

Hydraulic Hand Pump

Operation and Maintenance Manual



Hangzhou WREN Hydraulic Equipment Manufacturing Co.,Ltd
Address: No.24, Xingxing Road, Xingqiao, Linping , Hangzhou, China
TEL: +86-571-88115720 FAX: +86-571-88110210
Postcode: 310015
[Http://www.wrenchina.com](http://www.wrenchina.com)
Email:info@wrenchina.com

Instruction Sheet

Hydraulic Hand Pump

This manual is an integrating part of the machine, and must be carefully read in full, before a completing every operation. It must be kept in case of future references, until the getting rid of the machine.

The manual is addressed to professional users, it reflects the state of the technique at the moment of the commercialization of the machine, and cannot be considered inadequate just because on the ground of new experience it will be afterwards up-to-date.

WREN CO. declines every responsibilities due to the following situations;

- improper use of the machine or its use by not professional operators;
- wrong installation;
- wrong feeding;
- absences in maintenance;
- alterations or interventions not authorized by the manufacturer;
- employment of not original parts, or not suitable for the model.

1、IMPORTANT INSTRUCTIONS ON RECEIPT

Always inspect the packages and all the material received, this is to verify possible damages happened during the transport; in this case make a complaint to the transport company.

INFORMATION ABOUT THE RISKS RESULTING FROM THE SYMBOL OF THE PRODUCT



This is the symbol of danger. Every time you see this symbol it means that damages more or less serious towards persons, animals and things are possible. The kind of danger and the precautions to adopt in order to contain the relative risks are every time quoted in the text following the symbol.



DANGER: EVERY TIME THIS WARNING IS IGNORED, IT EXISTS A MINOR RISK FOR PERSONS' AND ANIMALS' SECURITY AND/OR DAMAGES TO THINGS.



WARNING: EVERY TIME THIS WARNING IS IGNORED, IT EXISTS A MINOR RISK FOR PERSONS' AND ANIMALS' SECURITY AND/OR DAMAGES TO THINGS.

The user is requested to follow always and carefully these precautions. The manufacturer declines every responsibilities and wounds resulting from an improper use of the product.

2、GENERAL INSTRUCTIONS



WARNING: PLEASE REFER TO THE APPENDIX FOR THE LIST OF COMPONENTS FOR ALL KINDS OF HAND PUMPS.

RANGE OF USE

the oleodynamic lever pumps are employed, together with a proper cylinder, jack, puller etc. for lifting, lowering, thrust operations where a single actuator unit is necessary. The oleodynamic lever pumps are addressed to professional operators. The responsibility in the operator's training about their use is charged to the seller.

CONDITIONS OF USE

The oleodynamic lever pumps have been designed for being used in the following conditions of room temperature:

$$5^{\circ}\text{C} \leq t \leq 35^{\circ}\text{C}$$

TECHNICAL FEATURES

For the technical features of the lever pump, look at the data reported on the adhesive label and/or printed on the body pump, in particular:

- MODEL
- PRESSURE MAX (Bar)

Further technical information are reported on the general catalogue on current issue.

⚠ WARNING: THE LEVER PUMP TANK MUST HAVE A SUFFICIENT OIL CAPACITY IN ORDER TO FILL UP THE OLEODINAMIC CIRCUIT TO WHICH THE PUMP IS CONNECTED (GENERALLY FLEXING HOSES + CYLINDER)

⚠ DANGER: IT IS ABSOLUTELY FORBIDDEN TO FILL UP THE OIL IN THE PUMP'S TANK IN PHASE OF USE OF THE OLEODINAMIC SYSTEM! FOR EXAMPLE FOR COMPLETING THE STROKE OF A CYLINDER WHOSE DELIVERABLE BY THE PUMP ITSELF; IN THIS CASE WHEN THE PISTON WILL INVERT THE WAY OF STROKE AND SEND BACK THE OIL IN THE LEVER PUMP'S TANK, ITS VOLUME (OF THE TANK) WILL BE OBVIOUSLY INSUFFICIENT FOR CONTAINING THE WHOLE QUANTITY OF OIL ADMITTED IN THE OLEODINAMIC CIRCUIT, WITH CONSEQUENT POSSIBLE EXPLOSION OF IT.

⚠ WARNING: REMEMBER THAT THE OIL CONTAINED IN THE LEVER PUMP'S TANK NOT IN PRESSION, BUT IT BECOMES SO WHEN IT IS ADMITTED IN THE OLEODINAMIC CIRCUIT.

Double or 2-speed pump's piston features two thrust sections of different diameter. When the load is not present it is the piston wider section that pushes the oil into the circuit so allowing a fast approach to the load. (1 stage at low pressure and high capacity). Under load, the same section is automatically excluded by a specific valve. Continuous pumping with the smaller section achieves the maximum pressure by making a reduced effort on the lever (2 stage at high pressure and low capacity). The filler cap is of the push-button air discharge type to depressurize the reservoir.

The pumps can work in a horizontal or vertical position with the pumping head downwards, and are fitted with a threaded hole for the mounting of a gauge (alternatively a gauge adaptor block can be mounted on the oil delivery outlet; both are optional extras). Upon request pumps with reservoirs different from standard, for higher working pressures or working with other fluids can be supplied. For any specific inquiry please contact our technical department.

3、 OIL DELIVERY RETURN

The direction of circulation of the oil from the pump to the hydraulic circuit (delivery) and successively from the circuit to the pump (return) is regulated by the control valve mounted on the hand pump head.

