

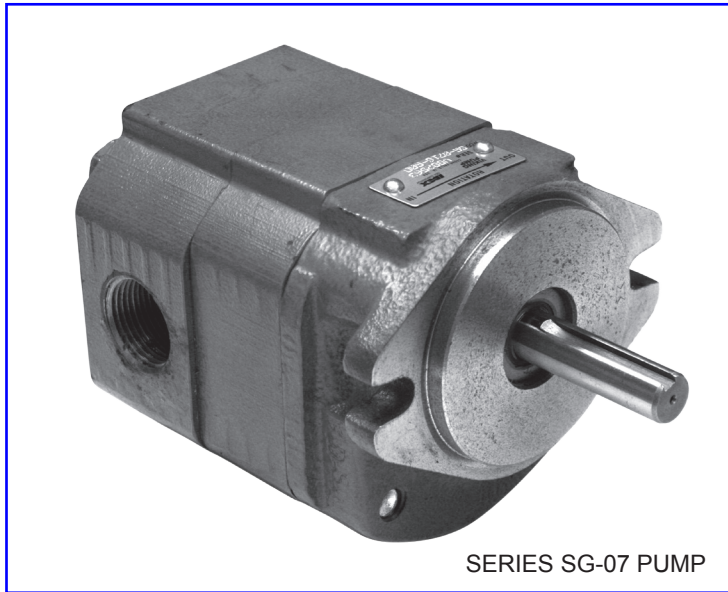
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## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)



### OPERATING RANGE:

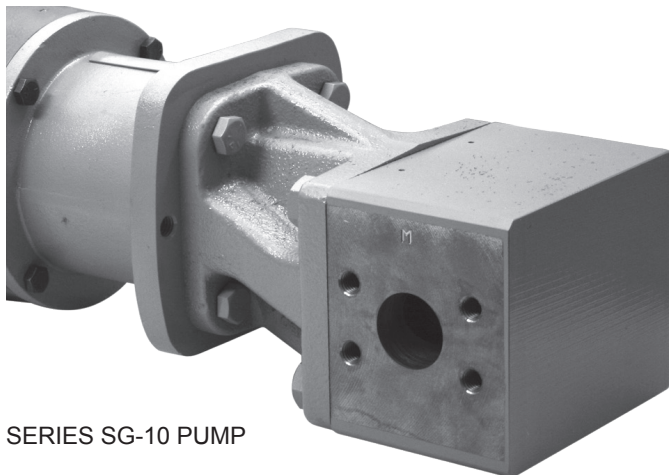
| SG Pumps (Cast Iron, Lip or Mechanical Sealed) |                    |  |
|--|--------------------|--|
| Displacements                                  | No.                | 29                                       |
| Flow Range                                     | GPM                | 0.06 to 190                              |
|  | M <sup>3</sup> /Hr | 0.011 to 43                              |
| Pressure Range                                 | PSI                | to 500 Continuous,<br>2,500 Intermittent |
|  | Bar                | to 34 Continuous,<br>170 Intermittent    |
| Temperature Range                              | °F                 | -40° to 450°                             |
|  | °C                 | -40° to 230°                             |
| Viscosity Range                                | SSU                | 28 to 1,000,000                          |
|  | cSt                | 0.1 to 250,000                           |



| SGN Pumps (Ductile Iron, Lip or Mechanical Sealed) |                    |  |
|--|--------------------|--|
| Displacements                                      | No.                | 17                                       |
| Flow Range   | GPM                | 0.7 to 32                                |
|  | M <sup>3</sup> /Hr | 0.16 to 7.2                              |
| Pressure Range                                     | PSI                | to 500 Continuous,<br>2,500 Intermittent |
|  | Bar                | to 34 Continuous,<br>170 Intermittent    |
| Temperature Range                                  | °F                 | -40° to 450°                             |
|  | °C                 | -40° to 230°                             |
| Viscosity Range                                    | SSU                | 28 to 1,000,000                          |
|  | cSt                | 0.1 to 250,000                           |

### TYPICAL APPLICATIONS:

- Fuels & Fuel Oils
- Lubricants
- Chemical Metering
- Solvents
- Alcohol
- Cooking Oils
- Paints, Inks & Coatings
- Polyurethanes
- Heat Transfer Fluids



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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)  
SGN-05, -07 (Ductile Iron)



## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### SERIES DESCRIPTION

Viking SG is an extensive series of precision, industrial-duty external gear pumps that develop higher pressures than other Viking pumps, yet offer a similarly broad range of options to handle a diverse range of liquids and applications.

With 29 different displacements in five frame sizes to 190 GPM (43 M<sup>3</sup>/Hr), most applications can be closely matched to a pump operating at motor speeds, without the need for a reducer or gear motor.

These pumps were designed for greatest reliability, with standard features like spur-type gears (instead of helical gears, which thrust into pump casing and bracket) and rolling element anti-friction bearings

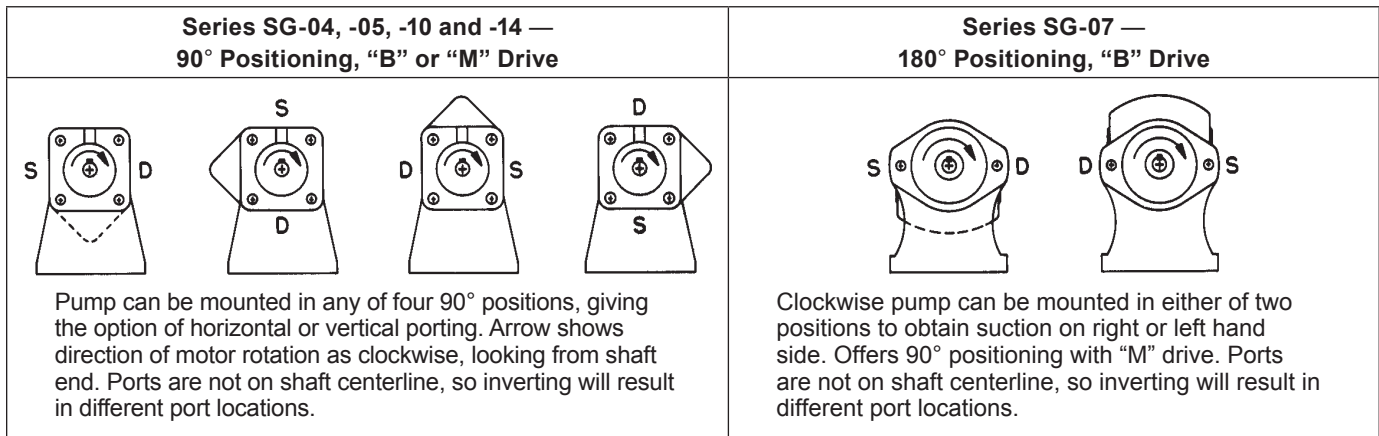
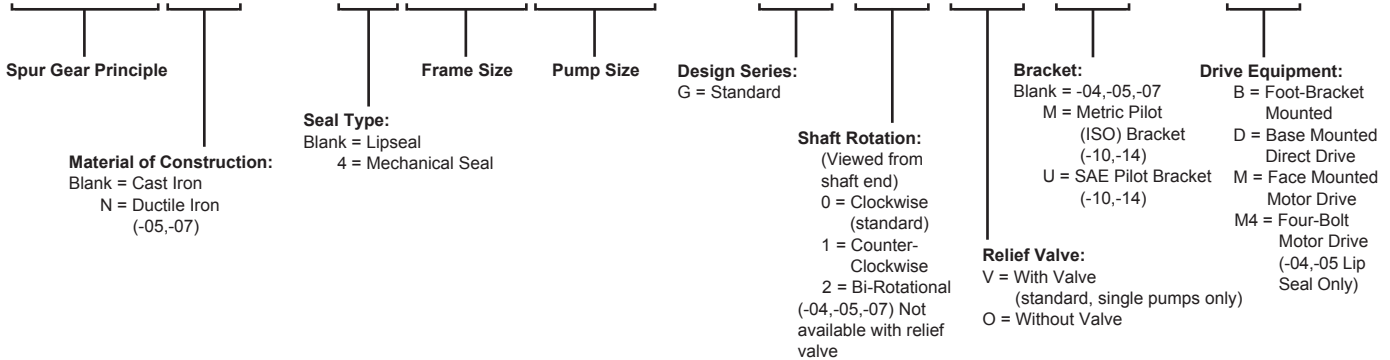
(instead of bushings, which wear every time a pump is stopped and the hydrodynamic film is lost).

Unwanted leaks are prevented by using the best sealing technology available, including single or duplex lip seals, single mechanical component seals, single or double mechanical cartridge seals with seal plans (SG-10 & -14 only), or sealless mag drive (sec. 341.3).

Installation is simple, with brackets to close couple to NEMA or IEC motors, or foot mount for speed-reduced applications. Piping is easy, with straight-through, 180° ports with the industry's broadest variety of threaded ports and flange options.

### MODEL NUMBER KEY

# SGN - 40518 - G 0 V U - B



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## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### PUMP CONSTRUCTION AND FEATURES

NEMA and IEC motor brackets for all sizes and motors prevent misalignment. Optional foot mount shaft heights match Viking reducer shaft heights.

Outboard bearing optional with lip seal, standard with mechanical seal.

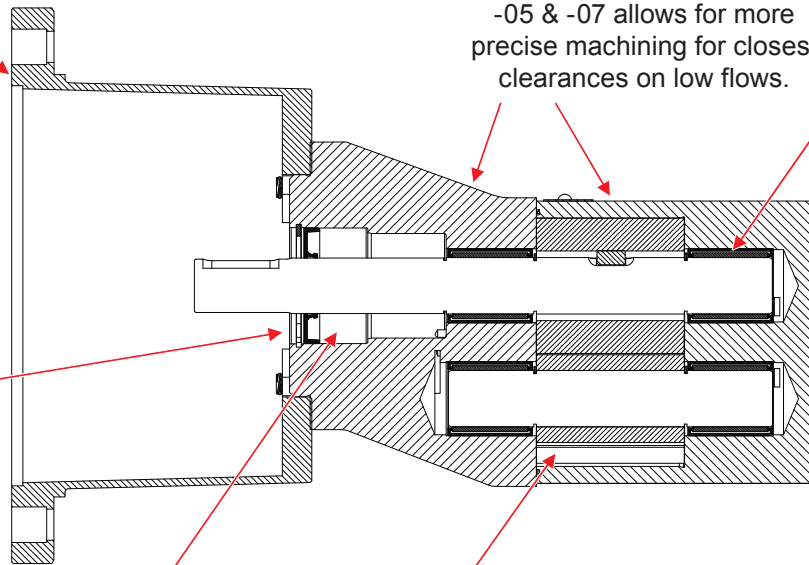
Sealing options include single lip seal, duplex lip seals with grease barrier, or single mechanical seal (all SG sizes). In addition, SG-10 and -14 offers pinned mechanical seal for high viscosity, and cartridge style single or double mechanical seals. For sealless Viking Mag Drive, see catalog section 341.3.

Two section pump (casing and bracket) on SG-10 & -14 reduces runout to keep shaft aligned for long seal life.

Three section pump (casing, bracket and head) on SG-04, -05 & -07 allows for more precise machining for closest clearances on low flows.

Antifriction needle bearings with high load carrying capacity standard for forgiving operation. Sleeve bearing options include carbon graphite for thin liquids, high temperature carbon, and silicon carbide for abrasives.

Hardened steel gears and shafts minimize wear. Spur-type gears minimize axial thrust for long seal life.



