



2J/3J type

中實指形動力夾頭

FINGER POWER CHUCK

使用說明書

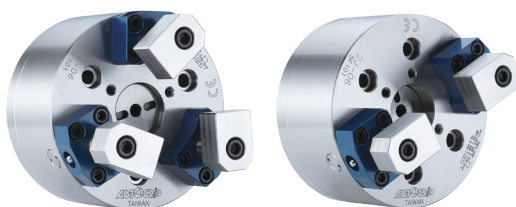
INSTRUCTION MANUAL

Original instructions



重要 Important Notes :


- 請仔細閱讀本說明書，充分瞭解之後再使用本製品。
本說明書請妥善保管，製品使用者變更時，請將此說明書交給新的使用者。
- Before you use the product. Please read this instruction carefully.
Keep the instruction carefully. If the user of the product altered,
please hand the instruction to the new user.



◎ 序言

為了確保你的安全，在使用你的夾頭之前，請務必詳閱本說明書內所記載之警告事項，並特別注意文中此  圖形符號下之說明。

◎ INTRODUCTION

To ensure safe operation of your chuck, please read this instruction manual and pay particular attention to instructions marked with  including **IMPORTANT** instructions concerning chuck performance.



→ 若未依照此符號底下的說明來操作機械將引起立即的危險，導致重大傷害或死亡。
Indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.



→ 若未依照此符號底下的說明來操作機械將引起潛在的危險，導致重大傷害或死亡。
Indicates an potentially hazardous situation which, if not avoided, could result in death or serious injury.



→ 若未依照此符號底下的說明來操作機械將引起潛在的危險，導致中輕度的傷害。
Indicates an potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



→ 依照此符號底下的說明事先了解製品的性能，可避免不正確的操作夾頭。
Indicates for chuck performance and avoiding errors of mistake.

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*2D圖檔(PDF、DWG格式)、3D圖檔(STEP格式) 可以從官網下載。

*You can download the outline drawing (in pdf or dwg format) and 3D step at AUTOGRIP WEB.

注意事項

FOR SAFE OPERATION

請詳閱本說明書，並依循指示說明。若未依照指示，錯誤的使用而致引起的損傷或意外事，本公司概不負責。

Please read this manual and following instructions carefully. We cannot assume responsibility for damage or accidents caused by misuse, through noncompliance with the safety instructions.



DANGER
危險

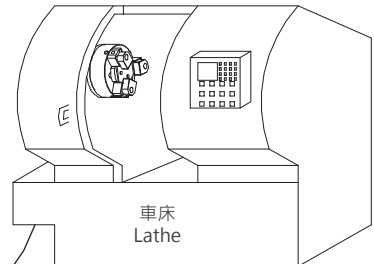


在安裝檢查或潤滑夾頭時，務必關掉所有電源，確保操作者之安全。

SWITCH OFF power before setting, inspecting, lubricating or changing the chuck to ensure operator safety.

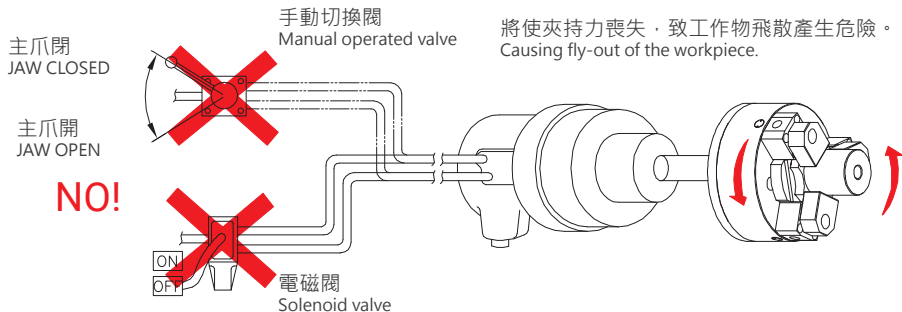
易發生身體或衣物捲入等意外事故。
To avoid accident of operator body or clothes drawn into machine.

OFF



當主軸迴轉時，切勿操作切換閥。

Never operate the selector valve and the solenoid valve during the spindle rotation.

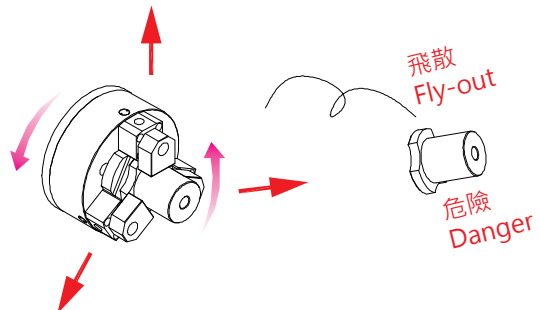


最大旋轉速度必須為夾頭或油壓缸所容許之最高迴轉速中較低者。

The max. speed must be the lower of the max. speed allowed by the power chuck or the hydraulic cylinder.

迴轉數增加時，離心力相對的增加而降低夾持力，易導致工作物飛散產生危險，故需依切削條件選擇適當的轉數。

Gripping force decreases due to centrifugal force as speed of chuck increases, there by causing the discharge of workpiece.



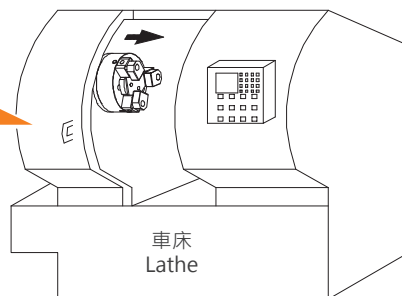


WARNING
警告



未關好安全門之前,切勿啟動主軸開關。
Don't start the spindle before closing the machine door.

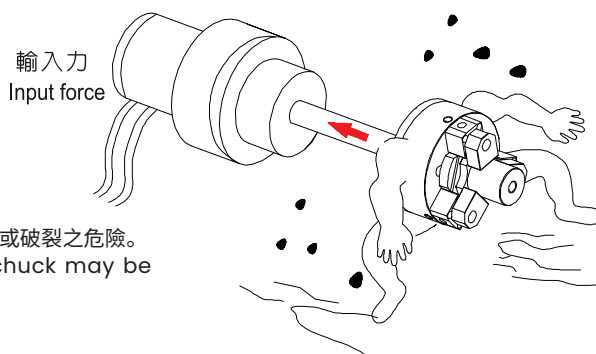
Close 關緊



避免工件或夾爪因未關門而飛出。
Workpiece or jaw may scatter while door open.



油壓缸出力不可超過夾頭容許之最大入力。
Don't exceed Max. allowable plunger input force.



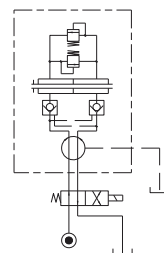
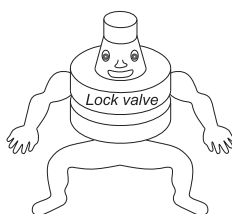
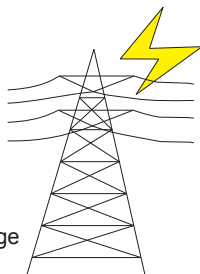
如油壓缸出力超過容許最大值,將致使夾頭變形或破裂之危險。
If input force of plunger is exceeded, chuck may be deformed or broken.



某些型式的迴轉缸內建有 "逆止閥" 機構,當電源意外中斷時,防止迴轉缸內部壓力遽降,保持穩固的夾持。
In case of power failure, AUTOGRIP's some cylinders are fitted with check valves and pressure relief valves. When power is restored, the solenoid valve resumes its normal function.

停電時喪失夾持力,致使工作物飛散產生危險。
Power outage may cause fly-out of the workpiece.

停電
Power outage



設定工件在正確的夾持位置
Set the workpiece to the correct gripping position.



WARNING

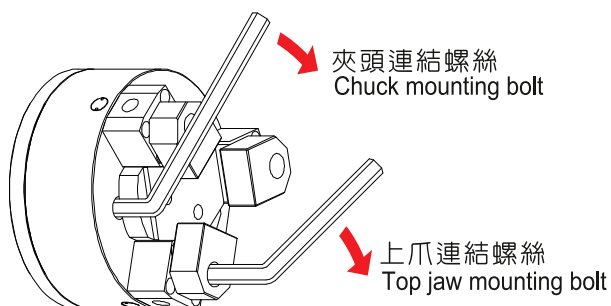
警告



連結螺絲請依照附表所指定之力矩鎖緊。

Secure mounting bolts with specified torque.

