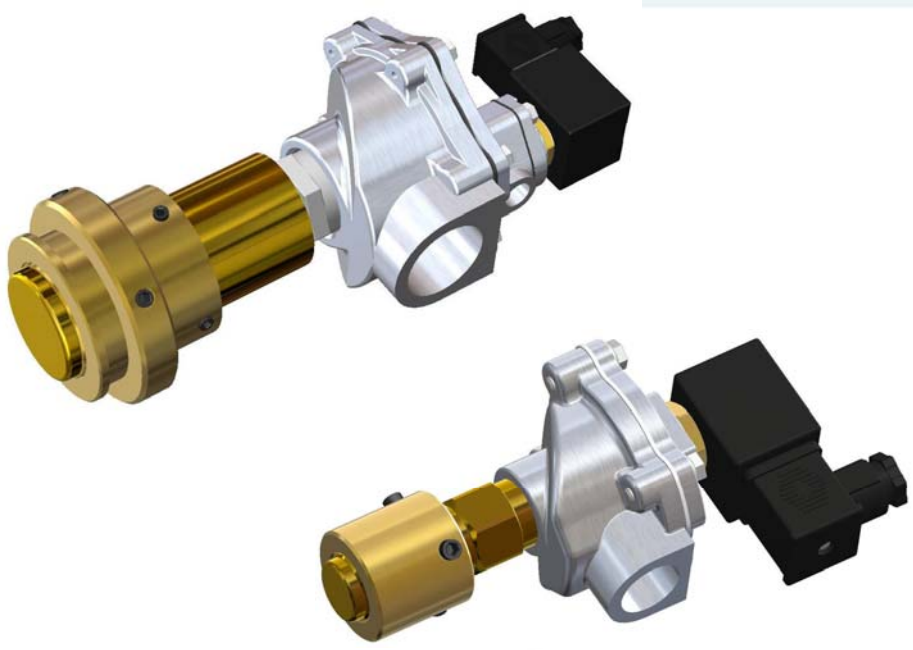
MOSA SOLUTION®

## Myrlen® Pulse Nozzles

# Accompanying Technical Documentation

## Operating and Maintenance Instructions



## Contents



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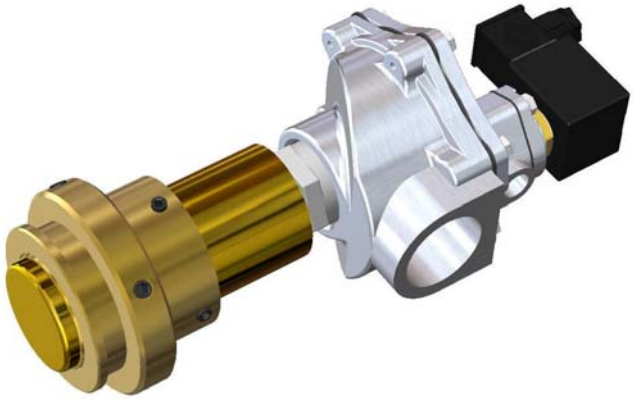
Abstract from the Companies Register managed by the Regional Court of Justice in Ústí nad Labem, Section C, Insert 29518

# 1 Airsweep® Myrlen® Pulse Nozzle system - generally

Technology applying the Myrlen® pulse nozzle system to discharge non-flowing bulk materials from storage bins has been providing for many years a proven and well-established method for ensuring safe and reliable flow of hard-to-flow bulk materials. In fact, the pulse nozzle system is a system of controlled bursts of compressed air.

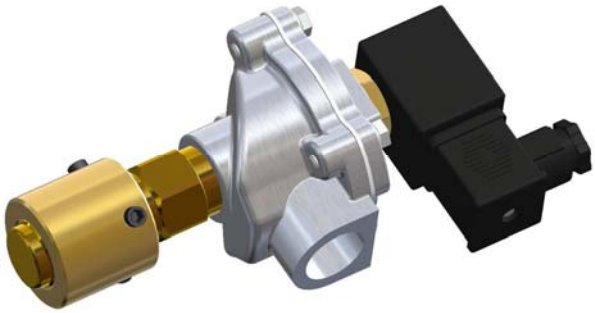
Through the action of pulse nozzles, the external friction angle is reduced (wall friction between the stored bulk material and interior contact surface of the storage bin wall) and thus the stuck or clotted material is released. The released material subsequently falls into the discharge part of the storage bin and then falls through the discharge opening out of the storage bin, ensuring the necessary flow of bulk material through the whole cross section of the storage bin without the need for physical intervention on the part of the operating staff.

The airsweep system of pulse nozzles is suitable for conventional steel, concrete or plastic storage bins. It can also be used for feed hoppers, scaling hoppers and diverse intermediate storage reservoirs. This system can be applied for high-granulometry materials (e.g. crude coal), as well as for very low-granulometry materials (e.g. ground lime). In terms of their flow characteristics, these materials can be such that create vault structures during storage, but also compacted or moist materials.



**Myrlen® pulse nozzle, type VA-51 (1½“)**

The pulse nozzle is designed to erode (cut off) any stuck material by short bursts (burst duration fixed at 250 ms) of compressed air along the internal wall of the storage bin or its discharge part. During one burst a layer of max. 2,000 mm of material is eroded at an overpressure of 0.70 MPa (relation to the mechanical and physical characteristics of the bulk material and the operating conditions). The required operating overpressure of compressed air is 0.60 MPa. Compressed air consumption for one burst is approx. 71 litres.



**Myrlen® pulse nozzle, type VA-06 (¾“)**

The pulse nozzle is designed to erode (cut off) any stuck material by short bursts (burst duration fixed at 250 ms) of compressed air along the internal wall of the storage bin discharge part or the discharge chute located under the storage bin. During one burst a layer of max. 900 mm of material is eroded (relation to the mechanical and physical characteristics of the bulk material and the operating conditions). Compressed air consumption for one burst is approx. 17 litres.

The basic system of pulse nozzles is made up of the complete Myrlen® nozzle set with a high-level pulse solenoid valve, an assembly sleeve, compressed air distribution and a control unit.

The Myrlen® pulse nozzle system is controlled by a programmable control unit. It is necessary to provide short nozzle bursts in a preconfigured opening algorithm depending on the operation of the conveyor technology under the storage bin or under its discharge part, respectively.

