ISO 9001



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中空型回转油压缸

HIGH SPEED THROUGH-HOLE ROTARY HYDRAULIC CYLINDER

通过 ISO 9001 品质系统认证合格
Approved by ISO 9001

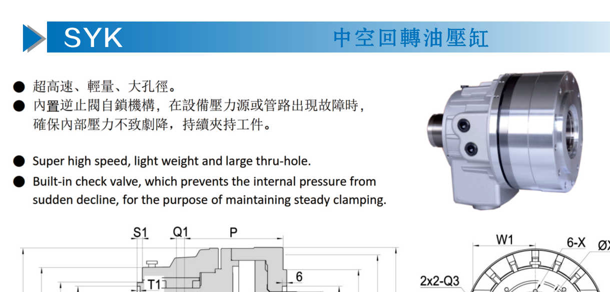


高速回转油压缸

HIGH SPEED ROTARY HYDRAULIC CYLINDER

SYK 中空回轉油壓缸

- 超高速、輕量、大孔徑。
- 內置逆止閥自鎖機構，在設備壓力源或管路出現故障時，確保內部壓力不致劇降，持續夾持工件。
- Super high speed, light weight and large thru-hole.
- Built-in check valve, which prevents the internal pressure from sudden decline, for the purpose of maintaining steady clamping.



項目 型号	活塞內徑 mm	中孔直徑 mm	活塞行程 mm	有效活塞面積 推側 cm²	有效活塞面積 拉側 cm²	最大輸出力 推力 kN	最大輸出力 拉力 kN	最大使用壓力 MPa	最高轉速 min-1	慣性矩 kg.m²	重量 kg	洩流量 L/min
SYK-536	105	36	13	28	26	11	10	4.0	8000	0.011	8.6	3.0
SYK-536HB	105	36	13	28	20	11	8	4.0	8000	0.011	8.6	3.0
SYK-549	105	48.30	13	19	20	8	8	4.0	8000	0.011	8.6	3.0
SYK-646	125	46	14	41	28	16	11	4.0	7000	0.019	12	3.0
SYK-646HB	125	46	14	37	28	15	11	4.0	7000	0.019	12	3.0
SYK-649	125	48.30	14	37	28	15	11	4.0	7000	0.019	12	3.0
SYK-852	155	52	23	64	50	26	20	4.0	6200	0.052	16.8	3.9
SYK-1075	180	75	25	64	50	26	20	4.0	4700	0.095	26	4.2
SYK-1075HB	180	75	25	64	50	26	20	4.0	4700	0.095	26	4.2
SYK-1291	205	91	30	252	234	94	88	4.0	3800	0.150	37	4.5
SYK-1512	250	117.5	23	348	336	124	120	4.0	2800	0.450	57	7.0

尺寸 型号	A	B	C	D	E (h7)	F	G1 max.	G1 min.	G2 max	G2 min	H	J	K	L	M1	M2	N1	N2
SYK-536	5	138	136	115	100	50	15	2	40	27	65	91	138.5	6-M10*20	M42*1.5	25	M44*1.5	30
SYK-536HB	5	138	142	115	100	60	15	2	40	27	65	91	138.5	6-M10*20	M48*1.5	25	M44*1.5	30
SYK-549	5	138	138	115	100	55	14	1	36	23	65	91	138.5	6-M10*20	无	0	M55*1.5	35
SYK-646	5	162	165	130	100	65	14	1	51	37	65	96.3	138.5	12-M10*20	M55*2	30	M52*1.5	39
SYK-646HB	5	162	165	130	100	65	14	1	51	37	65	96.3	138.5	12-M10*20	M48*1.5	30	M54*1.5	39
SYK-649	5	162	165	130	100	65	15	1	51	37	68	96.3	141.5	12-M10*20	M55*2	30	M55*1.5	39
SYK-852	5	185	185	165	130	70	18	0	58.5	35.5	73	144.5	150.5	12-M10*20	M60*2	30	M58*1.5	34
SYK-1075	5	212	215	190	160	95	24	0	65	40	86	135.5	172	12-M10*22	M85*2	35	M84*2	37
SYK-1075HB	5	212	215	190	160	98	24	0	65	40	86	135.5	172	12-M10*22	M80*2	35	M84*2	37
SYK-1291	5	240	240	215	180	110	30	0	55	25	104	182	248	12-M12*24	M100*2	35	M99*2	38
SYK-1512	6	294	310	275	230	140	24	1	38	15	101	197	290	12-M16*32	M130*2	45	M134*2	38