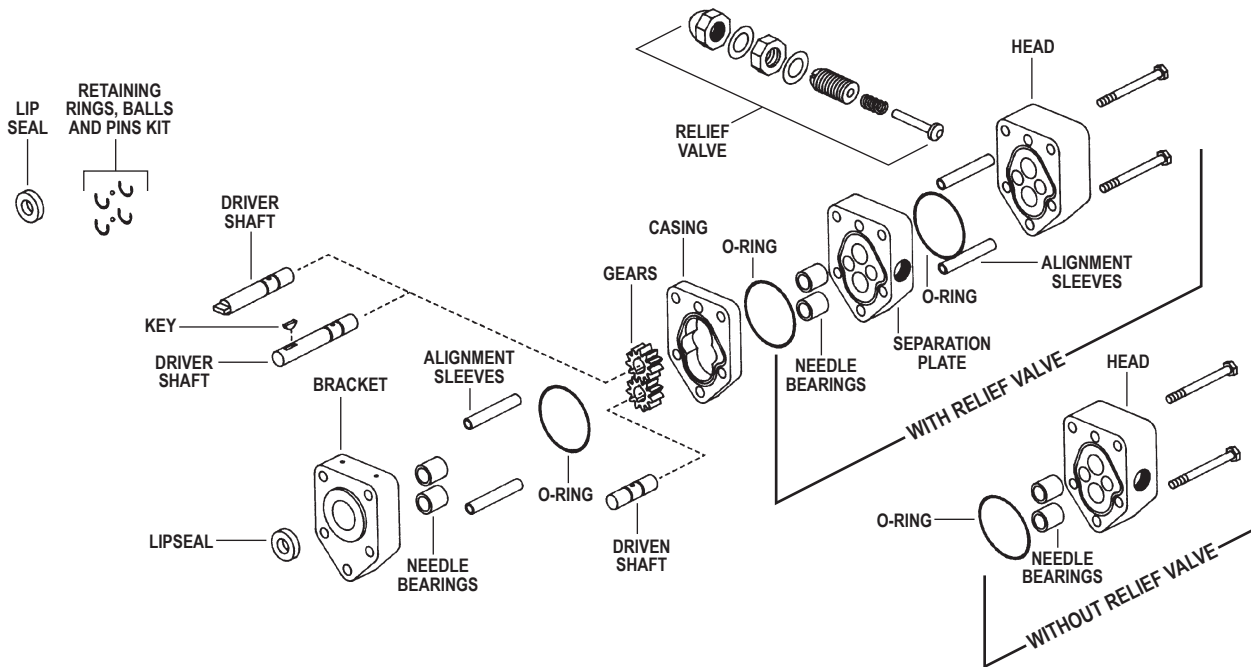
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)  
SGN-05, -07 (Ductile Iron)

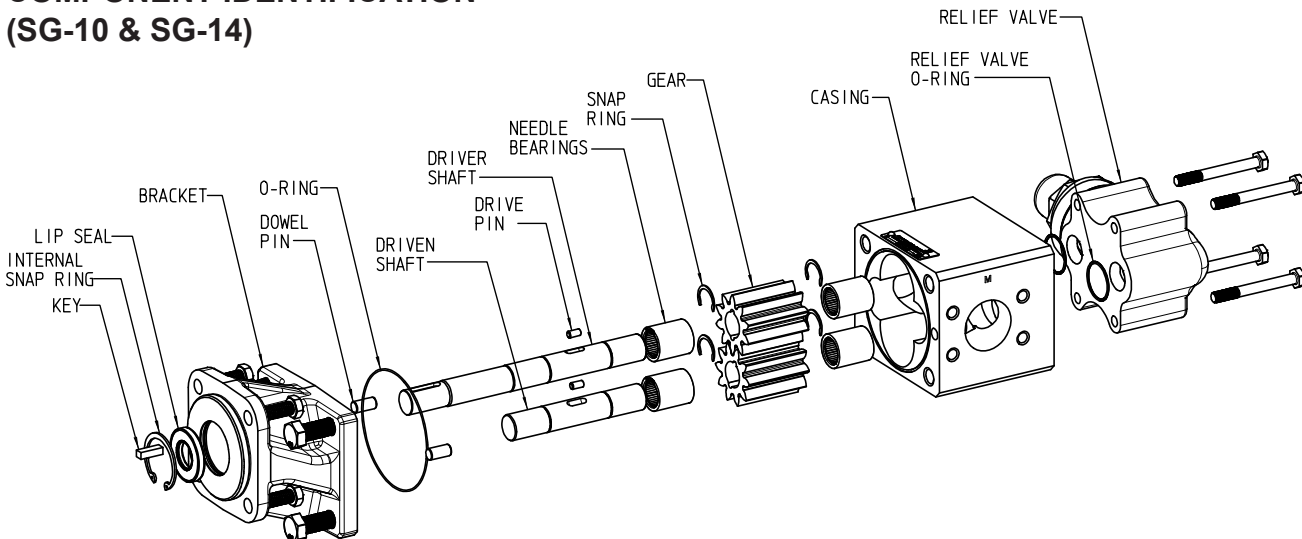


## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### COMPONENT IDENTIFICATION (SG-04, SG-05 & SG-07)



### COMPONENT IDENTIFICATION (SG-10 & SG-14)





SERIES SG-04, -05, -07, -10, -14 (Cast Iron)  
SGN-05, -07 (Ductile Iron)

10/14

|         |         |
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## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### MATERIALS OF CONSTRUCTION - ALL SERIES

| Component                       | Standard - SG-04, -05, -07      | Standard - SGN-05, -07          | Standard - SG-10, -14   | Options   |
|---------------------------------|---------------------------------|---------------------------------|---|---|
| Bracket                         | Cast Iron<br>ASTM A823          | Ductile Iron<br>ASTM A536       | Cast Iron<br>ASTM A48   | Surface Hardening (Vitek)   |
| Casing                          | Cast Iron<br>ASTM A823          | Ductile Iron<br>ASTM A536       | Cast Iron<br>ASTM A823  | Surface Hardening (Vitek)   |
| Head, Separation Plate          | Cast Iron<br>ASTM A823          | Ductile Iron<br>ASTM A536       | — — —   | Surface Hardening (Vitek)   |
| Relief Valve Body               | Cast Iron<br>ASTM A823          | Ductile Iron<br>ASTM A536       | Cast Iron<br>ASTM A48   | — — —   |
| Relief Valve Poppet             | Hardened Steel                  | Hardened Steel                  | Ductile Iron<br>ASTM A536   | — — —   |
| Relief Valve Spring             | Steel<br>ASTM A229              | Steel<br>ASTM A229              | Chrome Silicon Spring Steel<br>ASTM A401  | — — —   |
| Gears                           | Heat Treated Steel              | Heat Treated Steel              | Heat Treated Steel  | PPS (composite), -07 only   |
| Shafts                          | Heat Treated Steel<br>ASTM A322 | Heat Treated Steel<br>ASTM A322 | Heat Treated Steel<br>ASTM A322   | — — —   |
| Anti-Friction Needle Bearings ① | Bearing Steel                   | Bearing Steel                   | Bearing Steel   | — — —   |
| Journal Bearings                | — — —                           | — — —                           | — — —   | Carbon Graphite ②,<br>High Temp Carbon Graphite,<br>Silicon Carbide ③ |
| Outboard Ball Bearing ④         | — — —                           | — — —                           | — — —   | Bearing Steel   |
| O-Rings                         | Buna-N                          | Buna-N                          | Buna-N  | Neoprene, Viton®,<br>PTFE-Encapsulated, Kalrez®                       |
| Lip Seals                       | Buna-N                          | Buna-N                          | Buna-N  | Neoprene, Viton®, PTFE  |
| Component Mechanical Seals ⑤    | Carbon/Ni-Resist                | Carbon/Ni-Resist                | Carbon / Silicon Carbide  | Carbon / Silicon Carbide,<br>Silicon Carbide/Silicon Carbide          |
| Cartridge Mechanical Seals      | — — —                           | — — —                           | Cartridge seals are developed to order. Options include ISC (Flowserve) single or double seals in O-ring or metal bellows design, or John Crane single or double seals in rubber bellows, O-ring or metal bellows design. Other brands may be possible. |   |
| "B" Drive Foot Bracket          | Cast Iron<br>ASTM A48           | Cast Iron<br>ASTM A48           | Cast Iron<br>ASTM A48   | — — —   |
| "M" Drive Motor Bracket         | Cast Iron<br>ASTM A48           | Cast Iron<br>ASTM A48           | Aluminum  | — — —   |

① Needle bearings standard with lip seals.

② Carbon graphite journal bearings standard with mechanical seals.

③ Tungsten-carbide coated shafts recommended with silicon carbide journal bearings.

④ Standard with mechanical seal (SG-10, -14 only), optional with lip seal on all sizes.

⑤ Standard SG-10 & -14 seal Crane T2100 cup-type, 28-3,000 SSU (1-660 cSt). Pinned seat seal option from 28-15,000 SSU (1-3,300 cSt).

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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)  
SGN-05, -07 (Ductile Iron)



## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### SPECIFICATIONS

② Max. Recommended Temperature with Standard Construction: 225°F (107°C)

