BAN SEOK®
BAN SEOK PRECISION IND., CO., LTD.

EQUIPMENT
User Manual

BV-300N/Diaphram type dispensing valve

Contents

1. Safety

⚠ Before installation and using our dispensing valve BV-300N, please be carefully aware of this user manual

1.1 For your safety

- ✓ If the fluid splashes up to your eyes or skin, it can cause a serious injury.
- ✓ Handle with extreme care not to be in contact with liquid in case of nozzle exchange or cleaning.
- ✓ Make sure that pressure must be released before the nozzle is removed when you exchange a nozzle.

1.2 Valve Overuse Hazard

- ✓ If a valve is damaged due to over-pressure, unauthorized alteration of parts, and overuse, it may cause a danger by exploding or leaking (explosion or leakage may occur).
- ✓ Do not make any kind of unauthorized alterations. We are not responsible for any repairs, after-sales service caused by them.
- ✓ This valve operates delivery air pressure under 7kgf/cm^2. Do not exceed this operation pressure.
- ✓ The fluid pressure must not exceed 5kgf/cm^2. Or it can cause serious damages and disorder.

1.3 Others

- ✓ High pressure material can be leaked if a hose is damaged or worn.
- ✓ Check a hose for any worn-downs, damages, or swollen before use.
- ✓ Please change a hose immediately if any malfunction is found.
- ✓ Prevent leakage from loosened joints by tightening before use.

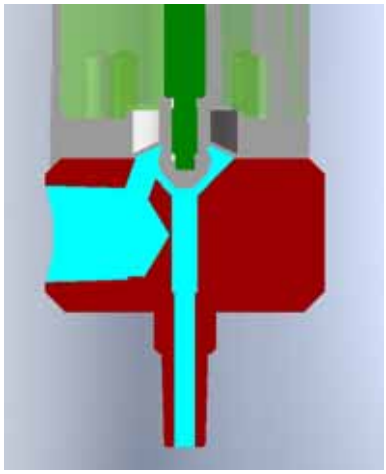
2. Specification

Method of Operation	Diaphragm
Material of wetting part	UHMW-PE
Volume	0.3ℓ/min
Type of Operation	A
Liquid Input	PT 1/8”
Applied Materials	Activators
	Anaerobics
	Cyanoacrylates
	UV-cure & light-cure adhesives
Maximum fluid pressure	5 kg/cm^2

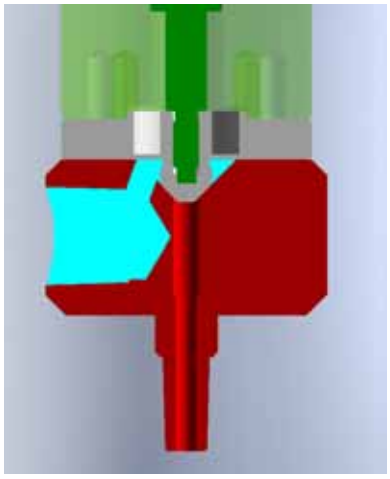
3. Principle

The air pressure entering the air inlet port forces the piston to move up. The piston pulls the diaphragm. And the fluid starts to flow. When the input air pressure is relieved, the spring retracts the piston and the diaphragm closes.

The amount of fluid dispensed will depend on the time the valve is open, the viscosity of the fluid, the air pressure in the fluid reservoir, the dispensing tip size and the diaphragm stroke.



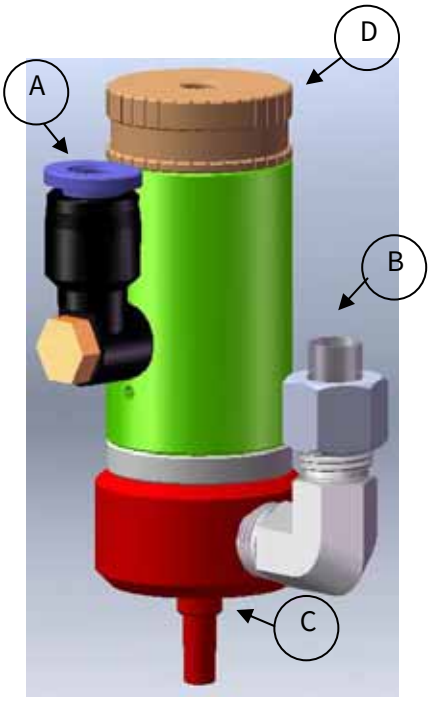
Valve open



Valve close

4. Installation & Operation

4.1 Connecting Lines



1) Connecting Air-pressure lines
   - Straightly insert the tube into the air fitting until it gets installed inside
   - Valve open line(A) is connected to the “Air out” port on the TAD-200S(controller).
   - Pull the tube gently in order to make sure that it is safe.

