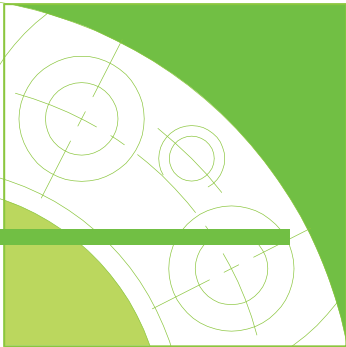
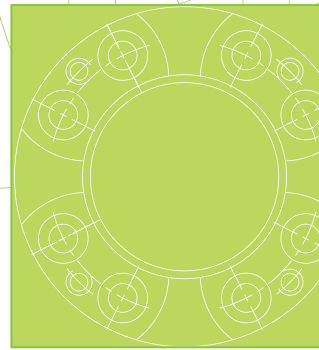
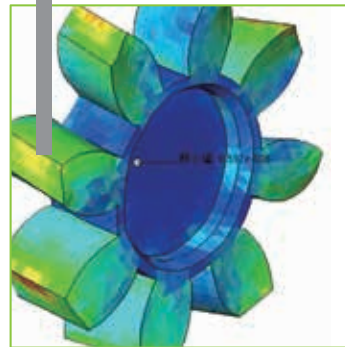


Bright

與您共創價值

精勤精機有限公司

BRIGHT JING CHIN MACHINERY CO., LTD.



關於精勤

About Bright

精於藝 勤於心

精勤精機的核心價值，不僅在技術上的“工藝”專精，亦為客戶、社會及合作伙伴創造價值勤奮不懈；Bright 為光明、明亮之意，意謂著正直、誠信的技術團隊，同時代表著對綠色、效率、永續發展的技術追求。

精勤精機專業機械零組件開發團隊，以技術開發、產品設計、性能測試、量測治具、製造技術為其專業服務能力，提供客戶創造價值的優質產品，除了能針對客戶需求快速的回應，同時確保產品性能及產品的穩定性。

"Specialize in technology, devote from heart " is the core value of Bright Jing Chin Machinery. We not only have strength in technology but also keep creating value for customers, society and partners diligently. "Bright" refers to light and luminosity, which means we are an honest and sincere technology team; meanwhile, "Bright " represents green, efficient and continuous development for technology pursuit.

Bright Jing Chin Machinery is a professional machinery component development team. We serve customers "technology development", "product design ", "performance test ", "gauges manufacturing ", and support customers to create valuable superior products. Also, we are able to respond to customer's demand rapidly and guarantee the performance and stability of products.

Our Products

主要營業項目

聯軸器	Shaft Coupling	1
主軸夾爪	Spindle Gripper	9
快速接頭	Quick Coupler for Air/Oil	23
拉桿組	Spindle drawbar system	25
油壓缸	Hydraulic Cylinder	26
定位座	Pallet Clamping Systems	27
精密軸承	TPI professional Bearing	28

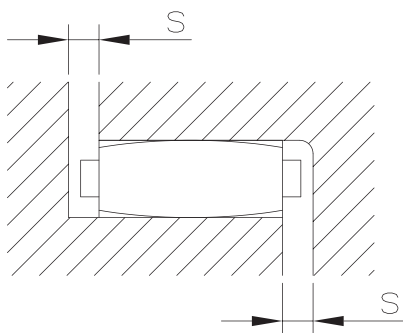
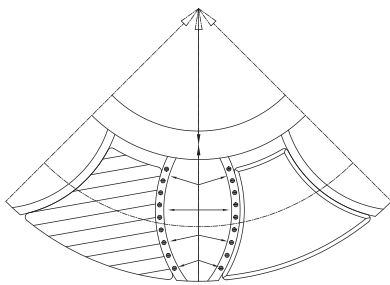




聯軸器由三個部件軸向安裝所組成，在有預壓力的情形下提供無背隙的傳動。配合彈性部件的選用，可提供適合的剛性及良好的減振效果，進而得到需求的動態特性。本聯軸器在安裝及調整非常方便，可以增加生產效率。

彈性部件配合預壓的安裝，讓彈性部件在未作動時，部件表面即承受一定的壓力，進而得到較佳的剛性。彈性部件內側的結構板，在高轉速下提供額外的徑向剛性，讓彈性部件避免在高轉速產生較大的變形。

剛性部件與彈性部件在結合的地方均有倒角，且在彈性部件上有一突出"s"，避免安裝時兩個剛性部件的直接接觸。



Our coupling has 3 parts, and it can perform zero-backlash motion transmission under the right pre-stress. With the right selection of flexible part (plastic spider), it can achieve suitable stiffness and damping to get great dynamic characteristic. It's very simple to assemble our shaft coupling.

Our shaft coupling can get better stiffness if the spider is under the right pre-stress assembly, which means it should have a bit surface pressure without rotating. The inner structure of spider provides external radial stiffness in high speed rotating, so it can avoid larger deformation of spider.

All the rigid parts and flexible part have chamfers, and there is a small part "s" on spider, which can make some gap between two rigid parts, so it can ensure electrical insulation as well.

聯軸器 Shaft Coupling

聯軸器應用範圍

測量與控制系統

對於測量和控制系統，要求重複定位的準確性，聯軸器必需要有較高的扭轉剛性。

而對於測量和控制系統來說，通過聯軸器傳遞的扭矩相對較小，因此，無背隙及高扭轉剛性的需求，是經由彈性部件的預壓達成的。對於此類應用場合，建議使用較軟的彈性部件。

伺服和定位傳動

本型聯軸器與其他撓性聯軸器相比，有正反轉無背隙和吸振等優點。當傳動系統出現異常振動時，過高的扭轉剛性反而增加傳動系統的不穩定性，進而增加傳動系統調整的困難度。因此選用適合的彈性部件，對於高加減速的傳動系統，無背隙、吸振和剛性等優點，而得到較好的動態特性。

主軸傳動

當聯軸器應用於直結式主軸，較大的主軸馬達扭矩，仍可透過硬度較高的彈性部件維持在一定的剛性之下，提供微扭轉與吸振等功能。此外，當線速度達 80m/s 時，建議使用鋼製的迫緊環形式聯軸器，即我司的 SC 系列產品。



Coupling Applications :

For general measurement system or common control system, our shaft coupling is good for the Repeatability and Precision of positioning. In those applications, a bit softer spider is recommended because of lower torque needed.

Our spider shaft couplings are backlash-free and have better vibration reduction ability compared with other type flexible couplings because of "plastic spider", so choosing the right and suitable spider is very important in different application conditions.

Recently, our couplings are very widely used in CNC direct driven spindle application, in this case, choosing a bit harder spider is better for achieving enough stiffness, and also offering torque needed and Vibration absorption function at meantime. Additionally, when application up to a peripheral speed of 80 m/s, we suggest better choice is our champing ring hub type coupling, which is "SC series" coupling (Spindle Coupling, steel made).

For more other applications, any further questions, please feel free to contact us, or visit our website, <http://www.bmgroupp.com.tw>



目前本公司有以下彈性體提供客戶選用

So far, we have many different spiders as below.

彈性體硬度 Spider hardness	顏色 Color	材質 Material	溫度範圍(°C) Temperature	規格 Size	典型應用 Typical applications	
95/98-Sh-A	紅 red	TPU	-30~+90	D55~D135	-定位傳動 -主軸傳動 -高負荷	-Positioning drives -CNC spindle drives -high load
		Hytrel	-50~+120			
64 Sh-D	白 white	Hytrel	-50~+120	D40~D135	-控制傳動/機台主軸行星齒輪/進給傳動 -高負荷，扭轉剛性，承受環境溫度高	-Planetary gears/ backlash-free gears -Higher torsional stiffness/high ambient temperature
64 Sh-D	綠 green	TPU	-20~+110	D95~D135	-更高的負荷 -更高的扭轉剛性	-Higher load -Higher torsional stiffness
72 Sh-D	灰 gray	Hytrel	-50~+120	D80~D135	-非常高的負荷 -非常高的扭轉剛性	-Very high load -Very high torsional stiffness/high ambient temperature
		TPU	-20~+110	D95~D135		




註：需考慮彈性體在受力時特別是高溫情況下產生的變形。如果溫度超過 80°C，建議請選用鋼片式聯軸器。

PS：Need to consider about the operation temperature for the spiders, if it might be higher than 80°C, please choose Rigid Servo Lamina Coupling.

精勤 Bright 聯軸器選用扭力安全係數參考/Reference for T_{KN} of Bright Spiders

硬度愈軟，吸振能力相關愈佳，機台振動愈小；硬度愈硬， T_{KN} 扭力值愈大，可承受較大馬達驅動扭力

Lower Hardness, Better vibration reduction; Higher Hardness, Higher T_{KN}

彈性體硬度 Hardness of Spiders	← 硬度愈軟，吸振能力相關愈佳，機台振動愈小；硬度愈硬， T_{KN} 扭力值愈大，可承受較大馬達驅動扭力 →			
	98 Sh-A (紅) 硬度較軟	64 Sh-D (白或綠) 硬度中等(此款常用)	72 Sh-D (灰) 硬度較硬	
聯軸器規格 Coupling size				
外徑 diameter (mm)	彈性體扭力 T_{KN} [Nm] of Spiders			
外徑愈大， T_{KN} 扭力值 愈大 Bigger Coupling, Higher T_{KN}	D40	21	26	-
	D55	60	75	-
	D65	160	200	260
	D80	325	405	525
	D95	450	560	728
	D105	525	655	852
	D120	685	825	1072
	D135	940	1175	1527

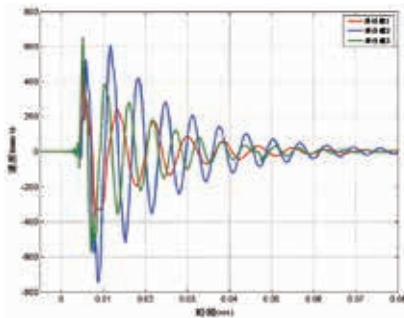
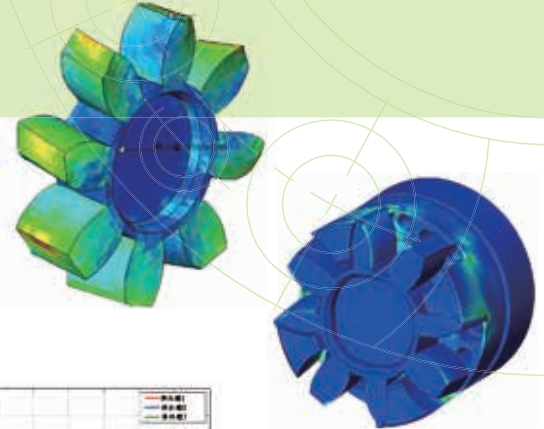
聯軸器 Shaft Coupling

聯軸器有限元素分析

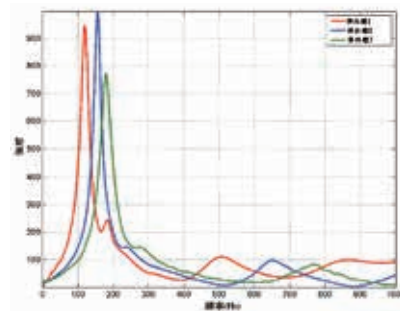
聯軸器彈性體依檢測之工程數據搭配聯軸器的物理特性，藉由 3D-CAD 系統及有限元素分析，測試在不同操作條件下其產品性能如傳遞扭力、極限轉速及聯軸器本身的自然頻率等以避免對工件之加工表面造成不良影響。

Finite Element Analysis for Coupling

Our coupling spiders have through many engineering testing, 3D-CAD system, and Finite Element Analysis under different conditions to get better transmission torque, max speed and natural frequency so our spiders have great effect for surface machining.