Optimization of the algorithm of pulse nozzle operation, including the delay between the operation of individual nozzles, must always be carried out on the basis of an evaluation of the actual mechanical and physical characteristics of the respective bulk material. The basic requirement is elimination of the occurrence of non-flowing material on the storage bin walls or on the walls of its discharge part.

## 2 Composition of the Airsweep® Myrlen® pulse nozzle system

The basic part of the Airsweep® pulse nozzle system is a set consisting of the Myrlen® pulse nozzle and a pulse valve. This set is installed into the wall of the storage bin using an assembly sleeve, is connected through a flexible rubber hose to the compressed air distribution system and with a cable to the control system or the control unit, respectively.

The Myrlen® pulse nozzle set with the pulse valve has several design variants. The design variants of the set are determined by the nozzle type used (VA-51, VA-06), as well as by the material from which the nozzle is made (carbon steel, AISI 304). The set variants are further distinguished by the supply voltage of the pulse valve solenoid (230 V AC, 24 V DC) and by its make, which is dependent on the type of environment in which the pulse valve solenoid is located (standard environment, Zone 22, Zone 21).

The type of assembly sleeve is based on the actual application of the pulse nozzle system and is distinguished by its construction, the design of the storage bin and the bulk material type.

Compressed air distribution is carried out from a DN 100 pipe in the form of a "crown" around the perimeter of the storage bin discharge part, out of which the respective branch pipes are led with cross sections according to the type of nozzle in use (DN 40 branch pipe for VA-51 nozzle, DN 20 branch pipe for VA-06 nozzle). The branch pipes must be located on the upper part of the DN 100 pipe in order to preclude possible ingress of impurities from the compressed air distribution line into the pulse solenoid valve. The compressed air distribution around the perimeter of the discharge part must be slanted and a DN 15 pipe with a ball valve for the blow-down of the whole distribution system must be attached to its lowest point. A DN 40 air supply line is connected to the existing compressed air distribution system. To ensure correct and reliable operation of the Myrlen® pulse nozzle system, the customer must provide a sufficient volume of compressed air with the overpressure of 0.6 – 1.0 MPa and also ensure its cleanliness in accordance with ISO 8573.1.

*Required compressed air quality in accordance with ISO 8573.1*

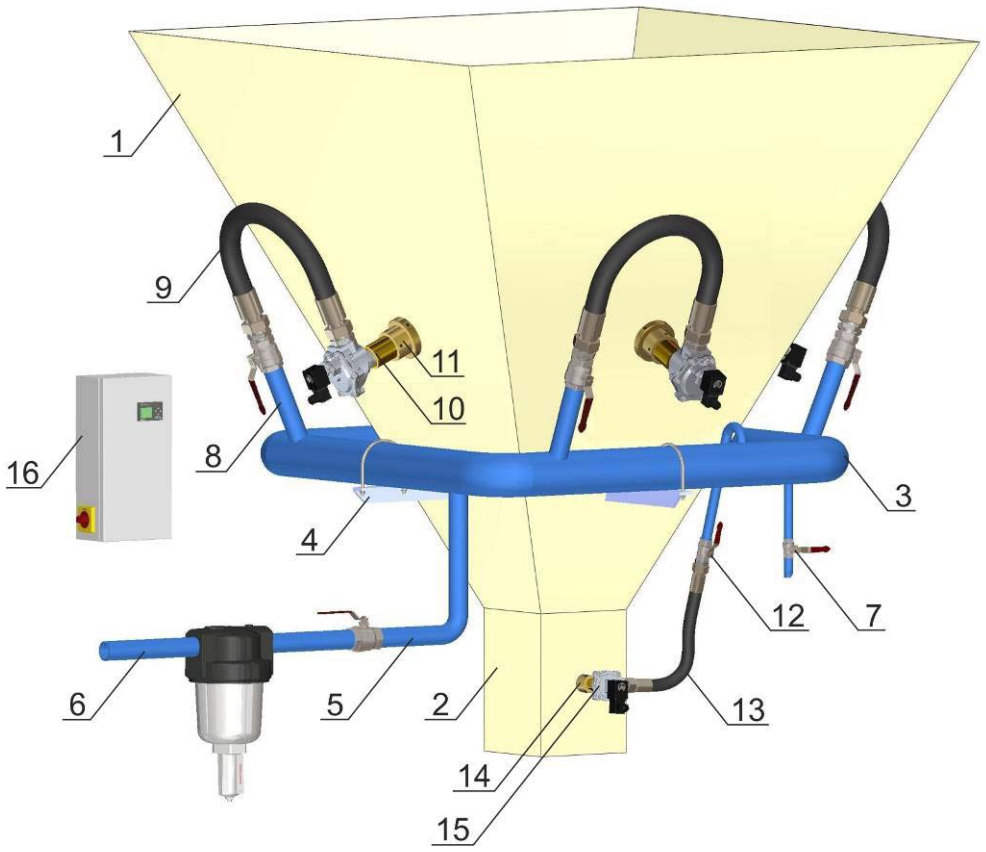
| Quality class | Maximum particle size | Concentration | Oil | Max. pressure dew point |
|---|---|---|---|---|
| 3 | 5 µm | 5 mg/$m_n^3$ | 1 mg/$m^3$ | - 20 °C |

The control system, or its make, is dependent on the requirements of the customer or the operator. The most suitable is a variant where the pulse nozzle system control is integrated into the existing control system of the complete technology. If this is not carried out by the customer or the operator, the extension of the existing control system can be provided from our side. It is necessary to use a control system that is programmable on the fly (variants of pulse nozzle operation algorithms) and that will depend on the start or the operation of the complete technology. In the case that the slide valve at the storage bin discharge part is closed or the subsequent transport technology is stopped, the pulse nozzle system must not be in operation. In such circumstances a negative effect would occur - the operation of pulse nozzles would result in compressing the material.

In the event that the customer requests a local control unit, it is possible to supply a LOGO-Siemens automatic control unit or a Simatic S7 – 300 control system. The Myrlen® pulse nozzle system is then controlled with the use of a programmable control unit which transmits electrical signals to the pulse valve in a pre-set algorithm. Optimization of the algorithm of pulse nozzle operation, including the delay between the operation of individual nozzles, must always be carried out on the basis of an evaluation of the actual mechanical and physical characteristics of the respective bulk material. The basic requirement is elimination of the occurrence of non-flowing material on the storage bin walls or on the walls of its discharge part, thus precluding the occurrence of a tunnel or vault structure in the stored material.

