
TAKAMAZ
EV
Part Machining Solutions

The Changing Automobile Market

World's Biggest Industry

The total annual production of the automobile industry globally is 170 trillion yen, making it the biggest manufacturing industry in the world. For comparison, the size of the Japanese automobile industry is about 45 trillion yen.
The medical equipment industry is 40 trillion yen, with Japan accounting for 4 trillion yen, while the aircraft industry is 35 trillion yen with Japan accounting for 1.4 trillion yen.
This automobile industry is now undergoing a transformation.

A Market Dominated by China

World automobile production stands at 90 million units, and the Chinese market takes 30% of that, or 30 million units.
Japan ranks third among the world's automobile manufacturing countries.

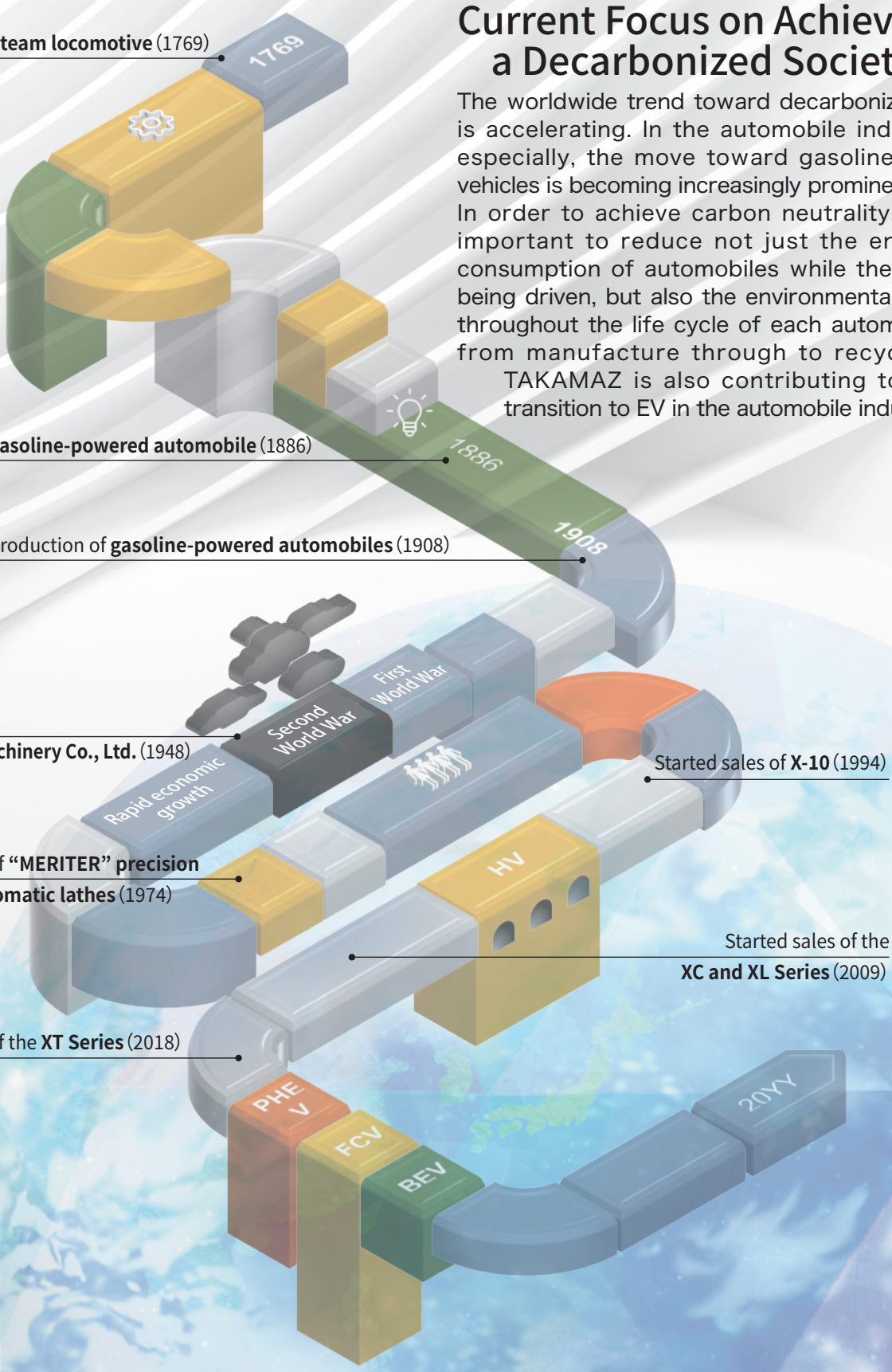
An Uncertain Outlook

EU policy is to effectively ban sales of gasoline vehicles by 2035, but with changes in the regulatory status in individual countries, for example altering course to permit sales under certain conditions, the future course is not clear.

