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*CNC Internal External
Turning Grinding Complex Machine*

 麗勳企業有限公司
LI-HSUN LI-HSUN INDUSTRIAL CO.,LTD



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KG-500A200

有鑒於市售之內圓磨床，常因熱處理後變形量過大，或研磨預留量過多，使其加工研磨時耗時又耗工。因一般內圓磨床所使用之砂輪較小，研削能力較弱，故過多的研磨量會導致工時增加。

麗動/冠昱公司所創新研發之CNC車削研磨複合機，搭配CNC控制器，可於一次工件夾持中執行內車、內磨、外車、外磨、斜度、車削研磨等之複雜工序，亦可用YZ兩研磨軸執行粗磨及精磨之動作。亦可於Y研磨軸或Z研磨軸上加裝刀具，將過多的預留量先行車削後再行精磨，於同一機台同一製程完成執行動作，確保工件之同心度與精度。

此機型通過複合加工機專利 M425734

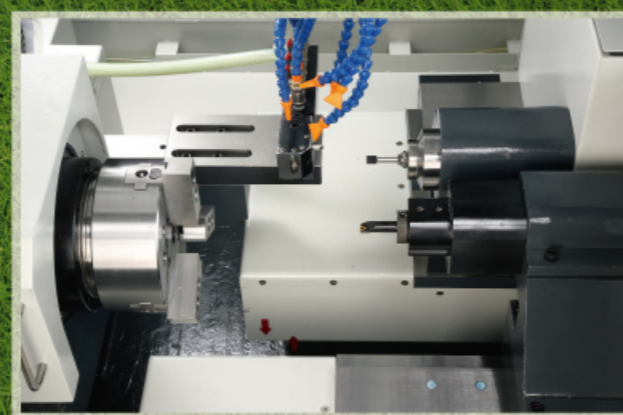
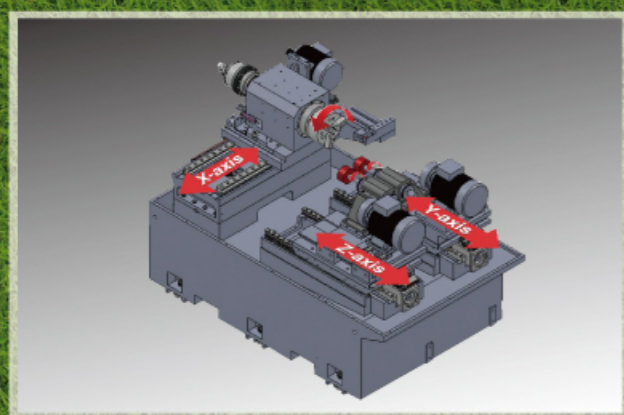
Owing to excessive deformation after heat treatment or too much tolerance left to be ground, the internal grinders on the market require more time for grinding. The conventional internal grinders use smaller grinding wheels with less grinding capacity, which results in more time required to grind off the excessive amount of size.

The newly developed CNC turning grinding complex machine by Li-Hsun/Guan. Yu is equipped with a CNC control, which allows complicated machining to be accomplished in one setup of workpiece, including internal turning, internal grinding, external turning, external grinding, tapered surfaces' turning and grinding. The grinding spindles on the Y, Z-axis can perform coarse and fine grinding. In addition, a turning spindle can be mounted on Y-axis or Z-axis to cut the excessive tolerance before performing fine grinding. With turning and grinding operations accomplished on one machine, part concentricity and accuracy are assured. This complex machine has been patented M425734.

KG-450A150/B150

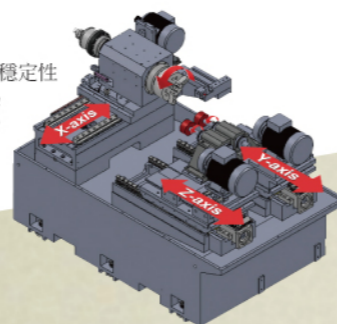
本機台X、Z雙軸向之直線滑軌選用MSK產品，具有高精度以及高剛性，以確保機台本身的精度，在鑄件上皆使用FC 30高級鑄鐵材質鑄造，經過回火處理(退火)自然季化，以徹底消除鑄件內部應力，永久確保機械加工精度及穩定性，機台底座內部結構及肋骨位置依照力學原理設計，底座猶如機台的地基，穩固地基是機台不可或缺的一項要素。

The X, Z-axis are mounted with NSK linear ways, featuring high accuracy and high rigidity to ensure the machine accuracy at all times. All structural parts are manufactured from high quality cast iron (FC 30), tempered and seasoning treated for relieving internal stress of the casting parts. This also enables the machine to maintain high machining accuracy and high stability year after. The interior of the base and ribs deployment are designed according to dynamic principles, providing a solid foundation.