**The longer the time delay between the bursts of individual nozzles, the more effective the operation, since the compressed air is saved.**

## 3 Diagram of the Airsweep® Myrlen® pulse nozzle system




| Pos. | Description |
|---|---|
| 1 | Storage bin (discharge part) |
| 2 | Discharge chute under the storage bin discharge part |
| 3 | DN 100 compressed air distribution line (“crown”) |
| 4 | Bracket for mounting the compressed air distribution line |
| 5 | DN 40 supply line with ball valve |
| 6 | Existing compressed air distribution with filter to ensure the required quality of compressed air |
| 7 | DN 15 blow-down line with ball valve |
| 8 | DN 40 branch pipe with ball valve for VA-51 pulse nozzle |
| 9 | DN 40 flexible hose |
| 10 | VA-51 pulse nozzle with pulse valve |
| 11 | Assembly sleeve for attaching VA-51 pulse nozzle |
| 12 | DN 20 branch pipe with ball valve for VA-06 pulse nozzle |
| 13 | DN 20 flexible hose |
| 14 | Assembly sleeve for attaching VA-06 pulse nozzle |
| 15 | VA-06 pulse nozzle with pulse valve |
| 16 | Control unit for controlling the pulse nozzle system |

Note: The diagram does not include the mounting of the control unit and the cable connection between the control unit and the individual pulse nozzles because the method of mounting the control unit, as well as the routing of the cable to the pulse nozzles, can differ - however, it is always necessary to observe the respective regulations and standards.

# 4 Installation the Airsweep® system of pulse nozzle Myrlen®

1. Measure the positions of individual pulse nozzles in accordance with the layout diagram of pulse nozzles Myrlen®on the storage bin, the diagram having been proposed by the contractor and approved by the customer.
2. Drill holes into the storage bin walls at the marked positions (hole diameter in accordance with the assembly sleeve used).
3. Install the respective type of assembly sleeves (in accordance with the storage bin design and nozzle type) into the drilled holes.
4. Install the pulse nozzles assembled together with the pulse valves into the assembly sleeves and carry out their correct adjustment with regard to the inner surface of the storage bin walls.
5. Install the compressed air distribution comprising a DN 100 pipe routed around the perimeter of the storage bin discharge part ("crown"), including a DN 40 supply line from the existing compressed air distribution system.
6. In accordance with the individual positions of the pulse nozzles, carry out the installation of the branch pipes (DN 40 or DN 20, based on nozzle type) from the compressed air distribution system ("crown"). All branch pipes must be located on the upper part of the DN 100 pipe in order to preclude possible ingress of impurities from the compressed air distribution line into the pulse solenoid valve and must be terminated with ball valves with inner threads so as to make it possible for individual pulse nozzles to be shut off in the case of a fault or an inspection. The locations of the branch pipes must be selected with regard to the connection of each of the branch pipes to the respective pulse valve with the use of a flexible hose with the length of 1000 mm (DN 40) or 500 mm (DN 20) and with regard to the necessity to observe the permissible minimum bend radius of the hose. The lengths of individual branch pipes must be adjusted in accordance with these requirements.
7. Connect the pulse valves of individual nozzles with the use of flexible supply hoses to the respective branch pipes from the DN 100 compressed air distribution line.
8. Verify the impermeability of the whole system by means of a pressure test applied to the complete compressed air distribution line.
9. Apply the paint system prescribed for the compressed air distribution lines with regard to the environment in which the compressed air distribution lines are located.
10. Install the control unit for controlling the Myrlen® pulse nozzle system (if the existing control system is not used or if its extension for control of the Myrlen® pulse nozzle system has not been carried out).
11. Install the cable connection of the control unit or the control system to individual pulse nozzles or to the electromagnetic coils of individual pulse valves.
12. Perform the final proof of the electrical equipment.
13. Individual tests.
14. Commissioning.

Note:
The above description of the installation of the Myrlen® pulse nozzle system applies in general for the majority of conventional types of storage bins with regard to their construction, shape, and application. Any atypical types of storage bins or atypical application within the framework of the given technology must be taken into account when designing the Myrlen® pulse nozzle system, and subsequently also during its installation.

# 5 Pulse nozzles

## 5.1 Pulse nozzle of VA-51 type

A pulse nozzle, by its construction and shape, creates short bursts of compressed air that are directed along the inner surface of the storage bin wall. Through the high velocity of the compressed air, the pulse nozzle of VA-51 type (1½“) is at an overpressure of 0.7 MPa, with each burst able to erode material located within the diameter of up to 2000 mm (there is a relation to the mechanical and physical characteristics of the bulk material and to the operating conditions). The necessary operating overpressure of compressed air for the operation of pulse nozzles is 0.6 MPa. Compressed air consumption for one burst is approx. 71 litres.

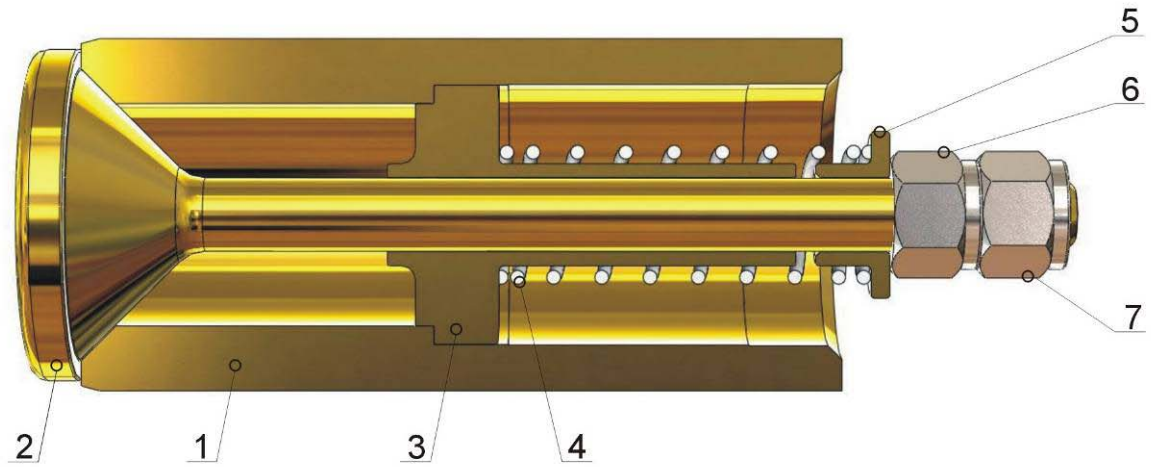
Application of pulse nozzles in explosive environments in accordance with Directive 94/9/EC (NV 23/2003 Coll.)

