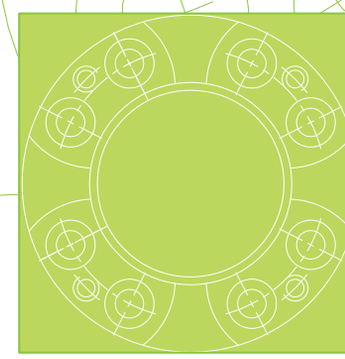
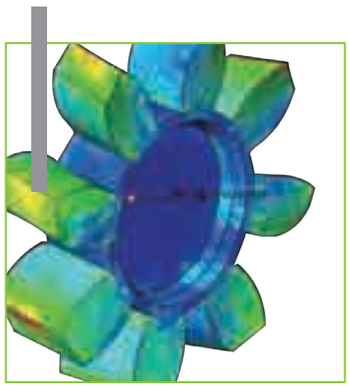
Bright

與 您 共 創 價 值

精勤精機有限公司

BRIGHT JING CHIN MACHINERY CO., LTD.





www.bmgroup.com.tw

V.2019

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。

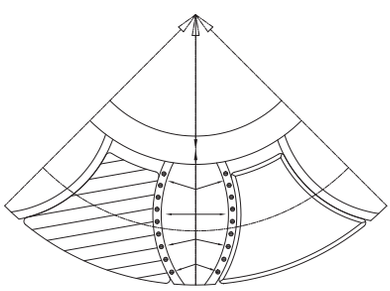
精勤精機專業機械零組件開發團隊，以技術開發、產品設計、性能測試、量測治具、製造技術為其專業服務能力，提供客戶創造價值的優質產品，除了能針對客戶需求快速的回應，同時確保產品性能及產品的穩定性。

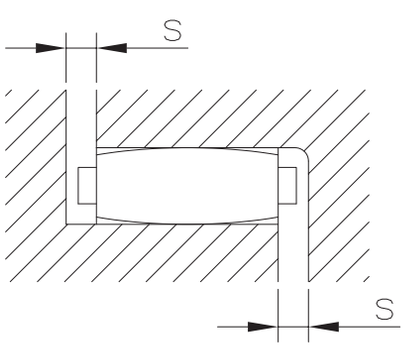
"Specialize in technology, devote from heart " is the core value of Bright Jing Chin Machinery. We not only have strength in technology but also keep creating value for customers, society and partners diligently. "Bright" refers to light and luminosity, which means we are an honest and sincere technology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

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。

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 assembly 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.

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.bmgroup.com.tw

聯軸器
Shaft Coupling

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 (℃) Temperature	規格 Size	典型應用 Typical applications	
95/98-Sh-A	紅 red	TPU	-30~+90	D55~D120	- 定位傳動 - 主軸傳動 - 高負荷	- Positioning drives - CNC spindle drives - High load
64 Sh-D	白 white	Hytrel	-50~+120	D40~D120	- 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~D120	- 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~D120	- 非常高的負荷 - 非常高的扭轉剛性	- Very high load - Very high torsional stiffness
72 Sh-D	灰 gray	TPU	-20~+110	D95~D120	- 非常高的負荷 - 非常高的扭轉剛性	- Very high load - Very high torsional stiffness/ high ambient temperature

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℃，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℃ , 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

彈性體硬度 Hardness of Spiders / 聯軸器規格 Coupling size		硬度愈軟，吸振能力相對愈佳，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}		
		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
				
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

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.

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。

聯軸器特點

1. 安裝容易
2. 一次精加工完成，元件及配對精度高
3. 良好的扭力傳遞特性與平衡 (SC 系列)
4. 適用高速迴轉應用場合 (SC 系列)
5. 提供迫緊鎖固合金鋼及鋁合金等選擇 (SC 鋼系列、SCA 鋁系列)
6. 無背隙 (彈性體預壓)
7. 適合三軸進給應用 (FC 系列)
8. 全鋁合金轉動慣量小 (SCA、FC 系列)

註：SC 系列：鋼製主軸聯軸器
SCA 系列：鋁製主軸聯軸器
FC 系列：鋁製進給軸聯軸器

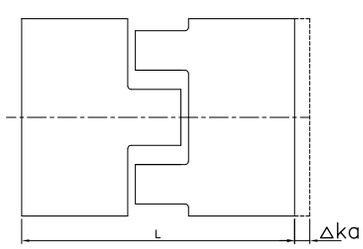
Displacements

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.

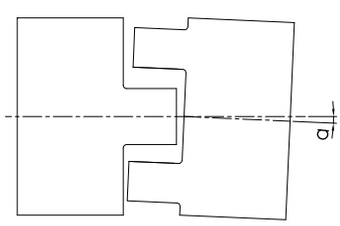
Coupling Feature:

1. Easy for assembling
2. High quality with done-in-One machining.
3. High torsion stiffness and great balance.
4. SC series is good for CNC spindle drives in high speed.
5. FC series is suitable for servo transmission system.
6. Offer products made by Steel or Aluminum alloy.
7. Zero-backlash motion transmission.
8. Low mass moment of inertia.

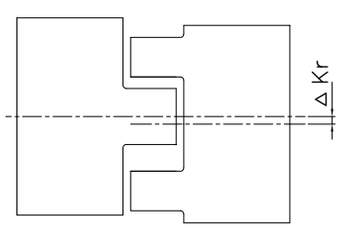
Note:
SC series : Spindle coupling, steel made.
SCA series: Spindle couping, Aluminum made.
FC series: Feed axis Coupling, Aluminum made.