彈性體減振效果測試
Damping test for spider



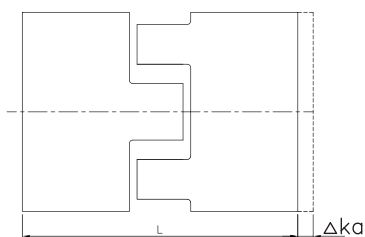
彈性體共振頻率測試
Frequency Response Analysis for spider

容許誤差

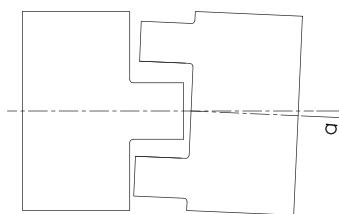
- 聯軸器軸向誤差通常是由連接件或裝配時的誤差所產生，而軸承對於軸向誤差的容許值較低，因此聯軸器能減小軸向誤差對軸承所產生的軸向力。
- 當聯軸器兩端有角度偏差時，聯軸器能容許些微的偏差產生，而且不會因偏差而產生應力集中造成壽命下降。
- 常因組裝時對心不良而產生，此項誤差會對聯軸器產生較大之應力。

Displacements

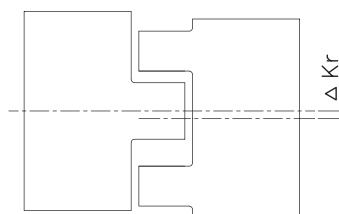
Our shaft coupling is allowed some displacements, including axial, radial, and angular displacement. Also it can achieve "Zero-backlash" motion transmission because of flexible part design (plastic spider). For better transmission performance, please refer to the displacement data while assembling the couplings. The less errors, the better performance, and also the better lifetime for other components such as CNC spindle bearing.



軸向偏差 ΔK_a
Axial displacement



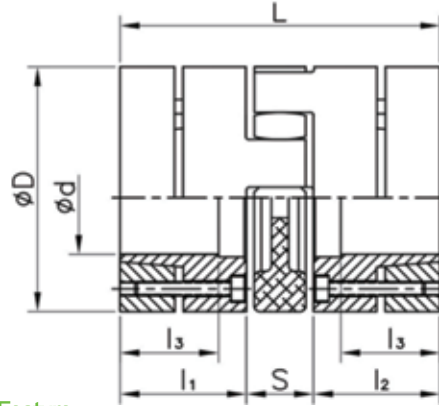
角度偏差 a (degree)
Angular displacement



徑向偏差 ΔK_r
Radial displacement

Clamping ring hubs type

SCD 迫緊型聯軸器



特點

- 安裝容易
- 一次精加工完成，元件及配對精度高
- 良好的扭力傳遞特性與平衡
- 適用於高速迴轉應用場合
- 無背隙(彈性體預壓)
- SC D系列軸套採用合金鋼
(另有SCAD全鋁合金材質可選擇)

Coupling Feature

- Easy for assembling
- High quality with done-in-One machining
- High torsion stiffness and great balance
- SC D series is good for CNC spindle drives in high speed
- Zero-backlash motion transmission
- SC D series products made by Steel
(We also provide SCAD series Aluminum alloy material optional.)

產品編號 Product No.	d (mm)	D (mm)	L (mm)	l ₁ / l ₂ (mm)	l ₃ (mm)	S (mm)	Clamping screws (amount and force)			最大轉速 Max speed (min ⁻¹)	質量(最小孔) Weight per hub with min bore (kg)	轉動慣量 Mass moment of inertial J with min bore (kgm ²)
							迫緊/拆卸 螺絲	螺絲 數量	鎖緊扭矩 M (Nm)			
SC D55-78L	8-32	55	78	30	24	18	M5	4	8.5	26000	0.59	228 x 10 ⁻⁶
SC D65-90L	10-38	65	90	35	29	20	M5 / M6	8	8.5	24000	0.82	472 x 10 ⁻⁶
SC D80-114L	12-48	80	114	45	37	24	M6	8	14	17900	0.76	1438 x 10 ⁻⁶
SC D95-126L	14-60	95	126	50	40	26	M8	4	35	15000	2.75	3168 x 10 ⁻⁶
SC D105-140L	15-62	105	140	56	44	28	M10	4	69	13600	3.7	5207 x 10 ⁻⁶
SC D120-160L	32-75	120	160	65	50	30	M10	4	69	11900	5.39	10388 x 10 ⁻⁶
SC D135-185L	32-80	135	185	75	55	35	M10	8	69	11000	7.5	18132 x 10 ⁻⁶

產品類別 Product Type	彈性體扭力 Spider Torque T _{kn} (Nm)			靜態扭轉剛性(Nm/rad) Static torsion spring stiffness			動態扭轉剛性(Nm/rad) Dynamic torsion spring stiffness			Max. Displacements						
	98A	64D	72D	98A	64D	72D	98A	64D	72D	軸向偏差 Axial ΔKa(mm)	徑向偏差 Radial ΔKr(mm)			角度偏差 Angular a (°)		
											98A	64D	72D	98A	64D	72D
SC D55	60	75	-	3640	5030	-	5980	10896	-	+1.4 -0.5	0.10	0.07	-	0.9	0.8	-
SC D65	160	200	260	6410	10260	21526	9920	20177	36547	+1.5 -0.7	0.11	0.08	0.05	0.9	0.8	0.7
SC D80	325	405	525	11800	26300	44584	17160	40335	71180	+1.8 -0.7	0.12	0.09	0.06	0.9	0.8	0.7
SC D95	450	560	728	21594	36860	58600	37692	69825	93800	+2.0 -1.0	0.14	0.10	0.07	0.9	0.8	0.7
SC D105	525	655	852	25759	57630	80000	45620	99750	136948	+2.1 -1.0	0.16	0.11	0.08	0.9	0.8	0.7
SC D120	685	825	1072	42117	105730	150000	61550	130200	209530	+2.2 -1.0	0.17	0.12	0.09	0.9	0.8	0.7
SC D135	940	1175	1527	48520	118510	160000	71660	189189	310000	+2.6 -1.0	0.18	0.13	0.1	0.9	0.8	0.7

SC D - L d - d -

訂購範例 Order Ex. : 1. SC D55-78L d10-d20
2. SC D55-78L d10-d20-98A
3. SCAD55-78L d10-d20-72D

*指定彈性體類型 Specifies spider type : 98A、64D、72D

產品編號 Product No.

SCD: 合金鋼 Steel

SCAD: 鋁合金 Aluminum alloy

內徑 2 Inside diameter 2

內徑 1 Insid diameter 1

*未指定彈性體類型，依照標準出貨提供 64D 型，毋須填寫

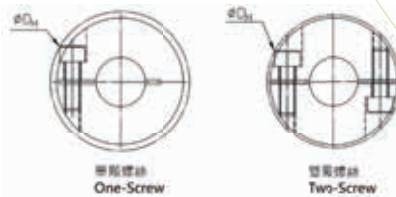
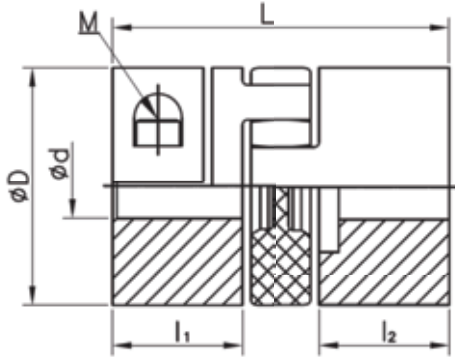
Not specified spider type, 64D type is provided as standard shipment. No need to fill in.

Clamping Hubs Type

FCD側邊鎖固型聯軸器

聯軸器

Shaft Coupling



特點

- 一次精加工完成,元件及配對精度高
- 無背隙(彈性體預壓)
- 適用三軸進給應用
- FCD系列採用全鋁合金,低慣量
- 尺寸 $\Phi 105$ 以上為FCSD系列,採用合金鋼

Coupling Feature

- High quality with done-in-One machining.
- Zero-backlash motion transmission.
- FC series is suitable for servo transmission system.
- FC D series products made by Aluminum alloy, and low mass moment of inertia.
- Dimensions above 105 are FCSD series, which are made of alloy steel.

產品編號 Product No.	d (mm)	D (mm)	DH (mm)	L (mm)	l1 / l2 (mm)	Clamping screws (amount and force)			最大轉速 Max speed (min ⁻¹)	質量(最小孔) Weight per hub with min bore (kg)	轉動慣量 Mass moment of inertial J with min bore (kgm ²)
						夾緊螺絲 數量	鎖緊扭矩 M (Nm)				
FC D40-66L	8-20	40	46	66	25	M6	1	10.5	9550	0.1	21 x 10 ⁻⁶
FC D40-50L	8-24	40	44.5	50	17	M5	1	7	9550	0.07	17 x 10 ⁻⁶
FC D55-78L	8-32	55	67	78	30	M8(M6)	1	25	6950	0.22	84 x 10 ⁻⁶
FC D55-54L	8-32	55	57	54	18	M6	2	10.5	10000	0.16	65 x 10 ⁻⁶
FC D65-90L	10-38	65	72	90	35	M8	1	25	5850	0.32	173 x 10 ⁻⁶
FC D65-62L	10-38	65	68	62	21	M8	2	25	6000	0.21	137 x 10 ⁻⁶
FC D80-114L	12-45	80	84	114	45	M8	1	25	6000	0.63	514 x 10 ⁻⁶
FC D80-76L	12-45	80	86	76	26	M10	2	69	7150	0.49	419 x 10 ⁻⁶
FC D95-126L	14-55	95	97	126	50	M8	2	25	6000	1.1	1256 x 10 ⁻⁶
FCSD105-140L	25-55	105	105	140	56	M12	2	120	5000	3.4	4782 x 10 ⁻⁶
FCSD120-160L	30-70	120	123	160	65	M12	2	120	3780	5.2	9145 x 10 ⁻⁶
FCSD135-162L	35-80	135	139	162	65	M16	1	290	4000	7.3	17938 x 10 ⁻⁶

