



巨輪興股份有限公司

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液壓氣動泵浦 操作說明

SPAQH



中文 : C1~C5

中文
English
Ver.22

1. 安全預防措施



不遵守以下的注意事項和警告將引起設備損失及人員傷害。



重要事項：未滿18歲人員不得擅自操作。操作SUN RUN油壓設備前請先仔細閱讀並了解相關操作手冊、安全事項和警告事項。操作人員負有油壓設備週邊之人員及環境之安全責任。



警告事項：為確保避免人員傷害和設備作業損失，請確認所有油壓設備及週邊配件，使用最大壓力為 1520 bar(22,000psi)。



警告事項：操作人員於使用期間為避免傷害，需全程配戴安全防護措施。



危險事項：為避免人員傷害，請於操作過程中手、腳遠離液(油)油壓缸和液壓設備。



危險事項：不要用手對油管施加壓力(包括拉或舉高) 高壓下洩漏的液壓油會穿透皮膚造成嚴重傷害。當液壓油侵入皮膚請立即就診。



警告事項：系統操作壓力絕不可超過最低壓力元件之值最低值。系統中應加裝壓力錶藉以監測系統中的壓力並了解使用狀態。



警告事項：當零件出現裂痕或損壞時，應立即以**SUN RUN** 零件更換。正確標準的零件可防止人員或設備損傷。**SUN RUN**零件經特別設計可完全適用並適用產品標稱的額定荷載或壓力。

重要事項：液壓設備必需由合格的液壓技工進行維修。需要修理時，請連繫就近的**SUN RUN**服務據點並使用**SUN RUN** 液壓油保固方為有效。



警告事項：避免損壞油壓管。捲收油管時，避免油管強烈彎曲或打結。使用彎曲或打結油管易引起背壓。強烈彎曲或打結的油管亦易引起內部損壞或提早油管老化。



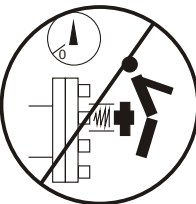
千萬不要重壓油管。劇烈的撞擊會造成油管內鋼絲網損壞。使用受損的油管可能導致油管破裂。



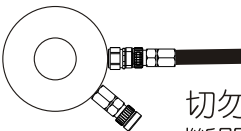
重要事項：千萬不要利用油管來提攜其他油壓設備(例如:小型油壓缸、泵浦..等)。



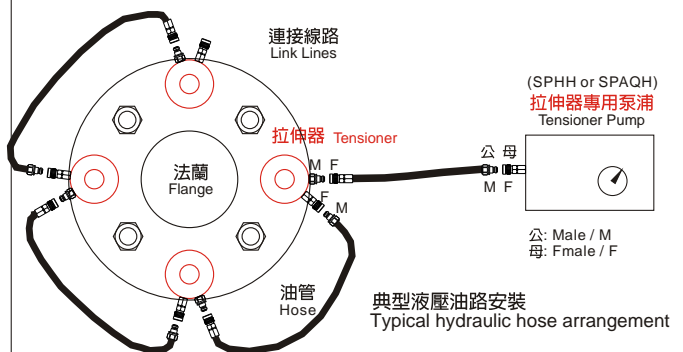
危險事項：液(油)壓設備應遠離火或熱源 高溫會軟化包裝和密封材料，導致液壓油洩漏；高溫同時也會造成油管材質與包裝變質。為確保最好狀態，不要將液(油)壓設備暴露於 65°C(150°F)高溫。在電焊場所時亦應注意防止電焊火花噴到油管。



