YASDA

Creating the Future with Precision and Automation

Aerospace

Medical

Semiconductors

Defense

Next-Generation Mobility

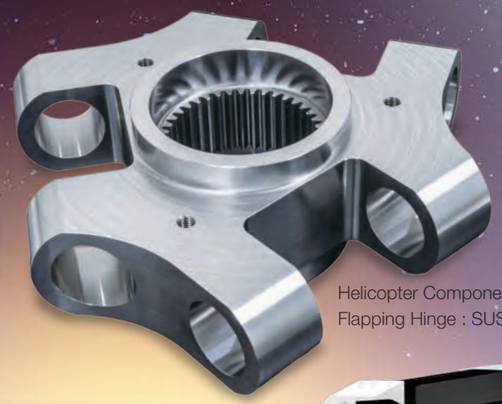
Integration of high productivity and high quality machining

YASDA PRECISION CENTER

PX50i

Precision Drives Tomorrow

Aircraft Component “Blisk”
Titanium Alloy : Ti-6Al-4V



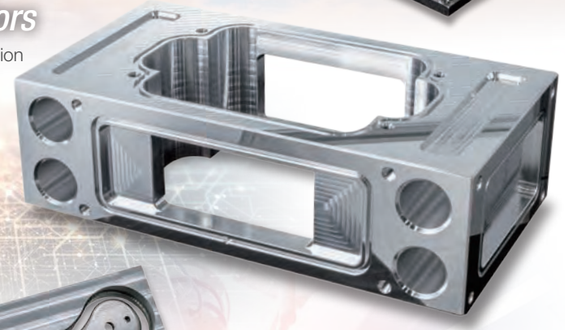
Helicopter Component
Flapping Hinge : SUS304

Aerospace

Aerospace Component
Lightweight High-Strength Hinge
Titanium Alloy : Ti-6Al-4V

Semiconductors

Semiconductor Production
Equipment Component
Vacuum Chamber
Aluminum : A6061



Medical

Medical Component Locking Plate
Titanium Alloy : Ti-6Al-4V

Others

Centrifugal
Pump Component
Closed Impeller
Aluminum : A5052

Vacuum
Pump Component
Casing
Aluminum : A5052

The PX50i is a 5-axis machining center engineered specifically for high-precision parts manufacturing.

Designed for fully automated operation, it achieves both productivity and stability in high-accuracy machining.
It delivers exceptional performance in industries demanding extreme precision, such as aerospace, semiconductor manufacturing equipment, and medical device components. The machine ensures highly efficient machining of difficult-to-cut materials, including titanium, Inconel, and stainless steel, while contributing to extended tool life.
Its high-rigidity structure and optimized thermal displacement control maintain stable dimensional accuracy even during long hours of continuous operation. As a next-generation machining center that combines High Precision, High Efficiency, and High Reliability, the PX Series is the ideal solution for industries on the cutting edge.

Stability
Reliability
Productivity
Efficiency

◀View more details

Precision Drives Tomorrow

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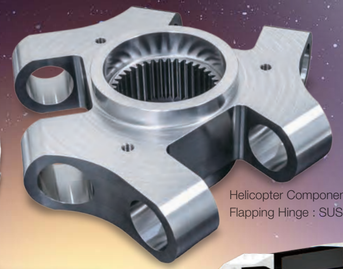

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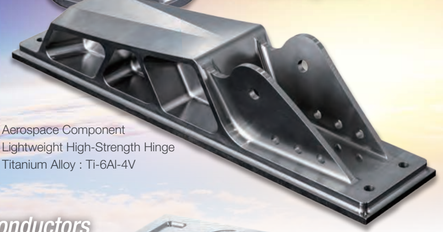

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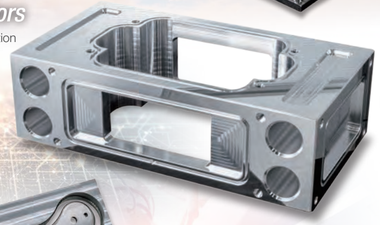

