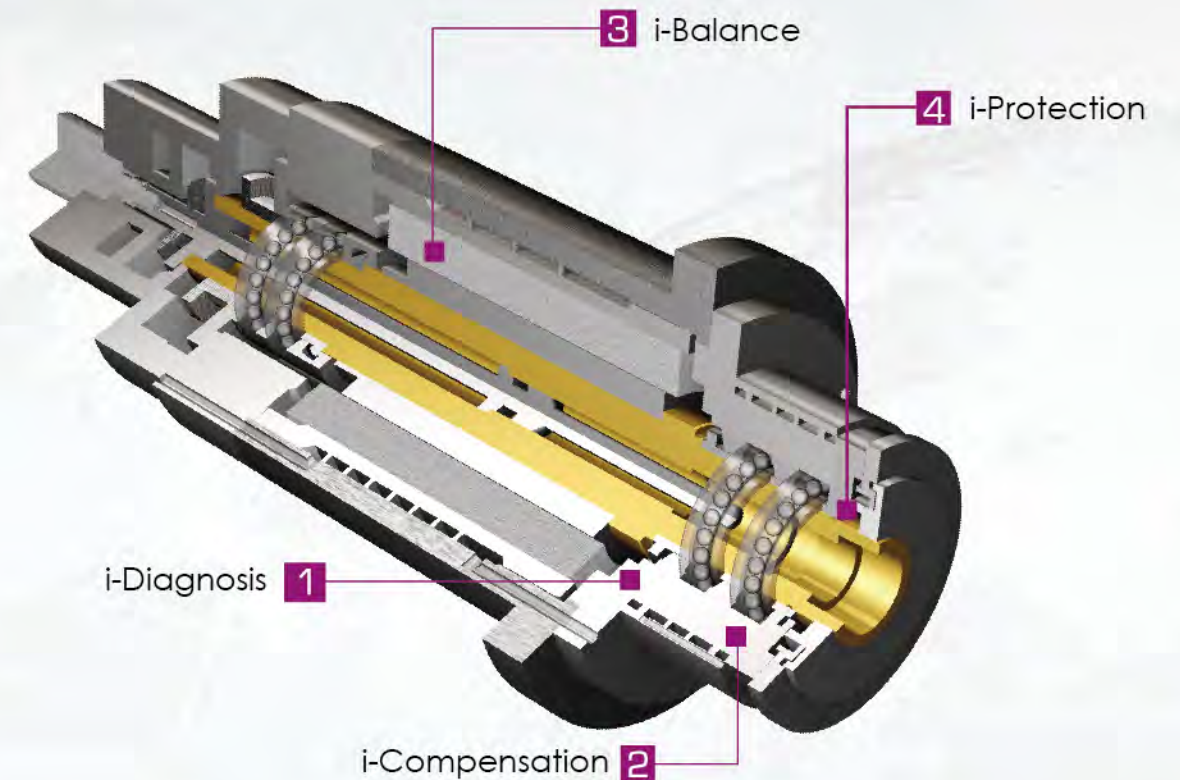
- Movement cutting accuracy is improved.
- Delivers higher support for machine.



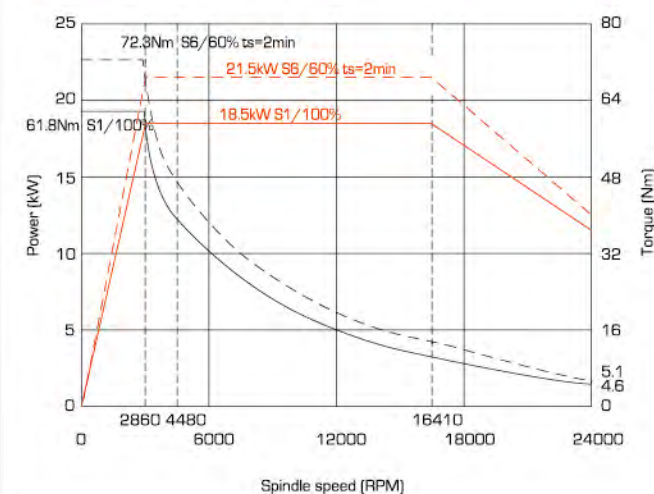
Spindles Manufactured by Hartford Offer Quality Assurance

The self-designed and made built-in type 24,000rpm spindle guarantee the best quality for you and provide you instant solutions when you need.

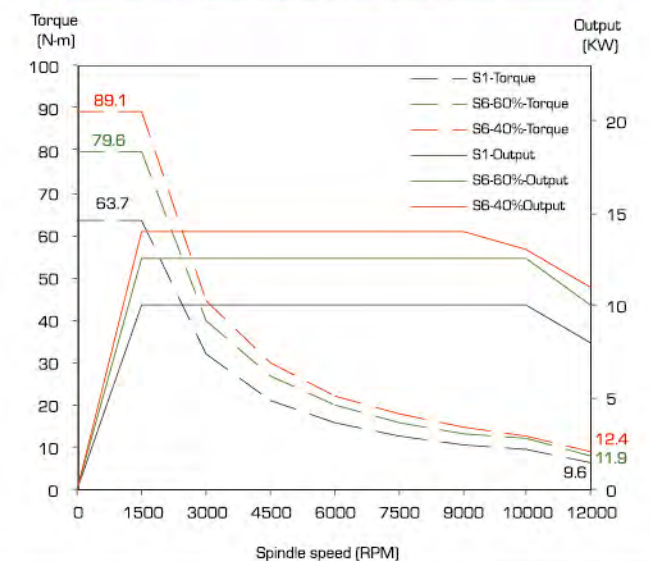
The spindle is available to integrate various smart functions such as i-Diagnosis, i-Compensation, i-Balance and i-Protection which provide safety protection of the spindle, increase the spindle accuracy and reduce down time.



