

Rebuild/Repack Kits for Flowrite™ VF 599 Series 2-1/2 to 6-inch Valves

Product Description

This kit contains the parts necessary to rebuild and repack either the normal duty or high temperature packing in a Flowrite VP 599 Series Flanged Valve.

Contents



- Stem and plug assembly
- Two gaskets: one stamped Class 125, the other stamped Class 250
- Packing cartridge assembly kit Cartridge, copper gasket, and instructions
- Packing bearing
- Packing spring

Product Numbers

599-10100 through 599-10149

See *Tables 3 and 4* for cross reference of valve number to kit number.

Warning/Caution Notations

WARNING		Personal injury/loss of life may occur if a procedure is not performed as specified.
CAUTION		Equipment damage, or loss of data may occur if the user does not follow procedure as specified.

Required Tools

- Tools for removing the actuator. These tools are listed on the installation instruction included in the packing cartridge assembly kit.
- Open end wrenches or adjustable wrench. See *Table 1*.

Table 1. Open End Wrench Sizes.

Use on	Wrench Size	Torque
Valve Body Cap Screws		
ANSI 125 2-1/2 to 4-inch (65 to 100 mm)	15/16 inch (≈ 24 mm)	55 to 60 lb-ft (75 to 80 Nm)
ANSI 125 5 and 6-inch (125 to 150 mm)	1-1/8 inch (≈ 29 mm)	90 to 100 lb-ft (122-130 Nm)
ANSI 250 2-1/2 to 6-inch (65 to 150 mm)	1-1/8 inch (≈ 29 mm)	90 to 100 lb-ft (122-130 Nm)
Packing Cartridge		
All Bonnets	1-1/2 inch (≈ 39 mm)	60 to 65 lb-ft (80 to 85 Nm)

- Three-way valves:
Large drive socket wrench with a 1/2-inch extender.

Lower seat tool, order separately. See *Table 2*.

Table 2. Three-way Valve Lower Seat Tool.

Valve Size Inch (mm)	Part Number
2-1/2 (65)	599-09144
3 (75)	599-09145
4 (100)	599-09146
5 (125)	599-09147
6 (150)	599-09148

Expected Installation Time

45 minutes for NO valves
60 minutes for NC valves
90 minutes for three-way valves

Prerequisites

Open the packing cartridge assembly kit and remove the installation instructions. These instructions explain how to remove and reassemble each type of actuator and list the tools needed.

We recommend repacking the valve at a bench and not in line.

Prerequisites, Continued



WARNING:

Isolate the valve so that the medium (water, steam, etc.) will not leak out of the valve when the valve body is disassembled.



WARNING:

Remove and cap the air line or disconnect the power to the actuator before removing the actuator from the valve.

Installation

Normally open valves

Removing the Packing and the Stem and Plug Assembly. (See Figure 1)

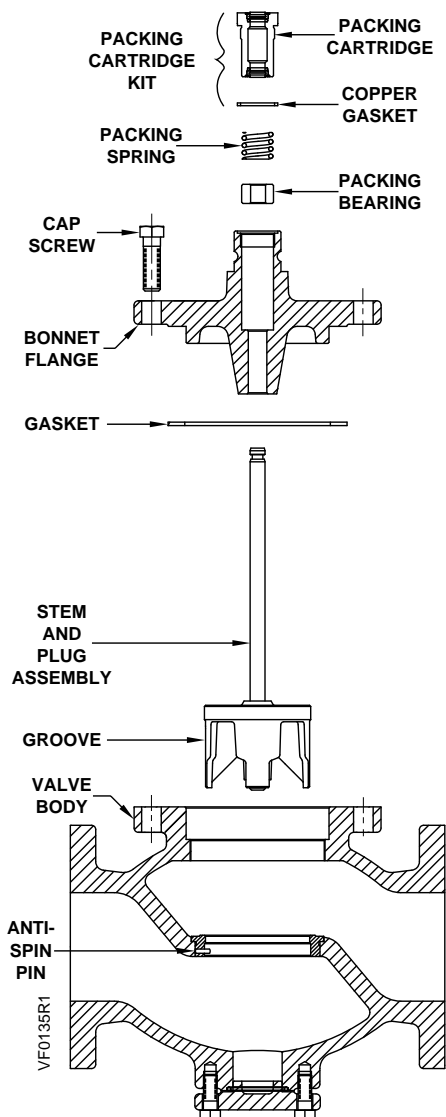


Figure 1. Normally Open Valve.

