HI-TAK
GUN DRILLING MACHINE
DEEP HOLE BORING MACHINE

Salutation

Since its establishment in August 2006, HITAK's core business lies in deep-hole drilling; along with technological advancement by development of built-in servomotors with high precision revolution capability through improvement of parts design and control circuits, which allow to satisfy various requirements.

HITAK's extensive services coupled with solid artisanship, excellent quality, and vast knowledge from experience now expand into medical equipment, aircraft parts, automotive parts, sleeve pins, and core pins serving numerous clients who trust our products and us.

Clients' confidence in HITAK drives us forward. The construction of additional manufacturing site(Manufacturing Site #2) is now complete. An expansion by capital investment in various routers is also in progress.Through research, development, and technological improvement, HITAK is advancing as a one-stop hub offering services from routing to drilling.

HITAK is committed and determined to provide solutions for diverse requirements through while focusing straight into the future.

Hiroshi Inada CEO

Head Quarter Site

Area: 1,800 ㎡ (Manufacturing Area: 1,000 ㎡), completed in July 2009.

Manufacturing Site #2

Area: 4,800 ㎡ (Manufacturing Area: 1,200 ㎡), completed in February 2017.

Company overview

- **Company Name** / HITAK Corporation
- **Head Quarters Location** / 443-1 Matsunaga, Numazu-shi, Shizuoka-ken
- **Manufacturing Site #2 Location** / 716-41 Nishikumando, Numazu-shi, Shizuoka-ken
- **Representative** / Hiroshi Inada, CEO
- **Capital** / 6,900 Million Yen
- **Established** / August 2008
- **Business Segments** / Medical equipment parts, aircraft parts, automotive related parts, manufacturing machine parts
  Various sleeve pins, core pins, production by commissioning on metal mold cooing holes (gun drilling・horning・routing)
- **An ISO9001** / 2015 certified company (Certified on March 24th, 2016)
  Registered medical equipment manufacturer (Manufacturing Site #2)
- **Awards** / Top 300 Flourishing Small and Medium Enterprise Award (2018)
  Local Enterprise for the Future Index (2018) The Sixth Shizuoka Bank Entrepreneur Award of Excellence

Corporate philosophy

We are committed to contribute to the society and sustain
the manufacturing industry through the field of
high-precision quality deep hole processing.

Main customer

・Idaka	・Kanematsu KGK Corp.	・Suguro Iron Works	・Beyonz Co., Ltd.
・NK Works Co., Ltd.	・Kyoritsu Machinery Corporation	・Tokai Buhin Kogyo Co., Ltd.	・MEIYO ELECTRIC Co., Ltd.
・M-TEC Co., Ltd.	・SAIDA UMS Co., Ltd.	・Toshiba Machine Co., Ltd.	・MEIRA Inc.
・Okazaki Manufacturing Company	・Suzuki Precion Co., LTD.	・Nissho Sangyo	・Ryokosha
・Oguma & Co.	・Star Micronics Co., Ltd.	・Nippon Bearing Co. Ltd.	・Mizuho Co., Ltd.

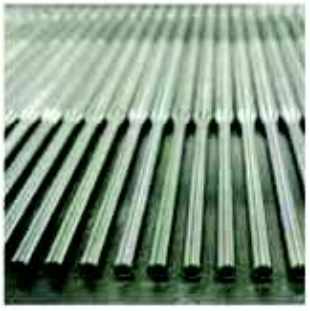
(Listed in the order of fifty Japanese syllables.)

Gun Drill Manufacturing Site

Small size and small-diameter gun drill processing area (20 units) – As of April 2018

Large size gun drill processing area (10 units) – As of April 2018

- Processed product



Deep hole drilling

HI-TAK - A group of specialists in deep-hole drilling.

We have developed gun drill machines in-house with on-board servo-spindle to meet various needs in deep-hole drilling.