尺寸 型号	O1 (H8)	O2	Q1	Q2	Q3	R (g7)	S	S1	T	T1	U	W1	W2	X	X1	Y	Y1	V	Z
SYK-536	38	36	7	34	PT1/4	42	70	16	64	5	106	63	104	6-M5*10	54	4-M5*6	83	47	80
SYK-536HB	38	36	7	34	PT1/4	42	70	16	64	5	106	63	104	6-M5*10	54	4-M5*6	83	47	80
SYK-549	48	48	7	34	PT1/4	/	70	6	76	5	118	63	104	6-M5*10	63	4-M5*6	98	47	80
SYK-646	50	46	7	36	PT3/8	50	85	5	76	5	118	70	120	6-M5*10	63	4-M5*6	98	47.4	80
SYK-646HB	46	46	7	36	PT3/8	52	85	5	76	5	118	70	120	6-M5*10	63	4-M5*6	98	47.4	80
SYK649	50	49	7	36	PT3/8	52	90	6	76	5	118	70	120	6-M5*10	63	4-M5*6	98	47.4	80
SYK-852	54	52	8	40	PT1/2	56	98	8	88	4	135	83	128	6-M6*10	72	4-M6*6	128	47	100
SYK-1075	80	75	10	40	PT1/2	81	121	7	108	4	163	95	161	6-M6*10	98	4-M5*6	155	45	120
SYK1075HB	80	75	10	40	PT1/2	81	121	7	108	4	163	95	161	6-M6*10	98	4-M5*6	155	45	120
SYK-1291	95	91	21	36	PT1/2	96	138	7	120	4	182	110	177	6-M6*9	108	4-M6*6	165	47	140
SYK-1512	123	117.5	27	36	PT1/2	134.6	178	7	160	5	232	129	215	6-M6*9	148	4-M6*6	206	55	166

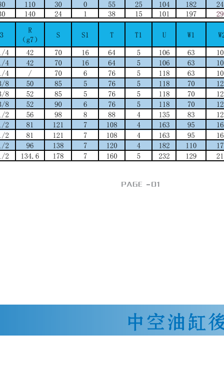
SYJS/K 集水盒

- 用於收集沿主軸內孔流出的切削液。
- 適配於中空迴轉油缸
- SYJS/K型附帶行程控製裝置。
- Collect the coolant flowing out of the hole of the main shaft.
- Matching thru-hole rotary cylinder.
- SYJS type with stroke control.



尺寸Dim 型號Model	A	B	C	D	G	J1	J2	N1	R	S	W1	W2	Y	Y1	適配迴轉油缸 Matching Cyl	重量(kg) Weight
SYJS-05	87.5	110	62.0	31	—	PT3/4	16.6	—	40	71	57.0	110	4-M5	83	SYK-536	0.8
SYJS-05K					77			M44x1.5								1.0
SYJS-06	102.0	125	76.0	38	—	PT1	32.5	—	48	85.30	64.50	120	4-M5	98	SYK-549 SYK-646 SYK-649	1.2
SYJS-06K					107			M52x1.5								1.6
SYJS-08	117.0	138	82.0	41	—	PT1	32.5	—	55	98.50	71	130	4-M5	110	SYK-852	1.1
SYJS-08K					107			M58x1.5								1.6
SYJS-10	155	184	86.5	42.5	—	PT1	32.5	—	80	123	94	150	4-M6	155	SYK-1075	1.3
SYJS-10K					147			M84x2								2.0
SYJS-12	155	184	86.5	42.5	—	PT1	32.5	—	95	140	94	150	4-M6	165	SYK-1291	1.2
SYJS-12K					147			M99×2								2.1
SYJS-15	200	230	89.5	44	—	PT1	32.5	—	120	179	117	180	4-M6	206	SYK-1512	1.5
SYJS-15K					192			M134x2								2.4

SYK 中空油缸後拉及行程螺母





649参数图（行程10mm）　X549参数图（行程10）

產品規格

Product specifications

適用油缸	外徑	內孔	厚度	安裝孔距	安裝螺絲
5寸	64	M44*1.5	6*8	54.8	3-M6*14
6寸	69	M48*1.5	6*8	58.8	3-M6*14
6寸	72	M52*1.5	6*8	62.5	3-M6*14
6寸	75	M54*1.5	6*8	64.5	3-M6*14
8寸	79	M58*1.5	6*8	68.5	3-M6*14

1.安裝 1.Mounting

1.1安裝概要

中空油壓夾頭裝於車床主軸前方，后方裝置高速油壓缸，再以拉桿連接。

1.1 Outline of mounting

Mount the open center hydraulic chuck to the front othe lathe spindle, and high speed open center rotaryhydraulic cylinder to the rear. Connect both units todraw pipe.

1.2油壓缸連接板的製作及安裝

1.2Preparation and mounting of cylinder adapter

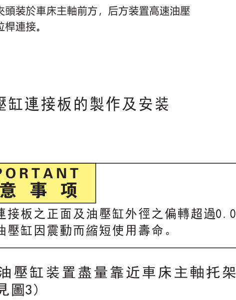
IMPORTANT 留 意 事 项

油壓連接板之正面及油壓缸外徑之偏轉超過0.005mm將使油壓缸因震動而縮短使用壽命。

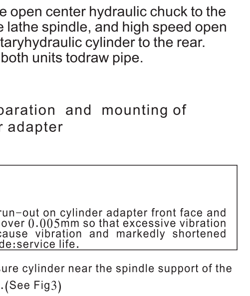
The run-out on cylinder adapter front face and its IDover 0.005mm so that excessive vibration maycause vibration and markedly shortened cylinde:service life.

