



ISO 9001



ISO 14001

KOREA GUNDRILL

- Deep Hole Drilling Machine
- Gundrill Tool

*Concentrate on
Deep Hole Drilling
over 30 years*

www.gundrill.co.kr

KGD

한국건드릴(주)

기계사업부

경기도 안산시 단원구 별망로 353

TEL : 031-491-5441 FAX : 031-491-5449

툴사업부

경기도 안산시 단원구 별망로 353

TEL : 031-491-5351 FAX : 031-491-5359

KGD. CO., LTD.

MACHINERY DIVISION

353 Byeolmang-ro, Danwon-gu, Ansan-si,

Gyeonggi-do, 15604, Korea

TEL: +82-31-491-5441

FAX: +82-31-491-5449

E-mail: kgdrill@gundrill.co.kr

TOOL DIVISION

353 Byeolmang-ro, Danwon-gu, Ansan-si,

Gyeonggi-do, 15604, Korea

TEL: +82-31-491-5351

FAX: +82-31-491-5359

E-mail: kgdrill@gundrill.co.kr

본 카탈로그에 수록된 제품사양, 제원 및 색상은 제품 개선을 위해 변경될 수 있습니다.

본 카탈로그는 2019년 1월 기준입니다.

Specifications & Machine colors are subject to change without notice.

This Catalogue is based on January, 2019.

V 3.0

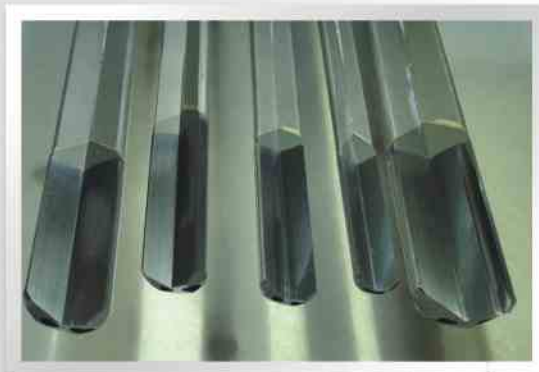


KGD

CONCENTRATE ON DEEP HOLE DRILLING

Specialized in manufacturing gundrill products over 30 years, KGD will provide you with solution to satisfy any kind of your hole making needs!

30년 이상의 경험을 바탕으로 한국건드릴은 최적의 기계시스템과 툴을 제공하여 귀사의 어떠한 홀가공 요구도 만족시켜 드릴 것입니다.



index

ADVANTAGES OF GUNDRILLING	04
KGD GUNDRILL SYSTEM	06
PRODUCT LINE-UP	08
GENERAL PURPOSE MACHINES	10
SPECIAL PURPOSE MACHINES	22
OPTIONS AND ACCESSORIES	27
KGD TOOL	29
CUTTING CONDITIONS	34

ADVANTAGES OF GUNDRILLING

Efficient Material Penetration

Unique capabilities of gundrill system enables you to drill the holes with depth of 100 to 200 times the diameter and permits cutting speed up to 5 times greater than conventional twist drills.

직경의 100~200배 홀가공이 가능하며 일반 트위스트 드릴의 5배까지 가공속도가 빠릅니다.



Hole Straightness

The drill guide bushing system and precision drill with self-piloting characteristics enables the hole straightness within 1mm over a depth of 1000mm.

직진도가 뛰어납니다. 1000mm 가공시 편심이 1mm 이하입니다.

Excellent Surface Finish

Using carbide tipped gundrills, it is possible to maintain high drilling speeds and good surface finish far better than twist drills. Rmax is 8s~25s for S45C steel.

뛰어난 표면조도를 얻을 수 있으며 S45C스틸의 경우 R최대치가 8s~25s까지 가능합니다.

High Accuracy

It is possible to make high quality of hole in various aspects such as diameter tolerance, roundness & cylindricity.

직경공차, 원통도, 동심도등에 있어서 뛰어난 정밀도를 얻을 수 있습니다.



Productivity

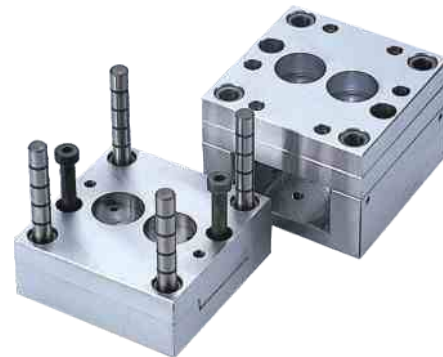
Conventional machining requires multiple operations to obtain the target accuracy and surface finish. With gundrilling it is possible to obtain in one pass!

전통적인 가공법으로 원하는 홀정밀도 및 표면조도를 얻기 위하여는 여러 번 가공을 해야 하지만 건드릴의 경우 단 한 번 가공으로 끝납니다.

Versatile Drilling Capabilities

Gundrilling gives you the solution for various hole making problems such as holes entering on angular, round or curved surface, overlapping holes, cross holes, tilted holes, multi step diameter holes.

직각면, 곡면 가공대상물에서의 진입홀, 오버랩핑홀, 크로스홀, 경사각홀, 복수구경홀등 다양한 홀가공의 문제에 대한 해결책을 제시합니다.



Long Tool Life and Easy Maintenance

Gundrills has far long tool life than conventional twist drills. Gundrills can be reground several times with universal tool grinders using no special skills.

수차례에 걸쳐 톨을 재연마하여 사용할 수 있기 때문에 공구수명이 일반 트위스트드릴보다 훨씬 길며 유지보수가 용이합니다.



KGD GUNDRILL SYSTEM

Enables you accurate and stable machining!



Slide Structure Using High Stiffness Cast Iron

Applying the high stiffness cast iron to the machine bed and column, KGD gundrill machine reduces deformation and maintains stable machining precision.

Transferring Method

Adopting a ball screw drive system, the main spindle speed is steady to enable high precision of machining.

Using the AC servo motor it is possible to choose adequate cutting speed in accordance with the hole diameter and material of the work-piece. 1.6Kw, 4.0Kw is available and 7.0Kw, 9.0Kw is also available for BTA.

Main Spindle Motor

To accord hole diameter and materials of workpiece, motors of 3.7Kw/ 5.5Kw or 5.5Kw/ 7.5Kw and etc. are available. For standard models of KEG KHBG, KHBG-W, KHG series, AC spindle motor is standard.

Spindle Unit

Designed for high speed revolution, KGD spindle designs adopt angular contact ball bearing in pre-loaded way to obtain outstanding operational performance.

Especially the main spindle is equipped with oil mist lubrication system to afford high speed revolution.

Various Jig Fixture and Auto Loading Systems

KGD designs and provides various jig fixtures in accordance with various work-piece and automatic supply system upon customer's request.

NC Device

As standard models of KHG, KEG series are furnished with the FANUC system of 3 axes(X·Y·Z) control, it is possible to control location positioning, machining depth and machining speed. It enables long-time continuous operation and consequently gives high efficiency.

Chip Conveyor System

For the smooth chip disposal depending on various work-piece material, KGD adapts a variety of conveyor belt system such as magnet type, hinges belt type, scraper type and screw type.

고강성의 주물을 사용한 슬라이드 구조

베드, 컬럼등에 견고한 주물을 사용한 슬라이드형 구조를 적용하여, 장기간 사용하셔도 기계의 변형이 적고 안정된 가공정밀도를 제공합니다.

이송 방식

Ball Screw 구동 System을 채택하고 있습니다. 주축의 이송속도가 일정하여 고정도의 가공이 가능합니다. AC Servo Motor 를 사용하고 있어 구멍직경, 재질에 맞는 절삭 속도를 선택할 수 있습니다. 재질과 가공물의 직경에 맞추어 1.6Kw, 4.0Kw, 7.0Kw(BTA), 9.0Kw(BTA)등을 선정합니다.

주축 MOTOR

재질과 가공물의 직경에 맞추어 3.7Kw/5.5Kw, 5.5Kw/ 7.5Kw 등을 선정합니다. KEG, KHBG, KHBG-W, KHG 기종은 AC Spindle Motor가 표준장비로 장착되어 있습니다.

스핀들 유닛

고속 회전에 적합한 구조로서 Angular Contact형 Ball Bearing을 사용하여 적당한 예압이 가해져 있으므로 우수한 운전성능이 발휘됩니다.

특히 주축분무윤활장치를 갖추었기 때문에 건드릴 기계의 고속회전에 적합합니다.

각종 치구 및 자동공급장치

가공물에 맞춘 각종 전용치구와 자동공급장치를 고객의 요청에 따라 설계 제작합니다.

NC 장치

범용기인 KHG, KEG 형의 NC는 X·Y·Z축의 3축제어로서 위치결정, 가공깊이, 가공속도의 제어가 가능하고 장시간 연속 운전 및 고능률화가 가능합니다.

칩 컨베이어 시스템

각종 소재의 재질에 따른 원활한 칩처리를 위해 마그네트, 힌지벨트, 스크래퍼, 스크류타입 등의 다양한 컨베이어 시스템을 적용합니다.

PRODUCT LINE-UP



Model Series		KHG	KEG	KEXG	KHBG	KHBG-W	KHRG	KDG/KIG	KTBG	KTRG(B)
Specifications		-1500·2000·2500·3000	-600·800·1000s·1000	-400·600·800	-1500·2000	-W2000·W2500·W3000	-1600·2000·2500·3000	-400·600·800	-2000·2500·3000·3500	-2000·3000
Number of drilling spindles		1	1~2	1~2	1	1	1	1~4	1	2
Drilling Capacity	mm	Ø3~32	Ø3~32	Ø2~12	Gundrill Ø7~20/ BTA Ø16~65	Gundrill Ø7~20/ BTA Ø16~65	Ø3~32	Ø3~24(32)	Gundrill Ø7~32/ BTA Ø16~65	Gundrill Ø3~25/ BTA Ø16~50
Max. drilling depth	mm	1500	600·800·1000	400·600·800	Gundrill 1500/ BTA 2100	Gundrill 1500/ BTA 2100	1500(1800)	400·600·800	1500	1500
Power	Spindle motor	Kw	5.5/7.5 (α6/10000i+Power up)	5.5/7.5 (α6/10000i+Power up)	1.5~7.5	22/26 (α22/8000i)	22/26 (α22/8000i)	15/18.5(α15/7000i)	1.5~5.5	22/26 (α22/8000i) 5.5/7.5 (α6/10000i+Power up)
	Z axis motor	Kw	1.6 (α8/3000)	1.6 (α8/3000)	1.6(α8/3000)	4.0 (α22/3000)	4.0 (α22/3000)	1.6(α8/3000)	1.0~2.1	4.0 (α22/3000) 9.0 (α40/3000F)
System Configuration		Drill movable type Feed : Ball lead screw Column type NC Equipment(X·Y·Z)	Drill movable type Feed : Ball lead screw Knee type NC Equipment(X·Y·Z)	Drill movable type Feed : Ball lead screw Column type NC Equipment(X·Y·Z)	Drill movable type Feed : Ball lead screw Column type NC Equipment(X·Y·Z)	Drill movable type Feed : Ball lead screw Column type NC Equipment(X·Y·Z)	Drill movable type Feed : Ball lead screw Column movable Type NC Equipment(X·Y·Z·B·W)	Drill movable type Feed : Ball lead screw	Drill movable type Feed : Ball lead screw Column movable type NC Equipment(X·Y·Z)	Drill movable type Column movable type Feed : Ball lead screw Tilted Boring & Gundrilling NC Equipment(X·Y·Z·A·B·U·W·V)
TableMaxLoadingCapa.	Kg	8000·10000	1000·2000	1000	6000·10000	25000	6000·15000·20000·25000	1000~2500	35000·40000·45000·50000	20000
Machinemainbodyweight	Kg	24000·26000·27000·28000	7200·7500·7700·9000	4900·5200·5500	25000·28000	30000·32000·34000	30000·45000·50000·55000	7900·8300·8500	36000·40000·43000·45000	40000
CNC System		FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec	FANUC or User spec
Features		대형금형의 Deep Hole 가공용으로 개발한 Column type의 KGD 표준모델	소형가공물에 적합하게 개발된 Compact한 KGD 표준모델	1~2 spindle 장착가능하며 회전 치구의 장착을 통하여 통과 가공품 회전으로 정밀 가공을 가능케 함	소구경 가공의 Gundrilling 기능과 대구경 가공의 BTA Drilling기능을 함께 겸비한 Table이송 Type	KHBG Model의 Table 부분을 강화하여 고 종량의 공작물 가공이 가능토록 한 모델	측면 경사 Hole 가공이 가능하며 360° 회전하는 로터리 테이블 장착	전용치구를 사용하여 가공물을 자동 loading시킬 수 있으며 1~4 spindle 설치 가능	GUN Drilling 기능과 BTA Drilling 기능을 함께 겸비한 Column 이송 Type	틸팅형 보링 및 건드릴링 기계 복잡한 형상의 대형금형 각도 가공용으로 개발
Applications		Work Table에 중량 가공물의 적재가 가능하며 냉각수 Hole가공, 막힘 Hole 가공이 용이	금형의 냉각수 Hole, Eject pin hole, Heater hole, 유압매니폴드등의 양산 가공에 적합	소구경 Sleeve Pin 및 정밀 산업용 부품을 전용으로 가공하기 위하여 개발한 기종	금형, 유압기기, 건설기기, 화학기기 및 일반 산업기계 부품 가공에 적합	금형, 유압기기, 건설기기, 화학기기 및 일반 산업기계 부품 가공에 적합	자동차 및 전자제품의 복잡한 형상의 대형 금형가공에 적합	각종 자동차 부품 및 산업용 부품의 대량생산에 적합	Tube Sheet 전용가공기	자동차 범퍼 금형 및 각도홀 가공
Image										



