



MACH & TOOLS
SINCE 1972

優廉機器有限公司
金友聯工業股份有限公司

THREAD ROLLING **DIES** 滾牙輪 滾牙機
& THREAD ROLLING **MACHINES**

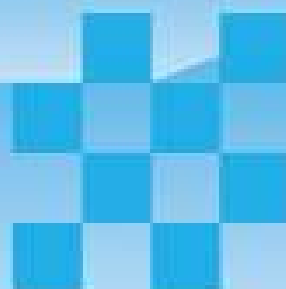


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中國：東莞-優美五金 / 紹興-優鎂五金



金友聯工業公司

滾牙機 滾牙輪





優 · 廉 · 沿 · 革

Our Story

本公司創立於1972，早期以滾牙加工和車床加工為主，又由於市場需求轉變，轉型改為生產滾牙機與滾牙輪，“**優美價廉**”是我們服務的目標。

目前是台灣唯一一家同時擁有滾牙機與滾牙輪生產線的工廠，我們的產品已經成功外銷到全世界。

"Unify thread rolling" was established in 1972, the thread rolling works & lathe machining are the main services in the earlier decades. We focus on producing thread rolling machines & thread rolling dies as the change of customer demands.

Based on the service principal "**Good quality with good price**", our products has successfully sold all over the world, "Unify thread rolling" is the only factory who has both production lines of thread rolling machine & thread rolling dies in Taiwan.

1972, 創立於台中潭子

Established in Tantz, Taichung.

1980, 成功開發UM-50迴壓式滾牙機

Successfully to produce UM-50 Hydraulic thru feed type thread rolling machine.

1983, 引進瑞士REISHAUER螺紋磨床，生產滾牙輪

Swiss Reishauer thread grinding machines for thread rolling dies.

1990, 引進瑞士REISHAUER齒輪磨床，生產固定線滾輪

Swiss Reishauer gear grinding machines for serration spline rolling dies.

2002, 成立熱處理廠（豐源工業股份有限公司）

Established the heat treatment factory (TOYOGAN Industry Corp.)

2007, 成立中國東莞優美五金公司，販售滾牙機生產滾牙輪

Establish "Dong Gung YouMei factory" in Guang Dong, China for producing thread rolling dies and the sales of Unify thread rolling machines.

2012, 成功自主研發六軸CNC螺紋磨床

Successfully self-development of 6-axis CNC thread grinding machines for thread rolling dies.

2015, 三軸同步伺服滾牙機

3-axis CNC mode thread rolling machines.

2016, 成立自主研發八軸同步CNC齒輪磨床

8-axis CNC gear grinding machines for serration spline rolling dies.

2017, 成立中國紹興優德五金公司，販售滾牙機及生產滾牙輪

Establish "Shao Xing YouMei factory" in Zhe Jiang, China for producing thread rolling dies and the sales of Unify thread rolling machines.

2022, 優廉成立五十週年，生產滾牙機、滾牙輪超越半世紀

The 50th year anniversary



同時擁有滾牙機與滾牙輪生產線，我們理解客戶的問題，非常樂意分享我們的滾牙工藝經驗，期待與客戶的交流，讓我們的滾牙機與滾牙輪得到最大的發揮

The benefits for producing both thread rolling machines & thread rolling dies, it is easier for us to understand the customer's required. "Unify thread rolling" as a good partner who is always willing to share the experience of work. Thru the good communication to create the max value of thread rolling.

滾牙機 Thread Rolling Machines

滾牙機生產採批量生產模式，零配件採外包加工後回廠組裝檢驗精度

The thread rolling machines are planned as "batch process mode".

The spare parts are machining outsource and return to Unify factory for the final assemblage & precision inspected.



滾牙輪 Thread Rolling Dies

滾牙輪生產擁有近20部螺紋磨床，滾牙輪坯件事先規劃預備，可大量生產，縮短交貨期

We have about 20 units of CNC thread grinding machines & gear grinding machines, the die blanks were prepared with large quantities before customer's order. So that the delivery time can be soon after the confirm order by customers.