Built-in type Spindle 24,000RPM



HEIDENHAIN GAN200U*12000RPM



Spindles Manufactured by Hartford
Offer Quality Assurance

Machine Dimension

NCG-2005 5-axis Accuracy Testing

■ Workpiece name	NCG2005	■ Workpiece material	Necuron 1007	■ Workpiece size	Ø75x105x50 mm
■ Workpiece fixed angle	0° & 30°	■ Cycle time	12 min	■ Tool	6 mm end mill

Dimensional accuracy

Marginal lines(1 mm) in X, Y-axis are consistent.

N/C Thermal elongation check

Connection wall thickness down to 10 µm is not broken.

Angle accuracy deviation of rotating axes

High angle accuracy of B/C axes is easily recognized by surface finish and spacing symmetry.

Workpiece surface check

Accurate right angle between X & Y plane.

Axis accuracy check

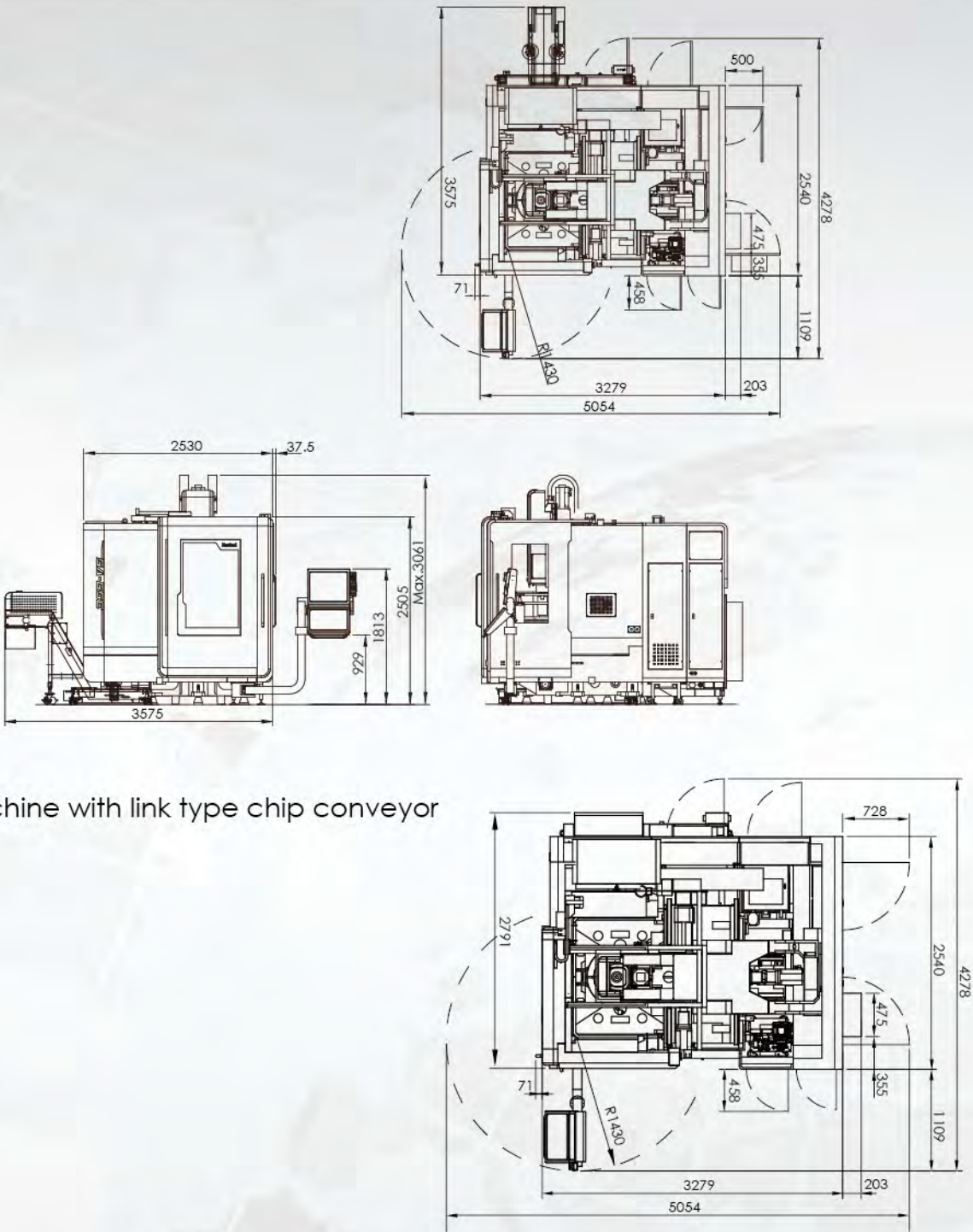
In hole cutting, tool feeds in right and left direction are symmetrical.

Contour accuracy check

By the high accuracy of contour.

Tool center point check

Tool center point in 5-axis (X,Y,Z,B,C) positions accurately.



Machine with link type chip conveyor

NAS-979 Inspection Cutting report

	Tolerance	Test results
Inclination angle	∠15°(±1°/20")	15.0007°
Roundness	0.05	0.008

Unit: mm

All the test results featured in this catalogue were produced under strict testing condition in a special zed testing environment. Under different testing conditions and less than ideal testing environments. That the test results may vary from those shown in this catalogue.