Model Type **1500 · 2000 · 2500 · 3000 CNC**

CNC Gun Drilling Machines for the Mold Industries

- The KHG column type Gundrilling machine with NC control is designed for deep hole drilling of large, heavy parts such as drilling of waterlines for injection molds or ejector pin holes.
- An optional spindle designed for tapping and chamfering of holes after gundrilling is available.
- Superior drilling performance in heat-treated steel.
- Easy setup for workpiece positioning, drilling depth and feed rate.
- This machine is specially designed for the drilling of various holes of different depth on one work piece and mass production with one set up.



Model : KHG-2000CNC

대형 금형 Deep Hole 가공용 CNC Gun Drilling Machine

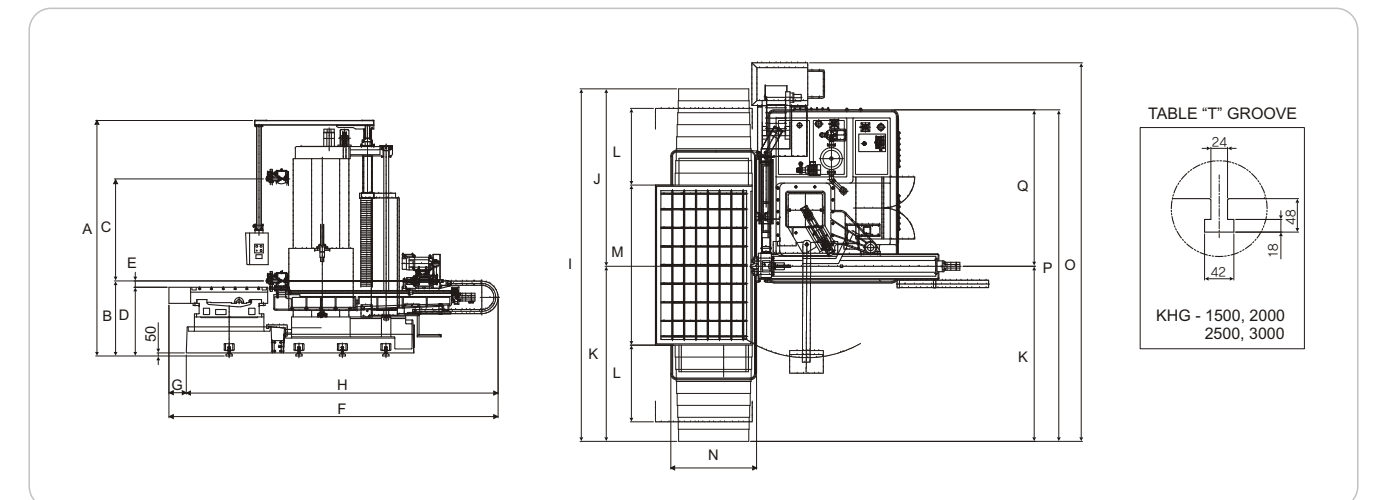
- 대형 금형의 심공 가공용으로 개발한 Column Type의 건드릴 기계입니다.
- Work Table은 중량 가공물의 적재가 가능하며 냉각수 Hole가공, Ejector Pin Hole의 가공이 용이합니다.
- 주축 회전수, 절삭이송속도, 절삭유압 등 필요한 절삭 조건을 최적의 상태로 선정 가능합니다.
- 동일일의 가공소재에 Hole 깊이가 각기 다른 다수개의 Hole 가공에 있어서도 효율적인 양산가공과 단품가공이 가능합니다.



SPECIFICATIONS

Model Type			KHG-1500	KHG-2000	KHG-2500	KHG-3000
Machining capacity	Hole diameter	(mm)	Ø3 ~ Ø32			
	Max. Drilling depth	(mm)	1500			
	Spindle revolution	(RPM)	1250 ~ 6000			
Travel	Table cross (X axis)	(mm)	1500	2000	2500	3000
	Spindle vertical (Y axis)	(mm)	1300(1600:Option)			
	Spindle horizontal (Z axis)	(mm)	2020			
Main spindle feed mechanism			Ball lead screw			
Power	Spindle motor	(Kw)	5.5 / 7.5 (α6 / 10000i + Power up)			
	Z axis motor	(Kw)	1.6 (α8 / 3000)			
	Y axis motor	(Kw)	4.0 (α22B / 3000)			
	X axis motor	(Kw)	4.0 (α22 / 3000)			
	High pressure pump motor	(Kw)	11			
	Chip flow pump motor	(Kw)	0.75			
	Cascade pump motor	(Kw)	1.5			
Speed	Cutting feed (Z axis)	(mm/min)	0 ~ 500			
	Rapid traverse (Z axis)	(mm/min)	5000			
	Table rapid traverse (X axis)	(mm/min)	5000			
	Table rapid traverse (Y axis)	(mm/min)	5000			
Table	Max. loading capacity	(Kg)	8000	10000		
	Size	(mm)	1520 x 2000	1520 x 2500		
Coolant unit	Tank capacity	(L)	1200			
	Max. pressure	(Kg/cm ²)	100			
	High pressure pump max. discharge	(L/min)	55			
	Chip flow pump max. discharge	(L/min)	21.6			
	Cascade pump max. discharge	(L/min)	270 (head of pump : 8m)			
	Filtration	(μ)	50			
Floor space		(mm)	5300 x 5280	5300 x 5780	5300 x 6380	5300 x 6830
Machine main body weight		(Kg)	24000	26000	27000	28000
Total power		(KVA)	45			
NC unit			FANUC Series / User spec			

DIMENSION



Model	mm	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
KHG - 1500		3700	1210	1250	1110	100	5300	135	5070	5280	2680	2600	750	2000	1520	5310	5120	2520
KHG - 2000		3700	1210	1250	1110	100	5300	135	5070	5780	2930	2850	1250	2500	1520	6330	5370	2520
KHG - 2500		3700	1210	1250	1110	100	5300	135	5070	6380	3230	3150	1120	2500	1520	6560	5670	2520
KHG - 3000		3700	1210	1250	1110	100	5300	135	5070	6830	3480	3350	1500	2500	1520	6900	5870	2520





Model Type **600 · 800 · 1000S · 1000 CNC**

Knee Type Gundrill Machine with NC Control

- The KEG series are suitable for the production of water, heat and ejector pin holes of plastic molds, hydraulic manifold and heat exchangers which require multi hole drilling.
- Dual operation – manual mode and simplified automatic program mode.
- Easy setup for workpiece positioning, drilling depth and feed rate.
- Wide range of models for various drilling depth and object tonnage.

Model : KEG-1000CNC



컴팩트한 디자인, 최소한의 설치공간!

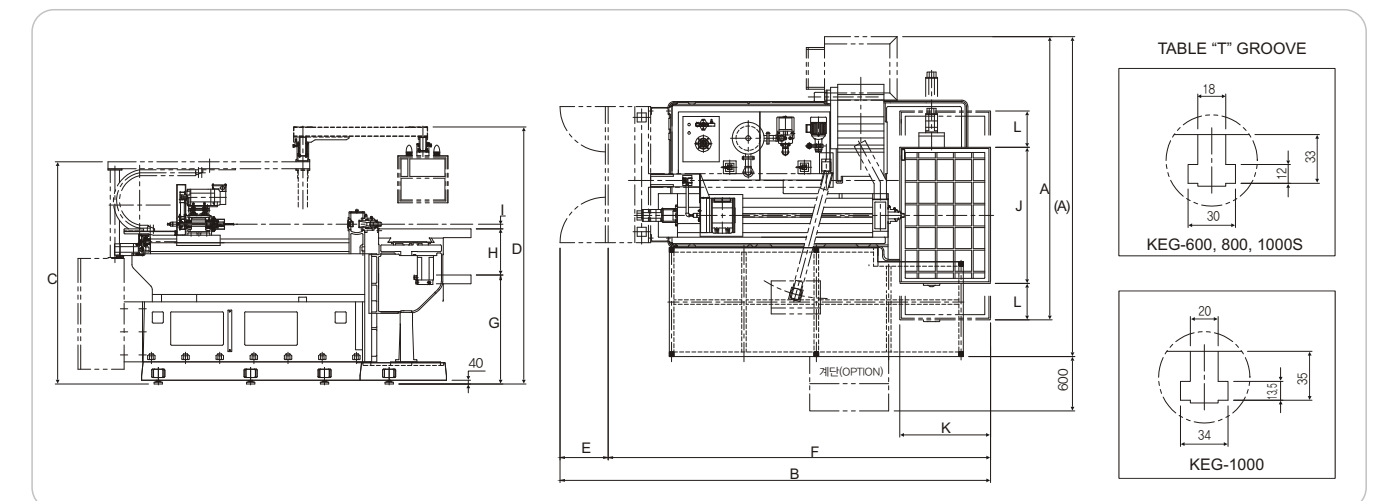
- KEG Series는 금형의 냉각수 Hole, Ejector Pin Hole, Heater Hole, 유압 매니폴드 등의 양산가공에 적합한 모델입니다.
- 소재의 위치, 가공깊이 등에 따른 수동 및 자동프로그래밍이 용이합니다.
- 가공깊이, 중량 등에 따라 다양한 기종을 구비하고 있습니다.



