

VERDERAIR®

VERDERAIR HC-PURE FD SERIES

The most efficient diaphragm pump

21-VA-MA_Manual_HC-PURE FD_en

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PUMP MATRIX

Before putting your pump in operation remove all packing materials after reception. Check the consignment for damage at once and make sure that the name plate / type designation is in accordance with the packing slip and your order. All pumps have identification plate (ID) located on the pump housing. The ID is mentioning the year of construction, the serial number and the construction code of the pump.

Use the matrix below to define the components of your pump. Make sure the wetted parts of the pump are compatible to the pumped liquid.

NOTE:

In case of doubt, please contact your local supplier (www.verderliquids.com). To build a pump code, please see the below coding system.

PUMP CODING VA-HCP FD SERIES						
Size	Housing	Seat and o-rings	Valves	Diaphragms	Connections	Options
15	SN: SS316L	ST: SS316L /	EP: EPDM ball	TO: PTFE overmolded	D2 : DN25 DIN 11851	FD: Food grade
25	pump with PA6	PTFE o-rings	TF: PTFE ball	EO: EPDM overmolded	T2 : Tri-clamp	00: Industrial
40	air section	SE: SS316L /			1" (ASME BPE)	SS: Stroke sensor
50	SG: SS316L	EPDM FDA o-rings			D5 : DN50 DIN 11851	RE: Remote
	pump with PE				TC : DN50 DIN 32676	DM: Draining manual
	conductive air				D4 : DN40 DIN 11851	BS: Barrier system, sensors only
	section				T4: Tri-clamp	LS: Leak detection, sensor only
					D6 : DN65 DIN 11851	
					TC : DN65 DIN 32676	

Example : VA-HCP25 SG ST TF TO D4 FD


Approvals

EC 1935/2004, FDA, CE, UKCA, ATEX

Notes:

- Not all combinations are available, contact your local supplier for more info.
- Some of the mentioned options can be combined in 1 pump, for available combinations please check the list at page 22

ATEX

The VA-HCP with center housing manufactured from Conductive Polyethylene is ATEX certified  II 2G/2GD Ex h IIC/IIIC T70°C Gb/Gb Db. The pumps have to be grounded following the instructions on page 8.

When using conductive diaphragms at the liquid side, no restrictions are applicable.


When using non - conductive diaphragms, the following protective measures have to be taken into account:

- Pumped liquid must be conductive or soluble in water
- Dry running have to be prevented by means of monitoring systems which are placed in the pump system

WARNINGS

The following warnings are for the setup, use, grounding, maintenance and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure specific risk. When these symbols appear in the body of this manual, refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual were applicable.

WARNING




FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See grounding instructions.
- Use only grounded hoses.
- If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable materials and gases. To help prevent fire and explosion:



- Clean plastic parts in a well ventilated area.
- Do not clean with a dry cloth.

WARNING**EQUIPMENT MISUSE HAZARD**

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the Pressure Relief Procedure in this manual when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

**PRESSURIZED EQUIPMENT HAZARD**

Fluid from dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow Pressure Relief Procedure in this manual, when you stop the pump and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

**THERMAL EXPANSION HAZARD**

Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.



- Open a valve to relieve the fluid expansion during heating.
- Replace hoses proactively at regular intervals based on your operating conditions.



WARNING



PLASTIC PARTS CLEANING SOLVENT HAZARD

Use only compatible water-based solvents to clean plastic structural or pressure-containing parts. Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage. See Technical Data in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's warnings.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.



- Read MSDS's to know the specific hazards of the fluids you are using.
- Route exhaust away from work area. If diaphragm ruptures, fluid may be exhausted with air.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Always wear impervious gloves when cleaning equipment.



BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.
- Wait until equipment/fluid has cooled completely.



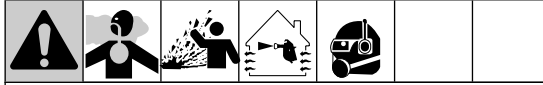
PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss.



- This equipment includes but is not limited to:
- Protective eyewear, gloves, and hearing protection
 - Protective clothing

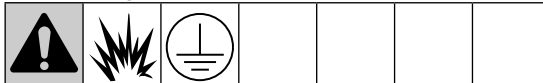
Mounting



- The pump exhaust air may contain contaminants. Ventilate the remote area. See Air Exhaust Ventilation on page 8.
- Never move or lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the Pressure Relief Procedure on page 10 before moving or lifting the pump.

1. Be sure the mounting surface can support the weight of the pump, hoses and accessories, as well as the stress causes during operation.
2. Make sure the surface is flat and that the pump doesn't wobble.
3. For ease of operation and service, mount the pump so fluid inlet and fluid outlet ports are easy accessible.

Grounding



The equipment must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in event of a short circuit. In the side housing a grounding connection is included.

Check your system electrical continuity after the initial installation. Set up a regular schedule for checking continuity to be sure proper grounding is maintained.

Please note that the center housing is available in two materials of which only PE is conductive. **NEVER** use a non-conductive pump with non-conductive flammable fluids. Follow your local fire codes. When pumping flammable fluids, **ALWAYS** ground the entire fluid system as described.

Air line

See on recommended installation drawing on page 7.

1. Install an air regulator and gauge. Set pressure of the driving air should be limited to the pressure required pressure required to run the pump on the desired working point. Setting the pressure too high will cause higher wear of the pump and will increase the compressed air consumption. The fluid stall pressure will be same as the setting of the air regulator.

2. If the air regulator do not have a bleed of function to relieve trapped air, or the air regulator is not placed closed to the pump, locate a bleed-type master air-valve close to the pump. Be sure the valve is easily accessible from the pump.



Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing.

3. A throttle valve can be used to regulate the flow rate of compressed air to the pump. By using a throttle valve it is possible to regulate the pump speed even at the lower end of the curves.
4. Install a grounded, flexible air hose between the accessories and the pump air inlet. The inner diameter of the hose have to be the same diameter of the air connection of the pump or bigger.

Air exhaust ventilation



Do not restrict the air exhaust port. Excessive exhaust restriction can cause erratic pump operation. At a diaphragm rupture, it is possible the pumped liquid will escape through the muffler. To prevent this, the operational diaphragm monitoring and barrier chamber can be used. Another possibility is to remote the air exhaust to a safe environment.

Fluid suction line

1. A shut of valve should be installed just before the pump to isolate the pump from the system for maintenance and installation.
2. Always use a flexible connection to avoid vibrations being brought into the piping system. The hoses should be grounded.
3. For sealing use an appropriate sanitary gasket compatible with the connections of pump.
4. Use a suction line which can stand vacuum. By the pumping action, vacuum will be created at the suction side of the pump.
5. The inner diameter of the hose should be equal to the connection diameter of the pump.
6. If the inlet pressure to the pump is more than 25% of the outlet working pressure, the ball check valves will not close fast enough, resulting

in inefficient pump operation and is a possible cause of noise.

