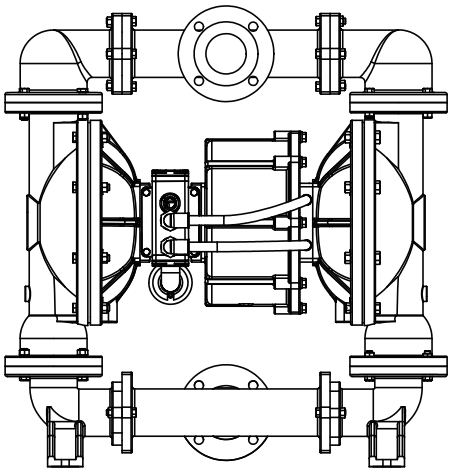
skylink

Specialist in Fluid Transfer
致力于流体输送

SKY-H-E-01-2016



This manual contains warnings and caution.
本手册包含警告和注意事项
READ AND RETAIN FOR REFERENCE
阅读和保留以供参考

INSTRUCTIONS
操作指南

H80

METAL SERIES
金属系列

Operation and Maintenance Manual
操作维护手册

CE

High Pressure Pump高压泵

⚠IMPORTANT重要

- Do not over-lubricate air supply — excess lubrication will reduce performance.
  不要过度润滑空气供应-过度润滑会降低性能。

- Do not exceed 8.6 bar (125 psig) air supply pressure.
  供气压力不要超过8.6 bar(125 psig)。

- When choosing pump materials, be sure to check the temperature limits for all wetted components Example: Viton has a maximum limit of 177°C (350°F) but polypropylene has a maximum limit of only 79°C (175°F).
  选择泵材料时，请确保检查所有浸湿部件的温度极限例如：氟橡胶的最大限值为177°C（350°F），而聚丙烯的最大限值仅为79°C(175°F)。

- Maximum temperature limits are based upon mechanical stress only. Certain chemicals will signi cantly reduce maximum safe operating temperatures. Consult Chemical resistance guide for chemical compatibility and temperature limits.
  最高温度限值仅基于机械应力。某些化学品会显著降低最高安全工作温度。有关化学兼容性和温度限制，请参阅耐化学性指南。

- Prevent static sparking. If static sparking occurs, explosion could result. dampener, pump, valves and containers must be grounded to a proper grounding point when handling flammable fluids and whenever discharge of static electricity is a hazard.
  防止静电火花。如果发生静电火花，可能导致爆炸。在处理易燃液体和静电排放有危险时，稳压罐、泵、阀门和容器必须到适当的接地点正确接地。

- All piping, valves, gauges and other components installed on the liquid discharge must have a minimum pressure rating of 20.7 bar (300 psig) .
  排液口上安装的所有管道，阀门，压力表和其他组件的最低额定压力必须为20.7 bar(300 psig)。

- The discharge pressure generated by this pump is 3X the inlet pressure supplied .
  该泵产生的排出压力是入口供给压力的3倍。

- The process fluid and cleaning fluids must be chemically compatible with all wetted pump components Consult Chemical Resistance Guide .
  输送流体和清洗流体必须与所有润湿的泵组件化学相容，请查阅耐化学性指南。

⚠ CAUTION注意

- When used for toxic or aggressive fluids, the pump should always be lushed clean prior to disassembly.
  当用于有毒或腐蚀性液体时，泵在拆卸前应始终冲洗干净。

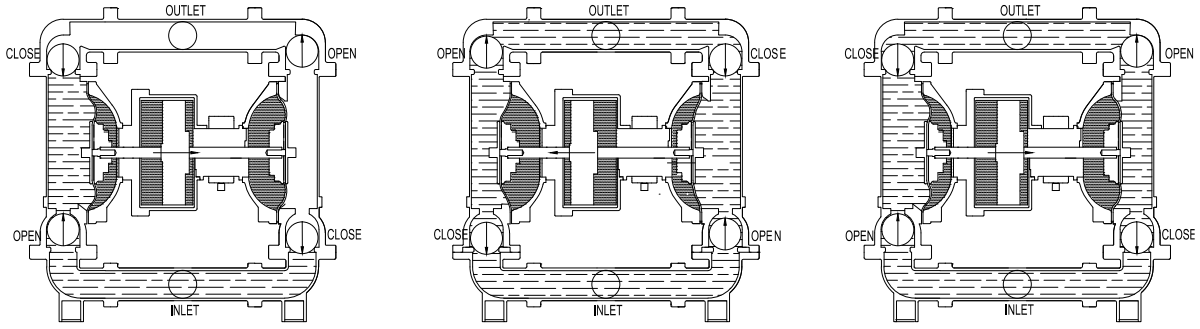
- Always wear safety glasses when operating pump If diaphragm rupture occurs, material being pumped may be forced out air exhaust .
  操作泵时，请务必戴安全眼镜。如果发生隔膜破裂，则可能会将流体材料排出空气。

- Blow out air line for 10 to 20 seconds before attaching to pump to make sure all pipeline debris is clear Use an in-line air filter A 5µ (micron) air filter is recommended.
  在连接到泵上之前，吹扫空气管路10到20秒钟，以确保清除所有管道碎屑。使用排列式空气过滤器。建议使用5 µm（微米）的空气过滤器。

- Skylink H80 High Pressure pumps cannot be used in submersible applications .
  Skylink H80高压泵不能用于潜水应用。

- Tighten all hardware prior to installation .
  在安装之前，请拧紧所有紧固件。

The Skylink diaphragm pump is an air-operated, positive displacement, self-priming pump. These drawings show flow pattern through the pump upon its initial stroke. It is assumed the pump has no fluid in it prior to its initial stroke.
斯凯力隔膜泵是一种气动、正排量、自吸泵。这些图显示了泵在初始冲程时的流型。假设泵在其初始行程之前没有流体。



PHASE 1 PHASE 2 PHASE 3

FIGURE 1 When air pressure is supplied to the pump, the air valve directs pressure to the back side of diaphragm A The compressed air moves the diaphragm away from the center section of the pump The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm Diaphragm B is on its suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port The movement of diaphragm B towards the center section of the pump creates a vacuum within chamber B Atmospheric pressure forces uid into the inlet manifold forcing the inlet valve ball off of its seat Liquid is free to move past the inlet valve ball and full the liquid chamber (see shaded area).

图1当向泵提供气压时，空气阀将压力引导到隔膜A的背面。压缩空气将隔膜从泵的中心部分移开。相反的隔膜被连接到加压泵上的轴吸入。隔膜隔膜B处于吸入冲程；隔膜后面的空气已通过排气口被排到大气中。隔膜B向泵中央部分的运动在B腔内产生真空。大气压将流体引导到进气歧管中，迫使进气阀球从阀座上移开。液体可以自由地流过入口阀球并充满整个液体腔室（请参见阴影区域）。

FIGURE 2 Once the shaft has reached the end of its stroke, the air valve redirects pressurized air to the back side of diaphragm B .