TAKAMAZ's Manufacturing Journey

Current Focus on Achieving a Decarbonized Society

The worldwide trend toward decarbonization is accelerating. In the automobile industry especially, the move toward gasoline-free vehicles is becoming increasingly prominent.
In order to achieve carbon neutrality, it is important to reduce not just the energy consumption of automobiles while they are being driven, but also the environmental load throughout the life cycle of each automobile from manufacture through to recycling.
TAKAMAZ is also contributing to the transition to EV in the automobile industry.



Advent of the **steam locomotive** (1769)

Advent of the **gasoline-powered automobile** (1886)

Start of mass production of **gasoline-powered automobiles** (1908)

Founding of **Takamatsu Machinery Co., Ltd.** (1948)

Started sales of **X-10** (1994)

Started sales of **"MERITER" precision hydraulic automatic lathes** (1974)

Started sales of the **XC and XL Series** (2009)

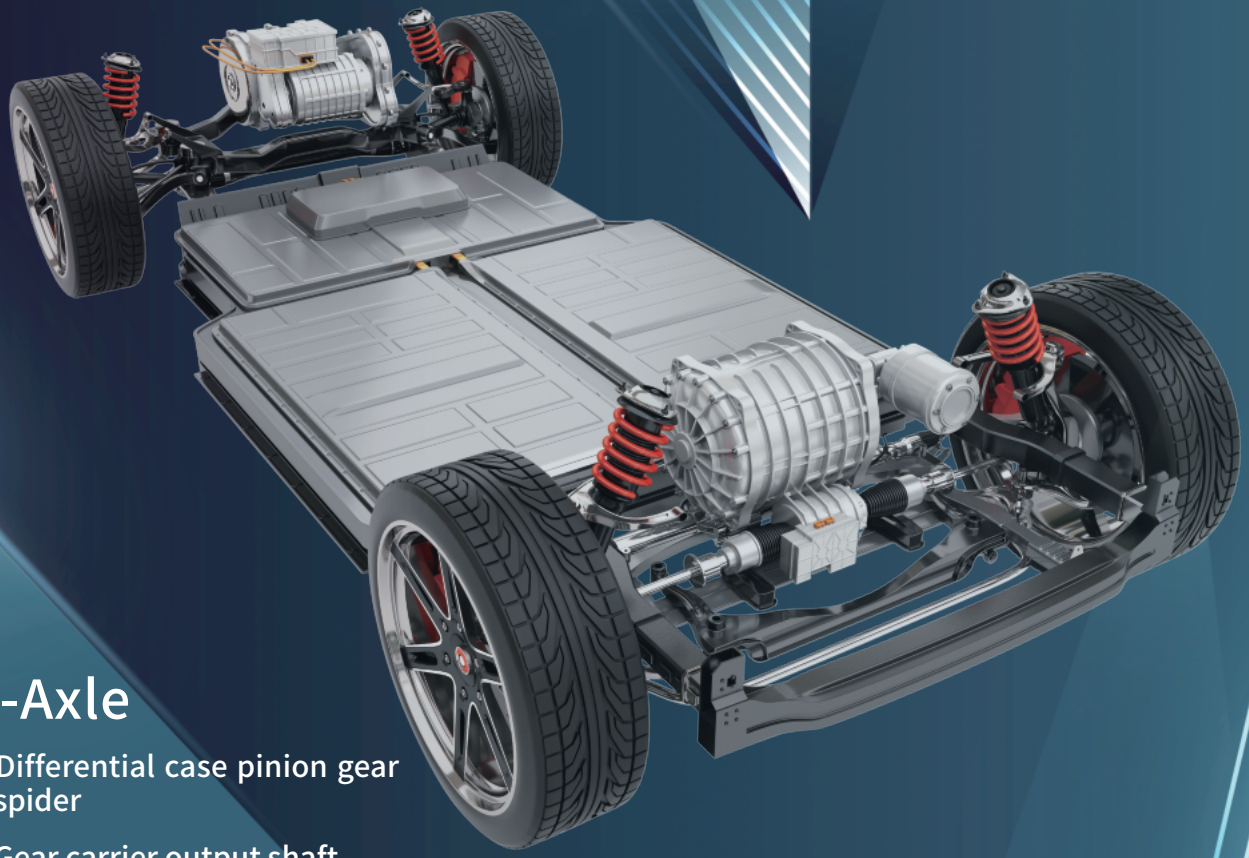
Started sales of the **XT Series** (2018)