軸向偏差 ΔKa
Axial displacement



角度偏差 a (degree)
Angular displacement

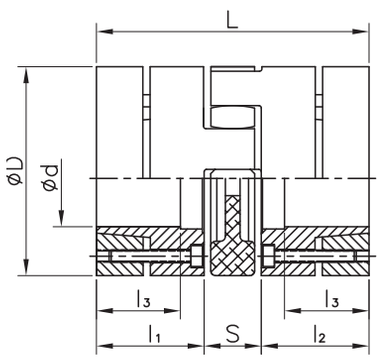


徑向偏差 ΔKr
Radial displacement

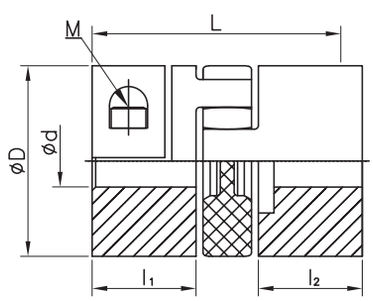
產品編號 Product No.	d	D	L	l1 / l2	l3	S	Clamping screws (amount and force)			最大轉速 Max speed (min-1)	彈性體扭力 Torques TKN(Nm)		
							迫緊 / 拆卸螺絲	螺絲數量	鎖緊扭矩 M (Nm)		98A	64D	72D
SC D55-78L	8-32	55	78	30	24	18	M5	4	8.5	26000	60	75	-
SC D65-90L	10-38	65	90	35	29	20	M5 / M6	8	8.5	24000	160	200	260
SC D80-114L	12-48	80	114	45	37	24	M6	8	14	17900	325	405	525
SC D95-126L	14-60	95	126	50	40	26	M8	4	35	15000	450	560	728
SC D105-140L	15-62	105	140	56	44	28	M10	4	69	13600	525	655	852
SC D120-160L	32-75	120	160	65	50	30	M10	4	69	11900	685	825	1072
FC D40-66L	8-20	40	66	25	-	-	M6	1	10.5	9550	21	26	-
FC D55-78L	8-32	55	78	30	-	-	M6	1	10.5	6950	60	75	-
FC D65-90L	10-38	65	90	35	-	-	M8	1	25	5850	160	200	260
FC D80-114L	12-45	80	114	45	-	-	M8	1	25	4750	325	405	525
FC D95-126L	14-55	95	126	50	-	-	M8	2	35	4000	450	560	728

