Turbo Cleaner 2002

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1. Introduction

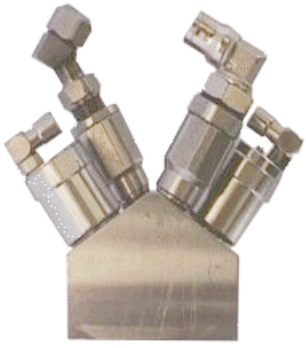
The APSON Turbo Cleaner 2002 is a pneumatically controllable rinsing block for aggressive lacquers and solvents. It is an optionally available cleaner block for the modular APSON Lacquer Changer 2000 M and is particularly suitable for automatic painting systems with often changing lacquers. It serves for rinsing the lacquer change-over switch, the hoses and rotation atomizers or spray guns.

APSON Turbo Cleaner 2002

The APSON Turbo Cleaner 2002 is an advancement of the APSON Pulse Cleaner 2000 and APSON Turbo-Pulse Cleaner 2000. It differs from the aforementioned cleaners by more flexible rinsing sequence due to non-coupled function of the valves. In all other respects the cleaners mentioned are exchangeable. The APSON Turbo Cleaner 2002 is optimized for economical solvent consumption with high rinsing quality. It avoids reliably a pollution of the newly connected lacquer during the painting process and ensures thus a perfect lacquer change.

2. Structure and Function

The APSON Turbo Cleaner 2002 consists of a prism formed housing with an output and one input each for solvent LO and compressed air LU. The output side of the Turbo Cleaner 2002 forms a pressure tight interface to the valve blocks of the lacquer changer switch.



A pneumatically controllable valve is assigned to each input. Due to the special formation of the eddy space and the V-shaped arrangement of the valves, a highly turbulent mixture of air and solvent develops in the lacquer change-over switch during the rinsing cycle.

Due to the special construction the APSON Turbo Cleaner 2002 enables two basic application cases:

- Application with alternating control of the valves for air resp. solvent.
- Application with permanent control for air and pulsed control of the solvent.

Case 1: Application with alternating control of the valves for air resp. solvent. In this case both inputs are to be equipped with checkvalves, in order to prevent penetration of the different medium during possible overlap of the open-times (both valves at the same time openly) in each case.

During the painting process solvent and compressed air pend permanently at the turbo cleaner. If a rinsing cycle is to be initiated, then with still closed compressed air valve LUF first the solvent valve LOF is controlled to open. Briefly afterwards, the compressed air valve is controlled to open for the entire duration of the rinsing cycle. With opened compressed air valve the flow of the solvent is then periodically interrupted in short time intervals and released again. At the end of the rinsing cycle the air flow as well as the solvent flow are stopped.

Due to this sequence *an alternating* flow from compressed air resp. solvent develops, which rinses reliably the lacquer change-over switch downstream the hoses and other spray devices. The duration of the rinsing cycle as well as the switching sequences of the two valves depend on the conditions of the painting process and has to be controlled by means of a programmable logic controller. The more briefly the switching on impulses of the solvent valve (preferably smaller than 1 second), the better the rinsing quality.

Case 2: Application with permanent control for air and pulsed control of the solvent. For safe functioning of the Turbo Cleaner 2002 the pressure at the solvent input must be higher approx. 1 to 1.5 bar than the pressure at the compressed air input. Therefore only the union fitting for the compressed air input contains a checkvalve.

During the painting process solvent and compressed air pend permanently at the Turbo Cleaner 2002. If a rinsing cycle is to be initiated, then with still closed compressed air valve LUF first the solvent valve LOF is controlled to open. Briefly afterwards, the compressed air valve is controlled to open for the entire duration of the rinsing cycle. With opened compressed air valve the flow of the solvent is then interrupted in short time intervals and released again. At the end of the rinsing cycle the air flow as well as the solvent flow are stopped.

Due to this sequence a *pulsating* flow from air-sputtered solvent develops, wich rinses reliably the lacquer change-over switch downstream the hoses and other spray devices. The duration of the rinsing cycle as well as the switching frequency of the solvent valve depend on the conditions of the painting process and has to be controlled by means of a programmable logic controller. The more briefly the switching-on impulses of the solvent valve (preferably smaller than 1 second), the better the rinsing quality.

3. Features

- Small solvent consumption.
- Environmental careful short rinsing cycle due to high throughput.
- Very good rinsing barness due to deathroom-minimized valve blocks.
- The valves are compatible with the valves of the lacquer change-over switch blocks.
- Fast valve exchange due to screwable valve technique.
- Pro-active maintenance possible due to leakage display of the valves.
- Visible switching status of the valves.
- Small, compact form.

4. Technical Data

Table 1.

Denomination:	APSON Turbo Cleaner 2002
Media:	Lacquers, solvents, a.o.
Compressed air pressure:	6 to 12 bar
Solvent pressure:	for case 1 (see above): 6 to 12 bar for case 2 (see above): 7 to 12 bar, (approx. 1 to 1.5 bar greater than compressed air)
Valve assembly:	two 2/2-ways valves, see Ordering Data
Checkvalve/s:	1 resp. 2 checkvalve/s, see above
Valve switching pressure:	6 to 8 bar, measured at the valve
Housing material:	Inoxidable steel, see Ordering Data
Sealing material:	Viton™, or after customer's request
Control air link:	for hose, d = 2.7 mm, D = 4 mm
Compressed air input:	for hose, d = 8 mm, D = 10 mm
Solvent input:	for hose, d = 6 mm, D = 8 mm
Dimensions, block:	length 70 mm, depth 42 mm, height 50 mm
Dimensions, complete:	length 70 mm, depht 42 mm, height 87 mm resp. 110 mm
Mass, block:	approx. 700 g
Mass, complete:	approx. 800 g

5. Ordering Data

Table 2.

Denomination	**Quantity**	**Part-Nr.**
APSON Turbo Cleaner 2002, complete	1	070-A004
APSON 2/2-Ways Valve 2000	2	060-A008
APSON Checkvalve 2000	1 bzw. 2	100-A001

Options:

- Housing from aluminium, anodized.
- Sealing material, after customer's request.
- Air/solvent links, after customer's request.

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