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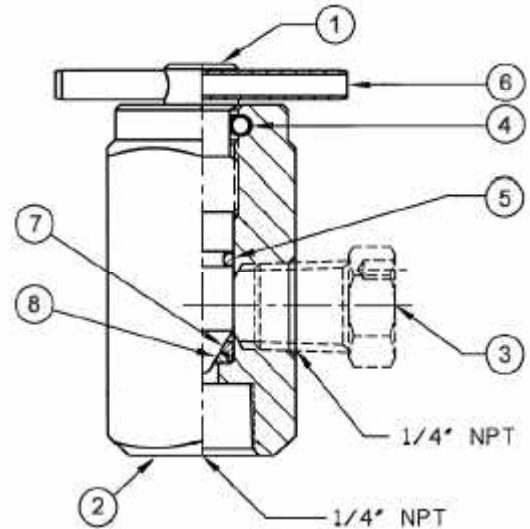
## Needle Valves

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### Operation and Maintenance



ITEM No.	PART NAME
1	Shaft
2	Body
3	Plug/Chain
4	Roll Pin
5	O-ring
6	Handle
7	Retainer
8	Seat



### CAUTION: IMPORTANT SAFEGUARDS

Midland valves are used in connection with a variety of products, many of which are hazardous materials and could cause serious injury or damage.

Always use extreme caution and proper equipment when involved with hazardous materials.

This valve should only be handled by qualified personnel.

**Read all of these instructions carefully before proceeding.**

**SAVE THESE INSTRUCTIONS!**

## Operation

- Midland needle valves are used most frequently on the sampling lines. In this application a relatively small amount of fluid is to be discharged. Therefore it is only necessary to open the valve stem three complete turns of the stem to achieve full flow of the valve.
- Do not open the valve stem more than three full turns as the stem's thread comes up to a roll pin stop that interrupts the thread after four turns. Repeated impacts into the roll pin may damage the stem's thread. Also, if someone has removed the roll pin to change the O-ring packing, and neglected to reinstall it, the stem could come completely out of the valve body, resulting in an accidental discharge of product.
- It is only necessary to close the stem finger tight. **Do not** use a wrench or pliers to further tighten the stem. The stem seals against a PTFE seat, backed up by a metal stop. Tightening down on the stem too vigorously will permanently displace the PTFE seat and begin to distort the metal stop.

## Installation

1. Inspect the female thread (or with the tell-tale valve, both male and female threads) to see that there are no crossed threads, or nicked, gouged or deformed threads. This surface, if it is imperfect, will cause a leak to develop.
2. Put PTFE (Teflon) tape or pipe compound on the bottom threads.
3. Use an open end wrench to grip on the hex body of the needle valve. The A-253,254,256,259 and 277 are made of 1-1/8" hex. The A-243 is made of 1-1/4" hex. The A-257 is made of 1-3/8" hex. It should only be necessary to tighten the valve on the nipple enough to achieve a pressure tight seal. Excessive torquing will result in the threads galling or exceeding the yield strength of the nipple's material, with the possibility of breaking the nipple.
4. Since nearly all of Midland's needle valves are made of 300 series stainless (in a few cases monel or nickel), it is not necessary to put a preservative or paint on the needle valve. Paint has the additional concern that it might get into the stem thread area, causing the stem to bind.