產品類別 Product Type	彈性體扭力 Spider Torque TKN(Nm)			靜態扭轉剛性(Nm/rad) Static torsion spring stiffness			動態扭轉剛性(Nm/rad) Dynamic torsion spring stiffness			Max. Displacements						
	98A	64D	72D	98A	64D	72D	98A	64D	72D	軸向偏差 Axial ΔKa (mm)	徑向偏差 Radial ΔKr (mm)			角度偏差 Angular a(°)		
											98A	64D	72D	98A	64D	72D
FC D40	21	26	-	1512	2560	-	2540	3810	-	+1.2/-0.5	0.06	0.04	-	0.9	0.8	-
FC D55	60	75	-	3640	5030	-	5980	10896	-	+1.4/-0.5	0.10	0.07	-	0.9	0.8	-
FC D65	160	200	260	6410	10260	21526	9920	20177	36547	+1.5/-0.7	0.11	0.08	0.05	0.9	0.8	0.7
FC D80	325	405	525	11800	26300	44584	17160	40335	71180	+1.8/-0.7	0.12	0.09	0.06	0.9	0.8	0.7
FC D95	450	560	728	21594	36860	58600	37692	69825	93800	+2.0/-1.0	0.14	0.10	0.07	0.9	0.8	0.7
FCSD105	525	655	852	25759	57630	80000	45620	99750	136948	+2.1/-1.0	0.16	0.11	0.08	0.9	0.8	0.7
FCSD120	685	825	1072	42117	105730	150000	61550	130200	209530	+2.2/-1.0	0.17	0.12	0.09	0.9	0.8	0.7
FCSD135	940	1175	1527	48520	118510	160000	71660	189189	310000	+2.6/-1.0	0.18	0.13	0.1	0.9	0.8	0.7

FC D ■ - ■ L

d ■ - d ■ - □

訂購範例 Order Ex. : 1. FCD40-66L d10-d20
2. FC D40-66L d10-d20-98A
3. FCSD105-140L d25-d55-72D

*指定彈性體類型 Specifies spider type : 98A、64D、72D

產品編號 Product No.

→ FCD: 鋁合金 Aluminum alloy

FCSD : 合金鋼 Steel

→ 內徑 2 Inside diameter 2

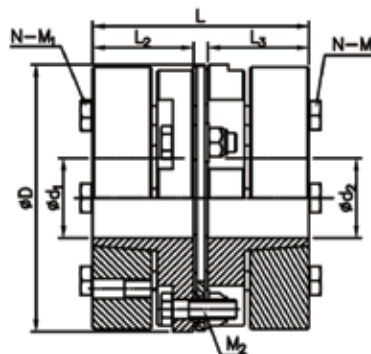
→ 內徑 1 Inside diameter 1

*未指定彈性體類型, 依照標準出貨提供 64D 型, 毋須填寫

Not specified spider type, 64D type is provided as standard shipment. No need to fill in.

Disc Pack Coupling with Clamping Ring Hubs Type

DC4迫緊型鋼片式聯軸器



特點

- 高扭轉剛性，傳動扭矩大
- 確保軸向、徑向、角度軸偏差補償
- 適用於重負載應用
- 全金屬，免保養、壽命長

Coupling Feature

- High torsional rigidity and large transmission torque.
- Ensure compensation of axial, radial and angular shaft misalignment.
- DC series is suitable for heavy duty applications.
- All metal materials, maintenance-free, long life.

產品編號 Product No.	d/d ₂ (mm)	D (mm)	L (mm)	L ₂ / L ₃ (mm)	Clamping screws (amount and force)				質量(最小孔) Weight per hub with min bore (kg)	轉動慣量 Mass moment of inertial J with min bore (kgm ²)
					數量-迫緊螺絲 N-M1	鎖緊扭矩 M ₁ (Nm)	組裝螺絲 M ₂	組裝扭矩 M ₂ (Nm)		
DC4D123-118L	30-70	123	118	55	6-M6	14	M8	35	7.3	16377 x 10 ⁻⁶
DC4D143-128L	35-80	143	128.6	60	6-M12	98	M8	35	12.8	33712 x 10 ⁻⁶
DC4D168-136L	35-85	168	136	63.5	6-M12	140	M12	165	17.3	62075 x 10 ⁻⁶
DC4D198-197L	45-90	198	197	92	6-M16	250	M20	690	31.6	152366 x 10 ⁻⁶

產品類別 Product Type	額定扭力 Rated Torque TK _r (Nm)	最大扭力 Max. Torque TK _s (Nm)	最大轉速 Max speed (min ⁻¹)	Max. Displacements	
				軸向偏差 Axial ΔKa (mm)	角度偏差 Angular a(°)
DC4D123	1100	1650	8500	±1.3	±0.7°
DC4D143	1600	2400	7300	±1.5	±0.7°
DC4D168	2600	3900	6200	±1.7	±0.7°
DC4D198	4500	9000	5000	±1.25	±0.7°

DC4D - L - S d - d

訂購範例 Order Ex. : 1. DC4D123-118L-S d42-d55

產品編號 Product No.

內徑 2 Inside diameter 2

內徑 1 Inside diameter 1

S 單組鋼片 Single disc pack coupling

*W 雙組鋼片 Double disc packs coupling

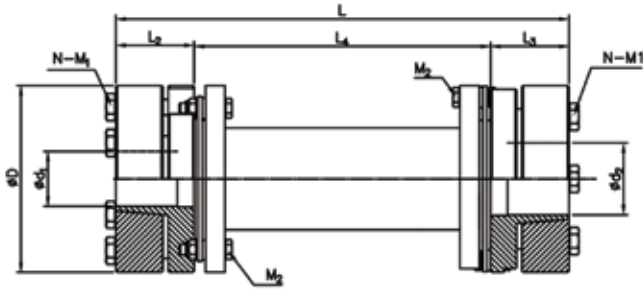
*另有提供雙組鋼片，相關資訊請洽本公司

We also support double disc packs coupling, Please contact us and obtain relevant information.

Disc Pack Customized Long Shaft Coupling Type

DC3鋼片式客製化長軸聯軸器

聯軸器 Shaft Coupling



特點

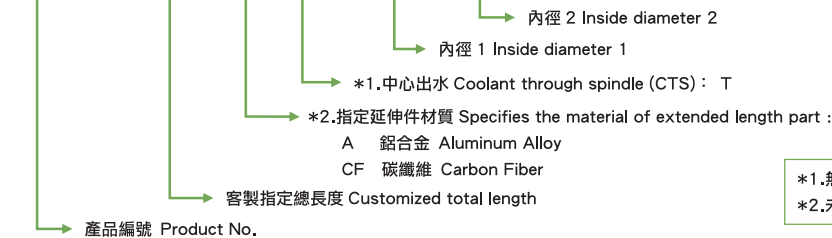
- 提供客戶指定長度的客製化設計
- 延伸部件提供合金鋼、鋁合金、碳纖維等材質選擇
- 提供中心出水(CTS)設計

Coupling Feature

- Offer customized design in customer specified length.
- The material of extended length part is provided to options, such as alloy steel, aluminum alloy or carbon fiber.
- Provide design of coolant through spindle (CTS).

產品編號 Product No.	d ₁ /d ₂ (mm)	D (mm)	L ₂ / L ₃ (mm)	L (mm)	L ₄ (mm)	Clamping screws (amount and force)				質量 Weight per hub with min bore (kg)	轉動慣量 Mass moment of inertial J with min bore (kgm ²)
						數量-迫緊螺絲 N-M1	鎖緊扭矩 M ₁ (Nm)	組裝螺絲 M ₂	組裝扭矩 M ₂ (Nm)		
DC3D123-□L	30-70	123	55	根據需求	依設計提供	6-M6	14	M8	35	依設計提供	依設計提供
DC3D143-□L	35-80	143	60	根據需求	依設計提供	6-M12	98	M8	35	依設計提供	依設計提供
DC3D168-□L	35-85	168	63.5	根據需求	依設計提供	6-M12	140	M12	165	依設計提供	依設計提供

DC3D - L - - d - d 訂購範例 Order Ex. : 1. DC3D123-985L d42-d55
2. DC3D123-985L- CF d42-d55
3. DC3D123-985L-T d42- d55
4. DC3D123-985L-CF-T d42-d55



*1.無中心出水(CTS), 毋需填寫 No Coolant through spindle (CTS). No need to fill in.
*2.未指定為合金鋼, 毋需填寫 Not specified as alloy steel. No need to fill in.

各式客製化聯軸器設計與製造 Customized Coupling design and manufacture

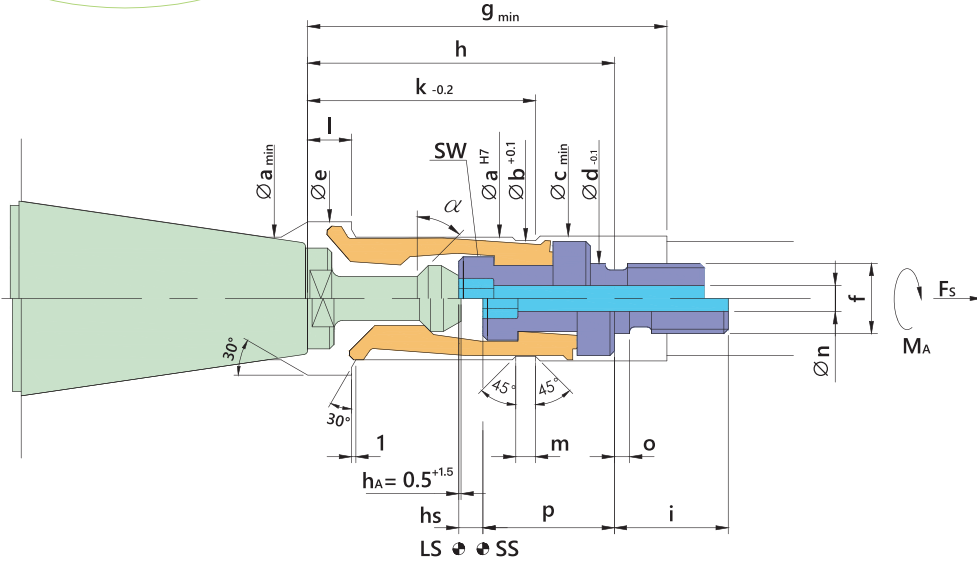
我們亦提供各式客製化聯軸器設計與製造, 包括: 含鍵槽式聯軸器, 剛片性聯軸器 ... 等各式聯軸器。

We also support many different kinds of "Customized Coupling" design and manufacture. Such as Flexible shaft coupling with keyway, or Rigid Servo Lamina Coupling.