| Pump Model<br>③ |          |              |           | Port Size       | ⑥ Nominal Capacity at 50 Hz Motor Speeds |       | ⑥ Nominal Capacity at 60 Hz Motor Speeds |       | ④ Maximum Continuous Pressure |     | ④ Maximum Intermittent Pressure |      | ② Maximum Recommended Temperature |        | Approximate Shipping Weight (Pump Only) |     |
|-----------------|----------|--------------|-----------|-----------------|--|-------|--|-------|-------------------------------|-----|---------------------------------|------|-----------------------------------|--------|---|-----|
|                 |          |              |           |                 | 1450 RPM                                 |       | 1750 RPM                                 |       | BAR                           | PSI | BAR                             | PSI  | Deg. C                            | Deg. F | kg.                                     | lb. |
| Lip Seal        |          | Mech. Seal ① |           | Inch            | LPM                                      | GPM   | LPM                                      | GPM   |                               |     |                                 |      |                                   |        |   |     |
| SG-0417         | -        | SG-40417     | -         | 3/8 ⑦           | 0.19                                     | 0.05  | 0.23                                     | 0.06  | 34                            | 500 | 52                              | 750  | 230                               | 450    | 2.7                                     | 6   |
| SG-0418         | -        | SG-40418     | -         | 3/8 ⑦           | 0.44                                     | 0.12  | 0.53                                     | 0.14  | 34                            | 500 | 86                              | 1250 | 230                               | 450    | 2.7                                     | 6   |
| SG-0425         | -        | SG-40425     | -         | 3/8 ⑦           | 0.56                                     | 0.15  | 0.68                                     | 0.18  | 34                            | 500 | 103                             | 1500 | 230                               | 450    | 2.7                                     | 6   |
| SG-0435         | -        | SG-40435     | -         | 3/8 ⑦           | 0.85                                     | 0.22  | 1.02                                     | 0.27  | 34                            | 500 | 121                             | 1750 | 230                               | 450    | 2.7                                     | 6   |
| SG-0450         | -        | SG-40450     | -         | 3/8 ⑦           | 1.13                                     | 0.30  | 1.36                                     | 0.36  | 34                            | 500 | 138                             | 2000 | 230                               | 450    | 3.2                                     | 7   |
| SG-0470         | -        | SG-40470     | -         | 3/8 ⑦           | 1.57                                     | 0.41  | 1.89                                     | 0.50  | 34                            | 500 | 103                             | 1500 | 230                               | 450    | 3.2                                     | 7   |
| ⑤ SG-0518       | SGN-0518 | SG-40518     | SGN-40518 | 1/2 ⑦           | 2.2                                      | 0.58  | 2.6                                      | 0.7   | 34                            | 500 | 103                             | 1500 | 230                               | 450    | 2.7                                     | 6   |
| ⑤ SG-0525       | SGN-0525 | SG-40525     | SGN-40525 | 1/2 ⑦           | 3.1                                      | 0.83  | 3.8                                      | 1.0   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 2.7                                     | 6   |
| ⑤ SG-0535       | SGN-0535 | SG-40535     | SGN-40535 | 1/2 ⑦           | 4.4                                      | 1.16  | 5.3                                      | 1.4   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 2.7                                     | 6   |
| ⑤ SG-0550       | SGN-0550 | SG-40550     | SGN-40550 | 1/2 ⑦           | 6.3                                      | 1.66  | 7.6                                      | 2.0   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 3.2                                     | 7   |
| ⑤ SG-0570       | SGN-0570 | SG-40570     | SGN-40570 | 1/2 ⑦           | 8.8                                      | 2.32  | 10.6                                     | 2.8   | 34                            | 500 | 124                             | 1800 | 230                               | 450    | 3.2                                     | 7   |
| ⑤ SG-0510       | SGN-0510 | SG-40510     | SGN-40510 | 1/2 ⑦           | 12.5                                     | 3.31  | 15.1                                     | 4.0   | 34                            | 500 | 86                              | 1250 | 230                               | 450    | 3.6                                     | 8   |
| ⑤ SG-0514       | SGN-0514 | SG-40514     | SGN-40514 | 3/4 ⑦           | 17.6                                     | 4.64  | 21.2                                     | 5.6   | 34                            | 500 | 62                              | 900  | 230                               | 450    | 4.1                                     | 9   |
| ⑤ SG-0519       | SGN-0519 | SG-40519     | SGN-40519 | 3/4 ⑦           | 23.8                                     | 6.30  | 28.8                                     | 7.6   | 14                            | 200 | 28                              | 400  | 230                               | 450    | 4.5                                     | 10  |
| ⑤ SG-0528       | SGN-0528 | SG-40528     | SGN-40528 | 3/4 ⑦           | 35.1                                     | 9.28  | 42.4                                     | 11.2  | 7                             | 100 | 14                              | 200  | 230                               | 450    | 5                                       | 11  |
| SG-0729         | SGN-0729 | SG-40729     | SGN-40729 | 1 ⑦             | 8.8                                      | 2.3   | 10.6                                     | 2.8   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 6.4                                     | 14  |
| SG-0741         | SGN-0741 | SG-40741     | SGN-40741 | 1 ⑦             | 12.5                                     | 3.3   | 15.1                                     | 4.0   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 6.8                                     | 15  |
| SG-0758         | SGN-0758 | SG-40758     | SGN-40758 | 1 ⑦             | 17.6                                     | 4.6   | 21.2                                     | 5.6   | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 7.7                                     | 17  |
| SG-0782         | SGN-0782 | SG-40782     | SGN-40782 | 1 ⑦             | 25.1                                     | 6.6   | 30.3                                     | 8.0   | 34                            | 500 | 155                             | 2250 | 230                               | 450    | 8.2                                     | 18  |
| SG-0711         | SGN-0711 | SG-40711     | SGN-40711 | 1 ⑦             | 35.1                                     | 9.3   | 42.4                                     | 11.2  | 34                            | 500 | 110                             | 1600 | 230                               | 450    | 8.6                                     | 19  |
| SG-0716         | SGN-0716 | SG-40716     | SGN-40716 | 1 ⑦             | 50.0                                     | 13.0  | 61.0                                     | 16.0  | 34                            | 500 | 76                              | 1100 | 230                               | 450    | 9.1                                     | 20  |
| SG-0722         | SGN-0722 | SG-40722     | SGN-40722 | 1 1/2 x 1 1/4 ⑦ | 69.0                                     | 18.0  | 83.0                                     | 22.0  | 34                            | 500 | 110                             | 1600 | 230                               | 450    | 18.6                                    | 41  |
| SG-0732         | SGN-0732 | SG-40732     | SGN-40732 | 1 1/2 x 1 1/4 ⑦ | 100.0                                    | 26.0  | 121.0                                    | 32.0  | 34                            | 500 | 76                              | 1100 | 230                               | 450    | 19.5                                    | 43  |
| SG-1009         | -        | SG-41009     | -         | 1 ⑥             | 50.0                                     | 13.0  | 61.0                                     | 16.0  | 34                            | 500 | 170                             | 2500 | 230                               | 450    | 20.5                                    | 45  |
| SG-1013         | -        | SG-41013     | -         | 1 1/2 ⑥         | 79.0                                     | 21.0  | 95.0                                     | 25.0  | 34                            | 500 | 130                             | 1900 | 230                               | 450    | 22.1                                    | 49  |
| SG-1026         | -        | SG-41026     | -         | 1 1/2 ⑥         | 110.0                                    | 41.0  | 189.0                                    | 50.0  | 34                            | 500 | 68                              | 1000 | 230                               | 450    | 24.5                                    | 54  |
| SG-1420         | -        | SG-41420     | -         | 2 ⑥             | 220.0                                    | 58.0  | 265.0                                    | 70.0  | 34                            | 500 | 75                              | 1100 | 230                               | 450    | 59.1                                    | 130 |
| SG-1436         | -        | SG-41436     | -         | 3 ⑥             | 392.0                                    | 104.0 | 473.0                                    | 125.0 | 20                            | 290 | 40                              | 580  | 230                               | 450    | 71.5                                    | 158 |
| SG-1456         | -        | SG-41456     | -         | 4 ⑥             | 597.0                                    | 158.0 | 719.0                                    | 190.0 | 13                            | 190 | 26                              | 380  | 230                               | 450    | 85.8                                    | 189 |

① Carbon graphite bushings are standard when mechanical (face type) shaft seal option is specified. Needle bearings standard with lip seals.

② Standard Buna-N seals (O-Rings and shaft lip seals) can be used from -40°F to +225°F (-40°C to +107°C). With optional sealing elements of PTFE or Kalrez®, temperatures up to +450°F (+230°C) are possible. Extra clearances may be required. Contact factory for recommendations.

③ See model numbering code, page 341.1.2.

④ For maximum recommended discharge pressures when handling other viscosities and/or operating at other speeds, visit [www.vikingpump.com/pumpselector](http://www.vikingpump.com/pumpselector).

⑤ UL 343 rating (-X) for fuel oil is available on this pump.

⑥ Nominal capacity based on 100 SSU (22 cSt) liquid at 100 PSI (7 BAR)

⑦ NPT standard. Consult factory for other port size or type options such as BSP, SAE O-Ring or other.

⑧ SAE J518 Code 61 flange with metric threaded fastener holes standard. Consult factory for other port sizes or type options such as NPT, BSP, SAE O-Ring or other.

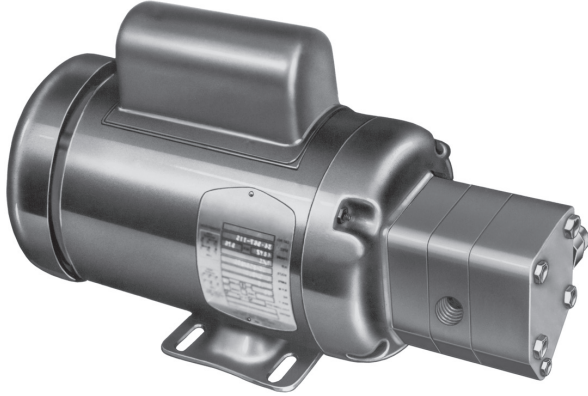
**NOTE:** Adapter from SAE J518 Code 61 flange or tapped port to ANSI or DIN flange available from Viking. Contact factory with desired flange face and length for quote.

Metric conversions are based on US measurements.

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## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

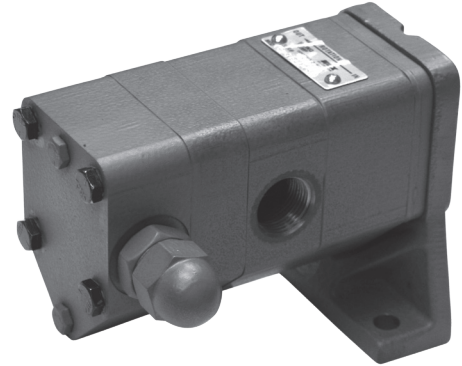
### DRIVE OPTIONS



#### FOUR-BOLT MOTOR MOUNTED UNITS (“M4” DRIVE)

Available with either Series SG-04 or SG-05 integral pump and motor units. It helps reduce onsite assembly costs and provides maximum compactness where space is at a premium. (Not available with Mech. Seal option).

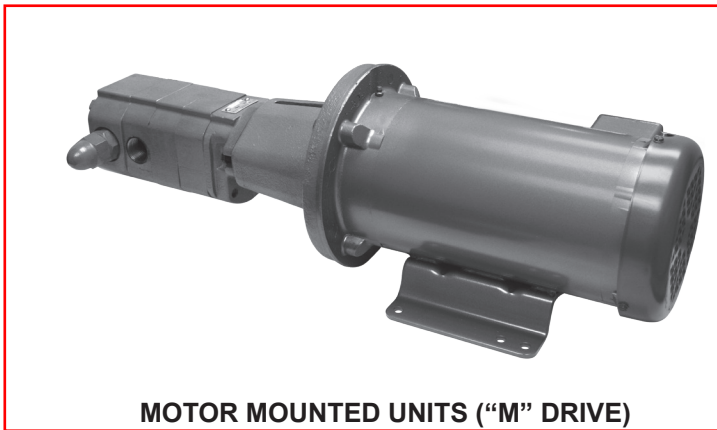
*Dimensions for Four-Bolt Motor Mounted Units (“M4” Drive) —  
See Page 341.1.15.*



#### FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps are available mounted to a foot-bracket that is machined by Viking for an accurate fit with the pump. “B” Drive required for cartridge seals on SG-10 and -14. Outboard bearing required for side loads.

*Dimensions for Foot-Bracket Mounted Pumps (“B” Drive)—  
See Page 341.1.16-17.*

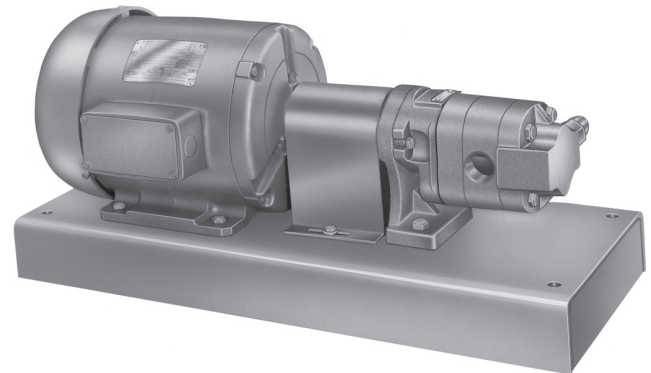


#### MOTOR MOUNTED UNITS (“M” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps, in combination with the NEMA “C” flange or “IEC” bracket and flexible coupling, provide an easily assembled compact pumping unit. This mounting arrangement eliminates the need for on-site coupling alignment that is normally required with a base mounted unit.

*Dimensions for NEMA C-Flange Motor Mounted Units (“M” Drive) —  
See Page 341.1.11-12.*

*Dimensions for IEC Motor Mounted Units (“M” Drive) —  
See Page 341.1.13-14.*



#### BASE MOUNTED UNITS (“D” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps mounted to a Viking rectangular, formed steel base provides you with a solid mounting for the drive equipment and the foot-bracket mounted pump.

