

### SN Series Needle Valve



#### MAXIMUM WORKING PRESSURE AND TEMPERATURE "R" Stem

Stem Packing	Maximum Pressure and Temperature	Maximum Pressure and Temperature
PTFE	6000 psig at 70 °F 41.4 MPa at 21 °C	0 psig at 450 °F 0 MPa at 232 °C
O-Ring	6000 psig at 70 °F 41.4 MPa at 21 °C	0 psig at 400 °F 0 MPa at 204 °C
Grafoil®	6000 psig at 70 °F 41.4 MPa at 21 °C	3930 psig at 700 °F 27.1 MPa at 371 °C

#### "K" Stem

Stem Packing	Maximum Pressure and Temperature	Maximum Pressure and Temperature
PTFE	3000 psig at 70 °F 20.7 MPa at 21 °C	0 psig at 350 °F 0 MPa at 176 °C
O-Ring	3000 psig at 70 °F 20.7 MPa at 21 °C	0 psig at 350 °F 0 MPa at 176 °C
Grafoil®	3000 psig at 70 °F 20.7 MPa at 21 °C	0 psig at 350 °F 0 MPa at 176 °C

Always consult your authorized Parker representative if questions arise. The arrow on the valve Body indicates the normal direction of flow.

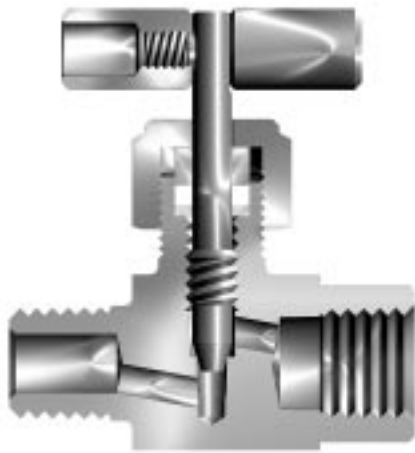


Figure 1: SN Series Needle Valve  
Cross Sectional View

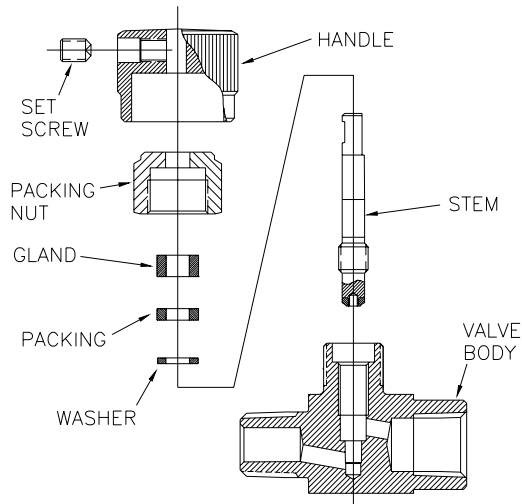


Figure 2: Bar Stock Needle Valve  
w/PTFE Packing Exploded View

## DISASSEMBLY

**WARNING: MAKE CERTAIN THE SYSTEM IN WHICH THE VALVE IS INSTALLED IS DRAINED AND/OR EXHAUSTED OF ALL PRESSURE BEFORE STARTING VALVE REMOVAL OR DISASSEMBLY. FAILURE TO DO SO CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

1. Verify that the Bar Stock Needle Valve Maintenance Kit being used is appropriate for the Valve's size, Handle type, Stem Seat, Stem Packing configuration, and the service requirements
2. Remove the Handle by turning the Set Screw counter-clockwise with a 3/32 inch allen wrench.
3. Refer to Figure 2. Remove the Packing nut (located directly under the Handle) by turning counter-clockwise with an 5/8 inch size hex wrench.
4. Gently remove the Valve Stem Sub-Assembly from the Body with counter-clockwise rotation.
5. Discard the Stem, Packing Gland, Packing Washer, and Packing (either PTFE Grafoil® or O-Ring).

## REASSEMBLY

1. Make certain all parts are free of dirt or other contamination before starting reassembly of the Valve.
  2. Secure the Body in an assembly fixture.
  3. This step only applies to Valves with the "K" (soft-seat) option. Proceed to step 4 for Valves with other stem options. Verify the Soft Seat is properly attached to the "K" Stem.
  4. Apply a liberal amount of lubricant, as consistent with the valve's service requirements, to the Stem threads.
- NOTE:** Every Power Thread must be covered with lubricant !
5. This step only applies to Valves with the "R" (blunt stem) option. Proceed to step 6 for Valves with other stem options. Apply a small drop of lubricant, as consistent with the valve's service requirements, to the Stem seat cone area.
  6. Gently install the Stem into the Body. Tighten the Stem until finger-tight.