图2一旦轴到达其行程末端，空气阀便将压缩空气重新导向到隔膜B的背面。

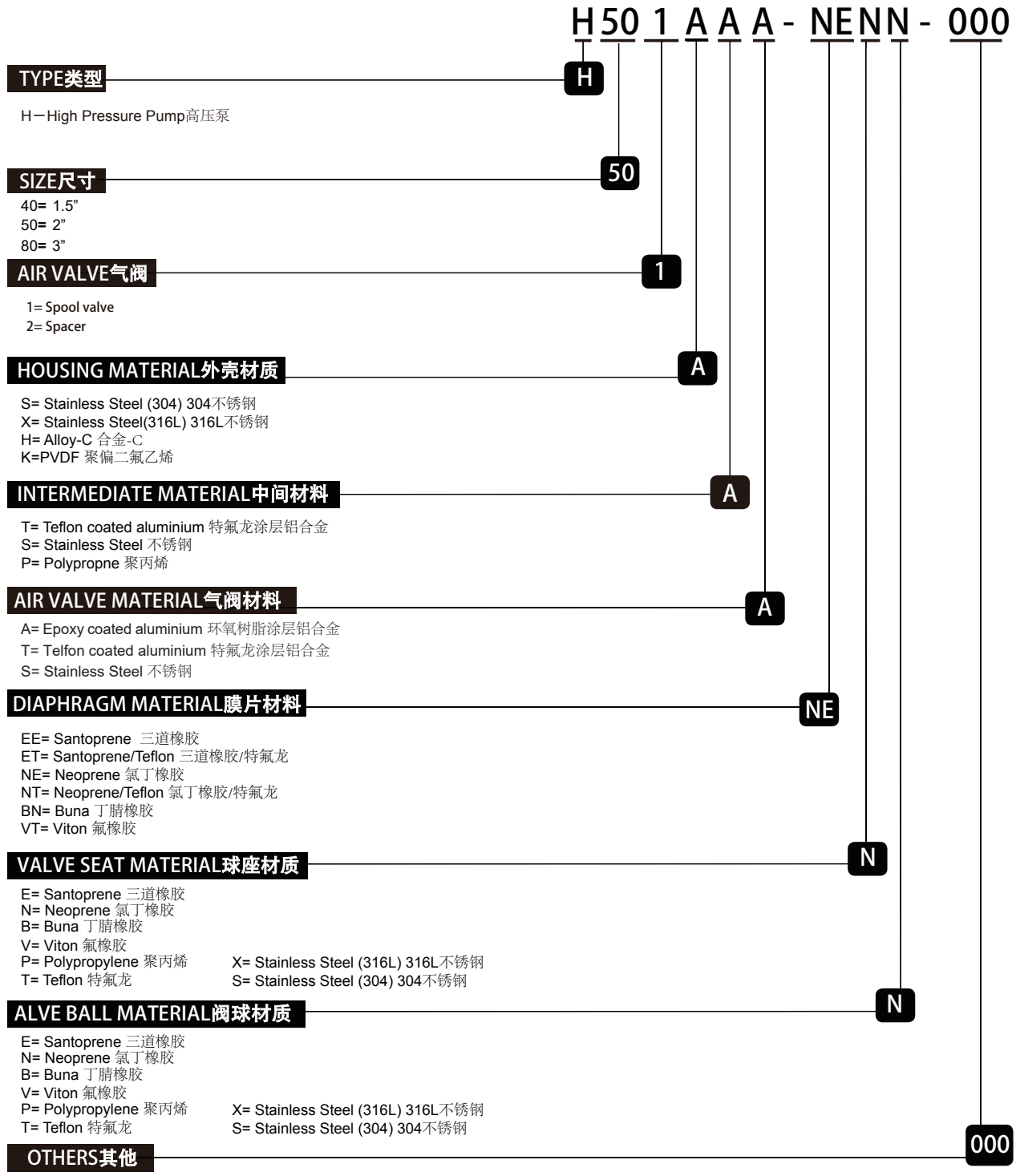
FIGURE 3 At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete pumping cycle The pump may take several cycles to completely prime depending on the condition of the application .

图3冲程完成后，空气阀再次将空气重新引导至隔膜A的背面，隔膜A的排气冲程启动隔膜B的背面。当泵达到其原始起点时，每个隔膜都经历了一个排气和一个排气冲程。这构成了一个完整的泵送循环。根据应用条件的不同，泵可能需要花费几个循环才能完全启动。

How to Order如何命名

The model number of all high pressure pump consists of ten alphanumeric clusters. These designate product type, size and material, and inlet/outlet type.

所有高压泵的型号均由十个字母数字簇组成。这些指定产品类型，尺寸和材料以及入口/出口类型。



Chemical Properties are as follows化学特性如下:

Materials材质	Chemical Properties化学特性
Virgin PTFE **聚四氟乙烯**	Chemically inert,virtually impervious. Very few chemicals are known to chemically react with PTFE; molten alkali metals, turbulent liquid or gaseous fluorine and few fluorochemicals such as chlorine trifluoride or oxygen difluoride with ready liberate free fluorine at elevated temperatures. 化学惰性，几乎完全不透水。很少有化学品可以与聚四氟乙烯发生化学反应：熔融的碱性金属，湍流液体或气态氟，以及一些在温度升高时易释放的游离氟的氟代化学物质，如三氟化氯或二氟化氧等会迅速腐蚀聚四氟乙烯。
Santoprene **三道橡胶**	Injection molded thermoplastic elastomer with no fabric layer,Long mechanical flex life. Excellent abrasion resistance. 注塑成型的热塑性弹性体，无织物层，机械弯曲寿命长。具有优异的耐磨性。
Neoprene **氯丁橡胶**	All purpose, Resistant to vegetable oil. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters, nitro hydrocarbons and chlorinated aromatic hydrocarbons. 用途广泛，耐植物油。一般不受温和的化学品，脂肪，油脂和许多油和溶剂的影响。通常会受到强氧化酸、酮类、酯类、硝基烃和氯代芳烃的腐蚀。
Buna **丁腈橡胶**	General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons. 通用，抗油性。具有良好的耐溶剂、油、水和液压特性。不可与强极性溶剂如丙酮和丁酮、臭氧、氯化烃和硝基烃等一起使用。
Viton **氟橡胶**	Shows good resistance to a wide range of oils and solvents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. 对各种油和溶剂具有良好的抗性，尤其是所有脂肪族、芳香族和卤代烃、酸、动物和植物油。
PVDF **聚偏二氟乙烯**	A durable fluoroplastic with excellent chemical resistance. Excellent for UV applications. High tensile strength and resistance. 一种耐用的氟塑料，具有优异的耐化学性,在UV应用方面是最佳选择，具有高拉伸强度和耐冲击性。
Polypropylene **聚丙烯**	Thermoplastic polymer. Moderate tensile and flex strength. Resists strong acids and alkalie. Attacked by chlorine,fuming nitric acid and other strong oxidizing agents. 热塑性聚合物。中等拉伸强度和抗弯强度。抗强酸和强碱。易受氯气、发烟硝酸及其他强氧化剂的侵蚀。
Alloy C **合金C**	Equal to ASTM494 CW-12M-1 specification for nickel and nickel alloy. 相当于ASTM494 CW-12M-1规格的镍和镍合金。
EPDM **三元乙丙橡胶**	Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols. 表现出很好的耐水性和耐化学性，对油和溶剂耐受性差. 但在酮和醚中性质不变。
Stainless steel **不锈钢**	Equal to exceeding ASTM specification A743CF-BW forcorrosion resistant iron chromium,iron chromium nickel,and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry. 相当于或超过ASTM规范A743CF-BW，适用于一般用途的耐腐蚀的铬铁、铁铬镍和镍基合金铸件。泵行业通常称为316不锈钢。

For specific applications,you can contact us其他特殊应用请联系我司。

Operating temperature limitations are as follows工作温度极限如下:

Materials材质	Maximum最高	Minimum最低
Virgin PTFE **聚四氟乙烯**	220℉ 104℃	-35 ℉ -37℃
Santoprene **三道橡胶**	225 ℉ 107℃	-10 ℉ -23℃
Neoprene **氯丁橡胶**	177℉ 77℃	-10 ℉ -23℃
Buna **丁腈橡胶**	190 ℉ 88℃	-10 ℉ -23℃
Viton **氟橡胶**	350 ℉ 177℃	-40 ℉ -40℃
PVDF **聚偏二氟乙烯**	250 ℉ 121℃	0 ℉ -18℃
Polypropylene **聚丙烯**	150℉ 66℃	32 ℉ 0℃
EPDM **三元乙丙橡胶**	280 ℉ 138℃	-40 ℉ -40℃
Alloy C **合金C**	-	-
Stainless steel **不锈钢**	-	-