聯軸器
Shaft Coupling

外型尺寸



SC系列 迫緊環鎖固形式
Clamping ring hubs type



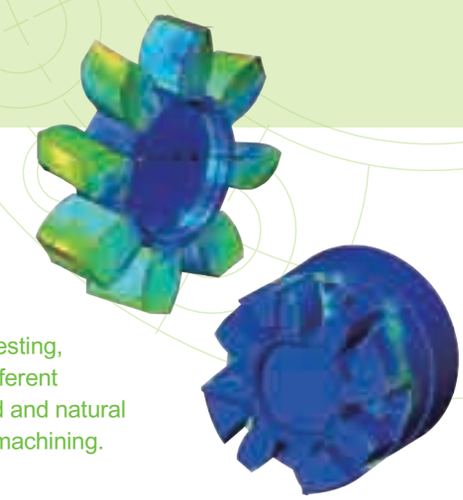
FC系列 側邊鎖固形式
Clamping hubs type

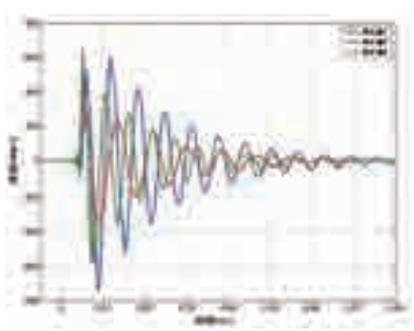
聯軸器有限元素分析

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。

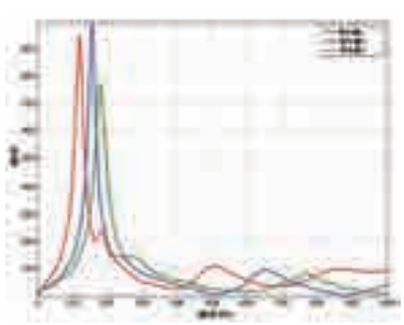
Finite Element Analysis for Coupling

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

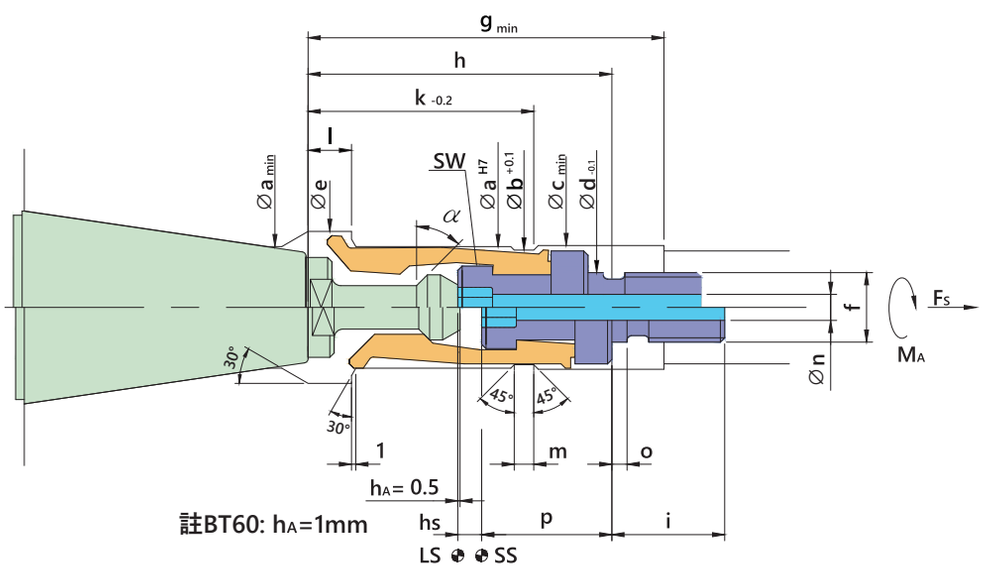


彈性體共振頻率測試
Frequency Response Analysis for spider

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							Weight per hub with min bore	Mass moment of inertial J with min bore
						軸向偏差 Axial (mm)	徑向偏差 Radial (mm)			角度偏差 Angular (°)				
98A	64D	72D	98A	64D	72D		98A	64D	72D	98A	64D	72D	質量 (kg) (最小孔)	轉動慣量 (kgm^2)
3640	5030	-	5980	10896	-	+1.4 -0.5	0.10	0.07	-	0.9	0.8	-	590×10^{-3}	228×10^{-6}
6410	10260	21526	9920	20177	36547	+1.5 -0.7	0.11	0.08	0.05	0.9	0.8	0.7	824×10^{-3}	472×10^{-6}
11800	26300	44584	17160	40335	71180	+1.8 -0.7	0.12	0.09	0.06	0.9	0.8	0.7	758×10^{-3}	1438×10^{-6}
21594	36860	58600	37692	69825	93800	+2.0 -1.0	0.14	0.10	0.07	0.9	0.8	0.7	2748×10^{-3}	3168×10^{-6}
25759	57630	80000	45620	99750	136948	+2.1 -1.0	0.16	0.11	0.08	0.9	0.8	0.7	3703×10^{-3}	5207×10^{-6}
42117	105730	150000	61550	130200	209530	+2.2 -1.0	0.17	0.12	0.09	0.9	0.8	0.7	5388×10^{-3}	10388×10^{-6}
1512	2560	-	2540	3810	-	+1.2 -0.5	0.06	0.04	-	0.9	0.8	-	103×10^{-3}	21×10^{-6}
3640	5030	-	5980	10896	-	+1.4 -0.5	0.10	0.07	-	0.9	0.8	-	216×10^{-3}	84×10^{-6}
6410	10260	21526	9920	20177	36547	+1.5 -0.7	0.11	0.08	0.05	0.9	0.8	0.7	320×10^{-3}	173×10^{-6}
11800	26300	44584	17160	40335	71180	+1.8 -0.7	0.12	0.09	0.06	0.9	0.8	0.7	628×10^{-3}	514×10^{-6}
21594	36860	58600	37692	69825	93800	+2.0 -1.0	0.14	0.10	0.07	0.9	0.8	0.7	1090×10^{-3}	1256×10^{-6}

MAS 403 Pull Stud Type

MAS 403 BT 主軸夾爪



註BT60: h_A=1mm

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

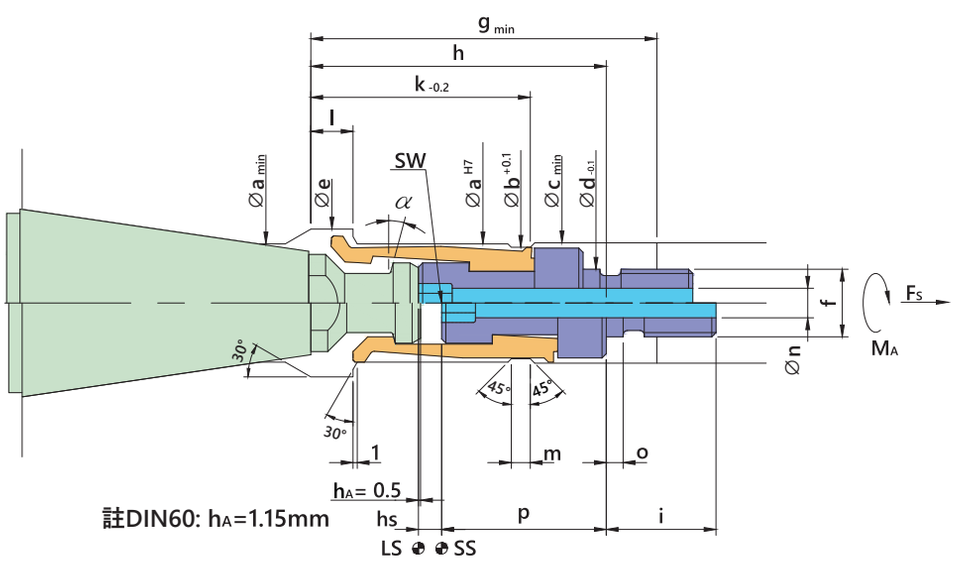
規格 Part No.	α ±15'	a	b	c	d	e	f	g	h	i	k	l	m	n	o	p	hs	Fs max. kN	MA Nm	SW mm
BT30M45	45°	19	17.8	19.5	10	24	M10xP1.5	50	47	20	37	7.5	3.5	3.0	3.0	20.5	4.0	10	30	5
BT30M60	30°																			
BT40M45	45°	28	26.4	28.5	16	35	M16xP1.5	82	70	26	52	10.0	4.5	6.0	4.0	33.0	5.5	18	65	6
BT40M60	30°																			
BT40M90	0°																			
BT50M45	45°	43	40.4	43.5	22	54	M22xP1.5	98	90	35	69	16.0	5.0	9.5	5.0	37.0	8.5	35	160	10
BT50M60	30°																			
BT50M90	0°																			
BT60M45	45°	62	58.6	62.5	30	77	M30xP1.5	130	125	40	96	23.0	6.5	16.0	5.0	49.5	11.5	70	450	17
BT60M60	30°																			