Over 50 clients use HI-TAK products in medical industry. Processing requiring higher level of precision such as a drilling with 0.05ϕ concentricity is an example of our proven performance in the field of aircraft, automotive, manufacturing machine parts, various sleeve pins, core pins and metal mold cooling holes to name a few.

• Technical Information

- Available Processing Dimensions (mm) : ϕ0.5×30L～ϕ30.0×1,500L Deep hole drilling
- Hole Diameter Accuracy : Within ±0.05
- Surface Finish : 3.2S (Ra 0.023 available)
- Required Concentricity : Within ϕ0.05 available
- Material : Inconel, Hastelloy, β titanium, Co Alloy, Ni Alloy, general steel (stainless steel, aluminum, and others), resin (PEEK materials and others)

1.5kw on-board servomotor

「 To meet various needs of customers 」

・Wide range of options available : 6 types of spindle rotation on-board servomotors / 22 types (38 units) of gun drill machines.

・HI-TAK provides high quality, precision deep hole drilling work on router-finished and/or finished products.

・Lines of processing machines and tools are available to provide solutions tailored to various requirements of customers.

・Proto-type processing is available upon request from one (1) unit. (Various samples are available.)

Technology

Thirty-four units of self-developed gun drill machines are currently in operation at the gun drill processing center.

In addition, four units of more precise and powerful new generation gun drill machines are under development.

HI-TAK, as a gun drill machine manufacturer, has been developing and manufacturing gun drill machines in order to provide various clients with products that perfectly meet their requests and specifications.

Our line of machines are now 38 units in 22 varying categories of high precision gun drilling machines with 6 different built-in servo spindle motors. (As of July 2018)

As a result, we are able to provide extensive line of products in various forms, precision and difficult-to-cut materials with high precision and quality to more than 900 clients.

- New Generation Type A (One unit)
  A gun drill machine (φ8～φ30) enabling processing length of 1000mm and equipped with main axis that has a torque three times greater than that of the conventional company model.
- New Generation Type B (One unit)
  A high-torque model gun drill machine (φ5～φ20) with processing length of 500mm.
- New Generation Type C
  Two units of gun drill machines (φ1～φ8) with 300mm processing length enabling high precision processing in wider range of areas in comparison to the conventional model.

「Redefining the Concept of Cutting Work through Micro Diameter Ultra Deep Hole Processing Technique! Attained Φ1.0x400mm!!」

Gun drill machine development coupled with advanced deep hole drilling technology realized deep hole processing exceeding L/D=400 at Φ1mm.

The development of processing machines with processing capability to both cylinders and square metal logs has been completed in **March 2018!**

■Processing Examples
- φ1.0×400L(L/D=400)
- φ1.5×300L
- φ2.0×600L
- φ3.0×600L

The above processing material : Ti-6AI-4V, C3604, A5052, DAC, etc.

「To Provide High Quality Mass Production Products.」

Automated Re-grinding (or Re-polishing) Device tailored for small diameter gun drills was developed based on specialized knowledge and expertise of many years.
This made consistent high quality mass processing in gun drilling possible where it was conventionally dependent on skilled artisans' technique.

「Aiming for the World's Longest Drilling Distance using the World's Smallest Diameter Gun Drill (φ0.5) !」

A New Model Gun Drilling Machine of Φ0.5×60L (L/D=120), 3 times more than that of a conventional company model, is currently under development! (Expected completion in March 2019)

Headquarters

From materials to processing – A vertical integration

Our high precision deep hole drilling is now available with an extensive external router processing. A wide range of machines and equipment such as, CNC lathing machines, machining centers, wire electric-discharge processing equipment, micro-machining centers, cylindrical grinding instruments, cleaning instruments are available.The introduction of the vertical integration enables us to better meet the demands of our customers with various cutting and grinding needs. Our capability to create required jigs for proto types in a short turn-around time is indispensable to providing our customers flexibility and quick delivery.