SPECIFICATIONS

Model Type			KEG-600	KEG-800	KEG-1000S	KEG-1000
Machining capacity	Hole diameter	(mm)	Ø3 ~ Ø32			
	Max. drilling depth	(mm)	600	800	1000	
	Spindle revolution	(RPM)	1250 ~ 6000			
Travel	Table cross (X axis)	(mm)	460	560		800
	Spindle vertical (Y axis)	(mm)	250			500
	Spindle horizontal (Z axis)	(mm)	1020	1220	1520	
Main spindle feed mechanism			Ball lead screw			
Power	Spindle motor	(Kw)	5.5 / 7.5 (α6/ 10000i + Power up)			
	Z axis motor	(Kw)	1.6 (α8/3000)			
	Y axis motor	(Kw)	3.0 (α12B/3000)			4.0(α22B/3000)
	X axis motor	(Kw)	1.6 (α8/3000)			
	High pressure pump motor	(Kw)	11			
	Chip flow pump motor	(Kw)	0.75			
	Cascade pump motor	(Kw)	1.5			
Speed	Cutting feed-rate (Z axis)	(mm/min)	0~500			
	Rapid traverse (Z axis)	(mm/min)	5000			
	Table rapid traverse (X axis)	(mm/min)	5000			
	Table rapid traverse (Y axis)	(mm/min)	5000			
Table	Max. loading capacity	(Kg)	1000			2000
	Size	(mm)	600 x 1000	800 x 1100		1000 x 1500
Coolant unit	Tank capacity	(L)	1200			
	Max. pressure	(Kg/cm ²)	100			
	High pressure pump max. discharge	(L/min)	55			
	Chip flow pump max. discharge	(L/min)	21.6			
	Cascade pump max. discharge	(L/min)	270 (head of pump : 8m)			
	Filtration	(μ)	50			
Floor space		(mm)	2700 x 4500	2800 x 4600	2800 x 4600	3230 x 4760
Machine main body weight		(Kg)	7200	7500	7700	9000
Total power		(KVA)	45			
NC unit			FANUC Series / User spec			

DIMENSION



Model	mm	A(A)	B	C	D	E	F	G	H	I	J	K	L
KEG - 600		2700	4500	2180	2270	500	4000	930	250	110	1000	600	230
KEG - 800		2800	4600	2180	2270	500	4100	930	250	110	1100	800	280
KEG - 1000S		2800	4600	2180	2270	500	4100	930	250	110	1100	800	280
KEG - 1000		3230 (3585)	4760	2400	2700	500	4260	1230	500	50	1500	1000	400





Model Type **400 · 600 · 800 CNC (1~2 Spindle)**

Special Model for Small Diameter Hole

- Specially designed for the purpose of small diameter and sleeve pin holes.
As well as for mass production of small to medium size parts.
- Ball lead screws are used for the feed mechanism to insure smooth feeding and stable deep hole drilling.
- Optional work piece rotating mechanism is available to increase productivity.



Model : KEXG-600-2CNC

소구경 가공용 전용기종

- 소구경, Sleeve Pin을 전용으로 가공하기 위하여 개발한 기종입니다.
- 필요에 따라 의료기기 가공에도 적용될 수 있습니다.
- Ball lead screw를 이송기구로 채택, 고정도(高精度)의 가공이 가능합니다.
- 공작물에 따라 고정치구 또는 회전치구를 설치하여 생산성을 향상시킬 수 있습니다.



SPECIFICATIONS

Model Type			KEXG-400	KEXG-600	KEXG-800
Machining capacity	Hole diameter	(mm)	Ø2 ~ Ø12		
	Max. drilling depth	(mm)	400	600	800
Travel	Table cross (X axis)	(mm)	460		
	Spindle horizontal (Z axis)	(mm)	920	1120	1320
Main spindle feed mechanism			Ball lead screw		
Power	Spindle motor	(Kw)	1.5 ~ 7.5		
	Z axis motor	(Kw)	1.6 (α8/3000)		
	X axis motor	(Kw)	1.6 (α8/3000)		
	High pressure pump motor	(Kw)	3.7 ~ 5.5		
	Chip flow pump motor	(Kw)	1.5		
	Cascade pump motor	(Kw)	0.75		
Speed	Cutting feed (Z axis)	(mm/min)	0~500		
	Rapid traverse (Z axis)	(mm/min)	5000		
	Table rapid traverse (X axis)	(mm/min)	5000		
Table	Max. loading capacity	(Kg)	1000		
	Size	(mm)	800 x 1100		
Coolant unit	Tank capacity	(L)	1200		
	Max. pressure	(Kg/cm ²)	105		
	High pressure pump max. discharge	(L/min)	54		
	Chip flow pump max. discharge	(L/min)	21.6		
	Cascade pump max. discharge	(L/min)	270 (head of pump : 8m)		
	Filtration	(μ)	50		
Machine main body weight			4900	5200	5500
Total power			35		
NC unit			FANUC Series / User spec		

ACCESSORIES

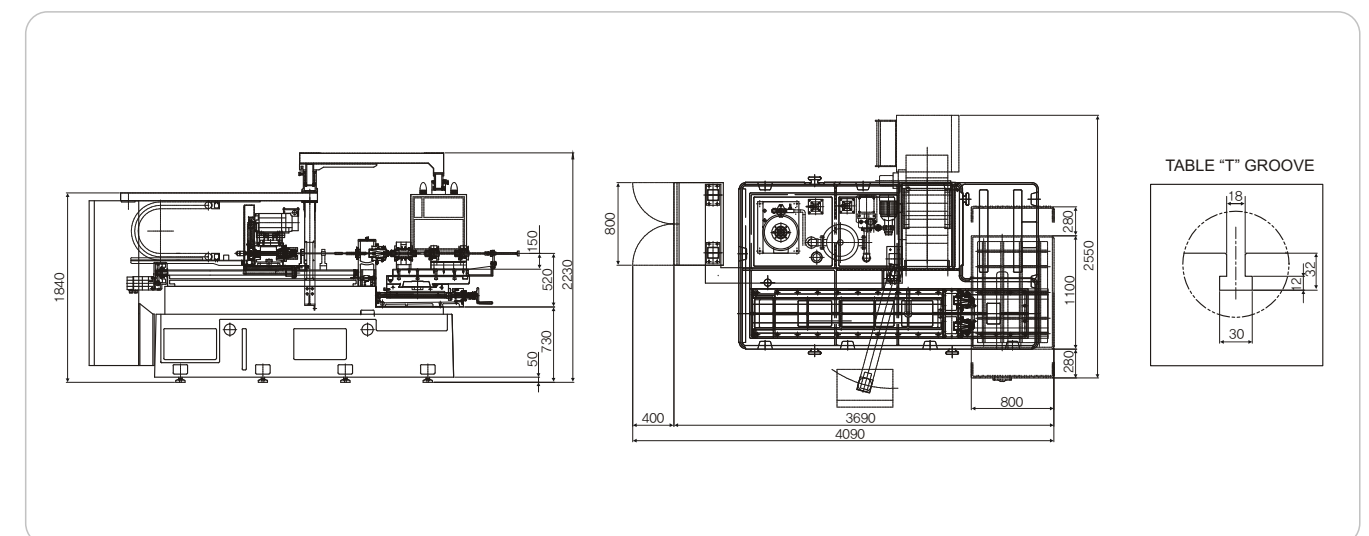
Standard Accessories

- AC spindle motor
- Spindle oil mist lubrication
- Slideway auto lubrication
- Whip guide (2 units)
- Over flow sensor
- Spindle overload monitor
- Coolant level monitor
- Adjustable drill holder
- RS 232C interface
- Cartridge filter with pressure gauge
- Magnetic separator combined with chip conveyor
- Chip tray
- NC unit FANUC Series

Optional Accessories

- Working scaffold & Stair
- Refrigerating oil cooler(5RT)
- Centrifuge separator
- Scraping type chip conveyor
- Oil leak-prevention cover for table
- Safety cover(Z axis)
- Counter rotating jig fixture

DIMENSION





Model Type **1500 · 2000 CNC**

CNC Gundrilling / BTA Machine

- The KHBG Series is table movable type with a combining the functions of Gundrilling and BTA drilling for faster and high quality precision in various materials.
- As the work table is possible to be loaded of heavy work piece from small to large and heavy parts with various materials, the machine is suitable for drilling any figures and workpieces in such industrial fields as of hydraulic, construction, chemical industry and general industrial machine.
- An optional Angle plate specially designed for Tube sheet drilling of heat exchangers, petrochemical industry.



Model : KHBG-2000CNC

건드릴 / BTA 겸용기

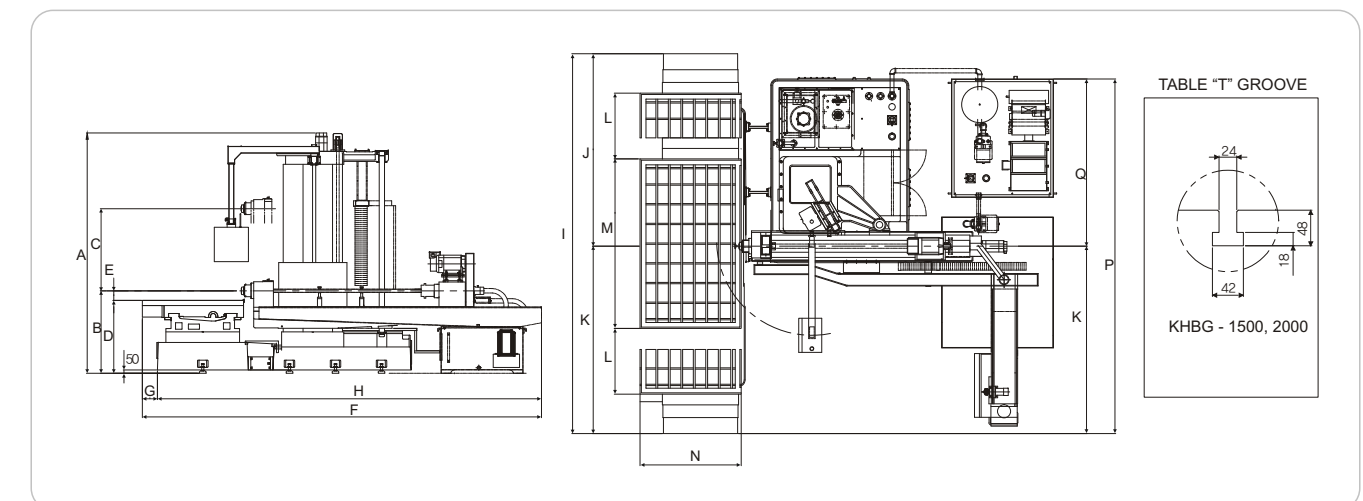
- KHBG Series는 소구경 가공의 Gundrilling 기능과 대구경 가공의 BTA Drilling 기능을 함께 겸비한 Table 이송 Type의 고정도용 Gundrilling & BTA 입니다.
- Work Table은 중량가공물의 적재가 가능하여 대·소형 금형의 Deep Hole 가공에 적합하며 다양한 형상의 중량가공물의 가공이 가능합니다. 또한 유압기기, 건설기기, 화학기기 및 일반산업기계 부품 가공에 적합합니다.
- Angle Plate를 추가로 설치할 경우 열교환기, 석유화학장치에 사용되는 Tube Sheet의 정밀 심공가공도 가능합니다.