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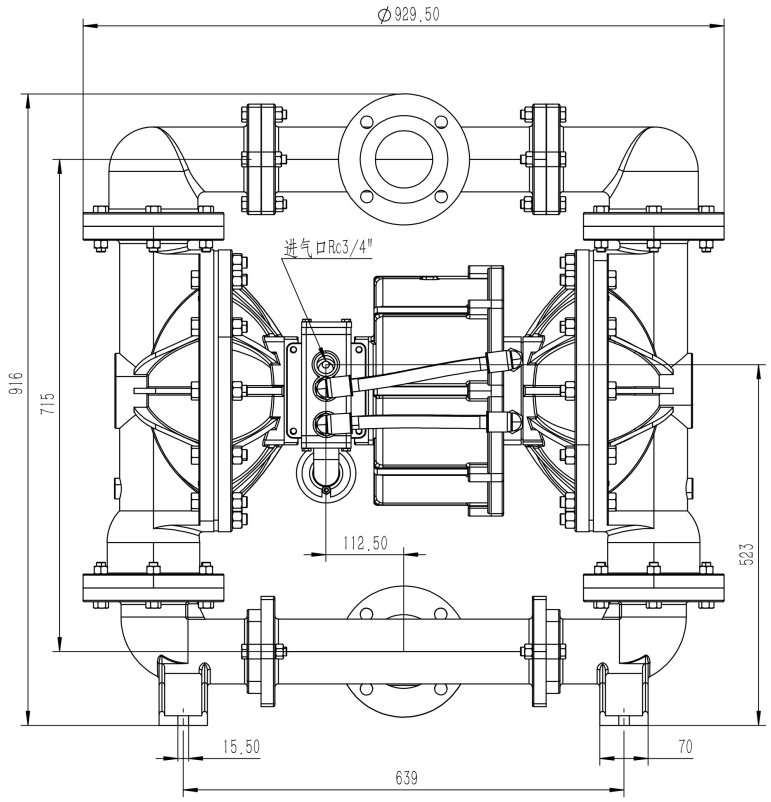
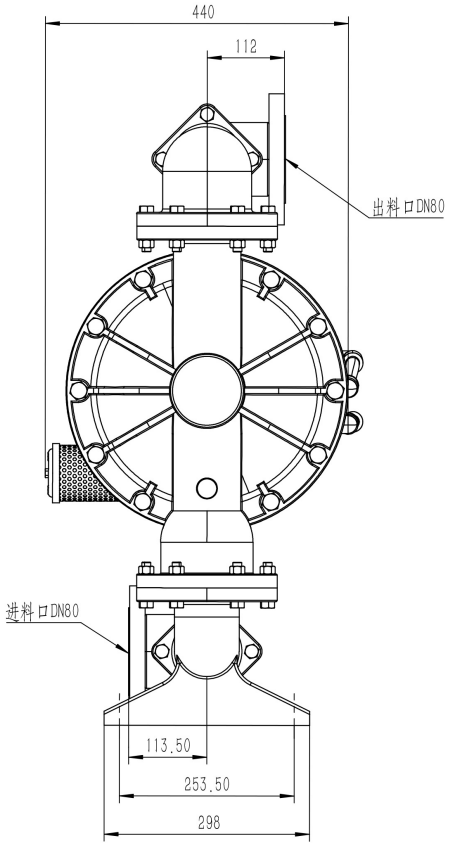
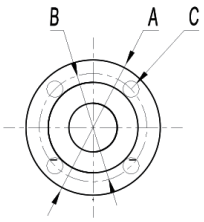
■ H80 High Pressure Pump H80高压泵



FRONT VIEW
前视图

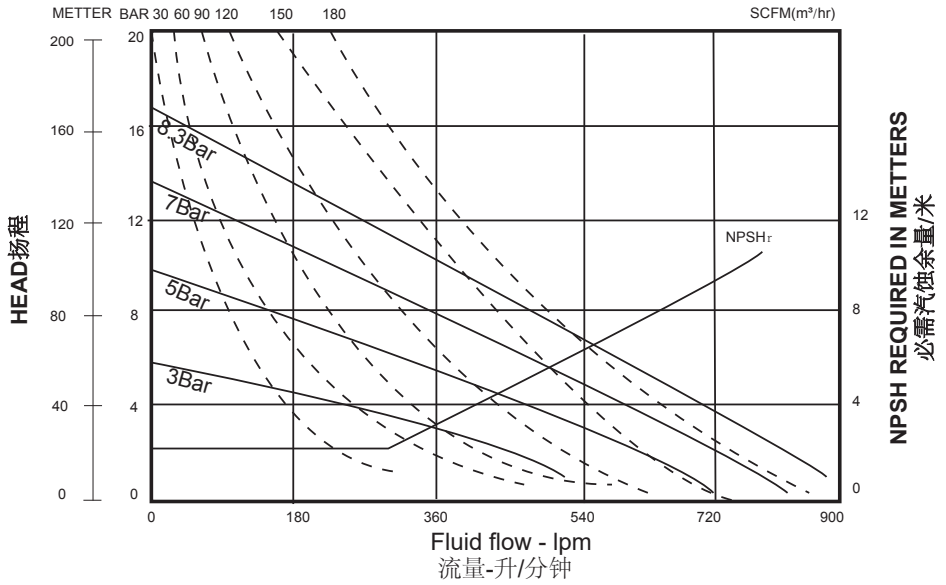


SIDE VIEW
侧视图



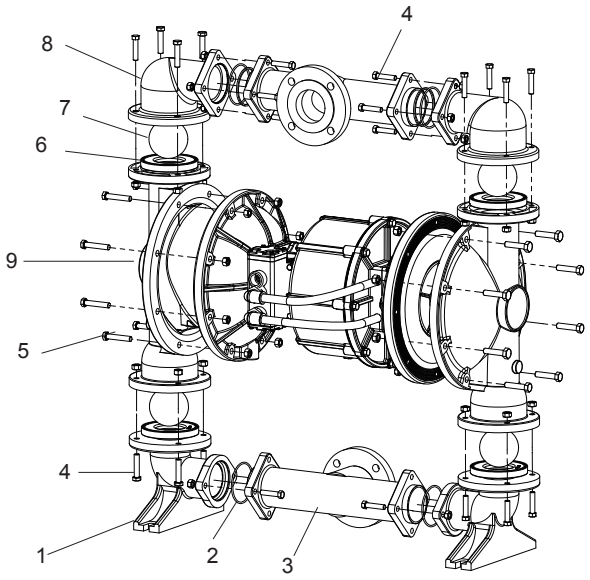
Flange 法兰	A	B	C	Blot type 螺栓类型	Air inlet (D) 进气口
GB国标	195(7.68)	160(6.3)	8-18	M16	3/4"-14BSPT
ANSI美标	190(7.48)	152(6)	4-18	M16	3/4"-14NPT
JIS日标	185(7.28)	150(5.9)	8-19	M16	3/4"-14BSPT

* The dimensions on this drawing are for reference only A certified drawing can be requested if physical are needed.
此图的尺寸仅供参考，如果需要，可以向我司要求提供图纸。



*Performance is based on the following: elastomer fitted pump, flooded suction, water at ambient conditions. The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.
以上性能是基于以下：氯丁橡胶膜片泵，泵入口没有吸程，出口没有扬程，输送介质为水。使用其他材料和不同的液压条件可能导致偏差超过5%。

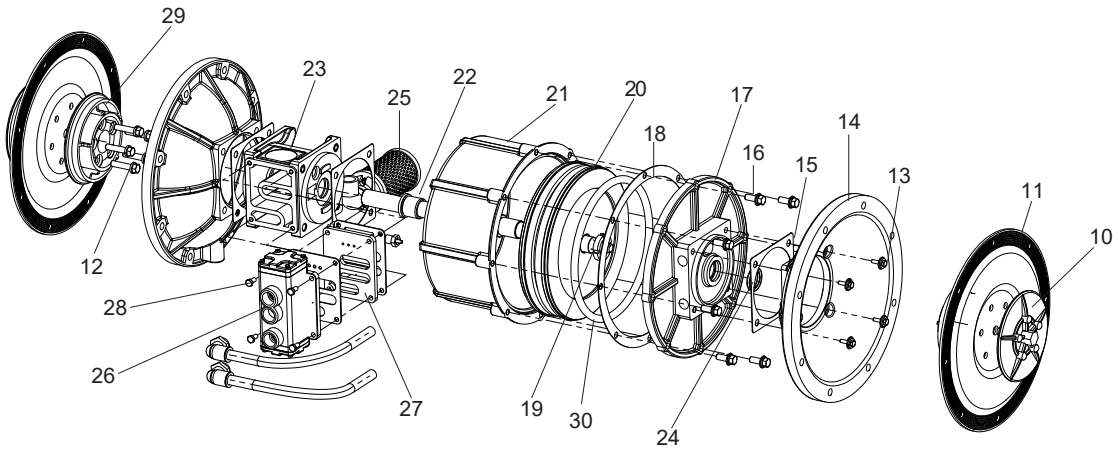
■ H80 High Pressure Pump Exploded View
H80高压泵分解图



■ Fluid Chamber Parts List流体室零件目录

ITEM项	PART NUMBER零件编号	PART DESCRIPTION零件说明	QTY数量
1	1180.1493	Elbow 316L 3"高压泵进料口弯头 316L	2
2	1080.7754	"O" Ring teflon 3"三通O型圈 特氟龙	4
3	1180.1593	tee 316L 3"三通 316L	2
4	1080.0590	Hex Bolt 外六角螺丝	26
5	1180.0590	Hex Bolt 外六角螺丝	16
6	1080.6054	Valve Seat 3"球座	4
7	1080.6154	Valve Ball 3"阀球	4
8	1180.1793	Elbow 3"高压泵出料口弯头 316L	2
9	1180.1993	Chamber,Outer 3"高压泵外腔体 316L	2

