

## Verderair VA80 - HP single acting (SA) Air Operated Diaphragm pump

Addendum to manuals 859.0236 and 859.0237

Always check and follow the Warnings, Safety -, Installation-, Assembly- and Disassembly Instructions of manuals 859.0236 and 859.0237.

### Configuration Number Matrix

Check the identification plate (ID) for the 17 digit Configuration Number of your pump. Use the following matrix to define the components of your pump.

Sample configuration number : VA80AA AL GE GE TB HP

VA80	A	A	AL	GE	GE	TB	HP
Pump model	Fluid section	Air Section	Seats	Balls	Diaphragms	Connections	High Pressure (SA) version

**Note :** Not all combinations are available, please check with your local supplier

Pump model	Fluid Section Material		Air Section Material		Check valve seats		Check Valve Balls	
	VA80	A	Aluminium	A	Aluminium	AL	Aluminium	GE
	S	Stainless Steel			GE	Geolast	NE	Neoprene
					SP	Santoprene	NW	Neoprene Weighted
					SS	Stainless Steel	SP	Santoprene
					BN	Buna-N	TF	PTFE
							BN	Buna-N

Diaphragms		Connections		Options	
GE	Aluminium	TB **	Threaded BSP	HP	SA High pressure
NE	Neoprene	TN **	Threaded NPT		
SP	Santoprene				
TF *	2 piece PTFE				
BN	Buna-N				

\* : for pumps with TF liquid diaphragm, a Santoprene booster diaphragm will be used.

\*\* : For Pumps in Aluminium always combined with e DIN/ANSI combi flange.

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### **Disassembly of VA80-HP**

1. Follow the Pressure Relief Procedure on page 10 of manual 859.0237.

**NOTE :** The pump is heavy, always use 2 persons or a lift to move it.

2. Remove the pump from its mounting.
3. use a 3/4 in (19mm) socket wrench to remove the outlet elbow fasteners (8), then remove the manifold assembly. see fig 4.
4. Remove the o-rings (13, not use on some models, of seats), the seat (11), the closing disc and the ball (12).
5. Turn the pump over and remove the inlet manifold. The mounting brackets will remain attached.
6. Remove the o-rings (13, not use on some models, of seats), the seat (11), the closing disc and the ball (12).

### **Reassembly of VA80-HP**

1. Clean all parts and inspect for wear or damage. Replace parts as needed.
2. Reassemble in the reverse order, following the notes in fig 4 . Put the inlet manifold first.

#### **Be sure :**

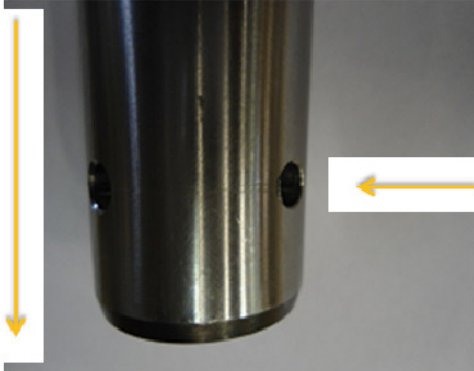
- The ball checks (11-13) and manifolds are exactly assembled as shown. The arrow (A) on the fluid covers must point toward the outlet manifold.
- **The ball valves needs to be placed on the liquid side of the pump (with the non-drilled shaft bolt (16B)), the closing discs needs to be placed at the booster side of the pump (with the drilled shaft bolt (16A)) !**

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## Reassembly of Standard Diaphragms

### 2 piece PTFE diaphragm

1. Clean all parts and inspect for wear or damage. Replace parts as needed
2. Clamp the shaft flats in a vise with the side drilling downwards