滾牙輪

THREAD ROLLING DIES

滾製螺紋所需的滾牙輪，需要有優良的工具鋼作為素材原料，本公司所選用名牌之工具鋼材質為SKD11 (JIS) · 1.2379 (DIN) 為素材，經由本公司熱處理部(豐源工業)的日本TECHNO真空油淬火處理爐的高溫處理，使滾牙輪具有高硬度、高耐磨性，完成熱處理之後再由自主研發的CNC螺紋磨床進行螺紋研磨，精磨螺紋成形後再送回熱處理部門做研磨內應力的消除，完成品質檢驗後再送交客戶使用，可達到高精度的需求更能延長牙輪使用壽命可大幅的降低成本。使用本公司滾牙機和滾牙輪一定辦大量的生產高精度、高拉力的螺紋工件，除製造本公司自製型式滾牙機用之滾牙輪外，其他型式之滾牙輪均可大量供應，歡迎訂製。

The superior tool steel is a very important element of thread rolling dies. SKD11 (JIS) and 1.2379 (DIN) are the named raw material which we have chosen for the past years. The blank of thread rolling dies are heat treated by Japanese **TECHNO vacuum & oil quenching furnace** by heat treating dep. (Toyogen Industrial Co.) It will render the higher rigidity and higher wear-resistance of thread rolling dies.

After the heat treatment progress, the thread rolling dies are ground by CNC thread grinding machines. And another progress of tempering to reduce the grinding stress is necessary for thread rolling dies. The thread rolling dies are ready for sale after the quality exam. The good quality of thread rolling dies is able to offer higher precision, longer working life, and reduced the cost.

We also produce the thread rolling die for other brands thread rolling machines. Your special specifications and requirements are very welcomed.



原料存放區 Die material



熱處理爐 TECHN0 vacuum & oil heat treatment furnace





滾牙輪

THREAD ROLLING DIES



CNC螺紋磨床 CNC thread grinding machines

滾牙輪牙部，是由CNC螺紋磨床研製而成，曼摩累積了多年的傳統螺紋磨床的使用經驗，進而自行研發六軸CNC螺紋磨床，除供給廠內自己需要之外，也銷售給使用曼摩滾牙機的外國客戶。

The thread profile of thread rolling dies are ground by CNC thread grinding machines. The experience of the conventional thread grinding machines in past decades, we developed the 6-axis CNC thread grinding machines independently. In addition to supply our own need, the CNC thread grinding machines are also sell to Unify's customers who already had Unify thread rolling machines.



滾牙輪產線 Thread grinding area



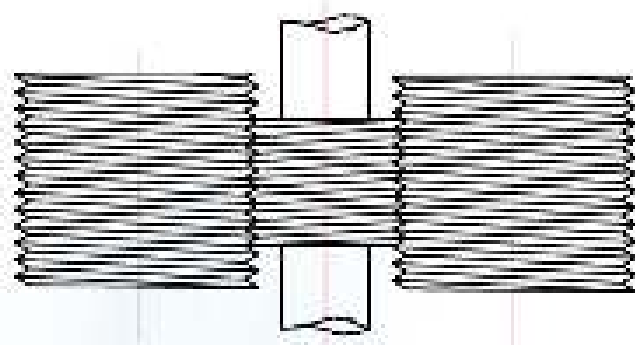
滾牙輪

THREAD ROLLING DIES

固定式 In-feed / Plunge type

當滾製工件螺紋長度不超過滾牙輪厚度時所使用。

The thread rolling length is shorter than the length of thread rolling die.



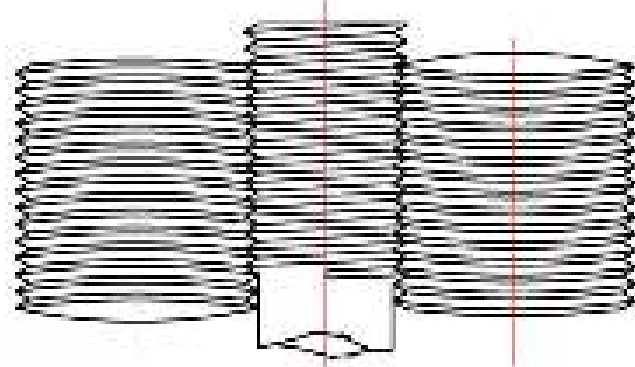
固定式滾製示意圖

In feed type Display

滾通式 Thru-feed type

當滾製工件螺紋長度超過滾牙輪厚度時所使用。

The thread rolling length is longer than the length of thread rolling die.