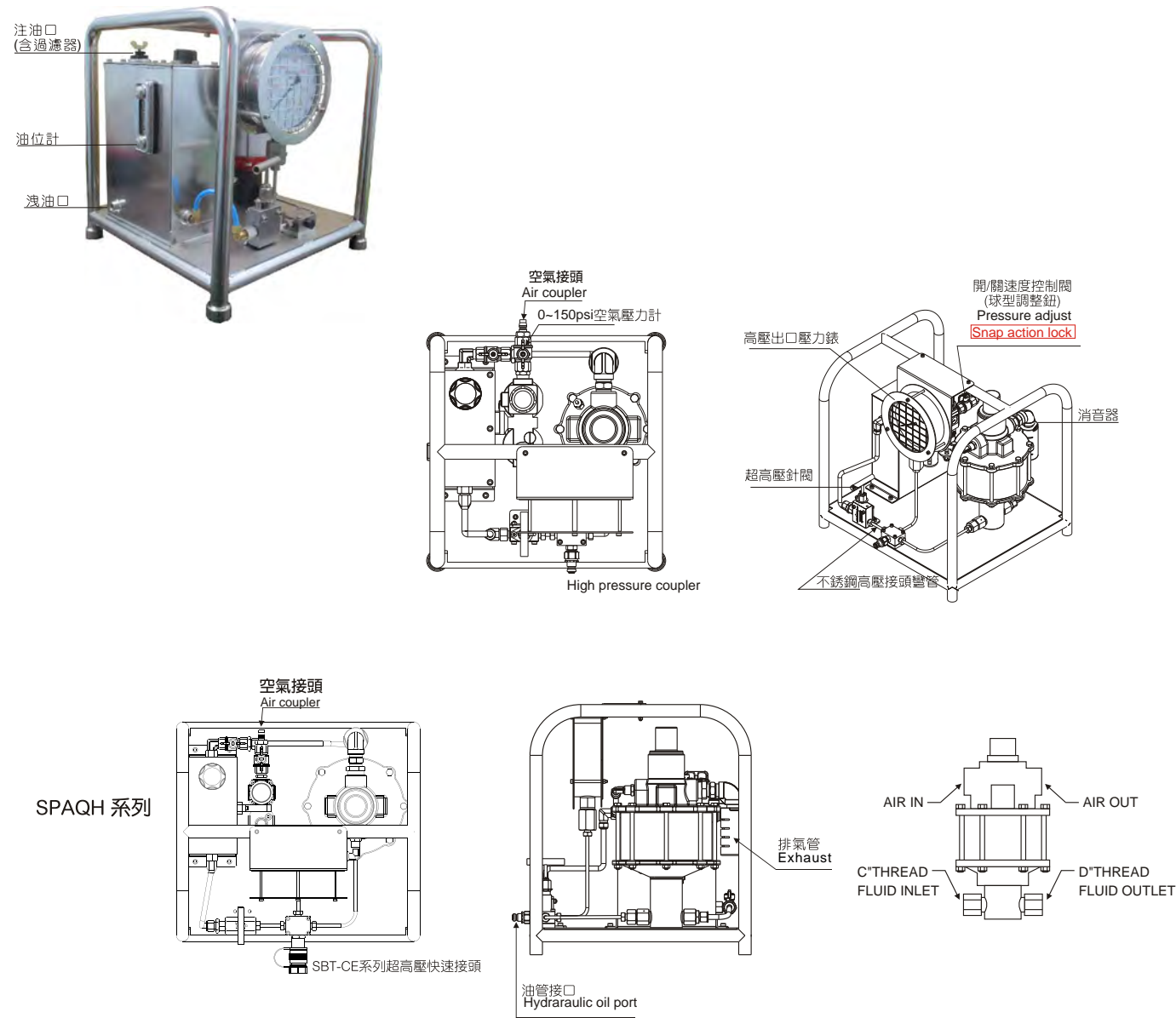
切勿在拉伸或拆卸過程中站立於螺栓同軸位置。如果螺栓出現問題、鬆脫或損壞的零件可能會射出，如此可能會導致嚴重的人員傷亡。非必要或壓力穩定情況下，才允許操作者到加壓拉伸器附近持續觀察壓力計。



切勿在斷開連接的公接頭背面施壓。斷開的公接頭無法承受高壓。只有液壓管路中最後一個拉伸器上的母接頭可以保持斷開狀態。所有其他接頭都必須緊密連接。



2. 規範



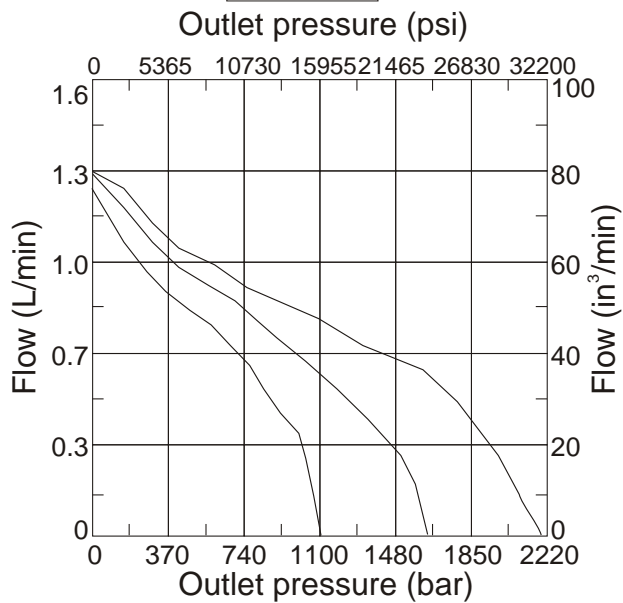
Model Number 型 號	Compress Ratio 壓縮比	Output oil 出油量 (cm ³ /per stroke)	Work press. 工作壓力 (bar)	Air press. 使用空壓 (kg/cm ²)	Equipped reservoir 儲油箱 (c.c)	Weight 重量 (kg)	Dimensions 外型尺寸		
							C	D	(mm)
SPAQH-130-1500	1:310	1.2	1500	5~7	5600	25	1/2"PT	1/2"PT	400*400*420
SPAQH-180-1500	1:300	5.0	1500	5~7					
SPAQH-180-2400	1:610	2.4	2400	5~7					