Toward a Carbon-neutral Future

BEV & HEV

Made by TAKAMAZ

e-Axle / HEV-System PARTS



e-Axle

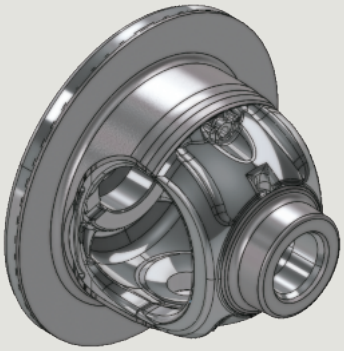
- Differential case pinion gear spider
- Gear carrier output shaft
- Parking gear
- Sun gear
- Output shaft
- Input shaft
- Final gear
- Output gear

HEV motor unit

- Shaft motor rotor

The e-Axle integrates a motor, inverter and reduction gear. It is a unit that rests on the chassis and drives the vehicle when supplied with power.
BEV development takes place in an extremely competitive environment, and one of the requirements for development is speed, but by adopting the “e-Axle”, automobile manufacturers can develop BEVs in a very short time.

Models for Machining BEV & HEV Parts



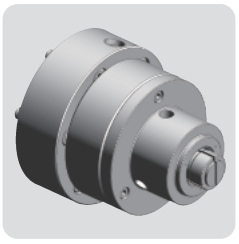
Differential case

【Material：Ductile cast iron】

【Model with record of use】	【Chuck】
XL-200	TAKAMAZ TPC2

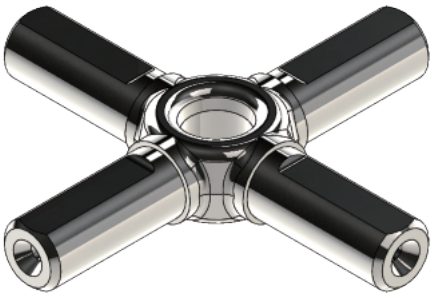
Pinion gear

【Material：Chrome molybdenum steel】



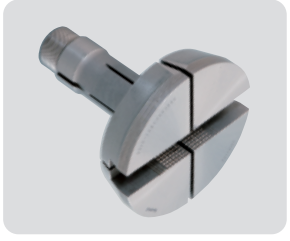
【Model with record of use】	【Chuck】
XT-6・XW-130	TAKAMAZ TIC1-N3