MAS 403 Pull Stud Type

MAS 403 BT主軸夾爪



SS : 拉刀位置(Clamping position)
 LS : 退刀位置(Release position)



F_s max.: Clamping Force 最大拉刀力

M_A max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15^\circ$	a	b	c	d	e	f	g	h	i
BT30M45	45°	19	17.8	19.5	10	24	M10xP1.5	50	47	20
BT30M60	30°									
BT40M45	45°	28	26.4	28.5	16	35	M16xP1.5	82	70	26
BT40M60	30°									
BT40M90	0°									
BT50M45	45°	43	40.4	43.5	22	54	M22xP1.5	98	90	35
BT50M60	30°									
BT50M90	0°									
BT60M45	45°	62	58.6	62.5	30	77	M30xP1.5	130	125	40
BT60M60	30°									

規格 Part No.	k	l	m	n	o	p	hs	F _s max. kN	M _A max. Nm	SW mm
BT30M45	37	7.5	3.5	3.0	3.0	20.5	4.0	10	30	5
BT30M60										
BT40M45	52	10.0	4.5	6.0	4.0	33.0	5.5	18	65	6
BT40M60										
BT40M90										
BT50M45	69	16.0	5.0	9.5	5.0	37.0	8.5	35	160	10
BT50M60										
BT50M90										
BT60M45	96	23.0	6.5	16.0	5.0	49.5	11	70	450	17
BT60M60										

註：我司亦提供中噴機構（代號：CW）的BT主軸夾爪，詳細規格請洽本公司。

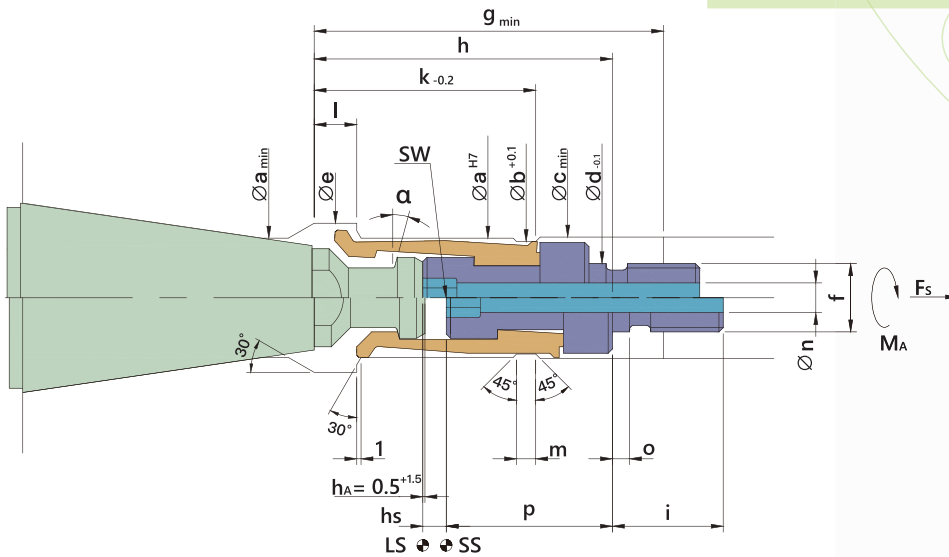
PS : We also have CTS function for the above grippers, and we mark the CTS function as "CW". Please ask us for the details.

DIN69872 Pull Stud Type

DIN69872 主軸夾爪

主軸夾爪

Spindle Clamping Gripper



SS : 拉刀位置(Clamping position)
LS : 退刀位置(Release position)



Fs max.: Clamping Force 最大拉刀力

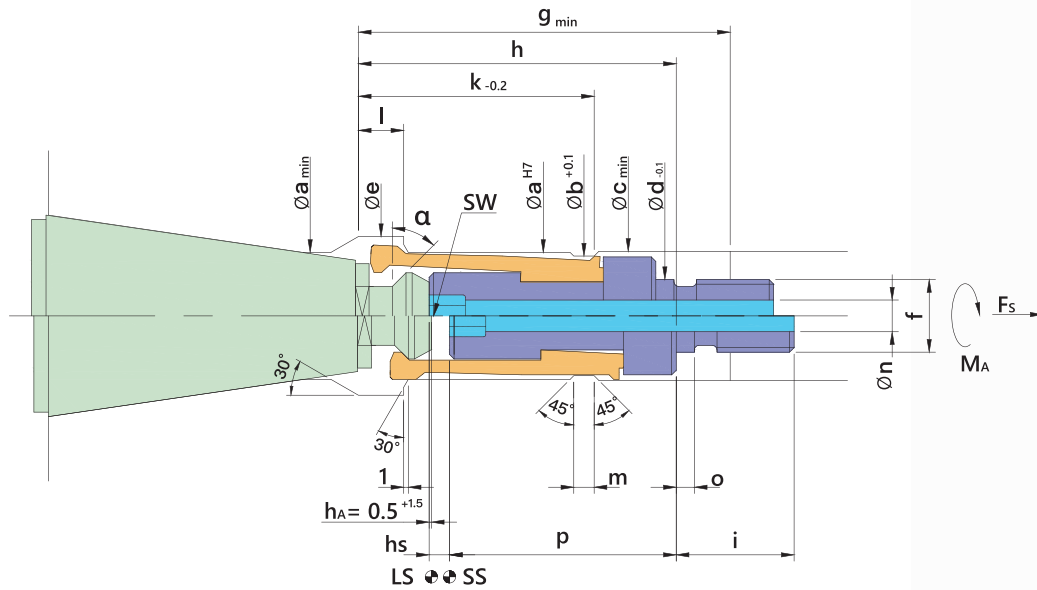
MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15^\circ$	a	b	c	d	e	f	g	h	i
DIN30	15°	19	17.8	19.5	10	24	M10xP1.5	50	47	20
DIN40	15°	28	26.4	28.5	16	35	M16xP1.5	82	70	26
DIN50	15°	43	40.4	43.5	22	54	M22xP1.5	98	90	35
DIN60	15°	62	58.6	62.5	30	77	M30xP1.5	130	125	40

規格 Part No.	k	l	m	n	o	p	hs	FS max. kN	MA max. Nm	SW mm
DIN30	37	7.5	3.5	3.0	3.0	19.5	4.0	10	30	5
DIN40	52	10.0	4.5	6.0	4.0	39/40	5.5/4.5	18	65	6
DIN50	69	16.0	5.0	9.5	5.0	48.0	8.5	35	160	10
DIN60	96	23.0	6.5	16.0	5.0	74.5	11	70	450	17

ANSI B5.50 Pull Stud Type

CAT 主軸夾爪



SS : 拉刀位置(Clamping position)
 LS : 退刀位置(Release position)



Fs max.: Clamping Force 最大拉刀力

MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15'$	a	b	c	d	e	f	g	h	i
CAT30	45°	19	17.8	19.5	10	24	M10xP1.5	50	47	20
CAT40	45°	28	26.4	28.5	16	35	M16xP1.5	82	70	26
CAT50	45°	43	40.4	43.5	22	54	M22xP1.5	98	90	35
CAT60	45°	62	58.6	62.5	30	77	M30xP1.5	130	125	40

規格 Part No.	k	l	m	n	o	p	hs	Fs max. kN	MA max. Nm	SW mm
CAT30	37	7.5	3.5	3.0	3.0	32.7	3.0	10	30	5
CAT40	52	10.0	4.5	6.0	4.0	50.0	4.5	18	65	6
CAT50	69	16.0	5.0	9.5	5.0	58.0	7.0	35	160	10
CAT60	96	23	6.5	16	5	76.8	10.5	70	450	17

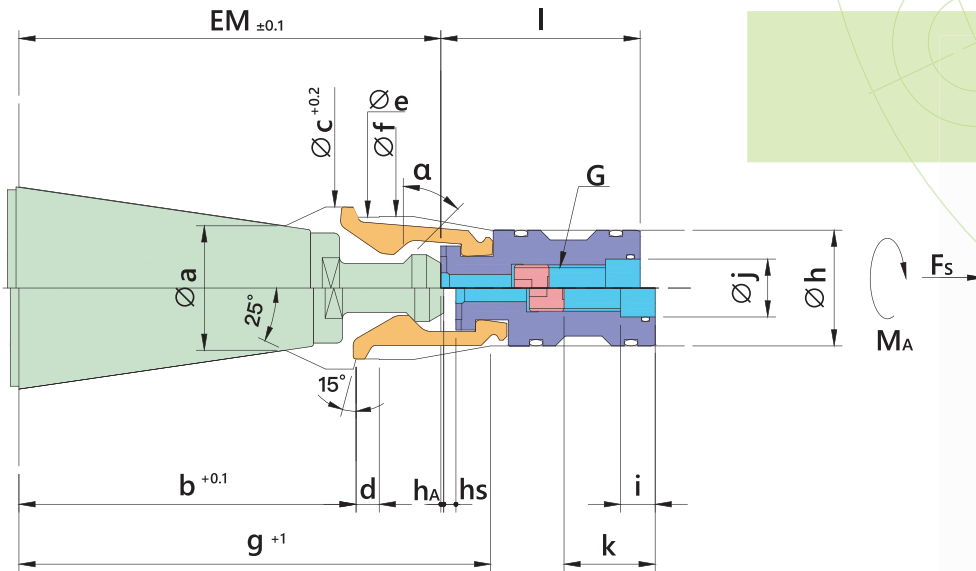
Female Thread Type (FT series)

(Compatible with OTT series)

母牙型夾爪(相容OTT)

主軸夾爪

Spindle Clamping Gripper



Fs max.: Clamping Force 最大拉刀力

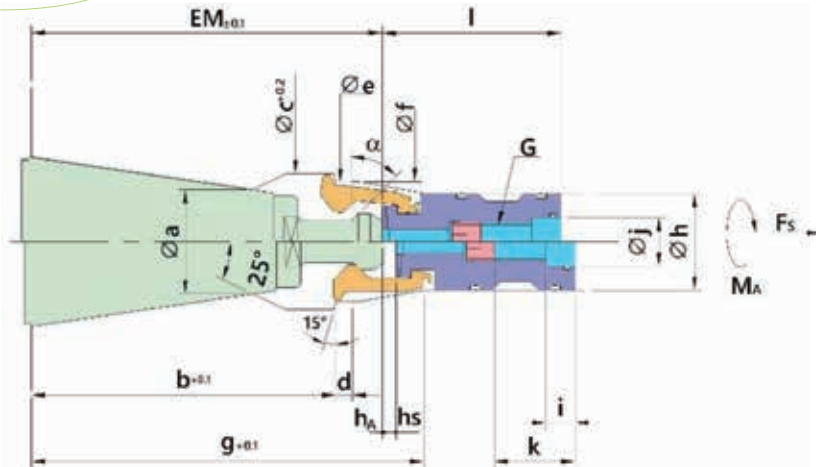
MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15'$	a	b	c	d	e_{e7}	f	g	h	i
BT30M45	45°	19.5	59	27	5	22.5	23	91	19	10
BT30M60	30°									
BT40M45	45°	27.6	79.5	40	7	34	34.5	117	27	11
BT40M60	30°									
BT40M90	0°									
BT50M45	45°	43.0	116.5	56	8	49	49.5	163	40	12
BT50M60	30°									
BT50M90	0°									
CAT30	45°	19.5	59	27	5	22.5	23	91	19	10
CAT40	45°	27.6	79.5	40	7	34	34.5	117	27	11
CAT50	45°	43.0	116.5	56	8	49	49.5	163	40	12.2
DIN30	15°	19.5	59	27	5	22.5	23	91	19	10
DIN40	15°	27.6	79.5	40	7	34	34.5	117	27	11
DIN50	15°	43.0	116.5	56	8	49	49.5	163	40	12.2