. 確使油壓缸裝置盡量靠近車床主軸托架處(參見圖3)
. 確實裝上固定螺絲以防止連接板鬆脫。

. Be sure cylinder near the spindle support of the lathe.(See Fig3)
. Prevent lossening of the adapter remember to providethe set screw.



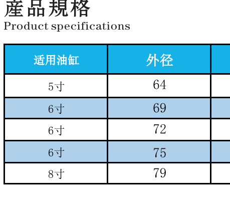
油壓缸連結板的偏擺量測
Fig. 2 Run-out Measurement of Cylinder Adaptor



油壓缸連結板的安裝
Fig. 3 Mounting of Cylinder Adaptor

1.3拉杆的制作

1.3 Manufacture of draw bar

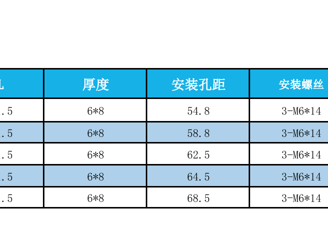


中空拉杆制作
Manufacture of Draw Tube

拉杆詳圖 Detail Draw Pipe

L=A+G2max.+H-G1max.+M2+12

Fig. 4 Detail Draw Pipe



3H-04可搭配TH-428S
注:2H、4H之拉杆長度計算同 3H

Fig. 5 Mounting of Draw Pipe

注:2M型式之拉杆長度計算同3M型式

WARNING 警 告

・拉杆厚度增加方能有足夠之強度。若拉杆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 becaus Of insufficient strength, As a result, the workpiece discharges, thereby causing danger.

IMPORTANT 留 意 事 项

. 螺牙鬆動足造成振動的主要原因。
. 拉杆厚度E爲最小極限值，加工螺牙F時最好選用 大直徑，使E值盡量可能最大。
. 以抗拉強度380MPa(38kg/mm²)以上之材料夾 制作拉杆
. 01、M1與F同心度需在0.05mmT.I.R以內。

. Insecure threads will cause the draw pipe to vibrate.
. With the thickness of draw pipe minimized, thread part"E" to the maximum permissible thread dia.
. For pipe strength, use the material of tensile strengthof 380MPa(38kg/cm²) or more.
. 01,M1 should be concentric whth "Thread"F" 0.05mmT.I.R.

IMPORTANT 留 意 事 项

. 拉桿振動乃由螺牙鬆動所致。

. Vibration of the draw pipe is caused by insecture threads.

1.4安裝油壓缸

. 滅油口如不安裝在油壓缸底部將造成漏油。

1.4 Mounting of cylinder

. Oil will overflow from both ends of the sleeve body if don't mount the cylinder with drain port on the bottom.

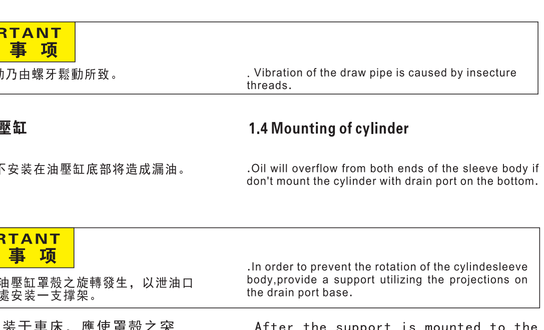
IMPORTANT 留 意 事 项

・爲防止油壓缸罩殼之旋轉發生，以泄油口底部突起處安裝一支撐架。

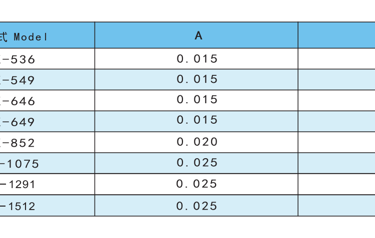
. In order to prevent the rotation of the cylindesleeve body,provide a support utilizing the projections on the drain port base.

. 支撐架安裝于車床，應使罩殼之突出部位與其有一定之間隙方不致於承受其它外力。
. 安裝油壓缸時須注意其偏擺應小於Fig. 9所示之標準。

. After the support is mounted to the lathe, retain the clearance between the projected part of the sleeve body and the support so that the sleeve body will notbe subjected to loading.(Fig.8)
. Be sure mounting the cylinder, the run out of the periphery must be less than the standard values as shown in table of Fig.9.