(PICTURE 1 APPENDIX 2)

The pumps are fitted with a 2-way valve (by-pass) to operate single acting cylinders with gravity or spring return: the pump head has one only delivery-return port. When the valve handwheel is completely screwed clockwise, repeated action of the lever will introduce oil into pressure to the circuit. By unscrewing it counter-clockwise, oil is allowed to return to the reservoir. In this case it will be useless to operate the lever as the pumped oil will immediately return to the reservoir.

4、 HOW TO CHOOSE THE PUMP

How to the right choice of manual hydraulic pump, mainly depends on the following three factors:

- Oil cylinder (hydraulic jack) capacity: the manual hydraulic pump oil storage box can be an oil > (greater than) oil cylinder capacity.
- Oil cylinder type: oil cylinder into single function and double function, must be with single or double role of the manual hydraulic pump.
- Work pressure level: WREN brand include 700 Bar, 1000 Bar, 1600 Bar, 2000 Bar, 2800 Bar five pressure levels of the manual hydraulic pump totally, in the application, please choose oil cylinder pressure than the highest value (less than or equal to) one of the five kinds of pressure levels.

 **WARNING:**IT IS RECOMMENDED TO MOUNT A GAUGE ON THE PUMP IN ORDER TO PREVENT ANY DAMAGES TO THE EQUIPMENT WHEN LIFTING LOADS WHOSE WEIGHT IS NOT KNOWN,AND ALSO TO BETTER CHECK ANY SINGLE PHASE OF THE LIFTING OPERATION.

 TO ENSURE A CORRECT WORKING AND A LONG LIFF OF COMPOENTS CAREFULLY

5、CORRECT USE OF THE PUMP

 **WARNING:**THE PUMP CAN WORK EITHER IN A HORIZONTAL OR VERTICAL POSITION PROVIDED THE HEAD IS DOWNWARDS.
(PICTURE 2 APPENDIX 2)

The pump must be placed an a stable and still plane to prevent it from turning over during operations. The BY-PASS valve must be operated esclusively by hand.

6、AIR IN THE SYSTEM

Since air can be compressed if it enters a hydraulic system it can prove dangerous.Before putting a cylinder under load it absolutely necessary to bleed the air from the system.

Simply follow the follwing directions:

(PICTURE 3 APPENDIX 2)

- pump until the piston is completely extended;
- invert the cylinder so that the piston head is placed on the bench or on the floor;
- keep the pump higher that the cylinder;
- open the valve of the pump;
- prese the cylinder bottom to help the piston retract.The air will flow from the cylinder and the hose to enter the oil reservoir it can stay without causing any inconvenience.

7、OPERATION

 **CAUTION:**HIGH PRESSURE EQUIPMENT CAN DEVELOP HIGH FORCES IN COMPRISON WITH THEIR DIMENSIONS.DO PAY THE GREATEST ATTENTION WHEN OPERATING.

Before starting any operations check the oil level inside the hand pump reservoir.Such level must usually be about 1 cm from the inlet.Add oil if necessary.Make sure the reservoir is not completely full so as to prevent the oil from overflowing from the inlet hole,since during operations increases of the oil volume might occur.

IT IS RECOMMENDED TO USE EXCLUSIVELY HYDRAULIC OIL:its viscosity and lubrication characteristics grant the maximum use efficiency and a longer life of equipment.If you need to add large quantities of oil to the pump,it is recommended that the reservoir is drained,thoroughly cleaned with kerosene and filled up with fresh oil.

 **CAUTION:**MAKE SURE THAT ALL THE SYSTEM COMPONENTS ARE SUITABLE FOR THE REQUIRED WORKING PRESSURE.

SPECIFIC DIRECTIONS ON THE USE OF FLEXIBLE HOSES

 **CAUTION:**DO NOT USE FLEXIBLE HOSES FOR CARRYING OR DRAGGING PURPOSES.

Hoses must be placed on a straight line with no obstructions.Ensure that the bend radius is greater than60mm,that no heavy load is placed over them and avoid any direct contact with sharp objects.Keep them clear of flames or heat sources.

SPECIFIC DIRECTIONS ON CONNECTIONS THROUGH NIPPLES

The threaded end connections are either 1/4or3/8NPT male.

When tightening,do not use spanner extensions as damage to the threads can occur.Wrap thread with teflon tape (do not use tow as its threads can contaminate the oil of the hydraulic system).

SPECIFIC DIRECTIONS ON THE CONNECTIONS THROUGH COUPLERS

Ingress of foreign materials into the hydraulic system can cause scoring inside the cylinders or damage the valves seats so compromising their seal and the consequent success of the system operation. Therefore:

CAUTION:MAKE SURE THE COUPLINGS ARE CLEAN BEFORE CONNECTING THEM.

Dirt can prevent a correct seal and restrict the oil flow since the two seal balls do not properly repel each other.

WARNING:MANUALLY SCREW THE CONNECTING SLEEVE OF THE FEMALE COUPLING TO THE THREADED SPLGOT OF THE MALE COUPLING.

WARNING:ALWAYS SCREW THE PROTECTION CAPS ON THE TWO COUPLINGS WHEN DISCONNECTED.

WREN DECLINES ALL LIABILITY FOR DAMAGES OR UNSUCCESSFUL OPERATIONS DERIVING FROM IMPROPER USE,OR USE OF ACCESSORIES AND/OR SPARES OTHER THAN THE ORIGINAL ONES.

FOR ANY INFORMATION OR EXPLANATION DO REFER TO OUR TECHNICAL DEPARTMENT.

WARNING:ANY MAINTENACE AND/OR REPAIRING INTERVENTIONS MUST BE CAR RIED OUT BY QUALIFIED PERSONNEL.WRONG INTERVENTIONS MAY CAUSE THE LOSS OF WARRANTY!