螺絲規格 Bolt size	鎖緊力矩 Tightening torque
M6	12.7 N.m. (1.3 kgf.m)
M8	38.2 N.m. (3.9 kgf.m)
M10	72.6 N.m. (7.4 kgf.m)
M12	106.8 N.m. (10.9 kgf.m)
M14	170.6 N.m. (17.4 kgf.m)
M16	250.0 N.m. (25.5 kgf.m)

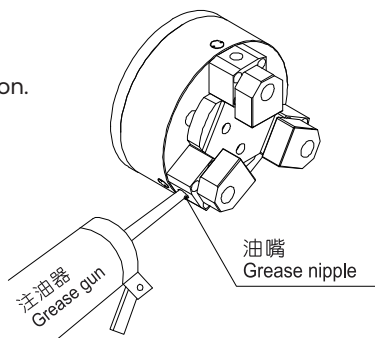


應確實給油。

Don't miss to lubricate chuck.

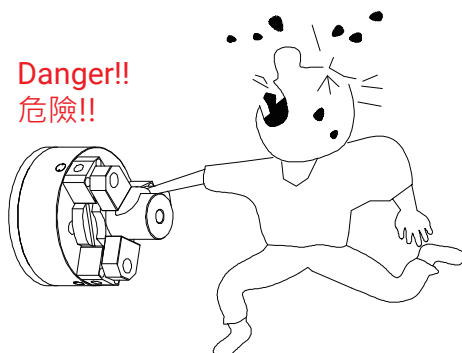
給油不足時，會降低夾持力。

Lowering gripping force caused by insufficient lubrication.



夾持工件時，請注意不要被夾到手。

When clamping workpiece, make sure your hand not to be hurt.



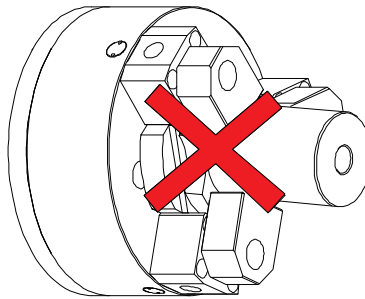


WARNING
警告



工件傾斜時不可夾持。
Don't clamp while workpiece inclines.

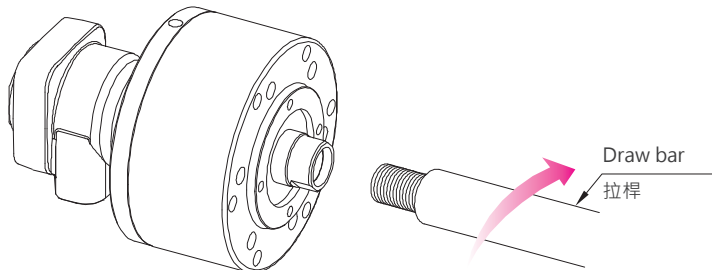
工件夾持後將會飛散。
Clamp workpiece will fly-out.



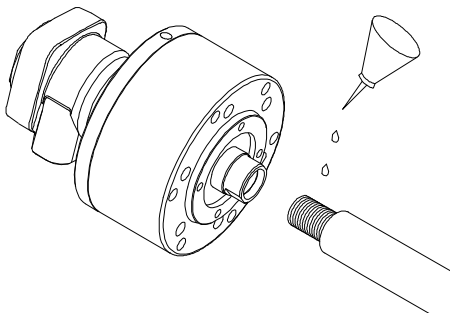
NO!!



須與迴轉油壓缸之間確實鎖緊拉桿。
Between the cylinder must be secure tightening the draw bar.



必要時於拉桿螺牙部位塗上適量的螺牙防鬆膠。
Coat the screw part of draw bar with adhesive agent and tighten the draw bar.



由於拉桿鬆開, 軟爪行程縮短因此工件會飛散。
with screw loosened, jaw stroke is shortened, thus the workpiece fly-out.

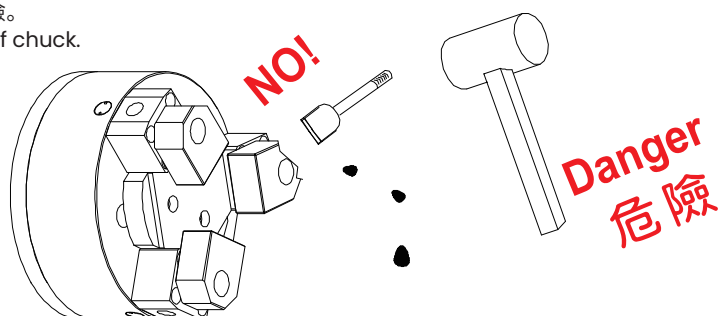


WARNING
警告

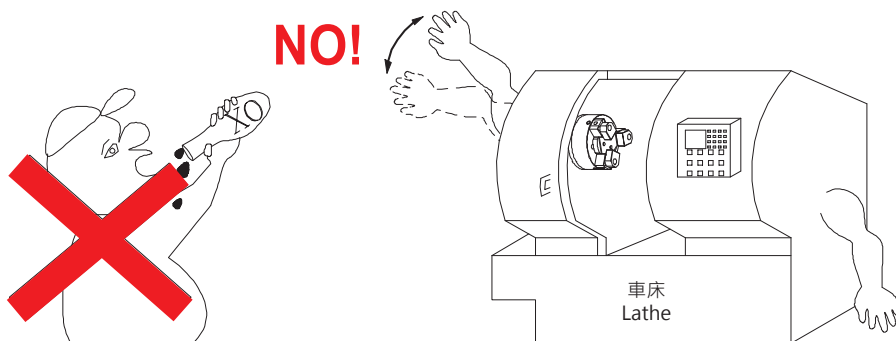


不可隨意改造夾頭。
Don't attempt to modify the chuck.

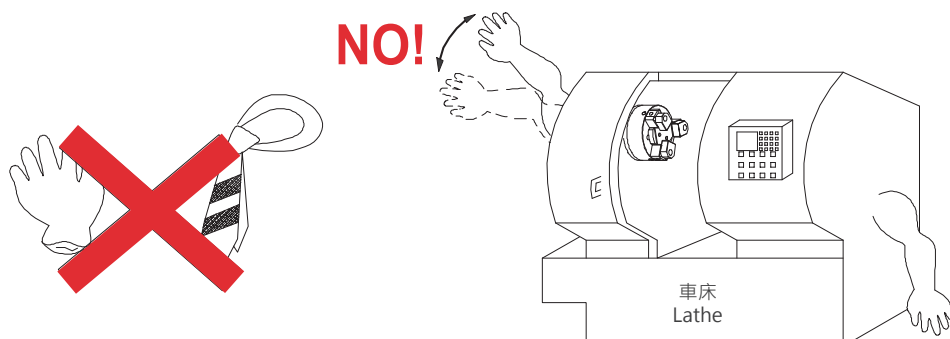
不當改造會損壞夾頭機能而發生危險。
Danger by function damaged of chuck.



操作機器前，請勿喝酒或服用麻醉性藥物。
Never attempt to operate machine after drinking alcohol or taking drugs.



操作機器時，請勿穿戴手套或領帶。
Never attempt to operate machine with gloves and necktie worn.