定位架的安裝
Fig. 8 Mounting of Supp



油壓缸安裝時的偏擺
Fig 9 Run-out of Cylinder After Installation

型 式 Model	A	B
SYK-536	0.015	0.010
SYK-549	0.015	0.010
SYK-646	0.015	0.010
SYK-649	0.015	0.010
SYK-852	0.020	0.015
SYK-1075	0.025	0.015
SYK-1291	0.025	0.015
SYK-1512	0.025	0.015

1.5使用正確的鎖緊方法來固定螺絲油壓缸

. 油壓缸安裝於連接板其固定螺絲應愈深愈好，如下圖所示。

1.5 Use correct method to mountbolts on cylinder

. When mounting a cylinder on the cylinder adaptescrew as deep as illustrated below.

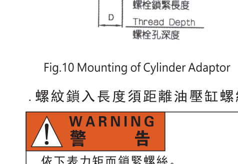


Fig.10 Mounting of Cylinder Adaptor

. 螺紋鎖入長度須距離油壓缸螺紋深度約2mm

. Screwing length of the bolt hould be the screw tapped length minus 2mm.

WARNING 警 告

依下表力距將鎖緊螺絲。

. Tighten the mounting bolts conforming to eachtorque specified as follows.

螺絲規格 Bolt dia	鎖緊力距 Torque
M8	38N.m(3.9kgf.m)
M10	60N.m(6.1kgf.m)
M12	87N.m(8.9kgf.m)
M16	162N.m(16.5kgf.m)

由于油壓缸爲鋁合金材料，故其鎖緊力距爲夾頭用壓縮鎖緊力距之80%。

Each torque values above is shown with a tightening torque at 80% of hydraulic pressure chuck bolts because the cylinder is made of aluminum.

2.油壓迴路之設計 2. Design the oil circuit

油壓迴路得設計是基於操作簡便和安全的原則，提供安全迴路，以防止停電時所產生的危險。
油壓缸之油壓迴路含有自鎖機構當工作進行時，發生停電或油壓力源故障所產生的壓力將常降低時，安全閥產生效用，將夾持力維持固定狀態讓工作不致發生而產生危險。

Design the hydraulic operation circuit so that it is easily operated and mis-operation does not occur. Provide the fail-safe circuiting so that the accident does not occur even if the power source is interrupted
The unit is incorporating the locking mechanism which works to retain the specified griping force even when the abnormal drop of the supplied pressure is caused by power failure or breakdown of pressure source during the work machining.

DANGER 危 險

・如採用4路2位電磁閥設計油壓缸之切換作用，還路則在鬆磁狀態時工作仍被夾持。

In order to make the change-over of cylinder by use of the 4-port 2-position electromagnetic valve, the hydraulic circuit should be so designed as to grip the work when solenoid controlled is demagnetized.

CAUTION 注 意

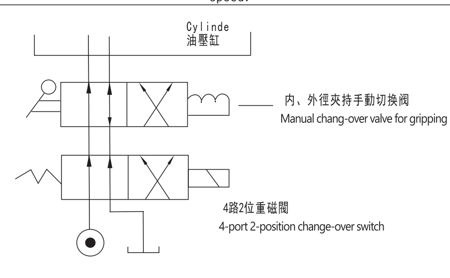
防止由內徑夾持切換至外徑夾持之錯誤操作，使用4路2位閥來固定其位置，如Fig-11所示。

Provide the inner dia./outer dia. Gripping change valve in order to prevent mis-operation when changing from the inner dia. Gripping to outer dia. gripping. When the solenoid valve is used for this change valve, use the 4-port 2-position valve with position stop. The designation circuit is to be maintained.(Fig.11)

IMPORTANT 留 意 事 项

油壓之孔徑須符合油壓缸油管之孔徑，管徑與流速與阻力成反比。

Select the bore dia. of operation equipment which correspond to the piping bore dia. of cylinder. The piping resistance is inverse to diameter and speed.



3.安裝控制閥、油壓系統及管路 3.Attachment of control valve, hydraulic unit andpiping.

. 在便於手動操作的地方，安裝一個手動的切換控制閥來控制夾頭的開啓/關閉
. 盡量將油壓系統安裝於靠近中實油壓缸的地方因此洩油管能夠保持平直，而且油壓閥能夠清楚的被看見。
. 盡量使用內徑大的油管。

. Attach the manual operates valve in the place conve-nient to handle on the machine.
. Install the hydraulic unit in the place close to thehydraulic cylinder closed center, where the drain hosecan be kept straightened and where the pressure gagedial can be clearly observed.
. Use the pipe which has as large I.D.as possible.