DIN69872 Pull Stud Type

DIN69872 主軸夾爪

主軸夾爪

Spindle Clamping Gripper



註DIN60: h_A=1.15mm

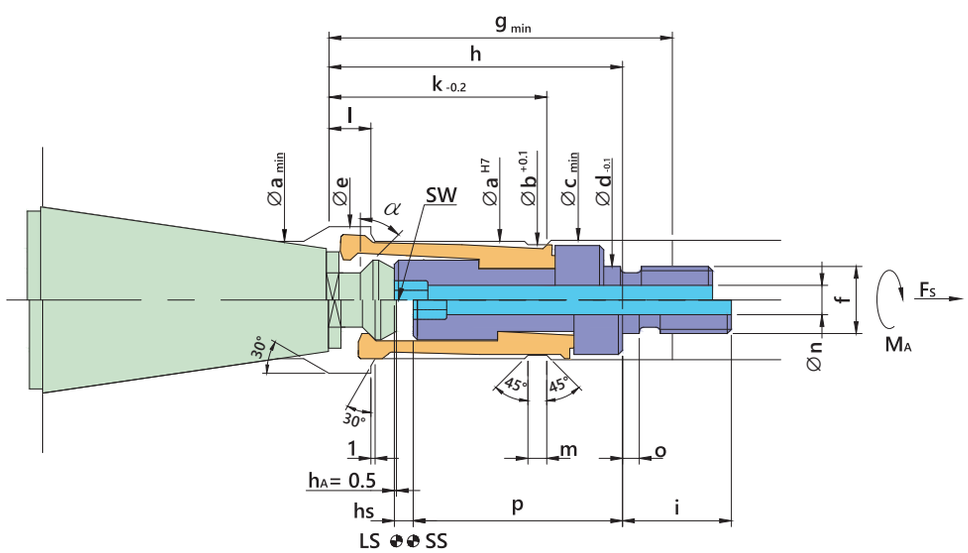
SS : 拉刀位置(Clamping position)
LS : 退刀位置(Release position)

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

規格 Part No.	α ±15'	a	b	c	d	e	f	g	h	i	k	l	m	n	o	p	hs	Fs max. kN	MA Nm	SW mm
DIN30	15°	19	17.8	19.5	10	24	M10xP1.5	50	47	20	37	7.5	3.5	3.0	3.0	19.5	4.0	10	30	5
DIN40	15°	28	26.4	28.5	16	35	M16xP1.5	82	70	26	52	10.0	4.5	6.0	4.0	40.0	4.5	18	65	6
DIN50	15°	43	40.4	43.5	22	54	M22xP1.5	98	90	35	69	16.0	5.0	9.5	5.0	48.0	8.5	35	160	10
DIN60	15°	62	58.6	62.5	30	77	M30xP1.5	130	125	40	96	23.0	6.5	16.0	5.0	74.5	11.65	70	450	17

CAT 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

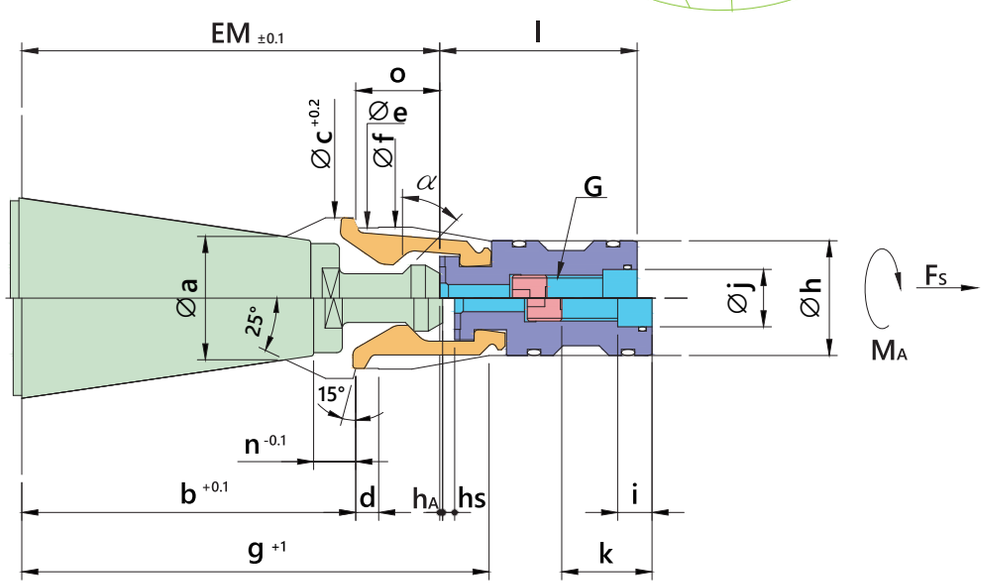
規格 Part No.	α ±15'	a	b	c	d	e	f	g	h	i	k	l	m	n	o	p	hs	Fs max. kN	MA Nm	SW mm
CAT30	45°	19	17.8	19.5	10	24	M10xP1.5	50	47	20	37	7.5	3.5	3.0	3.0	32.7	3.0	10	30	5
CAT40	45°	28	26.4	28.5	16	35	M16xP1.5	82	70	26	52	10.0	4.5	6.0	4.0	50.0	4.5	18	65	6
CAT50	45°	43	40.4	43.5	22	54	M22xP1.5	98	90	35	69	16.0	5.0	9.5	5.0	58.0	7.0	35	160	10