**NOTE:** This mounting arrangement requires on-site coupling alignment.

*Dimensions for Base Mounted Units (“D” Drive) —  
See Page 341.1.18.*

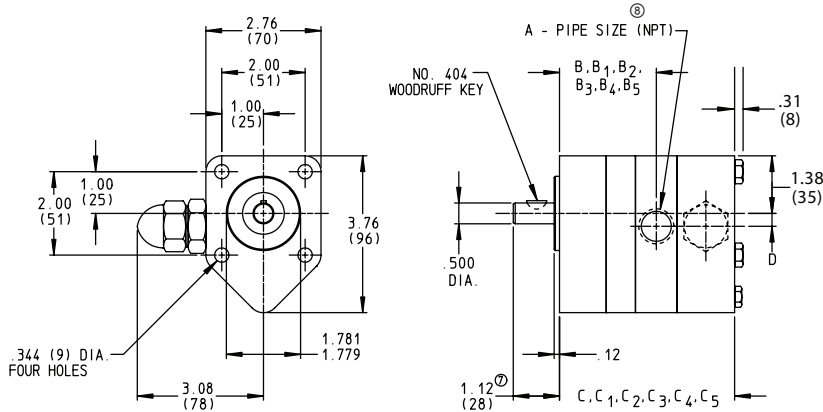
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)  
SGN-05, -07 (Ductile Iron)



## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### DIMENSIONS – SERIES SG-04, SG-05, SGN-05 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



For NEMA "M" Drives, see page 341.1.11  
For IEC "M" Drives, see page 341.1.13  
For "M4" Drives, see page 341.1.15  
For "B" Drives, see page 341.1.16  
For "D" Drives, see page 341.1.18

NOTE: Dimensions in inches (millimeters)

| MODEL NO.             |                         | A   | B  | ① B <sub>1</sub> | ② B <sub>2</sub> | ③ B <sub>3</sub> | ④ B <sub>4</sub> | ⑤ B <sub>5</sub> | C    | ① C <sub>1</sub> | ② C <sub>2</sub> | ③ C <sub>3</sub> | ④ C <sub>4</sub> | ⑤ C <sub>5</sub> | D    |      |
|-----------------------|-------------------------|-----|----|------------------|------------------|------------------|------------------|------------------|------|------------------|------------------|------------------|------------------|------------------|------|------|
| LIP SEAL              | MECH. SEAL              |     |    |                  |                  |                  |                  |                  |      |                  |                  |                  |                  |                  |      |      |
| SG-0417               | SG-40417                | 3/8 | in | 1.80             | 2.68             | 2.18             | 1.99             | 2.87             | 2.37 | 3.68             | 4.56             | 4.06             | 2.68             | 3.56             | 3.06 | 0.31 |
|                       |                         |     | mm | 46               | 68               | 55               | 51               | 73               | 60   | 93               | 116              | 103              | 68               | 90               | 78   | 8    |
| SG-0418               | SG-40418                | 3/8 | in | 1.80             | 2.68             | 2.18             | 1.99             | 2.87             | 2.37 | 3.68             | 4.56             | 4.06             | 2.68             | 3.56             | 3.06 | 0.31 |
|                       |                         |     | mm | 46               | 68               | 55               | 51               | 73               | 60   | 93               | 116              | 103              | 68               | 90               | 78   | 8    |
| SG-0425               | SG-40425                | 3/8 | in | 1.87             | 2.75             | 2.25             | 2.06             | 2.94             | 2.44 | 3.75             | 4.63             | 4.13             | 2.75             | 3.63             | 3.13 | 0.31 |
|                       |                         |     | mm | 47               | 70               | 57               | 52               | 75               | 62   | 95               | 118              | 105              | 70               | 92               | 80   | 8    |
| SG-0435               | SG-40435                | 3/8 | in | 1.97             | 2.85             | 2.35             | 2.16             | 3.04             | 2.54 | 3.85             | 4.73             | 4.23             | 2.85             | 3.73             | 3.23 | 0.31 |
|                       |                         |     | mm | 47               | 70               | 57               | 52               | 75               | 62   | 95               | 118              | 105              | 70               | 92               | 80   | 8    |
| SG-0450               | SG-40450                | 3/8 | in | 2.12             | 3.00             | 2.50             | 2.31             | 3.19             | 2.69 | 4.00             | 4.88             | 4.38             | 3.00             | 3.88             | 3.38 | 0.31 |
|                       |                         |     | mm | 54               | 76               | 64               | 58               | 81               | 68   | 102              | 124              | 111              | 76               | 99               | 86   | 8    |
| SG-0470               | SG-40470                | 3/8 | in | 2.32             | 3.20             | 2.70             | 2.51             | 3.39             | 2.89 | 4.20             | 5.08             | 4.58             | 3.20             | 4.08             | 3.58 | 0.31 |
|                       |                         |     | mm | 59               | 81               | 69               | 64               | 86               | 73   | 107              | 129              | 116              | 81               | 104              | 91   | 8    |
| SG-0518<br>SGN-0518   | SG-40518<br>SGN-40518   | 1/2 | in | 1.80             | 2.68             | 2.18             | 1.99             | 2.87             | 2.37 | 3.68             | 4.56             | 4.06             | 2.68             | 3.56             | 3.06 | 0.31 |
|                       |                         |     | mm | 46               | 68               | 55               | 51               | 73               | 60   | 93               | 116              | 103              | 68               | 90               | 78   | 8    |
| SG-0525<br>SGN-0525   | SG-40525<br>SGN-40525   | 1/2 | in | 1.87             | 2.75             | 2.25             | 2.06             | 2.94             | 2.44 | 3.75             | 4.63             | 4.13             | 2.75             | 3.63             | 3.13 | 0.31 |
|                       |                         |     | mm | 47               | 70               | 57               | 52               | 75               | 62   | 95               | 118              | 105              | 70               | 92               | 80   | 8    |
| SG-0535<br>SGN-0535   | SG-40535<br>SGN-40535   | 1/2 | in | 1.97             | 2.85             | 2.35             | 2.16             | 3.04             | 2.54 | 3.85             | 4.73             | 4.23             | 2.85             | 3.73             | 3.23 | 0.31 |
|                       |                         |     | mm | 50               | 72               | 60               | 55               | 77               | 65   | 98               | 120              | 107              | 72               | 95               | 82   | 8    |
| SG-0550<br>SGN-0550   | SG-40550<br>SGN-40550   | 1/2 | in | 2.12             | 3.00             | 2.50             | 2.31             | 3.19             | 2.69 | 4.00             | 4.88             | 4.38             | 3.00             | 3.88             | 3.38 | 0.31 |
|                       |                         |     | mm | 54               | 76               | 64               | 58               | 81               | 68   | 102              | 124              | 111              | 76               | 99               | 86   | 8    |
| SG-0570<br>SGN-0570   | SG-40570<br>SGN-40570   | 1/2 | in | 2.32             | 3.20             | 2.70             | 2.51             | 3.39             | 2.89 | 4.20             | 5.08             | 4.58             | 3.20             | 4.08             | 3.58 | 0.31 |
|                       |                         |     | mm | 59               | 81               | 69               | 64               | 86               | 73   | 107              | 129              | 116              | 81               | 104              | 91   | 8    |
| ⑥ SG-0510<br>SGN-0510 | ⑥ SG-40510<br>SGN-40510 | 1/2 | in | 1.62             | 2.50             | 2.00             | 1.62             | 2.50             | 2.00 | 4.50             | 5.38             | 4.88             | 3.50             | 4.38             | 3.88 | 0.31 |
|                       |                         |     | mm | 41               | 64               | 51               | 41               | 64               | 51   | 114              | 137              | 124              | 89               | 111              | 99   | 8    |
| ⑥ SG-0514<br>SGN-0514 | ⑥ SG-40514<br>SGN-40514 | 3/4 | in | 1.82             | 2.70             | 2.20             | 1.82             | 2.70             | 2.20 | 4.90             | 5.78             | 5.28             | 3.90             | 4.78             | 4.28 | 0.19 |
|                       |                         |     | mm | 46               | 69               | 56               | 46               | 69               | 56   | 124              | 147              | 134              | 99               | 121              | 109  | 5    |
| ⑥ SG-0519<br>SGN-0519 | ⑥ SG-40519<br>SGN-40519 | 3/4 | in | 2.07             | 2.95             | 2.45             | 2.07             | 2.95             | 2.45 | 5.40             | 6.28             | 5.78             | 4.40             | 5.28             | 4.78 | 0.19 |
|                       |                         |     | mm | 53               | 75               | 62               | 53               | 75               | 62   | 137              | 160              | 147              | 112              | 134              | 121  | 5    |
| ⑥ SG-0528<br>SGN-0528 | ⑥ SG-40528<br>SGN-40528 | 3/4 | in | 1.82             | 2.70             | 2.20             | 1.82             | 2.70             | 2.20 | 6.30             | 7.18             | 6.68             | 5.30             | 6.18             | 5.68 | 0.19 |
|                       |                         |     | mm | 46               | 69               | 56               | 46               | 69               | 56   | 160              | 182              | 170              | 135              | 157              | 144  | 5    |

① These dimensions apply when the mechanical shaft seal option (outboard bearing) is selected.

② These dimensions apply when the overhung load option (outboard bearing) is selected.

③ These dimensions apply when the relief valve is deleted.

④ These dimensions apply when the relief valve is deleted and the mechanical shaft seal option is selected.

⑤ These dimensions apply when the relief valve is deleted and the overhung load option (outboard bearing) is selected.

⑥ These models have the ports in the casing. Others ported in separation plate.

⑦ When the overhung load option (outboard bearing) is selected the pump shaft extension becomes 1.62" (41mm).

⑧ Standard ports NPT. Optional threads include BSP and SAE O-ring J1453.