WARNING 警 告

. 將油管內部的微物灰塵值量清出後再安裝，如果油管內部有微物將導致油壓缸的過熱，十分的危險。

. Remove any dirt completely from inside of the pipeand then install it. Dirt in the cylinder can be a causeof cylinder overheating

IMPORTANT 留 意 事 项

. 油壓缸的配管必須使用撓性油管，可以防止油管的彎曲及張力阻礙了油壓缸的作動。
. 洩油管必須直接安裝至油箱的液面上，如果洩油管連接彎折的接頭或閥，操作油壓缸時，將引起背壓昇高至內部油封損壞。

. Be sure to use the flexible hose for piping to the cylinder so that the bending force and tensile force are not applied to the cylinder
. Route the drain piping so as to directly return the drain to the tank. If met to T-port such as valve block, the back pressure is high when operating the other equipment(including cylinder)and the cylinder oil seal may be broken.

4.油壓油 4.Hydraulicoil

爲了能常保滿意的操作油壓缸，我方推薦使用黏性在30~50cst(溫度40°C)的油壓油(相當於ISOVG32和VG46)。

For satisfactory operation of the cylinder it is recommended to use the hydraulic oil whose viscosity is30~50cSt at the temperature of40°C (Equipyalent to ISO VG32 and G46)

IMPORTANT 留 意 事 项

油壓油必須有抗磨損及不起泡的特質。爲了保持油壓缸良好的運作，在油壓供應系統中必須安裝20um的濾油網。

The hydraulic oil should have anti-abrasive andanti-foaming characteristic.In order to retain good performance of the cylinder be sure to include the filter of 20um in the pressure supply system.

油壓油的品質將影響油壓缸的溫升，洩油量，作動速度，因此請依照幫浦的使用說明來調整油壓油。

Since hydraulic oil is influenced to the cylinder heating drain volume and operation speed: regulate the oil according to the instruction manual of the pump unit.

5.操作測試 5. Operating Test

(1)確認電壓爲指定值。
(2)測試時壓力調整把手開到最小並迅速切換開關以檢查幫浦旋轉方向是否正確，如果旋轉方向相反，關掉電源並換接相電源中之電線後，重覆檢測無誤後，始可進行操作。
(3)油壓力設定以能使夾頭作動之最低壓(0.35~0.5MPa)接著依下列程序檢查。
. 檢查夾頭作動是否平順。
. 作動方向是否正確(爪之開合)。
. 行程是否足夠(夾爪行程)。
. 有無漏油。
(4)主軸轉速設定於最低，若運轉正常，增加轉速並檢查油壓缸之偏擺狀況及支撐處及管路有無異常。若產生震動則檢查油壓缸連接板之偏擺狀況。
(5)如油溫不高(介于20至30°C)以最高轉速之1/3來熱機。

(1)Confirm the voltage is as specified.
(2)During the operating test the pressure adjustmen thandle at the minimum level and check the direction of pump rotation by inching (putting the switch on and off briefly in alternation), If the pump is rotated in reverse direction, turn power source off. Reverse two of three power wires. After checking the direction of rotation operate at maximum speed.
(3)After lowering the chucking pressure to the minimum pressure, set the pressure to the low pressure which can chuck(0.35~0.5MPa) and check the following steps.
. Check the chuck operation is smooth.
. Check the chucking direction is correct(chuck clamp and unclamp directions).
. Check the operation stroke is adequate(chuck jaw stroke).
. Check the oil leakage is not found on each piping.When the above procedures are correct, slowly raise the operation pressure to the rated pressure, rechecking the above steps. At this time, check that the drain smoothly flows.
(4)Rotate the lathe spindle at a minimum revolution and slowly raise the revolution unless there is the run-out of cylinder and fault of supporter or piping. If the rotary vibration is extreme,recheck the run-out of adapter.
(5)In case of the oil temperature is low(below20~30°C), make the run-in operation at the rotational speed of approx. 1/3 of max.speed.

CAUTION 注 意

機器長期停置而未更換油壓油，其內部之銷緊機構將因壓力升高而無法正常操作:
1.油壓缸周圍之溫差大時。
2.因主軸旋轉而使油壓缸連接板受熱影響。
3.油壓缸周圍有熱源。
這些問題在試車時易發生。
故須常使活塞做反覆之運動。

When the ambient temperature of cylinder rises suddenly,i.e.,when the machine is continuously hoperated for long hours without changing operation or with heat generation of main shaft pulley occurring or special heat source exists around the cylinder, the sealed pressure into the cylinder rises because of a built-in locking mechanism, the rebycausing cylinder malfunction.Especially, duringrunning-in,this trouble is apt to occur. There fo refrequently make reciprocation motions of the piston.

5.操作測試 5. Operating Test

當油壓缸的運轉逐漸變得不正常，請採取下列步驟:
1.停止運轉;
2.旋轉油壓系統中控制夾頭壓力設定值減壓把手，增加約0.5MPa之壓力，其次重覆切換開關以測試油壓缸之運動:
3.如運轉仍不正常，增加夾頭之預設壓力每次約0.5MPa，重覆步(2)，但預設力不可超過最大壓力之30%，一切正常時，調整預設壓力爲正常值;
4.如步驟(3)已重覆多次並使預設壓力達到最大值亦無法正常，將壓力回復正常值，關掉電源，待油壓缸之溫度降回室溫時再重覆步驟(2)、(3)。可用風槍或類似裝置降低油壓缸之溫度;
5.降溫後仍無法正常運轉，鬆開連接螺帽，拆下連結部份以檢視油壓缸之運轉問題。

When the cylinder becomes inoperative. operate the machine with the following steps for normal operation as well as test run.