XL-200

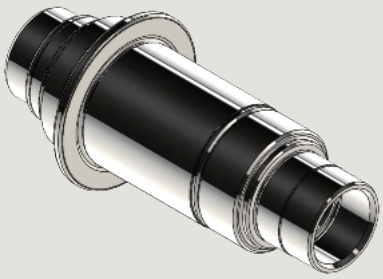


Spider

【Material：Chrome steel】



【Model with record of use】	【Chuck】
XT-8	TAKAMAZ TSC-D26-O120

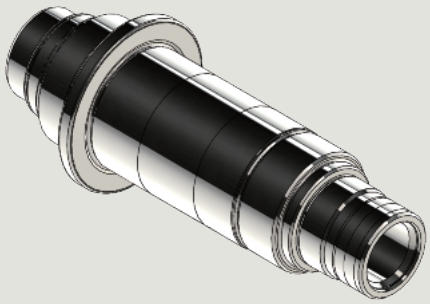


Shaft motor rotor

【Material：Medium-carbon steel】

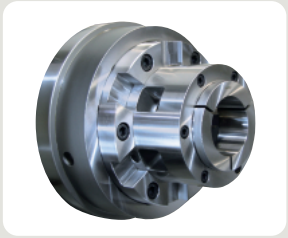
【Model with record of use】	【Chuck】
XT-8	TAKAMAZ TSC3-CS55

Models for Machining BEV & HEV Parts



Shaft generator rotor

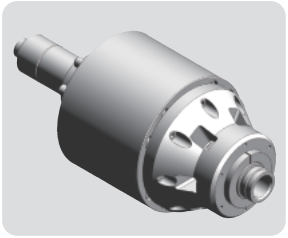
【Material：Medium-carbon steel】



【Model with record of use】	【Chuck】
XT-8	TAKAMAZ TSC2-D55

Shaft

【Material：Medium-carbon steel】

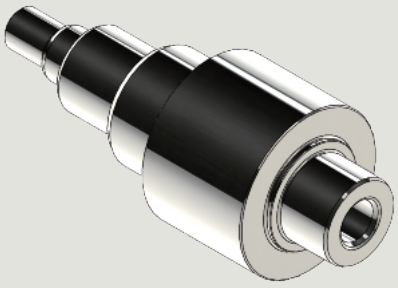


【Model with record of use】	【Chuck】
XL-200	TAKAMAZ TPC2-D26

Parking wheel

【Material：Chrome steel】

【Model with record of use】	【Chuck】
XW-130	(Left) TAKAMAZ TIC1-N10 (Right) TAKAMAZ TPC2-D150

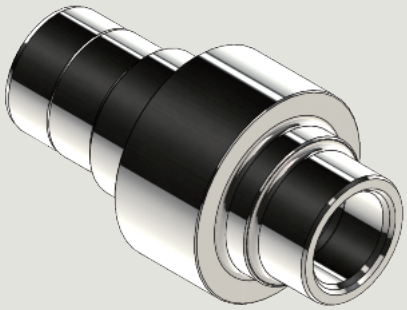


Output shaft

【Material：Chrome steel】

【Model with record of use】	【Chuck】
XW-200	(Left) TAKAMAZ TSC3-CS55 (Right) TAKAMAZ TPC2-D26