1. Remove the actuator by following the instructions included in the packing cartridge kit.
2. Using a 1-1/2 inch wrench, remove the packing cartridge assembly.
3. Remove and discard the copper gasket. The gasket cannot be reused.
4. Remove the cap screws in the bonnet flange. See *Table 1* for the proper wrench size. Save the cap screws.
5. Lift the bonnet flange from the valve body. Remove and discard the gasket.
6. Remove and discard the packing spring and packing bearing.
7. Remove and discard the stem and plug assembly.
8. Clean the bonnet threads to remove any buildup.
9. Inspect the seat for damage.

Replacing the Stem and Plug Assembly and Packing

1. Locate the groove on the plug and align it with the anti-spin pin in the seat. See *Figure 2*.

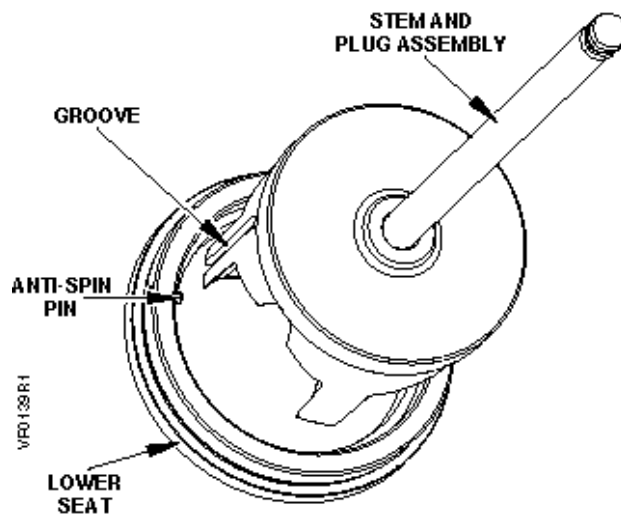


Figure 2. Aligning the Groove and Pin.

2. Insert the new stem and plug assembly into the valve body making sure that the anti-spin pin is in the plug groove.



CAUTION:

Be careful not to nick the seat.

3. Select the gasket that is marked for the appropriate ANSI Class valve. Place the gasket on the valve body.

Installation, Continued

4. Attach the bonnet flange to the valve body using an open end wrench to tighten the cap screws. See *Table 1* for the proper wrench size and torque.
5. Insert the new packing bearing and the packing spring into the bonnet.
6. Place the new copper gasket on the valve bonnet.
7. Insert the new packing assembly cartridge into the valve bonnet. Use a 1-1/2 inch wrench to tighten the cartridge applying 60 to 65 lb-ft (80 to 85 Nm) torque.
8. Return to the instructions that came in the packing cartridge kit to assemble the actuator to the valve.

Normally closed valves

Removing the Packing and the Stem and Plug Assembly. (See *Figure 3*)