※ 油箱可以需求訂製 ※ 重量及外型尺寸依油箱改變
※ Reservoir will be changed by user. ※ Weight and dimension will be changed by reservoir alter.

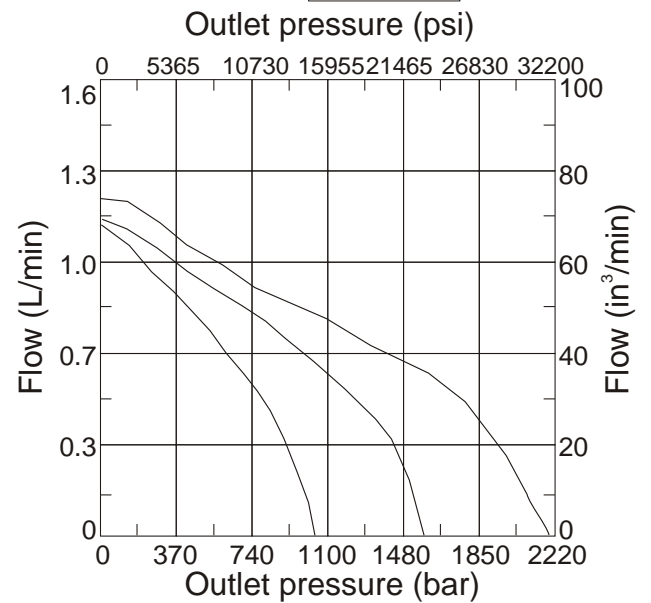
2. 規範

型 號 Model Number	空氣 活塞 Air piston (mm)	液壓 活塞 Hydraulic piston (mm)	液壓活塞 面積 Hydraulic piston area (cm ²)	液壓活塞 揚程 Hydraulic stroke (mm)	空壓對應油壓壓縮比 Approximate air pressure to hydraulic pressure ratio- static condition (bar)						
					1	2	3	4	5	6	7
SPAQH-130-1500	130	7	0.38	31.8	45	180	400	710	1110	1595	2170
SPAQH-180-1500	178	10	0.79	63.5	40	170	380	680	1070	1540	2100
SPAQH-180-2400	178	7	0.38	63.5	90	350	785	1400	2180	3140	4270