PRESSURE REGULATION-The hand pump safety relief valves are factory set to the maximum working Pressure.By requests,this can be set to customer requirements.



WARNING:IT IS ABSOLUTELY FORBIDDEN TO SET SUCH VALVE AT A VALUE HIGHER THAN THE ONE SET IN OUR FACTORY.

8. TROUBLE SHOOTING

PROBLEM	PROBABLE REASON	REMEDY
the piston does not advance	the pump head is downwards	put the pump with head downwards
	the pump valve is open not properly closed	eliminate the air in the circuit and restore the oil level
	there is air in the system or lack of oil in the pump the hydraulic cylinder's capacity is lower than that of the load to lift	change the kind of cylinder Replace the cylinder with one of higher capacity
the piston does not make full stroke or advance with jerks	there is air in the system	eliminate air from the circuit
	the piston could be bent or deformed causing it to bind with the ring nut	check and contact the circuit
	there is lack of oil in the pump	Refill the oil level in the pump
	the hydraulic cylinder's oil capacity is higher than that of the reservoir	replace the pump with one of higher capacity
the piston does not keep the load	the valve may be damaged	check-contact the service
	possible cylinder's seals leak	replace the seals
	oil leakage through the flexible hose connection	check and eventually replace them
the piston return is not complete or slowed down	the pump valve is closed	open it completely
	the couplings are not completely screwed	screw them carefully so that the balls repel each other and make the oil flow correctly
oil leakages	the return spring of the cylinder(if fitted)could be broken or loose and the internal walls of the cylinder can be worn	check-contact the service refill the correct oil level
	the seals may be broken or worn out	replace them

WARNING:FOR GRAVITY RETURN CYLINDERS IT IS NECESSARY TO MAKE AN EXTERNAL FORCE ON THE TOP OF THE ROD SO AS TO MAKE IT RETRACT.

WARNING:ALWAYS HELP THE PISTON RETRACT BY PRESSING ON THE RESERVOIR RELIEF VALVE ON THE FEEDING CAP IN ORDER TO DEPRESSURIZE THE SAME.

WARNING:IT IS RECOMMENDED TO KEEP IN STOCK A SPARE REPAIR KIT FOR THE PUMP.

9、 INFORMATION ABOUT SECURITY AND HYDRAULIC FLUID

According to the Ministerial Decree 28-01-1992, the hydraulic fluid for hydraulic work, cod. **RP-108, Iso Vg32** used for working Wren hydraulic cylinder, is classified as **NOT** dangerous; however the following **SAFETY** information is given for a better use.

IDENTIFYING DANGERS

To persons: frequent and protracted contact with the skin may cause irritations. Accidental swallowing, followed by vomiting, can cause damage to the mucus membrane. Inhaling fumes and vapour may cause irritation the respiratory apparatus.

To environment: NON BIODEGRADABLE PRODUCT

FIRST AID MEASURES

INHALING: remove the person from the area of exposure, keep them relaxed, do not swallow anything, seek medical assistance.

SKIN CONTACT: immediately wash the area with abundant soap and water.

EYE CONTACT: rinse abundant running water, seek medical assistance.

FIRE PREVENTION MEASURES

PERMITTED EXTINGUISHERS: carbon dioxide, anhydrous powder, alcohol resistant foam, nebulized water.

PROHIBITED EXTINGUISHERS: do not use jets of water to avoid over boil.

ACCIDENTAL LEAKAGE

PERSONAL PRECAUTIONS: wear protective clothing

ENVIRONMENTAL PRECAUTIONS: do not allow the product to enter drains, waste canals or running water, in such cases alert the relevant authorities.

CLEANING METHODS: block the spread with earth or sand, collect the product with a hand or explosion proof pump or with suitable adsorbent material, dispose of residues in accordance with the current regulations.

HANDLING AND STORAGE

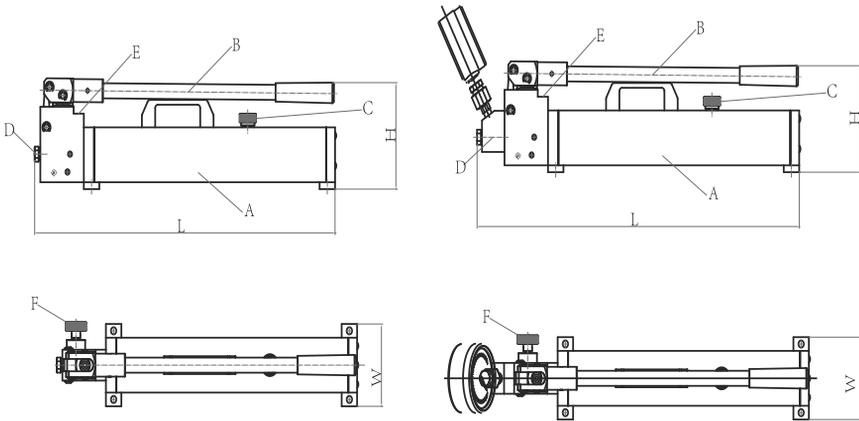
HAND PROTECTION: wear neoprene or nitrile rubber gloves.

EYE PROTECTION: wear protective glasses.

SKIN PROTECTION: wear protective overalls, changing and washing them carefully if contaminated.