Drilling 100 holes with ϕ0.1
on the circumference of a circle


Solid machining center NVX5060/40 DMG by Mori Seiki
Surface Dimensions: 600×400×300
Revolution Frequency: 15,000 rpm

Ultra Precision Micro Fine Processing Unit Hornet
by Roku Roku Sangyo
Hole Diameters: ϕ0.05 ~ ϕ5.0
Revolution Frequency: 40,000rpm

CNC Automatic Lathe LB2500EX II Okuma
Processing Work: ~ ϕ150×L250

Wire Electric Discharge Processing Machine VL400Q by Sodic
Table: 350×250×170

CNC Automatic Lathe L32X by Citizen Machinery
Processing Diameters ϕ6 ~ ϕ32

CNC Automatic Lathe M32 VIII by Citizen Machinery
Ten Axis Control, Processing Diameter ϕ4 ~ ϕ20

CNC Precision Cylindrical Grinder OGM250UNC III
by Okamoto Machine Tool Works Co., Ltd. ϕ150×L500

Special Made-to-Order Bubbling Cleaner
by Katakura Kogyo

List

Name	Manufacturer	Model	Specification	Units
Relative Rotation Type Gun Drill Machine	HI-TAK	TGS-200S	φ1.0～φ4.0×L200	1
		TGS-200SC-R	φ0.8～φ5.0×L220	3
		TGS-300BR	φ0.5～φ3.0×L300	1
		TGS-300SC-R	φ0.5～φ5.0×L300	7
		TGS-200SC-RSS	φ2.5～φ10.0×L250	2
		TGS-500SC-RSS	φ5.0～φ25.0×L500	9
		TGB-1000R NC	φ6.0～φ30.0×L1000	1
		TGS-1500SC-RSS	φ5.0～φ25.0×L1500	1
		TGS-600SC-RSS-H	φ0.5～φ3.0×L600	1
		TGS-300SC-RSS-CR	φ1.5～φ6.0×L300	1
		TGS-1000SC-RSS	φ6.0～φ30.0×L1000	1
Table Type Gun Drill Machine	HI-TAK	TGS-500SC-T	φ0.8～φ5.0×L500 Table ：540×640	1
		TGS-500SC-TSS	φ3.0～φ10.0×L500 Table ：540×640	1
		TGB-1000NC	φ5.0～φ30.0×L1000 Table ：900×1200	1
		TGS-1000SC-TSS	φ5.0～φ30.0×L1000 Table ：1000×1200	1
		TGS-300SC-DSS	φ1.0～φ10.0×L300 Table ：320×220	1
		TGS-600SC-TSS-H	φ0.5～φ3.0×L600 Table ：600×200	1
Dedicated Small Diameter Gun Drill Automatic Re-polishing Unit	HI-TAK	-	φ0.8～φ3.0 Gun drill	1
Horning Machine	HI-TAK	HW-1500W-CET	φ1.0～φ10.0×L1200 Table ：1160×200	1
	TAMIKKUSU	TH-2L	φ2.0～φ30.0×L600	1
CNC Automatic Lathe	OKUMA	LB2500EX Ⅱ	～φ150×L250	1
	CITIZEN MACHINERY CO.,LTD.	L32X	Processing Diameters φ6～φ32	1
	CITIZEN MACHINERY CO.,LTD.	M32Ⅷ	Processing Diameters φ4～φ20	1
Solid Machining Center	DMG MORI	NVX5060/40	Table ：600×400×300 Rotational speed 15,000rpm	1
Wire Electric Discharge Processing Unit	SODICK	VL400Q	Table ：350×250×170	1
Ultra Precision Micro Fine Processing Machine	ROKU-ROKU SANGYO	Hornet	Hole Diameter：φ0.05～φ5.0 Rotational speed 40,000rpm	1
NC Precision Cylindrical Grinding Unit	OKAMOTO Corporation	OGM250UNCⅢ	φ2.0～φ150×L500	1
Versatile Lathe	TAKIZAWA	TAL460×1000	Maximum Allowable Distance 1,000	1
Versatile Lathe	WASHINO	LR-55A	Maximum Allowable Distance 500	1
Milling Machine	HITACHI	-	-	1
Surface Grinding Lathe	OKAMOTO	-	-	1
Granularity Screening Unit	TOKYO SEIMITSU	SURFCOM 480B	Rotational speed X:100m Z:800μ Resolution 0.012μ (At Z800μ)	1
Circularity Screening Unit	TOKYO SEIMITSU	ROUNDCOM 60A	Measurement Diameterφ420mm Maximum Measurement Height 700mm	1
Graphic Dimensions Measuring Unit	KEYENCE	IM-6700/6225T	6.6 million pixels Filed of vision φ100×L200	1