滾通式滾製示意圖

Thru Feed Rolling Display

滾牙輪

打開滾輪
Angular ring type

無縫滾輪
Continuous rolling type

差速滾輪
Helical slow feed type
(for multiple start threads)

快速滾輪
Speed-up type



本公司滾牙輪製造範圍 Manufacturing thread rolling die range:

外徑 Outside diameter Max 300mm 節距 Pitch 0.4~10.0 P (60~2 1/2 TPI)

厚度 Length Max 400mm 模數 Module 0.2~2.0

壓力角 Pressure angle 10°~45° 螺旋角 Helix angle = 45°



螺絲攻(TAP) 系列

SCREW TAPS



CNC絲攻磨床 CNC tap grinding machines

大導程的螺桿，梯形螺桿，與滾珠螺桿，我們累積了相當多的滾牙輪生產經驗，但客戶常在相應的螺絲找不到合適的螺絲攻，為了更好的服務，譽康提升了CNC螺紋磨床的功能，生產螺絲攻，解決螺絲無法加工的苦惱。

We are well experienced for producing the thread rolling dies of worm screws, trapezoidal screws, & ball screws with larger lead angle. Customers often have the problem for finding suitable screw taps for the corresponding nuts. For better service, we upgrade the functions of the CNC thread grinding machines for producing screw taps.



本公司絲攻製造範圍 Manufacturing tap range:

長度 Length	 50~300mm	外徑 Outside diameter	 $\phi 3-\phi 100\text{mm}$
節距 Pitch	 0.3~6.0 P	牙口數 Teeth	 1~12 K
壓力角 Pressure angle	 10°以上	刃口數 Cutting edge	 2~6刃
		螺旋角 Helix angle	 $\pm 40^\circ$



固定齒滾輪

SERRATION ROLLING DIES



CNC齒輪磨床 CNC gear grinding machines

固定齒滾輪表面齒部，是由CNC齒輪磨床研磨而成，八軸同動CNC齒輪磨床，同是由機廠內部自行研發設計而成。

The surface of gear rolling dies are ground by CNC gear thread grinding machines. It is the same as thread grinding machines, the CNC gear grinding machines are developed by Unfly team for our own needs only.



固定齒研磨 Gear grinding



固定齒磨線 Gear grinding area



固定齒滾輪

SERRATION ROLLING DIES

研磨固定齒 Serration spline rolling dies



在滾製汽、機車之傳動軸、機械花鍵軸和手工工具等固定齒數之滾輪軸。

The serration type work pieces, as transmission shafts of automobiles / motor-vehicles, machine model spline shafts, and hardware tools are all suitable to form by serration spline rolling dies.



直花
Straight knurling

滾花輪 Knurling die

印在手工工具上的防滑美觀的直線或鑽石花紋，均由滾花輪壓製而來。花輪在鐵齒機精銑成形後再熱處理使用。



鑽石花
Diamond knurling

The surface of straight or diamond pattern knurling dies are done by gear hobbing machines before the heat treatment progress. It is good for anti-slip and good appearance.

本公司滾齒輪製造範圍 Manufacturing knurling die range:

外 徑 Outside diameter Max 240mm 節 距 Pitch 0.4~5.0 P(60~5TPI)