7. Inlet pressure greater than 1 bar (15 PSI), diaphragm life will be shortened.

Fluid outlet line

1. A shut of valve should be installed just after the pump isolate the pump from the system for maintenance and installation. A drain valve should be installed to relief the pressure of the pump.
2. Always use a flexible connection to avoid vibrations being brought into the piping system. The houses should be grounded.
3. For sealing use an appropriate sanitary gasket compatible with the connections of the pump.

3. As UV – radiation can damage Polyethylene. This must be taken in account by installing VA-HCP pumps made out of PE (pump code VA-HCPXX SG)
4. The air-valves used in VA-HCP pumps are manufactured with tight tolerances. They should be used with clean, dry and oil-free compressed air. If the quality of the compressed air at the place where the pump is installed is not optimal, it is possible to install a dryer and/or a water separator. Please contact your distributor for more detailed information.
5. VA-HCP pumps are dry self-priming. So they don't need to be filled before first use. The figures of the possible suction heights can be found in the technical information (see page 21).

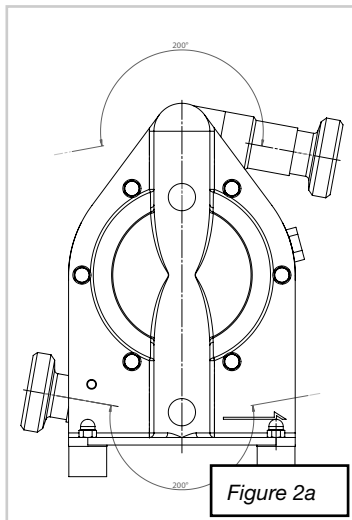


Figure 2a

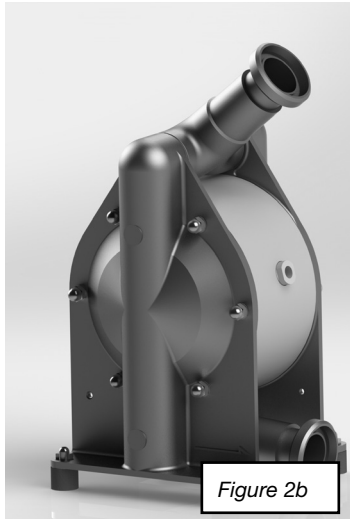


Figure 2b

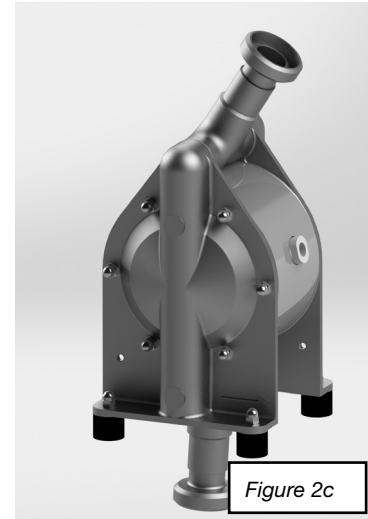


Figure 2c

Fluid inlet and outlet ports

1. VA-HCP pumps are having the suction (bottom) and discharge (top) connections between side housings of the pump, both connections can be rotated within a maximum range of around 200 degree. The connections can be rotated by loosening the assembly pins first. After setting them in the required position, tighten the pump again to the required torque.
2. Exemplary locations of connections are shown in the figure Figure 2a, 2b, 2c.

Installation remarks

1. VA-HCP pumps must be installed load free to avoid possible damage of pumps and/or installation.
2. VA-HCP pumps will be delivered with blind plugs to prevent dust or other materials to enter the pump. Those plugs have to be removed before installing the pump.

6. VA-HCP pumps will building up pressure at the liquid side up to the pressure set on the compressed air-inlet of the pump. If this pressure is higher than the rated pressure of the discharge line, a pressure relief valve or another pressure safety equipment should be installed at the discharge side of the pump.
7. VA-HCP pumps can stall against a closed discharge line without damage. The pump will stop working when the pressure at the liquid side of the diaphragms is equal (or higher) then the compressed air pressure at the sir-side of the diaphragm. As soon the pressure at the liquid side will drop below the compressed air pressure, the pump will restart automatically.

OPERATION

Pressure Relief Procedure



Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing.

1. Shut off the air supply to the pump.
2. Open the dispensing valve, if used.
3. Open the fluid drain valve to relieve fluid pressure. Have a container ready to catch the drainage.

Sanitize the pump before first use

The pump was tested before leaving the factory. Residue of the testing water can be left in the pump. To avoid contamination, flush the pump before first use. It is the user's responsibility to properly sanitize the pump before first use.

Starting and adjusting the pump

1. Be sure the pump is properly grounded. See page 8 for proper grounding.
2. Check fittings to be sure they are tight. Tighten fluid inlet and outlet fittings securely.
3. Place the suction tube (if used) in fluid to be pumped.

NOTE: If fluid inlet pressure to the pump is more than 25% of outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.

4. Place the end of the fluid hose into an appropriate container.
5. Close the fluid drain valve.
6. Back out the air regulator knob and open all bleed-type master air valves.
7. Slowly increase air pressure with the air regulator until the pump starts to cycle. Allow the pump to cycle slowly until all air is pushed out of the lines and the pump is primed. Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing.
8. If you are flushing, run the pump long enough to thoroughly clean the pump and hoses.
9. Close the bleed-type master air valve.

Pump shutdown



At the end of the work shift and before you check, adjust, clean or repair the system, follow **Pressure relief procedure** page 10.

Special precautions

1. When medium is left in the pump chambers his can generate chemical reactions when pumping another fluid. Always flush pumps with a neutral fluid before changing from medium.
2. Take care liquids left in the pump chamber can't freeze, this can damage the pump.
3. It is possible to run the pumps on nitrogen gas instead of compressed air. Take care about sufficient ventilation around the pump as the exhaust of the pump will put nitrogen gas in the atmosphere.
4. Using the pump submerged: It is necessary to connect the air outlet of the pump to the atmosphere be using a flexible hose, to prevent liquid to enter the air side of the pump. Take in consideration, all external parts of the pump must be 100% resistance to the medium where the pump is placed in. Special care have to been taken the pump standing 100% vertical and can't to float in all circumstances.
5. In case of big changes in temperature while operating, it is necessary to control the tension on the bolts carefully. Sudden big temperature shocks can cause over on under tightening of the pump and will lead to leaks and/or damage the pump.

MAINTENANCE / REPAIR

Flushing and storage

Flush the pump often enough to prevent fluid you are pumping from drying or freezing in the pump and damage it. Always flush the pump follow the Pressure relief procedure on page 10 before storing it for any length of time. Use a compatible flushing agent. Flush the pump long enough to be sure it is completely free from any previously pumped liquid.