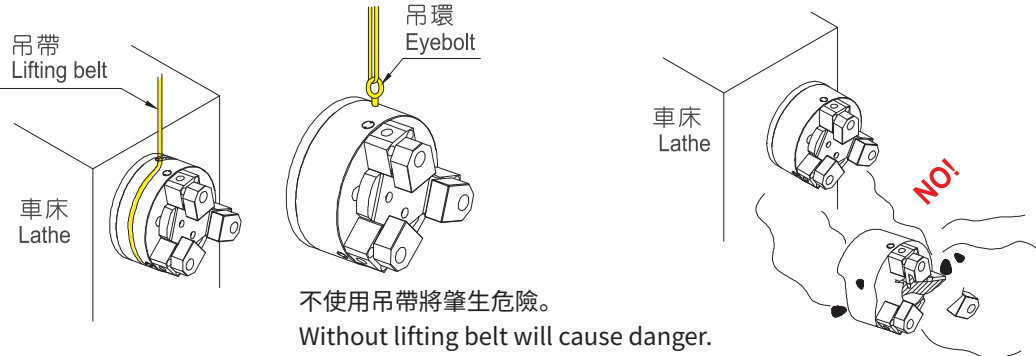


CAUTION
注意



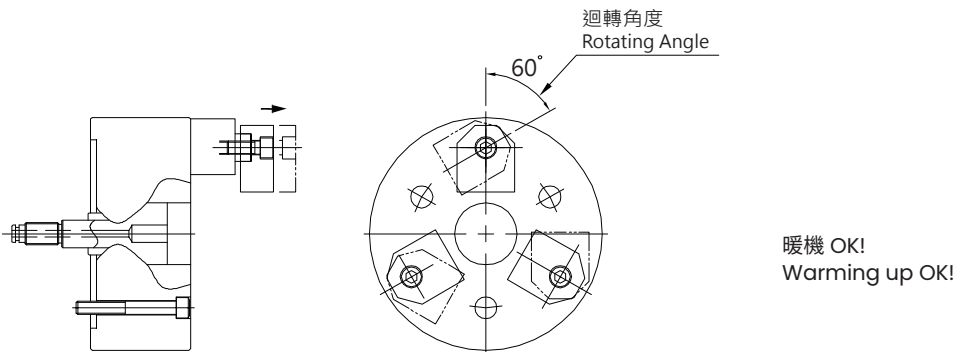
拆裝夾頭時，務必使用吊帶或吊環。

Have to using eyebolt or lifting belt when mounting or dismantle chuck.



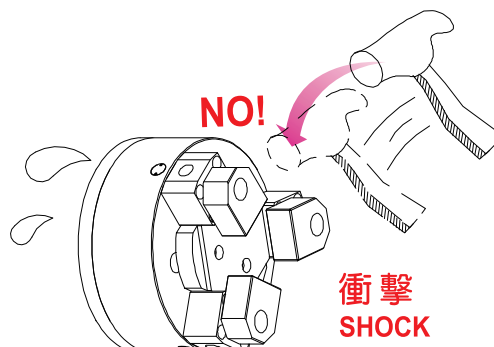
在操作前，請空夾夾頭 4 至 5 次。

Repeat idle clamping the chuck to 4~5 times before operating.



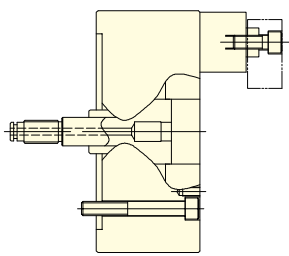
不可敲擊夾頭，夾爪或夾持之工件物。

Never hammer chuck, jaws or clamped workpiece.



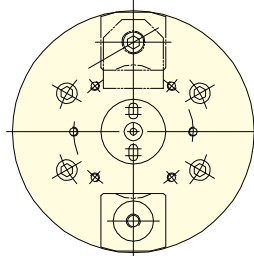
2. 中實指形夾頭

2.1. 中實指形夾頭規格

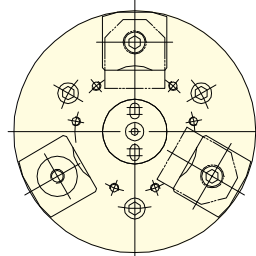


2. Non-through-hole Finger power chuck

2.1. Specification of non-through-hole finger power chuck



2J

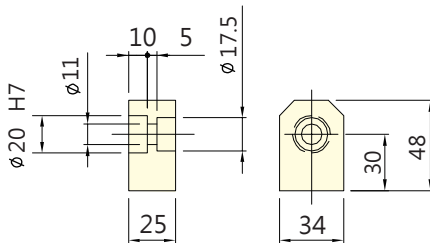


3J

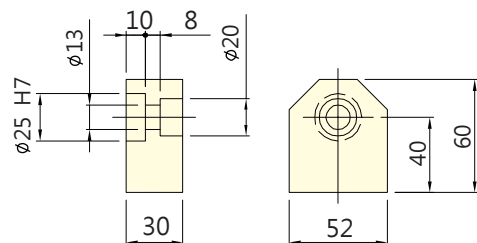
型號	迴轉行程	夾持行程	爪補償量	夾持直徑 Chuck Dia.		容許油壓缸 推力	最大夾持力	最高迴轉數	I	重量	適用迴轉缸	最大使用 壓力
Model	Rotating stroke	Clamping stroke	Jaw's compensation	最大 Max.	最小 Min.	Max. D.B. pull	Max. Clamping force	Max. speed	Moment of inertia	Weight	Matching cyl.	Max. pressure
	mm	mm	mm	mm	mm	kN (kgf)	kN (kgf)	min ⁻¹ (r.p.m.)	kg·m ²	kg		MPa (kgf/cm ²)
3J-05	12	8	2	53	25	7.5(765)	6.0(612)	4000	0.02	11.0	RK-100 OR RK-100(N)	1.0(10)
3J-06	12	8	2	79	55	9.0(918)	7.5(765)	4000	0.04	12.0	RK-100 OR RK-100(N)	1.2(12)
3J-08	12	8	2	106	75	18.0(1835)	16.5(1680)	3500	0.13	23.0	RK-100 OR RK-100(N)	2.5(25)
3J-10	12	8	2.5	150	119	18.0(1835)	16.5(1680)	3500	0.30	33.0	RK-100 OR RK-100(N)	2.5(25)
3J-12	12	8	2.5	200	169	18.0(1835)	16.5(1680)	3000	0.56	44.0	RK-100 OR RK-100(N)	2.5(25)

型號	迴轉行程	夾持行程	爪補償量	夾持直徑 Chuck Dia.		容許油壓缸 推力	最大夾持力	最高迴轉數	I	重量	適用迴轉缸	最大使用 壓力
Model	Rotating stroke	Clamping stroke	Jaw's compensation	最大 Max.	最小 Min.	Max. D.B. pull	Max. Clamping force	Max. speed	Moment of inertia	Weight	Matching cyl.	Max. pressure
	mm	mm	mm	mm	mm	kN (kgf)	kN (kgf)	min ⁻¹ (r.p.m.)	kg·m ²	kg		MPa (kgf/cm ²)
2J-05	12	8	2	53	25	5.0(510)	4.0(408)	4000	0.015	9.0	RK-100 OR RK-100(N)	0.7(7)
2J-06	12	8	2	79	55	6.0(612)	5.0(510)	4000	0.035	9.8	RK-100 OR RK-100(N)	0.8(8)
2J-08	12	8	2	106	75	12.0(1224)	11.0(1122)	3500	0.12	20.3	RK-100 OR RK-100(N)	1.7(17)
2J-10	12	8	2.5	150	119	12.0(1224)	11.0(1122)	3500	0.28	30.7	RK-100 OR RK-100(N)	1.7(17)
2J-12	12	8	2.5	200	169	12.0(1224)	11.0(1122)	3000	0.52	41.2	RK-100 OR RK-100(N)	1.7(17)

搭配之標準生爪 Standard soft Jaw For 2J,3J Chuck.