## Maintenance

1. All of Midland's valves use resilient elastomeric O rings as packing. Periodically the packing will have to be removed and replaced.
2. Put the valve body in a vise.
3. Use a 1/8" diameter punch to drift the roll pin out.
4. After the 1/8" diameter roll pin has been removed, and the punch backed out, unscrew the stem from the body.
5. Remove the old O-ring, being careful not to scratch or gouge the O-ring groove.
6. Lightly wire brush the stem's thread.
7. Wash out the body with a solvent and blow dry it. Shine a light into the side part of the valve body and inspect the thread and the bore (which in newer valves is a highly polished honed surface). If these surfaces are nicked, pitted, or have longitudinal grooves in them, the valve is not worth trying to salvage.
8. Using the light, also look at the PTFE seat. It should be white and not deformed downward. Turn the valve over and see from the other side if the seat appears to be in a serviceable condition. Since the seat is pressed in, and can only be extracted with special tools, if the seat has to be replaced, it will be less expensive to throw the valve away.
9. Lightly oil or grease the valve stem thread and O-ring area with a material your company approves of for the intended service. Replacement O-rings made of whatever material is required should be purchased from Midland.
10. Screw the stem into the body, and run it up and down a few times to be sure the threads are in good operating condition.
11. To pressure test the valve, have a pipe nipple, attached to an air supply, pointing downward. Turn the needle valve over with the handle end of the stem in a downward position. Thread the inverted valve on the nipple. Close the needle valve and introduce pressure through the test nipple into the valve. At Midland we test at 500 psi. Bring a can of water up around the valve and check for leaks. Close off the test pressure.
12. If there are no leaks, put the can of water aside. Screw a pipe plug into the side port. Open the valve stem one to two turns. Reapply pressure and move the can of water back up to the valve. Check for leaks at the side port and through the packing toward the handle end of the stem.
13. If no leaks are observed, close off the test pressure. Remove the needle valve from the nipple, and dry it off.

## Maintenance (cont.)

14. If a bubble leak was evident through the packing O-ring, take the valve stem out. Inspect the O-ring for the presence of foreign material, or nicks or gouges in the O-ring. Any imperfections in the O-ring will result in leaks. Look on the inside of the valve body to see if a sharp edge where the thread relief blends into the honed cylindrical surface could have sheared off part of the O-ring. A little polishing with fine emery paper, bent over a pencil, may be helpful in blending out a sharp edge in the bore.
15. Thoroughly air blow the valve body out and reassemble and retest as above.
16. After the test has been satisfactorily completed, put the valve body in a vise. Screw down the stem to the valve seat and drive in the new 1/8" roll pin so none of the roll pin protrudes from the hole.
17. Hand file or step over to a grinding wheel to remove any burrs that may remain where 1/8" roll pin has been inserted. This outside area must be smooth, or someone may cut his hand operating the valve.
18. Unscrew the stem to make sure it stops up against the roll pin, and cannot become disengaged and come out.
19. After this has been found satisfactory, turn the stem back down until it is almost touching the valve seat. Store the valve in a dry place.

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## NOTICES AND WARRANTY

### Regulations

The Midland valves are used in contact with a variety of products, many of which are hazardous materials. The acceptance and transportation of products are regulated by the DOT and AAR in the U.S.A., and in Canada by CTC and Transport Canada. Regulations of other governmental bodies must be complied with for stationary and mobile applications. All personnel should be familiar with and follow these regulations. Nothing in these instructions is intended to conflict with or supersede these regulations.

The information in this document was gathered from knowledgeable sources, but Midland Manufacturing Corporation makes no representations or guarantees about its accuracy or completeness and assumes no liability for this information. Specifications are subject to change without notice.

### Obtaining Product Drawings

Assembly drawings of Midland Needle Valves are available at no charge, and will be mailed upon request. Address any questions concerning valve maintenance or usage to the Engineering Dept., Midland Manufacturing Corp.

### Warranty

Midland warrants the products of its own manufacture to be free of defects in material and workmanship for a period of one (1) year from the date of invoice. Furnished materials and accessories purchased from other manufacturers are warranted only by and to the extent of those manufacturers' warranties, if any.

MIDLAND MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, OTHER THAN AS SPECIFICALLY STATED HERE MIDLAND MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. Midland's obligation under this warranty is strictly limited, at its option, to 1) repair or replacement at its factory of a like quantity of product: 2) refunding to purchaser money paid to Midland for its product: or 3) issuance of written authorization for the Purchaser to repair or replace, at costs comparable to Midland's normal manufacturing costs those parts proven defective, provided that Purchaser has given to Midland immediate notice upon discovery of such defect. Merchandise claimed to be defective shall not be returned without first obtaining Midland's written consent. The undertaking of repair or replacement by the Purchaser, or its agents, without Midland's written consent, shall void Midland's warranty and relieve Midland of all responsibility. Under no circumstances shall Midland be liable for any kind in connection with the installation, operation, maintenance, repair, inspection or other use of any product purchased from it.



Mail to: P.O. Box 226, Skokie, IL 60076-0226  
7733 Gross Point Road, Skokie, IL 60076-0226  
Phone: (847)677-0333, Fax: (847)677-0138