規格 Part No.	j	k	l	EM	hA	hs	G	Fs max. kN	MA max. Nm
BT30M45	12	23	57.5	70.4	0.95	3.2	M10xP1.25	10	30
BT30M60									
BT40M45	18	24.5	60.3	99.7	0.65	3.85	M14xP1.5	18	65
BT40M60									
BT40M90									
BT50M45	20	31.5	68.8	145.75	1.0	3.55	M16xP1.5	35	160
BT50M60									
BT50M90									
CAT30	12	23	69.8	57.7	1.60	2.9	M10xP1.25	10	35
CAT40	18	24.5	77.5	82.9	1.60	2.65	M14xP1.5	18	65
CAT50	20	31.5	87.9	126	1.0	3.65	M16xP1.5	35	160
DIN30	12	23	57.1	70.7	0.95	3.8	M10xP1.25	10	35
DIN40	18	24.5	66.4	93.6	0.65	4.0	M14xP1.5	18	65
DIN50	20	31.5	79.7	134.6	1.0	3.6	M16xP1.5	35	160

Female Thread Type (RM series) (Compatible with ROHM series)

母牙型夾爪(相容ROHM)



Fs max.: Clamping Force 最大拉刀力

MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15'$	a	b	c	d	e_{G7}	f	g	h	i
BT30M45	45°	19.5	63.5	24.5	6	19.5	20	90	19	10
BT30M60	30°									
BT40M45	45°	27.6	86.5	40	7	34	34.5	117	27	11
BT40M60	30°									
BT40M90	0°									
BT50M45	45°	43	126.5	56	7	49	49.5	163	40	12
BT50M60	30°									
BT50M90	0°									
CAT30	45°	19.5	63.5	24.5	6	19.5	20	90	19	10
CAT40	45°	27.6	86.5	40	7	34	34.5	117	27	11
CAT50	45°	43	126.5	56	7	49	49.5	163	40	12
DIN30	15°	19.5	63.5	24.5	6	19.5	20	90	19	10
DIN40	15°	27.6	86.5	40	7	34	34.5	117	27	11
DIN50	15°	43	126.5	56	7	49	49.5	163	40	12

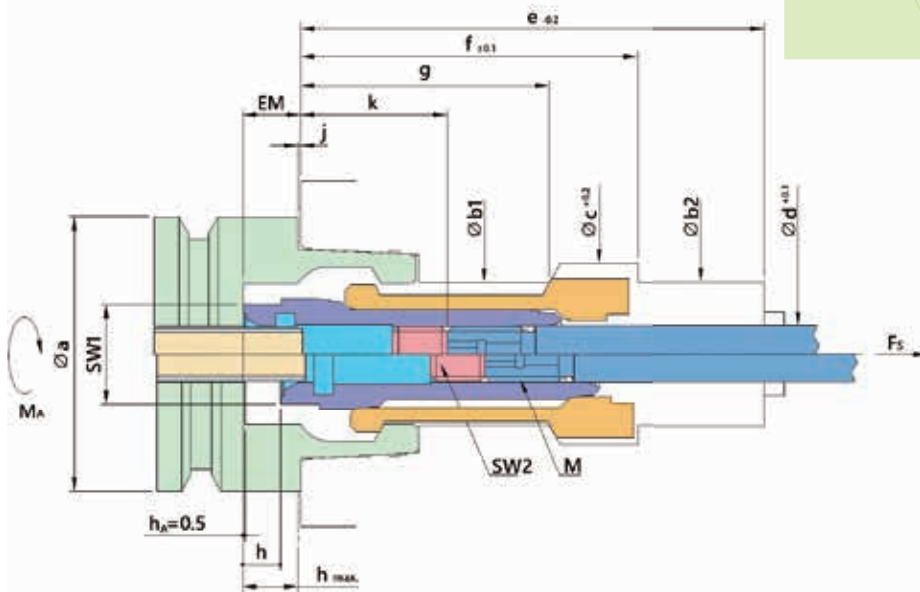
規格 Part No.	j	k	l	EM	hA	hs	G	Fs max. kN	MA max. Nm
BT30M45	12	23	56	71	0.4	4	M10xP1.5	6	30
BT30M60									
BT40M45	16	24.6	60	99.4	1	4.8	M14xP1.5	15	65
BT40M60									
BT40M90									
BT50M45	20	33.3	74.2	146	0.8	5.6	M16xP1.5	26	160
BT50M60									
BT50M90									
CAT30	12	23	-	-	-	-	M10xP1.5	6	30
CAT40	16	24.6	-	-	-	-	M14xP1.5	15	65
CAT50	20	33.3	93.7	126.5	0.8	5.6	M16xP1.5	26	160
DIN30	12	23	56	71	0.4	4	M10xP1.5	6	30
DIN40	16	24.6	66	93.4	1	4.8	M14xP1.5	15	65
DIN50	20	33.3	85.25	134.95	0.8	5.6	M16xP1.5	26	160

HSK Type

HSK 主軸夾爪

主軸夾爪

Spindle Clamping Gripper



Fs max.: Clamping Force 最大拉刀力
MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	a	b1 _{H10}	b2 _{H6}	c	d	e	f	g	M
E25	25	14	14	18	6.4	40	25.5	18.5	M6 x P0.5
A32/B40/E32	32	17	17	22.5	6.6	62.5	43	30	M6 x P1.0
A40/B50/E40/F50	40	21	21	26.5	8.6	78	58	44	M8 x P1.25
A50/B63/E50/F63	50	26	26	33.0	10.6	84	61	45	M10 x P1.5
A63/B80/E63/F80	63	34	34	41.6	14.6	94	69	52	M14 x P1.5
A80/B100	80	42	42	50	16.6	98	72	56	M16 x P1.5
A100/B125	100	53	53	63	18.4	124	93	70	M16 x P1.5
A125/B160	125	67	67	79	25.4	149	112.5	86	M24 x P1.5

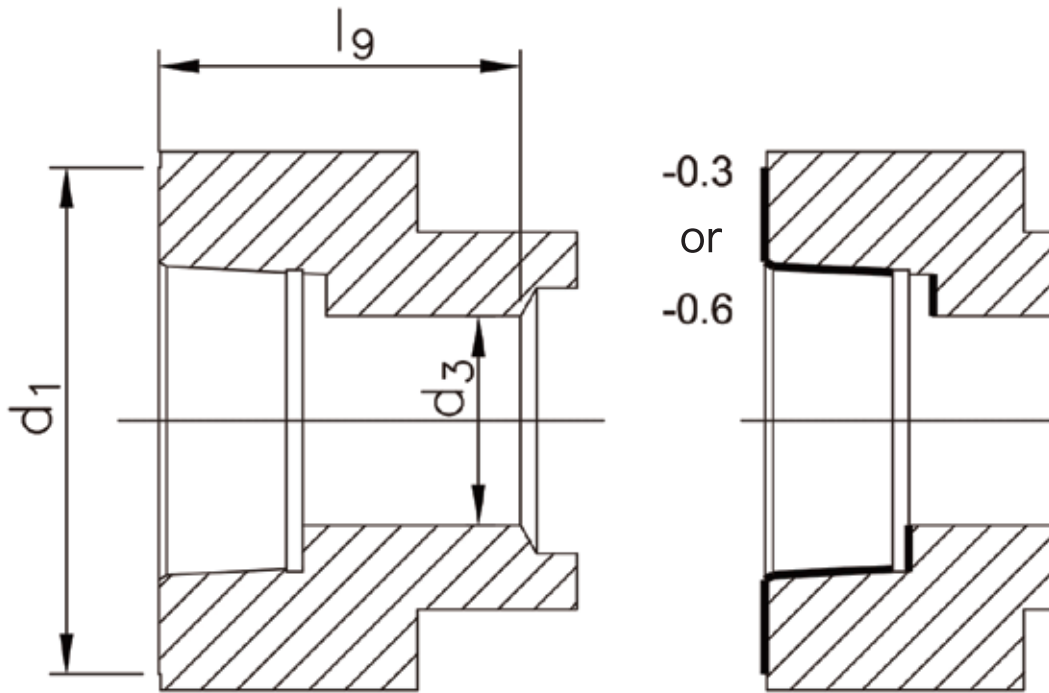
規格 Part No.	h	EM _{±0.1}	j	k	h max	Fs max. kN	MA Nm	SW1 mm	SW2 mm	最高轉速 max. RPM
E25	4.6	6.5	0.5	5.5	7.0	2.8	7	10	3	80000
A32/B40/E32	5.1	8.5	0.5	19.5	7.5	5	10	12	3	57000
A40/B50/E40/F50	5.6	8.5	0.5	27.0	8.0	6.8	15	15	4	45000
A50/B63/E50/F63	6.4	10.5	0.5	26.5	9.0	11	20	18	5	37000
A63/B80/E63/F80	7.4	10.5	0.5	31.5	10.0	18	30	24	5	29000
A80/B100	8.3	13	0.5	29	11.0	28	30	27	6	20000
A100/B125	9.15	13	0.5	34.5	12.5	45	50	36	6	15000
A125/B160	10.8	16.5	0.5	40.5	15.8	70	100	46	14	12000

註：我司亦提供黑色特殊鍍膜版本的 HSK 夾爪，其特性為較小的摩擦與較高的使用壽命。

PS : We also support black version (with special coating) of HSK type grippers, its features are minimum friction and higher life expectancy.

Repair-HSK-Clamping Units

HSK 主軸維修用夾爪



Nominal size	Standard Clamping unit	Repair Clamping unit	Repair Clamping unit
	HSK B Standard	HSK B-E 0.3 HSK (-0.3mm)	HSK B-E 0.6 HSK (-0.6mm)
	l_9 (mm)		
E25	18.5	18.2	17.9
A32/B40/E32	30.0	29.7	29.4
A40/B50/E40	44.0	43.7	43.4
A50/B63/E50	45.0	44.7	44.4
A63/B80/E63	52.0	51.7	51.4
A80/B100	56.0	55.7	55.4
A100/B125	70.0	69.7	69.4

Assembly Tool
For HSK Clamping Unit

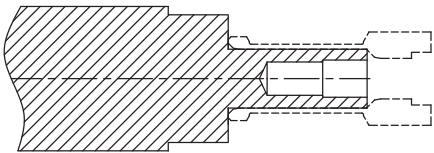

HSK 夾爪組裝工具

主軸夾爪

Spindle Clamping Gripper

精勤特殊設計之安裝工具，易於組裝 HSK 爪片

For easier assembly of the HSK gripper unit.