OTT Pull Stud Type

OTT 主軸夾爪

主軸夾爪

Spindle Clamping Gripper

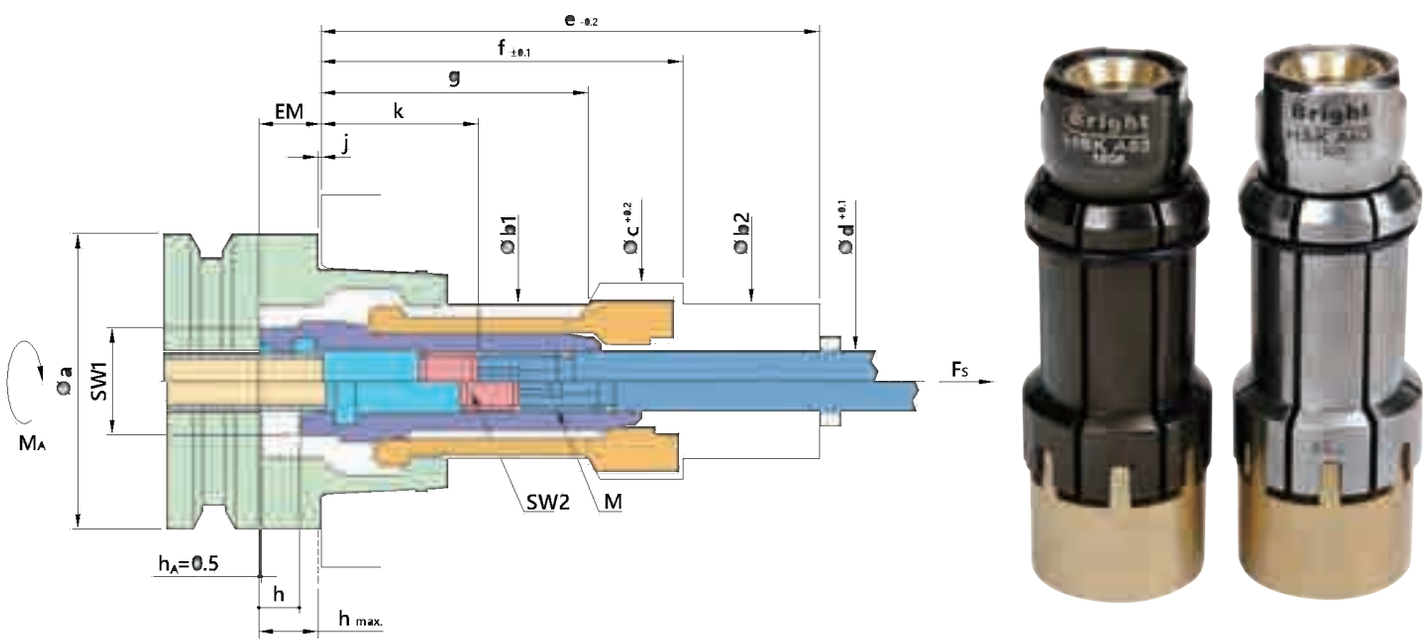


Fs max.: Clamping Force 最大拉刀力
MA max.: Tightening Torque 最大鎖緊扭矩

規格 Part No.	α ±15'	a	b	c	d	e G7	f	g	h	i	j	k	l	EM	n	o±0.15	hA	hs	G	F max. kN	M Nm
BT30M45	45°	19.5	59	27	5	22.5	23	91	19	10	12	23	57.5	70.4	10.6	11.40	0.95	3.2	M10xP1.25	10	30
BT30M60	30°																				
BT40M45	45°	27.6	79.5	40	7	34	34.5	117	27	11	18	24.5	60.3	99.7	14.1	20.20	0.65	3.7	M14xP1.5	18	65
BT40M60	30°																				
BT40M90	0°																				
BT50M45	45°	43.0	116.5	56	8	49	49.5	163	40	12	20	31.5	68.8	145.75	14.7	29.25	1.0	4.2	M16xP1.5	35	160
BT50M60	30°																				
BT50M90	0°																				
CAT30	45°	19.5	59	27	5	22.5	23	91	19	10	12	23	69.8	57.7	-	-	1.60	2.9	M10xP1.25	10	35
CAT40	45°	27.6	79.5	40	7	34	34.5	117	27	11	18	24.5	77.55	82.9	11.2	3.40	1.60	2.9	M14xP1.5	18	65
CAT50	45°	43.0	116.5	56	8	49	49.5	163	40	12.2	20	31.5	87.8	126	14.9	9.45	1.0	3.8	M16xP1.5	35	160
DIN30	15°	19.5	59	27	5	22.5	23	91	19	10	12	23	57.1	70.7	-	-	0.95	3.8	M10xP1.25	10	35
DIN40	15°	27.6	79.5	40	7	34	34.5	117	27	11	18	24.5	66.5	93.6	11.2	14.10	0.65	3.8	M14xP1.5	18	65
DIN50	15°	43.0	116.5	56	8	49	49.5	163	40	12.2	20	31.5	79.6	134.6	14.9	18.05	1.0	3.5	M16xP1.5	35	160