The construction of the pulse nozzle and the materials used preclude any risk of ignition of dust in the case of flammable bulk materials where the inner area of the storage bin is classified as Zone 20. For these cases, the pulse nozzle of VA-51 type was subjected to testing at the Physical and Technical Testing Institute in Ostrava-Radvanice, Czech Republic. Based on this testing, an EU test certificate, type FTZÚ 04 ATEX 0240X, was issued.

Material variants

Based on the material from which the individual parts of the pulse nozzle are made, pulse nozzles are distinguished between type VA-51C (carbon steel) and type VA-51SS (stainless steel AISI 304).

Cross section of pulse nozzle of VA – 51 type




| ITEM | Quantity | Description | Part | |
|---|---|---|---|---|
| | | | Carbon steel body | Stainless steel body |
| 1 | 1 | Nozzle body | VB-51-C | VB-51-SS |
| 2 | 1 | Piston head body | VCW-51-C | VCW-51-SS |
| 3 | 1 | Retaining spring ring | SG-51-C | SG-51-SS |
| 4 | 1 | Spring washer | CS-12/51 | CS-12/51-SS |
| 5 | 1 | Spacer ring | CW-12/51-C | CW-12/51-SS |
| 6 | 1 | Self-locking nut | JN-12/51-C | JN-12/51-SS |
| 7 | 1 | Self-locking nut | JN-12/51-C | JN-12/51-SS |

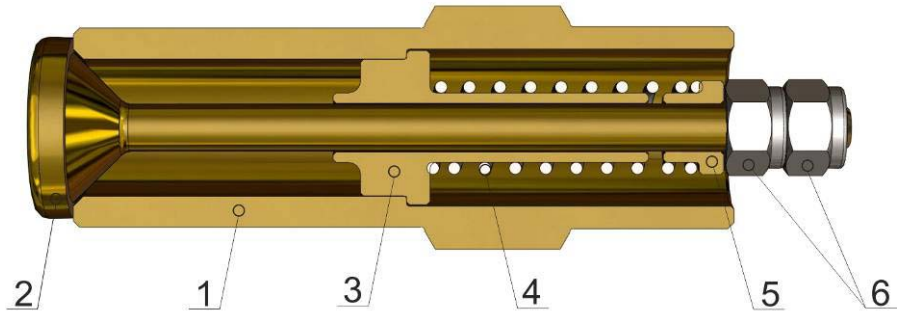
### 5.2 Pulse nozzle of VA-06 type

A pulse nozzle, by its construction and shape, creates short bursts of compressed air that are directed along the inner surface of the storage bin wall. Through the high velocity of the compressed air, the pulse nozzle of VA-06 type (¾“) is at an overpressure of 0.7 MPa, with each burst able to erode material located within the diameter of up to 900 mm (there is a relation to the mechanical and physical characteristics of the bulk material and to the operating conditions). The necessary operating overpressure of compressed air for the operation of pulse nozzles is 0.6 MPa. Compressed air consumption for one burst is approx. 17 litres.

Material variants

Based on the material from which the individual parts of the pulse nozzle are made, pulse nozzles are distinguished between type VA-06C (carbon steel) and type VA-06SS (stainless steel AISI 304).

Cross section of pulse nozzle of VA-06 type




| ITEM | Quantity | Description | Part | |
|---|---|---|---|---|
| | | | Carbon steel body | Stainless steel body |
| 1 | 1 | Nozzle body | VB-06-C | VB-06-SS |
| 2 | 1 | Piston head body | VCW-06-C | VCW-06-SS |
| 3 | 1 | Retaining spring ring | SG-06-C | SG-06-SS |
| 4 | 1 | Spring washer | CS-06-C | CS-06-SS |
| 5 | 1 | Spacer ring | CW-06-C | CW-06-SS |
| 6 | 2 | Self-locking nut | JN-06-C | JN-06-SS |

# 6 Pulse valves

## 6.1 Pulse valve for VA-51 type nozzle

Description

The diaphragm pulse valve combines a high air flow rate with extremely fast opening and closing, as well as a long service life.

Operation

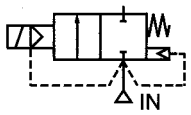
In Off-position, the valve is closed and the electromagnetic coil of the solenoid is without voltage. The valve opens by applying supply voltage (230 V AC or 24 V DC) to the electromagnetic coil of the solenoid.

2/2 series

353

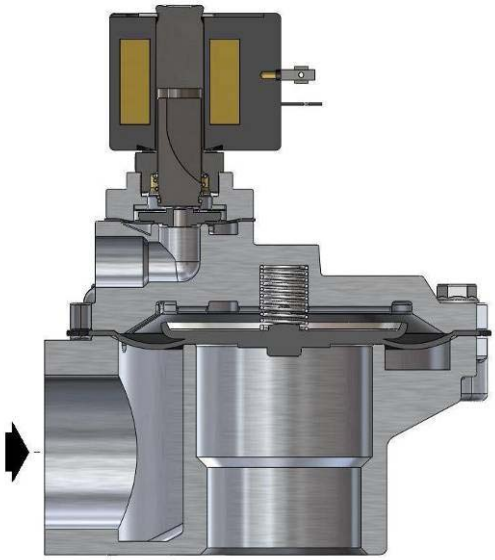
| Medium | Temperature range | Diaphragm |
|---|---|---|
| Air | - 20 °C to + 85 °C | CR (chloroprene/neoprene) |