Tightening threaded connections

Before each use, check all hoses for wear or damage and replace as necessary. Check to be sure all threaded connections are tight and leak-free. Tighten and retorque the pump if necessary. Use torque values on page 22.

Preventive maintenance schedule

Establish a preventive maintenance schedule, based on the pump's service history. This is especially important for prevention of spoils or leakage due to diaphragm failure.

Disassembly

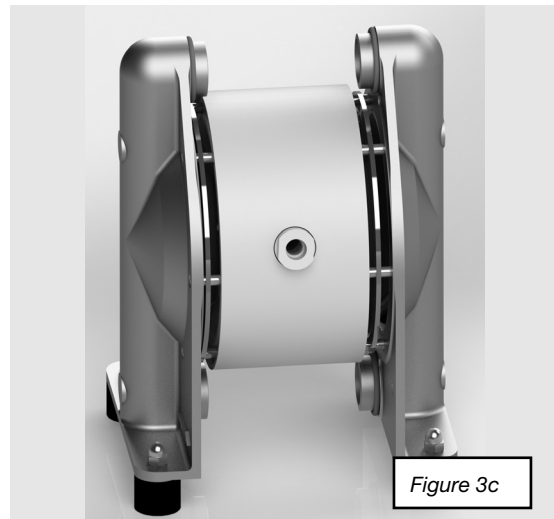
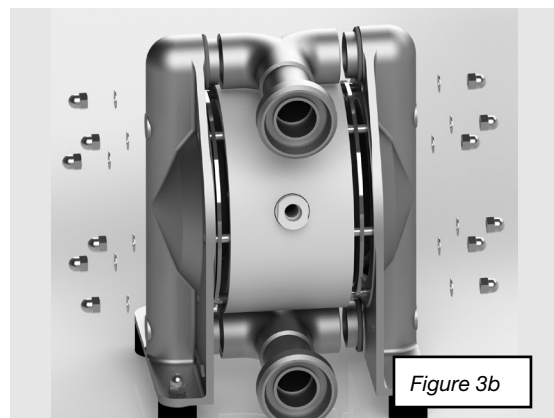
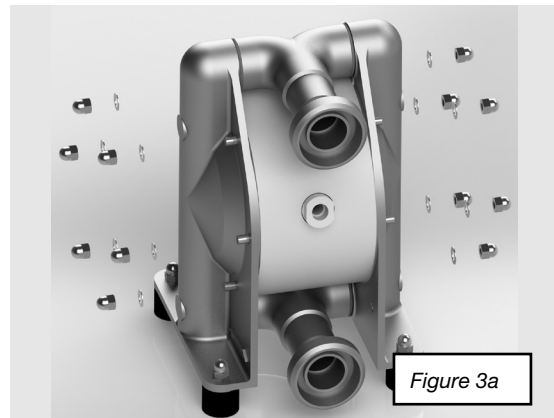
IMPORTANT:

- **Follow the pressure relief procedure at page 10 before starting to work at the pump!**
- **After a diaphragm rupture always make sure no liquid is left at the air side of the pump. Especially the muffler (07) have to be checked before opening the pump.**

Every VA-HCP pump is delivered with an AV (Air Valve) tool (Figure 7a, 7b, 7c, 7d) which has on side pins to disassemble the air valve (27) and the opposite side can be used to push out the outer part of air valve from the center housing.

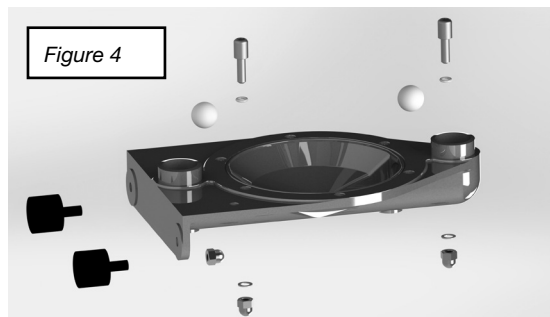
Disassembly of the side housings

To have access the internal parts of the pump, it must be dismantled first. Unscrew the bolts on the assembly pins (23), remove the spring washers, than slide the side housings (2) apart a little and remove the manifolds (3). Take care not to damage the thread of the manifolds. Next remove the side housings completely. Remove the assembly pins (23) from the center housing and diaphragms.



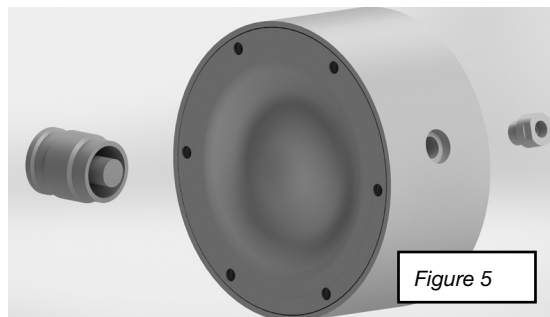
Disassembly of the ball valves

To have access to the ball valves you need to disassembly of the side housings first. To get the ball valves (11), unscrew the valve stoppers (15) by unscrewing the bolts. O-rings manifold outside (21) and o-rings valve stoppers can be replaced if necessary. The shock absorbers (6) are bolted with a dome nut.

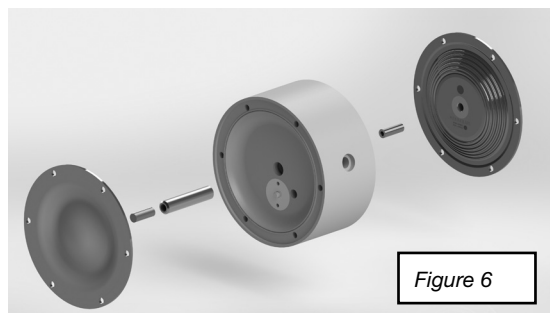


Disassembly of the center housing, diaphragms and air valve

Unscrew the air inlet connector (5) and the muffler (7)

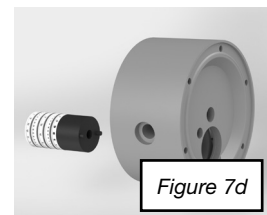
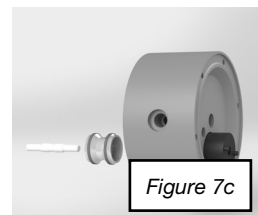
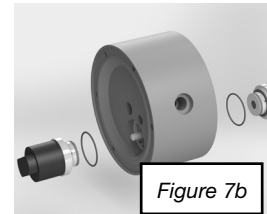
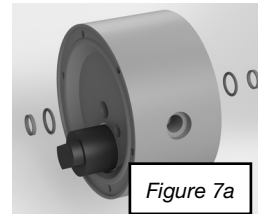


Diaphragms (17) to the diaphragm shaft (19) are bolted with the diaphragm shaft screw (18). Unscrew one diaphragm (left turning) of the diaphragm shaft. Pull the diaphragm shaft with the second diaphragm out of the center housing (1). Unscrew the second diaphragm from shaft then unscrew the diaphragm shaft screw from both diaphragms.



