

3/2-Ways Lacquer Valve VNT-2004

Table of Contents

1. Introduction	1
2. Features	1
3. Structure and Function	1
4. Technical Data	2
5. Service Life	2
6. Ordering Data	3

1. Introduction

The APSON 3/2-Ways Lacquer Valve 2004 is a pneumatically controllable compact needle valve made of inoxidable steel. It fulfills its function together with modules intended therefore, e.g. valve blocks, lacquer distributors, sprayheads, a.o. Valves of this type are designed as 3/2-ways valves for aggressive non-granular fluid media, e.g. lacquers, solvent, caustic solutions, a.o. They serve for switching the medium stream into two from each other separated media circuits.



APSON 3/2-Ways Lacquer Valve 2004

2. Features

- Fast error recognition in the lacquer system by directly evident switching status.
- Early detecting of leakage of the medium as well as the pneumatics air.
- Manual toggling of the valve with a special tool possible.
- Fast valve exchange, and efficient maintenance and spareparts management.
- Small pressure losses between medium inlet and medium outlets.
- Very good rinsing characteristics, because of APSON deadthroom-free valve technology.
- Very compact design.

3. Structure and Function

The valves consist of the drive in the pneumatics chamber, a seal packing in the intermediate chamber and the two medium seals in the medium chamber (actual valve). The valves have a mechanical visual display of the switching status.



APSON 3/2-Ways Lacquer Valve 2004

The *drive* consists of the pneumatic cylinder, a piston with sealing diaphragm, the valve needle and the pre-compressed spring for closing the valve, if the valve is not addressed with compressed air. The piston and the valve needle are rigidly connected together.

The *seal packing* (medium barrier) consists of several seals, which manage the sealing at the valve needle by means of a pre-compressed spring, on the one hand to the medium chamber and on the other hand to the pneumatics chamber.

The *medium seals* consist of the valve needle head and two seals, which withstand aggressive media. All seals of the valve must therefore be adapted to the media which are to be used.

The mechanical *visual display* consists of a display pin for the switching status of the valve. The display pin is rigidly connected with the valve needle. The valve can be switched by pulling on the display pin manually. Optionally the possibility exists for sensing electrically the status of the valve by means of a proximity sensor.

In the screwed in status with the appropriate valve block, the valve forms one discrete medium chamber, with one inlet and two outlets each with axial sealing seats for the medium.

The outlet which in normal condition (without control signal) is closed is called *normally closed* outlet. The other outlet is called thus *normally open* outlet.

In the *inactive* status (normal condition), no compressed air or control signal pends, and the normally closed outlet is closed and the normally open outlet is open.

In the *active* status, the valve is controlled with compressed air, and the piston formed by the diaphragm connected with the valve needle squeezes a spring together. Thereby the status of the outputs is toggled and the normally closed output is opened and the normally opened output is closed.

4. Technical Data

Denomination:	APSON 3/2-Ways Lacquer Valve 2004
Media:	Aggressive media (lacquer, solvent, caustic solution, a.o.)
Medium pressure:	approx. 12 bar (or in accordance with customer's request)
Pneumatics air pressure:	6 to 8 bar
Medium-touching housing parts:	Inoxidable steel
Piston seal:	Teflon™
Main seals:	Teflon™ (optional Kalrez™)
Housing seals:	Viton™

5. Service Life

For the APSON 3/2-Ways Lacquer Valve 2004 the following service lives were determined within the basecoat area. The service life for valves, at operation with basecoat lacquer amounts to approx. 500,000 switching cycles.

For a troublefree operation of this lacquer valve type, all 300,000 switching cycles a visual inspection must be executed. The visual inspection is to be executed first at the installed valve and afterwards in the unscrewed status.

The installed valve must be outward absolutely tight:

- If pneumatic air withdraws from the bleed bore (annular gap cover), the pneumatic seal at the piston must be exchanged.
- If pneumatic air withdraws from the exhausting drilling of the valve needle, the piston sided seal (air side) of the valve needle for the pneumatic control air must be exchanged.
- If *lacquer* withdraws from the exhausting drilling of the valve needle, the seal at the valve needle (lacquer side) must be exchanged.

At the unscrewed valve the following critical parts are to be checked for wear:

- Main seals of the needle
- O-rings of the valve
- Needle seals to compressed air side or lacquer side

Important: After approx. 300,000 switching cycles the compression spring in the pneumatics chamber must be exchanged by a new greased compression spring. The exchange can be managed without unscrewing the valve from its valveblock within one minute. For safety reasons the medium should be switched pressure-free during the exchange of the spring. Eventually the inner surface of the pneumatic cylinder is to be coated again with valve fat.

6. Ordering Data

Denomination	Part-Nr.
APSON 3/2-Ways Lacquer Valve 2004	060-A015

Options:

- Main seal from Kalrez™
- Non medium-touching housing parts from aluminum

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