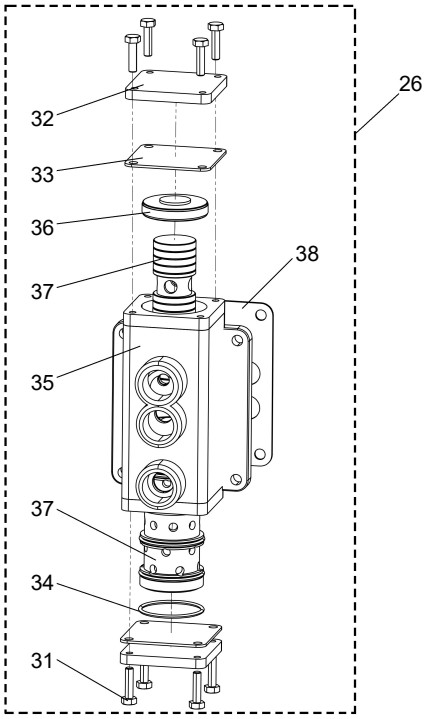
■ Center Intermediate Exploded View
中间体分解图



■ Center Intermediate Parts List中间体零件目录

ITEM项	PART NUMBER零件编号	PART DESCRIPTION零件说明	QTY数量
10	1180.3293	Plate Outter Diaphragm 3"高压泵外压板	2
11	1180.8652	Diaphragm(Neoprene) 3"高压泵隔膜 氯丁橡胶	2
	1180.8668	Diaphragm(Santoprene) 3"高压泵隔膜 三道橡胶	
	1180.8658	Diaphragm(Tef on) 3"高压泵隔膜 特氟龙	
12	1180.0190	Hex Bolt 3"内压板外六角螺丝	10
13	1458.1390	Bolt 1.5-3"内腔体外六角螺钉	12
14	1180.2699	Chamber,Inner 3"高压泵内腔体	2
15	1148.3039	Gasket 1.5-3"中间体垫片	3
16	1180.0Q90	Bolt 1.5-3"活塞端盖螺丝	8
17	1180.0F99	Cover, Center Section 3"活塞端盖	1
18	1180.0C39	Gasket 3"活塞端盖密封垫片	1
19	1180.0B89	Washer 3"锁紧螺母	1
20	1180.0G91	Piston, Cylinder 3"活塞	1
21	1180.0H99	Section, Center 3"活塞缸	1
22	1180.3490	Rod,Diaphragm 3"中间轴	1
23	1080.3791	Center Intermediate 3"中间体	1
24	0080.6452	Seal,U-Cap Shaft 3"中间轴U型圈	4
25	1458.5390	Muffler 消音器	1
26	1148.4600	Air Valve Assembly 1.5-3"气阀组件	1
27	1458.4100	Pilot Valve 1.5-3"分配阀组件	1
28	4015.1489	Hex Bolt 1.5-3"气阀螺丝	4
29	1080.3391	Plate Inner Diaphragm 3"内压板	2
30	1180.0L51B	"O"Ring 3"活塞密封盖O型圈	1

■ Sliding Style Main Valve
滑阀式主气阀

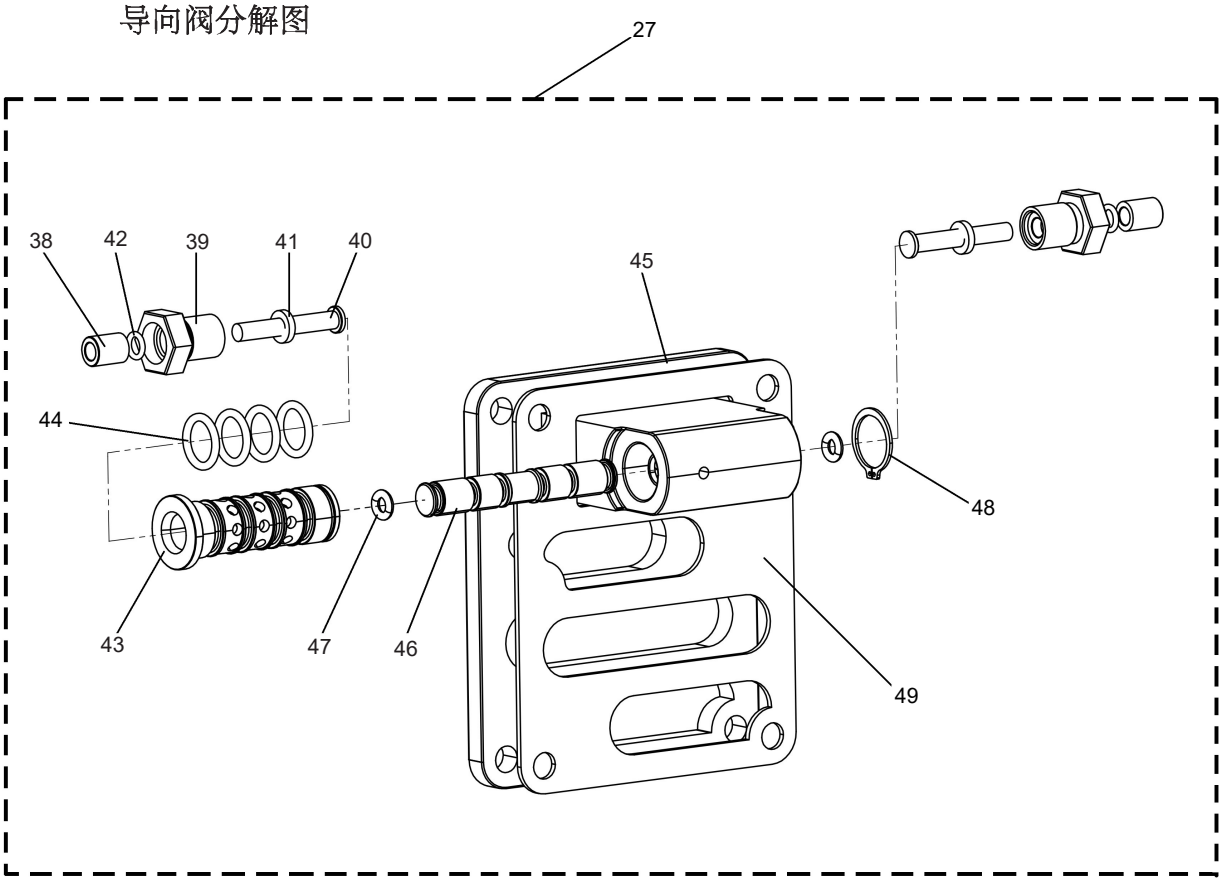


■ Air Valve List气阀零件目录

Number图号	Part Number零件编号	Description描述	Quantity数量
		Sliding Style Main Valve滑阀式主气阀	
26	1148.4600	Sliding Style Main Valve 1.5-3寸主气阀组件	1
31	1458.0891	Screw 1.5-3寸主气阀端部螺钉	8
32	1148.4899	Cap,End 1.5-3寸主气阀端部挡板	2
33	1458.7151	Gasket,Cap 1.5-3寸主气阀端部垫片	2
34	1458.6751	O-Ring outside 1.5-3寸主气阀外层O型圈	6
35	1458.4791	Air valve 1.5-3寸主气阀外壳	1
36	1458.9000	Piston 1.5-3寸活塞组件	1
37	1458.5291	Spool Assembly 1.5-3寸主气阀滑阀芯阀套	1
38	1458.7039	Main Gasket.Cap 1.5-3寸主气阀密封垫片	1