Models for Machining BEV & HEV Parts



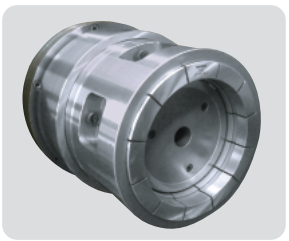
Input shaft

【Material：Chrome steel】

【Model with record of use】	【Chuck】
XT-8・XW-130	TAKAMAZ TPC2-55

Output gear

【Material：Chrome steel】

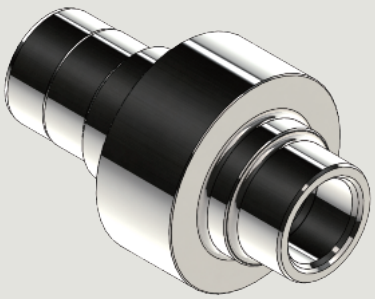


【Model with record of use】	【Chuck】
XW-130	TAKAMAZ TPC2-D150

Final gear

【Material：Chrome steel】

【Model with record of use】	【Chuck】
XW-200	TAKAMAZ TIC-DD



Gear input shaft

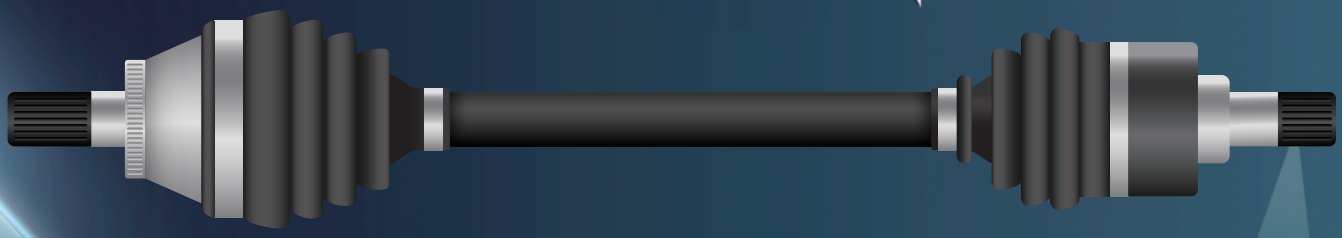
【Material：Chrome steel】

【Model with record of use】	【Chuck】
XT-8・XW-130	TAKAMAZ TSC3-CS55

CVJs

Made by TAKAMAZ

Constant Velocity Joint PARTS

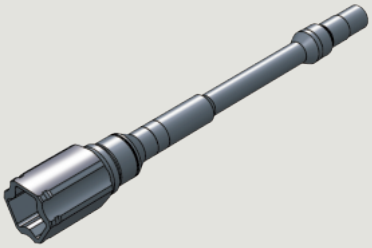


These are the constant velocity joints that transmit the vehicle's power (torque) to the tires.
Constant velocity joints are also called drive shafts, and they connect differential gears to the wheels. The power generated by the engine or motor is transmitted to differential gears via the transmission, and then through constant velocity joints to the wheels.
A FWD vehicle is equipped with two CVJs at the front, a RWD vehicle with two at the rear, and a 4WD vehicle with four.

Fixed-type CVJ (Ball Joint)

Sliding-type CVJ (Tripod Joint)

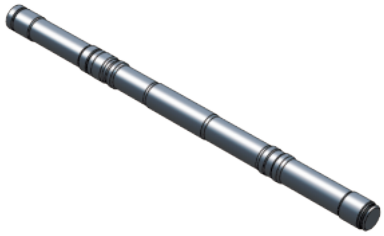
Models for Machining CVJ Parts



Housing shaft

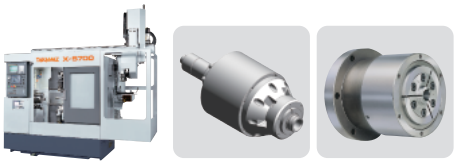
【Material：Chrome molybdenum steel】

【Model with record of use】	【Chuck】
XL-200・X-S700	TAKAMAZ TPC2-D26

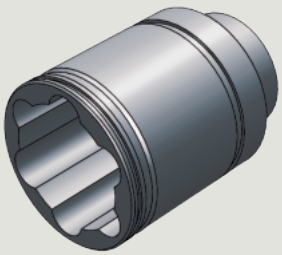


Bar shaft（RWD）

【Material：Medium-carbon steel】



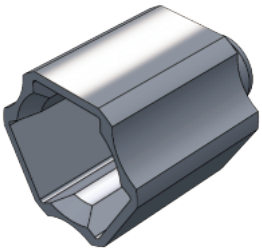
【Model with record of use】	【Chuck】
X-S700	(Left)TAKAMAZ TPC2-D26 (Right)TAKAMAZ TOC-2



