

POWERS™

TECHNICAL INSTRUCTIONS

PACKING Flowrite Valves and #11 Regulators

Form TB-237 v4

DESCRIPTION

This bulletin provides a description of and recommended installation procedures for the packing used in Flowrite Valves and #11 Regulators. The following three types of packing are described:

- EP Spring loaded V-ring
- Teflon Spring loaded V-ring
- Split ring

Flowrite Valve and #11 Regulator. The type of packing recommended for the various applications is shown in Table 1. Valve stem sizes of the various types and sizes of Flowrite Valves and #11 Regulators are shown in Table 2.



PACKING TYPE	APPLICATION	1/4" diameter stem		3/8" diameter stem	
		Kit #591-927	Kit #591-928	Kit #594-220	Kit #594-221
Teflon V-ring No Lubricant	Effective from 200 - 400°F Steam: Up to maximum PSI valve rating Water: Up to maximum PSI valve rating				
EP V-ring Silicone lubricant required for installation, optional for service	Effective from 0 - 300°F Steam: 50PSI maximum Water: Up to maximum PSI valve rating				
Teflon split ring (4) Silicone lubricant required	For Replacement Only Effective from 40 - 366°F	Kit #594-289		Kit #594-290	
		Four (4) packing rings are included in Kit #594-289 and Kit #594-290, if your valve requires only three (3) packing rings, discard a ring.			

Table 1. Valve Packing Application and Kits

Silicone Gel Pack: Part No.: 087-126

PACKING APPLICATIONS

The packing on a Flowrite valve or #11 Regulator provides a seal around the valve stem to prevent loss of the controlled medium (i.e., steam, water, ethylene glycol solutions, etc.), while allowing the valve stem to pass through the packing for functional opening and closing of the valve.

V-RING PACKING

All Flowrite Valves and #11 Regulators now utilize the spring loaded V-ring packing, choose the proper and V-ring packing kit from Table 1. The teflon V-ring packing does not require lubricant. The EP V-ring packing must be lubricated with silicone grease (part #590-165A) prior to installation. Use of lubrication in service is optional. The packing rings are not split and disassembly of the valve is required to install or replace this packing.

TYPE OF VALVE	SIZE inches	STEM DIAMETER AT PACKING inches (mm)
CD WM	1/2 thru 1-1/2	1/4 (6.4)
	1/2 thru	3/8 (9.5)
DB/DS	1 thru 2	1/4 (6.4)
SD	3/4 thru 1	1/4 (6.4)
	1-1/4 thru 2	3/8 (9.5)
SS	1/2 thru 1	1/4 (6.4)
V-PORT	1/2 A,B,C,D	1/4 (6.4)

Table 2. Valve Stem Sizes

Repacking Procedure...

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

1. For Flowrites, remove and cap airline to valve actuator.
 2. Remove actuator and disassemble valve body.
 3. Check the stem. It must have a polished surface that is free of roughness or pitting, Replace the stem if necessary(see applicable Product Manual for stem part number).
 4. Remove the old packing and clean packing chamber. Be sure it is free of dirt and grease.
 5. On valves with removable stem bearing (ST, SD), examine it and replace if damaged. If replaced use epoxy type adhesive (required only on ST valve)to hold the new bearing in place.
 6. Slide the stem assembly into the bonnet.
 7. The packing parts must be installed in the exact order shown in Figure 1. Place split ring (split ring must be lubricated), washer, and spring over the stem and gently push each piece into the packing chamber.
 8. Slide each V-ring (EPV-rings must be lubricated) over the stem and carefully push it into the packing chamber.
 9. Place gland spacer on top of bonnet.
 10. Thread the packing gland assembly into the bonnet. Finger tighten the gland assembly against the spacer.
 11. On valves with an "O"-ring seal(Reverse acting ST type valves, 1-1/2 - 2"), located on the bottom guide, remove old seal and replace it with a new one.
 12. Reassemble the valve body and attach the actuator.
- IMPORTANT: Set stem length correctly**
13. For Flowrites, connect the air line to the actuator.