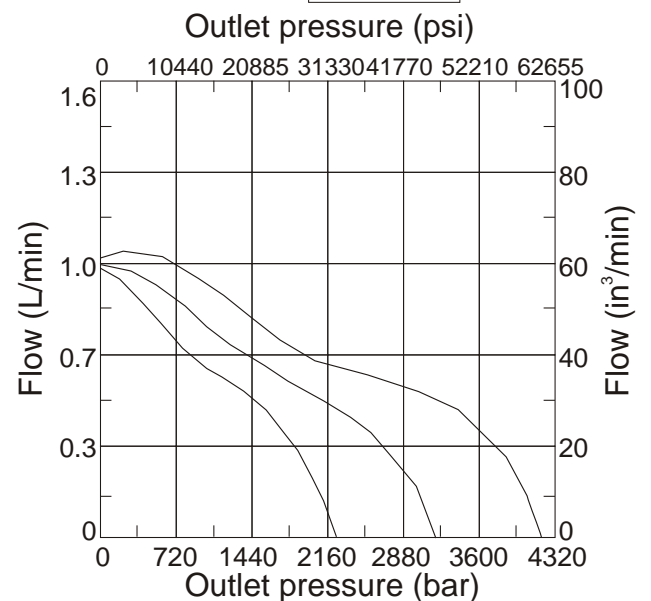
SPAQH-130-1500 310:1 Ratio



SPAQH-180-1500 300:1 Ratio



SPAQH-180-2400 610:1 Ratio



3. 操作

步驟1：

SUN RUN 提供所有泵浦單元所需之調壓組件，使泵浦能產生最大工作效能(壓力)。

將泵浦接上風源，慢慢打開開關閥，泵浦開始操作。剛開始無壓力產生是因為洩壓閥尚未關閉，液壓油只能透過系統後回到油箱循環動作。

步驟2：

開始調壓前需將空氣調節器往上拉起，轉動球型調節鈕，使空氣壓力降至零；泵浦將慢慢動作至於停止。

步驟3：

完全關閉洩壓閥後壓力開始產生，可藉由壓力錶得知泵浦壓力啟動。

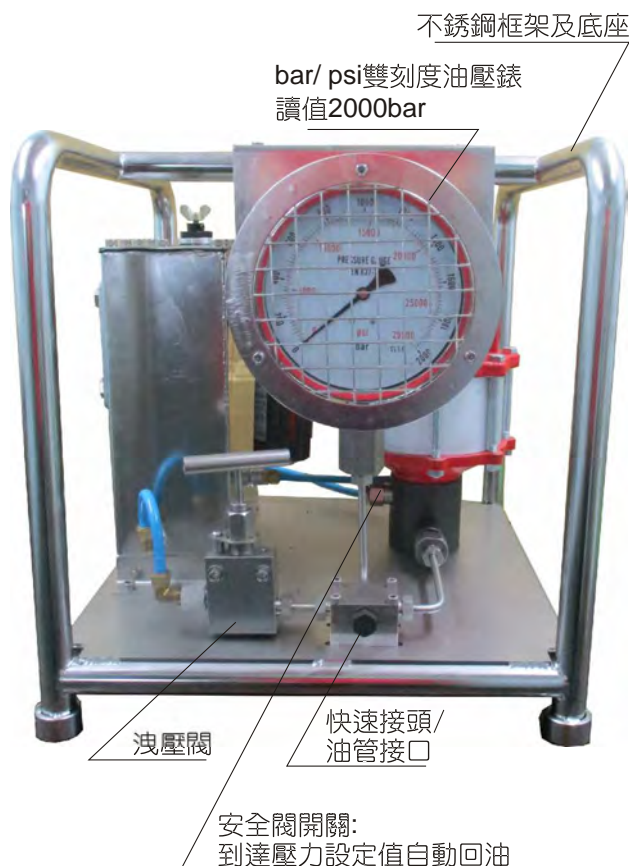
步驟4：

藉由轉動球型調節器慢慢增壓，油壓壓力錶可看出處於高壓狀態。當油壓壓力錶顯示已達壓力極限停止空氣壓力調節器調整。

步驟5：

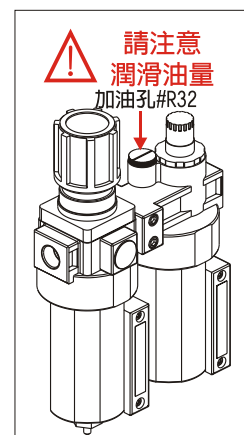
關閉開關閥泵浦即停止動作，並慢慢打開洩壓閥釋放壓力使壓力錶歸零。將球型調節器向下推回原點。

以上即完成泵浦操作程序



4. 保養

- 4.1 隨時保持整潔，必要時更換適用的液壓油。
- 4.2 任何外顯的螺牙(公牙或母牙)均需保持乾淨並定期潤滑及防護。
- 4.3 假如有油缸曝露於雨水、雪水、沙地、空氣含大量塵土或任何腐蝕環境，都必須在使用後立即清洗、潤滑後防護收納。
- 4.4 應建立週期性例行防污保養。所有不使用的快速接頭均蓋上防塵蓋。所有油管接頭需防塵及防污染。所有油缸配件均需保持清潔無污染。
- 4.5 每使用10小時後即需確認液壓油油位。確認油位時扳手軸心需完全退回至未使用狀態，檢查油位是否維持在加油孔下約1/2" (15mm) 位置。
- 4.6 一般使用300小時的液壓油需完全排出後重新倒入乾淨且合乎使用的液壓油(AW32)。
- 4.7 當泵浦滿載使用或高度循環使用下每100小時需注意並加入1-3滴潤滑油至三點組合如右圖所視，順時針為滴入。轉圈愈多，滴點愈多。



5. 疑難排除

問題	原因	解決方法
泵浦無法輸送液壓油	低油量 空壓不足 泵浦起動問題	確認油位是否正確並添加液壓油 確認空氣過濾器,必要時請更換 確認空氣管線及過濾調節器是否需潤滑或有洩漏 確認是否空氣馬達損壞 請參考前頁泵浦起動操作
泵浦出現異聲	低油量 空壓不足 空氣馬達需要潤滑	確認油位是否正確並添加液壓油 確認空氣過濾器,必要時請更換 確認空氣管線及過濾調節器是否需潤滑或有洩漏 確認是否空氣馬達損壞 滴幾滴潤滑油在空氣入口位置並使馬達運轉數次使油液潤滑
漏油	零件損壞 接頭鬆脫 油箱漏油	請接洽就近SUN RUN維修中心 請確認所有接頭已完全鎖緊 請由專業液(油)壓技師更換油箱