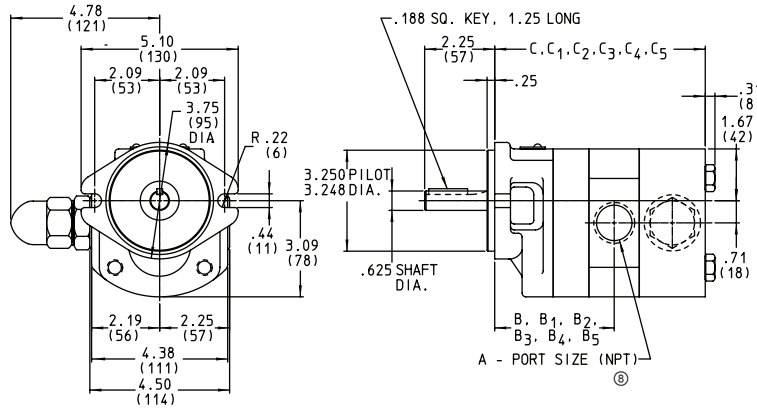
NOTE: Bracket Pilot USA4F17



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## VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

### DIMENSIONS – SERIES SG-07, SGN-07 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



For NEMA "M" Drives, see page 341.1.11  
For IEC "M" Drives, see page 341.1.13  
For "B" Drives, see page 341.1.16  
For "D" Drives, see page 341.1.18

**NOTE:** Dimensions in inches (millimeters)

| MODEL NO.           | A         |    | B    | ① B <sub>1</sub> | ② B <sub>2</sub> | ③ B <sub>3</sub> | ④ B <sub>4</sub> | ⑤ B <sub>5</sub> | C     | ① C <sub>1</sub> | ② C <sub>2</sub> | ③ C <sub>3</sub> | ④ C <sub>4</sub> | ⑤ C <sub>5</sub> | D    |
|---------------------|-----------|----|------|------------------|------------------|------------------|------------------|------------------|-------|------------------|------------------|------------------|------------------|------------------|------|
| SG-0741<br>SGN-0741 | ⑥ 1       | in | 3.10 | 4.72             | 3.29             | 4.91             | 3.54             | 5.16             | 6.03  | 7.65             | 4.41             | 6.03             | 6.91             | 8.53             | 18   |
|                     |           | mm | 79   | 120              | 84               | 125              | 90               | 131              | 153   | 194              | 112              | 153              | 176              | 217              | 0.71 |
| SG-0758<br>SGN-0758 | ⑥ 1       | in | 3.27 | 4.89             | 3.46             | 5.08             | 3.71             | 5.33             | 6.20  | 7.82             | 4.58             | 6.20             | 7.08             | 8.70             | 18   |
|                     |           | mm | 83   | 124              | 88               | 129              | 94               | 135              | 157   | 199              | 116              | 157              | 180              | 221              | 0.71 |
| SG-0782<br>SGN-0782 | ⑥ 1       | in | 3.51 | 5.13             | 3.70             | 5.32             | 3.95             | 5.57             | 6.44  | 8.06             | 4.82             | 6.44             | 7.32             | 8.94             | 18   |
|                     |           | mm | 89   | 130              | 94               | 135              | 100              | 141              | 164   | 205              | 122              | 164              | 186              | 227              | 0.71 |
| SG-0711<br>SGN-0711 | ⑥ 1       | in | 3.84 | 5.46             | 4.03             | 5.65             | 4.28             | 5.90             | 6.77  | 8.39             | 5.15             | 6.77             | 7.65             | 9.27             | 18   |
|                     |           | mm | 98   | 139              | 102              | 144              | 109              | 150              | 172   | 213              | 131              | 172              | 194              | 235              | 0.71 |
| SG-0716<br>SGN-0716 | ⑥ 1       | in | 4.34 | 5.96             | 4.53             | 6.15             | 4.78             | 6.40             | 7.27  | 8.89             | 5.65             | 7.27             | 8.15             | 9.77             | 18   |
|                     |           | mm | 110  | 151              | 115              | 156              | 121              | 163              | 185   | 226              | 144              | 185              | 207              | 248              | 0.71 |
| SG-0722<br>SGN-0722 | ⑦ 1½ x 1¼ | in | 4.28 | 5.90             | 4.28             | 5.90             | —                | —                | 10.42 | 12.04            | 8.80             | 10.42            | —                | —                | 18   |
|                     |           | mm | 109  | 150              | 109              | 150              | —                | —                | 265   | 306              | 224              | 265              | —                | —                | 0.71 |
| SG-0732<br>SGN-0732 | ⑦ 1½ x 1¼ | in | 4.78 | 6.40             | 4.78             | 6.40             | —                | —                | 11.42 | 13.04            | 9.80             | 11.42            | —                | —                | 18   |
|                     |           | mm | 121  | 163              | 121              | 163              | —                | —                | 290   | 331              | 249              | 290              | —                | —                | 0.71 |

- ① These dimensions apply when the mechanical shaft seal option is selected.
- ② These dimensions apply when the relief valve is deleted.
- ③ These dimensions apply when the relief valve is deleted and the mechanical shaft seal option is selected.
- ④ These dimensions apply when the oversize port option (1½" NPT suction, 1¼" NPT discharge) is selected, with or without the relief valve.
- ⑤ These dimensions apply when the oversize port option (1½" NPT suction, 1¼" NPT discharge) and the mechanical seal option are both selected, with or without the relief valve.
- ⑥ Standard ports for these size pumps are 1" NPT. Oversize ports are available (1½" NPT suction, 1¼" NPT discharge) as an option on clockwise rotation pumps only. See footnotes 4 and 5 for appropriate dimensions.
- ⑦ Standard ports for these size pumps are 1½" NPT suction, 1¼" NPT discharge. These pumps are only available in clockwise rotation.
- ⑧ Standard ports NPT. Optional threads include BSP and SAE O-ring J1453.

**NOTE:** SG-07 bracket to SAE-A 2-bolt standard for NEMA or IEC M-drive.

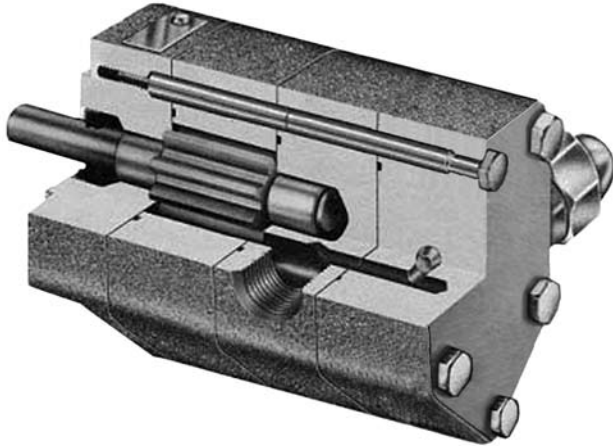
# VIKING® SPUR GEAR SINGLE PUMPS

## SERIES SG-04, SG-05, SG-07 AND SGN-05, SGN-07

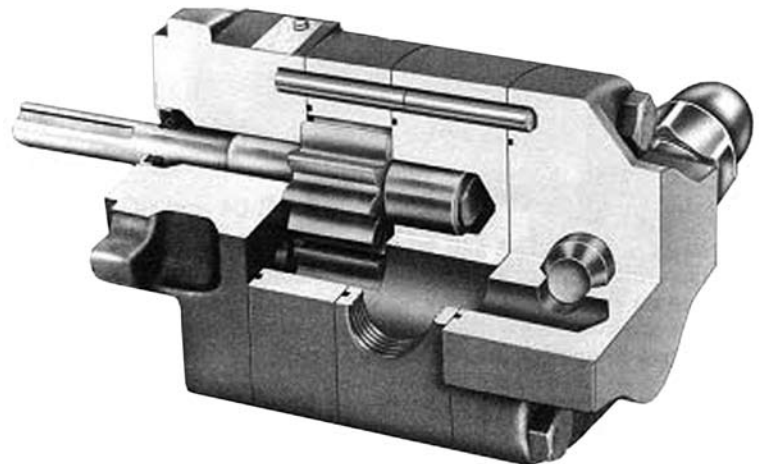
### STANDARD CONSTRUCTION

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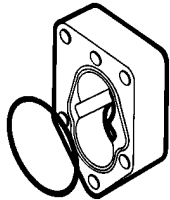
## FEATURES



**SERIES SG-04 and SG-05 Pumps**  
Cutaway View  
.06 to 11.2 GPM Sizes  
(.01 to 2.5 m<sup>3</sup>/hr)

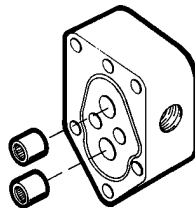


**SERIES SG-07 Pump**  
Cutaway View  
2.8 to 32.0 GPM Sizes  
(.6 to 7 m<sup>3</sup>/hr)



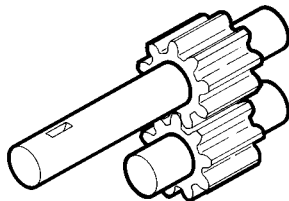
**BUNA-N O-RINGS**  
(Standard Equipment)

All Series SG single pumps incorporate as standard equipment Buna-N O-Rings between sections for positive sealing.



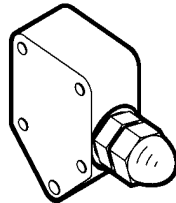
**ANTI-FRICTION NEEDLE BEARINGS**  
(Standard Equipment)

Anti-friction needle bearings are standard equipment for all Series SG lip seal single pumps to reduce torque and improve efficiency.



**HEAT-TREATED GEARS & CASE-HARDENED STEEL SHAFTS**  
(Standard Equipment)

Precision ground heat-treated gear and case-hardened steel shafts insure maximum operating life for all Series SG single pumps.



**OVER-PRESSURE RELIEF VALVE**  
(Standard Equipment)  
Single Pumps

Valve permits bypassing of liquids and prevents excessive pressure in the discharge line. If Viking pressure relief valve is not used, some form of pressure protection must be provided, e.g., relief valve in discharge line, torque limiting devices, rupture discs, etc. Viking over-pressure relief valves are not intended for flow or pressure regulation.

|                     |  |
|---------------------|--|
| ① Pressure Range    | to 500 PSI (34 BAR) for 100 SSU (21 cSt) and above |
| ② Temperature Range | -40°F. to +450°F. (-40°C. to +232°C.)              |
| ③ Viscosity Range   | 28 SSU to 1,000,000 SSU (.1 cP to 215,871 cSt)     |

## GPM .06 to 32 (m<sup>3</sup>/hr .013 to 7) ② (Nominal Rating)

Viking spur gear single pumps Series SG-04, SG-05 and SG-07 are becoming industry's choice for low capacity, high-speed and high-pressure transfer applications. These series of pumps provide versatility and dependability in a compact pumping unit. Through accurate machining and the use of quality components, Viking spur gear single pumps deliver quiet, low-ripple flow to satisfy industrial needs.

Series SG-04, SG-05 and SG-07 fixed displacement spur gear single pumps are designed so capacities increase in even increments of 40 percent so a Viking spur gear single pump is always within 20 percent of your capacity needs.

① Values shown represent minimums or maximums. Some special construction or consideration may be required before a cataloged pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity. Certain models have restrictions in pressure and/or viscosities. See specifications, page 341.2, and performance curves, pages 341.19 through 341.66.

② Nominal capacities based on handling thin liquids at low pressures at 1750 RPM.

*Metric conversions are based on US measurements and rounded to the nearest whole number.*

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# VIKING® SPUR GEAR SINGLE PUMPS

## SERIES SG-04, SG-05, SG-07 AND SGN-05, SGN-07

### STANDARD CONSTRUCTION

#### UNMOUNTED PUMPS



SERIES SG-04 and SG-05 Pumps



SERIES SG-07 Pumps

Series SG-04, SG-05 and SG-07 spur gear single pumps are available either unmounted or as mounted units as shown on the following pages. Viking spur gear single pumps are available with a wide variety of sealing options and drive equipment to meet specific needs.

Dimensions for Unmounted Pumps—See Pages 341.9 and 341.10.  
Performance Data for Unmounted Pumps—See Pages 341.19 through 341.66.