Shaft-less outer race

【Material：Medium-carbon steel】

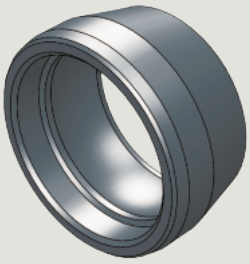
【Model with record of use】	【Chuck】
XT-8	TAKAMAZ TPC1-D26-C60



Female housing

【Material：Medium-carbon steel】

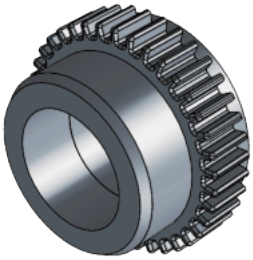
【Model with record of use】	【Chuck】
XT-8	TAKAMAZ TPC1-D26-C60



Cage

【Material：Chrome molybdenum steel】

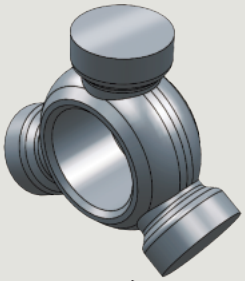
【Model with record of use】	【Chuck】
XT-8・XW-130	TAKAMAZ TPC1-D26-C80



Retainer

【Material：Medium-carbon steel】

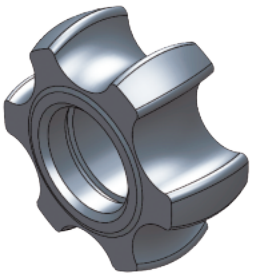
【Model with record of use】	【Chuck】
XT-6	(Left)TAKAMAZ TPC1-D26-C120 (Right)TAKAMAZ TIC1-N3



Spider（tripod）

【Material：Chrome steel】

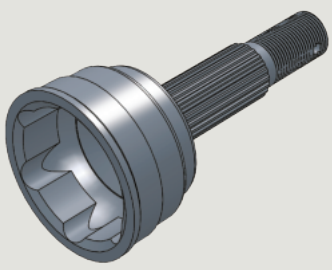
【Model with record of use】	【Chuck】
XT-6	TAKAMAZ TIC1-N5



Inner race

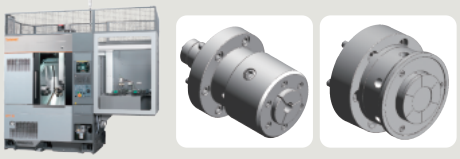
【Material：Chrome molybdenum steel】

【Model with record of use】	【Chuck】
XT-6	TAKAMAZ TIC1-N7

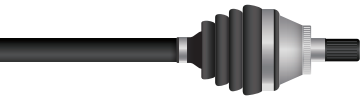


Outer race with shaft

【Material：High-carbon steel】



【Model with record of use】	【Chuck】
XT-8	(Left)TAKAMAZ TPC2-D43 (Right)TAKAMAZ TIC-DD



A Concentration of our Comprehensive Technological Capabilities Ideal for Shaft Work