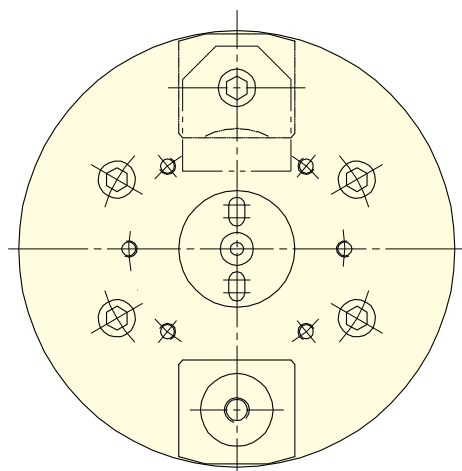
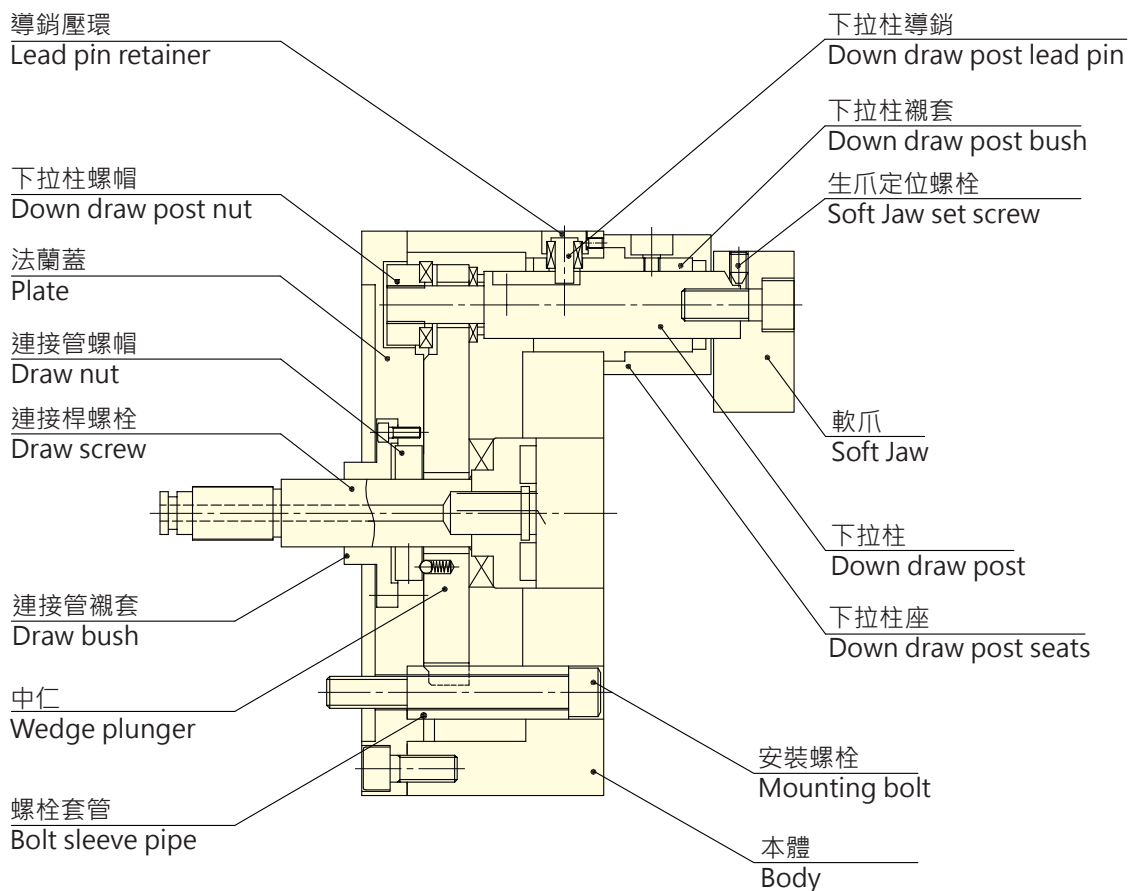
for 05" , 06"



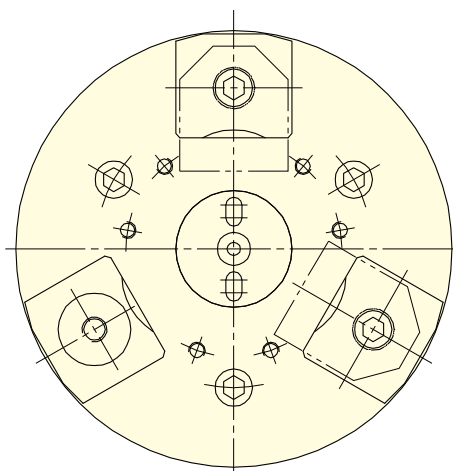
for 08" , 10" , 12"

2.2. 中實指形夾頭構造圖

2.2. Drawing of non-through-hole finger power chuck



型式 Model
2J

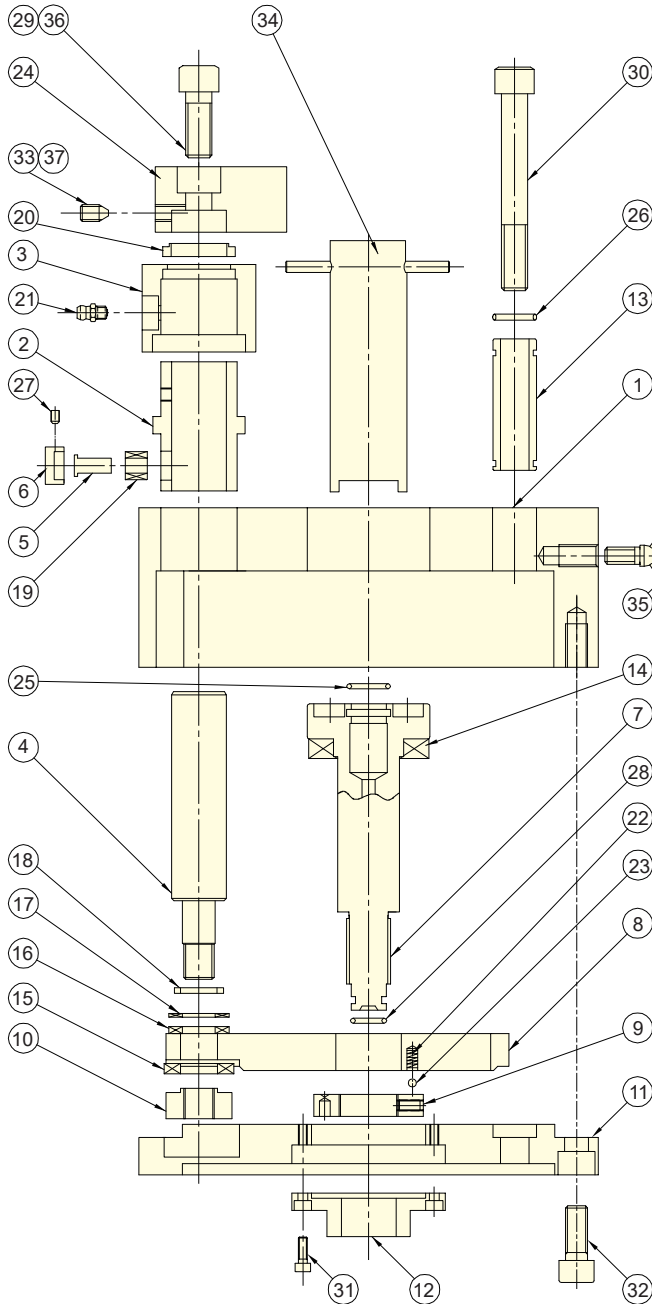


型式 Model
3J

Fig.1

2.3. 中實指形夾頭零件分解圖

2.3. Parts list of non-through-hole finger power chuck



No.	零件名稱	Name of parts	Q'ty
1	本體	Body	1
2	下拉柱襯套	Down draw post bush	3
3	下拉柱座	Down draw post seats	3
4	下拉柱	Down draw post	3
5	下拉柱導銷	Down draw post lead pin	3
6	導銷壓環	Lead pin retainer	3
7	連接桿螺栓	Draw screw	1
8	中仁	Wedge plunger	1
9	連接桿螺帽	Draw nut	1
10	下拉柱螺帽	Down draw post nut	3
11	法蘭蓋	Plate	1
12	連接桿襯套	Draw bush	1
13	螺栓套管	Bolt sleeve pipe	3
14	調心球面組	Self-aligning ball bearings	1
15	調心球面組	Self-aligning ball bearings	3
16	止推針狀軸承	Thrust needle roller bearings	3
17	止推針狀軸承	Thrust needle roller bearings	3
18	波浪彈簧	Wave Spring	6
19	針狀軸承	Needle roller bearings	3
20	密封件	Seal part	3
21	油嘴	Grease nipple	3
22	彈簧	Spring	1
23	鋼珠	Steel ball	1
24	軟爪	Soft jaw	3
25	O 型環	O-ring	1
26	O 型環	O-ring	6
27	六角孔固定螺絲	Hex. socket set screw	3
28	O 型環	O-ring	1
29	軟爪連結螺栓	Jaw maunting bolt	6
30	夾頭安裝螺栓	Chuck mounting bolt	6
31	六角孔圓頭螺絲	Hex. socket cap bolt	3or6
32	六角孔圓頭螺絲	Hex. socket cap bolt	3or6
33	生爪定位螺栓	Soft Jaw set screw	3
34	套筒扳手 (附件)	Joint handle(accessory)	1
35	吊環螺栓 (8" 以上附件)	Eye bolt (accessory, 8" or over)	1
36	L 形六角扳手 (5" 以下附件)	Hex. key (accessory, 5" or below)	1