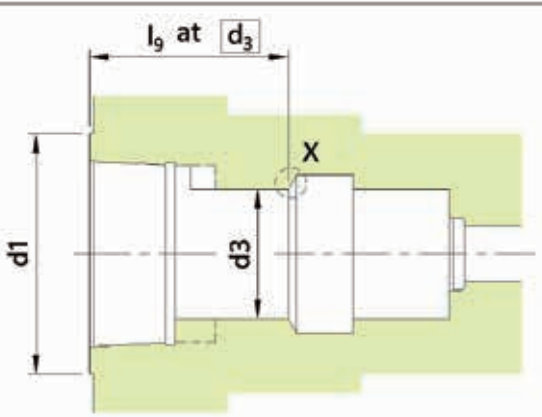
	規格 Size
	E25
	A32/B40/E32
	A40/B50/E40/F50
	A50/B63/E50/F63
	A63/B80/E63/F80
	A80/B100
	A100/B125
	A125/B160

HSK-depth-measurement Gage

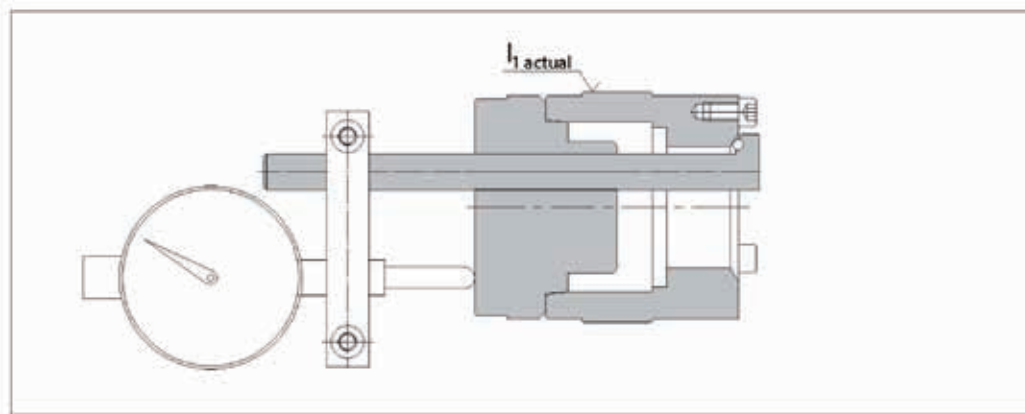
HSK 深度規

深度規是使用於量測尺寸 l_9 。

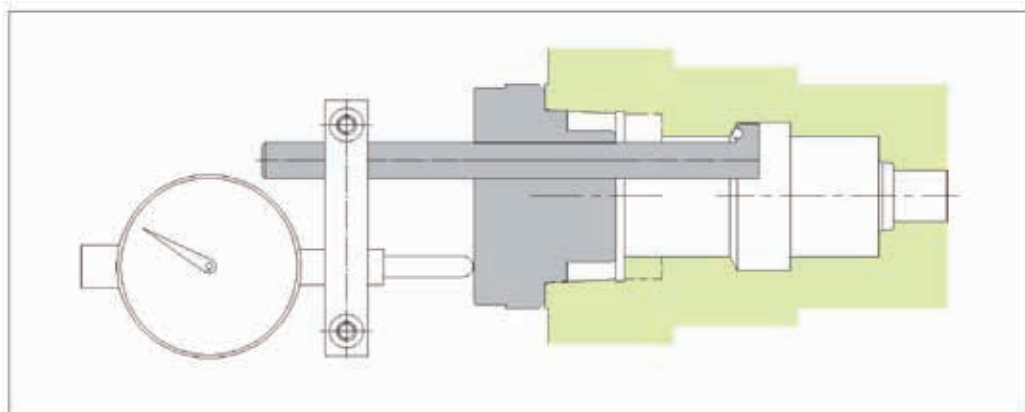
The cam gage is used to measure indirect the l_9 dimension.

	Nominal size	„reference length“		L1 nominal
		l_9 js8	(at d_3)	
	E25	18.5 ±0.0165	(14)	19.077
	A32/B40/E32	30 ±0.0165	(17)	30.577
	A40/B50/E40	44 ±0.0195	(21)	44.577
	A50/B63/E50	45 ±0.0195	(26)	45.577
	A63/B80/E63	52 ±0.023	(34)	52.866
	A80/B100	56 ±0.023	(42)	56.577
	A100/B125	70 ±0.023	(53)	70.866

設置深度規 Setting Gage



深度量測 Inner depth measuring



ISO Pull Stud Type

ISO 主軸夾爪

主軸夾爪

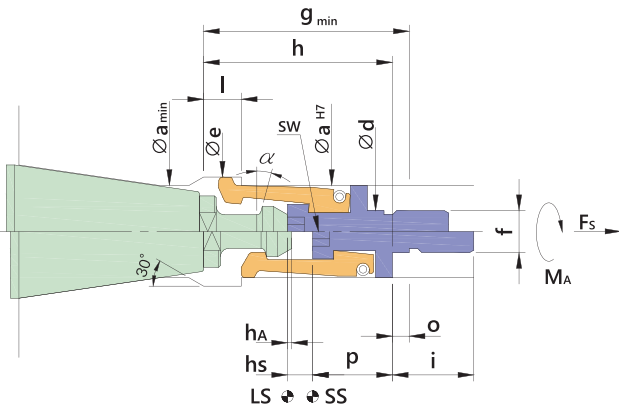
Spindle Clamping Gripper



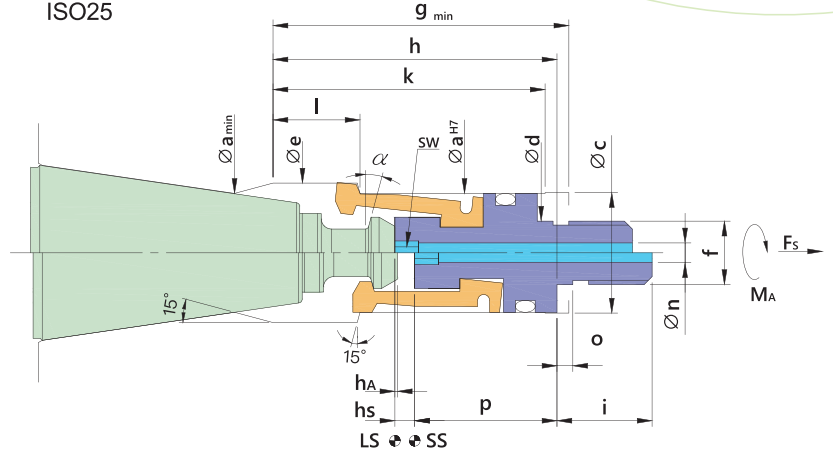
ISO10BJ

ISO20

ISO25



SS : 拉刀位置(Clamping position)
LS : 退刀位置(Release position)



SS : 拉刀位置(Clamping position)
LS : 退刀位置(Release position)

F_s max.: Clamping Force 最大拉刀力

M_A max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α $\pm 15^\circ$	a	b	c	d	e	f	g	h	i
ISO10	詳細規格請洽本公司(For more detail information, please contact us.)									
ISO10BJ	15°	11	-	-	5	13.0	M5xP0.8	24.5	22.5	9.7
ISO20	15°	15	-	15.2	8	17.6	M8xP1.0	37.3	35.8	12.0
ISO20BJ	詳細規格請洽本公司(For more detail information, please contact us.)									
ISO25	15°	17	-	17.5	8	20.0	M8xP1.0	43.5	42.0	12.0
ISO25BJ	詳細規格請洽本公司(For more detail information, please contact us.)									

規格 Part No.	k	l	n	o	p	h _A	h _s	F _s max. kN	M _A max. Nm	SW mm
ISO10	詳細規格請洽本公司(For more detail information, please contact us.)									
ISO10BJ	-	4.5	-	2	9.5	0.5	3	1.2	-	3.0
ISO20	34.3	11.0	2.5	2	18.0	0.3	2.5	1.5	-	2.5
ISO20BJ	詳細規格請洽本公司(For more detail information, please contact us.)									
ISO25	40.5	14.1	3.0	2	18.0	0.5	3.3	1.7	-	4.0
ISO25BJ	詳細規格請洽本公司(For more detail information, please contact us.)									

註：以上為公牙版本規格，母牙版本規格請洽本公司。

PS : The above is male thread type ISO gripper. About female thread type information, please contact us.

BP Series With Force Amplification

主軸倍力夾爪(BP系列)

產品特點

- 可減少碟形彈片的數量或彈簧長度進而得到較佳的動態特性
- 在無反抱機構時，對軸承作用力變小
- 提高換刀速度
- 在有限空間下，可增加其拉刀力 (2-3 倍放大簧力)
- 打刀力可相對減少，相對的對心軸產生的應力較小
- 可減少拉刀系統總長度進而縮短主軸總長度
- 拉刀系統壽命的延長
- 本系列產品經實機連續壽命測試 120 萬次

注意事項

1. 主軸內腔介面加工：使用 BP 系列產品時，建議依本公司所提供之圖面加工，如有相關加工及量測治具問題，可直接洽詢本公司相關人員。
2. 安裝：需注意介面是否潔淨並於安裝後確定是否鎖固
3. 保養：BP 系列為倍力機構一種形式，因此放大倍率的大小受內部的潤滑程度有一定的影響，請依本公司建議方式定期保養。
4. 使用：
 - 4.1 系列於設計時已有考量動平衡相關問題，並以一固定爪分隔及固定各個爪片之相對位置，因此使用時避免有任何將爪片分離之動作。
 - 4.2 於安裝後第一次使用或動作時，請避免以刀把直接結合，應先確認基本動作是否異常或干涉。
 - 4.3 BP 系列可應用於治具夾持或是迴轉之高速主軸。應用於主軸時，應避免夾爪在無夾持刀把情況下進行旋轉動作，包含組立動平衡校正、跑合、試機、暖機等空轉動作。

Design Feature:

- Achieve better dynamic characteristics with less amounts of disc springs or shorter length of spring.
- The stress for Spindle bearing is smaller.
- Tool changing speed is increased.
- Pull force is increased and unclamping force is relatively less in the same limited space.
- Clamping force can be 2~3 times of spring force so it can be used in a shorter spindle.
- Higher the life expectancy of spring system
- Our gripper has more than 1.2 million times of lifetime testing cycle.

