Vane Type Double Pump

4520VQ Series - 20 Design
**NOTE**
INSTALL INTO COVER BEFORE INSTALLATION OF CARTRIDGE KIT.

*NOTE*
BRONZE FACES MUST BE INSTALLED TOWARD THE ROTOR.

- **NOTE**
WIPE O.D. OF SEAL WITH OIL BEFORE PRESSING INTO BODY. APPLY GREASE TO SEAL I.D. BEFORE INSTALLATION OF SHAFT.

- **NOTE**
INSTALL INTO COVER BEFORE INSTALLATION OF CARTRIDGE KIT.

THESE PARTS ARE INCLUDED IN CARTRIDGE KIT:

- 4520VQ*** 6(*)
- 4520VQ*** 8(*)
- 4520VQ*** 9(*)
- 4520VQ*** 11(*)
- 4520VQ*** 12(*)
- 4520VQ*** 14(*)

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ASSEMBLE SEAL FLUSH TO PILOT FACE WITH SPRING FACING INWARD AS SHOWN.

ASSEMBLE SEAL WITH SPRING TOWARD BEARING.

<table>
<thead>
<tr>
<th>SHAFT NO.</th>
<th>TYPE</th>
<th>SHAFT P/N</th>
<th>SEC. SHAFT SEAL</th>
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<td>STR. KEYED</td>
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<td>130</td>
<td>SPLINE</td>
<td>432702</td>
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NOTE: FLEX SIDEPLATE KITS INCLUDE (4) F3 SEAL PACKS.

NOTE: BRONZE FACES MUST BE INSTALLED TOWARD THE ROTOR.

NOTE: INSTALL SEAL RING IN BODY OR COVER, THEN INSTALL CARTRIDGE KIT.

SECTIONAL 45° FROM CENTERLINE
Model Code

(F3) - 4520 VQ ** A ** - * 1 ** * 20 (x) - 28 *

1 F3 – Viton seals  (Omit if not required.)  
F10 – Viton shaft seals

2 Series designation

3 Intra–vane pump

4 USgpm capacity  
(Shaft end pump)  
SAE rating 1200 rpm–100 psi (7 bar)  
42 – 42 USgpm  57 – 57 USgpm  
47 – 47 USgpm  60 – 60 USgpm  
50 – 50 USgpm

5 SAE port connections  
Models Without Flow Control  
Code Inlet Outlet #1 Outlet #2  
A – 4 bolt 4 bolt 4 bolt  
flange flange flange  
E – 4 bolt 4 bolt  
SAE St. flange Thd.  
Models With Flow Control  
Code Inlet Outlet Outlet #1 Outlet Tank #1 #2 Return  
A – 4 bolt 4 bolt SAE St.  SAE St.  
flange flange Thd. Thd.

6 USgpm capacity  
(Cover end pump)  
SAE rating 1200 rpm–100 psi (7 bar)  
5 – 5 USgpm  11 – 11 USgpm  
8 – 8 USgpm  12 – 12 USgpm  
9 – 9 USgpm  14 – 14 USgpm

7 Mounting  
F – Foot (Single shaft seal)  
S – Flange (Double shaft seal)  
Omitted – Flange, single shaft seal  
assembly

8 Shaft type  
1 – Straight with square key standard  
11 – Splined  
19 – Splined  
33 – Splined  
86 – Straight keyed, heavy duty

9 Outlet port positions  
(Viewed from cover end of pump)  
With #1 outlet opposite inlet:  
AA – #2 outlet – 135° CCW from inlet  
AB – #2 outlet – 45° CCW from inlet  
AC – #2 outlet – 45° CW from inlet  
AD – #2 outlet – 135° CW from inlet  
With #1 outlet 90° CCW from inlet:  
BA – #2 outlet – 135° CCW from inlet  
BB – #2 outlet – 45° CCW from inlet  
BC – #2 outlet – 45° CW from inlet  
BD – #2 outlet – 135° CW from inlet

10 Outlet port positions continued  
(Viewed from cover end of pump)  
With #1 outlet inline with inlet:  
CA – #2 outlet – 135° CCW from inlet  
CB – #2 outlet – 45° CCW from inlet  
CC – #2 outlet – 45° CW from inlet  
CD – #2 outlet – 135° CW from inlet  
With #1 outlet 90° CW from inlet:  
DA – #2 outlet – 135° CCW from inlet  
DB – #2 outlet – 45° CCW from inlet  
DC – #2 outlet – 45° CW from inlet  
DD – #2 outlet – 135° CW from inlet

11 Controlled flow rate  
(Model with flow control)  
2 – 2 USgpm  8 – 8 USgpm  
4 – 4 USgpm  10 – 10 USgpm  
6 – 6 USgpm  12 – 12 USgpm  
7 – 7 USgpm

12 Relief valve setting  
(Model with flow control)  
C – 750 PSI  G – 1750 PSI  
D – 1000 PSI  H – 2000 PSI  
E – 1250 PSI  I – 2250 PSI  
F – 1500 PSI  J – 2500 PSI*  
* 20V pump only (not for 12 & 14 ring sizes).

13 Rotation  
(Viewed from shaft end of pump)  
L – Left hand (CCW rotation)  
Omitted – Right hand rotation

14 Mounting  
282 – SAE 2–bolt mounting  
283 – Foot mounting

NOTE  
Standard right hand shaft rotation  
cartridges shown. Reverse for left hand  
rotation; refer to note.

Cover end cartridge R. H. Rotation  
Sharp Edges of Vane Must Lead in  
Direction of Rotation

Shaft end cartridge R. H. Rotation  
Sharp Edges of Vane Must Lead in  
Direction of Rotation

NOTE  
To reverse cartridge kit rotation,  
remove the two screws and reverse  
the location of the inlet support plate  
and the outlet support plate. Reinstall  
the two screws hand tight. Use pump  
cover to align all sections of the  
cartridge. Carefully remove the cover  
and tighten the screws.

NOTE  
For satisfactory service life of these  
components, use full flow filtration to  
provide fluid which meets ISO cleanliness  
code 16/13 or cleaner. Selections  
from pressure, return, and in-line filter  
series are recommended.

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