HSK Type

HSK 主軸夾爪



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

規格 Part No.	a	b1H10	b2H6	c	d	e	f	g	M	h	EM ±0.1	j	k	h max	FS max. kN	MA Nm	SW1 mm	SW2 mm	最高轉速 max. RPM
E25	25	14	14	18	6.4	40	25.5	18.5	M6 x P0.5	4.6	6.5	0.5	5.5	7.0	2.8	7	10	3	80000
A32/B40/E32	32	17	17	22.5	6.6	62.5	43	30	M6 x P1.0	5.1	8.5	0.5	19.5	7.5	5	10	12	3	57000
A40/B50/E40/F50	40	21	21	26.5	8.6	78	58	44	M8 x P1.25	5.6	8.5	0.5	27.0	8.0	6.8	15	15	4	45000
A50/B63/E50/F63	50	26	26	33.0	10.6	84	61	45	M10 x P1.5	6.4	10.5	0.5	26.5	9.0	11	20	18	5	37000
A63/B80/E63/F80	63	34	34	41.6	14.6	94	69	52	M14 x P1.5	7.4	10.5	0.5	31.5	10.0	18	30	24	5	29000
A80/B100	80	42	42	50	16.6	98	72	56	M16 x P1.5	8.3	13	0.5	29	11.0	28	30	27	6	20000
A100/B125	100	53	53	63	18.4	124	93	70	M16 x P1.5	9.15	13	0.5	34.5	12.5	45	50	36	6	15000
A125/B160	125	67	67	79	25.4	149	112.5	86	M24 x P1.5	10.8	16.5	0.5	40.5	15.8	70	100	46	14	12000

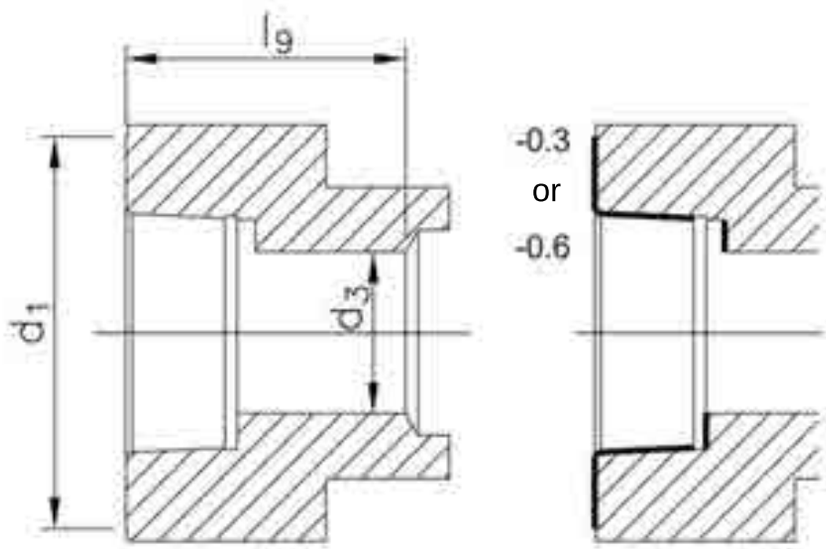
備註：我司亦提供黑色特殊鍍膜版本的 HSK 夾爪，其特性為較小的摩擦與較高的使用壽命。
PS：We also support black version (with special coating) of HSK type grippers, its features are minimum friction and higher life expectancy.

Repair-HSK-Clamping Units

HSK 主軸維修用夾爪

主軸夾爪

Spindle Clamping Gripper



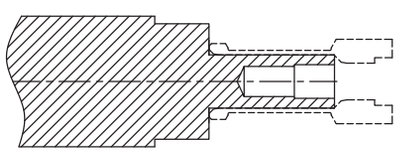
Nominal Size	Standard Clamping unit HSK B Standard	Repair Clamping unit HSK B-E 0.3 HSK (-0.3mm)	Repair Clamping unit HSK B-E 0.6 HSK (-0.6mm)
		l_9 (mm)	
E25	18.5	18.2	17.9
A32/B40/E32	30.0	29.7	29.4
A40/B50/E40	44.0	43.7	43.4
A50/B63/E50	45.0	44.7	44.4
A63/B80/E63	52.0	51.7	51.4
A80/B100	56.0	55.7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