SPECIFICATIONS

Model Type				KHBG-1500CNC	KHBG-2000CNC
Machining capacity	Hole diameter	Gundrill	(mm)	Ø7 ~ Ø20	
		B.T.A	(mm)	Ø16 ~ Ø65	
	Max. drilling depth		(mm)	Gundrill : 1500 / B.T.A : 2100	
	Spindle revolution		(RPM)	3000	
Travel	Table cross	(X axis)	(mm)	1500	2000
	Spindle vertical	(Y axis)	(mm)	1300 (1600 : Option)	
	Spindle horizontal	(Z axis)	(mm)	2200	
Main spindle feed mechanism				Ball lead screw	
Power	Spindle motor		(Kw)	22 / 26 (α22/8000i)	
	Z axis motor		(Kw)	4.0 (α22/3000)	
	Y axis motor		(Kw)	4.0 (α22B/3000)	
	X axis motor		(Kw)	7.0 (α30/3000)	
	High pressure pump motor		(Kw)	Gundrill : 11 / B.T.A : 45	
	Chip flow pump motor		(Kw)	4.0	
	Cascade pump motor		(Kw)	7.7	
Speed	Cutting feed	(Z axis)	(mm/min)	0~500	
	Rapid traverse	(Z axis)	(mm/min)	5000	
	Table rapid traverse	(X axis)	(mm/min)	5000	
	Table rapid traverse	(Y axis)	(mm/min)	5000	
Table	Max. loading capacity		(Kg)	6000	10000
	Size		(mm)	1520 x 2000	1520 x 2500
Coolant unit	Tank capacity		(L)	4000	
	Max. pressure		(Kg/cm ²)	Gundrill : 100 / B.T.A : 70	
	High pressure pump max. discharge		(L/min)	Gundrill : 55 / B.T.A : 350	
	Chip flow pump max. discharge		(L/min)	1000~14m	
	Cascade pump max. discharge		(L/min)	450	
	Filtration		(μ)	50	
Floor space				5940 x 5280	5940 x 5780
Machine main body weight				25000	28000
Total power				165	
NC unit				FANUC Series / User spec	

DIMENSION



Model	mm	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
KHBG - 1500		3660	1255	1250	1105	145	5940	135	5805	5280	2680	2600	750	2000	1520	5120	2520
KHBG - 2000		3660	1255	1250	1105	145	5940	135	5805	5780	2930	2850	1250	2500	1520	5370	2520



KHBG-W (Wide and Rigid structure)

Model Type **W2000 · W3000 · S3000 CNC**

CNC Gundrilling / BTA Machine for Heavy Loading

- The KHBG-W Series is modification of KHBG series for heavier work piece with combining the functions of Gundrilling and BTA drilling for faster and high quality precision in various materials.
- As the work table is enlarged and strengthened heavier work piece(Max 25ton) can be loaded, suitable for drilling any figures and workpieces in such industrial fields as hydraulic, construction, chemical industry and general industrial machine.
- An optional Angle plate specially designed for tube sheet drilling of heat exchangers, petrochemical industry.



Model : KHBG-W3000CNC

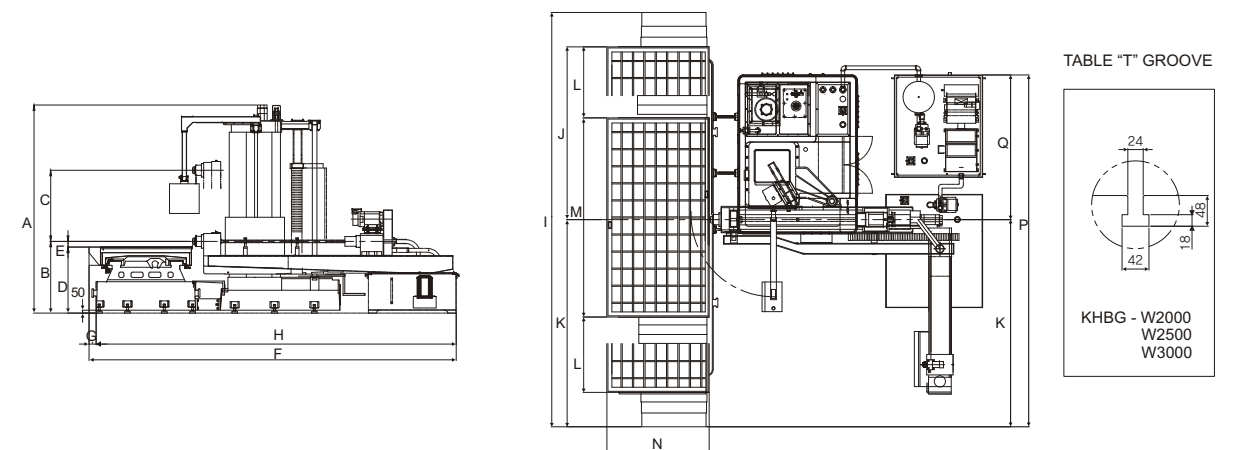
중량물 가공용 건드릴 / BTA 겸용기

- KHBG-W Series는 KHBG 모델의 Work Table을 보강하여 중량물에 대한 Gundrilling 기능과 BTA Drilling 기능을 함께 겸비한 고정도용 Gundrilling & BTA 겸용 기계입니다.
- Work Table은 KHBG 모델 보다 더욱 무거운 중량 가공물(최대 25톤)의 적재가 가능하여 다양한 형상의 중량가공물의 가공이 가능합니다. 또한 유압기기, 건설기기, 화학기기 및 일반 산업기계 부품 가공에 적합합니다.
- Angle Plate를 추가로 설치할 경우 열교환기, 석유화학장치에 사용되는 Tube Sheet의 정밀 심공가공도 가능합니다.

SPECIFICATIONS

Model Type				KHBG-W2000CNC	KHBG-W3000CNC	KHBG-S3000CNC
Machining capacity	Hole diameter	Gundrill	(mm)	Ø7 ~ Ø20		Ø7 ~ Ø24
		B.T.A	(mm)	Ø16 ~ Ø65		Ø16 ~ Ø120
	Max. drilling depth		(mm)	Gundrill : 1500 / B.T.A : 2100		575~3000
	Spindle revolution		(RPM)	3000		
Travel	Table cross	(X axis)	(mm)	2000	3000	3000
	Spindle vertical	(Y axis)	(mm)	1300 (1600 : Option)		1300
	Spindle horizontal	(Z axis)	(mm)	2200		1700
Main spindle feed mechanism				Ball lead screw		
Power	Spindle motor		(Kw)	22 / 26 (α22/8000i)		30 / 37 (α30/6000i)
	Z axis motor		(Kw)	4.0 (α22/3000)		4.0 (α22/3000)
	Y axis motor		(Kw)	4.0 (α22B/3000)		7.0 (α30/3000)
	X axis motor		(Kw)	9.0 (α40/3000 with fan)		9.0 (α40/3000 with fan)
	High pressure pump motor		(Kw)	Gundrill : 11 / B.T.A : 45		Gundrill : 7.5 / B.T.A : 22, 30
	Chip flow pump motor		(Kw)	4.0		4x2
	Cascade pump motor		(Kw)	7.7		4x2
Speed	Cutting feed	(Z axis)	(mm/min)	0~500		3000
	Rapid traverse	(Z axis)	(mm/min)	5000		5000
	Table rapid traverse	(X axis)	(mm/min)	5000		5000
	Table rapid traverse	(Y axis)	(mm/min)	5000		5000
Table	Max. loading capacity		(Kg)	25000	25000	10000
	Size		(mm)	1600 x 2500	1800 x 3500	1520 x 2500
Coolant unit	Tank capacity		(L)	4000		5000
	Max. pressure		(Kg/cm²)	Gundrill : 100 / B.T.A : 70		Gundrill : 56 / B.T.A : 180, 250
	High pressure pump max. discharge		(L/min)	Gundrill : 55 / B.T.A : 350		180(GD56), 250
	Chip flow pump max. discharge		(L/min)	1000~14m		300 x 2
	Cascade pump max. discharge		(L/min)	450		300 x 2
	Filtration		(μ)	50		50
Floor space			(mm)	6480 x 6760	6480 x 7260	5440 x 5780
Machine main body weight			(Kg)	30000	34000	30000
Total power			(KVA)	165		102
NC unit				FANUC Series / User spec		

DIMENSION



Model	mm	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
KHBG - W2000CNC		3660	1255	1250	1155	100	6480	-	6480	6760	3370	3390	1000	2500	1600	5935	2545
KHBG - W3000CNC		3660	1255	1250	1155	100	6480	125	6355	7260	3640	3620	1500	3500	1800	6185	2545

KHRG

Model Type 1600 · 2000 · 2500 · 3000

The KHRG with a horizontal rotary table performs integrated machining operations such as surface milling, tapping, and gundrilling.

- This is the first gundrill machine with attaching hydraulic tool holder using the one-touch function.
- Equipped with high-precision rotary tables allows excellent and precision gundrilling for various holes in molds.
- 4-Axis CNC gundrill machine with column movable type.
- Attaching various tools are possible for the job of tapping, surface milling and gundrilling.



Model : KHRG-1600CNC

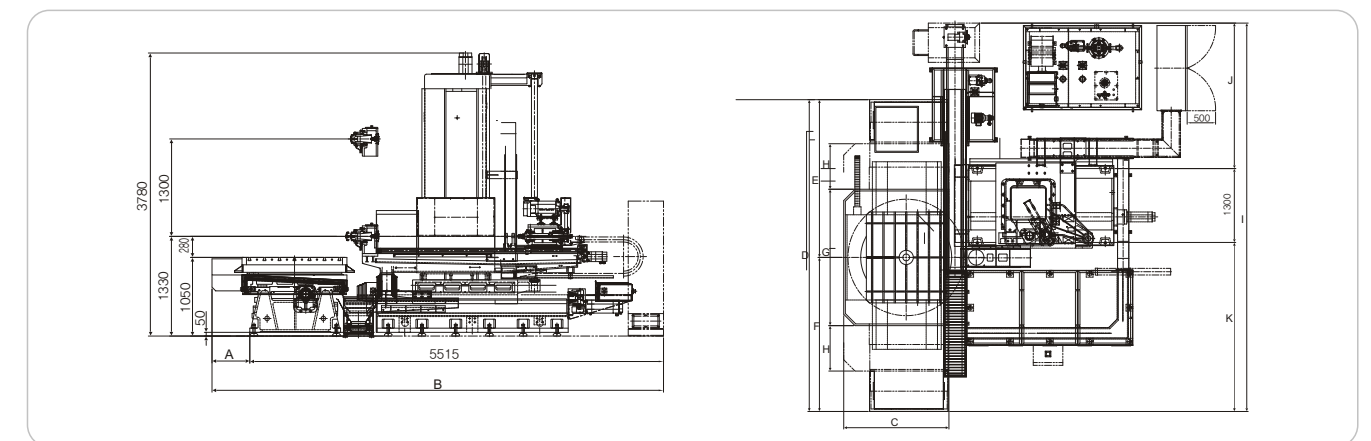
복잡한 형상의 금형 냉각수 HOLE 가공용 CNC 4축 건드릴 기계

- 국내 최초로 유압식 탈·부착용 Tool Holder를 적용한 Gundrilling 기계입니다.
- Work Table은 고정밀 Rotary Table을 장착하여 복잡한 금형의 Hole 가공이 가능합니다.
- Column이 전·후로 이동하는 4축 건드릴 기계입니다.
- 다양한 공구의 장착으로 건드릴 가공은 물론 면가공과 태핑 가공이 가능한 다기능 건드릴 기계입니다.