STORAGE: store a way from heat sources and oxidising agents; keep in a well aired place with temperatures of between +5° and +30° C

10 Drawing For Dimension



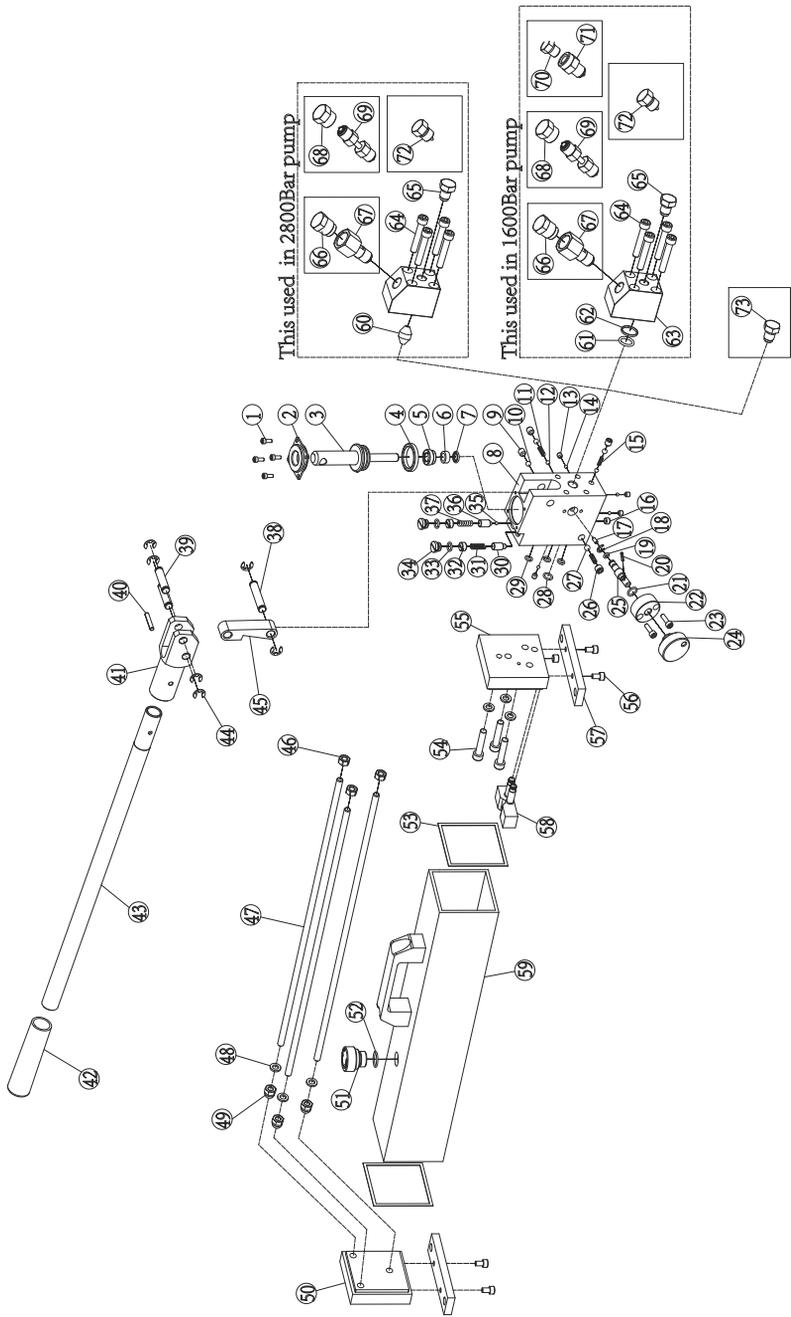
Item	Name	Quantity	Item	Name	Quantity
A	Oil Tank	1	D	Oil Output Port	1
B	Handle	1	E	Relief Valve For Max. Pressure	1
C	Oil Filling Port	1	F	Handwheel(Cut-off Valve)	1

11 Appendix 1

Technical Parameters

Model	Working pressure		Oil Output per-stroke		Oil Tank volume (L)	Capacity (L)	Handle Effort (L)	Dimension			Output port	Pressure gauge port	Weight (Kg)
	Low	High (Mpa)	Low	High (ML)				L	W	H			
P392	2.5	70	32	2.5	1.67	1.44	300	578	120	161	3/8" NPT	1/4" NPT	6.3
P80					2.25	1.98		578	120	161			8
P160					3.58	3.24		578	140	181			10
16P392	1.5	160	32	2.5	1.67	1.44	350	620	120	161	1/4" BSP	1/2" BSP	6.5
16P80					2.25	1.98		620	120	161			8.5
16P160					3.58	3.24		620	140	181			10.5
28P80	2.0	280	32	0.9	2.26	1.98	400	622	120	161	3/4" -16UNF 1/4" BSP	1/2" BSP	8.5 10.5
28P160	2.0	280	32	0.9	3.58	3.24	400	622	140	181	3/4" -16UNF 1/4" BSP	1/2" BSP	8.5 10.5