Quality management

"Our quality control system complies with the most stringent standard and a multiple check-point system is implemented from the point of receiving to delivery; providing products with the highest quality to satisfy all of our customers."

RONDCOM 60A

High Specification CNC Circularity Screening Unit by Tokyo Precision

Inner diameter measure pin gauge for $\phi 0.2 \sim \phi 13.0$ (in 0.01 increment)

SURFCOM 480B-12

Surface Granularity Screening Unit by Tokyo Precision

OLYMPUS 45MG

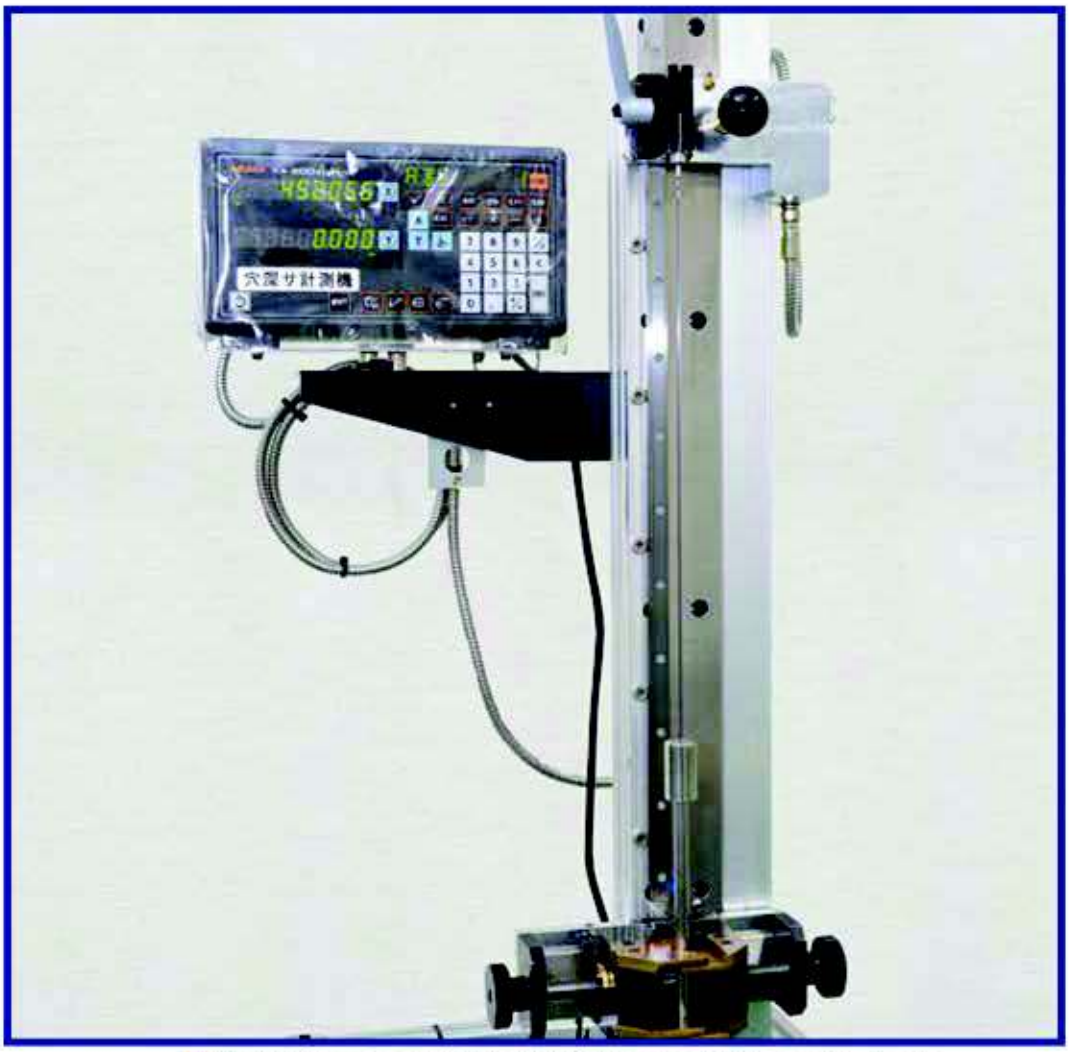
Concentricity Screening (Ultra-sound screening) - 3 units