STANDARD PACKING																
	FLOWRITE VALVES												NO. 11 REGULATORS			
	V-Port		SST		SD		CD		DB - BZ		DS - SS		WM	Heating	Cooling	Mixing
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC				
Teflon	X	X		X							X	X		X		
EP			X		X	X	X	X	X			X		X		X

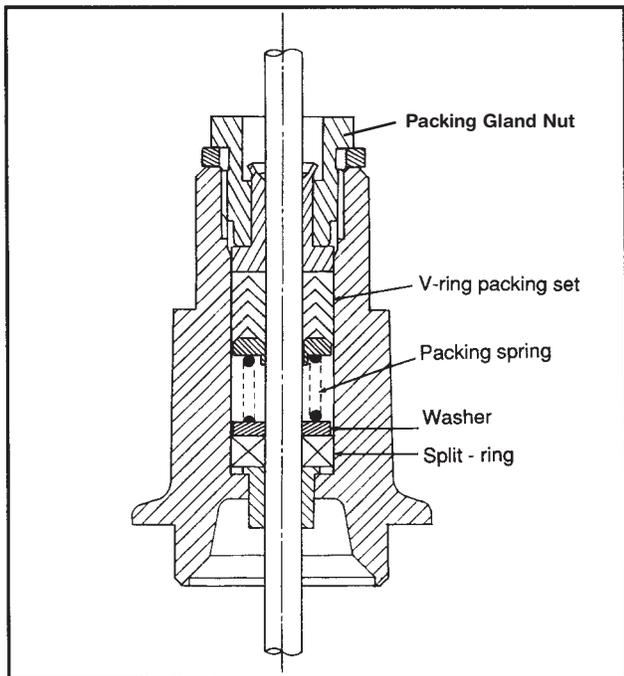


Figure 1. V-Ring and Split Ring Packing

		1/4" DIAMETER STEM	3/8" DIAMETER STEM
V-RING PACKING SET	Teflon	594-080	594-081
	EP	594-090	594-091
PACKING SPRING		591-920	591-924
WASHER	Steam	591-919	591-923
	Water	594-118	594-119
SPLIT-RING		594-170	594-171

NOTE: For Kit No.s refer to Table 1.

•••Four V-rings included in the V-ring Packing Set. For those valves requiring only three V-rings, discard the other V-ring.

SPLIT RING PACKING

The split ring packing is made of woven teflon to provide low friction and a degree of self lubrication. This type of packing is recommended for replacement or repair only, but may be ordered through a Special Order only for a new valve.

Valve lubricators and lubricants are recommended to pro-long packing life and improve sealing of the controlled medium. Part #590-165A is the lubricant (Dow Corning Number II 1 silicone), 5.3 oz. tube, Part #590-184A is the valve stem lubricator (Dow Corning Number 111 silicone).

Partial Repacking...

The top three packing rings can be replaced without dis-assembling the valve, to minimize servicing time for critical system operation. However, replacement of all four packing rings is recommended to obtain optimum packing performance and life.

Loosen packing gland nut. Remove the three packing rings from above the lubricator spacer with a pointed rod or pick.

CAUTION: Do not use a wrench on the packing gland nut of valve stem.

Coat new rings with recommended lubricant, slip rings around stem, staggering cuts, push down as far as possible and tighten packing gland nut sufficiently to compress the packing rings toward the bottom of the packing gland. Loosen packing gland nut and readjust to "finger tight" only, Pack the bonnet with recommended lubricant.

Note: Single seat 2-way screwed valves should be repacked in the closed position.

COMPLETE REPACKING...

1. Disassemble the actuator from the valve body assembly.
2. Remove the nuts from the valve stem.
3. Remove the packing gland nut from the bonnet. Then disassemble the bonnet from the valve body. If the stem remains with the bonnet, on a normally open valve only slide the stem out of the bonnet.
4. Examine the stem, replace if damaged.
5. Remove the top three packing rings, the packing spacer, and the lower packing ring with a pointed rod or pick,
6. If a stem bearing is provided, examine it and replace if damaged.
7. Clean packing chamber so it is free of dirt and grease.
8. To reassemble...Slide the bonnet over the stem and screw the bonnet into the valve body.
9. If used, slide the stem bearing over the stem and into the bonnet, make sure it is properly nested in the pocket of the bottom of the bonnet. Use an epoxy type adhesive (required only on ST valve) to hold the bearing in place.

10. With the valve stem held in the closed position, carefully place a packing ring, the packing spacer, and the remaining three packing rings over the stem in the order shown (Figure 1). Individually tap each packing ring into the bonnet as far as possible.

CAUTION: The splits in the packing rings must be staggered to provide a good seal.

11. Holding the stem in the closed position, tighten the packing gland nut sufficiently to fully compress the packing rings into the bonnet. Loosen the packing gland nut to readjust to "finger tight" only.
12. Pack the bonnet with recommended lubricant.
13. Reassemble actuator to valve body.

IMPORTANT: Set stem length correctly.

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)
For more information: www.wattsind.com/prop65

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