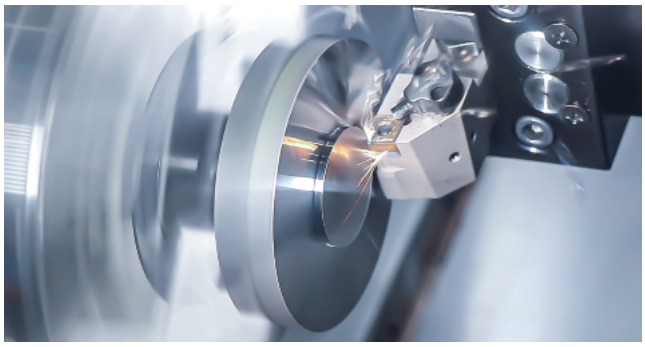
XT-8MY

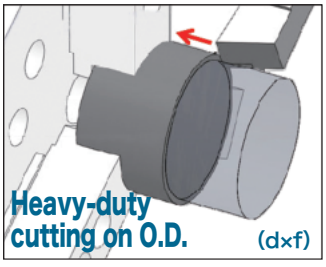
CNC 1 SPINDLE 1 TURRET PRECISION LATHE

8(10) inch Chuck

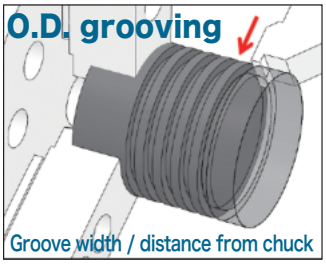
Number of turret stations | Y-axis control | Power tool | Spindle Cs-axis indexing | Tailstock | CE type | Environmentally friendly design

XT-8MY with gantry F loader installed

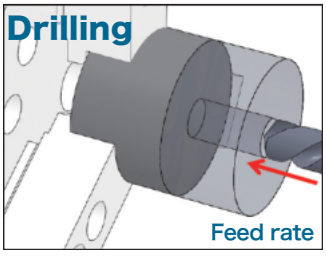




Depth of cut: 5mm
Feed rate: 0.4mm/rev
Cutting cross sectional area: 2.0mm²
(for short-term rating)



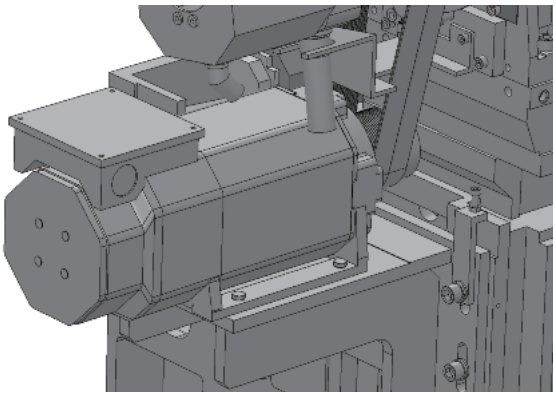
Depth of cut: 7mm
Feed rate: 0.1mm/rev
Groove width: 5mm
Distance from chuck nose: 94mm