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OPERATING INSTRUCTIONS

HYDRAULIC AIR PUMP

SPAQH



English : E1~E5

中文
English
Ver.22

1. SAFETY PRECAUTIONS



Fail to comply with the following cautions and warnings could cause equipment damage and personal injury.



IMPORTANT : Minimum age of the operator must be 18 years The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the SUN RUN equipment. The operator is responsible for this activity towards other persons.



WARNING : To avoid personal injury and possible equipment damage, make sure all hydraulic components withstand the maximum pressure of 1520 bar(22,000psi).



WARNING: Always wear safety glasses. The operator must take precaution against injury due to failure the tool or workpiece.



DANGER: To avoid personal injury keep hands and feet away from cylinder and workpiece during operation.



DANGER: Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If oil is injected under the skin, see a doctor immediately.



WARNING : The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system.



WARNING: Immediately replace worn or damaged parts with genuine SUN RUN parts. SUN RUN parts are designed to fit properly and withstand rated loads.

IMPORTANT: Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the SUN RUN Service Center in your area. To protect your warranty, use only SUN RUN oil.



CAUTION: Avoid sharp bends and kinks that will cause severe back-up pressure in hoses. Bends and kinks lead to premature hose failure.



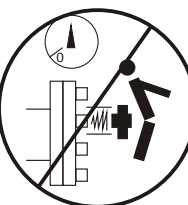
DO NOT drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.



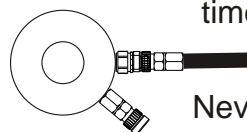
IMPORTANT: Do not lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport.



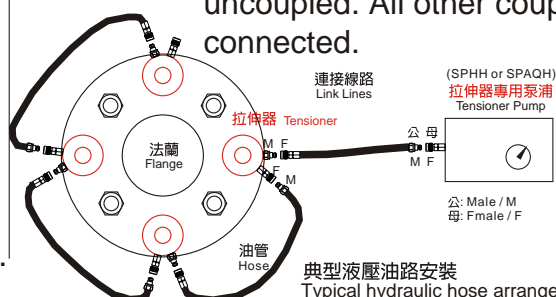
CAUTION : KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES AND HEAT. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C(150°F) or higher. Protect hoses and cylinders from weld spatter.



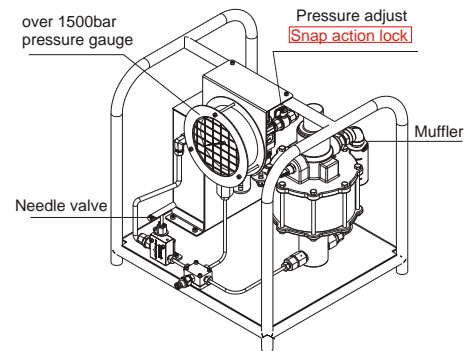
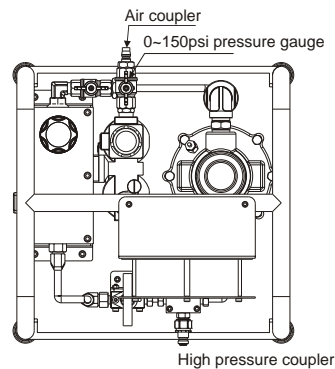
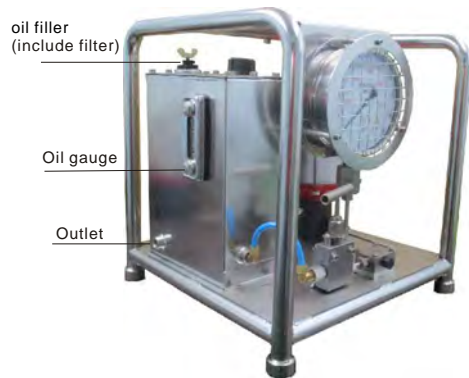
Never stand in-line with the bolt axis while tensioning or de-tensioning is in progress. If the bolt should fail, serious personal injury or death could result if loose or broken parts become projectiles. All personnel must be aware of this potential hazard at all times.