KG-500A200

穩重的機體結構，極致剛性與穩定性
Sturdy Machine Structure with
Ultimate Rigidity and Stability



雙研磨主軸
Twin Spindle Grinding



研磨主軸+車削模組
Grinding Spindle + Turning Module



FANUC 0i-TD CNC控制器
FANUC 0i-MD CNC



人機感測螢幕
Man-Machine Sensor Monitor

機型 MODEL	KG-500A200			
能力 Capacity	研磨直徑範圍	Range of grinding diameter	mm	φ4~φ320
	最大研磨深度	Max. grinding depth	mm	200
	主軸最大旋徑	Table swing range	mm	φ500
	防水護蓋內之旋徑	Swing range within the water proof cover	mm	φ320
控制系統 Control System	控制器	Controller		FANUC
工作頭 Working Head	主軸轉速	Spindle speed	rpm	0~1000
	X 軸進給速度	X axis feedrate	m/min	10
	X 軸最大行程	X axis max. stroke	mm	390
	X 軸最小移動單位	X axis minimum command unit	mm	0.0001
	工作頭旋轉角度	Working head swiveling angle	deg	-5°~+30°
工作台 Working Table	Y、Z 軸進給速度	Y, Z axes feedrate	M/min	10 / 10
	Y、Z 軸最大行程	Y, Z axes max. stroke	mm	350+200 / 350+200
	Y、Z 軸最小移動單位	Y, Z axes minimum command unit	mm	0.0001 / 0.0001
	工作主軸中心離地面高度	Distance from spindle center to the ground	mm	1060
油壓系統 Hydraulic System	油箱容量	Oil Tank Capacity	L	30
冷卻系統 Cooling System	切削液水箱容量	Coolant Tank Capacity	L	200
傳動馬達 Motors	油壓馬達	Hydraulic motor	Kw	0.75(1HP)
	切削液馬達	Coolant pump motor	Kw	0.18(1/4HP)
	X、Y、Z 軸伺服馬達	X, Y, Z axis servo motor	Kw	1.6 / 1.6 / 1.6
	砂輪馬達(B1/B2)	Wheel motor (B1 / B2)	Kw	2.2,2P(3HP) / 2.2,2P(3HP)
	主軸頭馬達	Spindle motor	Kw	2.2,4P(3HP)
其他 Miscellaneous	自動注油機	Capacity of automation lubrication pump	L	4
	機械尺寸(長X寬X高)	Measurement (Length x Width x Height)	mm	2500 X 2100 X 1950
	機械重量	Machine weight	kg	4750

標準配件 STANDARD ACCESSORIES KG-500A200

CNC 控制器	FANUC 0i-TD 88i x 3"	✓	油冷機	Oil cooler	
X 軸工件馬達變頻器	Inverter for X axis work piece motor	✓	切削液水箱及泵浦	Coolant tank and coolant pump	✓
Y 軸砂輪馬達變頻器	Inverter for Y axis work piece motor	✓	液壓油箱交換器	Hydraulic unit with pump	✓
Z 軸砂輪馬達變頻器	Inverter for Z axis work piece motor	✓	電器箱熱交換器	Heat exchanger for electrical cabinet	✓
Y 軸研磨主軸	Y axis grinding spindle	✓	自動潤滑系統	Automatic lubrication system	✓
Z 軸研磨主軸	Z axis grinding spindle	✓	工作燈	Working lamp	✓
端面研磨軸及內藏主軸	Face grinding spindle and built-in spindle		三色警示燈	3-coloe pilot lamp	✓
中實油壓夾頭8"	Solid hydraulic chuck 8"	✓	主軸噴水	Spindle coolant flush	✓
中空油壓夾頭8"	Hollow hydraulic chuck 8"		地基螺絲及機台墊塊	Foundation bolts and blocks	✓
迴轉缸	Hydraulic cylinder	✓	工具箱及工具	Tool box and tool kits	✓
全罩式護罩	Full-enclosed cover	✓	機台清洗萬用噴水槍	Coolant gun	✓
半罩式護罩	Semi-enclosed cover		機械、電器操作說明書	Mechanical, Electrical operation manuals	✓
紙袋 + 磁鐵過濾機	Paper + magnetic filter system	✓	鑽石筆兩支 (單點式)	Diamond scriber pen x 2 (single point)	✓

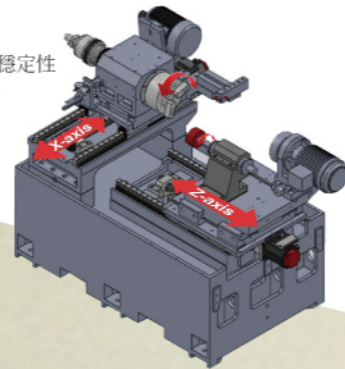
● 砂輪主軸 Grinding wheel spindle □ 10000RPM □ 15000RPM □ 30000RPM □ 50000RPM □ 標準選配2pcs Choice of 2 pcs

特別配件：特別配件任一機型均可使用。 SPECIAL ACCESSORIES: The special accessories are applicable for all models.