SPECIFICATIONS

Model Type			KHRG-1600	KHRG-2000	KHRG-2500	KHRG-3000
Machining capacity	Hole diameter	(mm)	Ø3 ~ Ø32			
	Max. drilling depth	(mm)	1500 (1800 : Option)			
	Spindle revolution	(RPM)	1250 ~ 6000			
Travel	Table cross (X axis)	(mm)	1600	2000	2500	3000
	Spindle vertical (Y axis)	(mm)	1300 (1600 : Option)			
	Spindle horizontal (W axis)	(mm)	2020			
	Column horizontal (Z axis)	(mm)	1000			
Main spindle feed mechanism			Ball lead screw			
Power	Spindle motor	(Kw)	15 / 18.5 (α15 / 7000i)			
	Z axis motor	(Kw)	1.6 (α8 / 3000)			
	Y axis motor	(Kw)	4.0 (α22B / 3000)			
	X axis motor	(Kw)	7.0(α30i)	9.0(α40/3000 with fan)		
	High pressure pump motor	(Kw)	15			
	Chip flow pump motor	(Kw)	0.75			
	Cascade pump motor	(Kw)	1.5			
	Zaxis motor	(Kw)	9.0(α40/3000 with fan)			
	Baxis motor	(Kw)	7.0(α30/3000)	6.0(α40i)		
Speed	Tapping size	(mm(Inch))	M4 ~ M16 (PT 1/8 ~ PT 3/4)			
	Cutting feed (Z axis)	(mm/min)	0-500			
	Rapid traverse (Z axis)	(mm/min)	5000			
	Table rapid traverse (X axis)	(mm/min)	5000			
	Table rapid traverse (Y axis)	(mm/min)	5000			
Table	Max. loading capacity	(Kg)	6000	15000	20000	25000
	Size	(mm)	1400 x 1600	1600 x 1800	1800 x 2000	2000 x 2000
	Min. Indexing	(°)	0.01			
Coolant unit	Tank capacity	(L)	1200			
	Max. pressure	(Kg/cm²)	100			
	High pressure pump max. discharge	(L/min)	57			
	Chip flow pump max. discharge	(L/min)	21.6			
	Cascade pump max. discharge	(L/min)	270 (head of pump : 8m)			
	Filtration	(μ)	50			
Machine main body weight		(Kg)	30000	45000	50000	55000
Total power		(KVA)	50			
NC unit			FANUC Series / User spec			
X-Y-W-Z(Gundrill), B(R/Table)						

DIMENSION



Model	mm	A	B	C	D	E	F	G	H	I	J	K
KHRG - 1600		505	6020	1850	5486	2775	2711	2400	800	6835	3210	2325
KHRG - 2000		705	6220	2050	6086	3075	3011	2600	1000	7035	3210	2525
KHRG - 2500		905	6420	2250	6786	3425	3361	2800	1250	7285	3210	2775
KHRG - 3000		1105	6670	2500	7036	3675	3611	3050	1500	7535	3210	3025

ACCESSORIES

Standard Accessories

- AC spindle motor
- Spindle oil mist lubrication
- Slideway auto lubrication
- Whip guide (2 units)
- Over flow sensor
- Spindle overload monitor
- Coolant level monitor
- Adjustable drill holder
- Magnetic separator with chip conveyor
- RS 232C interface
- Cartridge filter with pressure gauge
- Magnetic separator combined with chip conveyor
- Chip tray
- NC unit FANUC Series

Optional Accessories

- Working scaffold & Stair
- Y axis stroke (1600 str.)
- Refrigerating oil cooler
- Centrifuge separator
- Scraping type conveyor
- Oil leak-prevention cover for table
- Safety cover(Z axis)

KDG/KIG

Model Type **400NC · 600NC · 800NC (1~4 Spindle)**

Specially Desinged Compact Model for Mass Production

- Ball lead screws are used for the feed system to ensure smooth feeding and stable deep hole drilling.
- Self contained compact design with built-in coolant and filtration system for minimal floor space requirement.(KIG model)
- Available with hydraulic work clamping system, automatic loading, parts handling and transfer system.
- For mass quantity production 1~4 spindle machines are available.

Model : KDG-800-4NC



대량 생산용 컴팩트한 전용기종

- Ball lead screw를 이송기구로 사용하므로 고정도(高精度), 양산용 건드릴 전용기입니다.
- 절삭유를 Bed에 내장하여 기계 크기를 줄였으며 설치 및 이동이 간단합니다. (KIG 모델)
- 각종 전용치구 Loading 장치의 설치에 따라 생산성을 향상 시킬 수 있습니다.
- 1~4축을 설치하여 양산 가공에 최적적임.

SPECIFICATIONS

Model Type			KDG/KIG-400	KDG/KIG-600	KDG/KIG-800
Machining capacity	Hole diameter	(mm)	Ø3 ~ Ø24(32)		
	Max. drilling depth	(mm)	400	600	800
Main spindle feed mechanism			Ball lead screw		
Power	Spindle motor	(Kw)	1.5 ~ 5.5		
	Z axis motor	(Kw)	1.0~2.1		
	High pressure pump motor	(Kw)	11		
	Chip flow pump motor	(Kw)	0.75		
	Cascade pump motor	(Kw)	0.4		
Speed	Cutting feed (Z axis)	(mm/min)	0~500		
	Rapid traverse (Z axis)	(mm/min)	5000		
Coolant unit	Tank capacity	(L)	1000~2500		
	Max. pressure	(Kg/cm ²)	100		
	High pressure pump max. discharge	(L/min)	57		
	Chip flow pump max. discharge	(L/min)	21.6		
	Cascade pump max. discharge	(L/min)	270 (head of pump : 8m)		
Filtration		(μ)	50		
Machine main body weight		(Kg)	7900	8300	8500
Total power		(KVA)	40		
NC unit			FANUC Series / User spec		

ACCESSORIES

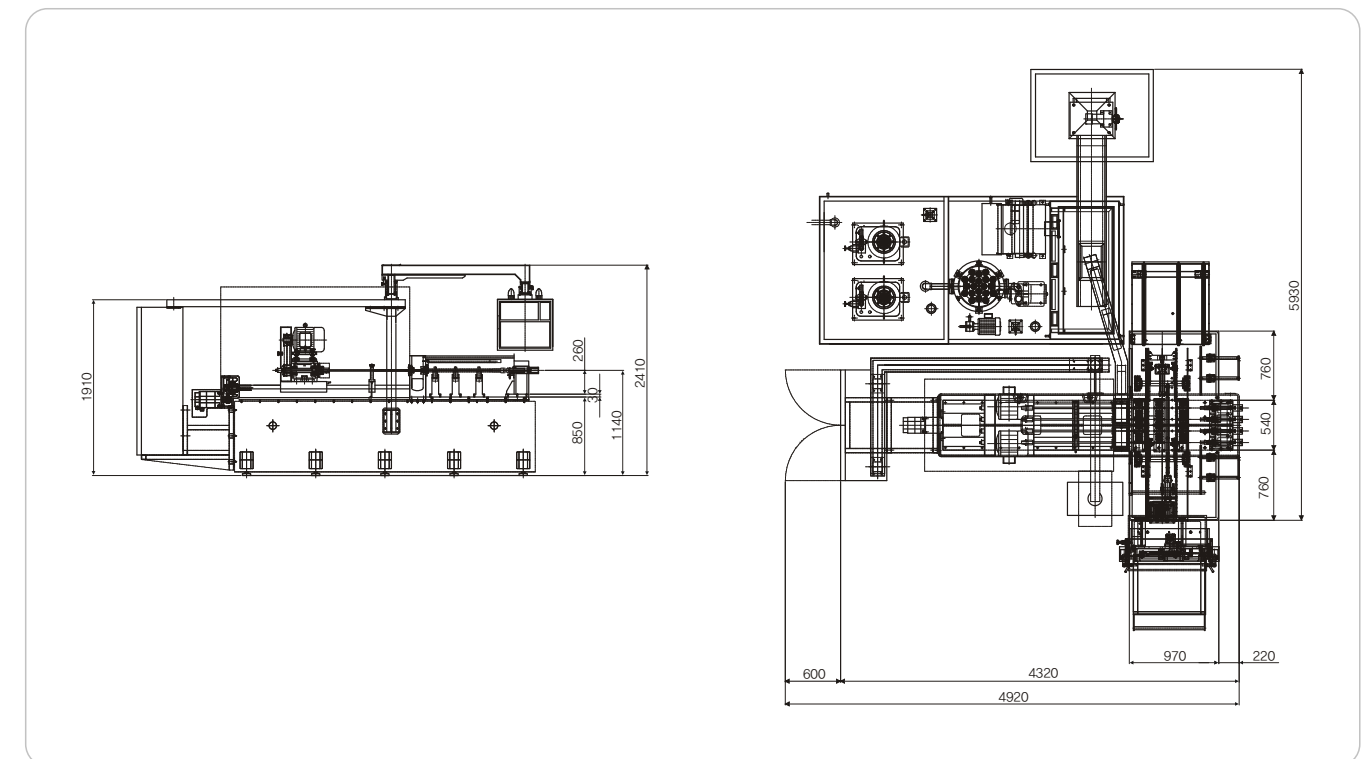
Standard Accessories

- Spindle oil mist lubrication
- Slideway auto lubrication
- Over flow sensor
- Spindle overload monitor
- Coolant level monitor
- Adjustable drill holder
- RS 232C interface
- Cartridge filter with pressure gauge
- Magnetic separator combined with chip conveyor
- Chip tray
- NC unit FANUC Series

Optional Accessories

- AC spindle motor
- Working scaffold & Stair
- Refrigerating oil cooler
- Centrifuge separator
- Scraping type chip conveyor
- Oil leak-prevention cover for table
- Safety cover(Z axis)

DIMENSION



KTBG

Model Type 2000 · 3000 · 3500

Cooling water hole processing machine for tube sheet, maximum load capacity 40Ton

- Column conveying type developed for cooling water hole processing of heat exchanger. It is a combined processing machine of Gundrilling and BTA drilling
- The work table is fixed, allowing deep hole machining, regardless of workpiece weight, size and shape.
- It is possible to install angle plate and V-block for tube sheet processing.



Model : KTBG-3500

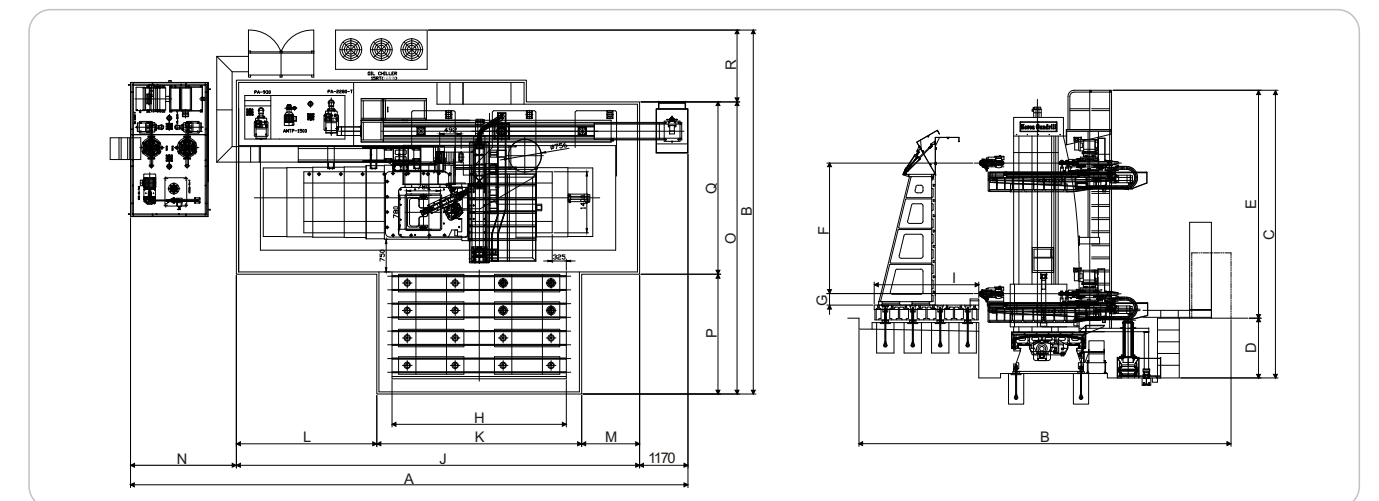
Tube Sheet의 냉각수 Hole 가공용 , 최대 적재능력 40Ton

- 열교환기의 냉각수 Hole 가공용으로 개발된 Column 이송 방식의 Gundrill & BTA 겸용 가공 기계 입니다.
- Work Table이 고정되어 있어 공작물의 중량, 크기, 형상에 관계없이 Deep Hole 가공이 가능합니다.
- Tube Sheet 가공전용 Angle Plate와 V-Block 장착이 가능합니다.