厚 度 Length Max 180mm 模 數 Module 0.2~2.0

壓刀角 Pressure angle 20°~45° 螺旋角 Helix angle ±45°



搓齒板/搓花板 系列

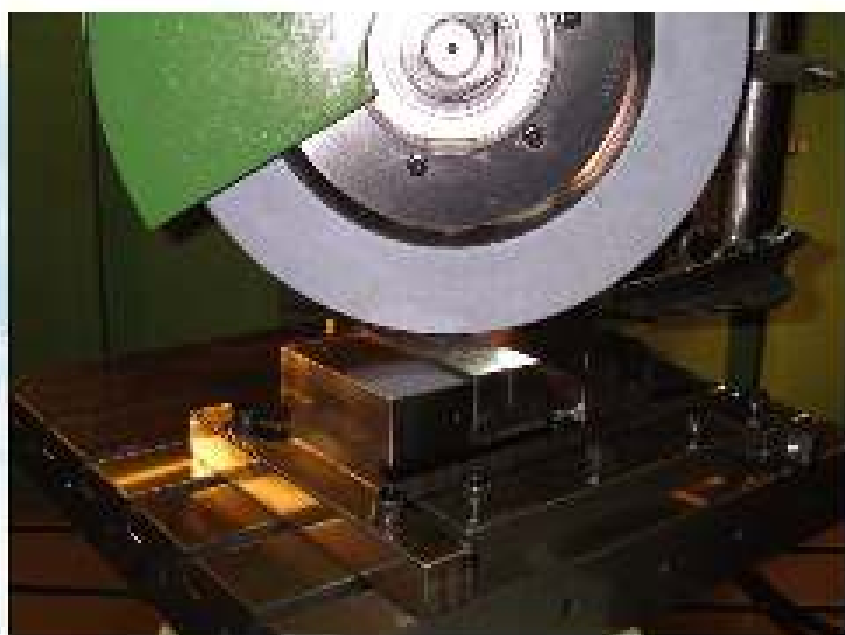
FLAT THREAD (KNURLING) ROLLING DIES

要生產大量緊固件螺絲，除了使用滾牙輪之外，還可選用搓壓成形的搓齒板來加工，可降低生產成本，適合大量生產。本公司結合30多年滾牙輪的製造經驗，全新推出研磨級的搓齒板和搓花板，同樣選用歐洲名牌工具鋼SKD11 (JIS) 、SKH9為素材胚料，施以先進的熱處理技術，再由CNC電腦磨床研磨牙形，完成品質檢驗後送交客戶使用，讓客戶的產品提高品質，降低成本。

The mass production of fastener screws, it may also another good choice: the flat type thread rolling, which may reduce production cost, applied to big volume production. With 30 years of experience in circular thread rolling die manufacturing, we set up the new production line of grinding type flat rolling dies and knurling dies. With the same European named tool steel SKD11 (JIS), and SKH9, together with advanced heat treatment technology, and thread grinding CNC machine to offer the customers another choice.

搓齒板製程

Manufacturing of flat rolling die



搓牙板/搓齒板

The flat knurling die

本公司搓齒板製造範圍 Manufacturing flat rolling die range:

長度 Length Max 900mm

高度 H Max 400mm

厚度 Length Max 200mm

節距 Pitch 0.4~6.0 P(60~4TP1)