● X 軸海德漢光學尺 X axis Heidenhain optical scale ● 油霧回收機 Oil mist collector ● 油水分離機 Oil skimmer ● 內徑車刀座 I.D. tool seat ● 穩壓器 Voltage Stabilizer ● 變壓器 Transformer

KG-450A150/B150

穩重的機體結構，極致剛性與穩定性
Sturdy Machine Structure with
Ultimate Rigidity and Stability



FANUC Oi-mate TD CNC
控制器
FANUC Oi-MD CNC

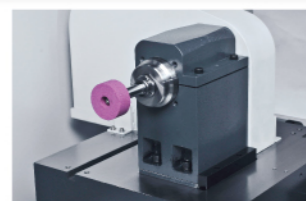


電流感應器

- 可控制各種研磨情況下之馬達電流
- 具有感測研磨功能

Current Sensor

- Capable of controlling the motor current under different grinding condition.
- With function to detect grinding functions.



單研磨主軸
Single Grinding Spindle



單研磨主軸+安裝車削模組
Single Grinding Spindle +
Turning Module



端面研磨頭(選購配件)
Face Grinding Head (Optional)

機型 MODEL			KG-450A150	KG-450B150	
能力 Capacity	研磨直徑範圍	Range of grinding diameter	mm	φ4~φ240	φ4~φ200
	最大研磨深度	Max. grinding depth	mm	150	150
	主軸最大旋徑	Table swing range	mm	φ450	φ450
	防水護蓋內之旋徑	Swing range within the water proof cover	mm	φ320	φ200
控制系統 Control System	控制器	Controller		FANUC	FANUC
工作頭 Working Head	主軸轉速	Spindle speed	rpm	0~1000	0~1000
	X 軸進給速度	X axis feedrate	m/min	10	10
	X 軸最大行程	X axis max. stroke	mm	300	300
	X 軸最小移動單位	X axis minimum command unit	mm	0.001	0.001
	工作頭旋轉角度	Working head swiveling angle	deg	-5°~+15°	-5°~+15°
工作台 Working Table	Y、Z 軸進給速度	Y, Z axes feedrate	M/min	Z:10	Z:10
	Y、Z 軸最大行程	Y, Z axes max. stroke	mm	400+100	400+100
	Y、Z 軸最小移動單位	Y, Z axes minimum command unit	mm	0.001 / 0.001	0.001 / 0.001
	工作主軸中心離地面高度	Distance from spindle center to the ground	mm	1060	1060
油壓系統 Hydraulic System	油箱容量	Oil Tank Capacity	L	30	30
冷卻系統 Cooling System	切削液水箱容量	Coolant Tank Capacity	L	150	150
	油壓馬達	Hydraulic motor	Kw	0.75(1HP)	0.75(1HP)
傳動馬達 Motors	切削液馬達	Coolant pump motor	Kw	0.18(1/4HP)	0.18(1/4HP)
	X、Y、Z 軸伺服馬達	X, Y, Z axis servo motor	Kw	X:1.2 Z:1.2	X:1.2 Z:1.2
	砂輪馬達(B1/B2)	Wheel motor (B1 / B2)	Kw	B1:2.2,2P(3HP)	2.2,2P(3HP) / 4.5(3HP)
	主軸頭馬達	Spindle motor	Kw	2.2,4P(3HP)	2.2,4P(3HP)
其他 Miscellaneous	自動注油機	Capacity of automation lubrication pump	L	2	2
	機械尺寸(長X寬X高)	Measurement (Length x Width x Height)	mm	2200 X 2300 X 1700	2200 X 2300 X 1700
	機械重量	Machine weight	kg	3000	3000