1.Stop the spindle
2.Turn the pressure adjustment handle of reducingvalve provided on the hydraulic unit for the purpose otchuck pressure setting(cylinder pressure setting), andraise the pre-setchuckpressure byapprox0.5MPa.Then make the repeated changeovers of thecylinder operation changeover switch to confrmcylinder motion.
3.f the cylinder remains inoperative, graduallyincrease the pre-setchuck pressure(by approx0.5MPa each)and repeat the same procedures asdescribed in above(2)for confirmation of cylindelmotion.
At this time, upper limit of pressure is added by 30% omaximum chuck pressure.
When the cylinder operation is recovered, bring backthe pre-set chuck pressure to the normal level.
4.When the normal cylinder operation can not berecovered despite that the pre-chuck pressure isbrought up to maximum value and that the operationsdescribed in above (3)are made several times, bringthe preset chuck pressure down to the normal leveand turn off the power. Then let it cool down until thecylinder surface temperature becomes nearly thesame as room temperature,and repeat the procedures stated in (2) and (3) above to check the cylinde!motion. The cylinder can be cooled faster by blowingair on the cylinder with an air qun or equivalent.
5.When the cylinder operation never recovers evenafter it is cooled, loosen the draw-unit of the chuck sideand take off the connection for confirmation of cylinder.

6.油壓油的溫度上昇 6.Temperature rise ofhydraulic oil

長時高速操作會讓油封材質及油質惡化，用冷卻裝置使溫度低於60°C。

Continuous high speed operation causes a considerable increase of oil temperature, rapidiy deteriorationthe sealing materials and the hydraulic oil. Keep the oiltemperature below 60°C

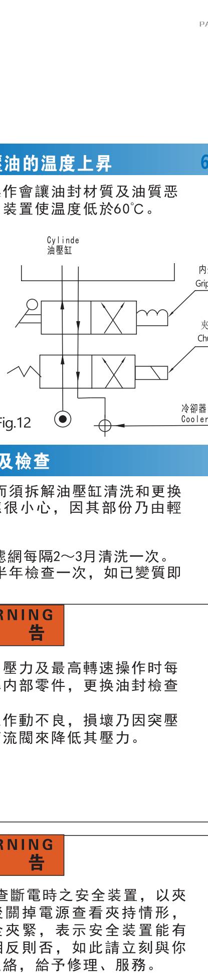


Fig.12

7.維護及檢查 7.Maintenance and in-spection

. 當因漏油而須拆解油壓缸清洗和更換〇型環時應很小心，因其部份乃由輕合金製造。
油壓系統
. 吸油口過濾網每隔2~3月清洗一次。
. 油壓油每半年檢查一次，如已變質即行更換。

. When the oil leakage observed. disassemble thecylinder for cleaning and replacement of o-ring. At thetime, handle the cylinder with care as it partly uses theliaht alloy.Hydraulic Unit.Clean the suction strainer in every 2~3 months.Check the hydraulic oil in every half year and replaceit if it is deteriorated.

WARNING 警 告

・以最大油壓力及最高轉速操作時每25萬次分解內部零件，更換油封檢查各零件。
・油壓缸之作動不良，損壞乃因突壓過大，以節流閥來降低其壓力。

When the ambient temperature of cylinder rises suddenly,i.e..when the machine is continuously hoperated for long hours without changing operation or with heat generation of main shaft pulley occurring or special heat source exists around the cylinder, the sealed pressure into the cylinder rises because of a built-in locking mechanism, the rebycausing cylinder malfunction.Especially, duringrunning-in,this trouble is apt to occur. There fo refrequently make reciprocation motions of the piston.

WARNING 警 告

. 每星期檢查斷電時之安全裝置，以夾持一工件後關掉電源查看夾持情形，假若範完全夾緊，表示安全裝置能有效運作，相反則否，如此請立刻與你的經銷商連絡，給予修理、服務。

When the ambient temperature of cylinder rises suddenly,i.e..when the machine is continuously hoperated for long hours without changing operation or with heat generation of main shaft pulley occurring or special heat source exists around the cylinder, the sealed pressure into the cylinder rises because of a built-in locking mechanism, the rebycausing cylinder malfunction.Especially, duringrunning-in,this trouble is apt to occur. There fo refrequently make reciprocation motions of the piston.