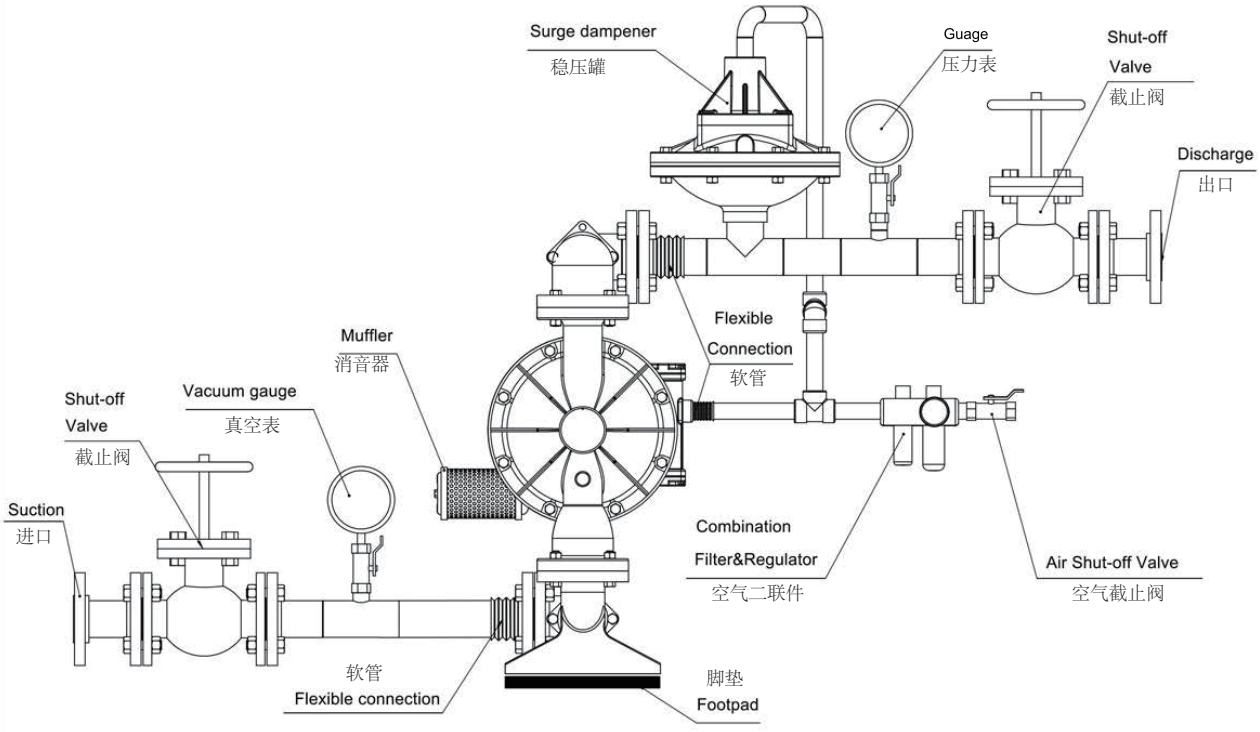
■ Pilot Valve Exploded View

导向阀分解图



■ Pilot Valve List 导向阀零件目录

Number图号	Part Number零件编号	Description描述	Quantity数量
		Pilot Valve	
27		Pilot Valve 分配阀组件	1
38	1458.3642	Bush 1.5-3"顶针袖套	2
39	1458.8092	Bumper Bplung 1.5-3"顶针座	2
40	1458.3593	Pin,Actuator 1.5-3"分配阀顶针	2
41	1458.5651	O-ring 1.5-3"顶针垫圈	2
42	1458.7351	O-ring 1.5-3顶针O型圈	4
43	1258.6851	O-Ring 1-3寸阀套式导向阀阀套O型圈	4
44	1458.4291	Spool Bush 1.5-3"分配阀阀套	1
45	1458.4391	Pilot Valve 1.5-3"分配阀阀壳	1
46	1458.4400	Spool 1.5-3"分配阀阀芯组件	1
47	1258.8451	O-Ring 1.5-3"分配阀阀芯减震圈	2
48	1258.4589	Snap rings 1.5-3"分配阀阀套卡簧	1
49	1458.6639	Gasket.cap 1.5-3"分配阀垫片	1



OPERATION: Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump An air regulator is used to regulate air pressure A needle valve is used to regulate volume Pump discharge rate can also be controlled by throttling the pump discharge by partially closing a valve in the discharge line of the pump This action increases friction loss which reduces flow rate. This is useful when the need exists to control the pump from a remote location When the pump discharge pressure equals or exceeds the air supply pressure, the pump will stop; no bypass or pressure relief valve is needed, and pump damage will not occur The pump has reached a “deadhead” situation and can be restarted by reducing the fluid discharge pressure or increasing the air inlet pressure The Skylink H80 pump runs solely on compressed air and does not generate heat, therefore your process fluid temperature will not be affected

操作：可以通过限制泵的空气供应量或压力来控制泵的排量。空气调节器用于调节空气压力。针形阀用于调节量。泵的排量也可以通过节流阀来控制。通过部分关闭泵排放管路中的阀来排放泵此动作会增加摩擦损耗，从而降低流速。当需要从远处控制泵时，这很有用。当泵的排放压力等于或超过供气压力时，泵将停止；无需旁通阀或泄压阀，也不会造成泵损坏，泵已达到“死机”状态，可以通过降低流体排放压力或增加进气口压力来重新启动，Skylink H80泵仅依靠压缩空气运行，不会产生热量，因此工艺流体温度将不会受到影响。

MAINTENANCE AND INSPECTIONS: Since each application is unique, maintenance schedules maybe different for every pump Frequency of use, line pressure, viscosity and abrasiveness of process fluid all affect the parts life of a Skylink pump Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime Personnel familiar with the pump’s construction and service should be informed of any abnormalities that are detected during operation

维护和检查：由于每种应用都是独特的，因此每台泵的维护计划可能不同，使用频率、管路压力、粘度和工艺流体的耐磨性都会影响Skylink泵的零件寿命，定期检查可为防止泵意外停机提供最佳手段。如果在运行过程中发现任何异常情况，应通知熟悉泵的结构和服务的人员。

RECORDS: When service is required, a record should be made of all necessary repairs and replacements Over a period of time, such records can become a valuable tool for predicting and preventing future maintenance problems and unscheduled downtime In addition, accurate records make it possible to identify pumps that are poorly suited to their applications

记录：当需要维修时，应记录一段时间内所有必要的维修和更换，这些记录可以成为预测和防止未来维修问题和计划外停机的有价值的工具，准确的记录有助于识别不适合其应用的泵。

6.1 Disassembly of inlet/outlet
进出口拆卸

Tools工具: 3/4 wrenches扳手

Dismantle 16 bolts (7) which connect elbow (5,6) and outer chamber (12) by certain wrenches.
用扳手拆卸16个螺栓（7），这是连接弯头（5,6）和外腔体（12）的。

Caution: Disassembly of ball and seat please refer to maintenance of ball and seat on page 19. Before changing diaphragm,air supply must be cut and disconnect from air source. It may cause injury, damage of pump or loss of property if disassembly with pressure. Finally,drain out all material in the chamber,assure there is no material in the chamber.
注意：拆卸阀球和球座请参照第19页上的阀球和球座的维修。换气前，必须切断气源，消除气压；如果带压力拆卸，则可能造成伤害、泵的损坏或财产损失。最后，排空泵腔体内的所有物料，确保腔体内没有任何物料。

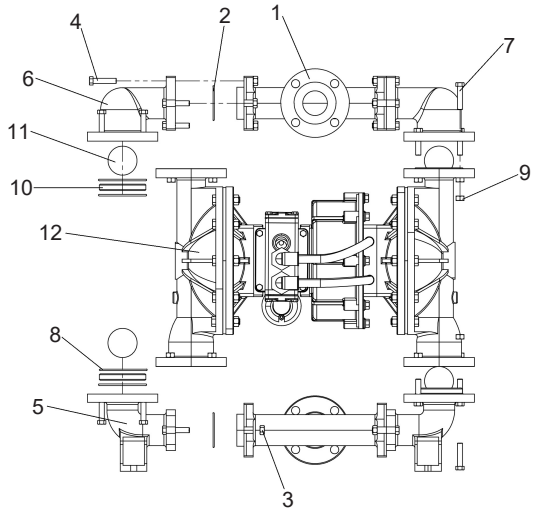


Figure 6.1 Disassembly of Inlet/Outlet进出口拆卸

6.2 Disassembly of outer chamber
外腔体拆卸

Tools工具: 13/16,15/16 wrenches 扳手

Dismantle 16 bolts (13) which connect internal chamber (28) and outer chamber (12) by certain wrenches.
用扳手拆卸16个螺栓（13），这是连接内腔体（28）和 外腔体（12）的。

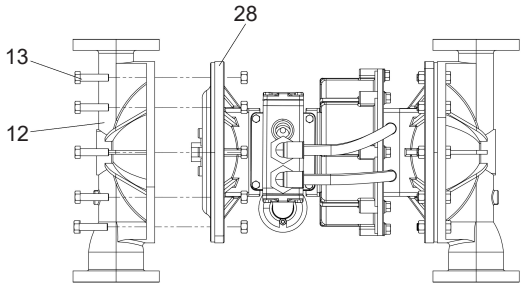


Figure 6.2-1 Disassembly of Outer Chamber外腔体拆卸

Caution注意:
Please strictly follow the sequence to tighten bolts.
请严格按照顺序拧紧螺栓。

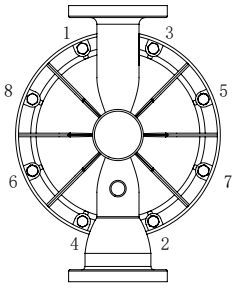


Figure 6.2-2 Disassembly Sequence of Bolts on Outer Chamber 外腔体螺栓的拆卸顺序

6.3 Disassembly of Diaphgram 膜片拆卸

1. Tool工具: monkey wrench,3/16 allen wrench.
   活动扳手，3/16内六角扳手。

2. Bench clamp.
   台钳。

Caution: Before changing diaphragm, air supply must be cut and disconnect from air source. It may cause injury, damage of pump or loss of property if disassembly with pressure. Finally, drain out all material in the chamber, assure there is no material in the chamber.