**CAUTION:** Do not over tighten the Stem in the Body.

7. This step assembles the variety of stem packing options for the Bar Stock Needle Valve. Refer to the instructions which apply to the specific Valve model being assembled with these instructions.
  - A) PTFE Stem Packing (standard): Refer to Figure 2. Stack the three packing components on the Stem (either “K” or “R”) in the following order, with the first item being placed above the Stem threads. Then proceed to Step 8.  
Packing Washer // PTFE Stem Packing // Packing Gland.
  - B) O-Ring Stem Packing (optional): Apply a small amount of lubricant, as consistent with the valve’s service requirements, to the Stem O-Ring. Refer to Figure 3. Stack the three packing components on the Lower Stem (either “K” or “R”) in the following order, with the first item being placed above the Stem threads. Then proceed to Step 8.  
Packing Washer // O-Ring, lubricated // Packing Gland.
  - C) Grafoil® Stem Packing (optional): Refer to Figure 4. Stack the three packing components on the Lower Stem (either “K” or “R”) in the following order, with the first item being placed above the Stem threads. Then proceed to Step 8.  
Packing Washer // Grafoil® Packing // Packing Gland
8. Apply a liberal amount of lubricant, as consistent with the valve’s service requirements, to the threads and to the interior bottom of the Packing Nut.
9. Install the Packing Nut on the Body until hand-tight. Torque the Packing Nut to 75 In-lbs using a 5/8 inch hex torque wrench.