#### CONSTRUCTION — SERIES SG-04, SG-05 AND SG-07 UNMOUNTED SINGLE PUMPS

| Model               | Head, Casing, Separation Plate & Bracket | Gears              | Shafts              | Bearings |                   | O-Rings  | Lip Seal |
|---------------------|--|--------------------|---------------------|----------|-------------------|----------|----------|
|                     |  |                    |                     | Lip Seal | Mech. Seal        |          |          |
| SG-04, SG05 & SG-07 | Iron                                     | Heat-Treated Steel | Case-Hardened Steel | Needle   | ① Carbon Graphite | ② Buna-N | ② Buna-N |
| SGN-05 & SGN-07     | Ductile Iron                             | Heat-Treated Steel | Case-Hardened Steel | Needle   | ① Carbon Graphite | ② Buna-N | ② Buna-N |

#### SPECIFICATIONS — SERIES SG-04, SG-05 AND SG-07 UNMOUNTED SINGLE PUMPS

| Lip Seal  | Mech. Seal  | ③ Model Number | Port Size (NPT) | Nominal Capacity at 1750 RPM (100 SSU) | Motor Horsepower Required at 1750 RPM (100 SSU) |                  | ④ Maximum Discharge Pressure at 1750 RPM (100 SSU) | ⑤ Maximum Temperature for Cataloged Pump | Approximate Pump Shipping Weight |           |
|-----------|-------------|----------------|-----------------|--|---|------------------|--|--|----------------------------------|-----------|
|           |             |                |                 |  | 100 PSI (7 BAR)                                 | 500 PSI (34 BAR) |  |  |                                  |           |
| Inches    | GPM (m³/hr) |                | Inches          | GPM (m³/hr)                            | PSIG (BAR)                                      | Degrees          | Pounds (KG)  |  |                                  |           |
| SG-0417   | SG-40417    |                | 3/8             | 0.06 (.01)                             | 1/8   | 1/4              | 500 (34)   | 225°F (107°C)                            | 6 (2.7)                          |           |
| SG-0418   | SG-40418    |                | 3/8             | 0.14 (.03)                             | 1/8   | 1/2              | 500 (34)   | 225°F (107°C)                            | 6 (2.7)                          |           |
| SG-0425   | SG-40425    |                | 3/8             | 0.18 (.04)                             | 1/8   | 1/3              | 500 (34)   | 225°F (107°C)                            | 6 (2.7)                          |           |
| SG-0435   | SG-40435    |                | 3/8             | 0.27 (.06)                             | 1/8   | 1/2              | 500 (34)   | 225°F (107°C)                            | 6 (2.7)                          |           |
| SG-0450   | SG-40450    |                | 3/8             | 0.36 (.08)                             | 1/4   | 1/2              | 500 (34)   | 225°F (107°C)                            | 7 (3.2)                          |           |
| SG-0470   | SG-40470    |                | 3/8             | 0.50 (.11)                             | 1/4   | 1/2              | 500 (34)   | 225°F (107°C)                            | 7 (3.2)                          |           |
| ⑥ SG-0518 | SGN-0518    | SG-40518       | SGN-40518       | 1/2                                    | 0.7 (.16)                                       | 1/8              | 1/3  | 500 (34)                                 | 225°F (107°C)                    | 6 (2.7)   |
| ⑥ SG-0525 | SGN-0525    | SG-40525       | SGN-40525       | 1/2                                    | 1.0 (.23)                                       | 1/8              | 1/2  | 500 (34)                                 | 225°F (107°C)                    | 6 (2.7)   |
| ⑥ SG-0535 | SGN-0535    | SG-40535       | SGN-40535       | 1/2                                    | 1.4 (.32)                                       | 1/4              | 3/4  | 500 (34)                                 | 225°F (107°C)                    | 6 (2.7)   |
| ⑥ SG-0550 | SGN-0550    | SG-40550       | SGN-40550       | 1/2                                    | 2.0 (.45)                                       | 1/4              | 3/4  | 500 (34)                                 | 225°F (107°C)                    | 7 (3.2)   |
| ⑥ SG-0570 | SGN-0570    | SG-40570       | SGN-40570       | 1/2                                    | 2.8 (.64)                                       | 1/4              | 1  | 500 (34)                                 | 225°F (107°C)                    | 7 (3.2)   |
| ⑥ SG-0510 | SGN-0510    | SG-40510       | SGN-40510       | 1/2                                    | 4.0 (.91)                                       | 1/2              | 1 1/2  | 500 (34)                                 | 225°F (107°C)                    | 8 (3.6)   |
| ⑥ SG-0514 | SGN-0514    | SG-40514       | SGN-40514       | 3/4                                    | 5.6 (1.3)                                       | 1/2              | 2  | 500 (34)                                 | 225°F (107°C)                    | 9 (4.1)   |
| ⑥ SG-0519 | SGN-0519    | SG-40519       | SGN-40519       | 3/4                                    | 7.6 (1.7)                                       | 3/4              | —  | 400 (28)                                 | 225°F (107°C)                    | 10 (4.5)  |
| ⑥ SG-0528 | SGN-0528    | SG-40528       | SGN-40528       | 3/4                                    | 11.2 (2.5)                                      | 1                | —  | 200 (14)                                 | 225°F (107°C)                    | 11 (5)    |
| SG-0729   | SGN-0729    | SG-40729       | SGN-40729       | 1                                      | 2.8 (.6)  | 1 1/2            | 1 1/2  | 500 (34)                                 | 225°F (107°C)                    | 14 (6.4)  |
| SG-0741   | SGN-0741    | SG-40741       | SGN-40741       | 1                                      | 4.0 (.91)                                       | 1/2              | 1 1/2  | 500 (34)                                 | 225°F (107°C)                    | 15 (6.8)  |
| SG-0758   | SGN-0758    | SG-40758       | SGN-40758       | 1                                      | 5.6 (1.3)                                       | 3/4              | 3  | 500 (34)                                 | 225°F (107°C)                    | 17 (7.7)  |
| SG-0782   | SGN-0782    | SG-40782       | SGN-40782       | 1                                      | 8.0 (1.8)                                       | 1                | 3  | 500 (34)                                 | 225°F (107°C)                    | 18 (8.2)  |
| SG-0711   | SGN-0711    | SG-40711       | SGN-40711       | 1                                      | 11.2 (2.5)                                      | 1 1/2            | 5  | 500 (34)                                 | 225°F (107°C)                    | 19 (8.6)  |
| SG-0716   | SGN-0716    | SG-40716       | SGN-40716       | 1                                      | 16.0 (3.6)                                      | 2                | 7 1/2  | 500 (34)                                 | 225°F (107°C)                    | 20 (9.1)  |
| SG-0722   | SGN-0722    | SG-40722       | SGN-40722       | 1 1/2 x 1 1/4                          | 22.0 (5.0)                                      | 3                | 10   | 500 (34)                                 | 225°F (107°C)                    | 41 (18.6) |
| SG-0732   | SGN-0732    | SG-40732       | SGN-40732       | 1 1/2 x 1 1/4                          | 32.0 (7.3)                                      | 5                | 15   | 500 (34)                                 | 225°F (107°C)                    | 43 (19.5) |

① Carbon graphite bushings are standard when mechanical (face type) shaft seal option is specified.

② Buna-N seals (O-Rings, lip seals or mechanical (face type) shaft seals) can be used from -40°F. to +225°F. With sealing elements of other materials, temperatures up to +450°F. can be tolerated.

③ See model numbering code, page 341.4.

④ For maximum recommended discharge pressures when handling other viscosities and/or operating at other speeds, see performance curves, pages 341.19 through 341.66. Performance curves show recommended construction.

⑤ UL rating (-X) for fuel oil is available on this pump.

# VIKING® SPUR GEAR SINGLE PUMPS

SERIES SG-04, SG-05, SG-07 AND SGN-05, SGN-07  
STANDARD CONSTRUCTION

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## DRIVE OPTIONS



### FOUR-BOLT MOTOR MOUNTED UNITS (“M4” DRIVE)

Available with either Series SG-04 or SG-05 integral pump and motor units. It helps reduce onsite assembly costs and provides maximum compactness where space is at a premium. (Not available with Mech. Seal option).

*Dimensions for Four-Bolt Motor Mounted Units (“M4” Drive) — See Page 341.13.*

*Performance Data for Four-Bolt Motor Mounted Units (“M4” Drive) — See Pages 341.19 through 341.50.*



### FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

Series SG-04, SG-05 and SG-07 spur gear single pumps are available mounted to a foot-bracket that is machined by Viking for an accurate fit with the pump.

*Dimensions for Foot-Bracket Mounted Pumps (“B” Drive)— See Page 341.15.*

*Performance Data for Foot-Bracket Mounted Pumps (“B” Drive)— See Pages 341.19 through 341.66.*

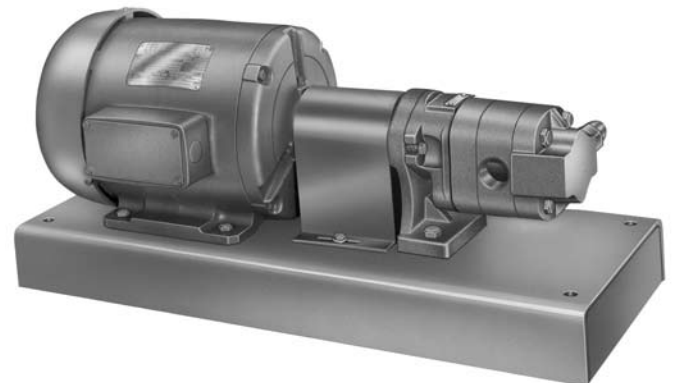


### C-FLANGE MOTOR MOUNTED UNITS (“M” DRIVE)

Series SG-04, SG-05 and SG-07 spur gear single pumps, in combination with the NEMA “C” flange bracket and flexible coupling, provide an easily assembled compact pumping unit. This mounting arrangement eliminates the need for on-site coupling alignment that is normally required with a base mounted unit.

*Dimensions for C-Flange Motor Mounted Units (“M” Drive)— See Page 341.14.*

*Performance Data for C-Flange Motor Mounted Units (“M” Drive) — See Pages 341.19 through 341.66.*



### BASE MOUNTED UNITS (“D” DRIVE)

Series SG-04, SG-05 and SG-07 spur gear single pumps mounted to a Viking rectangular, formed steel base provides you with a solid mounting for the drive equipment and the foot-bracket mounted pump.

NOTE: This mounting arrangement requires on-site coupling alignment.

*Dimensions for Base Mounted Units (“D” Drive)— See Page 341.16.*

*Performance Data for Base Mounted Units (“D” Drive) — See Pages 341.19 through 341.66.*

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# VIKING® SPUR GEAR SINGLE PUMPS

## SERIES SG-04, SG-05, SG-07 AND SGN-05, SGN-07

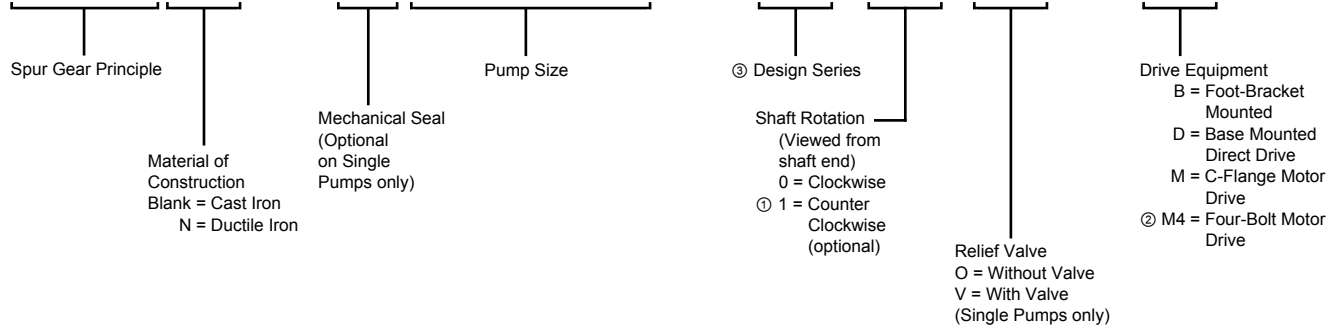
### STANDARD CONSTRUCTION

### MODEL NUMBERING CODES

Breakdowns of the model number codes for spur gear single and double pumps are provided to aid you in ordering exactly the pump you want and to avoid delays in processing your order. Please note that the pump model numbering codes do not cover all pump options, e.g., shaft sealing arrangements, seal materials, etc. These types of additions must be specified in your order. See price pages.