NC




Construction

| | |
|---|---|
| Body | Aluminium |
| Internal parts | Stainless steel |
| Core | Stainless steel |
| Sealing NBR | |
| Diaphragm | CR |
| Insulation class | F |
| Damping ring copper | |



IN

Electrical characteristics

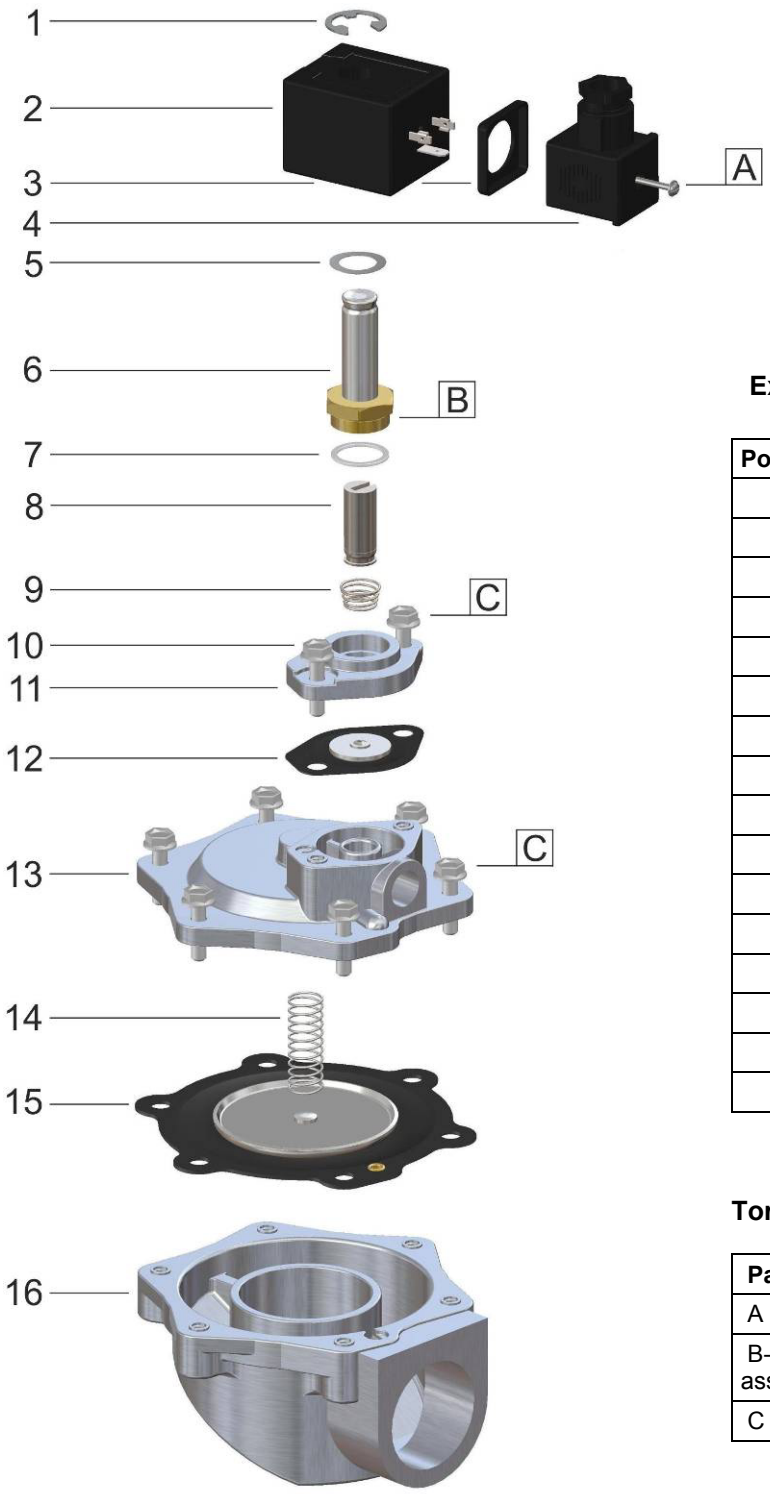
| | |
|---|---|
| Standard power supply | 230V AC or 24 V DC |
| Coil input power | 10.5 W or 19.7 W |
| Ambient temperature range | - 20 °C to + 85 °C |
| IP class | IP 65 |
| El. connection | Connector ISO 4400 |

(Note “IN“ - INLET of compressed air supply)

Specifications

| Mating dimension | Valve internal diameter | Kv factor | Min. dif. overpressure | Max. dif. overpressure | Catalogue No. |
|---|---|---|---|---|---|
| G | Mm | l/min. | [MPa] | [MPa] | |
| **G – threaded pipe connection** | | | | | |
| 1 ½ | 52 | 768 | 0.03 | 0.85 | SCG 353 A 047/ T02-12100 |

Structure of pulse valve for VA-51 nozzle




### Explanation

| Position | Designation |
|---|---|
| 1 | Snap ring |
| 2 | Coil body |
| 3 | Gasket |
| 4 | Connector assembly |
| 5 | Spring washer |
| 6 | Solenoid base sub-assembly |
| 7 | O-ring |
| 8 | Core assembly |
| 9 | Core spring |
| 10 | Pilot diaphragm cap screw |
| 11 | Pilot diaphragm cap |
| 12 | Pilot diaphragm |
| 13 | Main diaphragm cap |
| 14 | Main diaphragm spring |
| 15 | Main diaphragm assembly |
| 16 | Valve body |

### Torque chart

| Part designation | N/m |
|---|---|
| A - Connector | 0.6 ± 0.2 |
| B- Solenoid base sub-assembly | 20.0 ± 3.0 |
| C - Diaphragm cap | 12.4 ± 1.1 |

### 6.2 Pulse valve for VA-06 type nozzle

Description

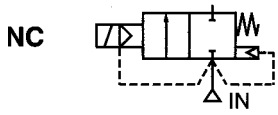
The diaphragm pulse valve combines a high air flow rate with extremely fast opening and closing, as well as a long service life.

Operation

In Off-position, the valve is closed and the electromagnetic coil of the solenoid is without voltage. The valve opens by applying supply voltage (230 V AC or 24 V DC) to the electromagnetic coil of the solenoid.