Note:

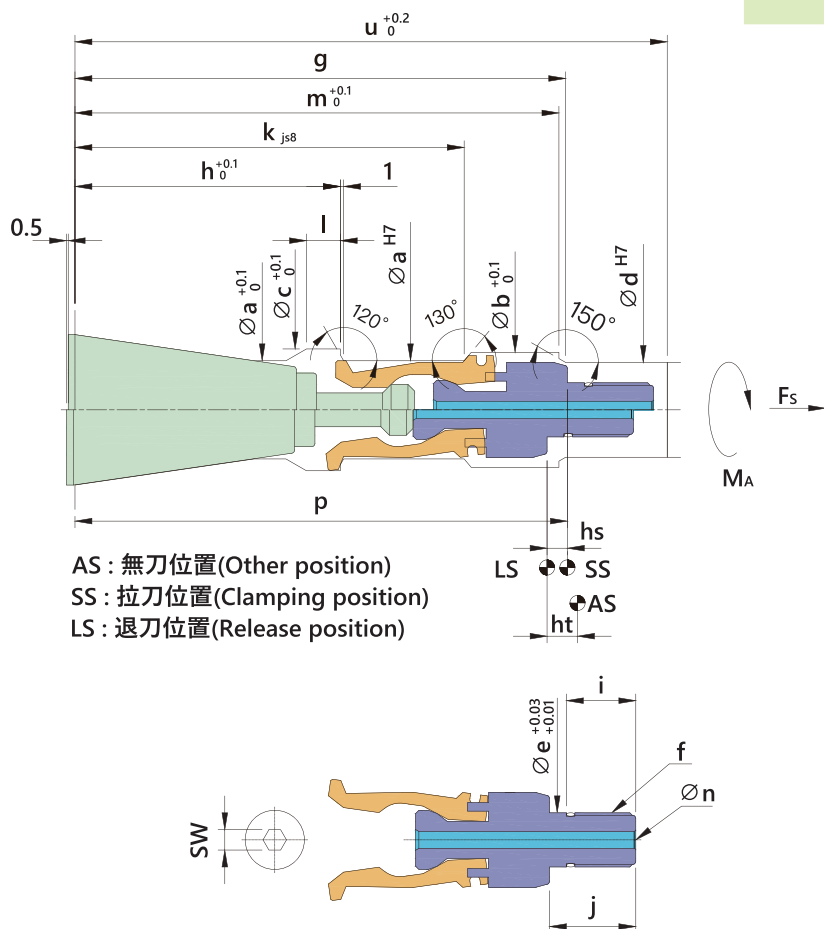
1. Spindle inside contour: When using our “BP series” grippers, please must refer to the drawing of spindle contour provided by us.
2. Assembling: Keep the spindle contour clean and make sure it locked tight properly.
3. Maintenance: “BP series” gripper has “clamping force amplification” function, so the lubrication status is an important issue. Please grease the gripper sufficiently and timely.
4. Usage:
 - 4.1 For dynamic balance issue, every sector must be separated and fixed in the right position while using.
 - 4.2 At the first time using, please avoid using tool holder directly before making sure the movement is normal.
 - 4.3 Good use for high speed CNC spindle, but please avoid running spindle in high speed without tool holder.

刀具規格與精勤產品規格適用對照表 / Tool interface & Product Specifications Table

搭配刀具介面 / Tool Interface	拉栓規格 / Pull stud	精勤拉爪規格 / Bright Model
MAS 403 BT30	P30T-1/2/3	BP30M45/60/90
MAS 403 BT40	P40T-1/2/3	BP40M45/60/90
MAS 403 BT50	P50T-1/2/3	BP50M45/60/90
MAS 403 BT60	P60T-1/2/3	BP60M45/60/90
DIN 69871 / SK30	DIN 69872 A30/B30	BP30DIN
DIN 69871 / SK40	DIN 69872 A40/B40	BP40DIN
DIN 69871 / SK50	DIN 69872 A50/B50	BP50DIN
DIN 69871 / SK60	DIN 69872 A60/B60	BP60DIN
ASME B5.50 CAT30	CAT 30	BP30CAT
ASME B5.50 CAT40	CAT 40	BP40CAT
ASME B5.50 CAT50	CAT 50	BP50CAT

主軸夾爪 Spindle Clamping Gripper

Male thread type
公牙型



Fs max.: Clamping Force 最大拉刀力

MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	a	b	c	d	e	f	g	h	i	j	k
BP30	20	23.5	25	19.5	10	M10xP1.5	95.4	55.4	12.85	15.85	81.8±0.027
BP40	29	34	36	28	16	M16xP1.5	145	78.4	20.5	25.5	115±0.027
BP50	44	50	54	38	22	M22xP1.5	214	117.75	27.5	35	176.75±0.032
BP60	68	70	77	52	30	M30xP1.5	317	186.3	37	45	257.25±0.032

規格 Part No.	l	m	n	p	ht	hs	u	SW	Fs max. kN	MA Nm
BP30	7.9	94.4	3	103	8	5	121.3	4	9	10
BP40	10.0	143	5	145.5	9	6	175	6	12	30
BP50	16.0	209	8	224.5	12	9	251	8	25	50
BP60	24.5	312	8	314	15	12	323.5	12	30	65

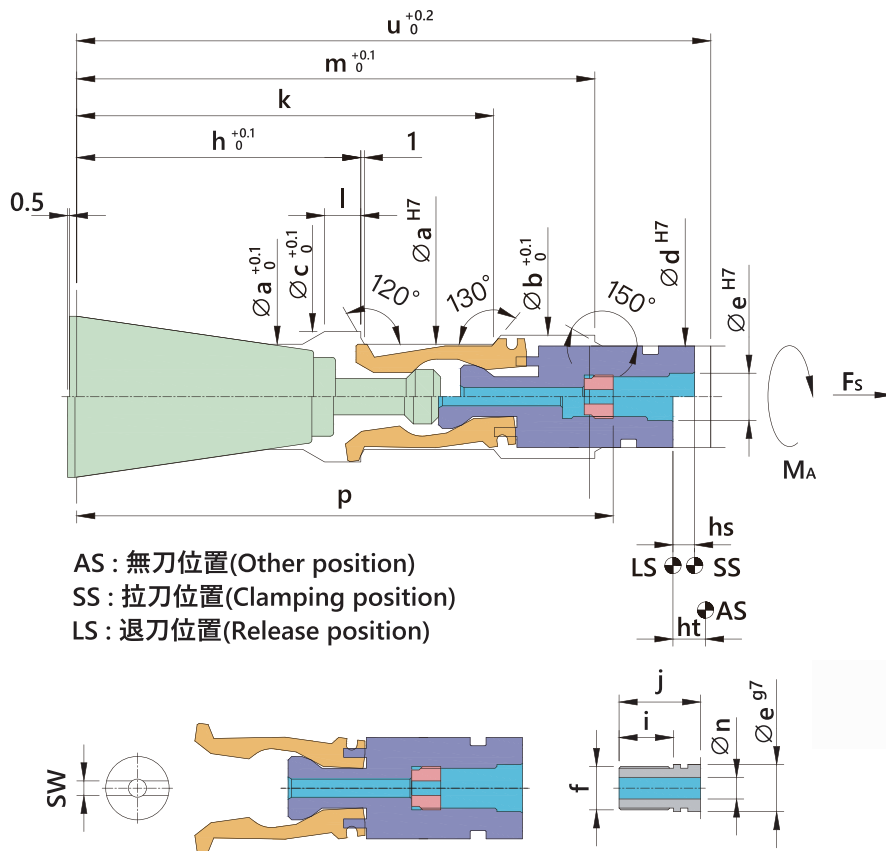
註：我司亦提供中噴機構（代號：CW）的BP主軸倍力夾爪，詳細規格請洽本公司。

PS: We also have CTS function for the above grippers, and we mark the CTS function as "CW". Please ask us for the details.

BP Series With Force Amplification

主軸倍力夾爪(BP系列)

Female thread type
母牙型



F_s max.: Clamping Force 最大拉刀力

M_A max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	a	b	c	d	e	f	h	i	j	k
BP30	20	23.5	25	19.5	19.5	M10xP1.0	55.4	9.5	17.0	81.8±0.027
BP40	29	34	36	28	28	M12xP1.0	78.4	15	22.5	115±0.027
BP50	44	50	54	38	38	M16xP1.5	117.75	19	25.0	176.75±0.032
BP60	68	70	77	52	52	M22xP1.5	186.3	31.5	39.0	257.25±0.032

規格 Part No.	l	m	n	p	ht	hs	u	SW	F _s max. kN	M _A Nm
BP30	7.9	94.4	11	100.5	8	5	121.3	2.5	9	10
BP40	10.0	143	13	145	9	6	175	4	12	30
BP50	16.0	209	17	214	12	9	251	5.5	25	50
BP60	24.5	312	23	270.75	15	12	323.5	7	30	65

Customized Spindle Clamping Gripper

客製化主軸夾爪

主軸夾爪

Spindle Clamping Gripper

- 提供客製化主軸夾爪設計與製造。
- 提供BERG、OTT、ROHM、OKK、MAKINO、MAZAK、RIKEN等各廠牌相容的客製維修夾爪。
- We also support customized spindle gripper design and manufacture.
- We have experiences in supporting spindle gripper repairs service for many brands, such as BERG,OTT,ROHM,MAKINO,MAZAK,RIKEN...etc.



Quick Coupler For Air/Oil

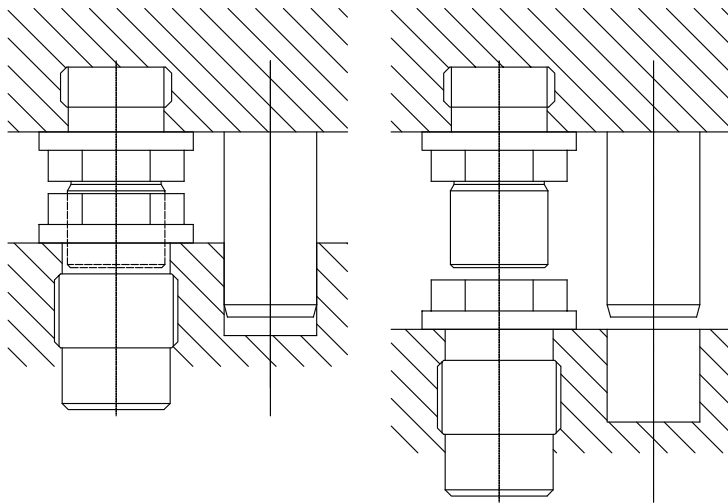
快速接頭

產品特點

- 安裝容易
- 容許較大的作動誤差
- 不銹鋼材質防銹及抗腐蝕
- 適用於自動化、工具機及其他工業設備之氣、液壓通路的自動連接

Product Feature:

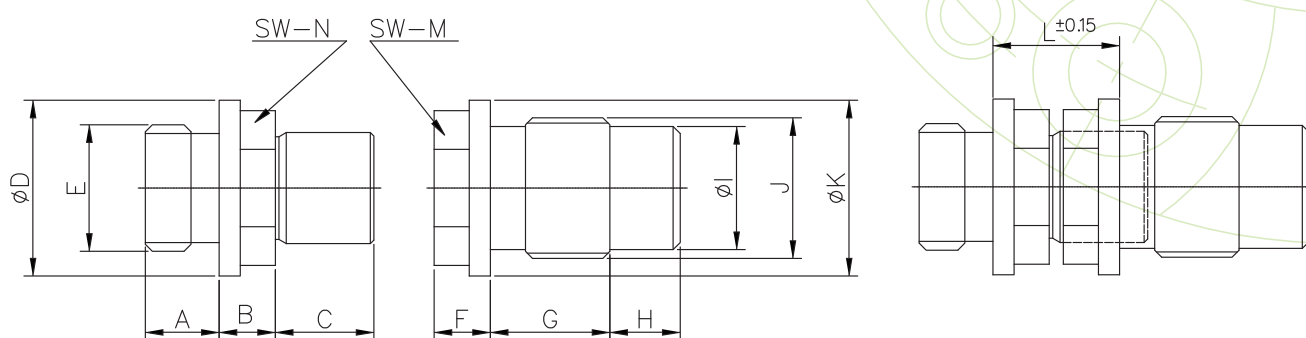
1. Easy to assembly
2. Allow some errors when jointing.
3. Rust and corrosion-resistant material (stainless steel)
4. Suitable for pneumatic and hydraulic connection in industrial automation, machine center and etc.