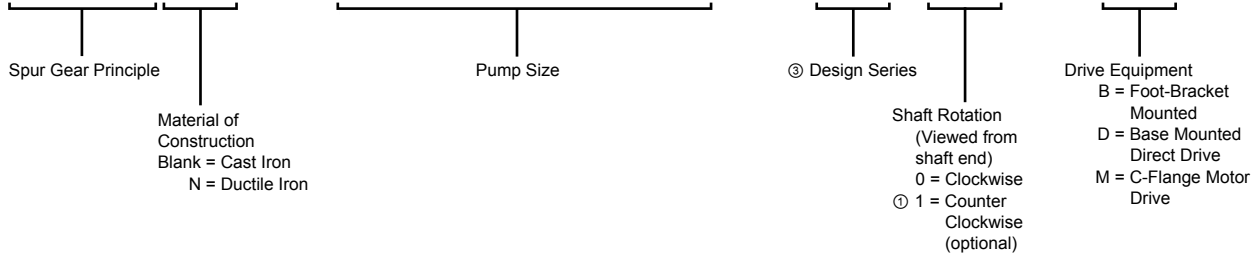
#### SINGLE PUMPS

# SGN - 40518 - G O V - B



#### DOUBLE PUMPS

# SGN - 051825 - G O - B

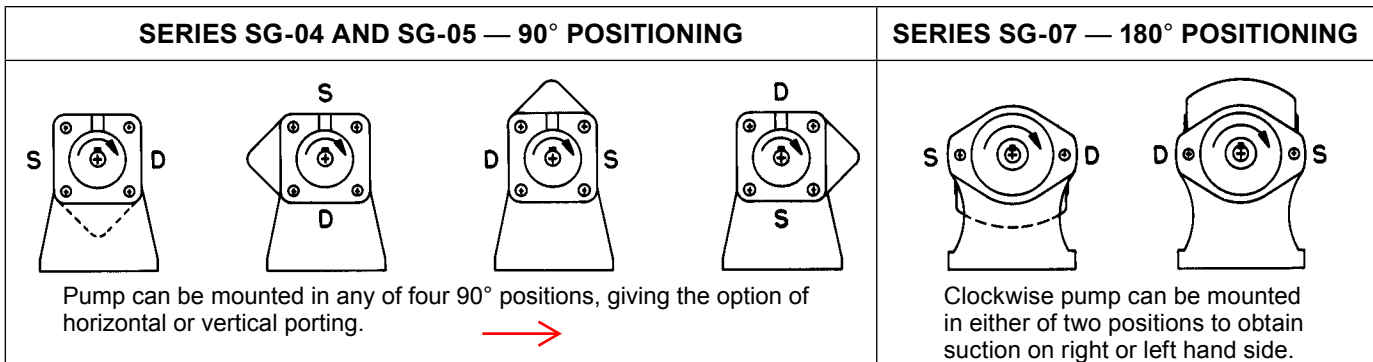


① Counter / clockwise rotation, see price page for addition.

② Four-Bolt Motor Drive option available only for Series SG-04 and SG-05 single pumps, lip seal.

③ NOTE: Design series letter designations are subject to change as the result of basic modifications to the product line.

At the time of this printing the design series letter designation for the SG-04 in "A". Series SG-05 and SG-07 pumps use letter designation "G" for both single and double pumps.





# TECHNICAL SERVICE MANUAL

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INSTALLATION, START UP, TROUBLESHOOTING,  
PREVENTIVE MAINTENANCE, DO'S & DON'TS  
SERIES SG-04, SG-05 & SG-07 SPUR GEAR PUMPS



# TECHNICAL SERVICE MANUAL

|         |         |
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| SECTION | TSM 340 |
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INSTALLATION, START UP, TROUBLESHOOTING,  
PREVENTIVE MAINTENANCE, DO'S & DON'TS  
SERIES SG-04, SG-05 & SG-07 SPUR GEAR PUMPS

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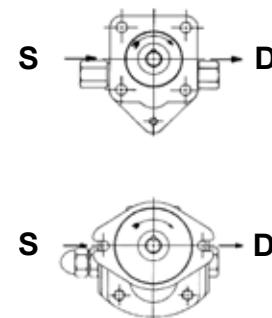


FIGURE 1

## INSTALLATION

### General

The following items must be considered prior to pump installation:

1. Location - locate the pump as close as possible to the liquid supply. If possible locate the pump below the liquid supply. Viking pumps are self-priming; but the better the suction conditions, the better the pump will perform.
2. Accessibility – the pump must be accessible for inspection, maintenance and repair.
3. Suction/Discharge - SG Series pumps are designed for clockwise rotation as standard (viewed from end of shaft). Refer to Figure 1.
4. Pressure Relief Valve - the SG Series is a positive displacement pump and requires some form of over pressure protection. Without pressure protection, if the discharge line is blocked or becomes closed, pressure will build up until the motor stalls, drive equipment fails, a pump part breaks, or the piping and/or other equipment in the system bursts. To prevent the possibility of any one or more of the above from occurring, the use of a pressure relief valve is recommended.
5. Storage - drain the pump and apply a light coat of non-detergent SAE 30 weight oil to all internal pump parts. Apply grease to the pump shaft extension. Viking suggests rotating the pump shaft by hand one complete revolution every 30 days to circulate the oil.

# MOUNTING

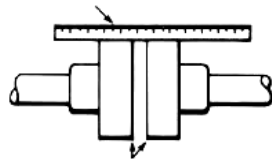
1. Surfaces to which the pump mounts must be clean and flat.
2. Use SAE Grade 5 or better capscrews to mount pump.
3. The 4 mounting capscrews for the SG-04 and SG-05 pumps must have a minimum of ½ inch thread engagement, and must be torqued evenly to 12-15 ft-lbs.
4. The 2 mounting capscrews for the SG-07 pumps must have a minimum of ½ inch thread engagement, and be evenly torqued to 50-55 ft-lbs.
5. Standard SG Series pumps are designed to be used with jaw type couplings that do not induce axial thrust on the pump shaft. If an improper type of coupling is used, internal damage may result.
6. Do not strike or press the pump drive coupling to install. Internal pump damage will result. If the coupling does not slide onto the shaft, inspect the coupling, shaft and key for nicks or burrs and remove.
7. If the pump is to be belt or gear driven, the overhung load option must be specified.
8. Once the pump has been mounted and the coupling installed, it is recommended to put lube oil into the suction port and turn the pump by hand to make sure it turns freely.

## Alignment

Check alignment after mounting.

1. If the unit has a flexible coupling, remove any coupling guards or covers and check alignment of coupling halves. A straight edge (piece of key stock will work) across the coupling must rest evenly on both rims at the top, bottom and sides. See Figure 3.
2. Make a final check on alignment after the piping is hooked up.

USE STRAIGHT EDGE. THESE SURFACES MUST BE PARALLEL



CHECK WIDTH BETWEEN THESE SURFACES WITH INSIDE CALIPERS OR FEELER GAUGE TO BE CERTAIN THE FACES ARE EQUAL DISTANCE APART AND PARALLEL.

FIGURE 3

## Piping/Hose


The cause of many pumping problems can be traced to the suction piping. It should always be as large in diameter and as short in length as possible.

Before starting the layout and installation of your piping system, consider the following points:

1. Never use piping smaller than the pump port connections. Piping larger in diameter than the port connection is sometimes required to reduce friction losses.

3. **DO** obtain, read and keep all maintenance instructions furnished with pump.

# VIKING PUMP



IDEX CORPORATION

## WARRANTY

Viking warrants all products manufactured by it to be free from defects in workmanship or material for a period of one (1) year from date of startup, provided that in no event shall this warranty extend more than eighteen (18) months from the date of shipment from Viking. If, during said warranty period, any products sold by Viking prove to be defective in workmanship or material under normal use and service, and if such products are returned to Viking's factory at Cedar Falls, Iowa, transportation charges prepaid, and if the products are found by Viking to be defective in workmanship or material, they will be replaced or repaired free of charge, FOB. Cedar Falls, Iowa.

Viking assumes no liability for consequential damages of any kind and the purchaser by acceptance of delivery assumes all liability for the consequences of the use or misuse of Viking products by the purchaser, his employees or others. Viking will assume no field expense for service or parts unless authorized by it in advance.

Equipment and accessories purchased by Viking from outside sources which are incorporated into any Viking product are warranted only to the extent of and by the original manufacturer's warranty or guarantee, if any.

THIS IS VIKING'S SOLE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHICH ARE HEREBY EXCLUDED, INCLUDING IN PARTICULAR ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No officer or employee of IDEX Corporation or Viking Pump, Inc.. is authorized to alter this warranty.

2. Be sure the inside of the pipe is clean before installing.
3. When approaching an obstacle to the suction line, go around instead of over it. Going over an obstacle can create an air pocket. Where practical, slope the piping so no air or liquid pockets will be formed. Air pockets in the suction line make it hard for the pump to prime.
4. A strainer on the suction side of the pump should always be considered in any pumping system. The strainer will keep foreign matter from entering the pump. The strainer mesh or perforation size should be large enough so that it does not cause excessive pressure drop, but fine enough to protect the pump. Use of a strainer is particularly important at start up to help clean the system of weld beads, pipe scale and other foreign objects.
5. A pressure relief valve is required in the discharge line. See Pressure Relief Valves, General page 1 item 4.
6. The pump must not be used to support the piping. Hangers, supports, stands, etc. must carry the weight of the pipes.
7. When fastening piping to the pump do not impose any strain on the pump casing. "Springing" or "drawing" the piping up to the pump will cause distortion, possible misalignment and probable rapid wear of the pump. Do not use the pump to correct errors in piping layout or assembly.
8. All joints of piping system must be tight; liquid thread sealant will help assure leak free threaded joints. Loose joints result in liquid leaks or suction side leaks. Air leaks make the pump noisy and reduce flow. **CAUTION:** Be careful not to over tighten fittings as this can cause cracked joints. Do not use Teflon tape. Reduced friction makes over tightening very easy and will result in cracked ports. Leaks in the suction line can permit air to be drawn in, and will cause a noisy pump and reduction in capacity.
9. Drive alignment must be checked after piping is hooked up.
10. Provide a pressure relief device in any part of a pump and piping system that can be valved off and, thus, completely isolated. A rise in temperature will cause a liquid to expand. If there is no provision for pressure relief in the closed off section, there is a chance that the pump or piping will rupture.