Fig.2

3. 安裝

3.1. 中實指形夾頭的安裝步驟

(1) 將拉桿安裝於油壓缸

- 旋入拉桿至油壓缸之活塞桿螺牙內時，儘可能將活塞桿縮回到底。(如果活塞桿處在行程中間位置，鎖緊螺牙時，可能會損壞到活塞之止迴銷)

(2) 將油壓缸安裝於主軸上 (油壓缸連接板)

- 檢視油壓缸是否偏擺及油壓管路是否正常，設定油壓力於低壓狀態 (0.4~0.5MPa, 4~5 kgf/cm²)，移動活塞讓它運動 2~3 次後停置於前端，然後關掉電源。

(3) 將夾頭安裝於拉桿

- 使用扳手插入夾頭的中心孔內，旋轉連接管螺絲，使連接管螺絲鎖入拉桿內，則夾頭與拉桿連接一起。
- 當鎖入連接管螺絲於拉桿時，如果不是很平順的鎖入，那必須重新檢查螺牙是否正確及中心是否傾斜等，若強制用力鎖入將可能造成楔心損壞及精度不良。

3. Mounting

3.1 Mounting steps of non-through-hole finger power chuck

(1) Connect the draw bar to the cylinder.

- Screw the draw bar into the cylinder pistonrod with the rod retracted as far as it will go. (If it is tightened at the intermediate position, the locking pin of the piston may be damaged.)

(2) Mount the cylinder to the spindle (cylinder adapter)

- Check that the run-out of cylinder is minimized before routing the hydraulic piping. Move the piston at low pressure (0.4~0.5MPa, 4~5kgf/cm²) two or three times and set the piston at the forward end before switching power off.

(3) Connect the chuck to the draw bar.

- Insert the joint handle in to the central hole of the chuck connect the chuck onto the draw bar, turning the draw screw.
- If the connecting of the chuck and draw bar is difficult, chuck the thread. If connected by force. The wedge plunger will be damaged, thus resulting in poor accuracy.

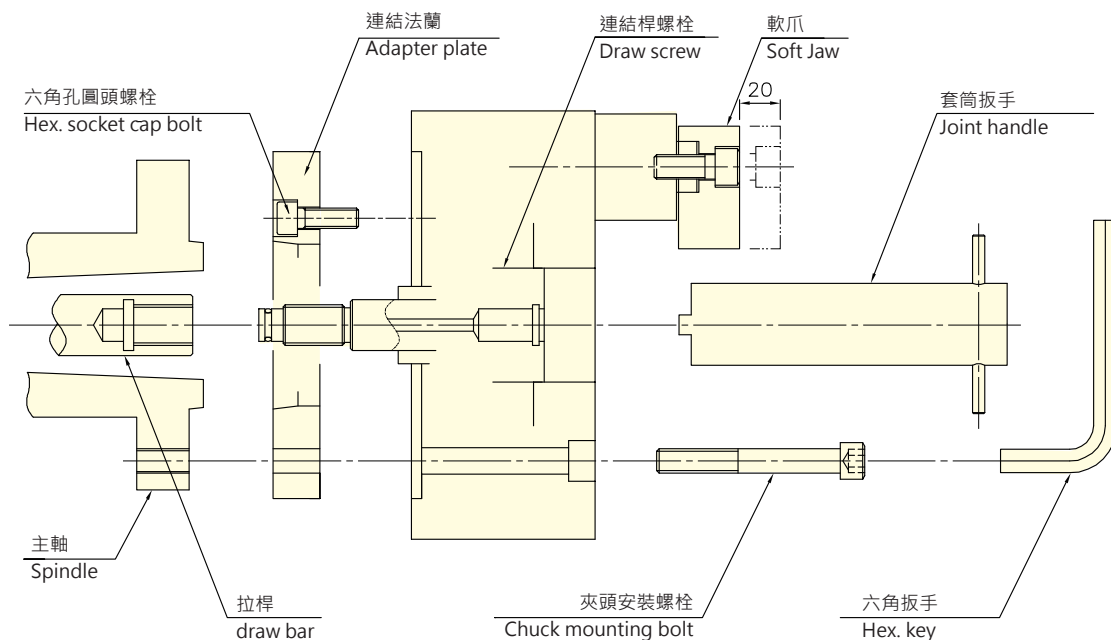


Fig.3



CAUTION
注意

- 在安裝或拆下夾頭時，需使用吊環固定。(8" 以上之夾頭須吊環)
- 當完成上述動作後，切記取下吊環或吊帶。
- 注意在連接桿螺栓上的 O 型不可損壞。在低壓時操作迴轉缸並檢查每個零件的作動。檢查連接桿螺栓行程或軟爪的行程 (20mm)。(轉動連接扳手調整行程) 檢查 3 次行程是否相同。
- When mounting or removing the chuck, lift it with the crane, using an eyebolt. (For a chuck 8" or over, the eyebolt is attached.)
- Be sure to remove the eyebolt from the chuck after mounting or removing.
- Take care so that the O-ring on the draw screw will not be damaged. Operate the cylinder at low pressure and check the motion of each part. Check the draw screw stroke or jaw stroke (20mm). (Turn the connection handle to adjust the stroke.) Check that three strokes are uniformed.



WARNING
警告

- 鎖緊螺絲時，請依照標準力矩鎖緊，如果鎖緊力矩不足或太大，將造成螺絲斷裂，工作物飛散產生危險。
- 請使用附屬之螺絲。
- Tighten the mounting bolt according to the specified torque. If tightening torque is insufficient or too strong, bolts are broken. Also, the workpiece scatters, thus resulting in danger.
- Use only attached bolt.

螺絲規格 Bolt size	鎖緊力矩 Tightening torque
M6	12.7 N · m (1.3 kgf · m)
M8	38.2 N · m (3.9 kgf · m)
M10	72.6 N · m (7.4 kgf · m)
M12	106.8 N · m (10.9 kgf · m)
M14	170.6 N · m (17.4 kgf · m)
M16	250.0 N · m (25.5 kgf · m)



WARNING
警告

- 如拉桿鎖入連接之螺帽螺牙不足，將損壞螺牙而使夾持力瞬間喪失造成工件飛散之危險。
- If the draw bar is insufficiently screwed into the draw nut, the thread will be damaged, thus eliminating the gripping force momentarily. It will result in danger due to discharge of workpiece.

3.2. 連結法蘭的安裝

- 連接板外徑之偏擺須在下表所示 D 值範圍內，而連接板端面之偏擺須在下表所示 E 值範圍內。
- 夾頭外徑之偏擺須在下表所示 F 值範圍內，而夾頭端面之偏擺須在下表所示 G 值範圍內。
- Fig.4 為 JIS 短錐度主軸圖。

3.2. Mounting of chuck adapter plate

- The outer diameter run-out of the adapter plate should be D-Value or less (see table below). The end surface run-out of the adapter plate should be E-Value or less (see table below).
- The outer diameter run-out of the chuck should be F-value or less. The end surface run-out of the chuck should be G-value or less.
- Fig.4 shows JIS short tapered spindle.