SPECIFICATIONS

Model Type			KTBG-2000	KTBG-3000	KTBG-3500
Machining capacity	Hole diameter	Gundrill (mm)	Ø7 ~ Ø24		
		B.T.A (mm)	Ø16 ~ Ø65		
	Max. drilling depth	(mm)	1500		
	Spindle revolution	(RPM)	3000		
Travel	Table cross (X axis)	(mm)	2000	3000	3500
	Spindle vertical (Y axis)	(mm)	1600	1600	3000
	Spindle horizontal (Z axis)	(mm)	2150		
Main spindle feed mechanism			Ball lead screw		
Power	Spindle motor	(Kw)	22 / 26 (α22/8000i)		
	X axis motor	(Kw)	9.0 (α40/3000 with fan)		
	Y axis motor	(Kw)	4.0 (α22B/3000)		
	Z axis motor	(Kw)	4.0 (α22/3000)		
	High pressure pump motor	(Kw)	Gundrill : 11 / B.T.A : 45		
	Chip flow pump motor	(Kw)	1.5		
	Cascade pump motor	(Kw)	3.0		
	Other motors	(mm/min)	1.92		
Speed	Column cross direction (X axis)	(mm/min)	5000		
	Column vertical direction (Y axis)	(mm/min)	5000		
	Rapid traverse (Z axis)	(mm/min)	5000		
Table	Size	(Kg)	1800 x 2800	2250 x 3800	2450 x 4000
	Mzx. loading capacity	(mm)	35000	45000	50000
Coolant unit	Tank capacity	(L)	4000		
	Max. pressure	(Kg/cm ²)	Gundrill : 100 / B.T.A : 70		
	High pressure pump max. discharge	(L/min)	Gundrill : 50 / B.T.A : 350		
	Chip flow pump max. discharge	(L/min)	21.6		
	Cascade pump max. discharge	(L/min)	450		
	Filtration	(μ)	50		
Floor space			11300 x 7700	12300 x 8100	12800 x 8300
Machine main body weight			36000	43000	45000
Total power			116		
NC unit			FANUC Series / User spec.		

DIMENSION



Model	mm	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
KTBG-2000		11300	7700	5600	1370	4230	2000	260	2800	1850	7650	3400	2920	1330	2480	6000	2150	3850	1700
KTBG-2500		11800	7900	6100	1370	4730	2500	260	3300	2050	8150	3900	2920	1330	2480	6200	2350	3850	1700
KTBG-3000		12300	8100	6600	1370	5230	3000	260	3800	2250	8650	4400	2920	1330	2480	6400	2550	3850	1700
KTBG-3500		12800	8300	6600	1370	5230	3000	260	4000	2450	9150	4600	3820	1330	2480	6600	2750	3850	1700

ACCESSORIES

Standard Accessories

- AC spindle motor
- Spindle oil mist lubrication
- Slideway auto lubrication
- Whip guide (2 units)
- Over flow sensor
- Spindle overload monitor
- Coolant level monitor
- Magnetic separator
- Scraping type chip conveyor
- RS 232C interface
- Cartridge filter with pressure gauge
- NC unit FANUC Series

Optional Accessories

- Refrigeration oil cooler (20RT)
- Centrifuge separator
- Additional whip guide support
- Angle plate
- V-block
- Macro program (Tube sheet drilling)



Model Type **KWG-400-4CNC, KWG-200-8CNC**

Two-Opposite Directions especially Drilling for Shaft

- Special machine for shaft of auto mobile parts and industrial machines.
- Highly efficient for mass production of precise hall parts by single setting of material.

Model : KWG-400-4CNC



양방향 건드릴 가공실현, 샤프트 가공용

- 자동차 부품 (Cam Shaft, Input Shaft 등), 산업용 부품의 샤프트를 전문으로 가공하는 전용기로 한번의 소재 세팅으로 양방향의 홀 가공이 가능한 국내 유일의 고유 모델입니다.

KWG-400-4CNC		
Application	Cam Shaft	
Material	FCD 25	
Operation	Gun Drill	
Diameter	φ3.6	φ11
RPM	3800rpm	2300rpm
Cutting Feed	150mm/min	150mm/min

KWG-200-6CNC		
Application	Input Shaft	
Material	SCM 420H	
Operation	Gun Drill	
Diameter	Ø7	Ø8
RPM	2200	3200
Cutting Feed	62mm/min	135mm/min

OPTIONS AND ACCESSORIES

Filter Bypass

Allows coolant to flow through the bypass when cleaning the filter without stopping the machine.

필터청소시 절삭유를 우회하게 하여 기계를 중지시키지 않아도 되게 함

Oil Cooler

Maintains optimum oil temperature for best machining.

절삭유의 적정온도를 유지시키는 기능

Automatic Coolant Retrieval System

Not only prevents coolant from being sprayed out but also retrieves and deposits them into sub-tank.

절삭유가 비산되는 것을 방지하고 서브 탱크로 되돌려 주는 기능

Multiple High Pressure Pumps

On multi-spindle machines, an independent high-pressure pump is available for each spindle.

다축기의 경우 각 축마다 여러 개 펌프 장착 가능함

Tool Length Setting Gauge & Adjustable Holder

Allows setting drills of different length without changing machine setting, particularly useful on multi-spindle machines.

다축기에서 다양한 길이의 툴을 쉽게 장착 가능하게 하는 홀더장치

Clamping Jigs

To accommodate customer's specific needs, various type of jigs are available.

고객의 요구에 따라 각종 지그를 제작 공급함

Centrifuge (Micro Separator)

Separates and removes the microscopic metal particles from the coolant, particularly useful when machining cast iron, non-ferrous metals and stainless steel.

초미세 금속분말을 절삭유로부터 분리하여 제거함

Chip Conveyor - Scraper type

Removes chips by scraping them away from coolant

칩을 긁어 올리는 방식으로 절삭유와 분리함

Chip Conveyor - Hinge type

By using hinge belt, removes all types of metal chips.

힌지벨트를 사용하여 모든 유형의 금속칩을 제거함

Chip Conveyor - Magnetic Separator

Separates metal chips from the coolant and removes with a roller conveyor, ideal for steel and cast iron chips.

자석을 사용하여 금속성 칩을 절삭유와 분리함

Counter Rotational Jig Fixture

Rotational work-piece for enhancing the accuracy of machining.

정밀가공시 공작물을 역회전시켜주는 장치

Auto Loading Jig Fixture

Load and unload machining objects automatically.

가공물을 자동으로 로드시킴



KGD TOOL

Table Cover



Safety Cover



Universal Regrinding Machine



Regrinding range :

Dia. $\varnothing 3 \sim \varnothing 44\text{mm}$

- easy to operate
- 3 pointed chuck clamp
- outer / inner cutting angles
- spring type cam
- stepless control of cam
- spindle with ball bearings

Drill Bush / Guide Bush

Stop gun drill whipping, reduce gun drill vibration, increase hole accuracy, and seal the chip box.

드릴의 떨림을 방지하고 칩박스를 밀폐시키는 역할

Whip Guide / Drill Rest

Whip Guide Bush / Rest Bush

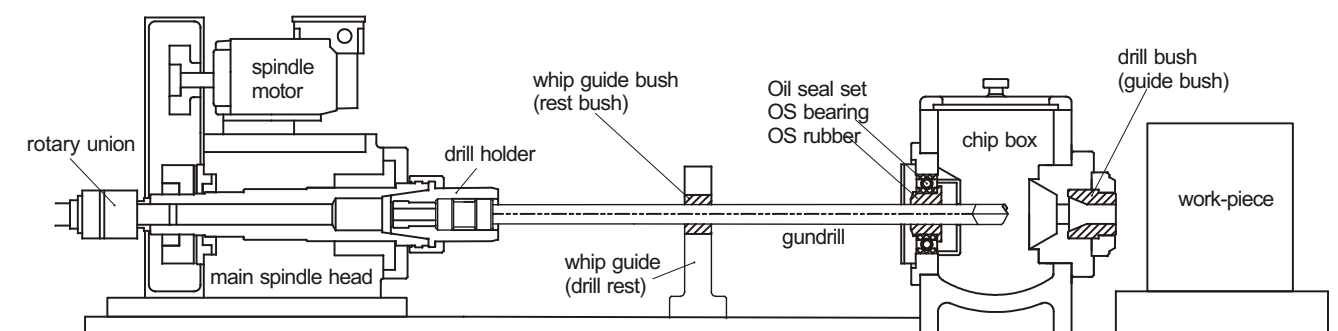
Prevent long the drill shank drills from whipping at high speed rotation.

드릴 고속회전시 떨림을 방지하는 역할

Oil Seal Set (OS rubber, OS bearing)

Oil seal rubber gasket and bearing mounted at the rear of chipbox acts as an oil seal and a damper for shank whipping.

칩박스 후면에 장착하여 오일씰 역할을 해주고 생크가 흔들리는 것을 방지해 줌



KGD Tool is the highest quality and shows excellent performance above any other local tool maker.

Advantages of KGD Tool

- High accuracy and straightness
- Good penetration on difficult material
- Long tool life
- High speed machining
- Good chip flow

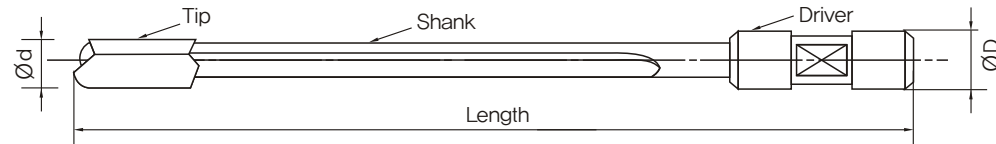
한국건드릴의 장점은 아래와 같습니다.

- 정도가 잘 나옵니다
- 어려운 가공물에서도 뛰어난 성과를 보입니다.
- 내구성이 우수합니다
- 가공속도가 향상됩니다
- 칩배출이 원활합니다.