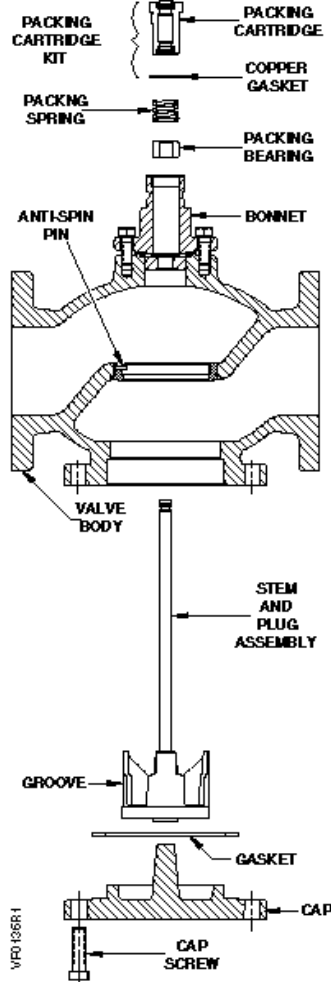


Figure 3. Normally Closed Valve.

1. Remove the actuator by following the instructions included in the packing cartridge kit.
2. Using a 1-1/2 inch wrench, remove the packing cartridge assembly.
3. Remove and discard the copper gasket. The gasket cannot be reused.
4. Remove the cap screws on the bottom of the valve. See *Table 1* for the proper wrench size. Save the cap screws.
5. Remove and discard the gasket.
6. Remove and discard the stem and plug assembly.
7. Remove the packing spring and packing bearing from the bonnet and discard them.
8. Clean the bonnet threads to remove any build-up.
9. Inspect the seat for damage.

Replacing the Stem and Plug Assembly and Packing

1. Locate the groove on the plug and align it with the anti-spin pin in the seat. See *Figure 2*.
2. Insert the new stem and plug assembly into the valve body making sure that the anti-spin pin is in the plug groove.



CAUTION:

Be careful not to nick the seat.

3. Select the gasket that is marked for the appropriate ANSI Class valve. Place the gasket on the valve cap.
4. Attach the cap to the valve body using an open end wrench to tighten the cap screws. See *Table 1* for the proper wrench size and torque.
5. Insert the new packing bearing and the packing spring into the bonnet.
6. Place the new copper gasket on the valve bonnet.
7. Insert the new packing assembly cartridge into the valve bonnet. Use a 1-1/2 inch wrench to tighten the cartridge applying 60 to 65 lb-ft (80 to 85 Nm) torque.
8. Return to the instructions that came in the packing cartridge kit to assemble the actuator to the valve.

Installation, Continued

Three-way valves

Removing the Packing and the Stem and Plug Assembly. (See Figure 4)

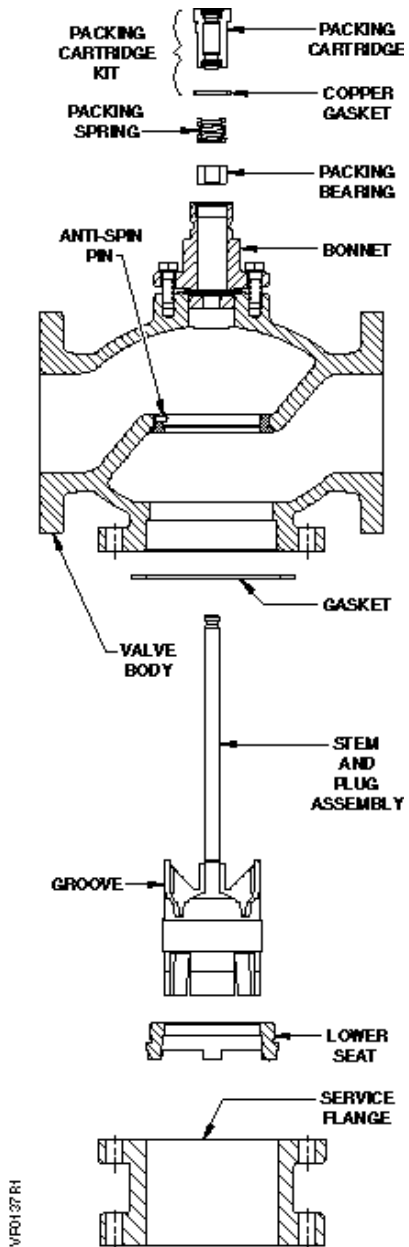


Figure 4. Three-Way Valve.