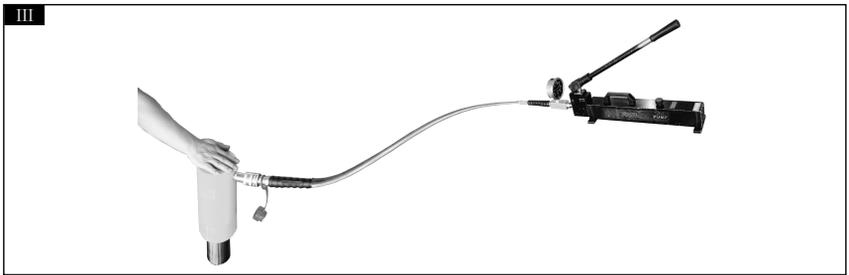
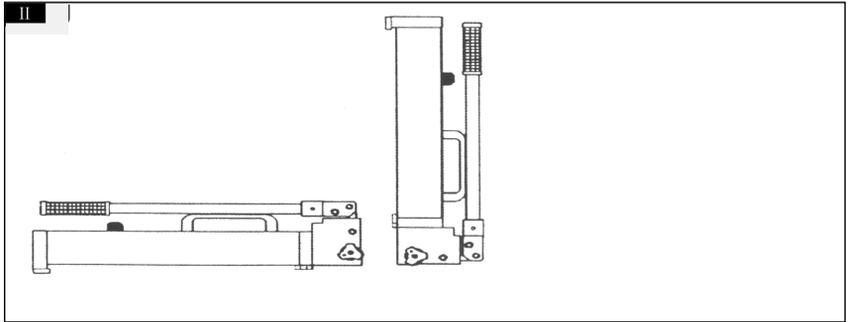
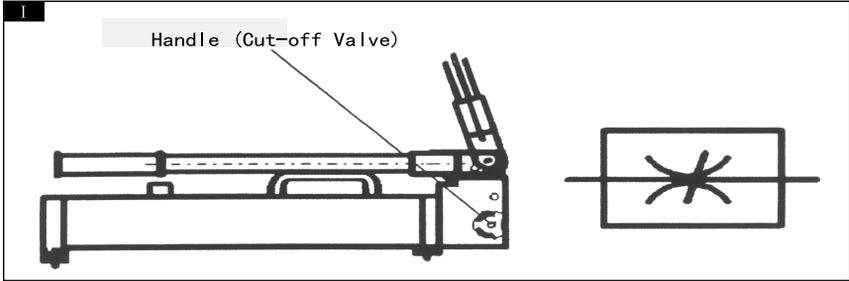
12 The pump explosion figure



13 Parts List For Exploded Drawing

Number	Name	Quantity	Number	Name	Quantity
1	Screws M4×10	4	38	Long Pin	1
2	Dust Adapter	1	39	Short Pin	2
3	Piston Rod	1	40	Roll Pin 5×30	1
4	U-ring	1	41	Handle Seat	1
5	pressure cover	1	42	Handle	1
6	Fix Cap	1	43	Handle Connecting	1
7	Seal	1	44	Metal Circle 8	6
8	Pump Body	1	45	Linkage	1
9	Screws M8×8	3	46	Nut M8	3
10	Steel Ball Φ 6.35	3	47	Pole For Pull	3
11	Spring 1	2	48	combination Block M8	6
12	Steel Ball Φ 5	2	49	Cover Nut 8	3
13	Screws M6×6	4	50	Cap In Back	1
14	Steel Ball Φ 4	4	51	Oil Cap	1
15	Spring 2	1	52	O-ring 17.18×1.78	1
16	Screw Plug NPT1/16	1	53	Seal Block	2
17	Valve Needle	1	54	Screws M8×40	3
18	Metal Circle 6	1	55	Cap In Front	1
19	O-ring 5×1.8	1	56	Screws M6×10	4
20	Roll Pin 3×16	1	57	Plate For Cap	2
21	O-ring 10.82×1.78	1	58	Oil Filter	1
22	Relief Valve	1	59	Oil Tank	1
23	Screws M5×15	2	60	Seal head	1
24	Handwheel (Cut-off Vavle)	1	61	O-ring 15.54×2.62	1
25	Handle	1	62	Backup Ring	1
26	Plug R1/8	2	63	Gauge Adapter	1
27	Steel Ball Φ 7.14	1	64	Screws M8×45	4
28	O-ring 9.5×1.8	1	65	Screw Plug 1	1
29	O-ring 6.7×1.8	3	66	Screw Plug 2	1
30	Spring Seat 1	1	67	Connector For Gauge (G1/2)	1
31	Regulation Spring For Low Pressure	1	68	Screw Plug 3	1
32	Adjustment Screw	2	69	Connector For Gauge(M16×1.5)	1
33	O-ring 8.5×1.8	2	70	Screw Plug 4	1
34	Screw	2	71	Connector For Gauge(NPT1/4)	1
35	Steel Ball Φ 4	1	72	Screw Plug 5	1
36	Spring Seat 2	1	73	Screw Plug 6	1
37	Regulation Spring For High Pressure	1			

14 Appendix 2





For prompt service,
contact you Authorized
WREN Agent

All Wren products are guaranteed against defects in workmanship and materials for as long as you own them. Under this guarantee, free repair or replacement will be made to your satisfaction.

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RECYCLED
PAPER



手动液压泵操作手册

本操作手册作为整套机器的一部分，请在使用机器之前仔细阅读。同时，为了方便您今后的使用，请妥善保管好本手册。

本手册为专业人员设计，仅代表机器商业化的今天的技术水平。任何在本手册中未体现的疑问或使用方法，请在安装和使用之前咨询WREN公司或WREN代理商。

WREN不承担因以下情况引起的机器故障的任何责任：

1. 不规范的使用或由未经培训的非专业人员操作使用；
2. 机器安装错误；
3. 使用错误的液压油；
4. 不进行保养维护；
5. 未经制造商授权的改装或拆卸；
6. 使用非原装部件或使用错误型号的部件。