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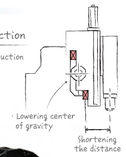
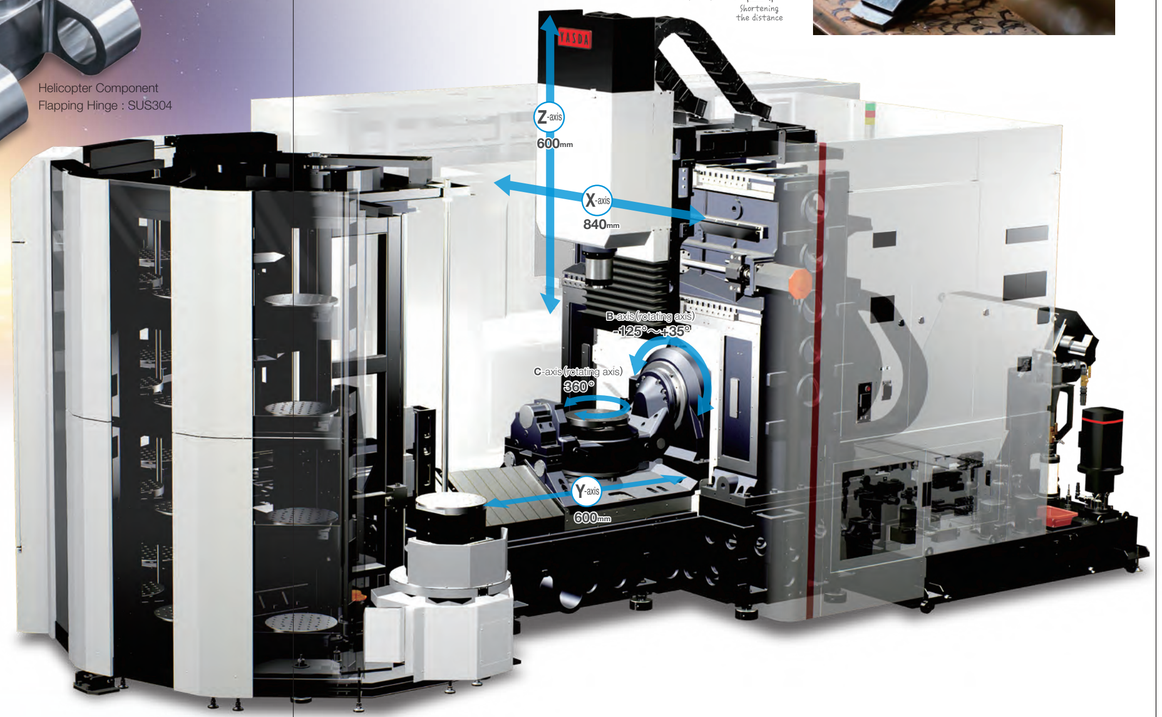
1 Reliable machine with a robust structure.

High-Rigidity Integrated Gantry Structure
The machine features a highly rigid body with an integrated gantry structure, and a bridge-type saddle with a stepped slant structure on the X-axis guideway, achieving both high rigidity and reduced weight.



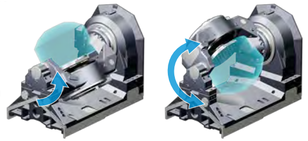
Precise, Hand-Scraped Assembly Surfaces
Critical mating surfaces are hand-scraped to ensure stress-free, ultra-precise assembly. This minimizes long-term accuracy degradation and maintains inherent machine precision over long term. Comprehensive quality control and superior reliability enable stable operation with minimal downtime, contributing to improved productivity and reduced maintenance costs.



2 Productivity Enhanced by Precision.

YASDA Til-COM

Automatic Workpiece Weight Estimation & Compensation
Automatically estimates workpiece weight and applies compensation to maintain machining accuracy at any tilt angle.



Positioning Accuracy (Measured value)

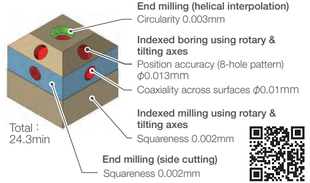
		X	Y	Z
ISO 230-2 (1988) unit (mm)	Accuracy: A	0.0021	0.0010	0.0013
ISO 230-2 (2014) unit (mm)	Accuracy: A	0.0017	0.0009	0.0011
	Repeatability: R	0.0010	0.0004	0.0006

Indexing accuracy (Measured value)

B-axis	Tolerance ±3 sec	±0.4 sec
C-axis	Tolerance ±2 sec	±0.3 sec

Examples of High-Precision Machining

5-axis Precision Evaluation Sample.



Simultaneous 5-Axis Accuracy Evaluation (NAS 979)

Circularity (Measured value) 2.82μm

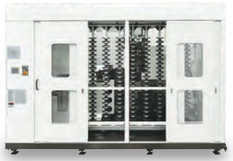
APC

High Performance Servo Drives.
All axes are servo-motor driven.
High-speed, precise motion achieves repeatability of 2 μm.