螺旋角 Helix angle $\pm 45^\circ$



滾牙輪牙形品檢 特點

QC OF THREAD ROLLING DIES - HARDNESS & PROFILE

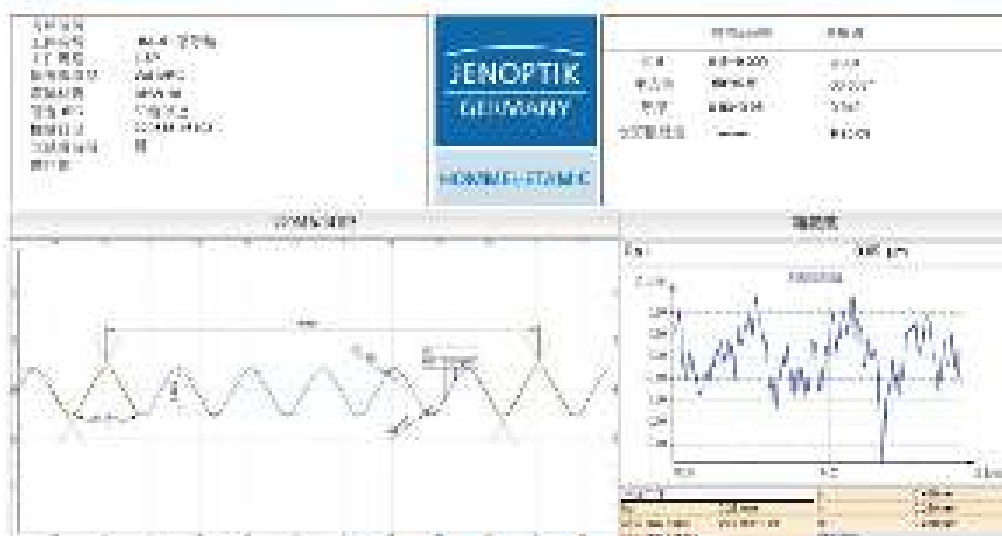
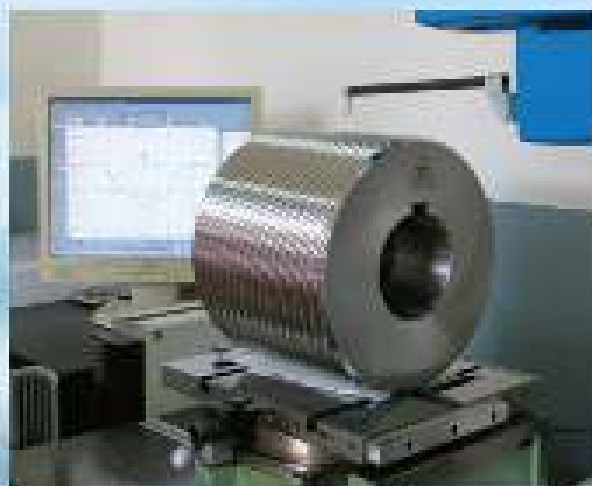
滾牙輪經由熱處理硬化後，依照滾牙輪材質分別回火至所需的硬度，施以硬度檢查，再交CNC線紋磨床完成牙型研磨。

The different die blanks are required different tempering progress after the heat treatment. The hardness check is necessary before the grinding progress.



滾牙輪研磨成形之後，使用精密線磨儀來測量牙型及表面粗糙度，確保產品精度。

The thread rolling die profile & the roughness are checked by profile projector, to ensure the accurate and the fine surface.



牙型&表相檢查報告

The Report of Dies Profile & Roughness



優廉滾牙機 系列



UM-40/40A



UM-50/50A



UM-75/75A



UM-12



UM-20



UM-35H



UM-120

THREAD ROLLING MACHINES



UM-3DXCNC



UM-30CNC



UM-40ACNC



UM-3D



UM-3DX



UM-3DL



UM-50ACNC



滾牙機 規格

THREAD ROLLING MACHINE SPECIFICATION

		形式 Model	油壓直進式 Hydraulic thru feed type	
能率 Capacity			UM-120 / 120A	UM-100
滾壓螺絲外徑	Work piece diameter (mm)		ø10 ~ ø120	ø10 ~ ø100
距距範圍	Axial pitch for ISO threads (mm)		1.0P ~ 12.0P	1.0P ~ 10.0P
滾長 固定式	Length of thread	In feed	200 / 300 (120A)	200
滾長 滾進式	rolling (mm)	Thru feed	無限制 no limited	
滾轉轉速	Spindle speed (rpm)		15 ~ 40	20 ~ 50
外 徑	Thread rolling die (mm)	Diameter	ø300 MAX	ø250 MAX
內 孔		Bore	ø110	
滾牙螺 厚 度		Length	70, 100, 150, 200, 300 (120A)	70, 100, 150, 200
鍵 槽		Keyway	25 x 7	
滾軸軸行程間距	Distance of the rolling spindles (mm)		230 ~ 380	200 ~ 350
滾產量	Output (pieces/min)		2 ~ 10	
滾軸傾角	Swivel of roll-axis		+6°	
滾軸馬力	Main power motor		50 HP (37.5 kw)	40 HP (29.0 kw)
油壓馬力	Hydraulic motor		10 HP (7.5 kw)	
最高滾壓壓力	Max rolling pressure (ton)		120	100
淨重	Net weight (kg)		13500	11500
毛重 (裝箱)	Gross weight (kg)		14100	12100
佔地空間	Operation required space (mm)		3000 x 3800 x 2000	3000 x 2200 x 2000
裝箱尺寸	Shipping measurement (mm)		40呎貨櫃 (40 feet container)	20呎貨櫃 (20 feet container)