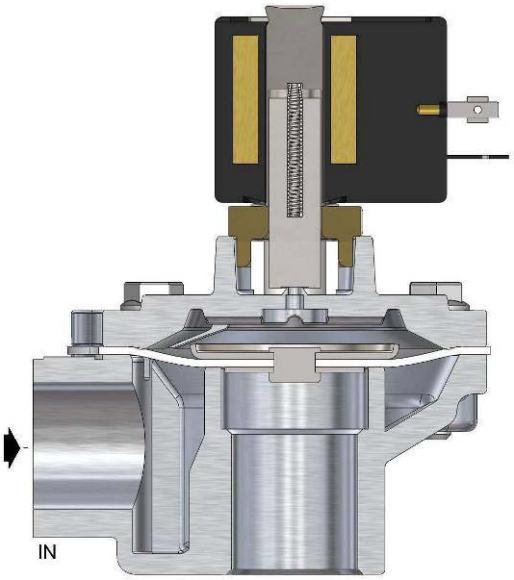
| **Medium** | **Temperature diaphragm** | **diaphragm** |
|---|---|---|
| Air | - 20 °C to + 85 °C | HYT (hytrel) |

2/2 series 353




Construction

| | |
|---|---|
| Body | Aluminium |
| Internal parts | Stainless steel |
| Core | Stainless steel |
| Sealing | NBR |
| Diaphragm | HYT |
| Insulation class | F |
| Damping ring | copper |




Electrical

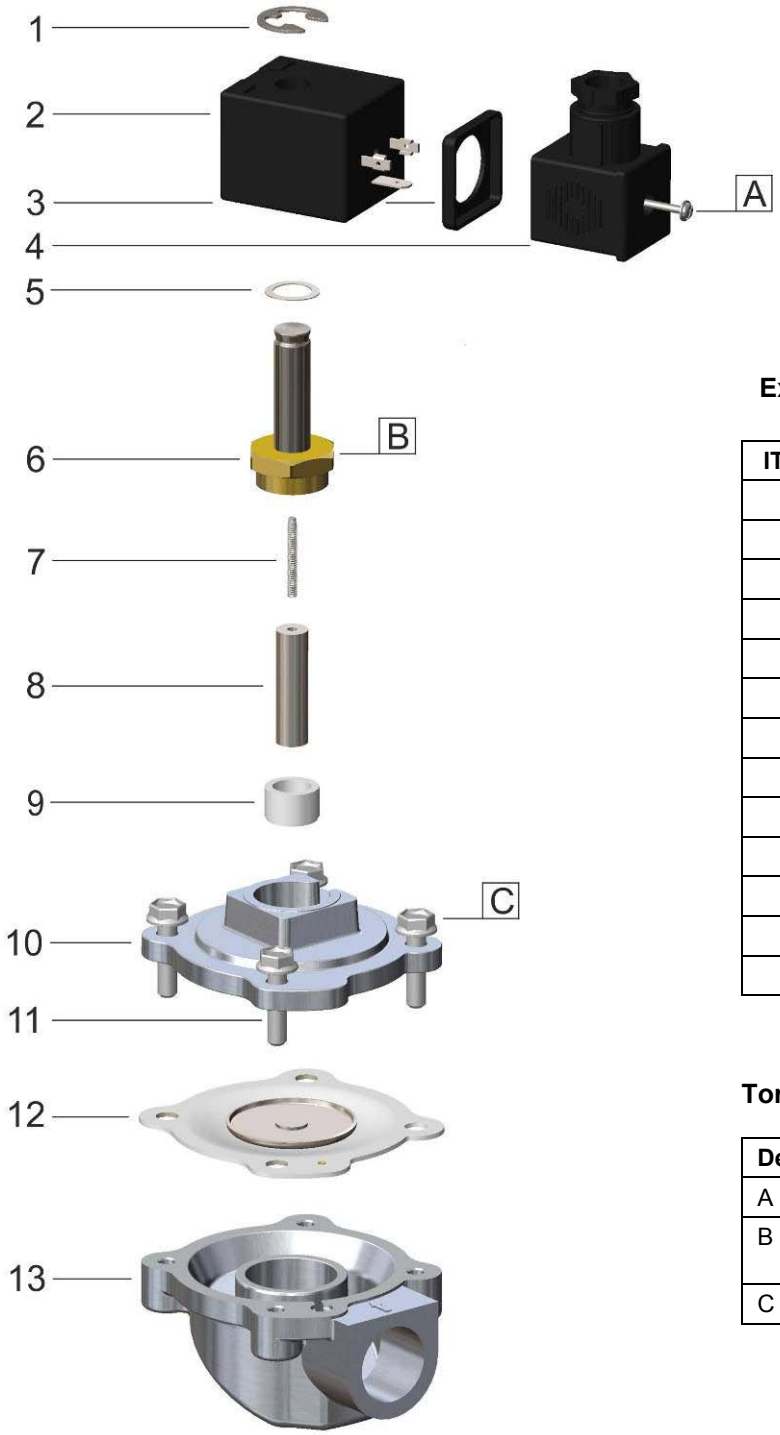
| | |
|---|---|
| Standard power supply | 230V AC or 24 V DC |
| Coil input power | 6 W |
| Ambient temperature range | - 20 °C to + 85 °C |
| IP class | IP 65 |
| El. connection | Connector ISO 4400 |

(Note. “IN“ - INLET of compressed air supply)

Specifications

| Mating dimension | Valve internal diameter | Kv factor | Min. dif. overpressure | Max. dif. overpressure | Catalogue No. |
|---|---|---|---|---|---|
| G | Mm | l/min. | [MPa] | [MPa] | |
| **G – threaded pipe connection** | | | | | |
| ¾“ | 25 | 233 | 0.035 | 0.85 | SCG 353 A 043/ T02-22100 |