注意: 更换膜片前，必须先关气阀切断气源。如果带压拆卸，可能会造成人员伤害、泵损坏或财产损失。最后，排出腔体内的所有物料，确保腔体内没有物料。

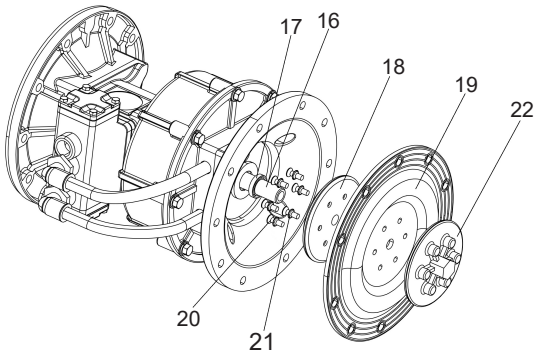


Figure 6.3 Disassembly of Diaphgram 膜片拆卸

1.Follow steps to disassemble inlet/outlet on page 14.
按照14页所述步骤拆卸入口/出口。

2.Follow steps to disassemble outlet chamber on page 14.
按照14页所述步骤拆卸腔体。

3.Using monkey wrench to turn diaphragm components (including outer washer (22),diaphragm(19)) out of mid shaft (16) in CCW.
用活动扳手将隔膜部件（包括外压板（22)、隔膜 （19）从中间轴（16）中取出。

4.Screwing off 6 bolts (20) on inner washer (18) by 3/16 allen wrench, separate outer washer (22),diaphragm (19) and inner washer(18).
用3/16内六角扳手拧紧内垫圈（21）上的6个螺丝（20），分离外压板（22）、隔膜（19）和内压板(18)。

6.4 Disassembly of air chamber 内腔体拆卸

Tool工具: 5/8 socket wrench 套筒扳手
Lift away air chamber from center section and remove center block gasket. Replace gasket if necessary.
用5/8套筒扳手把内腔体从中间体组件拆下来，并取下中间体O型圈。必要时更换中间体O型圈。

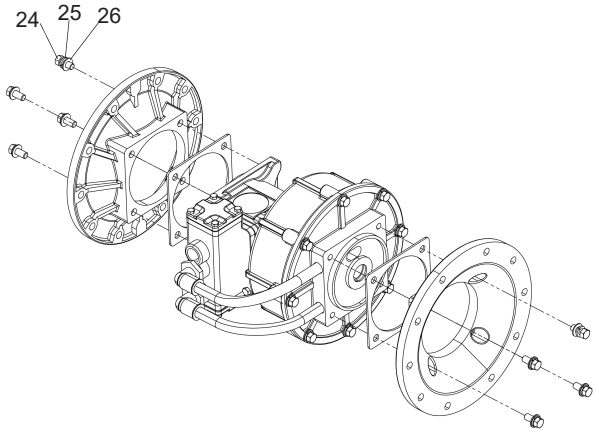


Figure 6.4 Disassembly of air chamber 内腔体拆卸

6.5 Disassembly of piston assembly 活塞组件拆卸

Tool工具: 11/16 wrench
Use a 11/16 wrench to lap the 12 screws on the piston seal, remove the piston tank seal, sequentially use the piston cylinder sealing body O-ring, piston cylinder sealing paper spacer, piston, and piston cylinder.
用5/8扳手拧松活塞缸密封体(31)上的12个螺丝，取下活塞缸密封体(31)，依次将活塞缸密封体O型圈(30)，活塞缸密封纸垫片(29)，活塞(28)，活塞缸(27)取下。

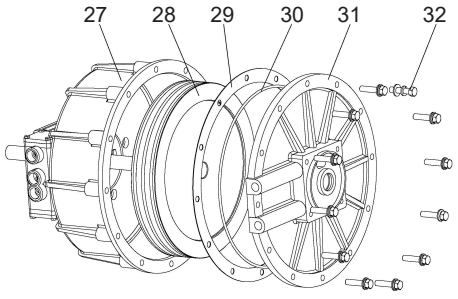


Figure 6.5 Disassembly of piston assembly活塞组件拆卸

6.6 Disassembly of center block Assembly 中间体组件拆卸

Tools工具: 1/2 wrenches扳手

Lift away main valve (32) pilot valve(34) from center block. Inspect for wear and replace if necessary. Lift away air valve assembly and remove air valve gasket. Inspect the gasket and replace if necessary.

将主气阀（32）、导向阀（34）从中间体取出，检查磨损情况，必要时更换。取下主气阀组件和主气阀密封垫片。检查垫片，在必要时进行更换。

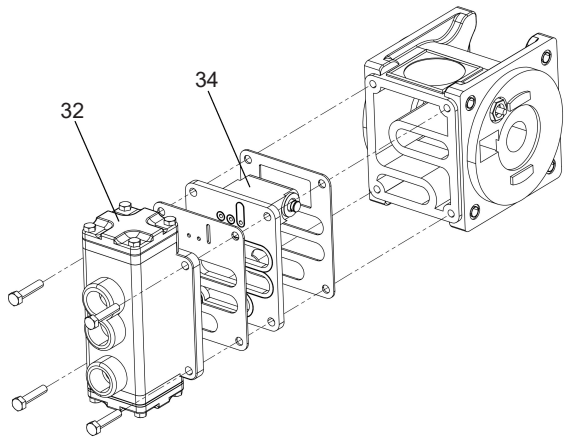


Figure 6.6 Disassembly of center block assembly 中间体组件拆卸

6.7 Disassembly of U ring & bumper plung U圈和顶针座组件拆卸

Tools工具: 20mm socket wrench 20毫米套筒扳手

Disassemble bumper plung assembly (40)which internal chamber and pick out U ring (39),replace if the U ring is damage. Check the brush (38) ,replace if brush is abrade.

拆开中间体上的顶针座组件（40），再取出U圈（39），检查，如有损坏则更换。检查轴套（38），如有磨损则更换。

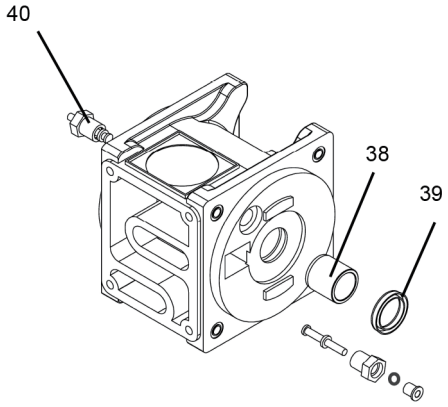


Figure 6.7 Disassembly of U ring & Bumper plung U圈和顶针座拆卸

6.8 Disassembly of Main Valve
主气阀拆卸

Tools工具: 1/2 , 7/16 wrenches扳手

Using 1/2 wrench to disassemble 4 bolts (31) on main valve (26) , take off main valve (26) and disassemble both upper and lower end caps(32) , by using 7/16 wrench, then remove end gaskets(33). Finally, push spool valve(37) out of it.

用1/2扳手在主气阀（26）上拆卸4个螺栓（31），取下主气阀（26），用7/16扳手拆卸上、下端盖（32），然后取下端盖垫片（33）。最后，将滑阀芯阀套（37）推出。

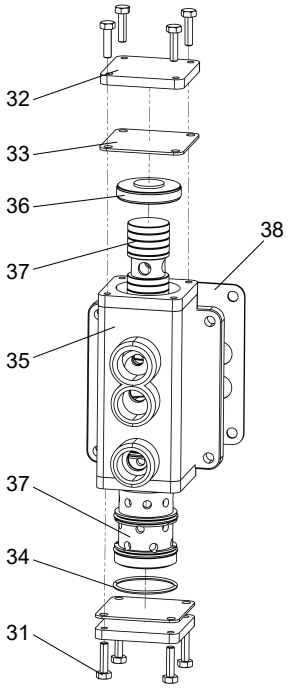


Figure 6.8 Disassembly of main Valve主气阀拆卸

Caution: before disassembling main valve, air supply must be cut and disconnect from air source. It may cause injury, damage of pump or loss of property if disassembly with pressure.

注意：在拆卸主阀之前，必须先关供气并断开气源。如果带压拆卸，可能会造成伤害、泵损坏或财产损失。

6.9 Disassembly of Pilot Valve
导向阀拆卸

Tools工具: circlip plier outer外卡簧钳

Take off poilt vavle (27) from center intermediate , extract out spool valve (56) , disassemble vavle bush (54) by using circlip plier outer.