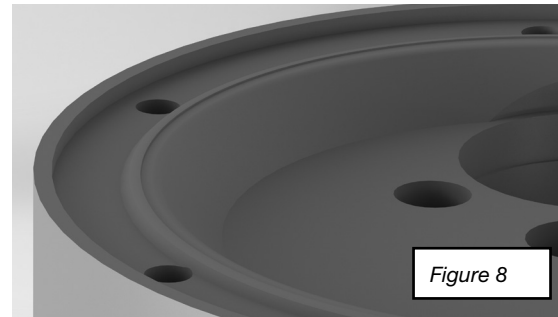
Remove carefully the diaphragm shaft bearings and o-rings (20) from their grooves in the center housing (If disassembled, they need to be replaced!). Take care not to damage the edges of the grooves.

Unscrew both end caps of the air valve (27) by using the AV tool (Figure 7b). Push out the main-valve and the air valve shaft. Push out the air-valve housing.



Assembly

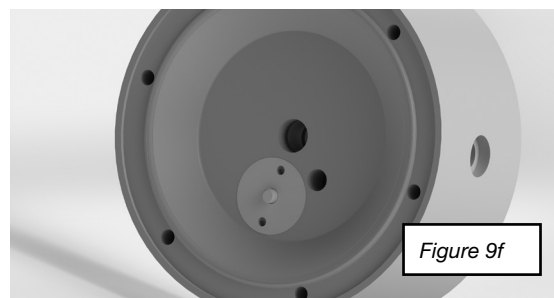
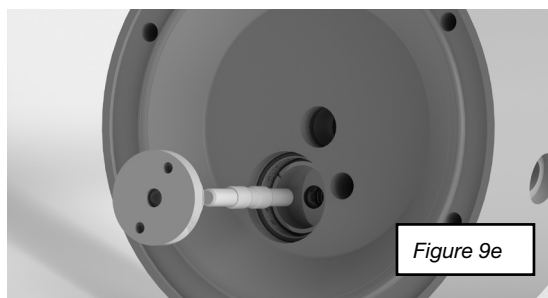
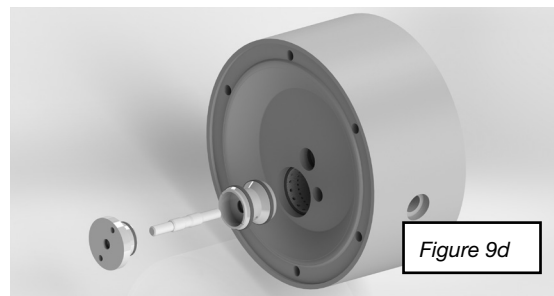
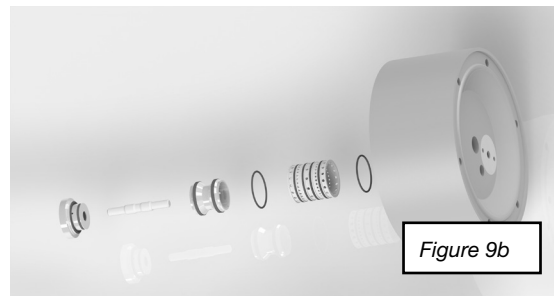
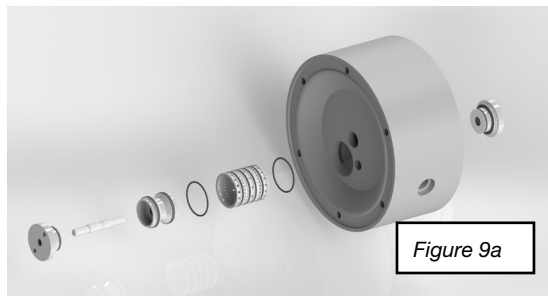
Before starting to assemble please check all parts on possible damages. Especially the sealing area of the diaphragms have to be free from scratches



Assembly of the center housing

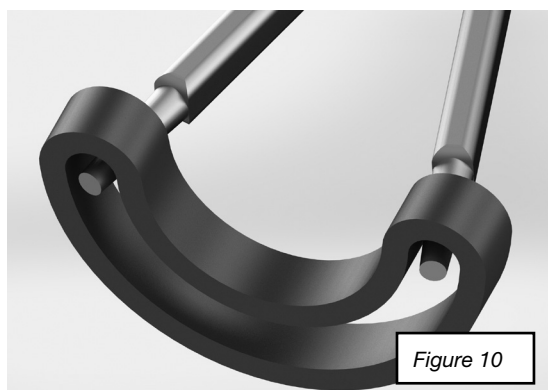
Remove the end caps of the air valve, the main-valve and the air valve shaft out of the air-valve (27). Screw one end cap flush into the center housing (1) by using the AV tool (see figure 9b). Put one of the six air-valves housing o-rings part of (27) into the end cap.

Push the air-valve housing in the center housing until it touches the end cap (use the reversed side of the AV tool for this – figure 9c). Be sure the four air valve-housing o-rings are kept in their seat. Push the main-valve on the air valve shaft in the center housing.



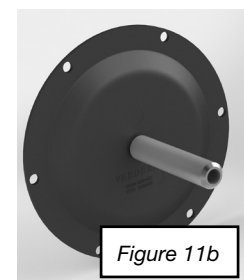
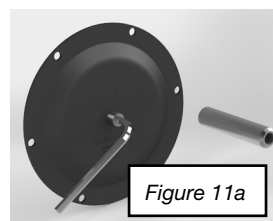
Put the last air-valve housing o-ring on top of it and screw the second end cap flush with the center housing using the AV tool (see figure 9f).

Screw the muffler (7) and the air inlet connector (5) into the center housing. Put the diaphragm shaft o-rings (20) in the groove of the center housing. Press them there with finger. Put the diaphragm shaft bearing in the groove of the center housing by forming them as kidney's with locking ring pliers (see figure 10). Push them into the groove with a round tool.



Assembly of the diaphragms and the diaphragms shaft

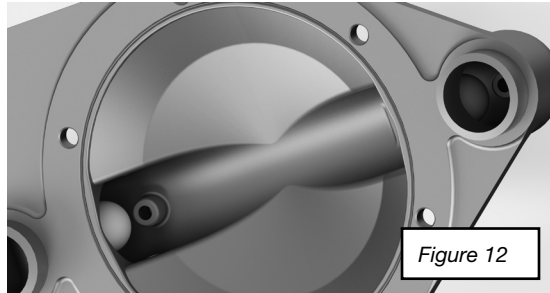
Screw the diaphragm shaft screws (18) into the diaphragms and tighten. Screw one diaphragm (17) completely into the diaphragm shaft (19). Push the shaft in the center housing and screw the second diaphragm completely into the shaft.