1. Remove the actuator by following the instructions included in the packing cartridge kit.

2. Using a 1-1/2 inch wrench, remove the packing cartridge assembly.
3. Remove and discard the copper gasket. The gasket cannot be reused.
4. Remove the cap screws on the service flange, if used. See *Table 1* for the proper wrench size. Save the cap screws.
5. Remove and discard the gasket.
6. Select the lower seat tool with the matching valve body size stamped on it.
7. Using a socket wrench inserted into the lower seat tool (*Figure 5*), carefully remove the lower seat from the valve body.

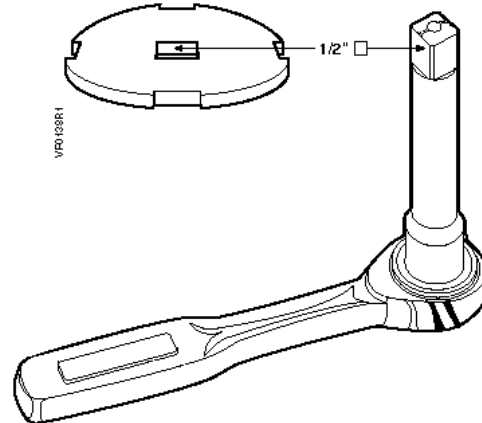


Figure 5. Lower Seat Tool and Socket Wrench with Extender.

8. Remove and discard the stem and plug assembly.
9. Remove the packing spring and packing bearing from the bonnet and discard them.
10. Clean the bonnet threads to remove any build-up. Also clean the threads of the lower seat and valve body.
11. Inspect the seat for damage.

Replacing the Stem and Plug Assembly and Packing

1. Locate the groove on the plug and align it with the anti-spin pin in the upper seat. See *Figure 2*.
2. Insert the new stem and plug assembly into the valve body making sure that the anti-spin pin is in the plug groove.

Installation, Continued



CAUTION:

Be careful not to nick the seat.

3. Fasten the lower seat into the valve body using the socket wrench and lower seat tool applying 90 to 100 lb-ft (122 to 130 Nm) torque.
4. Insert the new packing bearing and the packing spring into the bonnet.
5. Place the new copper gasket on the valve bonnet.
6. Insert the new packing assembly cartridge into the valve bonnet. Use a 1-1/2 inch wrench to tighten the cartridge applying 60 to 65 lb-ft (80 to 85 Nm) torque.
7. Select the gasket that is marked for the appropriate ANSI Class valve. Place the gasket on the service flange.
8. Attach the service flange, if used, to the valve body using an open end wrench to tighten the cap screws. See *Table 1* for the proper wrench size and torque.
9. Return to the instructions that came in the packing cartridge kit to assemble the actuator to the valve.

The installation is now complete.

Table 3. Rebuild/Repack Service Kit Part Numbers for Three-way Valves.

ANSI Class 125 Valve Number	ANSI Class 250 Valve Number	Valve Inch (mm)	Kit Number
599-06160	599-06170	2-1/2 (65) Bronze trim	599-10125
599-06161	599-06171	3 (85) Bronze trim	599-10126
599-06162	599-06172	4 (100) Bronze trim	599-10127
599-06163	599-06173	5 (125) Bronze trim	599-10128
599-06164	599-06174	6 (150) Bronze trim	599-10129
599-06165	599-06175	2-1/2 (65) Stainless Steel trim	599-10120
599-06166	599-06176	3 (85) Stainless Steel trim	599-10121
599-06167	599-06177	4 (100) Stainless Steel trim	599-10122
599-06168	599-06178	5 (125) Stainless Steel trim	599-10123
599-06169	599-06179	6 (150) Stainless Steel trim	599-10124

Table 4. Rebuild/Repack Service Kits Part Numbers for NO and NC Valves.