Eccentricity Screening Unit - 4 units

KEYENCE IM-6700/6225T

Graphic Dimensions Measuring Unit

"For a higher degree of depth measurement accuracy"



Depth Measurement Unit (a Hi-TAK developed instrument) – 3 units
Depth: 800mm Units of Measure: 0.001mm

Quality policy

1. Proactively seek quality improvement. Provide quality assurance that satisfy customers.
2. Pursue the technological development in order to meet the latest demands of customers.
3. Work on competence development of employees to achieve annual quality goals.
4. Abide by the quality philosophy to pursue continuous improvement.
5. Ensure continuous improvement of Quality Management System.

"Quality Philosophy:Quality with Security to Customers"

- Practice 3S's (Sort, Straighten, Sanitary)
- Pursuit of Quality in three stages (Standard, Production, and Delivery)
- Three check-point (Appearance, measurement and quantity)
- Three quality assurance categories (Quality, Price and Delivery time)

地域未来牽引企業

ClassNK

ISO 9001

JAB CM 005

Strength・Reason

No.1 Unbeatable selection of over 1,000 types of gun drills is available.

At HI-TAK, over 1,000 types of gun drills including corresponding drill bushings and anti-vibration steady rest are available, especially the small diameter dedicated gun drills (φ0.5~φ6.0) in 0.1mm increments with variety of tool lengths. In addition, all special jigs are designed and manufactured in-house enabling optimal tool selections that make short delivery time along with the highest quality deep-hole drilling possible to field requests of customers.

No.2 Operation process changeover is not required! High precision deep-hole drilling on router-finished products is now possible.

HI-TAK is providing high-precision deep hole drilling on router-finished products without requiring operation process changeover by customers. The enabling factors such as HI-TAK' s unyielding confidence in the precision of processing coupled with processing technology and self-developed gun drill machines make high-precision deep hole drilling on router-finished products.

No.3 From a single proto type unit to mass production: We offer flexible solutions.

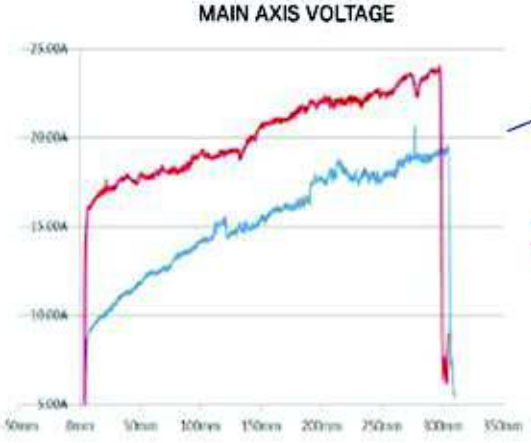
A list of extensive line of processing machines includes:Horning machines, machining centers, wire electro-discharge processing machines, micro fine machining centers, cylindrical grinders, various types of CNC grinders, and gun drill machines.Any kind of processing whether exterior processing or interior deep hole drilling, we have the answers for you. From material, to external shaping to deep hole drilling, it's all done here at HI-TAK with high-precision processing technique.