Structure of pulse valve for VA-06 nozzle




### Explanation

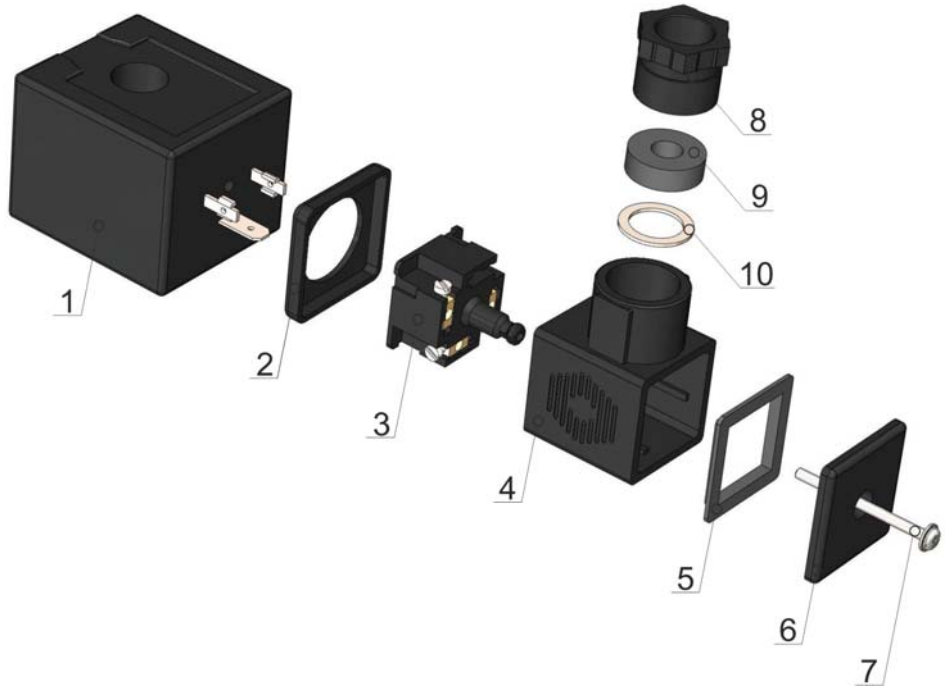
| ITEM | Description |
|---|---|
| 1 | Snap ring |
| 2 | Coil body |
| 3 | Gasket |
| 4 | Connector assembly |
| 5 | Spring washer |
| 6 | Solenoid base sub-assembly |
| 7 | Core spring |
| 8 | Core assembly |
| 9 | Blow-off damping insert |
| 10 | Diaphragm cap |
| 11 | Diaphragm cap screw |
| 12 | Diaphragm |
| 13 | Valve body |

### Torque chart

| Description | N/m |
|---|---|
| A - Connector | 0.6 ± 0.2 |
| B - Solenoid base sub-assembly | 20.0 ± 3.0 |
| C - Diaphragm cap | 12.4 ± 1.1 |

### 6.3 Connector for connecting the electromagnetic coil

Construction of the connector for connecting the electromagnetic coil of the solenoid




| ITEM | Description |
|---|---|
| 1 | Coil |
| 2 | Seal |
| 3 | DIN connector block |
| 4 | Connector housing |
| 5 | Seal |
| 6 | Cap |
| 7 | Central screw |
| 8 | Nut |
| 9 | Seal |
| 10 | Washer |

### 6.4 Replacement of pilot and main diaphragms

*Instructions for disassembly of pilot diaphragm (see Construction of pulse valve)*

Prior to commencing any work, it is necessary to close the inlet of compressed air into the diaphragm valve using the respective ball valve. Additionally, the power supply must be switched off and the cable with the connector from the electromagnetic coil of the solenoid must be disconnected.

Slide the snap ring out of the groove in the solenoid base. The coil body can now be removed, while it is necessary to pay attention so as not to loosen the spring washer located under the coil body. Then loosen and remove the 2 screws located on the pilot diaphragm cap so that the pilot diaphragm cap gets loose. Carefully remove the pilot diaphragm cap making sure not to let the solenoid core fall out of the solenoid base sub-assembly. The pilot diaphragm can now be removed. It is essential to note its correct position for reassembly. Prior to the pilot diaphragm reassembly, it is recommended to clean it thoroughly, especially in the area of its contact surfaces. Reassembly is carried out in the reverse manner to the disassembly procedures.

*Instructions for disassembly of main diaphragm (see Construction of pulse valve)*

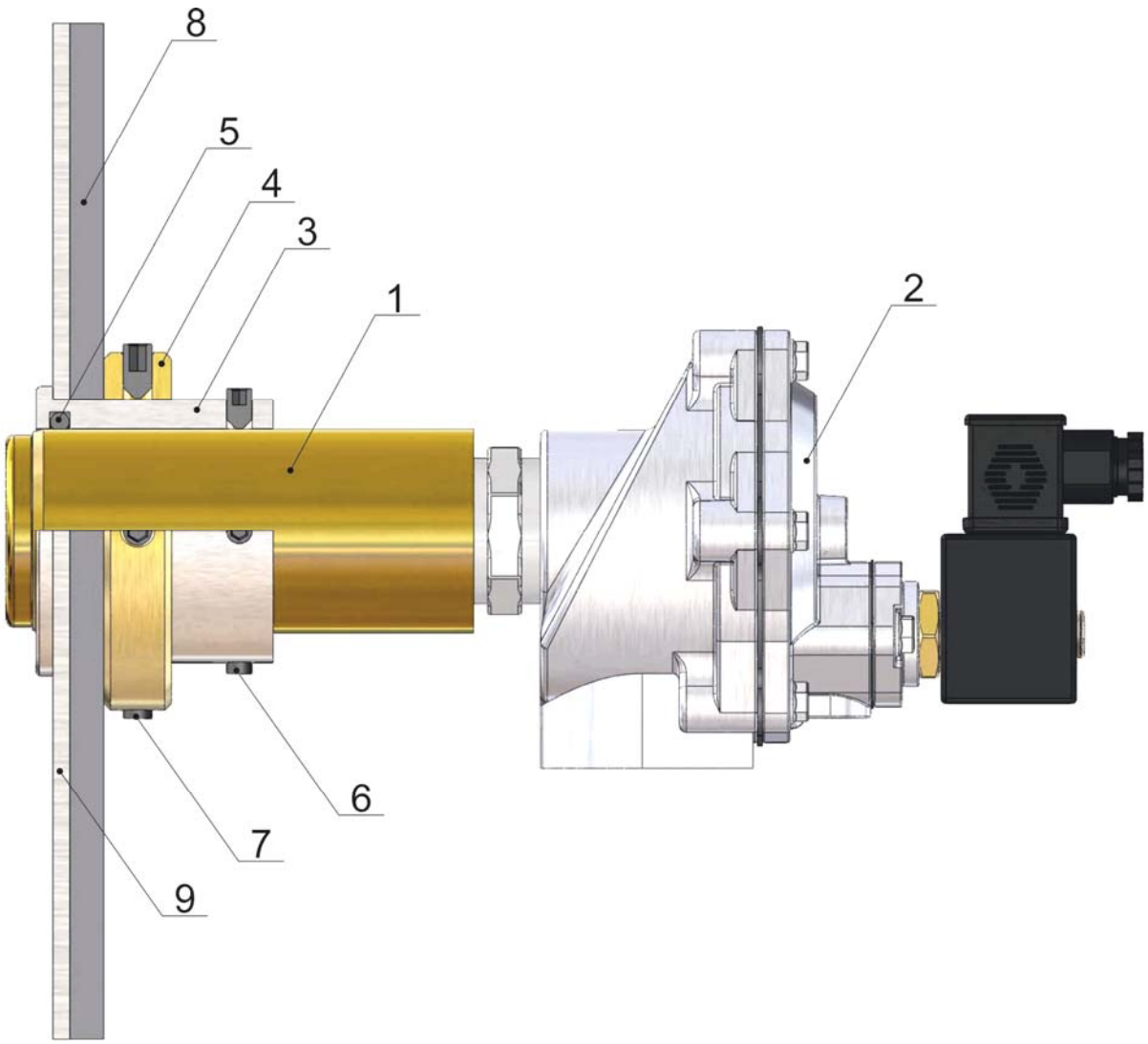
Prior to commencing any work, it is necessary to close the inlet of compressed air into the diaphragm valve using the respective ball valve. Additionally, the power supply must be switched off, and the cable with the connector from the electromagnetic coil of the solenoid must be disconnected.