ANSI Class 125 Valve Number	ANSI Class 250 Valve Number	Valve Description	Kit No.
599-05960	599-05920	N.O. 2-1/2 (65), =%, Stl. Steel Trim	599-10130
599-05961	599-05921	N.O. 3 (85), =%, Stl. Steel Trim	599-10131
599-05962	599-05922	N.O. 4 (100), =%, Stl. Steel Trim	599-10132
599-05963	599-05923	N.O.5 (125), =%, Stl. Steel Trim	599-10133
599-05964	599-05924	N.O. 6 (150), =%, Stl. Steel Trim	599-10134
599-05970	599-05930	N.C. 2-1/2 (65), =%, Stl. Steel Trim	599-10140
599-05971	599-05931	N.C. 3 (85), =%, Stl. Steel Trim	599-10141
599-05972	599-05932	N.C. 4 (100), =%, Stl. Steel Trim	599-10142
599-05973	599-05933	N.C.5 (125), =%, Stl. Steel Trim	599-10143
599-05974	599-05934	N.C. 6 (150), =%, Stl. Steel Trim	599-10144
599-05980	599-05940	N.O. 2-1/2 (65), =%, Bronze Trim	599-10135
599-05981	599-05941	N.O. 3 (85), =%, Bronze Trim	599-10136
599-05982	599-05942	N.O. 4 (100), =%, Bronze Trim	599-10137
599-05983	599-05943	N.O. 5 (125.), =%, Bronze Trim	599-10138
599-05984	599-05944	N.O. 6 (150), =%, Bronze Trim	599-10139
599-05990	599-05950	N.C. 2-1/2 (65), =%, Bronze Trim	599-10145
599-05991	599-05951	N.C. 3 (85), =%, Bronze Trim	599-10146
599-05992	599-05952	N.C. 4 (100), =%, Bronze Trim	599-10147
599-05993	599-05953	N.C. 5 (125), =%, Bronze Trim	599-10148
599-05994	599-05954	N.C. 6 (150), =%, Bronze Trim	599-10149
599-06040	599-06120	N.O. 2-1/2 (65), Linear, Steam Packing	599-10110
599-06041	599-06121	N.O. 3 (85), Linear, Steam Packing	599-10111
599-06042	599-06122	N.O. 4 (100), Linear, Steam Packing	599-10112
599-06043	599-06123	N.O. 5 (125), Linear, Steam Packing	599-10113
599-06044	599-06124	N.O. 6 (150), Linear, Steam Packing	599-10114
599-06050	599-06130	N.C. 2-1/2 (65), Linear, Steam Packing	599-10115
599-06051	599-06131	N.C. 3 (85), Linear, Steam Packing	599-10116
599-06052	599-06132	N.C. 4 (100), Linear, Steam Packing	599-10117
599-06053	599-06133	N.C. 5 (125), Linear, Steam Packing	599-10118
599-06054	599-06134	N.C. 6 (150), Linear, Steam Packing	599-10119
599-06060	599-06140	N.O. 2-1/2 (65,) Linear, Normal Duty Packing	599-10100
599-06061	599-06141	N.O. 3 (85), Linear, Normal Duty Packing	599-10101
599-06062	599-06142	N.O. 4 (100), Linear, Normal Duty Packing	599-10102
599-06063	599-06143	N.O. 5 (125), Linear, Normal Duty Packing	599-10103
599-06064	599-06144	N.O. 6 (150), Linear, Normal Duty Packing	599-10104
599-06070	599-06150	N.C. 2-1/2 (65), Linear, Normal Duty Packing	599-10105
599-06071	599-06151	N.C. 3 (85), Linear, Normal Duty Packing	599-10106
599-06072	599-06152	N.C. 4 (100), Linear, Normal Duty Packing	599-10107
599-06073	599-06153	N.C. 5 (125), Linear, Normal Duty Packing	599-10108
599-06074	599-06154	N.C. 6 (150), Linear, Normal Duty Packing	599-10109

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