从中间体取下导向阀组件（27），取出阀芯组件（56），用卡簧钳拆下阀套（54）。

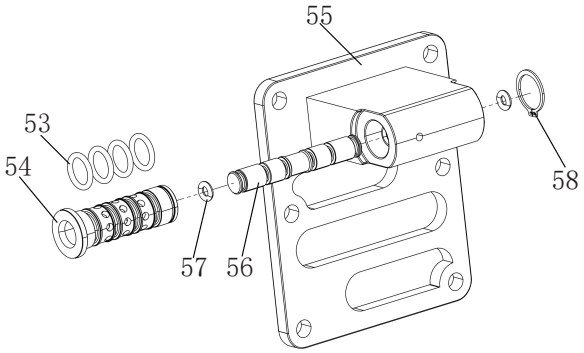


Figure 6.9 Disassembly of Pilot Valve导向阀拆卸

6.10 Maintenace of air vavle(sliding style)
主气阀维修（滑阀式）

Tools工具: 7/16, 1/2 wrenches扳手

Caution: Before disassembling main valve, air supply must be cut and disconnect from air source. It may cause injury, damage of pump or loss of property if disassembly with pressure.

注意：在拆卸主阀之前，必须先关供气并断开气源。如果带压拆卸，可能会造成伤害、泵损坏或财产损失。

remove end gaskets(33). Finally, push spool valve(37) out
Using 1/2 wrench to disassemble 4 bolts (31) on main valve (26) , take off main valve (26) and disassemble both upper and lower end caps(32) , by using 7/16 wrench, then of it.

用1/2扳手在主气阀（26）上拆卸4个螺栓（31），取下主气阀（26），用7/16扳手拆卸上、下端盖（32），然后取下端盖垫片（33）。最后，将滑阀芯阀套（37）推出。

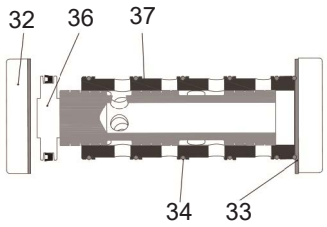


Figure 6.10-1 Section View OF Sliding Style Main Valve
滑阀式主气阀剖视图

*Spool valve and valve bush share one part(37), if one of those is damaged, the other one must be change as well.
滑阀芯和阀套是一套的，共用一个零件编号（37），如果其中一个损坏，另一个也必须更换。

a. If spool valve (37) is too loose, it drops itself without pushing, please observe if there is scratch, change both spool valve (37) and valve bush (37) together if scratch occurs.

如果滑阀芯阀套（37）太松，不需推动阀芯就会自行下落，请观察阀芯是否有划痕；如果阀芯表面有明显划痕，将该滑阀芯阀套（37）一起更换。

b. If spool valve (37) is too tight to push, the valve is stuck, also, change both spool (37) valve and valve bush (37) together.

如果滑阀芯阀套（37）太紧而不能用手指推动，则阀是被卡住；请同时将滑阀芯阀套（37）一起更换。

c. Install the end caps (32),bolts (31) back to their original position.

安装端盖（32），螺栓（31）回到原来的位置。

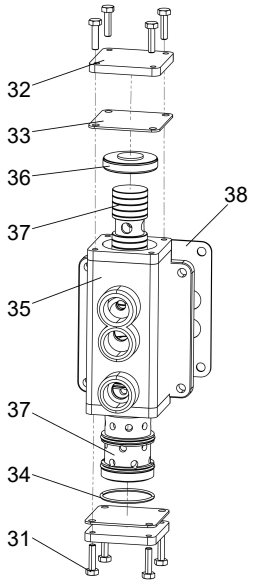


Figure 6.10-2 Sliding Style Main Valve
滑阀式主气阀

6.11 Maintenace of pilot vavle
导向阀维修

Tool工具: circlip plier outer外卡簧钳

1.Take off pilot valve (27) from center intermediate , extract out spool valve (56), disassemble valve bush (54) using circlip plier outer.
从中间体取下导向阀组件（27），取出阀芯组件（56），用卡簧钳拆下阀套（54）。

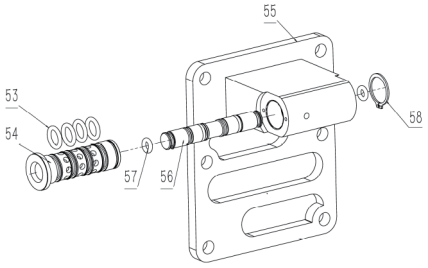


Figure 6.11 Pilot Valve导向阀

1.Follow steps to disassemble inlet/outlet on page 14. After disassemble inlet/outlet, you may see check valve (ball & seat).
1. 按照14页所描述步骤拆卸入口/出口。拆卸入口/出口后，可以看到止回阀（球体和阀座）。

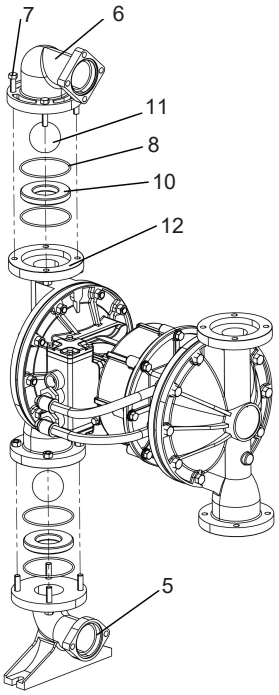


Figure 6.12 Disassembly of Check Valve(Ball & Seat)
止回阀的拆卸（阀球和球座)

2.Check if there is damage, abrasion or cut on the ball (11) surface, same method to the seat (10). Ball(11）and seat (10) must fit tightly, in order to obtain best performance, please change parts which are damaged on time.
检查阀球（11）表面是否有损坏，磨损或切割，同样的方法检查球座（10）。阀球（11）和球座（10）必须贴合紧密没有明显间隙，为了获得最佳性能，请及时更换损坏的零件。

6.12 Maintenace of ball and seat
阀球和球座维修

Tool: 5/8 11/16 wrench扳手

Caution: Before changing ball (11) and seat (10), air supply must be cut and disconnect from air source. It may cause injury, damage of pump or loss of property if disassembly with pressure. Finally, drain out all material in the chamber, assure there is no material in the chamber.
注意：在更换阀球（11）和球座（10）之前，必须先关供气并切断气源。如果带压拆卸，可能会造成人员伤害、泵损坏或财产损失。最后，排出腔体内的所有物料，确保腔体内没有物料。

3. Reinstall check valve parts.
重新安装止回阀部件。

Caution注意：

- Please make sure all bolts are fully tightened after a period time of running.
请确保所有螺栓在运行一段时间后完全拧紧。

- While disassembling check valve, please also check if there is any damage on upper and lower “O” rings (8) which are combined with balls (11).
在拆卸止回阀的同时，请检查上下球座密封圈（8）与阀球（11）是否有任何损坏。

6.13 Maintenance of diaphragms膜片维修

Suitable for 适用于H40/50/80

Tools工具:

1.monkey wrench, 3/16 allen wrench.

活动扳手，3/16内六角扳手。

2.Bench clamp

台钳。

Caution：Before changing diaphragm, air supply must be cut and disconnect from air source. It may cause injury,damage of pump or loss of property if disassembly with pressure. Finally, drain out all material in the chamber, assure there is no material in the chamber.
注意：更换膜片前，必须先关气阀切断气源。如果带压拆卸，可能会造成人员伤害、泵损坏或财产损失。最后，排出腔体内的所有物料，确保腔体内没有物料。

1.Follow steps to disassemble inlet/outlet on page 14.
按照14页所述步骤拆卸入口/出口。

2.Follow steps to disassemble outer chamber on page 14.按照14页所述步骤拆卸腔体。

3.Using monkey wrench to turn diaphragm components (including outer washer (22), diaphragm (19)) out of mid shaft (16) in CCW.

用活动扳手将隔膜部件（包括外压板（22）、隔膜（19））从中间轴（16）中取出。

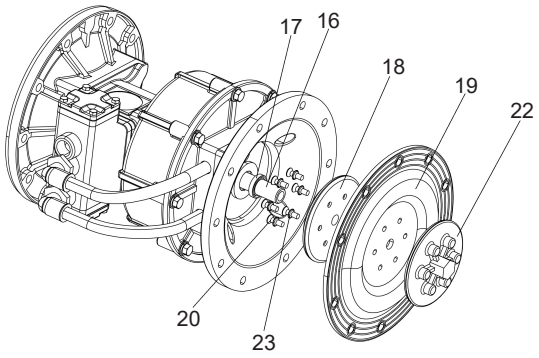


Figure 6.13-1 Disassembly of Diaphragm Assembly
膜片组件拆卸

4.Screwing off 6 bolts (20) on inner washer (18)by 3/16 allen wrench, separate outer washer (22), diaphragm (19) and inner washer (18).