No.4 Accurate Screening, Solid Quality.

Being certified in **ISO9001:2015** and with a line of measuring devices for circularity, cylindrical form, and granularity, we promise to offer uncompromising quality in each and all of the products to our customers.

No.5 Development Ability being fostered by Gun Drill MachineDesign and Manufacturing.

We are able to offer flexible solutions to our customers' needs because of our ability to develop the optimum machines to best accommodate each requirements such as proto-type productions. Additionally, our particular insistence on precision and quality in machine development enables us to provide our customers with the leading edge precision, high-quality deep hole drilling.



Through IoT, a various gun drill data* is uploaded to an internal server. Such data is used for research, development, and improvement of processing technology.

※Data such as: main axis voltage (torque),main axis temperature, feed shaft temperature,feed shaft grating hydraulic pressure, grating hydraulic volume,voltage and speed of other axis.

Company history

August 2008
HI-TAK Co., Ltd. is established.

July 2007
The head quarter building and main factory is completed.

October 2010
Hollow servo spindle is developed. (This has made a deep hole drilling on a difficult-to-grind material possible that had not been available with the previous machines.)

February 2012
Deep hole processing technology is established to treat β-titanium (an extremely difficult material to handle in deep hole drilling.)
Starts to receiving contract work.

June 2013
Self-developed a machine to process a material with a processing diameter of φ3 and processing length of 500mm in increments of 1/100th concentricity.

February 2014
A new type gun drill machine is developed enabling a deep hole drilling of φ0.5mm or more.

December 2015
A series of machines is implemented such as circularity/cylindrical form measurement devices, to enhance quality assurance capability.

December 2015
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Fiscal Year 2016
Entered into the external processing business.
Initial introduction of external processing machines are made.
(NC grinders, machining centers, wire cut electro-discharge processor, graphic dimensions measuring device, etc.)

March 2016
Acquired ISO9001:2015 certification.

January 2017
Developed small-diameter horning machine in-house.
(Available to grind inner diameter of φ3 with a length of 1,500mm)

February 2017
Developed small-diameter horning machine in-house. (Available to grind inner diameter of ϕ3 with a length of 1,500mm)

March 2017
Manufacturing Site #2 starts operation and is registered as a medical device manufacturer.

November 2017
Ultra micro fine processing machine (Hornet by Roku Roku Sangyo) is introduced. (An ultra-micro fine hole drilling and processing at ϕ0.05 becomes available.)

January 2018
A CNC lathe (M32 VIII by Citizen Machinery) and a cylinder lathe (OGM250UNCIII, by Okamoto) are introduced as a part of Fiscal 2017 Supporting Industry Program.

February 2018
①Automatic re-grinding/re-polishing device dedicated for small diameter gun drill machines and a new type gun drill machine enabling deep hole drilling at ϕ1mm×400L are developed in-house.
② HI-TAK is selected as one of Top 300 Mid-size and Small Businesses Leading the Future of Local Industry.

March 2018
Over 1,000 types of gun drill machines have become available.

July 2018
①Four new type gun drill machines are added.
②The factory is operating with 38 units total of gun drill machines.

Evolutionally Advancement of HI-TAK's Technology

General Area Map

《Head Quarters / Main Manufacturing Site》
- Three minutes' walk from JR Katahama Train Station South Exit

《Manufacturing Site #2》 Gun Drill Manufacturing Site
- Five minutes' drive from Ashitaka Smart IC ①
- Ten minute's ride by cab from Numazu Station North Exit ②

【Head Quarters / Main Manufacturing Site】
443-1 Matsunaga, Numazu-city,
Shizuoka-Pref. 410-0874 Japan
General Information : +81-55-967-3030
Facsimile : +81-55-967-3031

【Manufacturing Site #2】(Gun Drill Manufacturing Site)
716-41 Nishi Kumando, Numazu-city,
Shizuoka-Pref. 410-0051 Japan
General Information : +81-55-939-5444
Facsimile : +81-55-939-5445

【Information】
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