標準配件 STANDARD ACCESSORIES		KG-450 A150	KG-450 B150	KG-450 A150	KG-450 B150
CNC 控制器	FANUC Oi-MTD B12 x 2"	✓	✓	油冷機	Oil cooler
X 軸工件馬達變頻器	Inverter for X axis work piece motor	✓	✓	切削液水箱及泵浦	Coolant tank and coolant pump
Y 軸砂輪馬達變頻器	Inverter for Y axis work piece motor			液壓油箱交換器	Hydraulic unit with pump
Z 軸砂輪馬達變頻器	Inverter for Z axis work piece motor	✓	✓	電器箱熱交換器	Heat exchanger for electrical cabinet
Y 軸研磨主軸	Y axis grinding spindle			自動潤滑系統	Automatic lubrication system
Z 軸研磨主軸	Z axis grinding spindle	✓	✓	工作燈	Working lamp
端面研磨軸及內藏主軸	Face grinding spindle and built-in spindle		✓	三色警示燈	3-coloe pilot lamp
中實油壓夾頭8"	Solid hydraulic chuck 8"			主軸噴水	Spindle coolant flush
中空油壓夾頭8"	Hollow hydraulic chuck 8"	✓	✓	地基螺絲及機台墊塊	Foundation bolts and blocks
迴轉缸	Hydraulic cylinder	✓	✓	工具箱及工具	Tool box and tool kits
全罩式護罩	Full-enclosed cover			機台清洗萬用噴水槍	Coolant gun
半罩式護罩	Semi-enclosed cover	✓	✓	機械、電器操作說明書	Mechanical, Electrical operation manuals
紙袋 + 磁鐵過濾機	Paper + magnetic filter system	✓	✓	鑽石筆兩支(單點式)	Diamond scribe pen x 2 (single point)

● 砂輪主軸 Grinding wheel spindle 10000RPM 15000RPM 30000RPM 50000RPM 標準選配1pcs Choice of 1 pcs

特別配件：特別配件任一機型均可使用。 SPECIAL ACCESSORIES: The special accessories are applicable for all models.

● X 軸海德漢光學尺 X axis Heidenhain optical scale ● 油霧回收機 Oil mist collector ● 油水分離機 Oil skimmer ● 內徑車刀座 I.D. tool seat ● 穩壓器 Voltage Stabilizer ● 變壓器 Transformer

油霧回收機 OIL MIST COLLECTOR

KD-680

KD-800



油霧回收機規格說明 Specification of Oil Mist Collector

機型 MODEL		KD-680	KD-800
馬力 Horse Power	HP	1A	1B
吸入口徑 Inlet Diameter	M / M	5"	5"
電壓 Voltage	V	220 / 380 (50HZ,60HZ)	220 / 380 (50HZ,60HZ)
風量 Capacity	min	13m ³	18m ³
重量 Weight	KG	26	30
外觀尺寸 Machine Dimension	mm	360 X 370 X 450	480 X 370 X 450
外箱尺寸 Packing Dimension	mm	516 X 470 X 460	516 X 470 X 460

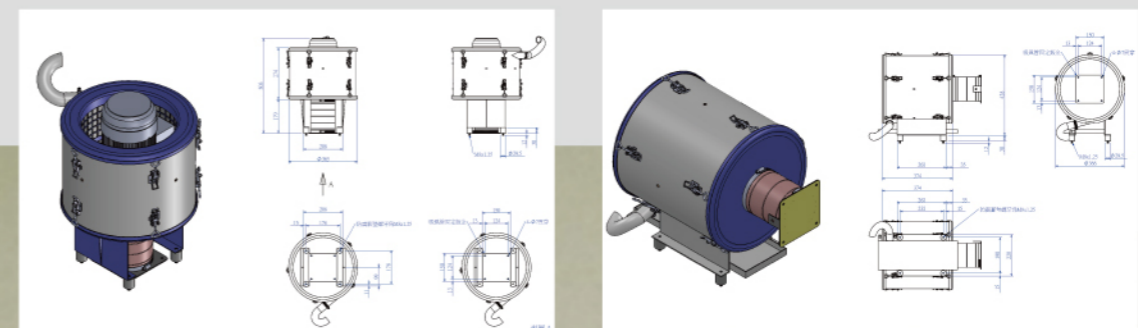
標準配件 STANDARD ACCESSORIES

選擇配件 OPTIONAL ACCESSORIES

5米電源線 X 1	Power cable 5 Meter x 1	活動式抽風鉸金組合	Removable air suction tube assembly
接線盒 X 1	Wire connection box x 1	外置腳架	Table stand
5" 尼龍 X 2米	Nylon wire x 2 meters	空氣濾清器	Air filter
1-1/4" PVC回油管 X 3米	1 1/4" PVC oil pipe x 3 meters		
管束1-1/2" X 1只	1 1/2" pipe binder x 1		
管束1-1/4" X 2只	5 1/4" pipe binder x 2		
防震腳墊 X 4只	Vibration absorbing pad x 4		
進氣口鉸金 X 1只	Inlet metal cover x 1		