3 Automating the "Complexities" of High-Mix, Low-Volume Production

Combined with our proprietary scheduling function enables **"High-precision automation accessible to anyone."**

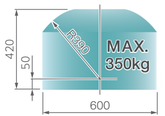
Large-Capacity ATC Magazine



- 323 tools standard
- Optional upgrade to 513 tools

16 Pallets Storage Location

Work Dimension



Work Management Functions

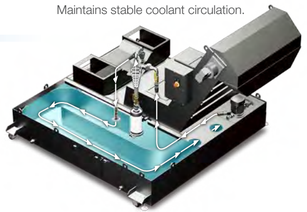
- Program assignment for each workpiece
- Flexible machining schedule configuration
- Machining time simulation & feasibility verification
- Efficient operation aligned with production planning

4 Enhanced chip evacuation system for extended run times.

A high volumes 1000L coolant tank equipped with a cyclone filter and lift up chip conveyor continuously removes chips and fine sludge, ensuring clean coolant circulation.
In addition, a high-discharge screw conveyor with inclined structure, standard shower coolant system, and optimized nozzle layout prevent chip build-up and improve coolant flow.
These features reduce maintenance cycles and support stable operation during long run times.

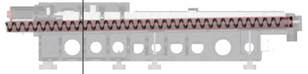
Cyclone Filter

Maintains stable coolant circulation.



Inclined Screw Conveyor

Prevents chip accumulation and clogging.
Reduces chip build-up and cleans work zone.



Side View

1. Base machine specifications

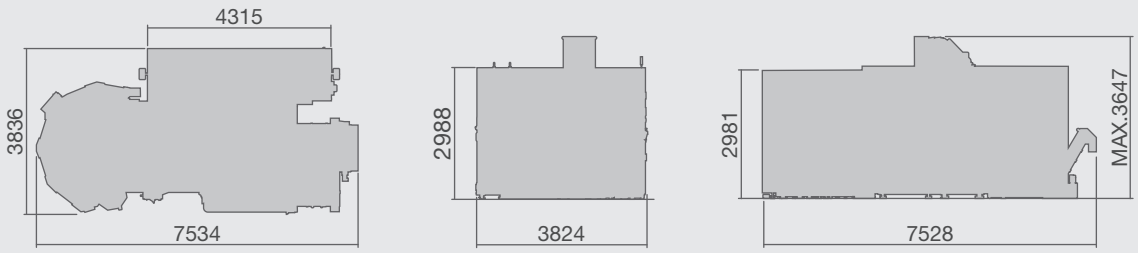
1) Travel	X-axis travel	840mm
	Y-axis travel	600mm
	Z-axis travel	600mm
	Table to spindle nose distance (B = 0°)	200 – 800mm
	Table rotating axis travel (C-axis)	360deg.
	Table tilting axis travel (B-axis)	-125 – +35deg.
	Distance between the ceter of rotating axis and spindle nose (B = 90°)	150 – 750mm
2) Spindle	Spindle speed range	100 – 20,000min^{-1}
	Spindle drive motor	AC 15/18.5 kW (Continuous/60%)
	Spindle taper hole	MAS BT40
	Spindle nose surface	BIG plus spindle (BT40)
3) Feed rate	Rapid feed	(X-, Y-, Z-axis) 60,000mm/min, (C-axis) 100min^{-1}, (B-axis) 50min^{-1}
	Cutting feed	(X-, Y-, Z-axis) 20,000mm/min, (C-axis) 50min^{-1}, (B-axis) 30min^{-1} YASDA HAS-4 mode: (X-, Y-, Z-axis) 20,000mm/min, (C-axis) 50min^{-1}, (B-axis) 50min^{-1}
	Min. input increment	0.0001mm (deg.)
4) ATC	Tool shank type	MAS BT40
	Pull stud type	JIS B6339-40P
	Tool storage capacity	323 tools
	Max. tool diameter/length/mass	ϕ80mm (ϕ150mm) /300mm/10kg
5) Automatic pallet changer (APC)	Number of pallets	16 pallets (Standard) / 18 pallets (Option)
	Pallet size	ϕ400mm
	Loading capacity	350kg (Excluding pallet weight)
	Table surface configration	41-M12 Tap
6) Pallet chucking device		System 3R: Delphin Compact
7) Mass of machine		Approx. 23,000kg
8) Electric power capacity		Max.61kVA
9) NC unit		FANUC 31i-B5 Plus

2. Standard equipments package for PX

1) Cutting oil unit (AA type)	6 Flood nozzles, 1,000L capacity for the Standard tank
2) Coolant shower unit	Ceiling shower·ATC door·Slant cover
3) Chip conveyor	Screw conveyor + scraper chip conveyor with separator
4) Tool measurement & Tool breakage detection system	LC50-DIGILOG (by BLUM)
5) Automatic workpiece measuring system	Touch prove OMP400 (by RENISHAW)
6) Signal tower (Multilayer signal lamp)	Red, yellow, green (Flashing)
7) YASDA Til-Com	

OUTLINE

unit: mm



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