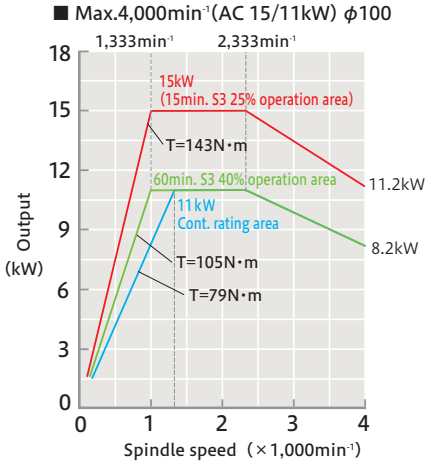


Drill diameter: 25mm
Feed rate: 0.28mm/rev

Capacity

15/11 kW high-efficiency motors used for high cutting performance



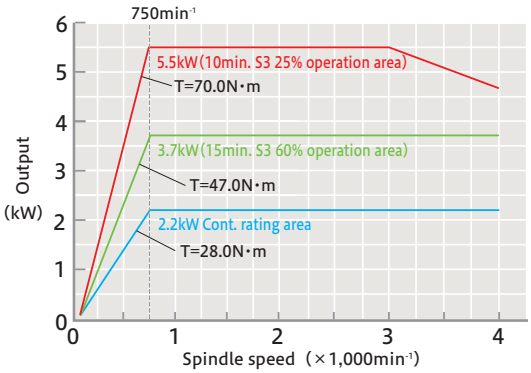


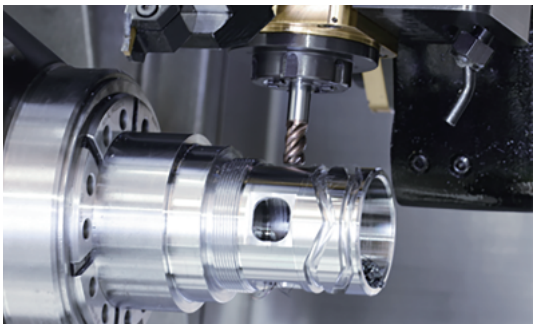
Mill/Turn Cutting

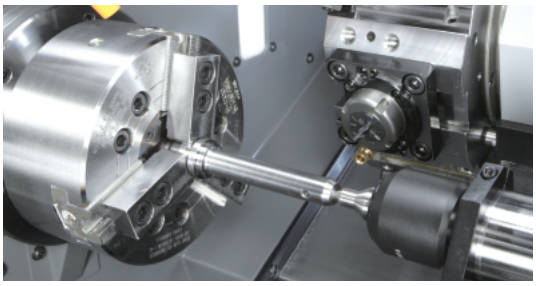
Improvements in productivity are achieved with power tool drive motor outputs of AC 5.5/3.7/2.2 kW and a milling unit with a maximum tool size of ϕ20 mm.

5.5/3.7/2.2 kW motors used
MAX.4,000min^{-1}
Max. torque 70 Nm (3x more than existing TAKAMAZ models)

■ Max.4,000min^{-1} (AC 5.5/3.7/2.2kW)

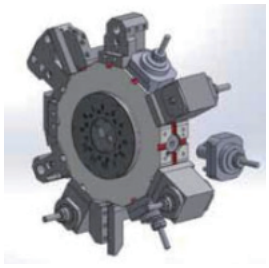




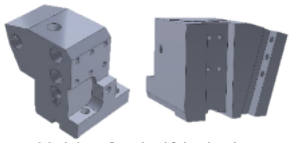


Adoption of BMT Turret

The bolt mounting system (BMT55) is used for the turret, allowing quicker setups. The turret half-indexing mechanism allows up to 24 tools to be mounted, making it possible to shorten setup times.
(A maximum of 12 power tools can be mounted.)



BMT55
Maximum tool size: ϕ20 mm



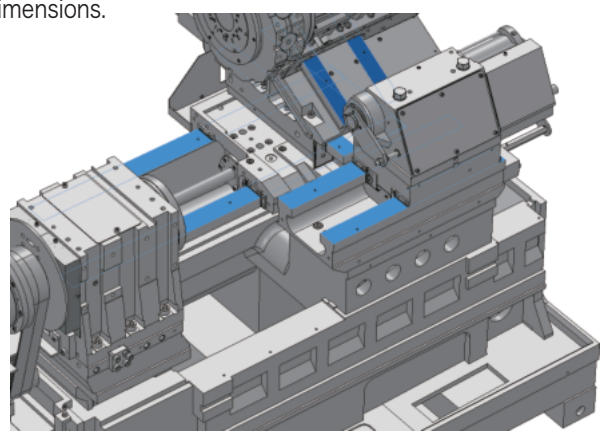
Holder for half-indexing

- Ability to accommodate diverse tooling layouts with full lineup of attachments
- Improved repeat accuracy in holder mounting
- Half-indexing support for mounting tools at up to 24 stations

Improved Durability

X, Z, Y and Tailstock Axes All Use Square Box-way Slides

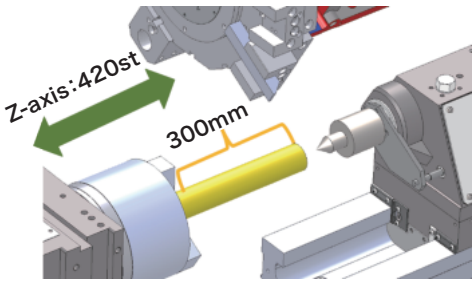
●The square box-way slide construction reputed for its rigidity is adopted on all axes, so high accuracy can be maintained even over long periods of use. And equipping offset management systems including a thermal displacement compensation system (Thermony) and spindle base cooling has enabled even more stable control of dimensions.



Space savings

Smallest floor space in the class

Offers the greatest compactness when compared to competitors' models in the same class. Even machines equipped with a Y axis allow efficient use of the floor space.



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