Adjust when necessary the position of the holes for the assembly pins by turning one of the diaphragms a little backwards. Screw into the center housing the muffler (7) and the air inlet connector (5) (see figure 5).

Assembly of the side housings

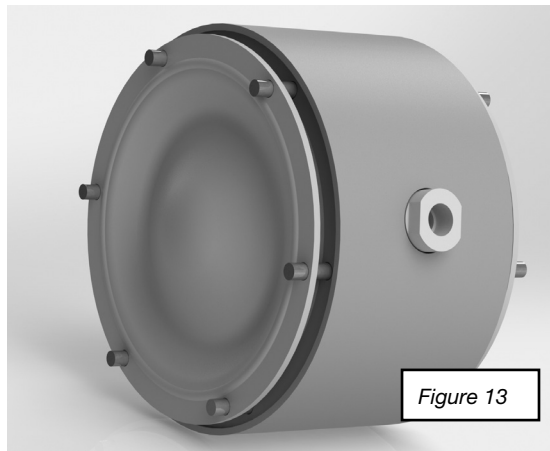
Insert the ball valves (11) into both seats on the side housing (2) (see figure 12).



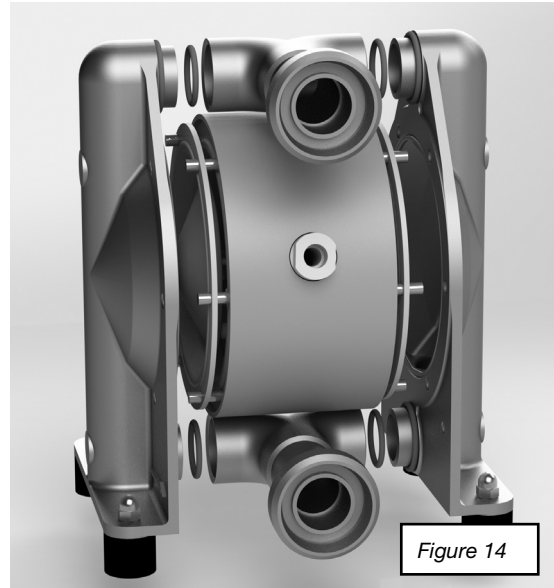
Put the o-ring on the valve stop (15) then screw it into the side housing with spring and bolt. Apply the o-ring manifold outside (21) on the side housing's sleeves. Screw the shock absorbers (6) to the side housing.

Assembly of the pump

Slide the set of assembly pins (23) into the both diaphragms (17) and center housing (1). Slide both side housings (2) onto the protruding assembly pins. Add manifolds (3) between the side housing's sleeves (do not forget to insert the o-ring manifold inside (22) into them).



Slide both side housings together (important – pay attention to where the air inlet connector is located, so that it is easily accessible after screwing the pump), taking care that the manifolds are in the correct position, then add spring washers and screw the dome nuts on one side. Press down on the other side housing and add the spring washers and screw the dome nuts on the other side (see figure 14). Tighten the pump with the appropriate torque values as mentioned on page 22.



TROUBLESHOOTING

Problem	Cause	Solution
Pumps cycles at stall or falls to hold pressure at stall	- Worn check valves and/or o-rings	- Replace worn parts
Pump will not cycle or cycle once and stops	- Air valve is dirty - Air valve is leaky - Air valve is blocked - Check if valve ball is not stucked in seat or chamber - Icing of the muffler and/or air valve - Not sufficient air pressure - Discharge line is closed - Suction line closed - Diaphragm rapture	- Clean or replace the air valve (use filtered air!) - Replace air valve - Replace air valve - Replace valve balls - Improve air quality - Check air supply system on blockage and/or leakage, or increase air supply - Open valve in the discharge line and/or check on blockage - Open valve in the suction line and/or check on blockage - Replace the diaphragms and clean the pump
Pumps operates erratically	- Clogged suction line - Check valves sticky or blocked - Diaphragm rapture - Restricted exhausted - Air valve is leaking or blocked	- Check suction line - Clean or replace valves - Replace the diaphragms and clean the pump - Remove restriction (check on icing!) when necessary replace muffler - Replace air valve
Air bubbles in fluid	- Suction line is loose - Diaphragm rapture - Suction container empty - Cavitation	- Tighten - Replace the diaphragms and clean the pump - Fill or replace suction container - Check suction condition and adapt when necessary
Fluid in exhaust air	- Diaphragm rapture	- Replace the diaphragms and clean the pump
Insufficient discharge pressure	- Not enough air pressure - Air supply is leaking - Check valves worn - Air valve is leaking	- Increase compressed air pressure or heck if no other components are consuming to much air on the same compressed air line - Check and repair - Replace check valves - Replace air valve
Discharge is decreasing	- Other components are consuming to much air on the same air supply line - Air supply is reduced - Suction strainer is blocking - Discharge strainer is blocking - Medium becomes more viscous - Muffler blocked	- Increase the volume of air - Check air supply system on blockage/or leakage - Clean suction strainer - Clean discharge strainer - Check why and if necessary adjust pump settings - Clean out or replace. Check on icing!
Pump is running but not enough suction capability	- Pump is running to fast - Cavitation - Suction strainer is blocking - Suction line closed - Worn check valves - Leak in suction line and/or suction connections	- Starting-up pump slow running. Once pump is filled with liquid you can run the pump faster - Check suction condition and adapt when necessary - Clean suction strainer - Open valve in the suction line and/or check on blockage - Replace worn parts - Repair and make leak tight