Loosen and remove the 6 screws located on the main diaphragm cap. The main diaphragm cap will then become unattached and it can be removed carefully. Pay attention not to loose the main diaphragm pressure spring. The main diaphragm can now be removed. It is essential to note its position for reassembly. Prior to the main diaphragm reassembly, it is recommended to clean it thoroughly, especially in the area of its contact surfaces. If the main diaphragm is damaged, replace it with a new one. Reassembly is carried out in the reverse manner to the disassembly procedures.

### 6.5 Most frequent faults of pulse valves

1. ***Foreign matter under the pilot diaphragm***
   Fault symptoms - compressed air leakage from the blow-off outlet.
   Fault diagnostics - contaminated contact surface of the pilot diaphragm.
   Fault remedy - disassembly of the pilot diaphragm cap and cleaning of the contact surfaces, replacement of the pilot diaphragm in the case of its damage.
2. ***Main diaphragm deterioration***
   Fault symptoms - leakage through the main diaphragm.
   Fault diagnostics - perforated, hard, rotten diaphragm, or broken back place.
   Fault remedy - disassembly of the main diaphragm cap and replacement of the main diaphragm.
3. ***Broken pressure spring of the main diaphragm***
   Fault symptoms - without evident symptoms, however, can cause damage to the main diaphragm after a longer time of operation, which results in leakage through the main diaphragm.
   Fault diagnostics - broken pressure spring.
   Fault remedy - disassembly of the main diaphragm cap and replacement of the broken pressure spring, possibly also of the main diaphragm if this has been damaged by the broken spring.
4. ***Pilot diaphragm deterioration***
   Fault symptoms - compressed air leakage from the blow-off outlet.
   Fault diagnostics - perforated, hard, rotten diaphragm, depressed areas in the contact surface.
   Fault remedy - disassembly of the pilot diaphragm cap and replacement of the damaged pilot diaphragm.
5. ***Stored bulk material in the inner space of the pulse valve***
   Fault symptoms - leakage of compressed air mixed with stored material from the blow-off outlet.
   Fault diagnostics - presence of stored material in the inner space of the valve.
   Fault remedy - presence of stored material in the inner space of the pulse valve is the result of pulse nozzle damage; it is necessary to remedy the fault of the pulse nozzle first, and then clean the inner space of the pulse valve and possibly replace any deteriorated parts.
6. ***Compressed air leakage from the area of the main or pilot diaphragm***
   Fault symptoms - usually only moderate compressed air leakage from the area around the main or pilot diaphragm.
   Fault diagnostics - the leakage point can be identified through listening or with the use of a spray dispenser with soap solution.
   Fault remedy - re-tightening of the respective screws at the point of leakage of compressed air.
7. ***Blocked core assembly***
   Fault symptoms - the pulse valve does not open, although the electromagnetic coil has no fault and is supplied with voltage.
   Fault diagnostics - blocked core assembly in the solenoid base sub-assembly.
   Fault remedy - unblocking the core assembly, possibly replacement of the core assembly and the solenoid base sub-assembly.
8. ***Faulty electromagnetic coil***
   Fault symptoms - the pulse valve does not open, although the electromagnetic coil is supplied with voltage.
   Fault diagnostics - can only be detected with special instrumentation.
   Fault remedy - replacement of the faulty electromagnetic coil.
9. ***Compressed air leakage from the pulse valve body***
   Fault symptoms - compressed air leakage from the pulse valve body as a result of its damage, e. g. through incautious handling of objects in the immediate vicinity of the pulse valve.
   Fault diagnostics - the leakage point can be identified through listening or with the use of a spray dispenser with soap solution.
   Fault remedy - replacement of the complete pulse valve.
10. ***Solenoid base sub-assembly displaced from the pilot diaphragm cap***
    Fault symptoms - heavy compressed air leakage.
    Fault diagnostics - solenoid base sub-assembly with the electromagnetic coil separated from the rest of the pulse valve.
    Fault remedy - replacement of the pilot diaphragm cap and the solenoid base sub-assembly.

## 7 Mounting method for VA-51 pulse nozzle




| ITEM | Description |
|---|---|
| 1 | Pulse nozzle VA-51 |
| 2 | Pulse valve |
| 3 | Clamping hub (material AISI 304) |
| 4 | Mounting ring (material 11373) |
| 5 | Sealing O-ring |
| 6 | Adjusting screws M8 length 12 mm |
| 7 | Adjusting screws M10 length 16 mm |
| 8 | Storage bin wall |
| 9 | Stainless-steel metal sheet lining |