8.故障排除 8. Troubleshooting piston doesn't work

活塞不作動
. 由撓性油管中確認油壓系統處于運轉中。
. 確認所有管路皆連接正確。
. 依運轉中測試步驟來修正活塞之不作動。
油壓缸推力不足
. 裝置一個壓力計於油壓缸之入油口以確認其壓力是否達到正常值。
. 如在油路回歸側之壓力太高或洩油量多于正常值，可能爲〇型環損壞所致。
溫度上昇
. 確認油壓油之黏度是否正確。
. 如油箱之油量不足須再補充。
. 高室溫將使油箱溫度升高，使用冷却器或電扇來控制油溫。
幫浦之噪音
. 避免空氣進入
. 如油箱之油量不足須再補充。
. 油箱堆積過多之雜質或油壓油之品質已惡化可能是油壓幫浦有不常之磨損，須立即修理或更換。
. 不明之漏油現象
使洩油管傾斜一個角度以排除空氣。
油箱內之油於洩油時，油面是否在刻度線內。
. 確認油壓油通氣栓或油箱有無遭雜質阻塞。

. Confirm from the motion of the flexible hose that thehydraulic pressure is working.
. Confirm that the piping is correctly arranged.
. Follow the procedures described under Test Run tocorrect the inoperative piston.
Insufficient Cvlinder Propulsive Force
. Apply the pressure gage near the entrance of the cylinder and confirm that the pressure in the cylinde!pipe entrance conforms to the specified value.
. If the pressure of piping at return side is high or drain flow is more than a normal condition,it is considered that the inside O-ring is worm.
Temperature Rise
. Confirm the viscosity of the hydraulic oil is correct.
. High room temperature will cause the temperature of the tank to rise.
. Use a cooler or fans to control the temperature.
Pump Noise
Avoid the air into oil.
. Replenish the hydraulic oil if it has decreased.
. When considerable dirt is deposited inside of the hydraulic tank or when the hydraulic oil has deterio.rated,it is probable that the pump has been abnor-mally worn out, needing repair or replace.
Leakage Out of the Labyrinth
Set the drain hose with a flowing grade in order toeliminate air pockets.
. Return drain to the oil face of the hydraulic unit
. Confirm that the air vent of cylinder or hydraulic unit isnot clogged with dirt, etc.

9.集水槽及檢出裝置安裝說明 9.Coolant collector(With stroke control

9.1概要

油壓缸連結集水槽順暢地將活塞桿內之切削油收集。集水槽有二個近接開關，以此檢視活塞動作，確認工件處于夾持或不夾持狀態。

Outline of coolant collector

The coolant collector is mounted to rotary hydraulic cylinder to collect smoothly the cutting oil which flow sinside the draw pipe.
.The coolant collector has two pieces proximity switches for checking electrically the piston operation of a cylinder and for the detection of chucking/unchucking of a workpiece.

9.2 規格

近接開關爲TLX-12G-N-02E(KIPS)之標準規格，如須其它規格，請于本公司連繫。

9.2 Specification

型式 Model 規格 Specs	TLX-12G-N-02E (KIPS)
電壓 Power supply	DC 10/30V
負荷容量 Switching cap	200mA
輸出規格 Output type	NPN

端子接线 TERMINALCONNECTIONS

型式 Model 規格 Specs	TLX-12G-N-02E (KIPS)
Op2	黑 BLACK
+V	棕 BROWN
0V	藍 BLUE
Op1	黑 BLACK

9.3 安裝

檢出環旋入活塞桿並在罩殼後端裝上密封墊片，再將集收槽裝進罩殼後端後鎖緊螺絲鎖入管接頭和油管，將油管適度傾斜以使油順利流至不受阻塞，建議採用32之內徑且透明乙烯基油管，便於檢視油之流動。

9.3 Mounting

Mount the detectable plate to the cylinder piston rodand insert the seat packing between the coolantcollector main body and the sleeve body. Mount thecoolant collector to the cylinder rear end. To smoothlycollect the cutting oil flowing into the coolant collectorwe recommend to make the piping adequately inclindso the cutting oil not to stagnate inside the hose. It isrecommended to use transparent vinyl hose for check-ing flow condition
(Inside dia, 32)

9.集水槽及檢出裝置安裝說明 9.Coolant collector(With stroke control

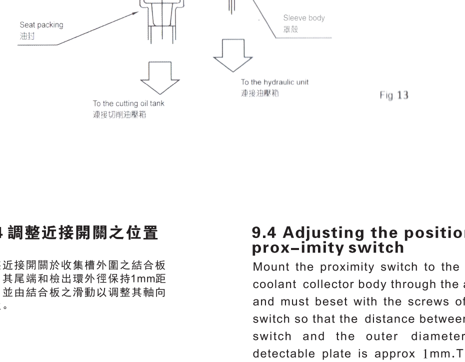


Fig.13

9.4 調整近接開關之位置

安裝近接開關於收集槽外圍之結合板上，其尾端和檢出環外徑保持1mm距離，並由結合板之滑動以調整其軸向位置。

9.4 Adjusting the position of a prox-imity switch

Mount the proximity switch to the outside of the coolant collector body through the adjusting plate and must beset with the screws of the proximity switch so that the distance between the proximity switch and the outer diameter and of the detectable plate is approx 1mm. The adjustment to the axial directions done by slidingthe adjusting plate