PARTS & KITS

Parts

SEE SEPERATE PARTS LIST

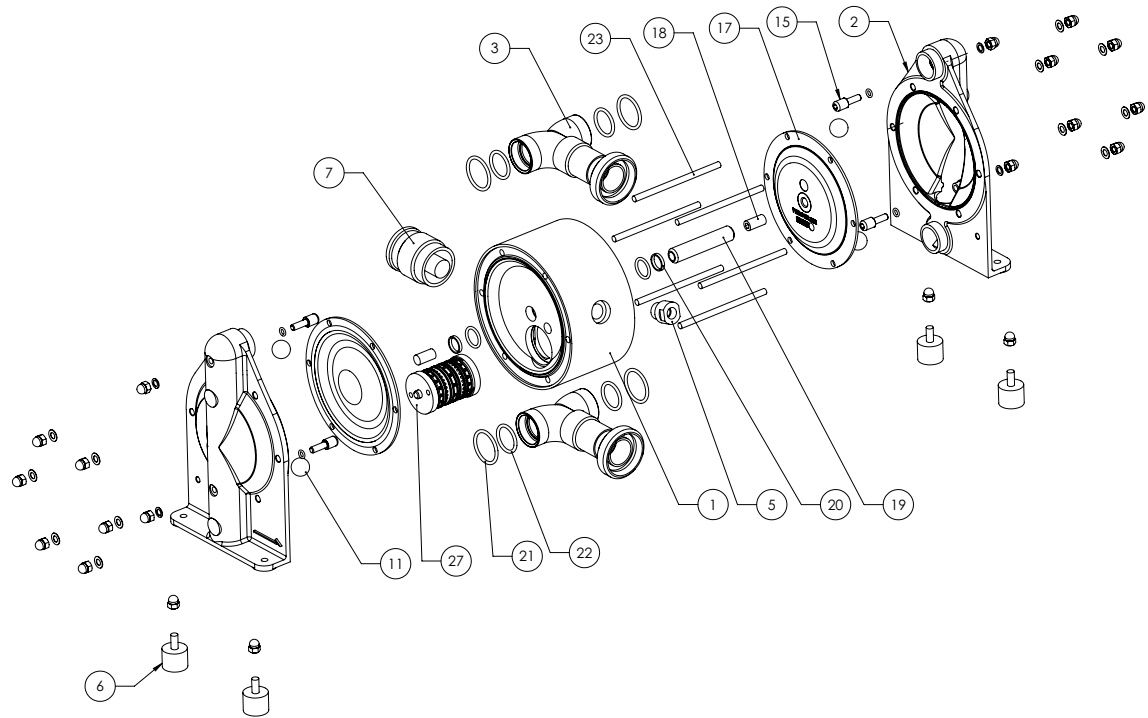
Kits

In case of break down, we recommended to have a spare part kit for your pump on stock.

SPARE PART KIT, CONTENT	Quantity
O-ring, manifold outside (21)	4
O-ring, manifold inside (22)	4
Ball valve (11)	4
Diaphragm (17)	2
Shaft seal, cpl. (20)	1
Muffler (7)	1
Air valve cpl. (27)	1

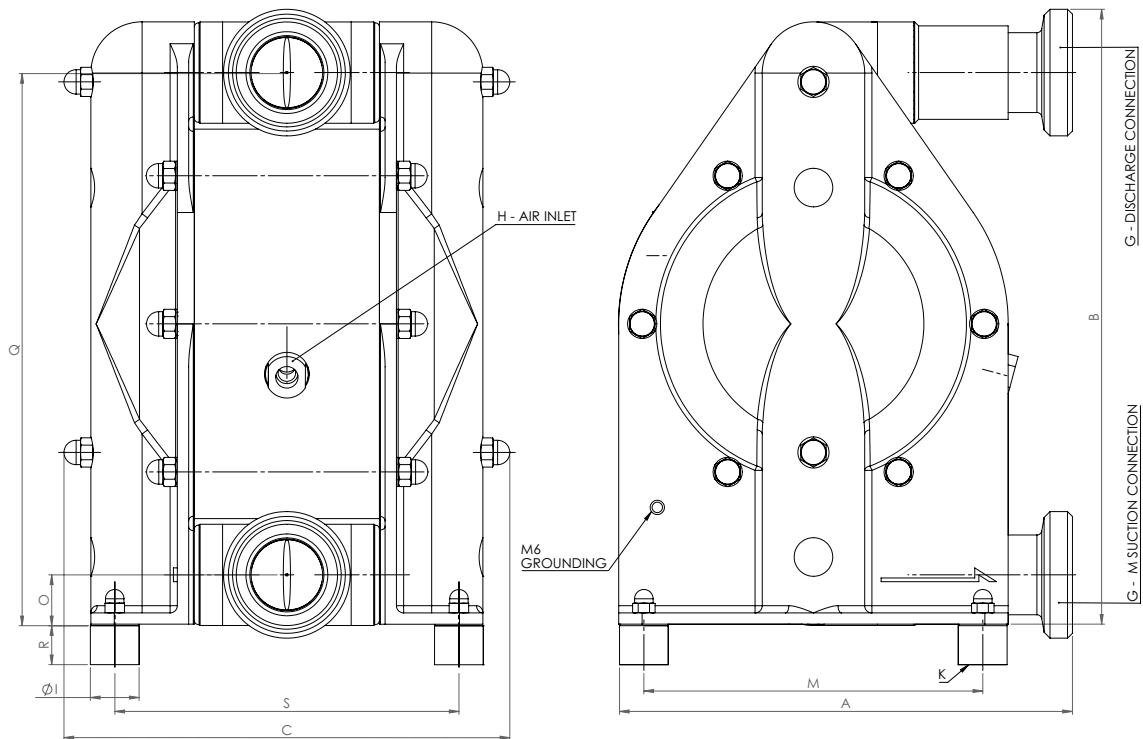
EXPLODED VIEWS

VA-HCP



POS.	PART NAME	QTY.
1	CENTER HOUSING	1
2	PUMP HOUSING	2
3	MANIFOLD	2
5	AIR INLET	1
6	SHOCK ABSORBER SET	4
7	MUFFLER	1
11	VALVE BALL EPDM	4
15	VALVE STOP SET	4
17	DIAPHRAGM	2
18	DIAPHRAGM SHAFT SCREW	2
19	SHAFT SS	1
20	BEARING SET SHAFT	1
21	O-RING MANIFOLD OUTSIDE	4
22	O-RING MANIFOLD INSIDE	4
23	ASSEMBLY PIN SET	6
27	AIR VALVE	1