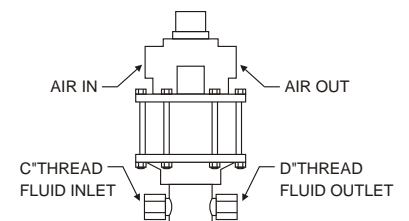
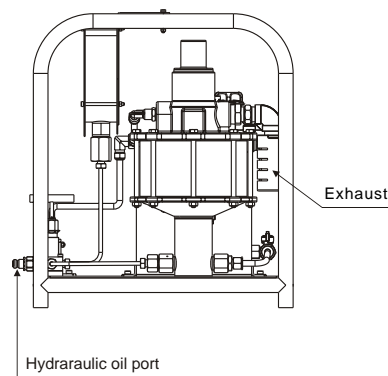
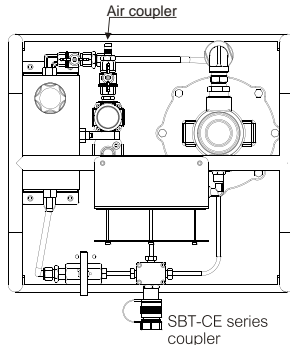
Never pressurize the back of a disconnected male coupler. Male couplers cannot withstand high pressures when disconnected. Only the female coupler on the LAST tensioner in the circuit can remain uncoupled. All other couplers must be connected.



2. Specification



SPAQH series



Model Number	Compress Ratio	Output oil	Work press.	Air press.	Equipped reservoir	Weight	Dimensions		
		(cm ³ /per stroke)	(bar)	(kg/cm ²)	(c.c)	(kg)	C	D	(mm)
SPAQH-130-1500	1:310	1.2	1500	5~7	5600	25	1/2"PT	1/2"PT	400*400*420
SPAQH-180-1500	1:300	5.0	1500	5~7					
SPAQH-180-2400	1:610	2.4	2400	5~7					

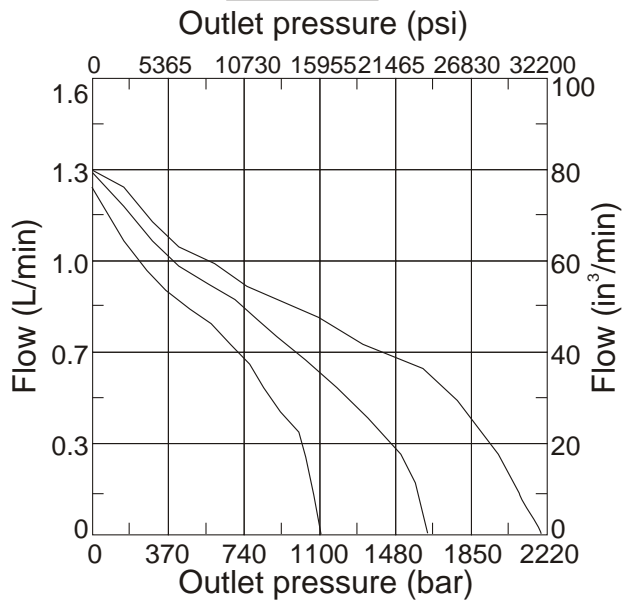
※Reservoir will be changed by user.

※Weight and dimension will be changed by reservoir alter.

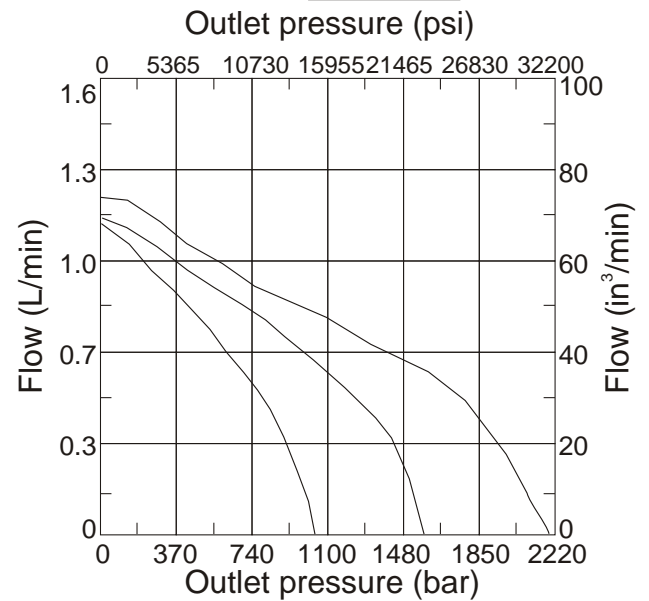
2. Specification

Model Number	Air piston (mm)	Hydraulic piston (mm)	Hydraulic piston area (cm ²)	Hydraulic stroke (mm)	Approximate air pressure to hydraulic pressure ratio-static condition (bar)						
					1	2	3	4	5	6	7
SPAQH-130-1500	130	7	0.38	31.8	45	180	400	710	1110	1595	2170
SPAQH-180-1500	178	10	0.79	63.5	40	170	380	680	1070	1540	2100
SPAQH-180-2400	178	7	0.38	63.5	90	350	785	1400	2180	3140	4270