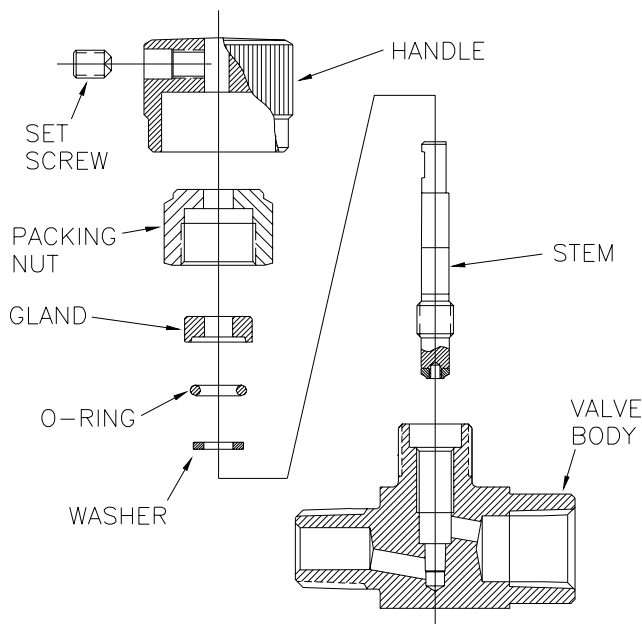


Figure 3: Bar Stock Needle Valve w/O-Ring Packing Exploded View

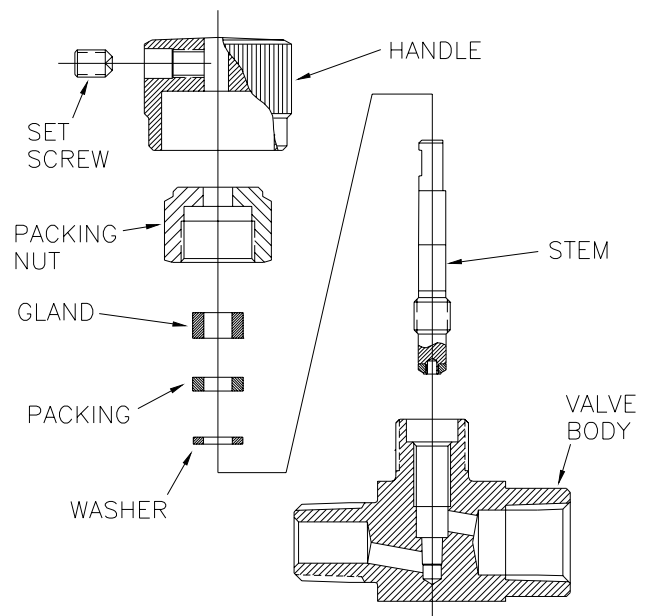


Figure 4: Bar Stock Needle Valve w/Grafoil® Packing Exploded View

10. Install the proper Handle onto the Stem. Secure the Handle with the proper Set Screw, and tighten to the Set Screw to 15 In-lbs. torque. Verify the Handle is tightly fastened.
- NOTE:** The Bar Handle option must not be used on “K” Stem models!
11. Turn the Valve Handle through at least one (1) “Open and Close” cycle to verify proper operation of the Stem’s threads.
  12. Rebuild the Valve if it exhibits rough or irregular Handle operation.

## VALVE CONNECTOR MAKE-UP INSTRUCTIONS

### MALE AND FEMALE PIPE PORTS

Wrench flats are provided on the Valve Body. It is recommended a smooth-jawed wrench or vise be used to grip the Valve Body.

1. On the male threaded part of the connection, apply a high quality pipe joint compound or PTFE tape made for this purpose. When PTFE tape is used, it is recommended two full turns of tape be applied. PTFE tape should not be overhanging or covering the first thread
2. Engage the Valve and the other component part together, until hand-tight.
3. With a proper wrench, holding both the Valve and the component part, continue to tighten to achieve a leak-tight joint.

### ULTRASEAL CONNECTIONS

1. Insert the proper O-Ring into the UltraSeal fitting's O-Ring groove. Position the UltraSeal gland sealing face against the O-Ring, and then advance the Nut to a finger-tight position.
2. A positive seal is obtained by advancing the Nut no less than 1/4 turn from the finger-tight position. Proper UltraSeal make-up is achieved when a sharp rise in required application torque occurs, which indicates proper seal face contact and O-Ring seal compression into the UltraSeal groove.

### VACUSEAL CONNECTIONS

1. A positive seal is obtained by advancing the Nut 1/8 turn from the finger-tight position.
2. A new gasket should be installed upon each fitting re-make to insure system pressure integrity.

### TUBE FITTING CONNECTIONS

1. Insert the tube into the Valve port until the tube bottoms out in the Valve Body. Care should be exercised to insure the tube is properly aligned with the Valve Body and port.
2. Normal make-up for US Customary port sizes 1 thru 3 (1/16 thru 3/16 inch) and SI port sizes 2 thru 4 (2 thru 4 mm) is 3/4 turn from finger tight. Normal make-up for US Customary port sizes 4 thru 16 (1/4 thru 1 inch) and SI port sizes 5 thru 25 (5 thru 25 mm) is 1 1/4 turn from finger tight. For larger port sizes consult Parker Ferrule Presetting Tool Instructions.

**PLEASE FOLLOW THE ABOVE DIRECTIONS FOR COUNTING THE NUMBER OF TURNS FOR PROPER FITTING MAKE-UP. DO NOT MAKE-UP TUBE FITTINGS BY TORQUE OR "FEEL". VARIABLES SUCH AS TUBING AND FITTING TOLERANCES, TUBE WALL THICKNESS, AND THE LUBRICITY OF NUT LUBRICANTS CAN RESULT IN AN IMPROPERLY ASSEMBLED TUBE FITTING CONNECTION.**

**A** -Two ferrule A-LOK®  
compression port



**Z** -Single ferrule CPI™  
compression port



**F** -ANSI/ASME B1.20.1  
Internal pipe threads



**V** -VacuSeal face  
seal port



**Q** -UltraSeal face  
seal port



**M** -ANSI/ASME B1.20.1  
External pipe threads



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## **WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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**ALL PARKER VALVES MUST PASS A RIGID OPERATIONAL AND LEAKAGE TEST BEFORE LEAVING THE FACTORY. IT IS RECOMMENDED AFTER ANY REASSEMBLY, THE VALVE SHOULD BE TESTED BY THE USER FOR OPERATION AND LEAKAGE. IF THESE INSTRUCTIONS ARE NOT FULLY COMPLIED WITH, THE REPAIRED PRODUCT MAY FAIL AND CAUSE DAMAGE TO PROPERTY OR INJURY TO PERSONS. PARKER HANNIFIN CANNOT ASSUME RESPONSIBILITY FOR PERFORMANCE OF A CUSTOMER SERVICED VALVE.**