3. Install washer (18) and o-ring (17) on the shaft bolt (16A) (= drilled bolt !)

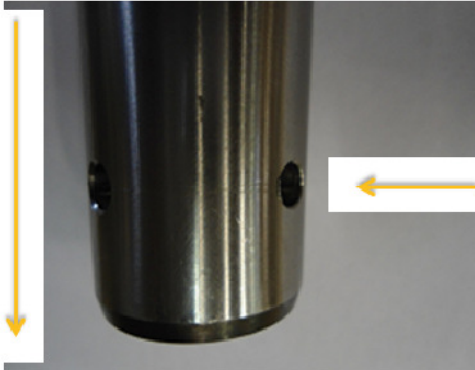


4. Assemble the fluid side plate (15), the Santoprene booster diaphragm (20), the air side diaphragm plate (14) and the washer (18) on the bolt as shown on page 17 of manual 859.0237.
5. Apply medium strength (blue) loctite or equivalent to the bolt (16A) threads. Assemble into the shaft. Torque the bolt to 149-163 Nm (110-120 ft-lb) at 100 rpm maximum.
6. Grease the shaft u-cups (101) and the length of the diaphragm shaft (108). Slide the shaft into the housing.
7. Repeat steps 3 and for 4 for the liquid diaphragm assembly. Use the PTFE diaphragm (20) and the back-up diaphragm (305) as shown un page 17 of manual 859.0237, using the non-drilled shaft bolt (16B)
8. Apply medium strenght (blue) Loctite or equivalent to the bolt (16B) threads. Screw the bolt into the shaft hand-tight.
9. Clamp the torqued bolt (16A) in a vise.
10. Torque the other shaft bolt (16B) to 149-163 Nm (110-120 ft-lb) at 100 rpm maximum.
11. Reattach a fluid cover (2) on the side of the PTFE (liquid diaphragm) Arrow (A) must point toward the air valve. See torque instructions page 20 of manual 859.0237.
12. Follow directions under Attach Second Fluid cover page 19 of manual 859.0237.
13. Reassemble the ball check valves, closing discs and manifolds as explained in page 12 (+ addendum)

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### All other standard Diaphragms

1. Clean all parts and inspect for wear or damage. Replace parts as needed
2. Clamp the shaft flats in a vise with the side drilling downwards