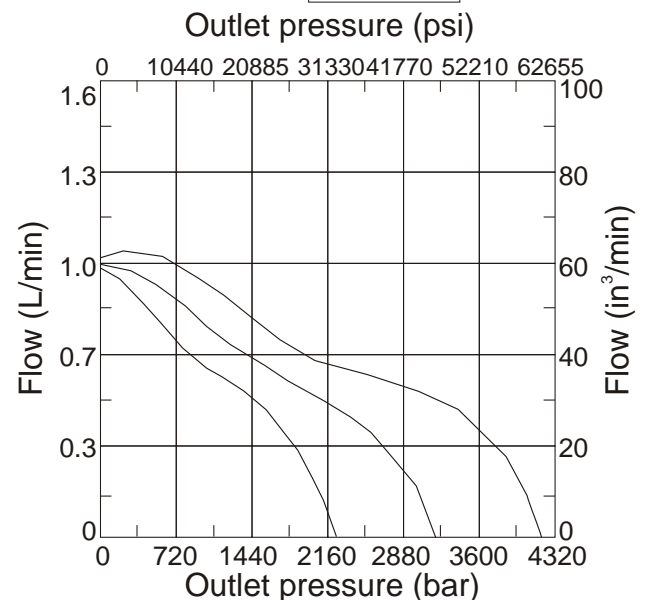
SPAQH-130-1500 310:1 Ratio



SPAQH-180-1500 300:1 Ratio



SPAQH-180-2400 610:1 Ratio



3.Operation

STEP1:

SUN RUN supply all pump units with the air pressure regulator set to stall the pump at its maximum working pressure. Connect the main air supply to the pump unit. Slowly open air input, the pump will begin to operate, no pressure can be generated because the pressure release valve is open the oil is simply circulated though the system back to the tank.

STEP2:

Before adjusting the pressure on the air filter/regulator it is necessary for the "pressure adjust" to be in the up position. By turning the adjustment knob on the regulator, reduce the air pressure to zero psi, the pump will slow down considerably and may even stop.

STEP3:

Fully close the pressure release valve, as this is done a light pressure will be generated on the pressure gauge and the pump will finally stall.

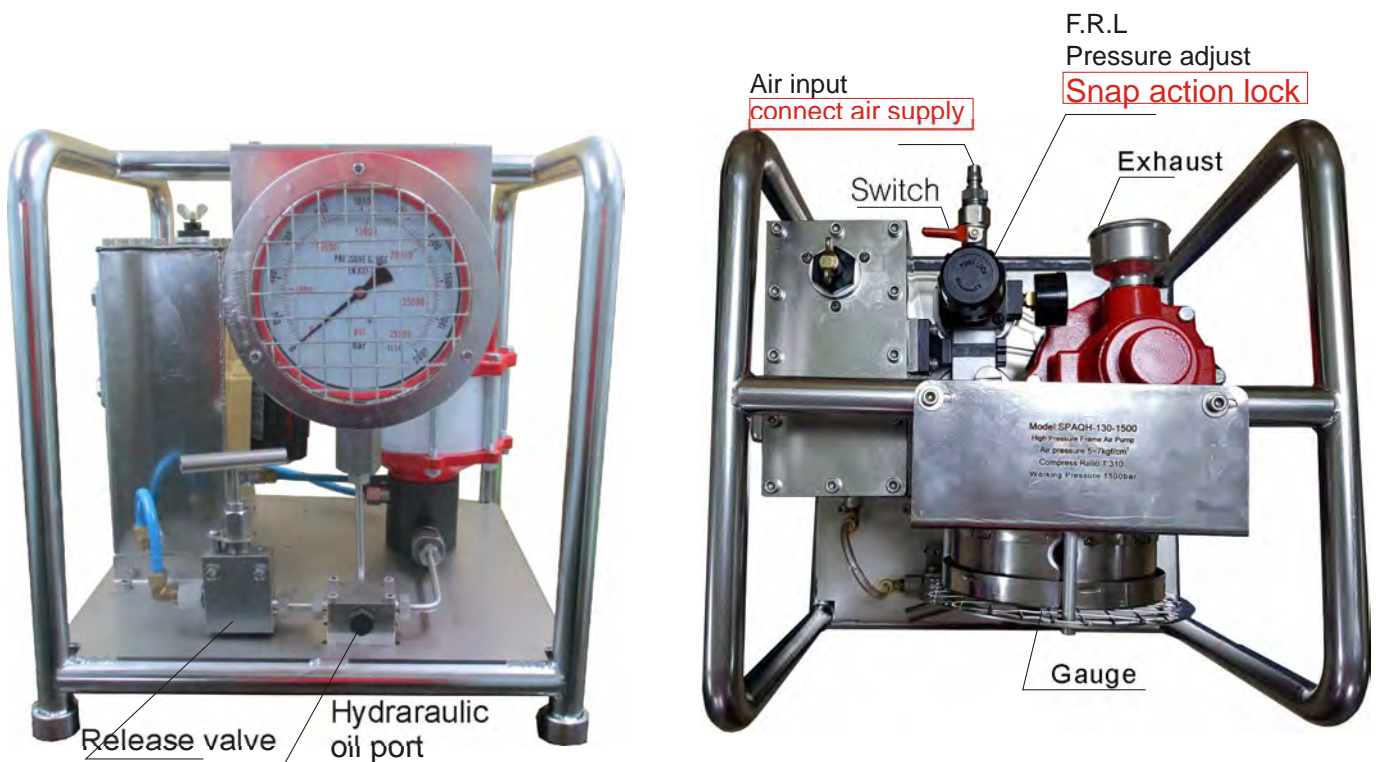
STEP4:

Slowly increase the air supply pressure by turning the adjustment knob, the oil pressure gauge will indicate a higher pressure as more and more air is allowed into the pump unit. Stop the air adjustment when the oil pressure gauge indicates the desired tensioning pressure.

STEP5:

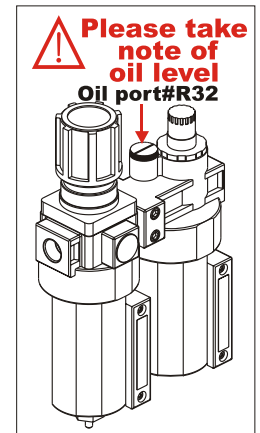
Stop the pump by turning the off air input and open release valve slowly, the pump gauge will fall to zero. Lock the air regulator by pushing down on to the "pressure adjust".

The pump unit is now ready for the tensioning operation.



4.Maintain

- 4.1 Electro nickel plating will help protect it from rust and corrosion.
However, for added protection, a light coating of oil or rust inhibitor should be applied to all metal surfaces.
- 4.2 Cover the internal threads of the threaded puller with oil or a suitable rust inhibitor.
- 4.3 Store the tensioner upright, with the piston fully retracted inside the body.
- 4.4 Always keep dust caps installed on couplers when the tensioner is not being used.
- 4.5 Check the oil level in the reservoir after each 10 hours of use. Proper oil level is 1/2" (15mm) from the top of the fill hole when all wrench plungers are retracted.
- 4.6 Drain, flush, and refill the reservoir with an approved, high-grade hydraulic oil (Aw32) after approximately every 300 hours of use. The frequency of oil changes will depend upon the general working conditions, severity of use, and overall cleanliness and care given the pump.
- 4.7 If the pump is operated on a continuous duty cycle, 100 hours or a maximum speeds for extended periods, an automatic air line oiler should be installed in the air inlet line as close to the pumping unit as possible. Set the unit to feed 1-3 drops of oil per minute. Turn clockwise is addition, counterclockwise is reduction.



5. TROUBLESHOOTING

Problem	PossibleCause	Solution
Pump fails to deliver oil.	Low fluid level.	Check the oil level and add oil according to instructions on page2.
	Lack of air pressure.	Check air filter and replace if necessary (see page4) Check air line and filter-regulator for obstructions or leaks. Check for damage to air motor.
	Pump has lost its prime.	Prime the pump according to the instructions on page3
Pump noise.	Low fluid level.	Check the oil level and add oil according to instructions on page2.
	Lack of air pressure.	Check air filter and replace if necessary (see page4) Check air line and filter-regulator for obstructions or leaks. Check for damage to air motor.
	Air motor section requires lubrication.	Place a few drops of oil in the air inlet port and cycle the motor several times to distribute the oil.
Oil leakage.	Worn or damaged parts.	Contact your local Authorized SUN RUN Service Center for repairs.
	Loose connections.	Check that all connections are tight.
	Reservoir bladder torn	Have reservoir bladder replaced by a qualified hydraulic technician.