Assembly Tool For HSK Clamping Unit

HSK 夾爪組裝工具

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

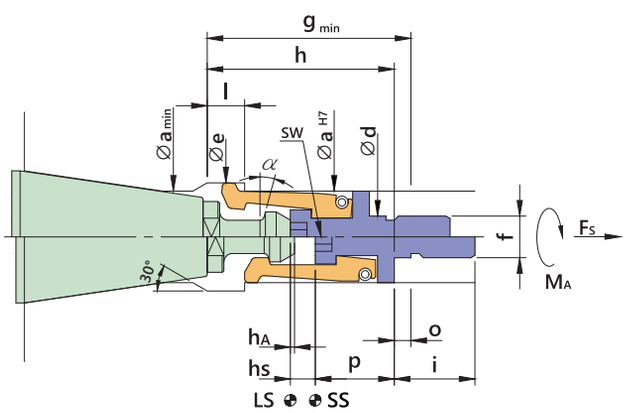
ISO Pull Stud Type

ISO 主軸夾爪

主軸夾爪

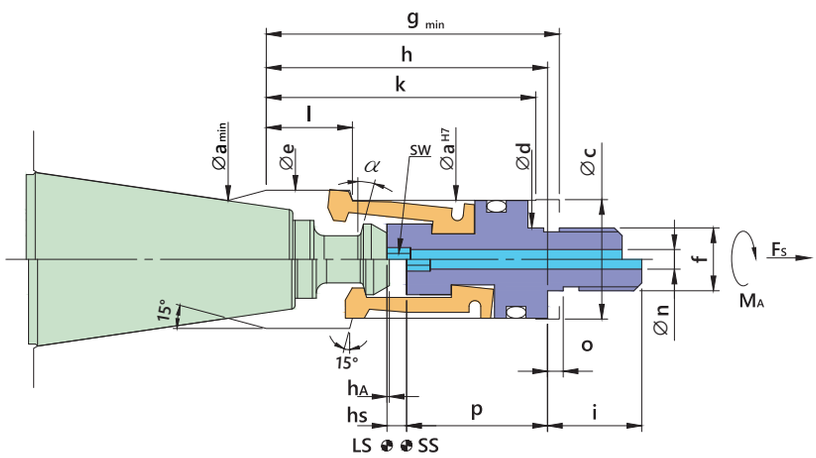
Spindle Clamping Gripper

ISO10BJ



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

ISO20
ISO25



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 ±15'	a	b	c	d	e	f	g	h	i	k	l	n	o	p	hA	hs	Fs max. kN	MA Nm	SW mm
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	-	4.5	-	2	9.5	0.5	3	1.2	-	3.0
ISO20	15°	15	-	15.2	8	17.6	M8xP1.0	37.3	35.8	12.0	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	15°	17	-	17.5	8	20.0	M8xP1.0	43.5	42.0	12.0	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.

Bright 主軸倍力夾爪 (BP 系列)

Bright (BP series) Spindle Clamping Gripper (with force amplification)

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

BP Series With Force Amplification

主軸倍力夾爪(BP系列)

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

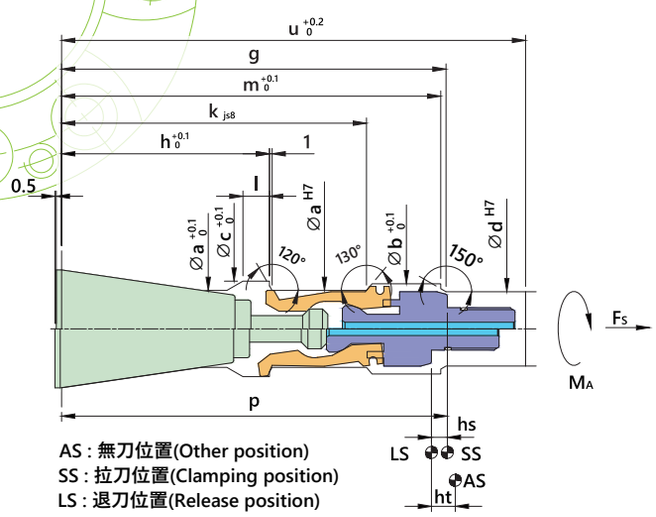
Female thread type
母牙型

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

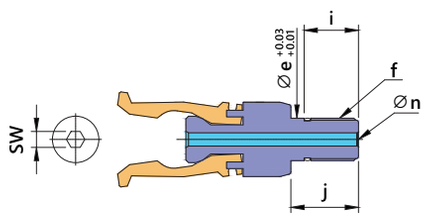
規格 Part No.	a	b	c	d	e	f	h	i	j	k
BP30	20	23.5	25	19.5	11	M10xP1.0	55.4	9.5	17.0	81.8±0.027
BP40	29	34	36	28	13	M12xP1.0	78.4	15	22.5	115±0.027
BP50	44	50	54	38	17	M16xP1.5	117.75	19	25.0	176.75±0.032
BP60	68	70	77	52	23	M22xP1.5	186.3	31.5	39.0	257.25±0.032

Bright 主軸倍力夾爪 (BP 系列)

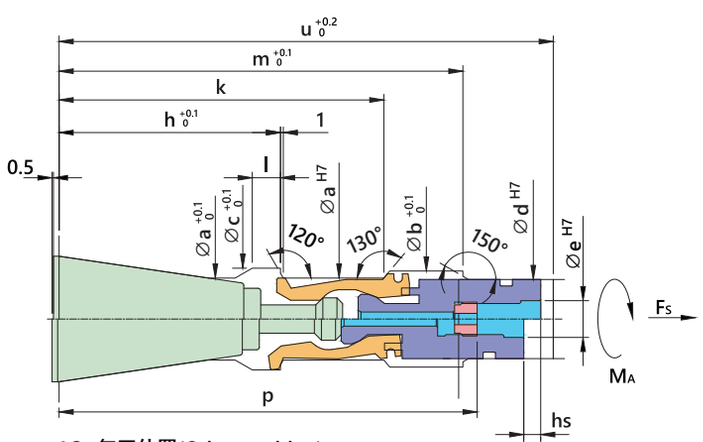
Bright (BP series) Spindle Clamping Gripper (with force amplification)



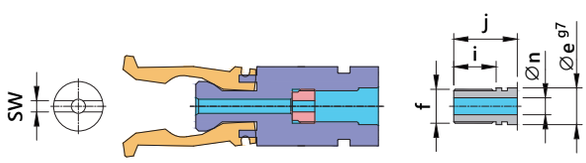
AS : 無刀位置(Other position)
SS : 拉刀位置(Clamping position)
LS : 退刀位置(Release position)



	l	m	n	p	ht	hs	u	SW	Fs max. kN	MA Nm
	7.9	94.4	3	103	8	5	121.3	4	9	10
	10.0	143	5	145.5	9	6	175	6	12	30
	16.0	209	8	224.5	12	9	251	8	25	50
	24.5	312	8	314	15	12	323.5	12	30	65



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



	l	m	n	p	ht	hs	u	SW	Fs max. kN	MA Nm
	7.9	94.4	5	100.5	8	5	121.3	2.5	9	10
	10.0	143	6	145	9	6	175	4	12	30
	16.0	209	7	214	12	9	251	5.5	25	50
	24.5	312	10	270.75	15	12	323.5	7	30	65