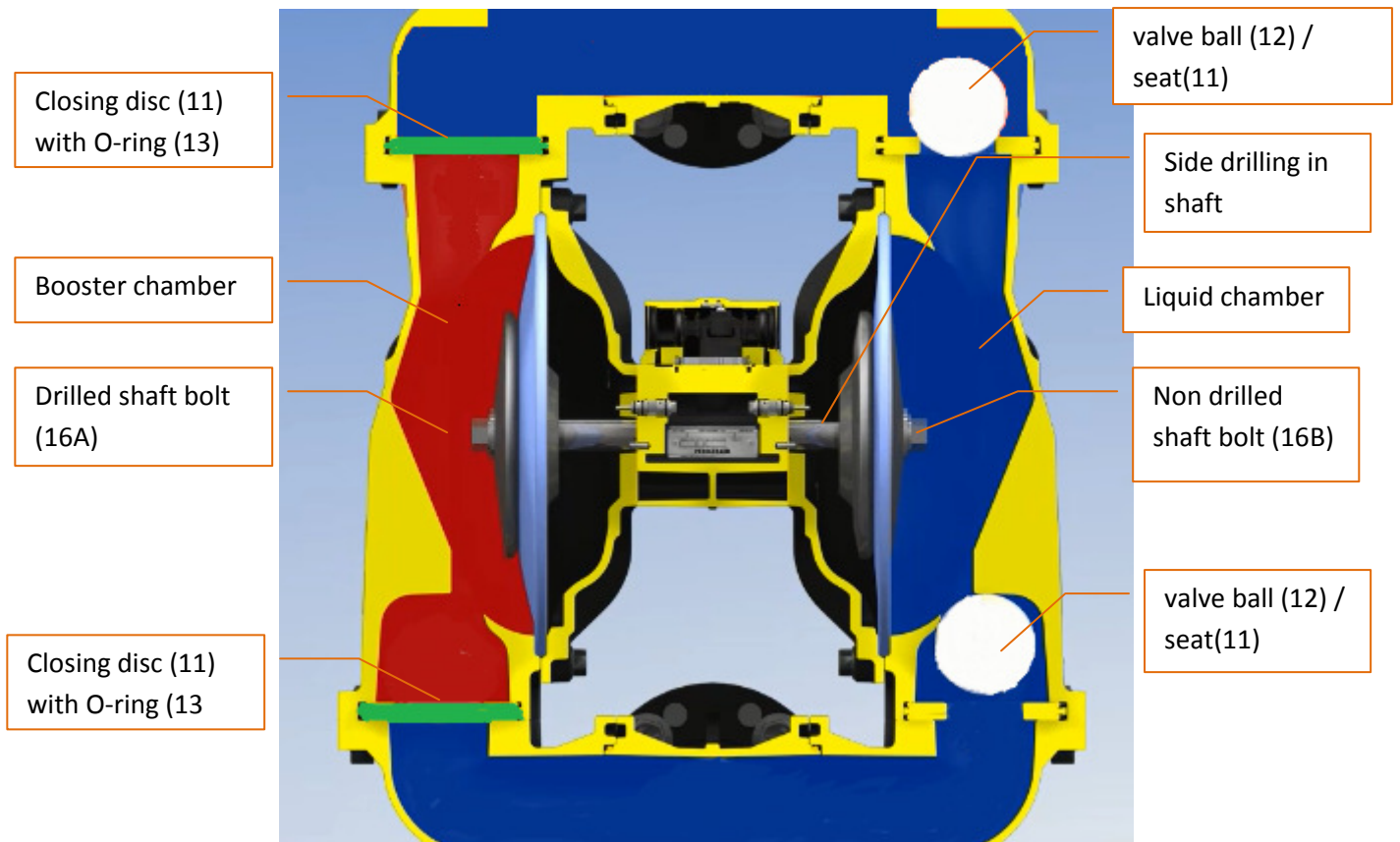


3. Install washer (18) and o-ring (17) on the shaft bolt (16A) (= drilled bolt !)



4. Assemble the fluid side plate (15), diaphragm (20), the air side diaphragm plate (14) and the washer (18) on the bolt as shown on page 17 of manual 859.0237.
5. Apply medium strength (blue) loctite or equivalent to the bolt (16A) threads. Assemble into the shaft. Torque the bolt to 149-163 Nm (110-120 ft-lb) at 100 rpm maximum.
6. Grease the shaft u-cups (101) and the length of the diaphragm shaft (108). Slide the shaft into the housing.
7. Repeat steps 3 and for 4 for the other diaphragm assembly, using the non-drilled shaft bolt (16B)
8. Apply medium strength (blue) Loctite or equivalent to the bolt (16B) threads. Screw the bolt into the shaft hand-tight.
9. Clamp the torqued bolt (16A) in a vise.
10. Torque the other shaft bolt (16B) to 149-163 Nm (110-120 ft-lb) at 100 rpm maximum.
11. Reattach one fluid cover (2). Arrow (A) must point toward the air valve. See torque instructions page 20 of manual 859.0237.
12. Follow directions under Attach Second Fluid cover page 19 of manual 859.0237.
13. Reassemble the ball check valves, closing discs and manifolds as explained in page 12 (+ addendum)