		形式 Model	三輪式 3-die type		
能率 Capacity			UM-30L	UM-30X	UM-30
滾壓螺絲外徑	Work piece diameter (mm)		ø27 ~ ø60	ø6 ~ ø40	ø8 ~ ø40
距距範圍	Axial pitch for ISO threads (mm)		1.0P ~ 8.0P	0.5P ~ 4.0P	0.5P ~ 2.5P
滾長 固定式	Length of thread	In feed	60	145	30
滾長 滾進式	rolling (mm)	Thru feed	無限制 no limited		
滾轉轉速	Spindle speed (rpm)		150, 240, 370, 500	220, 350, 580, 750	350 ~ 600
外 徑	Thread rolling die (mm)	Diameter	ø150	ø120	ø80
內 孔		Bore	ø54	ø40	ø25.4
滾牙螺 厚 度		Length	35, 70	25, 50	20, 40
鍵 槽		Keyway	10 x 5	8 x 4	14 x 18
滾軸軸行程間距	Distance of the rolling spindles (mm)		240 ~ 150	190 ~ 105	90 ~ 55
滾產量	Output (pieces/min)		4 ~ 25	4 ~ 25	4 ~ 25
滾軸傾角	Swivel of roll-axis		±3°	±3°	±3°
滾軸馬力	Main power motor		10 HP 6P	6 HP 6P	2 HP
油壓馬力	Hydraulic motor		5 HP	3 HP	2 HP
主軸馬力	Roller shaft motor		-	-	-
右牙輪進給馬力	Right roller feeding motor		-	-	-
右牙輪進給壓力	Right roller feeding power (ton)		-	-	-
最高滾壓壓力	Max rolling pressure (ton)		17	12	6
淨重	Net weight (kg)		2420	1300	540
毛重 (裝箱)	Gross weight (kg)		2570	1450	630
佔地空間	Operation required space (mm)		2000 x 1800 x 2300	1600 x 1500 x 1600	1300 x 1100 x 1500
裝箱尺寸	Shipping measurement (mm)		1800 x 1600 x 2100	1450 x 1400 x 1700	1100 x 1000 x 1500



滾牙機 規格

THREAD ROLLING MACHINE SPECIFICATION

油壓滾通式 Hydraulic thru feed type

油壓滾通式 Hydraulic thru feed type				
UM-75A	UM-50A	UM-40A	UM-30	UM-16
ø10 ~ ø75	ø8 ~ ø50	ø5 ~ ø40	ø5 ~ ø30	ø2 ~ ø18
1.0P ~ 10.0P	1.0P ~ 0.25P	0.8P ~ 4.0P	0.8P ~ 3.5P	0.4P ~ 2.0P
200	148		70	40
圓筒長 no limited				
20 ~ 60	25 ~ 55	20, 35, 50, 70	30 ~ 65	
ø200	ø200	ø180	ø150	ø100
ø85	ø70	ø54	ø54	ø30.5
	35, 70, 100, 150		35, 70	10, 15, 30, 40
18 x 8	14 x 7	10 x 5	10 x 5	8 x 4
300 ~ 220	255 ~ 165	135 ~ 205	155 ~ 145	120 ~ 80
	4 ~ 20		4 ~ 20	5 ~ 30
+ 6°	+ 7°	+ 4°	+ 7°	+ 6°
30 HP	15 HP	10 HP	5 HP	3 HP
10 HP	5 HP	5 HP	3 HP	2 HP
60	40	27	17	6
3000	3250	2000	1200	600
5500	3500	2600	1370	700
2600 x 2400 x 2400	1900 x 2300 x 2300	1800 x 2100 x 2000	1800 x 1800 x 1800	1400 x 1500 x 1200
2520 x 2240 x 2220	1790 x 2270 x 2220	1500 x 1900 x 1800	1700 x 1270 x 1500	1330 x 1120 x 1050