DIMENSIONS



Dimensions in mm

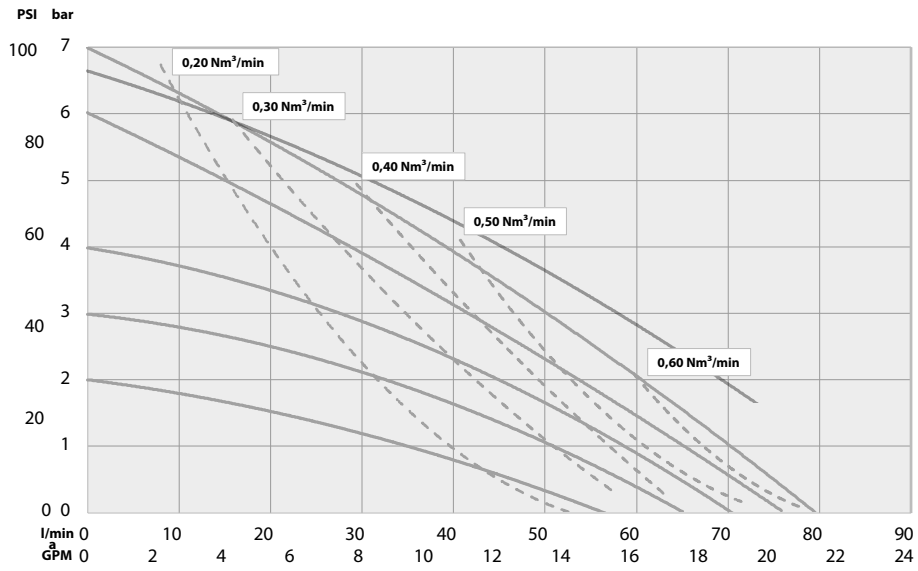
TYPE	A	B	C	G	H	I	K	M	O	Q	R	S
HCP15 DIN	179	234	174	DN25	R¼	25	M6	125	19	208	20	127
HCP15 TC	171,5	232	174	25-40	R¼	25	M6	125	19	208	20	127
HCP25 DIN	233	316	229	DN40	R¼	25	M6	175	26	284	20	178
HCP25 TC	222	309	229	25-40	R¼	25	M6	175	26	284	20	178
HCP40 DIN	305	426	319	DN50	R1/2	40	M8	230	39	387	30	236
HCP40 TC	292	419	319	2"	R1/2	40	M8	230	39	387	30	236
HCP50 DIN	390	537	369	DN65	R1/2	40	M8	309	46	490	30	305
HCP50 TC	381	535	369	2 ½"	R1/2	40	M8	309	46	490	30	305

Dimensions in inches

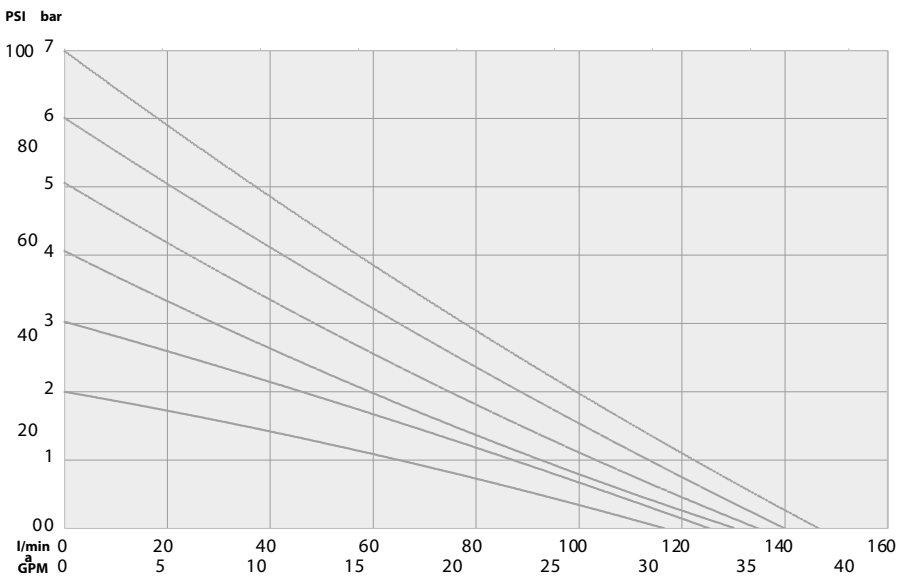
TYPE	A	B	C	G	H	I	K	M	O	Q	R	S
HCP15 DIN	7,05	9,21	6,85	DN25	R¼	0,98	M6	4,92	0,75	8,19	0,79	5,00
HCP15 TC	6,75	9,13	6,85	1-1,5	R¼	0,98	M6	4,92	0,75	8,19	0,79	5,00
HCP25 DIN	9,17	12,44	9,01	DN40	R¼	0,98	M6	6,89	1,02	11,18	0,79	7,01
HCP25 TC	8,74	12,17	9,01	1-1,5	R¼	0,98	M6	6,89	1,02	11,18	0,79	7,01
HCP40 DIN	12,01	16,77	12,56	DN50	R1/2	1,57	M8	9,06	1,54	15,24	1,18	9,29
HCP40 TC	11,50	16,5	12,56	2"	R1/2	1,57	M8	9,06	1,54	15,24	1,18	9,29
HCP50 DIN	15,35	21,14	14,53	DN65	R1/2	1,57	M8	12,17	1,81	19,29	1,18	12,01
HCP50 TC	15,00	21,06	14,53	2 ½"	R1/2	1,57	M8	12,17	1,81	19,29	1,18	12,01