身處科技發達技術不斷成長的環境中，環保意識變得更加重要，然而因物件加工時，所產生的油霧都將造成對空氣的污染，而在空氣已被污染的環境下工作，長期下來不僅對操作者本身的健康造成危害，也污染了生活、居住的空氣品質，因此本公司設計研發新型的油霧回收機，獨特的內部結構能有效的將加工時所產生的油霧大幅度的吸取，並且將油霧分子分離為油及空氣，油則回收至機台中以重複使用，有效降低工作環境中的污染空氣，也為操作者的健康加分。

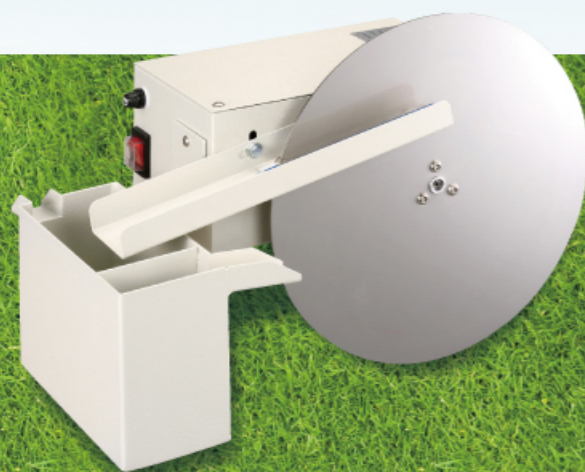
In today's high-tech age, technology is continuously being upgraded and environmental protection is becoming more critical than ever before. However, the oil mist generated during machining leads to air pollution. Working in an air-polluted environment for a long time may cause damage to the operator's health. In addition, it also pollutes air in our living area. To solve these problems, we have developed a new type of oil mist collector. Its unique construction allows the oil mist generated to be completely absorbed, then it is separated into oil and gas. The recycled oil will be reused by the machine. The oil mist collector not only efficiently reduces air contamination in the working environment, but it also contributes to the operator's health.



KD-680 開孔圖

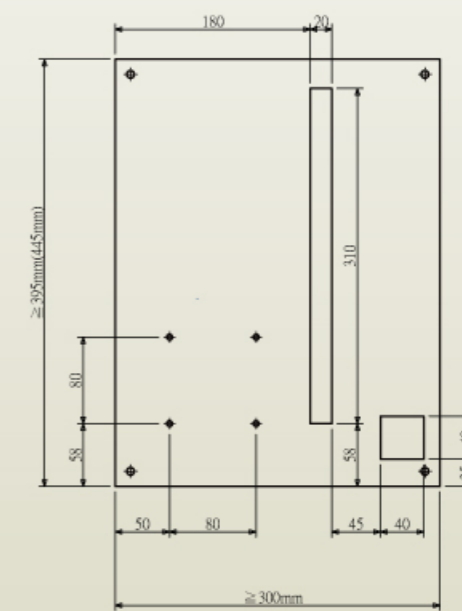
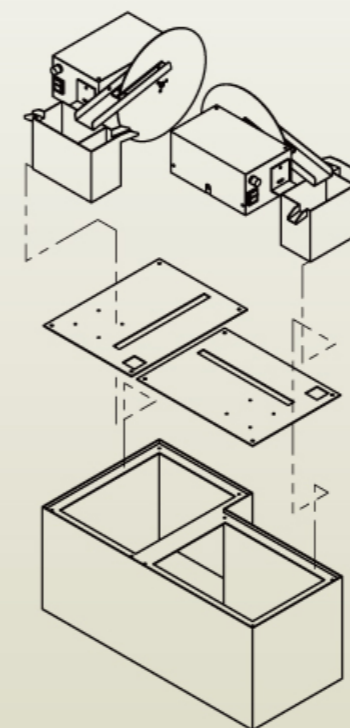
KD-800JB 開孔圖

圓盤式油水分離機 OIL SKIMMER



油水分離機安裝圖

INSTALLATION DIAGRAM OIL SKIMMER



Remark: This drawing indicates the hole positions for installing Oil Skimmer KS-300A025.

機型 MODEL	KD-300	KD-375
規格 Dimension	465 X 280 X 185	505 X 280 X 225
圓盤深度 (水箱蓋以下) Disk Submerge Depth (Below Cover Plate)	112	147
電壓 Voltage	AC110V / 220V / 50 / 60 HZ	AC110V / 220V / 50 / 60HZ
功率 Power	25W	25W
除油效率 Efficiency	10L / hr	15L / hr