一 收货须知（开箱查验）

收到货物后，检查产品数量是否正确、外包装是否完整、产品表面有无破损，以正确划分责任。如出现上述情况，请立即向运输商提出异议。

安全提示：

 这是危险标志。每当您看到此标记，就意味着对人、动物和物品可能存在或多或少的危险。在本手册中各种危险及相关的预防措施都用此标志标出。

 危险：忽略此警告可能会对人、动物和物品的安全构成重大危害。

 警告：忽略此警告可能会对人、动物和物品的安全构成重大危害。

为了您和他人的人身及财产安全，敬请使用者务必遵守这些规定，对于因为使用者的不规范操作而引发的任何损失和伤害WREN将不承担任何责任。

二 概述

 警告：请参照附录了解手动泵的零部件构造。

本手动泵可配合分离式液压千斤顶、液压拉伸器等，作为动力源使用。本泵为专业人士设计，供应方负责操作人员的使用培训。

使用环境

本手动泵可在以下室温环境下正常使用：

$$5^{\circ}\text{C} \leq T \leq 35^{\circ}\text{C}$$

技术参数

有关本手动泵的技术参数，请阅读贴标或泵体上的打码数据，特别标明：

- 型号
- 最大压力 (Bar)

更多技术参数详见最新发布综合样本。



警告：本手动泵储油箱内必须有足够的的液压油来保证所连接的液压回路（一般包括油管、液压缸和分配器）。



危险：绝对禁止在使用液压设备的过程中给手动泵的储油箱加油！

例如：为完成一台千斤顶的行程，在整个行程即将结束时千斤顶油缸的需油量大于手动泵输送的油量，如果此时给手动泵加注液压油，当千斤顶的活塞改变方向并将液压油压回手动泵油箱时，油箱容量显然不够容纳新加入液压回路中的油量，将会引发液压油溢出。



警告：虽然液压油处在手动泵油箱时没有压力，但当它处于液压回路时是有压力的。

双速泵活塞有大小不同直径的两个部分。当没有压力时大活塞推动液压油进入回路以便大流量迅速充油。（第一步 低压、高容量）。在负载情况下，泵头内置切换阀自动切换到小流量、高压油路。用小流量来不断供油并通过对手柄施加很小的力来达到高压。（第二步 高压、低容量）。

本手动泵应水平或尾部略高使用，并通过一个螺纹口连接压力表座及压力表，我们可以根据客户要求提供不同规格的储油箱，以适应更高压力或者用于其它液压工作的产品。任何特殊要求欢迎来电咨询。

三 输回油

从手动泵到液压回路（输油）和继续从回路到泵（回路）的循环过程是通过泵头上的控制阀装置来控制。（见附录2 图1）本手动泵装有两通阀来控制单作用千斤顶的顶升和回复，泵头只有一个输油口。当手轮阀门（截止阀）顺时针完全锁紧后，反复对手柄施加压力将使液压油加压进入油路。逆时针拧松手轮阀门（截止阀）后，处于油路中的液压油将会流回手动泵油箱。因此，在手轮（截止阀）处于拧松状态时对手柄施加压力是不会产生压力的。

四 泵的选配原则

手动液压泵的正确选择，主要取决于以下三个因素：

1. 液压缸（如液压千斤顶）的容量：手动液压泵储油箱可用油量值 > (大于) 液压缸容量。
2. 液压缸的类型：油液压缸分为单作用与双作用，必须选用单作用或双作用手动液压泵。
3. 工作压力等级：WREN品牌共有700Bar、1600Bar、2800Bar三个压力等级的手动液压泵，应用时请选用液压缸最高压力值 \geq (大于或等于) 该三种压力等级手动泵中的一种。

储油箱必须有足够的容量来支持液压软管和配套液压缸。建议选用高流量、低压力的泵。建议手动泵一般用于低速操作。如果您需要高速操作时，我们建议选择以电动或气动为动力源的液压泵。

⚠ 警告：如果手动泵配套液压千斤顶用作顶升工作，当所需顶升物体重量不详时，建议给手动泵安装一只压力表以避免对设备造成的损坏，并且仔细检查顶升操作中的相关步骤。

⚠ 警告：为了确保正确操作和延长零部件的使用寿命请严格遵守本手册提供的所有指导。

五 泵的正确使用

⚠ 警告：本手动泵工作时应水平放置，如果泵头部位朝下则可以垂直竖立工作。

(见附录2 图II)

本泵必须平稳放置以防止在操作过程中侧翻。手轮（截止阀）必须用手操作。

六 设备中的气体排除

当手动泵在使用时，请拧松储油箱油盖，防止储油箱内出现真空而无法出油。如出现真空，请按以下方法进行排除：（见附录2 图III）

1. 连续对泵进行打压，直至活塞杆走完整个行程；
2. 倒置液压缸，使顶部部位朝下；
3. 抬高手动泵，使其高于液压缸；
4. 拧松手动泵的手轮（截止阀）；
5. 向液压缸顶部部位施压使其活塞回复，空气将从液压缸和液压软管中排入到储油箱，进入到储油箱中的空气不会对设备带来任何影响。

七 操作使用

⚠ 警告：高压设备在工作时会产生高压，请在操作时保持高度警惕。

在操作之前请检查储油箱中的液压油量，标准油量一般在距离进口口1厘米左右。如果不足请及时添加液压油，但储油箱不能全满以避免液压油溢出。

建议使用WREN指定的32#抗磨液压油，它的粘度和润滑性能最大程度保证了设备的使用效率和生命周期。如果需要更换液压油，请将储油箱中的液压油彻底排干后再加注新的液压油。

⚠ 警告：请确保所有的系统零件都能符合设定的工作压力。

液压软管的使用方法

⚠ 警告：禁止用液压软管提拉或拖拽任何设备。

1. 请保持液压软管畅通无阻，不得将软管缠绕打结。软管的最小弯曲半径为200mm。
2. 不要将重物置在软管上，避免与利刃、切割设备等尖锐物体接触。
3. 远离火焰、热源等高温环境。