9.5 集水槽之使用

切削油會因漏出收集槽而流入罩殼并和油壓用油混在一起而影響油壓缸之油質，因此經常清理濾網使切削油不積存於集水槽，所以，更須避免廢屑阻塞濾油網。

9.5 Using the coolant collector

If coolant oil flows over from the coolant collector, it flows over to the sleeve body side.
.Therefore, clean the metal screen frequently so that the coolant oil does not collect. Thus, avoid swart clogging the metal screen.

9.集水槽及檢出裝置安裝說明 9.Coolant collector(With stroke control

9.6 冷卻液收集槽(檢出裝置)零件分解圖

9.6 Coolant collector(With trokecontrol)parts list

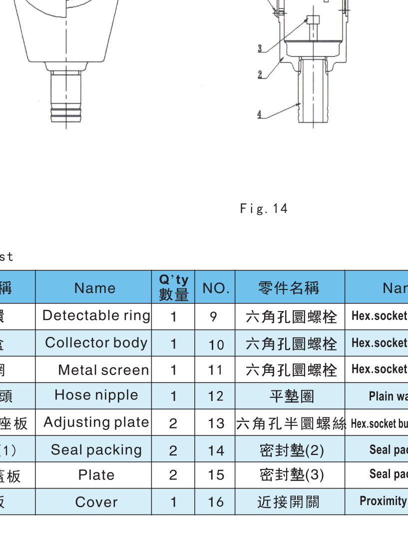


Fig. 14

零件表 Parts List

NO.	零件名稱	Name	Q'ty 數量	NO.	零件名稱	Name	Q'ty 數量
1	檢出環	Detectable ring	1	9	六角孔圓螺栓	Hex.socket cap bolt	2
2	集水盒	Collector body	1	10	六角孔圓螺栓	Hex.socket cap bolt	4
3	過濾網	Metal screen	1	11	六角孔圓螺栓	Hex.socket cap bolt	4
4	排油接頭	Hose nipple	1	12	平墊圈	Plain washer	4
5	檢出調整座板	Adjusting plate	2	13	六角孔半圓螺絲	Hex.socket button screw	3
6	密封墊(1)	Seal packing	2	14	密封墊(2)	Seal packing	1
7	檢出接蓋板	Plate	2	15	密封墊(3)	Seal packing	1
8	後蓋板	Cover	1	16	近接開關	Proximity switch	2

10.裝配概要圖 10.Assembly drawing

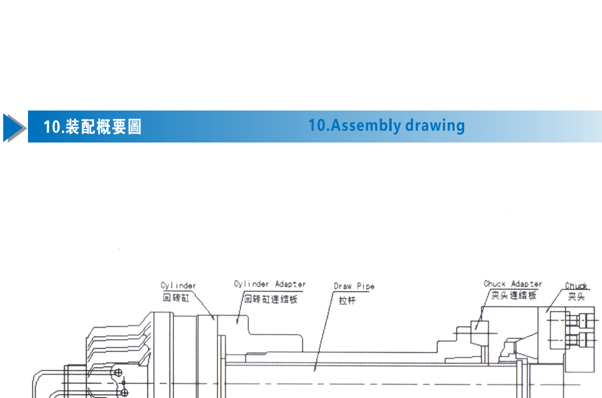
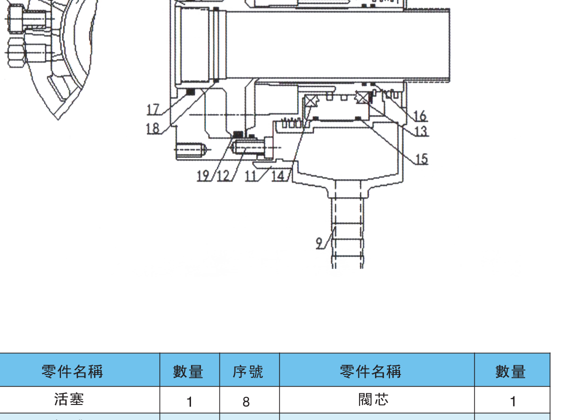


Fig.15

10.裝配概要圖 10.Assembly drawing

SYK型回转油缸

零件分布图



零件表

序號	零件名稱	數量	序號	零件名稱	數量
1	活塞	1	8	閥芯	1
2	缸體	1	9	回油管	1
3	定位銷	2	10	進油管接頭	2
4	逆止閥組件	2	11	外殼	1
5	閥體	1	12	內六角螺釘	12
6	墊片	1	13	軸承	1
7	卡簧	1	14	軸承	1