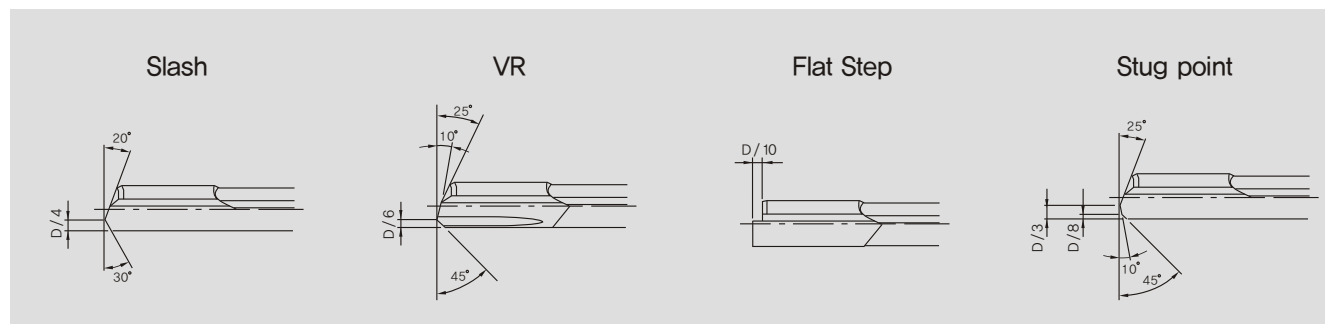
한국건드릴은 일본 미로꾸사의 기술을 도입하여 국내 최고의 건드릴을 생산하고 있으며 국내 타사 제품 대비 월등한 성적을 보이고 있습니다.

건드릴 기계제조업체로서 다년간 축적된 Know how를 바탕으로 가공물에 따른 가장 적합한 형상의 툴을 개발하고 있으며 귀사에 최적의 가공솔루션을 찾아 드리겠습니다.

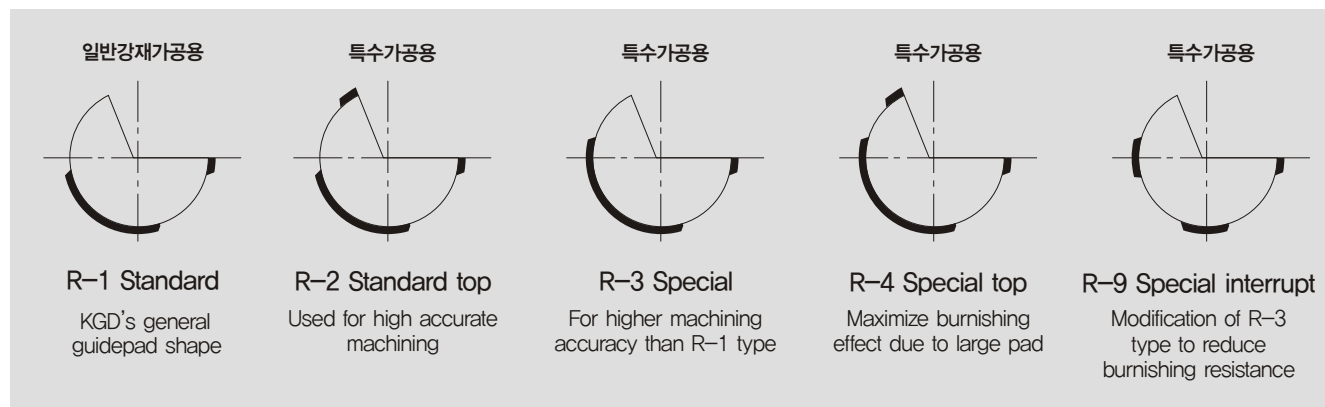
Specifications of Gundrill



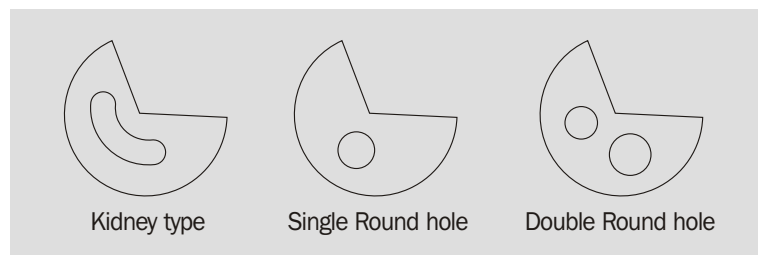
Tip Edges



Guidepads



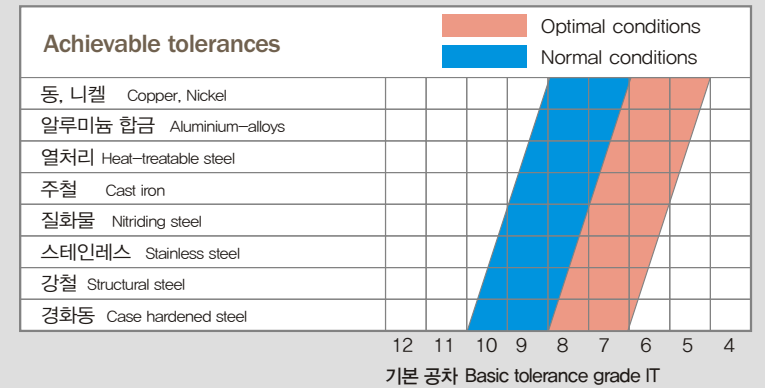
Oil Holes



DRILLING PRECISION

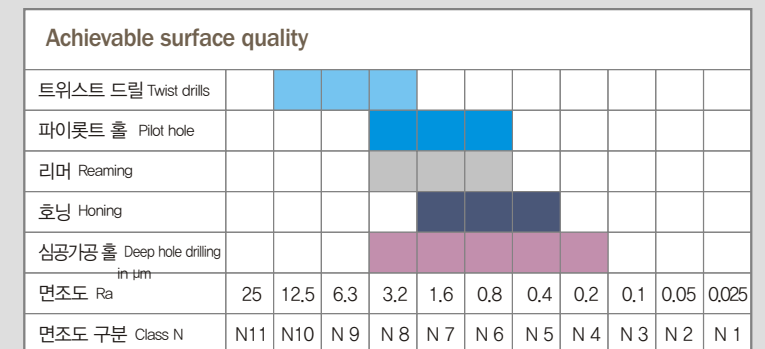
Diameter Tolerance 가공공차

소재재질
Material group



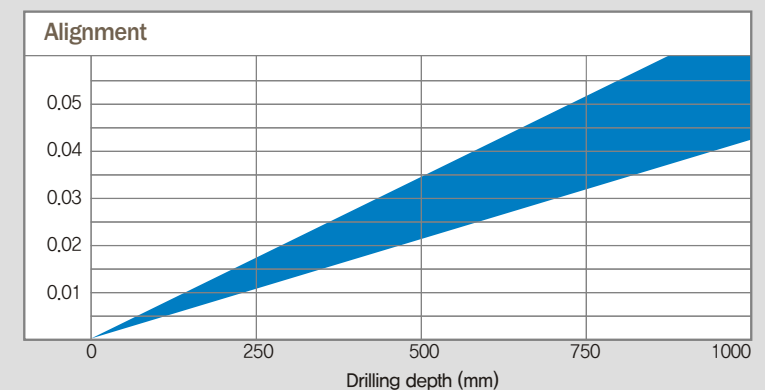
Surface Quality 표면조도

홀 가공법 면조도
Type of hole production



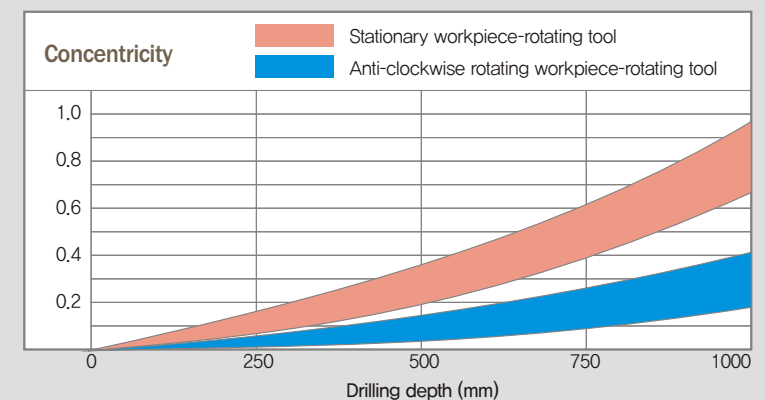
Alignment 진직도

Alignment (mm)



Concentricity 진원도

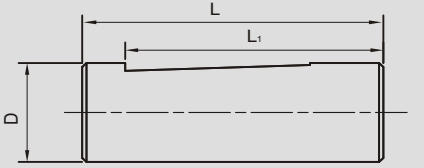
Deviation (mm)



KGD TOOL

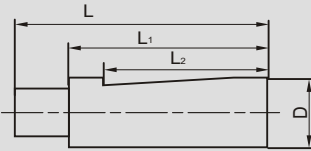
Drivers

TF / STF STD.



Style No.	Tool Diameter	D (mm)	D (Inch)	L (mm)	L1 (mm)
TF1	3.0~12.5	19.05	¾"	70	57
TF2	12.6~19.0	25.40	1"	70	57
TF3	19.1~25.9	31.70	1¼"	70	57
TF4	26.0~32.0	38.10	1½"	70	57
STF	3.0~8.5	12.70	½"	38	30

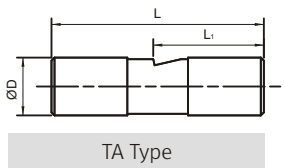
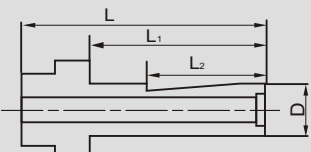
STF 1



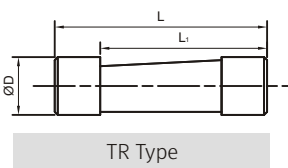
STF					
Style No.	Tool Diameter	D (mm)	L (mm)	L1 (mm)	L2 (mm)
STF 1	8.6~13.5	12.7	48	38	30
STF 2	13.6~32	12.7	56	38	30

※ Short drill driver

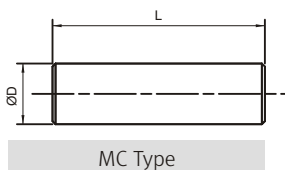
STF 2



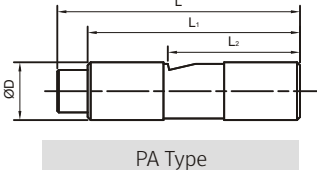
Style No.	D (mm)	L (mm)	L1 (mm)
STA	12.70	38	24
TA1	19.05	70	34
TA2	25.40	70	34
TA3	31.75	70	34
TA4	38.10	70	34



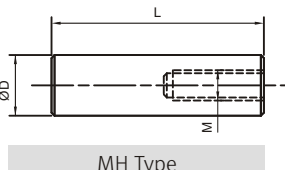
Style No.	D (mm)	L (mm)	L1 (mm)
STR	12.70	38	26
TR1	19.05	70	45
TR2	25.40	70	45
TR3	31.75	70	45
TR4	38.10	70	45



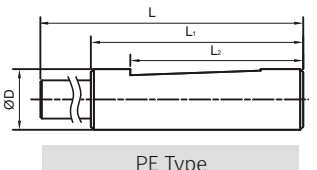
Style No.	D (mm)	L (mm)
SMC	12.70	38
MC1	19.05	70
MC2	25.40	70
MC3	31.75	70
MC4	38.10	70



Style No.	D (mm)	L (mm)	L1 (mm)	L2 (mm)
SPA	12.70	48	38	24
PA1	19.05	80	70	34
PA2	25.40	80	70	34
PA3	31.75	80	70	34
PA4	38.10	80	70	34



Style No.	D (mm)	L (mm)	M (mm)
SMH	12.70	38	M6x0.5
MH1	19.05	70	M10x1
MH2	25.40	70	M16x1.5



Style No.	D (mm)	L (mm)	L1 (mm)	L2 (mm)
PF1	19.05	97	70	45
PF2	25.40	100	70	57.5
PF3	31.75	110	70	57.5
PF4	38.10	110	70	57.5

Standard Stock List

We can deliver the below Stock items on your ordering day.
아래 규격의 툴은 재고 비축중이어서 주문 즉시 배송 가능합니다.