螺纹接口的具体连接方法

1. 螺纹接口要求：NPT1/4或NPT3/8螺纹

2. 连接时不要造成螺纹的损坏。连接前，请在螺纹杆表面缠上螺纹密封带（不要使用麻绳，因为它会污染液压系统中的液压油）。

快速接头的连接方法

液压系统中进入异物会划伤液压缸内壁或损坏阀座以至于影响到密封和相应系统的正常运转。因此，在连接前确保快速接头的清洁。脏物可能会影响密封性能并限制出油量，因为快速接头中的单向密封球阀不能完全吻合。

⚠️ 警告：凸凹接头必须连接到位，完全吻合。

⚠️ 警告：在未连接时，快速接头上应罩上防尘帽。

⚠️ 警告：泵的保养和维修必须由专业人员来执行。错误的拆卸将会使您失去维修担保。

手动泵安全卸压阀主要用于设定设备的最大工作压力。泵的最大工作压力在出厂前已由制造商设定好，如有需要，可以根据您的要求在一定范围内重新设定。

⚠️ 警告：绝对禁止用户擅自将最高压力调至超过工厂的设定值。

八 常见问题及对策

问题	可能的原因	解决方法
手动泵配套作用于液压缸时，液压缸的活塞不向上顶升	泵头部位过高	将泵水平放好
	液压泵中的液压油量不足或混入空气	添加液压油、排除空气
	泵的手轮（截止阀）未完全锁紧	重新锁紧手轮（截止阀）
	液压缸的最大系统工作推力低于负载物	更换合适的液压缸
液压缸的活塞不能完全全部行程	液压系统中混入空气	连接并倒置液压缸后，对其进行反复打压数次
	泵的储油箱的液压油不足	添加足够的清洁液压油
	液压缸的油缸容积大于手动泵的储油箱的储油量	更换一台更大储油量的手动泵
活塞无法保压	液压阀破损	与生产厂家联系
	密封老化或损坏	更换原装密封件
液压缸的活塞不能完全回程或回程太慢	液压油从软管与接头连接处泄露	更换软管
	泵的手轮（截止阀）未完全打开	重新松开手轮（截止阀）
	快速接头连接不到位	重新连接快速接头，确保连接彻底到位
液压油泄露	密封圈老化或破损	更换原装密封件

⚠️ 警告：对于重力回复的液压缸，须对活塞杆 部位施加外力使其回复。

九 液压油的安全说明

根据国家行政命令28-01-1992, 执行液压作业的液压油. 条令. RP-108. ISOVg32, 用于运作WREN液压产品, 经证明是安全可靠的, 然而为了更加安全的使用, 在此给出以下安全说明:

对人: 经常性的接触液压油可能会引起皮肤问题。意外的吞食, 紧接着的是呕吐, 甚至会引起对黏膜的损伤。吸入气体会对呼吸道造成损伤。

对环境: 液压油为不可排放物品。

急救措施

吸入: 把人从暴露的环境中转移, 使其放松, 不用饮食任何东西, 及时寻求医疗救助。

皮肤接触: 迅速用大量的肥皂和清水冲洗皮肤。

眼部接触: 立即用清水冲洗, 寻求医疗救助。

防火措施

可用灭火材料: 二氧化碳, 干粉末, 抗酒精泡沫, 喷雾状水汽。

禁用灭火材料: 不用使用喷水管以免过度煮沸。

意外泄露

个人预防措施: 穿戴防护服。

环境预防措施: 不要让液压油进入下水道, 废水渠和饮用水区域, 如若发生请立即告知相关机构。

处理方法: 用泥土或沙子堵住发散口, 用手或者防爆泵或用合适的吸收材料收集漏油, 根据有关规定处理残留物。

管理和保存

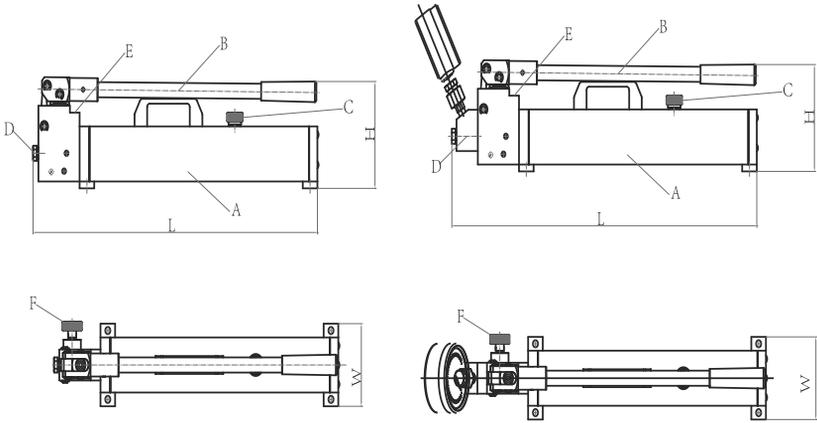
手部保护: 戴上氯丁橡胶或亚硝酸橡胶手套。

眼部保护: 戴上防护眼镜。

皮肤保护: 穿上防护外套, 如若污染, 更换并小心清洗。

保存: 保存在远离热源和氧化剂的地方。置于通风、温度在5°C到30°C的环境下。

十 手动液压泵外形尺寸图



序号	名称	数量	序号	名称	数量
A	储油箱	1	D	出油口	1
B	手动操作杆	1	E	最大压力卸压阀	1
C	通气注油口	1	F	手轮(截止阀)	1

十一 附录1

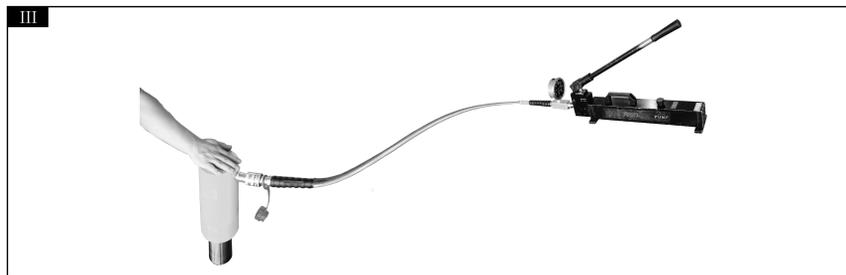
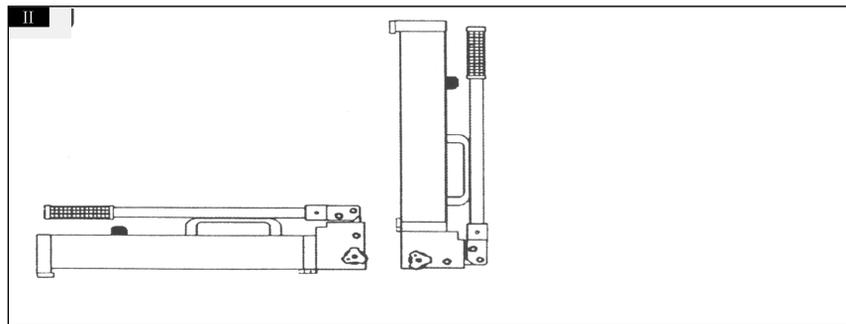
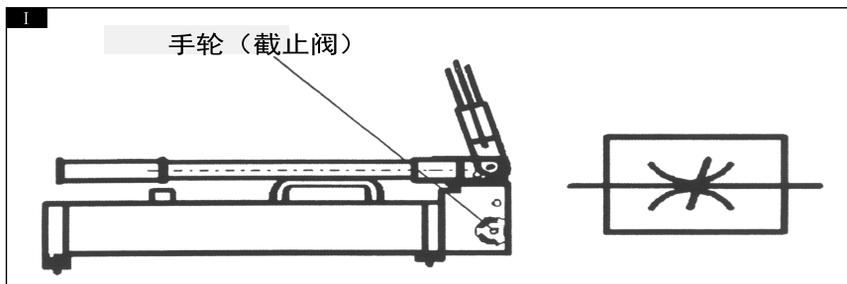
手动泵主要技术参数

型号	工作压力		每冲程输出油量		油箱容量 (L)	可用油量 (L)	手柄用力 (L)	外形尺寸			输出接口	压力表接口	重量 (Kg)
	高压	低压	高压	低压				L	W	H			
P392 P80 P160	2.5	70	32	2.5	1.67 2.25 3.58	1.44 1.98 3.24	300	578	120	161	3/8" NPT	1/4" NPT	6.3 8 10
16P392 16P80 16P160	1.5	160	32	2.5	1.67 2.25 3.58	1.44 1.98 3.24	350	620	120	161	1/4" BSP	1/2" BSP	6.5 8.5 10.5
28P80	2.0	280	32	0.9	2.26	1.98	400	622	120	161	3/4" -16UNF 1/4" BSP	1/2" BSP	8.5 10.5
28P160	2.0	280	32	0.9	3.58	3.24	400	622	140	181	3/4" -16UNF 1/4" BSP	1/2" BSP	8.5 10.5

十三 手动液压泵零部件表

序号	名称	数量	序号	名称	数量
1	内六角螺钉M4×10	4	38	长销轴	1
2	防尘定位座	1	39	短销轴	2
3	活塞杆	1	40	圆柱弹性销5×30	1
4	U形圈	1	41	手柄座	1
5	压盖	1	42	压杆把手	1
6	挡圈	1	43	压杆	1
7	斯特封	1	44	开口挡圈8	6
8	泵体	1	45	连杆	1
9	内六角紧定螺钉M8×8	3	46	螺母M8	3
10	钢球 Φ6.35	3	47	拉杆	3
11	弹簧1	2	48	组合垫圈8	6
12	钢球 Φ5	2	49	盖型螺母M8	3
13	内六角紧定螺钉M6×6	4	50	后盖	1
14	钢球 Φ4	4	51	油盖	1
15	弹簧2	1	52	O型圈17.18×1.78	1
16	堵头NPT1/16	1	53	垫片	2
17	阀芯	1	54	内六角螺钉M8×40	3
18	开口挡圈6	1	55	前盖	1
19	O型圈5×1.8	1	56	内六角螺钉M6×10	4
20	圆柱弹性销3×16	1	57	前后盖支板	2
21	O型圈10.82×1.78	1	58	滤油器	1
22	卸荷座	1	59	油箱	1
23	内六角螺钉M5×15	2	60	橄榄头	1
24	手轮	1	61	O型圈15.54×2.62	1
25	卸荷手柄	1	62	挡圈	1
26	堵头R1/8	2	63	泵前连接块	1
27	钢球 Φ7.14	1	64	内六角螺钉M8×45	4
28	O型圈9.5×1.8	1	65	堵头1	1
29	O型圈6.7×1.8	3	66	堵头2	1
30	弹簧座1	1	67	压力表接头(G1/2)	1
31	低压调压弹簧	1	68	堵头3	1
32	调节螺钉	2	69	压力表接头(M16×1.5)	1
33	O型圈8.5×1.8	2	70	堵头4	1
34	螺钉	2	71	压力表接头(NPT1/4)	1
35	钢球 Φ4	1	72	堵头5	1
36	弹簧座2	1	73	堵头6	1
37	高压调压弹簧	1			

十四 附录2





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