Vane Type Double Pump

3520VQ Series - 20 Design
**VQ REPLACEMENT CARTRIDGES FOR THE 3521 SERIES.**

- **NOTE**
  - Install into cover before installation of cartridge kit.
  - Use 3520VQ parts to service 3520V-10/-12 design units.
  - Bronze faces must be installed toward the rotor.
  - **20VQ Models only not for 12 & 14 USgpm ring sizes.

- **Wipe O.D. of seal with oil before pressing into body. apply grease to seal I.D. before installation of shaft.**

- **42023 Bolt (4 Req’d)**
  - Torque to 150 ± 10 Lb. Ft

- **Cover assy (See table)**
  - 7077 Plug
  - 155023 Snap ring

- **Relief valve S/A**
  - (See table)
  - 239766 Spring
  - 7077 Plug

- **NOTE**
  - Oil & torque to 40-50 Lb. Ft.

- **7077 Plug**

- **Ring (See table)**

- **Vane Kit (See table)**

- **Included in cover end cartridge kit**

- **416426 Screw (2 Req’d)**
  - Torque to 30 ± 5 Lb. In.

- **422206 Pin (2 Req’d)**

- **Wipe O.D. of seal with oil before pressing into body. apply grease to seal I.D. before installation of shaft.**

- **Model**
  - **Cover Type**
  - **Cover S/A**
  - **Flow Control**
  - **4-Bolt**
  - **Straight Thread**

- **Model**
  - **Relief Valve Setting (PSI)**
  - **Relief Valve S/A**
  - **3"2VQ***-***A*-****20**
  - 750
  - **253024**
  - **3"2VQ***-***B*-****20**
  - 1000
  - **253025**
  - **3"2VQ***-***C*-****20**
  - 1250
  - **253026**
  - **3"2VQ***-***D*-****20**
  - 1500
  - **253027**
  - **3"2VQ***-***E*-****20**
  - 1750
  - **253028**
  - **3"2VQ***-***F*-****20**
  - 2000
  - **253029**
  - **3"2VQ***-***G*-****20**
  - 2250
  - **253030**
  - **3"2VQ***-***H*-****20**
  - 2500
  - **253031**
  - **3"2VQ***-***I*-****20**
  - 232794
  - **253032**
  - **3"2VQ***-***J*-****20**
  - 232795
  - **253033**
  - **3"2VQ***-***K*-****20**
  - 232796
  - **253034**
  - **3"2VQ***-***L*-****20**
  - 232797
  - **253035**
  - **3"2VQ***-***M*-****20**
  - 232798
  - **253036**
  - **3"2VQ***-***N*-****20**
  - 232799
  - **253037**
  - **3"2VQ***-***O*-****20**
  - 233019
  - **253038**
  - **3"2VQ***-***P*-****20**
  - 233020

- **Includes in cover end cartridge kit**

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<table>
<thead>
<tr>
<th>SHAFT NO.</th>
<th>TYPE DRIVE BEARING</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>352*VQ DIRECT-</td>
</tr>
<tr>
<td>19</td>
<td>362*VQ INDIRECT-</td>
</tr>
</tbody>
</table>

- **ASSEMBLE SEAL Flush to Pilot face with spring facing inward as shown.**

- **ASSEMBLE SEAL WITH SPRING TOWARD BEARING.**

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### Bearing (See table)

- **410609 Screw (2 req’d)**
  - Torque to 100 LB. IN.
- **418108 PIN (2 REQ’D)**

### Ring (See table)

- **922700 Vane kit**
  - (10 vanes & 10 inserts)
- **262154 Rotor**
- **923953 Flex-side plate kit**

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### MOUNTING ASSEMBLY

<table>
<thead>
<tr>
<th>3&quot;VQ*<strong>F-</strong>-20(L)</th>
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</thead>
<tbody>
<tr>
<td>Included in foot bracket kit no.</td>
</tr>
<tr>
<td>429281 Secondary shaft seal (use on ‘S’ flange mounted models only)</td>
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### Shafts

<table>
<thead>
<tr>
<th>SHAFT NO.</th>
<th>TYPE</th>
<th>3&quot;20 SHAFT</th>
<th>3&quot;21 SHAFT</th>
<th>KEY</th>
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<tbody>
<tr>
<td>1</td>
<td>Str. keyed</td>
<td>258249</td>
<td>252717</td>
<td>88678</td>
</tr>
<tr>
<td>11</td>
<td>Spline</td>
<td>258250</td>
<td>252716</td>
<td>88678</td>
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<tr>
<td>19</td>
<td>Spline</td>
<td>260604</td>
<td>251836</td>
<td>88678</td>
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<tr>
<td>86</td>
<td>Str. keyed heavy duty</td>
<td>394517</td>
<td>393536</td>
<td>88678</td>
</tr>
</tbody>
</table>

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### Model

- **352*VQ**
- **362*VQ**

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### Std single shaft seal kit 920048

- **Std doubleshaft seal kit 920049**
- **F3 single shaft seal kit 920050**
- **F3 double shaft seal kit 920051**

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### NOTE: Flex sideplate kits include (4) F3 seal packs.
### Model Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Inlet</th>
<th>Outlet #1</th>
<th>Outlet #2</th>
<th>Tank</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4 bolt</td>
<td>4 bolt</td>
<td>4 bolt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>4 bolt</td>
<td>4 bolt</td>
<td>SAE St.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SAE Port Connections

**Models Without Flow Control**

- **Code**
- **Inlet**
  - A: 4 bolt flange
  - E: 4 bolt flange
- **Outlet #1**
  - Outlet #2
  - SAE St.
  - Thd.

**Models With Flow Control**

- **Code**
- **Inlet**
  - A: 4 bolt flange
  - E: 4 bolt flange
- **Outlet #1**
  - Outlet #2
  - SAE St.
  - Thd.

#### USgpm Capacity

**Model Code**

- **F3** - 3x2* VQ **A** - *1 **A** 20 (* - 28 *)

<table>
<thead>
<tr>
<th>Model Code</th>
<th>USgpm Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>-E4 bolt</td>
<td>21 USgpm</td>
</tr>
<tr>
<td>-E4 bolt</td>
<td>25 USgpm</td>
</tr>
<tr>
<td>-E4 bolt</td>
<td>30 USgpm</td>
</tr>
</tbody>
</table>

#### SAE Port Connections

- **Series Designation**
  - 3520VQ, Double Pump
  - 3820VQ, Double Pump

- **Intra-Vane Pump**

- **Mounting**
  - **Series Designation**
    - 3520VQ, Double Pump
  - **Mounting**
    - **Series Designation**
      - 3520VQ, Double Pump

#### SAE Port Connections

- **SAE port connections**
  - Models Without Flow Control
  - **Code**
  - **Inlet**
    - A: 4 bolt flange
    - E: 4 bolt flange
  - **Outlet #1**
    - Outlet #2
  - **Outlet #2**
    - SAE St.
    - Thd.

- **Outlet Port Positions**
  - (Viewed from cover end of pump)
  - **Outlet Port Positions**
  - (Viewed from cover end of pump)
  - **Outlet Port Positions**
  - (Viewed from cover end of pump)

#### Sharp Edges of Vane Must Lead in Direction of Rotation

- **Cover End Cartridge R. H. Rotation**
- **Shaft End Cartridge R. H. Rotation**

**NOTE**

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

**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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