CNC 全自動滾牙機

CNC 全周程溫牙機					
UM-30X CNC		UM-16 CNC	UM-30 CNC	UM-40A CNC	UM-50A CNC
ø10 ~ ø80	ø2 ~ ø40	ø2 ~ ø15	ø5 ~ ø30	ø5 ~ ø40	ø5 ~ ø50
1.0P ~ 8P	0.5P ~ 2.5P	0.4P ~ 2.0P	0.2P ~ 3.5P	1.0P ~ 10.0P (M0.5 ~ M3.0)	
50	40	40	70	148	
500		無限制, no limited			
200 ~ 750 (斷牙型或可斷牙型)		1 ~ 55 (可型或可斷牙型, 可白牙型)		1 ~ 80 (可斷牙型或可白牙型)	
ø119	ø90	ø100 MAX	ø150 MAX	ø150 MAX	ø200 MAX
ø40	ø25.4 (1吋) 1pt.	ø50.5	ø54	ø54	ø70
25, 50	20, 40	10, 15, 30, 40	35, 70	35, 50, 70, 100, 150	
8 x 4	14 x 18	8 x 4	10 x 5	10 x 5	14 x 7
105 ~ 150	50 ~ 110	50 ~ 125	130 ~ 180	154 ~ 220	190 ~ 250
4 ~ 25	1 ~ 12		1 ~ 12		
± 3°	± 4°		± 6°		
3.3 kw 伺服馬達 Servo motor		1.7 kw 2 axis 伺服馬達 Servo motor	3.4 kw 2 axis 伺服馬達 Servo motor	5.5 kw 2 axis 伺服馬達 Servo motor	7.5 kw 2 axis 伺服馬達 Servo motor
1.7 kw 伺服馬達 Servo motor		1.1 kw 伺服馬達 Servo motor	1.7 kw 伺服馬達 Servo motor	5.5 kw 伺服馬達 Servo motor	7.5 kw 伺服馬達 Servo motor
12 t 滾珠螺桿 Ball screw		5.5 t 滾珠螺桿 Ball screw	14.5 t 滾珠螺桿 Ball screw	27 t 滾珠螺桿 Ball screw	32 t 滾珠螺桿 Ball screw
1700		700	1450	2600	3000
1800		800	1630	3100	3550
1420 x 1100 x 1282		900 x 850 x 1000	1300 x 1200 x 2100	1700 x 1500 x 2500	2250 x 2000 x 2100
1600 x 1700 x 2200		1000 x 1050 x 1200	1400 x 1300 x 2300	1900 x 1700 x 2450	2200 x 2300 x 2300



中國：東莞-優美五金 & 紹興-優鎂五金

為了服務更多客戶，我們在2007年在東莞成立~東莞優美五金機械公司，專業滾牙輪研磨製造，與整修，和優廉滾牙機的銷售&服務。10年有成後，在華中設立紹興優鎂公司，同樣致力於推廣優廉的滾牙機和滾牙輪。

東莞優美與紹興優鎂同樣使用和優廉相同的設備，CNC螺紋磨床，CNC齒輪磨床，德國表相輪廓檢查儀，牙輪胚料與管理技術同樣是按照優廉的標準流程，可以確保三廠一致性的生產品質。

優廉滾牙機+滾牙輪+齒機技術 三合一的服務特點，為客戶解決牙輪設計，生產可能發生的問題。

We set up YouMei factory in Dong Guan year 2007, specialized thread rolling dies-new & re-grinding, knurling dies and the sales of Unify thread rolling machines. A decade later, good feed back by customers, we established the second YouMei factory ShaoXing in year 2017.

Same equipments of both YouMei factories as Unify thread rolling Taiwan. CNC thread grinding machines, CNC gear grinding machines, Germany made profile projectors. The die blanks & the technical parts were from Unify thread rolling Taiwan. So that we are able to make sure the same quality for 3 factories.

YouMei factories are well knowledge with both thread rolling machines & thread rolling dies. With one-stop service we hope to be a good partner for the customers, create the thread profile, solve the problem they may have when thread rolling.

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紹興優鎂廠區 Shao Xing YouMei Factory



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