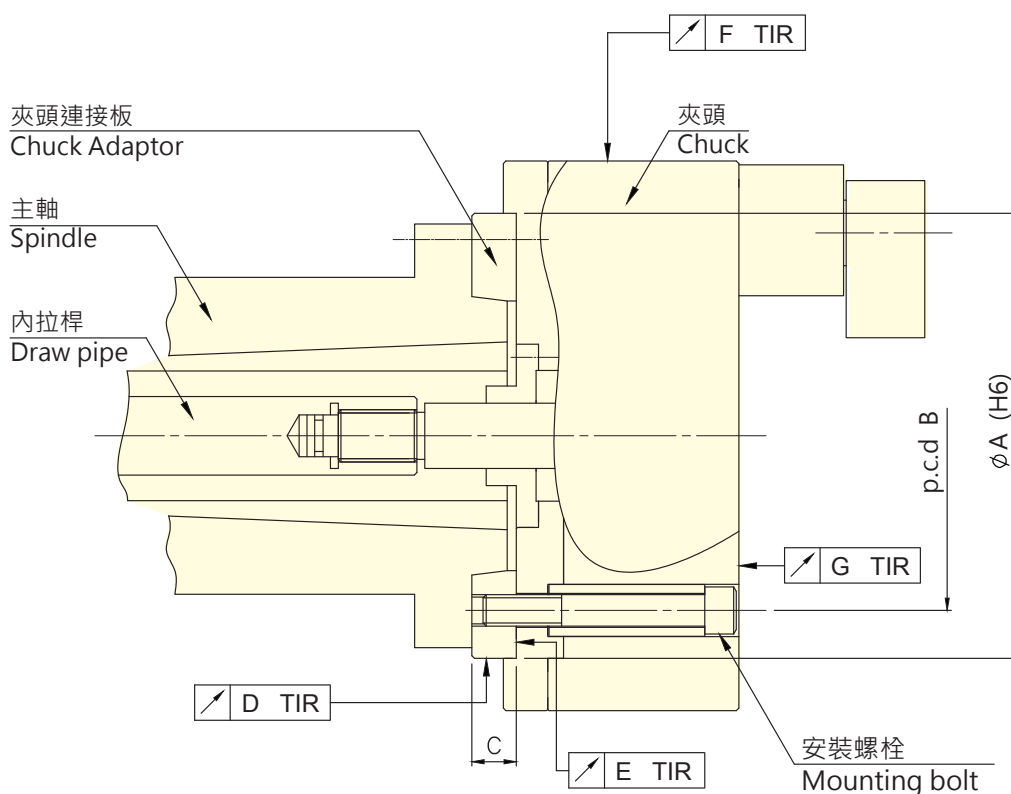


Fig.4

型號 Model	2J-05	2J-06	2J-08	2J-10	2J-12
寸法 Dim	3J-05	3J-06	3J-08	3J-10	3J-12
A (H6)	110	140	170	220	220
B	82.6	104.8	133.4	171.4	171.4
C	15	15	17	18	18
D	0.005	0.005	0.005	0.005	0.005
E	0.005	0.005	0.005	0.005	0.005
F	0.02	0.02	0.02	0.02	0.02
G	0.02	0.02	0.02	0.02	0.02

動平衡

- 當進行追加加工或用治具時不可產生不對稱。不對稱會造成震動和噪音,使加工精度降低。
- 當加工不對稱大的工件時由於工件的重量形心引起的離心力加在上爪,要充分檢討後以低轉速加工。
- 安裝使用說明書的允許均衡量是以 JIS B 0905-1992 定義的許用均衡 4mm/s 為基準。
- 夾頭的不平衡量的大小規定在表格。(JIS B 0905-1992 相對應的國際標準是 ISO 1940-:1986 和 ISO 8821-:1989)

夾頭大小 Chuck size	05	06	08	10	12
最大值 不平衡 Max. unbalance(g)	1	2	3	4	6



CAUTION
注意

- 製作連接板之直徑須依表列 A-0.01。



WARNING
警告

- 連結連接板用之螺絲,應有足夠之強度(直徑、數量、材質)且需有足夠之力矩可鎖緊。(參考第 13 頁)
- 如鎖緊力矩不足或太大,將導致螺絲斷裂而造成夾頭飛散之危險。

Balance

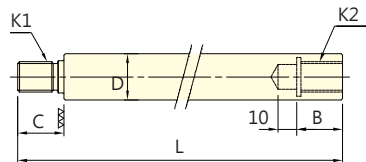
- It's not asymmetry when additionally work or use jigs, otherwise able to cause shaking and noise, then reduce the working accuracy.
- The centrifugal force due to centroid of the workpiece is applies to the top jaw when processing asymmetry workpiece, consideration to process with the low speed.
- Tolerance of instruction manual is use balance 4mm/s as the datum with that defines for JIS B 0905-1992.
- Unbalance value of the chuck is stipulate for the form. (JIS B 0905-1992 correspond to international standard is ISO 1940-:1986 and ISO 8821-:1989).

- The diameter of the adapter plate should be A-Value -0.01 (see table above).

- Mount the adapter plate with bolts which have sufficient strength (dia.,pcs.,and material) and tighten it with specified torque. (See page 13)
- If tightening torque is insufficient or too strong, bolts are broken. Also, the chuck discharges thus resulting in danger.

4. 拉桿的製作

4. Manufacture of draw bar



拉桿詳圖 Detail of Draw Bar

$$L = A - G1max. - G2min. - 3 + C$$

(3J-05)則 $L = A - G1max. - G2min. - 2.5 + C$

Fig.5

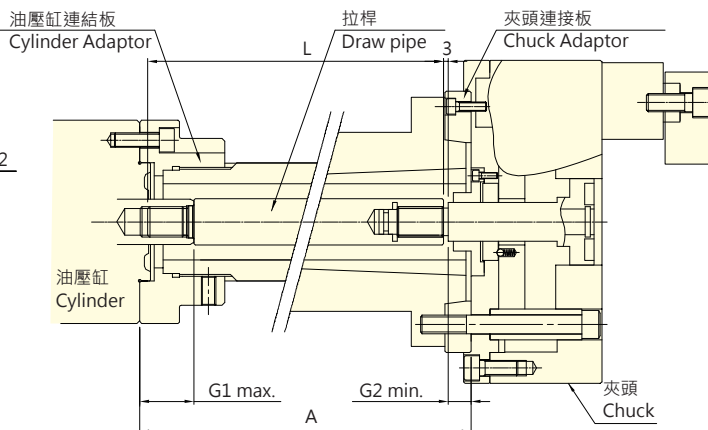


Fig.6

型號 Model	迴轉缸型式 Cylinder type	B	C	D	G1max.	G2min.	K1	K2	L
3J-05	RK-100 RK-100(N)	35	30	30	45	10.5	M20x2.5	M12x1.75	A-28
3J-06						10		M16x2	A-28
3J-08						15		M20x2.5	A-33
3J-10						10			A-28
3J-12						10			A-28

註: 2J 型式之拉桿長度計算同 3J 型式 (Note: To calculate the draw-bar length of 2J as 3J.)



WARNING
警告

- 拉桿厚度增加方能有足夠之強度, 若拉桿之強度不足會使其斷裂而喪失夾持力, 同時工件飛出產生危險。
- Increase the thickness of draw pipe to secure strength. The gripping force is lost if the chuck is broken because of insufficient strength. As a result, the workpiece discharges, thereby causing danger.

IMPORTANT 注意事項

- 螺牙鬆動是造成振動的主要原因。
- 以抗拉強度 380MPa(38kg/mm²) 以上之材料製作拉桿。
- Tighten the mounting bolt according to the specified torque. If tightening torque is insufficient or too strong, bolts are broken. Also, the workpiece scatters, thus resulting in danger.
- Use only attached bolt.

5. 使用上的注意事項

1. 依照工件外形及切削情況來設定油壓壓力，如果管狀的工件被高壓夾持將造成變形。
2. 夾持斜面或錐度的鑄品工件時，使用的特殊爪需具有齒狀之夾持面工件物才不會飛散。
3. 夾持偏心工作物時，偏心重量產生的離心力作用在單一爪上，加工時需使用低轉速。
4. 作業開始之前，使用低轉速試做一次，檢查上爪和工作物的位置是否與刀具、刀具座產生干涉。
5. 長時間停置機器時，夾頭上不可夾持工作物。
6. 當操作不當或機械故障所造成刀具或刀具座撞擊夾頭，立即停機檢查上爪、下拉柱、連結螺絲及夾持精度等是否正常。
7. 為了維持運轉的準確，當替換軟爪時，需仔細清潔接合部分。



WARNING
警告

- 工件夾持於夾持行程的中點位置，可達成最好的精度及穩定度，儘量防止用行程的盡端來夾持工件。(Fig.7 左)
- 工件夾持位置需在夾持行程內，不可在旋轉行程時就夾持工件，否則將導致工件飛散造成危險。(Fig.7 右)

5. Precautions

1. Set the hydraulic pressure according to the shape of workpiece and cutting conditions. If, for example, a pipe shaped workpiece is gripped with high pressure, it may cause distortion.
2. When gripping inclined or tapered parts such as casting, etc., use special jaws with spikes so that the workpiece will not discharge.
3. Machine the unbalanced workpiece at a low speed because the centrifugal force by the eccentricity mass of work is applied onto the jaw.
4. Before machining. Run with low speed to check that the top jaws locator or workpiece do not interfere with the tool or tool holder.
5. When stopping the machine for a long period of time, remove the workpiece from the chuck.
6. If the chuck or workpiece is misused by interfering with the tool or tool rest due to malfunction or tape error. Immediately stop the machine and check the top jaw, down draw post, mounting screw and gripping accuracy.
7. When replacing the soft jaw, clean the fitting part carefully in order to maintain the running accuracy.