用3/16内六角扳手松开内压板（18）上的6个螺栓（20），分离外压板（22）、隔膜（19）和内压板（18）。

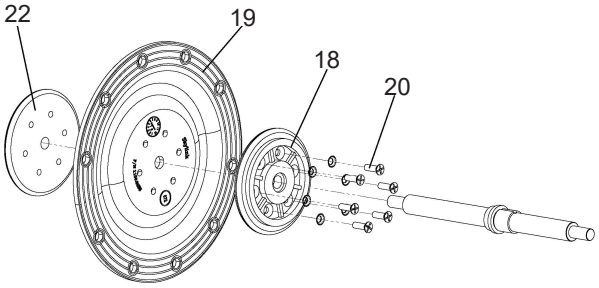


Figure 6.13-2 Parts of Diaphragm
隔膜组件零件图

5.Installation steps in reverse order.

安装步骤与上面的顺序相反。

Caution注意：

- Please make sure all bolts are fully tightened after a period time of running.
  请确保所有螺栓在运行一段时间后完全拧紧
- Spring washer cannot be reused.
  弹簧垫圈不能重复使用。
- One side which with words must be facing inside.
  特氟龙和三道橡胶隔膜有字的一面必须朝内侧。
- PTFE graphragm must be applied together with rubber diaphragm, which is installed outside of rubber diaphragm.
  聚四氟乙烯（特氟龙）隔膜必须与橡胶隔膜一起安装，并且安装在橡胶隔膜的外与物料接触的一侧。

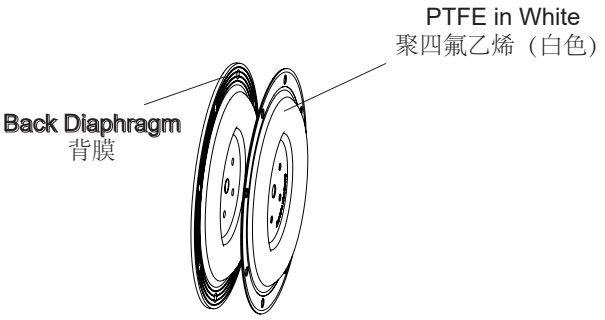


Figure 6.13-3 Installation of Double Diaphragms
双隔膜的安装

Malfunction description 故障描述	Reason 原因	Solution 解决方法
Pump is working, but no fluid is discharged or low outlet pressure, few fluid is discharged. 泵在工作，但没有流体排出或出口压力低，很少有流体排出。	Due to serious damage of check valve(ball & seat), so that it is not able to seal properly 止回阀（球和阀座）严重磨损无法密封	Dismantle both upper and bottom seat, if a huge gap between ball and seat, ball can be changed, seat can be continued using flip. 拆开上、下两个球座，如果球与座之间有较大间隙，则可更换球，球座可翻一面继续使用
	Main valve serious damage, air leakage 主气阀严重磨损，漏气	Change spool valve & valve bush of main valve 更换主气阀的滑阀芯阀套
	Fluid inlet or pipe are unsealed 流体入口或管道未密封好	Check if fluid inlet and pipe are sealed properly 检查流体入口和管道是否已被正确密封
	Exceed pump's performance 超出泵的工作能力	Adjust installation position of pump, as closer to fluid as possible. 泵的安装位置越靠近流体越好
	"O"ring of pilot valve damages 导向阀密封圈磨损	Check pilot valve 检查导向阀
	Damage of internal spring or "O" ring of quick adapter which is connected to the pump.进气快接头内的弹簧或 O 型圈损坏	Dismantle quick adapter, check if it works after connect to the air source 拆除快接头，重新连接气源后看泵是否恢复正常
	Unsealing due to loosen bolts 螺栓松	Tightening all bolts 紧固所有螺栓
	Outlet is blocked 出口堵塞	Check outlet and valve opening 检查出口阀门是否开
	Ball is not able to fully return by its own weight and seal due to high viscosity of fluid 由于流体太粘稠球无法通过自重回落密封	Change a heavier ball or stainless steel ball 更换重球或者不锈钢球
	Unsealing due to damage of "U" ring of shaft, "O" ring of thimble or gasket of pilot valve. 由于中间轴的“U”圈、顶针的 O 型圈或导向阀垫片的损坏无法密封。	Check all rings, gaskets, change if damaged 检查所有密封圈，垫片，如有损坏更换
	Fluid leaks out form muffler due to damage of diaphragm or washer. 隔膜或垫圈损坏，流体从消声器中泄漏出来。	Change diaphragm, tightening washer 更换隔膜，紧固压板
	Insufficient air pressure or air flow 气压或气流量不足	Increase air pressure or air flow 增加气压或气流量
	Flow limit due to inflation of ball 阀球膨胀导致流量受限制	Check chemical compatibility of ball material and fluid 检查阀球与流体的化学适应性
Pump is not working 泵不工作	Main valve is stuck, unmovable by hand serious damage of spool valve of main valve, huge gap causes air leakage 主气阀卡死，手指推不动，或滑阀芯严重磨损，间隙大造成漏气	Change spool valve & valve bush 更换滑阀芯阀套
	Pores of pilot valve are blocked, glyd ring of valve bush damages seriously, air leakage 导向阀小孔堵塞，阀芯格莱圈严重磨损，漏气	Clean up valve casing, change Spool assembly 清理阀套，更换阀芯组件
	Valves of inlet and outlet stay shut 进出口阀门关闭	Release valves 打开进出口阀门
	Muffler is blocked, air suffocate 消音器堵塞，无法排气	Change muffler 更换消音器
	Damage of thimble sealing, thimble socket; bend of thimble and other issue 顶针密封、顶针座损坏、顶针弯曲等问题	Change thimble and socket 更换顶针及顶针座
	Thimble falls into mid chamber 顶针掉入中间体	Change mid chamber 更换中间体组件
	Excessive lubrication 过度润滑	Decrease lubricating oil volume in oil-water separator 降低油水分离器润滑油流量
	Air leakage due to "U" ring of shaft damages seriously 中间轴 U 圈严重损害导致漏气	Change "U" ring 更换 U 圈

	Air valve stays shut 气阀关闭	Solenoid valve fails or air source is shut 电磁阀失灵或气源关闭
	Mid chamber occurs pores due to corrosion 中间体因腐蚀穿孔	Change mid chamber 更换中间体
	Air valve, pilot valve, air inlet gasket damage 气阀、导向阀进气垫片损坏	Change damaged parts 更换损坏零件
	Material solidified in cjamber 物料凝固在腔体	Dismantle chamber and clean up 拆开腔体清理
Pump is working after outlet valve is shut 出口阀门关闭后泵仍在工作	Outlet valve is not totally sealed 出口阀门没有完全密封	Shut outlet valve totally or change it 完全关闭出口阀门或更换阀门
	Check valve(ball & seat) is not totally sealed, sundries might be stuck between 止回阀（阀球和球座）无法完全密封，有杂物卡在球和球座之间	Change check valve(ball & seat) of clean sundries 清除止回阀（阀球和球座）间的杂物
After a period of time works normally, the pump fails to work, then it back to normal again after a few hours in winter time 在冬天经过一段时间的正常工作，泵停止工作，然后几小时后又恢复正常。	Pump is frozen 泵结冰	Keep air sorce dry and moisture percentage of air source as less as possible. release water in air compressor, air container air pipes on time 保持气源干燥，降低气源的湿度百分比。及时排放空压机、储气罐和气管中的水
		Change surrounding environment, keep warm in order to avoid freezing 改变周围环境保暖以避免结冰
		Slow down working frequency, so that avoid freezing 放慢工作频率，以免结冰
		Add a few lubricating oil, lower the freezing point 加入少量润滑油，降低冰点
Noise or abnormal sound 噪音或声音异常	Sound due to ball in the pump shell 球撞击声音	无需维修，不影响正常使用
	Mid chamber occurs a loud noise when release air 中间体排气时发出很大的声音	Change muffler 更换消音器
Outlet occurs bubble 出口出现气泡	Inlet or inlet pipes are not sealed properly 入口或入口管道未正确密封	Check if fluid inlet and pipe are sealed properly 检查入口或入口管道是否正确密封
	Air leakage due to damage of diaphragm or looseness of washer 隔膜损坏或压板松动引起的空气泄漏	Change diaphragm, tightening washer 更换隔膜，紧固压板
Fluid leaks from chamber 流体从消音器泄露出来	Leakage occurs around bolt 螺栓周围发生泄漏	Retightening bolt 再拧紧螺栓
	Leakage occurs around muffler 消音器周围发生泄漏	Check diaphragm and washer 检查隔膜和压板