**Positioning of specific parts in VA80 -HP**



**Parts/Kits For VA80-HP Quick Reference (replacement page 26 of manual 859.0237)**

Ref	Part/kit	Description
1a		Air Section, nold sold separately, see page 30
	-----	Aluminium
1b		Air valve, see page 33
2		Fluid Cover Kits, see page 28
	859.0171	Aluminium
	859.0176	Stainless Steel
3		Manifold outlet elbow kits : see page 28
	859.0185	Aluminium
	859.0192	Stainless Steel
4		Manifold inlet elbow kits : see page 28
	859.0186	Aluminium
	859.0193	Stainless Steel
5		Manifold center kits : see page 28
	859.0184	Aluminium, bspt
	859.0231	Aluminium, npt
	859.0194	Stainless Steel, bspt
	859.0232	Stainless Steel, npt
6		Seal, Manifold Joint, see page 29
	859.0180	Buna-N, for aluminium
	859.0179	PTFE, for aluminium
	859.0182	PTFE, for Stainless Steel
8		Fasteners, manifold to fluid cover, see page 29
	859.0230	Aluminium
	859.0196	Stainless Steel
9		Washer, included in fastener kits
10		Nut, included with refs 36 and 37

Ref	Part/kit	Description
11		Seats; 2-Pack see page 35
	829.0213	Aluminium
	829.0214	Buna-N
	829.0215	Geolast
	829.0218	Santoprene
	829.0219	Stainless steel
		Closing Disc; 2-Pack see page 35
	829.0219A	Stainless steel
12		Check balls; 2-Pack see page 35
	829.0222	Buna-N
	829.0223	Geolast
	829.0228	Santoprene
	829.0225	Neoprene
	829.0226	Neoprene, Weighted
	829.0227	PTFE
13		O-ring seat(not used on some models, see page 35)
	859.0209	Buna-N
	829.0211	PTFE
14	859.0235	Plate, air side diaphragms, including o-ring (17) and washer (18)
15		Plate, fluid side diaphragm, see page 37
	829.0206A	Aluminium, including bolt (16A)
	829.0206B	Aluminium, including bolt (16B)
	829.0208A	Stainless Steel, including bolt (16A)
	829.0208B	Stainless Steel, including bolt (16B)
16	-----	Screw, hex washer head, 3/8-11x3 in, included with ref 15
17	-----	o-ring, included with refs 14 and 15
18	-----	Washer, included with refs 14 and 15
20		Diaphragm Kits, see page 36
	859.0197	Buna-N
	859.0200	Geolast
	859.0202	Santoprene
	859.0204	Neoprene, standard
	829.0205	1 x PTFE/Santoprene, 1 x Santoprene

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<b>Air Section Rebuild Kits</b>	
Pumps with standard diaphragms	829.0150

<b>Center Shaft Kits</b>	
Pumps with standard diaphragms	829.0152

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<b>Seat kits</b>	
AL*	829.0213
BN	829.0214
GE*	829.0215
SP*	829.0218
SS*	829.0219

**Kits include : 2 seats (11)**

**\* These seats require o-rings, which are sold separately**

<b>Closing disc kit</b>	
SS*	829.0219A

**Kit include : 2 closing discs (11)**

**\* These discs require o-rings, which are sold separately**

<b>Check Ball kits</b>	
GE	829.0223
NE	829.0225
NW	829.0226
SP	829.0228
TF	829.0227
BN	829.0222

**Kits include : 2 balls (12)**

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- No overmolded kits available for VA80 HP

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<b>Two-Piece Diaphragm kit</b>	
TF	829.0205

Kits include :

- 1 Diaphragm (20), PTFE with Santoprene back-up
- 1 Diaphragm (20), Santoprene
- 2- o-rings for bolt (16)
- 1 diaphragm install tool

<b>Fluid Plate Kits</b>	
Aluminium with bolt 16A	829.0206A
Aluminium with bolt 16B	829.0206B
Stainless Steel with bolt 16A	829.0208A
Stainless Steel with bolt 16B	829.0208B

Kits include :

- 1 fluid side diaphragm plate (15)
- 1 washer (18)
- 1 o-ring (17)
- 1 bolt (16A) or (16B)

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Maximum fluid working pressure	230PSI	16 Bar
Maximum Free flow delivery	155 GPM	585 l/min



replace curve on page 20 of manual 859.0236