2) Connecting Fluid Line
   - The inlet of Fluid line(B) fits in PT 1/8” line.

3) Caution
   - When you cut the tube, make the severed side a right angled out and the use of a tube-cutter is recommended.
   - Try not to insert fitting too deeply(7mm or more). In case of inserting too deeply, dispensing doesn’t happen because material induction hole is blocked.

4.2 Operation

1) Preparing to use
   - Connect proper size or needle. Use 20G(inside diameter Φ0.58) in case of dispensing a small amount with low-viscosity. And use thicker needle in case of dispensing a large amount with higher viscosity.
   - Put material in and make a pressure(max 5.0 kg/cm^2 or less). When viscosity of material is low like water and solvent and so on, make 0.5 kg/cm^2 as standard. In case of high-viscosity material, make 2.0 kg/cm^2 as standard. Increase or decrease pressure as needed.

2) Control of the dispensing volume
   - At the time of delivery, the scale of flux control knob(D) is being initiated to point 3(1/2 of full scale). Increase or decrease the number as needed. Maximum length of stroke is 0.6mm.
     (This is corresponding to the amount when flux control knob makes 1 round).
   - ⚠ If you make 2 or more revolutions counterclockwise, the tensile strength of spring is weaker and the valve becomes open state all the time, In this way liquid can be dispensed.

3) Removing bubbles

- After the time is set about 10 seconds, Turn on the “Shot” button of TAD-200S. And then reducing pressure of fluid reservoir make the liquid come out slowly. This is to remove bubble and dispense the first liquid from valve.

5. Maintenance & Cleaning

5.1 Storing after use

- To avoid the nozzle tip contact air, put an end-cap on the nozzle or keep a nozzle in the grease.
- Perform the cleaning process(see Chapter 5.3).

5.2 Check items while operating

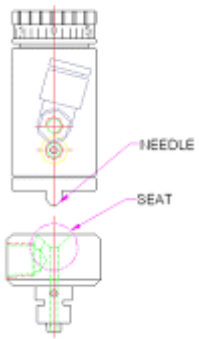
- Make sure that air supply is in good condition.
- Check other connecting appliances that are properly turned off.
- Be sure that end of nozzle is not clogged with hardened fluid.

5.3 Cleaning

- Wash valve thoroughly after using if dispensed liquid has tendancy to be stiff or has possibly to damage liquid contacting part.
- First of all, dispense all liquid entirely from fluid reservoir, liquid supply hose and wetting parts of the valve until sufficient air comes out.
- Rinse inside of the valve with a little of proper solvent.
- Then wash thoroughly in order of air-solvent-air-solvent.