- It is the most desirable that the workpiece is gripped at mid clamping stroke of the master jaws. To grip the workpiece correctly, avoid gripping at stroke end.(Fig.7 left)
- Must be in gripped stroke that the workpiece grasps the position, can't gripped the workpiece while rotating stroke, otherwise the workpiece may be disengaged and fly-out. (Fig.7 right)

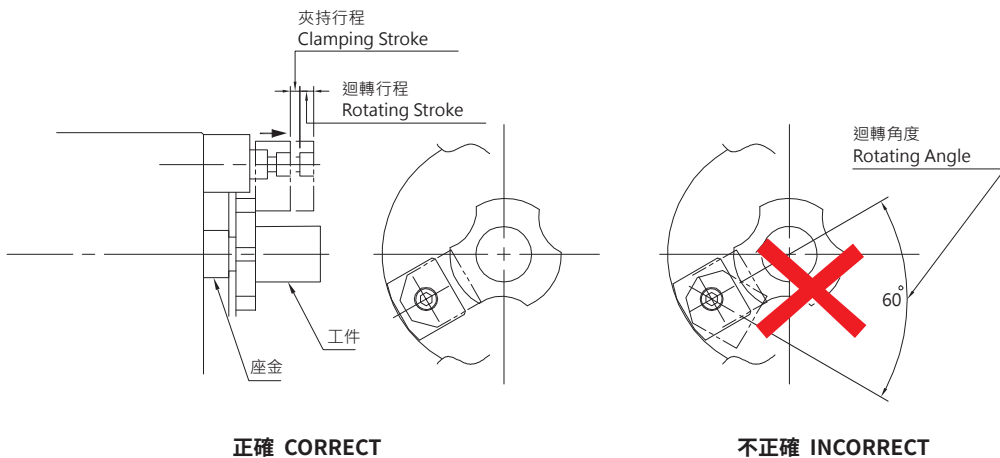
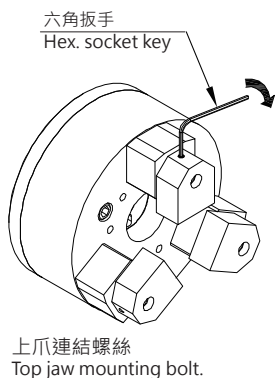


Fig.7

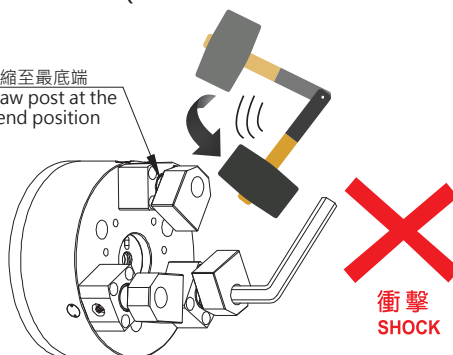
- 更換軟爪（夾模）時，需在夾持行程盡端更換（亦即下拉柱縮至最底端的位置），並需配合使用扭力扳手鎖緊螺絲（請參考下方表格數據），避免以敲擊扳手的方式鎖緊，以免損壞下拉柱與導銷。

- To change the soft claw (mold) it need to at the end of clamping stroke (mean down draw post by contract until most bottom position), and tighten screw by use torsion spanner to avoid pound the spanner otherwise it damage the down draw post and lead pin. (Please refer to the table data below.)



正確 CORRECT

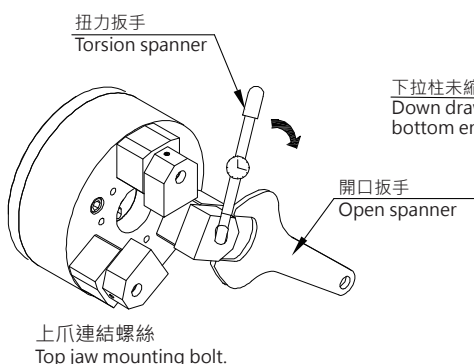
下拉柱未縮至最底端
Down draw post at the bottom end position



嚴禁衝擊，否則容易造成下拉柱損壞。
Impact is prohibited, otherwise it will cause damage on the down draw post.

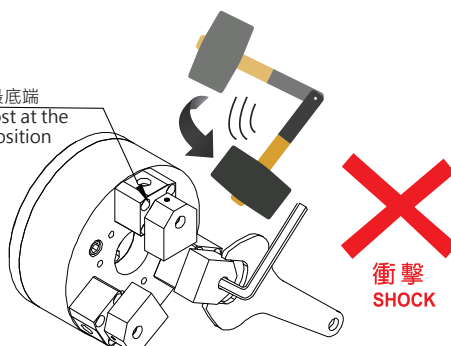
不正確 INCORRECT

Fig.8



正確 CORRECT

下拉柱未縮至最底端
Down draw post at the bottom end position



嚴禁衝擊，否則容易造成下拉柱損壞。
Impact is prohibited, otherwise it will cause damage on the down draw post.

不正確 INCORRECT

Fig.9



WARNING
警告

- 鎖緊螺絲時，請依照標準力矩鎖緊，如果鎖緊力矩不足或太大，將造成螺絲斷裂，工作物飛散產生危險。
- 請使用附屬之螺絲。

- Tighten the mounting bolt according to the specified torque. If tightening torque is insufficient or too strong, bolts are broken. Also, the workpiece scatters, thus resulting in danger.
- Use only attached bolt.

型號 Model	螺絲規格 Bolt size	鎖緊力矩 Tightening torque
3J-05	M10	72.6N · m(7.4kgf · m)
3J-06	M10	72.6N · m(7.4kgf · m)
3J-08	M12	106.8N · m(10.9kgf · m)
3J-10	M12	106.8N · m(10.9kgf · m)
3J-12	M12	106.8N · m(10.9kgf · m)

6. 維護及檢查

6. Maintenance and inspection



- 長時間定期地潤滑可保持夾頭壽命。錯誤的潤滑將導致夾持力減弱、精度不良，磨損及卡住，故必須潤滑夾頭。

- To maintain the chuck for a long period of time, it is necessary to lubricate the chuck on a regular basis. Inadequate lubrication causes malfunction at low hydraulic pressure, reduces gripping force and affects gripping accuracy, and causes wear and seizure. Consequently, securely lubricate the chuck.

潤滑的處所	潤滑油種類	潤滑週期
使用潤滑油槍將潤滑油注入每一個主爪周圍的油嘴。	二硫化鉬潤滑油	每日一次，但如果夾頭在高速旋轉或大量的水性切削液於加工中使用時，需要更多的潤滑，請依照不同的情況來決定。

Section to be lubricated	Grease useds	Lubrication cycle
Apply grease from the grease nipple at the periphery end of each master jaw with a grease gun.	Moly Kote EP Grease (DOW CORNING CO.,LTD)	Once a day. However, when the chuck is operated at high speed rotation or a large amount of water soluble cutting oil is used, more of lubricated is needed according to service conditions.

- 加工完後務必以風槍或類似的工具清潔夾頭本體及滑道面。
- 避免因生鏽而降低夾持力，需使用防銹之切銷油。

- After machining, clean the chuck body and slideway with air gun, etc.
- Use rust prevention coolant oil so that rust does not reduce gripping force.



- 每六個月（或每 10 萬次）取下夾頭做一次徹底之清潔（切削鑄鐵則每二個月至少一次）。檢查零件有無損壞或磨損，如嚴重時立即更換新品。
- 組裝前須充份潤滑。

- Disassemble and clean the chuck at least once per 6 months or every 100,000th used (once every two months for the casting) See if parts are worn or cracked and replace it if required.
- Lubricated the chuck before reassembling.