Dia. ØD(mm)	Length (mm)								Dia. ØD(mm)	Length (mm)							
	350 ~500	650	950	1250	1450	1650	1850	2150		350 ~500	650	950	1250	1450	1650	1850	2150
3.02	○	○	○						13.02				○	○	○	○	○
3.52	○	○	○						14.02				○	○	○	○	○
4.02	○	○	○						14.52				○	○	○	○	○
4.52	○	○	○						15.02				○	○	○	○	○
5.02	○	○	○	○					16.02				○	○	○	○	○
5.52	○	○	○	○					17.02				○	○	○	○	○
6.02	○	○	○	○	○				18.02				○	○	○	○	○
6.52	○	○	○	○	○				19.02				○	○	○	○	○
7.02	○	○	○	○	○				20.02				○	○	○	○	○
7.52	○	○	○	○	○	○	○	○	21.02				○	○	○	○	○
8.02	○	○	○	○	○	○	○	○	22.02				○	○	○	○	○
8.52	○	○	○	○	○	○	○	○	23.02				○	○	○	○	○
9.02	○	○	○	○	○	○	○	○	24.02				○	○	○	○	○
9.52	○	○	○	○	○	○	○	○	25.02				○	○	○	○	○
10.02	○	○	○	○	○	○	○	○	26.02				○	○	○	○	○
10.52	○	○	○	○	○	○	○	○	27.02				○	○	○	○	○
11.02	○	○	○	○	○	○	○	○	28.02				○	○	○	○	○
11.52	○	○	○	○	○	○	○	○	29.02				○	○	○	○	○
12.02	○	○	○	○	○	○	○	○	30.02				○	○	○	○	○
12.52	○	○	○	○	○	○	○	○	31.02				○	○	○	○	○

Other specifications are produced upon request.
상기 표준규격외의 제품은 주문제작 가능합니다.

Application



SUS 304

Drill Diameter : Ø12
Cutting Speed : V=40m/min
Feed Rate : f=0.04mm/rev
Coolant Pressure : P=12kgf/cm²

A2017-S

Drill Diameter : Ø12
Cutting Speed : V=100m/min
Feed Rate : f=0.1mm/rev
Coolant Pressure : P=8kgf/cm²

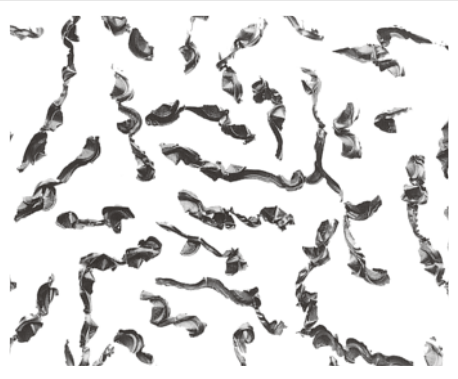


BC-2

Drill Diameter : Ø12
Cutting Speed : V=70m/min
Feed Rate : f=0.08mm/rev
Coolant Pressure : P=30kgf/cm²

SCM415

Drill Diameter : Ø12
Cutting Speed : V=50m/min
Feed Rate : f=0.06mm/rev
Coolant Pressure : P=8kgf/cm²

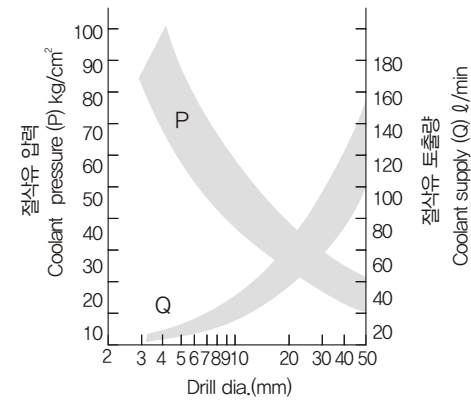


CUTTING CONDITIONS

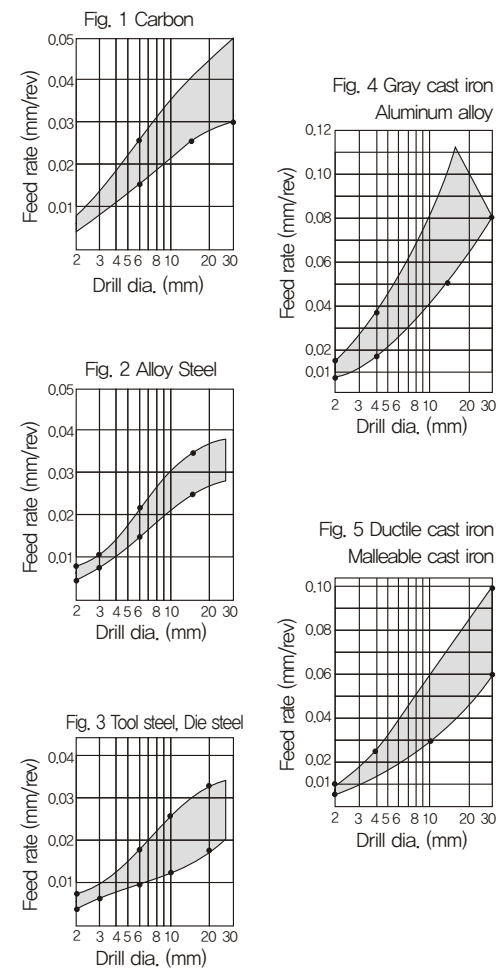
Recommended Cutting Conditions for Gundrilling / 절삭조건

Machining variables					
Work material	Heat Treatment	Hardness		Feed Speed "V" (m/min)	Feed rate "f" (mm/rev)
		HB	HRC		
Free cutting carbon steel S10C~S15C S30C~S50C S24C~S50C	Cold drawn Cold drawn Quenched & tempered	160~190 200~230 250~300	(5) ~ (11) (12) ~ 20 25~32	130 100 80	Fig. 1
Carbon steel S10C~S35C S10C~S50C S50C~	Annealed	110~120 120~185 170~200	~ (9) (5) ~ (13)	130 120 100	
S20C~S30C S30C~S55C S50C~ S55C~	Quenched & tempered	210~250 260~310 320~375 380~440	(16) ~24 26~33 34~40 41~47	90 70 50 40	Fig. 2
Alloy steel SCr.SNC SNCM, SCM SMn etc.	Annealed	250~230	~ (20)	90	Fig. 2
Alloy steel SCr.SNC SNCM, SCM SMn etc.	Annealed or Quenched & tempered	240~310 315~370 280~440 450~500	23~33 34~40 40~47 48~51	70 50 40 30	Fig. 2 Fig. 3
Cast steel SC etc.	Quenched & tempered	140~500 190~240	~ (8) (11) ~22	100 90	Fig. 2
Tool steel SKS, SKD etc.	Annealed Annealed	150~200 210~300	~ (13) (16) ~32	70 50	Fig. 3
Stainless steel Ferrite SUS405-430 Austenite SUS304-305 Martensite Sus 403-410	Annealed Annealed Annealed Quenched & tempered	150~200 160~220 160~220 300~350	~ (13) ~ (18) ~38 32~38	70 50 70 50	Fig. 3
Bearing steel	Annealed	150~210		70	
Bearing steel alloy steel	Annealed			20	
High speed steel	Annealed	210~285	(16) ~30	20	
Gray casting iron FC10~35		110~180 190~220 220~260		90 80 70	Fig. 4
Ductile casting iron FCD10~35		120~170 180~240 240~280 280~320		80 65 55 40	Fig. 5
Malleable casting iron FCMB FCMP		110~180 190~220 220~260		90 80 70	
Aluminum alloy casting Cast iron AC3A etc. Die casting ADC		500kg Load 40~100		180 180	Fig. 4
Copper alloy		120~170 180~205		<105 <120	Fig. 4 Fig. 5

Oil Flow Rate & Oil Pressure



Feed Rate Chart



Recommended Cutting Conditions for B.T.A. Drilling / B.T.A. 절삭조건

Work Material				Cutting speed (m/min)	Drill diameter (mm)			
					16.00~20.00	20.01~31.00	31.01~43.00	43.01~65.00
				Feed rate (mm/rev)				
Unalloyed steel 비합금강	Non-hardened	0.05~0.25% C	90~200	70~120	0.14~0.20	0.15~0.20	0.15~0.25	0.18~0.28
	Non-hardened	0.25~0.55% C	125~225					
	Non-hardened	0.55~0.80% C	150~220	70~120	0.14~0.20	0.17~0.25	0.20~0.30	0.24~0.32
	High carbon & carbon tool steel		180~225					
Low alloy steel 저합금강	Non-hardened		150~260	70~100 55~100	0.14~0.20	0.17~0.25	0.20~0.30	0.24~0.32
	Hardened		220~400					
High alloy steel 고합금강	Annealed	0.05~0.25% C	150~250	60~100	0.14~0.20	0.17~0.25	0.20~0.30	0.24~0.32
	Annealed HSS	0.25~0.55% C	150~250					
	Hardened tool steel	0.55~0.80% C	250~350	60~100	0.14~0.20	0.17~0.25	0.20~0.30	0.24~0.32
	Hardened steel		250~400					
Steel castings 주강	Unalloyed		90~225	50~100	0.12~0.18	0.16~0.22	0.20~0.30	0.24~0.34
	Low alloyed (alloying elements <5%)		150~250					
Stainless steel 스테인리스강	Ferritic, Martensitic	13~25% Cr	150~270	45~85	0.12~0.18	0.15~0.22	0.20~0.28	0.24~0.32
	Austenitic Ni >8%, 18~25% Cr		150~270					
Heat resisting alloy steel 내열강	Fe-based		180~300	10~40	0.12~0.18	0.15~0.21	0.18~0.25	0.20~0.30
	Ni-based		220~300					
	Co-based		220~300					
Titanium 티타늄합금	(Wrought or cast) Alpha and Alpha-beta alloys		300~450	30~50	0.14~0.16	0.16~0.22	0.18~0.26	0.20~0.30
Malleable cast iron 가단주철	Ferritic (short chipping)		110~145	80~100	0.14~0.20	0.18~0.25	0.20~0.30	0.24~0.32
	Pearlitic (long chipping)		150~270					
Gray cast iron 회주철	Low tensile strength		150~220	70~100	0.12~0.18	0.15~0.25	0.20~0.28	0.24~0.32
	High tensile strength		200~330					
Nodular cast iron 덕타일	Ferritic		125~230	50~100	0.12~0.18	0.15~0.25	0.20~0.28	0.24~0.32
	Pearlitic		200~300					
Aluminium alloys 알루미늄합금	Wrought and cold drawn		30~80	65~130	0.10~0.20	0.16~0.25	0.18~0.30	0.20~0.45
	Wrought solution treated and aged		75~150					
	Cast		40~100					
	Cast, solution treated and aged		70~125					
Copper and copper alloys 구리 및 구리합금	Free cutting alloys (Pb ≥ 1%)		50~160	65~130	0.10~0.20	0.16~0.25	0.18~0.30	0.20~0.45
	Brass and leaded bronzes (Pb ≤ 1%)		50~160					