PERFORMANCE CHARTS

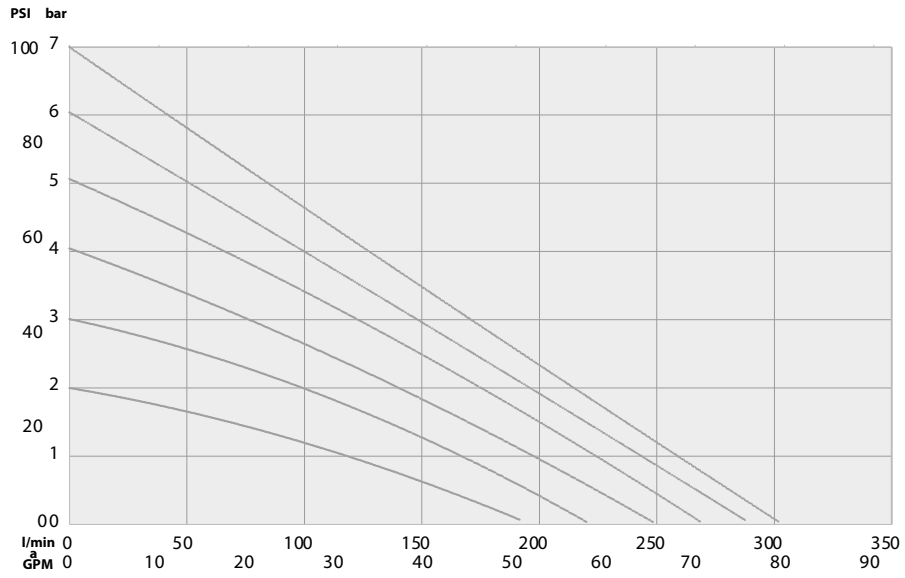
VA-HCP15



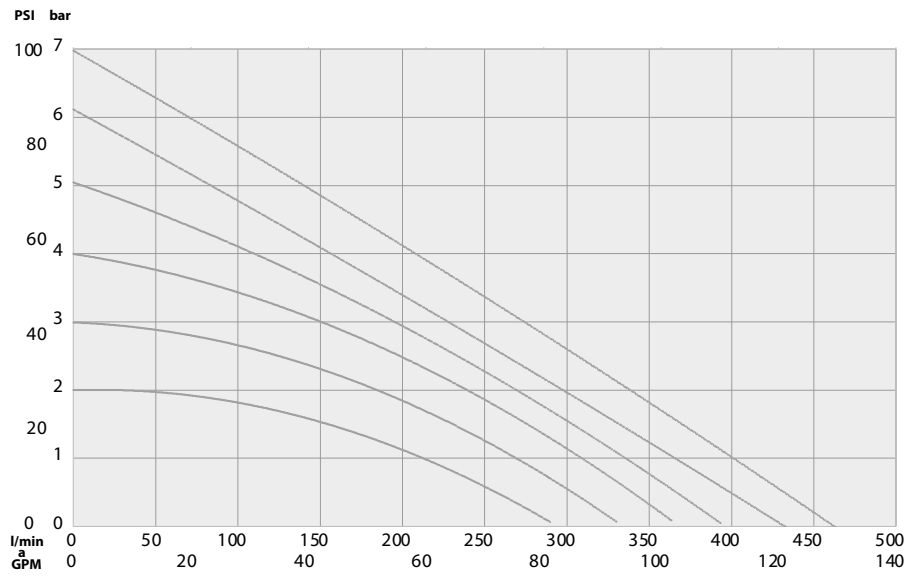
VA-HCP25



VA-HCP40



VA-HCP50



TECHNICAL DATA

ISO measurements					
DEVICE MODEL		VA-HC15	VA-HC25	VA-HC40	VA-HC50
Nominal port size	DIN 11851	DN25	DN40	DN50	DN65
	Tri-clamp	1" (ASME BPE)	1,5" (ASME BPE)	2" (ASME BPE)	2,5" (ASME BPE)
Air inlet	BSPT	R 1/4	R 1/4	R 1/2	R 1/2
Weight (kg)	PA6	7	15	33	58
	PE-Cond.	6	14	32	56
Suction lift dry (mwc)	EPDM valves	2	2	3	3
	PTFE valves	1	1,5	2	2
Suction lift wet (mwc)		9	9	9	9
Max. operating pressure (bar)		7	7	7	7
Max. operating temperature (°C)	PA6	120	120	120	120
	PE-Cond.	80	80	80	80
Min. operating temperature (°C)		-20	-20	-20	-20
Theoretical displacement volume (single stroke) (l)		0,1	0,34	0,98	2,6
Max. particle size of solids (mm)		10	12	14	16

US measurements					
DEVICE MODEL		VA-HC15	VA-HC25	VA-HC40	VA-HC50
Nominal port size	DIN 11851	DN25	DN40	DN50	DN65
	Tri-clamp	1" (ASME BPE)	1,5" (ASME BPE)	2" (ASME BPE)	2,5" (ASME BPE)
Air inlet	BSPT	R 1/4	R 1/4	R 1/2	R 1/2
Weight (lbs)	PA6	16	33	73	128
	PE-Cond.	13	31	71	124
Suction lift dry (fwc)	EPDM valves	6,6	6,6	9,8	9,8
	PTFE valves	3,3	4,9	6,6	6,6
Suction lift wet (fwc)		29,5	29,5	29,5	29,5
Max. operating pressure (PSI)		102	102	102	102
Max. operating temperature (°F)	PA6	248	248	248	248
	PE-Cond.	176	176	176	176
Min. operating temperature (°F)		-4,0	-4,0	-4,0	-4,0
Theoretical displacement volume (single stroke) (gal)		0,027	0,09	0,26	0,69
Max. Particle size of solids (in)		0,40	0,47	0,55	0,63

TORQUE VALUES

Torque values for housing bolts assembly in Nm				
Device model	VA-HC15	VA-HC25	VA-HC40	VA-HC50
Housing material PA6	15	20	25	25
Housing material PE-C	15	20	25	25

Torque values for housing bolts assembly in lb				
Device model	VA-HC15	VA-HC25	VA-HC40	VA-HC50
Housing material PA6	130	175	220	220
Housing material PE-C	130	175	220	220

OPTIONAL EQUIPMENT

For instructions on the use and maintenance of the below options, we are referring to the specific instruction manuals of the optional equipment.

Coding	Description
...FD	Food grade pump, food industry connections
...00	Industrial pump, threaded connections
...SS	A stroke sensor is installed in the pump center part. This sensor will generate a pulse by every complete stroke of the pump. This sensor have to be connected to a controller with Numur inlet to read the pulses.
...RE	Remote operation: pump has separate connections to control the pump with an external air signal. Those pumps are not having an air valve neither a muffler installed.
...DM	Manual draining: the side housings are having a by-pass system integrated which can be manually operated to drain the pump.
...BS	Barrier system with sensors only: the pump is equipped with a double diaphragm at each side. Between the diaphragms a neutral medium is placed. Sensors are placed in this neutral medium. When a diaphragm fails, the sensor will detect this and will create a signal which can be used to start an alarm and/or to stop the pump.
...LS	Leak detection: a capacitive sensor is installed in the muffler of the pump. This sensor will react at any liquid which comes into the muffler (in case of diaphragm rapture!). NOTE: when the pump is operated with air which is too humid, a fault signal can be generated.

Available combinations of the above mentioned options are:

Option code	Combination of options
...BL	BS + LS
...DB	DM + BS
...LD	LS + DM
...RS	RE + SS
...SB	SS + BS
...SL	SS + LS
...RL	RE+LS
...MS	DM + SS + LS

NOTE : If the combination you are looking for is not mentioned above, please contact your local supplier for more info.

CUSTOMER SERVICES & GUARANTEE

Customer services

If you require spare parts, please contact your local distributor, providing the following details:

- Pump Model
- Type
- Serial Number
- Date of First Order

Customer services

All Verder pumps are warranted to the original user against defects in workmanship or materials under normal use (rental use excluded) for two years after purchase date. This warranty does not cover failure of parts or components due to normal wear, damage or failure which in the judgement of Verder arises from misuse.

Parts determined by Verder to be defective in material or workmanship will be repaired or replaced.

Limitation of liability

To the extent allowable under applicable law, Verder's liability for consequential damages is expressly disclaimed. Verder's liability in all events is limited and shall not exceed the purchase price.

Warranty disclaimer

Verder has made an effort to illustrate and describe the products accurately; however, such illustrations and descriptions are for the sole purpose of identification and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustration or descriptions.

Product suitability

Many regions, states and localities have codes and regulations governing the sale, construction, illustration and/or use of products for certain purposes, which may vary from those in neighbouring areas. While Verder attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchasing and using a product, please review the product application as well as the national and local codes and regulations, and be sure that the product, installation, and use complies with them.

End of product life dispose of / reprocess in accordance with local regulations or return to a specialized disposal facility."

In accordance to Machinery Directive 2006/42/WE