## Danger !

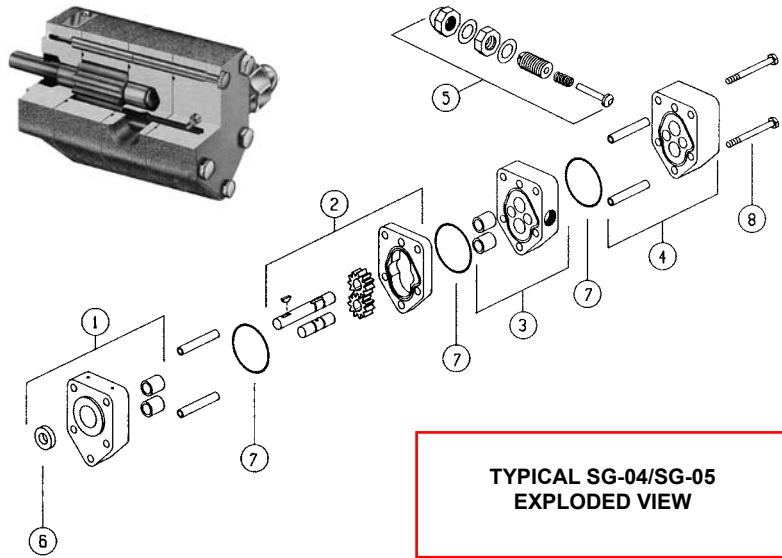
**Before starting pump, be sure all drive equipment guards are in place.  
Failure to properly mount guards may result in serious injury or death.**

## START UP

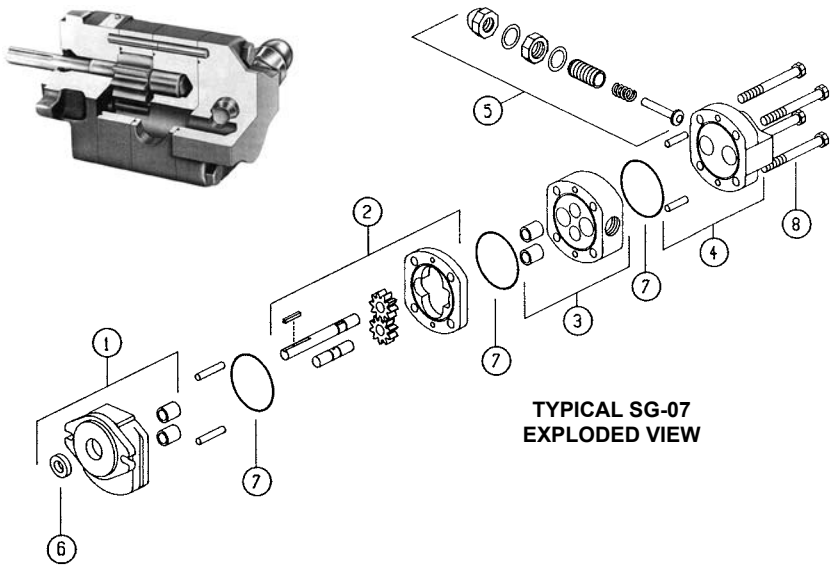
Before pushing "start" button, check the following:

1. Are vacuum and pressure gauges (liquid filled) mounted on or near the pump? Gauges are the quickest and most accurate way of finding out what is happening in the pump.
2. Is the pump is correctly aligned with the drive equipment?
3. Make sure there is no pipe strain on the pump ports.
4. Rotate the pump shaft by hand to be sure it turns freely.





**TYPICAL SG-04/SG-05  
EXPLODED VIEW**



**TYPICAL SG-07  
EXPLODED VIEW**

| ITEM | DESCRIPTION   | ITEM | DESCRIPTION        |
|------|---|------|--------------------|
| 1.   | Bracket, lipseal & bearing section                      | 5.   | Relief valve kit   |
| 2.   | Match ground casing & (2) gears, driver & driven shafts | 6.   | Lipseal            |
| 3.   | Separation plate & bearing assy.                        | 7.   | O-ring             |
| 4.   | Head and alignment sleeve assy.                         | 8.   | Assembly capscrews |

**Pump takes too much power (stalls motor):**

1. The pump sequence valve set too high.
2. Liquid is more viscous than the is unit sized to handle.
3. The system pressure relief valve set too high.
4. The pump is misaligned.

**DO'S AND DON'TS**

Do's and Don'ts for installation, operation and maintenance of Viking pumps to assure safe, long, trouble free operation.

**Installation:**

1. **DO** install the pump as close to supply tank as possible.
2. **DO** leave working space around the pumping unit.
3. **DO** use large, short and straight suction port.
4. **DO** install a strainer in the suction line.
5. **DO** a double check of alignment after unit is mounted and piping is hooked up.
6. **DO** provide pressure relief valve for discharge side of pump.
7. **DO** check for proper rotation.
8. **DO** use a return line filter.
9. **DO** use an industrial grade hydraulic oil.
10. **DO** use piping, hose and fittings rated for maximum system pressure.

**Operation**

1. **DON'T** run the pump at speeds faster than 3600 RPM.
2. **DON'T** allow the pump to develop pressure higher than those shown in catalog at that size.
3. **DON'T** operate pumps at temperatures above or below limits shown in catalog for model.
4. **DON'T** operate unit without all guards in place.
5. **DON'T** operate pump without pressure relief valve in discharge piping; be sure valve is mounted and set correctly.
6. **DON'T** stick fingers in ports of pump!!! Fingers may be pinched between gears.
7. **DON'T** work on the pump unless driver has been "locked out" so it cannot be started while work is being done on the pump.

**Maintenance:**

1. **DO** record pump model number and serial number and file for further use.
2. **DO** have spare parts, pump or stand by units available, particularly if pump is essential part of key operation process.

# VIKING PUMP

## MECHANICAL TYPE SHAFT SEAL

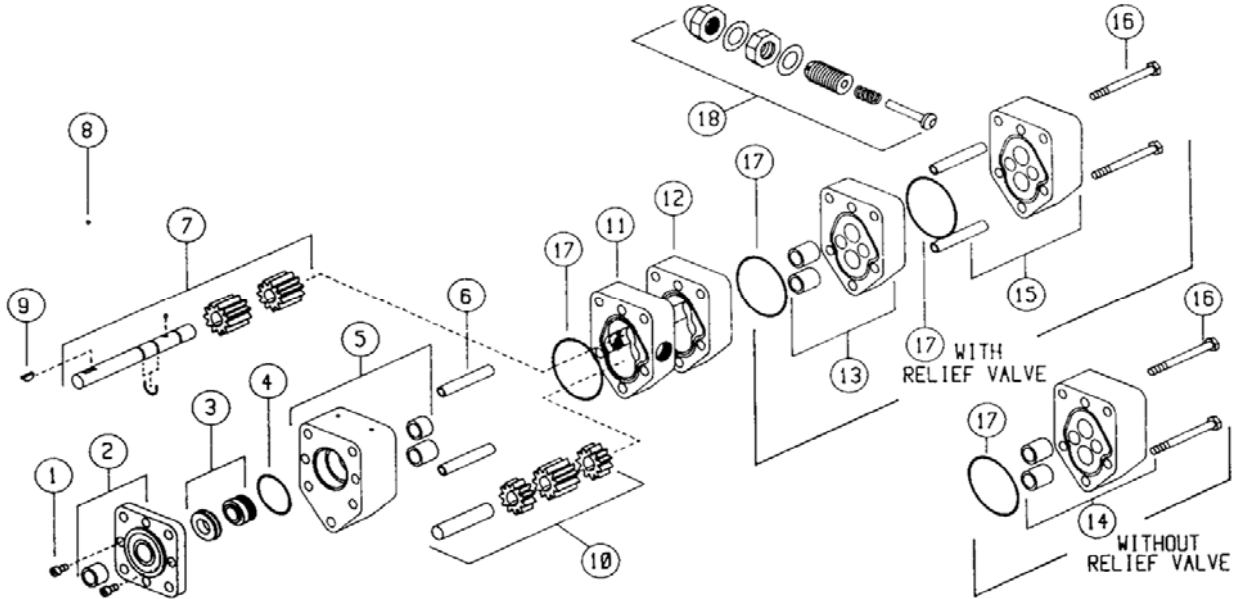
Section **R341.24**  
 Viking Effective Date 09-06-13  
 Distributor Print Date

Quoting Distributor: **Distributor's Name here**  
**Optional Address here**  
**Optional Address here**

**MODELS SG-40528-GOV**  
**SG-40528-GOO**

Subject to Change without notice. F.O.B. Cedar Falls

Part numbers provided by Viking Pump are standard parts or options for this model. Any modifications to part numbers or pricing made to this document are the responsibility of the authorized Viking distributor. It is recommended that the pump serial number be provided for verification of actual part numbers required for a specific pump.



| ITEM | MODEL NO.    | PART NO.      | DESCRIPTION  | Material  |
|------|--------------|---------------|--|-----------|
| 1    | ALL          | 2-153-048-255 | Self-locking Capscrew 10-32 x 3/8" Lg. Grade 5 - (2 Req'd) | Steel     |
| 2    | ALL          | 3-081-001-905 | Aluminum Mounting Flange & Oilite Bronze Bushing Assembly  | Cast Iron |
| 3    | ALL          | 2-471-052-999 | Viton® Mechanical Seal (Complete) (Optional)               | Viton     |
| 4    | ALL          | 2-510-002-867 | Viton® O-Ring (Mounting Flange)                            | Viton     |
| 5    | ALL          | 3-08C-026-080 | C.W. Bracket & (2) Carbon Graphite Bushings Assembly       | Cast Iron |
| 6    | ALL          | 2-752-042-375 | Alignment Sleeve (2-Req'd) (Bracket to Casing)             |           |
| 7    | ALL          | 3-600-056-999 | Driver Shaft, (2) Gears, Ball & Retaining Rings Assembly   | Steel     |
| 8    | ALL          | 2-490-079-375 | Ball, .125 Dia.  |           |
| 9    | ALL          | 2-460-004-375 | Woodruff Key, #404   | Steel     |
| 10   | ALL          | 3-600-054-999 | Driven Shaft, 1.40 Gear & (2) .70 Gears Assembly           | Steel     |
| 11   | ALL          | 2-274-027-100 | Casing, 3/4" NPT Ports                                     | Cast Iron |
| 12   | ALL          | 2-27C-016-100 | Casing, No Ports   | Cast Iron |
| 13   | SG-40528-GOV | 3-29C-008-080 | Separation Plate & (2) Carbon Graphite Bushings Assembly   | Cast Iron |
| 15   | SG-40528-GOV | 3-41C-012-999 | Head & (2) Alignment Sleeves Kit                           | Cast Iron |
| 16   | SG-40528-GOO | 2-150-094-255 | Assembly Capscrew 1/4" 20NC 4-3/4" Lg. Grade 5 - (2 Req'd) | Steel     |
| 16   | SG-40528-GOV | 2-150-171-255 | Assembly Capscrew 1/4" 20NC 5-3/4" Lg. Grade 5 - (2-Req'd) | Steel     |
| 17   | ALL          | 2-510-011-867 | Viton® O-Ring (Model GOO-2 Req'd) (Model GOV-3 Req'd)      | Viton     |



**MECHANICAL TYPE SHAFT SEAL**

Section **R341.24**  
Viking Effective Date 09-06-13  
Distributor Print Date

Quoting Distributor: **Distributor's Name here**  
**Optional Address here**  
**Optional Address here**

**MODELS SG-40528-GOV**  
**SG-40528-GOO**

Subject to Change without notice. F.O.B. Cedar Falls

|            |              |               |   |       |
|------------|--------------|---------------|---|-------|
| 18         | SG-40528-GOV | 3-462-179-999 | Relief Valve Repair Kit Cracking Pressure - 15 to 40 P.S.I.               | Steel |
|            |              | 3-462-180-999 | Relief Valve Repair Kit Cracking Pressure - 30 to 100 P.S.I.              | Steel |
|            |              | 3-462-181-999 | Relief Valve Repair Kit Cracking Pressure -100 to 250 P.S.I.              | Steel |
| Not Illus. | SG-40528-GOV | 3-780-001-999 | Mounting Capscrew 5/16" NC 8-1/4" Lg.; 5/16" NC Nut; 5/16" Lockwasher Kit | Steel |

Miscellaneous Notes

Aflas® - Registered Trademark of Asahi Glass Co. Ltd.

Viton® - Registered Trademark of DuPont Performance Elastomers.

When ordering parts be sure to give PART NUMBER, NAME OF PART, MATERIAL, MODEL & SERIAL NO. of the pump as it appears on nameplate.

PPS - Reinforced polyphenylene sulfide.

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