快速接頭

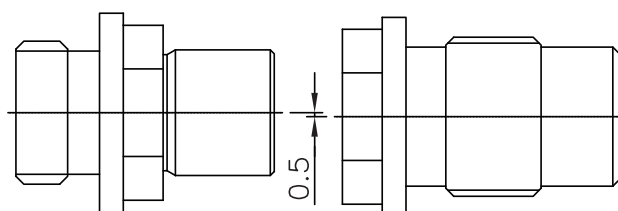
Quick Coupler For Air/Oil

外型尺寸 Dimension

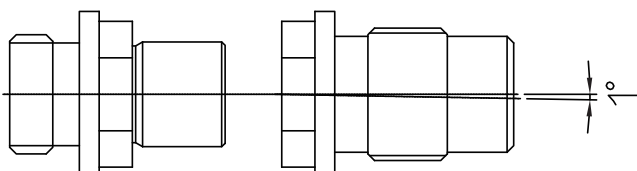


容許作動誤差 Tolerances

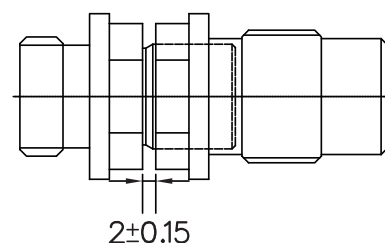
- 容許平行偏置誤差：0.5mm
Max. center offset : 0.5mm



- 容許安裝角度誤差：1°
Max. alignment fault : 1°



- 容許安裝行程：0.3mm
Max. play : 0.3mm



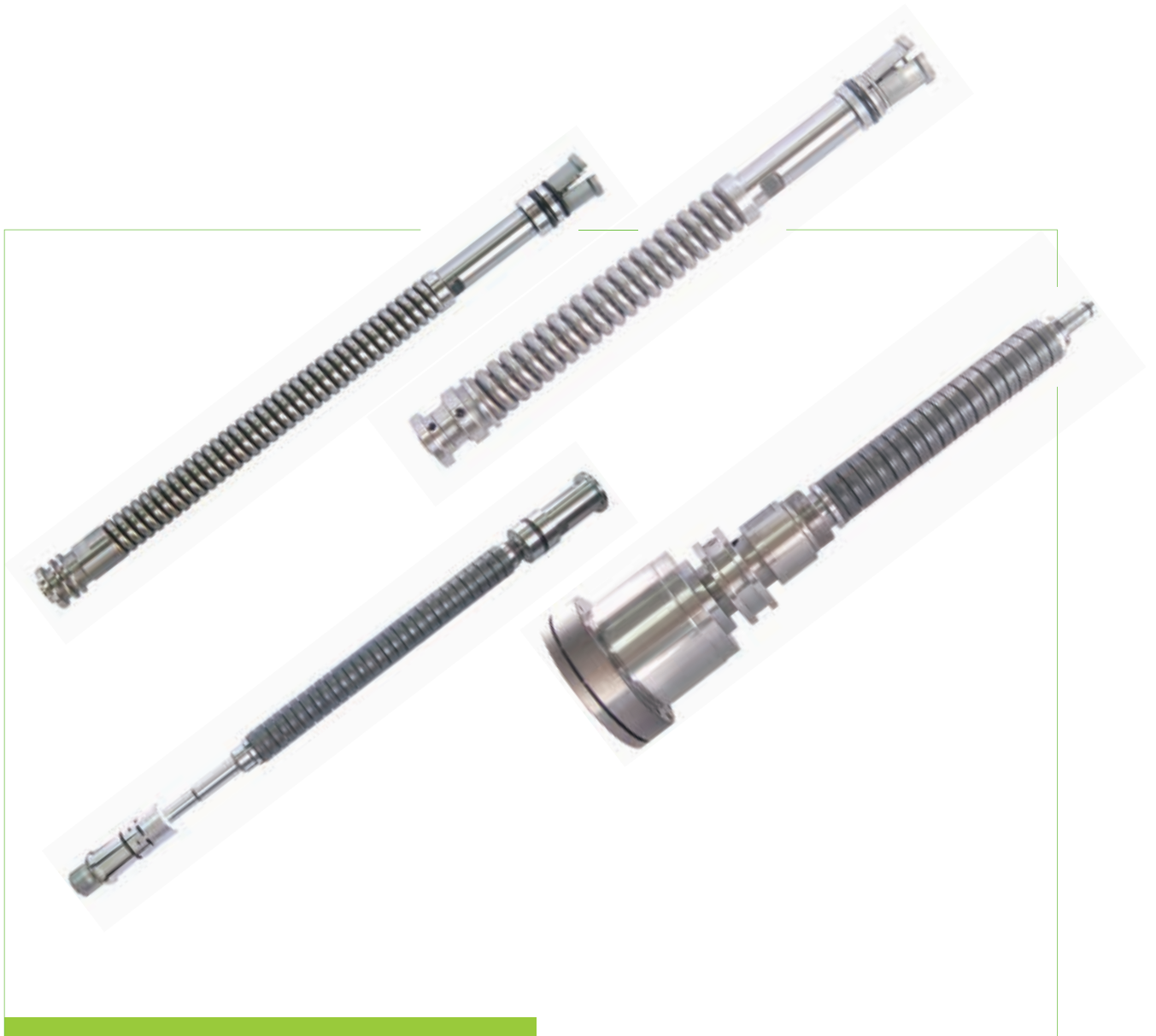
規格 (Model)	A	B	C	D	E	F	G	H	I	J	K	L	M	N
OC16-16	詳細規格請洽本公司 / For more detail information, please contact us.													
OC18-14	10	8	13.5	24	M14xP1.5	8	12	10	14.5	M18xP1.5	24	18	20	22
OC20-18	9.5	9	14	25	M18xP1.5	9	16	10	17.5	M20xP1.5	25	18	22	22
OC22-20	10.5	8	14	27	M20xP1.5	8	17	10	19.5	M22xP1.5	27	18	24	24
OC27-22	10.5	8	18	32	M22xP1.5	8	20	17	24	M27xP2.0	32	18	28	28

本公司快速接頭分為低壓（水、氣）、高壓（油）版本 / We have different types Quick coupling for oil, water, or air.

注意事項：安裝使用本產品時，建議設計一定位銷及相應定位孔，以確保接頭能在一定的精度下結合，可避免結合過程中接頭受不當外力衝擊受損。
Note: When using this product, recommend to have position pin and hole in order to make sure the Quick coupling jointed precisely.

1. 提供客製化的拉刀模組
2. 模組化的倍力拉刀機構
3. 可對應選用 HSK 或 SK 拉爪

1. We offer customized Spindle drawbar system, which support HSK type, SK type, BT type grippers, and etc...
2. Offer spindle Clamping system with force amplification modulization.



Anti-Locking Hollow Hydraulic Cylinder

反抱中空油壓缸

提供反抱中空油壓缸客製化設計與製造。

產品特點 (Design Feature of our hydraulic cylinder) :

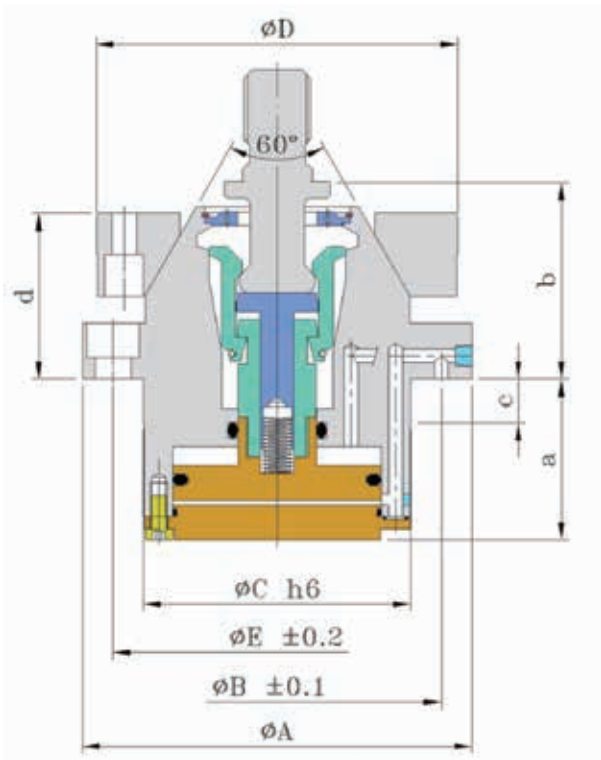
1. 能降低主軸打刀動作時對軸承的衝擊，可有效提高承軸使用壽命。
2. 設計空間小，可接兩種來源：氣壓和油壓。
3. 模組化設計，接管簡單。
4. 提供軸向及徑向兩種接頭方向，方便對應各種裝配條件
5. 中空設計可搭配直結式主軸
6. 中空設計可配合皮帶式主軸及中空出水裝置 (CTS)

We have special hydraulic cylinder products, which called "Anti-locking hollow hydraulic cylinder". It is a great use for CNC spindle application. We also offer customized hydraulic cylinder design and manufacture.

1. Our hydraulic cylinder can lower the impact for spindle bearing when the spindle is running tool unclamping operation. Therefore, it can protect bearing more, and make it longer lifetime.
2. Space needed for our hydraulic cylinder is small, and Oil source and Air source are both available.
3. Module design, simple to assembly.
4. Axial and Radial directions are both available, easy to connect with different kinds of conditions.
5. Hollow design is a very good use for direct driven spindle.
6. Hollow design is also a good use for belt driven spindle with CTS (coolant thru spindle).



定位座



規格	A	B	C	D	E	a	b	c	D
Part No.									
BPCS500	98	80	63	98	80	31.5	49	10	38
BPCS800	140	118	96	130	118	58	71	15	59.5

TPI Professional Bearing

TPI 精密軸承

專業代理TPI東培精密軸承銷售服務



TPI[®]
BEARINGS





與您共創價值

精勤精機有限公司
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