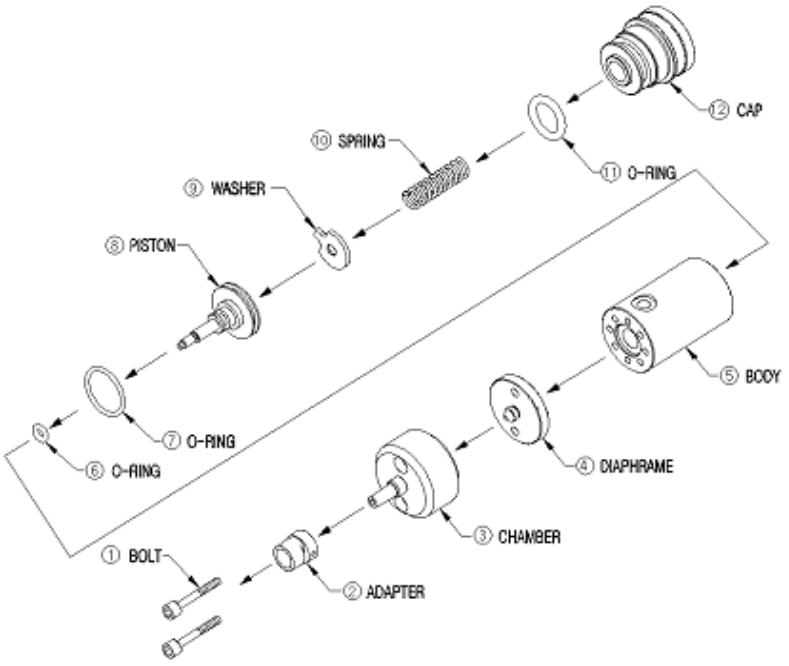
5.4 Disassembly

- In case of disassembly for washing or replacing part, refer to chapter 5.5.
- In case of washing valve head with sharp pin or others, try not to scratch needle or seat part. If damaged you need to replace parts because of leakage.



5.5 Exploded view

- The user's arbitrary disassembly is not recommended.



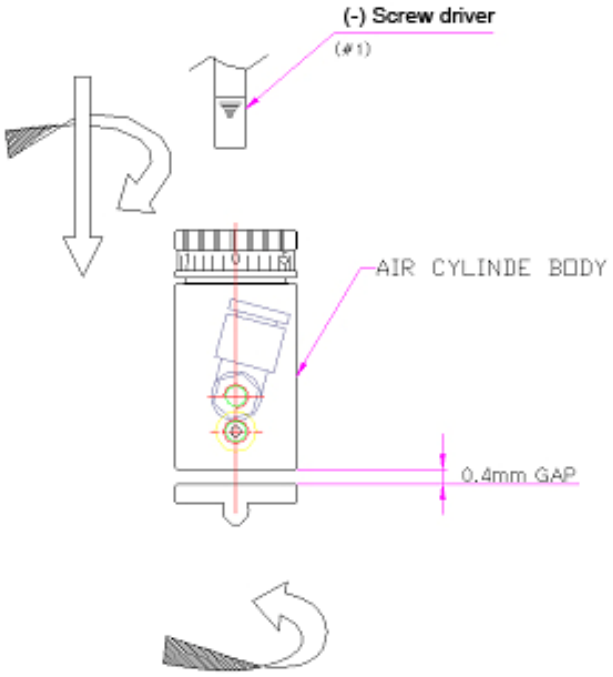
No	Part Name	Spec	No	Part Name	Spec
1	BOLT	M3*18	7	O-RING	AS016
2	ADAPTER	·	8	PISTON	·
3	CHAMBER	·	9	WASHER	·
4	DIAPHRAGM	·	10	SPRING	·
5	BODY	·	11	O-RING	P15
6	O-RING	P4	12	CAP	·

5.6 List of spare parts

No.	Name	No.	Name
4	DIAPHRAGM	7	O-ring AS016
6	O-ring P4	11	O-ring P15

5.7 Change diaphragm

1) Diaphragm assembly



- Loosen stroke control knob by turning twice counterclockwise.
- Separate valve head.
- Remove diaphragm by turning counterclockwise.
- Screw new diaphragm carefully to become horizontal to piston road screw-thread.

  ⚠ Notice
  If it isn't fit thread properly leakage may occur.
- After fixing diaphram at regular intervals(0.4mm) like the picture, for matching cylinder body and mount screw, please turn to the location that you want using a screwdriver like next picture.
- To reinstall valve head fasten L-wrench bolt firmly
- Fasten stroke control knob until it is closed. Then open it again until stroke is appropriate.

  ⚠ Notice
  Scale may not indicate to "0" of reference mark. In this case refe to relative scale(There is no problem to use.).

6. Trouble shooting

Item	Cause	Treatment
No dispensing	Piston(8) does not work.	Supply the air into valve on/off line.
	The fluid is cured.	Clean the valve.(see chapter 5.4)
	The fluid does not supply.	Pressure the fluid reservoir.
		Supply the fluid.
	The controller is turned off.	Turn on the controller.
Fluid leakage from chamber(3)	The cap(12) is unfasten.	Fasten the cap properly.
	The lifetime of diaphragm(4) is end.	Clean the valve(see chapter 5.3). And change the diaphragm(see chapter 5.7).

7. Outside view