7. 故障排除

- 如夾頭故障，請停下來檢查，依下列情況來處理。

不正常情況	可能原因	對策
夾頭不能動作	夾頭的零件損壞。	分解夾頭及更換。
	滑動部份被卡住。	分解夾頭及取出被卡住的部份，以油石修整之或更換。
	迴轉油壓缸停止運作。	檢視油壓系統，如減壓閥、洩壓閥…等。
主爪的全行程不足	內部積存了太多的雜屑。	分解後清理。
	拉桿鬆脫。	重新鎖緊拉桿。
工作物有滑動的情況	下拉柱的夾持行程不足。	重新夾持工件使得下拉柱的位置於行程的中點。
	夾頭的夾持力不足。	檢視所設定的油壓壓力是否到達。
	夾模設計不良	請依工件特性與車削條件重新設計夾模。
	切削力量太大。	重新計算一次切削力量而確認是否合乎此夾頭的規格。
	工件三爪夾持面高度落差大於 2mm, 超過機構補償限制。	請將夾持面先做粗加工。
	下拉柱滑道的潤滑油不足。	依據潤滑過程重新潤滑各部而後在沒有工件下操作夾頭數次。
	迴轉速度過高。	降低迴轉數到標準內或將夾模適當減重，以減少離心力的影響。
精度不良	夾頭之外徑偏擺過大。	校正外徑或端面的偏擺及鎖緊螺絲。
	下拉柱與上爪間有外在因素干預，如灰塵…。	取下夾爪並且完全清理。
	上爪固定螺絲沒有鎖緊。	以適當力矩鎖緊。
	座金設計或安裝精度不佳。	檢討設計或重新校正安裝。
	夾持力過大，使工件變形。	降低夾持力到適當程度，使得機器可以夾緊工作物但不致變形。
	上爪高度太高，使上爪或固定螺絲變形。	降低上爪至標準高度。（選用一個標準的尺寸）
	在成形上爪的過程不當或不完善。	確定成形圈是否對稱，與平行在夾頭之端面。 檢查成形圈的外形是否因夾持力過大而導致變形。 檢查在成形時油壓壓力及成形面的表面粗度。

備註：

簡單的故障請自行處理，如無法自行處理或特殊狀況時，可通知您的經銷商或寄回本公司處理。

7. Troubleshooting

- If the chuck malfunctions, stop the lathe and try the following countermeasures.

Problem	Possible Reasons	Countermeasures
Chuck will not work	Some Chuck's parts are damaged.	Disassemble the chuck and replace the damaged parts with new ones.
	Slidway is stuck.	Disassemble the chuck and repair the damaged part with oil stone or replace them.
	Hydraulic cylinder is not working.	Check the function of the hydraulic system's components such as pressure reducing valve, pressure release valve, etc.
Insufficient master jaw total stroke	Excessive swarf in chuck.	Disassemble and clean the chuck.
	Draw pipe is loosened.	Fasten the draw pipe on the draw nut.
Workpiece slippage	Insufficient down draw post clamping stroke.	Make arrangement such that the workpiece is clamped in the mid stroke of down draw post.
	Insufficient clamping force.	Check whether hydraulic pressure set adequately.
	Improper design of clamp jig.	Redesign the jig according to the specification and turning condition of workpiece.
	Excessive cutting force.	Calculate cutting force and confirm whether the force matches chuck's specifications.
	Clamping difference of height over 2mm that exceed mechanism compensation limit.	Machine the workpiece's flatness.
	Insufficient lubrication between down draw post and slideway.	Lubrication from the grease nipple, the repeat of chuck open and close several time without workpiece.
	Excessive rotating speed.	Reduce the rotating speed or the weight of clamp jig so as to reduce the effect of centrifugal force.
Poor accuracy	Excessive run-out of chuck's periphery.	Calibrate the run-out of peripheral and end face of chuck, and tighten bolts.
	Surface between top jaw and down draw post are contaminated.	Remove the top jaw and clean the surface.
	Top jaw mounting bolts are not tightened adequately.	Tighten bolts with correct torque.
	Poor mold design or installation.	Re-check design or re-connect mount.
	Workpiece is deformed due to excessive gripping force.	Reduce gripping force to prevent deformation.
	Top jaw is deformed and bolts are extended because of excessive jaw's high.	Lower the height of the top jaw by replacing with standard size jaw.
	Improper forming of top jaw.	Chuck forming plug's parallel and roughness, and be sure the plug is not deformed due to gripping force. Also, check hydraulic pressure while forming.

Remark :

Please contact your local distributor or agent. If no distributor or agent locally, then contact Autogrip Machinery Co., Ltd. On receipt of the product, we will inform you immediately of repair schedule. Please call us if you find any problems.

8. 裝配概要圖

8. Assembly drawing

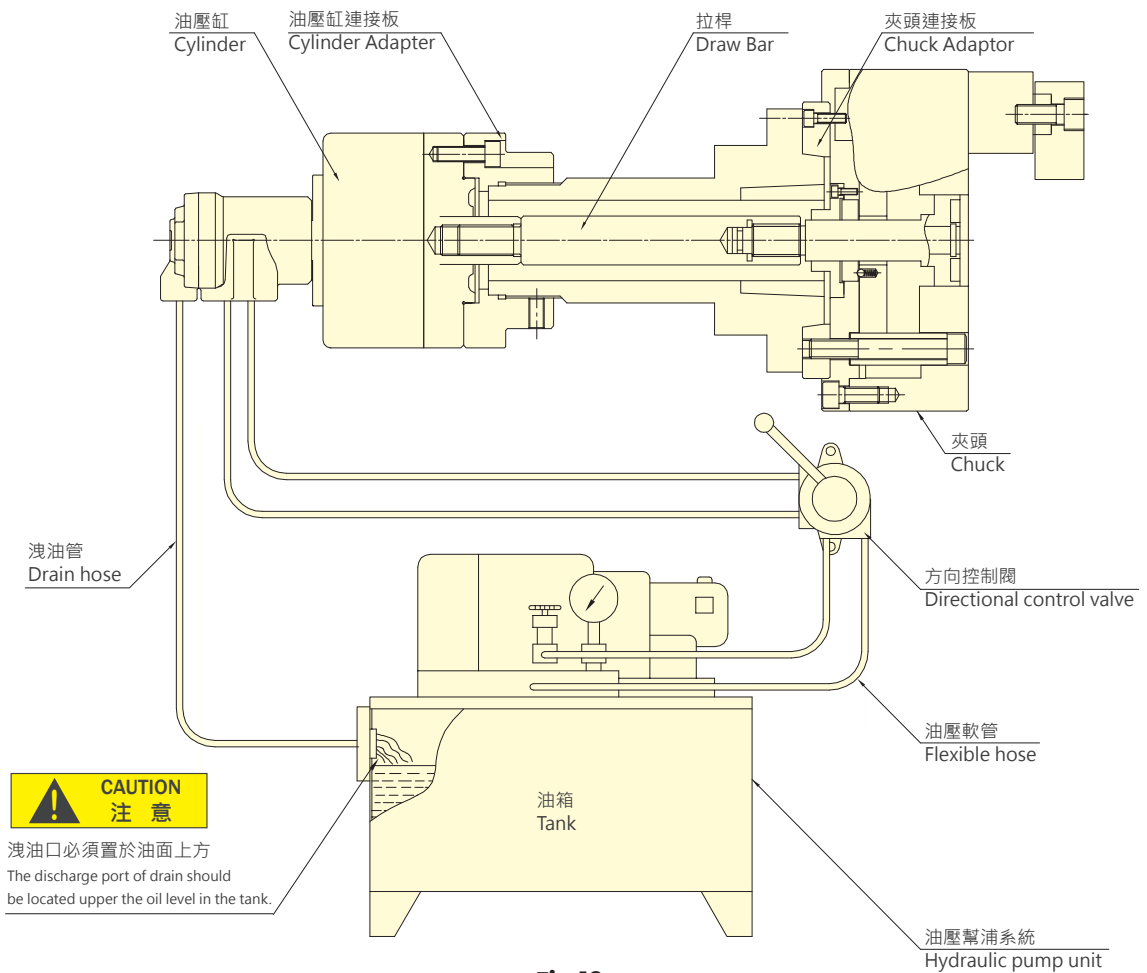


Fig.10



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佳賀精機股份有限公司
AUTOGRIP MACHINERY CO., LTD.

513006 彰化縣埔心鄉明聖路一段229號
No. 229, Sec. 1, Mingsheng Rd., Puxin Township,
Changhua County 513006, Taiwan

T +886-4-822-8719
F +886-4-823-5719
E sales@autogrip.com.tw
www.autogrip.com.tw



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