Quick Coupler for Air/Oil

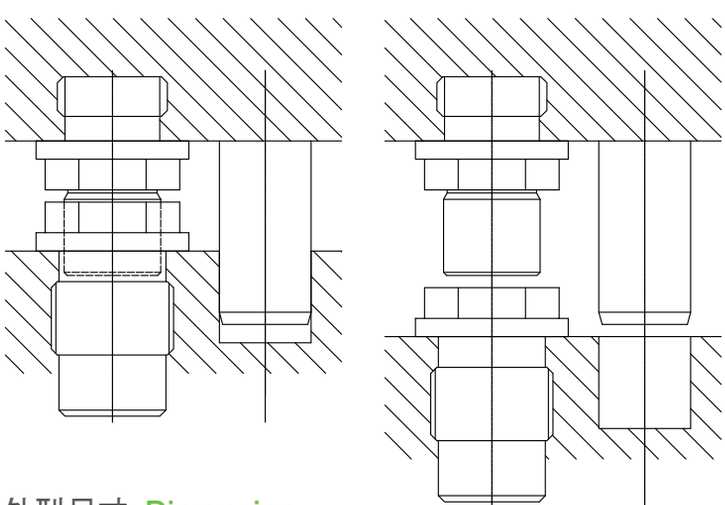
快速接頭

產品特點

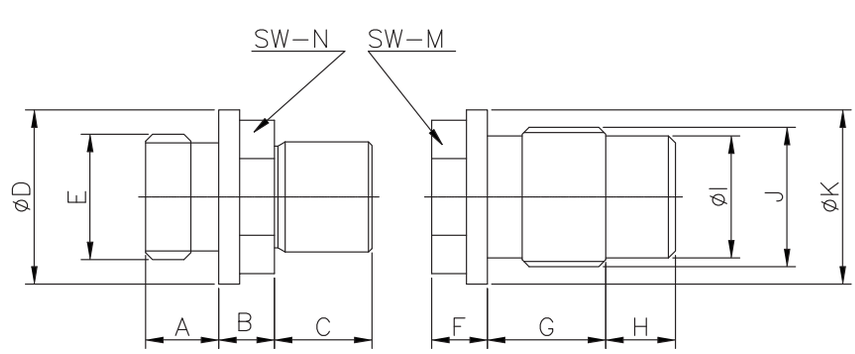
- 安裝容易
- 容許較大的作動誤差
- 不銹鋼材質防銹及抗腐蝕
- 適用於自動化、工具機及其他工業設備之氣、液壓通路的自動連接

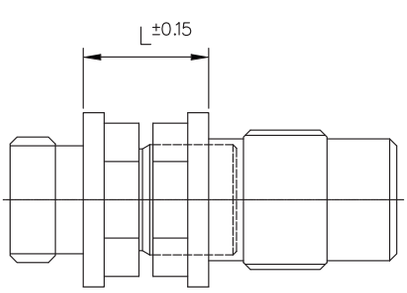
Product Feature:

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.



外型尺寸 Dimension

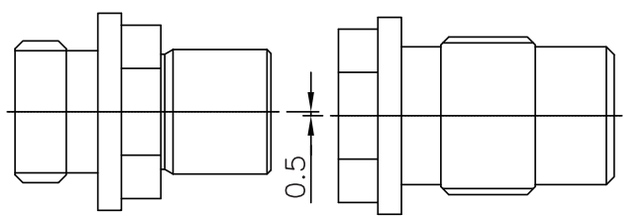




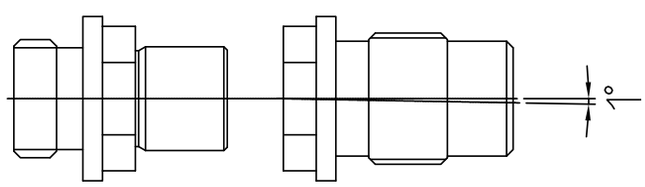
快速接頭
Quick Coupler for Air/Oil

容許作動誤差 Tolerances

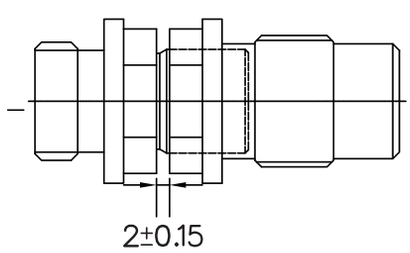
・容許平行偏置誤差：0.5mm
Max. center offset : 0.5mm



・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.

Spindle Drawbar System

拉桿組

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

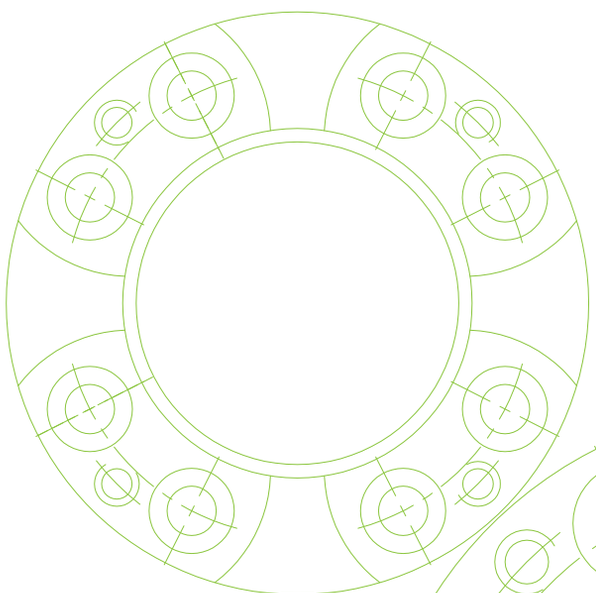
提供反抱中空油壓缸客製化設計與製造。

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 customerized 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).



Bright
與 您 共 創 價 值

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